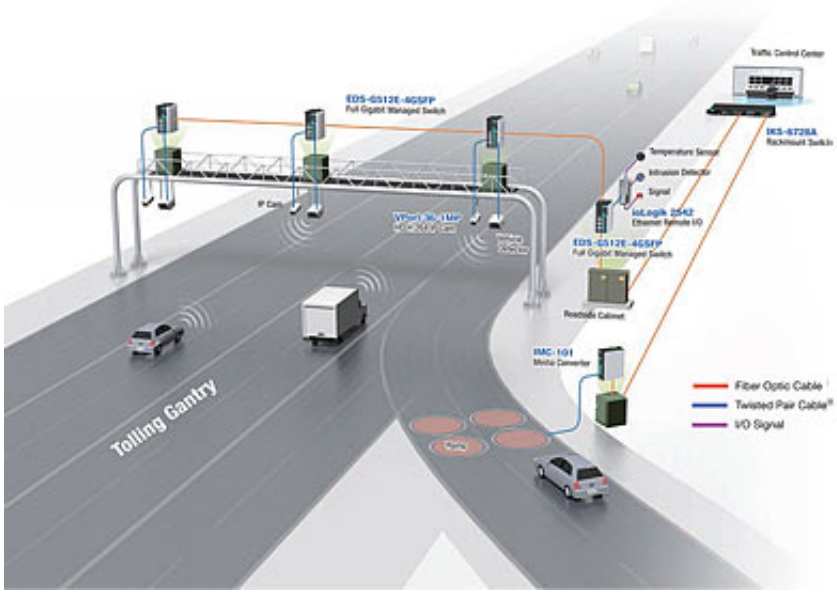
Electronic Toll Collection (ETC)

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Introduction

Traditional toll plazas are costly to construct and incur labor costs from collection booth personnel, but more importantly, they havebecome traffic bottlenecks for many highway systems. Because of this, instead of renovating old toll plazas, many governments have chosen to construct intelligent ETC gantries to make toll collection more efficient, and keep highway congestion to a minimum for commuters and travelers.

ETC gantries make use of open road tolling (ORT) to allow travelers to pay tolls without stopping at toll booths. When a vehicle enters the toll road, sensors installed atop the gantry detect the transponder or GPS device already installed on the vehicle, and then use the vehicle?s ID to debit their account. When a non-compliant vehicle enters the toll road, cameras mounted on the gantry send the license plate image of the offending vehicle to the control room for payment collection processing.

Network Requirements

High Bandwidth for Video/Data Transmission

With multiple vehicles entering the toll road every second at high speeds, network latency is unacceptable. Large amounts of traffic data from sophisticated gantry devices, such as cameras, scanners, and sensors, will require gigabit transmission speeds across the ETC network backbone, especially for the transmission of high-resolution images from multiple cameras atop every gantry.

Compact Dimensions for Gantry Installation

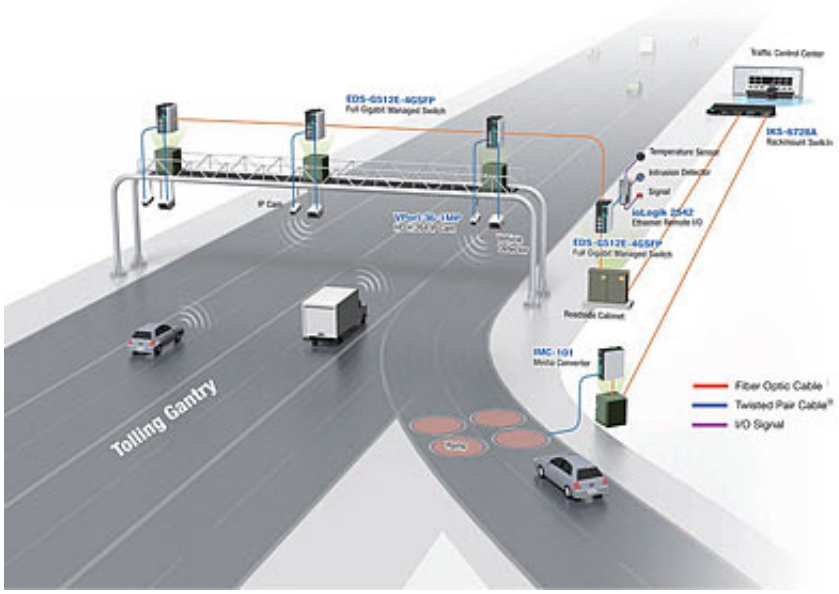
Each lane of the highway requires a camera, sensor, scanner, and cabinet for ETC detection and traffic monitoring. Although cabinets have a limited amount of space, they must house a variety of ETC equipment and network devices. Network equipment housed in the cabinets must be compact, and should also be DIN-rail mountable.

Wide-Temperature Operation

Network devices must have a wide operating temperature range to ensure network reliability. For outdoor applications, temperatures can dip well below freezing at night, and exceed 120°F (49°C) during the day. Temperatures can even reach extreme temperatures of over 140°F (60°C) inside roadside cabinets.

Moxa Solutions

- Gigabit Ethernet for massive video and data transmissions
- Fiber interface for long distance transmission
- Comprehensive solutions including full Gigabit Ethernet witches, Ethernet Remote I/Os, and IP cameras
- All Moxa products are available in wide-temperature (-40 to 75°C) models


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IKS-6728A
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Signal
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EDS-G512E-4GSFP
Full Gigabit Managed Switch
Roadside Cabinet
IMC-101
Media Converter
Fiber Optic Cable
Twisted Pair Cable
I/O Signal
Tolling Gantry