Expand Your Virtual Infrastructure With Confidence And Control
Strategies To Maximize The Benefits Of Virtualization With Limited Staff And Budget
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Executive Summary

Is your virtualized infrastructure operating at peak efficiency and performance? If your infrastructure is growing while your IT headcount is flat, most likely you have a hard time answering that question with confidence.

There’s no longer any debate over whether virtualization delivers tangible consolidation savings when first deployed, but to extend the benefits of virtualization over time companies of all sizes need to invest the time and energy to continuously optimize their virtual infrastructures.

Small and midsize companies gain important benefits from virtualization: higher IT efficiency, better uptime, and simplified IT operations. However, as virtual environments grow, it can be harder to diagnose performance problems, plan for future capacity needs, and identify over- or underutilized resources. Smaller companies, in particular, often lack the budget, staff, and skills to keep up with the demands on their shared virtual infrastructures.

In December 2013, VMware commissioned Forrester Consulting to evaluate how small and midsize companies manage virtualization today, where they face challenges to growth, and how they can overcome them to virtualize more with confidence and control. We tested the hypothesis that the key to safely and confidently virtualizing more lies in advanced management tools that provide deeper visibility, control, simplicity, and cost efficiency.

KEY FINDINGS

In conducting in-depth surveys with 328 IT professionals who hold responsibility for virtualization at small and midsize firms, Forrester determined that:

› Many could benefit from higher consolidation ratios.
  There’s untapped value in many virtual environments.

› Lack of capacity and performance visibility limits growth and optimization. Insight and control are the keys to higher consolidation, reliable performance, and efficient usage of hardware.

› Unified management tools are needed. Powerful, simple, and cost-efficient management tools allow companies to virtualize more with confidence.
Small And Midsize Businesses Want More Value From Their Virtualization Investments

Survey respondents confirmed that small and midsize businesses today rely heavily on virtualization for a wide range of business needs, but that many could see greater value from these investments. To unlock this additional value, companies can virtualize more applications and increase consolidation ratios, for instance, but only if there are tools, staff, and skills available to do so safely. Currently, across small and midsize businesses:

› **About half of workloads are currently virtualized.** Our survey showed that 53% of applications are currently virtualized across our SMB sample, but 32% of respondents have virtualized less than 40% of their application workloads. Virtualizing additional applications, including business-critical applications, extends the value of virtualization to more business stakeholders.

› **Forty-four percent of companies could likely increase consolidation ratios for higher density.** On average, we found that companies run 16 VMs per physical server, but 44% of respondents run six or fewer. Higher consolidation ratios yield higher return on virtualization investments, but they can also create performance and capacity management challenges (see Figure 1).

› **Less than half of virtualization users are “very satisfied” with their return on investment to date.** Only 45% of respondents told us they were very satisfied; most were satisfied to a lesser degree. Clearly, there is more value left to extract from current virtualization investments and users recognize that (see Figure 2).

› **Most expect their virtualized infrastructures to grow, but only one-third expect their IT staff to grow as well.** Seventy-one percent of respondents are actively growing their virtual infrastructures this year, yet only 34% expect to be able to hire more staff to support this growth. To meet the demands of a growing deployment, companies must empower existing staff with better virtualization management tools — to accomplish more with the same staff (see Figure 3).

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**FIGURE 1**
Companies Run An Average Of 16 VMs Per Physical Server

“Approximately how many virtual machines do you run on a single physical host server on average?”

- 15+ VMs: 27% (Mean = 16 machines)
- Seven to 14 VMs: 29%
- One to six VMs: 44%

Base: 328 North American and European IT decision-makers with responsibility for virtualization and virtualization management tools
Source: A commissioned study conducted by Forrester Consulting on behalf of VMware, December 2013

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**FIGURE 2**
Less Than Half Of Respondents Are “Very Satisfied” With ROI Of Virtualization

“How satisfied are you with the financial return on investment (ROI) you’ve experienced from your use of virtualization? ROI can come from physical server consolidation as well as IT process improvements.”

- Very satisfied: 45% are “very satisfied” with ROI of virtualization

Base: 328 North American and European IT decision-makers with responsibility for virtualization and virtualization management tools
Source: A commissioned study conducted by Forrester Consulting on behalf of VMware, December 2013

The Challenge: A Lack Of Capacity And Performance Visibility Limits Optimization Capabilities

In order to grow your virtual environment, with the staff you have in place today, you must have the confidence to expand capacity safely while maintaining performance levels. Today, many small and midsize businesses lack the visibility, tools, and process maturity to manage their virtual environment capacity, identify problems before they impact users, resolve problems quickly enough, and consistently meet agreed service levels.

› Capacity management must become a continuous process. Only 28% of our survey respondents track virtual infrastructure capacity continuously; the majority monitor utilization at most monthly or only when faced with a capacity shortfall (total of 71%). Without continuous capacity management, you’ll be unable to keep up with new business demands, and user experience will suffer (see Figure 4).

› Standardized templates and regular right-sizing help match VM configurations to requirements. Only 28% of respondents rely on standard VM templates to enforce configuration consistency, and nearly half (48%) only right-size VMs occasionally or when they discover a problem. Running VMs that are either over- or underprovisioned has a direct impact on infrastructure efficiency and applications performance — and a negative impact on your virtualization bottom line.
You must identify emerging and current performance problems before they impact your end users. Four in 10 respondents (42%) said that they are typically alerted to a performance problem by a business user, or there is no consistent alerting process. To build confidence in virtualization among your business customers, you need to be alerted before users are affected, and you should establish consistent processes for performance monitoring (see Figure 5).

Shorten response times by collecting capacity and performance data in a single location. Sixty-six percent of respondents told us that they require several hours to a week to resolve most performance problems; only one-third currently resolve most problems within an hour. As you move to a service-focused IT organization — and expand your use of virtualization to support it — your business customers won’t wait days or weeks for resolution. Unified your management data and team members around a single source of performance and capacity data to get everyone on the same page faster.

Design high availability into your virtual infrastructure and your IT management processes. Only 24% of the small and midsize business we surveyed consistently meet their uptime service-level agreements (SLAs). Part of the problem is certainly the time it takes them to identify a problem in the first place. Rethink your virtualization management tools and processes to be more proactive and identify emerging issues long before end users are impacted (see Figure 6).

FIGURE 4
Only 28% Continuously Monitor Virtual Capacity

“How often do you monitor the utilization of your virtual environment?”

- Continuously (weekly): 28%
- Regularly (monthly): 57%
- As needed: 14%
- Never: 1%

Base: 328 North American and European IT decision-makers with responsibility for virtualization and virtualization management tools
Source: A commissioned study conducted by Forrester Consulting on behalf of VMware, December 2013
“How do you typically identify a performance problem in a virtual machine or virtual host?”

<table>
<thead>
<tr>
<th>Tool Type</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alerted by virtualization tool</td>
<td>38%</td>
</tr>
<tr>
<td>Business reports an app problem</td>
<td>32%</td>
</tr>
<tr>
<td>Third-party monitoring tool</td>
<td>20%</td>
</tr>
<tr>
<td>It depends</td>
<td>10%</td>
</tr>
</tbody>
</table>

Base: 328 North American and European IT decision-makers with responsibility for virtualization and virtualization management tools
Source: A commissioned study conducted by Forrester Consulting on behalf of VMware, December 2013

The Way Forward: Explore Management Tools Designed To Simplify Virtualization Management

Forty-four percent of respondents told us that their top barrier to expanding virtualization is a lack of budget. Don’t let budget alone hold you back: Explore recent management tools that are not only designed specifically for virtual environments but that might be included in the cost of your virtualization platform.

For example, you might be spending more on hardware than you need to — and wasting capacity — because you have VMs that are idle or overprovisioned. Today’s management solutions help you identify and right-size your VMs to maximize hardware utilization — and maximize your virtualization ROI. Don’t leave money on the table: Look to unified, cost-efficient management tools that help you drive up efficiency, identify problems sooner, and resolve them faster.

› Reach out to your virtualization provider. Seventy-eight percent of respondents rely primarily on the management tools that ship as part of their virtualization platform; they trust their virtualization vendor to understand what they need. You should work with your virtualization provider to explore new capacity and performance management features that may be available to you at little or no additional cost.

› Focus on better alerting, faster remediation, and a single source of truth. Today’s advanced virtualization management tools continuously monitor the virtual infrastructure for both current and emerging problems and include powerful alerting to make sure you spot a problem before it becomes critical. With drilldown for root-cause analysis and rich customizable dashboards, these tools will help your team to work smarter and from a single pane of glass. Our research confirmed these requirements (see Figure 7).

› Simplified tools with both breadth and depth offer the most value. Small and midsize businesses demand simplicity — tools that are easy to install, deploy, and update — since management tools cannot add complexity when staff time is already at a premium. But along with simplicity, make sure the tools you select support a range of virtual and physical infrastructure types while offering deep knowledge of the unique characteristics of virtual environments. Buyers prefer these features since they
offer faster time to value in a range of infrastructures (see Figure 8).

**FIGURE 7**
Better Alerting, Faster Remediation, And Single Pane Of Glass Are Top Features Of VM Management Solutions

*“What features of a unified virtualization monitoring and operations management solution would be most attractive to you?”*

<table>
<thead>
<tr>
<th>Feature</th>
<th>Critical requirement</th>
<th>Important requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alerting for health degradation, performance bottlenecks, and capacity shortfalls</td>
<td>39%</td>
<td>42%</td>
</tr>
<tr>
<td>Root-cause analysis and remediation recommendations</td>
<td>30%</td>
<td>39%</td>
</tr>
<tr>
<td>Single pane of glass to view the overall health, risk, and efficiency of the environment</td>
<td>26%</td>
<td>41%</td>
</tr>
<tr>
<td>Self-learning analytics that recognizes performance of a “normal environment” and reduces false alerting</td>
<td>24%</td>
<td>27%</td>
</tr>
<tr>
<td>Capacity planning to optimize current usage and “what-if” analysis capabilities to forecast future capacity requirements</td>
<td>22%</td>
<td>42%</td>
</tr>
<tr>
<td>Flexible operations policies with customizable dashboards and role-based access</td>
<td>20%</td>
<td>46%</td>
</tr>
</tbody>
</table>

Base: 328 North American and European IT decision-makers with responsibility for virtualization and virtualization management tools
Source: A commissioned study conducted by Forrester Consulting on behalf of VMware, December 2013

**FIGURE 8**
Companies Prefer Simplified Tools With Breadth And Depth To Support Various Infrastructure Types

*“When thinking about a virtualization monitoring and management solution, please rank how important the following characteristics are to you.”*

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Critical requirement</th>
<th>Important requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Easy to install, deploy, and manage</td>
<td>40%</td>
<td>45%</td>
</tr>
<tr>
<td>Supports a range of virtual and physical server types</td>
<td>35%</td>
<td>46%</td>
</tr>
<tr>
<td>Designed for virtual environments</td>
<td>34%</td>
<td>50%</td>
</tr>
<tr>
<td>Integrated, single pane of glass view of my entire virtual environment</td>
<td>29%</td>
<td>44%</td>
</tr>
<tr>
<td>Integrated with performance monitoring tools for physical environments</td>
<td>25%</td>
<td>54%</td>
</tr>
<tr>
<td>Included as part of my virtualization license</td>
<td>25%</td>
<td>47%</td>
</tr>
</tbody>
</table>

Base: 328 North American and European IT decision-makers with responsibility for virtualization and virtualization management tools
Source: A commissioned study conducted by Forrester Consulting on behalf of VMware, December 2013
Key Recommendations

Forrester’s in-depth surveys with virtualization leaders at small and midsize businesses yielded several important guidelines to keep in mind as you expand your use of virtualization:

› **Don’t let your virtual infrastructure stagnate.** To keep up with the changing requirements of your business users and customers, you need a dynamic virtual infrastructure that scales elastically, delivers consistent performance, and helps keep costs in check.

› **Make sure dollars spent on hardware are being used wisely.** Look for ways to drive up density without sacrificing performance or breaking the bank. Evaluate your virtual infrastructure continuously to identify over- or underprovisioned VMs and right-size your infrastructure to best match workload demands and achieve optimal consolidation ratios.

› **Business-critical workloads require a continuously optimized infrastructure to meet SLAs.** Monthly or quarterly evaluations won’t keep up with the pace of business today. You should make capacity and performance optimization a daily, ongoing part of your IT operations, especially as you virtualize your business-critical applications.

› **Seek cost-efficient virtualization management tools designed for virtual workloads.** Explore new tools developed by your virtualization provider, who understands the unique requirements of virtual workloads. Today’s solutions are highly cost-effective and often bundled with the hypervisor platform itself.

› **Empower your IT staff with the tools they need to leverage every virtualization dollar spent.** With limited staff, you need tools that provide unified visibility, a single source of truth, and intuitive dashboards and alerts. These will help you get everyone on your IT support team on the same page faster, so they can spot problems and resolve them before users experience any impact. And they will help you tell the business with confidence: “We’re not wasting any of our hardware or virtualization investments.”
Appendix A: Methodology

In this study, Forrester conducted an online survey of 328 organizations in the US (64%), the UK (8%), France (10%), and Germany (15%) to evaluate the current state of virtualization in the small/medium business and commercial business segments. Survey participants included IT decision-makers with responsibility for and understanding of virtualization and virtualization tools. Questions provided to the participants asked about virtualization deployment, purchase plans, perceived benefits, drivers, and challenges. Respondents were offered a small incentive as a thank-you for time spent on the survey. The study began in November 2013 and was completed in December 2013.