

Customer Success Story

Cisco Helps Pep Boys Improve Point-of-Sale Applications, Security Posture, and Future Flexibility

Executive Summary

Customer Name

Pep Boys

Industry

Automotive Retail

Business Challenge

- Ensure maximum application availability at retail stores
- Implement advanced security features
- Help ensure outstanding customer service while creating a network foundation for future capabilities

Network Solution

- Cisco routing solutions, including Cisco 2811 integrated services routers and Cisco 7204 routers
- Cisco Catalyst switches, including the Cisco Catalyst 2950 and 6513 switches
- Cisco Security solutions, including the Cisco PIX Security Appliance
- Cisco Wireless solutions, including Cisco Aironet 1200 Series wireless access points
- CiscoWorks LAN Management Solution and CiscoWorks VPN/Security Management solutions

Business Value

- Increased resiliency and minimized risk of unplanned downtime
- Established a robust security foundation with built-in VPN, firewall, and intrusion prevention features
- Deployed a network that can deliver secure, converged voice, data, and other capabilities to stores.

To facilitate an upgrade of its point-of-sale application, Pep Boys wanted to also upgrade its 593 stores' routing and switching solutions to ensure maximum application availability while strengthening its security posture. With Cisco 2811 integrated services routers, the company gained high performance and robust new security features, as well as a solid foundation for delivering voice and future advanced applications.



Business Challenge

Today's sleek, spotless automobile service centers located in popular shopping areas are a far cry from the small, greasy garages in questionable neighborhoods of years past. And perhaps no company exemplifies the welcome shift toward honest, courteous service better than Pep Boys. The leading automotive aftermarket and service chain in the United States, Pep Boys operates stores in 36 states and Puerto Rico. In total, the company supports more than 6000 service bays with dealer-quality automotive service, over 1.8 million square feet of warehouse space, and 12.8 million square feet of retail space featuring an extensive assortment of top-quality parts, accessories, tires, and batteries. Headquartered in Philadelphia, Pennsylvania, Pep Boys has more than 20,000 employees.

To connect all of its retail locations and provide access to inventory, point-of-sale, and corporate applications, in 1999 Pep Boys performed a major telecommunications infrastructure upgrade. At that time, the company chose Cisco Systems® as its networking equipment hardware provider and AT&T as its carrier for all of its local, long-distance, and 911 services. At the time, each store location was equipped with a Cisco® 2610 Multiservice Router and a Cisco Catalyst® 1900 Series Switch. Six years later, Pep Boys decided to replace its aging point-of-sale (PoS) system and review its retail routing and switching needs at the same time.

“We are always evaluating new technologies,” says Rich Quinney, Pep Boys’ systems manager for Telecommunications Services. “The new point-of-sale application is distributed and we wanted to ensure high network resiliency so that it is always available. We began evaluating new Cisco routers and switches with this in mind, as well as with our future needs in view.” At the time, Quinney’s future plans included implementing advanced security features and IP Communications solutions, and he wanted a platform that would deliver high performance and resiliency today, while accommodating these future services.

“The security features within the Cisco 2811 Integrated Services Router – the onboard encryption, VPN tunnels, and support for Network Admission Control – are huge for us. The Cisco 2811 integrated services routers lend themselves to many of our security strategies.”

– Rich Quinney, Systems Manager, Telecommunications Services for Pep Boys



Network Solution

Pep Boys chose the Cisco 2811 Integrated Services Router and two Cisco Catalyst 2950 switches for all of its 593 retail locations. The Cisco 2811 Integrated Services Router is a member of the Cisco 2800 Series of integrated services routers, designed to meet the performance and density requirements for the delivery of secure, concurrent, high-performance services. The Cisco 2811 integrated services routers support wire-speed performance for concurrent services such as data, security, and voice. On-board encryption, support for up to 1500 virtual private network (VPN) tunnels, and intrusion-prevention capabilities provide Pep Boys with a robust suite of security features that can be implemented when ready.

Pep Boys has also deployed quality-of-service (QoS) features on the routers to prioritize real-time credit-card transaction and authorization traffic. Fast authorization reduces the length of time that a customer stands at the register, enabling Pep Boys to enhance convenience and the overall customer experience. Additional QoS policies are being developed and will be phased in over time for other store applications.

Connected to each Cisco 2811 Integrated Services Router are two Cisco Catalyst 2950 switches, which provide Fast Ethernet and Gigabit Ethernet connectivity and a range of data, voice, and video services at the network edge. Pep Boys has configured the switches and routers to create a bridge group for increased resiliency. The two Cisco Catalyst 2950 switches are connected to each other with two 1000BASE-FX links; each switch then also plugs into an interface port on the Cisco 2811 Integrated Services Router. If one router link goes down, within 60 seconds traffic is flowing to the other switch. Each store location has approximately 13 look-up terminals and cash registers; Quinney’s team alternated attaching the devices to the network switches. Now if one switch goes down, at least half of the look-up terminal and cash registers continue to function and business can continue.

Today, each store runs three virtual LANs (VLANs). The first VLAN currently runs the existing PoS system, an inventory system, and several small applications that will eventually be integrated with the new PoS system or decommissioned. The second VLAN provides room to scale and the third VLAN hosts the new PoS and service work-order systems.

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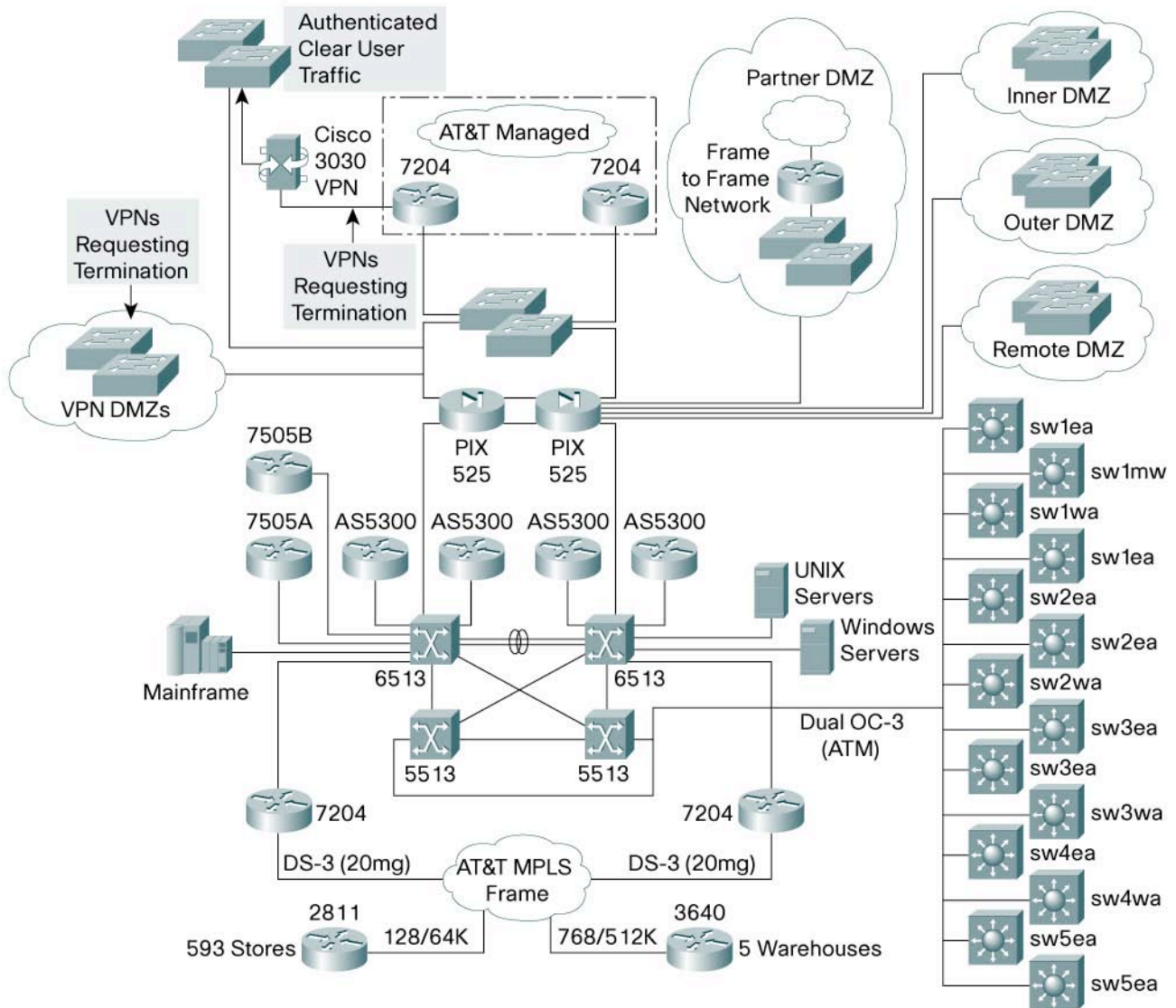
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Each store also uses Cisco Aironet® 1200 Series wireless access points. The access points provide wireless network access for two applications – a training application and a time and attendance application. Employees log into the application from a standalone PC; they can access Web-based training materials from a PC in the employee break room. Pep Boys has employed Cisco LEAP 802.1X authentication for wireless LANs (WLANs). Employees can also access the three VLANs wirelessly.

Cisco wireless networks are also deployed in five Pep Boys warehouses, running Wired Equivalent Privacy (WEP) protocol for securing data. Traffic from the warehouses is routed through Cisco 3600 Series routers over an AT&T Multiprotocol Label Switching (MPLS) Frame Relay link to the main corporate network. Store traffic also travels over a Frame Relay link to the corporate network, terminating at a Cisco 7204 Router.

Figure 1
Pep Boys Corporate Network





Dual, redundant Cisco Catalyst 6513 switches connected by dual 10-Gbps links form the Pep Boys network core. The switches were chosen for their ability to support high-performance and high-port-density Fast Ethernet and Gigabit Ethernet aggregation. Dual 10-Gbps connections were chosen to support the company's deployment of new, Web-based applications, as well as to facilitate back-up and data replication. The dual Cisco Supervisor Engine 720 and implementation of stateful switchover technology helps assure two- to three-second failover capabilities for maximum resiliency in the event of a network outage. Quinney will soon add Cisco Catalyst 6500 Series Intrusion Detection System services modules to these systems to safeguard the network against multiple threats. The modules provide a powerful combination of threat identification and prevention technologies in a comprehensive inline solution.

Using the Cisco Catalyst 6500 Series Firewall Services Module, the Pep Boys team has segmented its core network into three sections to prevent viruses or worms from propagating across the entire network. The network is segmented into production, development, test, and user networks – none of which have access to one another. In addition, Pep Boys deployed the Cisco Security Agent to help protect server and desktop systems and identify, prevent, and eliminate security threats from affecting the network.

A Cisco VPN 3000 Series Concentrator enables secure remote access to the corporate network for business-to-business traffic and users requiring remote access. Dual Cisco PIX[®]

525 security appliances provide high-throughput firewall protection between the corporate network, the Internet, and partner VPNs. Cisco Catalyst 5513 switches support all of headquarters' closet switches and terminate dual OC-3 ATM connections.

Pep Boys relies on an AT&T managed MPLS WAN service to connect its locations. Stores are connected using T1 links, with local Channel Service Unit/Data Service Units (CSD/DSUs) separating voice and data circuits. The managed service enables Quinney to maintain QoS for high-priority router traffic, such as credit-card authorizations, across the MPLS network and will support additional classes of service as Pep Boys requires. It also gives Quinney direct visibility into the maintenance center and significantly simplifies his management role in assuring WAN uptime across 36 states. AT&T also provides two Cisco 7204 routers for Pep Boys' Internet connectivity.

For managing the array of systems, Pep Boys uses the CiscoWorks LAN Management Solution (LMS), a suite of powerful integrated management tools that simplify the configuration, administration, monitoring, and troubleshooting of the network. For Pep Boys, important features include the ability to automate device-management tasks and the ability to quickly identify and localize network trouble. The company uses Cisco LMS to accelerate deployment at new store locations and CiscoWorks VPN/Security Management Solution (VMS) to provision many of the security devices. Pep Boys also uses the Secure Shell (SSH) application within Cisco IOS[®] Software to manage the Cisco 2811 integrated services routers.

Business Value

“Working with Cisco as our vendor is an ideal model for Pep Boys,” says Quinney. “We collectively work together to develop new designs and technologies that help our company move forward in meeting strategic business needs.”

One of those needs has been to continuously maintain a strong security posture. With the Cisco 2811 integrated services routers, Quinney feels that many of the important capabilities they plan to incorporate are already built into the routers.

“The security features within the Cisco 2811 Integrated Services Router – the onboard encryption, VPN tunnels, and support for Network Admission Control [NAC] – are huge for us,” he says. “The Cisco 2811 integrated services routers lend themselves to many of our security strategies.”

Another company goal is to continue to ensure that customers have the best possible experience in a Pep Boys store. New store design, high-performance applications, and a high-performance network that delivers maximum uptime all play important roles in achieving this goal. The company expects that the network equipment upgrade will deliver significant return on investment as part of its larger point-of-sale upgrade project.

Next Steps

Quinney and his team plan to implement the Cisco Catalyst 6500 Series Intrusion Detection System service modules and intrusion prevention methodologies, as well as the Cisco IOS Firewall feature set, as part of its large overall security update. Pep Boys also has plans to evaluate the Cisco Security Monitoring, Analysis and Response System (MARS) product to manage logs from Cisco intrusion detection modules and to perform mitigation.

“We also plan to take advantage of IP telephony capabilities in the future,” says Quinney. As it gears up for the future, Pep Boys has the networking power it needs to get there.

For More Information

To learn more about Cisco routing solutions, visit: <http://www.cisco.com/go/routing>.

To learn more about Cisco switching solutions, visit: <http://www.cisco.com/go/switching>.

To learn more about Cisco security solutions, visit: <http://www.cisco.com/go/security>.

To learn more about Cisco wireless solutions, visit: <http://www.cisco.com/go/wireless>.

To learn more about The Pep Boys, visit: <http://www.pepboys.com>.

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