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By Scott D. Lowe David M. Davis & James Green

Partners, ActualTech Media

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Introduction and Key Findings

Over the past decade and a half, virtualization has moved from a niche technology to providing the foundation of the services that power the data center. Although virtualization is firmly rooted in the fabric of the modern data center, SolarWinds and ActualTech Media sought to better understand exactly how such technology is being deployed. We surveyed more than 700 IT pros and decision makers in an effort to determine what role, if any, such factors as company size, company vertical, and other characteristics play in how virtualization is deployed and managed.

Key Findings

Smaller companies are far less likely to be heavily virtualized than larger ones. Of the 136 respondents from small organizations—which we define as those with 100 or fewer employees— 22% could be classified as having *very low* levels of virtualization (20% or less virtualized). Throughout the spectrum of virtualization penetration, smaller companies lag behind larger ones.

Midsized companies have the highest levels of virtualization. Midsized companies (those with 101 to 1000 employees) tend to be the most heavily virtualized, with 42% of those organizations enjoying virtualization levels of between 85% and 100%.

Hyper-V is on the rise. 40% of respondents indicate that they are running Hyper-V. Of course, at 70% of respondents, VMware vSphere remains far ahead of the pack but Hyper-V remains poised to continue gains.

VDI is focused on larger organizations. More than half of small companies have no dedicated VDI storage resources, a number that drops to 26% for large companies. It is safe to assume that far more large companies are doing something around VDI than small ones.

Hyperconverged infrastructure is on the rise. 44% of respondents have either deployed or are currently evaluating such solutions. That is a significant potential loss of market share for providers of traditional storage systems but also provides new challenges and opportunities for the ecosystem around the data.

Automation and orchestration tools are of interest to primarily large companies. Company size plays a major role when it comes to interest in these types of services, with almost half (47%) of large company respondents indicating that they are currently evaluating automation and orchestration tools. On the other end of the spectrum, 71% of small company respondents say that such tools are not current IT or business priorities.



Organizational Characteristics

It's important to review a couple of the demographics data points that we will be focusing on throughout this report.

Company Size

As we analyzed the results of this survey, it became very clear that company size plays a pivotal role when it comes to storage and virtualization monitoring and challenges. Although we have very good representation from companies of all sizes, you can see that large companies form the biggest segment of our results. Throughout this report, we will break results down by company size so that you can see how companies of different sizes view items related to storage and virtualization.

As shown in Figure 1, for the purposes of this report, we use the following segmentations:

- Small organizations: 0 to 100 employees
- Medium organizations: 101 to 1,000 employees
- Large organizations: 1,001 or more employees.



Figure 1: Respondent Organization Size



Number of IT Staff Members

The number of people that are available to carry out critical responsibilities has a direct bearing on what an organization can actually do. We asked respondents to tell how many IT staff members they have in their companies. Figure 2 provides these responses as a function of the size of the company. It's obvious—and completely expected—that small companies (100 or fewer employees) also have very few dedicated IT staff to perform the work needed to keep systems running. On the other hand, large companies (1000 or more employees) tend to have a lot of IT staff around to handle the workload, although there are a handful of large companies that have fewer than 10 IT staffers on hand.

In general, smaller companies have similar IT needs as their larger counterparts, although their scale is significantly smaller. They have to manage servers, storage, networks, security systems, databases, applications, and much more. They just have to do it all with fewer people. This paradigm would, on the surface, seem like it would impact how these companies carry out their IT responsibilities. And, to some extent, it does; but our survey also revealed some non-intuitive facts, which we'll explore throughout this report.



Number of IT Staff by Company Size

(N=716)



Virtualization Penetration

Although it seems like, today, everything is or should be about virtualization, the fact remains that there are a number of companies that are still not virtualizing very much. This is especially true for smaller companies. Of the 136 respondents from small organizations—which we define as those with 100 or fewer employees—22% could be classified as having *very low* levels of virtualization (20% or less virtualized). Throughout the spectrum of virtualization penetration (Figure 3), smaller companies lag behind larger ones. Interestingly, however, it's midsized companies (those with 101 to 1000 employees) that tend to be the most heavily virtualized, with 42% of those organizations enjoying virtualization levels of between 85% and 100%.

There are some key takeaways here. First, for small companies, they may have only a few servers or may be leveraging more cloud-based services, meaning that they don't need to worry as much about virtualization. Moreover, smaller companies tend to have fewer IT staff and less of a broad knowledge base, so they may be opting to keep things simple by deploying physical servers. Second, it's interesting to see that midsized companies outpace both small and large companies when it comes to high levels of virtualization. Key factors are, very likely, complexity and resourcing. On the complexity front, large companies with a lot of remote sites may have a harder time virtualizing remote workloads, particularly large workloads, or workloads with restrictive licensing requirements. While medium sized companies might have *similar* challenges, their smaller size probably makes them a bit more nimble. Further, IT in medium companies is not likely to be as well-resourced as IT in larger companies, so there is a need to identify and implement highly efficient systems. When compared to small companies, medium companies' increased resourcing enables them to take on more expansive projects, which likely include virtualization projects.



Virtualization Penetration by Company Size

(N=716)

Figure 3: Virtualization Penetration by Company Size

Virtual Hosts

All of those virtual machines need to run somewhere! That's the job of virtualization hosts. The chart in Figure 4 provides you with an overview of the number of hosts operating in respondent environments. As you can see, 1 to 10 hosts is the sweet spot, with 33% of respondents operating this number of hosts. As the number of hosts increases, the number of companies running that many hosts drops until we get to 251 or more hosts, at which point we see that 14% of respondent organizations are running host volume at that level.



Without context, the number of hosts isn't really all that useful. As you might expect, the size of the company is a key driver in how many hosts that company is running (Figure 5). A small number of small companies are running no virtualization hosts. 27% of large companies are running 251 or more hosts.



Number of Virtualization Hosts by Company Size

Figure 5: Number of Virtual Hosts in Use by Company Size



In Figure 6, you can see the distribution of results when we look at how virtualized a company is based on the number of virtual hosts they have deployed. The left side of each chart represents 5% of virtualization and the right hand side represents 100% virtualized. There appears to be some correlation between the number of hosts and the level of virtualization. For example, in the "1 to 10 hosts" chart, you see a lot of bars at the left side of the chart but, in general, these bars get smaller as you move toward more hosts.



Figure 6: Virtualization Penetration by Number of Virtual Hosts in Use

Let's look at this information one more way. Although Figure 6 shows a variety of distribution patterns, all of that information can be easily distilled to what you see in Figure 7. Figure 7 provides you with the average virtualization percentage as a function of the number of hosts that are in use in the organization. As you can see, those with just 1 to 10 hosts tend to have somewhat lower levels of virtualization.



Average Virtualization Penetration by Number of Hosts

(N=706)

Figure 7: Average Virtualization Penetration by Number of Virtual Hosts in Use



The Hypervisor Question

In recent years, we have seen Microsoft's Hyper-V make major gains. The survey results reinforce this activity, with 40% of respondents indicating that they are running Hyper-V. Of course, at 70% of respondents, VMware vSphere remains far ahead of the pack (see Figure 8).



Figure 8: Hypervisors in Use

Hypervisor Count

Most organizations—61%—are running just a single hypervisor. 26% are running two hypervisors. The remainder—13%—are running three or more hypervisors. In total, 39% of respondent organizations are running more than one hypervisor.





Let's dig a little deeper into the hypervisor story and focus on the two top choices in this space vSphere and Hyper-V. We wanted to determine how many companies are running only vSphere or only Hyper-V and those that are running neither. Figure 10 provides this overview. This chart reinforces the fact that vSphere remains far ahead of other hypervisors. 37% of respondent organizations are running vSphere-only environments. Just 11% of respondent environments are running Hyper-V as a sole hypervisor. Interestingly, 12% are running environments that don't include either leading hypervisor.



Breakout of vSphere and Hyper-V Only Adoption

We believe that this information indicates that the hypervisor is quickly being commoditized and that VMware's share of this market may not be as sound as it once was. While 70% of companies are running vSphere, more than half of them (37%) are also running a second hypervisor alongside it. For Microsoft's part, 40% of respondents are running Hyper-V, but just one-quarter of those (11%) run it as their sole production hypervisor. Hyper-V is still considered an upstart; however, as Microsoft continues to improve both the hypervisor and the surrounding tools, we expect to see its dedicated share of the market increase.

Company Size and Hypervisor Selection

When viewing data by company size, it does not appear as if company size makes an appreciable difference when it comes to the hypervisors that are in use in an organization, at least for vSphere and Hyper-V. For Oracle's hypervisor, however, medium and large companies are more likely to run this product, which makes sense given Oracle's relative lack of presence in very small companies.



Figure 10: Analysis of vSphere vs. Hyper-V-only Adoption

The Data Center Environment

There are a number of aspects of the data center that are important to understand. In the following sections, you will learn about how respondents view storage, hybrid cloud, and the need for tools that can automatically remediate any problems that are identified.

Storage

Along with the rise of virtualization has come a rise in all kinds of new and different storage opportunities and challenges. Storage is used for two primary purposes: servers and virtual desktop environments. In the context of our efforts here, we're focused on data center-centric storage, not capacity that exists on distributed desktop computers.

In Figure 11, you will see that a very small number of respondents—just 1%—have no on-premises storage and that the capacity distribution among the remaining respondents is surprisingly consistent.



How large is your total storage environment? (N=716)

Figure 11: Total Respondent Storage Capacity



Storage is used for different kinds of applications, but can generally be broken down into two silos: server storage and storage for desktop computing via Virtual Desktop Infrastructure (VDI) solutions. Figure 12 shows you this breakdown among respondents. It's easy to see that VDI is far less prevalent than server-centric storage! 36% of respondents report having no storage dedicated to VDI as opposed to just 3% for server storage.



How much of your storage is dedicated to virtualization?

Figure 12: Centralized Storage Resources Broken Down by Purpose

Company size appears to play a vital role in whether or not a respondent is doing anything with desktop virtualization. For our purposes here, we are making an assumption that companies that dedicate no storage resources to VDI do not have VDI deployed. Bear in mind that this may not be a perfect assumption as some may be using distributed or cloud-based services for VDI, but we believe that the potential impact on the statistics is minimal.

As you can see in Figure 13, more than half of small companies have no dedicated VDI storage resources, a number that drops to 26% for large companies. It is safe to assume that far more large companies are doing something around VDI than small ones.



Amount of Storage Dedicated to VDI by Company Size

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Server

VDI

Capacity and performance are the two key metrics by which storage is judged, and continuing to balance these metrics remains a challenge for many survey respondents (Figure 14). In fact, 44% of respondents say that capacity and capacity planning are current storage challenges. 41% say that getting a handle on performance issues remains a top challenge for them. Interestingly, scalability remains a top challenge as well. In this day of highly scalable storage offerings, this is something of a surprise. There could be any number of reasons for this. The respondent could be running a very limited storage solution. The solution they're running may be prohibitively expensive to scale. Or, they may be having trouble scaling in the dimension they need—capacity vs. performance.

What storage challenges are you currently facing?



(Multiple Responses, N=732)

Capacity or capacity planning Understanding performance bottlenecks Tying storage performance to individual VMs/apps Storage complexity Monitoring storage from multiple storage vendors None of the above

It should be noted that company size plays no role at all when it comes to experiencing storage challenges, with one important exception: small companies are far less likely to experience storage-induced challenges as compared to large companies. 15% of small company respondents indicated "None of the above" when asked to describe their storage challenges. In comparison, just 8% of medium-size companies and 5% of large companies said the same. Figure 15 demonstrates that, when issues are experienced, company size doesn't really play a role when it comes to the type of issue, but company size absolutely does play a role in whether or not issues are experienced. In all likelihood, this is because smaller companies are not pushing their storage assets in the same way as larger organizations, and, therefore, they're more easily able to live within the capacity and performance constraints of their selected platforms.

20% 19% 16% ■ Medium (101 to 1000 employees, N=254) 11% ■ Large (1000 or more employees, N=326) Scalability Capacity or Understanding Tying storage Storage complexity Monitoring storage None of the above performance performance to from multiple capacity planning bottlenecks individual VMs or storage vendors

applications

Storage Challenges By Company Size



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■ Small (o to 100 employees, N=136)

Figure 14: Current Storage Challenges

Figure 15: Current Storage Challenges by Company Size

Alternative Storage Architectures

Just a few years ago, the thought of running enterprise-class storage on anything but a monolithic storage array would have been almost unthinkable. Today, alternatives such as hyperconverged infrastructure and software defined storage solutions are dominating storage conversations. But, talking about solutions doesn't necessarily mean that people are running them. In the case of hyperconverged infrastructure and software defined storage, however, there *is* adoption and, just as importantly, adoption *intent*, although at varying levels.

Hyperconverged Infrastructure

Among our survey respondents, 10% have already deployed a hyperconverged infrastructure system (Figure 16). However, 34% are currently evaluating such solutions. That is a significant potential loss of market share for providers of traditional storage systems but also provides new challenges and opportunities for the ecosystem around the data center.

Hyperconverged Infrastructure

At its most basic, hyperconverged infrastructure is a melding together of servers and storage. In hyperconverged infrastructure systems, storage devices exist inside hosts—directly attached—and the SAN is generally eliminated. Each host in a hyperconverged solution runs a hypervisor, and storage is locally managed either via a storage controller virtual machine or a kernel module in the hypervisor.

There are a number of hyperconverged infrastructure solutions on the market. Some are sold as bundled hardware/software appliances while others are sold as software-only and customers separately procure hardware on which to run the software.

Are you planning to or have you implemented a hyperconverged infrastructure solution?

- We do not have any plans at present
- We are currently evaluating hyperconverged solutions
- We have already implemented a hyperconverged solution

Figure 16: Hyperconverged Infrastructure Adoption Intent





As shown in Figure 17, large companies are far more likely to have adopted (12%) or be currently engaged in an evaluation of hyperconverged infrastructure (41%). Small and medium sized companies don't seem to be as interested in the potential benefits from hyperconvergence. Given that hyperconvergence is often sold as a way to improve a company's operational efficiency and reduce overall IT OpEx spend, it's something of a surprise that smaller organizations don't seem to be more interested in the technology.



Hyperconverged Deployment Status by Company Size

Figure 17: Hyperconverged Infrastructure Adoption Intent by Company Size



Software Defined Storage

Just 5% of respondents (Figure 18) are running a software defined storage system, and only 13% are currently evaluating these solutions. We observe that the hyperconverged infrastructure message and potential outcomes are resonating very well with IT buyers while those same buyers are somewhat more challenged to understand the potential benefits associated with software defined storage.

Software Defined Storage?

Software Defined Storage is a system of data storage that provides complete abstraction away from purposeful storage hardware.

The following is a list of descriptors that characterizes software-defined storage capabilities and features:

- Leverages only commodity hardware
- Ample APIs/SDKs such that it can be completely automated
- Data services exist entirely in software (no specialized hardware)
- Seamless scalability without hitting limits of hardware or underlying software constructs



Are you planning to or have you implemented a software defined storage solution?

(N=716)

- We do not have any plans at present
- We are currently evaluating SDS-based solutions
- We have already implemented an SDS solution

Figure 18: Software Defined Storage Adoption Intent



As is the case with hyperconverged infrastructure, larger companies are more inclined to deploy Software Defined Storage than smaller ones, but not by nearly as large a margin as was observed with hyperconvergence. Figure 19 reveals that just 6% of large companies have deployed a software defined storage solution, although an additional 17% are considering doing so. Software defined storage solutions are being considered and deployed but are far outpaced by hyperconverged infrastructure products and services. The question is why? From an operational standpoint, software defined storage "looks" much more like traditional storage and may not enjoy the perception of progress that engulfs hyperconverged infrastructure solutions. Further, many hyperconvergence solutions are sold as appliance-based bundles and, as a result, carry with them and aura of simplicity that doesn't always extend to software defined storage products.

Software Defined Storage Deployment Status by Company Size



Figure 19: Software Defined Storage Adoption Intent by Company Size

While current adoption and adoption intent are interesting to view in the abstract, the real question this: what happens to more traditional storage environments as organizations deploy hyperconverged infrastructure and software-defined storage systems? Figure 20 demonstrates that the news is not great for traditional systems, with a full 36% of those that have deployed alternatives indicating that they have either eliminated or intend to eliminate traditional storage. If that statistic carries forward as more people deploy alternative storage systems, we should expect to see continued major shakeups in the storage market in the coming years.



- We have fully eliminated our traditional storage environment in favor of HCI or SDS
- We are working toward fully eliminating our traditional storage environment in favor of HCI or SDS
- We intend to maintain both our traditional storage environment as well as our HCI/SDS environment



Figure 20: Traditional Storage Environment Status Among Hyperconverged Infrastructure and Software Defined Storage Adopters



Examining the data by company size (Figure 21) shows another scenario in which medium companies appear differentiated from small business and large businesses. Medium-sized companies are *far more* likely to have eliminated their traditional storage environments as they adopted hyperconverged infrastructure or software defined storage. As is the case with virtualization, we see this need for operational efficiency as being a key driver for medium companies, but they appear to have the unique ability to execute on efficiency initiatives (as opposed to small companies) as well while not being hindered by irrevocable ties to legacy infrastructure (when compared to larger companies).



State of Traditional Storage by Company Size

Figure 21: State of Traditional Storage Environments by Company Size



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Hybrid Cloud

As public cloud and software as a service (SaaS) applications gain in popularity, the world is moving closer to a hybrid cloud paradigm – one in which organizations run services both onpremises and in the public cloud. However, many organizations, when they hear the phrase *public cloud*, focus on such services as Amazon AWS and Microsoft Azure. Services such as Office 365, Salesforce.com, and Google Apps aren't always considered in the definition.

That is why we believe, as shown in Figure 22, that only 10% of respondents say that they are already in the world of the hybrid cloud while 34% are considering such moves. When limiting hybrid cloud to *just* Amazon AWS and Microsoft Azure, we believe this to be a valid representation of the current status of the public cloud. However when considering the plethora of SaaS opportunities, we would expect a far higher rate of hybrid cloud adoption to be identified.



Are you running or considering hybrid cloud?

- We do not have any plans at present
- We are currently evaluating hybrid cloud solutions
- We have already implemented a hybrid cloud solution

Figure 22: Hybrid Cloud Adoption Intent

When it comes to hybrid cloud today, large companies are far more likely adopters (Figure 23) with 14%. Across all company sizes, about a third of respondents work in companies that are considering adoption of hybrid cloud architectures. Although current adoption levels are low among small and medium businesses, we are firmly in the era of the hybrid cloud and its trend for which we'll see much more balance between public and private as times goes on.



Hybrid Cloud Adoption Intent by Company Size

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Automation and Orchestration

One end result from the tendency of modern organizations to capture data of all shapes and sizes is the ability to begin making automated decisions based on that data. Of course, in the world of IT, we're somewhat used to a level of automation, with tools such as VMware's Distributed Resource Scheduler (DRS) making real-time virtual machine placement and movement decisions based on then-current host health and performance.

However, as time goes on, companies are looking for new and better ways to manage their IT assets. Further, as cloud-like economics and mindsets continue to permeate local IT departments, automation and orchestration technologies will become increasingly important.



Figure 24: Interest in Automation and Orchestration Tools

Company size plays a major role when it comes to interest in these types of services, with almost half (47%) of large company respondents indicating that they are currently evaluating automation and orchestration tools. On the other end of the spectrum, 71% of small company respondents say that such tools are not current IT or business priorities.



Figure 25: Interest in Automation and Orchestration Tools by Company Size



2016 State of Data Center Architecture and Monitoring Page 21 of 28 The more hardware in place, the more that people want to make it easier to manage. That is the takeaway from the information shown in Figure 26. A full 58% of companies with 151 or more hosts are actively evaluating or implementing automation and orchestration tools compared to just 25% of those with 0 to 25 hosts. Further, 15% of those with more than 151 hosts have already fully automated/orchestrated the environment compared to just 5% of those with 0 to 25 hosts and 6% of those with 26 to 150 hosts.



Figure 26: Interest in Automation and Orchestration Tools by Number of Hosts



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Monitoring Tools Insight and Problem Identification

8% of respondent organizations (Figure 27) have *no* tools in place to manage their virtualization and storage environments. What's arguably worse is the fact that 14% of respondents have five or more tools to monitor these environments. Of course, there are often viable reasons for having a plethora of monitoring tools. However, too much information, particularly without correlation, can lead to problems as well. Different results from systems and different ways of looking at monitoring statistics between platforms can lead to challenges in interpreting what's really going in in an environment.

In our survey, 22% of respondents indicated that they have a single monitoring tool while 56% have 2 to 4 tools.

How many tools do you currently use to manage your virtual and storage infrastructure?





Figure 27: Number of Storage and Virtualization Monitoring Tools in Use

As you might expect, company size plays a role in the number of tools that are deployed in an environment, and the number of tools deployed directly corresponds with company size, as shown in Figure 28. Unfortunately, 18% of small company respondents have no monitoring tools in place. For medium companies, 8% have no monitoring, and this drops to 3% for large companies. On the other end of the spectrum, 7% of large companies have 8 to 10 monitoring tools.



Number of Monitoring Tools by Company Slze

Figure 28: Number of Storage and Virtualization Monitoring Tools in Use by Company Size



Not all monitoring tools are created equal, however. In fact, going back to the discussion around the number of monitoring tools reveals that, sometimes, too much information can be a negative. 32% of respondents cite too much information (Figure 29) as being a key issue in their monitoring systems. Whether that's from too many tools or too many devices is not apparent, but the fact remains that modern monitoring solutions must help organizations quickly hone in on problems so that quick resolutions can be identified.

Moreover, given that monitoring systems do, in fact, capture a plethora of information, why is it that 28% of respondents say that storage and virtualization capacity planning are features that are missing from their monitoring platforms? With so much current and historical data being captured, it's not difficult to create a predictive algorithm that can help inform decision makers as to when they need to begin thinking about expanding their infrastructure capacity.

Twenty-three percent of respondents indicate that they can't quickly correct issues from within the monitoring platform. Given that alarms and other alerts are generated due to specific conditions in the storage or virtualization environment, the monitoring platform should have some idea as to how to drill a bit deeper into monitored systems to allow administrators to more quickly correct exceptions.

We're also interested to learn that more than one in five (21%) of survey respondents wish that their monitoring platforms had the ability to identify which virtual machines were dependent on other virtual machines or objects. Dependency details in a monitoring system can be incredibly powerful. Most importantly, dependencies can be defined so that *alert storms* are avoided. For example, if a vSphere host crashes and brings down 30 virtual machines, you don't really need an alert on each and every crashed virtual machine, but you do need to know that a host crashed. Those other alerts simply get in the way of being able to get to a root cause so that you can carry out a resolution process. Further, most companies don't have just a bunch of standalone virtual machines that don't talk to one another. For example, if you have a line of business application, you probably have a database server and a web server at a minimum. When one is down, the service as a whole is down.

What is missing from your existing monitoring system?

Too much information from too many sources prevents quick problem resolution 32% Capacity planning for both storage and virtualization 28% No ability to quickly correct issues from within the monitoring environment 23% Dependency details (which VMs are dependent on others) 21% Host hardware health information 14% None of the above 18% 10% 0% 20% 30%

Figure 29: Features Missing from Existing Monitoring Systems



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Performance Problem Identification

The purpose of every monitoring system is to prevent downtime and, when downtime does take place, to minimize it. With the right tools and knowledge, problems can be addressed far more quickly than would otherwise be possible. The reason is simple: if you know where to begin looking, it's much easier to find the root cause. Troubleshooting is just an act of continuing to narrow down a set of potential problems until you ultimately hit the right one.

Today, the gold standard for recovery from an outage is typically 15 minutes. For our purposes, we define a good outcome as being able to resolve a performance problem in under an hour. Only 25% of survey respondents indicate that they can identify the root cause of a virtualization or storage related performance problem in under an hour (Figure 30). For 63% of respondents, it would take anywhere from an hour to an entire day to nail down the problem. And, for 5% of respondents, it typically takes more than two full days.

How long does it typically take you to identify the root cause of a virtualization or storage performance problem?

(N=716)



Figure 30: Typical Time to Performance Problem Root Cause Virtualization and Storage Identification



Solving performance challenges seems to be an easier task for small companies than for large ones, as shown in Figure 31. However, bear in mind that as company size increases, so does infrastructure complexity. Smaller companies have fewer moving parts and generally fewer integrations that can get in the way of diagnosing performance issues. That said, the sweet spot for performance problem resolution is 1 to 3 hours, regardless of company size.



Performance Problem IdentificationTime by Company Size

Small (o to 100 employees, N=136)
 Medium (101 to 1000 employees, N=254)
 Large (1000 or more employees, N=326)
 Figure 31: Typical Time to Performance Problem Root Cause Virtualization and Storage Identification by Company Size

Let's look at recovery time in one more slice. It might seem at first that more monitoring tools would make it easier to detect and resolve performance problems, but that does not seem to be the case at all, as evidenced by the chart shown in Figure 32. In fact, of those companies for which it takes more than 48 hours to identify a performance problem, 24% are running 8 to 10 monitoring tools. Bear in mind that we also identified that performance identification time is a function of company size as is the number of monitoring tools, but this 24% statistic is definitely an outlier that should be of concern to those managing such environments. It appears as if the monitoring tools are actively getting in the way of resolution. Based on this statistic alone, it's difficult to say with absolute certainty that these companies should reinvest in fewer, more robust monitoring tools, but it likely would be good advice.



Recovery Time by Number of Monitoring Tools in Place

Figure 32: Typical Time to Performance Problem Root Cause Virtualization and Storage Identification by Number of Monitoring Tools in Use



Analytics

In an era in which "big data" and other data-driven initiatives rule the business world, it should come as no surprise that such initiatives are important to IT as well (Figure 33). In fact, an overwhelming 86% of respondents indicate that, to some degree, it's important to them to have analytics as a part of their virtualization management solution. Note that we did not define analytics in this survey, so the question was open to a level of interpretation.

Twenty-six percent of respondents say that analytics is a very important feature while 60% indicate that it's somewhat important. Just 14% say that analytics is not important to them in a virtualization management solution. It's entirely possible that some respondents are simply interested in up/down monitoring and may not need deeper insight.

How important is analytics to you in a virtualization management solution?

(N=716)

- Not important
- Somewhat important
- Very important

Figure 33: Importance of Analytics in A Virtualization Management Solution

Automated Remediation



How important is automated remediation to you in a virtualization management solution?

(N=716)

- Not important
- Somewhat important
- Very important

Figure 34: Importance of Analytics in A Virtualization Management Solution







Evaluating New Tools

Armed with a better understanding of what people want in the virtualization and storage monitoring tools, we'll wrap things up with a look at data that should be of interest to companies that provide storage and virtualization monitoring and management solutions. In Figure 35, you can see that about half of respondents (51%) are either actively looking for new solutions (21%) or are interested in looking for a new solution but have yet to start (29%). In short, there is no shortage of an appetite for a monitoring and management solution that meets current business needs.

Are you currently evaluating virtualization or storage management tools?

(N=716)

- Not currently
- Yes, we're interested but haven't started
- Yes, we are actively evaluating



Figure 35: Current State of Management Tool Evaluation Activities

As we look at the same data broken out by company size, it's easy to see that large companies lead the way in their desire for new monitoring and management solutions with 26% of respondents in these companies indicating that they are actively looking for new tools. However, don't discount small and medium sized companies yet. Among all company sizes, about 30% are interested in new solutions, but have not yet begun a search.



Current Status of Monitoring Tool Evaluation by Company Size

Figure 36: Current State of Management Tool Evaluation Activities by Company Size

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