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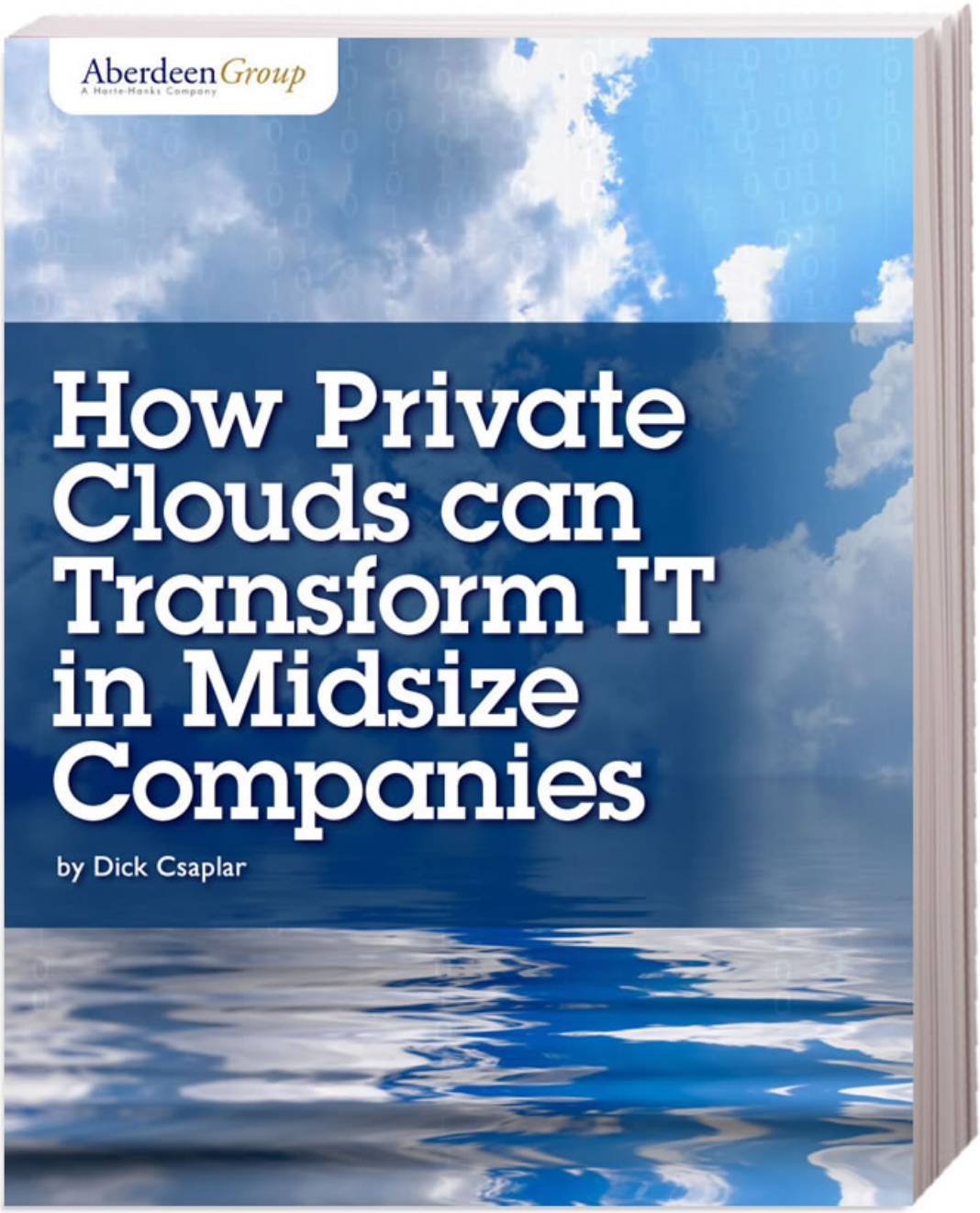
How Private Clouds can Transform IT in Midsize Companies
by Dick Csaplar



Analyst Insight

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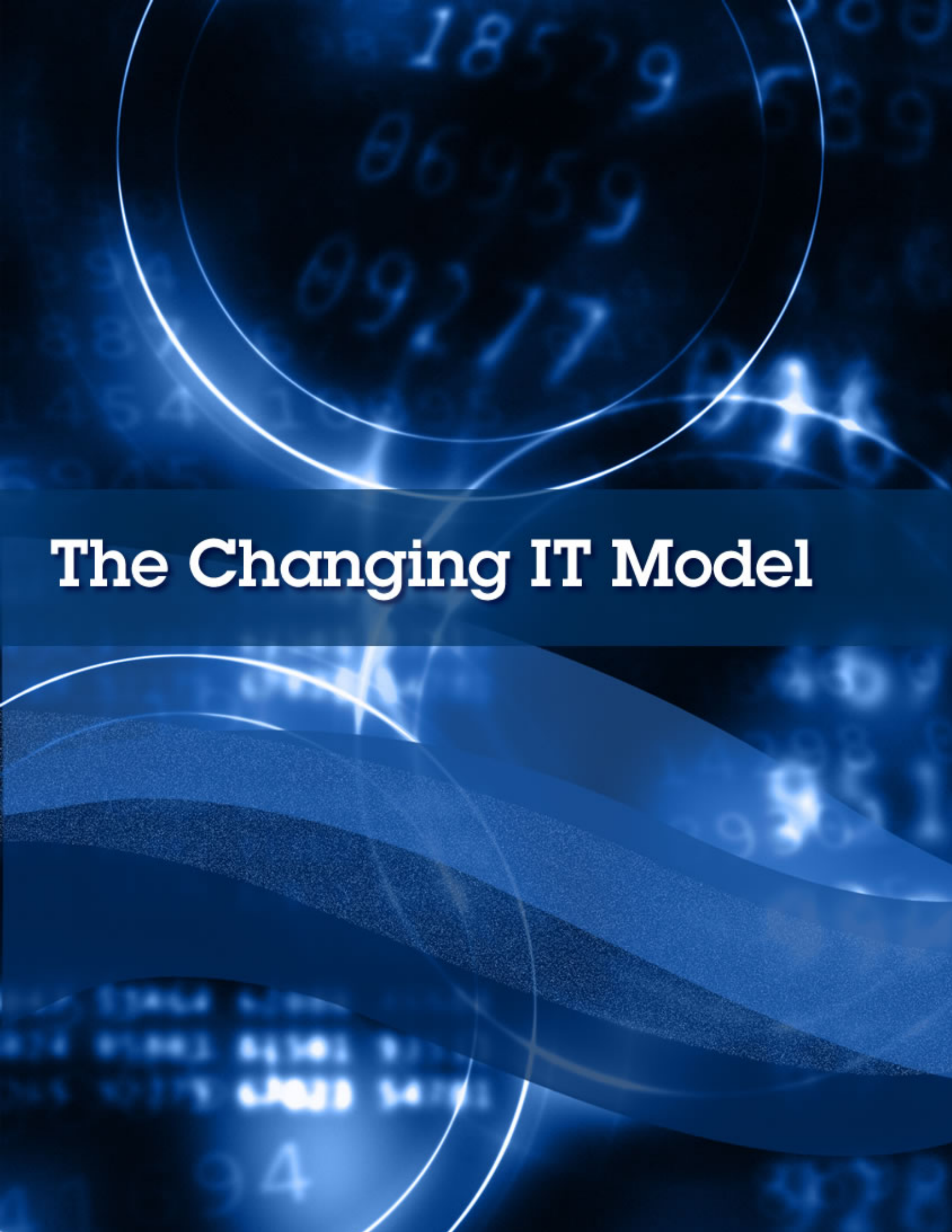
How Private Clouds can Transform IT in Midsize Companies

Aberdeen has been following the adoption of Cloud computing for many years. In May 2012, Aberdeen surveyed 123 organizations to learn how they use Cloud computing as part of their IT infrastructure. This eBook will focus on midsize organizations — companies with between 100 and 1,000 employees. The adoption of Cloud computing technologies by midsize organizations has allowed them to become more flexible, increase end-user involvement in managing their own infrastructure, and reduce the overall cost of IT services. However midsize organizations have not taken this technology as far as it can go to fully transform the way their IT organization supports the lines of business.

Analyst Insight

Aberdeen's Insights provide the analyst's perspective on the research as drawn from an aggregated view of research surveys, interviews, and data analysis.


The Changing IT Model

The Changing IT Model

The increasing rate of cloud computing has led IT to transform their relationship with the rest of the company. Those who have been in business for many years know how the "old" IT system worked: you waited weeks before new applications became a reality. IT expenses were a straight allocation that were added to a department P&L with little explanation or ability to change the amount. Inside IT, almost 80% of the time and energy was spent on "keeping the lights on" types of tasks. Call desks responded to broken processes, administrators focused on keeping applications from downtime, and little effort was left to develop new services to support pressing company requirements.

Today, Cloud computing is dramatically changing that reality. Servers, storage devices, networking, and even desktops are now managed with a "software defined infrastructure" — changes to computing devices are accomplished with a new breed of management application. In the old model, technicians who wanted to move an application from one over-used computer to a new one had to perform hours of uninstall and reinstall activities. Today, with Cloud computing,

end users use a single command to move a running application from one server to another without the application being affected in the slightest.

This simplification of mundane IT tasks has freed up headcount and spending, which can either be returned to the company in reduced IT charges, or, as is done by leading companies, be re-allocated to higher corporate priorities. This process is the optimization of IT, and as such, every C-Level manager who wants more from their IT investments needs to pay attention to the Cloud.

The State of Cloud Computing

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The State of Cloud Computing

The implementation of Cloud computing begins with server virtualization. This technology is what enables applications to be mobile, allows for CPU and memory allocations to be changed, and the easy provisioning of new applications. The Cloud is literally built on server virtualization.

In a survey conducted by Aberdeen in May 2010 only 40% of applications were deployed on virtualized servers. Today, two years later there has been a 15 percentage point increase to an overall deployment rate of 55%. The survey also showed that midsize organizations have achieved the highest deployment rate of server virtualization. Companies need to increase the rates of server virtualization to enable the concept of a Private Cloud.

Table 1: Server Virtualization Rates

	All	Small	Midsize	Large
What percentage of applications are on virtualized servers today?	55%	55%	63%	48%
What percentage of applications will be virtualized at the end of all current projects?	71%	70%	74%	72%

Source: Aberdeen Group, May 2012

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Definitions

For the purposes of this report, the different forms of cloud computing are:

- **Public Cloud** - A computing environment that exists outside a company's firewall. It can be a service offered by a third party vendor or refer to as a shared or multi-tenanted, virtualized infrastructure managed by means of a self-service portal. Computing resources are available upon request, rapidly provisioned, to the user on a scalable, pay per use basis.

- **Private Cloud** - Similar capabilities of a public cloud but behind a firewall for the exclusive benefit of an organization and its stakeholders. The self-service management interface is still in place while the IT infrastructure resources are internal.

- **Hybrid Cloud** - An IT computing environment which links external public cloud services with internal cloud capabilities. This is the most flexible of all the cloud types since it allows an additional layer of optimization whereby the choice of internal, external, or both internal and external resources can be brought together in the most cost-effective way to solve the needs of a particular workload.

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Deployments of
Private Cloud

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Deployments of Private Cloud

Based on the virtualization rates in Table 1, you would expect that midsize companies also have the highest rates of deploying a Private Cloud, which is the most advanced form of server virtualization. This is not true.

Private Cloud is the internal use of management tools originally designed for use in the Public Cloud. With a Public Cloud applications are deployed on remote infrastructure hosted by a third party. Users need to make changes to those apps, reallocate computing resources for peak performance, and manage expenses by remotely changing or turning off apps that are no longer used.

With a Private Cloud, IT extends those capabilities to their end users. Instead of filling out a form to request a new development and test platform, for instance, Private Cloud allows the engineers to enter the infrastructure, provision the servers the way they want them, and allocate just the right amount of CPU and memory. Their need is met immediately and IT people are freed from performing these routine tasks.

The Private Cloud features listed in Table 2 enable greater end-user involvement and control of both their IT infrastructure and the resulting costs.

Table 2: Private Cloud Features

	Small	Midsize	Large
Lease-time (time limits on virtual machines (VMs))	36%	14%	18%
End user self-provisioning	33%	10%	17%
Chargeback / Showback	31%	15%	10%

Source: Aberdeen Group, May 2012

As you can see, midsize organizations have the lowest rates of end user self-provisioning deployment, the capability described in the paragraph above. They also have the lowest use-rates of a Cloud feature called lease-time, which is software that will set time limits on the life of any virtual machine (VM) deployed by an end user. Lease-time is a service to the end user as the software will not automatically shut off a VM, but will alert the end user that the VM they created is still running, perhaps past its useful life, and accruing unneeded expenses. The end-user or their management can then decide to terminate the VM.

Chargeback / showback is a feature that allocates IT expenses based on usage. This software tracks who requested IT services and either charges (chargeback) them an agreed upon expense or merely shows them (showback) what expenses they would be accruing if the company allocated its expenses based on user.

These tools demonstrate a management philosophy of enabling end users to do more of their own IT infrastructure management. Midsize organizations have deployed Private Cloud less than their larger or smaller cousins, and therefore are not reaping the greatest possible benefits.

The Benefits of Cloud Computing

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The Benefits of Cloud Computing

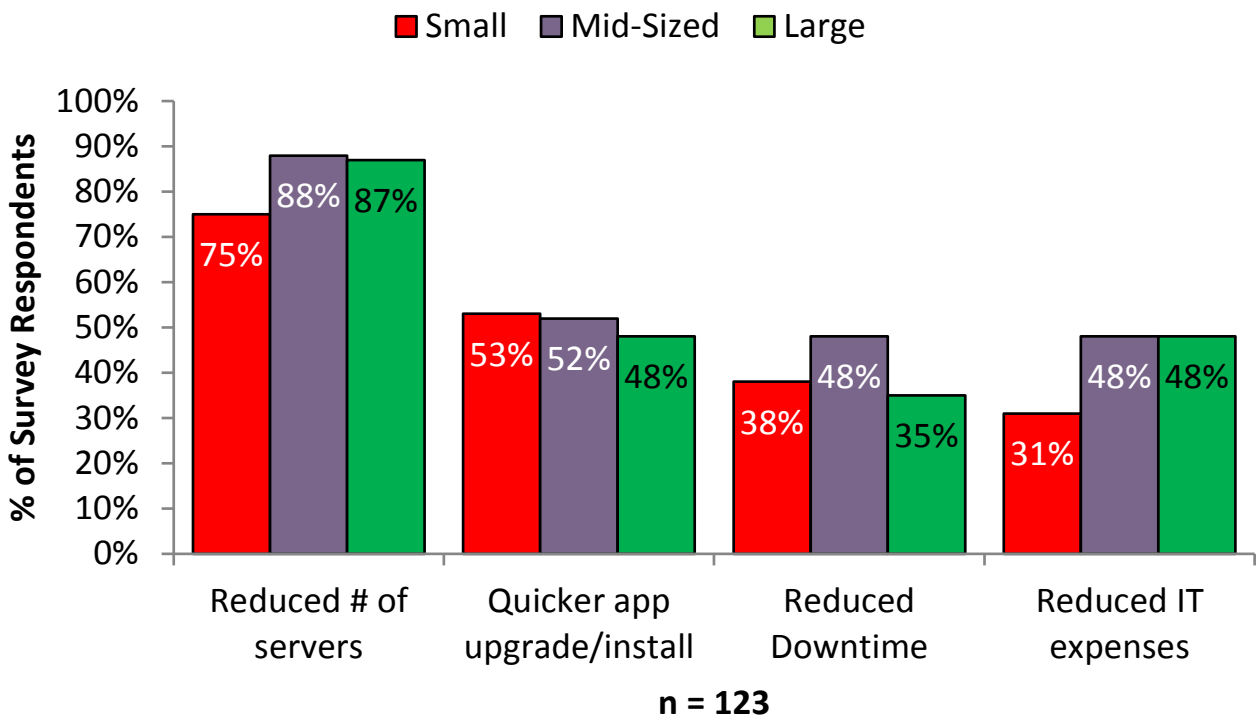
Cloud computing has brought users benefits in two major areas — operations and finance. Operational benefits come from performing IT tasks more quickly or using fewer resources, while financial benefits are gained from reducing the IT budget without reducing services to the organization.

As shown in Figure 1, organizations that have deployed Cloud computing show great gains from their technology investment. Far and away the largest benefit, as reported by companies of all sizes, is a reduction in the number of servers (and therefore the amount of power consumed, the amount of management required, the space used in the datacenter, and the amount of maintenance services needed). This benefit has both operational and financial aspects to it.

The second most cited benefit is primarily operational. Fifty-two percent (52%) of midsize companies reported they are able to deploy new applications (not cloning an existing application to a new server) faster after deploying cloud capabilities. The improvement is shown in Table 3 — a reduction from an average of 14.7 days to just 4.2 days is a 71% improvement. There is also some financial benefit here, as organizations experience a 10-day faster application "time to value."

In addition 48% of midsize organizations reported reducing their application downtime as a result of server virtualization. Midsize companies reported their cost of downtime to be just over $100,000 per hour, so any decrease will have great positive benefit.

Figure 1: Benefits of Cloud Computing



Source: Aberdeen Group, May 2012

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Finally another 48% of midsize companies reported being able to reduce their overall IT expenses as a result of deploying Cloud computing. Surveyed companies reported being able to reduce their server and application management spending by 13% over the last 12 months and their IT headcount dedicated to the same by 4.4%. It is important to note that Cloud computing has led to a greater percentage of spending reduction versus headcount reduction. This is a trend that Aberdeen has found consistently: the Cloud does not lead to IT employees losing their jobs, but rather they are re-directed to more business critical projects. Cloud computing eliminates many of the mundane and repetitive tasks, freeing people to do more interesting work.

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Table 3: Quantification of Cloud Computing Benefits

	Small	Midsize	Large
How long does it take to deploy a new application before virtualization?	15.5 days	14.7 days	16.1 days
How long does it take to deploy a new application after virtualization?	9.6 days	4.2 days	8.8 days
How has IT sending to support servers and applications changed since deploying server virtualization?	- 11%	- 13%	- 7%
How has IT headcount dedicated to servers and applications changed since deploying server virtualization?	- 4.2%	- 4.4%	- 0.7%

Source: Aberdeen Group, May 2012

The question now can be asked "What changes does wide adoption of Cloud computing make to the management environment?"

The New Computing Environment

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The New Computing Environment

In a May 2012 survey, Aberdeen listed all major brands of hypervisor software and asked the midsize survey respondents to tell us which are their "Primary" hypervisor, what brands they "Also Use," what they were "Using but Planning to Discontinue" and which they are "Evaluating."

Table 4: Midsize Organization Hypervisor Usage

	Primary	Also Use	Plan to Stop	Evaluating
VMware	52%	17%	0%	5%
Microsoft Hyper-V	15%	10%	10%	14%
Xen (Citrix, Oracle)	7%	30%	6%	25%
KVM (Fedora, Ubuntu, SUSE)	6%	28%	10%	15%
Red Hat (RHEL, RHEV)	0%	16%	8%	11%
Others	0%	6%	5%	6%

Source: Aberdeen Group, May 2012

When you add together the categories of "Primary," "Also Use," and "Using but Plan to Stop" you find on average that midsize organizations use just over two different hypervisors in their datacenter. The total number "Evaluating" other hypervisors forecasts that, on average, reporting organizations are considering adding another hypervisor to their environment. Reporting organizations are not locked into a single hypervisor solution. Aberdeen believes that companies will be constantly evaluating and re-evaluating hypervisor choices as vendors release new versions and features.

A single vendor solution does not appear to be the best fit for Cloud computing. As hypervisor software continues to mature and grow along with management technologies that span complex datacenter environments, a multi-hypervisor strategy seems to allow for matching the right type of hypervisor to the datacenter task it can best support.

To manage these new features and the multi-hypervisor environments discussed previously, a new breed of IT infrastructure management application is required — a Cloud management tool.


Private Cloud
Management Software

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Private Cloud Management Software

A new breed of IT software is appearing on the market, purpose-built to manage Cloud computing. With the right levels of authorization, these tools enable many of the functions discussed in this report, as well as maximize the benefits of a Private Cloud.

After considering all the changes described in the pages above, when choosing a Private Cloud management tool, prospective customers should ensure that it has as many of the following features as possible:

- **Quickly converts a virtualized environment to a Private Cloud** — While most midsize organizations have already deployed some level of server virtualization, they have not deployed a Private Cloud. Companies want to ensure they do not have to undo their virtualization work but can just add the aspects of Private Cloud when they are ready to move forward.
- **Security** — As a Private Cloud exists entirely behind a company firewall, you might think that there were no security concerns with its deployment. However, internal security must be maintained between users and organizations. Look for features such as secure groups and network isolation.
- **End user ease of use** — With end users taking on more of a self-administration role, the end user interface must be easy and intuitive. Features such as support for mobile devices, financial metering, and billing metrics will maximize end user involvement in the Private Cloud.
- **Automated approval and / or rejection** — An end user request for IT services must be reviewed and approved by their management as charges are accrued. Having an automated process for this review will reduce the amount of administration required for both business and IT.
- **Enforcement of compliance** — The use of server configuration templates will facilitate compliance and help reduce errors by setting standardized deployments, policies, and defaults.

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- **IT single management pane of glass** — The right cloud management app gives IT a single tool to manage the entire infrastructure, including integration with storage and the network. This will reduce IT overhead and allow quicker responses to issues.
- **Protection against application downtime** — A Private Cloud environment should offer near-zero downtime with automated capabilities that can quickly recover from failures. Patches and upgrades should be easy to apply without taking anything down.
- **Support for multiple types of hypervisors** — As shown in Table 4, most organizations use hypervisors from multiple vendors. Using a management tool that supports multiple hypervisors means that already deployed VMs do not have to be converted to just those supported. This helps reduce deployment times from days to hours, and minimizes deployment errors through automated provisioning of standardized virtual images.
- **Positioned to use future Cloud technologies** — Finally as Private Cloud becomes more widely adopted, new features and tools will become available. It will be important for the tool to scale particularly as the large Tier 1 applications such as ERP, CRM, and others are added to the Private Cloud. Also integration of the environment into the Public Cloud and support for Cloud APIs will be critical aspects for growth.


Key Takeaways

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Key Takeaways

Midsize organizations have widely deployed Cloud computing and are gaining both operational and financial benefits. However, this has created a highly heterogeneous environment with many different brands of hypervisor software resident. All organizations, not just midsize ones, would gain from fully deploying a Private Cloud to continue reaping the gains begun with just server virtualization.

Allowing end users to play more of a role in deploying and managing their own infrastructure requires giving them an easy and intuitive tool. At the same time, IT needs to have a single pane of glass to manage an environment that is rapidly changing. The Cloud management tool is key to enabling the financial and operational benefits of a Private Cloud.

The old IT model just won't cut it anymore. Private Cloud is the new way to get IT done and to bring the power of the computing infrastructure close to the lines of business.

The transformation of IT is well underway and everyone benefits from a Private Cloud.

For more information on this or other research topics, please visit www.aberdeen.com

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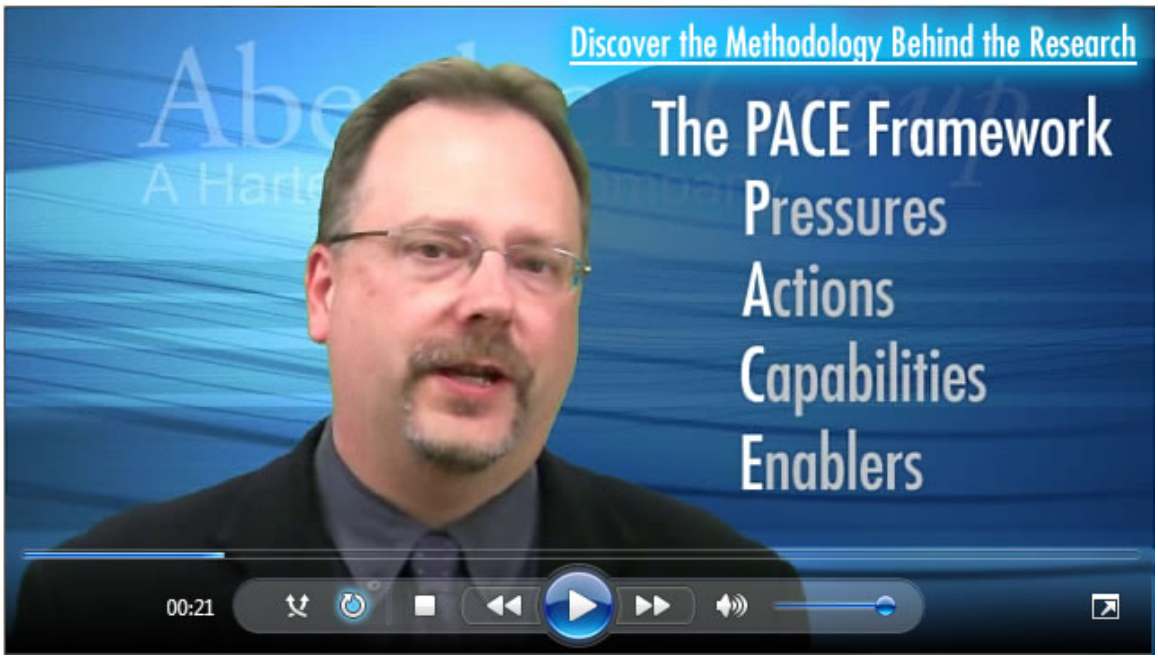

Related Research

Extend your Server Virtualization Program to enable Private Cloud; May 2012

EMEA SMEs are leading their North American Cousins in Server Virtualization; March 2012

The State of Server Virtualization in Small and Mid-sized Organizations; January 2012

Measuring the Returns from a Desktop Virtualization Program; September 2011

Small vs. Large Enterprise Data Backup; Same Concept, Very Different Process; June 2011

High Availability for Virtualized Applications: Protecting Against Unplanned Downtime; June 2011

Email Archiving: EMEA Focused on Functionality, North America on Litigation; September 2012

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