

# Science Ground Segment Update

Luis Sánchez

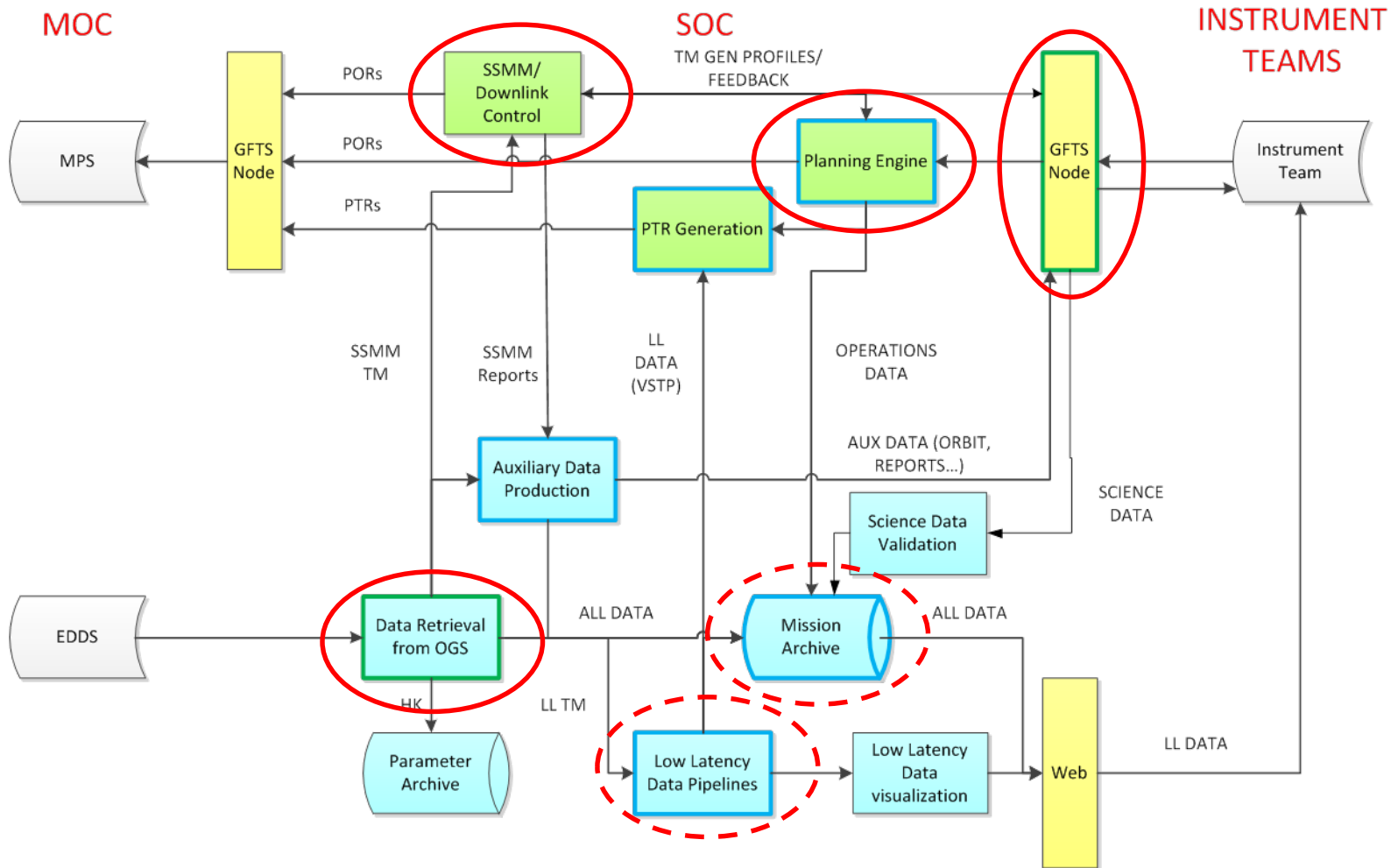
- Successful Mission Level Planning exercise during SOWG #11 (Jan 2018):
  - SOOP Kitchen planning tool used successfully (now used for MLP & LTP).
  - Feasible Cruise Phase plan agreed by Instrument Teams.
  
- Successful 'Zeroth' End-to-End test (Instrument Teams and SOC):
  - Infrastructure and interfaces in place and tested.
  - IORs received from Instrument Teams.
  - Successful production of PORs for payload operations.
  - Successful production of PORs for SSMM and downlink control.
  - No blocking issues found.
  
- Basic science operations planning capability demonstrated (long + short term):
  - Observations from TRR now included in backlog.
  - Refinements and further automation on-going.
  - Next is gradually closing on more realistic planning scenarios.

# Schedule - Internal Mid-Term Milestones

- Main drivers are need dates for GS testing.

Date	Milestone
Jan 2018	SOWG #11 – Cruise Phase preparations
Mar 2018	'Zeroth' E2E test – Test Specifications and Environment
Mar 2018	'Zeroth' E2E test – Sample IORs
Apr 2018	SWT #22 (Paris)
Jun 2018	'Zeroth' E2E test (Instrument Teams and SOC)
Jul 2018	SOWG #12
Oct 2018	SWT #23 – SOL/PSP opportunities + prep SOWG #13
Jan 2019	SOWG #13 – NMP LTP exercise (6 month period: 3 RSWs with coordinated observations)
Mar/Apr 2019	SWT #24 – Last chance for Cruise Phase Mission Level Plan
Apr 2019 (L-10m)	DDS tests with MOC.
May 2019 (L-9m)	Commanding (POR) test with MOC.

# SOC subsystems tested



- Planning Engine:
  - Multiple versions of SOOP Kitchen to support MLP and LTP planning.
  - 'Zeroth E2E' test exercised the short term planning software.
  - We can plan for the mission (with the exception of VSTP).
- SSMM Downlink and Control:
  - First version implemented.
  - Used to produce TM corridors from LTP exercise.
  - Basic SSMM POR generation.
- Pointing:
  - Prototype successfully implemented to test selected technology.
  - To be developed later (even during CP).

- Data retrieval from OGS:
  - Basically complete.
- Parameter Archive:
  - SLA prepared (MUST and WebMUST - external provider).
- Auxiliary Data Production:
  - Sample data available in SOC Confluence (except for attitude products).
- Low Latency Pipelines:
  - Hosting framework complete. Basic test during during SVT0.
  - LL data post-processing being implemented.
  - LL data visualization next.
- Mission Archive:
  - Prototype now includes TM, planning data and mock LL data.
- SOC External Interfaces:
  - Tested informally with MOC (prototype EDDS).
  - GFTS tested with Instrument Teams.

- The SOC development is on track.
  - Basic payload science operations planning.
  - Basic SSMM and downlink control.
  - Basic LL VM pipeline test.
  
- We'd like to progress further in the Low Latency data processing:
  - Need to have functional LL VMs from all instruments.
  - This will allow us to use them with the TM from the SVT, SOV tests.
  - This is helpful even if the LL VMs are not perfect.



# REMINDER:

## MOC/SOC listening in to ground tests



- Needs advance notice.
- Needs proper configuration for listening.
- Done on a best effort basis (MOC and SOC do not have their nominal, operational systems deployed).
- Not part of the formal test specifications/configuration/etc.
  
- Advantages:
  - You get the TM in flight format