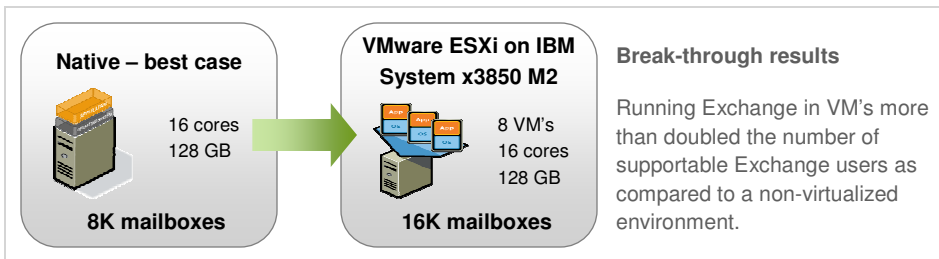# Record Capacity for Microsoft® Exchange 2007 With VMware and IBM System x3850 M2

Improve the Performance and Availability of your Microsoft Exchange® Implementation.

Email is one of the most critical applications in an organization's IT infrastructure. As a result, messaging administrators face conflicting demands of availability, agility and cost. Now, with Microsoft® Exchange 2007 running in VMware virtual machines on the IBM System x3850 M2, organizations can avoid costly over-provisioning of Exchange server computing resources, improve management and disaster recovery, and respond more quickly to the mail system needs of the business.

Native – best case

16 cores
128 GB

8K mailboxes

VMware ESXi on IBM System x3850 M2

8 VM's
16 cores
128 GB

16K mailboxes

Break-through results

Running Exchange in VM's more than doubled the number of supportable Exchange users as compared to a non-virtualized environment.

Scalable Results

Break-through Exchange® performance is a result of IBM innovations in scalable x86 computing. The IBM System x3850 M2 is a highly scalable server featuring IBM's eX4™ architecture and Intel Xeon 7300 quad-core processors. Because it supports VMware ESX in embedded form – VMware ESXi 3.5 – IT can power up the x3850 M2 and be immediately ready to provision virtual servers for Microsoft Exchange® or other business-critical applications.
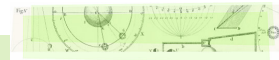
Proven Performance

More than 100,000 customers worldwide use VMware products. More than 50% of VMware customers running Exchange have virtualized it for production use. The VMware Infrastructure 3 platform has the maturity, stability, performance and functionality required to host critical Exchange 2007 infrastructures.

Running on the high-performance x3850 M2, VI3 helps to maintain a cost-effective Exchange 2007 environment by maximizing the utilization of computing power.
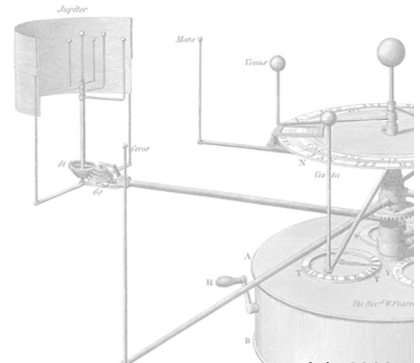
x3850 M2 with VMware ESXi and Virtual Infrastructure 3.5

July 2008

# Virtualized Exchange® End-to-end Testing Illustrates Real-World Performance

Tests in June 2008 once again proved that 16,000 heavy user mailboxes are supported simultaneously on the x3850 M2. This time, an environment was set up to represent not just a lab, but a real Exchange configuration. The Microsoft Exchange environment included the IBM System Storage DS4800 SAN, which provides configuration flexibility, requires fewer enclosures in tiered configurations, handles up to eight simultaneous rebuilds for safety, and saves energy due to the lower number of drives required.

The result? Very low average CPU utilization even while running a heavy Exchange 2007 test load.

Testing was performed on the x3850 M2 populated with four physical CPU's, using 2-way virtual CPU (vSMP) for the mailbox virtual machines. The Microsoft LoadGen tool simulated heavy Exchange users. The middle three hours of LoadGen testing provide the most realistic results, so the following diagrams illustrate results from those middle three hours of testing.

Improvements in Efficiency and Utilization

• Testing of Exchange on VMware Virtual Infrastructure took advantage of the SMP capabilities of the x3850 M2 while a physical server environment without virtualization would be constrained to a Microsoft-recommended eight cores.
• Memory over-commitment allowed a reduction in physical memory needed, even as tests were run with the "heavy user" Exchange profile.
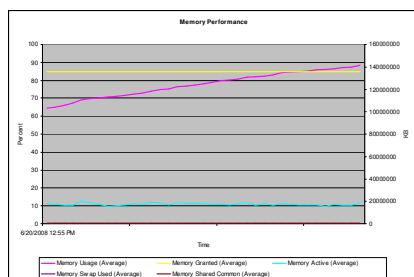
Virtualization provided efficiencies from memory over-commitment: 8 VMs each configured with 16GB.
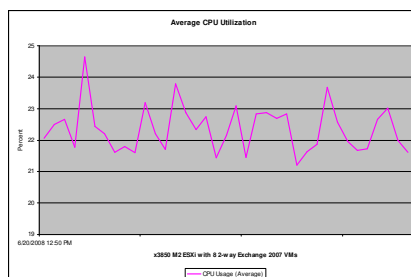
Even with the heavy Exchange workload, average CPU utilization remained below 25%.

For more details on how VMware and IBM provide improved results for business-critical applications, contact your IBM representative or business partner.

Learn More

• White paper and other materials:
www.vmware.com/solutions/continuity/highavailability
• x86 Virtualization solutions from IBM: www.ibm.com/virtualization/vmware
• Additional information about VMware-IBM solutions: www.vmware.com/go/ibm

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HIGHER AVAILABILITY
FOR THE EXCHANGE ENVIRONMENT
WITHOUT THE COMPLEXITY & COST

VMware Solutions from IBM

• **VMware® Infrastructure 3** simplifies Exchange disaster recovery by reducing hardware compatibility constraints and, through consolidation, the number of servers required at the DR site. Combined with the Exchange Transportable Database feature in Exchange 2007, recovering from both hardware and software failure can be greatly improved, reducing the time to restore essential mail services.

• **VMware® VMotion™** moves running mailbox VMs to an alternate physical server with minimal interruption in service and without rebuilding Exchange or waiting for a maintenance window.

• **VMware® High Availability** protects against hardware failures for all VMs, without requiring cluster-aware applications.

• **VMware® Dynamic Resource Scheduler (DRS)** moves VMs from an ESX server to free up more compute resources for the mailbox VM during a temporary spike in mail usage.

* "Heavy user" = each mailbox 250MB; 500GB of exchange data per VM.
* This data is based on tests conducted by VMware using Microsoft's Exchange 2007 LoadGen tool. Microsoft configuration guidelines:
http://technet.microsoft.com/en-us/library/bb123895(EXCHG.80).aspx

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