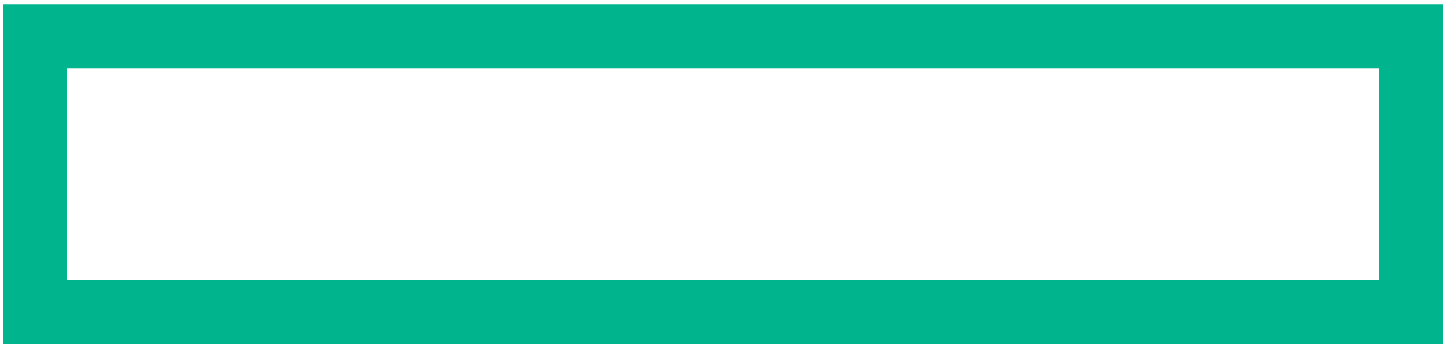
Hewlett Packard Enterprise

Business white paper

Expert findings: converged infrastructure



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Executive summary

IT executives are increasingly considering converged systems as an efficient way to increase their business agility. In this report, we summarize the findings from a variety of independent analyst firms about the reasons for turning to integrated, converged, or hyper-converged systems and the results organizations are achieving in the real world. The analyst findings show accelerated adoption of converged systems by IT organizations to support on-demand IT infrastructure and cite increased business agility, IT staff productivity, operational efficiency, and faster time to value as reasons for such adoption. These benefits help businesses of all sizes better respond to customers and growth opportunities:

- Greater simplicity reduces operations expenditures (OPEX) and risk and increases business agility.
- Faster and more efficient operations reduce OPEX and free IT staff to work on revenue-generating opportunities.
- Open, interoperable ecosystems reduce risk and accelerate your transition to on-demand IT infrastructure.

Converged systems speed transition to on-demand IT infrastructure

Conventional approaches to IT cannot accommodate the business agility you are challenged to accomplish. You know you must transform your infrastructure-centric service delivery model to meet the rising expectations of your lines of business and extended ecosystem. But how can this be achieved while reducing the costs and risks? Converged systems[1] are rapidly gaining acceptance as a way to improve overall business agility and the productivity of IT staff and increase the quality and speed of services delivered to your clients. In fact, IDC forecasts the converged systems market will grow at a five-year compound annual growth rate (CAGR) of 19.6 percent to $17.9 billion USD in 2018, up from a value of $7.3 billion USD in 2013.[2]

CIO magazine says, "If IT is really about supporting the business, then converged infrastructure is appealing, if for nothing else than for not reinventing the wheel but selling it attached to a car instead."[3] Converged infrastructure (CI) consists of compute, storage, and networking resources that have been abstracted, so they can be pooled and managed to work as one. Converged and hyper-converged systems—next-generation CI—tie virtualization, automation, and unified infrastructure management software into pre-built, tested, and workload-optimized systems governed by software-defined management software that can be efficiently delivered as infrastructure services.

Customers have successfully deployed converged system solutions to support a broad range of workloads. Forrester found users show a willingness to run critical workloads on converged systems, and for the highly popular virtualization use case, acceptance of converged systems is more than 90 percent. The study concludes that converged systems have delivered key benefits both as a replacement for legacy systems and as a foundation for emerging private cloud.[4] IDC research echoes converged systems adoption and use in a survey of respondents with integrated systems in production environment who told IDC that more than 40 percent of their server and storage infrastructure is attributable to integrated systems today. This is expected to increase to approximately 48 percent of their total server and storage infrastructure by 2016.[5]

[1] Also known as integrated computing, integrated infrastructure, integrated platform systems, engineered systems, and unified computing, this paper consistently uses the term, converged systems.

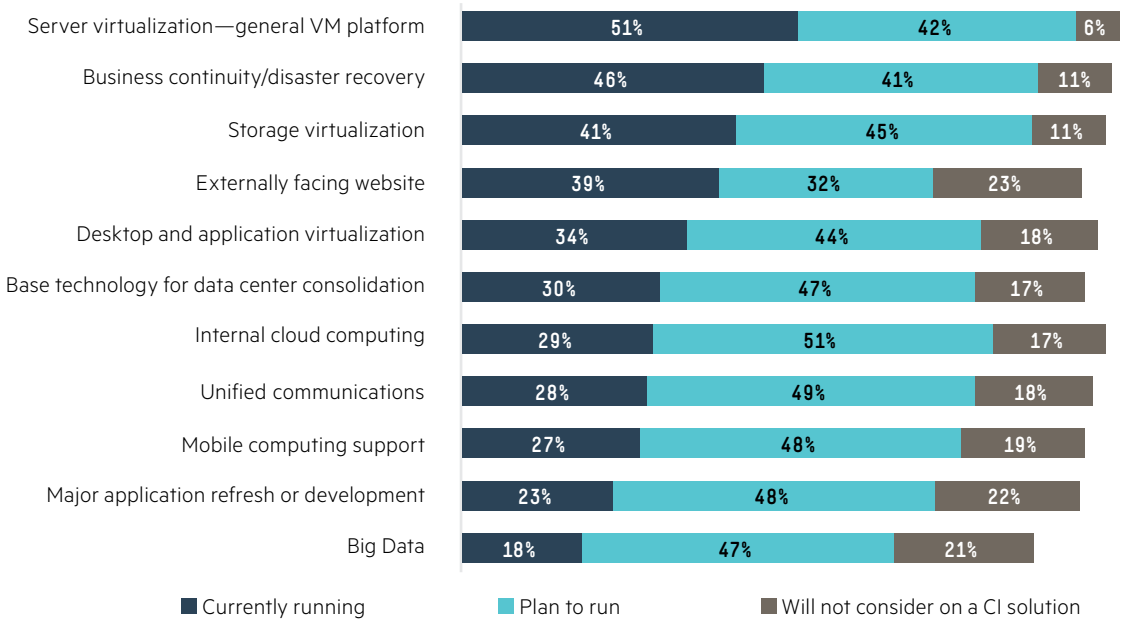
[2] "Worldwide Integrated Systems 2014–2018 Forecast," IDC, 2014.

[3] "Is Converged Infrastructure the Future of the Data Center?" Allen Bernard, CIO Magazine, March 2013, **cio.com/article/2387483/high-performance-computing/is-converged-infrastructure-the-future-of-the-data-center-.html**.

[4] "Converged Infrastructure: Ready For The Next Phase," A Forrester Consulting Thought Leadership Paper Commissioned By HPE, September 2013.

[5] IDC Integrated Systems: End-User Survey Report, 2014, IDC #251695, September 2014.

"Which of the following will you run or plan to run on your converged infrastructure system over the next 12 to 18 months?"



Base: 196 global IT infrastructure decision-makers, interested in, planning to, or have already adopted converged infrastructure.

Based on a commissioned study conducted by Forrester Consulting on behalf of HPE, June 2013.

Figure 1: Types of workloads supported by converged system solutions

Benefits of adopting converged systems

Greater simplicity reduces OPEX and risk and increases business agility.

Single system—Because converged systems are blocks of pre-integrated, scalable infrastructure, they save time upfront in the design and technology integration of the system as well as stand up time.[6] Pre-testing by the vendor, including interoperability testing with third-party vendors, and validating that they work together seamlessly before the system is deployed frees IT staff from this time-consuming responsibility.

Single management—Legacy management tools are focused vertically on the technology (server, storage, and network). That is why ease of management ranks high as a reason for deploying converged systems.[7] Converged management tools focus all the real and virtualized infrastructure components to provide unified management, which simplifies everyday administrative tasks and reduces complexity and costly errors.

Single vendor support—IDC reports more than half of IT decision-makers are looking for ways to shrink the number of platform vendors they use, in an effort to simplify and reduce the cost and complexity of many aspects of the IT lifecycle.[8] Converged systems can reduce the complexity and cost of ongoing support and the time associated with problem resolution by having a single vendor to call for proactive services and to broker any issues that might occur between partner vendors.[9]

[6] "HPE ConvergedSystem: Altering Business Efficiency and Agility with Integrated Systems," Taneja Group Technology Analysts, June 2014.

[7] "Analyzing the Economic Value of HPE ConvergedSystem 700 for Virtualization in an Enterprise Environment," Enterprise Strategy Group (ESG), July 2014, and "Converged Infrastructure: Ready For The Next Phase," A Forrester Consulting Thought Leadership Paper Commissioned By HPE, September 2013.

[8] "Converged and Integrated Datacenter Systems: Creating Operational Efficiencies," Rob Brothers, IDC #24661, February 2014.

[9] "HPE ConvergedSystem: Altering Business Efficiency and Agility with Integrated Systems," Taneja Group Technology Analysts, June 2014.

Global Relay relies on modern converged architecture to provide message archiving to the highly regulated financial sector. Reconfigured hardware has reduced potential integration issues, shortening implementation time by three weeks. The new converged infrastructure delivers lightning-fast performance, searching petabytes of data to deliver responses to queries in seconds. It now requires only two or three people to manage the data center during business hours, reducing the TCO, and speeding return on investment (ROI).[10]

Faster and more efficient operations reduce OPEX and free IT staff to work on revenue-generating opportunities.

"Orders that previously took four or five days to be put into our systems can now be seen in five minutes."[11]

– Swapan Dutta, Eagle Home Appliances, which implemented SAP® Enterprise Resource Planning on HPE CloudSystem

Converged systems achieve operational efficiency through hardware compatibility, optimized workload density that increase performance and reliability, and modular scalability. Policy-based automation such as software-defined templates and easy-to-use management software help maximize those operational efficiencies.[12] Automation frees up IT staff to perform more strategic work.

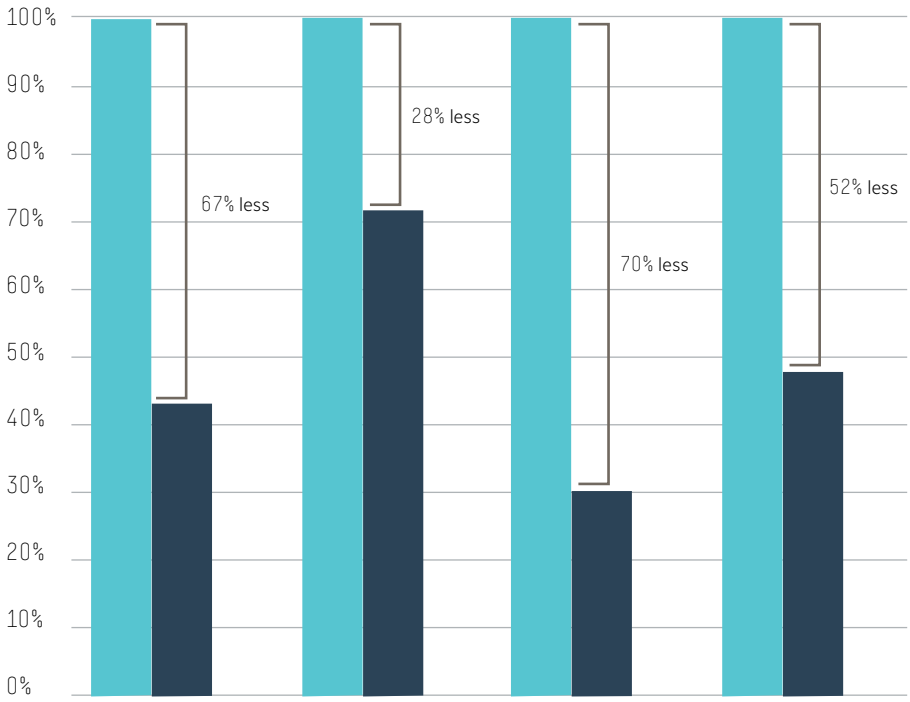
To measure the business value of converged systems, IDC selected and interviewed 20 companies at different convergence maturity levels. The IDC team assigned the companies to different convergence maturity levels based on a composite ratio that included percentage of nodes using virtualized storage, percentage of storage linked via virtualized I/O, percentage of OS images configured or provisioned automatically and other measures of standardization and best practices. The results indicate a "marked correlation between higher levels of convergence and reduced IT costs per unit of workload, faster deployment, optimization of IT staff, and reduced downtime."[13]

[10] "Modern Data Center Solutions: A Strategic Guide to Virtualization, Hybrid Cloud, and SDDC," HPE CIO e-book.

[11] Eagle outsources to the cloud to ensure SAP success, **h20195.www2.hp.com/V2/GetDocument.aspx?docname=4AA5-0718EEW&cc=us&lc=en**.

[12] "Analyzing the Economic Value of HPE ConvergedSystem 700 for Virtualization in an Enterprise Environment," ESG, July 2014.

[13] IDC White Paper, sponsored by HPE, Measuring the Business Value of Converged Infrastructure in the Data Center: Using Agile IT Infrastructure to Transform the Business, December 2014.



	Time to deploy new services such as a new application (days)	Percentage of time spent keeping the lights on	Downtime hours per user per year	Annual IT costs per user ($,000s)
Before	50.16	64%	16.92	$5,309
After	21.51	46%	5.06	$2,525

Approximately 75 percent of the 20 respondents indicated that they had been making the transition to increased convergence and these savings represent their responses: IDC, 2014.

Figure 2: Positive effects of increasing convergence–key performance before and after increasing convergence[14]

Open, interoperable ecosystems reduce risk and accelerate your transition to on-demand IT infrastructure.

Most IT environments are heterogeneous, so it is important to invest in solutions that are designed on open architectures and interoperability to enable a wider variety of services to be delivered. Converged systems can help minimize interoperability testing and technology integration, reduce complexity, and improve system performance and uptime as a result of hardware compatibility. They are also very flexible and scalable so IT organizations can deploy them in existing environments at their own pace.

Hyperconvergence takes converged infrastructure one-step further by integrating grid software that auto-discovers and adds new nodes to the cluster, delivering additional compute and storage resources with the addition of each new module. "Many hyper-converged offerings also provide some level of storage services (in some cases accelerated with flash and custom chips) baked into the system, plus a single management interface." As a result, "you get the efficiency of tight integration that you do not necessarily get with (traditional converged infrastructure)," says Mike Matchett, an IT analyst at Taneja Group.[15] For small- to medium-sized business (SMB) organizations, hyper-converged infrastructure represents an affordable and accessible way to modernize their data centers in a short period of time.

[14] IDC White Paper, sponsored by HPE, Measuring the Business Value of Converged Infrastructure in the Data Center: Using Agile IT Infrastructure to Transform the Business, December 2014.

[15] Hyperconvergence tackles storage and server strain, **searchdatacenter.techtarget.com/feature/Hyperconvergence-tackles-storage-and-server-strain**.

> "Meeting customer demands by creating our own cloud with HPE ConvergedSystem was important to the future of the company. If we hadn't done this, it's possible HAVL would not exist in ten years' time."[16]
>
> —Sander van Dijk, HAVL

Some industry experts advocate implementing a management stack in which different classes of converged systems all work together efficiently in a software-defined environment. IDC recommends that IT organizations look for "hardware vendors that have deep partnerships with software providers that can provide a 'single' stack solution with monitoring and support capabilities that will streamline IT operations."[17] They also advise vendors to continue to create more sophisticated tools to manage the stacks more efficiently and integrate more software packages for customers to choose from. They must "continue to partner with one another to help bring these solution sets to fruition."[18]

Implementing on-demand IT infrastructure with HPE ConvergedSystem powered by HPE OneView

Hewlett Packard Enterprise has been in the converged infrastructure business for several years (Hint: We coined the phrase). The HPE strategy bridges the past to the future while providing the operational cost savings you need to free up resources and invest in innovation. It features a next-generation multi-convergence approach where converged systems, hyper-converged systems and converged infrastructure are supported by a common software-defined management platform, HPE OneView. This key enabling technology allows organizations to bridge their existing infrastructure, tools, and processes to an "on-demand IT infrastructure." HPE OneView features interoperability, software-defined templates, and an automation hub. The automation hub provides an open approach to integrate management software from VMware®, Microsoft®, Red Hat®, OpenStack®, and other independent software vendors (ISVs) as well as HPE, so IT administrators can use familiar tools within a single management console. Our focus is to help IT organizations achieve greater business agility while reducing the risk and complexity.

[16] "HAVL builds best-of-breed managed cloud solution," July 2014, **h20195.www2.hp.com/V2/GetDocument.aspx?docname=4AA4-9600EEW&cc=us&lc=en**.

[17, 18] "Converged and Integrated Datacenter Systems: Creating Operational Efficiencies," Rob Brothers, IDC #24661, February 2014.

A large financial institution used the software-defined management capabilities of HPE OneView to cut staff time for build and maintenance by 40 percent and reduce technology rollouts from 66 days to one day.[19]

"It's the breakthrough we've been waiting for."

The next-generation HPE ConvergedSystem solutions are factory integrated and workload-optimized for today's on-demand IT infrastructure, Big Data, cloud, and virtual desktop infrastructure (VDI). Designed to meet unique deployment needs across mixed workloads, cloud, and mobility, the HPE ConvergedSystem 700 platform expands choice for customers with support for HPE ProLiant Gen9 server blades and open interoperability with third party top-of-rack switches. It scales to meet your changing business demands by allowing you to grow available compute and storage resource pools to over eight times the limit of the previous system. Managed by a single software-defined management layer with HPE OneView, the HPE ConvergedSystem 700 delivers a solid foundation for agile, on-demand IT infrastructure that delivers speed, simplicity, and efficiency to your business. You can also extend HPE ConvergedSystem 700 by using workload-focused reference architectures (e.g., for deploying Microsoft Exchange). Table 1 shows a 315 percent ROI and a payback of less than eight months for the HPE ConvergedSystem 700 compared to competitive integrated system and DIY alternatives.

Table 1: Economic value comparison–HPE ConvergedSystem 700 vs. alternative virtualization approaches[20]

SCENARIO	PROJECT ROI	PAYBACK PERIOD (YEARS)	NET PRESENT VALUE (IN USD)	ANNUAL TCO (IN USD)	ANNUAL BENEFIT (IN USD)
HPE ConvergedSystem 700	315%	65	$882,770	$218,791	$907,349
Alternative integrated system PMO	112%	1.52	$367,587	$366,140	$775,746
Built-by-customer PMO	31%	2.56	$61,906	$338,212	$443,419

Enterprise Research Group, 2014

HPE also offers the HPE ConvergedSystem 200-HC family of hyper-converged, turnkey systems especially suited for mid-size businesses and remote business offices. With a condensed footprint and enterprise-grade features, performance, and resiliency built in, these hyper-converged systems can easily handle a wide variety of applications, from mixed virtualized workloads to business-critical applications to VDI. Their versatility offers fast setup, easy administration, and lower costs for faster responses to business demands.

[19] IDC Expert ROI Study, sponsored by HPE, Achieving Organizational Transformation with HPE Converged Infrastructure Solutions for SDDC, January 2014.

[20] "Analyzing the Economic Value of HPE ConvergedSystem 700 for Virtualization in an Enterprise Environment," ESG, December 2014.

The HPE ConvergedSystem solutions feature software-defined management with the HPE OneView single management platform designed for the way people, not devices, work. HPE OneView unifies processes, user interfaces (UIs), and application programming interfaces (APIs) across server, storage, and networking resources and serves as an automation hub where you can plug in and utilize the tools you already know, such as VMware vCenter and VMware Operations Management Suite (vCOPS), within a single management console. HPE OneView gives you industry-tested, easy-to-use, and repeatable templates, so you can make changes once and replicate them across your infrastructure. This way, you can remove complexity and costly mistakes and streamline operations through automation, so services can be delivered far more simply and efficiently.

As this summary of independent analyst research shows, organizations are adopting integrated, converged, and hyper-converged systems to make their businesses more agile. The benefits of speed, simplicity, and efficiency can indeed lower OPEX, reduce risk, and enable you to pursue revenue-generating opportunities. Solutions like the HPE ConvergedSystem powered by HPE OneView are a great way to gain greater business agility and accelerate your transition to on-demand IT infrastructure.

Learn more at
hpe.com/info/convergedsystem

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