INTERSTATE BATTERIES RECHARGES DATA CENTER WITH JUNIPER NETWORKS

Summary

Company: Interstate Batteries

Industry: Distribution and retail

Challenges:

- Refresh data center to support business growth and applications
- Improve network reliability, redundancy, flexibility, and operational efficiency
- Optimize virtualization performance, including virtual machine mobility
- Simplify network operations

Selection Criteria: A simple, modular, high-performance network that could easily expand and support new applications.

Solution:

- Juniper Networks EX Series Ethernet Switches
- Juniper Networks J Series Services Routers
- Juniper Networks SRX Series Services Gateways
- Juniper Networks Unified Access Control

Results:

- Reduced VMotion execution time from 10 minutes to 60 seconds
- Reduced SQL Server cluster failover from three minutes to less than 60 seconds
- Reduced network-related trouble tickets by 42 percent
- Met PCI DSS requirements

Demand for batteries—an $86 billion global market—is growing rapidly. Interstate Batteries, known for top quality products and consistently reliable service, has earned its position as the number one replacement brand battery in North America. The Dallas-based company distributes automotive batteries, operates franchise retail stores for batteries, and also recycles old batteries. The retail stores sell more than 16,000 types of batteries and portable power solutions for everything from laptops to cameras to boats to hearing aids. To expand its reach beyond physical stores, the company also sells a broad array of batteries on its website. The privately held company has more than $1 billion in revenues and 1,600 employees in North America.

Challenges

Interstate Batteries needed to recharge its data center network to support its business growth. The company was expanding internationally and amping up its e-commerce presence. In addition, it was rolling out new retail technologies such as point-of-sale (POS) to its Interstate All Battery Center retail stores.

Interstate Batteries turned to server virtualization for its many efficiencies; however, it discovered that its data center design was inflexible. The server-to-network connectivity used an outdated end-of-row design which limited the performance of its VMware environment and significantly increased cabling requirements. Bandwidth constraints throttled SQL Server cluster failovers, which were essential to providing high availability for its database, e-commerce, and other applications. Plus, equipment sprawl constrained airflow in the data center, which drove up power and cooling costs.

Interstate Batteries needed a data center network that would deliver higher performance and flexibility to support its move to virtualization. It also needed a network that would deliver greater reliability and availability so it could decrease its backup and maintenance windows to support its international business expansion. And the company needed a network that would be operationally efficient.

Selection Criteria

Interstate Batteries had a vision for the new network—a simple, modular, high-performance network that could be easily expanded and would position the data center to support its growing business. In addition, the company had grown disillusioned with its incumbent switching vendor and wanted a new strategic networking partner.

Interstate Batteries conducted a thorough evaluation of data center switches. The Interstate Batteries team was impressed by Juniper Networks® EX Series Ethernet Switches featuring Virtual Chassis technology, which allows multiple switches to be

interconnected and operated as a single, logical device. As a longtime user of Juniper Networks SA Series SSL VPN Appliances for secure remote access, Interstate Batteries knows that Juniper's products are high performance, highly dependable, and secure.

"Reliability was a priority," says Ken Widner, director of technical services and operations at Interstate Batteries. "We were completely re-architecting the data center and we were dealing with new Internet service providers (ISPs), a new WAN firewall, and an upgraded switching infrastructure."

Solution

Interstate Batteries refreshed its data center in Dallas with new blade servers, data storage infrastructure, network infrastructure, cabling, and racks. The data center design called for the server environment to be 90 percent virtualized.

Juniper Networks EX8200 line of Ethernet switches serves as the core of Interstate Batteries' data center network. The EX8200 switches are modular, high-performance, highly available platforms ideal for high-density 10-Gigabit Ethernet (10GbE) data centers, campus aggregation, and core networks. The EX8200 supports Virtual Chassis technology, which enables two interconnected switches to create a network fabric for interconnecting access switches, routers, and service-layer devices.

Juniper Networks EX4200 Ethernet Switch provides redundant network access and is mounted in a top-of-rack configuration to maximize the virtualized environment. With virtualization, data mostly moves between server racks within the data center (known as east-west traffic) rather than entering and leaving the data center (known as north-south traffic), which is common to legacy networks. Using top-of-rack rather than end-of-row switches optimizes performance in virtualized environments.

"With a Juniper Networks infrastructure, the execution of VMware VMotion dropped from 10 minutes to less than 60 seconds, and Microsoft SQL Server cluster failover dropped from three minutes to less than 60 seconds."

The EX4200 switches are deployed in a Virtual Chassis configuration, in which up to 10 interconnected switches operate as a single, logical device. The fixed configuration EX4200 is a high-performance, scalable solution for data center and campus environments that combines the availability and reliability of modular systems with the economics and flexibility of stackable switches. When deployed in a Virtual Chassis configuration, the top-of-rack EX4200 switches dramatically reduce management overhead and simplify network operations.

Interstate Batteries re-architected its DMZ to protect its network perimeter as it expanded its e-commerce presence. The company consolidated security services using Juniper Networks J Series Services Routers, and it reduced the number of devices in the perimeter network from 16 to six. Interstate Batteries also uses Juniper Networks SRX Series Services Gateways for internal firewalls and to secure remote offices.

The EX4200 switches, EX8200 switches, J Series routers, and SRX Series Services Gateways all run the same Juniper Networks Junos® operating system, a reliable high-performance OS that supports rich routing capabilities and reliable service operations and manageability, even under the heaviest loads.

The company also relies on Juniper Networks Unified Access Control to deliver identity-based access control policies for users and sessions. With UAC, Interstate Batteries can provide guest network access while protecting its internal networks.

Results

Interstate Batteries has seen strong results with its new network, including outstanding performance that easily supports new applications, increased reliability, and greater operational efficiency.

"Interstate Batteries is known for its outrageously dependable products," says Widner. "To deliver on that brand promise to our customers and franchisees, we need an outrageously dependable network. Juniper Networks has delivered the dependability, performance, and reliability that IT needs to support the business in its mission."

The new network has improved the performance of VMware VMotion virtual workload mobility and Microsoft SQL Server cluster failover. VMotion execution time has dropped from 10 minutes to less than 60 seconds, which makes VMotion usable for everyday operations. SQL Server cluster failover has dropped from three minutes to less than 60 seconds. Improved VMotion performance has also allowed the company to avoid purchasing additional servers for the SQL cluster.

With a high-performance, reliable infrastructure, Interstate Batteries has been able to deploy new network-dependent application such as streaming video at its Dallas headquarters, where the previous network lacked the performance to support bandwidth-intensive applications. And the new network is ready for future expansion. Using EX4200 switches in top-of-row Virtual Chassis configurations will allow Interstate Batteries to incrementally expand its server, storage, and network infrastructure as needed.

Interstate Batteries is rolling out a new POS system and WAN connectivity to support operations and credit card processing at its Interstate All Battery Center store locations. The MICROS-Retail POS system helps franchisees improve customer relationship management, authorize payments more quickly, and improve reporting and analytics.

Juniper Networks SRX Services Gateways are being used to segment sensitive cardholder data from other store traffic. Network segmentation using the SRX Series gateways allows Interstate Batteries to meet its Payment Card Industry Data Security Standards (PCI DSS) requirements as well as protect its stores. The company will roll out WAN connectivity to 160 All Interstate Battery Center franchise stores by the end of 2011.

Interstate Batteries has been pleased with the strong economics of the Juniper solution. It has avoided capital expenses by deploying a top-of-rack network. In addition to having fewer switches to purchase and manage, the design has resulted in cabling costs that were 60 percent less than an end-of-row solution.

As network reliability increased, Interstate Batteries has seen a reduction in network operations costs as well. The company has experienced a 42 percent reduction in network-related trouble tickets and associated labor needed to resolve those tickets. The company largely attributes the lower management effort to Junos OS, which reduces the time necessary to deploy new services and decreases operating costs. Having one operating system for routing, switching, and security also reduces the time and effort needed to plan, deploy, and operate network infrastructure.

"Now that everything in the data center is Juniper, from an operations standpoint, there is less overhead in terms of managing devices," says Widner. "Junos OS has simplified day-to-day management of the network."

Next Steps and Lessons Learned

With demand for replacement batteries growing and a reputation for outrageous reliability, Interstate Batteries has a bright future. The company is continuing to roll out its POS systems to its retail stores to improve the customer experience and help franchisees fine-tune operations to changing customer needs. With a state-of-the-art data center, the company is ready to meet new customer demands and support innovative new applications.

For More Information

To find out more about Juniper Networks products and solutions, visit **www.juniper.net**.

About Juniper Networks

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