

## IT Executive Exchange

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### **Virtualization: Performance and Prospects:**

Virtualization has given IT departments an unprecedented cost reducing tool through server consolidation, streamlined business continuity, and access to the cloud. But questions remain: can virtualized servers really scale? Has virtualization delivered the promised ROI? Can and should IT take the next step to virtualization on the desktop? How might virtualization facilitate business agility and repositioning IT as a service?

Scott Jobe from VMWare is the specialist for the day's discussion.

Virtualization has been around since IBM invented it in the 1970s. It provides a unified way to allow customers to operate several operating systems. Currently, virtualization is being used for consolidation of servers as a cost-saving measure. Many companies have gotten a fair amount of experience with virtualization, so the question is—where do we go from here? Do we virtualize the desktop? Or move things into the cloud?

We'll start by asking, how do we currently use virtualization?

At The University, we don't use it to any appreciable degree, unfortunately. The mainframe will be turned off soon, thus saving \$300,000 annually.

Virtualization is used very heavily at one company; there are several hundred virtual machines, mostly for Windows installment applications and printing servers. The company will virtualize anything that doesn't have to be on its own box; Oracle and nbnond still have the mainframe. It's a lifesaver; if there are ever any issues, the Windows group can take a snapshot and easily diagnose and correct the problem. The only major issue is some licensing problems with pieces that are very sensitive and can create some legal issues. People were combative at first about losing physical machines but are now more comfortable with virtualization.

At another company, the monthly metric is 400 virtual machines and 30 physical. The company runs mostly Windows and some Linux. It was stated, "We are VMWare." One of the hot buttons that makes VMWare very good for virtualization is around PR. Taking into account failover and motion, the whole point of having a server as a file is being able to get to the disaster recovery cycle. There are a lot of places where there are physical/virtual combinations; without virtualization, this company would be out of their data center, due to size constraints.

One participant manages and operates approximately 1000 virtual servers. There is a lot of space and sufficient time to build servers. They have dramatically expedited the time frame. Disaster recovery point is huge. VMWare is primarily used at this company; they look at platform, savings, risk mitigation, and productivity increases. How many years has it taken to get to this point? There have been a lot of customers and outsourcing; the goal is to get them on cloud and utilize virtualization. Internally, this process began 5 years ago, when ESX came out.

A new attendee to these meetings is coming from a service provider perspective and is interested in hearing more about private versus public in terms of the cloud and desktop virtualization.

From server perspective, one participant mentioned that his company's plant facilities are replacing old physical machines with virtualization as the equipment ages. Desktop virtualization is the hottest topic, or perhaps the applications movement becoming cloud-based. This participant deals with pressures from the user base for different devices. Virtualization could be a key to technology, and we could get more use out of end-user devices.

Another company is all virtual now; about a year ago they were 50/50. The efficiency gains they have seen thus far are incredible. There is so much more space in the data center, which was then used

to build office space. Overall, there are fewer redundancies with upgrades and less down-time.

It sounds like everyone is very happy with virtualization. Are there any problems at this point? What are your concerns/considerations?

The cost. As we start to move virtualization into plants, what is the break-even point? Is virtualization worth it? Five or six servers have to be virtualized for it to be a good decision.

The ROI at one firm is more about uptime than the cost of the machines themselves, seeing as they have many plants that are pumping out more product and the plants vary in size. In the largest plants, there are 30-40 servers. As the company evolves, they will have to integrate virtualization into the business environment.

Any idea how many companies are doing desktop virtualization?

The concept of using virtual desktop swings widely from using Citrix to a true virtual desktop—it all gets lumped into VI, so it's hard to say. However, at least very few customers aren't in the midst of it. Looking at virtualization on client side, everyone has differing opinions of what it is—we all say VDI—but then you start talking further and you see that there are different components.

From the UA standpoint, we've been using VMWare on the server side for quite a long time. We are now down to 2 physical servers running about 10 virtual servers and are looking at using desktop virtualization in labs. We have talked to two other universities and one company that have switched from a VMWare desktop to Citrix, due to video performance and latency issues. Is this something that other people have experienced?

One company has 100 users on the Citrix environment and will end up with about 1000 machines. There will be great cost savings on PC refresh because they won't need to do it as often; they will be able to go many many years on the same machines. Security will be optimized and the latency issue will be addressed, applications are no longer failing, there has been a 30-40% increase in

efficiency, the pilot has just been completed and the company is thrilled with it.

PC over IP: a lossless realtime protocol is both a good and a bad thing; it provides a rich customer experience every single time. With a LAN environment, there are more issues with PC over IP, trying to consume and make it lossless. However, out of the box, HDX works more consistently and effectively than PC over IP right out of box; everything gets fixed with next version, though. A 5x increase in efficiency can be seen. Thus, is it really about protocol? Or the end user experience?

UA is trying to decrease the demand from the computer labs and make it so students can use the software from home. It will act like terminal server, but will be different; not all apps can be run in terminal server because of licensing issues. The advantage of using a virtual desktop is that it can be run in its own environment and OS.

Addressing industry, out of pocket costs are greatest with labor and administration, not parts. One company has trouble avoiding the 8 am boot storm. On a shop floor, the plants are wet from cleaning equipment. Serious costs can be saved by fitting in water tight strong arm cases that are much smaller in size and cheaper to purchase. There are industrial PCs on the shop floor, but they are expensive and 80% didn't work. There is a full Wyse terminal now, which works much better, and a Citrix server in the plant. At this company, there are 3200 desktops/laptops; wireless is only available in conference rooms and employees must hook up otherwise (they get better speed anyways).

On the clinical side, where physicians are roaming from floor to floor, reducing the number of logins is huge. This relates back to operational savings. If physicians were to walk around with pad or tablet of some sort, security issues go away.

There has been a lot of focus on ROI and capital reduction, but what about business level achievements, disaster recovery, and improving your business processes in any way?

Capital cost reduction is one attendee's first priority, business service/applications are second,

and third is the shift of IT as service model (cloud conversations). As software increases and matures, there will be an initial 8 virtual CPUs and 255 gigabytes of ram in a single VM, but with the next release, there will be 32 CPUs and a terabyte of ram.

More people are getting iPads, which can't be encrypted and present many security issues. One company is telling their employees they can still use the iPads to do their work, but only if they are using a virtual environment and are not storing anything on the devices. Due to HIPAA requirements, the university could put an employee policy in place that everything, including jump drives must be encrypted. The room agreed that company property is becoming more and more restricted in terms of what the end user has ability to do. One company refers to their PCs as "work stations", thus letting the employees know that the equipment is a company asset and should not be used for personal objectives.

In discussing iPhones, one company supports their use, but not personal data. Employees must own their device and back it up at home. Can you have a personal and business phone on one? Can you choose to just wipe the corporate line and leave the personal line as is?

As android continues to permeate the market, the upside is tremendous and opens up a new level of virtualization.

One manager is aware of what is on the machines, but it is not a huge deal at this point. He pointed out that you don't want to micromanage developers and make them think they are constantly being watched. At this point, everything is open source. The legal department will look at it if it is something we are going to use in production. USB ports are locked down in engineering. As of now, there is no desire to virtualize workstations or assets or Wyse terminals; the focus is on a huge windows 7 initiative.

When a piece of software stops working on newer version, can we run it with virtualization? The answer is almost always yes. Virtualization saves bank. It changes business for the IT department itself. The large majority of the department is

plumbing and maintenance of the user experience from the device up, but virtualization takes away the physical hardware platform. The department is getting away from managing hardware; now the focus is on how to manage data and make decisions—we need to be business analysts.

From a sustainability perspective, server virtualization is burning less electricity and the payoff is fast; it usually takes less than a year to get returns.