AN INTERACTIVE eBOOK

VIRTUALIZATION

NOT BIG ENOUGH FOR VIRTUALIZATION? THINK AGAIN!

Survey shows SMBs reap the same benefits as the enterprise, including reduced costs, improved reliability and disaster recovery, and a measurable ROI.

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More than 90% of small- and medium-size businesses are using virtualization technology and they generally plan to double their use of server virtualization in 12 months. What's more, more than 80% have realized a return on their investment – in a mere seven months, on average.

Still think virtualization is only for larger enterprises?

These findings from an IDG Research Services survey in January 2010 of 112 IT professionals at SMBs clearly show otherwise, as do follow-up interviews with survey participants. It's clear that SMBs are enjoying many of the same benefits from virtualization as their larger counterparts, including cost reductions related to hardware, power, real estate and operations along with improved disaster recovery, system reliability and increased flexibility to meet business needs.

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VIRTUALIZATION

"We absolutely would not go back," says James Martin, principal and CTO at the architectural and engineering firm TRO JungBrannen, which started with virtualization in 2006. "If someone offered me new physical servers to replace all of our virtual machines, I simply wouldn't take them."

SUCCESS BY THE NUMBERS

Judging by the survey results, Martin is not alone. Of the companies IDG surveyed, all of which had between 100 and 499 employees, 83% are using server virtualization while 41% employ the desktop version and 35% have virtual applications. Only 7% are not investing in virtualization at all.

The reasons respondents initially invested in virtualization map well to the benefits they ultimately received. More than 70% say they were seeking greater efficiencies in server and storage resources, while many others were after easier provisioning and software deployment. Improved disaster recovery at lower cost was another popular objective, along with improved system availability and reliability and reduced management costs.

ASCD, a non-profit serving the education field, was one of

those seeking greater hardware efficiencies, says Michael Berkeley, assistant executive director of IT. "Every time we had a new project, we'd buy a new server," he says. As a result, average server utilization was around 7%.

Fast-forward nearly four years and the company has 126 virtual machines running on just seven physical hosts in headquarters plus three hosts in a third-party disaster recovery facility. Memory utilization averages around 65%, low enough that if two servers fail, the others can assume the load.

BIG BENEFITS

Although he hasn't calculated an exact return on his virtualization investments, the benefits are clear. "We've gotten rid of six racks of servers from our data center and held off with an air conditioning upgrade because of virtualization," Berkeley says. And all required servers fit in one rack at the backup facility, including the SAN, as opposed to the four or five he'd need without virtualization.

ASCD's experience is similar to those of other survey respondents, as 80% report they have realized some form of ROI. More than half saved on hardware costs (52%) and more

than 30% saved on space, maintenance, or power and cooling costs. More than a third report realizing a first level of ROI within six months and another third within 12 months. On average, ROI was realized in seven months.

Asked which virtualization benefits have yielded the greatest return, nearly half say server and storage consolidation or more efficient use of server and storage resources. Disaster recovery is another winner, with 42% reporting virtualization improved their DR posture or lowered costs. Forty percent say virtualization resulted in easier server and storage provisioning and software deployment (see Figure 1).

ASCD's Berkeley is realizing most if not all of those benefits, along with others, such as reduced IT operations and management costs as compared to when he had more than 100 physical servers. "My staff has more time to be involved in planning of systems and solutions because they're not spending so much time on maintenance," he says. "I now have resources available to look at the future of the business."

Were it not for virtualization, he estimates he'd need another two full-time IT staff to join his nine-person engineering and operations team, which includes the help desk.

Martin likewise realized numerous benefits from virtualization when he used the technology to more easily deal with the 2006 merger of the two firms, TRO and JungBrannen Associates Inc., which created his current company. Using VMware ESX 3.0, he created new virtual environments and a new instance of Active Directory, into which he migrated data from the Active Directory repositories of the two merging companies. Once that was up and running, he could easily provision all required applications and services, such as mail, file and print.

"Then we just cut over everything during the course of a weekend," Martin says. "And we didn't have to buy any additional hardware," instead picking and choosing the best server hardware from the two existing firms.

AN EYE TO THE FUTURE

The IDG survey makes clear that while customers are, for the most part, getting what they were after from virtualization, the technology is not without its challenges. Most notably, they include a lack of virtualization knowledge as well as issues around ongoing management of the technology (see sidebar).
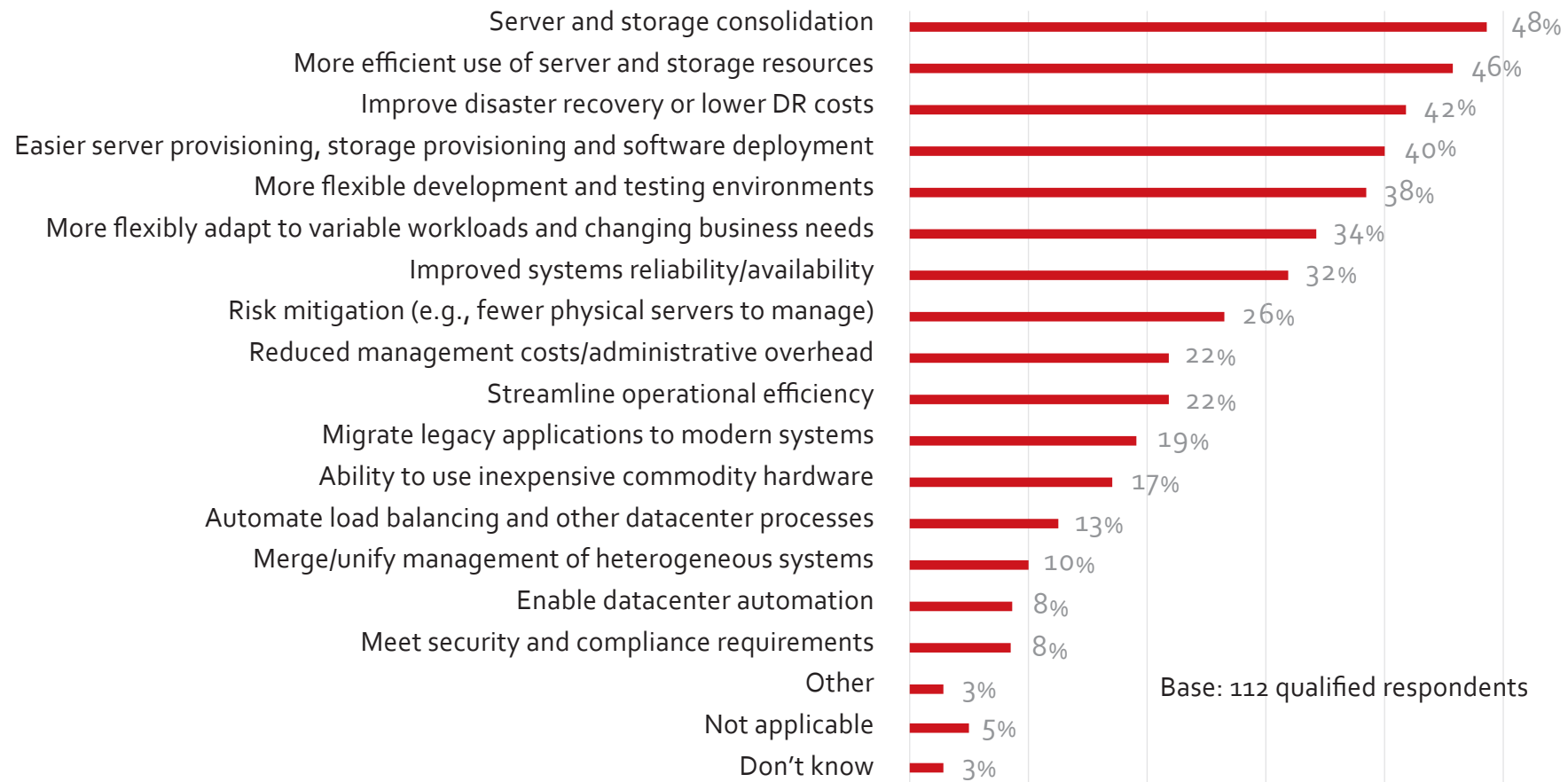
But the challenges aren't so great that they're keeping

FIG. 1. POTENTIAL BENEFITS FROM VIRTUALIZATION YIELDING GREATEST RETURN

Benefit	Percentage
Server and storage consolidation	48%
More efficient use of server and storage resources	46%
Improve disaster recovery or lower DR costs	42%
Easier server provisioning, storage provisioning and software deployment	40%
More flexible development and testing environments	38%
More flexibly adapt to variable workloads and changing business needs	34%
Improved systems reliability/availability	32%
Risk mitigation (e.g., fewer physical servers to manage)	26%
Reduced management costs/administrative overhead	22%
Streamline operational efficiency	22%
Migrate legacy applications to modern systems	19%
Ability to use inexpensive commodity hardware	17%
Automate load balancing and other datacenter processes	13%
Merge/unify management of heterogeneous systems	10%
Enable datacenter automation	8%
Meet security and compliance requirements	8%
Other	3%
Not applicable	5%
Don't know	3%

Base: 112 qualified respondents

users from growing their virtualization implementations. While survey respondents have an average of 44 virtual machines currently, they expect to have 76 within a year – close to double. And while respondents have virtualized an average of 36% of their servers already, in 12 months they expect that figure to be 59%.

BETTER DISASTER RECOVERY

Survey findings also indicate companies expect to make more strategic use of virtualization going forward. For example, whereas currently the most popular use is for server consolidation (66%), in the next 12 months that will change, as two-thirds of respondents say they will use virtualization to support business continuity/disaster recovery efforts, up from 46% today (see Figure 2).

That makes sense because the disaster recovery capabilities of virtualization technology – and complementary storage technologies – have matured. When ASCD began using the technology some four years ago, for disaster recovery it used two quad-processor boxes each capable of supporting four to eight virtual machines. The company brought tape backups of its virtual environment to the backup site on a regular basis, but it was far from real time.

About three years ago, the company implemented disk-to-disk backup, which meant it could replicate data to a storage system at the disaster site and restore from that if need be. While far faster and more efficient than tape, the setup was still not real time. Last summer, ASCD implemented SAN-to-SAN replication, so all virtual machines and data are copied in real time to the backup facility and are "up-to-the-minute live," Berkeley says.

READY FOR CRITICAL DUTY

In another sign that virtualization is maturing, while fewer than half of the IDG survey respondents (45%) currently employ the technology for mission-critical applications, 59% say they will do so in coming months.

The willingness to employ virtualization for mission-critical applications often correlates to a company's level of experi-
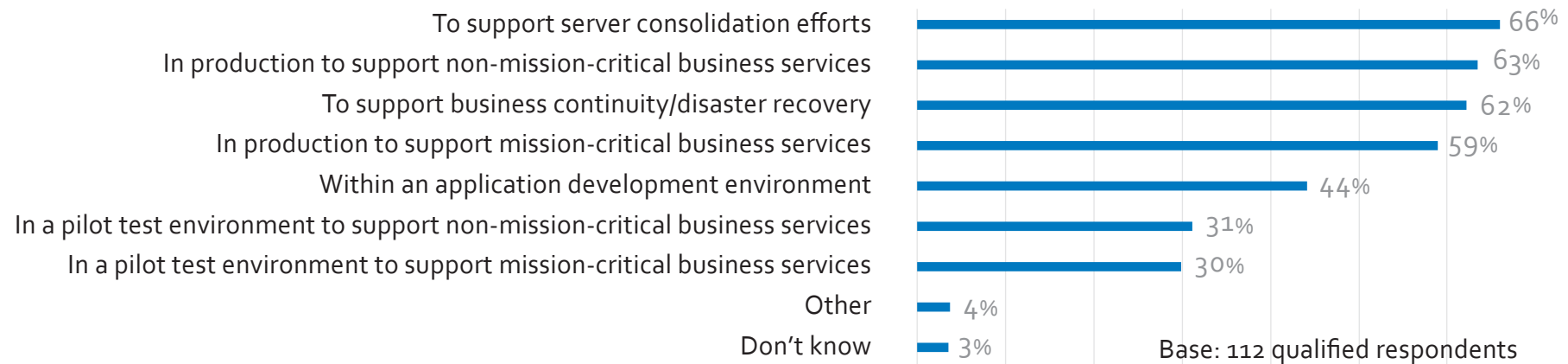
FIG. 2. CURRENT USE OF VIRTUALIZATION TECHNOLOGY

To support business continuity/disaster recovery	61%
To support server consolidation efforts	53%
In production to support non-mission-critical business services	46%
In production to support mission-critical business services	45%
Within an application development environment	38%
In a pilot test environment to support mission-critical business services	37%
In a pilot test environment to support non-mission-critical business services	33%
Other	6%
Don't know	1%

Base: 112 qualified respondents

PLANNING TO USE VIRTUALIZATION TECHNOLOGY IN THE NEXT 12 MONTHS

To support server consolidation efforts	66%
In production to support non-mission-critical business services	63%
To support business continuity/disaster recovery	62%
In production to support mission-critical business services	59%
Within an application development environment	44%
In a pilot test environment to support non-mission-critical business services	31%
In a pilot test environment to support mission-critical business services	30%
Other	4%
Don't know	3%

Base: 112 qualified respondents

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ence with the technology and the maturity of its implementation. ASCD has had no qualms about virtualizing most all of its applications, Berkeley says, and it's no coincidence that it has steadily upgraded its virtualization infrastructure since first deploying it in 2006.

"Systems availability and uptime has significantly increased," he says. He expects even better results when he completes a planned migration to VMware vSphere 4, which enables the same virtual machine to run on two different physical hosts with a heartbeat between them. If one should fail, the other takes over immediately, with no downtime or memory loss. Previous iterations required a virtual machine on a failed host to restart on another piece of hardware, he says.

Indeed, survey respondents are clearly not holding back on continued investments in server virtualization, with 70% expecting additional investments over the coming year. But nearly half also expect to invest more in desktop virtualization, up from the current 35% – another sign of a maturing technology.

Count Gary Klosak in that group. The director of IT for Kolcraft Enterprises just got started with virtualization in 2009, tackling 10 of his 35 physical servers, but has funding to complete

the rest in 2010. He also conducted a pilot test of 10 virtual desktops and was encouraged enough with the results that he expects the technology to play a major role in the desktop refresh he has on tap for next year.

"We'd love nothing more than to virtualize the entire desktop arena and save on all the big [desktop] boxes we've been purchasing for the last 20 years," Kosak says.

"GIFT THAT KEEPS ON GIVING"

As the IDG Research study makes clear, virtualization is delivering real, tangible benefits to SMBs. The cost savings companies are getting from hardware consolidation and resulting power, real estate and management costs are indisputable. Harder to measure are the soft benefits that companies get from an IT staff that is more nimble, able to deliver more quickly on business requirements and with time to dedicate to strategic efforts.

"I cannot stress enough how much virtualization has been a transformative technology in our environment," says TRO Jung-Brannen's Martin. "Whenever we run into a problem, probably 50% or 75% of the time we find a solution that involves virtualization technology. It is truly the gift that keeps on giving." •

Virtualization Success Playbook

WHILE SMALL- AND MEDIUM-SIZE BUSINESSES are enjoying success with virtualization, like any new technology it does come with certain challenges.

In its survey of 112 IT professionals at SMBs, IDG Research Services found the top challenges when deploying virtualization related to complexity of the technology, cited by 40% of respondents, and obtaining the required skills and training (33%).

In follow-up interviews with respondents, it's clear that most challenges SMBs have with virtualization relate to one simple factor: a shortage of time.

"Virtualization was an unknown for us. We had to educate ourselves," says Gary Klosak, director of informa-

tion technology for Kolcraft Enterprises. "It was probably a year and a half–long process of meeting with vendors, going to webinars and seminars and such." In early 2009 the company built a pilot in a lab environment to get hands-on training before launching a modest production implementation. Formal training is on tap for this year, "to get the nuts and bolts of operations, maintenance, support and so on," he says.

Chris Wolfley, a complex solution architect with Dell, always suggests customers get some form of training, whether an online course from vendors such as Microsoft and VMware or the hands-on variety. With baseline knowledge, customers can then take better advantage of offerings such as the Dell Remote Advisory service. The service comes with checklists that help customers prepare their environments along with phone-based support where experts walk them through any trouble spots.

Once installed, the top challenges the IDG Research survey respondents have in managing their virtual

environments are identifying the root cause of performance issues (42%) and, once again, lack of proper training (38%).

James Martin, principal and CTO at the architectural and engineering firm TRO JungBrannen, has been using virtualization technology for about four years and echoes those findings. "It's hard to troubleshoot performance issues because virtualization hides so much," he says. "You can't rely on the tools that come with the server OS to give you valid results." His team typically cobbles together information from a variety of management tools in order to point them in the right direction toward problem resolution, he says.

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JAMES MARTIN
PRINCIPAL AND CTO,
TRO JUNGBRANNEN

With such issues in mind, Dell offers preconfigured Business Ready Configurations for Small, Medium and Remote Environments, which include servers that come pre-loaded with either Microsoft or VMware virtualization software and a choice of additional options. Those options include management software along with all the required hardware and software for storage area networks, clustering and backups. The company also offers virtualization reference architecture to help customers plan and deploy virtual environments. Additionally, Dell's OpenManage suite of tools has been enhanced to simplify many systems management tasks and gives users the ability to plug in management tools from other vendors. •