



Fabio Pasian (INAF) – Euclid Data Flow WG

EUCLID GROUND SEGMENT INSTRUMENT OPERATIONS



Joint EIC-ENIS Document

Conceptual Approach for the Euclid Ground Segment

Joint EIC-ENIS
document, used
as the basis for
the SOAD and
chapter 6 of YB





Role of Instruments in Science GS

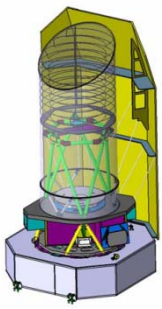
- Euclid developed and operated as a PI mission
- For the complete understanding of the data, close connection needed between the instrument teams and the data centre(s).
- Interaction and collaboration within each instrument and among instruments to be set-up already during the development phase.
- Building upon experience in ESA missions (Planck and Gaia, but also XMM and Integral)

Tele-Communications

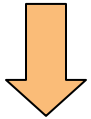


- Instrument Teams: specific responsibilities in Science GS to guarantee best data quality.
- How to do that?
 - Data rate of ~ 850 Gbit/day
 - Spacecraft in L2
 - Data Tele-Communications Period ~ 4 hrs/day
 - Telemetry (housekeeping + science)
 - Real-Time (RT)
 - Recorded

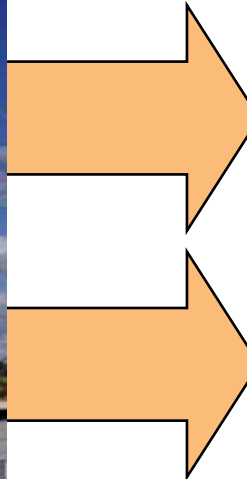


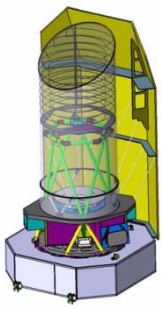


Large-Scale Data Flow Scheme

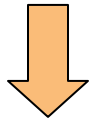


Daily Tele Communications Period ~ 4 hrs





Large-Scale Data Flow Scheme



Daily Tele Communications Period ~ 4 hrs

RT HK

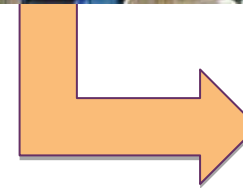
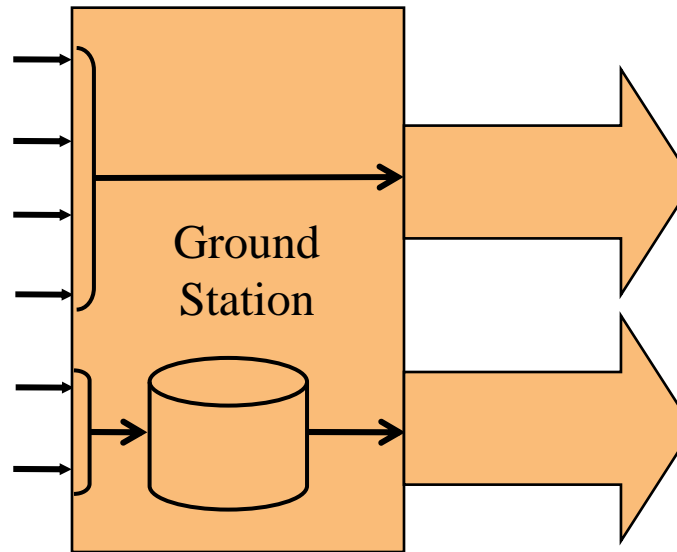
RT SCI

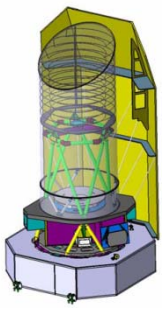
Events

Mem Dumps

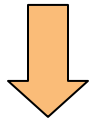
Recorded HK

Recorded SCI

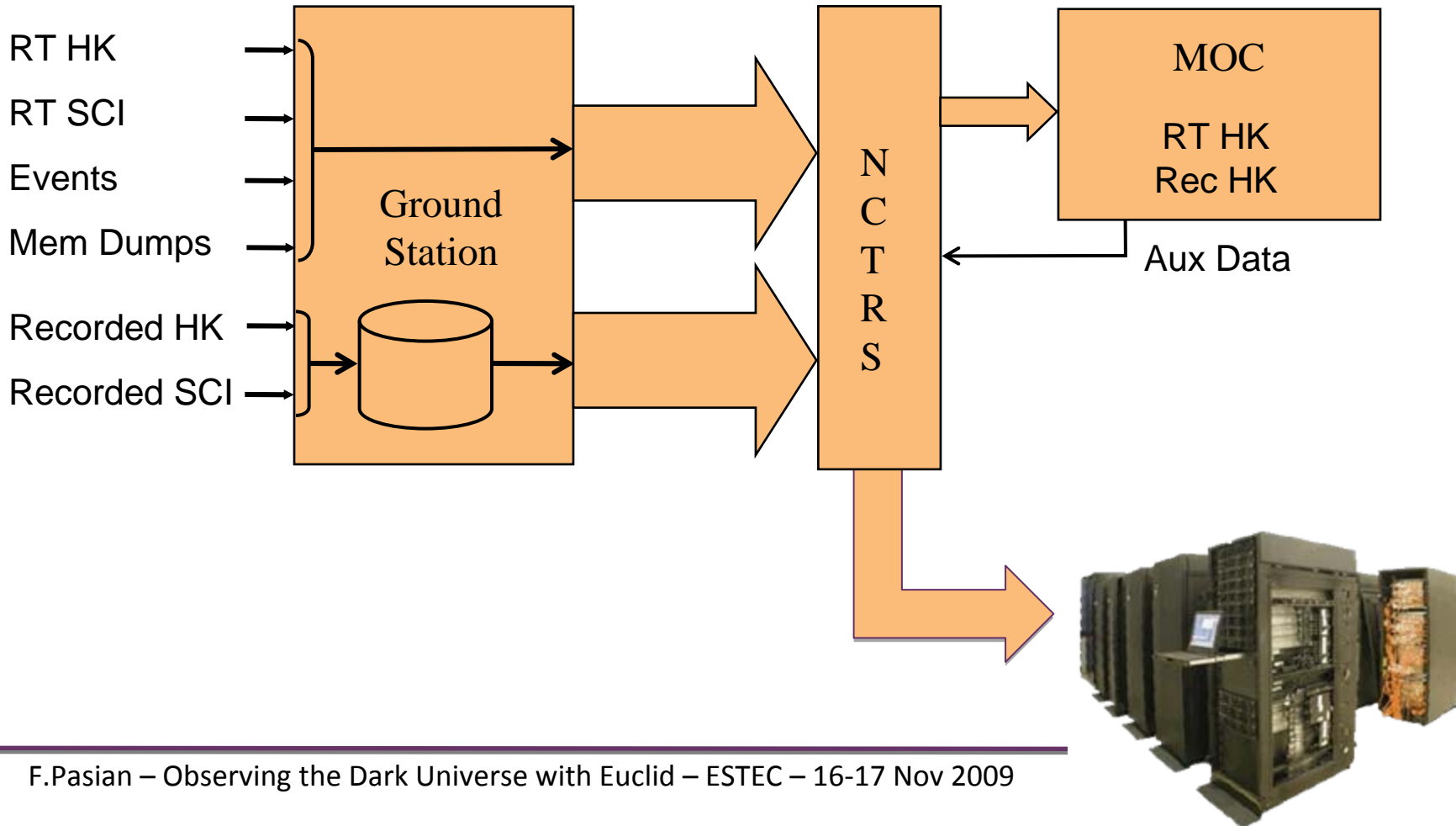


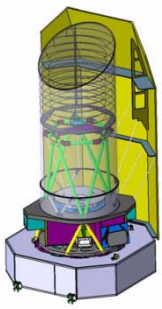


Large-Scale Data Flow Scheme

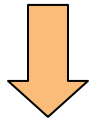


Daily Tele Communications Period ~ 4 hrs

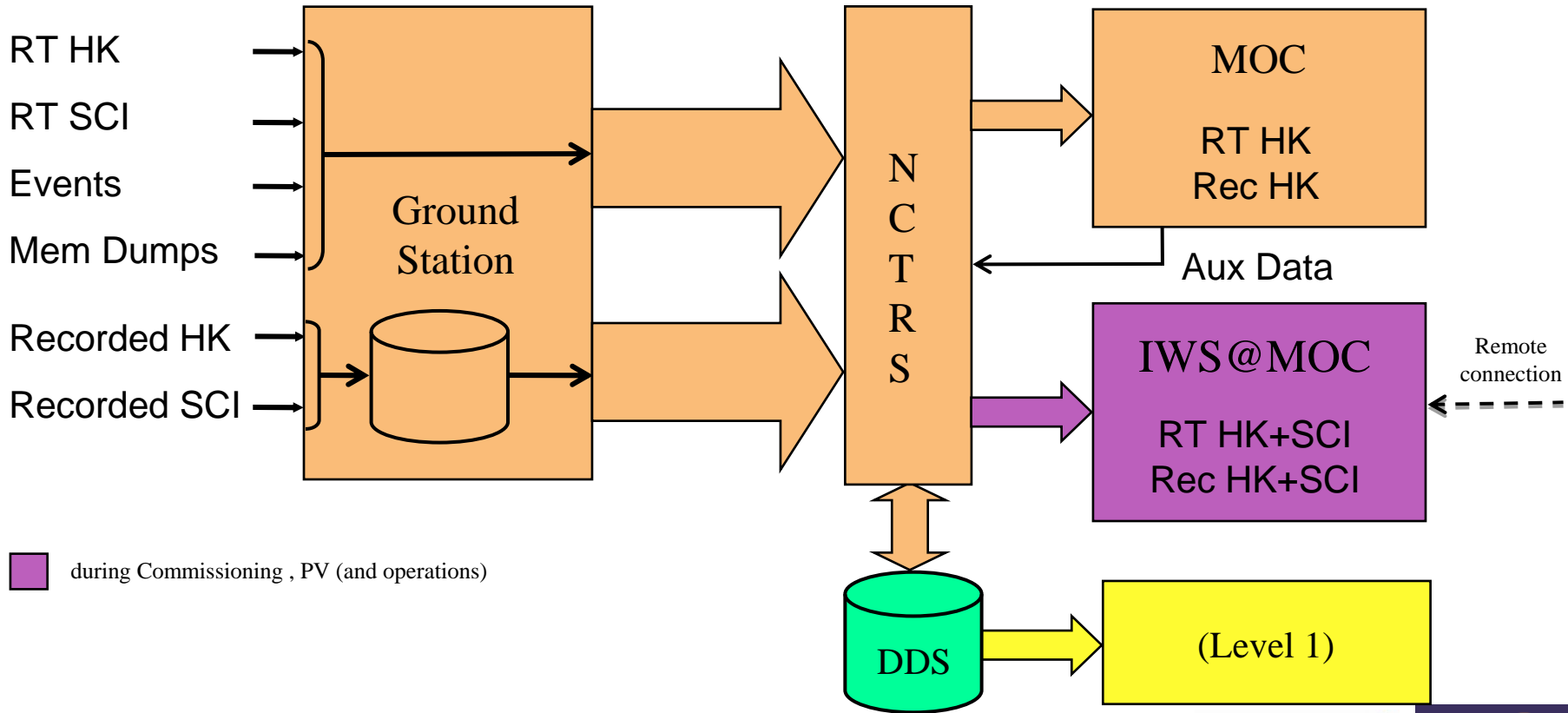




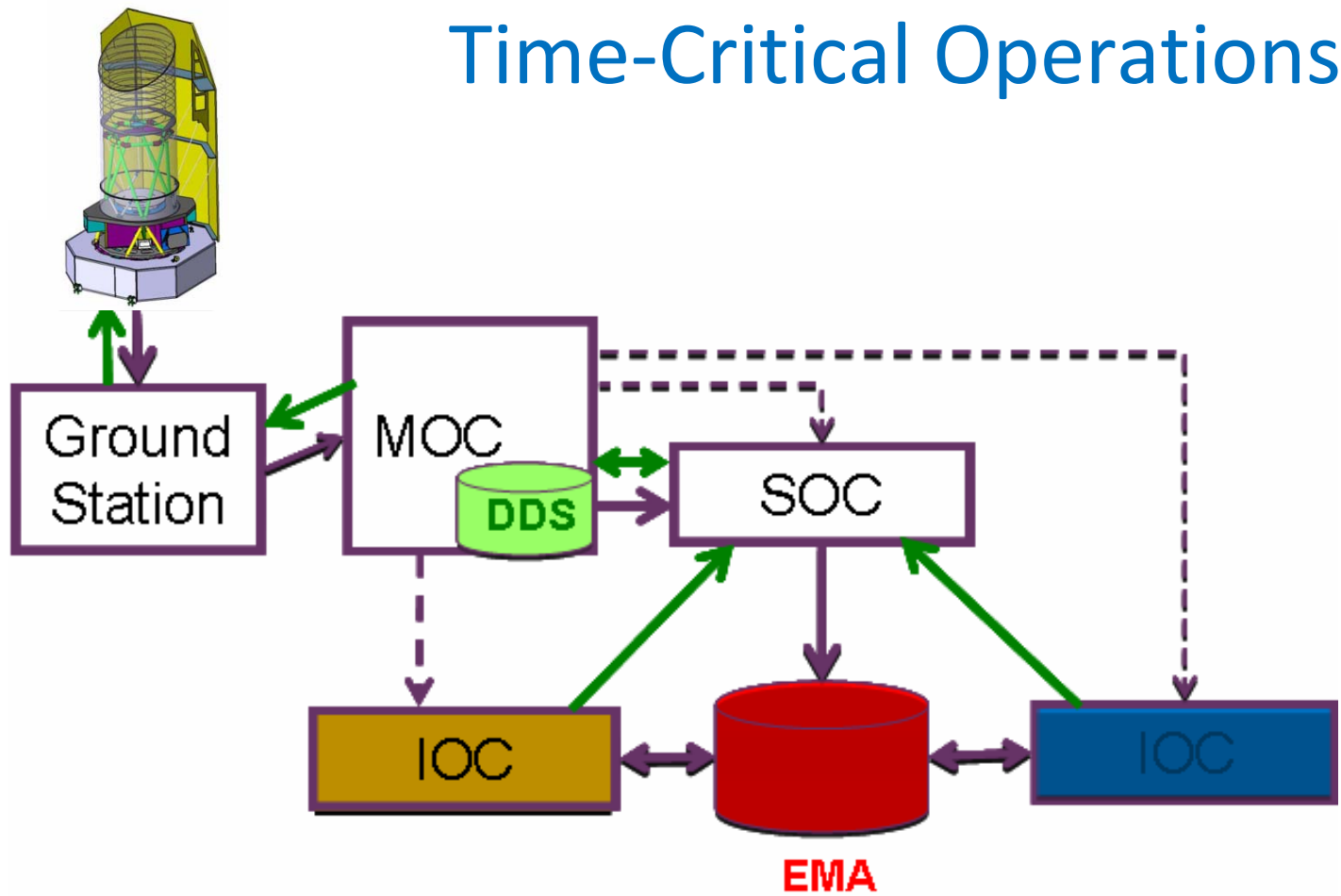
Large-Scale Data Flow Scheme



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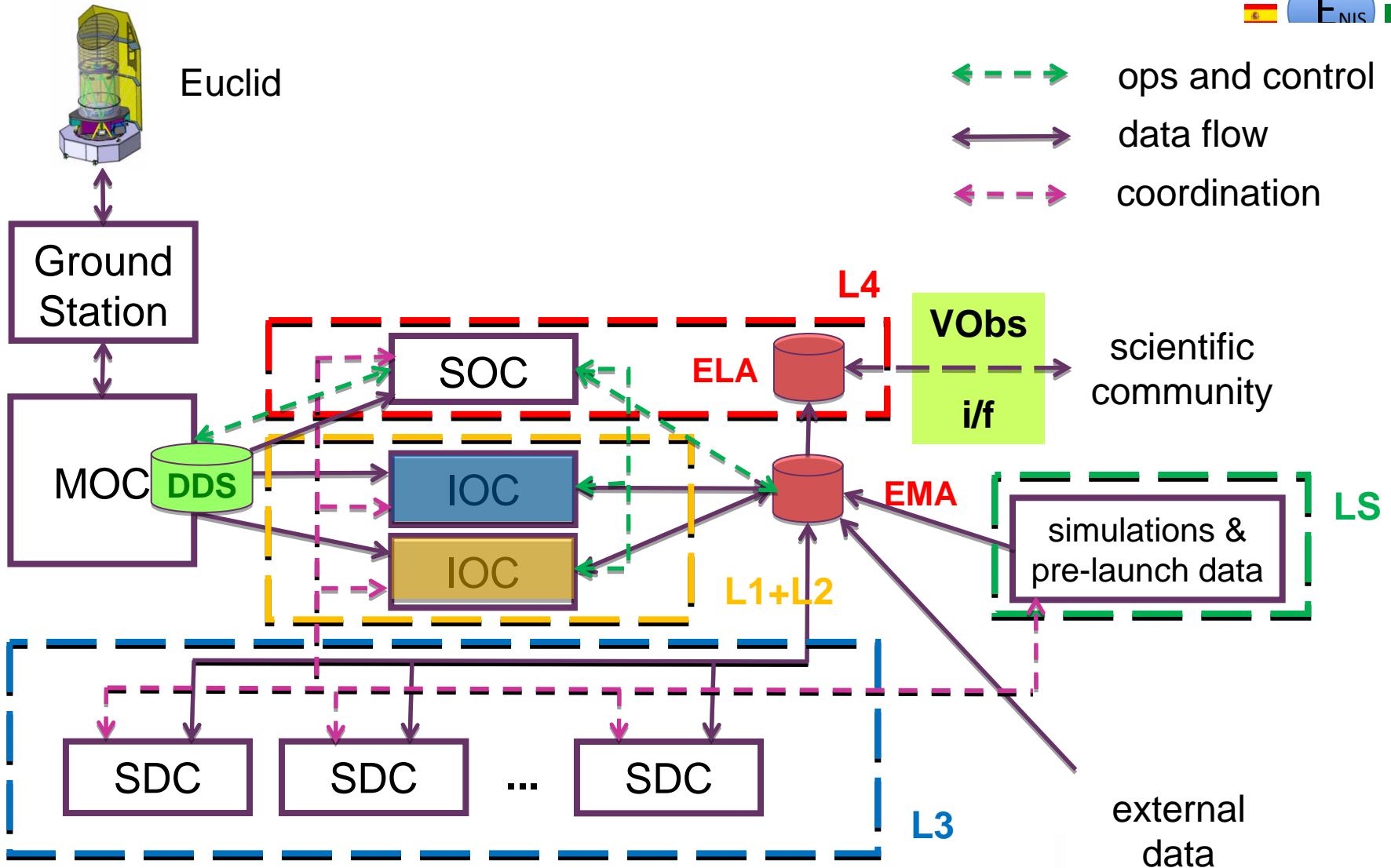


Time-Critical Operations



- Science + HK data
- Real Time data
- Planning and instrument commanding

Ground Segment concept (EIC-ENIS)





Coordination

- Need to share information and knowledge across all elements of the GS
- Commonality to be enforced wherever needed, mainly:
 - data structures
 - common data and information system → DHS
- Whenever commonality cannot be achieved, interfaces to be defined.



SGS development



- It is assumed that the **Euclid SGS** (and the corresponding common data handling and processing environment) will be **jointly developed** by the **Instrument Consortia** and **ESA** with procedures TBD.



**Thank you very much
for your attention**