Dell EMC™ PowerEdge™ studies

Empower more virtual desktop users with Dell EMC PowerEdge R650xs servers with 3rd Generation Intel Xeon Scalable processors

vs. Dell EMC PowerEdge R640 servers with 2nd Generation Intel Xeon Scalable processors

If you're shopping for affordable virtual desktop infrastructure (VDI) to empower your organization's remote and mobile workforce, the Dell EMC PowerEdge R650xs may fit the bill. This new PowerEdge XS server is equipped with 3rd Generation Intel® Xeon® Scalable processors, support for PCI Express® (PCIe®) Gen 4, and the latest memory, networking, storage, and security technologies. Plus, our hands-on testing uncovered some compelling VDI performance benefits you could capitalize on by investing in Dell EMC PowerEdge R650xs servers.

In the Principled Technologies data center, we used the VMware® View® Planner 4.6 benchmark tool to determine the maximum number of virtual desktop users a dual-socket Dell EMC PowerEdge R650xs server powered by 3rd Generation Intel Xeon Gold 6330 processors with 28 cores per socket could support compared to a dual-socket Dell EMC PowerEdge R640 server powered by 2nd Generation Intel Xeon Gold 6230 processors with 20 cores per socket. Then we measured power efficiency. We found that the Dell EMC PowerEdge R650xs server configuration we tested supported significantly more virtual desktop users and consumed fewer watts per VDI session versus the Dell EMC PowerEdge R640. Read on to get the whole story.

Support 61% more virtual desktop users

Consume fewer watts per VDI session

Dell EMC PowerEdge R650xs server

vs. a Dell EMC PowerEdge R640 powered by 2nd Generation Intel Xeon Scalable processors

About the Dell EMC PowerEdge R650xs server

This 1U dual-socket server is designed for medium-duty workloads. It comes with "full-stack management integration with Microsoft, VMware, ServiceNow, Ansible and many other tools for multiple operating environments, from on-premises to cloud to edge."[1]

About 3rd Generation Intel Xeon Scalable processors

The Dell EMC PowerEdge R650xs server features Intel Xeon Gold 6330 processors, which are a direct upgrade to Intel Xeon Gold 6230 processors. These processors are, according to Intel, "optimized to power the industry's broadest range of workloads" and come with integrated AI acceleration (Intel DL Boost technology) and advanced security capabilities (Intel SGX and Intel Crypto Acceleration), which provide built-in data and application code protection.[2]

Table 1: The dual-socket 1U servers we tested offer the following specifications, according to Dell Technologies:

Dell EMC PowerEdge server		
	R650xs[3]	R640[4]
Intel Xeon Scalable processors	3rd Generation	2nd Generation
Cores per socket	Up to 32	Up to 28
Support for PCIe NVMe™ SSDs	Gen4	Gen3
Memory channels	8	6

To learn more, visit www.dell.com/en-us/work/shop/servers-storage-networking/sf/poweredge-rack-servers.

What we tested

To compare VDI user density on the two servers, we set up a VMware Horizon® 8 VDI environment with Windows 10 images running Microsoft Office 2019. Then we evaluated both servers two ways:

- We compared virtual desktop performance using the VMware View Planner 4.6 standard workload benchmark, which measures the client-side performance of virtual desktops.[5]
- We calculated power efficiency by determining the watts consumed per VDI session while the servers were running at maximum VDI user density.

In our tests, the Dell EMC PowerEdge R650xs, powered by 3rd Generation Intel Xeon Scalable processors, supported more VDI users and consumed fewer watts per VDI session.

More VDI sessions without slowing the end-user experience

The rapid increase of remote and hybrid workers in response to the pandemic has forced many enterprises to rethink the way they provision their data centers. VDI enables remote and mobile employees, contractors, field technicians, nurses, financial workers, and others to access the applications they need, where and when they need them. The ability to support more virtual desktop users while also delivering acceptable session response times means you don't have to purchase high-powered laptops and other devices to keep your workforce productive—you can centralize resource-intensive applications and let the end users access those resources as needed.

In our VMware View Planner benchmark comparison, we found the Dell EMC PowerEdge R650xs supported more VDI sessions with acceptable response times than the previous-generation server.

Support 61% more virtual desktop users per server

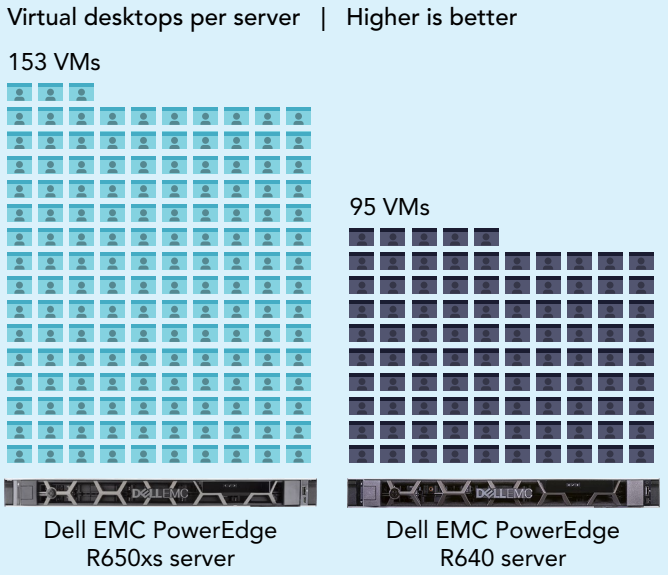


Figure 1: Total VDI sessions based on VMware View Planner benchmark results. Higher is better. Source: Principled Technologies.

More power efficiency

While reliable, high-performance servers are crucial to business growth and happy end users, there is another important piece in the performance puzzle: energy efficiency. In our tests, the Dell EMC PowerEdge R650xs consumed 652 watts total and the Dell EMC PowerEdge R640 consumed 459 watts total. On the surface, it may appear that the older server was more energy-efficient than the new XS server. However, because the PowerEdge R650xs supported so many more VDI sessions per server, it actually consumed fewer watts per VDI session. This power efficiency can translate to fewer data center power and cooling surprises as your business grows and VDI sessions increase. To read more about our calculations and results, see the science behind this report.

Consume 11.8% fewer watts per session

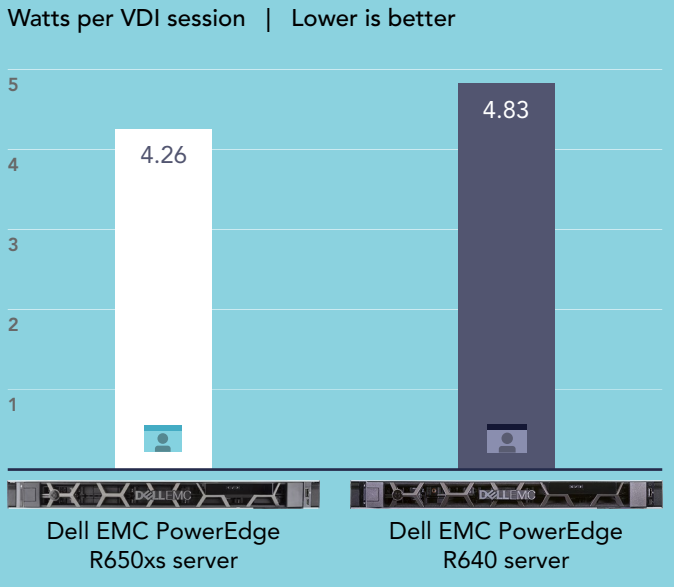
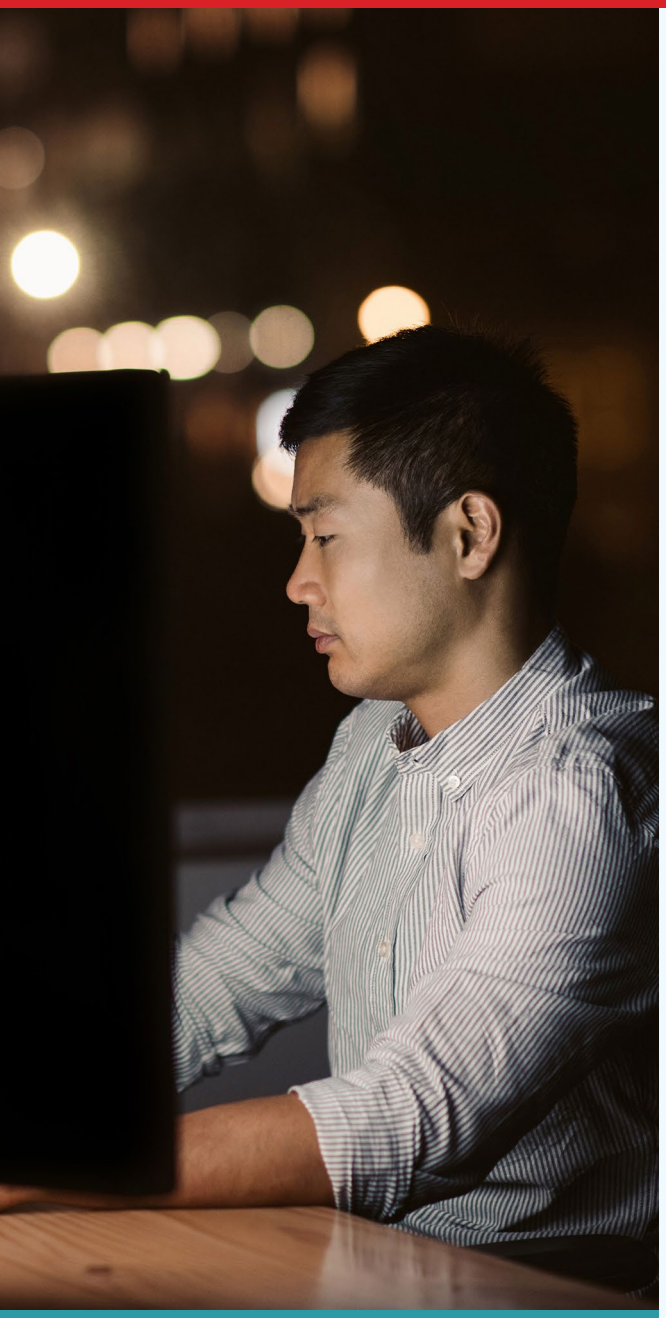


Figure 2: Total watts per VDI session based on VMware View Planner benchmark results. Lower is better. Source: Principled Technologies.



Conclusion

In our hands-on testing, a new Dell EMC PowerEdge R650xs server, powered by the latest processor, memory, networking, storage, and security technologies, supported significantly more virtual desktop users and consumed fewer watts per VDI session compared to a previous-generation Dell EMC PowerEdge R640.

1 Dell Technologies, "Dell EMC PowerEdge R650xs spec sheet," accessed September 14, 2021, https://i.dell.com/sites/csdocuments/Product_Docs/en/r650xs-spec-sheet.pdf.

2 Intel Newsroom, "Intel Launches Its Most Advanced Performance Data Center Platform," accessed September 14, 2021, https://www.intel.com/content/www/us/en/newsroom/news/3rd-gen-xeon-scalable-processors.html#gs.as7q14.

3 Dell Technologies, "Dell EMC PowerEdge R650xs spec sheet."

4 Dell Technologies, "Dell EMC PowerEdge R640 spec sheet," accessed September 14, 2021, https://i.dell.com/sites/csdocuments/Product_Docs/en/poweredge-r640-spec-sheet.pdf.

5 VMware, "VMware View Planner Documentation," accessed September 14, 2021, https://docs.vmware.com/en/VMware-View-Planner/index.html.

Read the science behind this report at http://facts.pt/OSppb41 ►

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