



Case Study: GPRS Communication in Road Administration Applications

Finnish Road Administration Saves Costs And Trouble by Using Arctic GPRS Gateways and Routers

Finnish Road Administration needs to gather real-time information from road weather stations, weather cameras and traffic measurement stations. Viola helped Finnra to fill in the communication gap in places where wireline connectivity would not have been a feasible choice.

Finnish Road Administration is responsible for Finland's public road network. Finnra's mission is to provide smooth, safe and environmentally friendly road connections. To carry out its mission, Finnra needs real-time information on road and weather conditions, traffic delays and obstacles etc.

A nation-wide network of intelligent devices – built, operated and maintained by Finnra – supplies the required real-time information. The network, comprising 350 road weather stations, 300 weather cameras and 350 traffic monitoring stations, is scattered over nine administrative regions.

What is a road weather station?

A road weather station is an automated weather station that in addition to measuring generic weather information collects important weather related data directly from road surface. In Finland road and weather conditions, especially during the winter time, often change abruptly and without a warning.

Heavy snow fall can cover main roads quickly and previously safe roads become dangerously icy in the blink of an eye. In these situations swift actions are required and scarce road maintenance resources must be managed and utilized effectively.

It is the up to date data from the road weather stations together with live video feed and still images from weather cameras that allow experts prepare reliable road weather forecasts and coordinate road maintenance activities.

Analog phone lines are expensive

Any road weather station needs two things to function, namely electricity and telecommunications connection.

Traditionally, analog telephone line has been used. The wiring costs for the subscriber line, however, can be very expensive. The amount of data sent in each transmission from a road weather station is very small, approximately between 400 and 500 characters, whilst the call frequency is high; every 15 minutes in the winter time.

“High call frequency coupled with the fact that some of the calls are long-distance leads to quite large phone bills,” explains **Kimmo Toivonen**, a renowned expert in a Finnra team that has a nation-wide responsibility over road weather stations and weather cameras.



Jouko Kantonen, Information System Specialist of Finnra, is satisfied with the high reliability, ease of use and cost savings that Arctic GPRS Gateways and Routers deliver

“With the cost of only one analog phone line we get six always-on GPRS based wireless connections,” explains Kantonen.

” When connection frequency is high and transferred amount of data relatively low, the cost saving compared to ADSL vary within the range from 20% to 50%,” continues Kantonen.

Industry:	Intelligent Traffic Systems
Customer:	Finnish Road Administration
Solution:	Arctic GPRS Gateway Arctic GPRS Router

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Industrial-grade

"In 2003 we at Finnra saw GPRS as a potential new technology that could bring us significant savings in our high telecommunications costs," Finnra's Toivonen explains. Instead of number of calls, total calling time and location, **GPRS pricing is mainly based on the amount of data transferred.**

Finnra tested a set of products available on the market then. Not a single product met their requirements fully. "We chose Viola's Arctic GPRS Gateway as this product was clearly designed for harsh and demanding operating environments such as road sides.

Flexibility and expertise

Furthermore, Viola had the required expertise and they showed high flexibility and speed in converting our specific customer requirements into product features," Finnra's Toivonen adds.

From traffic measurement ...

Finnra also uses Arctic GPRS Gateways to gather data from traffic measurement stations. Statistics is gathered and motorists are informed on the existing traffic conditions along the main roads, especially during holidays. Every 10 minutes about 50kB and once a day a larger 300kB file is sent over GPRS network.

"In the beginning we had some problems related to the handling of a so called XON/XOFF serial protocol. Now the combined reliability of Viola's product and the GPRS networks we use approaches 100%," states Finnra's Toivonen.

To weather cameras

For weather camera connectivity, broadband ADSL is the preferred choice. In many cases, however, the subscriber line can be extremely expensive.

Viola's Arctic GPRS Router is highly reliable and cost-effective weather camera solution if still images are enough.

Reliability, reliability, reliability!

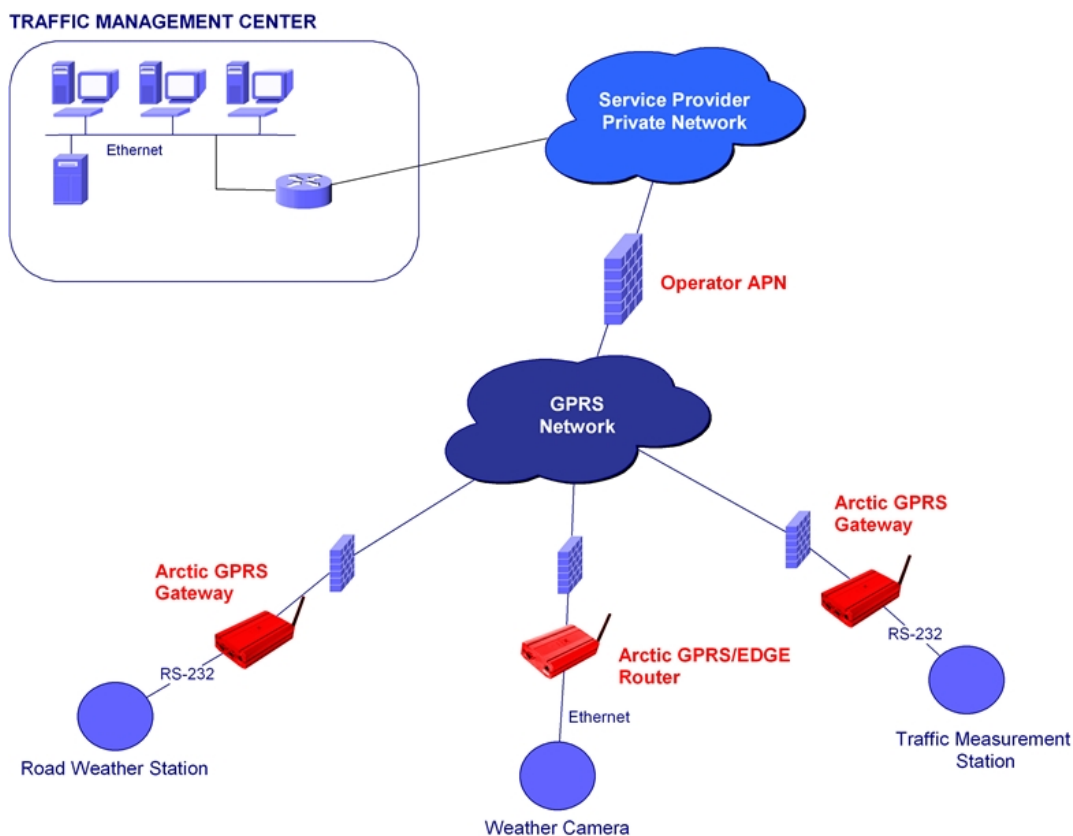
In Northern Finland, for example, a distance to a Viola's Arctic can be between 200 and 300km. Given this long distances, sending a support person to fix a problem in an Arctic unit would be costly, wouldn't it?

"**Unparalleled field reliability** is the greatest distinctive factor that sets Viola's products apart from the competition," Finnra's Toivonen ends with a smile.

Want to know more?

Call our number +358-(0)201-226 226 or send email at sales@violasystems.com.

For more information, please visit at www.violasystems.com



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About Viola M2M Solution™

Unlike many competitors who sell boxes, Viola delivers a total secure end-to-end connectivity solution that seamlessly integrates remote devices and sites to centralized management systems such as SCADA or HP OpenView. No changes to existing systems are needed. Viola M2M Solution™ is an install-and-forget-it, hassle-free approach. In addition, Viola M2M Solution™ is operator-independent; it allows customers to implement two-way data communications in a similar manner all around the world.

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