What’s New in VxRail?

July 27th, 2021

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What’s new in VxRail

- VxRail overview
- VxRail on latest PowerEdge 15G
- VxRail 7.0.200
- VMware Tanzu
- CloudIQ for VxRail
- Resources
Dell EMC Industry Leadership

- Servers
- Public & Private Cloud IT Infrastructure
- Storage
- Converged
- And, HYPERCONVERGED
VxRail

The ONLY jointly engineered HCI system with VMware, for VMware, to enhance VMware

12.4K+ Customers

$6B Revenue

18%* Growth Rate

160K+ Nodes

*Source: IDC Quarterly Converged Tracker, Q4 2020. Hyperconverged Systems product category
Top reasons to choose VxRail

Fastest and simplest path to IT outcomes in the core data center, at the edge, and in the cloud

**TURNKEY EXPERIENCE**
- Dell EMC infrastructure & solutions
- VMware HCI / Cloud software
- VxRail HCI System Software

**LIFECYCLE MANAGEMENT**
- End-to-end automated lifecycle management for both hardware and software
- Full stack integration: Seamlessly go from a continuously validated state to the next

**HIGHLY DIFFERENTIATED**
- For VMware, by VMware, enhances VMware: the only jointly engineered HCI system
- Lockstep 30-day synchronous release with VMware vSphere
- Backed by Future Proof Program & Flex on Demand offer
VxRail HCI System Software

Integrated, value added software for automation, orchestration and lifecycle management

- **Continuously Validated States**: Full stack lifecycle management
- **SaaS Multi-cluster Management**: Management & analytics at scale
- **RESTful APIs**: Cloud extensibility to support broad use cases
- **VxRail Manager**: Fully integrated vCenter experience
- **Single Point of Contact**: Simplified management & support
- **Ecosystem Connectors**: Tight integration across the entire stack
- **Electronic Compatibility Matrix**: Validates compliance of configurations
- **Cloud Extensibility**: To support broad use cases
- **Ecosystem Integrations**: Across the entire stack
- **SaaS Management**: Integrated vCenter experience
- **Single Point of Contact**: Simplified management
- **Electronic Compatibility**: Validates configurations
What is inside VxRail?

**VMware HCI Software**
- Choice of vSAN
- vCenter Server
- vRealize Suite Ready
- vSphere Ready*
- Tanzu Basic (optional)
- VMware Cloud Foundation (optional)

**VxRail HCI System Software**
- VxRail Manager
- SaaS multi-cluster management
- RESTful APIs
- Automation and orchestration services
- Ecosystem connectors

**Data Protection Options**
- RecoverPoint for VMs
- VMware vSphere Replication

*Compatible with a broad range of customer-supplied vSphere licenses*
VxRail: On the latest generation Dell EMC PowerEdge
VxRail configuration flexibility for your workload

E, P, V, D, S, G Series based on the latest Dell EMC PowerEdge servers

Processor
Single, dual or quad, Gen 2 and Gen 1 Intel® Xeon®
Scalable with 4 to 112 cores per system
Or
3rd Gen AMD EPYC™ Series
with 8 to 64 cores in a single socket

RAM
16GB RDIMM
32GB RDIMM
64GB RDIMM/LRDIMM
128GB LRDIMM

Intel Optane Persistent Memory:
128GB, 256GB & 512GB

Power supply
550W, 1100W, 1600W
100-240V AC
1600W, 2000W, 2400W
200-240V AC
1100W
48V DC

Storage
Cache Drives: Optane 375GB, 750GB
NVMe 1600GB
SAS 400GB, 800GB, 1600GB
Capacity NVMe: 1TB, 4TB, 7.68TB
Capacity SSDs: 1.92TB, 3.84TB, 7.68TB
HDDs: 1.2TB to 8.0TB

Base networking
SFP28, SFP+, RJ45
2x 25GbE
4x 10GbE
2x 10GbE
Optional add-on NICs, FC HBA

GPUs
NVIDIA Tesla T4, V100/V100S or M10
NVIDIA Quadro RTX6000 or RTX8000
Note: GPU software & drivers sold separately

VxRail Sizing Tool v2.31: https://vxrailsizing.emc.com/
## VxRail Next Gen Nodes - Hardware highlights

Four new platforms – E660, E660F, P670F, V670F (RTS: July CY21)

<table>
<thead>
<tr>
<th>Faster</th>
<th>Bigger</th>
<th>Simpler</th>
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<tbody>
<tr>
<td>• New CPUs up to 40C (42% increase)</td>
<td>• Up to 4TB of memory (33% increase)</td>
<td>• Rear serviceable and hot-pluggable BOSS</td>
</tr>
<tr>
<td>• PCIe Gen 4 (Up to 2x bandwidth)</td>
<td>• Up to 8TB of 2nd gen Intel Optane persistent memory (166% increase)</td>
<td>• Industry standard OCP3 networking form factor for consistency across portfolio</td>
</tr>
<tr>
<td>• SAS HBA with 16x SAS lanes (Up to 2x bandwidth)</td>
<td>• Additional 4 capacity disk slots on P Series for up to 184TB of storage (20% increase)</td>
<td>• Dedicated front HBA slot for consolidated design across platforms</td>
</tr>
<tr>
<td>• Next-gen Intel Optane persistent memory (Up to 32% bandwidth improvement)</td>
<td>• Quad 25GbE OCP 3.0 networking (2.5x more bandwidth)</td>
<td>• Dual-side PSU wiring for cleaner cabling, improved air flow and cooling</td>
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<td>• NVMe cache drives on V Series</td>
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<tr>
<td>• PCIe Gen 4 NVMe cache drives</td>
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</table>
VxRail Performance highlights

Disclaimer: Based on internal Dell Technologies research (June 2021) of VxRail on latest generation PowerEdge with RDMA networking compared with VxRail on 14G PowerEdge with Skylake. Actual results will vary.

- 155K IOPS/host mark on OLTP4K **always under 1 ms !!!**
- Up to 2.2x increase in IOPS with a 53% reduction in latency for small and medium block IO
- Over 3x increase in read throughput for 4k and 8k block sizes (**128% for 16k**)
- Up to 2.46x increase in write throughput for 16k block sizes
- 2.6x increase in VMmark workloads
## Intel Generational comparison

### XCC at RTS, HCC post-RTS

<table>
<thead>
<tr>
<th></th>
<th>Intel “Cascade Lake”</th>
<th>Intel “Ice Lake”</th>
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</thead>
<tbody>
<tr>
<td><strong>SKUs Offered</strong></td>
<td>64</td>
<td>33+</td>
</tr>
<tr>
<td><strong>Brand</strong></td>
<td>Bronze, Silver, Gold, Platinum</td>
<td>Silver, Gold, Platinum</td>
</tr>
<tr>
<td><strong>Cores</strong></td>
<td>4 – 28</td>
<td>8 – 40</td>
</tr>
<tr>
<td><strong>TDP</strong></td>
<td>85W – 205W</td>
<td>105W – 270W</td>
</tr>
<tr>
<td><strong>Max DRAM Memory</strong></td>
<td>1.5TB per socket</td>
<td>2TB per socket</td>
</tr>
<tr>
<td><strong>DDR4 Channels</strong></td>
<td>6</td>
<td>8</td>
</tr>
<tr>
<td><strong>Memory Bandwidth</strong></td>
<td>Up to 2933 MT/s (2 DIMMs/channel)</td>
<td>Up to 3200 MT/s (2 DIMMs/channel)</td>
</tr>
<tr>
<td><strong>PCIe Lanes</strong></td>
<td>48</td>
<td>64</td>
</tr>
<tr>
<td><strong>PCIe Generation</strong></td>
<td>PCIe Gen 3</td>
<td>PCIe Gen 4 (slots and backplane)</td>
</tr>
<tr>
<td><strong>Storage Class Memory</strong></td>
<td>1&lt;sup&gt;st&lt;/sup&gt; Gen Optane up to 3TB per socket</td>
<td>2&lt;sup&gt;nd&lt;/sup&gt; Gen Optane up to 4TB per socket</td>
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</table>

### Ice Lake XCC CPUs

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<thead>
<tr>
<th></th>
<th>Freq (GHz)</th>
<th>Core Count</th>
<th>TDP (W)</th>
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<tbody>
<tr>
<td>8380</td>
<td>2.3</td>
<td>40c</td>
<td>270W</td>
</tr>
<tr>
<td>8368</td>
<td>2.4</td>
<td>38c</td>
<td>270W</td>
</tr>
<tr>
<td>8368Q</td>
<td>2.6</td>
<td>38c</td>
<td>270W</td>
</tr>
<tr>
<td>8360Y</td>
<td>2.4</td>
<td>36c</td>
<td>250W</td>
</tr>
<tr>
<td>8351N*</td>
<td>2.4</td>
<td>36c</td>
<td>225W</td>
</tr>
<tr>
<td>8352V</td>
<td>2.1</td>
<td>36c</td>
<td>195W</td>
</tr>
<tr>
<td>8358</td>
<td>2.6</td>
<td>32c</td>
<td>250W</td>
</tr>
<tr>
<td>8358P</td>
<td>2.6</td>
<td>32c</td>
<td>240W</td>
</tr>
<tr>
<td>6338</td>
<td>2</td>
<td>32c</td>
<td>205W</td>
</tr>
<tr>
<td>6314U*</td>
<td>2.3</td>
<td>32c</td>
<td>205W</td>
</tr>
<tr>
<td>8352S</td>
<td>2.2</td>
<td>32c</td>
<td>205W</td>
</tr>
<tr>
<td>8352Y</td>
<td>2.2</td>
<td>32c</td>
<td>205W</td>
</tr>
<tr>
<td>6338N</td>
<td>2.2</td>
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<td>185W</td>
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<tr>
<td>6348</td>
<td>2.6</td>
<td>28c</td>
<td>235W</td>
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<tr>
<td>6330</td>
<td>2</td>
<td>28c</td>
<td>205W</td>
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<tr>
<td>6330N</td>
<td>2.2</td>
<td>28c</td>
<td>165W</td>
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<tr>
<td>6354</td>
<td>3</td>
<td>18c</td>
<td>205W</td>
</tr>
<tr>
<td>6346</td>
<td>3.1</td>
<td>16c</td>
<td>205W</td>
</tr>
</tbody>
</table>

*Single socket only
**Dell EMC VxRail E660/F**

**Support for up to 10 drives**
- All-flash or hybrid configurations
- 2x Optane, NVMe or SAS cache drives
- 8x SAS, vSAS or SATA capacity drives

**Support for high-speed and memory capacity**
- 32 DDR4 3200 MT/s DIMMs
- Intel® Optane Persistent Memory 200 series

**2 Socket Capable**
- Single or dual 3rd Generation Intel® Xeon® Scalable processors with up to 40 cores

**Flexible I/O**
- Dual or quad port OCP 3.0 networking
- Three low profile PCIe Gen4 x16 slots
- Or
- Two full height PCIe Gen4 x16 slots

**Target Workloads**

**Medium Duty Inferencing**
Tuned to power medium duty AI or ML tailored inferencing algorithms to drive more timely and accurate business insights.

**Dense Database Analytics**
High core count CPUs combined with increased memory capability provide ample performance and capacity for database analytics in a dense 1U form factor.

**Mixed Workload Standardization**
For datacenters that require standardized hardware with several diverse workloads. Provides capacity, performance and configuration flexibility in 1U node.

- Up to 3x NVIDIA T4 GPU
- Flexible diskgroup:
  - One diskgroup with up to 7 capacity drives
  - Two diskgroups each with up to 4 capacity drives
- All-flash or hybrid
- Single or dual processors
Dell EMC VxRail P670F

Support for up to 28 drives
- 4x Optane, NVMe or SAS cache drives
- 24x SAS, vSAS or SATA capacity drives

Support for high-speed and memory capacity
- 32 DDR4 3200 MT/s DIMMs
- Intel® Optane Persistent Memory 200 series

Flexible I/O
- Dual or quad port OCP 3.0 networking
- Two low profile PCIe Gen4 x16 slots
- And
- Two full height PCIe Gen4 x16 slots

Dual processor only
- 3rd Generation Intel® Xeon® Scalable processors with up to 40 cores
- Support for dual up to 270W processors

Target Workloads

Database and Analytics
Ideal for XaaS, Hadoop, OLTP and Decision Support Systems workloads with flexible resources

Mixed Workload Standardization
For datacenters that require standardized hardware with several diverse workloads. Provides the highest capacity, performance and configuration flexibility in a single 2U node

- 20% additional capacity drives slots, 184TB in 2U
  - Additional capacity drives are rear mounted
Dell EMC VxRail V670F

**Support for up to 24 drives**
- 4x Optane, NVMe or SAS cache drives
- 20x SAS, vSAS or SATA capacity drives

**Support for high-speed and memory capacity**
- 32 DDR4 3200 MT/s DIMMs
- Intel® Optane Persistent Memory 200 series

**Flexible I/O**
- Dual or quad port OCP 3.0 networking
- Two or four PCIe Gen4 non-GPU slots
- Two double wide GPU PCIe Gen4 slots
- Six single wide GPU PCIe Gen4 slots

**Dual processor only**
- 3rd Generation Intel® Xeon® Scalable processors with up to 40 cores
- Support for dual up to 270W processors

**Flexible diskgroup:**
- Three diskgroups each with up to 7 capacity drives
- Four diskgroups each with up to 5 capacity drives

**Target Workloads**

**AI/ML/DL Training/Inferencing**
- High Performance compute and accelerators configuration options enables AI/ML/DL workloads
- NVIDIA A100 optimized for inference workloads
- Tesla T4 optimized for HPC workloads and entry level machine learning

**Virtual Desktop Infrastructure**
- Balanced core count and GPU to support for maximum numbers of end users
- NVIDIA A40 for sophisticated visual computing workloads
- Tesla M10 optimized for end user computing (virtual desktops)

**Render farms and Virtualization**
- GPU flexibility enables various workloads, as well as higher GPU-utilization using multi-tenancy to serve multiple users without compromising performance
VxRail on latest generation Dell EMC servers

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<thead>
<tr>
<th></th>
<th>E660/F</th>
<th>E665/F/N</th>
<th>P670F</th>
<th>P675F/N</th>
<th>V670F</th>
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<tbody>
<tr>
<td><strong>Our everything platforms</strong></td>
<td><img src="image1" alt="Image" /></td>
<td><img src="image2" alt="Image" /></td>
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<td><img src="image4" alt="Image" /></td>
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<td>R650</td>
<td>R6515</td>
<td>R750</td>
<td>R7515</td>
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<tr>
<td>10 x 2.5” drives</td>
<td>10 x 2.5” NVMe or 8 x 2.5” All-Flash / Hybrid</td>
<td>28 x 2.5” drives</td>
<td>24 x 2.5” drives</td>
<td>24 x 2.5” drives</td>
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<td>All-Flash / Hybrid</td>
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<td>All-Flash only</td>
<td>All-Flash or NVMe</td>
<td>All-Flash only</td>
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<tr>
<td><strong>Performance focused platforms</strong></td>
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<td><img src="image7" alt="Image" /></td>
<td><img src="image8" alt="Image" /></td>
<td><img src="image9" alt="Image" /></td>
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<tr>
<td>Single or dual Intel® Xeon® Scalable Gen 3</td>
<td>Single 2nd or 3rd Gen AMD EYPC™</td>
<td>Dual Intel® Xeon® Scalable Gen 3</td>
<td>Single 2nd or 3rd Gen AMD EYPC™</td>
<td>Dual Intel® Xeon® Scalable Gen 3</td>
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<tr>
<td>10GbE or 25GbE OCP3</td>
<td>10GbE or 25GbE OCP2</td>
<td>10GbE or 25GbE OCP3</td>
<td>10GbE or 25GbE OCP3</td>
<td>10GbE or 25GbE OCP3</td>
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<tr>
<td>2nd Generation Intel Optane Persistent Memory</td>
<td>2 x PCIe Gen4 slots</td>
<td>2nd Generation Intel Optane Persistent Memory</td>
<td>Two single width GPUs or One double wide GPU</td>
<td>Six single width GPUs or Two double wide GPUs Four NVIDIA GPU options</td>
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<tr>
<td>Three single wide GPUs</td>
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<td>4 x PCIe Gen4 slots</td>
<td>2 x PCIe Gen4 slots</td>
<td>8 x PCIe Gen4 slots (6 x if using DW GPU)</td>
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<td>3 x PCIe Gen4 slots</td>
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<td>10GbE or 25GbE PCIe Optane/NVMe/SAS cache FC HBA</td>
<td>FC HBA</td>
<td>10GbE or 25GbE Optane/NVMe/SAS cache SAS/SATA capacity FC HBA</td>
<td>10GbE or 25GbE Optane/NVMe/SAS cache All NVMe capacity FC HBA</td>
<td>10GbE or 25GbE Optane/NVMe/SAS cache FC HBA</td>
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<td><strong>Optimized for acceleration</strong></td>
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<td>10 x 2.5” drives</td>
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<td>All-Flash / Hybrid</td>
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<td>10 x 2.5” NVMe or 8 x 2.5” All-Flash / Hybrid</td>
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<td><strong>R750</strong></td>
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<td>28 x 2.5” drives</td>
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<td>All-Flash only</td>
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<td><strong>R7515</strong></td>
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# VxRail on Dell EMC PowerEdge

<table>
<thead>
<tr>
<th>E560N</th>
<th>P580N</th>
<th>D560/F</th>
<th>S570</th>
<th>G560/F</th>
</tr>
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<tbody>
<tr>
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<td><img src="https://via.placeholder.com/150" alt="Image" /></td>
</tr>
<tr>
<td>Our everything platform</td>
<td>Performance focused</td>
<td>Durable &amp; rugged</td>
<td>Storage dense</td>
<td>Compute dense</td>
</tr>
<tr>
<td>Dual Intel® Xeon® Scalable Gen 2, 8 to 56 cores</td>
<td>Quad Intel® Xeon® Scalable Gen 2, up to 112 cores</td>
<td>MIL-STD 810G and DNV-GL Maritime certified to withstand extreme heat, sand, dust and vibration</td>
<td>Only series with 3.5” HDD Hybrid only</td>
<td>Eight Intel® Xeon® Scalable Gen 2 processors in 2U</td>
</tr>
<tr>
<td>Up to 3TB of Optane Persistent Memory??</td>
<td>*Up to 12TB of Optane Persistent Memory</td>
<td>Short depth only 20” Certified cold start down to -15C &amp; to run at up to 45C</td>
<td></td>
<td></td>
</tr>
<tr>
<td>R640 10 x 2.5” NVMe drives</td>
<td>R840 24 x 2.5” drives</td>
<td>XR2 8 x 2.5” drives</td>
<td>R740XD 12 x 3.5” plus 2 x 2.5” drives</td>
<td>C6400 with C6420 node 24 x 2.5” drives</td>
</tr>
<tr>
<td>10GbE or 25GbE Optane/NVMe/SAS cache All NVMe capacity FC HBA NVIDIA T4 GPU</td>
<td>10GbE or 25GbE Optane/NVMe cache All NVMe capacity FC HBA M10 GPU</td>
<td>10GbE or 25GbE Optane/NVMe cache NVIDIA T4 GPU</td>
<td>10GbE or 25GbE SAS cache only FC HBA 48V DC PSU option</td>
<td>10GbE Optane/NVMe/SAS cache 220V – 240V AC only</td>
</tr>
</tbody>
</table>
Optane Persistent Memory 200 Series
Larger capacity, more slots, faster speeds, and lower power

Intel Optane PMem 100 series
2nd Generation Intel® Xeon® Scalable processors on 2S/4S/8S platform

- 8–28 cores
- 3 TB Intel Optane PMem per socket*
- 4.5 TB Total system memory per socket*
- 2,666 MT/s DDR4 + Intel Optane PMem
- 18 W Max thermal design power
- 6 channels memory
- eADRR

Intel Optane PMem 200 series
3rd Generation Intel Xeon Scalable processors on 2S platform

- 16–40 cores
- 4 TB Intel Optane PMem per socket**
- 6 TB Total system memory per socket**
- 3,200 MT/s DDR4 + Intel Optane PMem
- 8 channels memory
- 15 W Max thermal design power

Post-RTS availability
Persistent Memory: Memory Mode

Ice Lake based platforms only: E660/F, P670F, & V670F

- 1:4 only supported ratio for near to far memory
- PMem capacities are:
  - 128GB, 256GB, and 512GB
- Only available on dual processor configurations
  - 4 or 8 PMem DIMMs per socket
- Available configurations at launch
  - 8x 128GB PMem + 16x 16GB DRAM
  - 16x 128GB PMem + 16x 32GB DRAM
  - 16x 256GB PMem + 16x 64GB DRAM
  - 16x 512GB PMem + 16x 128GB DRAM
Persistent Memory: App Direct mode

Ice Lake based platforms only: E660/F, P670F, & V670F

• Single and dual processor configurations
  – 1, 2, 4, or 8 PMem DIMMs per socket
  – Combined with 4, 6, 8, or 12 DRAM DIMMs per socket
  – Single processor option only on E660/F

• Available PMem capacities are:
  – 128GB, 256GB, and 512GB

• 72 different slot/capacity configurations
  – 64 to 1.5TB of DRAM plus 128GB to 4TB of PMem
  – Examples:
    • 512GB DRAM plus 2TB PMem
    • 1536GB DRAM plus 256GB PMem
    • 1TB DRAM plus 4TB PMem
  – See ordering guide for all options
Capacity and cache drives

- **SAS capacity**
  - Agnostic RI - 1920/3840/7680 GB
  - Mixed Use (MU) available post-RTS

- **vSAS capacity**
  - Value SAS available post-RTS

- **SATA capacity**
  - Vendor specific RI - 1920/3840 GB
  - Agnostic RI - 1920/3840 GB

- **Hybrid capacity HDDs**
  - Agnostic - 1.2 TB and 2.4 TB
  - E Series only

- **NVMe cache** – all PCIe Gen 4
  - Agnostic MU – 1.6 TB
  - Vendor specific MU - 1.6 TB
  - Optane (Gen 1 **) – 375 GB
    - Optane (Gen 2) 400 GB and 800 GB post-RTS

- **SAS cache**
  - Vendor Specific WI - 400/800GB
  - Agnostic MU - 800/1600GB
New diskgroup configuration options

More capacity per diskgroup, but fewer diskgroups

- **V670F**
  - Default: 4 groups, up to 5 capacity drives
  - Option: 3 groups, up to 7 capacity drives
    - One additional capacity drive per node

- **P670F**
  - Default: 4 groups, up to 6 capacity drives
    - 28 drive slots total
    - 4 additional capacity drive slots are in rear
    - No optional config

- **E660/F**
  - Default: 2 groups, up to 4 capacity drives
  - Option: 1 group, with 7 capacity drives
    - Slots 7 & 8 are unmanaged

Example of default four diskgroup layout above, and optional three diskgroup layout below, on the V670F.
Networking: OCP 3.0

• Intel
  – E810 dual 25GbE SFP28
  – X710 dual or quad 10GbE SFP+
  – X710 dual or quad 10GbE BASE-T

• Broadcom
  – 57504 quad port 10/25GbE SFP28 (PCIe G4 x8)
  – 57412 dual 10GbE SFP+
  – 57416 dual 10GbE BASE-T

• Mellanox
  – ConnectX-5 dual 10/25GbE SFP28

• OCP 3.0 replaces rNDC
  – Widely adopted open standard
  – PCIe Gen4 x16 slot capable of 200GbE bandwidth
  – Greater selection of adaptors
  – Quicker to market with new offerings

• 25GbE networking
  – vSAN performance can exceed 10GbE
  – vMotion will consume as much as it can
  – 25GbE NICs will run at 10GbE
  – Minimal price delta
  – Upgrade network switches next budget cycle
Networking: PCIe cards

- Intel
  - E810 dual 25GbE SFP28
  - X710 dual or quad 10GbE SFP+
  - X710 dual or quad 10GbE BASE-T

- Broadcom
  - 57414 dual 10/25GbE SFP28
  - 57416 dual 10Gb BASE-T

- Mellanox
  - ConnectX-5 dual 10/25GbE SFP28
  - ConnectX-6 DX dual 100GbE QFSFP56

- vSAN and mixed NICs
  - PCIe NIC used for internal (vSAN) traffic must be the same vendor as the onboard OCP NIC. This is not necessary if the PCIe NIC is used for external communication.

- 25GbE networking
  - vSAN performance will exceed 10GbE
  - vMotion will consume as much as it can
  - 25GbE NICs will run at 10GbE
  - Upgrade network switches next budget cycle
Connectivity: Fibre channel

Support for primary and secondary storage use cases

• Continue to leverage existing Fibre Channel investment
  – Expand storage choices in the data center
    • FC and VxRail side by side
  – Introduce additional storage capabilities
  – Position customer for future flexibility with HCI
  – Future migration path from FC storage

• FC HBA:
  – Emulex LPE 31002 dual 16Gb
  – Emulex LPE 35002 dual 32Gb
  – QLogic 2692 dual 16Gb
  – QLogic 2772 dual 32Gb

• Any VMware certified FC SAN
Virtual GPUs for every workload

NVIDIA M10
Knowledge Worker VDI w/vPC

NVIDIA T4
Entry – Mid Range vWS
Knowledge Worker VDI w/vWS
Inference w/Virtual Compute Server

NVIDIA A40
High-End vWS

NVIDIA A100
High-End Virtual Data Science

Office productivity & streaming video

Enterprise acceleration, Graphics, Analytics, Inference

Largest CAD models, CAE, photorealistic rendering, Seismic exploration

Medium size/complexity CAD models, Basic DCC, Medical Imaging, PLM

Large/complex CAD models, Seismic exploration, complex DCC effects, 3D Medical imaging recon

Deep Learning training, HPC, AI, Data Science
Rear serviceable hot pluggable BOSS-S2

- Does not consume PCIe internal slot
- External access means no impact when replacing BOSS SATA drive
- Monitor rebuild process in iDRAC user interface
- Service procedures will be published at the time of release.
VxRail 15th Generation

Performance highlights
Mixed Workloads & Small Blocks Size – OLTP4K (70/30)

OLTP4K RAID1

- +135K IOPS/host
- +54% Cascade Lake
- +93% SkyLake
- +155K IOPS/host
  RDMA

IOPS

Latency (ms)

4xE560F Sky Lake
4xE560F Cascade Lake
4xP670F Ice Lake (PCIe4)
4xP670F Ice Lake (PCIe4) + RDMA
Mixed Workloads & Large Blocks Size – OLTP32K (70/30)

Lower latency

+57% Cascade Lake
+38% PCIe3 & Skylake

OLTP32K

Latency (ms)

0.00 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80

0 50000 100000 150000 200000 250000 300000

IOPS

4xE560F Sky Lake Latency (ms)
cascade lake
4xP670F Ice Lake (PCIe4)
4xP670F Ice Lake (PCIe4) + RDMA
Relational Database Workload (60/40)

The diagram illustrates the performance of different configurations for a Relational Database Workload with a mix of 60/40 IOPS. The configurations compared are:

- 4xE560F Sky Lake
- 4xE560F Cascade Lake
- 4xP670F Ice Lake (PCIe4)
- 4xP670F Ice Lake (PCIe4) + RDMA

The graph shows latency (ms) on the y-axis and IOPS on the x-axis. The configurations are represented by different colored lines, with the performance gains indicated by the text "+56% Cascade Lake" and "+75% SkyLake". The lower latency is marked with an arrow pointing upwards, indicating improved performance with the configurations noted.
TPCC Benchmark Results

- The P670F achieves the highest TPM’s score
- Intensive transactional workloads will benefit from the new CPU generation and also from PCIe4 support
Table of contents

- vSphere 7.0 Update 2a
- New in vSphere 7.0 U2
  - HCI Mesh v2
    - Simplified Capacity Monitoring, Planning, and Alerting
    - vSAN performance ‘top contributors’
  - vSAN RDMA
  - Support internal KMS for vSAN encryption
  - File services enhancement
  - Suspend VMs to memory during Quick Boot
  - Increased scale and DRS awareness for vSAN stretched clusters
- Day 2 support of Enhanced Link Mode for VxRail-provided vCenter Server
Enhanced HCI Mesh in vSAN 7.0 U2

• Share vSAN storage resources to compute clusters
  • Scale storage and compute separately (i.e. compute-intensive workloads, utilize existing servers, segment test/dev environments)
  • Save on license costs – no vSAN license needed on HCI Mesh compute clusters
  • Expanded storage policies to include data services on vSAN datastores

• VxRail implementation
  • Support non-VxRail compute clusters
    • VxRail does not perform LCM on them
    • Dell technical support does not cover non-Dell infrastructure
  • Cluster shutdown detects if datastores are remotely mounted and VMs are powered on

• Scalability has increased from 64 hosts to 128 hosts connected to remote vSAN datastore (includes local hosts)
HCI Mesh with VxRail

vSAN
- Availability
- Storage rules
- Advanced Policy Rules
- Tags
  - Encryption services
    - Data-At-Rest encryption
    - No encryption
    - No preference
  - Space efficiency
    - Deduplication and compression
    - Compression only
    - No space efficiency
    - No preference
  - Storage tier
    - All flash
    - Hybrid
    - No preference

VxRail Cluster
- VM

Compute cluster
- VM

VxRail Cluster
- VM

Compute cluster
- VM

VxRail Cluster
- VM

Compute cluster
- VM
vSAN RDMA

- RDMA (Remote Direct Memory Access) – allows systems to exchange data in memory and bypass the CPU
  - Lowers latency and CPU overhead
  - Ideal for HCI where compute resources are at a premium
- vSAN 7.0 U2 introduces support of RDMA over Converged Ethernet v2
  - Mellanox CX-4 (check VMware Hardware Compatibility Guide for latest) on all nodes
  - Supports clusters with up to 32 nodes
  - Clusters automatically detect RDMA
  - Link aggregation not supported
- Reduction in CPU utilization and improved application performance
  - Benefits most on mixed read/write workloads at 100% random
- Switch configured for Datacenter Bridging for RoCEv2
vSAN RDMA performance – small block, random mix

Almost 20% more IOPs at 25% less latency
Tanzu on VxRail
VMware Tanzu on VxRail
Kubernetes at the Speed of Cloud

ACCELERATE ADOPTION
Automate Kubernetes infrastructure deployment and provisioning accelerating developer productivity

RAPID K8s EVOLUTION
Lock step support for latest VMware Kubernetes advancements

K8s YOUR WAY
Choice of infrastructure delivery options across edge, core and cloud that align to your organization’s operating model

15 minutes to add new VxRail nodes to a cluster

30 day Synchronous release with VMware

Only Vendor offering fully integrated RA, cluster, and private cloud offerings

1. Based on internal testing AD#: G20000139
2. Based on VMware validation #G20000312
VMware Tanzu on VxRail
Kubernetes your way

Develop on a validated PaaS/CaaS platform

Embrace Kubernetes through vSphere

Adopt Kubernetes on a unified cloud platform

Level of full stack automation

Tanzu Architecture for VxRail
Purpose-built, validated, tested designs for cloud-native workloads through TKGI

vSphere with Tanzu on VxRail
Rapidly modernize with developer-ready native Kubernetes integration and networking architecture flexibility

VMware Cloud Foundation with Tanzu on VxRail
Simple, direct path to K8s with fully integrated, automated, turnkey hybrid cloud with built-in SDN & security, extending to edge

Deploy the optimal infrastructure match for your Kubernetes readiness journey
Tanzu Architecture for VxRail

Speed time to production with purpose-built platform for rapid application development and deployment.

Tested and validated with regular updates and patches for latest features.

Trusted, mature cloud-native architecture from VMware & Dell Technologies.
VMware vSphere with Tanzu

Ideal for Customers wanting to rapidly deploy Tanzu in production

Customer can choose SDN networking option

Fully leverage VxRail automated, single click full stack lifecycle management
VMware Cloud Foundation with Tanzu on VxRail

Production-ready modern apps infrastructure with one, complete, automated platform

Run traditional and modern apps on single integrated cloud platform

Developers have self service access to infrastructure and K8s through a common set of built-in APIs
CloudIQ Integration – Phase 1
VxRail functionality in CloudIQ
Single and multi-system views

- Health
- Inventory
- Capacity
- Performance
For more information

• What’s New in VxRail technical deck
  • https://vxrail.is/whatsnew

• VxRail Technical FAQ
  • https://vxrail.is/techfaq

• CloudIQ Demo Simulator
  • https://cloudiq.emc.com/simulator/index.html#/overview

• CloudIQ web portal
  • https://cloudiq.dell.com
Interactive Demo and Hands-On Lab
What’s available to you

1. Core VxRail demos
   - Interactive demo – VxRail 4.7
     • https://vxrail.is/demo
   - Hands-on lab: VxRail 4.7 – Simplifying IT through Standardization and Automation
     • https://democenter.dell.com/
   - Hands-on lab: VxRail ACE
     • https://democenter.dell.com/

2. VCF demos
   - New interactive demo
     • https://vxrail.is/vcfdemo
## Resources – Dell Technologies pages

<table>
<thead>
<tr>
<th>Resource</th>
<th>URL</th>
</tr>
</thead>
<tbody>
<tr>
<td>VxRail Knowledge Center</td>
<td>vxrail.is/everything</td>
</tr>
<tr>
<td>VCF Documentation</td>
<td>vmware.com/go/cloudfoundation-docs</td>
</tr>
<tr>
<td>VxRail Infohub</td>
<td><a href="https://infohub.delltechnologies.com/t/vxrail/">https://infohub.delltechnologies.com/t/vxrail/</a></td>
</tr>
<tr>
<td>Interactive Demo</td>
<td>vxrail.is/vcfdemo</td>
</tr>
<tr>
<td>VxRail FastPass</td>
<td>vxrail.is/fastpass</td>
</tr>
<tr>
<td>Twitter</td>
<td>@VxRail</td>
</tr>
<tr>
<td>YouTube</td>
<td><a href="https://www.youtube.com/playlist?list=PLbssOJyyvHuXssCxa67Y6zlK9BYW9Ohrv">https://www.youtube.com/playlist?list=PLbssOJyyvHuXssCxa67Y6zlK9BYW9Ohrv</a></td>
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</tbody>
</table>
# Resources – VMware pages

<table>
<thead>
<tr>
<th>Resource</th>
<th>URL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product Page</td>
<td><a href="vmware.com/go/cloudfoundation">vmware.com/go/cloudfoundation</a></td>
</tr>
<tr>
<td>VCF Resource Center</td>
<td><a href="https://core.vmware.com/cloud-foundation">https://core.vmware.com/cloud-foundation</a></td>
</tr>
<tr>
<td>Blog</td>
<td><a href="blogs.vmware.com/cloud-foundation">blogs.vmware.com/cloud-foundation</a></td>
</tr>
<tr>
<td>HOL</td>
<td><a href="labs.hol.vmware.com/HOL/catalogs/lab/3787">labs.hol.vmware.com/HOL/catalogs/lab/3787</a></td>
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<tr>
<td>Community</td>
<td><a href="vmware.com/go/cloudfoundation-community">vmware.com/go/cloudfoundation-community</a></td>
</tr>
<tr>
<td>FAQ</td>
<td><a href="vmware.com/go/cloudfoundation-faq">vmware.com/go/cloudfoundation-faq</a></td>
</tr>
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<td>Twitter</td>
<td><a href="twitter.com/@VMwareVCF">@VMwareVCF</a></td>
</tr>
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</tr>
</tbody>
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