Advanced Traffic Management System

Industry Background

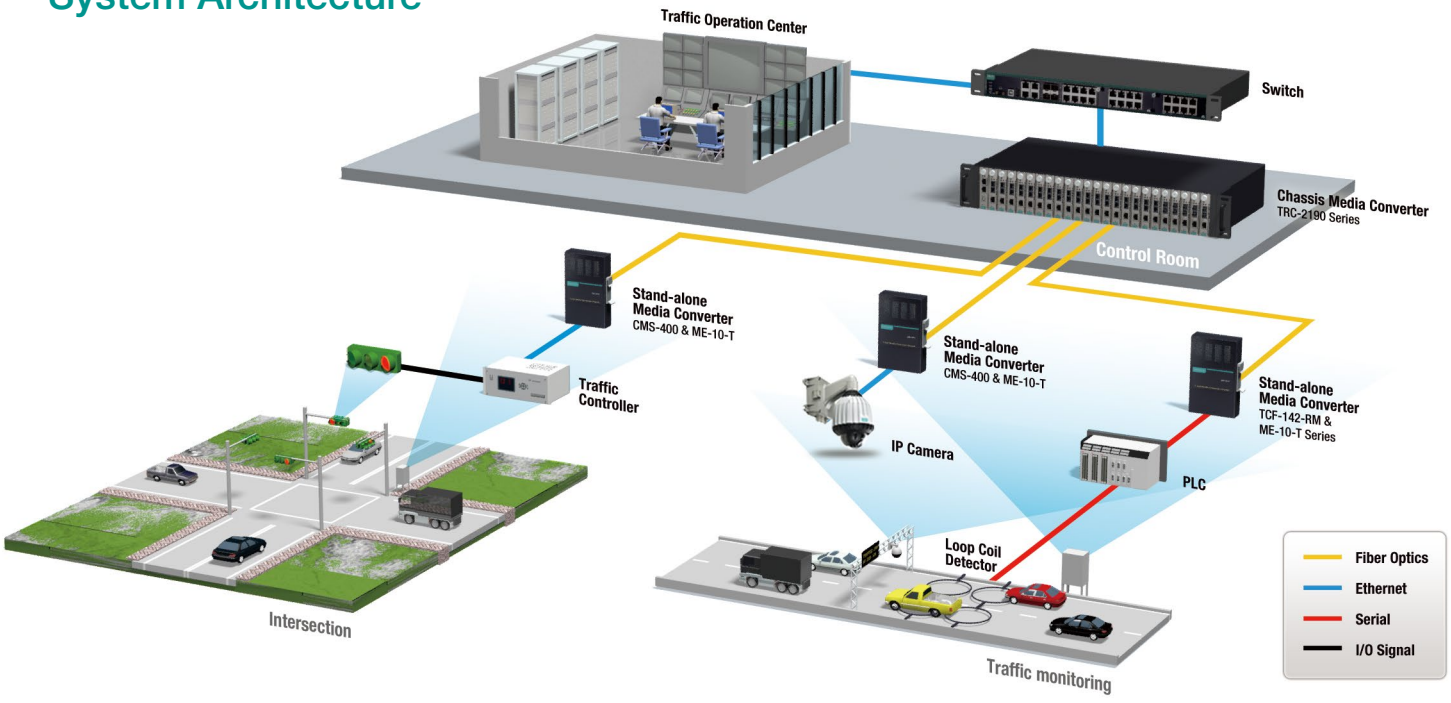
An Advanced Traffic Management System (ATMS) integrates multiple technologies to monitor and control traffic flow. Real-time traffic data collected from cameras and speed sensors is send to a traffic control center, where the ATMS will aggregate and analyze the data to improve traffic flow and ensure safe transport operations.

In ATMSs, media converters play an important role as the large scale of such networks requires data transmissions over long distances and across multiple points. Therefore, this system needs to integrate selected network solutions so that communications can take place over these long distances, including the multiple points.

System Requirements

- A high port-density media converter that can receive real-time traffic data from cameras and speed sensors so that it can be centrally managed in the control room.
- Stand-alone media converters, such as Ethernet-to-fiber or serial-to-fiber converters, depending on the device in the network, at remote sites. For example, Ethernet-to-fiber converters need to communicate with cameras and serial-to-fiber converters with speed sensors. These converters also have to operate in harsh environments; therefore, they require a fanless design and a wide temperature operating range.
- Easy troubleshooting from a control center is vital as field sites are spread out over a wide area. Both high port-density and stand-alone media converters need to support Simple Network Management Protocol (SNMP) in order to monitor link and power status.
- A media converter that supports wavelength-division multiplexing (WDM) to cut down on optical-fiber cable costs.

System Architecture



MOXA®
Reliable Networks ▲ Sincere Service

Moxa's Solution

Modular Design for Flexibility

The modular design of Moxa's media converters offers greater flexibility to system integrators (SIs). These media converters can be adopted in control rooms or at remote sites, with slide-in modules making the installation of stand-alone devices easy. For deployment in the field, both Ethernet-to-fiber and serial-to-fiber media converters are available— depending on the device they need to communicate with.

Innovative Remote Management for Easy Troubleshooting

The key to any successful network operation is reduced downtime. The TRC-2190 series supports SNMP v1/v2c/v3 to monitor the link and power status and reduce maintenance effort. Moxa's media converters also have an alarm function to alert network operators in the control room of emergencies or any out-of-the-ordinary events, such as power breakdowns or link loss, in real time. These notifications will make it easier for network engineers to quickly pinpoint the issue to ensure that operations stay up and running.

Rugged Design for Extreme Reliability

Moxa's media converters support a fanless design for industrial-grade media converter installed at remote sites. This feature guarantees a reliable product in harsh environments as it does not require extra costs due to replacements. Furthermore, these converters support a wide operating temperature range suitable for harsh environments. An additional feature offers noise immunity against light and electromagnetic interference.

Cost Saving on Cables

Moxa's media converters support wavelength-division multiplexing (WDM) to cut down on cable costs.

TRC-2190 Series

Rackmount Chassis for the NRack System™

- 19-inch chassis for rackmount use
- 18 slots for high-density applications
- Supports dual power input with redundancy
- Fanless chassis design reduces servicing costs
- SNMP/web console for easy management
- -20 to 55°C operating temperature range

CSM-400 Series

10/100BaseT(X) to 100BaseFX slide-in modules for the NRack System™

- LFP (Link Fault Pass-through) and FEF (Far End Fault)
- Supports store-and-forward and pass-through modes
- Autonegotiation
- Supports IEEE 802.3AH OAM protocol
- Plug and Play
- Hot-swap
- IP-based remote management
- Supports WDM type modules

TCF-142-RM Series

RS-232/422/485 to fiber slide-in modules for the NRack System™

- Extends RS-232/422/485 transmission up to:
  - 40 km with single-mode
  - 5 km with multi-mode
- 1 or 150 kilo-ohm adjustable pull-high/low resistor
- "Ring" and "Point-to-Point" transmission supported

ME-10-T Series

1-slot media converter chassis

- Dual power inputs for redundancy
- -40 to 75°C wide operating temperature range models available for harsh environments
- Supports alarm relay contact