# Major Regional Rail Operator Modernizes SCADA and Train Control System Using JumboSwitch

Case Study

TC COMMUNICATIONS®

A metropolitan rail operator in the Bay Area sought a solution to modernize its network supporting its SCADA and train control systems, as system components had reached end of life and spares were no longer available.

Each site in the network, which comprised five fiber rings and 70 nodes in total, was used to collect data and train control information. While the network had been reliable for over 10 years, it began experiencing an increasing number of failures. Without spares to replace the obsolete equipment, the transit authority's mission-critical train operations were put at risk.

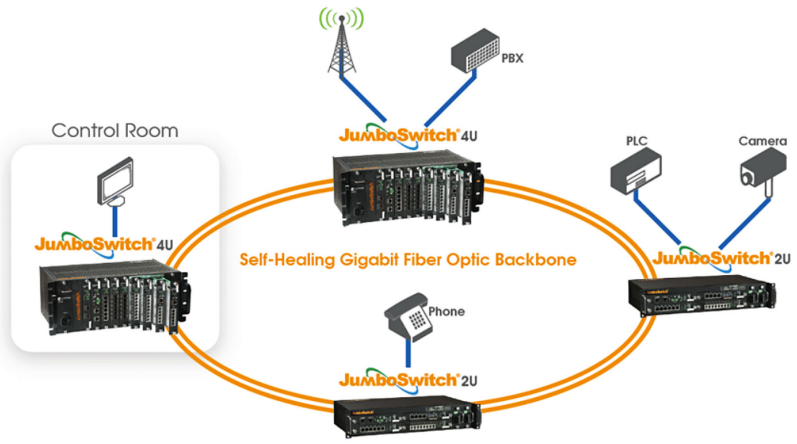
The customer approached TC Communications, which was able to recommend and provide a more modern JumboSwitch® solution over Ethernet.

## Modernizing with JumboSwitch

TC Communications recommended two JumboSwitch products, the TC3840-5 2.5G Ethernet Management Card and the TC3847-3 Turbo Serial Card.

This addressed two things: The TC3840-5 allowed the existing fiber rings to be converted to Ethernet, while the TC3847-3 supplied multiple serial ports that delivered the necessary connections for the SCADA and control equipment.

The modular, scalable design of the JumboSwitch platform gives customers the flexibility to mix and match interface cards within the same chassis and allows them to expand as needed. In this application, the TC3840-5 functions as the core management and main switch card in the chassis, while the TC3847-3 is a plug-in interface card that can be added to provide more RS-232, RS-422, or RS-485 serial ports.



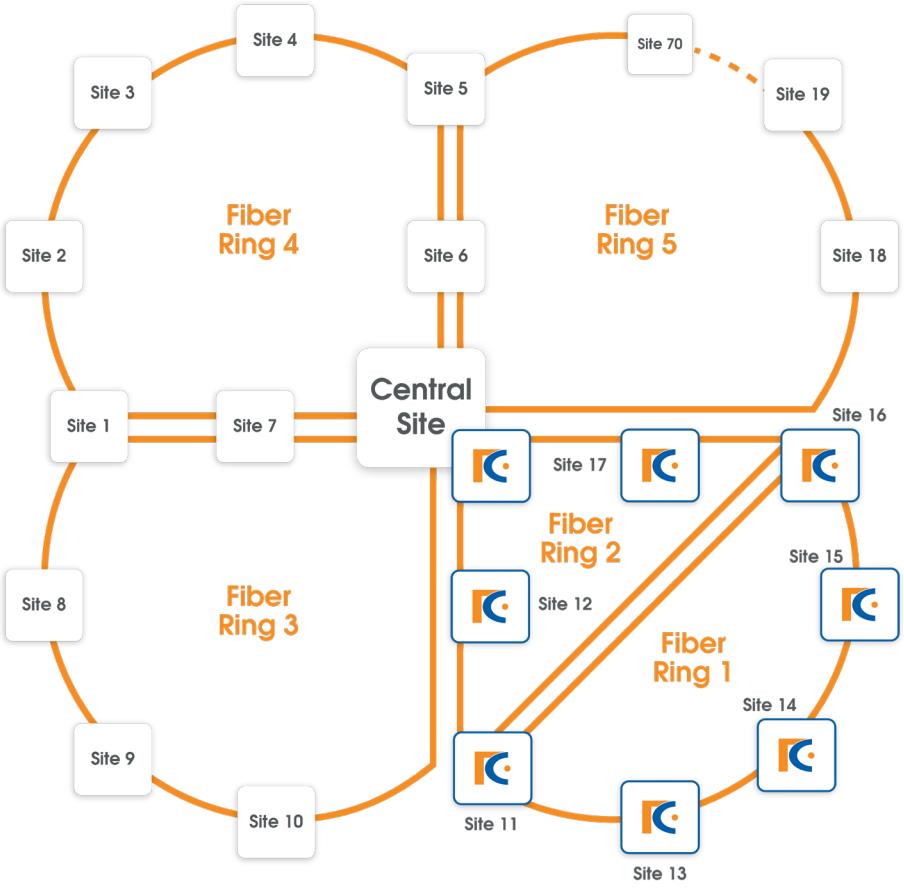

*TC3840-5 Application Example: Connecting Legacy Systems to an IP Network*

# Major Regional Rail Operator Modernizes SCADA and Train Control System Using JumboSwitch

## The First Phase

To minimize cost and any system disruption, the customer opted to deploy the JumboSwitch migration solution in a phased approach, beginning with one ring. This phased approach means that the customer can maintain operation of their network while also minimizing the impact to their operational budget.

As each fiber ring is decommissioned from using the obsolete equipment, the customer has the added benefit of repurposing old units as spares for the remaining end-of-life equipment.




*An overview of JumboSwitch being added to the network in phases, up to 70 nodes*

# Major Regional Rail Operator Modernizes SCADA and Train Control System Using JumboSwitch

## Going Forward

The first fiber ring has been installed with the JumboSwitch products for over 12 months and has greatly enhanced the SCADA and train control systems' operational reliability. The customer is currently working to replace a second fiber ring, with plans to eventually replace all five rings and up to 70 nodes.

To gain better visibility of the network's operation with the JumboSwitch equipment, the customer chose to add TCView®, TC Communications' JumboSwitch network management platform for remote configuration, device management, monitoring, and troubleshooting. Given the critical nature of the network, the customer also added a Level 3 TC Support Contract, providing extended access to technical support and firmware upgrade support, among other benefits.

The customer's JumboSwitch solution can easily be expanded for the sites that need a larger number of serial ports, and the consistent reliability of TC communications' products ensures that this system will meet the customer's mission-critical needs for many years.