Predicts 2007: Brace Yourself for the Next Wave of Server Technology

The rapid onslaught of new technology is challenging the data center as never before. The IT organization needs to brace itself for new styles of server virtualization, another wave of server appliances and more diskless blades.

ANALYSIS

What You Need to Know

The rate of change in server technology is creating new stress points – and new opportunities – within data centers. IT managers must be quick to spot new technology – such as virtualization technologies and diskless-blade deployments – to address emerging stress points and increase operational efficiency. IT managers should also expect to be deluged with a new wave of server appliances offering everything from simple single-function operations (for example, file servers, Java Virtual Machine processing and so on) to completely integrated application/operating-system/hardware solutions. As attractive as these appliances may seem, IT managers must assess the impact they have on existing data center management solutions.

Prediction

By 2010, mainstream virtualization technology will embrace I/O virtualization, breaking the traditional bonds between physical servers, network switches and storage area network (SAN) switches; by 2010, shared operating system (OS) virtualization will become mainstream (for example, Solaris Containers and SWsoft Virtuozzo).

Analysis by John Enck and John Phelps

Key Findings

The industry focus on server virtualization will expand to include two additional forms of server virtualization:

1. *I/O virtualization.* I/O virtualization will create a new tier of network and storage management, allowing persistent, named I/O paths to be associated with blades and virtual workloads. This will enable better mobility of workloads as they move from one virtual machine or blade instance to another. Examples of vendors offering this form of virtualization include Egenera, HP, Fabric 7 and Scalent Systems.

2. *Shared OS virtualization.* Shared OS virtualization allows multiple and diverse applications to run under the control of a single copy of the OS. This is usually implemented by having a single root OS instance that provides a unique part of the OS to reside with each application in an isolated environment. Thus, a single OS implementation can appear as multiple instances in the same physical server, enabling each deployed application to "believe" it is running in its own OS instance. Each application in the shared OS model must support the same base level and patch level of the underlying OS. This allows a finer level of resource control and savings in management personnel. Examples of vendors offering this form of virtualization include IBM with z/OS, HP, Sun and SWsoft.

Market Implications

As the market comes to grips with hosted and hypervisor-based virtualization (for example, EMC VMware ESX, Microsoft Virtual Server and Xen), the demand for more-granular control of resources will grow. The demand will open the door for these more granular forms of virtualization. Although these emerging virtualization technologies will sometimes be deployed instead of conventional server virtualization solutions, they will increasingly be deployed in conjunction with them, increasing the operational efficiency of the overall solution.

Recommendations

Organizations should become familiar with these emerging forms of virtualization and evaluate how they can be used to supplement current virtualization plans.

Gartner

Prediction

By 2010, lack of integrated management features will limit single-function workload appliances (database management system, data warehouse, Java, file serving and SSL) to tactical deployments of less than 10% penetration in the data center.

Analysis by John Enck and Philip Dawson

Key Findings

After an unsuccessful run in the early 2000s, application and hardware vendors are again returning to the appliance model for delivery of a single-function complete "solution." The motivation for this is the decreasing margins found in the application, OS and hardware markets. Application vendors are moving to appliances to gain some of the OS and hardware revenue. Hardware vendors are moving to appliances to gain some of the application and OS revenue.

Although the appliances are certainly more attractive in this new wave of offerings, they still pose the problem that was a barrier to the first wave: nonintegrated management. Simply put, these appliances will contain their own administrative and management interfaces that may or may not tie into broader data center management tools.

Market Implications

This new breed of appliances will create new alliances and new friction in what has been a stable market. As application vendors choose OS and hardware alliances for their appliances, they will alienate established partnerships with OS and hardware vendors. Similarly, as hardware vendors choose OS and applications to put into appliances, they will undermine partnerships with OS and application partners.

Recommendations

Organizations must weigh the lure of lower cost and lower administration against the potential higher costs of management integration. Specifically:

Organizations should ensure that appliances integrate into their current management solution.

Or:

Organizations should ensure that the upfront cost savings of an appliance model offset the ongoing, often-higher administration costs.

Prediction

By 2008, more than 50% of blade servers sold will be configured without any internal storage.

Analysis by John Enck and Jane Wright

Key Findings

Most blade servers support diskless and disk-based operations. Diskless operation promises greater flexibility and manageability of blade servers; for example, images can be stored in a centralized business center, and IT staff may add a new blade server to the network and configure it using the image stored on the SAN. To date, however, boot-from-SAN has been problematic in some cases, with gaps in coverage for certain configurations and, occasionally, inconsistent results, with the result that approximately 90% of blade servers in 2006 continue to be supported by local hard drives. With impending improvements in boot-from-SAN and storage virtualization solutions, organizations will have greater choice on how to integrate blade server processing into their storage pools. This improved choice is leading organizations to implement more diskless blades.

Market Implications

Increased reliance on SAN (and network-attached storage) support will create new opportunities for organizations and for the vendor communities. Organizations should expect product improvements to better manage the SAN environment from the blade perspective, to enable blade failover within and across SANs, and to dynamically move workloads from one blade to another based on operational policies.

Recommendations

Organizations should view diskless blades as a "best practice" for blade deployments and evaluate improved boot-from-SAN and storage virtualization tools as they are introduced. Implementing diskless blade servers will pay off in increased administration efficiency, more-flexible workload relocation and new opportunities for disaster recovery.