STATUS Report
Standard Onboard Interface Services (SOIS)

ADCSS 2013

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SOIS – Motivation and background

- The SOIS WG was established in an attempt to improve the ease of connectivity and reuse of onboard hardware and software
  - (based on a comparison with terrestrial networks where everything connects to everything – TCP/IP protocol stack, Wireless, standard APIs)

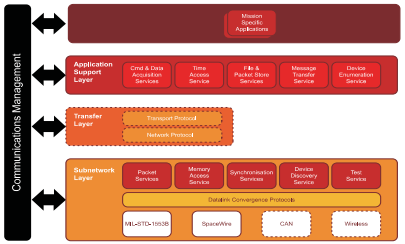
- The initial strategy included the development of a single transport protocol that could be used by all missions but it was quickly realized that this was a step to far

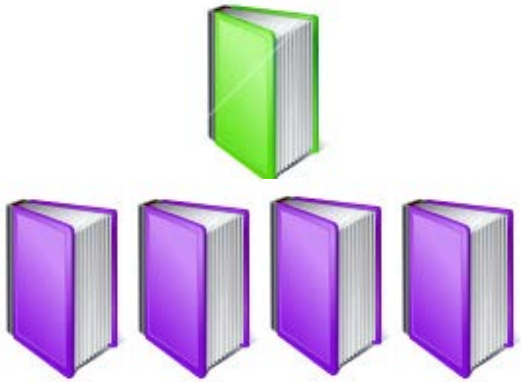
- A rethink resulted in the following approach:
  - Develop a layered communications architecture
  - Define a set of subnetwork communication services
  - Align datalink protocols to the defined set of services
  - Define a common set of application related services
  - Encourage the take up by primes and equipment suppliers

SOIS – Development process

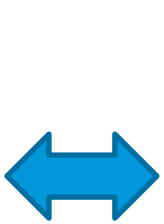
International CCSDS SOIS Working group

Architecture

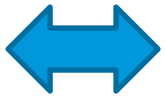




CCSDS Recommendations

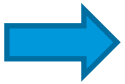


Savoir



TRP and GSTP activities
CORDET
SAFI
IMA
....

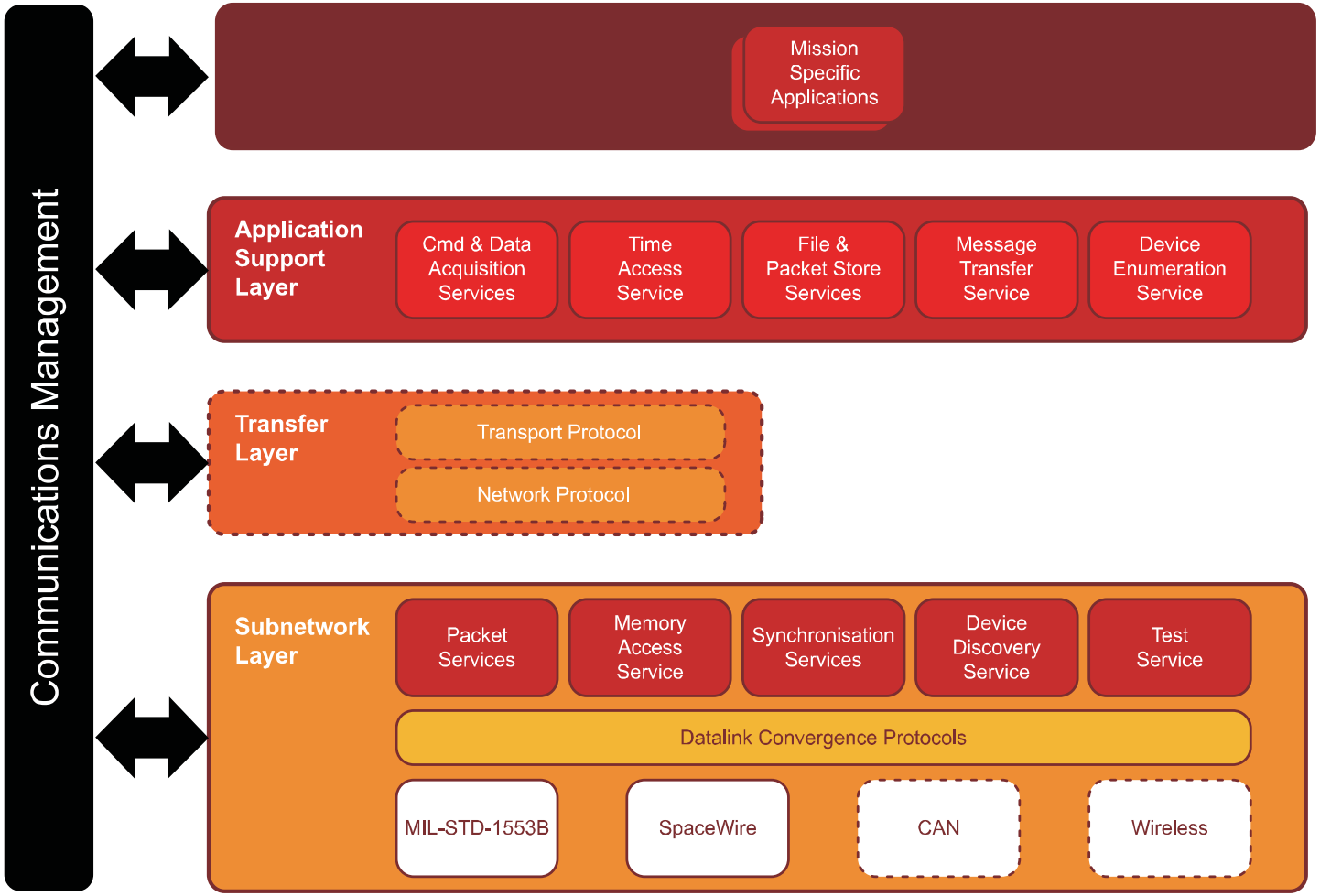
Adopted ESA standards under ECSS



Driving inputs for ECSS datalink and PUS standards

PUS
CAN
Milbus
SpaceWire

CCSDS SOIS Reference Communications Architecture



SOIS – Document Status

- All documents have now been published or are (two) in the final stages of publication
- They may all be retrieved for the CCSDS website: http://public.ccsds.org/publications/MagentaBooks.aspx
- A version 2 Handbook (CCSDS Green Book) will be published shortly
- The SOIS recommendations have also been been adopted as ESA ECSS standards

SOIS deployment in the community

- Current
  - Embedded as part of the Savoir avionics architecture
  - Used to drive ECSS protocol development (harmonizing Milbus, Can-Bus and SpaceWire)
  - Applicable in the new PUS update
  - Compatible with the emerging Mission Operation Services
  - SOIS file and packet store in combination CFDP for ESA Missions (Euclid, potentially JUICE)
  - GSTP evaluation by primes (Atrium, TAS and OHB)
  - Spawned new SOIS activities related to electronic data sheets
  - Additional R&D activities planned
- Future
  - Continue to promote the benefits of a layered architecture and standard I/Fs (Missions and R&D activities)
  - Re-assessment after evaluation from primes and consolidation of SAVOIR architecture

SOIS – Final words

- *Nothing is perfect and we are aware that not all our activities are perfectly aligned yet – this is understandable, existing infrastructure and methodology take time to change*

- *Probably the biggest contribution of the SOIS work is that the community is beginning to acknowledge the benefits of a layered communication architecture and the use of standardized interfaces*

- ***Thank you for your attention***