PP858 – Att.3 / Appx.A-B-C Comment Disposition and Discussion

19 May 2020

Honeywell

PP858 Draft1 v03 Status

Section	Title	Comments	No. of Comments
ALL	General Document	Terminology updates to text/figures consistent with ICAO terminology	
1	Introduction	No changes	
2	ATN/IPS Overall Architecture	Comments reviewed/resolved during last telecon; 1 editorial comment	1
3	Airborne IPS System Architecture	Updates to Global IPv6 address, IP Comm Manager, VDLm2 (for review)	26
4	Airborne IPS System Security	Updates to Rate Limiting (for review); need resolution regarding DTLS / MIC	32
5	Airborne IPS Implementation Options	Comments reviewed/resolved during last telecon; 1 open action item	1
6	Airborne Application Data Considerations	No changes	
Attachment 1	Acronyms	Keeping up to date; unused acronyms removed	
Attachment 2	Glossary	Updates per ICAO WG-I terminology activity; unused terms removed	
Attachment 3	ACARS to IPSDS Convergence Function	*(To be discussed here)*	3
Attachment 4	Air-Ground IPS Management Messages	No changes	20
Appendix A	ATNPKT Message Format Examples	Updates to address Airtel editorial comments; 3 open items *(To be discussed here)*	3
Appendix B	IPS Protocol Build-up	*(To be discussed here)*	3
Appendix C	IPS Ground Architecture Considerations	Edits for consistency and address comments; Airtel comments and observations about material scope/placement *(To be discussed here)*	19

PP858 Att. 3 Comment Disposition [#1, #2]

Att.3, Section 3.2.2.2

ACARS MU/CMU-hosted Application:

`Label/Address(es).Application_text`

ACARS Peripheral-hosted Application:

`Label#Sub-label/MFI<sp>Address(es).Application_text`

Att.3, Section 3.2.3.2

ACARS MU/CMU-hosted Application:

`Label/Center_Name.Application_text`

ACARS Peripheral-hosted Application:

`Label#Sub-label/MFI<sp>Center_Name.Application_text`

***COMMENT*: Pre-M11 (Fryd Wrobel-Airtel) –** *I do not think that there is a reason to include this detail here. Label and MFI have been listed a input parameters to the AICF and we said that they are delivered by local (implementation specific) interface. There is no need to extract them from uncompressed message.*

***COMMENT*: Pre-M11 (Fryd Wrobel-Airtel)** – The same comment as the previous one.

Ed. Recommendation:

- Discussed previously with Boeing (Greg) and Collins (Ron), and BOE/COL/HON agree that this additional info does no harm and is useful context for readers who are familiar with existing ACARS standards.

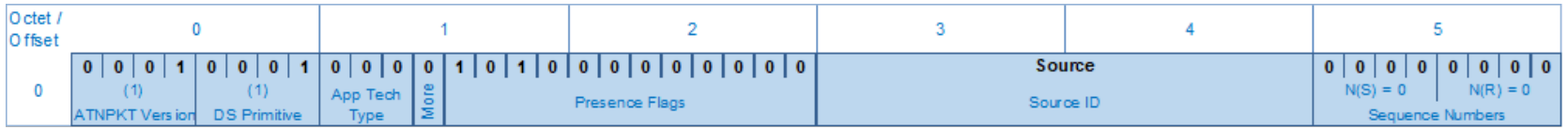
Discussion

- Keep but add a note to clarify that this is representative of a typical ACARS message and one potential implementation of the interface -- Mike

PP858 Appx. A Comment Disposition [#1]

All Appendix A Figures

e.g.,



***COMMENT*: Pre-M13 (Fryd Wrobel-Airtel) –** *A minor recommendation for this diagram and other diagrams below: alignment to 4 or 8 octets is easier to read.*

Ed. Observation:

- In general, I agree. But, I believe that COL-IMS selected 6 bytes across since in many of the diagrams, this approach results in a single row, like the figure above. (FYI: Feedback solicited from several HON colleagues, and there were no objections to the format as shown.)

Discussion

- OK as is (revisit as time permits)

PP858 Appx. A Comment Disposition [#2]

A-3 D-DATA Primitive

…the first two bytes of the User Data indicate the total length of the User Data before segmentation.

***COMMENT*: Pre-M13 (Fryd Wrobel-Airtel) –** *Is this specified in the Doc 9896? The total length of the user data before the segmentation implies a different interpretation of the ATNPKTs user data field depending whether it is a fragment or not.*

Discussion

- A working paper (WGI/31 WP18) was submitted to ICAO WG-I to clarify that the length parameter is included in each segment and indicates the length of the User Data in the segment, rather than being included in just the first segment to indicate the total length of all segments.
- Decision in WG-I still pending – to be discussed during June 4 9896 Ed meeting.

PP858 Appx. A Comment Disposition [#3]

A-4 D-ACK Primitive

- Sequence Numbers, which indicate the number for the last packet sent (e.g., 1 for the last D-DATA message) and the number of the next expected packed to be received (e.g., 3), which acknowledges all messages received up to but not including that number (i.e., 3 indicates that messages 0, 1, and 2 have been received successfully). Note that D-ACK is the only primitive where the send sequence number is not incremented; so, the value repeats the number for the last non-D-ACK packet that was sent

***COMMENT*: Pre-M13 (Fryd Wrobel-Airtel) –** *This is not compliant with the what is stated in Doc9896 ed2. N(S) – upper (first from left) nibble of the sequence numbers may be the sequence number of the last packet sent or may be anything else. It is meant to be ignored by the receiving peer in D-ACK. I submitted the updates to Doc 9896 that clarify this field and now it is used over UDP.*

Discussion

- An amendment proposal (AP 20200220) were submitted to ICAO WG-I to clarify N(S) in D-ACK.
- Decision in WG-I still pending – to be discussed during June 4 9896 Ed meeting.

PP858 Appx. B Comment Disposition [#2, #3]

B-5 Transport and Network Layer Background

B-5.1 UDP Transport Layer

…background info…

B-5.2 IPv6 Network Layer

…background info…

***COMMENT*: Pre-M13 (Fryd Wrobel-Airtel) –** *Do we need this in this document? Can we refer to RFC 768 instead?*

***COMMENT*: Pre-M13 (Fryd Wrobel-Airtel) –** *Do we need it in this document? Can we refer to RFC 8200 instead?*

***Ed. Note** – This existing material was moved from the main document to this appendix, which is informative background material. Added a pointer in Section B-5 for additional detailed info in profiles and RFCs. Alternative is to delete Section B-5.x completely.*

Discussion

- Potential risk if RFCs change.
- ACTION - Re-review document to make sure that UDP/IPv6 descriptions are not duplicated in the document.

PP858 Appx. C Discussion – Airtel Feedback

- **Title –** The current title, "*Ground IPS System Architecture Considerations,"* does not match the current scope, IPS Gateways. → Ground IPS Gateway Air-Ground Interoperability Considerations
- **Placement –** Since PP858 specifies the Airborne IPS System, does the detailed description of IPS Gateways belong in a PP858 appendix? Possibly 'yes' depending on scope → see next bullet. → KEEP
- **Scope –** Consider including essential IPS ground services (e.g., name resolution, authentication/security services, mobility services, etc.) and potential deployment of these ground services, presented from the perspective of the Airborne IPS System. Then, a description of IPS Gateway functionality can follow.
  - If/when the transition period ends in the future, essential ground services will still be required even if gateways are not.
- **Content –** If IPS Gateways is the agreed scope, then need to describe the context and functions of the gateways before diving into detail, and the following concepts need to be conveyed explicitly in the text:
  - IPS Gateways provide network level translation (e.g., IPS→OSI) and not application level translation (ATN/IPS→FANS/ACARS).
  - An IPS Gateway must present itself as an IPS Host (i.e., a native IPS Host cannot distinguish an IPS Gateway from another native IPS Host).
  - When facing other networking technologies, an IPS Gateway acts as a transparent proxy for the applications and must distribute network reachability information in the given network domain. For example, if the gateway proxies a native IPS aircraft into the OSI domain, it must distribute the proxy NSAP for this aircraft into the OSI domain (with IDRP). Simply put, it is not enough for the gateway to pretend to be the aircraft; it must also say to the rest of the network "Hey, I am here" so that routers know how to route traffic correctly in both directions.
  - ACTION—RTCA/EUROCAE to review this material wrt what is planned for the MASPS, and identify gaps