

# Dell Networking 7000 & 8100 Switch Series

Dell switches exhibited excellent performance, scalability, resiliency, and interoperability with Cisco switches.

May 22, 2013 – Numerous tests on performance, scalability, power efficiency, security, and interoperability were performed on the Dell Networking 7000 and 8100 series switches. Miercom calculated the total cost of ownership (TCO) using power, cooling, and acquisition costs and compared the TCO against similar products from Cisco and HP. A concise review of these findings is discussed in this brief.

**Dell Networking 7000 and 8100 series switches can reduce the total cost of ownership by up to 64 percent compared to Cisco switches.**

The Dell Networking 7000 series is a 1 Gigabit (Gb) stackable Ethernet switch with support for 10Gb uplinks available in 24- or 48-port configurations with 1Gb copper or fiber ports. The Dell Networking 8100 series is a 10 Gigabit Ethernet switch with support for 40Gb uplinks available in 24- or 48-port configurations with 10Gb copper or fiber ports.

## Stacking

Stacking provides more port density, ensures high availability and resiliency, and allows easier management. During testing, a stack of Dell 8164 switches and a stack of Dell 7024 switches were created. When the master switch was removed from each stack, the standby switch took over automatically. All configurations and settings were retained, maintaining the resiliency of the stack. There was zero frame loss as well when a stack link was removed.

## Performance

Various performance tests, based on RFC 2544, were conducted on the Dell 7024 and 8164

network switches. During all throughput tests, both models achieved 100% line rate at various frame sizes for Layer 2 and Layer 3 traffic using either IPv4 or IPv6. No packets were dropped while these tests were conducted. Latency values were also low while forwarding 10 GbE line rate traffic.

## Ease of Use

These Dell switches are operational out-of-the-box, which makes installation extremely simple. An intuitive Web-based GUI interface allows easy access to configuration parameters and settings. For administrators familiar with Cisco CLI, the Dell switches support a similar design.

**Dell Networking 7024 and 8164 switches are interoperable with Cisco 3750-X and 4500-X switches and can create a mixed vendor network.**

## Interoperability

Ensuring interoperability with other switch vendors is critical in network design and operation. Dell has taken this challenge seriously. During this review, we validated the interoperability of Dell's 7024 and 8164 switches with Cisco Catalyst 4500-X and 3750-X switches. Management and configuration of switches (Management VLANs), trunking, Link Aggregation and STP were targeted as some proof points. In all cases, the switches seamlessly converged traffic, transmitted and received 100% of traffic, and correctly forwarded management traffic.

## Security

Networks are subjected to numerous security threats. To see the effect of a DoS attack, 100,000 packets-per-second (pps) were sent against the management IP address and a laptop connected to the switch with DoS protection enabled and disabled. It was determined that the Dell switches employ effective measures to block DoS attacks. The endpoint devices were protected.

## Power Efficiency

EEE (Energy Efficient Ethernet), an IETF standard (IEEE802.3az), is now being implemented on switches to reduce energy consumption. These Dell switches support EEE. The switch reduces power consumption during periods of low or no-link utilization. Another feature, Energy Detect, shuts down a port when not in use. We validated an 89 watt or 27% power savings when EEE was used on 10GbE ports.

**Dell Networking 7000 and 8100 series switches can help reduce energy costs up to 24 percent over a five-year period.**

## Bottom Line

Overall, we were impressed with the Dell Networking 7000 and 8100 series switches. Designed for use in campus environments, wiring closets and server rooms, they can interoperate with an installed base of Cisco switches. Configuration is easy with a Web-based GUI or CLI. 100% line rate performance was observed, with zero dropped frames. Low latency was maintained. DoS attacks were thwarted, protecting endpoint devices.

Cost saving are realized through the use of EEE. TCO for 5 years on energy costs alone can save from 3% to 24%. Stacking capability provides a smaller footprint while allowing up to 184 Gbps of switch capacity. Overall, Dell Networking 7000 and 8100 series switches can reduce the total cost of ownership by up to 64 percent compared to Cisco switches.

The full details of these tests and conclusions can be found in the report – Performance & Interoperability Dell Networking 7000 and 8100 Switch Series (130301). Access the entire report today at <https://marketing.dell.com/networking-miercom-report>

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