

Critical Mission

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FEATURED ARTICLE

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Virtualization Roundup *Many solid options from top vendors*

*Microsoft, VMware, and Citrix are the major vendors in the virtualization market and offer numerous options to consider when developing a virtualization strategy. This article summarizes your options so you can get started – virtualization is a **when**, not an **if**.*

Microsoft

Microsoft offers a wide range of virtualization products and technologies that range from the data center to individual desktops:

- **Hyper-V Server** runs multiple virtual machines (VMs) on a single physical machine. Hyper-V comes in two configurations, one where Hyper-V is just one part of a complete Windows Server 2008 operating system, and another small footprint option where Hyper-V stands alone without the full operating system.
- **Virtual Server 2005 R2** runs multiple VMs on a single physical machine running Windows Server 2003.

- **Terminal Services** virtualizes the *presentation* of entire desktops or specific applications from a central Windows server.
- **Application Virtualization (App-V)** streams applications on-demand to desktops, servers and laptops makes applications into centrally-managed virtual services that are never installed and don't conflict with other applications.
- **Virtual Desktop Infrastructure (VDI)** is an architectural model where client operating systems run in server-based VMs in the data center and interact with user client devices. Similar to a remote desktop, VDI provides mobile, contract or offshore workers with the ability to access their desktops from a non-company PC.
- **Virtual PC** provides client-hosted desktop virtualization that creates a separate OS environment on the desktop, allowing a single workstation to run multiple virtual machines of potentially different operating systems.
- **Enterprise Desktop Virtualization (MED-V)** adds additional storage and policy management features to Virtual PC to support enterprise deployment of desktop virtualization.
- **System Center** ties all of the above together and lets you manage both physical and virtual assets for clients and servers, including multiple hypervisors, all with the same tools.

VMware

VMware offers a wide array of virtualization products and technologies that range from the data center to individual desktops.

Data Center Products:

- **ESX** and **ESXi** run all your production applications at near-native performance on VMware's OS-independent hypervisor. ESX and ESXi are both bare-metal hypervisors that install directly on the server hardware. The difference is in the architecture and the operational management of ESXi, which is free. ESX relies on a Linux operating system, called the service console, to perform some management functions. The service console has been removed from ESXi to reduce the footprint to 32 Mb.
- **High Availability (HA)** delivers high availability across your entire virtualized IT environment without the cost or complexity of traditional clustering solutions. HA provides cost-effective high availability for any application running in a virtual machine, regardless of its operating system or underlying hardware configuration. HA eliminates the need for dedicated stand-by hardware and additional software.
- **Distributed Resource Scheduler (DRS)** dynamically allocates and balances computing resources. DRS continuously monitors utilization across resource pools and intelligently allocates available resources among the virtual machines based on pre-defined rules that reflect business needs and changing priorities.
- **VMotion** moves running virtual machines from one physical server to another with no impact to end users.
- **Storage VMotion** enables live migration of virtual machine disk files across storage arrays. Storage VMotion lets you relocate virtual machine disk files between and across shared storage locations while maintaining

continuous service availability and complete transaction integrity.

- Other add-on products like **Virtual SMP** and **VMFS** add advanced multiprocessing and file system management.
- Numerous other management products like **Consolidated Backup**, **Update Manager**, **Stage Manager**, **Site Recovery Manager**, **Lifecycle Manager** and more simplify and even automate common administrative tasks.
- **VMmark**, **VMplayer** and **Converter** are free utilities for benchmarking, execution and migration tasks.

Desktop Products:

- **Workstation** runs multiple operating systems simultaneously on a single PC.
- **ThinApp** runs any version of virtually any application on a single operating system without conflicts. You can even run multiple versions of the same application.
- **ACE** produces standardized client PC environments inside secure, centrally managed virtual machines which make it possible to deploy and manage secure, portable client PC environments across the enterprise and out to unmanaged PCs.
- **Fusion** seamlessly runs your Windows applications and devices on any Intel-based Mac.

Citrix

Citrix offers a full suite of virtualization products and technologies for both client-side and server-side operations.

- **XenApp** is a Windows application delivery system that manages and virtualizes all applications in the datacenter for optimal application performance and flexible delivery. With it, you can deliver all Windows applications users on demand, either run

centrally from the datacenter or streamed down to the user's device.

- **XenServer** is a server virtualization system using streaming technology that rapidly delivers workloads across virtual or physical servers.
- **XenDesktop** delivers desktops on-demand to users anywhere while dramatically simplifying lifecycle management. It provides an end-to-end desktop delivery solution that accelerates the delivery of desktops to knowledge workers, enables stronger data protection and control, and reduces the cost of ownership of desktops.
- **GoToMyPC** makes it possible to securely access your PC from any Web browser in real time.
- Numerous other companion and supporting products provide management, monitoring and administrative tools.

Summary

All three vendors have a compelling suite of products with overlapping functionality. You can be assured that intense competition will encourage more innovation and differentiation.

Contact Alto if you'd like a demonstration of any of the products or techniques discussed in this article. Our next solution briefing is devoted to these concepts.