

## Notes From The Cabin - April, 2009

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Here is the second installment of Notes from The Cabin Its April Fools Day (second quarter 2009) but this is no April fools joke. I recently read an article in Forbes from a guy who works in the financial analysis industry. He was having much frustration trying to set up his new PC and ended up blaming the whole mess on the Internet... It was a nice article but this guy had it all backwards! I will keep his name and reference anonymous as I don't want to offend. But I will explain my point as you read further...

The Internet is doing just fine thank you! In fact, its growing and evolving so fast you have to put on rocket powered roller skates to keep up! What really needs an overhaul are the current operating systems that run on personal computers!

This guy did not do his homework well. He started out with the right idea, explaining a common nightmare story about buying a new PC and then running into all kinds of trouble trying to set the whole thing up, but he ended up blaming the problem on the Internet! I forgive him for this mistake however. He meant well but he is a financial type. They have sound ideas usually but sometimes they get the technical details and/or timing a little mixed up. If they were too good at really understanding the nuts and bolts of the industry they would be nailing trends dead center and would be too dangerous for the market! Bill Gates was smart however as he found a good geek very early on to work with and together they built an empire! A very dangerous one at that. :)

To correct what this guy said... The Internet was conceived and built by a team of some of the worlds most brilliant minds! It does not need an overhaul. There are Internet standards that have not even been fully exploited yet and new standards continue to evolve and build on the extremely well thought out standards and technologies that made it what it is today. What needs an overhaul is the entire architecture of our present day PCs and the Operating Systems that run on them. That is what caused the author of that Forbes article all his headaches when it came time to buy a new PC. Same story for Macs too Stevie boy :)

PCs and the operating systems that run on them, came out of an era when there was no Internet or world wide web to connect them to. (at least it was not available to PCs at the time they were first invented). The whole architectural concept of Personal Computers was, well... for "personal" use. They were not intended to become simple nodes on a multi billion node network.

Back then we did not even have the understanding or belief that such a massively huge network was even possible. It would be many years before, even large companies like Microsoft would begin to see the vision to design something that would fit that paradigm, and they still have not got it figured out today

even.

Vista is nothing new... Its just an expensive slower, more bloated version of XP which is also an expensive, more bloated version of Windows 2000... which btw WAS better than Windows NT. If Vista runs faster, its because you had to buy a new and faster machine with lots of system memory to run it on.

The operating systems for general purpose PCs of the not to distant future will be very simple. There won't be any software to install or configure... It will be something like the network router appliances you can buy today. All you have to do is plug them into the wall, turn them on, and go! They will automatically find the closest wireless node, attach themselves, and then download all their smarts...

Once the architecture of the personal computer has sufficiently transformed to this new model, all of the software, data, and/or media you need to do your daily work will be downloaded from a server in a format that fits the way you are using it and the hardware you are using it on. It will run until you are done and then you can just push the off button because all your stuff will be stored remotely and safely. There won't be any complex and vulnerable system registries to get corrupted or, (God forbid) hacked. Local storage will only be used for caching and to make it possible to continue to work off line until the next time you are connected again.

All your data and/or media, OS, preferences, settings, and applications will be encrypted, authenticated and ubiquitously distributed as many small redundant copies of thousands of tiny packages of information that can be summoned and assembled in a split second into a single complete package whenever you need it... No one will be able to retrieve your data unless you give them access.

Hackers may be able to find a few bits of your cryptic data but they won't be able to find enough of the other bits to make any sense out of it, (even if it was not encrypted) and if they were to destroy the bits of data they do find, there will be at least 10 other copies of those same bits of data located in other parts of the worldwide network, and when those bits discover their twins have perished they will replicate new ones to take their place. This will also eliminate the need for individual users to worry about backing up their stuff too!

Only you, the owner will have the master index file, and each individual bit of data will only know how to find its copies, and a clever scheme for linking to its neighbors that cannot be traced externally. You can thank the US Navy for that indigenous bit of technology! Yes its true, some great ideas that end up being highly useful for peace time use were originally developed for the purpose of national defense. The same is true about great technology originally created for peaceful use which ends up being exploited for military purposes. But that is a subject for another story so I won't get side tracked on that here.

The technology to do all of this is actually already here in its infant stages, and its being adopted by the younger generation file sharing sub culture, as most of the new evolving Internet technologies first emerged and were adopted in the past. This trend is going to bleed into Operating System development and that too has also already begun its disruptive technology transformation/evolution.

Microsoft or Apple are not the folks who will be building this new disruptive technology. Most of it is coming today from the open source community and the companies who are supporting that trend. The Macintosh OS-X Operating System is already based on at least 75% open source unix: FreeBSD - from Berkeley, and X-Windows, which came out of project Athena at MIT. Apple even stole the X logo from Project Athena but it wont be the first time they did something like that ha ha...

There are a lot of open source developers out there designing clones of the Mac OS-X already. They will succeed, and many pioneering end users will adopt it, creating a third market of personal computer users... When that happens, the evolution of that new OPEN OS will then be free to evolve and change to fit the new paradigm being adopted by our younger generation who can see the future much better than we older folks and are much more flexible and free to do something about it.

The hardware devices to inherit all of this new paradigm will not be the PCs or Laptop as we know them today. I believe these new hardware devices will come out of our current cell phone, PDA, and iPod like development trends, and it will eventually make the Laptop, and Desktop PCs obsolete. Keyboards will become somewhat less used as well over the coming years because machine speech recognition is already close enough in its evolution to be widely and successfully fully integrated as a real time data interface between humans and machines.

Its time to start planning for this paradigm shift, but not quite time to give up current business trends in favor of building a new business model that is 100% based on the new shift... The new shift will blur the lines between the concept of client and server and when the paradigm shift is complete, there will not be anything left to be called a server or a client. Every device, from very small nano scale computing devices, to large workstations will be called nodes.

Super Computers as we know them today will no longer exist either. Supercomputers of the future will not be huge hunks of complex hardware. They will instead be a virtual software system comprised of millions of nodes located around the world. Each node will be doing only a very small fraction of the over all computational work, but these nodes, all combined together will form a

massively parallel multiplicative gestalt that acts as a complete adaptive system encapsulating both jobs as client and server simultaneously.

IBM has already started this trend in the super computer market by developing a very simple architecture of massively parallel computational modules that are plugged together in one box. Google the term "IBM Blue Gene" and you will see what I am talking about. The boxes themselves are also modular and can be cascaded together to increase power. Its only a matter of time before they will figure out a way to connect these simple building blocks together from great distances using miles and miles of high speed fiber optic connections without losing performance, speed or computational power.

Eventually this paradigm shift will bring about an even bigger shift in the fundamental sequential "Von Newman" computing architecture that all digital computers are based on today. The Super computer concept described in the paragraph above will lead to all computing as a virtual hybrid of massive neural nets that are optimized at complex pattern recognition, (like biological brains), but this virtual network based system will also be able to do extremely fast sequential Von Newman style processing just like today's computers do which is billions of times faster than our organic brains which were not optimized for such boring speed counting types of work.

Well I could go on and on about this but it would be redundant as a great mind has already put it very well in print. You will find stuff like this and more within the pages of a very thick book by one of today's most brilliant thinkers and futurist. Ray Kurzweil. The title is: "The Singularity Is Near" I met Ray once when I was working at MIT.

I wonder if he remembers me. I hope this blog and link above gets him more book sales. Hopefully he may link back to our site too as a kind of review reference. He probably has some cool AI web spiders running loose that take care of all that web marketing stuff for him. :)