VMware Cloud on Dell EMC

The speed and flexibility of public cloud with the security and control of on-premises infrastructure delivered as a fully managed Infrastructure-as-a-Service solution

VMware Cloud on Dell EMC at-a-glance

VMware Cloud on Dell EMC is an on-premises Infrastructure as a Service installed in your data center and edge deployments and consumed as a cloud service.

Advantages

Cloud-like ease-of-use for on-premises workloads enables your IT operations staff to focus on value-added services

Unparalleled consistency between on-premises and public cloud environments (VMware Cloud on AWS) allows your IT Security and Developers to focus efforts on a common set of tooling

Ultimate peace-of-mind with VMware and Dell Technologies as your proven and trusted enterprise solution provider

Familiar VMware Cloud management on Dell EMC VxRail hyperconverged infrastructure delivers a best-of-breed enterprise solution

Enterprise use of the public cloud is burgeoning, and for good reason — the speed, agility and simplicity of public cloud are undeniable. Still, many organizations continue to invest in their on-premises infrastructure to better manage workloads, comply with regulatory requirements, and ensure application low latency. Now, with VMware Cloud on Dell EMC, VMware's Data Center-as-a-Service offering, customers can experience on-premises security, compliance and cost efficiencies coupled with public cloud like agility and managed services.

Operational simplicity that empowers your organization to focus on business innovation and differentiation

VMware Cloud on Dell EMC eliminates organizational complexities in three important ways:

1. **Delivers cloud-like ease-of-use** to your on-premises workloads and modern containerized applications using VMware Cloud with Tanzu services.
2. **Provides unparalleled consistency** between your on-premises and VMware public cloud environments
3. **Provides Enterprise-scale Infrastructure as a Service capabilities** that can be configured for a few hosts up to a multi -rack data center-sized deployment, pre-built and delivered on site for rapid deployment in a matter of hours or days — not weeks or months.

This new construct removes the friction of day-to-day infrastructure management tasks and frees your entire organization to focus on driving business value.

The simplicity of VMware Cloud on Dell EMC is evident from the moment you place your online order. This is, at least in part, because the infrastructure is delivered, installed, maintained and supported by VMware. Additionally, VMware's hy enables you to provision and monitor resources as you already do with existing VMware on-premise infrastructures. These steps are further detailed below.

1. Order

Customer signs into VMware Cloud Console, selects configuration that fits their capacity needs and is provided with a delivery date.

2. Deploy

Dell EMC delivers the new service infrastructure to the customer site. An onsite technician installs, test the equipment and activates the service. Customer migrates workloads to new infrastructure.

3. Support

VMware continually monitors the service infrastructure, patching/ updating software while proactively addressing any issues that may surface.

Furthermore, the consistency VMware Cloud on Dell EMC creates between your public cloud and on-premises infrastructure reduces overhead for IT Operations, IT Security, Developers and CIOs/CTOs, enabling these roles to instead focus on accelerating the business.

IT Operations can focus on strategic initiatives rather than routine maintenance services.

IT Security can apply security policies uniformly instead of tracking workloads across multiple environments.

Developers can accelerate application development by building for just one environment.

CIOs and CTOs can reduce complexities of managing operations in different cloud environments

Bring public cloud benefits to workloads in both your core data center and edge locations

VMware Cloud on Dell EMC seamlessly extends public cloud benefits to workloads in your on-premises data centers and edge locations alike. This is significant because requirements for integrating security, networking and policy management at the edge are just as stringent as those in your data center — if not more so. Yet, VMware's Cloud Console makes it as easy to configure and monitor edge workloads at scale as it is with data center workloads.

This offers distinct advantages not only for industries like Banking, Healthcare, and Oil & Gas, but other industries will benefit as well, including Retail, Grocery and Manufacturing, to name just a few. The fact is **VMware Cloud on Dell EMC delivers value to any edge location where business is transacted and there is a need for compute, storage or networking capabilities.**

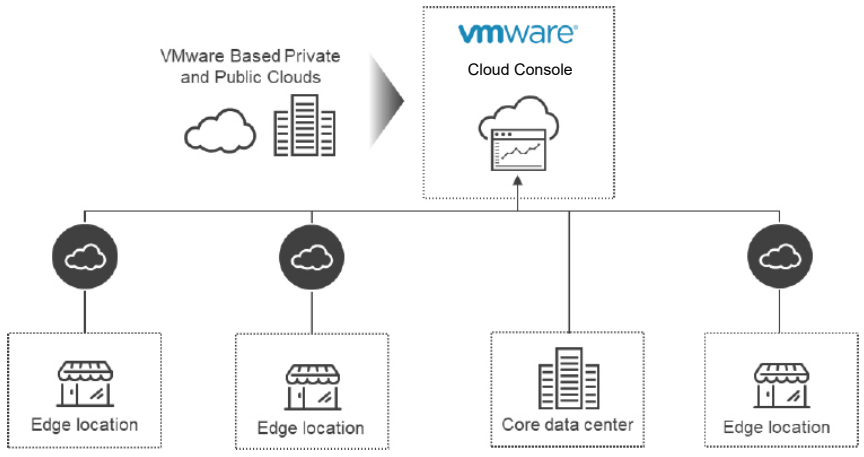

FIGURE 1

VMware offers unmatched peace-of-mind as a proven and trusted enterprise solution provider

What makes VMware Cloud on Dell EMC truly unique is Dell EMC's **trusted experience in building heterogenous data centers for thousands of customers**, taking thousands of variables into account and making these environments work perfectly. This is amplified by the **proven enterprise level support at scale** that both Dell EMC and VMware have delivered for decades. Collectively, Dell EMC and VMware can reliably provide a fully integrated and functional Day 1 experience as well as a highly responsive, dependable support for Day 2 and beyond.

Hosts						
Host Type	G1s.small	M1s.medium	M1d.medium[4]	X1d.xLarge[4]	M1d.xLarge[4]	M1d.xSmall
Chassis	1U1N (VxRail E560F)	1U1N (VxRail E560F)	1U1N (VxRail E560N)	1U1N (VxRail E560F)	1U1N (VxRail E560F)	1U1N (VxRail E560F)
CPU cores	28	28	56 (2x28)	56 (2x28)	56 (2x28)	56 (2x28)
vCPUs[1]	56	56	112	112	112	112
CPU frequency	2.2 GHz All Core Turbo	2.2 GHz All Core Turbo	2.2 GHz All Core Turbo	2.2 GHz All Core Turbo	2.2 GHz All Core Turbo	2.2 GHz All Core Turbo
RAM	256 GB	384 GB	768 GB	1536 GB	768 GB	768 GB
Cache storage	1.6 TB SSD SAS	1.6 TB SSD SAS	3.2 TB NVMe	3.2 TB NVMe	3.2 TB NVMe	1.6 TB SSD SAS
Primary storage	11.5 TB SSD	23 TB SSD	23 TB NVMe	61 TB SSD	61 TB SSD	3.8 TB SSD
Disk Groups	2	2	2	2	2	2
Power Supplies	Redundant x 1100W 200-240v	Redundant x 1100W 200-240v	Redundant x 1100W 200-240v	Redundant x 1100W 200-240V	Redundant x 1100W 200-240V	Redundant x 1100W 200-240v

Foundational to this peace of mind is that **VMware Cloud on Dell EMC is built on VxRail** — VMware's industry standard compute, storage, and networking software integrated with Dell EMC's enterprise-grade HCI infrastructure. **As a result, VMware Cloud on Dell EMC provides resilient architecture with enterprise-grade security built-in.** For instance, VMware Cloud on Dell EMC comes with VMware NSX, bringing networking and security capabilities to endpoints in different locations and microsegmentation capabilities to provide granular control over traffic between application workloads.

Rack Infrastructure		
Rack Type / Specifications	R2 - Full-Height Rack: 42 U (600mm Wide x 1200mm Deep)	
Usable Hosts per rack type	Single Phase: Min. 3 / Max. 12 Three Phase: Min. 3 / Max. 26	
Standby Host[2] per rack type	1	
Multi-Rack Scale	Up to 3 racks, includingMulti-Rack aware single rack	
Network fabric	1 x management switch 2 x 25Gbps Host Network Interfaces Redundant Top of Rack Switches 4Tbps (full duplex) non-blocking switching capacity	
SD-WAN	Redundant VMware SD-WAN	
Customer facing uplinks	Data: 1-4 x 1/10/25Gb Per ToR (Optical) SD-WAN: 1Gbps copper or optical per VMware SD-WAN	
PDU	Redundant SmartPDUs	
UPS / battery	N/A	
Power connections	AMER: 4xNEMA L6-30 (200-240v) Single Phase 2xIEC 309 t60A (200-240v) Three Phase	EMEA: 4xIEC 309 32A (or) IEC 60309 332 (240V) Single Phase 4xIEC 309 16A (or) IEC60309 516 (440V) Three Phase
Ambient operating temperature	10˚C to 30˚C 50˚F to 86˚F	
Storage temperature range	-40˚C to +65˚C -40˚F to +149˚F	
Operating relative humidity	10% to 80% (non-condensing)	
Operating altitude with no deratings	3048m (approx. 10,000 ft)	

Power and weight			
Power	Base rack (switches + RAS Host)	Active Power per Host Type	Total Power
Maximum Estimated Input power in (watts)	R2: 1552W	• G1s.small: 320W • M1s.medium: 371W • M1d.medium: 629W • X1d.xLarge: 674W • M1d.xLarge: 618W • M1d.xSmall: 615W	Base Rack Power + Number of Active Hosts x Power Per Host Type Example: R2 w/ 10 x M1d. xSmall hosts = 1552 + 10 x 615W = 7,702W
Max Estimated Input current (amps)	220v Source: 7A	220v: • G1s.small: 1.4A • M1s.medium: 1.6A • M1d.medium: 2.8A • X1d.xLarge: 2.8A • M1d.xLarge: 2.8A • M1d.xSmall: 2.8A	Base Rack Current + Number of Active Hosts x Current Per Host Type Example: R2 (220V Source) with 10 x M1d.medium hosts = 7A + 10 x 2.8A = 35A
Maximum heat Output (BTU/hr)	R2: 5292 BTU/hr	• G1s.small: 1091 BTU/hr • M1s.medium: 1265 BTU/hr • M1d.medium: 2144 BTU/hr • X1d.xLarge: 2298 BTU/hr • M1d.xLarge: 2107 BTU/hr • M1d.xSmall: 2097 BTU/hr	Base Rack BTU/hr + Number of Active Hosts x BTU/hr Per Host Type Example: R2 with 10 x M1d. medium hosts = 5292 + 10 x 2063 = 26,262 BTU/hr
Weight (Pounds)	R2 (w/ common equipment): 778 Pounds	• G1s.small: 48 Pounds • M1s.medium: 48 Pounds • M1d.medium: 48 Pounds • X1d.xLarge: 48 Pounds • M1d.xLarge: 48 Pounds • M1d.xSmall: 48 Pounds	R2 Weight + Number of Hosts x Host Type Weight Example: R2 with 10 x M1d. medium Hosts = 778 + 10 x 48 = 1258 Pounds

1. "Standby Host" is an additional spare host used for lifecycle management.
2. vCPU is based upon 2 hyper-threads per core. All hosts are based upon Cascade Lake Processors operating at all core turbo frequency of 3.1 GHz. The hosts support the Intel Advanced Vector Extensions 512 (AVX-512) instruction set, offering up to 2x the FLOPS per core of a Broadwell Processor. In addition to AVX-512, there is support for the new Neural Network Instructions (AVX-512 VNNI) which will speed up machine learning operations like convolution and inference.
3. Max Estimated Power Consumption leverages simulated transactional workloads running on the specified Dell servers. Go to dell.com/calc for more information.
4. Customer deployments involving multiple racks (Multi-rack deployment), Rack#2 will have reduced host density due to the presence of Spine switches in this rack. Following is the usable host density for Three-phase and Single-phase R2 racks and does not include the 1 RAS/dark host. This is applicable to all GEO's where Multi-rack is supported:
    i. Three-phase R2 rack: Rack 1, 3-8: 26 hosts and Rack 2: 24 hosts
    ii. Single-phase R2 rack: Rack 1, 3-8: 12 hosts and Rack 2: 11 hosts