Emerging Trends in Network Infrastructure and Server Virtualization  
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The speed at which virtualization is penetrating enterprise and small businesses has it approaching the 50% saturation point (Ernest, 2013) in the near future, if it already hasn’t passed it already. This has already started to cause some changes in the way businesses approach their modern virtualization strategies. Some of the biggest names in technology have signed onto a Facebook endeavor called the Open Compute Project (Lang, 2014). This project started as an idea to help reduce the cost of data centers and has attracted the attention of big named players like Microsoft, who recently has joined to help produce the next generation of advanced server hardware for their Windows Azure and other cloud based solutions. With the cost of virtualization coming down as it reaches a saturation point in private enterprise (Babcock, 2014) the rise of new competition to challenge the early adopters such as VMware and Microsoft continues to build. These new changes have started to bring about the “graying” of endpoints in businesses, which has fueled the rise of the Virtual desktop environment.

The Open Compute Project started as an initiative by Facebook in 2011 under the growing costs of building new data centers. The team started out with a complete redesign of a new center that was in the design state in Prineville, Oregon (Open Compute. 2014). The project relooked at ways to achieve better airflow for cooling, simplifying the virtualization host servers, and building a better physical data store. The challenges have been met with enough success to build a data center that is 38% more efficient and 24% less expensive to build (Kleyman, 2014) while still being able to complete with new state of the art data centers. Number like that have started to attract bigger names in the market such as Microsoft and Intel which have both signed on to the project.

One of the ways they achieved this reduction is lowering the cost of the data centers server hardware. Realizing that most off the shelf severs delivered by modern suppliers include various ‘bells and whistles’ that actually add nothing to reduce the cost of ownership. The project stripped down the servers to the most common, and needed components. The same zeal was applied to items such as the data store where a standard for different grades of storage were developed. To make all these different items work together efficiently the entire idea of a rack was rethought out to maximize cooling along with removing unneeded supports from the structure, lowering the construction cost. These designs were then given the same treatment as an open source software project as the standards and details were released to the public.

The reality that software as a service is has started the to reach early stages of critical mass in some markets, the idea of a virtual desktop as a service has started to see renewed interest. The first large hurtle that this endeavor faces though is a licensing model for the most popular desktop software that is rooted in the late 20th century (Wood). The Windows licensing agreement currently forbids its use to provide a desktop as a service but since the latest cores of the operating system are built on the Windows Server core, they both use the same remote desktop service, and Window servers do not have this licensing restriction. A small start company called Desktone has started to poke around in the gray areas of desktop licensing causing pressure on Microsoft to review and change their currently licensing model.

The low cost of tablets and the rise of bring your device to work policies are making the desktop virtual environment a more cost effective solution. This way the corporation can still control the content and distribution of resources while not having to invest in costly endpoints for some workers. This also aids in progressive work from home policies for modern companies. One consideration for companies is deploying ageing virtual server infrastructure to run the virtual desktop. This allows a second life to already deprecated capital hardware which for all purposes is still viable and reduces the initial cost to entry to a less proven form of technology. Once the concept is proven it is easier for Chief Technical officers to get approval for a larger scale project.

One of the initial companies to enter the virtualization market was VMware and that early entry has allowed it to dominate the visualization market with Citrix and Microsoft trailing behind it with their own technology. During this period of time it was a buyers’ market with the vendors interested in getting their technology into larger organizations which could afford the new technology. This has remained so for many years until recently when there appears to be a consensus that Virtualization of server infrastructure is reaching the critical 50% penetration point. This saturation of the market has allowed smaller companies to reap the same rewards as larger companies for far less. It also has started switching the market to more of a sellers’ market as the cost of ownership is driven lower.

The more open market has allowed smaller companies to enter where before they wouldn’t have been able to compete on the same level as VMware or Microsoft. This second source allows businesses to setup a second tier environment as to diversify their infrastructure, as well as other smaller business to only buy the basic services that typically come bundled with unneeded application and services by the larger more established companies. In a capitalist market, more competition is better for the consumer.

The speed at which virtualization has been rising has been memorizing and will only continue as cloud computing gains more momentum. This will start to change the way the next generation of computer users will do business. No longer will there be a room full of computers, but they can be stored in a cost effective, and environmentally safe building allowing a business to reinvest the capital dollars. With the changing of licensing and desktop virtualization, and bring your device to work will become the norm as companies adapt to the changing needs of the next generation of workers. Being able to do more with cheaper and competitive hardware has allowed mega companies to lower their total cost of ownership while not sacrificing quality. The trend of virtualization is pointing to a utility model, monthly costs as opposed to large capital expenditure, and expansive services. I feel that in the next few years having a ‘desktop’ will be cliché, and the old server room will make someone a nice climate controlled office.

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