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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 having typical concerns about availability, performance, security and IT operating efficiency. It turns out that one of the most important and highly leveraged sources for balancing that 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.

Still, the data center is, well, a data center. In many organizations, it's still marked by endless racks of servers, arrays of spinning disks and clean-room attire. 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 (DC modernization) can their organizations fully leverage the benefits of modern applications on premises, in the cloud or both.

The modernized data center movement is marked by such transformative technologies as virtualization, software-defined architecture, hyperconvergence, cloud computing, and artificial intelligence and machine learning. At the heart of this movement is a simple reality: Organizations not only need a way to stay "on" for employees, partners and customers, but they also must become a source of innovation that elevates the importance of the data center. The global pandemic has further intensified pressure on organizations to ensure that their IT operations can support the intensified and accelerated trend toward working from home.

Even when the impact of the pandemic eases to the point where organizations can begin to approach normal operations, the new rules about how, when and where people work and need IT services will still apply. In reality, many of these new ways of working are likely here to stay. Navigating this future 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.

And those data centers need to be a source of innovation to support new applications, workflows and business processes. Modernized data centers must coexist with a growing but essential cloud computing landscape and deliver a unified experience that is efficient, flexible and optimized to support more dynamic IT outcomes.

But how?

DC modernization manifested itself in the software-defined-everything movement, allowing entire data centers to be built around the concept of disaggregated data center hardware and software.

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.

The innovations and other benefits flowing from DC 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.

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 integration of remote office/branch office are just some examples of what HCI has already done for organizations taking a modernized DC approach. DC modernization can also mean 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.

Another great byproduct of DC modernization using next-generation HCI: It gives organizations the flexibility of moving very aggressively to strike the right balance of traditional stability and new agility-oriented IT objectives.

What to look for in data center modernization solutions

DC modernization has rapidly evolved into a hubbub 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 DC modernization solution:

- 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.
- Automated control of infrastructure resources to facilitate adoption of modern, containerized applications.
- Cloud-agnostic architecture that allows integration with any and all popular public clouds.
- 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.
- Consistent component orchestration across data center, edge and cloud environments.
- Easy transition to a flexible, expandable hybrid cloud service delivery model that provides a consistent experience for developers and DevOps tool chains.
- 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 if warranted.

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 multicloud 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.

The traditional, monolithic and inflexible data center of the past has rapidly given way to new architectures.

VMware Cloud Foundation (VCF) is a full-stack hyperconvergence solution, designed for comprehensive, enterprise-wide deployment to create a truly software-defined data center. VCF 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.

VCF takes the vSphere hypervisor far beyond its traditional functionality by integrating software-defined storage, compute and networking, as well as an integrated security suite. 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 DC modernization, the popular vSAN hyperconverged platform is an excellent launchpad for smaller organizations that may be just getting started with hyperconvergence. vSAN also is a great way to transition down the road to a full-stack VCF implementation for greater value and business impact.

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

Both VCF 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 DC modernization solutions that can be implemented across the enterprise, in specific locations or for individual use cases. VMware's DC modernization lineup provides a consistent, reliable, affordable and highly scalable solution for a wide range of enterprises across a broad spectrum of use cases.

For more information on VMware's approach to data center modernization, please read this white paper:

The Counterintuitively Fastest Path to App Modernization

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