

# Building Microsoft Exchange Solutions With VMware & EMC

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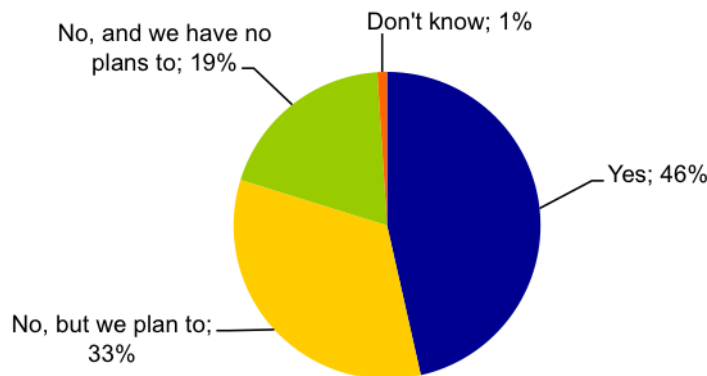
**Abstract:** More and more companies are running entire suites of business applications on VMware solutions. E-mail is often considered the most significant business application today, and within the world of e-mail, Microsoft Exchange rules the roost. EMC has already addressed Microsoft Exchange performance and integration testing in the “physical world.” EMC is now taking that expertise and applying it to Microsoft Exchange and VMware environments.

## Building a Business on a VMware Virtualized Infrastructure

ESG’s recent global survey of 706 current and planned x86 server virtualization customers found that current virtualization users expect to double the number of physical servers equipped for virtualization and increase the number of virtual machines running on those servers by 150% over the next several years.<sup>1</sup> Overall, 42% of survey participants currently rely on production virtual server environments to support one or more business applications and, as shown in Figure 1, 79% of the current users are running or are planning to run mission critical applications on virtual machines, including database, CRM, ERP, and e-mail workloads. One end-user recently said, “It used to be ‘prove to me the application will run in a virtualized environment’ and now it has quickly turned to ‘prove to me that it won’t run.’ It’s also difficult to justify the roll out of any new application in environments other than our VMware environment.” For organizations preparing to deploy server virtualization into production environments for the first time, the experiences of the early adopters surveyed by ESG indicate that organizations of all sizes and industries are trusting virtualization to run their business.

**FIGURE 1. ORGANIZATIONS CURRENTLY RUNNING “TIER 1” APPLICATIONS ON VIRTUAL MACHINES**

**Would you say that your organization currently runs “tier 1” applications on virtual machines? (Percent of respondents, N=365)**



Source: Enterprise Strategy Group, 2008

In an effort to control physical server sprawl, free up valuable data center floor space, and reduce power and cooling requirements, companies are starting to standardize on VMware solutions for all new server requests. Core IT workloads are typically the first applications to migrate from physical to virtual machines, but companies

<sup>1</sup> Source: ESG Research Report, *The Impact of Server Virtualization on Storage*, December 2007.

are quickly recognizing that the benefits extend beyond consolidation and improved resource utilization. As a result, they are beginning to migrate mission critical applications to new virtualization platforms for improved business continuity, increased uptime and disaster recovery for workloads that historically have been difficult to protect in the existing physical environment.

### Virtualizing Microsoft Exchange in VMware Environments

E-mail has become the primary means of business communication and the foundation for many business processes. Inclusive of calendaring and contact management, it is clearly one of the most significant business applications today—and within the world of e-mail, Microsoft Exchange rules the roost. In a recent ESG survey specific to remote office and branch office technologies, 61% of respondents considered Microsoft Exchange Server as the most important corporate application at their location, well ahead of other key applications such as databases (36%), ERP (23%) and CRM (20%).<sup>2</sup> E-mail is the workforce collaborator, replacing the water-cooler as the primary means of banter, directives and praise. Cell phones, office phones, voice mail and instant messaging still have parts to play, but e-mail is king—so much so that Microsoft is expanding its Exchange Server application to handle and manage these other forms of communication. The net result is Exchange Server 2007 further distancing itself from other business software as “the” mission critical application.

When businesses choose to deploy Microsoft Exchange on their VMware virtual infrastructure, they recognize the benefits of virtualization beyond server consolidation and improved hardware resource utilization. Primary motivating factors include:

- VMware virtualization provides a platform for companies to efficiently build an Exchange test and staging environment as many businesses consider upgrading to Exchange 2007. Testing in a virtualized environment shortens the testing process and enables customers to build an environment that mirrors the production environment. Patches and upgrades can be tested in an isolated, virtualized test bed and easily deployed into production when testing has been completed.
- VMware HA provides the failure protection of a physical server without the complexity and expense of clustering software. In the event of hardware failure, the Exchange virtual machine will be automatically restarted. VMware will also provide future roadmap improvements that include a standby virtual machine that remains online and immediately takes over in the event of a failure.
- Disaster recovery solutions are not dependent on physical hardware constraints. This enables Exchange to run independent of the hardware platform and quickly bring the environment back online if an outage should occur.
- Today's servers are built with multiple processors and processing cores have the additional overhead to run multiple workloads. CPU and memory can be monitored and workloads can move between physical server resources to optimize the entire infrastructure.
- Exchange Server roles can be deployed as individual virtual machines, which leads to savings on physical hardware, increases utilization and facilitates easy moving of workloads between resources with no loss of service.
- The network performance benefits in deploying multiple Exchange server roles on the same physical server. Network traffic between the virtual machines remains “in the box,” which eliminates congestion on the network backbone.

Deploying Exchange into a virtualized environment aligns with the business's overall goal of standardizing on virtual machines for all application workloads. With VMware, it is possible to realize operational benefits that dramatically improve deployment, availability, and recoverability. As mentioned previously, Exchange is considered an extremely important application, and VMware is able to deliver a platform that improves Exchange deployments.

### The Role of EMC Networked Storage

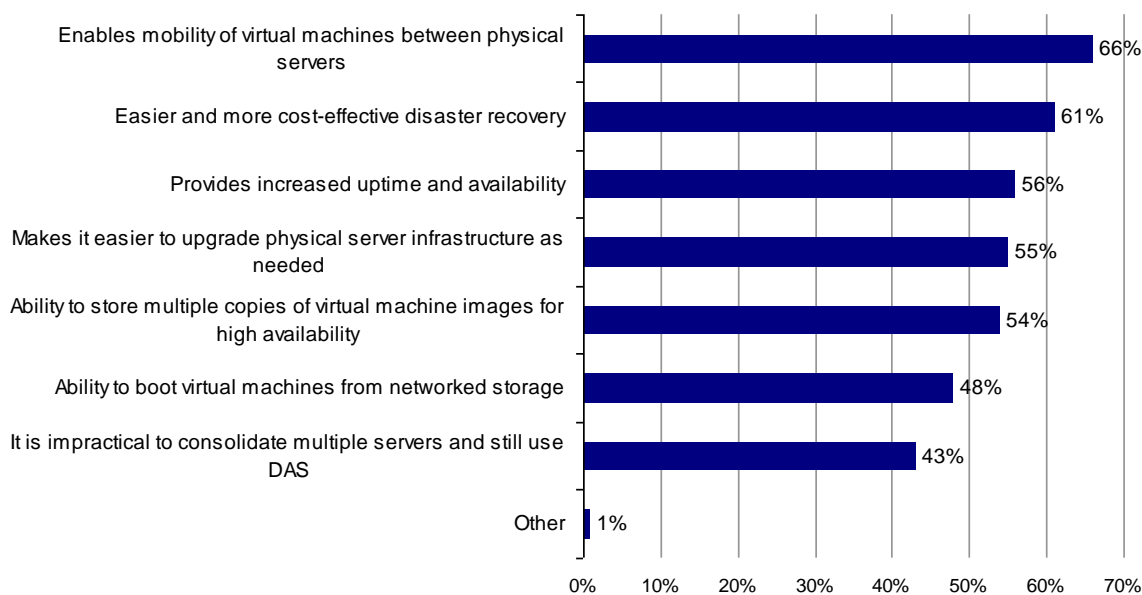
ESG believes that networked storage is essential if organizations are going to unlock the full potential of server virtualization solutions. This includes the ability to move virtual machines between physical servers for utilization, availability and data protection purposes, as shown in Figure 2.

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<sup>2</sup> Source: ESG Research Report, *Branch Office Optimization*, January, 2007

**FIGURE 2. LEADING FACTORS FOR DEPLOYING VIRTUAL MACHINES ON NETWORKED STORAGE**

Why do you expect that you will increase your usage of networked storage for storing virtual machines and associated data? (Percent of respondents, N = 181, multiple responses accepted)



Source: Enterprise Strategy Group, 2008

As companies migrate their Exchange environments to a VMware infrastructure, it is imperative that they carefully consider the impact to the underlying storage infrastructure and realize that it extends the benefits of virtualization, availability and efficiency back into the Exchange operating environment, as well as the other application workloads simultaneously executing on the same infrastructure. EMC delivers a comprehensive set of features that complement the VMware and Exchange environments to include:

- Integrated EMC data protection and remote replication strategies that complement Microsoft Exchange and VMware implementations. EMC helps to enable high availability of Exchange in VMware environments, as well as deep integration with products like VMware Site Recovery Manager, to provide a disaster recovery solution.
- Flexible storage migration that enables storage administrators to quickly expand and migrate volumes of data based on application and virtual machine growth. Since VMware environments are dynamic in nature, it is important that the storage system keeps pace with rapid changes and can quickly adopt to meet business needs.
- EMC Navisphere QoS Manager helps the storage administrator configure an Exchange environment to ensure performance and overall functionality in the storage system. Minimum acceptable performance limits are set, which enables IT to deliver the appropriate service level while designing an architecture that maximizes the available storage resources.
- Exchange environments tend to grow rapidly and with the onslaught of compliance mandates, businesses are required to maintain e-mail records for longer periods of time. EMC provides efficient use of its storage systems to obtain maximum capacity utilization and also offers e-mail archiving software solutions and hardware platforms.
- Exchange environments vary, depending on company size and the applications that have e-mail built into their workflows. They are not one size fits all. EMC offers storage systems with multiple protocol options that enable customers to choose the appropriate protocol to meet their requirements.
- EMC already addresses Exchange performance and integration testing in the “physical world.” This expertise can be applied to the Exchange and VMware environments.

## **The Bottom Line**

Migrating Microsoft Exchange to the VMware infrastructure can be an intimidating task for many businesses.. There are numerous variables in the equation and overlooking a single factor can lead to poor performance and a set of solutions that falls short of expectations. There is no substitute for a sound design methodology implemented by experienced practitioners that understand the potential pitfalls and have proven implementation success. When implementing mission critical applications, it helps to draw upon the knowledge of leading industry experts at EMC, Microsoft and VMware.

Companies are ready to run their business on VMware; they view the company as a trusted platform for mission critical applications. Microsoft Exchange is a critical communications application that affects all the employees and provides a transport for key business processes. Microsoft and VMware both rely on the storage infrastructure to deliver performance, availability and ease of use that extends the added value of their solutions. EMC is well positioned to educate and help customers make an informed decision when migrating their Exchange environments into the VMware ecosystem. Extensive testing will provide customers with answers to architectural decisions, performance implications and management efficiencies.