

Server Virtualization Best Practices - IO



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November 22nd, 2010 / admin / 0 comments

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With **server virtualization** now firmly embedded in the data center mainstream, a growing number of businesses are focusing on how to squeeze the greatest value out of their virtualized investments. Since server virtualization is based on the proposition that enhanced utilization will inevitably lead to improved efficiency, enhanced performance and lower costs, it's only natural that virtualized server users will seek to reach a stage of optimal equilibrium. In a data center using virtualized servers, equilibrium is reached by hitting the sweet spot where systems run at maximum utilization levels without creating any instabilities or performance issues.

Here's look at best practices followed by successful virtualized server adopters:

Do Your Homework. Performing some basic research, including initiating in-house discussions among stakeholders and approaching vendors for their suggestions, is a good way to guard against unexpected surprises. To keep your discussions on target, you should create a broad set of requirements that address short- and long-term goals.

Accept Reality. The projected consolidation rate affects just about every aspect of a virtualization project, including capacity, budget and executive buy-in. Unfortunately, when it comes to planning a virtualized server deployment, expectations have a nasty way of outdistancing reality. As they say in those diet commercials: "individual results may vary." Try to be honest with your partners, and yourself, as you calculate your project's estimated returns.

Remember, too, that even the most impartially developed consolidation estimates often fall short in the real world. So, no matter what your projection shows, don't place more virtual machines onto your infrastructure than it safely can handle. A good rule of thumb is to add more infrastructure once server utilization hits 70 to 75 percent levels.

Temper Your Expectations. Too many CIOs and IT managers, even if they won't admit it to themselves, view server virtualization as a gift from the blue that will turn their cash-strapped, barely functional data center into a streamlined powerhouse. While it's true that reducing the number of physical servers needed to handle a given amount of work will help lower an array of data center expenses, server virtualization alone won't fix fundamental data center deficiencies.

Don't Forget the Support Resources. Virtualized servers still require real world support resources. High utilization levels leave almost no wiggle room for sub-par performance from power, cooling, networking and other vital services. Redundant resources and continuous service availability should be givens. If your current data center falls short in any of these areas, it's time to make changes or find a new home.

Plan and Test. Don't skimp on capacity planning and testing before rolling out virtual machines or assigning new applications to your virtual infrastructure. Thorough testing will also help your staff understand which virtual workloads are best suited to co-exist on a physical host.

Monitor and Record Everything. While businesses with non-virtualized servers can often sail through life using only rough estimates on server numbers and usage levels, the same attitude can lead to disaster in a virtualized data center. Virtual machines, by their sheer number, can lead to gross mis-estimations and confusion unless they are continuously monitored and recorded. You may also want to use a capacity analyzer to prevent virtual machine sprawl and to curb spending on licenses and support resources for unused machines.

Treat Your Mission Critical Applications With Respect. There's a good reason why some applications are described as "mission critical": it's because your business can't survive without them. Mission critical apps tend to consume the largest amounts bandwidth, memory, CPU cycles and storage, and will compete with other top apps for these core resources. While you may be able to get away with cramming dozens of lightly-utilized apps onto a single virtual machine, your most important and frequently accessed apps should be treated with more respect.

Don't Forget the Human Factor. IT and data center staff members can provide valuable advice and insight on virtualization issues and challenges. Be sure to bring these people into your loop.

Keep Looking Forward. Advancements are still being made in server virtualization software and practices. Turn to thought leaders, including virtualized technology vendors, [data center experts](#) and staff members, to stay informed on new developments that can help you increase consolidation rates and get more value from your virtualized server environment.

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