

Virtualization and cloud computing promise significant benefits, but this study shows that, without IT automation, few will be able to cash in.

An Exclusive Research Report

By Beth Bacheldor

An exclusive UBM TechWeb survey of 460 mid- and senior-level IT decision-makers at medium and large companies examined the state of IT automation, particularly in relation to their use of virtualization and cloud computing technologies. The online survey found that most are using virtualization. While cloud computing lags somewhat behind, the majority of respondents expect to leverage the cloud within five years. Nearly everyone has high expectations—especially for cost savings—but in many cases those expectations aren't being met. The research shows most organizations still rely on manual processes to manage their computing environments. This report examines the correlation between unfulfilled expectations and outdated IT management processes and tools, and explores how IT automation can turn things around.

Already, most organizations are using virtual servers and the numbers are growing, and in a few short years many will have hoisted their IT infrastructures into some type of cloud—private, public or a hybrid of the two. Virtualization and cloud computing, which go hand-in-hand, hold a lot of promise. Cost savings. Flexibility. Massive scalability. Faster time-to-market for applications and services. Tighter alignment with business goals. Computing on demand, whenever, wherever and however you need it. But IT's history reminds us that no technology can deliver bottom-line benefits or, more importantly, top-line gains, if the technology isn't harnessed, governed and managed.

The truth is that although most organizations have implemented virtualization and are prepping for cloud computing, many have yet to realize the benefits that drew them to the technologies in the first place. At best, most are disappointed. But some organizations actually added costs post-virtualization. The reason? In this new world order that is virtualization and cloud computing, old-school IT administration and management tools cannot keep up. Imagine an application server that spins up in seconds, stays active for one week during a business promotion, and then is rendered offline. How will an IT administrator push change management policies to that and many other virtual servers, which are so dynamic, geographically dispersed, and serve an ever-changing cast of users? How will IT departments handle the server “sprawl” that’s likely to occur when end users have the ability to toggle their own computing resources without adding more IT staff? Administrators need automated IT tools that can, for example, perform installations, monitor servers, delete files, set up printers, create and enforce access and security policies, patch software, and more. What’s needed, in short, are IT automation suites designed to handle a variety of computing environments and, in particular, virtual and cloud computing environments. Just ask the nearly half of respondents who have managed to realize savings from their virtualization efforts by automating much of their provisioning processes.

The major market research firms forecast that server virtualization and cloud computing already are big markets that are poised to get huge. International Data Corporation (IDC) forecasts that more than 23 percent of all servers shipped in 2014 will be actively supporting virtual machine technology, and that the worldwide market for enterprise server virtualization will hit \$19.3 billion by 2014. Gartner estimates that the worldwide cloud services revenue will

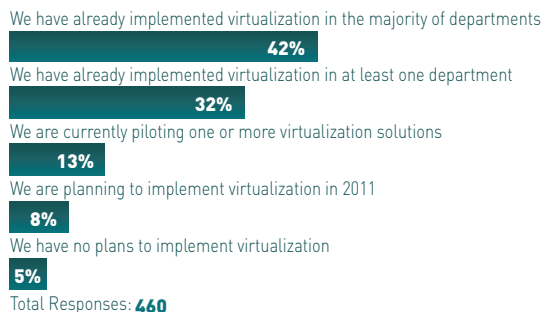
top \$148.8 billion in 2014, up from \$68.3 billion now. These are big numbers, and include both public and private cloud services.

UBM TechWeb’s research illustrates virtualization’s popularity. Of the 460 respondents queried, 87 percent have already implemented or are piloting virtualization in their organizations, and another 8 percent plan to implement virtualization this year. That leaves a meager 5 percent with no plans to implement virtualization. Perhaps even more telling, 42 percent have moved beyond pilots and have already implemented virtualization solutions in their departments (see Figure 1).

These numbers are backed by real-world accounts. At CRM agency Merkle Inc., a 40-year-old privately held firm with about \$260 million in revenue, the goal is to virtualize 90 percent or more of all new services brought into the company’s environment. BT Americas Inc., the North American division of giant communications solutions and services provider BT, has too many virtual machines (VMs) to count, according to Ian Watts, Senior Technical Manager at the company.

Analog Devices Inc. (ADI), a Norwood, Mass.-based manufacturer of high-tech electronics with \$2.8 billion

Figure 1. Which of the following best reflects the status of how your organization is utilizing virtualization solutions?



Methodology:

In January 2011, UBM TechWeb conducted a study on behalf of CA, on the State of Automation in IT Management. The survey was conducted online via our survey host partner, SurveyGizmo. Invitations were emailed to a random sample of UBM TechWeb’s qualified database of business technology decision-makers. A total of 460 respondents, in the United States and Canada as well as other parts of the world, qualified as being involved in the purchase process for IT management tools/services at companies with 1,000 or more employees. The survey has a margin of error of 4.5 percentage points. UBM TechWeb was responsible for all programming and data analysis. These procedures were carried out in strict accordance with standard market research practices.

in revenue in 2010, has virtualized about 85 percent of its corporate data center and plans to get close to 95 percent this calendar year. “These servers run a wide variety of applications, including basic infrastructure services such as DNS and email and also many financial and data warehouse programs,” says Dale Donchin, CAD Director with ADI.

Seventy-two percent of the UBM TechWeb survey respondents say that 30 percent or more of their servers are VMs currently. Ninety-seven percent of the respondents estimate that in five years one-third or more of their servers will be VMs. While only 6 percent say that 90 percent of their servers are VMs, about one-third, or 34 percent, estimate that 90 percent of their servers will be VMs in five years.

Fewer survey respondents are using cloud computing, but the findings indicate that will soon change. While 41 percent of those queried say they have no plans to use cloud computing services in 2011, that means 59 percent do. To break it down even further, 29 percent are currently piloting cloud computing services. Thirty percent are already using cloud computing services (18 percent for non-critical applications and services only, 12 percent for mission critical applications and services).

Cloud computing got its start as Software as a Service (SaaS) in the form of hosted, enterprise Web applications such as CRM. These applications required no hardware, in-house maintenance or capital expenses. But current cloud computing models are much more advanced and include SaaS, Platform as a Service (PaaS) and virtualization, and promise to deliver shared, scalable resources (many of which are virtualized), as well as software and information to computers and other devices on demand, as needed, over the Internet. It can be broadly defined as distributed virtualization—a service-oriented model that allows for highly distributed computing resources—data, application logic, storage—to be dynamically moved among and within virtual machines and virtual networks, and then delivered to end users whenever and wherever they need those resources.

For the time being, most organizations that are leveraging cloud computing are doing so via private clouds, which are created and managed by an internal IT group and protected by firewalls. Public cloud computing models, such as Google Apps, Zoho and Amazon’s Elastic Computer Cloud (EC2), run on the public Internet. Many organizations—at least in

the near term—will deploy a hybrid cloud that includes a mix of private cloud offerings (often for mission-critical or highly sensitive computing needs) and public cloud offerings for such things as email or even short-term initiatives that can drive spikes in demand for computing resources.

Employees at BT Americas leverage a private networking cloud that serves all of BT Group, which is headquartered in London. Watts says BT has designed a Universal Data Center (UDC) environment based on the Cisco Catalyst 6500 series network switches. “The UDC is shared by multiple customers, applications and security domains, using Virtual Routing and Forwarding (VRF) and Virtual LAN (VLAN) technologies. The load balancers, firewalls, and SSL devices are shared across multiple applications using different contexts,” he says. “From users’ perspectives, they use a single URL or local client to access their applications, which are hosted in multiple data centers globally. For example, BT email services use Outlook, with the applications distributed across multiple VMWare servers hosted in two separate locations in the United Kingdom, but the users do not have knowledge about where their email is hosted, so effectively it is cloud based.” BT has extensive applications running in this private cloud network—everything from Outlook to Oracle applications for human resources, and major order entry and trouble-ticket systems.

Watts says BT, at least in the near term, is only considering private, internal cloud computing because of security restrictions. “The main obstacles are end-device security, particularly with the smart phone and tablet diversity, the sheer volumes of data that need to be backed up and stored, the geographic dispersion of users who all want the same performance, and requirements for data synchronization in a distributed environment.”

As for Merkle, the company believes cloud computing’s biggest obstacle is performance. “We run large databases and analytics systems in house that will be slowed by virtualization and don’t work well in the ‘cloud’—i.e., shared-nothing environments,” Chief Technology Officer Russ Pearlman says. “In such cases, we need to rely on non-virtualized/non-cloud to create a hybrid environment.” In addition, Pearlman says that from an organizational perspective, there is still some concern about how the IT department would charge for cloud-based services.

ADI’s Donchin says the high-tech electronics company has been using SaaS models such as Salesforce.com for some

Highlights:

- 63% of respondents have been disappointed in the cost savings of virtualization.
- 48% of respondents who say complexities of virtualization have introduced new costs also say that most of their server provisioning processes are manual.
- 44% who have automated most of their provisioning processes with a few manual steps report they have significantly reduced costs through virtualization.

time and may move its corporate email to a cloud-based solution. Donchin says the company's overall strategy is to outsource those functions "where our internal organization doesn't provide much additional value over what is readily available externally."

Donchin is a bit skeptical of cloud computing, not because it can't deliver benefits, but because IT is always shifting, and also because it is fundamentally driven by end-user needs. "Since we have moved back and forth between local and remote computing paradigms at least twice over only the last two decades, who can safely say that the current models of computing (cloud or otherwise), while attractive today, will be as dominant even a few years into the future?" Donchin says. "And while we, like other companies, dabble in today's technologies such as virtualization, automation, and cloud computing, it will be the end user—who is increasingly technically-sophisticated and Internet-dependent—who will drive the direction of IT."

In the UBM TechWeb survey, when asked what types of cloud computing solutions organizations currently use or plan to use in the next 12 months, 48 percent said they are using private cloud solutions built and maintained by their internal IT teams, while 44 percent said they are using both public and private cloud solutions. Only 18 percent said they are currently using, or plan to use in the next 12 months, public cloud solutions such as Amazon's EC2 (a mere 3 percent said they aren't using, and have no plans to use, cloud computing).

Things get interesting when respondents consider their IT environments five years from now (see Figure 2). In fact, 3 percent say they will have moved everything to the public cloud, and 53 percent say they will use both private and public

cloud solutions. All told, the majority, or 88 percent, say they will be using cloud computing in some form in five years.

The Promises Have Been Made

Server virtualization uncouples operating systems and applications from the physical hardware, letting organizations free up space and control costs by reducing the number of physical servers needed. As equipment is eliminated, data center space is reduced, as well as the amount of energy that's required to power and cool racks of servers. There's also savings in manpower and a boost in time-to-market.

Figure 2. In five years, how do you anticipate you will be using cloud solutions?

We will use both private and public cloud solutions

53%

We are only going to use private cloud offerings

32%

We are not going to use any cloud solutions

12%

We will have moved everything to the public cloud

3%

Total Responses: 460

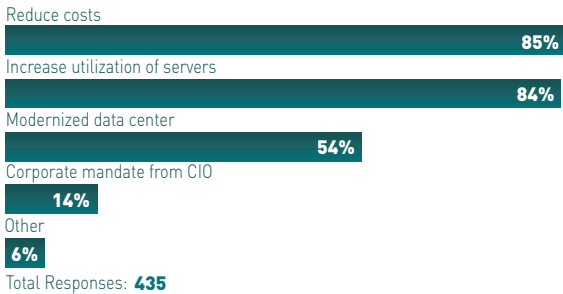
Theoretically, organizations can get a virtual server up and running in 15 minutes without ever touching a physical machine, making the task of adding capacity much less time-consuming and complicated. Cloud computing—the embodiment of virtualization, service-oriented architecture and even utility computing—promises pay-as-you-go usage, multi-tenancy, and shared, scalable resources (many of which are virtualized) on demand.

Merkle's Pearlman has faith in virtualization's promise. "It will save us money in the long run, and we will use it as the basis of more standard operations," he says. "We believe this as we have already seen it—provisioning of a server [has gone] down from days to hours."

Companies also expect virtualization to deliver other benefits (see Figure 3). In fact, 85 percent of survey respondents agree with Pearlman: They deployed, or are planning to deploy virtualization, to reduce costs. About the same amount, or 84 percent, also expect virtualization to increase utilization of servers. Other expectations include modernizing the data center (about half expect this), while 14 percent answered that they are simply following a corporate mandate from the CIO. And there were plenty of additional reasons: better productivity; decreased power consumption and energy savings; improved failover capabilities; improved scalability; and better support of green initiatives.

BT America's Watts echoes survey respondents' expectations that virtualization should save money because organizations can cut capital costs by buying less hardware. "Previously each major application required their own platforms, including the network infrastructure," he says, adding that less hardware means less data center space required, and thus a reduction in AC and power costs. ADI, too, has saved money due to reduced hardware requirements and lower demands on data center floor space, electrical, and cooling systems, according to Donchin.

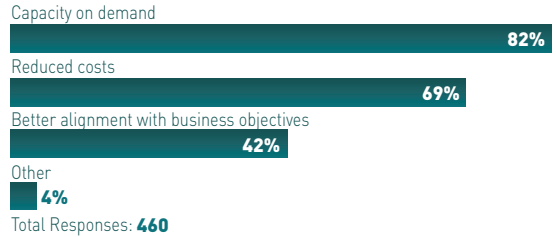
Figure 3. What are the reasons you deployed, or are planning to deploy, virtualization? Check all that apply.



Cloud computing's biggest bang for its buck, according to UBM TechWeb survey respondents, is capacity on demand (see Figure 4). Eighty-two percent identified that benefit from cloud computing. Reduced costs ranked high as well, with 69 percent expecting cloud computing to render savings. Forty-two percent expect cloud computing to enable better alignment with business objectives. Some of the other benefits mentioned by survey respondents include scalability, a reduction of redundant hardware and infrastructure, and the ability to more easily and quickly develop, test and pilot new services and applications.

More deftly aligning IT with business objectives has long been a goal of many organizations. How cloud computing can further this goal is by enabling a more nimble, responsive and robust IT infrastructure. For example, if an organization has the business goal of improving customer satisfaction, the IT goals in concert with that might be to ensure customer service systems are fast and to ensure additional capacity is available during peak traffic rushes. The ultimate vision is for IT organizations to be able to deliver such things as self-service and consumption-based metering that can be tied to individual business processes or business lines to better optimize use of physical resources, control costs and satisfy business needs in real time.

Figure 4. What benefits do you see cloud computing providing? Check all that apply.

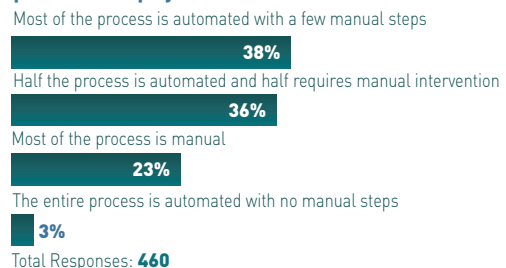


But Are the Promises Being Kept?

Merkle's experience in cutting the time it takes to provision servers is in line with about half of the UBM TechWeb survey respondents queried about virtual servers. When asked how long it takes to deploy or provision a new virtual server, 53 percent said less than a day. Compare that to the time it takes to deploy or provision a new physical server, where 45 percent answered a week, 28 percent answered several weeks, and 12 percent said a month or longer. At first glance, these numbers tell a good story. Virtual services can be deployed much faster than physical ones. But the UBM TechWeb survey reveals some weak spots. Forty-seven percent said it can take a week or longer to deploy or provision new virtual servers.

Moreover, nearly all, or 97 percent, of the respondents said manual steps are still required in the deployment and provisioning of physical and virtual servers (see Figure 5). About one quarter, or 23 percent, said most of the steps are manual, and only 3 percent said the entire process is automated. Since one of the primary objectives of virtualization is to more rapidly provide computing power to users when and where they need it, the insertion of manual steps to do that clearly creates obstacles. Manual steps take time and cost money. These manual steps, which are typical of traditional change, configuration, and provisioning processes and tools, cannot support the fast pace inherent

Figure 5. How many manual steps are needed to provision a physical or virtual server?



“Virtualization is a bean counter’s dream, but can be an operational nightmare.”

—Ian Watts, BT Americas, Inc.

in virtualized and cloud environments.

“Virtualization is a bean counter’s dream, but can be an operational nightmare,” notes Watts. The communications company has an enterprise initiative to automate and speed up customer order processing and reduce human error, and virtualization is underpinning those efforts. But Watts says with virtualization, redundancy and resiliency become more complex to design and build. “Change management is a huge overhead, as any changes need to be accepted by all applications and users sharing the same virtualization kit.”

IT research firm IDC says its studies indicate that management processes and tools are not keeping up with demands emanating from the growing ranks of VMs mixed in with physical servers and the new cloud computing environments that are evolving. And while organizations are seeing benefits, such as reduced hardware spending and improved server utilization, these benefits may be getting overshadowed by the lack of productivity improvements in data center staffing and operations. For example, in IDC research conducted in 2009, organizations reported needing one administrator for 29 physical servers compared with one administrator for 33 virtual servers. That’s hardly a difference, and at that rate if the number of virtual servers increases (as it’s expected to), organizations will have to keep adding to the ranks of administrators—which is in no way a cost savings.

Training expenses may also rack up. Administrators will need to be trained to manage both physical and virtual servers that run on different platforms, such as Intel and Unix platforms. And for now, that generally means organizations will have to leverage multiple management tools. It will get even more complicated as multiple hypervisor vendors are added into an environment because each hypervisor vendor’s products typically have to be managed separately. IT services and management vendors are scrambling to add support into their toolsets, but for now there is no single pane of glass through which to administer and manage servers. Many experts recommend that, for now, companies

stick to one hypervisor vendor. That way, at least, there will only be one vendor’s hypervisor software to manage. But that isn’t always the case, as highlighted in UBM TechWeb’s survey. Nearly as many organizations say they are using two or more hypervisor solutions as those that have standardized on one hypervisor solution throughout their organization (see Figure 6).

Figure 6. How many hypervisors are deployed throughout your organization?

We have standardized on a single hypervisor solution throughout the organization

39%

We use two or more hypervisor solutions

34%

None

27%

Total Responses: 460

IT Automation: A Necessary Equalizer

What organizations need, perhaps now more than ever, are automated tools aimed at improving the administration, operation and governance of their heterogeneous physical, virtual, and cloud data center environments. Automation isn’t new. In fact, IT experts have been espousing the benefits of data center automation for several years. The need for such automation tools may have initially been the consequence of exploding data center growth (with large companies resorting to multiple data centers that housed thousands of systems), and even more recently the result of severely restricted IT budgets, thanks to the recent Great Recession from which the economy is still recovering. But now, automation tools are being driven by virtualization and cloud computing.

Research firm Gartner summed up just how important IT automation has become by identifying it as a top trend. In a prepared statement on its top predictions for IT organizations and users for 2011 and beyond, Gartner predicts that by 2015, tools and automation will eliminate 25 percent of labor hours associated with IT services. “As the IT services industry matures, it will increasingly mirror other industries, such as manufacturing, in transforming from a craftsmanship to a more industrialized model. Cloud computing will hasten the use of tools and automation in IT services as the new paradigm brings with it self-service, automated provisioning and metering, etc., to deliver industrialized services with the potential to transform the industry from

a high-touch custom environment to one characterized by automated delivery of IT services. Productivity levels for service providers will increase, leading to reductions in their costs of delivery,” Gartner says.

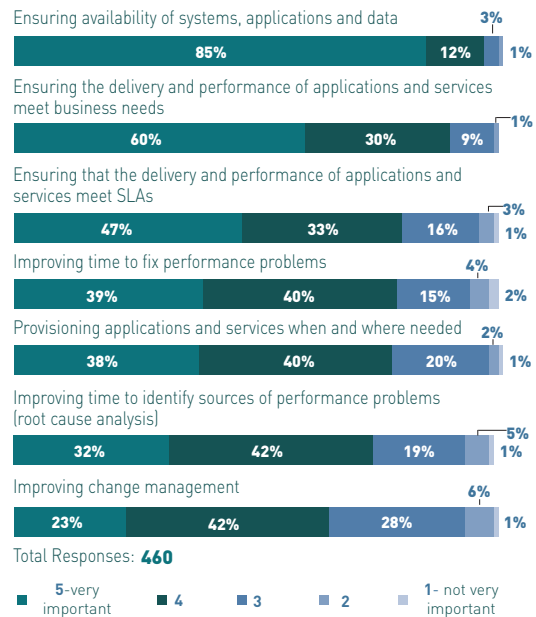
IT Management is Important

Clearly, management tasks are critical components of an IT organization’s services (see Figure 7). In the UBM TechWeb survey, the services critical to keeping the lights on and performing well ranked highest. For example, 85 percent of survey respondents said ensuring the availability of systems applications and data was very important, and 60 percent said ensuring that the delivery and performance of applications and services meet business needs was very important. Respondents used a scale of 5 to 1, where 5 is very important and 1 is not very important, to rate the tasks. Combine ratings of 5 and 4, and 96 percent picked ensuring the delivery and performance of applications and services meet business needs, 90 percent chose ensuring that the delivery of and performance of applications and services meet business needs, and 81 percent chose ensuring that the delivering and performance of applications and services meet service level agreements (SLAs) set by the IT organization.

But other tasks also garnered attention. Seventy-nine percent of respondents gave improving time to fix performance problems scores of 5 or 4, and 78 percent gave provisioning of applications and services when and where needed scores of 5 of 4. Root-cause analysis and improving change management rounded out the choices.

But the jury is still out as to whether organizations are meeting their own IT management expectations, especially when taking into account that 20 percent of the UBM TechWeb survey respondents have not even implemented any IT services automation. For those that have implemented, or are planning to implement, IT automation, there are plenty of important drivers (see Figure 10). Survey respondents were asked to identify the primary driver behind their organizations’ implementations of IT services automation (again, respondents used a scale of 5 to 1, where 5 means it is a significant driver and 1 is not a significant driver). Two tied for first—easing complexities involved with delivering applications and business services, and increasing employee productivity, with 76 percent giving those choices ratings of 5 or 4. Offloading day-to-day maintenance tasks so IT can pursue more strategic

Figure 7. How important is each of the following IT management tasks to your organization? Please use a scale of 5 to 1, where 5 is very important and 1 is not very important.



projects—an obvious driver of IT automation—was given a rating of either 5 or 4 by 70 percent of IT respondents.

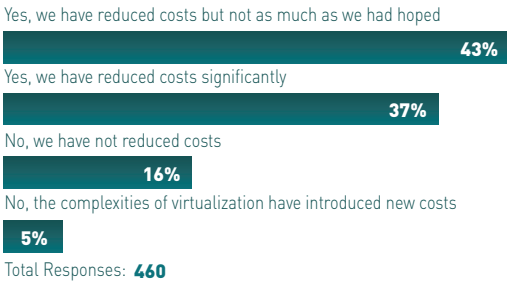
But IT Management that’s Automated is Critical

Consider this: Most organizations represented in the UBM TechWeb survey already are or will be using virtualization and cloud computing in their IT infrastructures. And many believe virtualization and cloud computing are capable of many benefits. Why, then, are few organizations realizing those benefits?

The survey results on this point are eye-opening. Eighty-five percent of survey respondents say they have deployed, or are planning to deploy virtualization, to reduce costs. But, when asked whether virtualization has delivered significant cost savings, almost 65 percent have been disappointed (see Figure 8). In fact, 16 percent say virtualization has not delivered significant cost savings, and 5 percent say the complexities of virtualization have actually introduced new costs! Granted, 43 percent have reduced costs, although not by as much as they had hoped. Yet, 37 percent say they have reduced costs significantly—how did they do it?

Now consider how many TechWeb survey respondents have implemented IT automation. Twenty percent say they haven’t implemented any automation. Things get even more

Figure 8. Has virtualization delivered significant cost savings?



interesting when combining the numbers of respondents who still rely on manual steps to provision their servers with those respondents who are realizing savings from their virtual deployments.

Nearly half, or 48 percent, of those who say that the complexities of virtualization have actually introduced new costs also say that most of their server provisioning processes are manual. On the flip side, 44 percent of those who say that most of the process is automated with a few manual steps report they have significantly reduced costs through virtualization.

Then there's the use of service catalogs. Defined as a published, electronic list of IT services (such as the provisioning of a server) that includes things such as a description of the service, SLAs for fulfilling the service, who is entitled to request/view the service, costs, etc., service catalogs are designed to automate the process of requesting and approving IT services and then monitoring and measuring the delivery of those services. The more automated an IT service catalog is, the greater the chance that the actual provisioning of a requested (and approved) service will be automatic. For example, if an organization's online sales team needs a stable of servers to be provisioned to support a current promotion, the request, approval, and provisioning can all be done electronically, without the need for manual intervention. With electronic service catalogs, users also can check on the status of a request and organizations can create and access reports and metrics that detail how well the IT department is performing the services it provides.

The use of service desks among the UBM TechWeb survey respondents is split. Twenty-seven percent have implemented an IT service catalog, and 23 percent have plans to do so in the next 12 months. Fifty-one percent, however, have not. For those that have implemented service catalogs, 12 percent say all their IT requests come via the service

catalog, while 56 percent say that more than half of their IT requests originate through the service catalog. Only 22 percent say less than half do and that many are still ad hoc requests. So clearly, if companies implement IT service catalogs, they will get used by the majority of users (see Figure 9).

When combining the numbers of respondents who still rely on manual steps to provision their servers with those respondents who have implemented IT service catalogs, another interesting trend emerges. Three-quarters, or 75 percent, of the respondents that have more than half or all of their IT requests originating through a service desk report that they reduced costs significantly through virtualization. But service desks, especially since they may or may not include IT automation, are not the only solution. After all, nearly half of the respondents that have more than half (but not all) of their IT requests originating through a service desk say they have reduced costs through virtualization, but not as much as they had hoped. And 58 percent of the respondents that have more than half (but not all) of their IT requests originating through a service desk say they have not reduced costs through virtualization.

The more obvious way to ensure virtualization and cloud computing deliver on their promises is to invest in and implement IT services automation. These toolsets enable IT operations to rapidly add, remove and configure computing infrastructure to meet business demands.

Merkle's Pearlman says his organization is using automation tools for procuring new virtual servers, but adds that, at this time, the organization is not well automated in others. "We are making investments to do so now," Pearlman says. And he agrees that a more comprehensive solution—one that would leverage an IT service catalog and in-depth automation, would be ideal. "It would be great for users to open their own requests and have full automation of procurement of a new server," he says.

Watts, too, believes IT services automation is a key enabler of successful virtualization and cloud computing technologies. From a network administration perspective, BT Americas uses automation to make standard configuration changes across globally deployed switches and routers—tasks that were previously done with manual scripts. In addition, the company leverages tools for automated port turn-up, and to make changes to VLANs to support new server additions. It also automates the

Figure 9. Approximately how many IT requests originate through the service catalog?

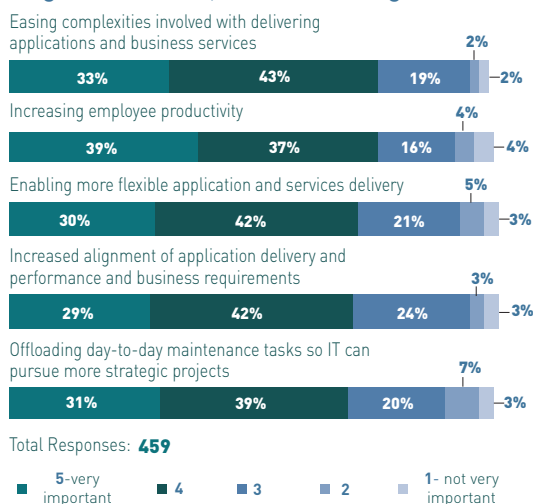


addition of new virtual servers to the company's existing load balancers.

When asked to identify and rate the importance of the primary drivers behind the deployment of IT service automation, UBM TechWeb survey respondents picked increasing employee productivity and easing complexities involved with delivering applications and business services as their top two choices. But enabling more flexible application and services delivery, increased alignment of application deliver and performance and business requirements, and offloading day-to-day maintenance tasks so IT can pursue more strategic projects were close behind in terms of being significant drivers of IT service automation (see Figure 10).

When queried about savings realized by IT service automation, responses from the UBM TechWeb survey were somewhat surprising. The majority, at least 70 percent, say they have reduced costs via IT services automation. But a closer look reveals that the savings is still low. Only 11

Figure 10. What was/is the primary driver behind your organization's deployment of IT service automation? Please use a scale of 5 to 1, where 5 means it is a significant driver, and 1 is not a significant driver.



percent say they saved more than 20 percent of their budget, and 33 percent said they saved 10 percent to 20 percent. About one quarter, or 26 percent, said they saved about 5 percent, and 9 percent said they haven't realized any savings, despite implementing some IT services automation.

It is important to point out that while virtualization can drive automation, the use of virtualization technologies will not mean IT services automation will become endemic within the IT infrastructure. That's because the automation inherently provided by VMs is privy only to those VMs from whence the automation came. For now, each hypervisor vendor's products are, in effect, proprietary systems incapable of sharing their automation capabilities with any other VMs from other vendors, or with physical servers.

Virtualization does provide new capabilities for management and automation functionality, because VMs have intelligence and automation embedded in product workflow. In physical environments, the intelligence and automation has to be layered on top. Thus, organizations will have to build a bridge between the two environments to ensure they can enable automation seamlessly among the virtual and physical servers that currently exist in their operations and that will exist for some time. Organizations also will need to integrate the automation and management features native to the VMs they've installed with existing enterprise management solutions to achieve more comprehensive, holistic automation and IT management. In addition, since not all of the automation solutions are equal within the different hypervisor platforms, organizations will have to integrate the automation features of their different VMs to achieve large-scale automation, drive workflows and trigger dynamic actions.

It would be nice to think that the hypervisor vendors will extend the management and automation capabilities inherent in their platforms across other, competing platforms. But that scenario may not play out. Thus, organizations will have to turn to IT services and management vendors to provide automation suites that encompass numerous hypervisor products, physical hardware, operating systems and applications.

The UBM TechWeb survey reveals that budget constraints are holding a significant number of organizations back from implementing IT services automation. Of those who responded, when asked if automation was not a focus and what was holding them back, 45 percent said budget

constraints. However, nearly as many, or 40 percent, said IT services automation is a priority, just not a top priority. About one third, or 36 percent, said IT services automation is not a priority for them at this time.

Interestingly, a few of the respondents wrote in reasons for not making IT services automation a priority, and a few noted that they currently did not have the time to implement automation. At least one respondent said that the value and benefits of automation are not well understood by leadership, and another said no one at the organization “thinks that big.”

Over the years, IT has crept out of the back offices of organizations everywhere to become a core business enabler that’s vital to success. Yet administration, security and management are still too often relegated to afterthought, even as organizations stand now on the precipice of a new dynamic, utility-based and on-demand IT infrastructure. The deployment of IT services automation should go hand-in-hand with the implementation of virtualization and cloud-based computing.

Conclusion

No question about it, virtualization and cloud computing are becoming core components of the majority of organizations’ IT infrastructures. Market sizing from leading research firms estimate the enterprise server virtualization sector is worth billions and will near \$20 billion by 2014. The cloud computing market will be even bigger, worth nearly \$150 billion by that time. IT organizations everywhere see numerous benefits from virtualization and cloud computing, chief among them cost savings, more efficient computing resources, and an IT services infrastructure that is flexible, available, and more closely aligned with business goals and processes.

But these benefits are still hard to come by. There likely are several factors, ranging from insufficient analysis of returns on investments, a still nascent portfolio of standard virtualization and cloud computing products and services, and even economic pressures that have drained IT budgets and

resources. But equally impeding the benefits of virtualization and cloud computing is the slow pick-up of IT services automation tools.

To become more efficient and to realize the full benefits from virtualization and cloud computing, IT organizations need to automate and integrate the physical and virtual server configuration, provisioning, monitoring, security, software patching and more across a heterogeneous enterprise. They need to reduce their reliance on manual processes and implement tools and processes that enable standard management and administrative tasks as well as consistent workload management.

Without IT services automation, none of this will be achieved. IT administrators will be overcome by the complexities and challenges of managing such a highly distributed IT infrastructure consisting of virtual and physical hardware, applications, and services that dynamically move and change within a cloud computing model. And ultimately, the complexities will eat into any benefits organizations hope to realize. ♦

Beth Bacheldor has more than 20 years’ experience as a writer and editor, much of that as a business journalist covering the high-tech industry. She spent more than a decade at *InformationWeek*, and has also worked at a variety of other publications. She currently freelances for online sites, magazines, and more, covering everything from IT outsourcing to enterprise software to RFID. She lives in Wilmington, N.C. with her two children.

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CA Technologies is an Enterprise IT software management company. Our service automation solution helps you accelerate your business response time while ensuring your organization makes a smooth transition to cloud computing. Visit ca.com/automation for more information.

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