International Civil Aviation Organization

Eleventh Meeting of the Aeronautical Communication Services Implementation Coordination Group (ACSICG/11)

Bangkok, Thailand, 19 - 22 March 2024

Agenda Item 9: Inter-regional AFS connection

Upgraded U.S. to Europe Connectivity

(Presented by Federal Aviation Administration/USA)

SUMMARY

The FAA has been working with its service provider to replace obsolete TDM circuits to European partners with an IP network. This information paper describes that effort and status.

1. INTRODUCTION

1.1 For a number of years, the Federal Aviation Administration (FAA) has endeavoured to replace its current Time-Division Multiplexing (TDM) communications with Europe.

1.2 Numerous efforts have been made but many obstacles delayed the desired network upgrade.

1.3 For the past 1-2 years, the FAA has worked with its service provider on a solution to replace the TDM circuits with an IP network serving Portugal and the United Kingdom.

2. DISCUSSION

2.1 The Federal Aviation Administration (FAA) previously had two circuits for communications with Europe:

- A 128kbps TDM data link, implemented in 2010, between Atlanta (ATL) and the U.K. that carried Air Traffic Services Message Handling System (AMHS) messaging data.

- A T1 TDM connection between New York (ZNY) and Lisbon Portugal, implemented in 2015, that carried AMHS messaging from ATL, and voice connections to Santa Maria, Azores from ZNY.

2.1.1 The U.K. link was a “half-circuit” funded jointly by FAA and UK-NATS. The FAA side was implemented by the FAA’s service provider (FTI) and billed from AT&T. The U.K. side was implemented and billed by BT. In 2021, BT informed UK-NATS that the circuit was being supported on a “reasonable endeavours basis” due to equipment obsolescence issues. A termination date of Sept 30, 2022 had been threatened but was delayed when firm plans for a new connection were provided.

2.1.2 The Lisbon AMHS circuit went down on 12 April, 2023. This was not an unusual event as the circuit had been problematic and experiencing temporary outages for quite some time. However, in that instance it was determined that the circuit would be down permanently. According to the FAA’s service provider, one of the Local Exchange Carriers in Europe had turned down their portion of the link as they determined that this TDM service had reached end-of-life and would not be restored. AMHS service to Portugal was then diverted via the KATL-EGGG link.

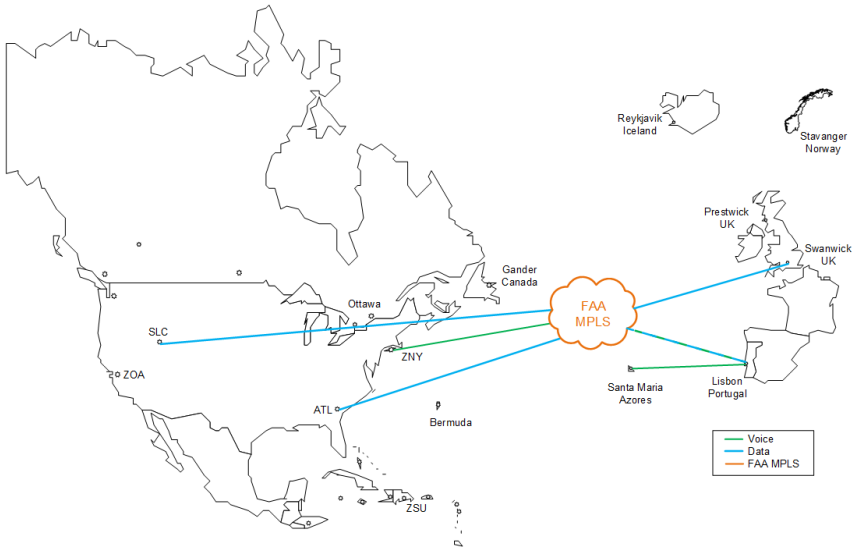
2.2 In recognition of the coming obsolescence of TDM circuits, the FAA began efforts years ago to replace these circuits. Numerous proposals, including a new regional network and a connection to the European PENS (Pan-European Network Service) network, were investigated but none could be brought to fruition.

2.3 In 2021, the FAA began efforts with their own service provider to procure a Multi-Protocol Label Switching (MPLS) Virtual Private Network (VPN) that would replace the current TDM circuits.

2.4 The network would provide services to five sites:

- Atlanta (ATL)
- Salt Lake City (SLC)
- New York (ZNY)
- U.K. (Swanwick)
- Portugal (Lisbon)

Primary AMHS data connections would be from ATL to the U.K. and Portugal. SLC would act as backup AMHS access. Voice connections would be from New York to Lisbon Portugal. NAV Portugal would be responsible for extending the voice services to Santa Maria, Azores.



2.5 The FAA placed the order for the MPLS service in the second half of 2022 and network installation began shortly thereafter. In May 2023, all network connections were completed and testing began prior to migration to the new circuits.

2.6 On 7 November, 2023 the FAA and NAV Portugal completed the migration of AMHS service to the new network, thereby removing the route diversion via EGGG that had existed since 12 April, 2023.

2.7 On 30 January, 2024 the FAA and UK-NATS completed the migration of AMHS service to the new network.

2.8 The migration of voice service between the U.S. and Portugal remains to be accomplished and will occur once testing between the two states has been scheduled and completed.

2.9 The implementation of MPLS service between the U.S. and the U.K. will allow for additional alternate routing of the U.K.-Singapore AMHS traffic with sufficient bandwidth to carry XML based messages in the future.

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

a) note the information contained in this paper; and

b) discuss any relevant matter as appropriate

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