Managing the HCI stack: How Dell EMC VxRail compares to other VMware-based HCI technologies

Based on publicly available information

Dell Technologies and VMware offer multiple hardware and software products and solutions that could help an organization build a hyperconverged environment. Dell EMC™ VxRail™ is one such solution, offering an integrated and supported product that Dell EMC states delivers a curated experience.[1] Two other examples are vSphere® Lifecycle Manager (vLCM), a software solution introduced with VMware vSphere 7.0 that helps in ongoing maintenance operations, and vSAN ReadyNodes™, physical servers that are pre-validated to run VMware vSAN and vSphere. Principled Technologies reviewed publicly available data on VxRail, vSAN ReadyNodes, and several other VMware technologies. In this interactive PDF and the accompanying report, we use that research to investigate what advantages customers might see by choosing VxRail.

About VxRail

Key capabilities of VxRail

Learn more

Read the full report at http://facts.pt/Arzdcdd

About VxRail

> *"The only fully integrated, pre-configured, and pre-tested VMware hyperconverged system optimized for VMware vSAN or VMware Cloud Foundation."*[2]

—Dell Technologies

VxRail is a jointly engineered, hyperconverged infrastructure solution from Dell Technologies and VMware that offers companies an integrated, software-defined solution for their workloads.[3] It aims to deliver full integration and automation through the entire pre-validated VxRail hardware stack, VMware HCI software, and the VxRail HCI System Software suite, which consists of multiple elements that extend the VMware software's capabilities.[4]

100+ dedicated VxRail team members

Over $60 million of lab investments

25,000+ runtime hours to test each major release[5]

Learn how VxRail differs from other HCI solutions

About VxRail

How VxRail differs from other HCI solutions

The driving differentiator between VxRail and technologies such as vSAN ReadyNodes or vSphere Lifecycle Manager is Dell EMC VxRail HCI System Software, a suite of software capabilities unique to VxRail. Encompassing VxRail Manager, ecosystem connectors, automated lifecycle management, VxRail SaaS multi-cluster management, and more, VxRail HCI System Software provides the connective tissue between Dell Technologies hardware and VMware software that helps IT administrators to automate tasks within the HCI environment and manage the VxRail stack.

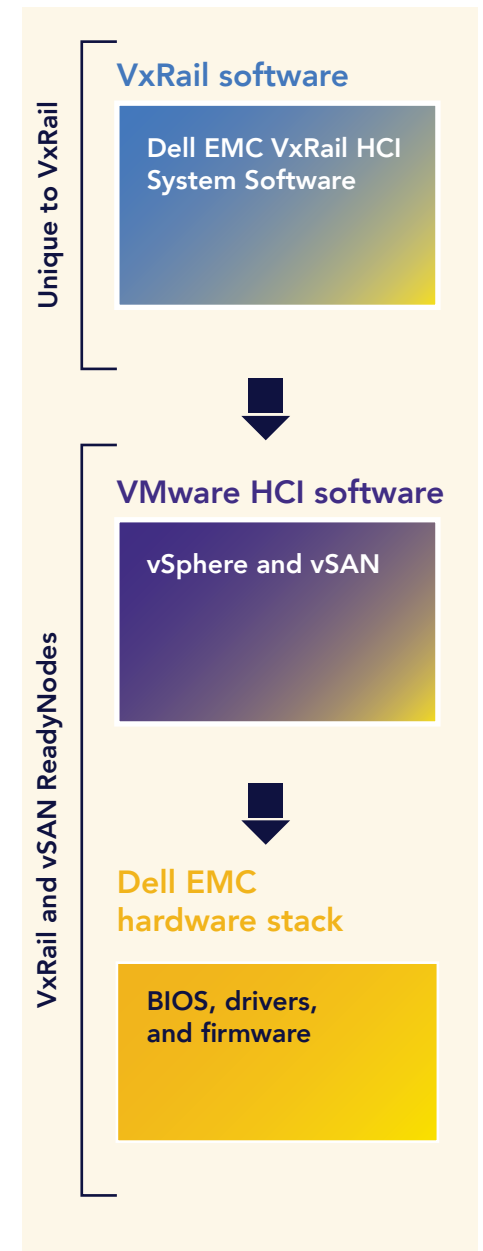**Learn about the components of VxRail HCI System Software**

Unique to VxRail

VxRail software

Dell EMC VxRail HCI System Software

VxRail and vSAN ReadyNodes

VMware HCI software

vSphere and vSAN

Dell EMC hardware stack

BIOS, drivers, and firmware

Figure 1: VxRail stack diagram.
Source: Principled Technologies.

About VxRail

Components of VxRail HCI System Software[6,7]

VxRail Manager

Ecosystem connectors

Lifecycle management

Electronic compatibility matrix

REST APIs

SaaS-based multi-cluster management

Secure Remote Services

About VxRail

Components of VxRail HCI System Software

- **VxRail Manager**

- **Ecosystem connectors**

- **Lifecycle management**

- **Electronic compatibility matrix**

- **REST APIs**

- **SaaS-based multi-cluster management**

- **Secure Remote Services**

See other components of VxRail HCI System Software

VxRail Manager

vCenter plugin management interface where administrators can perform most VxRail tasks such as monitoring, shutdowns, and more.[8]

About VxRail

Components of VxRail HCI System Software

- **VxRail Manager**
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See other components of VxRail HCI System Software

Ecosystem connectors

These integrate with hardware and software components, providing the VxRail HCI System Software with the necessary information to recognize and update components across the board and enable automation.[9]

Components
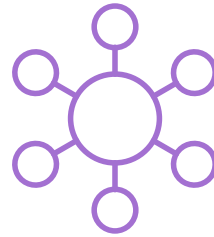of VxRail
HCI System
Software

Key capablities
of VxRail

Learn more

Resources

About VxRail

Components of VxRail HCI System Software

- **VxRail Manager**
- **Ecosystem connectors**
- **Lifecycle management**
- **Electronic compatibility matrix**
- **REST APIs**
- **SaaS-based multi-cluster management**
- **Secure Remote Services**

Lifecycle management

VxRail LCM is designed to keep the clusters in what Dell refers to as a Continuously Validated State so that the clusters are up to date with the validated versions across all levels of the stack. These updates are automated and, after the update is acquired, launched with a single click.[10]

About VxRail

Components of VxRail HCI System Software

- VxRail Manager
- Ecosystem connectors
- Lifecycle management
- Electronic compatibility matrix
- REST APIs
- SaaS-based multi-cluster management
- Secure Remote Services

See other components of VxRail HCI System Software
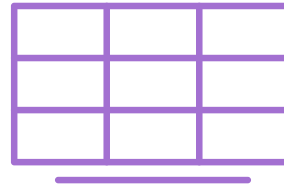
Electronic compatibility matrix

This is a matrix of compatible hardware, software, and firmware versions that the VxRail cluster uses to ensure that it is in a valid, supported state. The matrix tracks compatibility between multiple possible validated states, enabling customers to skip interim patches and releases.[11]

About VxRail

Components of VxRail HCI System Software

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- **Secure Remote Services**

REST APIs

VxRail clusters have publicly available API options to allow clusters to expand into the cloud and provide large-scale management and Infrastructure as Code via scripting and more.[12]

About VxRail

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See other components of VxRail HCI System Software

SaaS-based multi-cluster management

This cloud-based tool uses data gathered from the VxRail clusters to provide analysis of host or hardware status, server health insights, upgrade planning, staging, and optional automated execution of upgrades.[13]

About VxRail

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- **Electronic compatibility matrix**

- **REST APIs**

- **SaaS-based multi-cluster management**

- **Secure Remote Services**

Secure Remote Services

In addition to serving as a single source for all support from hardware to software, Dell EMC Secure Remote Services provides VxRail customers with two-way remote connections that give Dell engineers direct access to the cluster for troubleshooting and repairs.[14]

Key capabilities of VxRail

Lifecycle management

Global management

Cloud integration

Support

Key capabilities of VxRail

Lifecycle management

VxRail HCI System Software includes components that help keep VxRail clusters in validated states, such as the VxRail LCM and the Electronic Compatibility Matrix. This method has several advantages over the image-based approach that vSphere Lifecycle Manager (vLCM) uses:

- ☑ VxRail allows customers to choose from a set matrix of tested, verified states. With an environment based on vLCM, IT staff must research, test, and choose their own desired state.

- ☑ The VxRail LCM validated state can span generations and other mixed-node use cases in a single cluster, while each vLCM image prefers configurations that are mostly homogenous.[15]

- ☑ While VxRail update packages maintain the continuity of the VxRail validated state, vLCM images require vendor-supplied packages for hardware compliance checks and firmware and drivers,[16] or a vendor Hardware Support Manager (HSM) that works as a vCenter plugin.[17] If the vendor addon doesn't include specific drivers or firmware that the cluster needs to maintain the desired state, the administrator must manually add those to the image.[18]

- ☑ VxRail continuously maintains the desired state, which includes updating the cluster as new versions become available. With vLCM, IT staff must create a separate image for each vSAN cluster of differing configurations and consistently edit images for new target states, such as new VMware software version releases.[19]

Key capabilities of VxRail

Global management

Dell EMC VxRail HCI System Software offers a global SaaS multi-cluster management tool that provides two main functions for VxRail customers:

- The ability to manage clusters at scale across sites and geographies
- Insights into health and resource issues[20]

This tool offers several benefits:

- If a workload's performance starts to lag due to a cluster health issue, administrators can check the health scores to help determine where the problem lies.
- Using the predictive nature of VxRail multi-site manager to show that a cluster is approaching maximum capacity, companies can avoid workload performance issues by adding or adjusting resources accordingly.[21]
- IT staff can use the metrics charting that VxRail multi-site manager provides to track the status of hardware resources.[22]

See other key capabilities of VxRail

Key capabilities of VxRail

Cloud integration

Deploying VMware Cloud Foundation to VxRail could offer several advantages over deployment on other VMware solutions such as vSAN Ready Nodes:

- VxRail offers full VMware Cloud Foundation integration, including a level of integration with Software Defined Data Center Manager (SDDC) that is unique to VxRail.[23]
- VxRail LCM is integrated into the SDDC Manager and VMware Cloud Foundation automated updating process.[24]

With integration between VxRail and VMware Cloud Foundation management tools, organizations may see manageability benefits on a VxRail system. And by expanding upgrade and patching capabilities, IT staff could save time and dedicate more attention to strategic tasks that foster organizational growth.[25]

VxRail LCM also integrates with Tanzu Architecture for VxRail, a tool for cloud-native application development with Kubernetes containers.[26]

See other key capabilities of VxRail

Key capabilities of VxRail

Support

While all Dell Technologies customers benefit from the tier of support services they choose, as well as the status of Dell Technologies as a VMware-certified support partner, VxRail offers direct integrations with technical support. VxRail customers not only benefit from having a single place for all support needs for both hardware and software, but also enjoy integration with Dell EMC Secure Remote Services for call-home support.[27] Additionally, the VxRail Manager plugin enables IT staff to open service requests to Dell Technologies directly from the vCenter portal.[28]
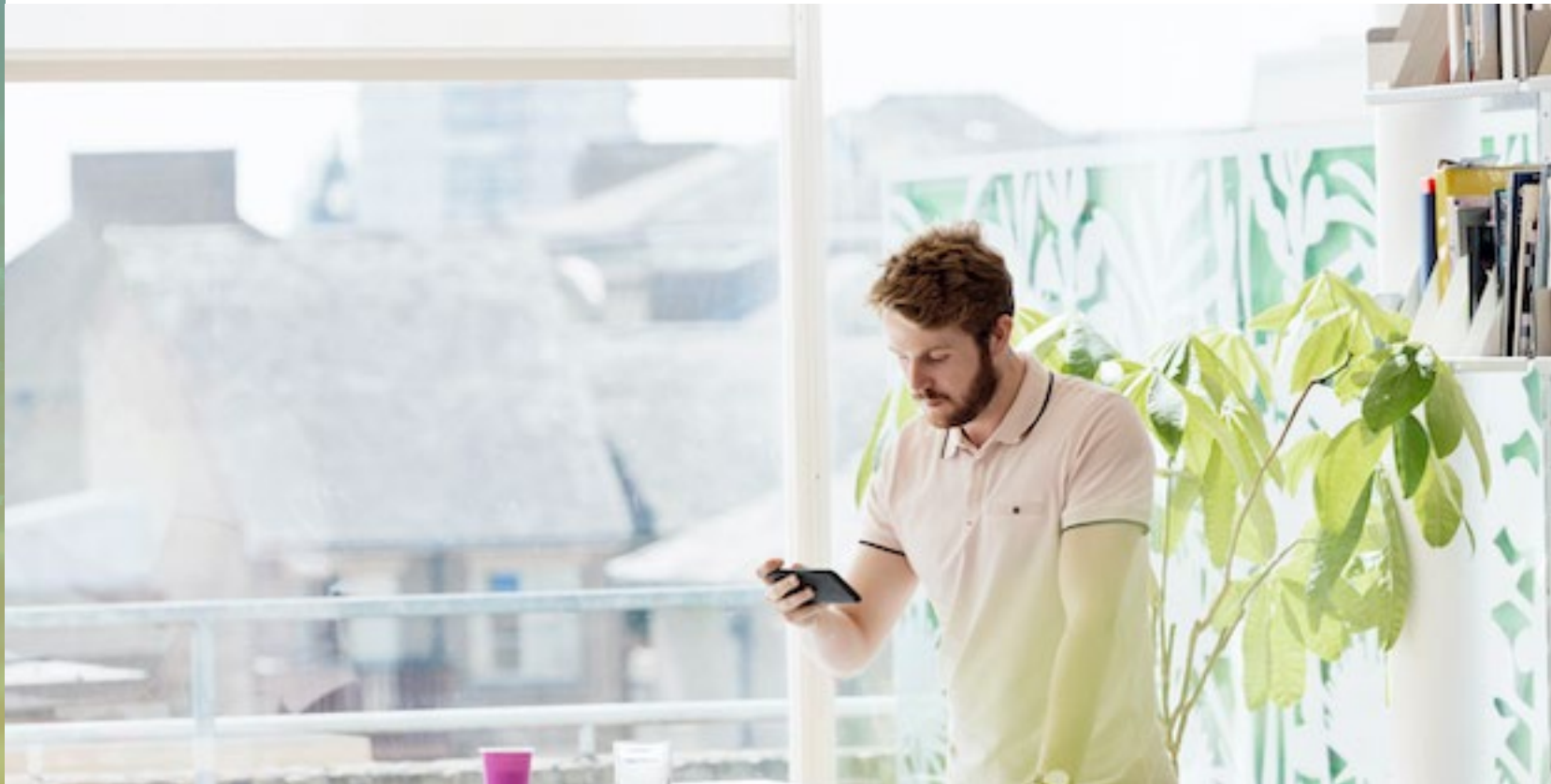
Learn more

With VxRail, organizations could…

Gain IT efficiencies using VxRail Lifecycle Manager automated updates, with AI-driven health scores for monitoring, and one-stop-shop support

Reduce IT time spent on researching compatibility and testing new updates thanks to 100+ dedicated VxRail engineers working behind the scenes to validate updates for customers[29]

Support different configurations without needing to purchase new hardware due to older hardware aging or current hardware not being identical, thanks to VxRail heterogeneous hardware support

Expand into the cloud with full VMware Cloud Foundation integration, including a unique level of integration with Software Defined Data Center Manager[30]

Read the full report at
http://facts.pt/Arzdcdd

A Principled Technologies report: In-depth research. Real-world value.

Managing the HCI stack: A comparison of two approaches with Dell EMC VxRail and vSAN ReadyNodes with VMware vSphere Lifecycle Manager

A Principled Technologies research report based on publicly available information

Introduction

The benefits of hyperconverged infrastructure (HCI) are well documented. A 2020 IDC analysis estimated that Dell EMC™ VxRail™ could deliver a 452 percent return on investment over a five-year period, potentially lowering operational costs by 72 percent and increasing efficiency among IT infrastructure teams by 68 percent.¹ As recognition and adoption of HCI solutions has increased, so too have the number of solutions on offer. A recent Market Study Report forecasted that the global HCI market will grow by 28 percent over the next seven years.²

Confronted with proliferating choices, businesses seeking to consolidate their data center infrastructure might be wondering: Should they go with an approach that includes VMware vSAN ReadyNodes™, or choose a more comprehensive solution like VxRail? We reviewed publicly available data on Dell EMC VxRail, VMware vSAN ReadyNodes, and several other VMware technologies. In this paper, we use that research to investigate what advantages customers might see by choosing VxRail.

With VxRail, organizations could…

Gain IT efficiencies using VxRail Lifecycle Manager automated updates, with AI-driven health scores for monitoring, and one-stop-shop support

Reduce IT time spent on researching compatibility and testing new updates thanks to 100+ dedicated VxRail engineers working behind the scenes to validate updates for customers³

Support multiple different configurations without needing to purchase new hardware due to older hardware aging or current hardware not being identical, thanks to VxRail heterogeneous hardware support

Expand into the cloud with full VMware Cloud Foundation™ integration, including a unique level of integration with Software Defined Data Center Manager⁴

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