

Class 1 Western Railroad Turns to GarrettCom for Hardened IP Networking

A Railway Application

ABOUT THE RAIL INDUSTRY AND NETWORKING

In recent years, railroads have started transitioning from legacy serial-based networks to IP-based communication networks to handle newer and expanded applications. For freight railroads, particularly the largest Class 1 railroads, one of the main drivers of this network upgrade is Positive Train Control (PTC). PTC is a system of monitoring and controlling train movements to provide increased safety, and all Class 1 railroads in the United States are required to implement it in less than five years.

ABOUT CLASS 1 WESTERN RAILROAD (CWRR)

Class 1 Western Railroad (CWRR) is one of America's leading transportation companies, and is one of North America's premier freight railroads. It covers over 20 states across the western two-thirds of the United States, and links every major West Coast and Gulf Coast port. Class 1 Western Railroad provides service to the east through major gateways such as Chicago, St. Louis, Memphis and New Orleans. CWRR also operates key north/south corridors and serves the major gateways to Mexico as well as interchanging traffic with the Canadian rail systems.

THE CHALLENGE

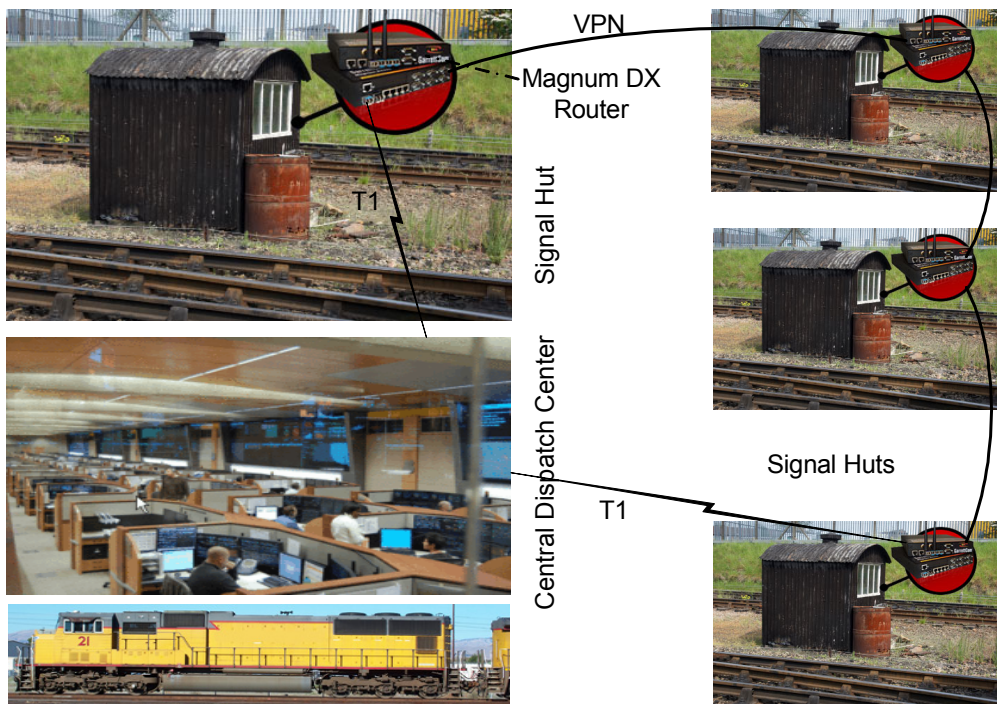
CWRR was looking to upgrade its rail communication system to an IP-based network for greater bandwidth and interoperability. CWRR focused on routing products, with the requirement that the routers be sufficiently hardened to be housed and operated in temperature-uncontrolled signal "huts" located at various rail-side locations. The ability of the switches to survive the temperature extremes and communicate reliably and securely to CWRR's central dispatch center would factor heavily in any deployment decision.

CWRR had also recently installed a carrier VPN circuit from the central dispatch center to the huts. The routers would have to support networking into the VPN, which would carry both data and voice traffic. Other considerations in choosing the router included having an easy-to-use GUI software interface, support for T-1 lines, Ethernet ports, and secure networking software.

THE SOLUTION

CWRR turned to GarrettCom and its Industrial-grade Magnum DX line of routers. Each hardened Magnum DX Router

GarrettCom DX Routers Network Class 1 Western Railside Signal Huts



Class 1 Western Railroad Turns to GarrettCom for Hardened IP Networking

SOLUTION (CONT.)

is fitted into a service module, and then one each router is installed in numerous rail-side signal huts. The equipment in the huts then connects into the carrier VPN back at the CWRR control center. The network of routers has enabled CWRR data traffic to operate over IP to the central dispatch, and allows CWRR to extend IP to the furthest reaches of their rail and communications network.

The Magnum DX Routers from GarrettCom combine features of an IP router, an Ethernet switch, and a Device Server in a single product combined with advanced networking software. Magnum DX products deliver secure multi-protocol networking in a compact, rugged package built for harsh environments.

Each DX offers encrypted per-session SSL and IPsec VPN capabilities along with other industrial firewall and port security features to ensure that cyber-security protections will extend cost effectively all the way to the furthest facilities.

THE RESULTS

The communication system installed at CWRR can provide greater railroad operating safety through new capabilities such as "Hot Box Detection," whereby an infrared device connected to the communication system measures train axle heat build-up (due to insufficient grease in the housing). Other key benefits expected of the new IP-based communication system include: derailment deterrence, support for dispatch radio communications; more ruggedized communications

equipment that will operate reliably in extreme environmental conditions; enabling of remote communications; and providing proactive solutions that exceed Positive Train Control (PTC) years ahead of regulatory deadlines. CWRR's proactive approach to PTC is expected to target southern California first, with the balance of their rail system to follow in months and a few years.

ABOUT GARRETTCOM

GarrettCom is the leading manufacturer of industrial networking products. GarrettCom offers a comprehensive line of hardened industrial Ethernet switches, routers, converters, and serial products for use in transportation, video surveillance, industrial, and automation environments. The company's management software supports redundant rings and secure web-based access to local and remote networks. GarrettCom markets its products to end users and through a network of system integrators, OEMs, resellers, and distributors worldwide. For more information on GarrettCom and its products, visit www.GarrettCom.com.

A Typical Class 1 Western Railroad System Map



GarrettCom, Inc.

47823 Westinghouse Dr. • Fremont, CA 94539 • PH: (510) 438-9071 • FAX: (510) 438-9072
Email: mktg@garrettcom.com • Web: www.GarrettCom.com