Subject:	Review of the ASL-ADD
Date:	Wednesday, February 12, 2020 at 4:24:17 AM Pacific Standard Time
From:	Smith, Danford S. (GSFC-5800)
To:	Shames, Peter M (US 312B)
CC:	Wilmot, Jonathan J. (GSFC-5820)
Category:	Work Contacts

Attachments: ASL-ADD Draft M 2Dec19 accept.docx

Peter,

I made it through all 239 pages! Below are my high level comments. They are in the order I thought about them as I went through the document, so there may be some contradictions as I slowly learned where parts of the document were going. I have specific comments noted in the attached copy of the document.

Because it is not a specification or really a Green Book about one, I had somewhat of a hard time reviewing it. And it is BIG!

- Dan

1. Well over 200 pages. Very well written. But I really don't understand who the audience is and how they would use the book. Is it a reference document that I would search for the 5 pages of interest? Is it an exercise in tying a hundred CCSDS pieces together? Student project? Should this be one of the key CCSDS documents – one of the first ones anyone interested in space data systems applications goes to to get the big picture?

2. Typically, our missions would not go looking to a document like this to create a mission data system design, but that seems to be the purpose of the document. CCSDS is a collection of recommendations. If someone is interested in only a vetted approach to requesting a scheduled activity, CCSDS is a place to look. No need to even consider the whole MO suite or even the whole planning and scheduling suite. Therefore, the book is interesting in that it tries to tie all the pieces together, but it seems more like an exercise than something an experienced mission engineer would need to review.

3. So much of MO is future that a reader may ask "why am I even reading this". In other cases, it ignores the key flaws of some of the existing services that preclude their use in many applications.

4. There is so much in this document and so many references to standards in development that it could be updated annually. Is this really a large "future vision" document?

5. Good, very detailed descriptions about how SOIS and MO work. Why wouldn't their GREEN Books be the place to go to learn about them? This document could be cut down to 20-50 pages and possibly provide more value. Another way to ask, "What is in this document that is not in other books, and which is considered the authoritative guide?".

6. If the purpose of the document is to reflect the complexities of a full MO-based system to the point that people would chose NOT to use it, then you have succeeded. So much of MO seems like internal design and not required for interoperability interfaces.

7. Would like to see a discussion of how this reference architecture would support a satellite fleet or constellation. What features are included in CCSDS standards that may help someone with many satellites? [this is finally kinda talked about near the end]

8. Would like to see a discussion on how this reference architecture could apply to an edge-to-to-edge interoperability approach, with minimal impact on an existing spacecraft or ground system. Our expectation is that, at least for NASA, the MOC-internal services will not be considered and others would probably be handled at the interoperability interface level and not a full-function services within our systems.

9. When we increase our outreach, do you think you would ever propose to someone that this is a great end-to-end architecture that they should try and adopt? Why or why not?

10. I didn't see any talk about registries – for services, for parameter IDs, for message text, etc. [slight general mention near the very end] Registries are an important aspect of how MO works and adds considerably to its complexity.

11. I know it is only written at the architecture level, but maybe an example off all the steps needed to get have the MOC request 5 telemetry values from the spacecraft would be useful to show all communications, registries, etc. It is a very big document that generally stays at the high level abstract level, just looking at it from many angles. An example that goes into detail would be nice.

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