Converged Infrastructure Matures And Proves Its Value

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Introduction

Converged infrastructure (CI) solutions have been widely adopted by a range of enterprises, and they offer significant value across a variety of applications. Forrester has seen steady growth in deployment of CI, systems that integrate server, storage, networking, I/O virtualization, and potentially entire application stacks, over the past couple of years, a result of firms realizing the significant advantages CI brings to their organization. Compared to traditional piece-part infrastructure, CI is able to reduce complexity, pool resources, and aid in automating IT processes while lowering costs and increasing IT's ability to respond to the needs of the business.

Converged Infrastructure Adoption — Enabler For Consolidation, Virtualization, And Cloud

Enterprises have entered a new era of complexity and heightened customer, partner, and employee expectations. To keep up, businesses demand more innovation, speed, and flexibility from their data centers. Traditional infrastructure and facilities are limiting business agility and draining IT budgets. A Forrester Research study conducted in the back half of 2012 reports that 22% of enterprises have adopted a CI solution. Of that 22%, 15% say they are looking to expand their current deployment, while an additional 26% report being in the planning stages of implementing a CI solution.[1]

IT decision-makers' top IT infrastructure priorities over the next 12 months underline this trend. According to IT infrastructure and operations decision-makers, 79% of firms will maintain or implement broad use of server virtualization as the standard server deployment model, 78% are consolidating their IT infrastructure, and 67% are automating the management of their virtualized servers to gain the flexibility and resiliency that today's enterprise needs to stay competitive (see Figure 1).

Private clouds have become the preferred choice for developers; 70% of firms report that their developers are most interested in an approach that involves private cloud. Of those, 41% are most interested in internal private cloud, while the remaining 29% are most interested in a hybrid solution involving private cloud (see Figure 2). This makes CI solutions ideal for developers, as the low capital cost and scalability of these systems create the ideal platform for a private cloud, which in the perception of most IT professionals is treated internally as an evolved implementation of a virtualization cluster with enhanced management tools.
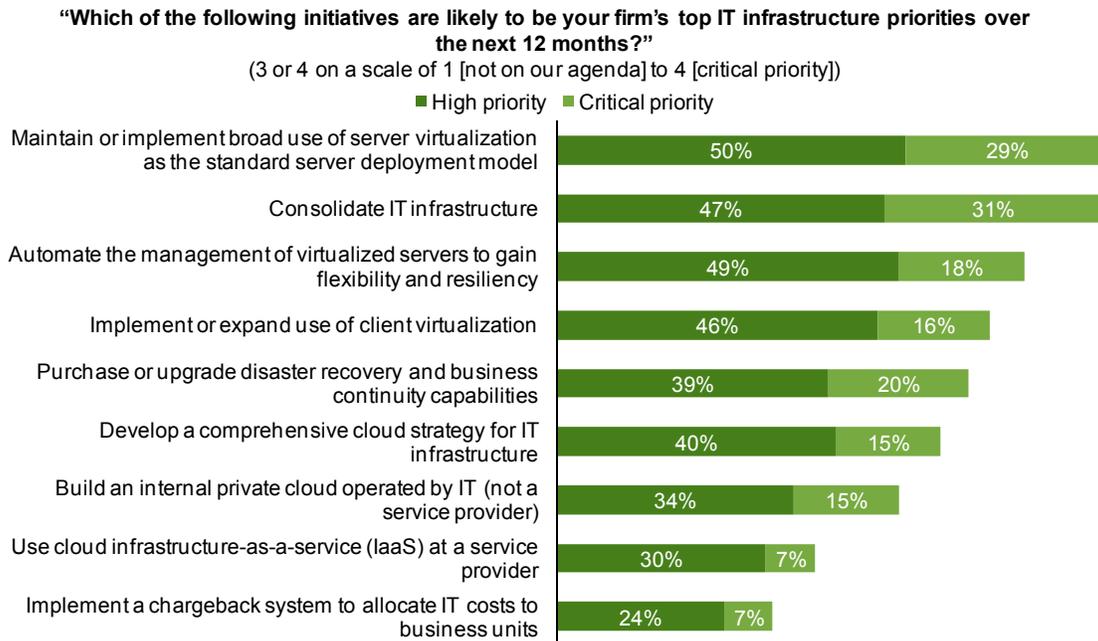
Figure 1

IT Prioritizes Virtualization And Consolidating Infrastructure

"Which of the following initiatives are likely to be your firm's top IT infrastructure priorities over the next 12 months?"

(3 or 4 on a scale of 1 [not on our agenda] to 4 [critical priority])

■ High priority ■ Critical priority

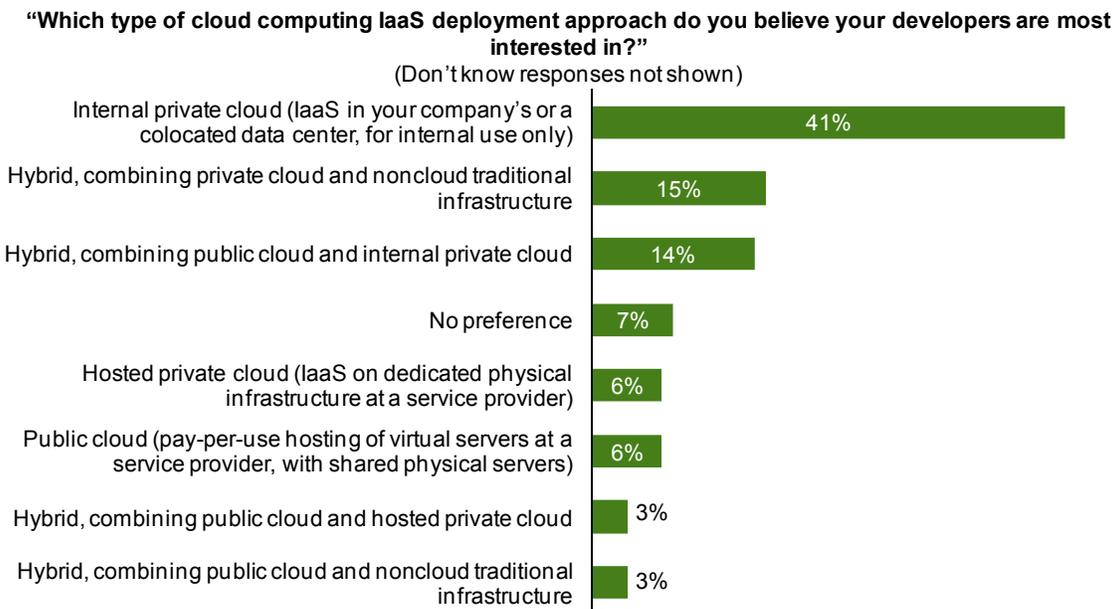|	High priority	Critical priority
Maintain or implement broad use of server virtualization as the standard server deployment model	50%	29%
Consolidate IT infrastructure	47%	31%
Automate the management of virtualized servers to gain flexibility and resiliency	49%	18%
Implement or expand use of client virtualization	46%	16%
Purchase or upgrade disaster recovery and business continuity capabilities	39%	20%
Develop a comprehensive cloud strategy for IT infrastructure	40%	15%
Build an internal private cloud operated by IT (not a service provider)	34%	15%
Use cloud infrastructure-as-a-service (IaaS) at a service provider	30%	7%
Implement a chargeback system to allocate IT costs to business units	24%	7%

Base: 672 IT hardware decision-makers from firms with 5,000 or more employees

Source: Forrsights Hardware Survey, Q3 2012, Forrester Research, Inc.

Figure 2

Developers Prefer Private Cloud

"Which type of cloud computing IaaS deployment approach do you believe your developers are most interested in?"

(Don't know responses not shown)

Internal private cloud (IaaS in your company's or a colocated data center, for internal use only)	41%
Hybrid, combining private cloud and noncloud traditional infrastructure	15%
Hybrid, combining public cloud and internal private cloud	14%
No preference	7%
Hosted private cloud (IaaS on dedicated physical infrastructure at a service provider)	6%
Public cloud (pay-per-use hosting of virtual servers at a service provider, with shared physical servers)	6%
Hybrid, combining public cloud and hosted private cloud	3%
Hybrid, combining public cloud and noncloud traditional infrastructure	3%

Base: 268 IT hardware decision-makers from firms with 5,000 or more employees

Source: Forrsights Hardware Survey, Q3 2012, Forrester Research, Inc.

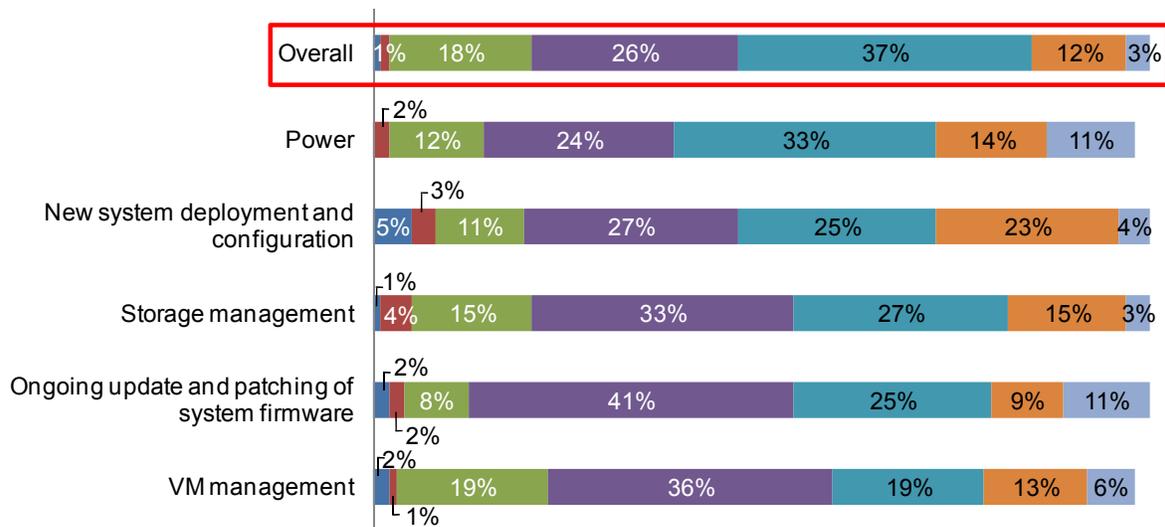## Converged Infrastructure Demonstrates Economic Advantages

CI can have a positive impact on IT costs and time to solution. To explore this further, HP commissioned Forrester Consulting to ask 100 North American and European enterprise IT infrastructure and operations decision-makers how their firms' operating expenses in various areas were affected by adopting a CI solution. Not surprisingly, over half of the respondents report saving 5% or more in overall operating expenses. Power and new systems deployment and configuration were the areas most positively affected, with approximately a quarter of firms seeing 11% or more in savings on operating expenses. The majority of IT organizations realize a positive cost impact as a result of their CI investments (see Figure 3).

Figure 3

Converged Infrastructure Adoption Results In Positive Economic Impact

"How has your firm's operating expenses changed as a result of implementing a converged infrastructure system compared to your previous system?"

("Don't know" responses not shown)

- Spending more than 20% more
- Spending 11% to 20% more
- Spending 5% to 10% more
- Operating expenses are about the same
- Saving 5% to 10%
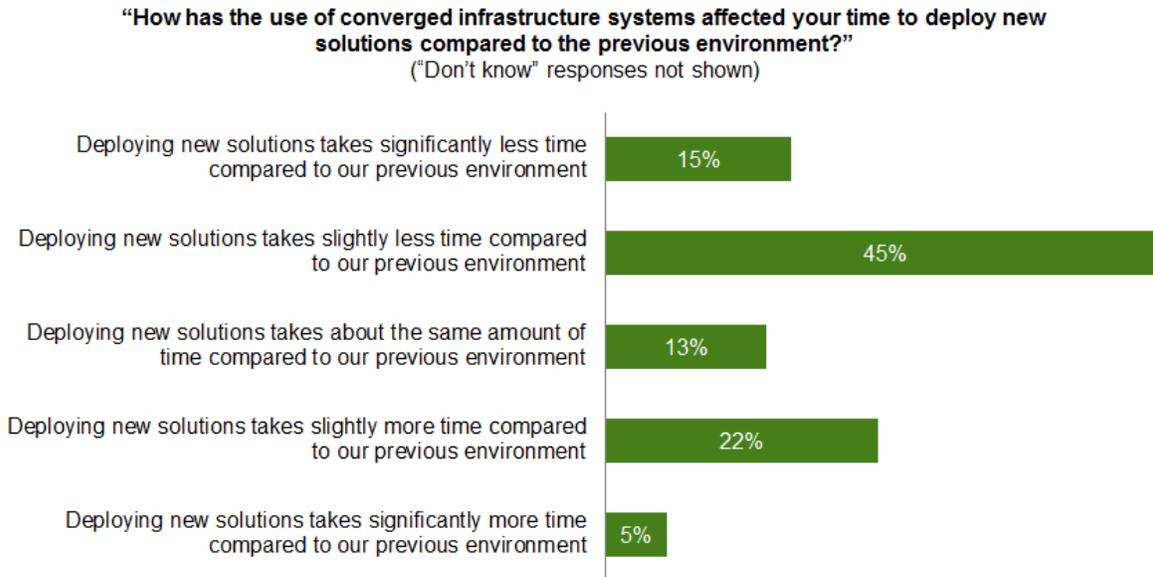- Saving 11% to 20%
- Saving more than 20%

Base: 100 North American and European enterprise IT infrastructure and operations decision-makers

Source: A commissioned study conducted by Forrester Consulting on behalf of HP, March 2013

In addition to directly affecting costs, respondents indicate that CI solutions also demonstrated a direct impact on the speed with which new business solutions could be deployed. Sixty percent of respondents report a reduction in the time it takes for their organization to deploy new solutions since implementing a CI solution (see Figure 4).

Figure 4

Converged Infrastructure Directly Reduces Deployment Time

"How has the use of converged infrastructure systems affected your time to deploy new solutions compared to the previous environment?"
("Don't know" responses not shown)

Deploying new solutions takes significantly less time compared to our previous environment	15%
Deploying new solutions takes slightly less time compared to our previous environment	45%
Deploying new solutions takes about the same amount of time compared to our previous environment	13%
Deploying new solutions takes slightly more time compared to our previous environment	22%
Deploying new solutions takes significantly more time compared to our previous environment	5%

Base: 100 North American and European enterprise IT infrastructure and operations decision-makers

Source: A commissioned study conducted by Forrester Consulting on behalf of HP, March 2013
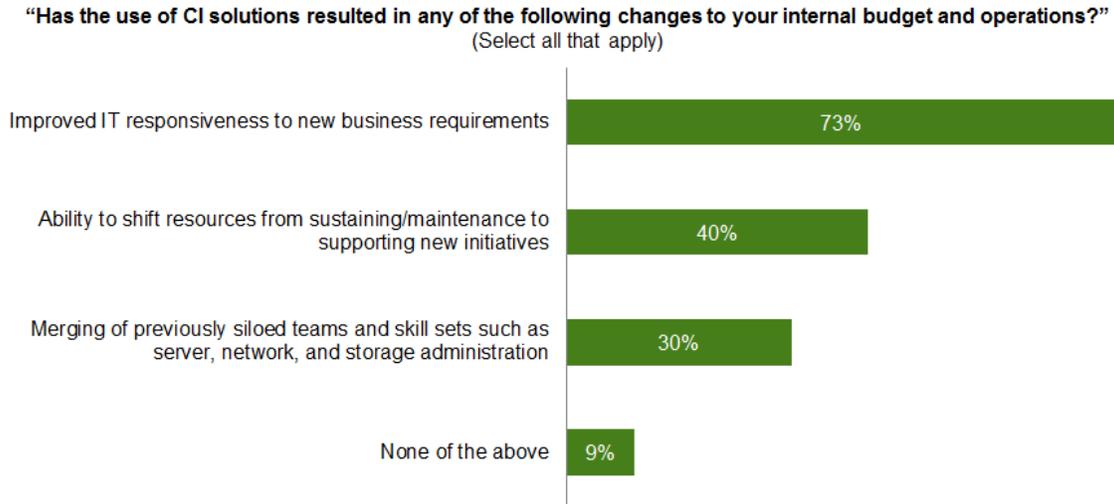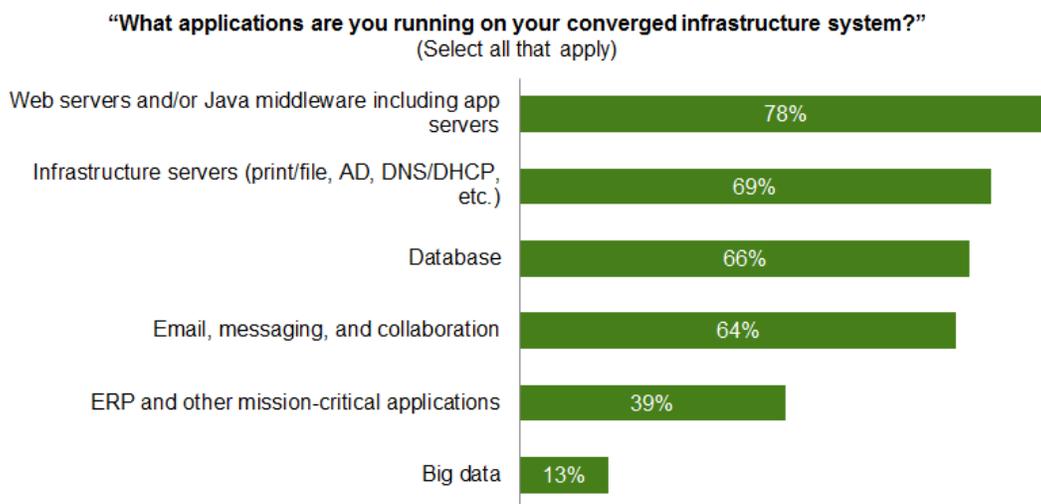
Converged Infrastructure As A Catalyst For Organizational Change

In addition to direct capex and opex benefits, CI, due to its convergence of formerly separate technical management domains, can serve as a trigger for organizational change. The resultant organizations tend to reflect the unified nature of the underlying CI technology, and to allow more efficient deployment of resources. Among the key benefits cited by respondents:

- Three-quarters indicate improved responsiveness to new business requirements.

- Two-fifths indicate the ability to shift resources from maintenance to new initiatives.

- And one-third tells us that the use of CI has allowed the merging of previously separate teams for a more cohesive organization.

Survey respondents report both an improvement in their ability to respond to business demands and an improvement in their ability to devote resources to new initiatives as opposed to ongoing maintenance (see Figure 5).

Figure 5

Converged Infrastructure Is A Catalyst For Organizational Change

"Has the use of CI solutions resulted in any of the following changes to your internal budget and operations?"
(Select all that apply)

Improved IT responsiveness to new business requirements	73%
Ability to shift resources from sustaining/maintenance to supporting new initiatives	40%
Merging of previously siloed teams and skill sets such as server, network, and storage administration	30%
None of the above	9%

Base: 100 North American and European enterprise IT infrastructure and operations decision-makers

Source: A commissioned study conducted by Forrester Consulting on behalf of HP, March 2013

Converged Infrastructure Is Now A Fully Mainstream Deployment Platform

In its early instantiations, CI solutions were often relegated to niche applications in the enterprise, such as front-end web servers or lightweight app servers. The data indicates that CI is now a fully mainstream deployment platform for a wide range of enterprise applications (see Figure 6).

Figure 6

Converged Infrastructure Is Now A General-Purpose Enterprise Platform

"What applications are you running on your converged infrastructure system?"
(Select all that apply)

Web servers and/or Java middleware including app servers	78%
Infrastructure servers (print/file, AD, DNS/DHCP, etc.)	69%
Database	66%
Email, messaging, and collaboration	64%
ERP and other mission-critical applications	39%
Big data	13%

Base: 100 North American and European enterprise IT infrastructure and operations decision-makers

Source: A commissioned study conducted by Forrester Consulting on behalf of HP, March 2013

As Figure 6 suggests, there are only two areas where acceptance of CI falls off: large mission-critical application deployments of applications such as ERP systems and their associated large databases, and big data, particularly Hadoop. The reasons for this lag in these two areas are very different. For mission-critical applications, organizations are hesitant to move from proven large RISC/Unix systems.[2] For big data, and especially Hadoop, Forrester believes that this is due to the fact that most of the emerging big data environments were written for commodity hardware, and incorporate resiliency and tolerance for server node failure as an inherent aspect of their software architecture, and they do not need the enterprise-class RAS features embedded in most contemporary CI solutions, allowing implementation on lowest-cost hardware.

Summary — CI Continues To Proliferate And Demonstrate Value

Both Forrester's existing Forrsights data and the additional custom research conducted in conjunction with this study validate the continuing value of CI as a core enterprise technology and the basis for future implementations of increasing consolidated and virtualized enterprise environments, including private IaaS and SaaS cloud environments.

Methodology

This Technology Adoption Profile was commissioned by HP. To create this profile, Forrester leveraged its Forrsights Hardware Survey, Q3 2012. Forrester Consulting supplemented this data with custom survey questions asked of 100 North American and European IT infrastructure and operations decision-makers at enterprise firms. The auxiliary custom survey was conducted in April 2013. For more information on Forrester's data panel and tech industry consulting services, visit www.forrester.com.

Endnotes

[1]Source: Forrsights Hardware Survey, Q3 2012, Forrester Research, Inc.

[2] Anecdotal data, heavily weighted by inquiries from Forrester clients, suggests that the sales of RISC/Unix-based CI systems are in fact dominated by organizations moving legacy applications, including ERP and database, from legacy RISC/Unix implementations.