

Hyperconvergence

Simplifying the IT Environment

Get
Ahead
of **IT**

Network Infrastructures Defined

To begin, we define three popular infrastructure architecture types:

- **Distributed:** A complex architecture where multiple components in various locations work together to achieve a common goal. In this case servers or compute, disk storage and network switches may be spread across racks, rooms or even a campus. Cloud-based solutions fall into this category.
- **Converged:** Groups together separate IT components into a single, optimized computing package. While compatible, each component needs to be managed separately. All components, compute, storage and switching, are part of a highly standardized or reference architecture and typically deployed in a single rack.
- **Hyperconverged:** Is similar to converged as it is a consolidation of multiple IT components into a single package similar to a rack server, however the components cannot be used separately. In this case to add either compute or storage capacity you add additional units. Another big difference between the systems lies in the management. A hyperconverged system can be managed from one central location.

Hyperconvergence Defined

A significant share of media headlines circle around cloud solutions for obvious reasons of increased employee mobility, productivity and the ability to easily scale while reducing investments in hardware. While cloud is receiving mainstream attention, a new type of infrastructure has begun to generate growing interest among IT professionals: **hyperconvergence**.

Hyperconvergence grew out of the model of a converged infrastructure. Under a converged infrastructure approach, there can be multiple independent hardware and software solutions which have been preconfigured in a single chassis to simplify management and minimize compatibility issues. If necessary, the solutions within a converged model can be divided and used independently.

In a hyperconverged solution, the technologies are tightly integrated and cannot be broken down into separate components as they can be in a converged infrastructure. This system is software-centric, tightly integrating compute, storage, networking, and virtualization resources in a single hardware appliance. One of the major benefits of integrating these technologies, is the ability to centrally manage them as a single system through a common toolset.

By bundling the hypervisor, server, and storage into a single node, hyperconverged systems provide organizations the opportunity to collapse their existing infrastructure of servers and storage units into one that is easier to implement, manage, and upgrade. This single vendor approach can provide cost advantages in purchasing, operations, and support. Compared with its integrated system counterparts, hyperconverged systems can have a reasonable cost of entry.

In addition, hyperconverged systems provide the flexibility to meet current and future needs without having to rip and replace infrastructure components. The software-based nature of hyperconvergence allows customers to gain immediate benefits as vendors add new features to software releases.

Benefits of Hyperconverged Architectures

As mentioned previously, a hyperconverged solution has no silos of independent technology components. This means there is no longer a need to have technical resources trained and devoted to individual solutions such as storage area networks. That, in turn, aids in simplifying an IT environment which improves operational efficiency.

Hyperconvergence also provides a scalable, building-block approach that allows an organization to add capacity and resiliency by adding one or more additional units as necessary. Data protection, including backup, file recovery, and disaster recovery, are built into a hyperconverged solution as opposed to third party solutions which are necessary additions in a legacy infrastructure.

Lastly, cost savings. When a hyperconverged solution is designed and deployed within the right environment, it can significantly reduce the cost of ownership over the deployment of a traditional legacy infrastructure. As a software-centric solution, hyperconvergence allows new features and functionality to be incorporated quickly without the need for new hardware.

Conclusion

Hyperconverged infrastructures offer increased capacity utilization and lower costs through the consolidation of IT components. Opportunities for hyperconverged systems are many, including:

- Virtual desktop deployments which can be very compute intensive
- Traditional production hypervisor environments to reduce costs and ease management
- Disaster recovery target by distributing units between offices or data centers

Hyperconverged environments provide a variety of benefits. While the benefits cloud solutions provide will continue to grow, there will, for some time, continue to be IT environments that remain on premise. In these environments, the emerging trend in IT is apparent; distributed hardware elements are being consolidated back together. Hyperconverged solutions offer economic benefits similar to the cloud while delivering the performance, high availability, and reliability organizations require.

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