SITAONAIR

AIRCOM® FlightTracker - meeting the challenge of inflight safety

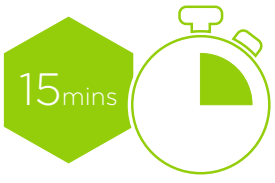
Did you know that over the past 70 years, more than 100 aircraft have disappeared and never been found?

It is only relatively recently that the air transport industry has focussed significant attention on the need for ground staff to be able to constantly monitor the position of their aircraft throughout a flight.

The challenge for airlines has been how to incorporate reliable flight-tracking using existing technology on board their aircraft, and avoiding the necessity of making changes to the avionics within their fleet.

SITAONAIR met this challenge with the development of FlightTracker.

The airline challenge



ICAO will mandate that airlines track their aircraft at least every 15 minutes globally

How do you plan to meet industry mandates for flight tracking?

Contributors
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MH370 and beyond

It is now more than two years since Malaysia Airlines Flight MH370 went missing with 239 people on board.

The question people across the world were asking back in March 2014 – how can a plane simply disappear? – remains just as pertinent today.

However, while the last two years have yielded few clues as to what happened to MH370, there is now much greater understanding about the importance of flight-tracking technology. The International Civil Aviation Organisation's (ICAO) decision to introduce a mandate from 2018, requiring airlines to be able to track their aircraft every 15 minutes, has added further impetus.

Paul Gibson, Portfolio Director, AIRCOM, at SITAONAIR, says the disappearance of MH370, and the global reaction to the tragedy, have had a profound influence on the development of FlightTracker.

He says: "For a long time we had a very basic flight-tracking capability in AIRCOM Server, and our main business was facilitating communication between ground airline staff, the pilot and the aircraft inflight. We wanted to upgrade AIRCOM Server to be better, more feature-rich, but then MH370 happened, and it changed our focus.

"People were asking 'how can a modern aircraft just disappear like that?' and 'why can't aircraft be tracked?' With our insight, we knew that aircraft can be tracked, and often are tracked, but for various reasons this doesn't always happen.

"The brief from then on was 'how can we better use the technology that's already on aircraft to improve the tracking and make sure that something like MH370 doesn't happen again?"

Achieving 15-minute flight-tracking

FlightTracker has been developed to make it as easy as possible for airlines to comply with the incoming ICAO 15-minute mandate for tracking aircraft.

For those airlines that have already deployed FlightTracker to ensure their fleets are ready for the November 2018 deadline, the benefits are obvious.

Paul Gibson says: "To be seen to be moving ahead of the mandate will obviously put your brand in a better light.

"Some airlines have made the decision to move early because they could see the risk in waiting until a time when demand for flight-tracking technology is far greater."

The Civil Aviation Authority of Singapore (CAAS) has already introduced its own requirement for 15-minute tracking, a move that has been welcomed by Singapore-based carriers.

The ICAO's mandate was due to come into effect in November 2016, but was pushed back by two years amid concerns the industry wasn't ready.

Paul Rainford, FlightTracker product manager, says: "These things tend to get pushed into the future because people think the technology isn't available, and the equipment on the aircraft isn't available.

"However, we want to show that the equipment is available, that airlines can do it now, and they can do it easily and across their fleet, because FlightTracker is so quick and easy to deploy."

How SITAONAIR is leading the way in connectivity

400

Airlines use SITAONAIR Aircom

+7,250

SITAONAIR ADS-B ground stations in 129 countries

80%

Of the world's airlines use SITAONAIR Aircom to connect every resource, from pilots to ATC

How FlightTracker works

Airlines that have already deployed FlightTracker are finding it far easier to meet the ICAO's 15-minute mandate, because it gives them access to multiple sources of position data, including ADS-B, ACARS and FANS (including ADS-C, AFN and CPDLC). FlightTracker uses these sources to actively track the aircraft. If one source of data is unavailable, FlightTracker will take automatic actions to generate another source.

Not only does this give peace of mind to airlines that they can track their aircraft wherever they are in the world, FlightTracker also ensures they do not have to worry about the complexity of managing position data from a variety of sources.

SITAONAIR has partnered with aviation software company FlightAware to ensure this data is presented to the airlines in the most effective way possible.

Rainford says: "Position data from the various sources doesn't always come in sequence, and integrating all that data in a seamless way is a complex challenge.

"FlightAware has significant experience in terms of dealing with multiple data sources, and it manages all the data that we provide and enables us to present it to the airlines in a totally cohesive way using FlightTracker.

"It means that the airlines' ground staff don't have to worry about when information is going to come in, and in what sequence. They can just get on with their operations, while FlightTracker continually monitors their flights."

Responsive to challenges

FlightTracker offers a range of features to help airlines respond to challenges during a flight, including displays of over 70 different types of weather data.

Undoubtedly the most significant feature of the latest version of FlightTracker is its alerting capability. This ensures that if, for example, an aircraft deviates from its flight plan, or there is an unexpected change in altitude, the ground staff will be notified automatically.

Gibson says: "You cannot watch all of your flights all the time, so an automated alerting system is absolutely crucial, and this is a key differentiator of FlightTracker."

Airlines can pre-define the parameters that would cause FlightTracker to issue an alert. When an alert is issued, FlightTracker helps airlines to go through their internal processes for escalating an alert, for example automatically sending the pilot a request for further information or providing notification to other key staff.

While FlightTracker has been developed primarily to enhance aircraft safety, it also offers airlines significant operational benefits, even on flights where no alert is issued.

One example would be when an aircraft enters a holding pattern as it nears its destination airport.

Gibson says: "Typically just before its arrival, an aircraft will trigger an ACARS report, telling the ground staff to get ready – for example by readying all the required wheelchairs – as the plane is coming in to land.

"However, quite often, as soon as that message is sent, Air Traffic Control will put the aircraft into hold.

"With FlightTracker, the tracking data is good enough to see when the aircraft is going into hold, and it can give position updates every couple of minutes."

Rainford adds: "Airlines, particularly low-cost carriers, operate a very tight schedule and every minute counts. They cannot afford to waste time preparing for a flight that is actually not yet able to land.

"We are increasingly seeing airlines adopting FlightTracker not just because there's a mandate on the way, but for its additional benefits."

SINGAPORE AIRLINES: A CASE STUDY

SITAONAIR has had a long-standing relationship with Singapore Airlines, and in 2001, the airline became the first customer for AIRCOM Server.

In 2014, SITAONAIR held a series of workshops with Singapore Airlines to discuss its requirements for flight-tracking and alerting technology, ahead of the Civil Aviation Authority of Singapore's (CAAS) introduction in 2016 of a mandate that all Singapore-based carriers should be able to track their aircraft every 15 minutes.

Gibson says: "We talked through the concept of what we were looking to develop and their requirements, and developed a road map.

"FlightTracker is a complex product, and has been released over several versions. The latest version captures everything that we discussed with Singapore Airlines in our very first meeting."

Singapore Airlines' two key technology requirements were the ability to automatically manage requests for an aircraft's position data and an alerting capability. The close working relationship ensured that SITAONAIR was able to shape FlightTracker to meet these challenges.

FlightTracker automatically generates alerts when an aircraft has deviated from its flight plan, or has not reported its position for a given period. When airlines first use FlightTracker, this can initially lead to a high number of alerts being generated if the aircraft does not have the right software or avionics to provide position reports.

Gibson says: "We worked with Singapore Airlines to help them identify the root cause of these alerts, and this process also helped us to tweak our understanding of how FlightTracker should work.

"For example, in order to comply with the 15-minute mandate, we initially asked aircraft to give their position every 14 minutes. However, with aircraft often using satellite communications when they are outside VHF coverage, it can sometimes take more than one minute for the aircraft to respond.

"This delay sometimes caused alerts to be sent to Singapore Airlines, which their operations team then needed to escalate. However, in reality the only reason for the alert was that it was taking a while for the aircraft to respond. Our solution was to instead request position data every 10 minutes."

Each airline has its own internal processes for escalating an alert, but FlightTracker automates these processes. Each stage of escalation, from making an initial position request via ACARS, through to making a voice call to the pilot, can be initiated via FlightTracker.

Gibson says: "This makes it far easier for airlines to meet the 15-minute mandate. We were able to implement this solution for Singapore Airlines very quickly and it was installed in the SITAONAIR cloud so they didn't have to install anything locally."

FlightTracker is now deployed across the entire Singapore Airlines group, including Scoot and SilkAir.

Gibson adds: "We were able to provide Singapore Airlines with not just the software, but also the understanding and support to make it work for them."

AIRCOM® applications and services

AIRCOM® FlightMessenger

Helps airlines manage their air-to-ground data communication in a cost-effective way, by integrating and translating data into a format that seamlessly feeds into an airline's IT infrastructure.

AIRCOM® FlightPlanner

Helps airlines reduce fuel, time and navigation costs by calculating the most efficient and cost-effective flight plan, using analysis of aircraft performance, weather data and route validation

AIRCOM® Information Services

Provides operational data inflight to help cockpit crews make informed decisions about a route, assess obstructions, and communicate journey times with passengers and ground support.

AIRCOM® Network Services

Trusted by the air transport industry for more than 20 years, AIRCOM® Network Services provides aircraft data and voice services to help unlock significant cost savings and efficiencies.

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