A single pipe dream?

In April 2008 APD launched the first IP-enabled vehicle tracking, monitoring, control and connectivity solution, following a number of trials in the UK in April the previous year. Six months later, APD reported that the INCA 2 had sold out. BAPCO Journal met up with Martin Worrell, Technical Director at APD, to find out why the INCA 2 has proved such a success.

INCA 2's roots lie with the INCA 1, a simple GPS tracking device used extensively in the fleet management market and which is currently installed in over 18,000 vehicles globally, including armed response vehicles, patrol cars, fire appliances and ambulances. INCA 2 was born as a result of recognition that the needs for communications equipment has gone way beyond simple GPS tracking, and that having a number of different components to facilitate outside communications via MDTs and PDAs was overcomplicated and overkill.

The INCA 2 is usually described as a single pipe to the outside world, with standard connections to off-the-shelf software and hardware. It has dual bearer capability, so Tetra can be used for safety critical information and GPRS for lower security radio.

Worrell explains that a clear benefit of the INCA 2 is being able to have multiple bearers, with a single intelligent system that uses the most effective bearer depending on the situation. "When in times of need it will switch to the most robust bearer. So you get the cost benefits of the cheapest bearers and the reliability of the more robust one. And it does this automatically."

The second feature of the INCA 2 is its IP routing capability via GPRS, equivalent to the office/home router. "With the INCA 2 you can manage all with a single SIM, maintaining one relationship with a network."

In the context of the police and mobile data, for instance, Worrell outlines an example of low cost, clutter free data transfer. "A PC may want to take a set of photographs and send them out. When doing this with a PDA the device will become clogged up as the data is sent, and the device cannot do anything else whilst the data is transmitting. INCA 2 can help – you put the PDA on a cradle, and INCA 2 can store and forward the images."

The system architecture is simple: the on-board INCA 2 connects to onboard equipment (MDT and antennae), as well as the communication cloud to the gateways and thus to AVLS database, map clients etc.

It's "out-of-the-box" functionality includes GPS and GPRS, as well as interoperability via RS232, Ethernet and USB. As well as handling specialist bearers Tetra SDS, Tetra Packet IP, MOBITEX and 3G, it is possible to transfer data via Wi-Fi (to depot hub for example) or via USB mass storage.

The INCA 2 also fits into standard network infrastructure, thus fitting into existing IT management skills and expectations. In fact, Worrell adds that it is possible to deploy INCA 2 without upsetting existing applications, with the option to purchase tracking and mobile data independently.

Worrell highlights that the hardware is also flexible enough for other integrators to add useful applications via applets, and to this end APD is now in talks with other mission critical communications players.

Another feature is its CANbus technology, and it will be possible to have INCA 2 report on important matters such as emissions monitoring (for compliance), driver performance, and vehicle faults – allowing preventative measures to be taken and helping to keep vehicles on the road.

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