

# Deploying Oracle RAC on Dell EMC VxRail

Powered by VMware Cloud Foundation™ and VMware vSAN™

#### KEY BENEFITS OF RUNNING ORACLE RAC ON VMWARE CLOUD FOUNDATION WITH DELL EMC VXRAIL

- Highly consistent and predictable performance
- Scalability and flexibility
- Deployment agility
- Increased data protection
- Operational efficiency improvement

#### BENEFITS OF VMWARE CLOUD FOUNDATION ON DELL EMC VXRAIL

- Rapid deployment and configuration
- High performance and scalable hyperconverged storage
- Automated lifecycle management
- End-to-end security
- Simple path to the hybrid cloud

### Delivering the needs of your Oracle RAC database, the right way.

The Oracle RAC on Dell EMC VxRail solution allows customers to build an efficient and high performing hyperconverged infrastructure to run OLTP workloads.

Oracle Database 19c offers customers the best performance, scalability, reliability, and security for all their operational and analytical workloads. Oracle RAC provides all the software components required to easily deploy Oracle Databases on a pool of servers and take full advantage of the performance, scalability, and availability.

VMware Cloud Foundation™<sup>1</sup> is a unified SDDC platform that brings together VMware ESXi™, VMware vSAN™, VMware NSX® and optionally, VMware vRealize® Suite components, into a natively integrated stack to deliver enterprise-ready cloud infrastructure for the private and public cloud.

The Dell EMC VxRail Appliance is a fully integrated, pre-configured, and tested hyperconverged appliance jointly developed with VMware. Powered by VMware vSphere® and VMware vSAN™, the appliance provides a fast, easy way to extend your VMware environment. Scale-out is easy—you simply add a new appliance to join an existing VxRail Appliance cluster. The VxRail Appliance automatically discovers and non-disruptively adds each new node and appliance. It rebalances resources and workloads across the cluster, creating a single resource pool for compute and storage. Select from a broad set of configuration options at a variety of price and scale points, including all-flash VxRail Appliances to achieve exceptional scalability for Oracle 19c or later version database workloads deployment.

### Key benefits of running Oracle RAC on Dell EMC VxRail

- High, consistent, and predictable performance

Dell EMC VxRail systems delivers a high consistent and predictable performance for OLTP workloads running Oracle databases. The HCI platform, specifically VxRail in this solution, provides near-linear scalability and predictable performance capability for OLTP workloads on Oracle RAC.

- Scalability and flexibility

Dell EMC VxRail systems allow you to cost-effectively deploy at the right size for your organization and scale as your Oracle database applications evolve. With the DB size scaling-up for VMware vSAN deployments, VxRail is purpose-built for every customer to match current Oracle consumption, with an easy path to expansion as data grows.

- Deployment agility

VxRail with VMware vCenter provides centralized management of vSphere virtual infrastructure, allowing IT administrators to ensure security and availability, simplify day-to-day tasks, and reduce the complexity of managing virtual infrastructure.

- Accelerate Oracle DBaaS

<sup>1</sup> This solution was validated against VMware Cloud Foundation 3.8.1 and it applies to VMware Cloud Foundation 3.8.1 and above.

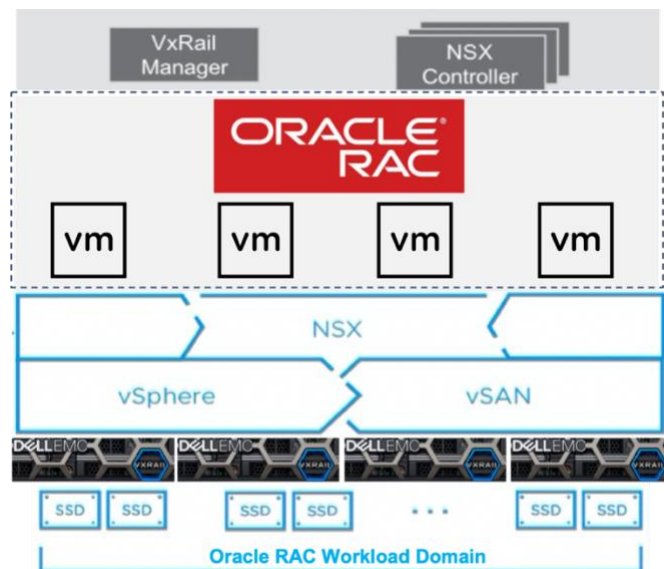
Running Oracle databases with a software defined datacenter and hyperconverged architecture on VxRail allows all resources to be virtualized so they can be automatically deployed, with little or no human involvement. Database applications can be operational in minutes, shortening time to value and dramatically reducing IT staff time spent on application provisioning and deployment.

- Operational efficiency improvement

VxRail Manager takes advantage of the fully integrated stack for lifecycle management, allowing administrators to manage VMware software and Dell EMC hardware as one.

### Architecture Diagram

A VxRail P570F is deployed to support the Oracle RAC database environment. Each Dell EMC VxRail appliance is deployed with an identical configuration and ESXi booted from local disk.



### Dell EMC VxRail P570F

The Dell EMC VxRail P570F is more performance-oriented and is based on single node 2U PowerEdge R740xd servers. PowerEdge servers offer a slew of benefits for customers who are looking to deploy hyperconverged infrastructure, and the VxRail platform makes it easier than ever for customers to stay updated at the OS or even host level. As with most Dell EMC offerings, there is a massive variety of configurations, giving it the flexibility to hit just about any need. Being aimed at performance, the Dell EMC VxRail P570F can be outfitted with up to 3TB of memory per node, supports NVMe storage, and networking up to 25GbE.

### Hyperconverged Infrastructure by VMware vSAN

VMware vSAN, the market leader in hyperconverged Infrastructure (HCI), enables low cost and high-performance next-generation HCI solutions, converges traditional IT infrastructure silos onto industry-standard servers and virtualizes physical infrastructure to help customers easily evolve their infrastructure without risk, improve TCO over traditional resource silos, and scale to tomorrow with support for new hardware, applications, and cloud strategies. The natively

integrated VMware infrastructure combines VMware vSAN storage, the market-leading VMware vSphere Hypervisor, and the VMware vCenter Server® unified management solution all on the broadest and deepest set of HCI deployment options.

### VMware Cloud Foundation as a Unified SDDC Platform

VMware Cloud Foundation helps to break down the traditional administrative silos in data centers, merging compute, storage, network provisioning, and cloud management to facilitate end-to-end support for application deployment. VMware Cloud Foundation has the following benefits to modernizing Oracle RAC using the unified SDDC platform:

- Built on standardized and validated infrastructures through the workload domain construct
- Simple to deploy and operate by automated lifecycle management
- Scale-up and scale-down with ease
- Integrated software-defined cloud platform for management and operational simplicity
- Built-in intrinsic security for databases

### VMware Cloud Foundation on Dell EMC VxRail Takeaway

VMware Cloud Foundation on VxRail builds upon native VxRail and VMware Cloud Foundation capabilities with unique integration features jointly engineered between Dell EMC and VMware that simplify, streamline, and automate the operations of your entire SDDC from Day 0 through Day 2 operations:

- VMware Cloud Foundation on Dell EMC VxRail simplifies and accelerates the necessary virtual infrastructure deployment desired for running OLTP workloads on Oracle RAC.
- VxRail provides near-linear scalability and predictable performance capability for OLTP workloads on Oracle RAC.
- The peak VM client IOPS at the storage side is 100,000 IOPS with 0.7 milliseconds (or less) response time at read and single-digit millisecond response time at write for an 8TB RAC database, following the standard installation and configuration process and best practices without special performance optimization.
- An Oracle RAC virtual infrastructure workload domain consisting of four VxRail P570F nodes is capable of servicing more than one million transactions per minute with 20 milliseconds (or less) transactional response time from the database level.
- Predictable performance is demonstrated when scaling up the Oracle database and RAC node number.

<sup>2</sup> The transactional response time measures application transaction latency instead of the backend storage response time only, which includes the network latency, database service time, and I/O latency.

#### Resources

- Learn more about VMware Cloud Foundation on [the website](#)
- Check out Cloud Foundation [Blog](#), [Twitter](#), and [YouTube](#) for the latest updates on Cloud Foundation
- Check out the one-stop VMware Hyperconverged Infrastructure documentation on [StorageHub](#).
- Check out [VMware Cloud Foundation on Dell EMC VxRail](#)
- Check out [Dell EMC VxRail Hyperconverged Infrastructure](#)



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