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 trafficrelated 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 trafficindustry. The organization’s main focus is to ensure the safety of our streets withstate-of-the-art products such as VCalm®, a vehicle calming signage unit, andVSpeed™ Online Software for data collection and programming. Fortel worksclosely with customers to further the development of its signage products andbelieves that listening to customers and continuously analyzing market needs iscritical to product innovation.

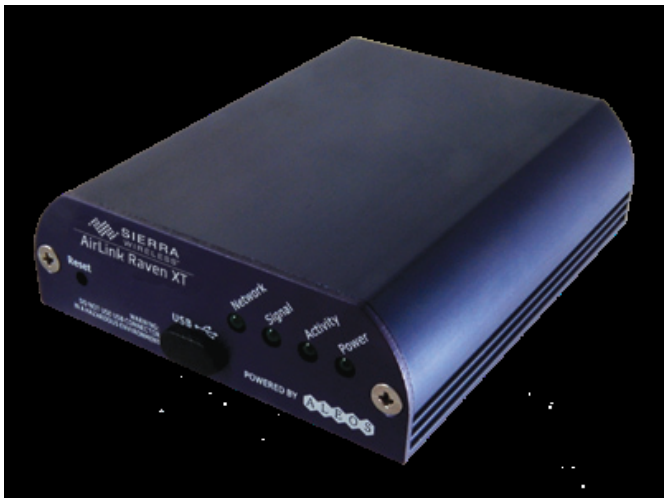
Business Challenge

Fortel Traffic began its journey in San Jose, CA over a decade ago when thecompany’s Founder and President Emery B. Dyer recognized the need to bettercontrol traffic around his children’s school zone. Originally developed as aninteractive speed limit sign designed to promote driver awareness, Fortel’sVCalm® product line has expanded to display warning messages and measurecritical traffic data. The ability to measure and record traffic data, enablestheir client base of military, law enforcement and other local, state and federalgovernment organizations to take action to alleviate traffic buildup, avoidpotential accidents and provide alerts for community awareness. Fortel Trafficsolutions can be found in school zones, in gated communities, on military basesand along both rural and urban roads across the U.S. and in countries such asBrazil, Mexico and the United Arab Emirates.

Fortel Traffic’s original VCalm® board design had limited remote connectivity.In order to download captured speed data from the signs or change thedisplay message, a field technician needed to be within very close proximityof the sign to download data and upload new instructions from a WiFi enabledpocket PC. Not including travel time or additional parts checks and repairs, theprocess took upwards of 15 minutes per sign. In the city of San Jose, whichhas 44 signs, they estimated that they were paying close to $80,000 eachyear to maintain the signs

with $150/hour bucket truck rental and $150/hourelectrician wages.

While developing a next generation safe crossing solution, Fortel Trafficwanted to extend the functionality of its messaging board and ease itscustomers’ maintenance difficulties. The company developed a full matrixdisplay board that reflect a variety of warning messages, such as CurveAhead, School Zone, Slow Down, or even Amber Alerts. For more flexiblecontent changes and easier data downloads, Fortel connected cellularmodems to its boards, enabling remote management and control of thetraffic solution. Unfortunately, the modem selected did not provide thedata transaction speeds or intelligence that Fortel was hoping for, and thecompany 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 touse Fortel’s signage on large mast arms extending over a road or freeway.Elk Grove needed to connect to the signs remotely to institute criticalmessaging alerts in real-time, but the city was losing data from the slowand spotty transmission of Fortel’s legacy modems. Elk Grove’s informationtechnology staff had experienced success with Sierra Wireless’ AirLink™ PinPoint X in-vehicle gateway used in law enforcement vehicles andintroduced Fortel to the line of AirLink intelligent gateways and routers.

“Sierra Wireless opened up new opportunities,” said Luke Faubion, regionalsales manager of Northern California for Fortel Traffic.

Fortel Traffic selected both AirLink PinPoint X and AirLink Raven XT 3Gcommunications gateways – provided by Sierra Wireless partner IndustrialNetworking Solutions – to upgrade its solutions’ cellular connectivity andremote management capabilities. The PinPoint X is a powerful in-

vehicleplatform, differentiated by a high precision GPS receiver and ruggeddesign for use in harsh environmental conditions. The Raven XT providesa serial interface and embedded machine protocols, making it ideal forindustrial applications like intelligent traffic infrastructure. Both devices arepowered by ALEOS™ intelligence, which works closely with AirLink devicemanagement software to simplify management of remote assets, andprovide Domain Name System (DNS) services for dynamic IP generation tolower monthly provider costs.

Using a test AirLink 3G gateway, Fortel worked with Sierra Wireless todeduce exchange rates and connectivity strength. In an hour and a half, theAirLink gateway was up and running with data exchange rates three to fourtimes faster than Fortel’s legacy modems.

“I had my boss connect to a sign to pull data; he pulled it off in a minute anda half. He was giddy,” said Faubion. “If anything, we had to speed up ourcontroller to keep up with the gateway. It’s been a fabulous integration of thetwo products.”

To utilize the capabilities of the AirLink PinPoint X devices, Fortel workedwith the California Highway Patrol (CHP) to develop radar statistics, suchas the fastest and slowest speed of a vehicle both approaching and leavinga radar area and a time and date stamp for each transaction, which couldbe captured by mobile police radar trailers. In addition, the intelligentAirLink 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 toweather conditions. What once required a trip to each sign can now be donein seconds without a manual re-set.

“Now instead of just being a speed limit sign, our messaging boards can doso much more,” said Faubion.

Equipped with radar systems and other detection methods, Fortel’s trafficsolutions can detect accidents within range of a messaging board andinclement weather conditions. The AirLink devices allow signage contentto be changed remotely and instantaneously to warn of accidents ordangerous driving conditions. Remote management also helps Fortel’sVCalm® solution provide environmental benefits by changing signmessaging to provide the optimal ‘green’ travel speeds. By measuringgreenhouse gas emissions and determining the time of day and road speedswith the greatest CO2 emissions, light synchronization can be changed tomeet the requirement of traveling through six continuous green lights todecrease emissions by fifty percent.

“Previously, our customers were only pulling signage data once or twicea year for analysis,” said Faubion. “Now with uninterrupted broadbandconnectivity to signs provided by the AirLink gateways, our customers cango online and use our VSpeed application interface to pull the data as oftenas

they like without having to leave their desks.”

The VSpeed™ application also works together with AirLink devicemanagement software to remotely check and view the health of each signin 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 fewerphysical signage visits and the ability to pro-actively schedule repairs totake care of issues in the most efficient manner possible. Based on Fortel’smaintenance cost analysis, the company has managed to upgrade its datacollection capabilities to on-demand access at a significantly lower cost –saving $775 annually per sign – than the limited manual wireless methodspreviously 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 isrunning on both EV-DO Rev. A and HSUPA networks, and the company isconfident that number will only grow. Fortel is also considering the AirLinkHelix RT commercial 3G router with WiFi to network upwards of eight signspre-device utilizing a single static IP address, which would dramaticallyreduce provider costs.According to Faubion, the AirLink devices have opened up a plethora ofcritical functionality, including GPS location capabilities, proactive signmaintenance scheduling and verification, instant critical messaging (e.g.,Amber Alerts, DUI checkpoints, road closures) and pixel verification. Theremote device management has also greatly reduced maintenance costs toFortel’s customers.“The AirLink gateways are so fast, we would never have been able tocommunicate at such speeds had we not integrated them into our trafficsolutions,” said Faubion. “We were forced to make our product faster so thatit works better with all forms of connectivity – especially the advanced 3Gcommunications 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.