
Fortel Traffic

Traffic Calming Solutions Move Beyond Speed Limits with 3G Communications and Remote Management



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Application: Intelligent traffic

Customer Critical Challenge:

- Traffic calming and safe crossing signage systems
- Required persistent 3G connectivity and remote management for fixed and mobile message boards

Solution:

- AirLink® PinPoint X and Raven XT gateways provided 24/7 remote management

and instantaneous content updating to innovative traffic-related signage systems

Benefits:

- Secure, reliable connectivity
- Remote management of field hardware to reduce travel and time required for maintenance
- Built to rugged specifications for harsh environmental conditions
- Portability for re-deployment in cases of retired or out-of-service signs

Fortel Traffic, Inc. is one of the most forward-thinking companies in the traffic industry. The organization's main focus is to ensure the safety of our streets with state-of-the-art products such as VCal[®], a vehicle calming signage unit, and VSpeed[®]; Online Software for data collection and programming. Fortel works closely with customers to further the development of its signage products and believes that listening to customers and continuously analyzing market needs is critical to product innovation.

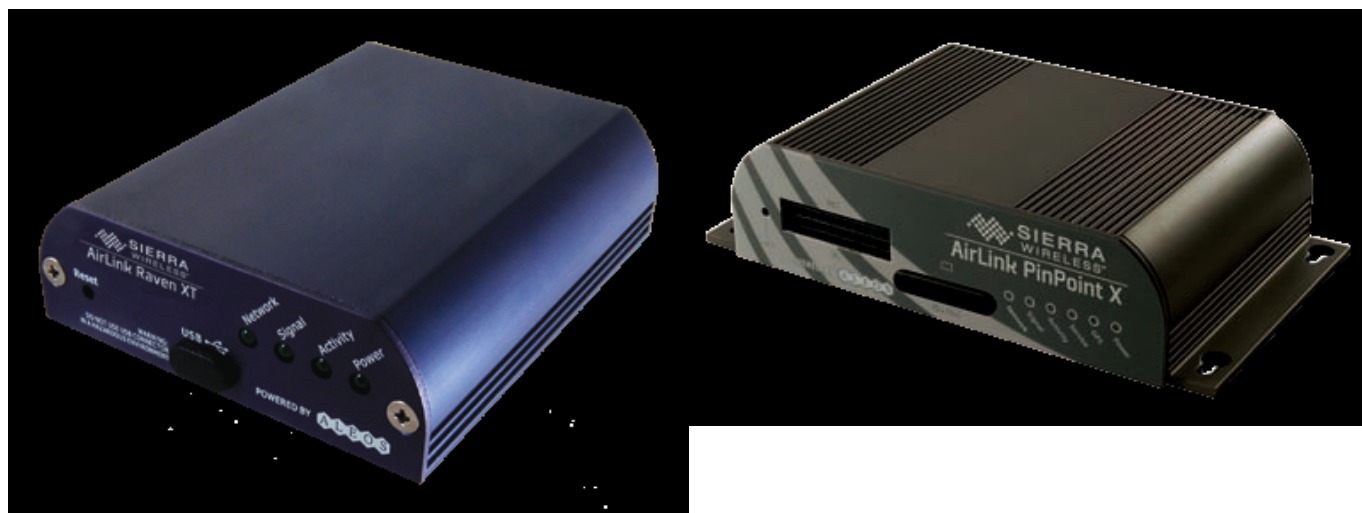
Business Challenge

Fortel Traffic began its journey in San Jose, CA over a decade ago when the company's Founder and President Emery B. Dyer recognized the need to better control traffic around his children's school zone. Originally developed as an interactive speed limit sign designed to promote driver awareness, Fortel's VCal[®] product line has expanded to display warning messages and measure critical traffic data. The ability to measure and record traffic data, enable their client base of military, law enforcement and other local, state and federal government organizations to take action to alleviate traffic buildup, avoid potential accidents and provide alerts for community awareness. Fortel Traffic solutions can be found in school zones, in gated communities, on military bases and along both rural and urban roads across the U.S. and in countries such as Brazil, Mexico and the United Arab Emirates.

Fortel Traffic's original VCal[®] board design had limited remote connectivity. In order to download captured speed data from the signs or change the display message, a field technician needed to be within very close proximity of the sign to download data and upload new instructions from a WiFi-enabled pocket PC. Not including travel time or additional parts checks and repairs, the process took upwards of 15 minutes per sign. In the city of San Jose, which has 44 signs, they estimated that they were paying close to \$80,000 each year to maintain the signs with \$150/hour bucket truck rental and \$150/hour electrician wages.

While developing a next generation safe crossing solution, Fortel Traffic wanted to extend the functionality of its messaging board and ease its customers' maintenance difficulties. The company developed a full matrix display board that reflects a variety of warning messages, such as Curve Ahead, School Zone, Slow Down, or even Amber Alerts. For more flexible content

changes and easier data downloads, Fortel connected cellular modems to its boards, enabling remote management and control of the traffic solution. Unfortunately, the modem selected did not provide the data transaction speeds or intelligence that Fortel was hoping for, and the company began its search for a more effective cellular solution.



Sierra Wireless AirLink® Solution

The City of Elk Grove, one of Fortel Traffic's progressive clients, wanted to use Fortel's signage on large mast arms extending over a road or freeway. Elk Grove needed to connect to the signs remotely to institute critical messaging alerts in real-time, but the city was losing data from the slow and spotty transmission of Fortel's legacy modems. Elk Grove's information technology staff had experienced success with Sierra Wireless' AirLink® PinPoint X in-vehicle gateway used in law enforcement vehicles and introduced Fortel to the line of AirLink intelligent gateways and routers.

"Sierra Wireless opened up new opportunities," said Luke Faubion, regional sales manager of Northern California for Fortel Traffic.

Fortel Traffic selected both AirLink PinPoint X and AirLink Raven XT 3G communications gateways – provided by Sierra Wireless partner Industrial Networking Solutions – to upgrade its solutions' cellular connectivity and remote management capabilities. The PinPoint X is a powerful in-vehicle platform, differentiated by a high precision GPS receiver and rugged design for use in harsh environmental conditions. The Raven XT provides a serial interface and embedded machine protocols, making it ideal for industrial applications like intelligent traffic infrastructure. Both devices are powered by ALEOS® intelligence, which works closely with AirLink device management software to simplify management of remote assets, and provide Domain Name System (DNS) services for dynamic IP generation to lower monthly provider costs.

Using a test AirLink 3G gateway, Fortel worked with Sierra Wireless to reduce exchange rates

and connectivity strength. In an hour and a half, the AirLink gateway was up and running with data exchange rates three to four times faster than Fortel's legacy modems.

"I had my boss connect to a sign to pull data; he pulled it off in a minute and a half. He was giddy," said Faubion. "If anything, we had to speed up our controller to keep up with the gateway. It's been a fabulous integration of the two products."

To utilize the capabilities of the AirLink PinPoint X devices, Fortel worked with the California Highway Patrol (CHP) to develop radar statistics, such as the fastest and slowest speed of a vehicle both approaching and leaving a radar area and a time and date stamp for each transaction, which could be captured by mobile police radar trailers. In addition, the intelligent AirLink gateways - working together with Fortel's VSpeed[®] Online Software - provide instant critical messaging when content changes are required, for instance in the case of an Amber Alert or speed limits variations due to weather conditions. What once required a trip to each sign can now be done in seconds without a manual re-set.

"Now instead of just being a speed limit sign, our messaging boards can do so much more," said Faubion.

Equipped with radar systems and other detection methods, Fortel's traffic solutions can detect accidents within range of a messaging board and inclement weather conditions. The AirLink devices allow signage content to be changed remotely and instantaneously to warn of accidents or dangerous driving conditions. Remote management also helps Fortel's VCalm[®] solution provide environmental benefits by changing sign messaging to provide the optimal 'green' travel speeds. By measuring greenhouse gas emissions and determining the time of day and road speeds with the greatest CO₂ emissions, light synchronization can be changed to meet the requirement of traveling through six continuous green lights to decrease emissions by fifty percent.

"Previously, our customers were only pulling signage data once or twice a year for analysis," said Faubion. "Now with uninterrupted broadband connectivity to signs provided by the AirLink gateways, our customers can go online and use our VSpeed application interface to pull the data as often as they like without having to leave their desks."

The VSpeed[®] application also works together with AirLink device management software to remotely check and view the health of each sign in order to quickly make remote fixes or acquire new parts, if necessary. For the City of San Jose, this means lower maintenance costs due to fewer physical signage visits and the ability to pro-actively schedule repairs to take care of issues in the most efficient manner possible. Based on Fortel's maintenance cost analysis, the company has managed to upgrade its data collection capabilities to on-demand access at a significantly lower cost – saving \$775 annually per sign – than the limited manual wireless methods previously employed, or those of Fortel's competitors.

Results

Fortel Traffic has deployed more than 300 AirLink Raven XT and PinPoint Xcommunications gateways in conjunction with its traffic solution, which is running on both EV-DO Rev. A and HSUPA networks, and the company is confident that number will only grow. Fortel is also considering the AirLinkHelix RT commercial 3G router with WiFi to network upwards of eight signs pre-device utilizing a single static IP address, which would dramatically reduce provider costs. According to Faubion, the AirLink devices have opened up a plethora of critical functionality, including GPS location capabilities, proactive sign maintenance scheduling and verification, instant critical messaging (e.g., Amber Alerts, DUI checkpoints, road closures) and pixel verification. The remote device management has also greatly reduced maintenance costs to Fortel's customers. "The AirLink gateways are so fast, we would never have been able to communicate at such speeds had we not integrated them into our traffic solutions," said Faubion. "We were forced to make our product faster so that it works better with all forms of connectivity – especially the advanced 3G communications offered through the AirLink products."

- Reliable connectivity – ALEOS intelligence provides always-on and always-aware connectivity required for critical mobile data applications.
- Cost savings – Deeply integrated with ALEOS, AirLink device management software allows for quick and easy configuration and remote management of AirLink gateways to minimize the travel and time required for maintenance and content updates.
- Rugged form factor – MIL-STD 810 certified for high performance in the harsh environmental conditions, such as those found along both rural and urban roads.
- Resource management – GPS tracking in PinPoint X gateways provides the ability to acquire field equipment location without interruption.
- Device portability – Wireless Raven XT and PinPoint X devices allow for easy re-deployment as traffic signs are moved or taken out of service.