



Mass Transit Subway System Uses NVT Phybridge Ethernet over Coax Technology to Deploy IP Surveillance

Transportation System Leverages Existing Coax Infrastructure to Deploy Over 500 IP Cameras in Subway Stations

A transportation system serving Southeast Asia needed to modernize from its aging analog CCTV system to new IP. The subway system includes over 150 stations connected by 135 miles of rail; facilitating over 5 million commuter trips on an average weekday. These passengers have come to expect a high level of service quality as the transit system is one of the most reliable in the world; consistently achieving a 99.9% on-time rate. However, it was becoming increasingly complex and challenging to manage passenger security and safety within a transportation network of this incredible size, especially while relying on outdated surveillance technology. The existing analog CCTV surveillance equipment was approaching end-of-life, and the organization wanted to modernize security in their rapid transit subway stations. The customer decided to upgrade the security system from analog to IP, which would provide enhanced system capabilities and higher resolution security footage.

Challenge

While modernizing the analog surveillance system was a top priority, significant infrastructure barriers needed to be addressed. The 328ft reach limitations of standard Power over Ethernet (PoE) switches was a major issue; considering the length of a subway station. The customer determined that they needed the ability to connect IP devices up to 5,000ft (1,500m) away from the application. Additionally, the current analog surveillance system was supported by a Coax-based infrastructure - leading to many concerns, including:

- Extremely high infrastructure costs and long deployment times to rip-and-replace the existing Coax-based infrastructure
- Approximately one year of disruption (caused by construction work and network downtime) to over 5 million commuters every day
- Increased network complexity by installing new IDF closets to accommodate the long reach requirements
- The environmental impact of performing extensive renovations and producing several tons of e-waste

The transportation system was also concerned with impacting the existing core network with the new IP security devices. The organization required an innovative solution to overcome its challenges.

Solution

Due to the customer's needs, the distributor was confident in recommending [Modern LAN design](#) and the award-winning NVT Phybridge [CLEER24 Ethernet over Coax switch](#). The award-winning CLEER24 switch, with [SmartPathPoE technology](#), transforms any new or existing Coax-based infrastructure into an IP path with power. The CLEER24 can connect IP endpoints up to 6,000ft (1,830m) away from the application – that's 18 times the reach of standard PoE switches. The customer immediately recognized the value in the CLEER24 solution. Leveraging the existing Coax-based infrastructure quickly became a big influence in their project plans moving forward. However, the customer was unsure of the quality and reliability of their existing Coax cables. NVT Phybridge assisted the organization in organizing a no-obligation proof of concept to test the technology in the customer's environment.

After a few simple setup steps, the CLEER24 transformed the existing Coax-based infrastructure into a robust and reliable PoE backbone. The customer tested the solution at various lengths in multiple locations and was pleased to find that the CLEER24 was a perfect fit. The organization was able to connect the new IP devices exactly where they were needed using the existing Coax cables. Additionally, the CLEER24's repeatable, predictable, and scalable deployment methodology ensured that upgrading each of the 93 subway stations was simple, secure, and cost-effective.

Result

By leveraging new innovative switch technologies and Modern LAN design principles, the transportation system eliminated the headache of ripping-and-replacing the existing and proven Coax-based infrastructure. Completely satisfied with their IP modernization, the customer can now provide the safest commuter experience with their new IP surveillance system. Thanks to the CLEER24 Ethernet over Coax solution, the customer was able to:

- Deploy over 500 new IP cameras with no disruption to passengers
- Eliminate the need to install IDF closets
- Reduce infrastructure costs by more than \$500,000 (equipment and labor); allowing more budget for IP endpoints and applications
- Accelerate the deployment by nine months, as the entire upgrade was completed in just three months
- Prevent over 10 US tons (over 20,000 pounds) of cabling e-waste from ending up in a landfill