Road Tunnel Camera Network

A reliable ring-based backbone for an intelligent transportation system

Image credit: spDuchamp

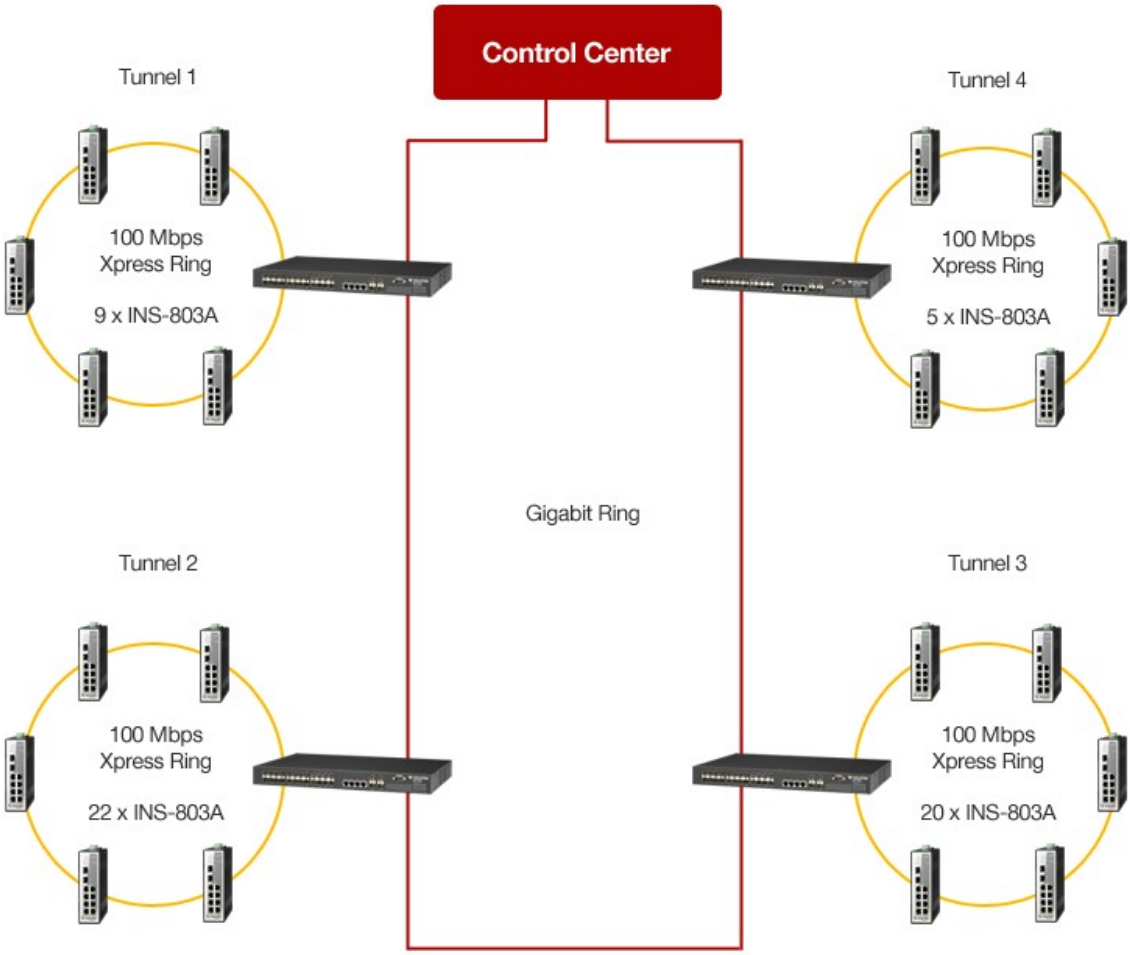
The Challenge

Linking a network of monitoring cameras and emergency telephones in a series of mountain tunnels in a southern European country. With tough operating conditions including the presence of temperature extremes, dust, and extensive vibration, the solution should offer a stable, reliable way to allow staff in a central control room to monitor traffic conditions in four linked tunnels. The solution should also legislate for in-network problems such as a fiber interruption and electromagnetic interference.

The Solution

With redundancy as a crucial concern, ring topology networks provide stability and reliability of operation, even if a link is cut. Volktek's proprietary Xpress Ring protocol offers lightning-fast ring recovery times of under 50ms, meaning that the network will stay online even in the case of a dead link or switch. Large ring topology networks are possible with this protocol, useful in this case as one tunnel required 22 devices on one ring network. Commercial-grade switches lack the robust qualities demanded in this kind of deployment, so Volktek's INS-803A was the perfect device for the situation. The IP-30 casing provides dust and shock resistance, and careful design coupled with extensive testing ensures vibration-resistance is not a problem.

Network Diagram



Products Used in this Solution

INS-803A

7-port 10/100 + 2-slot 100Base-FX (SFP) Managed Industrial Switch