

Data Center Service Provider Reduces Costs, Improves Service

TELUS uses the Nexus platform for its world-class Internet data centers.

EXECUTIVE SUMMARY

TELUS

- Information Technology
- Vancouver, British Columbia, Canada
- 35,000 Employees

Business Impact

- Prepared for customers' increasing use of virtualization
- Lowered capital costs by consolidating from six to two core switches
- Reduced operational costs through simplified management



Business Challenge

TELUS is a leading national telecommunications company in Canada, providing a wide range of communications products and services, including server-hosting services. Three of the company's four Internet data centers provide managed hosting services, including security, load balancing, VPN, and iSCSI or Fibre Channel access to NetApp storage. The other data center provides server co-location services.

When it came time to refresh the full-service data centers, TELUS looked for a cost-effective data center switching architecture. The major requirements included availability, high performance, and 10 Gigabit Ethernet, to support customers' increasing use of video and server virtualization. The IT department also wanted to consolidate to fewer switches in order to minimize capital and operational expense.

Solution and Results

TELUS selected the Cisco® Nexus switch platform for its three full-service data centers. Each data center uses two Cisco Nexus 7018 Switches in the core, for redundancy. The core switches are housed in the same rack as six Cisco Nexus 5020 Switches that provide server aggregation. Rack-optimized servers connect to the Cisco Nexus 5020 Switches by way of Cisco Nexus 2148 Fabric Extenders that are located in the same rack as the switches, minimizing cable costs. NetApp storage connects directly to the Cisco Nexus 7018 over 10 Gigabit Ethernet.

The TELUS data center architecture also includes the Cisco Application Control Engine for load balancing, Cisco Firewall Services Module for security, and Cisco IPSec VPN Shared Port Adapter for VPN access.

The main benefits of the Cisco Nexus platform for TELUS include:

- **Capital cost reduction:** Previously, TELUS needed three pairs of core switches in the network, for the front-end production, back-end production, and backup networks. Using the Virtual Device Context (VDC) capability of Cisco Nexus 7018 Switches, the IT department created three logical switches on each physical switch. Consolidating from six to two core switches reduced capital and operational costs.

- **More efficient bandwidth use:** The vPC (virtual PortChannel) feature of Cisco Nexus switches eliminated the need for Spanning Tree Protocol (STP). The problem with STP is that at least half of available system bandwidth is off-limits to data traffic, and a failure of the active link results in seconds of data loss. “vPC support is the primary reason we chose the Cisco Nexus platform, because it doubles available bandwidth and improves service availability for our customers,” says Robert Graumann, manager of technology architecture, TELUS. The liberated bandwidth will be useful as customers move video across the network to the TELUS data centers.
- **Nondisruptive upgrades:** Previously, the IT department had to schedule an outage to upgrade switch software, an inconvenience to customers. Weekend outages were unacceptable, because that is when TELUS backs up customer data. Now TELUS can upgrade switch software without disrupting services, using the In-Service Software Upgrade feature on the Cisco Nexus switch platform. “Customers like the nondisruptive maintenance, and IT can finish in less time, because we have two switches instead of six,” Graumann says.
- **Increased performance:** In the previous architecture, switch ports were oversubscribed by a 12:1 ratio. The high port density of the Cisco Nexus 7018 has reduced the oversubscription ratio, helping TELUS deliver the outstanding performance that attracts and retains customers.
- **Lower cabling costs:** TELUS installed the Cisco Nexus 2148 Fabric Extenders very close to server racks, and can use inexpensive short cables, saving approximately US\$80 per port.
- **Simplified management:** The IT department can manage up to 12 Cisco Nexus 2148 Fabric Extenders through the Cisco Nexus 5020 Switch, and each fabric extender connects up to 48 servers. “Using a single point of management for up to 576 devices saves time,” Graumann says. “In addition, the Cisco Nexus 7000, 5000, and 2000 devices use the same operating system, NX-OS, which reduces the number operating systems that IT staff need to learn.”
- **More rack space, increasing revenue potential:** Every rack that TELUS does not use for switching equipment is available for data center hosting services. With the VDC support in the Cisco Nexus 7018 Switch, TELUS has consolidated from six core switches to two, freeing up four racks for customer servers.
- **Readiness for Fibre Channel over Ethernet (FCoE):** The Cisco Nexus 5000 platform supports FCoE, so TELUS can adopt it as the company begins purchasing servers with converged network adapters. A unified fabric will halve the number of cables and server interface cards that the company needs to purchase and support.



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— Robert Graumann, Manager of Technology Architecture, TELUS

For More Information

To find out more about Cisco Data Center 3.0 solutions, visit: <http://www.cisco.com/go/datacenter>.



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