Combined Intel® and Microsoft® Technologies Provide Cost-Effective, Mission-Critical Environment for SAP Applications

SOLUTION BRIEF

Increased flexibility and simplified management in a virtualized environment

The benefits of consolidating and virtualizing applications are well known, but until recently the size of SAP workloads has made it difficult to pursue cost-effective virtualization strategies that also provide the necessary manageability and scalability.

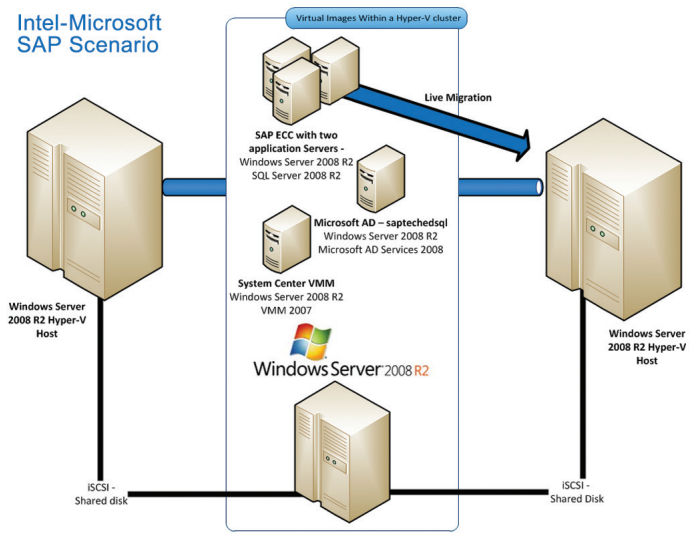
The SAP scenario described below shows a better way forward, with combined technology from Intel® and Microsoft that makes it possible to define and consolidate larger server architectures onto a industry standard platform, using non-proprietary hardware. The technology supports mission-critical activities, enhances scalability, and reduces the overall workload required to administrate SAP environments.

Harness the Power of Intel Technology

- Execute compute-intensive throughput workloads 40% faster than previous generations[1]
- Experience greater performance and scalability

The SAP Scenario

The SAP scenario involves executing a SAP workload on a Microsoft Hyper-V* node and conducting a live migration to another node while maintaining application consistency throughout the migration.



Intel® Xeon® processor E7-8800/4800/2800

With more than 20 features and unprecedented performance and scalability, the Intel® Xeon® processor E7-8800/4800/2800 family is ideal for mission-critical workloads. The processor family enables IT managers to consolidate up to 29 older single-core servers onto a single server, enabling up to 92 percent lower operating costs.[2]

SLAT

Windows Server 2008 R2 Hyper-V supports a new feature called Second Level Address Translation (SLAT). SLAT effectively lowers the processor and memory overhead incurred during virtual to physical address mapping for virtual machines, which increases the number of virtual machines that can be concurrently executed on a single Hyper-V server. Microsoft has found that with SLAT-enabled processors, the Windows* hypervisor processor overhead drops from about 10% to about 2%, and reduces memory usage by about 1 MB for each virtual machine.[2]

Key technologies

The scenario relies on the Intel® Xeon® processor E7-8800/4800/2800 family, as well as several new technologies, including clustering with Windows Server 2008* R2 Hyper-V*, Hyper-V live migration technology, and Intel® Virtualization Technology (Intel® VT).

Hyper-V live migration, which is integrated with Windows Server 2008 R2 Hyper-V, allows running virtual machines (VMs) to be moved from one node of the failover cluster to another node in the same cluster without disruption or perceived downtime. Data centers with multiple Hyper-V physical hosts can move running VMs to the best physical computer for performance, scaling, or optimal consolidation—all without impacting users. Live migration makes it possible to keep VMs online, even during maintenance, increasing productivity for both users and server administrators.

Process and outcome

With this scenario, IT administrators can perform a live migration in a mission-critical SAP environment, using a manageable, easy-to-build cluster solution that does not rely on costly proprietary hardware.

As shown in Figure 1, the scenario involved three servers:

- **Server 1:** SAP Cluster Host — failover in a highly available cluster configuration
- **Server 2:** Same as server 1, but defined as the active server
- **Server 3:** iSCSI Host — hosts the iSCSI disks used in the cluster to provide the cluster shared volumes, which are a prerequisite for Hyper-V clusters

Connections are made to the remote servers using simple Remote Desktop Protocol (RDP) connections. Microsoft System Center and Failover Clustering capabilities are then used to migrate the workload to another server.

The Intel® Xeon® processor E7-8800/4800/2800 family paired with Hyper-V delivers high performance and the ability to consolidate SAP environments, providing greater scalability.

Summary

The SAP scenario shows it is now possible to use Intel and Microsoft technologies to manage the mission-critical components of SAP development and test environments. The combined technologies provide cost savings, enhanced scalability, and flexible administration to support the needs of SAP customers worldwide.

Learn More

- For more information about the Intel® Xeon® processor E7-8800/4800/2800 family, visit www.intel.com/xeon
- Learn more about Intel and Microsoft technology at www.intelalliance.com/Microsoft

[1] Up to 40% generational compute-intensive throughput claim based on SPECint*_rate_base2006 benchmark comparing next generation Intel® Xeon® processor E7-4870 (30M cache, 2.40GHz, 6.40GT/s Intel® QPI, formerly codenamed Westmere-EX) scoring 1,010 (includes Intel Compiler XE2011 improvements accounting for about 11% of the performance boost) to X7560 (24M cache, 2.26GHz, 6.40GT/s Intel QPI, formerly codenamed Nehalem-EX) scoring 723 (Intel Compiler 11.1). Source: Intel SSG TR#1131.

[2] www.intel.com/pressroom/archive/releases/20100330comp_sm.htm#story

[3] http://ipip.intel.com/wp-content/uploads/2009/05/virtualization_microsoft_nj_event.pdf

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