



Fiber Optic, Wireless and Network Transmission

Efficiencies in Transportation

ThruLink™ Enables Significant Cost Savings in Singapore's Model Transportation Infrastructure

Background

Singapore's LTA (Land Transport Authority) is the agency responsible for the development and infrastructure of Singapore's highways, roadways and railways. A few years ago the agency was tasked with setting up Junction Electronic Eyes (J-Eyes), a system of surveillance cameras installed at major signalized junctions to act as remote eyes for operators at the control center. Today, the system monitors and manages traffic along expressways; can deter illegal parking and loading or unloading along major roads; deters congestion; implements appropriate action plans and provides motorists with updated traffic information on incidents to mitigate their effects. The overall result is a safer and more pleasant journey.

Approximately 273 PTZ cameras have been installed throughout the city with a further expansion of over 200 cameras planned. Previously, video and data connections to the central location were accommodated using leased fiber optic lines through SingTel which was determined to be too costly for LTA.



Challenges

Following the release of Pelco's Endura IP solution, LTA wanted to deploy encoders to all the sites to take advantage of existing public IP connections. LTA plans for additional cameras required that these should also be controlled and viewed from multiple locations in addition to making video from these cameras available to the public. It was realized early on that the software parameters in the supplied network video solution required that all UPnP (Universal Plug and Play) packets are limited to a TTL (Time To Live) of 1, meaning that the UPnP packets could pass through only one network port before expiring. While it's possible to accommodate this within a building LAN (encoder to recorder through a single switch), this wouldn't work on a public WAN where data would need to traverse several routers between source and destination. Without any customization of the Endura encoder images, it meant that dedicated leased lines would be required for each site, which was too expensive.

The ThruLink™ Solution

The solution was to install a ThruLink™ (THLK-S) at each site and ThruLink™ concentrators (THLK-HC) at the control site. This allowed secure, encrypted VPN (Virtual Private Network) tunnels between the cameras and the core switches while emulating a one-hop count. As far as the network video system was concerned, it saw these links as direct cable connections from the encoder to the core switch at central control. So instead of paying for a leased line, LTA was able to utilize public IP channels at a much lower cost.



The Result

LTA lowered their video and data transport costs by being able to use public IP channels, with the added benefit that ThruLink™ now provides a secure pipe that mimics a direct cable connection up to their respective capacities (either 30Mbps or 600Mbps, depending on model). The installation required no complex settings, no modifications to encoders or decoders, and no modifications to the switches or the network. ThruLink™ is completely transparent to the network in IP video setups, and the straightforward GUI (Graphical User Interface) allowed a swift installation. Finally, the ruggedized, environmentally hardened unit is able to withstand Singapore's high temperatures and humidity.