ARINC Project Initiation/Modification (APIM)

1.0 Name of Proposed Project APIM 17-015

ARINC Specification 8xx: *Aircraft Server, Communications, and Interface Standard* to provide file server capability, data storage capacity, and broadband connectivity.

Software specification only yes ☑ no

2.0 Subcommittee Assignment and Project Support

2.1 Suggested AEEC Group and Chairman

Electronic Flight Bag (EFB) Subcommittee.

2.2 Support for the activity

Organizations: Alaska Airlines, American Airlines, El Al, FedEx, Lufthansa Airlines, Qantas, Southwest Airlines, United Airlines, Airbus, Boeing, Astronautics, Astronics Ballard Technology, Avionica, CMC Electronics, Gulfstream Aerospace, Lextech, Lufthansa Systems, Rockwell Collins, Sabre, SITA, Teledyne, Ultramain, UTC Aerospace Systems, Viasat [others, TBI]

2.3 Commitment for resources (directly from participants)

Organizations: American Airlines, FedEx, Lufthansa, Southwest, United, Airbus, Boeing, Astronautics, Avionica, CMC Electronics, Gulfstream Aerospace, Rockwell Collins, Sabre, SITA, Teledyne, UTC Aerospace Systems [others, TBI]

2.4 Recommended Coordination with other groups

The EFB Subcommittee will coordinate with NIS and Ka/Ku Band Subcommittee

The following activities are relevant to this topic:

- ARINC Specification 619 ACARS Protocols for Avionic End Systems
- ARINC Characteristic 759: Aircraft Interface Device (AID)
- ARINC Specification 834: Aircraft Data Interface Function (ADIF)
- ARINC Specification 840: Electronic Flight Bag (EFB) Application Control Interface (ACI) Standard
- ARINC Specification 841: Media Independent Aircraft Messaging (MIAM)
- ARINC Project Paper 848: Broadband Satellite System Functional Interface Standard

3.0 Project Scope (why and when standard is needed)

3.1 Description

The original ARINC Characteristic 759, published in July 2014, was defined when the tablets were becoming popular as EFB devices. Server, data storage, and off-aircraft communications were not considered. The strong proliferation of tablet EFBs, operational experience gained, and industry demand for server, data storage and off-aircraft communication capabilities requires that this new specification be developed.

Functional characteristics and requirements have evolved with many airlines expressing a need to include data storage, file and application server functions, and broadband communication capabilities. The application server needs result from application developers preferring CPU intensive applications that may not be executed on tablets.

Consequently, this APIM is aimed at reviewing airlines' expectations regarding functional requirements and defining a new standard that reflects changes in the industry.

In particular, the proposed work encompasses the definition of a new type of airborne server to provide services to support to EFB and other such peripherals. This new server is envisioned to offer the following principal functions

a) Avionics Data Interface Service
b) Apply ACARS Messaging and EFB Content printing function currently defined in ARINC 834 by migrating these respective specifications into this new standard
c) Define file server /
d) Define Application/service server capabilities.
e) Define data storage requirements
f) Define interface type functions/provisions to enable EFB/Crew devices to utilize on-board IP-Based communication systems (e.g. K/L-Band, Cellular phone, Air-to-Ground)
g) Add information security related aspects specific to EFB leveraging of ARINC PP848 where deemed applicable.

A conceptual depiction of this new type of server is depicted in Figure 1.

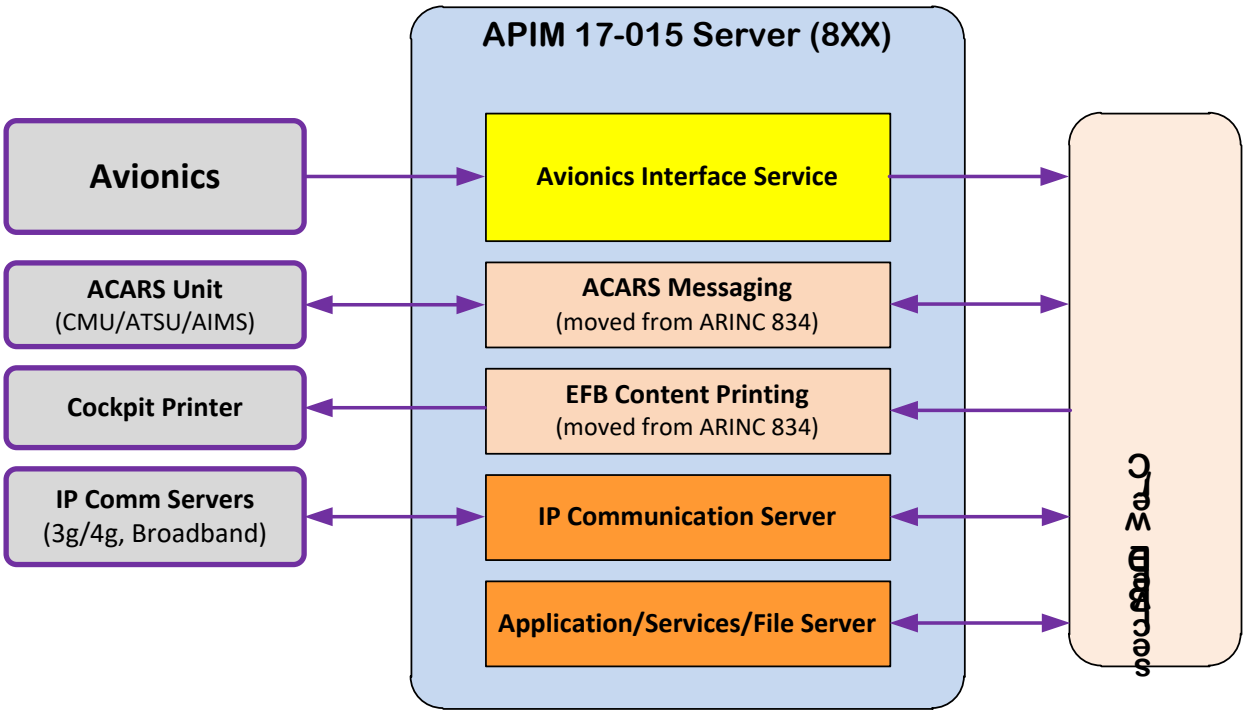

Figure 1: Key Crew Device Server Functions

3.2 Planned usage of the envisioned specification

New aircraft developments planned to use this specification yes ☒ no ☐

New avionics equipment for major retrofit programs yes ☐ no ☒

Mandate/regulatory requirement yes ☐ no ☒

Please specify program and date: Not Applicable

Modification/retrofit requirement yes ☐ no ☒

Please specify: Not Applicable

Airframer and/or airline projects to use this specification yes ☒ no ☐

Once established, it is expected to be used by airframer and/or airline projects using avionics data parameters.

Is the infrastructure standard for the aircraft defined? yes ☒ no ☐

Are 18 months (min) available for standardization work? yes ☒ no ☐

If 'No' please specify solution:

Patent(s) involved? yes ☐ no ☒

If 'Yes' please describe:

3.3 Issues to be worked

This standard is expected to cover these topics:

- Review and refine AID functional aspects
- Add file server / application server function
- Add new interfaces for broadband communications systems
- Add data storage capabilities
- Provide guidance on information security

4.0 Benefits

4.1 Basic benefits

The envisioned Specification will:

- Clarify hardware details necessary to claim compliance
- Address specifics to use of tablet EFB, including server capabilities
- Migrate the ACARS Messaging end EFB Content print services currently defined ARINC 834 into this new specification
- Include a stronger communication link interface aspects including broadband systems
- Address data storage needs
- Address related security aspects unique to EFB communication.

Operational enhancements (reduction in DOC?) yes ☒ no ☐

Form, Fit, Function, (FFF) standard (HW and/or SW):

(a) ARINC 600 form (only HW) yes ☐ no ☒

(b) Interchangeable fit (plug, mount, SW loading interface, etc.) yes ☒ no ☐

(c) Interchangeable function yes ☒ no ☐

If not fully interchangeable, please explain:

(d) Interface and protocol standard only, since H/W will not be addressed yes ☒ no ☐

(e) Product available from more than one supplier (competitive environment) yes ☒ no ☐

The purpose of this proposed project is to establish an open standard that can be implemented by any supplier.

4.2 Specific project benefits

- Facilitate the adoption of a standardized AID/application server.

4.2.1 Benefits for Airlines

This standard will provide several benefits to Airlines:

- Airlines would benefit from lower integration costs, times, and risks.
- Better and more consistent integration of applications leads to better user acceptance.

4.2.2 Benefits for Airframe Manufacturers

- Provide guidance to implement interoperable off-aircraft communication solutions.

4.2.3 Benefits for EFB Equipment and Application Suppliers

- Facilitate communication from EFB via available on-board links

5.0 Documents to be Produced and Date of Expected Result

ARINC Specification 8xx: *Aircraft Server, Communications, and Interface Standard* by no later than AEEC General Session 2020.

5.1 Meetings and Expected Document Completion

The following table identifies the number of meetings and proposed meeting days needed to produce the documents described above. This activity will be undertaken by the EFB Subcommittee. Regular teleconferences will be held between face to face meetings to maintain progress.

Activity	Mtgs	Mtg-Days (Total)	Expected Start Date	Expected Completion Date
ARINC Specification 8xx	6	2x1(w/EFBUF) 4x3 (dedicated EFB SC) 14 total days	Jul 2018	April 2020

Please note the number of meetings, the number of meeting days, and the frequency of web conferences to be supported by the IA Staff.

6.0 Comments

None.

6.1 Expiration Date for the APIM

May 2020

Completed forms should be submitted to the AEEC Executive Secretary.