Trends in Enterprise Virtualization Technologies

A Research Study by F5 Networks

Trends in Enterprise Virtualization Technologies

What's Inside

Survey Overview and Objectives

Is virtualization "the next big thing," or is it already here? This research was conducted by F5 Networks® to learn:

- The extent to which enterprises have adopted virtualization technologies
- What drivers cause enterprises to use virtualization
- In enterprises that are using virtualization, what are they using it for
- What virtualization products are most popular
- What applications are most commonly virtualized
- What barriers cause enterprises to postpone or decide against virtualization

Methodology

The sample for this survey was selected across an audience of IT professionals interested in virtualization. Most of the respondents work in North America, while some work in EMEA.

We conducted the survey via email between September and December of 2008. The email address lists came from:

- VMworld, a large conference about virtualization[1]
- An event held by VMware for their user group in Boston[2]
- Microsoft TechEd 2008, both in the US and EMEA[3]
- A product launch event for Microsoft Virtualization[4]
- People who downloaded virtualization white papers from the F5 website[5]

The survey was sent to 3,285 recipients in all, and was completed by 312. Overall we consider this a fairly representative random sample, with two possible exceptions: first, based on the lists used, respondents using Microsoft products could be over-represented compared to the general market. Second (also based on the lists used), IT administrators who prefer open source solutions might not be adequately represented in the results.

[1] www.vmworld.com/community/conferences/2008/

[2] http://communities.vmware.com/community/vmug/us_northeast/boston

[3] https://2008.msteched.com/itpro/public/precons.aspx

[4] www.microsoft.com/virtualization/default.mspx

[5] www.f5.com/solutions/resources/white-papers/

Key Findings:

Virtualization today is mission critical. A strong majority of respondents (64%) are virtualizing mission-critical applications.

The business reason for most virtualization projects: server consolidation. Eighty-two percent of network administrators listed "server consolidation" as the reason for their virtualization initiatives. Almost two-thirds (63%) use virtualization to reduce power and space requirements.

Server virtualization dominates. Virtualization of storage, network, and desktops will grow in 2009, but will still trail server virtualization significantly.

VMware ESX is by far the most widely deployed technology. Three-quarters (75%) of the survey respondents use VMware ESX.

Microsoft and Oracle dominate the list of apps that organizations virtualize. Respondents are virtualizing popular business applications (Exchange, SQL, IIS, SharePoint), but almost equal numbers virtualize custom internal applications and open source apps.

Network administrators worry about the affect of their network on virtualization, and the affect of virtualization on their network. Three-fourths of respondents (75%) feel networking issues are at least somewhat of a barrier to virtualization. A nearly equal amount of network administrators (74%) say that application performance is at least somewhat of a barrier to virtualization.

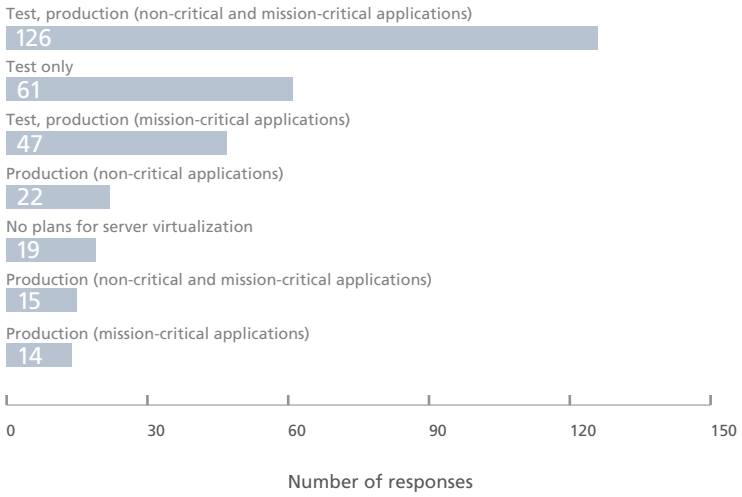
Virtualization still has untapped potential for integration throughout the corporation. For 60% of virtualization projects, the organization's server team drives implementation. Other aspects of the corporate network which could benefit greatly from virtualization, such as storage, networking, applications, and desktops, added up to a slim minority of implemented projects.

Detailed Findings

Virtualization today is mission critical

The survey asked, "Where do you have server virtualization currently deployed?" Respondents could choose multiple answers. Some respondents had no plans for server virtualization (6%), and some had it in test environments only (19%). But nearly two-thirds have deployed server virtualization in production, including mission-critical applications (64%).

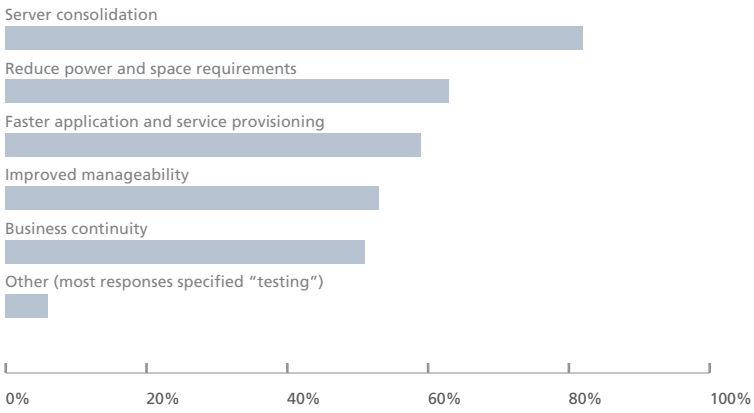
The most common response was that administrators had deployed server virtualization in a combination of settings: test, non-critical production, and critical production (40%).



The business reason for most virtualization projects: server consolidation

The survey asked, "What are the primary business results you hope to achieve deploying server virtualization technology?" By far, the most common response was server consolidation (82%). The other business drivers given were, in descending order[6]:

What are the primary business results you hope to achieve deploying server virtualization technology?	%
Server consolidation	82%
Reduce power and space requirements	63%
Faster application and service provisioning	59%
Improved manageability	53%
Business continuity	51%
Other (most responses specified "testing")	6%



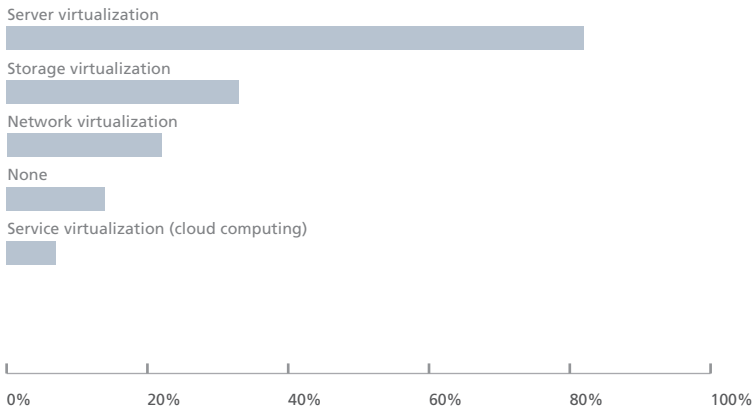
The strong showing for "reduce power and space requirements" (63%) indicates that the need to reduce operating expenses might have combined with pro-environmental "green" considerations to gain traction in the marketplace as reasons for virtualizing. The fact that six different reasons for virtualizing each drew a positive response from more than half the IT professionals (51 – 82%) indicates that virtualization is not a technology solution in search of a problem—respondents perceive numerous reasons for virtualizing as legitimate.

[6] Totals add up to more than 100% because respondents could give multiple answers.

Server virtualization dominates

In theory, all kinds of computing technologies can be virtualized. However, when asked "What type of virtualization do you currently have deployed?", 82% of respondents answered, "server virtualization." All other answers lagged far behind:

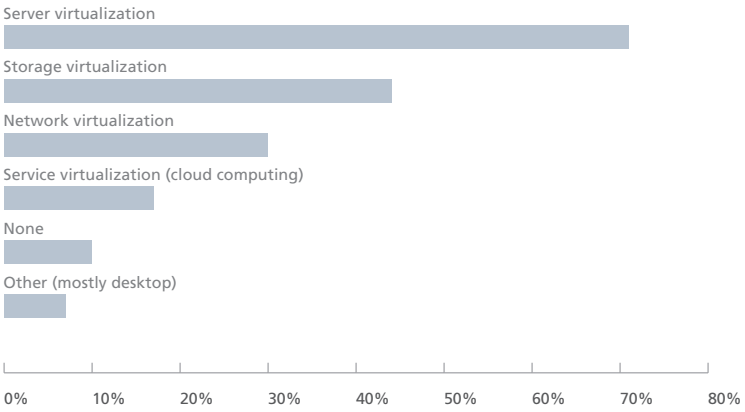
What type of virtualization do you currently have deployed?	%
Server virtualization	82%
Storage virtualization	33%
Network virtualization	22%
None	14%
Service virtualization (cloud computing)	7%



Of the 82% who answered "server virtualization," half had deployed only server virtualization and no other type of virtualization.

However, other types of virtualization seem poised for growth in 2009. The survey asked, "Which type of virtualization will you deploy in 2009?" Responses broke out as follows:

Which type of virtualization will you deploy in 2009?	%
Server virtualization	71%
Storage virtualization	44%
Network virtualization	30%
Service virtualization (cloud computing)	17%
None	10%
Other (mostly desktop)	7%



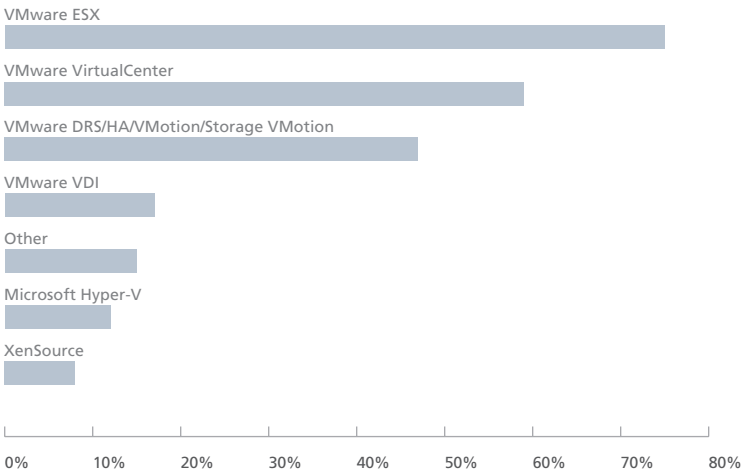
The numbers indicate that although server virtualization will continue to lead the migration to virtualization technologies, all other types of virtualization will pick up by 11% relative to server virtualization. If servers alone sacrifice some share of the virtualization niche, that share might be taken largely by storage virtualization, which drew 33% of responses for 2008 but 44% for 2009. That growth would make storage the second-hottest category among virtualization technologies.

The response "none," indicating no plans to virtualize, drew 14% for 2008. The "none" response fell to 10% for 2009—a possible indicator of mild growth for the virtualization market to help mitigate operating expenses in a weakened world economy.

VMware ESX is by far the most widely deployed technology

When asked which specific virtualization products they currently use, three-quarters of the survey respondents (75%) cited VMware ESX. Respondents could choose multiple answers, but most of the runners-up were other VMware products; in total, VMware products absorbed 88% of all responses:

Which virtualization products do you use?	%
VMware ESX	75%
VMware VirtualCenter	59%
VMware DRS/HA/VMotion/ Storage VMotion	47%
VMware VDI	17%
Other	15%
Microsoft Hyper-V	12%
XenSource	8%



Microsoft's relatively weak showing is hardly a surprise, since Hyper-V came out of beta mid-year (June 2008). Though only 12% of respondents had deployed Hyper-V in 2008, 24% claimed they intended to deploy it in 2009, which would be respectable growth for Microsoft's virtualization product.

In answering questions about their deployment plans for 2009, the respondents indicated slower growth for VMware overall. We attribute this to the fact that a large swath of the potential market has already completed the initial deployment of virtualization technology. However, VMware VDI seems poised to grow; intended deployments for 2009 drew 23% of responses, compared to 17% in 2008.

Microsoft and Oracle dominate the list of apps that organizations virtualize

Products from Microsoft and Oracle dominate network administrators' list of virtualized applications, with Microsoft SQL Server showing as the "most virtualized" app (48%) and Microsoft Internet Information Services (IIS) following closely (45%). But just as much, organizations also virtualize their own custom applications. Here are the responses to the question, "Which of the following applications do you have running in virtualized production environments?"

Which applications do you have running in virtual production environments?	%
Microsoft SQL Server	48%
Homegrown applications	48%
Microsoft IIS	45%
Open source applications	34%
Microsoft SharePoint Server	32%
Microsoft Exchange Server	29%
Other	20%
Oracle 10*g*	15%
Microsoft Office Communications Server	11%
Oracle PeopleSoft	5%
SAP ERP	5%
Oracle E-Business Suite	4%
Oracle Siebel	3%

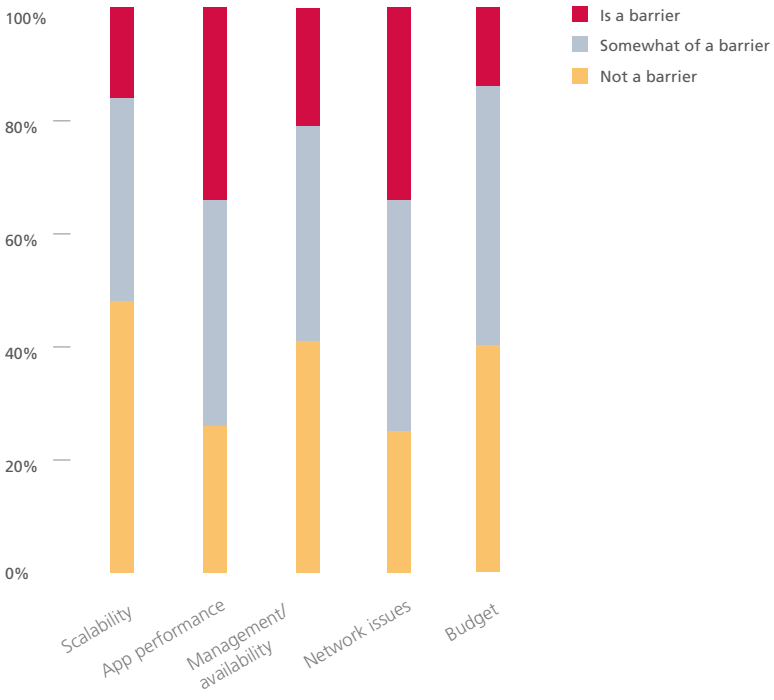
The amount of organizations virtualizing open source applications (34%) seems strong, given that the open source community was not a particular target of the survey. The combined responses for homegrown applications (48%) and open source applications (34%) show that organizations are not afraid to roll up their sleeves and customize if they deem the effort worthwhile.

Network administrators worry about the affect of their network on virtualization, and the affect of virtualization on their network

For organizations that have not yet deployed virtualization technology, their concerns run in two directions: they worry that their network might restrict the operation and benefits of virtualization; and they worry that virtualization might hamper their network.

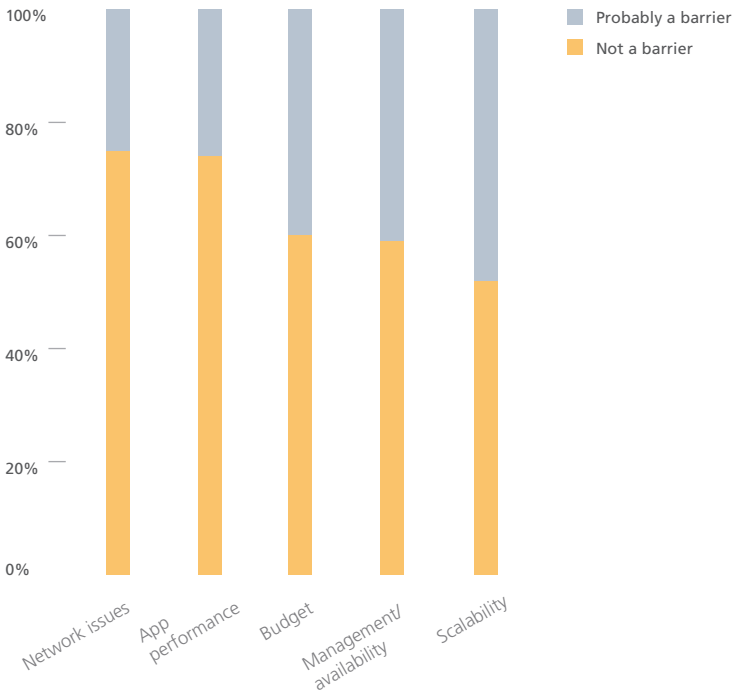
When asked "What are the barriers for adopting server virtualization in a production environment?", three-fourths of respondents (75%) feel networking issues are at least somewhat to blame. However, an almost equal amount (74%) worried that virtualization, with its intensive processing demands, might impede application performance.

What are the barriers for adopting server virtualization?	Not a barrier	Somewhat of a barrier	Is a barrier
Scalability	48	36	16
App performance	26	40	34
Management/availability	41	38	21
Network issues	25	41	34
Budget	40	46	14



For another view of the same data, the following table combines the responses to "Somewhat of a barrier" and "Is a barrier" into one column, "Probably a barrier." This view discards representing the intensity of concern felt, in exchange for reflecting what areas of concern were most widely expressed:

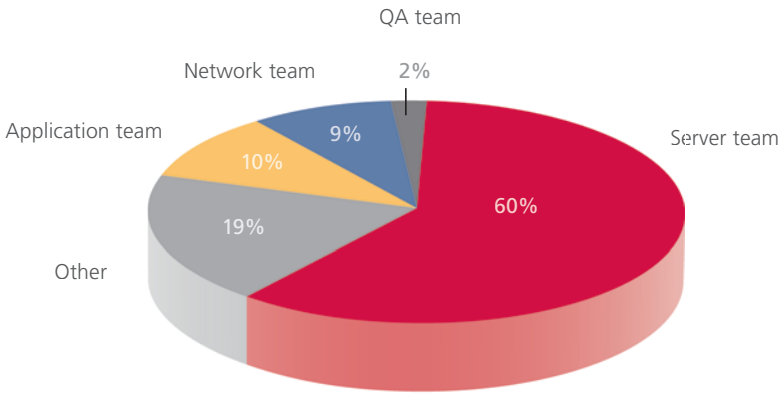
What are the barriers for adopting server virtualization?	Probably a barrier	Not a barrier
Network issues	75	25
App performance	74	26
Budget	60	40
Management/availability	59	41
Scalability	52	48



We're surprised to see scalability listed as a barrier by more than half the respondents, since scalability is actually one of the major strengths of virtualization. Indeed, all the concerns perceived as barriers to adoption have existing, proven solutions; however, as expressed in these responses, the general IT community is either unaware of such solutions, or remains skeptical of vendor claims.

Virtualization still has untapped potential for integration throughout the corporation

Who in the company is driving the move to server virtualization, or other virtualization projects? When asked this question, 60% of the respondents said that their organization's server team drove the projects. Outside of projects by the server team, the percentage of other virtualization projects dropped sharply:



These figures suggest that very few organizations have begun exploring the potential of integrating virtualization across departments. Synergistic benefits might arise from, for example, virtualizing applications and a SANS system on virtualized servers, so that resources can spawn themselves upon demand and collapse themselves when no longer needed. Such multi-faceted projects remain relatively unexplored, leaving the virtualization market considerable headroom for further maturation.

Combining Key Learnings to Identify Trends

Virtualization at the start of 2009 can no longer be called "bleeding edge" or early adopter technology—it is mainstream. As shown in this report, two-thirds of all organizations are implementing virtualization in live production, for mission-critical applications. Virtualization is here and is no longer perceived as risky or unreliable technology (note that in the list of barriers to deployment, "reliability" or "availability" did not show up at all). In fact, IT professionals can cite numerous legitimate reasons why virtualization is a good idea.

There is plenty of room for growth in how—and how much—virtualization solutions permeate an organization's IT environment. Storage virtualization looks to be the next big area of growth and deployment.

Thus, in 2009, virtualization deployment enters the phase of maturing. The market's desire for virtualization is real, and because virtualization reduces long-term operating expenses, deployments seem poised for growth even in a contracting world economy. We expect that by this time next year, more than two-thirds of organizations will be relying daily on virtualized mission-critical applications. And many more than in 2008 will have multi-faceted, cross-departmental virtualization that harmonizes server, storage, and network resources.

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