**Assessing Virtualization**

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**Hardware VS Software**

Hardware based approaches using VT-enabled CPUs can perform poorly in relation to translation-based software approaches. While the hardware based approach will run faster than the software counterparts, it suffers performance issues in that the guest and host must use the same platform. This is not true in the case of the translation-based software approach, because the software emulates the guest’s platform. The downside of the software approach is that the system will run more slowly.

**Translated Vs Original Code Performance**

Translated code can possibly run faster than the original code by replacing the usual trap method with a call to the binary translator. As traps are expensive in resource costs, a binary translator can run faster. While original code is still faster in most cases, if there are enough high cost commands in the original code, the translated code using the binary translator can finish before the original code. This sounds counterintuitive at first because the original code will eventually be translated into binary for the machine to read, but it makes sense if the original code is large enough and unoptimized. For instance, lets say the original code is a car, translated code is a bicycle, and translation as traffic. A bicycle is slower usually and the car will normally win any race, but add in some traffic on the road, and the bicycle will start to win the race because it can get through traffic faster. If there is enough traffic, the bicycle will eventually win the race.

**My Virtualization Pick**

I chose vSphere as my virtualization pick to host virtual machines for a company. VMware has been around since 1999, and is well trusted. vSphere is also great for a long-standing company as it has a flat fee, great performance, backup servers, and it works on most platforms. vSphere is said to be the leader in virtualization software (Venezia, 2015).

Firstly, I like the pricing structure that vSphere has. Other virtualization software draws you into an hourly, monthly, or yearly term. VMware simply charges you per CPU. While the price is over $3000 each, you do get 25 operating system instances to use as well. If you are planning on running a long-term company, this could be a beneficial pricing option, instead of paying per month. If you are not planning on having the company or virtual hosting for the long term, other options may be more enticing due to price.

Secondly, vSphere has great performance. With vSphere, you will get 4 vCPUs for each virtual machine you run or eight vCPUs or 4 VMs per host. This will allow your virtual machine to do things that single vCPU virtual machines are not capable of. It will also maximize worker productivity as they will not have to wait for information to load. Maximizing your employee’s working time can be seen as a high-performance and cost-effective strategy.

vSphere doesn’t slack when it comes to possible disaster recovery. They have backup servers on hand that will immediately be switched to if there is an issue with the server you are on. This makes vSphere very reliable, which is important if you are running a business that absolutely cannot be down. While it is common to have a backup server to switch over in case of an emergency with other virtualization technology, they don’t offer any benefits over vSphere.

With the release of vSphere version 6, vSphere now supports Linux, Mac OS X, and Windows platforms. This is a big deal for most users of Windows, and puts it at least on par, if not ahead, of most other virtualization technology. In fact, the only technology that I found that runs on more platforms was Citrix XenDesktop. Since most businesses use Linux, Mac, or Windows, vSphere will be more than capable of supporting these situations.

In conclusion, vSphere seems like it offers the most for a long-term company who needs to have great performance. It doesn’t slack in the departments of security or compatibility, and makes the cost of owning easy to recognize by using a flat charge per computer. You can also trust that your servers are not going to go down due to the backup servers that are automatically implemented in an emergency. If you need a virtualization software that is transparent, secure, productive, and runs on multiple platforms, vSphere is for you.

**References:**

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