



Dell EMC Ready Architectures for VDI

Enhance productivity with secure virtual desktop solutions that are quick and easy to implement

Table of Contents

VDI is now ready for prime time	2
Why Dell EMC for VDI	3
Dell EMC Ready Architectures for VDI	4
Dell EMC Ready Architecture for VDI on VxRail	4
Dell EMC Ready Architecture for VDI on XC Series	4
Dell EMC VMware vSAN Ready Nodes for VDI	5
Dell EMC Microsoft Storage Spaces Direct Ready Nodes for VDI	5
Dell EMC Ready Bundles for VDI	5
Configuration details	6
Complete your solution with Wyse thin clients	7
Dell EMC VDI Complete Solutions, powered by VMware	7
Services and financing	8
Dell EMC Customer Solution Centers	8
Dell EMC Professional Services	8
Dell Financial Services	8
Find out more	8

VDI is now ready for prime time

IT Transformation initiatives often lead to an exploration of desktop and application virtualization. However, organizations looking to adopt VDI (Virtual Desktop Infrastructure) have typically faced a number of hurdles, including long planning and procurement cycles, significant upfront infrastructure investments, and difficulty delivering a consistent user experience across locations and devices. These hurdles have turned many organizations away from adopting VDI, despite its many security and productivity advantages.

But good news is here: Dell EMC offers validated and optimized VDI architectures that provide the requisite data and application security while allowing IT to get started quickly and deliver optimized end-user performance. Dell EMC Ready Architectures for VDI provide a wide range of choices to meet a variety of needs and come with optional Dell EMC endpoints and familiar management tools that allow you to get up and running faster and streamline your day-to-day operations.

Secure your environment

Secure your environment

The trends of mobility and “bring your own device” (BYOD) mean that more devices and sensitive data are out of direct IT control, increasing the risk for data theft and virus, malware, and ransomware attacks. VDI is inherently more secure than physical desktops because files and data don’t leave the data center, and all communications between the client and infrastructure are encrypted. But even though they are intrinsically very secure, virtual desktops and thin clients need protection against advanced viruses and commodity malware. Dell EMC offers security from the data center all the way to the endpoint, to protect you against cyber threats.

Empower your workforce

Empower your workforce

Workforce productivity increases when employees can securely access their desktops and applications from their chosen device at the times and places they choose to work. High expectations for mobility and BYOD are causing workloads to evolve rapidly. IT must adapt by making sure resources match increasing demands for fast delivery, predictable scale and high performance. Dell EMC Ready Architectures for VDI transform the workplace by enabling BYOD and mobility to enhance user collaboration and productivity.

Reduce operations costs

Reduce operations costs

IT is challenged to increase the speed and quality of service while reducing costs and maintaining staffing levels. Dell EMC Ready Architectures for VDI help IT answer the challenge in two ways. First, these configured and validated architectures streamline infrastructure procurement and speed up deployment, so IT teams can achieve working solutions quicker than with “build your own” environments. Second, most client VDI environments contain hardware, networking, software and endpoints from different vendors, making support complex. With Dell EMC Ready Architectures for VDI, you can make one call to Dell EMC for help with hardware or software issues, from data center to endpoint.

“Typically, if you’ve got 30 machines, you’ve got a couple that are down for one reason or another. Well, that problem is gone. The support people spend a lot less time fiddling with lab machines trying to bring them back up or solve problems or help users deal with connectivity issues or application issues.”

— Stephen Herzig, Director of Enterprise Systems, University of Arkansas, Fayetteville¹⁴

Why Dell EMC for VDI?

At the core of every Ready Architecture for VDI offering are comprehensive VDI reference architectures produced after thousands of hours of testing in Dell EMC labs. These documents provide validated, predictable solutions, leading to faster and easier deployments. Not only do they demonstrate the different types of infrastructure options, but they also contain recommended endpoints, to ensure an excellent user experience.

Dell EMC is the only end-to-end provider who offers a VDI solution that reaches from the data center to the endpoint, with:

- Specialized teams of experts focusing on desktop virtualization solutions
- A comprehensive and flexible infrastructure portfolio, with either traditional or appliance-based solutions, including modular, flexible, hyper-converged offerings
- Integrated software options from market leaders such as Citrix, Microsoft, NVIDIA and VMware
- A comprehensive range of client endpoints including PCs, laptops and specialized devices like thin clients
- Support and services to help with deployment and post-sale support.

Finally, Dell EMC has received a large number of industry-recognized awards, illustrating our continual innovation and commitment to providing the best products and solutions in the market.

Customer successes

University of Arkansas⁵

**Tech Target
Access Innovation
Award Winner** for the
implementation of a Dell EMC
VDI solution

18 second
login times

**Start at \$7 per user
per month** for the
total client virtualization
package

Why Dell EMC?

The combination of Dell and EMC brings together two industry-leading companies with strong reputations for value and innovation. Dell EMC holds leadership positions in some of the biggest and largest-growth categories in the IT infrastructure business, and that means you can confidently source your IT needs from one provider — Dell EMC.

- #1 hyper-converged infrastructure⁶
- #1 converged infrastructure⁷
- #1 in traditional and all-flash storage⁸
- #1 virtualized data center infrastructure⁹
- #1 cloud IT infrastructure¹⁰
- #1 server virtualization and cloud systems management software (VMware)¹¹
- #1 in data protection¹²
- #1 in software-defined storage¹³

⁵ Dell EMC blog, “[Congratulations to the University of Arkansas on Their Tech Target Access Innovation Award for Innovative VDI Solution](#)” March 2018.

⁶ [DellEMC.com](#)

⁷ IDC WW Quarterly Converged Systems Tracker, Q1 2017, June 2017, Vendor Revenue.

⁸ IDC WW Quarterly Enterprise Storage Systems Tracker, September 2017, Vendor Revenue — EMC Q2 2017.

⁹ Dell EMC Annual Report, 2015.

¹⁰ IDC WW Quarterly Cloud IT Infrastructure Tracker, April 2017, Vendor Revenue — EMC Q4 2016.

¹¹ IDC WW Virtual Machine and Cloud System Market Shares 2016, July 2017.

¹² Dell EMC Pulse, “[Gartner Recognizes EMC as a Leader in the 2016 Data Center Backup and Recovery Software Magic Quadrant](#),” June 2016.

¹³ IDC WW Semiannual Software Tracker, 2H2016, April 2017.

¹⁴ Tech Target, “[Dell EMC VDI helps university expand application access](#),” January 2018.

Dell EMC Ready Architectures for VDI

Dell EMC offers a range of end-to-end VDI architectures to suit different needs. All these architectures are supported by detailed technical documentation and thousands of hours of lab testing, guaranteeing predictability, scalability and an excellent end-user experience. Multiple configurations for VDI are available, based on Dell EMC PowerEdge servers. Dell EMC Ready Architectures for VDI support:

- Hypervisor choice:
 - Citrix® XenServer®
 - Microsoft® Hyper-V®
 - VMware® ESXi™
- Connection broker software choice:
 - Citrix Virtual Apps and Desktop®
 - Microsoft Remote Desktop Services (RDS)
 - VMware Horizon® and Horizon Apps

Dell EMC Ready Architecture for VDI on VxRail

Fully integrated, configured and tested VMware HCI appliance for VDI

Dell EMC VxRail appliances are the standard in HCI and have been jointly developed by Dell EMC and VMware. The Dell EMC Ready System for VDI on VxRail is ideal for a range of VDI environments, including those that need to start small and grow, or those that require GPU acceleration. The Dell EMC Ready System for VDI on VxRail removes the complexities of having to stand up a new traditional, yet siloed, infrastructure to run VDI, dramatically speeding time to deployment and reducing costs.

Solution benefits

- **Simplicity** — Simple setup for multiple supported VDI clients and remote management, along with a single point of global 24x7 support for hardware and software, make the solution ideal for organizations or locations with limited on-site staff.
- **Integrated lifecycle management** — VxRail integrates management into a single pane of glass for the entire appliance. IT resources with VMware vCenter® knowledge can intuitively manage using VMware and Dell EMC management software.
- **Rapid deployment** — Streamlined procurement, simplified deployment and integrated tools drastically shorten the time needed to get the appliance up and running.

Dell EMC Ready Architecture for VDI on XC Family

Scale predictably and efficiently with a flexible and massively scalable solution powered by Nutanix®

Simplify desktop virtualization and application through easy to order appliance-based configurations with predictable per-seat scaling costs to fit a broad range of use cases, and a combination of native tools and a powerful UI which allows users to deploy and manage virtual desktops and applications more easily. Perfect for virtual desktop environments of any size, the XC Series for VDI is ideal for organizations looking for a virtualization solution that deploys rapidly and scales easily.

Solution benefits

- **Flexibility** — Supports several different hypervisors and connection brokers for customers needing choice.
- **Massive scalability** — Scale from 3 to 1,024 nodes per cluster.
- **Predictable cost, performance, and linear scale** — Add nodes to support a growing workforce while avoiding “step function” infrastructure costs through a converged infrastructure with compute and storage for a specific number of users.¹

¹ Number of users varies with the broker selected and the type of appliance used. Check with Dell EMC for more exact sizing information.

Dell EMC VMware vSAN Ready Nodes for VDI

Reduce project risk and lower TCO with a VMware vSAN building block that's fast and easy to scale

Dell EMC VMware vSAN Ready Nodes for VDI are built on Dell EMC PowerEdge servers that have been configured, tested and certified to run VMware vSAN™ and ESXi.

Dell EMC VMware vSAN Ready Nodes for VDI include just the right amount of CPU, memory, network input/output (I/O) controllers, hard disk drives (HDDs) and solid-state drives (SSDs) that are well-suited for VDI workloads on VMware vSAN.

Solution benefits

- **Control the system build** — Jointly validated architectures come in tested, certified server configurations with choice over hardware selections.
- **Improve storage efficiency** — Choice of flash or hybrid disks brings performance as well as predictable and linear cost increase as you grow. It reduces the time and effort it takes to deploy and manage compute and storage infrastructure.
- **Scale quickly** — To scale up, simply add drives and/or flash devices for increased performance and capacity. To scale out, just add more hosts with hybrid or all-flash devices.

Dell EMC Microsoft Storage Spaces Direct Ready Nodes for VDI

Software-defined storage building blocks provide confidence, convenience and customer support

To keep up with data storage requirements, IT is challenged to find new storage solutions that are simpler and more streamlined and cost-effective than traditional approaches. Microsoft is answering this need with Microsoft Storage Spaces Direct, which allows you to use industry-standard Dell EMC PowerEdge servers with local-attached drives to create highly available, highly scalable storage at a fraction of the cost of traditional storage arrays.

Solution benefits

- **Confidence** — Reliable, easy-to-deploy and easy-to-order VDI architectures on Microsoft-certified building blocks are configured, tested and certified to take the guesswork out of building Storage Spaces Direct clusters.
- **Convenience** — Configured architectures are incredibly convenient to procure and deploy. Dell EMC publishes a VDI deployment guide to make deploying your VDI environment even easier.
- **Customer support** — Benefit from the simplicity of a solution that's supported globally by Dell EMC and our channel partners for streamlined, collaborative support from the first call.

Dell EMC Ready Architecture for VDI on Dell Poweredge Servers

Validated architectures provide new levels of flexibility and cost savings

Dell EMC Ready Bundles for VDI are reference architectures built on traditional three-tier infrastructure (server, SAN and networking), certified for Citrix, Microsoft and VMware, and providing a scalable, validated and highly available supported infrastructure for VDI. Dell EMC Ready Bundles for VDI are designed for design flexibility that caters to various business and technical requirements.

Solution benefits

- **Highly flexible and ideal for DIY** — Dell EMC Ready Bundles for VDI provide flexibility in form factors, technologies and building blocks for virtualization. With this flexibility, you can easily build a VDI design based on very specific needs.
- **Leverage existing investments** — Recommended configurations can be specifically tailored for your needs, including the possibility to reuse your own networking hardware.
- **Financially attractive** — Enterprises with skilled IT VDI staff can build a solution using industry-standard hardware and software components for the optimal balance of performance and cost per user.

Configuration details

Dell EMC Ready Architectures for VDI have been designed in four top-level overarching configurations that apply to the available physical platforms (for CPU, RAM and storage):

- The **A3** configuration is perfect for small scale, Proof of concept, or low-density/cost-conscious environments.
- The **B5** configuration is geared toward larger-scale general-purpose workloads, balancing performance and cost-effectiveness.
- The **C7** is the configuration based on Intel's Skylake microarchitecture offering an abundance of high-performance features and high user density.
- The **Density Optimized** configuration is the premium configuration based on intel's Cascade Lake microarchitectre offering an abundance of high-performance features and maximizing user density.

	Dell EMC Ready System for VDI on VxRail A3-B5-C7-Density Optimized	Dell EMC Ready System for VDI on XC Series C7	Dell EMC Microsoft Storage Spaces Direct Ready Nodes for VDI A3-B5	Dell EMC VMware vSAN Ready Nodes for VDI A3-B5-C7-Density Optimized
Dell EMC PowerEdge servers	V570 (2U—Hybrid) V570F (2U—AF)	XC740xd (2U)	R640 (1U—AF) R740xd (2U—Hybrid)	R640 (1U) R740/R740xd (2U)
Intel® Xeon® processor	A3: 2 x Intel Xeon Silver 4114 (10-core 2.2GHz) // B5: 2 x Intel Xeon Gold 5120 (14-core 2.2Ghz) // C7: 2x Intel Xeon Gold 6138 (20-core 2.0GHz) // Density Optimized: Intel Xeon Gold 6238 (20-core 2.0GHz)			
Memory: RAM (RDIMM @2667 MT/s)	A3: 192GB (12x 16GB) // B5: 384GB (12x 32GB) // C7: 768GB (24x 32GB) // Density Optimized: 768GB (24x32GB)			
Storage controller	PERC HBA330			
Boot device	2x 240GB M.2 BOSS in RAID 1	2x 120GB M.2 BOSS in RAID 1	2x 240GB M.2 BOSS	2x 120GB M.2 BOSS or 2x 16GB SD module
Storage (SD)	Power tools: 64GB SD Module	Tools/Recovery: 32GB SD	-	-
Storage (hybrid)	In V570: Cache: 2x 400GB SSD 2.5" Capacity: 2x/4x/6x 1.8TB HDD 2.5"	In XC740xd: Cache: 2x 960GB SSD 2.5" Capacity: 6x 1.8TB 2.5" / 2TB HDD 3.5"	In R740xd: Cache: 4x/6x 960GB SSD 3.5" Capacity: 4x 2TB HDD 3.5"	Cache: 2x 400GB/400GB/800GB SSD 2.5" Capacity in R640: 2x/4x/6x 1.8TB HDD 2.5" Capacity in R740/R740xd: 2x 1.8TB/4x 1.8TB/6x 1.2TB HDD 2.5"
Storage (AF: All Flash)	In V570F: Capacity: 2x/4x/6x 1.92TB SSD 2.5"	In XC640: Cache + capacity: 6x/10x 960GB SSD 2.5"	In R640: Cache + capacity: 4x/6x 960GB SSD 2.5"	Capacity (all form factors): 2x/4x/6x 1.92TB SSD 2.5"
NVIDIA GPU (2U only)	3x M10, 6x T4	3x P40	-	3x M10,* 6x T4
Network	Intel X710 QP 10Gb SFP (NDC)	2 x Mellanox Connect X-4 LX 25GbE SFP Rack NDC	2x 10Gb, 2x 1Gb SFP+/BT 2x 25Gb Mellanox DA/SFP (RDMA)	Intel X710 QP 10Gb SFP (NDC)
iDRAC	iDRAC Enterprise 9			
Power	2x 2000W PSUs	2x 1100W PSUs (without GPU) or 2x 2000W (with GPU)		
Hypervisor	ESXi	ESXi, Hyper-V, XenServer, Nutanix AHV®	Hyper-V 2016	ESXi
SDS	VMware vSAN	Nutanix	Microsoft Storage Spaces Direct	VMware vSAN
Connection broker	Horizon, XenDesktop	Horizon, XenDesktop	Microsoft RDS, XenDesktop	Horizon, XenDesktop
Management	VxRail Manager Secure Remote Services (ESRS)	Dell EMC OpenManage		
Software	VMware vCenter, vSAN Enterprise, VMware vRealize® Log Insight™	Nutanix Prism®, vCenter, Microsoft SCVMM	Microsoft Windows Server® 2016 Datacenter Edition	vCenter

Color code for configurations: **Dell Blue=A3**, **Green=B5**, **Dell Orange=C7**, **Dell Berry=Density Optimized**

* vSAN RN: 3x M10 only possible if not using BOSS

Learn more about





[Wyse thin clients.](#)

“We spilled a milkshake on our Dell Wyse thin client, rinsed it off, threw it down the stairs and put it under a heat lamp to dry. It booted right up.”³

— Steve Athanas, Director of Platforms and Systems Engineering, UMass Lowell³

Complete your solution with Wyse thin clients

Purpose-built for VDI environments to provide optimum security and performance, Wyse thin clients integrate easily into any virtualized or web-based infrastructure and deliver a high-quality computing experience.

			
3000 series	5000 series	7000 series	All-in-one thin clients
For task workers and knowledge workers running a broad variety of business applications.	For knowledge workers and power users requiring access to a wide variety of applications, including 3D graphics and HD multimedia.	For power users who demand the best performance and connectivity with a wide range of peripherals.	Secure all-in-one delivers an excellent virtual desktop experience with extreme ease of use and management.

Wyse thin and zero clients maximize security and optimize management and efficiency by centralizing data, applications and resources. Designed to deliver flexible access to virtual desktops and virtualized applications, Wyse thin clients provide instant functionality and performance to meet the demands of processing-intensive applications.

Delivering premier desktop security, manageability and reliability, Wyse thin and zero clients are certified to work with Citrix, Microsoft and VMware and allow increased productivity with a broad range of highly secure endpoints designed for both stationary and mobile users, from task workers to the most demanding power users.

95% faster initiation

for 1st VxRail appliance⁴

47% faster

to provision 10 desktop VMs⁴

96% faster

to add a new appliance⁴

Dell EMC VDI Complete Solutions, powered by VMware

Plug in, power up, and provision in record time

[VDI Complete](#) is an all-in-one validated solution that is discounted across the entire stack and supported end-to-end by Dell EMC. It features the Dell EMC VxRail appliance and vSAN Ready Nodes, market-leading VMware Horizon and Horizon Apps as well as optional add-ons such as NVIDIA Tesla graphics cards and Dell Wyse thin clients. The solution is optimized to allow you to get a full desktop or app virtualization environment up and running faster and streamline your day-to-day operations.

Discover the advantages of desktop and application virtualization with VDI complete:

- Simplify your virtual desktop and apps implementation with a single company for solution sales and support.
- Get what you need to easily deploy and scale just-in-time desktops.
- Mobilize your workforce quickly, delivering desktops and apps in minutes
- Deliver unrivaled performance and an exceptional user experience.

³ Dell EMC case study, “[Making college more accessible and affordable](#),” January 2017.

⁴ Dell EMC flyer, “[Dell EMC VDI Complete Solutions powered by Horizon](#).”



Services and financing

Dell EMC Customer Solution Centers

Experience Dell EMC solutions in our global network of 21 dedicated facilities. The [Dell EMC Customer Solution Centers](#) are trusted environments where world-class IT experts collaborate with you to share best practices; facilitate in-depth discussions of effective business strategies using briefings, workshops, or fully supported proofs-of-concept; and help you become more successful and competitive.

Dell EMC Professional Services

Solutions customized for your needs

- [Dell EMC Professional Services](#) allows you to leverage on-site integration or application implementation.
- Dell EMC Factory Install Services help you experience an error-free first boot so you can focus on your business — not on configuring your solution
- [Dell EMC ProDeploy](#) is designed to speed deployment time, save money, and provide comprehensive planning and project management to support your IT staff.
- [Dell EMC ProSupport](#) services gives you 24x7 direct access to support experts, a single resource for hardware and software problems, and next business day Advanced Exchange¹⁵ to help resolve issues quickly and minimize downtime.
- Dell EMC Accidental Damage Service covers hardware systems exposed to situations where end users are in high risk environments, shared workspaces, and retail or classroom settings.
- Dell Financial Services offers you a wealth of leasing and financing options from [Dell Financial Services](#) help you find opportunities when your organization faces decisions regarding capital expenditures, operating expenditures and cash flow.

¹⁵ Next business day Advanced Exchange available on select Wyse products. Availability varies by region.

Contact us

To learn more, visit dell.com/vdi or contact your local representative or authorized reseller.

Find out more

Don't wait to find out how modern VDI architectures can offer you the security, performance and efficiency the business demands. Contact your Dell EMC or authorized channel partner representative to learn more.

