EtherWAN to Enhance the Traffic Flow Management in Asia

Overview

In Asia, traffic congestion has greatly increased because of the high population density and large number of automobiles. Thus, implementing ITS (Intelligent Transportation System) to improve the safety, efficiency, and management of ground transportation is becoming increasingly important. EtherWAN's serial device servers were chosen by the traffic department in an Asian country to upgrade the traffic light system from one based on legacy serial communication to one based on Ethernet technology. The installation of these servers will facilitate synchronization of traffic flows at different intersections. Information collected by the servers can then be sent to the control center and consolidated for further analysis.

Technology

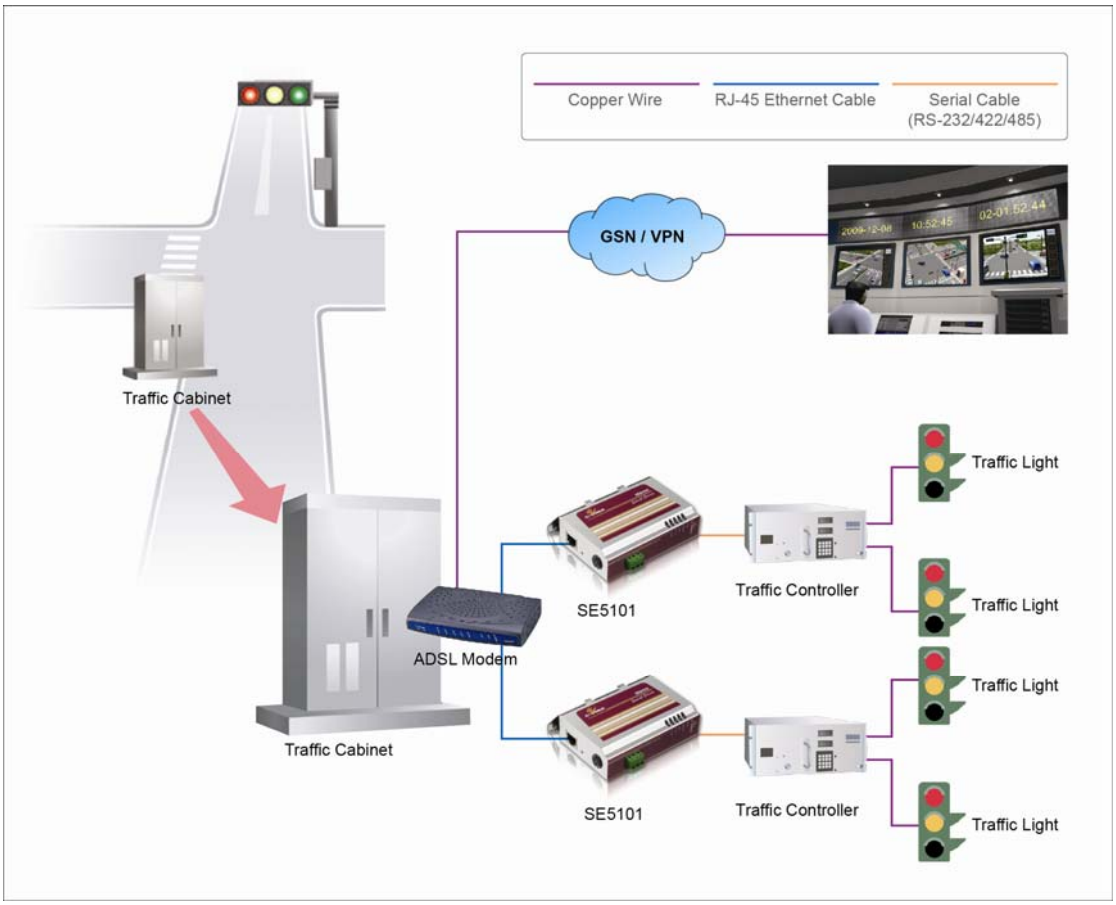
The urban transportation infrastructure was constructed years ago and the cabling structure was relatively fixed. The new migration plan needs to involve the communication backbone provided by the existing telecom carrier. In this particular case, an ADSL modem is used to bridge between each field intersection and the center control. No fiber optics will be installed, from the viewpoints of the budget and infrastructure involved. The serial device servers convert serial signals to signals that are based on the TCP/IP protocol. Eventually, the LAN connections will be made using the industrial grade ADSL modem to straighten all thru copper wires.

Challenges

Off-the-shelf equipment with standard operating temperatures cannot be used in this cabinet, since the cabinet temperature easily increases to 50°C or higher that the devices are too fragile to be used. Furthermore, the equipment needs to be very compact because of the space constraints in the cabinet.

Solutions

EtherWAN's industrial serial device server, SE5101, simultaneously supports RS232/422/485 serial communication and 1-port 10/100BASE-TX, which is the most suitable industrial model for serial-to-Ethernet data transmission. Communication networks can be built simply by inserting a traffic light control card on one side, and then connecting an existing ADSL modem from the telecom provider on the other side.



The controllers at the traffic control center can receive the signals from each intersection and respond through real-time control by sharing information. Owing to its wide operating temperature range, from -10°C to 60°C, and compact mechanical design, SE5101 is heat-resistant and flexible. Thus, it can be installed in a small cabinet under a harsh environment.

Result

The traffic department responsible for the migration plan will implement the plan at a total of 2000 intersections. The first phase covers 700 intersections installed with EtherWAN's SE5101 serial device servers. After a few months of operation, the funding for the second phase will be confirmed when the results of the first phase are found to be satisfactory.