

Ramping up the connection

Context-aware mobile wireless services reduce turnaround, cutting costs

Software specialist **Appear Networks** has teamed with **SITA** to develop a “context-aware” mobile wireless service for airlines and airports that could yield operational savings worth many millions of dollars.

“There are many air transport processes that could benefit from being mobilised to yield economies for airport operators and airlines,” says Appear Networks’ Xavier Aubry. “One of the most important is ramp management – the airlines could save millions by shortening each turnaround by as little as a couple of minutes.”

These claims from the Franco-Swedish software provider’s chief executive officer are now being put to the test at Cairo International Airport, where an intelligent ramp-management capability based on Appear software forms part of a USD22 million package of data and telecoms systems being supplied by ARINC. The company’s Appear IQ wireless system has been deployed in the new Terminal 3 since the beginning of September.

Activities initially supported comprise aircraft marshalling, baggage handling, passenger/crew transfers and refuelling. Additions in the near future are expected to include access to passenger and flight information for airport workers, special catering orders, security updates and aircraft maintenance information.

“Ramp accidents are estimated to cost the industry up to USD2 billion per year, while delays represent an additional burden of USD150 per minute per aircraft,” says Aubry. “Anything that improves operational processes on the ramp can result in massive cost savings. In the case of Cairo, a target time reduction of six minutes per aircraft turnaround could generate an estimated saving of USD45 million a year.”

Putting it in context

The Cairo solution combines the Appear IQ wireless platform – which supports context-aware services and applications – and Cisco Systems’ Unified Wireless Network architecture. The Cisco 2710 Location Appliance pinpoints authorised users via their WiFi-enabled portable devices. The Appear Context Engine then automatically displays relevant applications and data on a user’s device according to his profile or job (baggage handler or airline staff, for example), type of communications terminal (laptop, PDA, smartphone, tablet PC), location (aircraft, terminal, tarmac) and the time of day.

Appear Networks made its name originally by supporting a range of wireless applications for mobile workforces in the surface transport, telecoms and public service markets. It made its first move to win air transport business five years ago, showing a prototype maintenance application at the 2003 Paris Air Show.



■ Xavier Aubry, chief executive officer of Appear Networks.

‘Ramp accidents are estimated to cost the industry up to USD2 billion per year’

On that occasion the demonstration ran on a network comprising an Airbus-standard airborne flight data interface and management unit (FDIMU) from Sagem of France, Appear’s own specialised server, and a WiFi access point multicasting to a variety of wireless user devices: a Motorola ruggedised PDA, a tablet PC and a standard laptop, all running Appear’s own Click & Run software.

Click & Run supports what the company calls “context-aware service discovery” – essentially short-range wireless delivery of selected information to mobile workers, depending on their location, personal profile and pre-set permissions.

For example, as the worker approaches a newly arrived aircraft on the ramp, the software on his PDA automatically detects the presence of the workspot “information bubble” and – if he is cleared to receive data at the location – prompts him to download the necessary application software from the aircraft and to start accessing the available maintenance information. He can then keep the downloaded files for use later in disconnected mode after leaving the connectivity area.

This contrasts with the present procedure, which requires the engineer to wait until doors open, enter the aircraft, collect the data stored on a physical medium such as a PC card or optical disc, and carry it to his workplace for reading and action.

The essence of the Appear solution is the fact that all of the necessary application software is held on the aircraft server and delivered to the PDA of the ground user once he has been authenticated. It also times out once it has been used. “This has a number of advantages,” says Aubry. “The ground user has no worries about

having the right software or the right version – the aircraft supplies it to him. There is no clutter on the PDA, and no fear of leaving sensitive data on the device.”

These principles were put to their first practical test in a proof-of-concept trial early in 2006 at Fort Myers in Florida, where Appear and the airport operator looked at the potential benefits of pushing real-time location-aware alerts to the emergency services via the WiFi network and mobile devices carried by the firemen.

Completed early in 2007, that work was instrumental in helping Appear to win the Cairo contract, according to Aubry. “Cairo wanted some state-of-the-art communications systems for Terminal 3, and a context-aware ramp-management system was one of the crown jewels,” he says. “The Fort Myers trial proved to be helpful as a reference in our winning this work, and we were selected as subcontractors to ARINC along with French integration company Neotilus.” The installation at Cairo was completed at the end of August 2008 and the system went live at the beginning of September.

“Though this is probably our most visible air transport project to date, we believe that our other major strategic relationship, with SITA, is the one that could really open up this market for us,” Aubry says. “Whereas ARINC is ready to add in our particular component if a potential customer specifies the capability, SITA sees our offering as a building block for a standard solution that can be replicated and sold throughout the industry.”

Appear has been working since early 2007 with the innovation team in SITA’s communications services business unit. “SITA’s three-year plan to 2010 sees wireless mobility as a key development for air transport,” says Aubry. “They are putting a lot of resources and research into it, and they are integrating us into the overall effort.”



■ Motorola’s MTC 100 is a Windows Mobile PDA that has WiFi as well as Tetra. It supports context-aware security applications through Tetra or WiFi, depending on which is available at the time. Appear plans to use it in a number of its implementations.

The new offering will see a version of the Appear IQ wireless software acting as “middleware” between SITA’s existing range of back-end solutions for tasks such as ramp management and fleets of mobile devices owned by airlines or airport operators.

“All mobile applications – ramp management, security, persons of reduced mobility [PRM] and many more – need a number of supporting capabilities such as locationing, device management and synchronisation,” explains Aubry. “Instead of building these from scratch for each separate application, as some of our competitors do, we have developed a basic mobile infrastructure platform that can perform all the support functions and act as a bridge between a wide variety of back-end applications and the mobiles.”

Development of a “community test” platform is complete and it is now being hosted on dedicated servers at SITA’s network operations centre in Atlanta. The test service is available at no cost to airlines and airports that want to trial mobile context-aware services, and the production service will be available under contract for a monthly fee or on a pay-per-use basis. “The cus-

tomers is thus spared a significant amount of up-front capital expenditure,” comments Aubry.

SITA and Appear are now working with five proof-of-concept customers – airports and airlines in Europe and the Middle East. “The feedback we will get from these trials will support further development designed to yield a fully market-ready solution by early next year if things go as planned,” says Aubry.

On the face of it, context-aware wireless for airline and airport mobile workers offers the potential for significant cost savings at a time when such economies are needed more than ever. But is there any existing hard evidence of the scale of the return on investment that air transport users can look forward to?

“Most of the feedback we’ve got comes from the rail industry because that’s where we started,” says Aubry. “Our 10,000-person implementation with the Dutch Railways has been running for three years. They are saving 20-25 minutes per employee per day, equal to an annual economy of EUR8 million [USD10 million]. Will it work out like that in an airport setting? So far we’ve had only a small group of proof-of-concept deployments. We have an idea of what we are

saving for each airport, but we won’t be able to produce hard figures until we have a large deployment. And we expect to see the first of those in the second half of next year, after the first pilots are completed.”

Brendan Gallagher ■

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