Passenger Information System

Industry Background

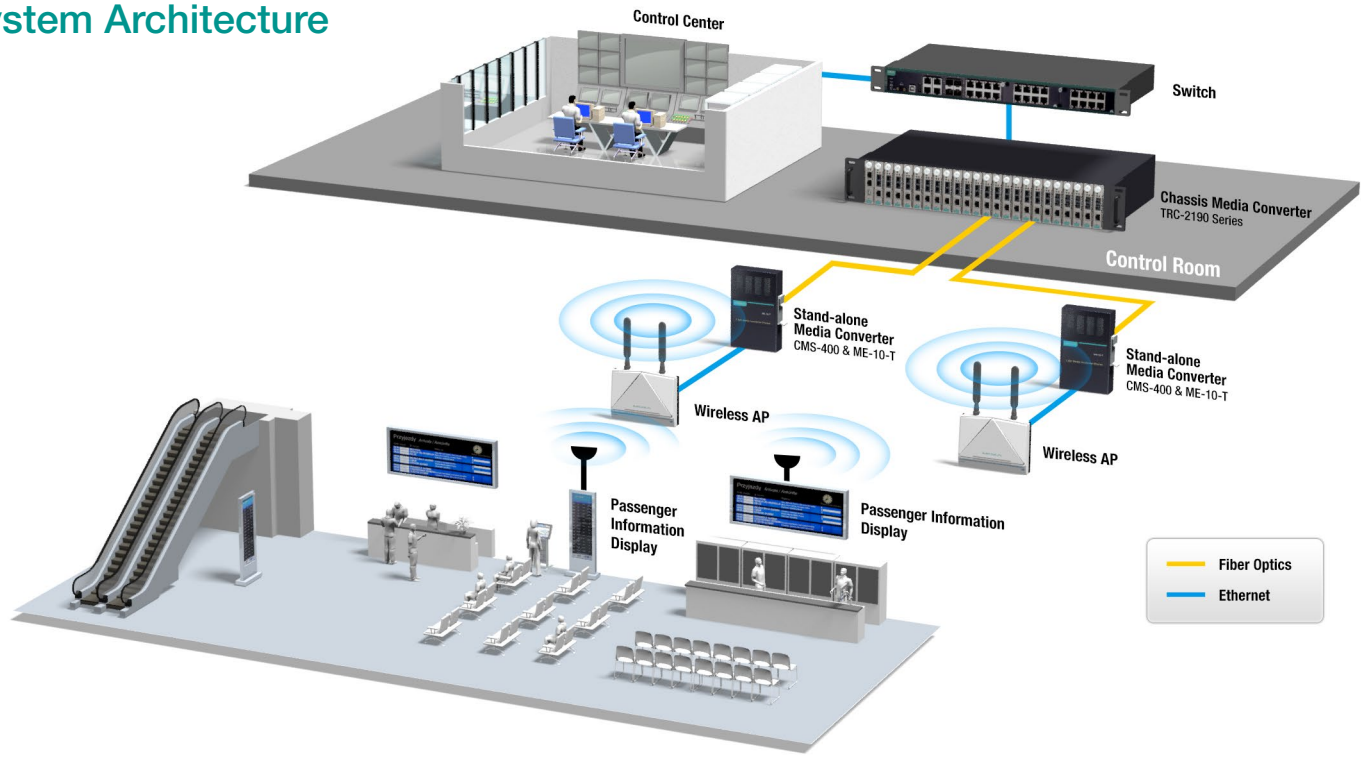
A passenger information system (PIS) provides real-time passenger information to passengers so that they can better plan their journey. This information usually includes estimated arrival and departures times. The main objective is to ensure a favorable passenger experience.

In PISs, media converters play an important role as the large scale of such networks requires data transmissions from wireless access points (AP) along tracksides to the control room. A media converter extends the transmission distance through optical-fiber cables from the trackside to the control room.

System Requirements

- A high port-density media converter in the control room to receive real-time passenger information from wireless APs via stand-alone media converters.
- The Ethernet-to-fiber converters installed at remote sites not only need to communicate with wireless APs but also have to operate in harsh environments. Media converters, therefore, need a fanless design and a wide operating temperature range to function optimally in extreme environments.
- The data forwarding latency must be very small for all media converters to ensure a high update rate of PIS real-time passenger information.
- All media converters need to support System Network Management Protocol (SNMP) to monitor link and power status for troubleshooting.
- Link Loss Forwarding to provide Network Event Alarm for easy and cost-effective network maintenance.

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.

Remote Monitoring for Easy Troubleshooting

The success of any operation depends on its ability to reduce downtime. The TRC-2190 series supports SNMP v1/v2c/v3 to monitor the link and power status and reduce maintenance effort. It also sends alarm notifications to network managers in abnormal events such as power breakdowns or link loss, helping network engineers to quickly identify the problem to maximize uptime.

Rugged Design for Extreme Reliability

Moxa's media converters supports fanless design for industrial-grade media converters 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.

Alarm Notifications

Moxa's media converters have an alarm function to alert network operators in the control room of emergencies or any out-of-the-ordinary events in real time. These media converters, installed at remote sites, not only sends the link status of SNMP traps to the control center but also alarm notifications.

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 75ºC wide operating temperature range models available for harsh environments
- Supports alarm relay contact