

Technical Collection: Theoretical Ideas

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Chapter 1

First Things

1.1 License

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1. file formats

2. HTML and CSS code

3. PDF files

4. graphics and movies

5. sounds, music, and spoken word

6. interactivity and flash

7. file and directory structure

8. filenames and directory names

9. links

10. distribution method

1.2 Introduction

And I will restore to you the years that the locust hath eaten, the cankerworm, and the caterpillar, and the palmerworm, my great army which I sent among you. And ye shall eat in plenty, and be satisfied, and praise the name of the LORD your God, that hath dealt wondrously with you: and my people shall never be ashamed.

1

In that day, saith the LORD, will I assemble her that halteth, and I will gather her that is driven out, and her that I have afflicted; And I will make her that halted a remnant, and her that was cast far off a strong nation: and the LORD shall reign over them in mount Zion from henceforth, even for ever.

2

Behold upon the mountains the feet of him that bringeth good tidings, that publisheth peace!

3

My last 13 years of experience with computers are partially expressed in the following articles. My computer work is mostly graphic design (specialties are web and book design), with Apple products and Open Source products.

This collection contains information on: how computers work; design and archival philosophy (including accessibility); security philosophy; how to apply Biblical ethics to computers, computer history and future trends, how technology consumers and technology companies interact with the computer industry, its products, and each other; software compatibility; recommended software; and design techniques.

Some of the re-occurring themes, that unite my theory, include: platform independence, open file formats, data integrity, consistency (both ethically and with graphic design), quality of graphics, and organizational and planning skills.

This book, Technical Collection: Theoretical Ideas, includes background information on technology theory, exclusively.

The articles in the first section, Technical Background, give general information about computers and the Internet and explain what file formats are and what my file format decision were.

The articles in the second section, Society and Computers, give information on how to choose computers, give information about computer compatibility, give information about people and computers, and give information about Apple and future trends.

The articles in the third section, Design Philosophy, give an introduction to design, explain about web design, and give more design ideas.

The articles in the fourth section, PC Choices, explain Microsoft problems, explain PC-specific problems and solutions, and give some advantages of

2Micah 4:6-7

3Nahum 1:15

Microsoft alternatives.

The articles in the fifth section, Evolution of Google, explain how Google used to do what they were good at and was a respectful corporate citizen and how they now emulate the old Microsoft like behaviors.

The articles in the sixth section, More Players, explain what more players, Adobe, Amazon.com, and Mozilla are up to, and how this relates to the end user and Apple.

This book plus many more books, free graphics content, my Budget Mac Software Links, and my Recommended iPad and iPod Touch Software are available, for free download, at my website www.benjamin-newton.com

1.3 Computer History and Culture

1.3.1 Cyclical Nature of Change

It is interesting, that I have been aware of the tech world long enough, that I have seen some, of the same issues coming up, again. Much of technological change is primarily socially driven and many concepts are actually cyclical, in nature. Many things people think are new have existed, for a long time.

Apple had a similar device as an iPad 15 years ago and that Microsoft has been trying to sell something like it for 15 years. I remember, even as recently, as a few years ago, many technical users preferred, to use a terminal, rather than a mouse, to navigate their computer (now we battle between mouse and touch). And even ten years ago major companies were trying, to sell network computing (which they now call the cloud). Long before Web 2.0 and Facebook existed, social networking and interactivity were built, into the original web technologies and may become less popular again, due to privacy issues.

1.3.2 Business to Consumer Market

What I am seeing now is that Apple's approach is really fundamentally

different, not just by technology or business model, but is a kind of cultural approach, to technology. It already looks quite clear, that Google is now trying the same tactics, as Microsoft and is sowing its demise, much as Microsoft had at its height of power, in the mid-late 90s. Apple is doing much better this time, because the technology growth market has changed and they are going, to continue coming up with new ideas, as fast as they can. Apple will succeed, because the market that is driving growth, in the technology sector, is the consumer market. It is also interesting, to note, that almost every other technology company sells, to businesses, as the driver of their sales and only Apple sells primarily, to consumers.

1.3.3 Apple More Aggressive Now

Apple is being much more aggressive, this time around, in defending its patents, copyrights, and trademarks, and is not just playing to do well, but to control, as much as possible. Apple is not making it possible, for some other company's software, to slow them down, in creating new features, or make them look bad. Since Apple has become the undisputed champion, of this new way of interacting, with consumer electronic devices, they have basically made Microsoft's legacy Windows programs compatibility irrelevant.

Apple has also innovated, in the ways, that matter most, to consumers: they made software installation easier, software cheaper, made it easier to buy media, improved security, and improved user support. Also, when someone owns two Apple products, they find, that they work even better together and they often continue, to buy more product categories, of Apple devices. Apple also has a huge amount, of cash, on hand, in case things get really bad, with the economy, so that Apple can survive many years, with current expenses, without making any money. The funny thing is though: the worse the economy gets, other technology companies continue do worse, but Apple does better (so much for the luxury theory). Many people think that Apple has gotten as big as it can, but it only holds a few percent market share, in each product category and the market, for things, like consumer oriented cell phones is extraordinary

(as much as several billion users).

1.3.4 Lessons from the Mac Market

The really surprising thing, that we are learning about the reason, for the success, of the PC, has little to do with price and is much more about compatibility. We see this as Mac sales took off much faster, shortly after Apple made it easy, to use Windows, on a Mac (by switching to Intel processors). And that is the key reason why the situation is different, as far as to inertia, as Apple now has the majority, of apps, (in the new iPad and iPhone markets) as well as many other services and products, that work increasingly well together. Many companies, in Apple's position, would have dropped the Mac division long ago, but Apple holds on and even now is increasing its Mac market share dramatically, each year. Another thing interesting about Mac sales is that even when Apple was almost dying, they never had a net loss of users (their user base, in absolute numbers, always increased). While we see that PC users will turn, to Macs, even after using PC, for many years, it doesn't go the other way around: half of users in Apple stores, for the last 10 years, never used a Mac before.

1.3.5 iPad or Mac

Many people, who hate the iPad, say they are going to stick it to Apple and buy a Mac, instead. Why would this bother Apple: they make more off Macs than they do off iPads and Macs are actually much harder to sell. Many of the people, who go, into the Apple stores, looking for iPads and are disappointed, with what it has to offer, is not a lost sale, for Apple. They just walk over, to the Mac section and make, even more money, off the customer. And many people say competitors are going to undercut Apple, with cheaper tablets. The most compelling feature of the iPad is not its technology, but its price. Making devices cheaper, than it won't likely be enough, of a reason, for people, to buy an alternative tablet, because \$500 is a magic number, which is the key price,

that Apple needed to get to, to be cheap enough, to fit into most consumer budgets.

1.3.6 Equal Opportunity

Another key to Apple's success is their retail stores. Apple's biggest problem, up until a few years ago, was that no one selling computers, in a retail store, would stock Macs. Now that Apple is competing, they now want to sell Apple's products. This was very difficult and many failed, at that time, like Gateway and Microsoft currently. Apple has now finally cracked the Chinese market, which is extremely hard, for American companies, but once achieved virtually guarantees success, in that country. It seems, when Apple has enough control and gets an equal footing (opportunity or fair contest), in the market and can sell directly, to the consumer, they are very hard, to beat.

1.3.7 PC Culture

It may be hard, to imagine, with Apple's financial success and popularity, with consumers, that, as Apple does better and better, PC enthusiasts get more and more angry. And just as these users have no idea what the average user wants, to do with their computers, so the average user would find the PC enthusiasts approach, to computers, shocking and ridiculous. Although hard, for most people to comprehend, some people feel more strongly about computers, than they do about religion or politics. And the issues, that these more advanced users think are so important are hard, for the average user, to comprehend much less find important enough, to change their electronic purchases over.

Chapter 2

Technical Background

by Ben Huot

2.1 Computers and Internet Basics

2.1.1 Computer Fundamentals

Computers are not Magic

It shows that many people know nothing about computers, when they cannot apply common sense to Internet policies. Many people even think that you just push a button and the computer does all your work or think that the computer is some sort of magical device.

What is a computer?

Computer are basically really sophisticated calculators. A computer takes in input from your keyboard, mouse, digital tablet, digital camera, web cam, scanner, and other input devices and performs calculations to them. Computer programming is based on a form of mathematics and everything from performing filters on images, to searching for information on a computer takes in data, processes it by performing mathematical operations, and then comes up with modified output.

What a Computer Does Well

A computer does not think very well and although a computer can count the number of words or occurrences of a given word in a document instantly, it cannot tell you any kind of summary or opinion of what the story is about. Creating content has to be done by humans, unless you just want to apply certain pseudo random calculations of existing data. Creating data is as hard

on computers as doing so by hand. But computers are even better at another thing: copying data. One of the best things about the virtual world is that perfect copies can be made, of the virtual representation of input and processed data.

The Same Laws Apply to Computers

All the data on the Internet is in a very specific location, on a given computer at any time, so laws don't need to be re-invented for computers. If someone violates a law with computers, the jurisdiction that applies is obvious, because it is the one in which the data resides. Whenever someone views data, it is downloaded to their computer and whenever you transfer data, from one computer to another, a copy of the data is made. This means that distributing data, by posting it online, is the same as stealing, because more copies are made, every time someone downloads the file.

Illegally Downloading or Uploading Files is Stealing

Just like with a book, you can do whatever you want, with your copy of the data, that you acquired legally, but you are not permitted to reproduce it, without permission. People seem to think it is ok to copy digital information without permission, but would never take a book, photocopy, it and give away or sell those copies. Some people also justify data theft, because they think that it costs too much money, but most people would not go into a store and steal some food, because they think that the price is too high. The main reason why people steal data online is because they think they are anonymous and that it is easy to do.

2.1.2 Major Categories of Software

Applications

Applications are the software programs that people use to directly: create, modify, and view data. Without applications, we would have nothing practical to do with operating systems. Applications include: word processors, spreadsheet programs, presentation programs, databases, photo editors, page layout programs, illustration programs, web browsers, im clients, and the like. But applications need an operating system to run on.

Operating Systems

An operating system is what applications are designed to run on. They operate between the applications and the hardware. Examples of operating systems include: Windows, Mac OS X, and Linux. When people talk about application compatibility with Windows, they mean that they use applications that only work on the Windows operating system. Many applications run on more than one operating system. These applications are referred to as cross-platform. Some of the best cross-platform software is a type of software called open source. The process by which an application that runs on only one platform like Windows is modified, so that it can run on one or more other operating systems, like Mac OS X or Linux, is called porting.

Open Source

The word “source” in open source refers to the source code files that applications are written in. which are then compiled into binary formats. that cannot be modified or reconstructed. With most commercial applications, that most people are familiar with, like Internet Explorer, Microsoft Word, or Adobe Photoshop are closed source, in that no source code is distributed with

the binary application. Source code is useful in that it allows computer programmers (also known as software developers) to see how a program runs, allows them to modify and improve it to make it more efficient, fix bugs (malfunctions), or fix security issues (holes in software that allow malicious people to deliberately cause problems on computers or steal information with viruses and spyware).

Drivers

Drivers are special software that are needed, for the operating system, to communicate with hardware devices. There are drivers for everything other than the processor (the computer's brain). When you buy new hardware, you need to install the drivers that come with the device, usually in a CD or DVD-ROM disc that comes with the: printer, scanner, graphics card, router, network card, and the like. Some drivers are generic or old enough and so come with the operating system, like drivers for USB flash drives and some digital cameras.

Libraries

Libraries are special software that allow programmers to create their software, without having to write everything a program does by themselves. Many libraries actually allow programmers to more easily write software, that runs on more than one operating system. There are often libraries, that come with an operating system that make it much easier to write, for that operating system and a lot more work, to make it available, for other operating systems. Most well known cross-platform libraries are open source, like: Java, GTK, Qt, Mozilla's XUL, Adobe's AIR, Runtime Revolution, some versions of Basic, and Mono.

2.1.3 Common Software Terms

Viewer vs. Editor

For many people, who create documents for e-mail or print, do things the old way and use a file format that is edited and viewed by the same application, so that they can make changes, and they just assume that every one else has that specific program. The Internet is based on the concept of open standards and on the idea of having file formats that don't require people to buy a specific program just to view the file.

On the Internet, you run into many read only viewing applications called web browsers, PDF readers, and Flash Player which are given away for free. Web pages and PDFs can both be created and viewed by any programmer that wants to write a program to do so, without paying any money and they work seamlessly, because the blueprints are available for free.

This is the direction the future is moving in. Sending Word documents that require people to pay hundreds of dollars to view your work is considered rude and outdated. Even on Windows there are many totally free ways to create PDFs from any document. You do not need to use any Adobe software to do so. Just as there are many free web browsers, there are also many free PDF readers as well.

What is a Beta?

Software is often released for testing at a variety of stages before it is the final release of a major or minor version. The first stage of testing is called Alpha and software at this phase of development may not even load, are usually not feature complete, and are only useful for advanced users to test. The next stage of testing is called Beta and this is a good time for a wider range of people to test, who are not depending on the application for any production work. The final stage of testing is called a Release Candidate and if

there are no “show stopping” bugs (problems that cause the program to not offer basic functionality), the current release candidate becomes the final version, sometimes referred to as Gold Master. In open source software, there are many different numbering systems, so the only thing that holds true is that there are stable and unstable releases, where the stable releases can be used for real work, while the unstable should only be used for testing purposes.

Compatibility with Different Versions

Unless noted otherwise, you can almost always assume that if a certain version of software is compatible with a given piece of software, file format, website, etc. that later versions will be too. For example, if someone says that you have to have Firefox 3.5, Firefox 4.0 should also work as well.

2.1.4 How the Internet Works

Clients and Servers

The Internet is the largest network of computers connected together across the entire world. There are two basic distinctions in the types of computers: one type is called a client and the other is called a server. The computer that the average user uses like a desktop computer, a laptop, a handheld computer, a mobile phone, a game console, and the like is a client. The user connects to the Internet to access information and services provided by specialized computers called servers.

Whereas a client computing device usually has a graphical interface, a monitor, a printer, and is made of commodity parts, a server is made of industrial strength components that are very reliable and high performance, because they provide services and information for many people at once. These servers are constantly connected to the Internet, do not have monitors, or any kind of graphical interface, and have components designed for high speed

access and constant use.

Servers run specialized software like web servers, email servers, chat servers, time synchronization servers, and the like. The web browser is the client software that receives information from the web server. The web server provides a central location for the website to reside at and transfers the information to the client web browser and the two talk to each other as you browse a website. The same is true with email programs, chat programs, and the like.

Legal Issues

Many people think that since the data is out there somewhere in cyberspace that no normal laws apply, but that is not true. The data is only in one location at once which is stored on a computer in a certain city, in a certain district, in a certain country at any one time. All normal laws apply to the data, depending on where it is located in the world.

Some of the most important laws are called intellectual property (IP) laws. Two main types of intellectual property are the patent and the copyright. A patent is an idea applied to a technology using a specific method and requires others to license or pay money to the owner of that method for the use of that method. File formats, protocols, APIs, and almost every other aspect of computers can be patented. A copyright governs the copying and distribution of creative works including writing, graphics, music, video, software, and the like.

Whenever information is transferred to or from a server or from one computer drive to another, the file is copied. Generally copyrighted material must be paid for per copy, so uploading a file to a server is violating copyright law, each time it is downloaded or uploaded. The original copyright laws came in effect in colonial America, because people were printing other people's books, because of the explosion of the printing press. So the reason for copyright originally was because it was easier to copy IP due to the technology. And copyright laws will become more and more invasive as it gets

easier and easier to copy information.

Everything created after 1989 is automatically copyrighted, even if no notice of copyright is given. The mere creation of something covered by copyright law such as writing, creating art work, recording music, coding software, and more creates a copyright. That means that everything on the web is copyrighted unless it is labeled as public domain.

There are a number of different licenses where the author retains the copyright but allows certain usage of the copyrighted material under certain conditions. Examples of this situation are open source and creative commons licenses. The best way to avoid copyright infringement (a fancy word for stealing) is to not use what someone else created without their permission. The moral concept behind copyright law is to compensate someone else for their work.

How a Website Works

Websites are just a collection of files in various folders, on a computer some where. The first part of the address is `http://`, which means the Hyper Text Transfer Protocol, which corresponds to the language in which the web server communicates with the web browser client.

The next part is the domain name, followed by a domain name extension depending on use and country. That is the `benjamin-newton.com` part. The other major US extensions are `.net`, `.us`, `.info`, `.biz`, and the like, which all can be purchased for any use. US `.gov` and `.edu` extensions must provide proof they are part of the government or are a certified institution of higher learning like a college or university.

The final part of the web address is the collection of files and folders that lead to the file you are browsing. Every `/` stands for another folder. At the very end you will either see a `/` which means a folder default file like `index.html` or you will see a filename at the end with an extension like `.html`, `.php`, `.asp`, `.jsp`, `cfm`, or really any type of file. HTML stands for Hyper Text Markup Language and the other ones correspond to server programs that

return to the client web browser HTML.

How Web Pages and Plugins Work

When you click on what is called a link, you go from one web page to another. To create a web page, you use a web page editor or any program that can save to the HTML file format. To get it to the website, you upload it using an FTP or File Transfer Application program or web folders.

An HTML page consists of what are called tags that mark what is called structure in a document, like: title, heading 1, heading 2, ordered list, unordered list, list item, link, emphasis, strong emphasis, table, table row, table data, and the like. All the pictures used on a web page as well as the formatting are in separate files and are linked in. The same picture like a logo only has to download on the first page browsed to and then for every other page, it stays on your client computer, in what is called a cache and is just referenced to its location in each HTML document.

Any other file format other than HTML and a couple picture file formats like JPEG, PNG, and GIF need another viewer application to see it, like a web browser for other types of files. Some of these viewers run inside an HTML page, within the browser and are called plugins like Flash or Quicktime. For the web browser to determine what program to open these other files with, it looks at the extension at the end of the file like .pdf, .swf, or .mp4.

Uploading and Downloading

When you transfer a file to your computer from another computer, that is called downloading. A website functions by making a connection to the web server, downloading a file to you, and then terminating the connection. The way people get files onto a website is called uploading which is usually done by using an FTP or WebDAV (also known as web folders) program. Upload speeds are usually much slower than download speeds as most people download far more than they upload. This is especially true because those uploading web

pages are uploading relatively small files. Whereas people downloading software are downloading much larger file sizes.

2.2 Computer Compatibility

2.2.1 Why Upgrade?

Why Require New Versions of Web Browsers?

One of the reasons why I as a web designer continue to encourage people to upgrade, to the latest browser is that, while Adobe Reader from 2001 has plenty of formatting features for me and most others, HTML is still very limited in formatting options. Recently, non-Microsoft web browsers have added a couple of very useful capabilities, including video without plugins and a much wider variety of fonts.

The Microsoft Approach

When Microsoft gets caught with factual and independently verified flaws, they change the way they count the numbers of security flaws or redefine words in ways that no one else does. It is Microsoft's attitude that the consumer is the problem and that if you have problems with your computer, then it is your fault, because Microsoft can never admit they ever do anything wrong. With Microsoft, everything is a test of loyalty: you either use, only their products, all the time, for everything, or you are an enemy to crush, by any means, even illegal and unethical. Microsoft is run by salesmen and that is why they produce such inferior software: salesmen will sell you anything - there is no focus on product development and they have no standards. If

anyone else produced a product, with as many flaws in it, as their software, they would have all the products recalled, but somehow people have accepted that it is ok for PCs to fail. If their microwave or their car worked like their PCs, they would return them and the government would make the company return their money. Think about it: why is the number one reason why you buy a PC vs. why you buy an iPod. You buy the PC because of compatibility (meaning you have no choice), but you buy the iPod because you want to.

PDF vs. HTML

Whereas the PDF specification was put together by one company (Adobe), who develops design software and makes money off of it, web browsers have to conform to standards, dictated by committees, which take decades to decide upon, and are often not realistic practically or technically. One of the things holding back web browsers is that when HTML was first introduced, basic formatting features were added, without regard to how hard it would be to develop web browsers, to interpret them or designers to update websites (mainly because of mixing presentation with organizational structure), and the decision to make the HTML language accept such sloppy syntax.

Legacy and Innovation

Because web sites designed 10 years ago need to be able to be viewed by current browsers, it has made it slower to add formatting features. Some formatting, like page breaks, were not added, due to philosophical decisions. And web browsers constantly have a chicken and egg problem of web designers needing browser support, before they try new features, while browser developers wait for demand to build, before implementing new features.

Microsoft Destroying Competition

Along the way, Microsoft has always been afraid, that if the web was easy

enough to use, that it would break its monopoly and allow competitors, to effectively compete with them, based on product quality and features, and not be able to own the entire market, by making things incompatible, so that their customers had no choice in vendors. Flash was successful, because Microsoft bundled it with Windows XP to kill Java and made Quicktime incompatible with Windows, so that Flash got the critical mass install base, to allow designers, to do things, that were not possible, with the HTML of that era.

Origins of Internet Explorer

Microsoft also designed Internet Explorer, to not work properly with standard HTML and Javascript, and threatened to raise the price of Windows licenses for Compaq, if they bundled the then most popular browser, called Netscape. Once Netscape was killed off, as a company, and Microsoft took over the web browser market, by bundling Internet Explorer with Windows, they stopped development of Internet Explorer. Then some developers began to clean up and make lean the rewritten next generation layout, for the successor to Netscape (Netscape open sourced its browser, before dying, as a company, so that its software lived on).

Origins of Firefox

This software is now known as Firefox and, as it got back the market share that Netscape had lost to Internet Explorer, web developers began to start writing websites, that worked correctly, so that non-Microsoft browsers could see the pages. Along the way, Apple has captured the future (mobile) computers market, with their mobile devices and Google has dominated the Internet, so that Microsoft is too busy extending itself, into new markets and being blocked and failing to make any money, or take serious market share and so has not had time, to continue to sabotage HTML and Javascript.

The Fight Continues

Currently Microsoft has released a number of copycat technologies in Windows Vista and 7, to destroy: JPEG, OpenOffice.org, Flash, and PDF; so that we can use incompatible Microsoft only versions and pay through the roof for them, once there are no viable alternatives. Internet Explorer seems to lose a percentage point, in market share, every month, even as they are releasing new versions of Internet Explorer. Most of this has happened by word of mouth. One of the reasons why users do not want to update Internet Explorer is because most sites have to do hacks, to get Internet Explorer to work, so that when a new version is released, it is not flawed in the same way, as the previous version, but still doesn't conform to standards, so new hacks have to be added, for each new release.

Microsoft Never Learns

One of the things that hasn't changed, with all these new web browser releases, from Microsoft is that they continue to have: terrible security records, continue to fail to offer competitive performance, and they still haven't fixed most of the incompatibilities and bugs, while introducing new ones. There is a very small Norwegian company that makes one of the best browsers and it is considered, by almost everyone knowledgeable in the field, to be many times better than Internet Explorer. By independently verified standards, that every other browser measures itself by, called Acid tests, Internet Explorer moved up from an F- to a higher F- over the last 3 versions. Microsoft can obviously afford to hire decent programmers, so there is no excuse for their failures, as they are obviously deliberate.

2.2.2 Reasons for Incompatible Electronics

Proprietary File Formats

Do you ever wonder why you have trouble opening a Word document with all the formatting in another office suite, why some websites only work with Internet Explorer, or why the iPhone doesn't have the Flash Player? It is true that Windows, Mac OS X, and Linux are very different and it is hard to take advantage of all the features of a given operating system, while still making it compatible with more than one. But the glue that holds together our data to each device can be made compatible, so that if a certain application is not available for one system that one can be designed with all the features and be able to exchange files seamlessly with each application. The only reason for this incompatibility is not because this is impossible, but rather that software companies don't want to compete with each other based on how reliable its is, how efficient it is, how useful it is, or what features it offers. Instead, they wish to have a monopoly position, by holding your data hostage, so that you cannot use a competitor's product.

Cable, Satellite, and Cell Phone Monopolies

Why can't you buy all television shows over the Internet, make calls across the Internet for free, can't turn the songs you bought into ringtones for free, or why you cannot use an iPhone over any phone company's network? The barriers between your game console, your cell phone, your TV are all artificial and not technical. The reason all these are not able to share content freely is the result of phone and cable companies not wanting to give up their monopoly

control over what you pay to access certain content, so that they don't have to compete with Google or Apple on cost, easy of use, and features alone. Again, developing for each platform may require the same application to be designed more than once, but getting them to communicate together with each other is, in comparison, technically trivial.

Frivolous Software Patents

Why can't you use the latest Microsoft file system to network with Linux, why can't Firefox add support for H.264/MP4 video, why Linux can't ship with certain video and audio codecs, or why did it take so long for Macs and Linux to support the zip archive format? These issues do not exist because of technical reasons, but because the patent system in America is corrupt, doesn't have enough resources, and doesn't understand technology very well. A lot of the problems in the tech world exist, because the people in power are so old, computer illiterate, or corrupt that it is easy to snow them about whether or not a given technology is revolutionary enough to warrant a patent. As a result of these problems, the implications of having so many patents in a certain area, makes it impossible to advance the state of certain technologies, like compressed video, without being held hostage by patent holders.

2.3 File Formats Background

2.3.1 Help with File Formats

You can also browse my website via Windows, Mac OS X, and Linux. There are some formats that require software other than a web browser, so you will have to deal with these file formats through plugins (other programs that run in your web browser).

What are File Formats?

A file format is generally marked by the letters after the last dot of the file name. There is not just one file format that puts any data into the format that has the best performance, features, edit-ability, open specification, quality, and file size. There are good and bad aspects to each format. Often there are different formats that work better for text, graphics, video, sound, multimedia and page layout and many within each of those categories.

I spend a lot of time and effort thinking about and researching file formats to allow people to access my content without having to pay for or many times even download software. I also choose formats that are easy to view and support Windows, Mac OS X, and Linux at the least. I use many different formats to reach as many people as possible. Almost every part of my work is available in PDF/A-1A format which is tagged for accessibility and designed to be future proof as an option.

Open and Proprietary Formats

I use open formats whenever possible. There is no single requirement that makes a format open. Open formats generally have a specification that is freely available to create import and export filters for applications that view and edit in that format without any limitations like patents or monetary fees unless these are given away royalty free. The best way to see if a format is open is to see if there are open source viewers for that file format.

I often use proprietary formats like Quicktime, MP3, MP4 or Flash for audio and video because that is generally what people have installed. But every piece of content here is always available in at least one open format. My multimedia is always available in an open format like Ogg.

Problems with Definitions of Open Formats

None of my files that can be freely distributed with several conditions can be converted into another file format. This is to protect my potential readers from having to pay money to access anything I have created.

If there was an easy way to explain what an open format is and there were not large corporations like Microsoft and Adobe who try to deceive people by claiming some of their file formats are open while still having restrictions on them and in the case of Microsoft deliberately trying to sabotage compatibility with competitors products and open file formats, then I could theoretically allow any open format.

There are also other restrictions with some “open” file formats that might come about if other companies are able to collect royalties on use of the format if they can convince judges that the file format in question is infringing on their patents.

This is one of the main reasons why I have my texts available in so many formats and do not use any of the “newer” Microsoft formats.

2.3.2 Native vs. Exchange File Formats

History of File Formats

In the 80s and early 90s PCs and Macs were to a large part totally incompatible with each other and most applications saved files in their native formats, that would only work with the program that created the file. Most Microsoft Office users deal with files in the same way. They choose “save” from the file menu, when they want to reopen or re-edit a document. Later on free and open formats like RTF, HTML, PDF, OpenDocument, PNG, and SVG were designed be read, opened, and saved by any software program, so people

could exchange documents, with people who used other office or graphics suites.

Why do I have to buy Microsoft Office?

The main reason why so many people feel they have to pay for and use Microsoft Office, instead of a competing office suite like Corel Word Perfect Office, Lotus Symphony, OpenOffice.org, or Google Docs is not because Microsoft makes a better product, but rather when people save documents in the default format in Microsoft office, other programs have a hard time reading this format. This problem exists because the default format of Microsoft Office files is a Microsoft secret, which they won't license to any other software company, for any amount of money. So competitors like OpenOffice.org have to reverse engineer Microsoft office files and can't guarantee they can open any Microsoft Office document, with all the formatting.

How to get documents out of Microsoft Office?

One of the ways to get around this is to choose "save as", "save a copy as" or "export," when you save your document and choose a format like: RTF, HTML, PDF, or OpenDocument. You will likely lose formatting and you will have to use other manufacturers plugins for Microsoft Office, as Microsoft usually makes sure files saved in these other formats don't open properly in the other program. Microsoft does this so you have to continue to buy Microsoft Office forever. You can get many free converters, that will allow you to choose "print" and then save to the PDF format. For saving to Open Document file format, you can download the free Sun ODF Microsoft Office plugin.

Without these other free applications, you can save some of the formatting and all of the data, from a Microsoft Word or Powerpoint document reliably,

by choosing “save as” Rich Text Format (RTF) or HTML, which can be reliably opened by almost any other office suite or word processor. Excel spreadsheets can be saved in Comma Separated Value (CSV) or HTML document formats, without the formatting to reliably save cells, rows, and columns in a format, that can be opened in almost any office suite or spreadsheet program.

2.3.3 Common Internet File Formats

Flash and PDF are some of the most common Internet file formats, besides the HTML, JPEG, PNG, CSS, and JS file formats, which are known collectively as web pages.

What is Flash?

Flash software can mean 3 different things. First one is Flash, the \$400-700 integrated development environment, which is the most common way to create .swf format files. These .swf files are inserted into web pages which are called Flash too. Then finally there is the free Flash Player which is used to play the .swf file. When people say you need Flash to view their web page, they are referring to the free Flash Player. Microsoft is the only major company, whose file formats are commonly linked to on the web, that requires you to buy software to view them.

The Flash file format was originally designed to create high impact, low bandwidth websites using vector animation. So Flash files, in the way they were originally designed, would load instantly. Later on people began embedding images and sounds in Flash and creating animations that responded to mouse interactions, so that things moved when you put your mouse over them. Later they added simple programming for advanced animation using Javascript and then they finally added the ability to put video into this mix as well.

Advantages and Disadvantages of Flash

The first big reason for using Flash is that to do the same without requiring Flash Player would require a professional programmer. It is not that Javascript is a particularly advanced language, but that due to the various levels of incompatibility between Internet Explorer and every other browser that it makes it much harder to get the same Javascript program to run on all major browsers. The second big reason Flash is used is that it is taking a long time for major browsers to add the same animation capabilities possible in Flash without Javascript. This is mainly because of political and philosophical reasons. Finally, Flash is often used for video, because it is the only format that will stream video (so you don't have to wait to download it) in all major browser and on all major operating systems.

Many people do not like Flash because it is used by many annoying ads, it is generally not made so blind people can browse it, it doesn't work well on mobile devices, because it takes too much battery power and the mouse interactions don't work, it is not a free and open format like other common web formats, and many older people do not like interactive web pages.

What is a PDF?

The PDF file format stands for Portable Document Format. It was originally designed for the print industry, so that you could produce from any program a file that could be seen exactly as it would be printed regardless of platform. This format was designed also to be hard to edit and so the design would stay fixed. The PDF format is very much like an office document with much better graphics, but is designed to be a final read only version.

One of the main downsides of the PDF format were that you couldn't reliably convert the format back into an editable version and it was not designed to be able to be read by blind people, because the only information saved was what was necessary to be able to view it and print it. To solve these problems, the

tagging feature was added, which marks words, paragraphs, heading and other structured elements, if the original file was marked with headings and the like.

Later features added were hyperlinks, Javascript for making simple electronic forms, and finally you can now embed 3d models and Flash video in PDF files.

Advantages and Disadvantages of PDFs

After adding all these features, the original intent was not always met as it causes problems when printing some PDF files in a professional press, so there emerged sub formats that deliberately left out certain features or placed certain restrictions on and added properties the PDF file had to implement. The major sub formats are PDF/X for professional printing, PDF/A for long term archival uses (to make a future proof file format).

Many people do not like PDFs because they don't like Adobe's free Reader application which is designed for professional publishers, takes a lot of memory, and supports a lot of advanced features that most people don't want. As the PDF format is completely free and open, most major operating systems now have free, more efficient PDF readers that only allow for the most common features. Another reason why some people don't like PDFs is because they think that it is not ok that Adobe allows the author of the PDF to restrict what someone can do with that PDF file.

The reason why I use PDFs for my longer documents is that the only way to make a file easy to view, save, and print at the same time required using a PDF. A big difference between a web page and a PDF is that all the images and formatting are included in the PDF file, you can make page breaks in a PDF, and that PDFs print out much better than most web pages.

2.4 File Format Choices

2.4.1 File Formats for My Books

Red Letter Editions of My E-Books

The Red Letter Edition is US Letter Paper Size, has quotes in red letters, includes graphics, and contains all formatting, including: page numbers, headers, footnotes, margin notes, and all other formatting of actual print version of book you can order. This file is meant to be read on the computer screen.

The Interactive Version has, in addition, hyperlinked tables of contents and the Interactive E-book/PDF version has, in addition: bookmarks, my web address and email hyperlinked, graphics are all vector based, and all the (free Postscript) fonts used are embedded in subset.

The Prepress Version is a special PDF with the entire fonts used in the document embedded and without any of the hyperlinks or bookmarks or anything else that doesn't print. This format is specially formatted for my publisher, Lulu.com, and is inferior for viewing on screen or printing out on a desktop printer.

The Large Print Editions are the same as the Red Letter Editions except the font size is 18 pt and the paper size is US Letter.

Plain Versions of My E-Books

these are in a standard size for a desktop printer with only black text

The Desktop Printer Version contains the PDF version of book that is formatted US Letter size with 1 inch margins, table of contents, header stating title, footer containing page number, graphics removed and only black and white text for easy printing out on a desktop printer. This special PDF is

formatted with bookmarks, is tagged for accessibility, and is in a special sub format of PDF called PDF/A-1A which is designed for archival purposes so it should be future proof.

Also works with Apple iPad tablet, iPhone, and iPod Touch with free iBooks e-book reader software from iTunes, Adobe Digital Editions, and Sony Reader. It should also work on other less well-known e-book devices, including: Endless Ideas BeBook, Bookeen Cybook, and Hanlin.

The Open Source Friendly version is an Open Document text file format version of the books. This version can be viewed in OpenOffice.org, Sun StarOffice, NeoOffice, Corel Word Perfect, Google Docs, Google Desktop, IBM Lotus Notes, IBM Lotus Symphony, Adobe Acrobat.com Buzzword, Apache Lenya, Plone, TYPO3, Abiword, Koffice, and more. The conversion has preserved most of the formatting of the PDF and structure of the original LaTeX source file. It was mostly designed with structure and styles, the graphics were removed and the text is just black and white. It is also designed to print out on a standard desktop printer at US Letter size with 1 inch margins, table of contents, header stating title, and footer containing page number.

Mobile Versions of My E-Books

Handhelds Version is in the eReader pdb format and can be viewed on the iPhone/iPod Touch, PalmOS, Symbian, BlackBerry, Windows Mobile Pocket, and PC/Smartphone handhelds with eReader. This is also the official format of e-books for Barnes & Noble. Barnes and Noble Nook e-book reader can open this format as well as the Apple Mobile version.

Apple Mobile Version is in the standard epub format and can be viewed on the Apple iPad tablet, iPhone, and iPod Touch with free iBooks e-book reader software from iTunes, Barnes and Noble Nook e-book reader, Adobe Digital Editions, and Sony Reader. It should also work on other less well-known e-book devices, including: Endless Ideas BeBook, Bookeen Cybook, and Hanlin. Google phones can also view this format with FBReaderJ or Aldiko.

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I will never support the Borders Kobo as (1) they will not give me the information on which file formats they support, (2) their website support keeps sending me in circles, (3) I can't test the books, because I cannot log in, due to the Borders Rewards system and the Borders.com website not being able to access the same email address, even though I set it up that way, plus (4) I cannot remove either account, to solve the problem, without calling customer service, which is closed now. I don't recommend using their website or e-book readers as they don't even understand how to get their own systems to work together. Borders.com seems to both make the website more cluttered and confusing than Amazon.com while offering less information than Barnes and Noble.com. Basically, Borders.com has both the negatives of both Amazon.com and Barnes and Noble, but both problems are manifested in even more extreme ways. Borders also has less books online than either Barnes and Noble or Amazon.com and has been selling book online for a much shorter amount of time. The Borders website, service, and technology is just worse in every measurable way.

My E-Books for Sight Impaired Persons

Daisy XML Version is a special structured "talking book" format, for people suffering from blindness, impaired vision, dyslexia, or other "print disabilities". The structured document works with a compressed audio file, so that you can navigate the audio file by chapter or by section, without having to listen

through the entire thing. It is like the difference between a cassette tape and a DVD or an audio CD.

I have only included the structured part. You can produce the audio, from this format, very easily. The Daisy XML files can be read in large print on screen, on a Braille display, or with a screen-reader. It can also be further converted to a talking book, using a computerized voice, and printed in Braille, or in a large print format in a physical book.

I have verified the Daisy XML file and it should be valid. It can also be viewed in a web browser as well. I have also successfully converted it to the Daisy Talking Book audio format with Daisy Pipeline and then to a generic MP3 file format and an iTunes Audio Book format successfully with DTB2iTunes, but I have not put either of these audio versions online, because of the size of the files (they are too big for me to upload).

There is free software for viewing this file format, but as far as I can find, they are only available for Windows. There is also an open source program for Linux, BSD, Solaris, etc that is called EmacSpeak, although I couldn't get it to work on Ubuntu. I think it requires some sort of computer hardware device to work it.

BRL Braille Version is in a MicroBraille (Non-ASCII-Braille) file format that can be read by ED-IT PC/Braille 2000, Microbraille, MegaDots, and Pokadot. I have not been able to verify this file.

My E-Books for E-Book Reading

In any of my book formats, other than the Red Letter Edition, the text can be resized and can be reflowed, to make it adjusted to your e-book reader device shape, orientation, size, readability, and personal taste. You can adjust this at any time you want. Most of these versions are designed with structural elements like headings which your e-reading device should allow you to navigate between. The versions with these qualities are the Plain Versions, Mobile Versions, and Sight Impaired Versions. The Large Print edition is easier to read for those who have eye problems, but they cannot be resized or

reflowed, so they are ideal mostly for printing out or for those who cannot figure out how to adjust the letter size on their e-book reading device.

2.4.2 What is a Zip file?

Many of the files on my site end in .zip. Zip is an archival and compressed format used to put more than one file in one download or to make the file size smaller/download time shorter. The Zip file is opened with a program, which extracts the original file or folder with files in it, which is the one that has the text, graphics, audio, video, or program in it.

More Information

A Zip file can contain almost any file format or folder of files in it. Zip compression is unique in that it is a safe file on Mac OS X, because it cannot contain resource forks and is different than JPEG, because it uses lossless compression, meaning that you do not lose any quality in trade, for a smaller file. Zip compression is also very fast to create and to open. Zip compression is popular for packaging programs on Windows and sometimes Mac OS X. On Mac OS X, a program in a zip file must have the .app extension, or it will not work, so you can tell by the extension whether or not the file is a program.

Compatibility

Zip decompression is built into Mac OS X 10.3 and higher, Windows ME and higher (including XP, Vista, and Windows 7, and later), and recent versions of major Linux distributions. On Mac OS X, you just double click on the file that ends in Zip, and then a folder or file opens up, that can be any format, which can then be opened with the appropriate viewer/reader application. On Linux, you generally have to click on the button “extract” to open it up. The only reason why Zip compression and decompression wasn’t built into previous major operating systems is that it once was protected by a patent, which has

now expired.

2.4.3 What is DjVu?

DjVu is an under appreciated file format that is superior to PDFs for some circumstances. The biggest advantage is that the files are almost always smaller than PDFs especially for graphics.

Overview

DjVu is a file format that can contain many pages, like a PDF, but is a entirely bitmap based format like a PNG, JPG, or TIFF. It is an open and free file format like PDF and can be created and viewed entirely with open source software, but it is not as commonly used as PDF. It was originally designed as a format for scanning books into the computer and viewing them online.

Advantages

The real advantage of DjVu over a PDF is that even text files and especially graphics (even vector graphics) can be compressed more than is possible in a PDF, so the file size is smaller and it downloads faster (even while preserving the highest visual quality and resolution).

Disadvantages

There are numerous disadvantages that apply to DjVu when used for files with text in them: DjVu files are not accessible; you cannot search them; they can only be converted to bitmap formats like PNG, JPG, and TIFF; and the document structure is not maintained. The only major reason for me offering DjVu versions of text only documents is for people who are ideologically opposed to the PDF format, even though PDF is a free, open, and internationally standardized format.

2.4.4 Why I Don't Use Certain File Formats

Why I don't use Microsoft Office formats or the MP4 Video (also known as H.264) format.

Why Don't I Use Microsoft Office Formats

Some people seem to want every document to come in the proprietary Word doc format. I will never use this format as it is not open and there are other open formats which have free viewers which have a wide install base that do the same thing.

Another reason is that there are no free viewers for Word doc that support at least Windows, Mac OS X, and Linux. Another reason is I do not have Microsoft Office because all I would use it for is to view Word documents and it costs way too much for a viewer/converter and since Microsoft will not release the specifications to their Word doc format in an obviously open license, I cannot use anything other than Microsoft Office to make sure the file format is correct.

There are also many things in Microsoft Office that don't work correctly and Microsoft software is notoriously filled with security vulnerabilities. The final reason is that I do not trust Microsoft as their entire business model is based on fraud.

Alternative Office Formats

I do have most my work available in RTF which should be able to open fine in Microsoft Office or any other word processor. I also offer all my important texts in a truly open and vendor-neutral format like Open Document which will

retain all the structure and formatting for advanced users. Anybody can open and edit it with the free and open source OpenOffice.org which is available for Windows, Mac OS X, and Linux as well as many other operating systems.

Almost all other major Office suites support Open Document correctly except Microsoft Office, including Lotus Symphony, Lotus Notes, Google Docs, WordPerfect Office, Abiword, Koffice. Sun also makes a free plugin for Microsoft Office 2000 and higher users that allows them to correctly open and save in Open Document format.

Note: there is a plug-in you can download for Microsoft Office from Microsoft that claims the ability to save in Open Document format, but it does not work properly for many reasons: it is hard to use, slow, and doesn't save all formatting and Microsoft knew their method of designing this plugin wouldn't work. Other problems are that it doesn't preserve formulas in Excel documents and only it works with Microsoft Office 2007 SP2. There is also a more technical explanation available.

A similar explanation from the Free Software Foundation.

Why I Don't Use MP4 Video (also known as H.264)

Most video now is now being made available in MP4 (also known as H.264) format because it has gained almost universal industry adoption (Apple, Google, Nokia, Adobe, maybe even Microsoft, etc) to the point where most handheld devices like iPhones and iPods can only play MP4 video. That is good that there is finally one format that is almost universal. There are two problems with this file format though.

First, it has patents on it, so it is not an open format, so we depend on the good will of a wide variety of corporations willingness to allow us to access this our files in the future, because they can make it illegal to access our files (decode them) or can charge us fees to distribute them. My general solution in that situation is to offer the same video in multiple formats, but this does not

solve the second problem.

And, secondly, they have already done so. If you read the summary of the MP4 video licensing, they say that when the first term has passed (now set for 2013), anyone who distributes even one file in this format will have to pay \$2,500 for the license, even for personal and non-commercial use.

Alternative Audio and Video Formats

The good news is that Firefox as of version 3.5 added the ability to play audio and videos that are in an free, open file format that has neither of the previous problems. All my audio and video files are already available in this format. And there is a free plugin for Quicktime, that allows you to convert any file Quicktime can open into this format as well as play the free format. There is also a free player that plays this free and open formatted audio and video called VLC.

This format is called OGG Vorbis for audio and OGG Theora for video. As far as file size goes, for the tools I have (Quicktime Pro), I can make an OGG Theora file of the quality that I find acceptable at the same file size or smaller than an MP4.

The downside is that people will not be able to play any of my videos on an iPhone or an iPod.

Chapter 3

Society and Computers

by Ben Huot

3.1 PC Enthusiasts

3.1.1 Fear of Change

Fighting New Technologies

This may surprise many people, because it is so obvious to most that technology changes fast. Most people have trouble keeping up with new software releases. But people, who repair and manage computers, as their chosen profession, many times hate major changes in technology and fight its inevitable obsolescence tooth and nail. Just like when the cars came out and people in the industry were sure horses were better and that cars would never take on, or people in the industry were fine with mail and telegraphs and could not see the point of telephones, or just like people in the industry were sure that buttons were better and zippers would never catch on, or when US military personnel first saw the M-16 they thought it was a toy because it had plastic parts, or how early computer users didn't see the point of using a mouse.

Technology Experts Don't Understand Consumers

Whenever Apple releases a new product, everyone who thinks they are technology experts tells how it will fail, because you can't use all your software and hardware you bought ten years ago on it. Many so called technology experts don't understand the importance of the length of battery life a device gets, or how making it easier to use or smaller actually increases mobility and makes the device more useful, to the average person. Many people, who want to make money telling other people what technology to buy

are so isolated from the average person, that they are clueless as to what people's needs are, or what they value the most.

The Curse of Becoming Mainstream

People who claim to understand technology often fail to realize that although for tech nerds Apple has done unforgivable sins in their eyes, that doing these same things that they are so opposed to will ensure the success of Apple with the other 95 percent of the population. Apple has become mainstream and so a certain group of people will reject them just because they are popular. The reality for the average person is that they barely know how to do a couple things on the computer, which they spent years memorizing. Most people realize that computers change very often and that it takes so long to learn how to do things, that will be obsolete tomorrow, that it makes little sense for them to spend their very short free time learning new technology.

Technology Experts are Only Microsoft Experts

The underlying reason why many people in the tech industry are resisting the migration from mouse based devices to touch based devices is because they really don't understand how the underlying technology works. This is because many people have gotten jobs, because they filled out multiple choice tests, on how to use various Windows products. They were not trained on how computers work, but rather which buttons to push, when certain set things went wrong. Instead of learning the underlying concepts, which require a person to think and take years to master, they found a shortcut to an easy way of making money.

A Shortcut to Avoid Real Learning

Many people are making large amounts of money and choosing what to technology to buy, based on a poor understanding of the way computers work. Many people who only know Microsoft products decided to go this route, because they believe that if everyone uses the same programs, that they can keep from having to think, to use technology. When they are confronted with different software, their customers realize, that they only have superficial knowledge of computing. People need to learn what computers are, how they work, computer concepts and not just learn how to use Microsoft Office or Windows. These people have been able to force the world, to do things their way, by requiring people use their products at work and therefore at home, but the current situation is that people are now adopting Apple technologies, which they are bringing into businesses from home, and then their technology people don't know how to support the Apple products. Whereas the business community was able to push Microsoft products on consumers, now consumers are pushing Apple product on businesses. I look forward to the day when an iPad is required for school and Microsoft Office is optional.

Engineering vs. Sociology

The truth is that even when companies like Google have many smart people in them and have very good ideas about how things work, they have no idea what consumers want, or value the importance of designing interfaces, that don't require people to think, to use them. They are approaching the technology, from an engineering point of view and Apple is approaching technology, from a human point of view. Just as Apple has found out that they sell well to consumers and Microsoft sells well to businesses (and not vice versa), Google is still looking for who to sell their products to.

Google Needs Paying Customers

Not everybody has the same business model as everyone else does. Just because Apple makes its money on hardware, but differentiates itself on software, making it king of premium consumer electronics, so Microsoft makes money selling software licenses to businesses, by establishing relationships with technology managers, and they are king of businesses. Google seems to make money, by selling people's personal information, to the highest bidder, that it collects in the products, that it gives away for free. Whereas Apple is in a very good position, in that it sells hardware and not content (people can steal software but not hardware) and does not try to compete on price, so that it can sell its products at a premium, and Microsoft sells licenses, because nothing else is compatible and it has a monopoly, Google only makes money from advertising and that is becoming less and less profitable, because it sells too many ads for and has very poor quality content.

Apple can Outdo Google

When it comes down to it Apple products are difficult to copy and Google's competition is just a click away. If Google decides to go into Apple's territory, Apple has proven they can master new skills, while Google has not. Most of Apple's consumers, who advertisers want, because they consist of people, who are not cheapskates, do not care about whether they use Yahoo, Bing, or Google, but are definitely not going to buy a Google phone. How does Google differentiate itself on devices that the customer cares about? Google devices are not cool, easy to use, cheaper, or have any unique capabilities. They also have fewer applications, poorer tech support, less retail channels, confusing advertising, inferior hardware, and are far behind in technology. Developers make less money on them and have to work harder for that money, as their customers expect all software to be free.

3.1.2 Macho Attitudes

Masculinity means Conformity

When I read computer related news, I can easily spot the PC enthusiasts. There is a tremendous lack of creativity, people skills, and independent thinking. People often ask what is the importance of a liberal arts (humanities) education. The answer is learning more about life than math and logic.

I think that this type of thinking, that only values bigger, better, faster, is the solution, to everything comes from macho attitude. It is common, in our culture, that men think have to conform, to a very specific set of characteristics, and have a specific set of attitudes, to fit in with other men. The simpler word for this is bully.

Our society is becoming less and less polite and it can be seen more clearly online, than anywhere else. I have read people comment online, that if you can't be mean online, then where can you be mean? If you read that many comments, to tech blogs, online, they result to name calling, as the arguments progress.

Why Apple is Different

One of the big reasons why people see Apple, as offering such a different experience, than that you get, with most any other consumer electronics company is that Apple is friendly. When you see a commercial, for a PC or other non Apple device, you see specs about how fast, or how powerful the device is, but little about what it does. When you talk to non-Apple support people, you are thought of as the problem and, if your problem does not match something they understand and think is ok to get wrong, then they blame you.

While most support industries like cooking or accounting, the professionals do not expect, that you know as much as they do, and do not look down, on people, who have skills in other areas. When you place an order at a

restaurant, you are not told to cook it yourself, but when you have a problem with a computer, the tech person thinks you should know what he knows and that you are worth less, than them, because you have skills, in another area, that they don't value.

The PC Approach

One of the common stereotypes held about Apple devices, by tech people, is that computers should all be judged, based on a feature list and that the software is irrelevant. If one computer has a faster processor, than another one, it is considered better, even if it is unreliable, unusable, or even performs slower, than another computer. It is based on the belief that the only things that matter are numbers.

If there is no explanation, that doesn't involve a number, like quality or usefulness, it is considered unimportant. If something is too easy, to use or doesn't contain the same number of technical settings, as the competition, than it is assumed, to be not hard core enough, so they call it a fad and think that it is sold, only by hypnotizing people. These kind of people think, that using a a complicated program is a kind of proof of masculinity and that anything, that makes this process easier, makes the user appear weak.

Control Issues

The tech person looks, at computers, as a way to get absolute control, over something and anything that involves people, means giving up control and so they don't want to have, to compromise, to get along. One of the things that dominates technical decisions by companies is called NIH, or "not invented here syndrome". This helps explain why so many technologies do the same thing and why there are so many programs, that are functionally equivalent.

There are usually 2-3 different alternative ways, of doing the same thing, each sponsored, by a particular company. The tech people are generally equally divided, amongst these 3 approaches, that achieve the same purpose, and are

each slightly better, for different purposes. To most people they would just use whatever they are told to at work, but tech enthusiasts think, that only one way is the right way to do it, and the thing that is most important, to them in the world, is the success of that particular approach.

3.1.3 Fitting In Subcultures

When many people think about someone, trying to fit in, they think of high school and assume, that the end goal is, to fit in, with the majority, but many people want to fit in, well into adulthood and many purposely deviate, as far from the mainstream, as possible, to gain popularity, in a certain clic or subculture. I see this, in the tech community, all the time. Many PC enthusiasts think, that programming and spreadsheets are real work and designing and multimedia are not important. They also think, that the only market that matters is the business market and that people using computers primarily, as consumers, is a non-valid use case.

Website Jobs

This kind of thinking is very prevalent, in the web page creation business. There are two very different types of jobs, in the industry, that work from opposite concerns and with opposite methods, but are often both important, for most websites, to succeed. These jobs are the web designer and the web developer. A web designer is part graphic designer, part administrative assistant, part sociologist, part psychologist, part scientist, and part many more. A web developer is a kind of engineer and is more commonly known as a computer programmer.

For a long time, it has been believed, by most in the industry, that designers work is frivolous and programmers work is the only critical part. This is widely

believed, because business managers often don't value good design, mostly because they have such a limited view, of what a designer does, and they don't understand what a well designed website looks like. You can see very quickly whether or not a website has been created, for a client, who values good design, or created for a client, who values quality engineering. The loser in this situation is the business, because, while the average user wouldn't know how, to create a good design, they sure know it when they see it, and to them it is a sign, of a legitimate business, that cares about creating quality products and/or providing quality services.

Internet Explorer Hoax

PC enthusiasts acted predictably, to a recent study, that later was revealed, to be a complete hoax, with no basis, in reality. The hoax was that Internet Explorer users have lower IQs, than those people, who use other web browsers. Even after it was proven to be a hoax, by the person who started it, many PC enthusiast still believe that it must be true and that the only reason, why it was revealed, as a hoax, was because Microsoft was offended and is manipulating the media, into reporting the study, as a hoax.

Importance of Linux

PC enthusiasts went, with their knee-jerk response, to an article asking whether Linux or Steve Jobs affected greater change, than the other. The PC enthusiasts kept making the argument, that Linux was more important because it does, what they consider, the most important part of the web: programming. And then they make an equally ridiculous jump, to the idea, that what made it popular, was its license and it was part of a bigger change, in the world today, that allows more freedom.

There are 3 things that easily disprove this: Linux was not the first open source UNIX, there weren't any good commercial UNIXes that worked on commodity hardware, and Linux is the least critical component, of most web

sites, that use Linux, as they usually use LAMP (Linux, Apache, MySQL, and PHP), and substituting the OS doesn't require any changes, in most cases (while changing, any of the other components, will usually require considerable re-writing, of website code).

The part about open source helping bring about change, in the Middle East, is utterly bogus, as the success, of sharing, via Facebook, lied in its proprietary nature. Google has no problem, with sharing personal information, with anybody, for any, or no reason and the power of the Nazis and Soviets rested, in the amount of information, they collected, about their people. Our government, thanks to Google's goal, of making all information public and online knows more about us, than either the Nazis or Soviets. Dictators, criminals, and intelligence agencies are the groups of people more interested in buying private information, than any other group.

Better than the iPad

There was a survey done, with a group, of participants, who were obviously PC enthusiasts. The survey asked, if they would buy a tablet, other than an iPad, if it was cheaper than \$200. Many people said that they would pay more, for a non-iPad, because they could do more, with the non-Apple product, even though the iPad has 1,000 times more applications, than its nearest competitor. Many people also thought that \$500 was too expensive, even though no one has yet been able, to sell a similar device, for less money and still make a profit. Most seemed to be very happy about paying only \$100, for an HP tablet, but HP made so little money on it, they just shut down their entire PC hardware business, including their tablet hardware.

3.1.4 The Death of Tinkering

Easy to Use = Limitations for Power Users

Many advanced computer users and programmers are upset about current Apple products, not just because of a lack of legacy support, but because the programmers have certain limits placed on them, so that the end users will have a better experience. Some people are actually unhappy with not being able to tinker as easily, with the latest Apple products. They would actually be happier, with computer systems, that are harder to use, so that they can customize them, to their heart's content.

Choice = Complexity

Most people want their computer experience to be simpler, but these people are excited about having as many choices, as possible and the ability to constantly fiddle, with their software, even if it means that they have less time, to actually use their computers. This is one of the big motivators for people liking Linux. Some people actually enjoy more complexity, because they don't actually use the computer, but rather like doing things, like installing software and doing various chores, to maintain their system.

Software as an End unto Itself

I think some people form their entire identity, on being able to fix other people's problems and being able to use a more difficult computer. They also likely make money off of computers being so complicated and are afraid, that they will lose their jobs and their status, if computers become too easy to use. The irony in this is that the same people are not upset that they cannot hack

their Xbox, their car, or their microwave.

Computers Become Mainstream

I think this kind of person sees the computer world as a frontier and they are afraid that things in the computer world will become too orderly, civilized, and mainstream, so that using a computer is no longer an end into itself, but I subservient, to what the average person is trying to create, and, as a result, they lose the thrill, of being on a frontier of technology. These are the same people, who are upset, that they cannot fiddle, with the latest generation of cars.

Transition from Mouse to Touch

The earlier computer world had more excitement, because so many of the uses of the computer were novel and not done before like word processors, spreadsheets, web browsing, email, etc. The same people that are upset, about this transition, from the mouse based interface, to a touch based interface, a generation ago were upset about: the lack of a command line on the Mac, the emergence of the USB standard for peripherals in place of the floppy drive, and the having to make their website work on non-Internet Explorer web browsers.

3.1.5 Google's Argument

What Does Open Mean?

Open Means Many Things

One of the few ways, in which companies, making devices and software, competing with Apple, are able, to leverage, against Apple, is a very misunderstood concept, that most users, if you could explain it to them, so that they do understand it, don't care. The open argument is only of interest to

developers. But open in software means different things, to different people and software can be open in some ways, and closed in others.

Effects of Open Source Software

One of the meanings of open, popular, in the Linux community, is based on the concept of open source code, or giving your competitor all the advantages, that you have in software. In return, you get the work of others, without having, to develop it, yourself. What this concept does for business models is that it takes the ability, to compete, in software differences, sucks a tremendous amount of money out of the software industry, and commoditizes software. The good part is that things become cheaper, for users, but the bad side is that most open source software is done, by copying someone else's idea, with different code, which can be perfectly legal, as long as they don't copy patents, so that open source slows down revolutionary changes in technology.

Patents: Enemies of Open Source

The big enemy, of open source, is intellectual property, which usually refers to patents, when open source software can't find a way, to do something, with software, without violating patents. One of the big areas, that is heavily patented and so will cause tremendous problems, for open source software, is in audio and video compression techniques (which Apple doesn't own). The reason why patents create a problem, for open source and not for proprietary software (except for big companies like Apple), is that the proprietary software generally makes the developers money, because proprietary and commercial are very much intertwined.

Why Patents Defeat Open Source

So, to use patents, you need revenues, to pay someone, to use them. Basically, there is a very small space, to make money, in open source software. When you give away the software, that you make, in an open source format, you cannot usually make money, just by selling it, directly. You need to find another business model, to support your development, like: proprietary and commercial add-ons, technical support, easy ways to install and apply security and stability updates, commercial licenses (usually needed to modify the

source code, without giving the changes back), and documentation.

Taking without Giving Back

Benefits without Disadvantages

The most common way, that next generation technologies are done, is to use open source code, in a way, so that you do not need, to give the source code away, of your additions. Some open source licenses allow this, by their very nature. Some methods of developing software give other avenues, that allow you, to not have to follow the spirit of the license, but just the technical and legal requirements.

Why Web Apps?

One of the most common ways, to use open source software, without giving code back, is to offer a technology, that works on a server. The most common of these are called web apps. One of the most common open source licenses, that requires you to give away your software changes, as open source, only requires you to do so, if you distribute the software. The way distribution is defined, means, that, if you sell devices, using open source software or commercial software, that contains open source code, you have to give your changes away. On the other hand, if millions of people use your web app, technically (according to the licenses definition, you are not distributing the software), no matter how many people use it, you don't have to contribute back to the community.

Disadvantages for Developers

This is why most Linux software companies providing software, for consumers, have decided to distribute their software as web apps. The major downsides, for developers, are, that you are limited to the primitive interface capabilities of HTML, CSS, and JavaScript and that you are actually developing for multiple platforms, as different browsers are not functionally compatible, for those kind of advanced uses.

Disadvantages for Users

One of the big downsides of web apps, for users, is that they generally

require you to connect to the server (at the very least, to make use of the access anywhere feature), so that you cannot use them, without having a continuous connection, to the Internet. This also limits the ability, to work with large files, like: video, audio, or large graphics; requires the user to type in a web address, when at a different computer; and puts the responsibility, for both the integrity and security of your data, in the hands of someone, who doesn't care about your data, as much as you. Another problem, with free web apps, is that they subject the user, to ads and the developer generally sells, your information, to others. When you don't pay for the app, you are the product, rather than being the user.

More Disadvantages

Another big downside, to users, is that, with web apps, there are no standard ways, to design interfaces, so that applications are going to be, as different to use, as different websites are. Most web apps don't allow for complex operations, that may be considered very basic, for even simple uses. One example is that Google Docs does not allow you to copy or paste text, even in the full version, on the iPad. Web apps are also going to be much slower, than regular apps and are not going to be able to take advantage of your hardware like cameras, or common software libraries available, for full applications (this is also a problem, for developers, as well).

Making Open Source Less Open

Other ways around giving away all your software, to the community, when using open source software, is to make the underlying OS open, but make the software market and major application proprietary. Another way is to develop everything, within your own company, and not accept contributions, from third party developers. Another way is to add in features, in a way that makes it very difficult, or impossible, for others, to make use of your additions. Google's Android phones use all these techniques and Google's services make use of the web apps technique, so as to use other people's software, without contributing back their changes, to the community.

Apple vs. Google

Who Really is More Open?

One of the ways, in which Google has chosen to differentiate itself, from Apple, is to promote using Adobe Flash player, to make proprietary web apps, for Android phones. What is ironic, about this decision, is that Flash Player, by any common definition of open, is very much not open, even though Google maintains that it's software is more open than Apple's. And while Google claims it is open, Apple actually does give away more than Google does, as open source software, in ways that are truly useful, unnecessary according to their licenses, and in some cases help others, in ways that would never earn them any money and also help their competition. But, Apple has never made the claim, that they are open.

Major Apple Contribution

Apple actually does give away open source software and, in a way, that is very useful, to other software developers. The web browser, used on every smart phone, except Microsoft's, was developed by Apple. Apple actually started, with an virtually unknown project, called KHTML, which was mainly used, on Linux. You can still compare the two, By trying the KDE Linux (actually X-Windows) browser, if you want to see what contributions, that Apple has added, to this browser. Most the major visual additions, to web standards, have started out in Apple's web browser and developed by Apple, first.

Truly Useful Contributions

There were two legal ways, to add to the Konqueror web browser, without giving anything back, and Apple chose neither one. First of all, Apple decided not, to just develop their part of the software, separately, by dynamically linking to the KHTML libraries and adding all their improvements separately. And Apple actually made its development harder, for the very reason of making their additions more useful to others, by writing their software in a completely different language (C++), than which modern Mac and iOS software is written

in, which is called Objective C.

Apple also has been the major source of development work, for FreeBSD and even gave away their latest new technology, that makes it easy, to make use, of all the power of modern computers and for those, of the foreseeable future, in computer technology (which nothing like it existed before).

What Google Means by Open

The downside, of what Google calls open, is that their software doesn't work, or even look the same on different phones, doesn't often contain the latest version, has poor battery life, does not have a viable commercial store, has only simple widget style apps, spreads malware like spyware, viruses, and scams, and Google does not even provide support, for their users, like Apple does. Verizon sells Google phones, for about the same, as Apple, and the Google phones often have cheaper hardware components, but confuses the purchaser, by saving a hundred bucks upfront, but paying 90% of the same cost, by requiring the same expensive cell phone plan, as AT&T does, for Apple phones.

Reason for Google's Success

The only reason why people are buying the Google phones is because the Apple ones are not available, on the Verizon network. The reason why is that Verizon turned Apple down and AT&T required a five year exclusive contract, with Apple, in order for Apple, to be able to offer a better experience, (basically offering the same services cheaper, like: cheaper data access, better interfaces, better cell phone software, free email), for the user, than what was common, before the iPhone.

Irony in Open Debate

It is also ironic, that so many people, claim, that Apple copies others, because the Google phones looked totally different, than the Apple phones, before Apple released the iPhone. It is also ironic, that Apple is accused, of not offering a full web experience, by not offering Flash Player, when they were the first to include a full desktop web browser, on a major phone. Google also fails to mention, that all the Google services work on iPhones, as well, and that you can see Youtube videos, on an iPhone and iPad, without Flash. But it is

true, that you may not see, as many, of the really annoying ads, which mostly use Flash, on an iPhone or iPad. It is also ironic, that Apple was put down, for not offering Flash, on their iPhone, when there was no Flash Player, that would work for web based Flash, for any phone, 3 years after Apple released the iPhone, and was not available, on Google phones (and still not on all of them), until this last year.

3.2 Computer Cultural Issues

3.2.1 Computers as a Belief System

When people think of other cultures, they often think of: other countries, other regions of their country, people with different religious or political beliefs, or subcultures like Goths or Emos. What people who aren't computer experts understand is that there are different cultural issues, with people, who use different software. People often know to avoid political or religious issues, with people, who don't share their beliefs, but most people do not know that computer experts find what software you use to be more controversial and divisive than politics or religion.

3.2.2 Microsoft Culture

Microsoft Culture: Brand Loyalty

Believe it or not, Microsoft actually has fans. Most people buy their computer, with Microsoft software, because they have to, for compatibility reasons, but there are some people, who actually prefer these products, to Apple products. Unlike the rest of the world, these users claim they never have had any problems, with any Microsoft products. They claim that Microsoft won the market, because they make better products, than everyone

else.

Microsoft Culture: It is Always the User's Fault

When you ask them for help, the response is that you are stupid, or else you wouldn't have that problem. They are very defensive about anything, that could be construed as negative, towards Microsoft, or its products, even to the point of refusing to believe anyone, when they have problems, with their computers. They go on and on about how much money they have saved with their products, making claims that are pretty unbelievable, on how much they could get, for their money, for a given quality of computer.

Microsoft Culture: Your Only Choice

They don't understand how anyone would want an easier to use computer, or is willing to pay more, for less problems and higher quality software and hardware. These are the same people, who refuse to buy any Apple product, even iPods, or use any Apple software, even iTunes. They think the only reason any person would buy Apple products is because they are brainwashed. These people enjoyed Windows Vista and think the latest version of Internet Explorer is the best browser which they use by choice, not for compatibility, even when knowing about the alternatives.

3.2.3 Apple Culture

Apple Culture: User Friendly

Apple products are often thought of as easier to use than their competitors, even going by the label user friendly. This brand image affects the advanced

users in a very direct way. Advanced Apple users are often very friendly and are willing to help anyone, if they will just give their computer specs and follow the simple advice they give.

Apple Culture: Bullying Apple Supporters

Many tech writers deliberately make fun of Apple products and users, as a way to generate more web traffic, so they can make more money off their ads. Apple users, like any other software users, who are happy about their purchase, is going to be offended and you are not going to give a positive response. Also, there are a few anti-Apple advocates, that are obsessive compulsive, with their harassment of Apple fan websites, with ridiculous claims, that aren't even factually correct.

3.2.4 Linux Culture

Linux Culture: You Get What You Pay For

The motto for Linux is "do it yourself." When you ask for help online, from other Linux users, you generally get no response. If you do get a response, often other users respond, by saying, to search for the answer, on Google. I can accept this, because I know that you get what you pay for, and do not depend on Linux, for anything important.

Linux Culture: Millions of Options

In the rare case, that you do get a helpful response, it generally requires

advanced knowledge of Linux, to figure out how, to use the terminal command, they often give. One of Linux's biggest problems is that there are so many different choices, as far as Linux software is concerned, so although Linux can be used completely graphically, without using the command line, it is different, depending on what Linux software choices you make.

Linux Culture: Increasing Complexity

There are at least 3 different mainstream choices, for everything, so it gets complicated, very fast. And the Linux users are usually equally divided, amongst the different choices. That is why they give you something, to type at a command line, because this is the only thing, that is consistent, amongst the different Linux software choices. I describe Linux as making computing more complicated, a million steps at a time.

Linux Culture: In Fighting

If you are pro-Microsoft or pro Apple, you will get a good response in their forums, but if you are a pro-Linux, you will not get a good response in their forums, because other users will be using different combination of Linux software, than you and so they will pick on you for it. Later on you find that other Linux users will expect you to volunteer your time testing their software and giving detailed instructions on how the problem happened, while later having to prove to them, that it is not your fault and other users have the same problem.

Linux Culture: Eye Candy

Another big cultural issue, with Linux is that graphics are considered unimportant and efficiency and public discussion, on developing Linux software are considered the most important aspects of software. Graphics are referred condescendingly as eye candy. Most Linux users are comfortable with coding,

so they often look down upon graphic designers.

Linux Culture: No Money in Graphics

There is very little money on Linux, for designers and so the tools are very crude. They are very good, once they are written, but since there is no money in it, the developers are all volunteers and are only going to develop what they want to use, so many important things, like a wide variety of fonts, are poorly supported amongst Linux software.

Linux Culture: Attitudes Towards Outsiders

Linux users often say that the reason why Microsoft software has so many problems is that it is too easy to use. Linux users often think that Windows users deserve what they get, because they are not bright enough to use Linux. Many Linux users think that the Mac is way to easy to use, costs too much, and is too good at graphics, so it cannot used for serious purposes and that it cannot be secure. Many Linux users also look down on Apple, because since Apple gives some things away, but does not give everything away, so Linux users are confused.

Linux Culture: Jealousy of Apple

Many other companies don't give anything back or less than Apple and they are considered ok. There seems to be a lot of hypocrisy going on here and I think it comes out of jealousy, because Mac OS X has been more successful on the desktop, even as much as Linux developers try to model their desktop computers after Apple. Now Apple is looking like it will take over the future of the consumer computer, Linux developers are upset, because their software cannot be run on the iPad and iPhone, due to licensing issues, both made by the

developer and by Apple.

3.3 Regular Computer Users

3.3.1 Joy of Software Plus Internet

Possibilities of Software and Internet

Software is one of the best parts of computers. When you get your computer home and turn it on, you can't do much with it. As you add software to it, which more and more of it is low cost or free, you get to do more and more things with it. The software basically unlocks this little box and gives it the ability to do what used to take many other tools to do. And for anyone who creates things the computer is a blessing, because it is so easy to keep your work safe, you can make an unlimited amount of identical copies of what you create, and with the Internet, you can reach people all around the world.

Democracy through Technology

The Internet lowers the barrier to entry, into the marketplace, or into publishing, lower than it ever has been before. The irony is that although the Internet has allowed for greater freedom of expression, easier and cheaper organizing for non-profits (political and religious groups), and an easy way to avoid censorship and a way to bypass traditional information gatekeepers, like the big corporations that control TV and Newspapers, this was all made possible by communist China.

Irony in Who is Empowered

We can actually thank the oppressive regime now in power in China, for making computers cheap enough, so that the Internet is actually useful, which

enables us to have more freedom and accountability of political figures in the United States. Another irony is that a big driver of the success of modern America comes from the increase in efficiency created by computers, which allows Americans to have more buying power, because prices are kept low, which also has made it easier for China and India to move up the value chain, from factory workers and call support, to white collar jobs like journalism, marketing, and engineering.

Increases in Specialization and Decreases in Cost

When you combine the Internet with software it makes it possible to distribute information like software, music, movies, and books so cheaply that open source software and open media has been a reality and is in common use. This forces down the cost of traditional media and makes it very difficult to control any information that has been digitized. It also allows people to take part in specialized hobbies and interests with other people, which would not have been practical before, because of the previous difficulty in finding and distributing information around, without the approval and infrastructure of big corporations, which are only interested in mainstream and generic media.

3.3.2 Why Support Everything?

Why do you support every kind of computer?

I started out with this idea, because I couldn't test on Internet Explorer, which is still used by 60% of web users and so I felt that if I was already losing that many users, it would be unwise to eliminate any other users. This is

because I was using Mac OS X and Linux, I did not want to expose my data to viruses, and didn't feel I had the money to dedicate an entire computer to testing

The only reason why this website works in Internet Explorer now is due to specific direction from my Uncle Clive. I could not have figured out how to get past the complex and confusing bugs in Internet Explorer without him telling me exactly what to do to make my layout work.

The other idea behind this is that I want what I create to last many years into the future. If we still are able to hold onto our technology into the future, new software will likely come about that never existed before. There are some websites designed in the late 90s that only work now with Internet Explorer and Netscape. Even though Firefox can handle the same data, it will not be allowed in because the name is not Netscape (Firefox doesn't use the name Netscape because it is a trademark owned by AOL Time Warner). Who would have foreseen in the late 90s that Apple and Google would have web browsers that might now be the future of web browsers for many years to come.

Why do you have your writings in many formats?

I started out putting everything in PDF format, as that made the most sense for long documents. You cannot make a web page that is only 1 file to download, still has easy navigation panel on the side, breaks into pages, and prints out well. I specifically forbid changing the file format of my documents, because I don't want my work to only survive in a Microsoft format. This would require people to pay them and use their software to access the documents, if Microsoft even exists and still supports those Microsoft formats at that time. There is not an easy way to explain what an open format is and since companies like Microsoft base their entire business models by claiming they support open standards and then sue competitors for using their technology, I am left with having to convert things myself.

Another problem I ran into is that people could not access PDFs, because some people buy Windows computers, without a PDF reader and are afraid to install it. Others hate Adobe for some reason and think they need to use Adobe Reader to create or view PDFs. Many people also think that PDFs cannot be made accessible to sight impaired readers or cannot be reflowed for mobile devices, because many people create PDFs the wrong way and abuse the format for things it was not intended, and just assume everyone who uses PDFs to distribute documents abuses the technology in the same way.

I remember many people disabling Javascript, because they hated pop up windows. Many people also disabled cookies, because they were afraid of storing information on their own computers, didn't realize that it was necessary for basic things like shopping carts, and was much better than keeping the information on a web server. Now you can't go to hardly any website without enabling cookies and Javascript. People now seem to love the same Javascript they hated 5 years earlier, because their were now pop-up blockers. Now people Flash because it is abused in similar ways. Only designers can realize the value that Flash provides to non-programmers to have control over the way their website looks on all major browsers.

The Underlying Problem with Web Design

You have no control over what software people who visit your websites use. People don't want to ever install any software or ever upgrade, because it is very hard to uninstall software on Windows, even with the latest version 7.

3.3.3 Lack of Gratitude

Lazy Developers

As one of the ways in which web users try to vocalize their anger, at annoying ads and browser crashes caused by Flash, they complain that web sites they visit are bad, because they are designed, by lazy people. I know the solution to getting rid of ads: pay up a lot of money.

Everything Costs Something

The truth is that a lot of content is available, for free, online. Not only did someone have to create this content, but also has to pay fees, to keep it running and has likely invested a tremendous amount of time and money, learning how to get their stuff online, and a lot of time and money on programs, to help them do this. I find it unbelievable at this lack of respect, for people who are giving you something, for free.

Web Ads do not Cover the Costs

Even when there are ads on the website, these do not pay very much, as people like this are too cheap, to click on the ads. Even Google doesn't get much of its money off its ads, on other people's websites— it gets most money, through paid search placement. And when you see no ads, the person is making no money whatsoever, but if the website is fast and designed well, they are likely paying quite a bit of money for it.

Respect Volunteers

Most people do not realize it, but many web designers and content creators pay money out, to give things away for free. If you are not paying for a good or

service, someone has volunteered their time and money for you. The least you should do is refrain from complaining and insulting them.

Analogies of Similar Disrespect

If you need some information, you either pay someone for it, or figure it out the best you can, from what others have provided for free. It is like when you give a homeless person money and they complain that you didn't give them more; when someone gives you a present and you say it is not good enough; when a friend asks to borrow something, forgets to return it, breaks it, and then he gets hurt and says it's your fault; or when someone takes you to dinner and you say the food was no good.

Be Polite or Pay For it

So instead of complaining, that your free gift is not good enough, try some time creating something, that takes a lot of money and time to complete, and later give it away, for free. Learn to empathize with others and stop expecting everyone else, to solve your problems, for free. You cannot expect anything of anyone, unless you pay the entire cost, of their time and effort, and all other costs involved.

3.3.4 How Much Do I Need to Know?

Workaholics Recruiting Converts

Some people believe that people are only empowered, by knowing everything about technology. They believe, that if you don't know how everything works, then you are somehow a slave, to spend all your time consuming information, created by others. Some people actually do things, that contribute to society, which are often referred to as jobs, and when they get home actually want to

relax and enjoy themselves. These people do not feel the need, to do more work, in their free time and consider anything, that takes away from their free time, as the real obstacle, to their freedom and happiness.

Technology and Normal People

In other words, most people have better things to do, than spend their time, after work, trying to get their computer to work. These people are looking for ways to make their lives simpler, not more complicated. These are what programmers refer to as end users. It is the job of the technology professional, to make the lives of those using this technology easier. These people are considered, by most other people, as normal people.

The Fundamental Question

A philosophical question constantly comes up when talking about technology, which is: how much do I need to know? This is a value judgement and is different for everyone. But consider other areas of your life - wouldn't it be best if everyone knew: how to cook, how to grow their own food, how to raise livestock, research the best belief system, master medicine and psychology, master all of world history, know how to defend themselves in a fight, understand how the economy works, raise their kids to be good citizens, get good at writing, serve in the military, travel to every other part of the world, get involved in politics, and the list goes on and on.

Specialization is Normal and OK

If you try to do all of this, you will drive yourself mad, never make any money, never have any fun, and never have any lasting relationships, with other people. Even, early on in history, it was common for people, to specialize in one area and it is becoming more and more necessary, as things get more and more complicated. So let us just accept the fact, that not everyone needs to

understand everything, about every process, that takes place, that is necessary, for them to function, in our society. It is ok to NOT be an expert with technology. Technology should be designed, so that it is easy for you, as you are an end user.

3.3.5 Computers and Choice

Everyone is Different

When someone wants to buy a computer, they often ask someone they know who works with computers to help them. They will generally get the one that gets that person the most money, or else one that that other person likes best. It is very bad to make assumptions in almost any situation.

What Do You Want it to Do?

A computer is like any other tool and which one is best for you is different. What the user does with it should be the determining factor in buying it. As non-programmers are using programs other people wrote, it is important to consider what software you need or want to run and then find a computer that is compatible with that software and runs it fast enough and stable enough, so that you accomplish, what you need or want, with the device.

Consider Total Cost of Ownership

You should also consider all the costs involved, like: service plans and warranties, what is costs to repair and the reliability of the device, how hard it is to use and how much training will cost you, what you have to pay for support and how much support you need, how much work it is to maintain and if you need to pay someone else to do that, how hard it is to screw it up and what you have to pay someone to fix it, and the cost of the software you need or want.

Often the speed of the processor and the size of the hard drive are some of the least important components. You need to first see what the system requirements are for the software and operating system you want to run.

Quality is Most Important

What you really want to know is not how fast a particular component is but how fast and well the software you need runs on it. Two of the biggest factors are RAM and processor cache, but the most important factors are the quality of the operating system and the quality of the hardware. Some manufacturers make higher quality hardware than others. Apple is the only well-known name brand that makes quality hardware and software.

Level of Integration and Complexity

You also need to realize that the more companies involved in building your computer components and the less effort spent tuning the hardware to the software will result in: incompatibilities, performance problems, less clear understanding of who is responsible to fix or troubleshoot problems (companies love to blame the other ones for problems), and less ability to track down what causes problems, so they can be fixed. Apple controls the entire system, so things work better and are supported better, by Apple, than competitors can.

Does the Manufacturer Want You?

Another important factor is to consider what the manufacturers target market is. Apple targets the consumer, creative, education, and small business markets, while most other tech companies specialize in the enterprise, which means large corporations. Just because it makes sense for your employer to use a particular product, does not mean that it is better for your needs.

3.4 Apple and the Future

3.4.1 Apple Learned from its Mistakes

Tech People have Bad Memories

For people who did not live through it or were aware of it at the time, the history of Apple is not understood very well. Apple made some very big mistakes, in the past, that almost killed the company. Apple once had a huge percentage of the desktop operating system market and lost it to Microsoft. Many people are trying to say that the same thing will happen again. This is very unlikely to happen again, because it was a matter of stupid things done by Apple, which will not be done again, more than anything other reason because Apple got hurt bad enough, that they have learned their lesson very well.

Apple Handed Microsoft its Market

One of the big mistakes Apple made was to give Microsoft access, to the source code, of their Macintosh operating system, to get a few years more of having Excel exclusively on the Mac. This gave Microsoft the know how to build Windows. They later sued most of the other companies, that competed with Apple and Microsoft, in the OS market. This put Apple directly against Microsoft.

Apple Depended on Others

Then they kept from developing their own applications, so that that other companies would have the Mac application market open to them. The they were dependent on Adobe and Microsoft for critical applications, and this slowed how quickly Apple could adopt new technologies. Then they licensed the

Mac OS to other companies, so that other companies could sell computers with Mac OS on them. This was stupid, because since Apple had to research and develop their software, their licensees could undercut them, because they didn't have to pay for the cost of software development.

Apple Refused to Compete

And all along Apple was run by salesmen, so they decided, to sell Macs, that were many times the price of PCs, never invested in new practical technologies, to enhance their software offerings and accepted a tiny portion of the market because of this. Apple has deliberately decided to appeal to the average person, as evidenced, by the exponential increase of sales, for its iPods, iPhones, and iPads, and at the same time there is more hate, for Apple, then ever, in the computer nerd community.

Apple Stopped Depending on Others

When Steve Jobs came back, he brought with him an entirely different operating system, called Next, which he developed, after being fired, by Apple. All the things that Apple has built since then are based on this technology. He developed this operating system in the 80s. Apple started producing its own applications, that competed, with parts of Microsoft Office and Adobe Creative Suite and instead of dropping the Mac, they improved their products, that Apple offered alternatives to.

Apple Took Back its Market

Instead of licensing the technology they got from Next, Apple used its own software, to power the: iPod Touch, iPhone, and iPad. Now Apple is run by a visionary, who knows what people are willing to buy and is a perfectionist. He has an entire team, that helps build the products Apple produces and he has groomed successors for years. In fact, Steve doesn't actually the one, who

designs the products, that Apple produces.

Hedging Your Bets

Many people say Apple's and Microsoft's success comes from giving others your key technologies, for free, but the reality is that exerting control, over your software ecosystem, actually insures your success. A really popular concept, that has tried and failed many times, but is still tried anyway is to create software, that can run on multiple devices and operating systems. This is a way, to hedge your bets, when you don't know, who will be around and dominant a few years later.

Competing on Product Quality

The problem for someone like Apple, who sells a high quality product, who differentiates itself on software, but makes money on hardware is that it forces the hardware makers to compete on price alone and so takes out all the profit from the industry. The same control that makes things worse for computer programmers makes things better for the consumer. After all, what good is it to run your software like Linux and satisfy every developer at the expense of your users, and you will have very few users and applications.

3.4.2 Why Brand is King

Sony vs. Apple

In consumer electronics of the 90s, Sony was king. They were a quality brand and made great devices. And now Apple has taken the place of Sony. One of the big differences between Sony and Apple is that Apple also makes great software.

Embracing Industry Standards

Apple is also willing to accept industry standards. If you ever get a Sony Camera, you will find that although most other manufacturers will standardize on parts like batteries and add-ons, Sony has its own proprietary way of doing things. One of the reason why Apple took the market from Sony in potable music players is because Apple decided to accept MP3s and Sony tried to push their own format. Microsoft did the same thing as Sony.

Competing on Quality

Apple has good focus, because they start by thinking about what the average customer wants to do with the device and prioritize development of their software and hardware, to make that possible. Whereas in the PC world, manufacturers have a hard time differentiating themselves, because they use commodity parts and run the same software, so the only thing they have to compete on is price. Apple does not feel that they need to trap the user with proprietary formats, but refuse to make their software a commodity.

The Hardware is the Device

The flip side of this that Apple has found allows them to pursue this path is that it gives its software away very cheaply or free and makes money on the hardware. It makes sense that you get the software for free and you pay for the device. As far as the consumer is concerned, the hardware is the device.

People Don't Upgrade Software

Very few people are used to upgrading their computers. They usually stick with what came with it and just buy a new computer, when they want new software. Most people never buy Windows or even consider a Mac, because they never buy an OS. Linux is totally foreign and uninteresting to most users,

because they are interested in what they can do, with the computer and not how it works.

Useful Choice

When average people talk about having choice in computers, they mean that they get to choose the entry level model or the luxury model, that they get to choose the color, and that they have a wide variety of software for their specialized hobbies and careers. Windows enthusiasts are often proud of their wide selection of software. But the irony is that with all those options, most people just pick the most advertised products, that everyone else uses.

Creating an Ecosystem

So with software upgrades, that are easy to apply and works across several generations of models, people get to see what difference good software makes. By keeping some strict rules over how software is distributed, what content is not allowed, and by enforcing how the software is designed, they get the consumer comfortable with trying new software. These purchases then fund the development of more software, so that there is a big enough market, to make it financially viable, to create apps, that support the wide variety of careers and hobbies, that the average user wants to use software for.

Apple is a Methodology

So the real success of Apple is not either in software or hardware, but in their methodology. The Apple brand is what is the most important part of Apple's business. This is why they are so careful in how they manage people's private data, what they allow third party developers to do with their devices, and keeping their products secret, until they are ready to ship. While the rest of the industry thinks most people care about how their software is developed and find that to be the most important factor in what brand they purchase,

Apple realizes that, with some well developed rules and limits in place, that the hardware and software work much better together and the consumer is happy with the results.

Consumer is King

So Apple does not give the world a new technology or a more powerful computer. What they give users is a well thought out approach to computing, that makes the average person's life better. With Apple the consumer or the end user is the king. Now that the consumer has had a chance to decide for themselves what they want, they have chosen Apple. Maybe other companies that are willing to learn from Apple will not focus on copying what Apple products look like, what methods are used in their development, or matching their hardware but rather change their priorities.

3.4.3 Paradigm Shift

From the Desktop to the Network

We are currently undergoing a paradigm shift in computing from the 1990s hard to maintain, complex to use, do everything poorly and nothing well, desktop computer, mouse, desktop publishing, office suite, dialup networking, CD-ROM drive, based technology to an appliance like, focused use, mainstream, low barrier to entry, mobile, touch driven, web browser based, social networking focused, high speed, wireless networking based technology. It is the death of mouse driven, wired, physically connected desktop peripheral, and client installed application technologies.

Tech Industry Needs to Adapt

What this means to the average person is that the web is still the future and

computing is much easier to handle. This will kill off a lot of old technologies pushed by large corporations and computer programmers, repairers, and trainers who cannot adapt will need to retrain for another industry. What some of these big corporations like Microsoft and Adobe need to understand is if they are not willing to keep up with the pace of the rest of the industry, what they sell will become obsolete and people will stop buying it.

Cannot Sell the Same Technology Forever

It is ironic that what is considered an advancement for the average user is seen as a move backwards to those who form their identity in fiddling with computers. It is not surprising that some of the biggest corporations run entirely by salesmen, who sell terribly designed software, for tremendously large amounts of money, and are unwilling to fix their problems or update their technologies find themselves at a dead end. The lesson here is that technology changes fast and you cannot expect to sell the same software for decades and continue to grow or even keep your market, unless you have no competition.

New Opportunities for Tech Industry

So even as a lot of jobs may be obsoleted and entire industries permanently downsized, those willing to adapt and write new code and learn new technologies will find bigger markets for themselves. While Apple may be an enemy of the largest corporations, they are a blessing to small businesses. Even as the jobs for supporting computers will largely diminish, the markets for new types of products not thought of yet or specialized to the point that there is no mainstream market will experience tremendous growth.

Specialize and Upscale

If you are starting a business, don't try to be a billion dollar company. Stay small and flexible and specialize in selling high end products and services in an industry that you know about. There will not be a large market for traditional and mainstream word processors in the future, but if you are willing to find a niche not served well, then you can make a small fortune selling a specialized product like a print on demand type of business, where people can customize everything to the maximum.

Only The Web is Future Proof

For those who do not want to die when Apple no longer rules the industry, the path for open source, standards based, and future proof technologies will be web based. None of the big players is going to make it hard for you to control your own future, by basing your products on web technologies. Base your infrastructure on the front end in HTML, CSS, and Javascript and other browser based technologies and run any heavy lifting on the server end in whatever language and format that can interface with these browser based languages.

Free Content Travels Farther

For those who want to get their ideas out and are not interested in making money, the future only gets brighter. You will be able to better compete with the big publishing houses, TV networks, and music labels by delivering free content of high quality without any software restrictions and in open formats. For the present day Kierkegaard or Tolkien, the web is where you can preserve your ideas for the benefit of future generations. A well made piece of literature, art, or music can survive much better if it is made free of copy restrictions.

3.4.4 The Dream of Convergence

What is Convergence?

One of the big things we looked forward to in the late 90s, that never happened, was something called convergence. Basically, the desktop/laptop/netbook is a multi-function device, whereas your TV or microwave is a single function device. There are advantages and disadvantages to both approaches. Convergence means bringing together the customizability of regular computers into appliances, by adding computer chips and software to them. Eventually, the regular computers will get easier to use and you will be able to do more, with your appliances.

Ecosystems: Apple's vs. Microsoft's

One of the big things that can make your appliances smarter and more useful is Internet and local networking capabilities. The best examples of convergence are Apple's new non-Mac lines like its iPod, iPhone, iPad, Apple TV, Mac OS X, iLife, iWork, Mobile Me, Xcode/Cocoa development tools, which is brought together with your PC or Mac with iTunes and with the iTunes Multimedia, App, and Book stores you can extend what you can do with your device and what you can see can consume on your Apple device. A similar example of this interlinking of different software and devices is Microsoft who ties together: Windows, Office, Internet Explorer, Visual Studio .Net developer tools, ActiveX, Direct X, Silverlight, Visual Basic for Applications, Windows networking, Exchange Server, Internet Information Server, SQL Server, X Box, (and the unsuccessful consumer devices like Windows Mobile, Zune, and Bing) as well as many other total failures no one has heard of.

Consumer vs. Business

What really differentiates Apple, from other consumer electronics manufacturers, like Sony, Samsung, Nintendo, Nokia, Google, Palm, Microsoft, and the like is that Apple differentiates themselves with their software and Apple has a lot of related products, that help improve every other product and work seamlessly together, because Apple controls the entire making of the device, including: hardware, OS, apps, and services. The big difference between Microsoft's and Apple's interlinking of their entire ecosystem through software is that Microsoft's core market strength is businesses, especially ones collectively called the enterprise, which is another name for large corporations, and Apple's market, strength, which is with consumers.

Software vs. Hardware: Differentiating Your Company from the Competition

Another big difference between Microsoft and Apple is that Apple makes the entire product including hardware, whereas Microsoft gets a bigger portion of the market in businesses and limits itself in the consumer market by not having their own hardware, except for their side ventures like X Box, which they have never made any money off yet. While Apple talks a lot about software with their devices, while most their competitors talk about is the computer hardware they run on. The one area of consumers that Microsoft has done good at appealing to is what is called a "serious gamer," which is the stereotypical guy, who lives in his parent's basement, playing games all night. Most gamers are called casual gamers and that is what Apple and Nintendo are better at.

Different Target Markets = Different Focuses

Another big difference between Apple and Microsoft is who their customers are and how they have taken different approaches that work well with those customers but not well with the other company's customers. One of the Big things that gets businesses upset about Apple's products is that businesses want legacy compatibility, which means support for outdated technologies, because they are cheap and do not want to pay for upgrading their infrastructure. Apple has made its products much better because they do not need to support legacy technologies like Flash, Java, etc because their customers don't have a lot of expensive software which needs one of these products to run.

Burden of Legacy

Many of the problems with Microsoft's software stem from providing compatibility with software, developed for computers, that were so underpowered, that they should never have been sold. Many consumers and businesses bought their computers, before the time, when personal computers were fast enough, to run software, that worked well. The big reason why Sun or SGI never went into the personal computer business is because to buy a quality computer, that worked well in the 80s, you'd have to pay as much for your computer, as you would for a nice car.

Chapter 4

Design Philosophy

by Ben Huot

4.1 Introduction to Design

4.1.1 The Meaning of Design

General Concepts

Most people do not know what design is or value it. Most people think that design is a subset of art and that it is solely about making something look visually appealing. Certainly designs that make you want to “put your eyes out” are obviously not good, but design is more about: planning, purpose, organization, structure, consistency, psychology, self-restraint, subtlety, attention to detail, and being a perfectionist.

Most people also think that the computer can design things, by itself, without human judgement and decision making. Design is very much something a computer cannot do, because design is done for humans and so the designer has to take into account things only humans can understand. Basically, all the computer can do is perform very sophisticated calculations. A computer can only simulate a very useful multifunctional tool, that is a press, a pencil, an eraser, glue, and all the other things an artist uses when creating art (all in one).

Good design helps you communicate your message, by focusing the users' attention on what you want to inform or persuade people about. The first stage of design is determining what you want to communicate. Next step is to organize your thoughts and the structure of your ideas. Then you need to find a way to illustrate this in a consistent manner.

Specifics

In designing a book, you need to first write it, then organize it into chapters, and then find a way to uniquely identify the way the book is organized (and do it

consistently). The structure is an abstract concept, but it needs to be communicated in the same way every time. It does not matter so much what font you choose or what graphics you use, as long as they don't distract from the message or overpower your ideas.

In a website, you need to decide what the purpose of it is. Then you create the content, which may be writing or photos, or whatever else it is you want to present. Then you organize it into a logical arrangement, which will serve as the basis for your document structure and file structure. You break everything down into headings and links, based on how your content is organized. Later, you specify what font, color, size, etc you want for each element like top level headings or links.

The kind of organization and structure you want for your site depends in specifics on what your topic and purpose is. The best way to organize something, in general, is to make it as simple as possible, while still maintaining an accurate representation of the ideas you are trying to communicate. Use lots of headings and hyperlinks, to break up ideas into simpler and smaller parts. Keep your structure separate from your formatting, so that you can change things easier and in a more consistent manner.

The best design should not require someone to think rationally, but rather be able to navigate your ideas by instinct alone. Don't try to make your audience think any more than they have to and let them get to what they want as fast and as easily as is possible. Keep everything up to date and make sure everything is accurate. Make sure that everything works as designed and quickly fix defects. This is how you keep people coming back.

Simplicity, consistency, and attention to detail are the most important things. The two things a designer has to know that cannot be taught is what looks good and they must be a perfectionist. Treat your designer with equal respect as any other member of your team. Design requires hard work and intelligence, but most importantly good judgement. Remember that your design is your face to the world and is how people will judge you for their first impressions.

Real World Examples

A good example of this idea is to look at how Apple or Google design their web pages and compare that to Microsoft. Microsoft has no sense of subtlety or self control. They want to control everything you do and have you use them for every conceivable service, no matter how little they know about it. Microsoft is of the school of advertising that thinks that they have to beat you over the head and scream at you to get your attention. Apple and Google represent themselves as cool and collected and they know what direction they want to go in and what they are good at and don't deviate from that.

Look at the simplicity of the Google and the Apple websites. They are not cluttered with ads trying to get you to see everything they do at first glance. They pick and choose what is most important to the user and let you find more information about their other products and services, at your leisure and only if you want to (without yelling at you).

Google has been very successful with their ads, because they realized that most ads are obnoxious, because they try to scream at you. These typical ads are very ineffective, because they can easily be ignored or even removed with software because of their volume. Google found a great solution was to offer text only ads, instead of animated ones, because they blend in better to the content and people are less likely to avoid them (as well as they are less annoyed by them).

Look at Apple's "I'm a Mac" ads. They are very low key and understate themselves and so they come across as very polite and modest. They show you how Apple likes to simplify technology for the consumer and that Apple has tact and will not harass you about using their services. When you get all frustrated about your computer, they will be friendly and knowledgeable and solve your computer problem (without treating you like the enemy).

4.1.2 When to Use a Computer

What a Computer is Good at

Computers, especially when combined with the Internet, make information easier to copy than ever before. But while copying and even editing can be made easier with the computer, producing anything worthwhile still takes the same amount of time and cannot be automated. All the computer does is make calculations. Once the computer has some basic information, you can use the computer to process that information in almost any way. For example, when you want to send out a pile of letters with different addresses, you can get the computer to enter a different address on the top of each letter automatically, once you enter the addresses.

Since the computer only knows how to do simple processing of information, a computer can never create art. So unless you are doing 3D modeling or vector artwork, there is no advantage to producing art by the computer, versus doing it by hand. When you want to share it, all you have to do is scan it in or photograph it. If you are doing vector artwork, you would have to use a computer, and the advantage would be that you can adjust the shapes, arrangement, colors, styles, and size of the artwork very easily. 3D modeling has the advantages of changing the vantage point, the rotation, and the skin easily, but loses the advantages of changing the shapes easily.

Using a Computer Increases Complexity

Just because everybody seems to want to do everything digitally, does not take away from the fact that there are several real disadvantages. First of all, you have to know how to use the computer program, buy it, and install it properly. Second, being able to use the program doesn't take away from the fact that you still need to know how to create art by hand. Third, although you don't have to buy supplies like paint and paper, you still have to buy computer

ink, computer paper, and something to make digital backups like a USB flash drive, and if you want to share it online, you have to pay for a website and/or have to fill it with ads.

Fourth, you have to put things in the right file format, the right kind and amount of compression, and at the right resolution (as well as keep copies in the original format and in formats others can open) or else you will lose information or not be able to access it. Fifth, once you put the art on the computer, unless you want to give it away, you have to find some way to distribute it, without making it easy for people to copy it without paying you (which usually means only giving real small versions on your website). Sixth, if you want it protected against fire and theft, you have to have an offsite backup as well.

The Reality of Sharing Information

Since it is so easy to copy things that are put on the Internet, even via email, never send sensitive information, unless it is properly encrypted and the only people who have access to it are all trusted. Once something is posted by anyone on the World Wide Web, there is nothing that can be done to stop people from copying it. This also means that if you have ever entered any data into a document, that you later do not want someone to see, erasing it is not good enough. You need to buy professional redaction software, even with PDFs and especially with Microsoft Office documents. The simple idea is never put anything for public access that you do not want everybody to own a copy of forever.

There is something called DRM which means digital rights management. This is a software and or hardware method of artificially limiting people's ability to copy what they already own a digital copy of. The simple explanation is that it doesn't work and is not possible to do effectively because of the technical limitations. Anything that you can view on the computer can be copied and all the DRM does is make it more difficult for computer novices. It only takes one person to be able to figure out how to get a round the limitations, and then

they can make it trivial even for even casual computer users to copy freely. What it does do is make it more difficult for honest people to: make legitimate backups, print the information out for their personal use, or be able to view the document with unsupported or software created in the future.

4.1.3 Managing Design Complexity

Keep Things Simple for Yourself

One of the problems with designing things is that your design gets too complex very easily, and at that point, it gets exponentially more difficult to maintain. One of the prime examples of this is when you combine CSS and Javascript, for multiple browsers. One of the reasons why Javascript evolved from something most web users hated to being fundamental in web design came about because their were software libraries, that evened out the different layout paradigms of different browsers, which allowed more precise layout. This made Javascript combined with CSS much easier to maintain.

There are several different ways to design long documents, using structured document formatting. One of the big advantages of LaTeX over a variety of different XML based formats is the simplicity of it. XML is easy for other programs to read, but it is very time consuming to write and to work it requires a tremendous amount of precision. In other words, it is very easy to make errors in the code.

Use the Correct Software and Don't Push it

One of the ways to avoid being overly complex is to know what the language and what your software are good at and how they work technically (which you get from experience). Certain things are very hard to do with some kinds of

software and very easy with others. LaTeX is very good at formatting books, but is horrid at doing tables or handling precisely placed images. CSS is very good at separating formatting from structure and its ability to change the appearance of any element for an entire site, in just one location. But CSS can't even perform the most basic formatting, that you can achieve in almost any desktop publishing application.

Understand How Everything Works

Another way to keep designs simple enough to avoid breaking them is to understand everything that you add to your design. One of the ways in which people can overcome some of the design limitations of software, when they are coding them, is to add code they found on a website, that is beyond their ability to understand how it works. The problem then is that you depend on another party, to continue to maintain this code, as these kinds of tricks often break, when new version of the viewing software comes out.

Be Easy on your Computer

Another way to keep things simple in design is to organize things in as simple a way as possible. One of the mistakes many designers make is that they rely on a much more complex arrangement of software to do what they need it to do. The problem with this is that just because it makes it simple for you, does not mean that what the software is doing is simple. So managing a website in your head may be more complex for you to do, but it makes the complexity for the computer much less.

The problem with this is that features are dropped or don't work many times when you start using the more advanced features of a program. Just like you can find many programs that do things like photo editing, you cannot expect to find replacement photo editors that edit videos or 3d models. One of the things that is a more advanced feature that you can easily lose support for is DRM. Adobe has kept on changing the way they do DRM in virtually each major

version of Adobe Reader. Another thing many designers rely on that increases complexity is server side scripts. It is easier to manage things in a website if you use software on the server to allow you a simple framework to organize things with, but it still makes the computer's job more complex and creates more things that can go wrong.

4.2 Web Design Concepts

4.2.1 Realities of Web Design

Designing a Brochure vs. Designing a Website

Most people's first introduction to design is a photo editor or page layout application. Most people could just drag and drop pictures, type text, and do some formatting to make a nice looking document and even turn it into a nice print out or even nice PDF with a little more knowledge. Then people try designing a web site and get very frustrated very fast. Most web sites seem to last for an average of 18 months and then the content is usually taken down and never appears again online. The main reason I think is that designing a website is much more complicated than making a brochure.

Why HTML Causes Design Problems

There are many reasons for that. One of the reasons why is because the PDF file format was designed, by one company, with one vision and does a very good job, for what it is intended to do, originally. The file format for web sites was designed, by a committee, that made arbitrary decisions, very slowly, that neither helped the designer nor the web browser developers. During this

process, many pages were created that will likely never be touched again, by their creator, but might be very important, for many users, for a long time. So web pages cannot be designed totally differently, because of this need for backwards compatibility.

HTML Does More Things than PDFs

There are some really great things that a web page does, that most people do not try with PDFs, like interactivity and audio and video. Web pages also supported a wide variety of plugins, including the infamous Flash, but that is an entirely different thing, that should be discussed separately. Another thing that is different about a website is that it can be updated instantly, so many popular websites need to constantly be updated, to appeal to their users demands. This makes things much more complicated.

HTML has Less Formatting Options

One of the reasons why you can open most PDFs on the Internet, with a very old version of Adobe Reader, is that PDFs supported a wide range of formatting and features, long before HTML had them. Also, Adobe also had previous experience with Postscript, which was similar to the PDF file format and they learned a lot from that. Only with the very latest browsers do we have support for many of the common formatting, that PDFs allow, on web pages. The only thing that still is supported poorly is precise alignment of graphical elements and good support for printing.

Design vs. Accessibility Conflicts

One of the surprising things is that web pages could have used Postscript and latter PDF, for their formatting, which would definitely worked technically and would have solved a lot of problems. One of the reasons why a format like PDF or Postscript was not used for web pages was that web visionaries wanted the

same web page, to be able to be displayed on any size screen and any screen with a different height to width proportions (aspect ratio). In the effort to allow for this, we lost the ability to make precise alignment of graphical elements.

Problem Caused by Lack of Vector Graphics

While this could work and still make a good design, the obvious problem, which is still not fully solved, is that the only kind of graphics well supported amongst browsers are bitmap graphics. So the combination of having graphics, that cannot scale to any size, without distortion and the requirement for web sites to work, across any size screen, makes a designer give up the control of the size and proportion of white space (the space between the graphical elements).

Idea of CSS

One of the great things about HTML, that was invented much later, is called CSS. You here a lot about Javascript, but you rarely hear about CSS. CSS is the formatting language of the web. Using best practices for designing websites, and using HTML and CSS, you can structure your information, with HTML and place consistent formatting, to each of the elements, with CSS.

Power of CSS

CSS stands for Cascading Style Sheets, which means that you can use CSS in one file that affects your entire website or any number of pages, while you can also have specific styles for one page, or specify styles arbitrarily, for specific graphical elements. This ability to change, for an entire website, all the paragraph, heading, or image styles, in one place, is very powerful. You can

have different style sheets for different purposes, like for printing, for small screens, for people with poor eyesight, and a variety of other uses.

4.2.2 Myths of Website Accessibility

Definition of Accessibility

One of the main requirements for websites is that they are accessible. Accessibility refers to a number of different things, including the ability for people with vision problems, people with hearing problems, people with motor skills problems, people with learning skill problems, and other disabilities; and for people accessing websites via non-computer devices like mobile phones, game consoles, and other similar devices to be able to access websites as easily as other people and from other devices.

More Difficult for Designers

In theory this is a great idea, but in reality it makes things that much more difficult for web designers, especially ones, who are volunteers. Most people, who advocate accessibility, seem to not understand anything about design or other problems we deal with, as web designers, like Internet Explorer compatibility. One of the big assumptions about accessibility, which does not work this way is that you can design a website to work the same on devices of any size and screen resolution. Another wrong assumption is that designing websites for people with disabilities doesn't require any more effort.

Problems with Device Accessibility

There are 3 problems with making websites accessible for non-computer users. One is that since most web browsers do not support vector graphics in web pages, to be linked in, like other images, so the designer, in the best

scenario, will get extra white space. Another is that Apple has found out, when they tried to run their same applications, for the iPhone, unmodified on the iPad, although they worked technically, they didn't look right. Finally you cannot just shrink a website down to fit on a smaller sized device and expect people to be able to see everything correctly, especially when the website is large and complex due to the amount of content, for example, like looking at an entire book, on a mobile device does not work very well.

Problems with Disability Accessibility

Other problems relate to making a site accessible, to people with disabilities. Many of the things, that people with disabilities don't want you to use on websites, make designing them more complicated, like they don't want designers to use frames, image maps, and want them to make designs work when the user increases the font size. Frames are a very effective solution, to dealing with changing content, on the top, bottom, and sides of your web pages. They allow you to change your navigation panel, without having to update, every page on your website. Image maps allow you to make multiple links on one picture, which is useful for images you want close together, horizontally, as it is hard to position images close together, because of the bugs in Internet Explorer. The problem with allowing people to change the font size or zoom in on graphics is that you cannot just increase the font size or image size and expect that everything will fit together well, on the website, when you have any graphics or a moderately complex layout.

Lack of Consistency

The thing that really bugs me about accessibility is that web designers have to deal with this but print designers don't. When you publish a book, people don't expect you to make a braille version available and the same with brochures, posters, and all other types of print design. Another thing that is not fair is that blind people get all sorts of support, but no one seems to care

about people with mental illnesses. There are definitely many websites that are difficult for me to figure out, but no one cares about designing for people with mental illnesses, because we don't have any powerful or famous champions. But the Persons with Disabilities Act applies to mental illnesses as well as physical ones.

4.2.3 3D Web Pages

Design by Committee

There is a new technology that will allow web pages to contain 3d models, which is a major advancement, but there are some problems as well, which are best explained within the context of what the web, HTML, CSS, and Javascript were originally designed for. The web was originally designed to deliver static documents arranged in HTML structural elements like heading, lists, paragraphs and the like, visual formatting designed with CSS, and Javascript to add simple interactivity and interactive widgets like animations and interactive spreadsheets. Actually, this was the idealized and revised history.

The reality of the web is that it is basically a form of anarchy and web browser makers and webmasters have often strayed from this approach, because they all compete for users. Most users want some sort of outcome and are not aware of why, even though two different approaches end up with the same looking effect, the way they are designed still matters. Another thing to understand is that, because the Internet is the focus of most user's activity using software, that the decisions made by those who determine the correct ways to make web pages become entangled, with the politics of various groups, who want totally different things (major organizations and companies concerned about the future of the technical side of the web).

The different interests were very near impossible, to reconcile technologically, so that the resulting compromises were very rarely used, because the only way to join the different ideas, on how web pages should

work, took much more time. One of the big re-occurring issues that divides those who decide how the web should be built are disabled persons (mostly blind people) and those who want more advanced visual effects.

But there are even more sides, including: the idealists who want everyone to do things the correct way, the engineering driven companies that like making things bigger, better, and faster measured by raw numbers, the consumer driven companies that are interested in the way things appear to the end user, and the pragmatic companies who just avoid the whole issue of compatibility and push the edges, with no regard for the rules.

Beyond the Committee

When the web was first formed, it took off faster than anyone who designed it could have imagined. The Internet was designed for technical research and it was only used by technical people, until the first graphical web browser was released. Those early on people were either idealists or engineers. But, when the average person came online, they were captivated by the pragmatists. Even though the pragmatists helped push the web, they did so, at the cost of a lot of valuable things, only realized later, like: computer security, website maintainability, reliability, efficiency, and compatibility.

One of the major ways to avoid the slow process, of waiting for the committees, to add features to web pages, was designed by a small company, which was bought out several times, by bigger companies and wound up being owned by Adobe. This software was referred to as Flash, which included the viewer Flash player, the creation program Flash CS, and continued to expand out into video, PDF, full programs, and other features for engineers.

But Apple and Google tried a different approach. They decided to take another pragmatic approach. Instead of waiting for the committees to decide, they formed their own committee and they only invited people, who wrote web browsers, to join, as they were the gatekeepers, that decided what features were available. Basically features only were available for webmasters to use, after they were added by the browsers and installed by users on their

computers. So that is how HTML5 came about. It was a compromise between being pragmatic and being idealistic.

Apple and Google

Since then, Apple has expanded into its iTunes media stores and small simplified computing devices, that are taking more and more work, over that which was traditionally done on PCs. Apple did better than they ever imagined, as there were fewer gatekeepers than before and that the consumer market was driving growth, rather than the business market. Google and Apple became allies and did what each did best and they decided to cooperate, by having Apple sell the devices and Google provide the Internet services. A major Google executive was even on Apples board of directors.

Google had bought a technology to make phones, before Apple released the iPhone, so that Microsoft couldn't cut them out of the market, but instead of targeting Microsoft, Google made a phone that copied the iPhone, as closely as was possible legally. Apple also found out that Google was taking information from Apple headquarters, with the software they provided, for Apple's new phones.

Then Google said some very untrue and ridiculous claims about Apple being like the North Korean dictator and like the book 1984 (where one world government controlled all the information and spied on its citizens). Then Google decided to team up with Adobe and differentiate its phones, by offering Flash player on them, just because Apple decided to not adopt Flash. Google later released a competing video format to the one adopted by the rest of the world, to promote Flash use.

Open Source

At the same time, Google was both controlling their software, much as Microsoft has done, using propaganda, to support its claims, and in the process trying to redefine words. Their campaign centered around this concept called

open source, which is a fairly hard to define method of developing software, so that everyone is involved in its creation. In open source software, if the company decides to exert too much control over their software, users can find other programmers, to assist them developing the same software. This centers around a license, that is a contract, setting certain conditions, on what can be done with the software (or intellectual property copyright), that is given away for free.

So Google wanted to use Java, but didn't want to pay licensing fees, so they made their version incompatible, with all other Java software, defeating its major selling point. Since Google gives this away for free, it makes it harder to make Google pay the licences for that. Google only gives away the software, after it is finished the latest version, so nobody can contribute to it.

To get the latest version, in time for its launch, you have to agree to many conditions, that Google can and does change at any time. If the device creating company wants to use the Google name, any of Google's apps, or the official software store, they have to agree to many more arbitrary decisions. So basically Google tries to win on ideological technicalities, so that it can get idealist programmers good will, while at the same time contributing nothing of value, or giving anyone else input in developing its software.

It is also ironic that Google claims to be a champion of open standards and software, when none of the software that powers services that Google makes money off is given away as open source. What Google does with open source is the same as Apple. Apple and Google both use open source software for parts of their software in which there is little or no value and produce proprietary software, on top of, that provides their unique brand value.

The web browser Google uses that it gives the source code for was originally designed by Apple, based on a small open source project called khtml (although none of the original khtml code still remains). Flash is, by its very nature and major selling point, not open source, in any meaningful way (as no one can make a competing Flash player). Apple invented much of this joint web work and gave away its intellectual property, that it created, when it invented these

technologies. The difference between Google and Apple is that Apple doesn't claim to be an open company, except for web technologies.

The Future

So now, as a result of Apple and Google joint work, we have what is called HTML5, which includes a wide variety of different technologies, including CSS3 (which allows features like my custom fonts, rounded corners, multiple layered backgrounds) and built in audio. All this is done in a very sound technological manner. HTML5 advances Javascript as well. But the same problems we had with Flash, we are starting to have with Javascript, namely, Javascript keeps on advancing into areas it was not meant, much as what happened with Flash.

The latest feature added to Javascript is 3D, called WebGL, and there is already a security problem. The problem is that, when Javascript and Flash are used, beyond the limited roles, that they were designed for, they give: terrible performance, security, compatibility, and reliability problems. Just like Flash became annoying and we started blocking it, in the future we will be blocking Javascript. Unfortunately, the same problems occur over and over again, as engineers have trouble knowing when to say too much is too much.

4.3 Web Design Techniques

4.3.1 Optimizing a Website

What is Optimization?

Optimization is another word, for efficiency, and is often closely related, to compression. You probably notice, that some website are faster than others, but this depends on more, than just your connection speed, the amount of data

sent, and the number of users accessing the same website, at once. When you optimize every other aspect, the same website can be noticeably faster, without having to reduce the amount of graphics, or require a higher speed internet connection. Having a faster website will increase the amount of traffic, number of repeat visitors, and customer satisfaction of your website. Website optimization will also improve your search engine rankings somewhat.

Image Compression Background Information

Image optimization is basically about trying to get graphics, that look very similar, but that take up less disk space. Most of this is compression, but it is also about removing unnecessary data. Most people think that the only format that matters is JPEG, but what they don't realize is, that although JPEGs save space, over uncompressed image formats: they do not necessarily compress the images, as much as can be done, with other formats, the images saved in this format lose important data (visible image quality) permanently, each time you save them, and they often contain unnecessary data, that can be removed, that will not lower the image quality.

There are two main types of compression: lossy and lossless. Zip files or any other file, that can contain a program uses lossless compression, because if any data is lost, then the program will not run. Lossy compression is often used in images, most commonly JPEGs, and this compression works, by removing data, that the eye cannot see. So the ideal type of compression keeps the file, like an image, at least looking the same, and even better losing no data at all.

Image Compression Techniques

So lossy compression unusually compresses images more. There are many ways of making images smaller in size, without losing noticeable quality. JPEGs generally find regions, with similar color and, instead of having each pixel being

represented separately, with different colors, they group together a shape, that is all the same color and then mark what color that is. JPEGs can be reduced in size, without loss of quality, by removing text comments, that are often attached, to photos, from digital cameras, that describe the GPS coordinates (location), time, and others information like exposure of the image taken.

Another less well known way to reduce image size, without noticeable image quality reduction, is to reduce the number of colors. The human eye can often only see thousands of colors and while it often takes this many, to represent photographs faithfully, drawing often can still be preserved, in high quality, with around 256 colors. I have found that saving elaborate drawings, that have complex textures, can be saved as 8 bit PNGs, sometimes with dithering, and still look great. This can be done with Photoshop Elements, under the save to web menu option. JPEGs don't have this option and PNGs can preserve transparency (unlike JPEGs).

Transparency is what allows you to layer different images, on top of each other, while still seeing part, of one of the lower layers. Transparency also allows you to create images, with irregular non-rectangular shapes, as all images are rectangular, so the transparency allows you, to see through the space, between the irregular image outer edge, and the rest of the rectangular outline. This gives the illusion of having an irregular shape, even though the images shape is actually rectangular.

PNGs can be further reduced, in size, without loss of quality, by running them through several free programs. There is a program, which combines a number of these together, called ImageOptim, and all you do is drag and drop the files, you want to compress, into its window and you can watch the progress and it will show you how much it was able to shrink the files. This also works with JPEGs.

Another way, to reduce the size of images, is to transform the graphic into a vector image format. Vector images generally take up less space, than their bitmap cousins, like JPEGs and PNGs. Vector graphics save space, because,

instead of saving each pixel a different color, they describe shapes, in mathematical formulas, and they can then also be enlarged, in physical size, without losing any quality.

This second attribute makes vector graphics well suited, to web pages, where screens are now of a variety of resolutions, where the mobile devices with the slowest connections and the smallest screens are often denser, than the larger screens with faster connections, so, with vector graphics, you don't have to deliver a much larger image, to the smaller and slower device. Vector graphics are also useful, on small devices, and for people with poor eyesight, because you can zoom in on them, almost indefinitely, without them becoming any less sharp. If you then combine background vector graphics with CSS3 fonts, you can get fancy text on rich, irregularly shaped backgrounds, that look good, at any resolution, or zoom level.

You can convert bitmap graphics, like JPEGs and PNGs, to SVG vector graphics, with Inkscape. You can do this, by opening up the graphic, selecting it, and choosing trace bitmap, from the path menu. Select colors and then click on update, to see a preview. It will likely look different and simplified. The reason for this is that although vector graphics can be enlarged to any size, without taking any more space, they can only have so much detail, because the more complex the vector graphics are the slower the web page will render, if it does at all. Then, click on OK. Then, select the new graphic and move it to the side, off the canvas. Then, delete the original bitmap image, underneath. Then, move the new vector image back, to where it was, on the canvas. Then, save the graphic, under save as, as plain SVG. You can now include this, in your web pages, via the CSS background feature found, in the latest version, of every major web browser.

Bandwidth Efficiency Background Information

Another factor, in how fast websites load, is called bandwidth efficiency.

You may notice, that when you copy many small files together, that they take longer, to copy, than one large file, of the same size, as all of the little files. This is true on a website too. One of the ways, to reduce the number of files, on a website, is to combine multiple files together, whenever possible. The reason, why you get, so many files, per web page is because images, text, and interactivity are often separate files.

Web pages are designed that way, so that way you can just link in images, styles, and interactivity, whenever you want, to repeat the image or style, on another page. That way, each style and graphic only has to be downloaded once, even if it is repeated many times, on the same website. So a web browser downloads all these files, to your computer, when you type in a web address and it stores all these files in a browser cache, so that it can load the image, from your temporary file folder, on your computer, rather than having to download the same image, or style, over and over again, just because it is on a different webpage.

Bandwidth Efficiency Techniques

But, you can still get the same usefulness, with fewer files, by combining the images, into the styles (CSS) file. You can also put many different layouts, for different scenarios like print, mobile phones, desktop computers, screen orientation, height to width ratio, DPI (pixel density), and resolution into one styles (CSS) file, using media queries. You can embed the images, into web pages, via data URIs. You can also put vector graphics into style files, so that you can get the benefits, of vector graphics, plus the benefits of using fewer files. Style files also are cached better and longer than images, because they are a labelled, with a higher priority, so putting images into the style files, allows people, to see your website, while downloading less data.

You can also also compress the style files, with the images embedded, as well as the web page text and the interactivity. This is done via HTTP compression. This works, with all modern browsers, all the way back to Internet Explorer 6, with Windows XP SP2, or Internet Explorer 7. All you have

to do is add a simple setting, via the cPanel control, with Apache 2 or higher. All the user needs is a web browser. No other software is needed. PDFs can also be compressed, by putting them into Zip archives. Audio and video files like MP3s and MP4s cannot usually be compressed further, without losing quality.

Another way, to improve you bandwidth efficiency, is by what servers you use. Not all web servers are as fast, as the other ones. Generally, you get what you pay for. You can get basic service, for \$5 a month, or a very full featured and very fast setup, for just \$20 a month. Another way to get faster service is to use a content delivery network. A content delivery network is another server, that you upload your biggest, and or most frequently download files to. Once you put these files, onto the CDN server, it distributes them, across the Internet, to servers in overseas locations, closer to users, in that part of the world. Although this makes little difference, in America and Europe, using high speed Internet, the rest of the world has lower quality infrastructure, so this makes a hug difference there, in the US, on cell phone networks, like 3G, in major cities, and in rural areas, that do not offer broadband Internet service.

4.3.2 My Web Design Decisions

The web is based on open formats, so you can use different software and achieve the same result.

Why I Don't Use Professional Adobe Design Tools

I have nothing against Adobe products in general. I use Photoshop Elements for a lot of my web graphics and in my drawings.

The main reason why I don't use professional design software like Adobe Dreamweaver, In Design, Illustrator, Fireworks, Flash, and Acrobat is because these products start at \$300-400 for basic features and the more advanced

ones can easily cost \$600-700. You can buy them in bundles for less money, but you only save if you are only doing web design or only doing print design.

Another related reason is that these professional products offer hardly any more functionality I can get with free or low cost tools. Another reason is that both the Adobe professional and free software have features that don't work right. The only thing worse than finding your free software doesn't work like you need it to, is to spend \$600 on a product and still not be able to get it to work like you need it to. The reason why professionals buy these products is that they make enough in one project to pay for each program.

Alternative Options to the Adobe Creative Suite

A good example of these problems is illustrated in my experiences with Dreamweaver. I bought Dreamweaver for \$400, which does little more than just design web pages. I was not any easier or provided any more features than a free web design program I use called Kompozer, based on Firefox.

Some people try using old versions of these Adobe professional design programs to save money, as they release a major new version every 18 months, which costs hundreds of dollars to upgrade each program. The downside is that they don't support older versions on the latest version of Mac OS X.

Finally, I take pride in using low cost tools. Many people can design with professional Adobe design tools, but few can design just as well on a budget. I also want to promote the use of open source software and show what can be done with them. I also am planning on migrating to 100% open source tools, so all my source files will eventually be in open formats as well as my published formats.

Why I Don't Just Use a Blog or CMS

Some people try to overcome the many design difficulties of authoring web

sites by using software on the server called a content management system, so they don't have to worry about design details and rather focus on the content and they sound like a marvelous solution, especially as they don't require the user to have to install anything other than a browser. You can also update your website from any computer without installing anything on it.

The downsides are many though. First, you only get a narrow range of possible designs so your site will look like many others. Secondly, you are introducing more complexity and things to go wrong. Third, you also make it easier for people to hack your website. Fourth, you have to pay more money for web hosting, so that you can install the latest version of the software on your website. Fifth, you constantly have to update the software on the website to keep out hackers and fix bugs. Sixth, you rely on someone else for your website to work. Seventh, you will have a difficult time trying to move all your content over to switch software.

4.3.3 Should I Build a Website?

It's a Lot of Work

Whether you build a website or not depends on: your needs, your resources, and your definition of a website. If you want to build from scratch, as I have done, you need to realize that it will likely cost a lot in: software, time, and anyone you need to hire to help you and at the same time, you need to keep your expectations low. The best way to approach this is to minimize the amount of time and effort getting everything set up, as it is a never ending project and you will never be able to satisfy everyone, no matter how hard you try.

Make is Easy for Yourself

If you want to choose your design for your website, I recommend getting a

new Mac and using iWeb, Rapidweaver, or Freeway, depending on your ambitions. For those with simpler needs, I would recommend using social networking services for your “website” and then tie everything together through Facebook, a blogging service, or something like that. If you want your own domain name, then register through a reputable service like Register.com and then set it up to forward to your blog, so you don’t have to mess with uploading files or managing the blogging software yourself.

Advertise

If you want anyone to see your website, then you need to advertise. Some of the cheap ways to do this are to join a web ring or a banner exchange service. You also should find related websites and try to get them to link to you. Remember to never change your web address or your topic, because people who link to you will never update their listings, no matter what. It also will take a long time for the web site owner to add you to their links and you will never get any response from your message.

Sharing Content

If you are thinking of writing a book, I recommend just creating a PDF of it and then upload it to a files sharing website like Scribd or Yudu. For photos, there are many to choose from, but the most popular is Flickr. Do not put any material on the Internet or even send via e-mail or MMS, unless you want the entire world to have free access to the information, without any restrictions. Don’t expect to make any money or even have the website pay for itself.

Don’t Try to Please Everyone

If anyone ever asks you to: make your files available in another file format, your website accessible to the sight impaired, make a mobile version of your website, translate your website it into another language, or to support a

specific browser or operating system on your website; don't even consider doing this, as you will likely have to redesign your entire website from scratch and do it manually, in order to accomplish it. No matter what you do, you will never be able to provide access for everyone, so don't even waste your time trying to. Most people stop doing a website a couple of years later at the most, because of how much work it is, so be good to yourself and keep your stress level low, so you can keep with it.

4.4 More Design Decisions

4.4.1 Open vs. Proprietary Technology

Neither is Perfect

Those who use technology are constantly confronted with a choice between proprietary and open technologies. And many of these are a cross between the two. There are advantages and disadvantages to each. You have to sacrifice something for either choice.

From the Vendor's Point of View

The reason why companies make the choice with regards to their technology depends on their business models. Not everyone can have the same business model. Companies, that have given away all their technologies that differentiate themselves, often go out of business, if they cannot find some other way, to differentiate themselves. As far as the user is concerned open is usually best, provided it does the job well enough, but it is not always in the best interest of companies, to give away the differentiating factors, of the the software, to be open standards.

Issues with Open Standards

Open standards take away the ability for companies to differentiate themselves based on software, they take a large percentage of profits out of the market, and they make technology into a basic commodity. Essentially open technologies make technology cheaper for the end user. They also make it easier for competitors products to get into the market and make it easier to change technology providers. Open technologies create more options for the end users.

Patents and Open Standards

One of the other big downsides of open technologies is that they are incompatible with the patent system. If there is a patent, that is discovered, on a particular open technology it essentially becomes proprietary. People then have to pay for a license. This is not supposed to happen, as patent holders are supposed to let anybody know, who is infringing on their patents, as the technology comes to market, so that people don't adopt a technology, because it is open and then later on they have to pay for it. The patent system often slows down technology, like video compression, because there are so many different patents on basic technologies, so that it is almost impossible to create a format, that does not requires licensing of patents.

Proprietary Technology Issues

One of the major downsides of open technologies is that they are usually far behind proprietary ones in providing advanced features. They are also essentially generic, as most large companies are not going to promote open standards, or open up their software, that allows them to make money. It may be hard to find a big brand name to support open technologies and it is also hard to get a new technology marketed well without support of a big brand name. One of the big areas in which proprietary software excels is in multimedia.

Most of the audio and video formats, that are most widely used, are proprietary like MP3, MP4, Flash, DivX, DVD, Blu-ray and others.

Proprietary Technology and Future Support

One of the big downsides of proprietary technologies is that you depend on a single vendor and you have no control over how well the technology is supported, or even if it is continued to be supported. Technology advances may make it obsolete, or the vendor may mismanage the technology, so that is unreliable, has poor security, performs poorly or is not available for certain hardware or software. The vendor can even decide to no longer support it at all, if they lose too much of the market, or decide to go in a different direction, or they may be sold to another company, that decides to discontinue supporting the technology. They can also raise prices, for licensing and creation software, or decide to stop supporting the version you are using, so you are forced to upgrade.

4.4.2 My Thought on E-Books

My Perspective

I recently purchased a Kindle 3 from my local Best Buy. I am happy with what it does and thought I'd write a review of it, but although I am happy with it I don't really get excited by it any more than I do the soap I use. I thought that my review of it would not be interesting, because of my lack of passion, but after talking to my dad, he was quite surprised by my take on the ebook industry, which I know something about, as I have been giving away e-books for 4 years now and have had my writings on the Web for almost 13 years now.

Should I Write a Book?

I first want to say that people looking into writing books for money that this is the worst time to get into the industry, but for those who want to get a book out there, especially one that targets a niche market, it is the best time, if you aren't writing it to make money. The reason for this is simple supply and demand and exposure. There are more people than ever before writing books and fewer people than in recent history that are reading them.

There are even likely many people writing books, who haven't read many, which is a recipe for failure, at least in terms of producing a quality product. The key to being successful in publishing books is to be famous already. I have said this many times before, that someone like Jimmy Carter could write a book, that is literally just a shopping list, and will sell more than I will, even if I write one of the great classics.

Good Products or Good Promotion

This all goes back to the reality that some companies are very good at producing good products and others are very good at marketing (marketing is a much broader term than advertising, which includes everything, that isn't production, like distribution and product research) and very rarely does a company do both. This means that most companies, who are successful, make a lousy product and, if you want to get a good product, you have to do a tremendous amount of research on it. This is true of most industries. Think about an area you know well and then think of the best product on the market. Is this product well advertised on TV? Likely you will find it is not.

This also explains why targeted advertising, for things you are interested in, will never work: the people who advertise things you want to buy are usually the very companies that you try to avoid the products they make. If you see many Linux sites, they have constant advertising by Microsoft, which is a waste of advertising, but very few Linux companies are willing to spend money

advertising. The main reason for this is, because many people who make great products think that their product will sell itself, which is definitely not true. I am particularly bad at advertising, plus I am in a niche market, that is both hard to describe, plus I am also unwilling to trade promotion of other products, in the same industry (due to my unique views on theology).

People Steal Digital Media

What I see happening in the book market is the same as what happened in the music and is happening in the movie market. When something is put online, that is valuable, people steal it. The big reason why it took so long, for people to start stealing music and now movies is because the file size was too big, for the slower Internet connections.

Apple has found a way to get people to pay for content: by charging only a dollar a song. They make it easier to find music and have it in a much higher quality format, but people are only willing to pay 1 dollar a song, or else they will keep on stealing. Now ebooks are much smaller than music files and the big reason why people don't steal books is because you get in trouble for stealing physical products, while you don't for stealing intellectual products, that come in digital format. Photocopying an entire book is usually more expensive, than buying the book and it would take a lot of time and effort in getting the book scanned into a computer.

The industry's answer to this is to use DRM. DRM are software restrictions on media files that make it hard for average users, to make more copies of the books, music, movies, etc. The reason why this is counterproductive is that it is technologically impossible, to restrict copying of anything, that you can see on your computer. Hackers release ways to unlock these files, within hours of the format's new version of DRM. But this is often too much for the average user to figure out, so what happens to the honest people is that you get files, that only work with certain software, so when the company goes under or stops supporting the format, all your digital collection becomes impossible to access.

Adobe and Microsoft are prime examples of this. With almost every other

release of the PDF file format specification, Adobe has released a different and incompatible form of DRM for books and the previous versions were unsupported. Microsoft promoted their own format for a number of years, but now no longer support it.

Business Models

Since books are going to be sold for \$10 a piece or more, writers will soon find that their chosen career cannot even pay, for the time and resources needed, to produce quality books. This means that we will likely only have books, that are produced by people willing to donate their time and resources. For those, who want to produce books, that they intend to give away for free, this is a great situation for them. This market includes charities, like: churches, political organizations, disaster relief agencies, consumer protection agencies, and creative companies.

The reality is, for those wanting to publish in print and get in major bookstores, like Barnes and Noble or Borders, they have to sell all rights to their book, for generally about \$5,000 total and there is usually only a week to promote their book. Promoting a book, in one bookstore, costs about \$10,000. To get someone, to proofread your book, or any other service like making covers for you usually costs \$500, for each service (for no name amateurs). When you sell your book, to a publisher, you forfeit all your rights to the book, so that you can no longer give it away for free, or have any control over whether it stays in print.

The way to get around this whole issue is to change the prevalent business models. A business model is the way your business makes money. Microsoft makes money, by selling Windows, to PC makers and to large businesses. Apple make money, by selling devices like iPods and iPhones to consumers. Google makes money, by gathering personal information, they mine from giving away free products and selling it to the Department of Defense, foreign governments, advertisers, and any other group, who wants to have people's personal information. The type of business made for the media industry is the

same kind of industry that US companies can successfully run and compete against the Chinese, Indians, Brazilians, and Europeans. This is similar to Apple's business model and it works very well, in times of economic problems.

This business model focuses on those who have the money and the most important aspect of the business is the brand. Instead of trying to get \$1, from millions of people, by mass producing a product, they charge one company, or individual a million dollars, for exclusive rights, to a certain kind of media. Font makers could make a custom font, for an individual company, to use on their website and brochures. Famous people could get their own custom songs written about them. You could produce text books, for students, that are sponsored, by large fast food corporations. You could produce movies, that are PR products, for various multinational corporations, executives, politicians, or stars.

Since the business models for selling ebooks are so different, than those for print books, once the market starts moving far enough into ebook territory, you won't be asking yourself whether or not you want to buy an ebook reader, but if you want to read books, you will have to buy an ebook reader. This was the same situation with the transition from horses to cars. Amazon.com is now selling more ebooks, than print books. Borders has gone bankrupt, libraries are losing their funding, and the only reason why Barnes and Noble is worth anything is because of their ebook reader. The reason for this happening so fast, is that the people, who read the most books (12 or more a year), have already bought ebook readers, so this has affected the book industry disproportionately.

4.4.3 My Book Design Decisions

LaTeX is a lot like HTML plus CSS and is not any harder to learn. It is actually easier because you don't have different interpreters of the language like in web browsers. It is not a real computer language. It is what is called a markup language for document formatting and is a free and open file format.

It has a limited set of very simple commands and great documentation you

can get on the Internet or in book stores. It hasn't changed in a long time, so chances are any documentation you find will be for the same version.

It is very fast even on old computers, free, and the latest version works on almost any operating system. It is of the highest quality and will make you look very professional. It makes great PDFs and can be converted to almost any format.

Recreating the Same Design for Another Document is Easy

Have you ever created a design one day with a program like Microsoft Office and then upgrade the program and then you have to learn where all the commands went to and you have to learn all over again how to do the same design with a new version of the same program? Then have you tried to teach someone else using a different version of the same program or write up how to do the design and find out later that an application update has rendered your write up obsolete?

That is the beauty of coding your document using a markup language like LaTeX. Once you create the design you like, you just copy the first few lines of code of the previous document and paste that code into the new document and all the settings remain the same.

Easy to Keep Formatting Consistent and Professional

Have you ever completed half your book and then realized that you need to change fonts for all your headings or update your table of contents? Have you changed the main font for your body and then add a few lines and have to reselect all and change the font? Have you ever had trouble making your document look consistent by forgetting which style you had for your chapter

headings or having your fonts change on you in different parts of your document unpredictably?

If you are using a structured document approach, you can just specify in one place what style you want to have for all your headings and after changing that setting in one place, your entire document will be the updated consistently. Also, tables of contents can be auto-generated when you mark what are the headings instead of just formatting them manually, visually, and individually.

This is another thing that is built into LaTeX. With LaTeX, you are not going to accidentally forget to make all your headings in the same style, because you specify the heading level in the content and in another central location, you style all the headings at that level to be the same. Another thing about LaTeX is that all its default settings look professional and are consistent, so you don't have to plan everything down to the smallest detail.

Wide and Long Lived Support of the Same Format

Have you ever tried a certain application on a certain computer and then have to switch to a different program or to a different operating system and then have to start from scratch in an entirely different interface? Have you had a program fail to load due to the activation process being screwed up or the license file corrupted or have you had a hard drive crash and lost the copy of your license?

This wouldn't be a problem with LaTeX. You can use a wide variety of different programs, many free and open source and the code will look the same. LaTeX also runs on almost every operating system you could imagine and the versions don't change very much at all even over a period of 10-15 years. All the documentation you find on the Internet is for the same version, because it has been kept the same for so many years.

Speed, Adaptability, and Fine Grained Control

Have you ever tried upgrading to the latest supported version of an application and not be able to run it because it was too slow on your computer? Have you thought that you needed the book to be put in a certain format and then have to make a version in another format or re-styled for a different medium? Have you ever had a section where no matter what you do you cannot change the style of the text or the font?

One of the greatest things about LaTeX is its speed. It was designed to run on computers that were produced 10-15 years ago, so LaTeX is very efficient. LaTeX also has free converters for almost any common format. You will never run into a time where you cannot find exactly what is changing the formatting to a given element and be able to remove the unwanted formatting code.

4.4.4 Design Services and Resources

Print on Demand

Overview

Print on demand is a service, based on the idea of avoiding the set up costs of printing in bulk and the cost of keeping inventory in stock. With print on demand, you submit your book or graphic in digital form, the service prints them out in as low a quantity as one, and then ships the physical version to you or your customer. You then can set a royalty to be paid off each book. This way, you avoid any monetary investment in your publishing setup. Another good thing about print on demand is that you don't need to sell your copyright (all your rights) to your book, before you can get published. There is no publisher and instead you are self-published.

Lulu

Lulu is a print on demand service that is most famous for printing books, although you can print almost anything else with them as well. They are based on a “do it yourself” concept, where you do your own proofreading, translation, book design, and marketing. Lulu also has set up a “marketplace” where you can hire someone else to do almost any aspect of your book, but Lulu won’t do it for you by themselves. You can also submit your book to get an ISBN number and to be sold on Amazon.com. They also have monthly book contests. The company was started by a former Red Hat employee, so they will give you help with OpenOffice.org, LaTeX, and Ghostscript on the forum as well as Adobe Acrobat and Microsoft Word.

Cafe Press

Cafe Press is known to offer printing of a custom image on almost anything you can imagine. The only stipulation is that you have to own the copyright to the image, which usually means creating it yourself. I first saw Cafe Press being used as a way to sell T-shirts that advertised open source software. I have ordered t-shirts, posters, grocery bags, mugs, pillows, mouse pads, and jewelry boxes of my logo using Cafe Press. I also have ordered a huge vinyl poster with some of my poetry and essays on it. Cafe Press is slightly limited in the free version, in that you can only have one of each item, so you can sell as many different products as you want, but they can only have one logo, for each one.

Social Networking

Overview

Social networking has been possible, since the Internet first began, but people have finally gotten comfortable enough with sharing information online to make it useful. Social networking sites like MySpace, Facebook, and Bebo are designed for people to meet and share things with each other. Each person has a simplified web page, where they add content, by uploading pictures and entering text in web forms.

Librarything

Librarything is a social networking site, based on sharing book lists. The service is free for up to 200 books at a time. When you add a book, you can search Amazon.com for it, to get all the information like publisher and ISBN number automatically. People add keywords, called tags, to categorize the books and to make searching easier. You can also review books. Users can join different groups, recommend other people books, and you can find out who else is reading the same books as you. You can also export your book lists as a spreadsheet.

Flickr

Flickr is a photo sharing website. You upload your photos and then you add keywords to organize them. There is a free version, but you can only add a certain amount of photos to it and there is a limit to how many people can see your photos. You can make slideshows and web galleries of your photos. You can also insert your photos from Flickr into other social networking sites and blogs.

Other Social Networking Sites

Belief Net is a community website that specializes in religion. Belief Net allows you to share blogs, videos, pictures, post widgets to give to a charity of your choice, and choose a theme for your web design. You can also join groups and add friends.

Bebo is the third largest social networking site, after MySpace and Facebook, and similar in function. It has an author section, so I use it to post my books, so people can comment on them, and to advertise them.

Chapter 5

PC Choices

by Ben Huot

5.1 Microsoft Problems

5.1.1 Which Version of Windows?

History Repeats Itself

Each time Microsoft releases a new version of Windows, from 1992-2009, Microsoft has claimed that the current version of Windows solves all the stability, security, and maintenance issues of previous version of Windows. Windows 7 is no different. It is true that Windows Vista was so bad, that even Microsoft fans hated it and refused to use it. Windows 7 is not as bad as Vista, but Microsoft had problems with XP as well.

All Versions of Windows

When I refer to a Windows problem, I am not referring to a specific version of Windows. I don't need to explain the problems with Vista, because they are self-evident and there are so many other problems with Windows, that even with my brevity, I could fill an entire book with its flaws. I have chosen not to get into overly technical explanations of Microsoft software problems, because I would fill volumes and it would take a lifetime to give an exhaustive technical explanation of what Microsoft has done wrong from a programmers point of view.

Microsoft is Run by Salesmen

The real reason why Microsoft products are so bad is that the salesmen run the company and a salesman will sell anything to you, no matter how bad it is and is extremely loyal to the company, regardless of whether or not the product works. Instead of focusing on making a good product, Microsoft

managers try to find way to kill off competition, so that competitors products are incompatible with its operating system.

Microsoft Security Continues to Get Worse

Microsoft has tried to convince its users that they are the ones responsible for getting viruses and spyware and that Windows has gotten more secure over time. Actually, the opposite is true. When I used Windows 95, you only had to worry about getting viruses by downloading programs off the Internet or by copying programs from other computers. Then viruses started appearing in Microsoft Office files. Then the concept of spyware was invented, but you had to download programs to get it. Then when XP came out, people started getting viruses by just being online. Then you could just get viruses from jpegs or pdfs when using Windows. Then you could just get spyware from visiting a malicious website with Internet Explorer. Now you can get viruses from going to legitimate websites that have been hacked while using Internet Explorer.

UNIX Security Continues to be Stellar

During this same time period, as Apple's market share dropped from 10% to 2%, the Mac had an increasing numbers of viruses, many due to using Microsoft products on Macs. The last 7 years, Apple market share has grown from 2% to 10% again, but there are now no viruses for Mac OS X and no spyware. That is because Apple now has a UNIX based operating system. There are about 2 trojans you can get for Mac OS X, by deliberately downloading, installing, and entering your password, for a fake Quicktime update from a malicious porn site, or by stealing Apple's iWork office suite. Apple's latest operating system now even scans for these, before you download them, so even those who don't even have basic common sense about passwords are still protected be using a Mac OS X. Linux has some theoretical viruses, but you

have to be using a 10 year old version, without the free provided security updates.

Why these Problems will Never be Fixed

All the problems I talk about apply to every version of Windows released, up to and including Windows 7 and any other succeeding operating system developed by Microsoft. The only way to solve these Windows specific problems is for Microsoft to re-design an entirely new and entirely incompatible operating system, which will require every Windows only application to be re-written from scratch. This scenario would mean that no previously written Windows program will be able to be installed on this new Microsoft operating system. In this situation, you would have to buy entirely new programs, for every thing you do with your computer, which will likely be developed by totally different companies, with likely totally incompatible file formats, after having to wait another few years for them to be written.

5.1.2 Different Types of Malware

Malware is a very misunderstood topic. Malware is a general term which includes: viruses, worms, spyware, trojans, adware, root kits, or anything else unwanted, like DRM. Some types of malware are easier to remove, harder to get, and less destructive. Some are easy to prevent and others are social engineering techniques, that there is no way to protect fully via software.

Viruses and Worms

Computer viruses and worms are probably the most well known and least understood malware. There are over a million viruses for Windows and many of them can still infect a fully patched system, while there are still no known

Mac OS X viruses (although there were a few dozen Mac OS 9 and lower viruses, due to it not being a UNIX and many of those were either Microsoft Office or Microsoft Works based). Technically there are Linux viruses, but to get them you need to be running a ten year old version of Linux without the free security updates already provided.

Viruses and worms are forms of malware that attack your computer and then replicate themselves and send themselves to others all, without any user permission or knowledge. A worm generally just slows down your computer and your internet connection, whereas viruses generally corrupt or delete files on the infected computer. Many people think that anti-virus programs protect them, but antivirus protection only works after a virus or a worm has already infected many users and the antivirus company finds a way to eliminate it. So you need to have your anti-virus definitions up to date and you are still not protected for a while, as a virus or a worm first spreads.

Another thing people don't know about viruses is that although most current viruses and worms are just there to control your computer, to do illegal activities like sending spyware to steal other people's credit card and social security numbers, viruses very well can also delete or corrupt all your files. Another thing is that many anti-virus programs will only find certain viruses and worms, as well as many times there are false positives. False positives mean that many times the antivirus will determine there is a virus or a worm, when there isn't one, and you can end up corrupting a program or document, trying to get rid of it.

Another thing is that you do not really know if you are free of viruses and worms, unless you do a reformat and re-install your OS, because many viruses know how to hide from antivirus software, or hijack it before it is turned on. Microsoft Windows requires you to authenticate it, by first going on the Internet, before you can install antivirus or firewalls and so you can get infected, before you can protect yourself. Many people think that they do not have viruses or worms, but many times when they are taken into the shop, they find viruses or worms on them anyway. You can never be sure that Windows is

virus and worm free.

Spyware

Spyware is another form of malware. Spyware is designed specifically to steal the information on the computer it is on to sell to others. Spyware does not control your computer like a virus does. Most of this comes from using Internet Explorer (which is only available for Windows). You can best protect yourself, by using any other browser, like: Firefox, Chrome, Safari, Opera or any other browser that uses the Webkit or Gecko rendering engines.

Trojans

A trojan is a piece of software, that is designed to take control of a computer. It cannot install, without the user's permission. To get people to enter their passwords and install it, they rely on tricking the user to think that it is a useful and benign program. The only protection against this is to not install things from websites that are not trusted. There is no way for software to protect you against these.

One of the ways in which a Mac user could get a trojan can be more deceptive, as any file with any extension can be executable ie a program (on a Mac even OS X) This is because Macs have something called resource forks, which are a way of describing which program to open the file up with, without requiring an extension. So, for instance, if you download an archive file that can preserve resource forks, that is a file that ends in something like PDF or JPG, it can still be a program. But the only files that can do this are in archives, with extensions: DMG, SIT, and more rarely SITX, HQX, BIN, and SEA. You can see if it is a program, by selecting the file and then choosing "get info", from the file menu.

Adware

Adware is a method of making money off software that is given away for free, often referred to as freeware or shareware. You get the software for free, in exchange for having ads displayed on your computer, whether you want them or not. They can be very hard to get rid of, but they don't spread themselves or cause damage to files. Open Source software is free of this.

Root Kits

Root Kits are not destructive in and of themselves, but rather they hide things, like files and programs (like viruses or DRM) from the OS (and your security programs as well). This means the only way to remove these is to have a program, that knows exactly how each one is designed and only if it is exactly the same can it detect it and remove it.

5.1.3 How Microsoft and Apple are Different

Why Other Big Corporations are so Mad

Apple has recently had great success in consumer electronics and although it has made many small developers some small fortunes, it has earned the wrath of big corporations like Microsoft, Palm, Nokia, and other vendors with no vision. The reason why Apple's competitors hate Apple is because Apple has raised the bar and has truly differentiated itself from the competition. Not only has it done that, but it has outdone itself every year and has not had to compromise its profit margins or do anything illegal or unethical to do so.

Why is Microsoft Different?

Microsoft is very good at doing everything but creating a good product. It has many tactics it uses to try to kill of the competition and none of them include competing on its merits. You might wonder why Microsoft doesn't just stick with Microsoft Office, Windows, and Exchange Server as it has only lost money in every other market it has tried to enter. Microsoft doesn't want to make a healthy profit, but rather make as much as they possibly can and the ultimate goal of Microsoft is to control all information. Apple and Google, on the other hand, realize they are good at certain things and do not try to go outside these areas: Apple sells computer hardware to consumers and Google makes its money selling ads and neither of them is going to do anything that doesn't advance these areas.

Why Microsoft is Mad (at Apple)

The reality of why Microsoft is hurting nowadays comes from losing the high end of hardware that makes most the money from Apple and losing the low end high volume sales from big business customers to Linux clients and servers. Microsoft is mainly marketing that they are cheaper than Apple, but then people have found out that Linux is cheaper than Microsoft. So Microsoft also has many "fans" (otherwise known as paid Microsoft employees or people receiving free laptops for talking up Microsoft products) who go onto blogs and complain about Apple and are now trying to confuse Apple's popularity and market success with Microsoft's illegally using their monopoly of operating systems to get a monopoly in web browsers.

The Most Famous Thing Microsoft Did Wrong

Microsoft did this by illegally and technically tying Windows and Internet

Explorer together while changing stuff on Windows that caused problems for Netscape to be able to run properly and forced PC manufacturers from bundling Netscape with Windows, despite market demand. Apple has a dominant market share in iPods, but you can use an iPod and buy music from Amazon.com or buy music from iTunes and use a generic MP3 player. Apple also has designed an easy to use programming hook to synchronize everything on the Mac with third party devices like the Blackberry, which compete with the iPhone (which includes synchronizing your iTunes library with your Blackberry).

The Method to Apple's Madness

As far as the iPhone is concerned, Apple still has a very small market share, but has created some restrictions to keep people from stealing third party software. Apple uses the same strategy as it does on iTunes by keeping costs low to keep people from wanting to go to the effort to steal what costs only a few dollars. Even with these restrictions, there are 75,000 applications for the iPhone and it has only been out for a couple of years. Apple charges half of what other vendors do to third party developers and handles all the accounting and hosting for their programs.

Apple vs. Its Competition

Most things that Apple gets criticized for are the same for their competitors, like requiring an exclusive contract with a certain cell phone carrier, for the subsidized version. People also made fun of the design of the iPhone, but all its competitors use the same browser and the same basic design. Apple also gets accused of not having multitasking like the Palm claims. The difference is that while Palm allows multiple pages of its web browser to run concurrently, the iPhone allows true multitasking that is actually useful like allowing people to run the web browser, email, phone, GPS, music, photos, etc. at the same time. What Apple doesn't allow is a program you are not using

from taking away all your battery power. Another thing that Apple allows besides having a full featured browser is that you can open up PDFs, Word documents, and play all major formats of music, and the dominant multi-vendor video format (MP4).

Why Do People Buy Apple Products?

The biggest thing that Apple adds to the table is the integration between hardware and software and making the interface easy to use for non-geeks. Apple designs its products for 95% of the population. Apple was the first in mobile devices with the Newton, but Apple has decided that being first to market gets them no customers, because people don't know how to place the product. Apple has since decided to wait until a market is established, but has not become mainstream because of a lack of well designed products. Apple's competitors cannot manage what Apple does because of the way they run their corporations and their disdain for design. Why are Apple's products better? It is not the specs you can brag about but what problems the technology can solve for the average person.

5.1.4 Microsoft Business Tactics

FUD

FUD stands for fear, uncertainty and doubt. Microsoft utilizes fear of change, to keep people from switching to competitors products. Microsoft has led people to believe that there are some intellectual property violations in open source software, to scare people into staying with Microsoft. There is no bases for these claims, but the mere insinuation has led people to be wary of Linux.

Most of the things critics say about Apple are unfounded, like: implying that Macs doesn't support Exchange Server, or can't get Microsoft Office at the

same price as PCs, or that Macs are only good at graphics; or implying that iPhones need Flash Player (think about how the mouse over effects will work without a mouse) or that there is something more proprietary about Apple than there is about Microsoft in their media formats or development environments, or that people prefer to rent music rather than own it.

Vaporware

Vaporware is a tactic Microsoft uses to kill off competition, without having to actually come up with a competing technology. Microsoft announces products that it will introduce years ahead of time and then never actually produces the product and in the mean time people just think that Microsoft will destroy any competition and so never purchase the technology from the other company. This is all just because people remember the history between Microsoft and Apple wrong. Did you know that what became Vista was announced back in 1995 and many of those features still don't exist yet? Apple gets criticized for not giving anyone notice to what it will release, before it is ready to ship, but Microsoft announces things it never intends to deliver years in advance.

Microsoft has continued to announce new projects and then drop them in the middle, often times while leaving its partners "holding the bag". A recent example is how Microsoft partnered with other companies, in the Plays for Sure campaign, to develop a proprietary alternative to Apple's DRM, so that people could buy from a variety of non-Apple MP3 players and they would all be compatible. Microsoft would license the software and then other companies would develop the hardware. Then Microsoft decided to sell its own incompatible hardware and software called Zune.

Which would you prefer: empty promises or real products?

Astroturfing

You can understand why people like Apple products or Open Source

software. Apple makes such high quality premium products that open up people to a new uses for computers. Open Source is a type of philosophy that inspires people and brings out some faith in humanity not destroying itself. But who gets inspired about Microsoft products? We have found a startling connection between Microsoft giving away free laptops and bloggers who write articles praising Microsoft products. We also see tons of Microsoft ads on sites where “professional” tech writers say negative things about Apple. Some of these tech writers say the purposely make fun of Apple products, to get more money from ads delivered to angry Mac users.

Embrace, Extend, and Extinguish

Microsoft doesn't like open standards. Open standards are specifications for technology that have been agreed to, by many companies and individuals, as a way to make sure people can share information with competing software. Almost every major company in the tech world now contributes to these open standards. Microsoft representatives are even on the boards of many of these organization, but then when Microsoft releases products based on these standards, people who actually try to share information with users of Microsoft software, they find they lose important information or formatting. There is basically a Microsoft way of doing everything and then there is a way everybody else does it.

Take web browsers for example: if you make a website that sticks to standards and it will work in every major web browser (that uses a different software to interpret the web page code) it very likely will not work in Internet Explorer. All major office suite vendors now support a standard office format called OpenDocument, and Microsoft claims this too, but there software does not work correctly.

Microsoft some times claims they don't understand what every other company has figured out how to do the same with different software, but that is hard to believe that Microsoft cannot afford to employ programmers who are competent.

Patents for Obvious Ideas

Another way Microsoft uses to compete, based on things other than making a good product, is to file patents on obvious ideas, so other people have to pay Microsoft to access their data, from competing companies software. A recent example of this tactic was that Microsoft sued a prominent GPS manufacturer, for using a file system that was so poorly designed that it was only used for compatibility with Microsoft products.

Basically there is nothing good about it, except that it is needed for compatibility with Microsoft software. The patent was on using 2 names for a file, one being 8 letters/numbers with a 3 letter extension and then one with the full file name, because of a limitation of previous Microsoft software. So this way to work around a design flaw/limitation self imposed by Microsoft is thought by the US Patent office as some kind of original and creative idea.

The problem is that the people who are judges and senators are so old that anything sounds new to them. You can fight it in court for many years and still lose as almost happened with the SCO vs IBM. The reason why IBM won was that SCO didn't own the intellectual property it claimed IBM used illegally. The legal basis for this case was ridiculous and could be easily proved since it was about open source software, but being legally correct doesn't always mean you win the case.

Not Invented Here Syndrome

Another thing that Microsoft feels the need to do is, after someone else is successful with a new technology like Flash, Microsoft feels they need to have another incompatible format, that does the same thing (like Silverlight). Netscape developed a browser, so Microsoft developed Internet Explorer. Apple developed Quicktime, so Microsoft developed Windows Media player. Apple developed the iPod, so Microsoft had to create the Zune. Google had developed a better search engine, so Microsoft has what is now named Bing.

5.1.5 Thinking Errors, Myth of Objectivity

All Products are Equally Good Assumption

Some people are so obsessed with objectivity that they feel the need to treat every product or view equally, no matter what its merits are. We have some people thinking that Satanism is as legitimate as Christianity by the mere fact that it is a competitor. I remember in school that some faculty would not only listen to both sides of an argument, but would actually weigh each sides equally, regardless of the facts, proof for the facts, or reputation for telling the truth weighing in for one side or the other.

I see this in the tech world now. Journalists feel the need to say negative things about Apple or make them up, because people say negative things about Microsoft. Instead of investigating and weighing the facts and the history of the situation, they feel the need to treat all equally, regardless of the reality of the situation.

Writing without Reviewing the Products

Most journalists in the tech world don't bother to review products, but just base their reviews on what their advertisers tell them to say. This is sometimes called talking points. Many reviews are actually just a restatement of the companies press release.

Many of the people who say that Windows is as good as a Mac have never used a Mac in the last 5 years, even though the product has been redesigned

from scratch. There is also those who compare Internet Explorer's safety record as the same as Firefox, because Microsoft claims it has better security, which is "proved" by a Microsoft funded lab.

Apples to Oranges Comparisons

Many tech journalists treat each feature Microsoft claims as being the same as an Apple feature. Like the backup feature in Windows, which requires a Windows server being compared as the same as Apple's consumer-oriented backup, called Time Machine which is totally automatic and doesn't require anything else. Then there is the recent Grand Central Dispatch which allows Apple developers to make use of the multiple processors and advanced graphics cards, without having to manage the technical details, but .Net developers claim the same feature, even though there's works on an application level and Apple's works on the OS level. Palm mixes up its ability to have several browser-based applications running in multiple web browser windows with Apple's ability to run multiple applications, but not allowing third party applications to do so, in order to improve battery life. There is also the assumption that Apple uses the same software as FreeBSD, because it is a certified UNIX, even though they have totally different kernels, development environments, programming languages, windowing environments, APIs, and interface. Many people equate the fact that developers are locked into Windows by having to develop their applications from scratch to work on other platforms with the idea that Apple uses the MP4 format for its iTunes music, that can be licensed to everyone, as a lock in, even though converting to different file format just requires the clicking of a couple buttons.

Its OK for Me, But Not for You

Some how tech journalists pick apart Apple for not giving their own development tools, for third party developers, before it was fully tested and then praising Palm for only allowing web browser based programming, for third

party developers. Apple was berated for not having a dedicated keyboard for its iPhone like the Blackberry has, even though it makes the screen twice the size and is a much more efficient use of space and then Blackberry releases a product that works the same. Apple was told that it had too restrictive requirements for its App store, which require people to not violate intellectual property, keep developer profits high and consumer prices low, keep the long battery life, and keep the store safe for children and then Microsoft is praised for having even more restrictions, which killed off most their third party developers programs and put ads in all the apps, which don't benefit the consumers at all.

5.2 PC-Specific Problems and Solutions

5.2.1 Mac Mentality vs. PC Mentality

The Computer as an Appliance

The reason why so many people like Mac OS X is because they see a computer as just another appliance like a microwave or a TV and should be just as simple to use. The Mac design philosophy is simple: if most users have the same problems understanding how to use a given piece of software, then it needs to be perfected, until average people are no longer confused. Macs are designed for the end user, while PCs are designed for managers and engineers. People do not buy Macs because they love Steve Jobs, are blind Mac loyalists, think that Apple is a charity, or think that Apple is cool. They use Apple products because they work better than the competition.

Managers and Engineers

The reason why the Mac gets little respect in large corporations is because they are run by managers and engineers who think that computers that are easy to use, excel at graphics and multimedia, and are not as easy to modify with unsupported hacks are signs that a product is not very useful.

Software Resilience

Managers and engineers tend to not value good design or realize that security, stability, and ease of use are all important for resilient computing. If a computer is stable and secure that it loses these attributes by being easy to use, but ease of use is important for good security and stability because people are only going to make use of computer security features if they are easy to use and there is no point in a computer being stable but hard to use, so that you can still screw it up, if you don't know what you are doing.

Out of Touch Programmers

Managers and engineers also don't believe that graphic and multimedia design are serious endeavors and so don't appreciate that a computer that can handle graphics and multimedia well can do almost anything well, because graphics and multimedia are some of those most demanding of software applications. Managers and engineers also don't value the concepts of good design, because they are out of touch with the average users. Manager and engineers make products that they would like and don't realize that most users have very simple needs and haven't spent their entire lives learning how to fix software problems. Some advanced users also use Macs, because they believe that their time is valuable and don't feel the need to prove their abilities in computers, by using poorly designed software.

Paradoxical Phenomenon

An paradoxical phenomenon is happening in the software industry. As more and more people are interested in and are putting down serious cash, in a huge economic depression, for Apple products, the news that computer experts read is filled with criticisms of everything Apple does and complete admiration to any competitor to Apple, no matter how poorly designed it is. This is happening because Apple didn't always do things the way it does today. Before Steve Jobs came back, Apple products only appealed to 2% of the population and these people are not pleased with the new designs coming out of Apple, because Apple now designs their products for the other 95% of the population.

The Price of Mainstream Acceptance

One of the things Apple critics hate about Apple is that they keep tight control over what they develop and don't announce what they are doing until the product is ready to ship. This 2% of the population want to tinker with their computers and are upset, because Apple has made this harder to do. You cannot appeal to everyone and to make advanced users happy, Apple would have to alienate most of their current market. Managers and engineers don't want to accept the fact that easy of use and quality control sometimes requires putting restrictions on how many unsupported hacks can be performed (on Apple hardware).

Apple Software Regulation Benefits Consumers

Managers and engineers want to do things with their Apple devices that would allow: malicious software, scams, and buggy software to thrive; as well as leave most users with: poor performance, less battery life, more costly software; and the small businesses that have made small fortunes in this Apple

regulated ecosystem unable to continue business. For almost all users, this control Apple leverages does not interfere with even the most specialized and unusual niches for which there are plenty of software options. Apple realizes that things should be designed first and foremost for the average user.

5.2.2 Examples of Big Design Mistakes

If you haven't used the latest version of Mac OS X, or haven't been following the tech world for the past 5 years, you likely don't know why Mac users are so attached to their computers. There are a number of very rational reasons why which include various poor engineering decisions that were made with PCs.

Backwards Compatibility

The biggest reason why there are so many problems with Windows is that Microsoft refuses to cut off compatibility ever, no matter what the advantages are in terms of stability, security, efficiency, speed or ease of use.

The first computers to really work well and the ones that still do use what is called UNIX for their operating system (Mac OS X 10.5 on Intel is a certified UNIX). This is in place of Windows. Using UNIX is an obvious choice which was only not used at first, because the hardware was too expensive. The computers that could run UNIX even in the 80s and 90s cost as much as a car does today.

DOS was never meant to handle more than just data entry and was never thought of as good enough to trust data to for anything important. The original PCs were very low powered and they could only run very limited software. They were also not designed to run more than one program at once or do any networking. Most of the world adopted computers way too early, before they were powerful enough to run reliably and be able to provide the use we get today (which we get now because of advances in computer hardware).

Most people who write software for Windows have done so because they never want to update their software again. For good or for bad, Apple has

continued to make major hardware or software changes and cut off compatibility every 5 years. If you have ever used some of the really early Apple machines, some actually used DOS.

Big Business Attitudes

The reason why businesses hated Vista so much is because it is too much like the Mac. Large businesses do not want to do anything innovative or use anything new - they have no vision. The version of Linux that is most used in big businesses is 5 years old, which is an eternity in desktop software, but nothing in terms of how long businesses want to use the software, without bothering to update it. Most of our infrastructure was designed many decades ago and has never been upgraded. IBM still makes a tremendous profit in their mainframe business, to this day, just because of this.

The Mac is designed for the consumer, whereas PCs are designed for big corporations. Apple wants to empower the consumer with creative software, whereas businesses want to lock down computers, so they have only the bare minimum for someone to enter data. Big businesses, like the military, have a very low opinion of their workers. Instead of rewarding people with higher pay and investing in new technologies, they try to skate by on the bare minimum necessary and treat their employees like they are the enemy, that need to be contained and disciplined.

Big businesses are very cheap and never want to change anything or invest in anything, because they never have no confidence in their abilities to compete. They are afraid that what they sell is so easily put together that anyone else can do it just as easily as themselves. They don't want to compete on merit, but just on name recognition, advertising, and on making things incompatible, so people feel they have to buy their product.

A good example of this lack of vision is how Steve Jobs, before he returned to Apple and started the iPod was trying to sell his Objective C development tools. He was willing to sell it for next to nothing to the likes of IBM, Sun, HP, or anybody else who was willing to give them any money. They all declined this

offer. So when Steve Jobs showed a demo of a simple visual effect, possible with this same technology, many years later, to Mac users, they were stunned. Today, everything Apple sells uses this same software to differentiate it from all their competitors and now Apple is worth more than IBM or HP and Dell combined.

Variety of Hardware

Choice is something that Windows users have (at least in terms of hardware). The fact that anyone can make a graphics card for Windows and that people like to buy whatever is cheapest, means that it is a nightmare to support useably, although easy to support on paper. Many of the problems that people blame on Windows are there because they are running it on sub standard hardware.

There are literally millions of possible combinations of hardware that is marked as compatible with Windows. Microsoft has no control over how good the software is and never has any input or ability to even see the blueprints for most of this hardware. Apple, on the other hand, probably only has several hundred combinations of hardware, even when including every model of computer they have ever made. Apple also standardizes as much as possible and only offers a few different models and options for their computers. You cannot get the same configurability with a Mac, but it sure is a lot more reliable and the big reason for that is not specific to Windows.

Linux has a similar problem. This situation with Linux is worse, because Linux changes so fast, Linux also does not often get the source code or the drivers for most of the hardware people have in their computers. Without this information, a lot of the work on Linux has to be reverse engineered and with much fewer people, many volunteers.

Linux Specific Problems

Linux has an unusual set of things holding this great software back, and very

few are technical/engineering and most are political/cultural. When you compare Windows to Macs, you have a different interface and you have different applications, but when you compare different Linux distributions, you get almost identical interfaces and software. The things that are different are not apparent at first. The installation, configuration, and locations of the different component are all totally different, with no technical reason for the differences.

Linux is also designed to be command line driven as well as using a graphical interface for almost everything. So instead of having one application for burning CDs, you have one command line program that is what the software actually uses. Then you can use many different interfaces that provide usually only a fraction of the functionality of the underlying command line program.

Choice is taken to the extreme on every level and every aspect of Linux. There are 3 major versions, that have a roughly evenly split number of users, who are very committed to this method, for everything. This affects everything from installers to system configuration to interfaces and methods of programming. This is in addition to the different distributions and the same problem exists within a distribution as well.

Another thing that is taken to the extreme is the idea of efficiency. Many programs on Linux are split up into so many parts, so programmers can use each other's work and to keep people from having to ever duplicate the same parts. The result is that there is a very complex relationship of tens of thousands of different pieces of software that have to work together for Linux to work.

Another problem is two fold. Linux development and major releases happen very fast and the operating system is not separated from the applications. The result is you either get a very old set of applications or a very new and buggy operating system, if you want the latest applications.

One of the big reasons for switching to Linux is cost savings, but often this does not necessarily happen just by using Linux. If you buy a computer with Linux already installed, it will actually cost more than if you bought one with

Windows, because you have to pay for Windows, even if you don't get it with a new PC. This is obviously illegal, but Microsoft pays off the government, so it gets away with it. Another thing is that support for Linux often costs more than support for Windows and usually only covers a certain number of problems, instead of a certain number of years.

And the really ironic thing is that most of these applications are also available for Windows and Macs. So the best solution for most people might be to use the open source software, but not on Linux. That way you stay with what you know and if you have a problem with a particular application, you still have a wide variety of alternatives (that might cost varying degrees of money).

5.2.3 Virtual Machines (Virtualization)

Virtual Machines are one of the most effective ways to manage a Linux or Windows installation. One of the big problems with Windows and Linux is how easy it is to get them in a state that doesn't work properly or makes using them very annoying to work with.

Windows Problems

One of the things that keeps Windows users from being able to make use of the wide variety of applications for their OS is that it is very hard to uninstall applications, without removing important parts of the OS. This problem comes from the fact that Windows uses a registry of all the programs and all your settings, but the registry is not human editable, so things like viruses and spyware can hide in them (because programmers have easy access to the registry) and it is hard to remove things in the registry, without causing major problems with Windows. The registry, combined with a lack of a manager to sort out what belongs to the application and what belongs to the OS, makes it virtually impossible to get rid of an application, without removing critical Windows files.

People are also afraid to install applications on Windows, because they can

get viruses and spyware very easily, which are hard to remove, because of how they hide in the Windows registry. Another things that Windows users have to worry about is things like ads and nagware in applications that they get for free, so people are afraid to install free programs. Windows also falls apart over time and needs to be continually checked for viruses and spyware as well as the hard drive needs to be defragmented and the Windows Registry needs to be cleaned.

Many times the only way to fix Windows is to reinstall it, but you lose all your settings, all your data that isn't backed up and all your installed programs, email, bookmarks, etc. You can do complete backups of your hard drive including all the installed programs and OS, but that usually fails to work.

Linux Problems

One problem is having a Linux installation, as well as a Windows installation, on the same computer. In the past, people often would partition their hard drives and then have a menu, that would allow them to choose what OS they wanted, when they started the computer up. There were several problems with this setup. One was it was easy to overwrite your Windows or Linux partitions, which would destroy your installations. You also had to reboot the computer, to switch between Windows and Linux. Another problem was that you couldn't backup your installation. And then finally, you couldn't use certain disk utilities on Windows and Windows had to be installed first.

Another Linux problem was that people want to try it out, before committing to it fully. In the past, the Live CD was used for this purpose, where you would reboot your PC, with the Linux Live CD already in the hard drive, boot from the CD, and then you could run Linux off the CD. The big problem is that you couldn't save anything this way, except your files, on an external drive, like a USB flash drive.

Another problem with Linux is compatibility with your hardware. In the past, people would recommend buying a new computer with Linux pre-installed, or

making your own, using only supported hardware. Now, with virtual machines, you don't have to worry about compatibility, if you run Linux on top of Windows.

Another problem with Linux and Windows is that web designers and software developers want to test for different versions of Linux and Windows. Without using separate partitions or without using separate machines, this is the only way to do this.

Virtual Solution

This is where the idea of virtualization comes in. A virtual machine is a program, that runs on top of your OS, like any other application, like Firefox, but instead of a website running inside, an OS is running inside. You have another OS, that runs in a separate window, which you can click on icons and use your mouse, to navigate the desktop, like any OS, installed directly on your hardware. The OS, including all the installed programs and all your settings resides in a file or a number of files.

To backup your OS, all you have to do is copy these files over to a USB Flash drive or external hard drive and this will save your entire OS installation. You can do this before any major change, and then to restore the previous version, copy over the files from backup. You can have as many different installations of an OS as you want and have hard drive space for.

There are a number of programs that allow you to do this. Some of the leading applications are VMware (they have a free version with some limitations), there is a Microsoft version for Windows only, and there is a free and open source one, called VirtualBox (developed by Sun). You can also run Windows and Linux on Mac OS X with VMware and Virtual Box.

As far as hardware is concerned, you need enough RAM for your proved "host OS", your "guest OS", any applications you want to run on either OS at the same time, and for the virtual machine emulator itself. You should be able to run most anything, that is compatible with the OS you are running, in the virtual machine and use any peripherals, that are compatible with the

underlying OS. The processor speed that you get in the “guest OS” should be the same, as the full speed of your processor. And new Macs are the same in that regard, as they all now use Intel processors and have for over 3 years.

5.2.4 Wine “Windows Emulator” Solution

The Purpose of Wine

Wine is an unusual solution to many of the problems of Windows, but it is not a complete solution. Most emulators actually run a version of the OS being emulated, on top of the emulation software, but Wine is a substitute for Windows. Wine allows Intel Macs and Linux users (as well as other UNIXes like FreeBSD and OpenSolaris) to run Windows applications, without using Windows. Wine has been around for 16 years and it is perfectly legal, but currently only works for about 50% of Windows-only applications.

Wine, CrossOver, and Codeweavers

Wine is free, open source software, but it makes it much easier to use, if you buy the CrossOver commercial software, for managing it and installing applications. Most of the main developers for Wine work for the Codeweavers company, which makes CrossOver as well and uses the sales of CrossOver to fund the development of Wine. So when you buy CrossOver, in addition to having a much easier to use solution, you also fund the development of the open source Wine software.

How Wine Works

Wine is a way to avoid many problems with Windows, but still be able to run

some Windows-only applications. Since Wine does not rely on Windows, but is rather a re-implementation of the Windows APIs, there is virtually no risk to getting malware with Wine. With CrossOver, Wine programs run in separate Windows folders, called bottles, which emulate a certain version of Windows that is optimal for that specific app, without having any other programs interfere with it.

Other Wine Features

You can also make archives of Windows programs installed with CrossOver and then copy them over to a new OS or reinstall them to new versions of Wine, by just copying files. CrossOver offers a graphical interface, for installing popular applications and even allows downloading and installing arbitrary Windows applications, downloaded from websites or that come on CD-ROMs or DVD-ROMs. You still have to pay for the commercial applications to legally use them. CrossOver and Wine also work within Linux VMware virtual machines.

Supported Applications and Operating Systems

There are certain supported applications for CrossOver including Microsoft Office 97-2007, Internet Explorer 6 and 7, Windows Media Player, Lotus Notes 5 and 6, Quicken, and major Adobe Applications like Photoshop, Framemaker, Adobe Reader 5, Adobe Flash Player 9, Shockwave player, and Quicktime. There are also many other applications that work with CrossOver and Wine, but are tested and supported by volunteers, like myself.

Other Wine Compatibility

CrossOver only supports Intel Macs and Linux, but there are some smaller

companies, that have similar products, that help with managing Wine, one of which is called Bordeaux. Bordeaux is supported on Intel Macs, Linux, BSD and Solaris. CrossOver also has a Games version that supports many Windows only games. There is a listing on the Codeweavers website, which tells which programs run under Wine and how well they run.

5.3 Advantages of Microsoft Alternatives

5.3.1 Good News for Potential Switchers

Microsoft Moved Everything Around

Windows 7 and Microsoft Office 2007 have totally different interfaces, which will make non-power users have to learn how to do everything on Windows and Office from scratch. Since you will have to relearn everything you know how to do with Microsoft products from scratch, why not instead upgrade to Linux or Mac OS X. OpenOffice.org and Gnome, which are included with Ubuntu Linux, which is totally free and the best supported and most popular desktop Linux, are more similar to Windows XP and Microsoft Office 2003, than the latest Microsoft products. And don't worry about compatibility with this version of Windows: the most common viruses have been tested and run without a problem on Windows 7.

Apple and You: Graphics and Multimedia

For those who are looking to do more with photos, music, video, multimedia websites, and graphically rich documents, most die hard Windows fans will freely admit that the Mac does better at graphics and multimedia. Most iPod and iPhone users are happy with their purchases, so why not choose Apple for your new laptop or desktop?

Creative Mac Only Software

Apple provides an original graphics and multimedia suite for consumers, that comes free with every new Mac, that makes managing photos, music, movies and creating websites and original songs easy. Apple also offers an inexpensive consumer office suite and database, that excel at creating graphically rich documents, spreadsheets, and presentations.

Pay the Same for Less

Microsoft's sales pitch to Best Buy, to get them to sell PCs, instead of Macs (they currently sell both), is letting the Best Buy sales people know that if they can get people to buy a cheaper Windows-based computer, then they can sell you a more expensive service plan. Microsoft realizes that you have a set amount of money to spend and the Mac falls in that range, so instead of getting a better computer, for the same price, you can have instead an overpriced support plan. You may save several hundred dollars by buying a PC, but you will not save on a computer, with the same specs, from a quality manufacturer.

Microsoft Approach

When you call HP or Dell for technical support, they will tell you to re-install all your software from scratch, which will make you lose all settings, installed programs, and data you have not yet backed up. You will have to have on hand all the original disks, that came with your computer and all the authorization codes and have to re-authorize all your software or buy it all from scratch (you can only authorize most major software a set number of times, before you have to pay the entire price again to re-install it). Then they will send you to Microsoft, who will send you to your application developer and back and forth, until you give up. Microsoft will offer support for \$200 per problem you have, but they cannot support the hardware or the applications you use.

Apple's Approach

Apple also offers a warranty for consumer Macs at about \$150 that covers Apple support for your hardware, your operating system, and most of your software. The warranty lasts for 3 years and includes telephone support and onsite, parts, and labor on everything on your computer. And the best part is that you can buy it, up to a year later, after you purchase your Mac. Without even buying the warranty, your Mac hardware is covered by a complete 1 year onsite, parts, and labor warranty. Onsite means you can call up most companies that sells Macs and they will come over and pick up your Mac, from your house or office, and then come back and return it after it is fixed. Apple has the highest rated consumer support of any computer manufacturer.

Get Everything with Linux

If money is tight and you have more basic needs, most Linux software is free and easier to install and uninstall than on Windows. Installing Linux is like installing Windows, Microsoft Office, Adobe Creative Suite, Apple's iLife, and

most other applications you need to get the job done at once. Have you ever had trouble getting software to recognize your installation code, and realized it was easier to steal than to install legally, except that you have morals. Linux provides a way around this, as you can legally install, distribute, and modify any aspect of your free programs.

Have Total Control and Choice with Linux

Are you picky and want to have your desktop a certain way that is hard to set up on Windows, then Linux is your dream come true. You can easily install and use any number of free, highly configurable interfaces for Linux, and then choose which one you want for that session, when you start your computer. And if you have any problems with Ubuntu, you can always use openSUSE, Mandriva, Fedora, and many others all for free.

Office and Internet Compatible

You can test open source software on Windows, before switching to Linux and you can run any version of Windows you want to in a virtual machine running on top of Linux or on Mac OS X. Microsoft Office is available for Mac OS X and is completely compatible with the Windows version. The latest version of Flash Player and Adobe Reader are available for Mac OS X and Linux as well. Mac OS X and Linux come with better web browsers and PDF viewers than Windows does.

Open Source Compatibility

Most websites that are legitimate work with Firefox and OpenOffice.org can easily open most Microsoft Office files. Both Firefox and OpenOffice.org are entirely compatible with Mac OS X and come with Linux. Free software helps

users to create great graphics as well. Gimp provides most photo editing features of Photoshop Elements and the next version of Inkscape can do almost anything you need to create outstanding graphics. Gimp and Inkscape are easy to install and work on Mac OS X and Linux.

5.3.2 The Transition: Try Before You Commit

Software Changes Fast

Computers change fast and 5 years later Mac OS X and Linux might be entirely different. It looks as if the trends in computers are leaning towards Mac mobile devices in the US and other 1st world countries and 3rd world countries will be dominated by Linux based devices, likely from Google. When people have a choice in a device in an emerging market, as opposed to desktop computers, where Microsoft products are used because of legacy compatibility, they tend to pick non-Microsoft devices.

Another shift is happening from most people using desktop applications to using web based applications. Internet Explorer has been steadily declining in market share for several years and shows no sign of slowing down. Many of the old Internet Explorer versions being used are by those who are using work computers or other computers, which they do not own and have no control over.

Future trends can not even be imagined yet.

Platform Independence

When considering switching from Windows to Linux or Mac OS X, don't just substitute your dependence on one for the other. Learn to be platform independent by: using open source and cross platform applications when

possible, make use of web applications where possible, and keep your files in free and open file formats. As more and more things are being software controlled and Internet enabled, the smartest thing you can do is not invest too much in any one player. The most important thing you own on your computer is your information and you should not be locked into any vendor, so that you can make decisions, based on your needs and not on compatibility and the vendor's choice.

Open Source on Windows

In your transition to having a choice in who you buy your software from, realize that most open source software works on Windows as well. Instead of going cold turkey and facing the fear, depression, and anxiety in giving up something that works sort of, for something that works better, but that you don't know as much about, make a more gradual change.

And even better than than applications you own now, you do not need to commit to an installation to use this software. Using portable version of open source applications, you can see what the alternatives are without any financial cost, risk of creating other problems, or commitment of any kind.

When you do try Linux, run it in a virtual machine, so that you can still use Windows and don't have to worry about hardware compatibility. If you switch to a Mac, run Windows in a virtual machine or with Boot Camp and keep compatibility with all your Windows only applications, while trying out how the new Mac software works for you and replaces the functionality of your legacy applications.

Specific Open Source Applications

The first applications for most people to try would be: Firefox, OpenOffice.org, and Gimp. You can get all of these in portable application formats and they run equally well on Windows, Mac OS X, and Linux. They are all free and open source and contain no spyware or viruses.

Firefox

Many webmasters who don't have a budget to hire a professional programmer have a lot of trouble getting their website to work in Internet Explorer and if they do manage to, you often will get better performance with a full-featured web browser like Firefox. Google's new web applications will require you use a plugin that replaces the web site display of Internet Explorer for that of Google Chrome, or you can just use Firefox. Some websites will only work in Internet Explorer, but you can see if you use any of these websites, as many websites at least support Firefox, in addition to Internet Explorer.

OpenOffice.org

OpenOffice.org is a replacement for many simple and intermediate level use of various Microsoft Office features. Microsoft does not allow anyone to license its Word, Excel, and Powerpoint native formats, so OpenOffice.org cannot guarantee that every Microsoft Office file will open with all formatting. It would be good for everyone to get their documents converted into the OpenOffice.org default format, because it will be much easier to access that information in the future and will keep you from being totally dependent on Microsoft, for accessing your information. Most office suites now support the native format of OpenOffice.org, because it is an internationally standardized format.

Gimp

Gimp is a replacement for most photo editing, that you can do with Photoshop Elements. For most users, Gimp has far more functionality than you will need. Gimp will open and save to all the standard formats like: JPEG, TIFF, PNG, PDF, and the Photoshop native format. If you do not know what the term CMYK is, then this will likely do all the photo editing you will ever need. If you have more advanced needs like graphic art design, Inkscape will do almost

anything you need to create great graphic designs. Inkscape is free, open source, and cross platform as well.

Web Applications

If you use Google, Yahoo, or Microsoft, for you email or can check your email from any computer, you are likely already using a web application. A web applications is just a standard web page, which can function as an interactive application, like an email client. You get to it by typing in a web address in a web browser and it requires nothing but a web browser and sometimes a common free plugin, like Flash Player.

As long as you have a web browser, you can run web applications, so that it doesn't matter if you use Windows, Mac OS X, or Linux. Many other types of applications like office suites and photo editing can be done in a web application as well. Adobe, Google, and Apple all have web applications like Adobe's Photoshop.com, Google's Gmail and Google Apps, and Apple's Mobile Me and a future version of iTunes.

Open File Formats

Instead of saving all your data in the default format in Microsoft Office and in Adobe Creative Suite, try moving to more open formats like HTML, RTF, and PNG for files you need to edit again and PDF for read only files. This will make switching to different software vendors easier and more importantly your data will be in your control and not in Microsoft's or Adobe's.

5.3.3 UNIX Means No Maintenance

What is UNIX?

Mac OS X and Linux are related, in that they are both designed to be like

UNIX. UNIX was the first operating system that really worked well and still is. Most of the well known open source software is based on UNIX technologies. UNIX is known for its security, stability, and easy networking. It works so well, because it was designed for more difficult situations, like: department of defense, hospitals, banking, basic infrastructure like electricity and sewage, and other things that need to work continually and where a software crash would cause a national security incident or a breakdown of society.

Why UNIX Is Better

Many of the things people who use Windows associate with using computers aren't necessary for UNIX. Windows is poorly designed, because it breaks down over time and requires continual maintenance. Although Windows has many more applications for it than Linux or Mac OS X, people are afraid to try them, because of the combination of what they might do to the Windows Registry or the viruses or spyware they may contain.

UNIX Security and Stability

UNIX security is not perfect, but there are no UNIX viruses. When a UNIX based operating system has a known security vulnerability, then a patch is released, so that any system with the update applied has no known security issues. Windows requires constant updates, but still is susceptible to millions of viruses, even with the latest updates. UNIX based operating systems do not require you to defragment them ever and there is no loss in performance, without performing that kind of maintenance. Defragging your hard drive on Windows is more than a just time consuming loss in productivity, because if power is lost during the process, you can very easily lose important data and critical system files and have to re-install Windows to fix the problem. When one application crashes, with UNIX, the operating system still runs, so that you only need to restart your computer, when performing major operating system updates.

UNIX Permissions

One of the reasons why viruses cannot spread automatically, from one computer to another, with UNIX, is because on UNIX programs and files are separated and their access to critical system files is limited. If you download a file from the Internet, on Windows, it can access any part of your computer, without asking you, but on UNIX it would ask you for your password first. Also, a file will not run as a program on UNIX, unless you specifically mark it to allow that.

Windows Registry

Windows has something unique called the Windows Registry, where all the settings to the operating system and applications are stored and programmers can put whatever they want in there very easily, but it is very hard to remove unwanted settings. If you edit it manually and put in one wrong character, you have to re-install Windows from scratch. Viruses and spyware can hid in the registry. UNIX operating systems have a place where they put settings, but application settings are separate from system settings and other applications, so if one gets damaged, you can just remove on file and it doesn't affect the entire operating system.

UNIX has Package Management

There is also no way to sort out what files belong to Windows or the applications, so you can be left with broken parts of an application or accidentally remove critical system files, when you uninstall Windows applications. Since Windows releases happen so infrequently, many programs contain copies of critical system files that they install, even if they are older than the ones currently installed, so that you have to reinstall Windows from scratch, to fix these kinds of problems. On Linux, there is a very complex relationship of programs intertwined with critical operating system files, but

Linux has a very sophisticated and reliable system to manage which files belong to which application. On Mac OS X, programs generally don't rely on anything, that doesn't come with the operating system. On the Mac, every piece of everything required for the program is contained in one folder, called an app bundle. This app bundle works as a file, so that when you double click on it, it launches the application. Getting rid of all its related files, to uninstall the application is as easy as dragging the app bundle to the trash and emptying it.

5.3.4 The Rationale for Open Source

Why I use and support free software

I am a researcher and writer for consumer/citizen advocacy and a disabled veteran. I use my website to create and deliver content to stimulate people to think. I have written 26 text books and authored 8 picture books to challenge what people think the Bible says and inspire people to think for themselves.

The reason why I use free software is similar to some of the reasons why people began to form languages, why people began to create art, and why people developed unified systems of thought. I use standardized formats to store my work so it will stand the test of time, be accessible to the most people possible, and to guarantee the integrity of my work. I use free software to put this content in a standardized format, because standardized and free define each other.

A common language is important for people and animals to communicate ideas to one another. How would we know what happened in the past if we didn't have language? How would we work together for common goals without a common type of communication? How would we express feelings to others if we didn't share similar types of non verbal communication?

When monks wanted to preserve the Bible they did it in a language that wasn't controlled by one person and they didn't rely on just one person to copy the text. They used a language that was spoken throughout all of Europe and they could use any tools they could think of to create the Bibles because the

grammar for the language wasn't hidden and managed by a few people.

Art is a form of communication that is greater than the sum of its parts. The arrangement of commonly recognized components makes a powerful message if they are juxtaposed effectively. Words meaning very little when put in the right order can convey complex ideas. Lines, shapes, and colors mean little when standing alone but can motivate a person to action when combined in a certain order. Art is based on common symbols and can spread new ideas which are based on previous ideas which were spread through common symbols. Art multiplies the more it is understood by the greater number of artists and patrons. What if traditional Christmas carols were copyrighted or colors were patented, how would this impede self expression?

When developing a new way of thinking to discover truth, it is fundamental to be consistent. To ensure consistency language and other symbols must be used to mean the same things throughout the entirety of the work. Debate and philosophy are about defining words - primarily nouns, as compared to literature where the bulk of the information is conveyed through adjectives and adverbs. The only way to control the ideas that you want to communicate is to have it free from the control of those in power who are interested in the status quo and not in progress. Having it in a freely distributable format that the powers that be are not in absolute control over is the way to keep the ideas pure.

Why should people who base their work on the freely available discoveries and inventions of others be allowed to keep others from using their work freely? What if someone had patented addition or the wheel, how would we be able to afford an information revolution? Patenting software code and not sharing it with others are similar ideas.

Imagine what it would be like to build on your house without knowing where the electrical wiring was or not knowing what walls were structural. This is the world of Microsoft. The only choice for freedom is Free Software. Where the only standard is price, then free (as in quality) is free (as in freedom).

5.3.5 What Make Current Macs Unique

What is Mac OS X?

The Mac OS that comes with every new Mac now as well as runs iPhones and iPod touches is based on a technology called NeXT that was designed by Steve Jobs after he was forced out of Apple. It is also the same technology that everything from iTunes, Apple's online services and most everything else that has differentiated Apple's software from its competitors is based on.

What is the Difference Between OS X and OS 9 and Earlier

The old Macs, before OS X (or 10) were designed very differently. It took many years to develop a compatibility layer, so that software developers didn't have to write everything from scratch. The problem with the old Macs software is that the software was outdated and Microsoft had been given a license to use most of the Apple patents and techniques, so that there was not a big enough difference between Windows and the Mac for many users to stay with the Macs. Why do something differently and deal with compatibility problems when the other product is just as good?

UNIX

One of the big new things that Mac OS X brought to the Mac is that it was based on UNIX (and Mac OS 10.5 Intel is now a certified UNIX) via the BSD branch which was the other main Open Source movement and collection of operating systems that are a kind of cousin of Linux. Linux was written from

scratch but BSD was based on the old UNIX code, and they emerged from a lawsuit in the early 90s that gave them the rights to develop and give the code away in an Open Source license, because they found that the UNIX developers had copied more code from the BSD code writers than the other way around. What this UNIX foundation offers is modern computing capabilities including the ability to use many applications at once, easier networking, and a system that is more secure and less crash prone.

Cocoa

One of the other things that Mac OS X offers is much better tools for programmers. Apple has made available better libraries which make it much easier to make applications for Mac OS X only. You can develop much faster and make much better applications without much effort, if you make your program Mac only. And there are many Mac only applications because of this that aren't available for Windows at any price. And the cost of these Mac only applications is very little. This was a similar technology in some important ways to Java, but it was invented long before and was also cross-platform, but no one wanted to buy it from NeXT (except Apple). Now Apple is making a fortune off of using these NeXT tools that they had offered their competitors. It is hard to compete with a product that has a 20 year lead.

Mac OS 10 is Not Related to Mac OS 9 and Earlier

So if people have only used Mac OS 9 and earlier in the past, they have no idea what OS X is about. In addition, there were many new features that make the Mac more efficient and easier to use as well as speed optimizations in each of the point releases. The transition to Intel also gave a big speed improvement and allowed the use of Windows, Linux, FreeBSD, OpenSolaris at the same speed as on PCs. So unless someone has used the latest point release of Mac

OS X and has an Intel Mac, then they really have no idea what using a modern Mac is like.

Mac OS 10.3 (Panther)

I recommend at least 10.3 mostly because it is much faster to work with. Not only does it run faster in terms of waiting time, but it feels faster because of animations, and you can get more work done in less time, because of useful additions to the interface. Expose is a unique way to keep track of all open windows and switch between them instantly - this in addition to OS X's rock solid stability lets you work for long periods of time with many applications open at once. The other three most useful additions that allow me to accomplish more in less time is the ability to put custom folders in the open, save, and Finder windows, the ability to assign colored coded labels to folders, and the ability to search the entire hard drive in a few seconds (up to 5 sec). Help and system information are also launched quickly, in a second or two.

Mac OS 10.4 (Tiger)

Mac OS X 10.4 (Tiger) adds many new features for artists and writers, including: major speed improvements for new iMacs and higher end desktop Macs for all applications, visual automation for repetitive tasks, search instantly even within files or file information for all file types and can be saved as a "smart" folder, an instantaneous application of always editable text, graphics and video effects that can be added to applications with only one line of code (see Imaginator), and your Mac can read the interface aloud to you and can be completely voice controlled.

Minor advancements include the ability to make PDF annotations within Preview, save documents created with TextEdit as a web page, and stealth mode for the built in firewall.

Mac OS 10.5 (Leopard)

Mac OS X 10.5 (Leopard) comes with a backup program built in that requires no set up. Just plug in an external USB or Firewire hard drive and you are all set. Every version of every file is automatically backed up and can be restored through a point and click interface that totally integrates with the instant search.

You can browse through almost all files with a live preview before opening them. You also get a dictionary application; slick/simplified interface for viewing photos, songs, movies (Front Row); and you can combine and reorder PDF pages and resize photos or change resolution with Preview.

Mac OS 10.5 also lets you take snapshots of web pages to turn into live widgets. 10.4.11 and higher come with Safari 3 web browser which should render most any site fine unless they are designed for only Firefox and Internet Explorer specifically.

Mac OS 10.5 also comes with virtual desktops and the ability to run Windows when you reboot your Mac if you have an Intel Mac.

Mac OS 10.6 (Snow Leopard)

Mac OS X 10.6 (Snow Leopard) adds complete support for 64 bit and 32 bit apps side by side. Mac OS 10.6 also adds optimizations for multiple processor cores, using GPUs for general purpose computing, and compression of system files to save space. While most of these changes will not be of benefit until later on, there are some that will be noticed right away. There is a simplified version of Quicktime called Quicktime X that includes pro features for free, there is a new version of Safari which separates websites in different tabs as different processes, so one Flash applet doesn't crash Safari, and then there is the 64 bit Finder which is rewritten to allow better multithreading (of the Finder).

Mac OS 10.7 (Lion)

Mac OS X 10.7 (Lion) adds not only the Mac App Store (like the iPhone and iPad App stores) but is available on the Mac App Store. New features include interface additions like: easy to make full screen apps (like you have on a PC) iPad like Launch Pad to navigate installed apps, and mission control (which unites all the major navigation elements, like Spaces and Exposé). There are now new file management additions including: Autosave and Versions (version control that saves each revision of each file) which integrate with Spotlight instant search and Time Machine auto backups. There is also something called Resume which restores the exact state of your open apps, files, and windows, when restarting or quitting and restarting apps, or applying OS updates. The built in PDF viewer can also now preview Microsoft Office files. You can also recover from an OS foul up without an install disk.

5.3.6 The Best or Worst Option

When people think of an open source operating system, they usually think of Linux. But there is an older and some argue better system that is called FreeBSD. It is an open source UNIX clone as well.

Different Open Source License

FreeBSD is based on a version of UNIX developed by the University of Berkeley and is released under the BSD open source license, instead of the GPL open source license that Linux is distributed under. There are multiple BSD operating systems, but the most used and famous one is FreeBSD. The GPL requires any code distributed that is added to GPL licensed software has to have a free way to download the modified source code, but the BSD license allows any code distributed that is added to BSD licensed code to be distributed without providing free access to source code.

Advantages and Disadvantages Overview

Some of the advantages of FreeBSD over Linux is that it is often regarded as more stable, efficient, secure, and business friendly. The main downside of FreeBSD is the lack of support for commercial software. Even commercial software that is supported on Linux often isn't on FreeBSD. There is no Adobe Flash Player, Adobe Reader, AIR, Google Chrome, Picasa, Earth, Lotus Symphony, and other important commercial software that works and is supported on Linux either does not work or is not supported under FreeBSD. There are less commercial developers for FreeBSD, less users (especially desktop users), and less drivers so there is less computer hardware that works with FreeBSD.

Overcoming Disadvantages of FreeBSD

One of the ways to overcome the lack of drivers for FreeBSD is to run it in a virtual machine. One of the ways to overcome the lack of software support is to use FreeBSD for less complicated tasks. One of the ways to overcome the lack of developers is a project called PC-BSD, which is based on self contained applications called PBIs for FreeBSD, which is similar to Mac application installation and support. This simplifies the installation and management of applications, compared to the Linux idea of tying together the applications and libraries, with the underlying operating system.

Chapter 6

Evolution of Google

by Ben Huot

6.1 Post PC World

6.1.1 Microsoft and the Future

Microsoft Playing the Victim

For web users who don't follow the tech news, Microsoft is in the early stages of testing a new browser (version 9) which it claims (like all the others before it) will miraculously solve all the problems of the previous one. Microsoft is trying to claim that they are the victim of their tiny rivals and that getting a monopoly on 80's technology and then stopping the development of new technologies, so that we have no choice in who we buy computer hardware and software from is desirable.

Microsoft's argument is that the only standards that matter are what they have come up with. They want to wait another 12 years to implement the new features other browsers have already added, because they somehow think that purposely making Internet Explorer incompatible was something done by someone else to them, rather than self inflicted. They say that they have somehow trail blazed with their proprietary incompatibilities they added to corrupt already implemented standards like: CSS, HTML, JavaScript; so that they are afraid of getting falsely labeled as proprietary, if they implement standards before they are set in stone. The reality is something else.

Microsoft Needs a History Lesson

Microsoft claims responsibility for creating AJAX, although the key ingredient, called Javascript, was purposely sabotaged by them and the reason why it had become popular later on is that Microsoft stopped releasing new versions of Internet Explorer, so web developers could find permanent workable hacks for Internet Explorer. And for the last time, Microsoft did not

get convicted of illegally using its monopoly in operating systems to get a monopoly in web browsers simply by bundling Internet Explorer with Windows. They got in trouble for forbidding Compaq from bundling Netscape (the market leader of that era) with Windows and changing Windows internals to make Netscape perform poorly on Windows.

As soon as Microsoft destroyed Netscape, they stopped developing Internet Explorer for 5 years, until Firefox started regaining significant market share. Microsoft say numbers don't matter, for measuring speed (as they are much slower than everyone else) and they decided to optimize this version of Internet Explorer, for brand new high end desktop gaming machines, that cost as much as a Mac and not on cheap netbooks (which represent most of the newer machines being bought today and recently). They also decided to stop supporting XP (the OS most of the world is using and the reason why they have the market share they do) as they are still having trouble getting people to buy, what they claim as the superior fix up, of the failed Windows Vista.

Microsoft's Vision of the Future

What is happening in the computer revolution is that a whole new generation of users has grown up and they have higher expectations of computers. Whereas my parents generation were impressed with being able to see the Olympics online, my generation expects more out of computers. The generation following mine expects to be able to use their computer everywhere and expects the Internet to always be present. Apple and Google are preparing for the next generation, whereas Microsoft wants to keep people technologically a generation behind and wants us to use computers the way they were in the 80s forever, so it can continue to sell software, that is fundamentally designed the same, for the entire future of human civilization.

This is an epic battle and it will take a long time, to get rid of the Microsoft legacy, as they continue to try to hold us back from the future, and businesses will continue to use their software, for another generation or longer, as they have invested heavily in Microsoft-only solutions. As businesses finally need to

upgrade their entire infrastructure, they are going to build their next generation technology on open source software, so that they never get locked into one vendor again. Fundamentally, Microsoft wants to make the Internet as hard to use as possible, so that no other company has a chance to compete with it, as Microsoft cannot win, when everything is fair and equal. Microsoft wants there to be big hurdles, to overcome, to get to customers and doesn't want another Apple, Google, Youtube, Myspace, Facebook, or Twitter to come out of someone's basement.

6.1.2 Google vs. Microsoft

The main benefits of the Google approach are: a cost savings through relying on payment by targeted advertising, the ability to have access to your data everywhere without depending on a particular device, and the ability to have your data in open formats so that you control your own data.

Who is More Locked In?

It is ironic that people actually fear the growth of Google who have embraced open standards and the open web, but they don't fear Microsoft who has complete control over most of the world's data that resides in Microsoft only formats and resides on Microsoft controlled email and file servers. Which is easier: converting all your data from a secret format that cannot be reliably read by any competing vendor's software or switching from one website to another for web apps where your documents are in free, open, and internationally standardized formats that any software vendor has complete access to?

Who Really Cares About the End User?

People say they fear their privacy in the hands of Google, but Microsoft is the real one that doesn't respect users rights by: marking software for

restricting people's access to information they have legal access to via Windows Genuine Advantage, losing all data on their servers for mobile phone users who cannot back up their data to their hard drives due to not bothering to make backups of their servers in the Sidekick Danger disaster, and by secretly installing software that has security holes in it on users who use a competing browser via the Microsoft Firefox plugin.

What Data Does Google Actually Collect?

What Google collects is not your social security number, your address, or even your name. Google collects anonymous information about what you like to buy, so they can provide advertisements that are actually for something you might like to buy. Don't you hate seeing the same ad over and over on TV for products and services that you have no interest in buying. People think it is so bad to have advertisements on the web, but they don't mind paying for TV that way, and people don't seem to be willing to pay the rates that would be needed to finance the creation of website content without the ads.

The Reality of End User Data Backup

People are afraid to trust the reliability of their data on a remote server, but people constantly lose data due to either losing their mobile device or having it stolen, due to software bugs, a fire or flood, hardware failure, or due to a virus or other malicious software. The reality is that data is lost all the time and most people do not have backups and it is more likely for cheap PCs to fail than the high quality server machines.

The Internet is not Private

The reality is that the Internet is a public forum and the only way to protect

your information is to either encrypt it and trust every one who is given access to it, or to realize that all information put online will be a matter of public record. The Internet keeps records of everything that happens online, so don't ever use a computer for anything you don't want other people to know about. It makes sense to be very careful about financial and legal information, but if you are afraid of letting someone know your email address or your real name, then maybe you need to stop using the Internet to share information.

6.2 Google Is Now the Next Microsoft

6.2.1 Doing What's Best for Them

Technology used for Marketing

Google and Apple use a combination of both open source and proprietary software, so that they can build off what the community has made and then add value to the software in ways that protect its use by other companies. Basically, they do what is best for the company and there is nothing wrong with that. But the part that bothers me when companies engage in hypocrisy and dishonesty, by launching marketing campaigns, that claim certain technical issues with another company's product, or a technical advantage of their own that is misleading, not different from other companies offering similar products, or even directly perpetuating urban myths.

Success for Google vs. Success for Apple

The real threat to Apple comes from the competition just plain making things up, or re-enforcing stereotypes, as the competition is not willing to work as

hard, as Apple, and they have no vision for creating something new, that the consumer might want. Just like Microsoft, Google fell backwards into a pile of cash, by being at the right place, and at the right time.

Different Customers

Unlike Apple, they don't understand their market, or why their users use their product, so they are sustained by a lack of competition, not due to lack of competing technology, but the inability for others to compete with their big pile of cash. Just like Microsoft, Google doesn't work for its users, but rather gets them to use its product as it is seen to be free, because they are not aware of how Google makes its money. Just as Microsoft sells its products to the PC manufacturers, rather than to the end user, so Google sells its users' data to the highest bidder.

6.2.2 How Google Got a Foothold

Subsidies and Incompatible Technology

A similar system in place allowed Google to gain a foothold in the smartphone market as Apple was not able to sell directly to customers in the United States, because of the incompatibility of the different cell phone networks and their practice of subsidizing smart phones. Subsidizing works like this: you pay a few hundred dollars up front, and then sign up for a more expensive data plan, so that you actually pay more than a thousand dollars for the phone, but it only appears to cost a couple hundred. So Google could offer their phones for only a hundred dollars less, but they would appear to be half price, when in reality they were only 10% less in cost.

Apple's Deal with AT&T

The decision, that allowed this situation, to work in the favor of Google, comes back to the original deal Apple had to make with AT&T, to get them to subsidize the iPhone, because Verizon turned them down. Apple had to use AT&T for 5 years exclusively in order to get AT&T to allow Apple to control the customer experience enough to revolutionize the smartphone industry. Due to the complexity of cell phone network coverage in America and due to some re-enforcing of urban myths, AT&T was widely discredited as being not as reliable as Verizon. So Apple was not able to reach the majority of the US market until their contract with AT&T was up.

Google has Become the Next Microsoft

At this point Google has become like Microsoft in the late 1990s. They believe that they have no viable competition, so they are now choosing to alienate all their partners, because they think they can get away with it. The two decisions sound very technical in nature and likely won't ever reach the mainstream news as they cannot be explained in sound bites. Both decisions involve common file formats used on the web. Both decisions were especially hurtful to Google's partners and most major technology companies because of their timing.

6.2.3 The Big Leap Forward

Once in a Generation Transition

There are two major transitions that are occurring on the web: one is the move from PCs to mobile computers like cell phones and iPads and the other is the move from using Adobe's proprietary solution to interactive multimedia on the web to a free and standardized format which works better on mobile

computers. The two file formats in question are a bunch of related web upgrades for everything from audio and video and interactivity without plugins, to advanced page layout designs, and more efficient performance, location aware browsing, and resolution independent graphics, collectively called HTML5.

Universal Audio and Video Formats

The audio and video format in question called MP4 is the most flexible and widespread format from everything from iTunes, Blue-ray, Youtube and the vast majority of the audio and video on the Internet. All these interrelate to each other and are the only major change in Internet related technologies in the last 10 years. The difference between what is possible with what is currently supported in the browser that shipped with Windows XP and HTML5 is like comparing Microsoft Paint to Photoshop CS or the iPod Touch, iPad, or iPhone to the first click wheel iPod or a cheap feature phone.

Bailing Out Half Way Through

So, half way in this major transition, with almost every major tech company on board including Google, up until a few days ago, and even Microsoft, Google has now decided to make its products incompatible with everyone else's. The first decision was to not support MP4 audio and video, with its own format, which is not standardized or even completely documented, which makes almost every video capable device manufactured in the last 5 years incompatible, including all the Google ones. And it will not be possible, to add support later, via software, because the support for this format is integrated, into the devices themselves, in order to get decent battery life.

HTML5 Campaign

The second decision was to not use version numbers, for HTML anymore (by

a Google employee who heads a community group, to get HTML5 out quicker, on behalf of the community group). This means that there will no longer be one way to make a web page, and we will need to have four or five different browsers, to navigate the web and websites will stop working randomly, as features are added and dropped, at the whim of browser manufacturers. This will also make it almost impossible, for anyone other than big corporations, to maintain websites.

Google Takes on the Entire Industry

Basically, the leader, of one of the major groups responsible for the standard web technologies (who also works for Google), has decided to self destruct and no longer even attempt to keep the web compatible, either forward or backwards, and undermine the very purpose of the web. We might just as well convert our web pages into Apple iTunes App Store Apps, Facebook pages, Windows only apps, or Microsoft Office documents. Most people will just stop supporting Google products and ignore the community group that Google heads and work with the other one. Luckily Google is going to get a lot more competition from Apple, on its own turf, in things like online communities and search technologies and so Google will be cut down to size, over the next 5-10 years. Google will eventually become as irrelevant as Microsoft is becoming.

6.3 Google is (Not) Evil

6.3.1 Why “Open” Internet?

We all hear how wonderful and innovative Google is, now a days, and how they make Microsoft and Apple work harder. Google loves to talk about how they give things away, for free. But, nothing in life is free. Google loves to paint Apple, as some sort of monster, by comparing Steve Jobs, to the dictator of North Korea, or the analog of the book 1984. Now they say Apple is suing

them, instead of innovating, with their devices and services. Many people also think that Google will win, against Apple and Microsoft, in the marketplace.

Google gives some things away for free, because it makes money, off the ads, and so it wants as many people viewing those ads, as possible. When you use a Google product or service, you are the product and those who want personal information about you are the customer. Google claims it is for a free and open web, but the only reason why is because they have a monopoly on web search. To most people the web means Google.

6.3.2 Free But Stolen

What does Google give away for free and what does Google use of others for free? We hear a lot of Google giving things away for free, but what does it get for free? Did you know that Google's browser (and all the other major brands smartphone browsers) is based on the software that Apple designed, that Google's mobile phone operating system is based on Java (owned by the now Oracle), but is changed slightly and given away for free, to avoid paying for it?

Did you know, that one of Google's latest investments was to buy one of its major smartphone licensees? How do you think that the other licensees feel about that? Did you know that most of the authors of the books, that Google gives away, for free, were not asked about it, before Google distributed their intellectual property? Google has now created their own incompatible graphics and video formats, which are not being widely used, by other companies, because their technologies were used, without permission.

Google has never given away the technologies (source code) they use, to make money with, like their ad system, or their search engine. Google also does not actually document, exactly how its search engine works and all of what factors determine your placement. And Google has an obvious monopoly on web search.

Google is not giving away (the source code to) the latest version, of their smartphone and tablet operating system. Google does make use of software, with restrictions, that require they give away their additions (source code), to

the software, when they distribute it, but manages to avoid this, by a loophole in the license, which goes against its intent (allows millions of users to use it, at once, is not technically considered distributing it, because it is only operating, on a single server).

6.3.3 Lawsuits Explained

As far as lawsuits are concerned, almost every major cell phone vendor is suing everyone else, mostly over patents. A patent does not protect an idea, like a touch screen computing device, but, rather how you implement it. One of the surprising things found, by a developer, is that the code for an iPhone and an Android app look eerily similar, even though they use totally different kinds of programming languages.

Google is now being sued, by Oracle, for stealing Java technologies, and the designers of Linux, for not releasing their changes, to Linux source code. Microsoft is collecting royalties, from HTC, for their use of Google's Android and anyone who uses Google's non standard video and graphics formats will likely be sued by the MPEG standards committee, which includes most of the major vendors, in the computer consumer electronics industry.

Google's solution, to this problem was, to buy Motorola, a dying company, that is losing money, just for its patents, so instead of Google legally licensing the patents, they are going, to try to leverage their newly bought patents, to force the other companies, to give away their technology, in order, to be able, to use Google's (formerly Motorola's) patents. This is just after Google publicly declared suing for patent violations, as being anticompetitive and monopoly-like.

6.3.4 Google is Losing

The bad news is, that most these patents are either so old, that they are expired and/or are part of standards, so that they have to license them to anyone, can only charge a reasonable amount for them, and have to collect the

same amount of royalties, from all patent licensees. Google is fighting itself from within too, as the rival divisions, of the company are working, on two diametrically opposed operating system technologies. Each of these divisions is plotting the demise of the other one, as that is necessary, for their technology, to be kept alive and continue, to receive funding.

Samsung (one of Google's Android licensees) is being sued for trade dress, in that they actually copied all the trademarked icons and logos, as well as the packaging, and making their product the exact same size, dimensions, style, and hardware components as Apple's. They also manufacture parts for Apple, as well, so they know before others do what Apple is making, even before Apple releases it. The competitor's product looked so similar to the current iPhone, that there was more difference between different the look of models of the iPhone, than between Samsung's and Apple's phones and tablets. To give an indication of how serious this is, international courts are now stopping sale of Samsung devices, in multiple countries.

6.3.5 Google's Kind of Control

What kind of control it is that Apple has, that Google says is so invasive? Google thinks Apple should have multiple stores and allow adult material, malware, hate speech, and stolen intellectual property. Did you know that Google thinks that it is fine to count the number of apps, to include ones that will not work on your phone? Did you know that it is likely, that you will either see Google's updates, months or years late, if at all? Google thinks it is fine, to allow your wireless cell phone provider, to load up your phone, with junkware.

Google thinks it is fine to sell you a computer, with nothing other than a web browser and sell it, for the same price, as a regular computer. Google thinks it is ok to require another monthly plan, in addition to your cell phone service, in order for you, to be able, to buy its tablets. Google thinks it is fine, to give you no support, for your software you bought for them. Google thinks it is fine, that the only way you get access, to most the freedoms Google claims it provides, for you, is to hack your phone and void your warranty.

6.3.6 Google's Kind of Innovation

Google thinks innovation means having different interfaces, to their software, so that one phone, using the same software, works totally different than another one. Google thinks that having 50 email programs and 10 web browsers is more innovative than having a wide variety of apps for specialized industries, major brand name games, and specialized hobby apps. Google thinks that all you want on your computer is a web browser and that you have so limited a needs, that your word processor didn't even need the concept of pages, until recently.

Google thinks that being able to backup your smartphone data, to your computer, offers no advantages. Google thinks that you always have Internet access, wherever you go and that it never goes down. Google thinks that having access to more ads and to skimp on their research and development outweighs the need, for you, to have a better battery life. Google think it is ok, to mislead you on the total cost of your smartphone, by not advertising the cost, that you will pay, over the life, of your contract.

Chapter 7

More Players

by Ben Huot

7.1 Help for Adobe Problems

7.1.1 The Descent into Irrelevance

The Story of PDF

One of the things about computers, that makes it difficult, to offer technical support, for users, is that software changes, very rapidly. This brings us to the issue with Adobe. Adobe was a great company, for a number of years. They virtually invented the modern print industry, with Postscript and PDF, which are now governed by international standards organizations, which has made it a very useful format, without having to rely on Adobe, for anything.

The PDF file format is essentially a read only format, that saves the information, needed to a print a file, exactly the way it was created. The reason why PDFs are essentially read only is that is the only way to guarantee, that the document looks exactly the same, as the creator designed it. Adobe also gave away a program, called Adobe (Acrobat) Reader, for people to view PDFs, on their computer, without having to buy anything. Over the years, many other programs were created that were able to both create and view PDFs. Despite giving away so much for free, Adobe made a tremendous amount of money, as most designers used Adobe products, like Photoshop and Illustrator, to design all sorts of publications, for print.

The Story of Flash

While Adobe was basically producing the software, that made the desktop publishing revolution happen, for professional designers, there was another company, called Macromedia, who are famous for Dreamweaver and Flash. Flash software refers to 3 things: Flash the professional design program, the free Flash player need to view Flash websites, and .swf the Flash file format.

Just like Adobe did with the PDF file format, Macromedia offered the Flash viewer program for free, but unlike with PDFs, did not allow anyone else to make a Flash player. Other companies were encouraged, to make other programs, that created Flash websites, but never viewers, for the Flash websites. They did this, so that Microsoft didn't sabotage Flash, like they did HTML, Javascript, and Java, by making their own versions, that were incompatible, with the original version, by introducing competing viewers. Flash originally started as a technology, for making interactive CD-ROMS, and then shifted, to websites, as the Internet replaced CD-ROMs. Flash was designed, for what is called vector animations. Flash was originally designed, to help professional designers make animations, that would load fast, over the Internet, because they were vector based graphics.

Dreamweaver was the most popular software, for creating websites, by professional designers and still is. Dreamweaver was and still is one of the only graphical web page editors, for professional designers, for the Mac, produced by a major company.

The Merger

Both Adobe and Macromedia were the dominate players, in there particular design specialties, but continued to try to expand, into the other competitor's field. In an effort to make an alternative format for Flash, Adobe and Microsoft compromised on a file format called SVG. SVG was vector based, like Flash, but was an international standard, like PDF is now. Anyone could make both viewers for SVG graphics or create SVGs. Adobe released, what was called Adobe SVG Viewer, to allow people, to view SVGs on websites, created by professional designers. Adobe had a hard time getting web designers, to adopt SVG, for website graphics.

Along the way, both Adobe Reader and Macromedia Flash Player kept on adding features, beyond what they were originally designed for. One of the things added was the ability, to create interactivity, within both PDFs and in Flash graphics, by each of the companies. This was the start of both the

instability, security problems, and performance problems, with Flash Player and Adobe Reader. Flash Player added a major new and unrelated feature, to act as a video player, which allowed video, to work cross-platform. The other video formats would not work cross platform, as Windows Media didn't work on the Mac and Quicktime Player didn't work on Windows (especially for streaming video, or for playing video, with software enforced copy restrictions called DRM).

As Adobe was afraid of Microsoft entering the graphic design software world, and be a powerful competitor and because they were unable to get people to use SVGs instead of Flash, Adobe decided to buy Macromedia, mainly, to get Flash. About this time, the PDF format became a defacto standard, in government and businesses, for producing publications, that could be read, without having to have the correct version of Microsoft Office. Apple also used the PDF file format, for the visual display, in programs optimized for Mac OS X. At this time, the management at Adobe decided not to make any more major investments, in their products, and coast in, on, because that they had basically no viable competition.

The Stagnation

When Apple got a new OS, from when they acquired Steve Jobs, to turn the company, from certain bankruptcy, to the second largest company, in the world, measured by stock value, Adobe didn't want to change their programs, to work with the new system and neither did Microsoft, so Apple had to design a way, to use the same programs, on the new system, without writing almost anything new. This took Apple 5 years. Imagine if Steve Jobs launched the iPod 5 years earlier. As the years went by, Adobe decided to design all their software for Windows and then try to make it work the same, on the Mac, without making major changes.

Even though most professional Adobe products were used, by professional designers, almost exclusively on Mac OS X, Adobe also designed Flash Player, for Windows and then made the player, for the Mac, without doing any major

changes. This meant that Adobe products worked even worse, on Macs, than they did on PCs. About this time, everyone in the industry predicted that in the next few years, websites would be mostly viewed on devices like cell phones. A few years later, Apple released the iPhone and Adobe didn't even have a version of Flash Player, that was capable of running on any cell phone, that could be used to see Flash based websites, for 3 more years.

Adobe needed, to rewrite the Flash Player, to make it work, on cell phones, while still giving good battery life, but they didn't want, to invest in it. And since the iPhone uses very similar technology, as modern Macs do, but had much less computing power, it obviously wouldn't work well on Apple mobile devices or any other non-Windows devices. As important, as the Flash Player is, to so many website owners and web users, Adobe only has 4 engineers hired, to develop Flash Player, and only one person, half-time, for both the Mac and Linux versions.

The Post-Flash World

Right now, we are in the process of putting video and audio playing, into the web browser and updating the web browser, to be able to do interactivity, as easily as is done with Flash. And since multiple major companies, like Apple, Google, and Microsoft are competing for users, the performance of these new technologies have increased tremendously, in just a few years.

Most of Flash is now used for video (most of which will still work, like Youtube, if you disable Flash and use a new browser) and for annoying ads. The next few years, it will be a painful transition, for mostly small businesses, but then we will only use Flash, as often as we use Java, on websites. It is now cheaper and easier, to create interactivity and video, without using Flash. I still don't know how to do any programming and my website does not need Flash, for anything.

7.1.2 Solving the Problem

Why You Don't Need Adobe

I used to recommend Adobe Reader, as it was the only PDF reader, that was available for Windows, Mac OS X, and Linux. With latest release, Adobe has canceled the Linux version and installing the Mac version removes the web browser support, for the nice PDF viewer, that comes with every Mac. Most Macs users never install Adobe Reader, because Macs come with a better PDF reader, that works with almost every PDF. Adobe software now has more security problems, instability, and poor performance than Microsoft software.

In the latest bug fix release from Apple, for Mac OS X, most of the bugs were from just one program: Flash Player. Apple was berated, for having poor security mainly because they pre-install Java and Adobe Flash Player on new Macs, and Apple was also berated by not having the version of Flash released a week before pre-installed on new Macs. Apple has decided to let Oracle take care of Java, for the Mac, and Adobe take responsibility for Flash Player, for the Mac. Most Mac users don't need Java, for anything, as Macs are not very often used in the enterprise (big businesses), that need desktop Java applications. And most Mac users, that are aware of it, use browser add-ons to block Flash, as it is the number one cause for browser crashes, browser security problems, and enabling Flash reduces the battery life, of even Mac laptops, significantly.

Flash is mainly used for 2 things: for video and for ads. Most video, including Youtube, doesn't need Flash anymore.

Adobe Alternatives

Macs, Apple mobile devices, and major Linux distributions all have better PDF readers, that are already built in. E-books and PDFs can even be managed, in iTunes, now. Windows users have two great options, so far. You can

download and install the free Foxit Reader or the free and open source Sumatra PDF Viewer, to use, for viewing PDFs, instead of Adobe Reader. These alternative PDF readers are faster, more efficient, more secure, and more reliable than Adobe Reader, and are compatible, with almost any PDF.

For Flash Player, you can download Firefox Flashblock, Google Chrome FlashBlock, or Safari ClickToFlash extensions, that allow you, to selectively load Flash content. The way these extensions work is show a box, for Flash content, and you can click on the box, to allow the Flash to run. This way, you can watch Flash videos, without having to see Flash ads. Much of the Flash videos can be re-directed, to the non-Flash versions, with the same extension, so when you click on the Flash video that has an alternative format, you get the alternative format, instead. The player, for this alternative format, is built into Google Chrome and Safari.

7.2 Apple and Marketing

7.2.1 Apple

Bad Public Relations

Apple's greatest weakness or possibly its greatest strength is marketing. Marketing is thought, by many, to be a synonym, for advertising. It is not. Marketing includes everything, that is not producing a product. In many areas Apple is the marketing leader, in terms of market research and branding. Apple's weakness is not advertising, per say, but more like public relations, in its broadest sense.

Apple's Approach

Part of the unique Apple approach is to let the products and the numbers of

sales speak, for themselves. Apple is not an ideological company, nor do are they very aggressive, when it comes to getting people, to buy their products, or fight for their reputation. This would be an area, in which Apple could improve. Take, as an example, the advertising of Google or Microsoft compared to Apple. Apple spends much less on advertising, than either of these companies.

Apple is Too Rational

One of the biggest problems Apple has is that they are too confident and see the best in everyone, so that they don't seem to understand, that they can't just stick, to the facts, and show what the product does. Apple treats everyone like they are a responsible adult and approaches marketing, from a strictly rational point of view. This is the same problem the American Democrat political party has: people are not rational and emotional arguments often trump rational arguments.

7.2.2 Competitors

Competitors Bully Apple

Apple likely sees advertising, that only appeals to you emotionally, and is very aggressive and in your face, as the marketing equivalent of slinging mud. And when Apple's competition criticizes Apple, for either something that it is not doing (based on myths about Apple planted by their competitors) or something, that everyone else in the industry does the same way, Apple just shrugs it off. The problem is that their competitors see this as a weakness.

Competitors Play Dirty

Apple's competitors will then pursue this angle, because Apple's

competitors are running scared and will try any method, that they can find to beat Apple, and honestly don't care, if they are being misleading, flat out lying, or playing dirty in any way, legal or not. One of the big things that Apple is criticized for is copying others, but the irony is that most average consumers, who compare the products in an industry, both before and after Apple entered, can see very obviously how Apple's products were a totally different approach. They can also see that Apple's competitors copy the exact appearance of Apple's products and other superficial things, but, that after using both products, find that the Apple product is fundamentally better designed and of much higher quality, than their competitors.

Competitors' Loss of Credibility

The flip side of this is that after people become aware of Apple's products and hear the media saying things negative about Apple products, that they know to not be true, for them, Apple's competitors lose credibility. Another big problem is that when someone actually buys a product, from one of Apple's competitors, and is told they are equivalent and then the person using the product has a bad experience, they will unlikely buy from that company again. Apple has proven, that they can enter a mature market, like music players, cell phones, or tablet computers and reinvent the product, so that the product space becomes competitive again. Apple then continues, to give consumers, a better value, for their money, and maintains their leadership position.

7.3 The Consumer vs. Amazon.com

7.3.1 Background Information

The Rise of Amazon.com

When most people hear the company name Amazon.com, they think of the company selling physical books online, that are shipped out to you in a package, by the package delivery service like FedEx, and the discovery and purchase happening entirely within a web browser. But Amazon.com has been quietly expanding the products and services it sells. Along the way, Amazon.com has let other small businesses sell books and all other sorts of goods, like consumer electronics and software, under their brand and on their website, they are selling digital music online, they are selling website hosting and print on demand services, and they are selling an e-books and an e-book reader called the Kindle, which is continuing, to expand its capabilities and the number of apps, that can run on it.

Amazon.com vs. Apple

So Amazon.com is quietly growing big enough, to be a competitor, to both Apple and Google, as it is now more of a branded platform for media services, like Apple's iTunes Music store. This is all fine and good - competition is almost always positive, even though Apple doesn't need competition, for it to improve its products and services. So, eventually, it was only natural, that Amazon.com and Apple would cross paths and disagree, on how they run their businesses, when on the other's platform. The trouble with this situation is that it is not mutual, since Apple allows Amazon.com to sell e-books via an iTunes App, even though Apple has its own e-bookstore, but Amazon.com not only doesn't allow Apple, to run their apps on Amazon.com devices and

websites, but they also refuse to let the authors that distribute e-books, through Amazon.com, to sell them on Apple's iTunes system.

7.3.2 The Smear Campaign

Can Apple Control its Own Services?

The big argument that keeps on being brought up, as whether or not Apple has control, over their own services and if Apples' competitors can tell them how, to run their business, so that their company gains at Apple's expense, instead of winning it through the open market. The only precedent for this happening is if Apple has a monopoly on any market, meaning that it is not possible to buy the same category of product, from another competitor and that Apple uses this monopoly power, to try to gain a monopoly, in another product or service market. The same people, that argue that Apple has a monopoly position, in selling music also seems to want to argue, at the same time, that Apple is losing its market to Google and that Google outsells Apple.

Projecting and Confusing the Issue

Instead of arguing this point, from the standpoint of another huge company, that Apple is taking their market, these large corporate competitors, to Apple, have launched a campaign, in the media, under the guise of dis-satisfied Apple product users, so that Apple looks like the Goliath. These campaigns are designed, to confuse the issue, of whether Apple has control over its own services, by making the situation seem too complex to argue with, and mixing the end user or consumer's wishes, with those of large corporate competitors to Apple. The way this is done is to mix up the rights, of a consumer, to do whatever they like with their device, with the desire of other corporations, to dictate how Apple runs its iTunes service.

7.3.3 The Real Issue

DRM and Compatibility

The issue that all this revolves around is something called DRM. The fact is that you can add media, from any source to your iPad, iPod Touch, Apple TV, and iPhone provided it is in a compatible format (which is also the most common format) and if it is not in a compatible format, then you can easily convert it, even with free software. So the question is then: why can't people put competitors' products on the Apple devices? The answer is that they are incompatible, by design of the seller. DRM restricts not only how you can copy digital media and software, but also is only compatible, with devices designed, by the same company. DRM was designed, to make piracy impossible, but it doesn't work, because anything, that you can see, on a computer, can be copied.

The Alternative to DRM

The reason Apple is able to get people, to pay, for media and software, that they could steal is by giving them access, to the same media and software, for a very low fee, in a much easier to find setting. They also allow putting their content on five computers at a time and as many iDevices that you own, which also makes consumers less motivated to steal media and software. Apple also used its leverage, gained by its success, to get the music industry to remove DRM from music, so that you can easily bring your music, purchased from the iTunes store, onto a competitor's device. So what the real effect of DRM is that it makes it harder, for honest users, to move their content, between rival companies' software systems. So Amazon.com portrays themselves, as a victim, and trying to help the consumer, when, in reality, since you can only see books, from Amazon.com store on a Kindle, but you can see them from any of the major stores and many minor ones on an iPad, iPod Touch, or iPhone, it is

being more restrictive, than Apple, on how you can use your media, on Amazon devices.

7.4 The Over Looked Player

7.4.1 Mozilla is a Major Player

When people in the industry count the major players, they generally include: Apple, Microsoft, Google, and Facebook; but there are other important players, including: Adobe, Amazon.com, and Mozilla. Of all these companies, most people have, at least, a vague idea, of what they do, except for one: Mozilla. Two of the most important distinctions between Mozilla and the other players is that Mozilla is a non-profit organization and is primarily funded, by one of the other major players: Google. Mozilla goes back, at least as far, as: Google, Facebook, and Amazon.com; but Apple, Microsoft, and Adobe go back much further. You likely have heard of Mozilla's flagship product, Firefox and, if you are old enough, you remember its origins, as Netscape.

7.4.2 Netscape History

Mozilla formed, after Netscape was about to die, and came from the code name, for the engine, behind the Netscape browser. Mozilla formed, to manage the open sourced Netscape source code, after its abandonment, by its owner, at that time (AOL Time Warner). There are really three stages, that happened, to form what we now know, as Firefox. First, Netscape was formed, by hiring the former programmers, that designed Mosaic, the first graphical web browser. Netscape was the key perceived rival, of Microsoft, at the time and was part, of the lawsuit, against Microsoft, by the government.

Microsoft had so much power at this time, that they were able, to use their monopoly, of PC operating systems to crush Netscape and gain a monopoly, in web browsers. You can read the basis, of the lawsuit online, but some of the

key arguments were that Microsoft threatened Compaq (now owned by HP) and told Compaq, that, if they bundled Netscape (the market leading web browser) with new PCs, that Microsoft would raise the price Compaq had to pay, for Windows licenses, to put on their PCs. Microsoft also changed some, of the design, of Windows (without telling Netscape), to create problems, for the Netscape developers, so that their program would not run correctly.

7.4.3 Microsoft's Part

One of the really important things, that Netscape achieved, at the time was the evangelization, of the World Wide Web and the Internet, much as Adobe now pays members, of their company, to encourage the use of Flash, on websites. They were the ones, that got major companies, to purchase web domains and list them, on all their brochures and commercials. As Netscape was dying, Microsoft was releasing new versions, of its web browser, Internet Explorer, until Netscape was crushed. Microsoft then didn't update Internet Explorer, for 5 years, and told every major corporation, that this would be the last version, of their web browser, that they would ever release.

This was the best browser, by far, at the time, although Microsoft used its dominance, to twist compatibility, of web standards with its browser, like: Javascript, HTML, and Java. They also added a lot of their own incompatible ways of designing web pages, including: Active X (Microsoft's version of Java), Visual Basic Script and J Script (Microsoft's version of Javascript), VML (Microsoft's version of SVG), and Direct X filters (Microsoft's version of CSS 3). Although the Netscape browser was used at the time, it had slipped from about 80% to less than 5% and many websites only worked, in Internet Explorer.

Firefox

As Netscape died off, the Mozilla organization took over and rewrote the entire engine, of their web browser, now called Gecko, and released a product,

at that time, named Mozilla. It still was not very stable and was not very popular. Mozilla was an integrated suite, including: an email program, a web page editor, and another program or two, at different times. It was considered too bloated. Then work on a slimmer, more focused web browser only product was started, based on Gecko, and that is what we now know, as Firefox.

One of the big things, that Firefox brought about, at that time, was an alternative, to Internet Explorer and pressured web designers, to develop website, that worked, on more than one browser, and in a standardized way. Firefox then took about 25% of the market and Internet Explorer's share of the market kept decreasing, and continues to do so today. Firefox was not advertised and achieved its renown, by advanced users, being frustrated with fixing their family or friends computers, and installing Firefox on them (so as to prevent much of the malware, like spyware and viruses, from slowing these people's computers down). One of the unique things about Firefox, besides the added security, was that it allowed, for very advanced add-ons, that allowed you to do things, like block ads and Flash. This was because Firefox was designed, to do more, than just be a web browser – it was designed to run full programs, on multiple operating systems.

7.4.4 Apple and Google

A few years later, Apple decided, to make their own browser, as Microsoft was unwilling, to update their version, of Internet Explorer, for the Mac (which was incompatible with Internet Explorer for Windows and a whole version behind). Apple decided, to start, with a very small and obscure browser, best known on Linux, as the web browser, that comes with KDE. It was just a very basic browser, that did little more, than display HTML documents. Apple then used the same browser on its iPhone, when it was launched, which was the first time a mainstream cell phone, that had a full featured web browser. Along the way, Apple introduced most of the graphics additions to what we now know as HTML5, like: CSS3, Canvas, and popularized the industry standard (but not totally royalty free) MP4 format, on its iTunes

Music store.

This was no threat, to Firefox, at the moment, although a number of sensitive leader, of Mozilla tried to find fault with it, no doubt jealous, that Apple decided not, to use Gecko, as the basis, for their browser. Then Google decided, to adopt the browser, which Apple made, and added some other parts, like their own Javascript engine, and started to take away much of Firefox's market share (over the next several years). The key advantages of Google's new browser, called Chrome, was the speed (especially of Javascript), especially perceived speed and responsiveness, a feature which kept a crashing web page from crashing the entire web browser, a minimal interface, that gave a few more pixels of space (mainly for low end notebook computers then called netbooks, since they had a smaller, non standard screen size), updates happened every few weeks, and Chrome auto updated itself.

The Future

This is where Mozilla is today. The key thing going, for Mozilla, is install base, their add-ons capabilities, and their, until recently, a more traditional interface and a more typical release rate. The problem Mozilla had was, that instead of playing to its strengths, it tried to match Google Chrome, but focused on the wrong features, to emulate. At this point, they have decided to go, with the minimal interface and frequent updates, but decided to not do auto-updates. Mozilla has also got some traction in large businesses, but its frequent updates are making it impossible, to try, to push the already reluctant businesses, onto Firefox (instead of Internet Explorer). The frequent updates are also causing problems, for those volunteers, who design and update the add-ons, so that the latest versions are not compatible with popular add-ons. Also, they need, to stop trying to compete, in the mobile area: the default Apple and Google browsers are at least as good, if not better, than Firefox.

At this point, it appears, to many users, that Firefox is now a poor imitation, of Google's Chrome. The other problem, for Firefox is that Microsoft did a huge

update, on their web browser and got close, to catching up, with Firefox, both in standard support and features, as well as speed. What saved Firefox is that Microsoft is only willing to support the latest version of Windows, with each new release, of Internet Explorer. This means that the latest version will not work on XP, the next version will not work on Vista, and the following version will not work on Windows 7. For Firefox, to maintain its install base, it needs to make sure that loyal users have all their add-ons working, on the latest version, no matter what that takes, keep the Mozilla leadership, from making stupid decisions, like removing the version number and location bar, and doing whatever they can, to get large businesses, to be willing, to consider Firefox.

This is a lesson for the other major players: understand who your users are, who makes you money, how do you make money, and play to your strengths. Just like Apple decided, to stop trying, to defeat Microsoft and just be the best Apple they can be, so should Apple's rivals. For Apple's competitors: don't just copy Apple, but find another thing, that you do better than Apple and approach, from that angle. And if Apple is working with you, and you don't compete, in the same area, don't alienate them, unless you have to. A cheap ripoff, of a competitors product, is not going, to make money, in today's market and isn't something an American company can successfully compete in.