DataCenter Knowledge™

THE INFORMATION SOURCE FOR THE DATA CENTER INDUSTRY

REDUCING THE IT BURDEN WITH HCI:

8 WAYS TO SAVE TIME IN THE DATA CENTER

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With the right solution, organizations of any size can use hyper-convergence to help achieve their most demanding data center objectives. Here's how.

Due to the exponential increase in data across every business sector, IT leaders are reassessing their data center infrastructures to modernize operations. Traditional legacy environments are simply unable to meet the performance demands of next-generation workloads, from web-based apps to CPU-consuming SQL queries. In addition to increased pressure to handle new workloads, IT leaders need to prepare for the next wave of innovation. This includes challenges such as a dramatic increase in data related to Internet of Things (IoT), and a growing reliance across industries on artificial intelligence (AI), robotics and virtual reality (VR) tools.

As a result, IT leaders have identified the benefits of software-defined solutions in eliminating silos, removing performance bottlenecks and reducing management complexity. Bypassing the massive capital expenditures required for traditional storage arrays, these leaders have identified both the performance and affordability of Ready Nodes for instantly scalable compute and storage capacity.

As convergence continues, standardized software-defined platforms that offer factory-level configurations significantly reduce IT resource investments, saving both time and money. These solutions also offer radically simplified management. In this white paper, we look closely at the different ways that hyper-converged Ready Nodes can provide both confidence and convenience in the data center and eliminate many of the time-consuming operations tasks that administrators face daily.

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Choosing Versatility with Hyper-Converged Infrastructure

IT operations today are a balancing act. Admins must maintain efficiency as they manage an increasingly complex data center structure while also reducing TCO. Legacy compute and storage can limit business potential when increasingly larger data pools are necessary to meet the demands of lines of business.

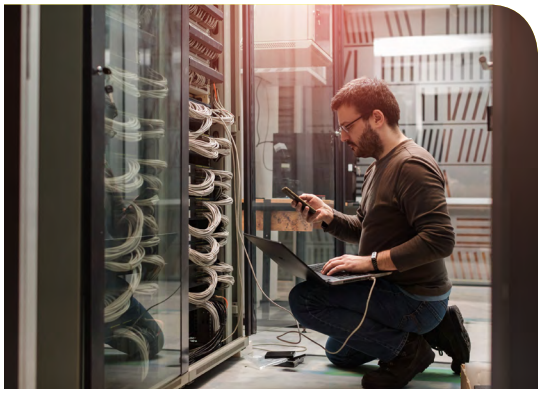
Next-generation workloads drive expectations for immediate response, as well as lead to exponential growth in data storage requirements. However, siloed servers and storage struggle to maintain parity and must simultaneously respond to many unique requirements quickly and economically. In response, software-defined infrastructure decouples the software and IT services layer from the underlying hardware. Then, it provides IT services via a software-driven stack employing cost-effective, industry-standard hardware components. For some, the appeal of HCI is due to its ease of use and minimal requirement for specialized deployment skills. Others are embracing converged and hyper-converged infrastructures to leverage the benefits of virtualization and transition to a more service-centric delivery model. Convergence helps organizations simplify deployments, increase agility, reduce costs and deploy modernized infrastructures that support cloud capabilities such as resource pooling, self-service provisioning and simplified scalability.

To that end, Ready Nodes can be scaled quickly without the capital expenditures that traditional arrays require. They also offer significant savings in terms of deploying IT resources to manage and maintain these infrastructures. We've identified eight ways that Ready Nodes can eliminate many time-consuming IT management tasks while also minimizing overhead:

1) Reduce the Time Required for Configuration and Testing

When administrators add new software, perform updates, configure or reconfigure hardware, they need to test those changes. Teams must figure out if the new implementation works across all platforms while tracking every piece, identifying contingencies and bottlenecks, along with the Software Development Lifecycle (SDLC), to name a few. The larger the environment, the more time-consuming the configuration and testing process. Moreover, manual testing can use up valuable IT resources that could be applied to other areas.

Deployed as hyper-converged infrastructure, Dell EMC Ready Nodes are preconfigured for specific applications such as Microsoft Windows Server, VMware vSAN, VxFlex OS, or SAP HANA and tested before they ship. For example, customers can be confident that their Ready Nodes contain the correct firmware and BIOS versions and meet both the hardware and software standards and certifications. Optimized Ready Nodes are configured to help maximize uptime, and can be delivered with the software pre-installed, so IT leaders receive exactly what they need and organizations can choose from a diverse set of options.



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2) Simplify and Accelerate Cluster Deployment

Designing and configuring new infrastructure to meet diverse demands can be both time-consuming and complex, especially for workloads comprising everything from web apps to SQL databases to cloud services. Ensuring high availability and consistent uptime depends on easily scalable, efficient IT resources. A software-defined storage feature of Microsoft Windows Server 2016, Microsoft Storage Spaces Direct (S2D) can be deployed with up to 16 nodes per cluster to create a highly available and scalable foundation for Microsoft and other applications.

For those Windows-based workloads, Dell EMC Ready Solutions for Microsoft Windows Server Software Defined (WSSD) with Intel® Xeon® Scalable processors blend physical and virtual infrastructures through software-defined compute, storage and networking. These solutions are built with Dell EMC Microsoft Storage Spaces Direct Ready Nodes, preconfigured and tested, and include customer support with installation, clustering and networking guidance. In an effort to provide only what's needed, Dell EMC technicians can pre-install the software, then enter site license information. Conversely, in-house teams can use their own custom scripts to perform the installation.

Dell EMC Microsoft Storage Space Direct Ready Nodes provide the compute power and storage density necessary to create highly available and highly scalable software-defined storage, at a fraction of the cost of traditional SAN and NAS arrays. And Dell EMC offers a variety of Microsoft S2D "HCI Premium" configurations. These feature highly virtualized compute, storage and networking making them easier to deploy, manage and scale. The minimum deployment is two Dell EMC Ready Nodes and the maximum is 16 per cluster.

3) Reduce Time-Consuming Set-up

The number of devices and applications served by enterprise data centers has grown exponentially, posing greater IT challenges in terms of time management, adequate resources and operational costs. Most enterprise data centers today consist of extensive integrations of various vendor technologies, each having certain interoperability standards.

Each step in the process of updating firmware or performing system upgrades needs to be tested and validated to ensure proper alignment. Validating these upgrades through customized scripts is labor intensive, especially in legacy data centers that lack the infrastructure and automation capabilities that can both simplify and speed the process.

A key advantage of some Dell EMC Ready Nodes is their ability to perform self-discovery. For example, when connected to an existing cluster, VxFlex OS helps finish set-up. They offer additional HCI tools to ease implementation while eliminating extraneous features. If you have a scale-out environment, you don't want anything weighing down the speed of the application.

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4) Simplify Operational Tasks

Maintenance needs and support issues associated with legacy data center platforms can complicate IT's ability to maintain diverse resources. For example, ensuring high performance for mixed workloads that consist of virtual servers sharing a cluster can require a high degree of IT management skill. When you add the need to manage conventional storage arrays built around SAN or NAS disk arrays, operations can grow especially cumbersome. It also involves management processes that can go beyond the skillsets of some IT generalists.

Dell EMC Ready Nodes enable IT to more effectively troubleshoot because they can call one vendor for both hardware and software support. This eliminates the finger pointing between server, storage and networking vendors or internal IT silos. Dell EMC Ready Nodes are available with automated lifecycle management and SupportAssist to reduce the risk of downtime and failures caused by human error.

5) Quickly Deploy Ready Nodes as HCI within Existing Infrastructure

Traditional storage is often unable to scale quickly enough to support next-generation workloads. While traditional storage systems can be used for virtual environments, the underlying infrastructure endures significant stress, which is only increased when you add newer, more demanding workloads. In general, with outdated management systems in place, admins often contend with disjointed networks where technology is separated into different management silos. In addition, system slowdowns often occur due to inefficient application lifecycle management (ALM), inconsistent server policies and poor integration of IT practices.

Dell EMC Ready Nodes offer the ability to modernize and transform legacy data centers with capabilities for independently customizing compute and storage as IT needs to dictate. Ready Nodes ensure that today's flexible resources are in place, specifically designed to handle current business trends, which include mobility, social media, big data analytics and cloud services. In addition to comprehensive, one-phone-call support for resolving software and hardware issues, Dell EMC Services can help improve the speed of implementation while offering exactly the level of support you need.

6) Eliminate Separate Arrays, Storage and Network Hardware

Organizations can incur a significant expense when it comes to heterogeneous hardware maintenance, infrastructure/licensing costs, server and storage complexity, and lost productivity. There are other hidden costs associated with maintaining and operating separate arrays and networking hardware, but downtime resulting from system failure and human error can be particularly problematic. As next-gen workloads drive exponential growth in storage and compute requirements, traditional hardware-based approaches often entail performance bottlenecks and increased management complexity.

In contrast, Dell EMC hyper-converged Ready Nodes make it easier and faster to accomplish the tasks at hand. In general, the popularity of HCI as a data center trend is due to the ability to increase productivity, ease management and use fewer resources. Your IT teams can easily connect to other devices as necessary and accomplish more by accessing unified management and key virtualization tools. With the flexibility of Ready Nodes, IT isn't constrained by having to grow both compute and storage simultaneously but can add them independently.

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7) Remove the need for Provisioning Logical Unit Numbers (LUNs), Volumes and Data Services

IT personnel must perform production upgrades regularly to ensure that their systems work efficiently with newer technology deployments. By combining phased implementation strategies with automated processes, IT teams can save time, keep the network running efficiently, and reduce implementation issues and risks. And this is exactly how HCI makes a difference.

Dell EMC Ready Nodes provide the automation and self-provisioning capabilities that enable IT teams to significantly reduce the amount of time they spend on routine support and maintenance tasks. Dell EMC OpenManage integrations plug right into software like Windows Server to provide lifecycle management. Policies can be assigned with precision as necessary. Then once requirements change, team members can modify policy rules and assignments with just a few clicks and no downtime.

8) Simplify Disaster Recovery

A key challenge for most IT organizations consists of being able to integrate backup and recovery with the primary storage. Moreover, admins face a high degree of complexity when different storage environments have their own discrete backup and disaster recovery (DR) processes. IT leaders who maintain separate SAN or NAS environments are frequently caught at a disadvantage because the installation and ongoing support of a top-tier backup and DR solution require specialized IT expertise, using up valuable resources. Specialized IT skills are required as well for features such as remote replication, deduplication, compression and snapshots.

As an HCI solution, Dell EMC Ready Nodes enable organizations of any size to achieve their most demanding and stringent availability and disaster recovery objectives. Integration of backup and recovery with primary storage enables a wide range of benefits. These include faster and more efficient backups, faster restores and major improvements in achieving optimal recovery time objectives (RTO) and recovery point objectives (RPO).

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Next Steps

Today's digital economy requires IT to add more to business value while at the same time keeping costs low. As a consequence, leaders are turning to new data center technologies that are simpler, streamlined and more cost-effective than traditional approaches. It's also increasingly clear that HCI solutions deliver those desired results, as well as eliminate IT silos, remove performance bottlenecks and reduce management complexity.

Optimized to ensure high availability and preconfigured for specific applications, Dell EMC Ready Nodes provide the performance levels necessary to sustain next-gen workloads, whether on Microsoft Windows Server, VMware vSAN, vFlex OS or SAP HANA.

While all feature comprehensive customer support with installation, clustering and networking guidance, they're HCI so IT teams don't require specialized skills or knowledge. You get to employ the tools you're comfortable with while the technology continues to improve, gaining increased speed and offering the ability to store more.

These Dell EMC support levels help to eliminate guesswork and reduce the time it takes to procure, validate and integrate components:

- Dell EMC vSAN Ready Nodes have been configured, tested and certified to run VMware vSAN. Each Ready Node includes the necessary CPU, memory, network I/O, controllers, HDDs and SSDs for deploying workloads on vSAN.
- The Dell EMC Ready Node solution for Microsoft WSSD guarantees known good configurations, tested and validated by Dell EMC and Microsoft, and featuring complete solution-level support.
- Dell EMC VxFlex Ready Nodes are similarly configured, tuned and optimized. These include the hardware compatibility list (HCL) lookup, HCL driver downloads and driver installs as well.
- Dell EMC HANA Ready Nodes are SAP-certified appliances, designed to start or scale SAP HANA deployments. These also include consulting, implementation and support services to make your deployments as easy as possible.

To learn more, visit dellemc.com/softwaredefined or contact your local representative or authorized reseller.

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Dell EMC Ready Nodes

The reputation of hyper-converged infrastructure (HCI) as a "go-to" technology for companies modernizing IT—or for any company looking to simplify, streamline and lower the costs of IT is well established. Moreover, HCI solutions are being deployed in a wide range of use cases—modernizing legacy applications, and accelerating new business services, among others.

Dell EMC Ready Nodes are PowerEdge servers configured for VMware vSAN, Microsoft Windows Server, VxFlex OS or SAP HANA. The configurations are certified by the software maker and tested by Dell EMC to provide the confidence of known good configurations. These offer you the convenience to save time and to provide a better experience, with Dell EMC supporting both the hardware and software. This is particularly useful when it comes to web hosting or for different types of service providers. Indeed, companies like these serve a wide variety of different audiences and frequently have each of the following configurations within different clusters, all in the same data center.

Dell EMC Microsoft Storage Spaces Direct Ready Nodes

These Ready Nodes are configured for and with Microsoft Windows Server® 2016 Datacenter Edition. Dell EMC Ready Solutions for Microsoft Windows Software Defined scales these Ready Nodes to highly available 16-node clusters optimized for Microsoft virtualized applications.

Dell EMC VxFlex Ready Nodes

VxFlex Ready Nodes make building or extending VxFlex (aka ScaleIO) clusters easy. The software features include simplified management with auto-discovery, streamlined provisioning and highly scalable server-based block storage for heterogeneous environments, including multiple hypervisors.

Dell EMC vSAN Ready Nodes

Dell EMC vSAN Ready Nodes are available in VMware-certified configurations, tested and delivered with or without the software. The solution provides super-simple management and very high levels of performance for virtual machines (VMs).

Dell EMC SAP HANA Ready Nodes

Whether you're building or expanding an SAP HANA implementation, Dell EMC SAP HANA Ready Nodes provide real-time business analytics. Built on a foundation of SAP-certified appliances, Dell EMC SAP HANA Ready Nodes not only help you scale faster, they also hold a number of world performance records.

Check out Ready Nodes

- ✓ Save time and money on system design, validation and integration.
- ✓ Maximize storage performance with the latest technology in configurations optimized for the application.
- ✓ Get quality and reliability backed by world-class validation, engineering and warranty.