



Convergence and hyperconvergence:

Pros and cons



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In previous Expert Perspectives, we looked at the challenges of legacy data centers and the practical steps that can be taken to modernize them.

Now we turn to the technologies which are emerging as the favoured forms of moving forward: convergence and hyperconvergence.

Data center architectures have experienced unprecedented transformation as they struggle to keep pace with rapidly diversifying business applications generating terabytes of data.

In response, converged and hyperconverged infrastructures have become widespread as IT organizations look for “infrastructure in a box” solutions designed to cut provisioning times and control costs.

Pros

Often seen as a natural fit for virtualized workloads, there are good reasons why converged and hyperconverged infrastructure solutions are emerging as a compelling choice for a wide range of data center environments.

1. Speed

Speed of deployment is a big plus for these architectures. A whole infrastructure can be delivered fully configured, with no assembly required. Power is plugged in, the network is linked up, and you're good to go. It is this ease and speed of scalability that makes these infrastructures such a good fit for virtualization and cloud computing, as well as for organizations with branch locations or collocated facilities.

2. Simplicity

As well as being fast, converged and hyperconverged infrastructures considerably simplify the process of infrastructure procurement. Configurations are validated by the vendor, allowing IT generalists rather than specialists such as a SAN administrator to provision, operate and deliver first line support as required. Simplicity is also delivered through single pane of glass management as these architectures can integrate tools which abstract various management layers into a utility.

3. Workload optimization

The transformation of data center architectures is driven by the struggle to keep pace with rapidly diversifying business applications. The resulting workloads exploded onto legacy infrastructures typically built upon multiple hardware and software products from multiple vendors, with each product needing its own interface and user training as well as being overprovisioned with its own compute and storage layers.

The response was to integrate infrastructure elements in order to process modern workloads. Converged systems do so by uniting off-the-shelf compute, storage and network components and optimizing the way they work together. Hyperconverged systems architect compute, storage and network together as a complete system.



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4. Support

Integrated infrastructure systems offer one throat to choke if something goes wrong. While support might not be the benefit which immediately recommends a converged or hyperconverged system to its users, having one number to call and one vendor to speak with in the event of an issue is generally much appreciated.

Cons

Clearly, these systems deliver easier management and advanced automation, rapid app deployment, and organizational agility. They have become the fundamental building block of modern IT—but they do have limitations.

1. Capacity planning and expansion

A converged infrastructure is a fixed system, with a defined ratio of resources allocated for compute, storage and networking. This configuration may prove to be a lot less flexible than some organizations require. It may not work with some legacy systems. And once a converged infrastructure solution is fully utilized, the customer must buy a whole new unit with all the overheads of time and money this entails. Hyperconvergence may be more customisable but adding new resources can be costly and bolting on external components — such as storage — reduces the benefit of an integrated system.

2. Vendor lock in

Getting a hyperconverged infrastructure generally means selecting as single vendor platform. There are support advantages as

mentioned in the Pros section above. But sticking to one vendor for everything doesn't always allow you to take advantage of innovative new tools and products from a wider ecosystem of vendors.

3. Flexibility

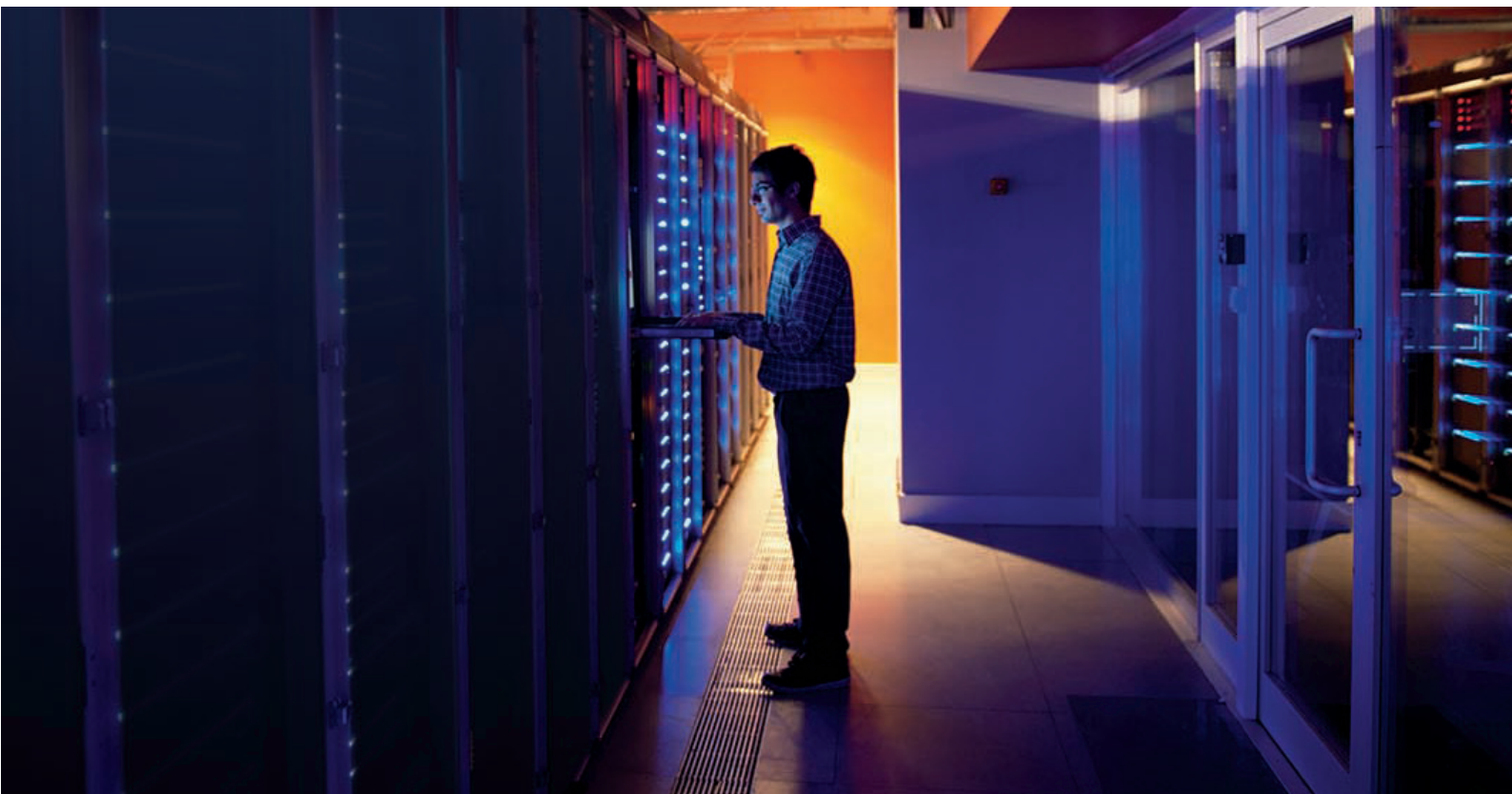
There's a price to pay for removing this freedom to choose different components from different vendors: the ability to fine-tune your infrastructure. These products are designed for generic workloads. So while they might work for most things, they're rarely optimized for any one thing. This can be a substantial disadvantage when considering database and application workloads.

4. And speaking of price...

In life, you generally pay more for convenience. Although an investment in converged and hyperconverged infrastructures may pay off in the long term, make no mistake the upfront cost of both these technologies is steep.

Conclusion

Typically, the pros outweigh the cons, with investment in converged and hyperconverged solutions growing fast. Many organizations are doing so to save time and money, improve application efficiency and simplify management.



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