

Nominee: Dell

Nomination title: Dell PowerEdge R820

In 2012, Dell launched its 12th generation (12G) of PowerEdge servers built on the Intel® Xeon® E5 processor family and which are designed for use in demanding enterprise environments. The PowerEdge R820 rack server, part of the 12G family, is one of Dell's highest performing and most manageable servers ever. When Intel launched its Xeon E5 last year, the PowerEdge R820 was the only server to be featured at the event, reflecting Dell's ability to deliver products to market more quickly and efficiently than any of its competitors. With four processors in a 2U rack configuration, the PowerEdge R820 is aimed at customers that want to reduce the footprint of their datacentres while increasing performance and power efficiency. Dell works very closely with its customers to help shape and prioritise the direction of the solutions Dell brings to the market and the R820 was no exception. The R820 design is based on feedback from 7,700 customer interactions in 17 countries across four continents.

This in-depth consultation resulted in the R820 receiving a 5/6 star commendation and a coveted 'Recommended' award in an independent review by IT Pro, which can you view in full [here](#).

The PowerEdge R820 is fundamentally designed for companies looking to increase their virtualization capabilities. The dense memory, numerous I/O options and powerful processing power allow users to create more virtual machines per server when compared to previous models. When this is combined with Dell's powerful management tools, users can enable complex virtualization environments without having to go through weeks of training. Tests of the PowerEdge R820 revealed that it can consolidate up to eight times the number of virtual machines (VMs) compared to previous generation servers, and has up to 281% lower annual costs due to the high density of the nodes. Furthermore, dual Secure Digital (SD) modules allow users to maximise uptime as the redundant failsafe hypervisors are replicated from one SD card to another. The 12th generation of PowerEdge servers can provide customers with increased application performance, availability and scalability. Customers are able to improve application options by taking advantage of the seven integrated PCIe Gen3-capable expansion slots which are particularly useful for large and small businesses that are continuously challenged to scale appropriately. Although it's often difficult finding the correct balance, it is essential for organisations to evaluate the risks of either significantly overpaying for equipment they do not use or being caught with underpowered equipment resulting in losing business cycles. The R820 has twice the interconnect bandwidth (8Gbps) than the previous generation, meaning that customers can make networking, power management and GPU processing acceleration more effective than ever. In addition, with the R820 customers can choose internal PCIe SSD drives, which can provide much higher IOPS than standard drives, helping to reduce I/O bottlenecks. For the first time in x86 servers, these high performance PCIe-attached SSDs are presented in standard front-mounted hot plug drive carriers for easy access/replacement – a breakthrough in component design. A new CacheCade feature boosts database I/O by caching most frequently accessed data so that it can be retrieved quickly. For example, if numerous end users have to access a report in one day, this will be cached and stored in the highest performing storage so that it can be retrieved very quickly, saving time for employees which equates to potential revenue for the company. When it comes to cooling, the R820 provides the option of a pair of hot-plug 1100W power supplies or 750W and 1100W DC versions. In the IT Pro review mentioned above,

the reviewer stated that the R820 “undoubtedly strengthens Dell's position in the server market as it is superbly designed”, it was noted that with Windows Server 2008 R2 in idle, a draw of 164W was measured. With the SiSoft Sandra benchmarking app working all 48 logical cores, this only rose to 365W. Stacking this up against a Xeon E7 system puts this firmly into perspective:

Competitor Fujitsu’s RX600 S6 and its quartet of 10-core 2GHz E7-4850 Xeons pulled 427W in idle and a large 760W under load, making the Dell PowerEdge R820 61% more efficient. The PowerEdge R820 is part of Dell’s Fresh Air design initiative; intended to deliver superior tolerances and specifications in the field of datacentre cooling. By designing the PowerEdge R820 (and other PowerEdge 12G servers) to be able to operate at temperature limits as high as 45oC and 90% humidity, customers can pursue strategies to either raise datacentre temperature thresholds and/or move to Fresh/Free Air cooling techniques to save significantly on running costs. Dell has estimated potential savings running to the tune of \$100–275K per annum per MW of IT power. With IT budgets continuing to tighten, businesses of all sizes are looking for new ways to create IT solutions that can create efficiency savings whilst increasing performance. Virtualization is seen as a tool which can be harnessed to make the most effective use of IT solutions. The PowerEdge R820 is another example of how Dell is driving innovation within this marketplace by providing customers with highly scalable, high performance solutions that can handle complex virtualization needs that are simple to manage.

Why nominee should win

- PowerEdge R820 is designed with companies looking to increase their virtualization capabilities
- Tests have revealed that it can consolidate up to 8 times the number of virtual machines (VMs) compared to previous generation servers
- Dual Secure Digital (SD) modules allow users to maximise uptime as the redundant failsafe hypervisors are replicated from one SD card to another.
- In an independent review, the PowerEdge R820 proved to be 61% more efficient than a competitive offering
- The Fresh Air operating tolerances of the PowerEdge R820 allow customers to embrace Fresh Air cooling in datacentres and/or safely run datacentres at higher ambient temperatures