

Hyper-Converged Infrastructure: A Guide

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Hyper-Converged Infrastructure

The New Normal?

Yes, IT leaders are recognizing that their data center infrastructures need to be agile. They are slowly understanding that legacy infrastructure and operations practices and traditional data center architectures are not keeping pace with the need for innovation and faster times to market that their internal customers demand. And, yes, some organizations are looking to hyper-converged infrastructure (HCI) to meet their demand for agility.

But many organizations are reluctant to move away from traditional three-tiered architectures. They simply respond to new business demands the same old way. They apply decade-old approaches built on three-tiered architectures supported by manual approaches on each management layer. This leads to long implementation cycles and a rocky long-term foundation.

So why are some organizations embracing HCI while others aren't? Because they have questions. Questions like, What is it? Who is using it? How do I know if I need it? Where do I even start?

This is why we wrote this guide to answer the five most common questions about HCI, the What, Why, Who and When and the How of putting compute, storage and networking in one software-driven appliance.

Got questions about making HCI work for your organization?

Read on to get your answers.

"Hyper-converged Systems will be the fastest-growing segment of the overall market for integrated systems, reaching almost $5 billion, which is 24 percent of the market, by 2019."

Gartner

What is hyper-converged infrastructure?

Before we talk about why you might need it, let's first define what "it" is. Hyper-converged infrastructure combines compute, storage and networking in a software-driven appliance. In doing so, it reduces data center complexity and increases scalability.

Hyper-converged platforms include:

- hyper-visor for virtualized computing
- software-defined storage
- virtualized networking

Hyper-converged offers five benefits

1. Agility

Organizations today not only need to create virtualized systems to support new workloads. They also need to provide the flexibility to grow, shrink and move workloads as needed. In a hyper-converged infrastructure, compute, memory, disk and networking reside under a single administrative umbrella. Creating new servers and migrating workloads is simple and quick.

2. Affordability

Hyper-convergence reduces infrastructure costs. That's because there is less equipment to purchase, maintain and support. Plus, the recurring costs of supporting a hyper-converged data center are lower.

3. Scalability

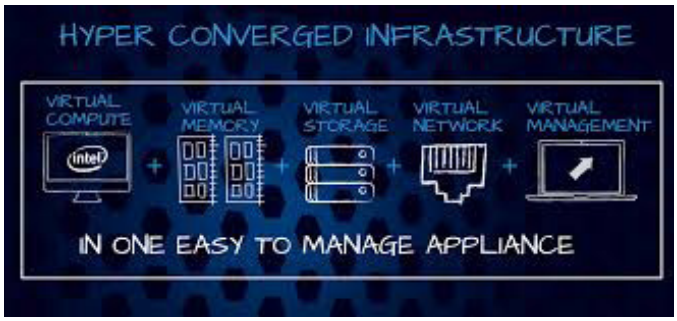
Hyper-converged infrastructure is based on nodes, which makes scaling a data center a lot simpler. Simply add or subtract nodes to match resource demand. Hyper-convergence translates into quick and simple deployments, with virtual machines up and running within 15 minutes.

4. Software-defined storage

Storage in a hyper-converged infrastructure is defined by software. Storage nodes act as one reliable and redundant pool of storage. If one node goes down, the remaining nodes are unaffected.

5. Data protection

Hyper-convergence delivers object-level and file-level restoration of databases like Microsoft SQL Server and Microsoft Exchange, giving organizations the ability to restore data quickly and easily.



Why are organizations migrating to hyper-converged infrastructure?



Forward-thinking organizations are deploying hyper-converged infrastructure because of its simplicity, ease of management, and cost savings over traditional data center architectures. The main driver behind this adoption? A cliff.

Savvy IT leaders are looking at major refresh cycles and end-of-life scenarios namely vSphere 5.5, Windows Server 2008 and SQL Server as the catalyst for modernizing their data centers. They see the cliff as more than just software, and they're doing something to avoid going over it. They are treating these end-of-life scenarios as a reason for moving away from three-tiered architectures towards architectures that match their need for agility and scalability.

For IT leaders who are modernizing their data centers, HCI delivers the agility of cloud infrastructure without surrendering control of on-premise hardware. Hyper-converged infrastructure is more flexible and simpler to manage than legacy solutions. It reduces the size of data's footprint by combining storage, networking, compute and back up into a singular unit. A unit that is controlled by a piece of software, which virtualises each of these components.

Who is migrating to hyper-converged infrastructure?

Hyper-converged infrastructure is proving popular with organizations that support virtual desktop infrastructure because HCI is easily scalable. Because each node contains identical hardware, IT administrators can easily calculate the number of nodes they need to host their virtual desktops.

Another workload suited to HCI is hosting tier-one applications. Hyper-converged platforms deliver the high availability that organizations need for mission-critical workloads. Plus, hyper-converged infrastructure typically includes storage redundancy and the ability to mirror entire nodes or clusters.

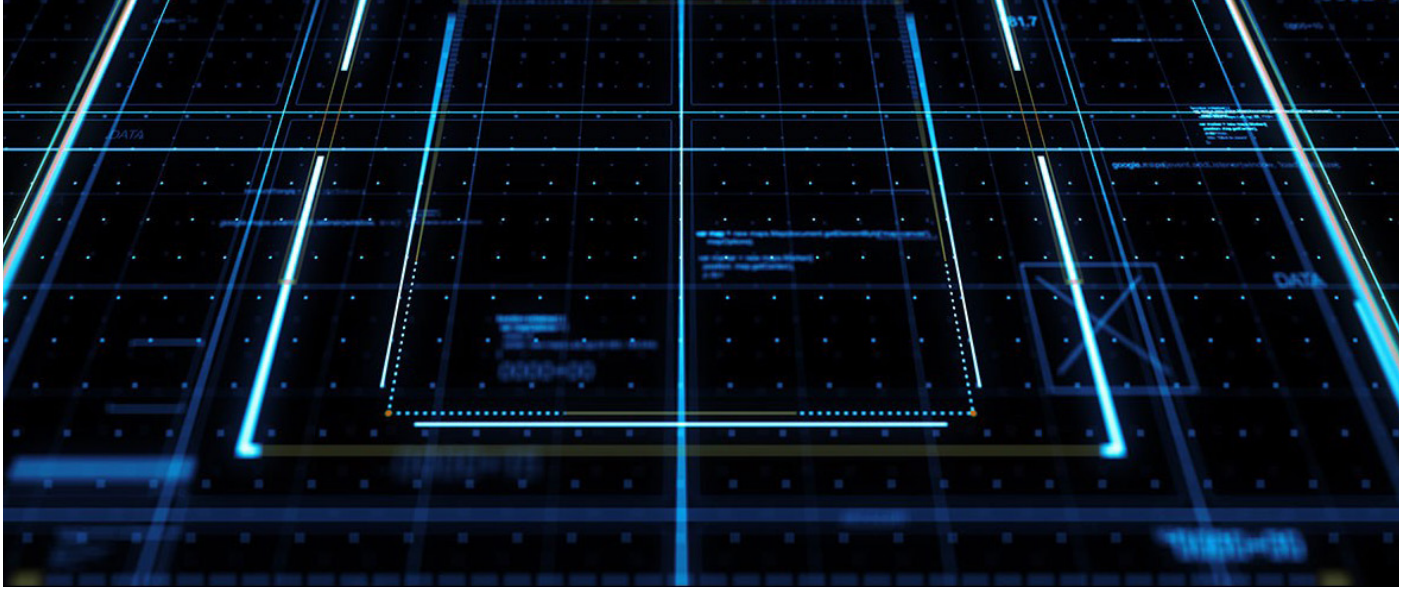
Organizations are also migrating their testing and development environments to hyper-converged infrastructure. Testing and development environments must mirror production environments if tests are to reflect the way code behaves. Hyper-convergence works well in testing and development environments because HCI systems contain compute, network and storage resources. Plus, it has the added benefit of discoursing shadow IT because it can be provisioned quickly, on-premise.

Organizations that have branch offices are also migrating to hyper-converged infrastructure because of its modular design and ease of deployment. An administrator who works in head office can manage branch office infrastructure as easily as if it were local.

Some IT administrators and managers are not deploying HCI. They have their reasons:

- "Buying hardware is not in our budget."
- "We don't see the need to move away from the trusted three-tier model."
- "We have too many competing inititives."
- "We lack the staff and expertise to make sense of all the options available."
- "We haven't calculated the total cost of ownership, but we guess it'll be too high."





When is a good time to explore hyper-converged infrastructure?

If deploying HCI makes sense, you're likely thinking about timing. How do you know when to make the switch? Unfortunately, when it comes to the advances in HCI and the many options available, most IT departments aren't equipped to evaluate what's right for their environment and the applications that need to be supported. That's why many of them get stuck and revert to the "build your own" status quo.

Here are some guidelines for deciding when you should switch to HCI:

Major software upgrade: You have no choice but to upgrade to the latest versions of vSphere 5.5, Windows Server 2008 and SQL Server. You must make these investments. But considering how HCI fits into these upgrades is a wise move. After all, why upgrade your software based on an out-of-date infrastructure model? If you're upgrading your software, why not upgrade your data center infrastructure at the same time, and unlock all the benefits of hyper-converged infrastructure?

Aging hardware: Some organizations are slowly replacing aging virtualization hosts with HCI boxes. All hardware eventually becomes obsolete, and many organizations have adjusted their hardware end-of-life plans to include the purchase of a hyper-converged system in lieu of a hardware upgrade.

Hybrid IT: As most IT leaders now realize, a hybrid cloud architecture is the new normal. To get there, organizations are leveraging legacy data center hardware investments to support more efficient application delivery. For mainstream workloads, HCI is perfect for delivering applications on a purpose-built system to quickly "leapfrog" end of life data center technology.



How do you migrate to hyper-converged infrastructure?

If HCI sounds like a good fit for your organization, you are likely wondering what to do next. After all, how do you move forward with so many competing initiatives, limited resources and expertise, and so many options available?

As a starting point, you should collect and use data to determine the life span of your existing assets, then use this information to plan for a long-term solution. Where possible, continue to leverage existing resources and plot the course towards a modern architecture by expanding virtualization throughout your data center infrastructure.

Next, evaluate purpose-built solutions that integrate infrastructure and management systems by leveraging HCI, allowing IT to reap faster results and the full benefits of automation.

Adopting a methodical lets you make good use of legacy investments while steadily transitioning to the modern solutions and processes necessary to support your business into the future.

About Arubasense

Arubasense is an IT solution and managed service provider. Every day, dozens of organizations rely on Arubasense to provide insight and expertise that speeds the adoption of technology, while managing cost and risk.

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