Expert Dialogue on Real-time Monitoring of Flight Data, including the Black Box - the Need for International Standards in the Age of Cloud Computing and Big Data
26-27 May 2014, Kuala Lumpur, Malaysia

COMMUNIQUÉ

Industry leaders from the aviation and information and communication technology (ICT) sectors, representatives of international organizations, governments and trade associations followed a call from the Minister of Communications and Multimedia, Malaysia, H.E. Ahmad Shabery Cheek to participate in an Expert Dialogue on Real-time Monitoring of Flight Data facilitated by the International Telecommunication Union (ITU), 26-27 May 2014 in Kuala Lumpur, Malaysia.

The Expert Dialogue was motivated by the events surrounding Malaysia Airlines flight MH370 which highlighted the urgent need to revisit the approach towards the availability of location and other flight data of commercial aircraft in flight.

Global Real-time Flight Tracking

Participants took note of the preliminary report on MH370 by the Chief Inspector of Air Accidents, Ministry of Transport, Malaysia dated 9 April 2014 and its safety recommendation addressed to the International Civil Aviation Organization (ICAO) to examine the safety benefits of introducing a standard for real-time tracking of commercial aircraft.

The Expert Dialogue welcomed the efficient and cohesive approach taken by ICAO to address this aviation problem and the consensus reached at its Special Meeting on Global Flight Tracking, 12-13 May 2014, Montréal on the near-term priority to track airline flights irrespective of their global location or destination. Some participants expressed great interest in contributing to the framework established at this meeting and exploring ways of improving coordination and collaboration between all stakeholders taking part in this dialogue. In addition, as mid and long term actions, it was also agreed that ICAO has begun the Global Tracking standards process in parallel.

Technology and solution providers at the Expert Dialogue presented flight tracking technical solutions that are available or will be soon available on a majority of aircraft on transoceanic routes. It was proposed that, in addition to the development of new technological solutions, a more expansive use of existing ones should be promoted. Also it is essential for the developers of the technologies, that providers of the services, the airlines and the various international bodies come together and agree on the international standards, policies and regulations and harmonized spectrum to ensure worldwide interoperability and compatibility and optimizing costs through economies of scale.

The conclusion was that tracking was underway, and the dialogue moved on to discuss real-time monitoring of flight data as a subject of further study.

Real-time Monitoring of Flight Data

Industry experts provided information on current technological developments and opportunities for future technological enhancements using cloud computing and big data. It was suggested by some participants that if flight data was stored on standards-based aviation clouds interested parties could apply state-of-the-art data analytics and data mining techniques in real-time which could lead to better informed travelers, as well as greater operational and environmental efficiency of commercial aircraft.

Participants agreed that technology that might facilitate in-flight streaming of such data is possible, but that capacity questions still exist. In addition, before in-flight streaming could be adopted, many institutional issues would need to be addressed.

These revolve around: the type of data to be transmitted; periodicity of transmission (continuous streaming; triggered transmission); spectrum requirements; reliability; liability; data security (integrity, availability, authenticity, non-repudiation); potential misuse of flight data; privacy; interoperability; cost and business models; ownership of data and access policies.

A number of satellite operators highlighted recent developments to provide commercial broadband services for passengers, and indicated the possibility of using this for some flight data communications, although safety concerns were raised including implications on the spectrum allocation.

Participants recognized that questions on the use of real-time flight data in an aviation cloud resemble the challenges faced by other industries (e.g., automotive, healthcare, utilities) exploiting cloud computing, big data analytics and other ICT-based solutions.

Proposed Actions

1. Some participants called upon ITU to take action, at the earliest opportunity, to provide the necessary spectrum allocations as emerging aviation needs are identified. This includes spectrum for satellite and radio services used for safety of life aviation services. The meeting encouraged ITU to continue to study and address current and future spectrum requirements for flight tracking and real-time flight data monitoring and make appropriate allocations at upcoming World Radiocommunication Conferences, including the conference in 2015.
2. The Expert Dialogue highlighted the future need for ICAO and ITU to facilitate an open, multidisciplinary, multistakeholder and performance-based approach towards the establishment of international standards for the use of an aviation cloud for real-time monitoring of flight data. It invited the organizations present to co-ordinate and collaborate together according to their respective expertise, roles and responsibilities to avoid duplication of efforts and to make the voices of all relevant stakeholders heard. The Expert Dialogue identified the following long-term tasks, the completion of which would be considered an important contribution to move the discussion forward:
   - ICAO to develop and validate an operational need for real-time monitoring of flight data and identify minimum requirements;

- ICAO identify the concept of operations including communications requirements, and work with ITU to determine necessary telecommunication standards including spectrum requirements;
- ICAO and ITU to work together with industry to estimate the associated cost implications and develop appropriate business models to ensure cost-effectiveness;
- ICAO and ITU to identify the necessary standards, policies and regulations that would need to be developed to meet this requirement, including studying requirements on the protection of flight data, information security, privacy, appropriate use of flight data and data ownership for the use of an aviation cloud for real-time monitoring of flight data;
- Establish and maintain a roadmap of events / decision-making meetings leading to its implementation.

3. ITU and ICAO were urged to address the above issues within their remits in the appropriate group or groups in close collaboration, and facilitate participation by all interested parties.

Participation at the Expert Dialogue on Real-time Monitoring of Flight Data

Participants appreciated the constructive discussions, identified future proposed actions, and confirmed a desire to contribute towards the goal of real-time tracking and real-time monitoring of flight data. They expressed their gratitude to the Government of Malaysia for its hospitality and generosity in hosting the event. They thanked the ITU for facilitating the Expert Dialogue and for taking the initiative to give consideration to alternate ways of using ICT for the betterment of aviation, in partnership with ICAO.

The participating organizations were: AirAsia, Axiata Group, Boeing, Celcom, Civil Aviation Authority of Singapore, Department of Civil Aviation Malaysia, Deutsche Lufthansa, DLR, Embraer, EUROCONTROL, Flight Focus, FLYHT Aerospace Solutions, Globalstar, IATA, ICAO, IFALPA, IMPACT, Inmarsat, Intelsat, Iridium, ITU, L-3 Communications, Lufthansa Systems, Malaysia Airlines, Malaysian Communications and Multimedia Commission, Ministry of Communications and Multimedia Malaysia, Panasonic Avionics, Rolls-Royce, SAP, SITA, SkyTrac Systems, Star Navigation Systems, Syphax Airlines, Teledyne Controls, Telnet, Thales, Thales Alenia Space.

More information about the Expert Dialogue, including programme and presentation material, can be found at http://itu.int/go/flightdata.