Not All Hyper Converged Infrastructure Solutions Are Created Equal

A Guide to Understanding Common HCI Architectures

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Hyper Converged Infrastructure Is a Key Enabler of Digital Transformation

As your enterprise tries to adapt to the digital era, IT infrastructure approaches that worked well just a few years ago may no longer be adequate. To succeed, your IT team needs infrastructure that is easier to manage and that is faster to procure and to deploy. Infrastructure that is built with simplicity in mind frees up your time and budget, enabling greater focus on new applications and services.

Many IT teams are discovering that hyper converged infrastructure (HCI)—which brings together servers, storage, virtualization, and management—is proving to be a better infrastructure choice. HCI can address a broad range of use cases, including end-user computing, private cloud, and consolidation of business-critical databases and applications. Gartner predicts that by 2020, at least 20% of business-critical applications will have moved from traditional infrastructure to HCI.[1]

HCI solutions offer significant business benefits that include:

- Ease of purchase
- Simple setup
- Consolidated management
- Full-stack support
- Pay-as-you-go economics

Because of these advantages, HCI enables your IT team to respond more rapidly to new business demands, a crucial advantage for enterprises today.

Although HCI solutions from different vendors offer a similar set of core business benefits, there are some significant architectural differences between solutions. As you evaluate HCI options to meet your next-generation data center needs, it is important to understand the differences between various HCI offerings before you choose a solution. Each architecture has particular strengths and limitations that might make it more or less suitable to satisfy your unique business needs.

This guide examines the characteristics of three HCI architectures and explores the potential advantages and disadvantages of each approach. This information can help you make a more informed decision that closely matches your business needs.

Understanding Different HCI Architectures

HCI solutions combine servers, storage, and virtualization in scale-out building blocks, as illustrated in Figure 1. By the time that HCI solutions were introduced, hypervisor software had already reached a high level of functionality. Therefore, the biggest architectural challenge for HCI implementations was how best to use storage that is distributed across multiple server nodes to create a resilient storage pool that all nodes in a cluster can access. The approach to storage is the biggest architectural differentiator between HCI solutions from different vendors.

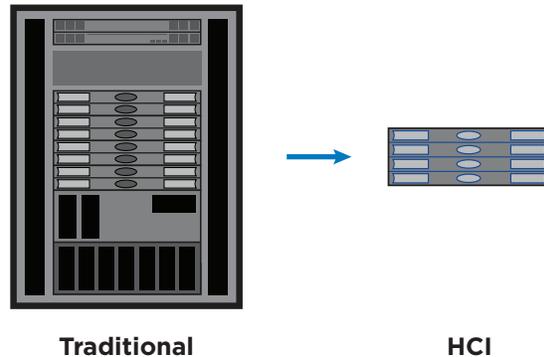**Traditional**   **HCI**

Figure 1) HCI replaces traditional IT infrastructure with simpler, scale-out building blocks.

The three approaches to HCI are:

- Hypervisor on bare metal with storage in a virtual machine
- Hypervisor with integrated storage
- Independent hypervisor and storage

Each of these approaches is explained in more detail in the following sections. A later section explores the relative strengths of the different approaches.

[1]Gartner Magic Quadrant for Hyperconverged Infrastructure, 2018.