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Comments on Draft SARPs and Guidance Material for ATN Upper Layers for CNS/ATM-1 Package, dated 16th October 1995

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SUMMARY

This paper contains a set of comments on the Draft SARPs and Guidance Material for ATN Upper Layers for the CNS/ATM-1 Package, and argues that the material is not sufficiently mature or stable to be baselined by WG3 at its Banff meeting

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1. GENERAL

The paper represents a significant drawing together of many threads which have been explored since the San Diego meeting, but has clearly not yet reached a level of refinement that could be called a stable base for validation. In particular, section 3, which contains the most important text on the operation of the upper layers, and section 7, the Dialogue service, are both written as guidance material, without "shall" statements. It is also noted that this chapter has not yet been reviewed by SG3 as a whole, and contains material beyond that discussed in the meetings.

Detailed comments are given below.

2. RELATIONSHIP TO OSI

It is misleading to show the 7 layer OSI model in the introduction and claim this is a basis for the "Upper Layers". The non-technical reader (i.e. one who looks only for the "executive summary" which he assumes is carried in section 1) will be mislead into believing there is a close coupling of the ATN Upper Layers to mainstream OSI standards and products. In fact, the "Fastbyte" extensions to OSI Session and Presentation layer standards effectively nullify all functionality of those layers, and leave the application with no upper layer services other than those provided by the Transport Layer.

The text in section 1.2 suggests that X.225bis and X.226bis provide "efficiency enhancements" to session and presentation layer, and gives no indication that these extensions to the standards merely eliminate the layer functionality and consequent protocol overhead.

Also the expression "The ACSE portion of the profile is based on ..... X.227/ISO 8850-1 " leaves it unclear that this profile mandates PER, which is addressed by a current PDAM to the standard, and that most COTS implementation of the referenced standard would not be compliant with the profile.

3. DIALOGUE SERVICE (CHAPTERS 2)

This is key to the CNS/ATM-1 package. It needs turning into SARPs format, with "Shall" statements as appropriate. This is the service that the A-G SARPs are expecting.

4. APPLICATION ENTITY DESCRIPTION (CHAPTER 3)

This seems to be written as guidance material, also it tends to describe in places how an implementation should be constructed. There is no place for such material in SARPs, and it is very questionable whether it belongs in guidance material. The SARPs should only mandate those actions which affect the bits on the line, local interfaces and "who does what" issues within the AE are not appropriate for standardisation.

In addition, this chapter proposes a new model for constructing ATN-application SARPs, which is at odds with the model used in the current A-G draft SARPs. The ATN-ASE SARPs have been constructed on the basis of a Dialogue Service Interface.

4.1. Implicit and explicit service and CF

The proposal to have two modes of operation of the AE, implicit and explicit, is a consequence of making implementation assumptions. In this case an assumption is being made that the CF intercepts ATN-ASE requests at the lower interface of the AE, and decides whether to route them to the ACSE or P-Data. However, an equally valid implementation, creating the same bits on the line, is for the ATN-ASE to decide when to

issues an A-Associate and when to use an existing association, based on application specific rules. An ATN ASE will *always* know whether there is an appropriate existing association or a new one is needed.

This is closer to the implicit mode than explicit. In particular, the implication that the ATN-ASE will be combined with the ACSE to form an ATN Application ASO is the least desirable combination. A much better combination is ACSE and CDSE into a common reusable ASO which is combined with different ATN ASEs to give the different ATN AEs.

4.2. Terminology and Consistency

The text needs a thorough review by technical experts to ensure that terminology is used correctly and consistently, and to perform a technical quality assurance function. For example, figures 3.3 and 3.5 (which are essentially identical) show an undefined "Control Centre Application", have the right-hand arrow heads at the wrong end, and mislabel the right-most primitive.

The complementary term to "initiator application" is "responder application" in normal ISO parlance, but is called "destination application" in para. 3.2.3 and "recipient application" in 3.2.4.1.1.

The arrow heads in fig 3-4 are wrong way round.

It is also very confusing in this text to read "The xxx primitive is invoked ...", when it is unclear to the first time reader what entity should be invoking the primitive. In each case such statements should be reworded "<*name*> invokes the xxx primitive when .....", where <name> is the entity responsible for issuing the invocation.

4.3. Package 1 v Package 2

The optional text which refers to package 1 or package 2 is confusing. These are supposed to be package 1 SARPs, and the package 2 material should be deleted.

5. GRACEFUL RELEASE AND PRESENTATION SERVICE

The "graceful release" described in 3.5.6.4 and 5.3 is fudge. Any COTS ACSE implementation is going to map the release request onto the none-functional P-Release. Catching the request in the CF and redirecting it to P-Data is an extension of the thinking that the CF can fix anything. The CF even embodies a new, ICAO-specific, presentation service and associated protocol, to differentiate between different PDU types (5.3)

The text at the start of 5.3 also needs to be corrected; primitives are abstract, PDUs are encoded. In fact, the encoding of 'n' layer user data should normally be specified in the 'n'+1 layer protocol specification, not the 'n' layer specification.

6. CONCLUSION

It would be premature for WG3 to baseline the current version of the Upper Layer SARPs and Guidance Material. It has not been reviewed by the technical experts of SG3, and more importantly, because it sets down a template for the specification of ATN ASEs, it needs to be reviewed and accepted by SGs 1&2. If this template is accepted, it also throws into question whether WG3 should even baseline the application draft SARPs at this meeting.

This paper recommends that WG3 should instruct SG3 to reconvene at its earliest opportunity, to prepare a document containing the Upper Layer SARPs material in a form suitable for baselining and for use in validation exercises.