

FINAL DESTINATION

Question: How are air traffic control technologies developing?

Expert: Akhil Sharma
Director, ATC aircom services, SITA

Air traffic control (ATC) covers several areas; providing a service to users to keep them safe in flight, to separate aircraft from other aircraft, and to maintain time schedules. It's about providing airlines with a service to ensure they can fly from A to B as safely and efficiently as possible.

Safety is a key issue. For example, ATC enables pilots to communicate effectively with each other as well as ground staff. In addition, airlines do not want to be kept waiting for departure and landing slots. It also improves efficiency as airlines not only want to fly to scheduled destinations, but they want to get there as quickly as possible. For airlines, using optimal flight profiles reduces fuel costs and CO₂ emissions.

A recent Emirates flight to San Francisco saved substantial amounts of fuel by flying a polar route. In Europe there is further legislation coming in for flight shortening requirements and results show that at present, on average, routes are 47km too long, so airlines will be requiring technology to shorten routes very soon.

Part of the problem in reducing flight distances, is that airspace is divided between civil and military, which can make space an issue. I think airlines would like to see some of this space released or only used while the military is actually doing exercises. To make long-haul flights across the ocean more efficient you need to communicate through satellites. Pilots can then report the position of their aircraft through satellite technology even in bad weather conditions, which may make a difference to its landing.

Value for money is very important. Airlines pay a lot of money in ATC

charges on recommendations from the International Civil Aviation Organisation (ICAO) and cost recovery is very important to them. There are certain rules that airlines must comply to and typically they have to have the corresponding infrastructure equipment in the aircraft. Airlines want to leverage all the investment that has been made on the aircraft to enhance ATC. For example, aircraft used for night flights in Europe are equipped with a certain technology for communication purposes, which enables pilots to exchange data via email. This technology is not commonly

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used and today, when a controller is communicating with a pilot it's through a voice radio. In a congested environment like Europe this can become a strain on the controller because he can only handle a certain number of aircraft and he has to communicate with all of them. Subsequently, there is now a European law which will require all airline companies to be equipped with a new technology so pilots can communicate via email. It's called CPDLC and stands for controller, pilot, data link communications. At the airport, and I think Dubai is a good example, before an aircraft is pushed back from the gate, its pilot needs to gain departure clearance from a controller in the tower.



The pilot will contact the controller on a voice frequency and the controller will give him clearance for take off. The controller also informs the pilot of the route he has to follow after take off. We've been promoting a lot of what SITA calls departure clearance by data link and that involves the pilot sending a message to the controller through a data link in the cockpit. The controller will have the relevant system to see a pilot's request, which they then review and reply to, direct to the cockpit. All aircraft from 2013 will be equipped with this technology while older aircraft already in

service will have to install the service by the year 2014.

Another service SITA is promoting is ADS-B which is a very exciting technology. Effectively the aircraft itself has the ability to broadcast its position every second. This information can be picked up by ground signals and inform traffic controllers. Those ground signals are a fraction of the cost of radars. Radars will cost between US\$5 million and \$10 million, while a ground signal will only cost about \$500,000. SITA has a partnership with Airservices Australia to promote this service throughout the Asia-Pacific region. The technology is already operational in Australia and this joint venture promotes its use. **AWB**