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# Driving IT and Business Innovation Through Data Center Modernization

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More than ever, enterprises value agility, flexibility and especially innovation, in addition to typical concerns about availability, performance, and IT operating efficiency. Enterprises need to maintain data security, ensure infrastructure performance, and make the most of their legacy infrastructure. At the same time, they also require the agility to change direction and scale, based on dynamic usage needs, which means future-proofing their investments – including for cloud technologies. The requirement to balance this mix of goals may be coming from an unexpected source: their own data center.

One of the most consistent elements of IT transformation has been the data center. The once-hulking, inflexible and expensive hub of all computing activities has evolved many times over, from hardware overhauls and reduced real estate requirements to lower operating costs and automated management.

In many organizations, data centers are still marked by endless racks of servers, arrays of storage and networking hardware. But the relentless move to overhaul how organizations use modern applications to drive the business forward, means that data centers have to change too. In fact, more and more IT leaders have concluded that only through a truly innovative approach to data center modernization can their organizations fully leverage the benefits of modern applications on premises, in the cloud or both. IT leaders realize that there needs to be a hybrid cloud or multi-cloud strategy in place. A foundational element of such a strategy is to see the public cloud as an extension of the organizational infrastructure. This is important, as building additional on-premises data center capacity can be expensive, time-consuming while at the same time unable to scale down once the requirements have been satisfied. Additionally, decisions need to be made about which applications need to run in the public cloud, which ones need to be refactored to take advantage of cloud capabilities and which ones to stay on legacy platforms.

The modernized data center movement is marked by such transformative technologies as virtualization, software-defined architecture, hyperconvergence, cloud computing, and artificial intelligence. These technologies enable a lot of agility for the applications and dynamic needs of the end customer, as well as the flexibility of implementation. Enterprises can choose to deploy cloud-native applications, leveraging these technologies for their new application workloads.

Navigating this new reality relies heavily upon applications that need to be updated for new, digital environments. To do so, the newly reimagined data center must adapt and change quickly to new, often unexpected circumstances.

Modernized data centers are a key part of a cloud computing landscape that delivers a unified experience that is efficient, flexible and optimized to support more dynamic IT outcomes.



Data Center modernization manifested itself in the software-defined- everything movement, allowing data centers to be built with a hybrid cloud or multi-cloud strategy in mind. Data centers today are being built considering requirements of the existing and future applications: carving a path for legacy applications and modern applications alike, with a target to seamlessly run on-premises, at the edge or public cloud.

## How a modernized data center drives innovation for IT and the business

After decades of relatively stable data center architecture—separate compute, storage and networking components—converged and hyperconverged infrastructure (HCI) gave a shot in the arm to a more efficient, flexible and scalable data center infrastructure.

This approach has dramatically simplified deployment, management and maintenance, and opened up entirely new use cases by enabling more automated and streamlined provisioning of both workloads and the underlying infrastructure they depend upon. It has also helped to significantly reduce IT staffing-related costs, thus freeing up talented and resourceful IT professionals to collaborate more closely with their line-of-business cohorts to come up with new ideas to drive the business forward.

In addition, this simplified approach has resulted in improved IT operational efficiency as well as better data protection, dynamic scaling of hardware components and easier adoption of modernized applications, often built on the concepts of virtualization, containerization and microservices.

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Such improvements formed the IT underpinnings for the digital transformation revolution that is changing how organizations use technology to improve business outcomes, enhance operational efficiency and achieve greater agility and flexibility.

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**The innovations and other benefits flowing from Data Center modernization substantially drive key business goals such as reducing time to market, improving user productivity, enhancing customer experience and migrating to a leaner financial model built more on Opex than Capex.**

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Exciting new use cases like hybrid cloud with unified management, support for cloud- native applications deployed with containers, data center consolidation and right-sizing, cloud-based disaster recovery, as well as seamless and secure












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Integration of remote office/branch office are just some examples of what HCI has already done for organizations taking a modernized Data Center approach. Application modernization is another use case driving development and Data Center modernization. For many organizations, the hazard of not updating their infrastructure and operations is beginning to outweigh the cost of doing so. Organizations are no longer interested in just applying incremental updates, but rather are considering an overhaul of their infrastructure, modernizing it to the point that they can have the flexibility of supporting applications of the future. For some organizations, this means moving away from a single, monolithic center of computing in favor of smaller, more rapidly deployed and more purpose-built remote computing centers built around HCI.

## What to look for in data center modernization solutions

Data Center modernization has rapidly evolved into a hub of activity. For technology providers, creating many choices that IT decision-makers need to sort through and evaluate when choosing solutions and technology partners. Here are some things enterprise buyers should keep in mind when looking for a Data Center modernization solution:

-  Easy transition to a flexible, expandable hybrid cloud service delivery model that provides a consistent experience for developers and DevOps tool chains.
-  Cloud-agnostic architecture that allows integration with any and all popular public clouds, enabling a multi-cloud strategy for future flexibility, scaling and bursting.
-  Consistent infrastructure that can be applied to all IT architectures, from private cloud to public cloud and the edge.
-  A single, consistent software stack that extends all IT environments and architectures.
-  Consistent component orchestration across data center, edge and cloud environments.
-  Automated control of infrastructure resources to facilitate adoption of modern, containerized applications.
-  Improved risk management with integrated tools for security, data governance and data protection that work consistently wherever workloads are deployed.
-  Support for leading virtualization hypervisors, to leverage the wealth of knowledge already possessed by data center personnel and power users.
-  Improved business outcomes and enhanced resilience, with design built around reduced mean time to resolution.

It's also worth identifying solutions and providers that enable organizations to do a robust but efficient full-stack overhaul of existing data center architectures. Such overhauls help organizations achieve the highest possible return on investment as quickly as possible, while preserving the opportunity to do smaller, more staged transitions to a core HCI-based modernized data center.

Finally, organizations should look for solutions that allow them to modernize in a way that leverages their existing people, processes and technologies. For instance, it's smart to think about the substantial technical skill set built up internally in recent years through core technologies such as virtualization hypervisors like vSphere or cloud management platforms. This way, enterprises can continue to use software, hardware and tools they already are familiar with, while also facilitating ways to hook into popular public cloud infrastructures in building multi-cloud and hybrid cloud environments.

## How VMware solutions enable data center modernization and IT innovation

Modern data centers provide modern infrastructure to support modern applications. VMware has long established itself as an innovative developer of modern infrastructure to help organizations achieve more economic and operational value from their data center investments. VMware has built some of the largest and most successful private and hybrid clouds in the world. Now, VMware is making hybrid cloud and multi-cloud a reality by introducing VMware Cloud on all major cloud provider platforms.

VMware Cloud Foundation is a full stack hyperconverged solution, designed for comprehensive, enterprise-wide deployment to create a truly software-defined data center. VMware Cloud Foundation is optimized for the increasingly popular hybrid cloud architecture, giving organizations the most flexibility to design, implement and manage IT resources and services across consistent infrastructure, whether deployed across private cloud, public cloud or edge computing environments.

VMware Cloud Foundation takes the vSphere hypervisor far beyond its traditional functionality by integrating software-defined storage, compute and networking, as well as an integrated security suite. The result is secure, agile, reliable, and efficient cloud infrastructure that offers a consistent infrastructure and operations across private and public clouds. Native cloud management tools further enhance the hybrid cloud platform without the need to refactor existing applications.

For organizations that prefer to take a more measured approach to Data Center modernization, the popular vSAN hyperconverged platform combined with vSphere is an excellent launchpad for smaller organizations that may be just getting started with hyperconvergence. vSphere and vSAN offers a great way to transition down the road to a full-stack implementation for greater value and business impact.

### Learn more about VMware Cloud Foundation:

The full-stack solution to run VM and Kubernetes workloads at scale. For the digital business—[VMware Cloud Foundation](#) offers a single hybrid cloud platform that supports the spectrum of enterprise use cases.

Finally, vSAN's Cloud Native Storage platform helps developers automatically deploy persistent block- and file-based volumes through a Kubernetes application programming interface.

VMware Cloud Foundation, vSphere and vSAN give organizations the ability to simplify management, easily scale infrastructure requirements and harden cybersecurity and data protection defenses.

### Conclusion

The traditional, monolithic and inflexible data center of the past has rapidly given way to new architectures. The modern data center is now the foundation that allows organizations to get more from their IT investments, extending from the core to the edge to the cloud.

Hyperconverged infrastructure has given organizations the ability to transform how, when and where they handle compute, storage and networking in a manner that is easier to manage, faster to deploy and simpler and less expensive to expand compared with other solutions.

VMware has built upon its market-leading vSphere virtualization platform with a family of Data Center modernization solutions that can be implemented across the enterprise, in specific locations or for individual use cases. VMware's Data Center modernization lineup provides a consistent, reliable, affordable and highly scalable solution for a wide range of enterprises across a broad spectrum of use cases.



