

# Why You Need to Consider Virtualization

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**An Osterman Research White Paper**

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## Why You Should Read This White Paper

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### NEAR-TERM AND LONG BENEFITS OF VIRTUALIZATION

While virtualization has been in use for 40+ years, starting first in mainframe environments, it has found renewed interest because of its many advantages. Because of newer offerings that make virtualization easier and more reliable on low cost servers, and because in many organizations there is sufficient excess computing capacity in many platforms that can permit the application of virtual servers for a variety of server functions, many decision makers are seriously considering virtualization for a variety of applications.

Why should organizations of all sizes be interested in virtualization for their content security functionality? There are several reasons:

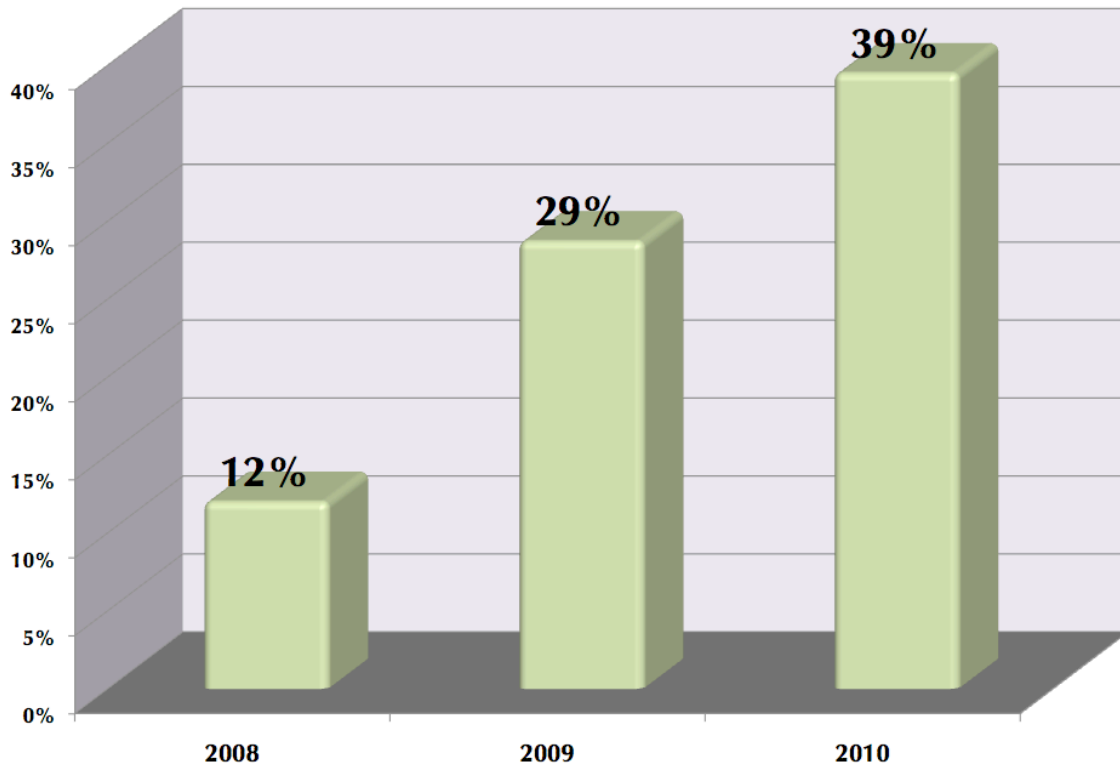
- Virtualization can significantly reduce hardware and related costs by allowing multiple servers to run on the same hardware platform. For example, an email or unified communications server, a Web security server and/or a mobile messaging server could all run on the same physical server, significantly reducing hardware requirements, IT labor requirements and power consumption.
- Virtualization can make it much easier to add additional capacity to the existing infrastructure.
- Disaster recovery and business continuity can be improved because virtualization makes it easier and more affordable to add redundant capacity to the infrastructure.
- Maintenance tasks can be made significantly easier.

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### LONG-TERM GROWTH OF VIRTUALIZATION

Osterman Research anticipates strong growth in the use of virtualization for security services. As shown in the following figure, the proportion of anti-virus and anti-spam servers that will run as virtualized applications will grow significantly through 2010, as shown in the following figure.

**Percentage of Security Servers  
Running as Virtual Servers  
2008-2010**



This white paper, sponsored by Trend Micro, discusses the benefits of virtualization for organizations that want to improve the efficiency of their IT infrastructure and to lower its cost. This white paper also provides information on Trend Micro's virtualization offerings.

## Comparing Virtualization With Traditional Models

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### WHY IS VIRTUALIZATION INTERESTING?

Virtualization, at its most basic level, involves disengaging an application or service from the physical infrastructure required to make that service available. More common examples of virtualization include running Windows on a Mac, running Linux on a Windows platform, virtual memory that uses disk space instead of physical RAM when the latter is unavailable for specific operating system functions or applications, or running multiple instances of an email or Web security server on a single hardware platform.

Because virtualization permits the separation from applications and services from the physical hardware on which they run, there are a number of important advantages that organizations can realize as they move toward a virtualized model.

## LOWER CAPITAL EXPENDITURES

One of the more important benefits of virtualization is the positive impact that it can have on capital expenditures in a number of areas:

- **Hardware**  
Because a number of virtualized servers can run on a single physical server, hardware acquisition and maintenance costs can be dramatically reduced.
- **Software**  
Similarly, because fewer physical servers are required, fewer copies of operating systems, management software and other software tools are required to maintain the infrastructure, resulting in lower acquisition and maintenance costs.
- **Use of excess computing capacity**  
Most server hardware runs at just a small fraction of its total computing capacity, in large part due to the increasing use of multi-core processors, and so virtualization can result in significantly improved utilization of existing or new hardware resources.

A more significant benefit of virtualization than its ability to reduce capital expenditures is its ability to lower the costs of operating an IT infrastructure.

## REDUCED OPERATIONAL COSTS

Another significant benefit of virtualization is its ability to lower the costs of operating an IT infrastructure, including:

- **IT lifecycle management costs**  
In addition to reduced capital expenditures and lower operational costs, virtualization offers a number of other benefits, as well. For example, because an organization can operate fewer physical servers and less software in a virtualized environment, generally fewer IT staff members will be required to operate the infrastructure. This results in the ability to redeploy these staff members to other projects that offer greater value to the organization.
- **Data center costs**  
Fewer servers and fewer IT staff result in lower data center costs in a number of areas, including less floor space required to support servers and staff, lower power costs and reduced cooling requirements. These savings can be substantial as discussed later in this white paper.

## OTHER BENEFITS

IT organizations that are managing a virtualized infrastructure can respond more quickly to needed changes in the infrastructure. For example, if a rapid increase in spammer activity drives up spam volumes by 20% during a very short period of time, an IT organization can more easily, more quickly and less expensively add additional security servers in a

virtualized environment than they could in a conventional IT environment. This allows IT organizations to be far more nimble and responsive than would otherwise be possible.

Further, because there are fewer physical servers in the infrastructure, setting up redundant servers for disaster recovery and business continuity purposes is made easier and less expensive.

## KEY DRIVERS FOR VIRTUALIZATION

There are a number of important “macro” drivers that are motivating organizations of all sizes to consider the use of virtualization for at least some of the functions in their infrastructure, including:

- **Cost reduction**

For most organizations, IT is a cost center. Security services focused on threat detection and remediation are simply a necessary – albeit a critical – cost of doing business. Consequently, IT organizations, CIOs, CFOs and others are seeking ways of reducing their overall IT costs.

This is particularly important as new requirements are added to the mix of necessary IT expenditures, including archiving, data loss prevention, policy-based encryption, Web threat protection and the like. Reducing IT costs through virtualization and other means make more funds available for these other initiatives.

As new burdens are placed on IT staff to deploy new capabilities, the growth of IT staff resources does not typically keep pace with the new requirements.

- **Improving disaster recovery and business continuity**

Messaging and Web systems are mission-critical for most organizations and are becoming more so as information exchange via the Internet becomes more prevalent. As a result, capabilities must be deployed that can ensure the availability of these systems as close to 24x7 as possible.

- **The need to maximize investments and resources**

Virtualization allows organizations to consolidate servers, optimize their underused hardware and staff resources, reduce their capital expenditures and to reduce the costs associated with managing security and other parts of the IT infrastructure.

- **Making IT departments more efficient**

Similarly, IT departments must become more efficient. As new burdens are placed on IT staff to deploy new capabilities, either in response to new threats or increasing need to advance IT services, the growth of IT staff resources does not typically keep pace with the new requirements because of budget issues, especially in a slow economy. If IT organizations do not become more efficient, they will simply not be able to keep pace with the demands placed upon them by senior managers, regulators and others.

- **Requirements to optimize the IT infrastructure**  
Growth in the number and variety of external threats, the risks associated with inadvertent data loss, government requirements to protect the integrity of sensitive data, and other factors are necessitating the addition of new capabilities on a regular basis. As a result, the overall IT infrastructure must be optimized in order to accommodate these ever-increasing obligations.
- **Server consolidation**  
There is a strong push by many IT organizations to consolidate servers in order to ease IT staffing burdens, recover facility space, optimize assets, and reduce costs. Server consolidation offers a number of important benefits, including the ability to reassign IT staff to other initiatives and to reduce overall IT costs.
- **The “greening” of IT**  
Because computers and other parts of the IT infrastructure consume such a large proportion of world electrical output, IT organizations are under increasing pressure to reduce energy consumption. By reducing the amount of energy consumed for running servers and cooling data centers, organizations can dramatically reduce their costs, not to mention the positive impact this will have on postponing or eliminating the construction of new energy production resources.

## An Example of Virtualization’s Benefits

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Virtualization can offer a number of tangible benefits for organizations of all sizes, although many of the benefits are most profound for larger organizations, as shown in the following example.

### **BASIC ASSUMPTIONS**

The following represents the differences between a conventional and a virtualized server environment in order to demonstrate the cost savings that virtualization can offer. This example illustrates the savings associated with physical server consolidation through virtualization. It does not take into account other “total” costs that may be borne by an organization based on form factor such as software or virtual appliance.

**Basic Assumptions**

	<b>Cost/Amount</b>
Server (e.g. Dell PowerEdge 1950 III) cost with support	<b>\$4,000</b>
Server (e.g. Dell PowerEdge 2950 III) cost with support	<b>\$7,000</b>
Server power consumption	<b>3,500 kW-hr per year</b>
Windows Server 2008 Standard	<b>\$1,000</b>
VMware Infrastructure 3 Standard (VMware ESX 3.5)	<b>\$4,000</b>
Fully burdened annual IT staff member salary	<b>\$80,000 (2,000 hours per year)</b>
Cost of electricity	<b>\$0.12 per kilowatt-hour</b>

Notes:

Windows Server 2008 Standard pricing available at:

<http://www.microsoft.com/windowsserver2008/en/us/pricing.aspx>

VMware Infrastructure 3 Standard pricing available at:

<https://www.vmware.com/vmwarestore/buyVI3.html>

**Conventional Environment  
to Support 3,000 Users**

	<b>Number</b>
Email security servers required	<b>1</b>
Web security servers required	<b>1</b>
IM security servers required	<b>1</b>
Windows Server 2008 Standard- copies required	<b>3</b>

**Virtualized Environment  
to Support 3,000 Users**

	<b>Total Cost</b>
Total servers required	<b>1</b>
VMware ESX 3.5 Standard- copies required	<b>1</b>

## SAMPLE COST ANALYSIS

Based on these assumptions, a virtualized infrastructure will cost roughly 40% less than a conventional environment, as shown in the following tables.

### Three-Year Costs to Operate a Conventional Security Environment

	Number	Cost per Unit	Total Cost
Servers	3	\$4,000	<b>\$12,000</b>
Windows Server 2008	3	\$1,000	<b>\$3,000</b>
Time to deploy each server	10 person-hours	\$40 labor cost per hour	<b>\$1,200</b>
Time to manage each server <sup>1</sup>	5 person-hours per week	\$40 labor cost per hour	<b>\$93,600</b>
Power consumption per server	3,500kW-hr	\$420 per server per year	<b>\$3,780</b>
<b>TOTAL THREE-YEAR COST</b>			<b>\$113,580</b>

Notes:

Derived from Osterman Research, Inc. *Email, Web and IM Security Market Trends, 2008-2011*

### Three-Year Costs to Operate a Virtualized Security Environment

	Number	Cost per Unit	Total Cost
Servers	1	\$7,000	<b>\$7,000</b>
VMware ESX 3.5	1	\$4,000	<b>\$4,000</b>
Time to deploy each server <sup>2</sup>	12 person-hours	\$40 labor cost per hour	<b>\$480</b>
Time to manage each server <sup>3</sup>	8 person-hours per week	\$40 labor cost per hour	<b>\$49,920</b>
Power consumption per server	3,500kW-hour	\$420 per server per year	<b>\$1,260</b>
<b>TOTAL THREE-YEAR COST</b>			<b>\$62,660</b>

Notes:

Assumes an additional 20% time required to deploy a virtualized environment over single conventional environment, hence 10 hours for the server, plus 2 for the VMware infrastructure.

Assumes an additional 20% time required to manage each virtual machine (VM) environment within a single server environment, hence 5 hours for the server, plus 1 hour for each VM.

Based on the data above, virtualization can reduce management costs by more than 40%, despite the fact that the use of more expensive servers is assumed in the virtualized environment. Plus, energy consumption in a virtualized environment is substantially reduced by consolidating the number of physical servers.



## About Trend Micro's Virtualization Offerings

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Today, Trend Micro gateway security solutions support VMware environments to defend organizations against Internet content security threats including spam, spyware, phishing, viruses, Trojans, and other malware. Customers have a choice to deploy Trend Micro security solutions as software virtual appliances- as either a software appliance on a dedicated server platform, or in a VMware virtual machine environment – whichever is the best fit for their IT needs.

### TREND MICRO PRODUCTS THAT SUPPORT VIRTUALIZATION

The following Trend Micro products are supported in VMware environments when minimum system requirements are fulfilled and VMware supports the guest operating system required for the Trend Micro product:

- **Gateway**
  - InterScan™ Web Security Virtual Appliance 3.1
  - InterScan™ Web Security Suite 3.1
  - InterScan™ Messaging Security Virtual Appliance 7.0
  - InterScan™ Messaging Security Suite 7.0
  
- **Server**
  - IM Security for Microsoft™ LCS 1.0
  - PortalProtect™ for Microsoft™ SharePoint™ 1.7
  - ScanMail™ Suite for Lotus Domino 3.0
  - ScanMail™ Suite for Microsoft Exchange 7.0/8.0
  
- **End Point**
  - LeakProof™ 3.0
  - OfficeScan™ Client/Server Edition 8.0 with Patch 2
  - ServerProtect for Linux 3.0
  - ServerProtect for Windows 5.7
  
- **Central Management**
  - Trend Micro Control Manager™ 5.0

## Summary

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While virtualization has been in use for decades, it has become a hot topic of conversation in IT departments because of increasing requirements to reduce IT costs, improve the availability of the IT infrastructure and make IT departments and staff more efficient.

Virtualization offers a number of advantages in the context of messaging security management, including lower capital expenditures on hardware and software, the ability to use excess computing capacity that exists in most organizations, lower IT lifecycle management costs, reduced data center costs, and the ability for IT departments to more quickly respond to changes in the threat landscape.

Trend Micro offers a growing array of gateway, server and endpoint security products can run in a virtualized environment, allowing organizations of all sizes to realize the benefits that virtualization can provide.

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