



Location: **Lithuania, Europe**

Reliable Cellular Connectivity for Real-Time Traffic Monitoring in Lithuania

Application:

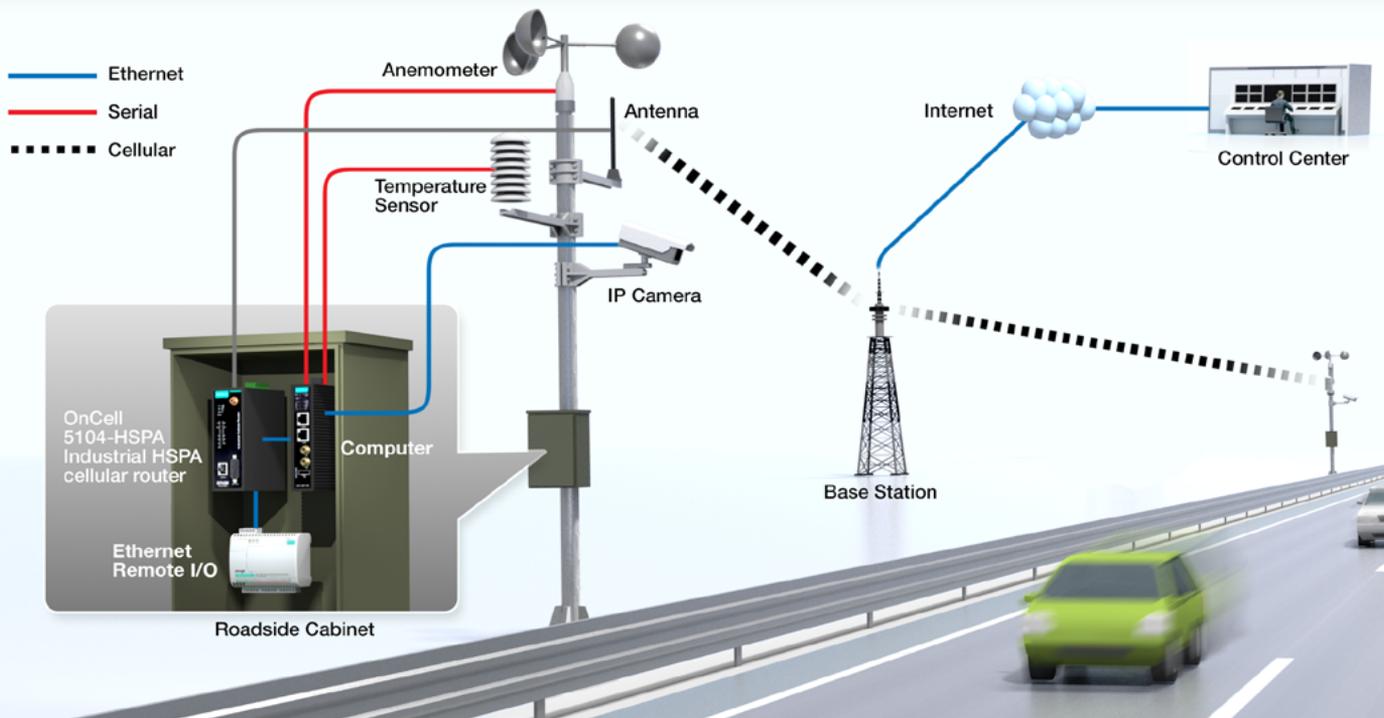
Advanced Traffic Management System (ATMS)

Customer Needs

- High-bandwidth cellular solution for data and high-quality image transmission
- Requires multiple LAN ports on built-in cellular devices to connect several devices in a confined space
- Redundant mechanism to deliver real-time traffic information back to the control center

Moxa's Advantages

- 3G HSPA technology provides data rates up to 14.4/5.76 Mbps (download/upload), ensuring smooth data and image transmission
- Four 10/100 Mbps built-in LAN ports that enable data communications with multiple devices located in a small roadside cabinet
- Dual-SIM card feature provides a backup option in case one link fails so that continuous transmissions are not interrupted



Project Background

To improve traffic flow and reduce the occurrence of unexpected incidents, road operators usually implement an Advanced Traffic Management System (ATMS) to collect real-time traffic information and weather conditions. Moxa's customer Skaidula, an intelligent transportation system integrator, helped the Lithuanian road administration develop the network backbone for their ATMS to collect and transmit critical data, including road weather conditions and traffic status images captured by cameras. By collecting this data, road operators can provide real-time information to drivers, allowing them to avoid incidents, such as traffic jams, roadwork, or accidents, which could increase their journey time.

To ensure real-time transmissions, a reliable and high-bandwidth cellular solution is required for transmitting both data and images from over 500 road spots throughout Lithuania. Moreover, the roadside cabinet has a limited space for device installation, so it requires a cellular product able to connect with multiple Ethernet-based devices.

System Requirements

- Large bandwidth requirement for cellular products to transmit data and images back to the traffic control center
- Able to connect with multiple Ethernet-based devices in a space-limited roadside cabinet
- Smart redundant mechanism to avoid packet loss when the cellular link is down

Moxa's Solution

The Lithuania road administration has its own ATMS to provide real-time traffic and weather conditions to drivers. The system integrator Skaidula chose Moxa's OnCell 5104-HSPA to develop a high-bandwidth and reliable cellular network. Over 500 OnCell devices have been deployed by the roadside in Lithuania to collect two types of data: weather information and images displaying traffic conditions. The weather information collected includes wind direction, wind speed, and temperature, which are logged into the database every two minutes. Images captured by cameras are sent back to the control center every 15 minutes to allow real-time monitoring of traffic conditions. In addition to collecting information, operators can also connect to cameras over a cellular network to view live video streams when emergencies occur. To ensure smooth video streaming and that both sets of information are sent back to the control center, our OnCell 5104-HSPA supports data rates of up to 14.4/5.76 Mbps (download/upload). Moreover, the OnCell has a dual-SIM-card design for backing up data if one of the links goes down, providing reliable cellular connectivity for real-time traffic monitoring.



Real-time traffic monitoring covers the main roads in Lithuania.

The entire system was installed inside a small cabinet mounted on a roadside pole. The system includes one computer used to collect and process all the weather and traffic information, and one remote I/O device used to monitor system operation by collecting different types of data, including internal cabinet temperature, battery charging or discharging voltage, door opening, and power line status. The OnCell 5104-HSPA supports four 10/100 Mbps LAN ports that can connect both the computer and remote I/O device, ensuring smooth communication with the control center over the cellular network.

Benefits

- Data rates up to 14.4/5.76 Mbps (download/upload) supported by HSPA technology, ensuring high-speed transmission for both data and images
- Four 10/100 Mbps LAN ports in one cellular device to connect multiple devices inside a small cabinet
- Dual-SIM-card design for cellular link redundancy by providing a backup option when one link goes down



Related Products



OnCell 5104-HSPA

Industrial five-band GSM/GPRS/EDGE/UMTS/HSPA cellular routers

http://www.moxa.com/product/OnCell_5004_5104-HSPA.htm

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