DELAWARE D.O.T. USES MAGNUM DX900 INDUSTRIAL ROUTERS FOR TRAFFIC CONTROL

A Transportation Application

TECHNOLOGY TODAY

In today's traffic control environment, the need for management and video security systems is increasing at an accelerating pace. Traffic control management also has many complexities not always found in other industries. Networking management products must be able to survive harsh, outdoor conditions. Additionally, existing serial protocols are often in place and need to be interconnected with Ethernet as well with routing protocols   While traditional serial data lines have been used for relaying traffic information, increasingly Ethernet networking is used in the traffic control industry to accommodate the rising bandwidth demands of IP-based video information.

ABOUT DELAWARE D.O.T.

The Delaware Department of Transportation (DelDOT) is responsible for thousands of miles of roads and highways. DelDOT's responsibilities also include the traffic signals and the intersections off the main highway exit ramps. Recently, DelDOT has been working to expand its capacity to manage traffic flow, reduce congestion and enhance security--not just on the busiest thoroughfares but throughout remote locations

THE CHALLENGE

Delaware DOT wanted to extend its traffic flow management and video monitoring at some of its more isolated locations. Many of these locations lacked fiber or high speed connections back to the DelDOT Traffic Operations Center (TOC) and had serial connections to the traffic controllers in the remote traffic cabinets. Many of the video surveillance cameras at these locations also required serial connections to the legacy analog camera controls.
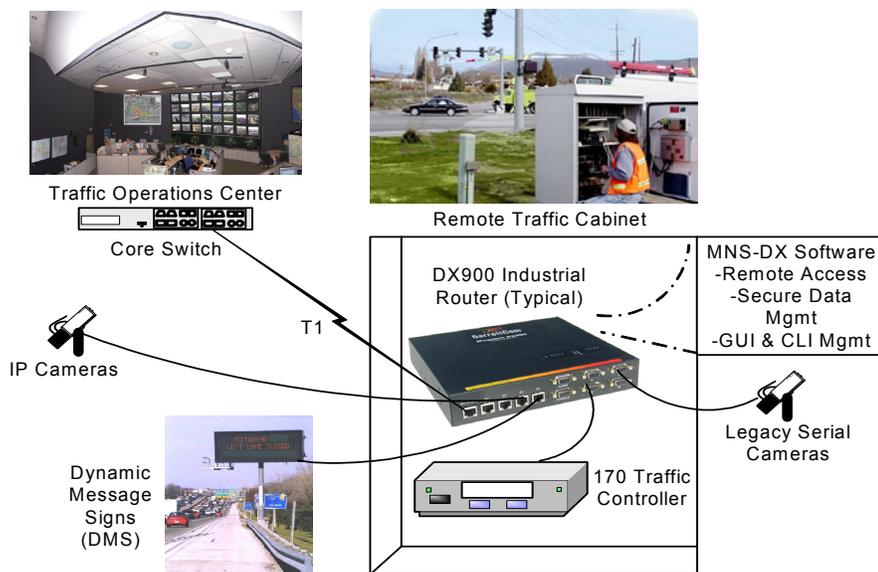
While connecting to these legacy devices and networks, DelDOT also needed to enable IP networking--ideally from the same networking equipment. Ethernet ports would be required to connect to newer pole-mounted IP cameras that would enable high speed video traffic and accident monitoring. In addition, the Ethernet ports would connect to Dynamic Message Signs (DMS) with IP messaging. The signs are located along the roads to alert drivers of upcoming accidents, traffic delays, and general information such as travel times to popular locations.

THE SOLUTION

To provide traffic control networking to its more isolated locations, DelDOT selected the Magnum DX900 Industrial Routers. DelDOT liked the DX900's hardened package rated for outdoor use, and the product's ability to offer all of the different functions DelDOT needed in one box.   The DX900 offers four serial ports: one of which is used to connect to the 170 traffic controller in the remote traffic cabinet (see diagram, this page). Other serial ports are connected to legacy analog serial camera controls. There is at least one analog monitoring camera at each of these remote locations.

The DX900 Industrial Router also offers four Ethernet ports. The Ethernet ports connect to new high-bandwidth IP cameras that have Ethernet ports.

Magnum DX Routers at Delaware DOT

Traffic Operations Center
Core Switch

Remote Traffic Cabinet

DX900 Industrial
Router (Typical)

MNS-DX Software
-Remote Access
-Secure Data
Mgmt
-GUI & CLI Mgmt

IP Cameras

T1

Legacy Serial
Cameras

Dynamic
Message
Signs
(DMS)

170 Traffic
Controller

Delaware D.O.T.

THE SOLUTION (CONT.)

Other DX900 Ethernet ports connect to Dynamic Message Signs (DMS) that provide drivers with messages regarding upcoming road conditions. The DX900's T1/E1 WAN port provides a data connection back to an existing core switch at the Delware Traffic Operations Center (TOC).

Previously, in some of the locations, DelDOT had a commercial-grade router and a device server. Neither the router nor the device server was hardened and had reliability problems with the outdoor temperatures in the remote traffic cabinets. Additionally, two boxes were previously necessary and neither provided for connections to new IP devices. The Magnum hardened DX900 effectively replaced two boxes while additionally enabling connectivity to IP devices and increasing reliability.

THE RESULTS

DelDOT is pleased with the performance of the Magnum DX900 and plans to continue implementing the units at various locations--particularly the more isolated traffic locations.

Additionally, DelDOT plans to begin implementing some hardened Magnum 6K8 Managed Ethernet Switches as well as some small Magnum ES42 Edge Switches. (DelDOT selected the ES42 model with four ports copper and 2 ports fiber in a small, hardened footprint). These switches are to be installed at locations where fiber is available and will take advantage of the Magnum MNS-6K software's S-Ring Redundancy Manager. S-Ring provides fast fault recovery in Ethernet LAN ring structures.

ABOUT MAGNUM PRODUCTS

Magnum DX Routers and Device Servers combine features of a Serial Device Server, Ethernet Switch and an IP Router in a single product. Magnum DX Products deliver secure multi-protocol networking in a compact, rugged package built for harsh environments.

Each DX unit serves as a multi-protocol concentration and access point for a fiber-based Ethernet connection to a remote site. Encrypted per-session SSL and IPsec VPN capabilities along with other industrial firewall and port security features assure that cyber-security protections will extend cost effectiveness all the way to end-point devices and small facilities.

Magnum 6K Managed Ethernet Switches are highly configurable switches, providing modular slots for user selection of 100Mb, 10Mb, or Gigabit Ethernet fiber or copper ports, and are hardened for use in harsh environments such as outdoor traffic control boxes. Power input choices include AC, 125VDC, 24VDC, -48VDC, and dual DC input for power redundancy.

ABOUT GARRETTCOM

GarrettCom, Inc. is the leading manufacturer of industrial networking products. GarrettCom offers a comprehensive line of hardened industrial routers, Ethernet switches, and serial products for use in traffic control, 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 through a network of resellers, OEMs, system integrators, and distributors worldwide. For more information on GarrettCom and its products, visit **www.GarrettCom.com**.