Server Virtualization with Advanced Management

Many organizations view virtualization as the technology that will help them get more from their servers and create a more adaptable and agile data center.

With greater demand on IT to solve business challenges, a greater number of server workloads is required. Often, organizations isolate each workload on its own physical server, causing "server sprawl." As a result, data centers quickly fill to capacity and each new server purchase increases capital and operating expenditures along with real-estate, power, and cooling costs. The U.S. Department of Energy and the Environmental Protection Agency have reported on the high energy costs of data centers, estimating that 1.5 percent of all U.S. energy consumption occurs in data centers[1]. Compounding this problem, server workloads consume on average only five percent of total physical server capacity, wasting hardware, space, and electricity.

Server sprawl leads to unplanned downtime, complicated disaster and recovery plans, and delayed server provisioning, creating an environment where compliance is daunting, security is threatened, and complexity becomes overwhelming.

The Solution: Server Virtualization

Server virtualization has gained much attention across organizations looking to address these challenges, improving the efficiency of their IT operations and enhancing their responsiveness to changing conditions. The core idea of server virtualization is simple: use software to create a virtual machine that emulates a physical server. This creates a separate operating-system environment (OSE) that is isolated from the host server. By providing multiple virtual machines, organizations can run several operating systems simultaneously on a single physical machine.

Benefits of server virtualization include:

- Increased IT efficiency through server consolidation, reducing hardware, space needed and associated costs, and management complexity
- Decreased energy consumption and associated carbon emissions
- Fewer disruptive events through streamlined maintenance and disaster recovery, which maximizes system availability and ensures business continuity
- Dynamic resource allocation and streamlined workload provisioning to efficiently support business growth and meet Service Level Agreements (SLAs)

By virtualizing servers, you can:

- Increase server infrastructure efficiency
- Maximize system availability
- Facilitate dynamic resource allocation

Business Benefits

Server Consolidation and Provisioning

In server consolidation, physical servers are converted to virtual machine files, which can be centrally stored, managed, and dynamically deployed based on available resources. This reduces the number of required physical machines and thus decreases equipment costs and electrical consumption, while dramatically improving server utilization, server provisioning, and business agility.

Centralized, Policy-based Management

Centralized, policy-based management of both virtual and physical assets lets IT handle enterprise-wide provisioning and change management from a central location. This vastly reduces the resources and time needed to administer the infrastructure, while providing a unified toolset that manages both Microsoft and third-party virtualization applications, such as VMware.

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Business Continuity/Disaster Recovery

Virtualization can enable IT departments to simplify and maintain effective continuity and disaster recovery strategies. By compartmentalizing workloads, you prevent one application from affecting the performance of another or causing a system failure. By enabling you to convert operating system and application instances into data files, it can help automate and streamline backup, replication, and migration, providing more robust business continuity and speeding recovery in the case of a power outage or natural disaster.

High Availability Using Virtualization

In a virtualized environment, each component is isolated and independent from the other components. By separating the different components, you no longer need to configure each element to work with the others. Computing components become on-demand services. This makes it easy to dynamically add, update, and support all elements of the infrastructure, enabling you to achieve your SLAs and manage planned and unplanned server downtime.

Why Microsoft for Virtualization

Microsoft provides a comprehensive, end-to-end toolset that helps create, provision, manage, and secure both the virtual infrastructure and the physical infrastructure, including the management of third-party virtualization solutions. Using familiar interfaces and common management consoles, an environment based on Microsoft technologies helps deliver cost, service-level, and agility benefits while helping to reduce the system complexity that can result from disparate point solutions.

Server Virtualization with Advanced Management

The Microsoft® Services Server Virtualization with Advanced Management Offering helps you maximize the value of your physical and virtual server infrastructure investments by providing a proven methodology, best practices, and the highest level of expertise in the industry. This offering uses Hyper-V™ virtualization technology within the Windows Server® 2008 operating system, as well as Microsoft System Center Virtual Machine Manager 2008, to help you take full advantage of server virtualization including third-party virtualization solutions.

This offering can help you to:

- Decrease hardware, space, and utilities costs through server consolidation and centralized management of physical and virtual server assets
- Drive greater IT operating efficiency through managed virtualization, helping to maximize system availability and increase operational agility
- Dynamically allocate resources and streamline workload provisioning
- Receive the highest level of expertise in planning, deploying, and optimizing a virtualization infrastructure

Implement Best Practices

With a deep understanding of Windows Server 2008 and Virtual Machine Manager 2008 (VMM), the Information Technology Infrastructure Library (ITIL), and the Microsoft Operations Framework (MOF), Microsoft Services consultants are uniquely qualified to provide guidance and best practices to help make your server-virtualization solution a success.

Engagement Overview

This engagement includes the following key deliverables:

- Use of the Microsoft Assessment and Planning Solution Accelerator to review the server infrastructure and determine virtualization candidates
- Report of potential savings that includes the cost of capital, power, cooling, and space
- Proof of Concept implementation
- Architecture, design, deployment, and migration guidance detailing the proposed virtualization solution
- Implementation of Windows Server 2008 Hyper-V and Virtual Machine Manager 2008
- Detailed guidance on managing third-party hypervisors and guest operating systems
- Operational guidance to help get the best value out of the solution after it has been deployed
- Implementation of the plan created during the Planning and Architecture phase
- A virtual infrastructure that emulates a much larger physical infrastructure

For more information

about consulting and support Offerings from Microsoft, contact your Microsoft Services representative or visit www.microsoft.com/services.

1 U.S. EPA, Report to Congress on Server and Data Center Energy Efficiency, Public Law 109-431, August 2007