

Seville builds single network for centralized traffic control
2008-06-27

Location / Country : Seville, Spain

Product Solutions:

[IMC-21 Series](#)

Entry-level industrial 10/100BaseT(X) to 100BaseFX media converter

[NPort 5110 Series](#)

1-port RS-232 serial device servers

[EDS-728 Series](#)

24+4G-port Gigabit modular managed Ethernet switch

Introduction

Project Introduction

The Spanish city of Seville, which is widely recognized as a warm, lively town, is also notorious for its extreme traffic. The city traces its roots back to Roman times, and evidence of its rich history is apparent in its centuries-old architecture. As Spain's fourth largest city, Seville's traffic problems are made worse by the labyrinth of narrow, winding streets that were not designed to handle vehicular traffic. Travel guides advise against driving in Seville due to the terrible traffic conditions, and recommend instead that visitors walk to their destinations. Seville sought assistance from a major European engineering company that specializes in intelligent transportation systems (ITS) to upgrade their traffic control system. What the city needed was a system that allows centralized management of traffic lights spread out over the metropolitan regions of the city. In addition, they wanted the system to incorporate traffic surveillance from major intersections, and allow on-site voice communication. Since it was necessary to transmit data over large areas of the city, the engineers needed to identify networking products that could communicate with multiple points over long distances.

Moxa Solution

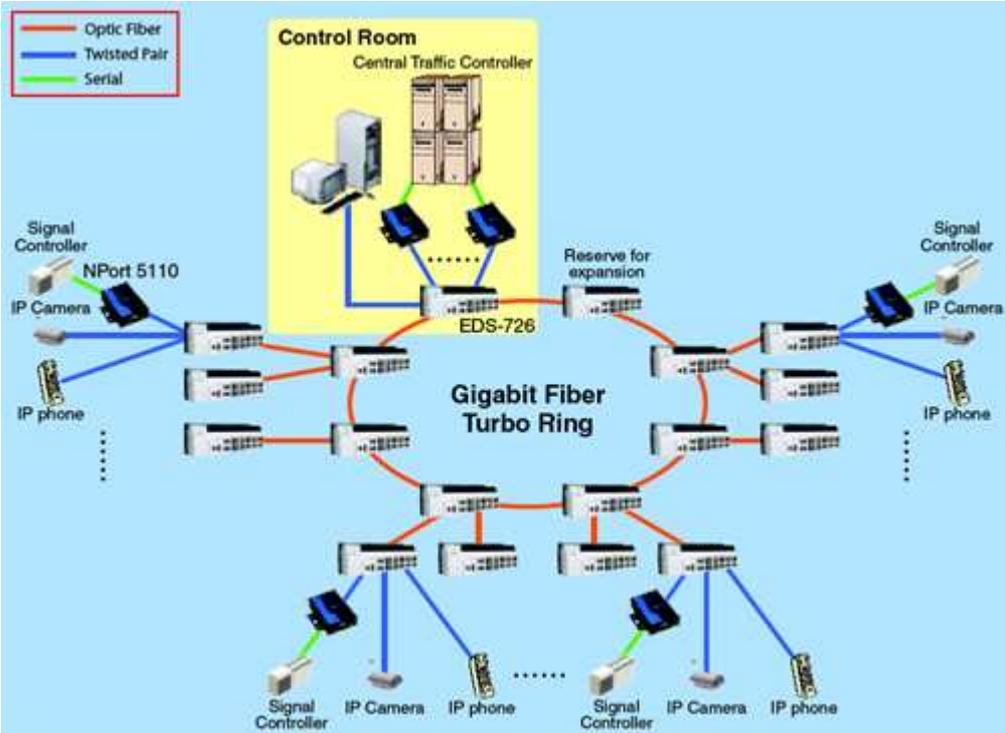
The Seville traffic control system was set up to transmit video, voice, and data over a single network. Because of the high bandwidth required, the engineers decided to install a gigabit fiber optic network that uses specialized Ethernet switches. The system's backbone relied on Moxa's EDS-726 switches, which were arranged in 8 nodes spread out over the metropolitan regions with a fiber-optic Gigabit Turbo Ring. Fiber optic communication was the best choice due to the long distance and high bandwidth requirements, and the Turbo Ring topology provided media redundancy and network recovery in less than 300 ms. With native gigabit

network operation, built-in fiber ports, and Turbo Ring support, the EDS-726 provided a strong network backbone that easily handled all video, audio, and traffic data streams.

In total, 11 nodes radiated from the backbone network to the regions that required traffic control and monitoring. Each node used an EDS-726 to connect IP cameras, traffic controllers, and IP phones to the backbone network. The EDS-726's flexible modular and expandable design allowed each node to handle a custom arrangement of IP cameras for video surveillance, and IP phones for voice communication. Standard IP-based devices were connected directly to Ethernet ports on the EDS-726, and IMC-21 converters with fiber lines were used to increase transmission distances, achieve faster transmission speeds, and increase flexibility in the placement of devices. Advanced VLAN and QoS support helped minimize network congestion, and easy remote management over the network helped reduce maintenance costs.

The serial-based signal controllers that used for on-site traffic control were connected to a main traffic controller in the traffic control center using pairs of 1-port NPort 5110 serial device servers, eliminating the need to invest in new traffic equipment. By using the NPort 5110's pair connection mode, the engineers in the control center could easily monitor the status of each traffic light, and update the control programs as traffic conditions change.

The new traffic management system gave the city of Seville a centralized control room that monitors and controls traffic lights all over the metropolitan area. Live video surveillance and remote traffic lights management allowed instant response to real-time traffic conditions, and the IP phones provided an additional, low-cost communication tool.



Why Moxa

- Single network solution with EDS-726, integrating IP camera, IP phone, and signal controllers
- Seamless integration of serial-based devices and signal controllers with NPort serial device server
- Modular design for custom combinations of optical fiber and twisted pair connections, allowing both long distance transmission and Ethernet device connections
- Durable network architecture with almost instant recovery time
- Easy upgrade and expansion at the network, server, and device level
- Configurable automatic warning of exceptions for easy remote troubleshooting
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