



The Hyperconvergence Handbook:

An innovator's guide to
achieving the hyperpossible



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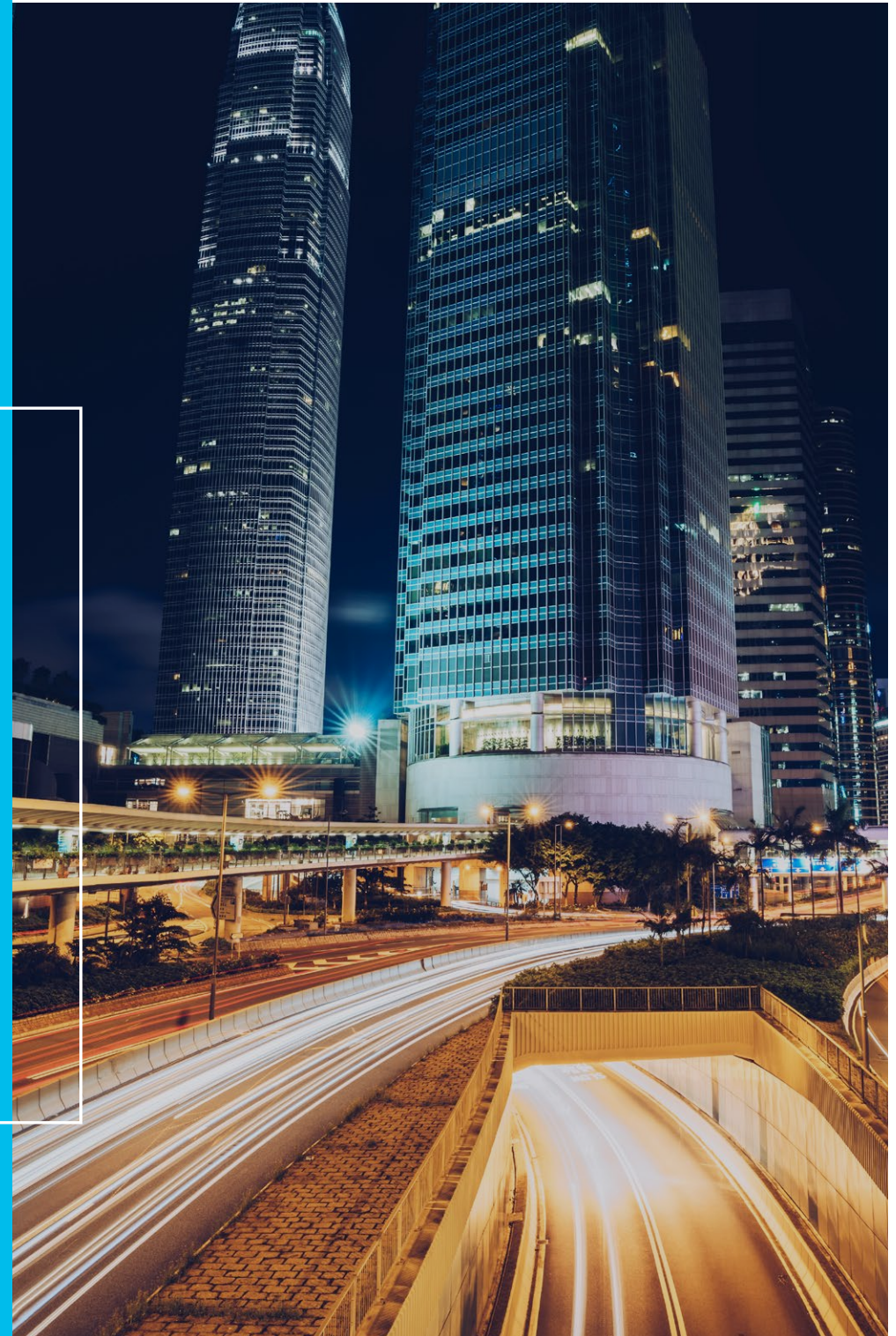
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Introduction

In 2016 Gartner predicted that hyperconverged integrated systems would be mainstream in five years, with the global market reaching nearly \$5 billion by 2019.¹ A more recent, extended projection estimates this market will be worth \$12.6 billion by 2022.²

As organizations across all industries evolve to stay competitive, these market forecasts are proving accurate, with data center management being transformed by hyperconvergence technology to provide a competitive advantage.

Hyperconvergence was forged from the concept of converged infrastructure, which sought to simplify data center management by repackaging traditional systems such as computing and storage into a single, prebuilt solution.³ Rather than repackaging, however, hyperconvergence represents a paradigm shift in both technology and philosophy—and its ongoing evolution is redefining what's possible for organizations of all shapes and sizes.

Already, forward-thinking IT and business leaders are applying hyperconvergence technology to an entirely new set of use cases and boldly pursuing the *hyperpossible*. We call these individuals *HCI Innovators*, and they are leading the IT modernization charge for their respective organizations.



Explore this e-Book to discover:



How emerging trends are shaping the IT landscape and driving the evolution of hyperconvergence



How hyperconvergence empowers HCI Innovators in any industry to achieve practically anything



How you too can become an HCI Innovator and achieve the hyperpossible

01

Navigating the evolving IT landscape

In today's IT environment, the only thing constant is change.

Whether it is increasing customer requirements regarding anytime, anywhere data center reliability or evolving internal needs as organizations expand to new markets, emerging and maturing trends are piling expectations on existing IT infrastructure systems.

Navigating the evolving IT landscape

Take Edge Computing and the Internet of Things (IoT), for example. The International Data Corporation anticipates that nearly 80 billion devices will be connected to the Internet by 2025—that's 152,000 devices per minute.⁴

This explosion in connected devices and the data transfer between them are already dissolving traditional network boundaries and pushing legacy solutions beyond their limits. As more computing power is required at the edges of networks, even single-cloud environments are hitting snags when it comes to handling data volume.⁵

Fortunately for organizations and their IT departments, the same trends that are changing customer and organizational requirements are fueling advances in hyperconvergence technology—and HCI Innovators are already taking advantage of these advances to successfully navigate the current IT landscape.

Although hyperconvergence has its roots in converged infrastructure and storage virtualization, rapid developments and improvements have transitioned it into a powerful solution that encompasses the benefits of both private, on-premises data centers and cloud scaling capabilities.

These developments represent a total rethink of how the different components of a data center can coexist and unite under a central piece of software.



In addition to promoting operational efficiency, reducing infrastructure costs, and radically improving data center reliability and resilience, the latest advances in hyperconvergence technology include:^{6,7}

- **Built-in backup** and replication capabilities that improve data protection
- **Easy workload migration** and cloud services deployment
- **Cloudlike scalability** to accommodate fluctuations in compute power and storage needs
- **The ability to process** massive amounts of data at the edge of your network infrastructure

A major way hyperconvergence is driving IT innovation is by enabling multicloud environments. As flexibility and scalability needs increase, more organizations are turning to multiple cloud services providers to tackle issues related to networking, security, analytics, and data center management.⁸ Hyperconvergence technology is designed to support multiple hypervisors and offer flexible services for multicloud setups.



According to RightScale's 2017 State of the Cloud Survey,

85%

of enterprises currently implement a multicloud strategy—up from 82% in 2016.⁹

In the following chapter, we'll examine how HCI Innovators put these hyperconvergence capabilities into practice to power everything from virtual desktop deployments to mission-critical applications.



Across the globe, HCI Innovators are applying hyperconvergence to a wide range of new and innovative cases.

These forward-thinking IT and business leaders are driving modernization for their organizations and constantly testing the latest capabilities of hyperconvergence. In many cases, the only limit to what they can achieve is their imagination.

02

Enabling an innovative IT environment



In New York City, a nonprofit organization is using leading hyperconvergence technology to rapidly scale operations and power its hunger relief efforts.¹⁰

City Harvest was founded in 1982 with a mission to alleviate hunger across the five boroughs by redistributing surplus food from grocers, farms, restaurants, and manufacturers to people in need. In 2016, the organization distributed 55 million pounds of excess food free of charge to 500 community programs in New York City, and it has plans to quickly expand operations by 30 percent.

Using a hyperconverged infrastructure to power virtual desktops helps City Harvest simplify IT and improve efficiency. With secure, anywhere access to files, emails, and data, its 160 employees and 15,000 volunteers spend less time waiting for physical computers and keep their focus on alleviating hunger. The rapid scaling capabilities of a hyperconverged infrastructure solution continue to support City Harvest's growth and ultimately help the organization redistribute millions more pounds of food each year.



Challenges

- **Prepare** for 30% growth
- **Build** a virtual desktop infrastructure
- **Increase** scalability and performance



Solutions

- **Cisco® HyperFlex™** hyperconverged infrastructure



Results

- **Delivers** the seamless scalability required to support growth
- **Simplifies** desktop and infrastructure management
- **Saves** 75% on user endpoints



Over 7,000 miles away, a public university in Nagasaki, Japan, used the same technology to create the country's first information security department.¹¹

The **University of Nagasaki** is a public academic institution founded in 2008 that provides both liberal arts and specialized education to more than 3,000 students. As part of its philosophy "to produce graduates with the ability to respond to rapidly changing trends in society," the University of Nagasaki recently restructured its departments and established the Information Systems Faculty Information Security Department.¹²

The goal of this department is to train the next generation of information security technicians. To do so, the university constructed a highly available and secure IT infrastructure capable of simultaneously supporting its new security department and the institution as a whole.

Deploying a hyperconverged infrastructure helps the University of Nagasaki provide secure virtual networks to each individual student, simplify control and support university wide, and improve network reliability—all while keeping costs down. With a cutting-edge infrastructure solution that can be used to power student security courses and modernize academic operations, the University of Nagasaki is able to deliver high-quality education experiences and keep pace with changing societal and academic trends.



Challenges

- **Improve** network availability in an area prone to interruptions
- **Remain cost-effective** while advancing education experiences



Solutions

- **Cisco® HyperFlex™** hyperconverged infrastructure



Results

- **Reduced time** required for restarting
- **Deployed** a versatile system that benefits students and staff



The latest advances in hyperconvergence technology can also be used to support mission-critical applications.

CorpFlex, a Brazilian-based managed IT service provider, uses a hyperconverged infrastructure solution to stay ahead of customer expectations and adapt offerings to stay competitive in the ever-evolving managed services marketplace.¹³ Today, CorpFlex leverages hyperconvergence to run its mission-critical Microsoft SQL Server and Oracle databases and applications including SAP ERP and Microsoft apps and deliver innovative services to its customers.



“HyperFlex’s approach ensures faster delivery of the environment, lower costs and management efforts, more effective management, coupled with high availability and performance.”

— Edivaldo Rocha, CEO, CorpFlex



Challenges

- **Increase** the performance and scalability of its private cloud platform
- **Reduce** downtime for services offered to customers



Solutions

- **Cisco® HyperFlex™** hyperconverged infrastructure



Results

- **Enabled** customers to increase availability
- **Allowed** customers to lower the latency of their critical systems
- **Reduced** total cost of ownership (TCO)

03

Hyperconvergence— anytime, anywhere

The concept of hyperconvergence was born around two universal ideas.

The first was that all IT departments need a simpler and more cost-effective data center management solution. The second was that all organizations—from Fortune 500 companies to small nonprofits—need an infrastructure solution capable of adapting to match the speed of changing trends and business growth.

Hyperconvergence—anytime, anywhere

Aspirations of improved organizational agility and data efficiency are not unique to a particular sector, industry, or department. In an increasingly competitive environment, these are now requirements for organizations across all industries that want to stay competitive and drive modernization.

What started out as a natural evolution of convergence has transformed into an end-to-end infrastructure solution that can be used to address virtually any business challenge and applied to any use case. But not all solutions are created equal. Leading hyperconverged infrastructure providers are constantly making additional iterations to their solutions based on current IT trends and ongoing customer feedback.

When considering a hyperconverged infrastructure solution, ensure that the offering is capable of reducing complexity and supporting your growing list of demands and requirements. **To tackle your toughest challenges, you need a solution that can:**¹⁴

- **Support any application:**

From traditional enterprise applications to big data and analytics applications and to virtualized and containerized software, the right hyperconverged infrastructure solution must be able to support a wide set of application deployment models.

- **Integrate with any cloud:**

As multicloud environments become more common, your solution must give you the freedom and flexibility to support multiple hypervisors and deploy your applications in the cloud that makes the most sense.

- **Scale as you grow:** The right solution will be able to support your IT needs today and adapt as those needs evolve, providing the simplicity and flexibility to handle any workload and use case.

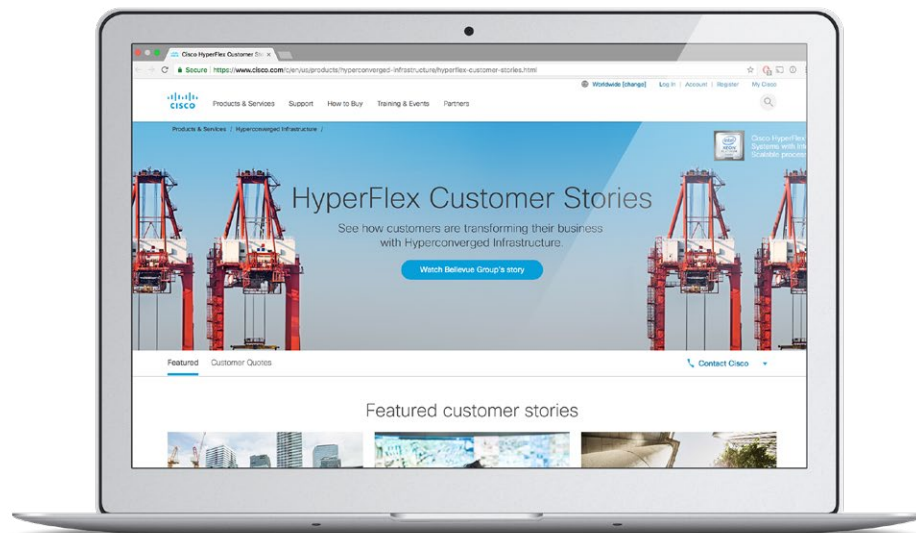


The right hyperconverged infrastructure solution should be able to integrate with your on-premises resources and support any application, at any scale, in any cloud.



Take French cloud services provider **ForePaaS**, for example.¹⁵

To keep up with customers' demands to analyze and process data in their own data centers, ForePaaS needed to develop a solution capable of handling more analytics applications from more sources, across more industries. A hyperconverged infrastructure enables them to provide customers with more freedom to innovate with a powerful and scalable platform-as-a-service (PaaS).



Learn more about ForePaaS and other companies using hyperconverged infrastructure in innovative ways on the **Customer Stories webpage**.



Challenges

- **Create** a more powerful and versatile development platform
- **Offer hybrid cloud** options for customers who prefer to store data in their own data centers



Solutions

- **Cisco® HyperFlex™** hyperconverged infrastructure



Results

- **Ability to scale** storage and processing capabilities as needed
- **Offer** an easy-to-manage, on-premises solution for hybrid cloud customers

Are you ready to drive IT modernization for your organization and join the ranks of the HCI Innovators?

Conclusion

Becoming an HCI innovator



Conclusion

This ever-growing community of nonprofits, hospitals, manufacturers, service providers, and institutions, plus a wide range of other organizations, are continuing to find new and innovative ways to redefine what's possible with hyperconvergence technology—and you could be next.

Whether you want to double virtual desktop speed, improve the performance of mission-critical applications, or take on an entirely new challenge, see how you can achieve the hyperpossible with the Cisco HyperFlex™ platform.

[Learn More](#)





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