



SWIM Open day

PJ.17-01 TRL4 EXE2

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Founding Members



EUROPEAN UNION



EUROCONTROL

Outline



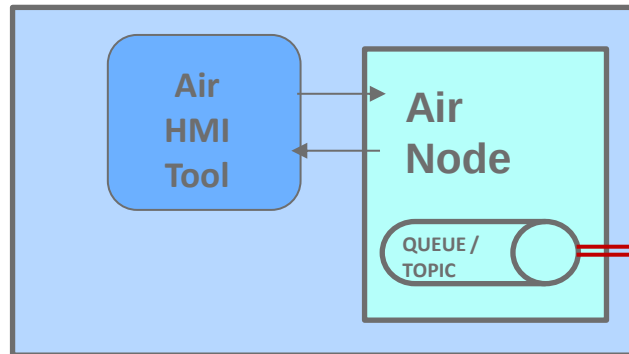
- Scope
- Test environment
 - Architecture
 - Components
 - Datalink tool: SATCOM Emulator
 - Data provider tool
 - HMI tools: Test applications
 - SWIM Access points
- Test scenarios
- TRL6 possible improvements

PJ17-01 SWIM-TI Purple Profile TRL4 Validation Exercise #2:

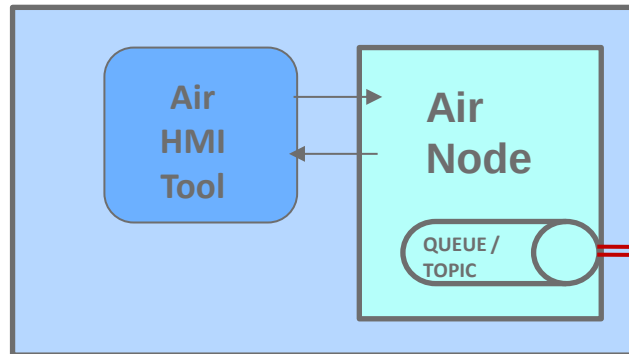
- One ground system and several emulated aircraft systems.
- Meteorological and aeronautical data.
- MEPs: Request/Response and Publish/Subscribe.
- Uplink and downlink.
- Four different use cases.
- SATCOM emulation platform.

Test environment - Architecture

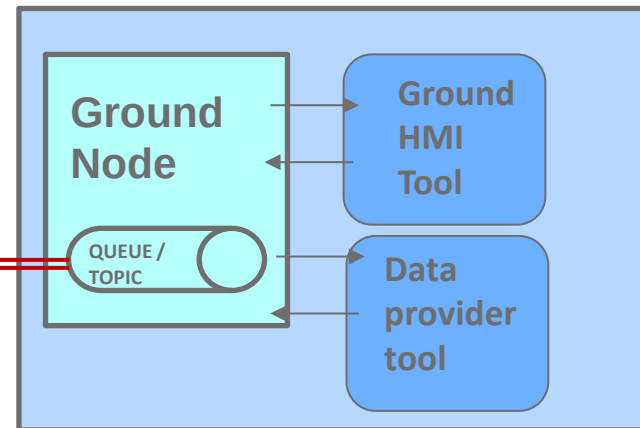
AIRCRAFT #1



AIRCRAFT #2



GROUND

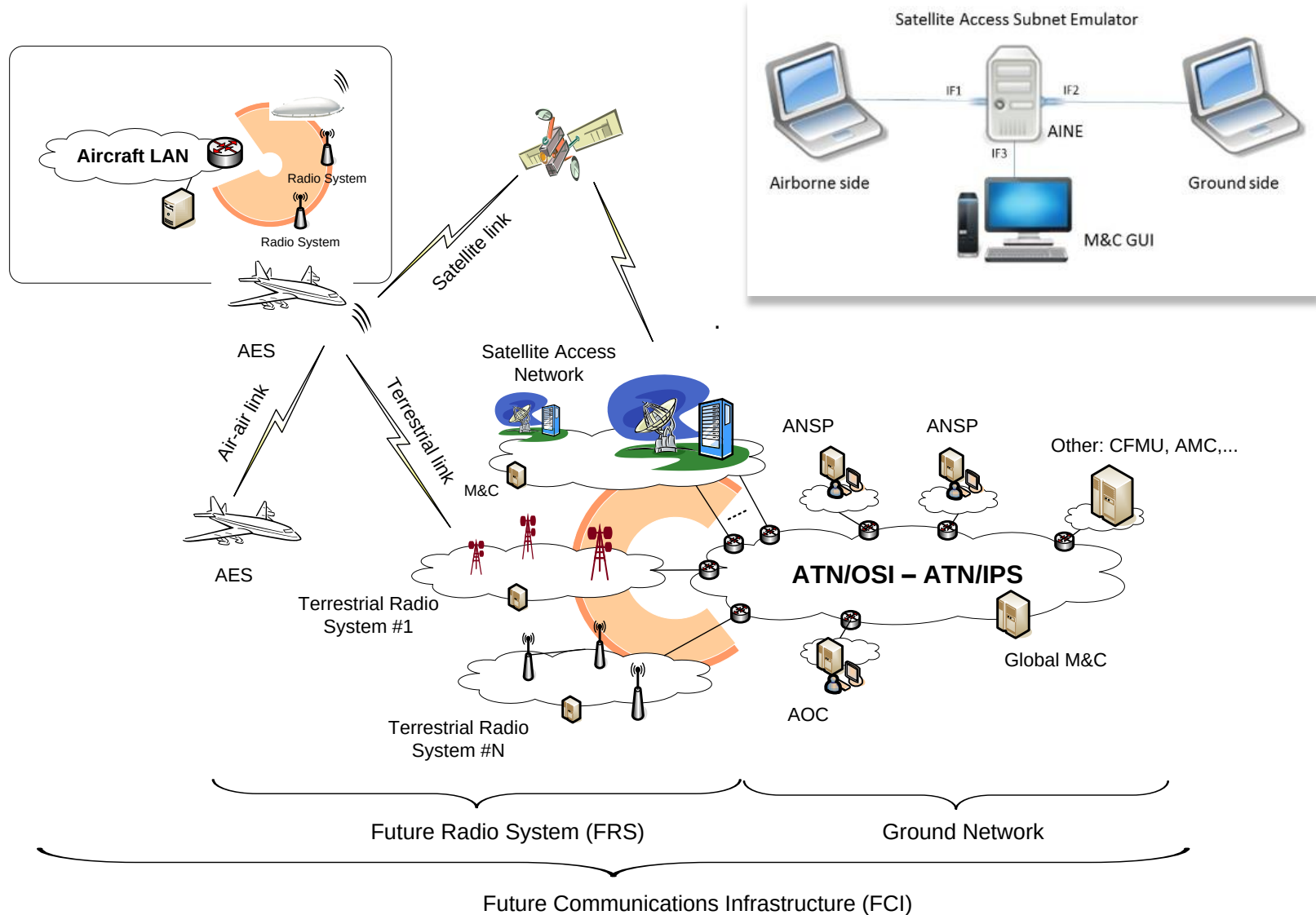


Test environment - Components



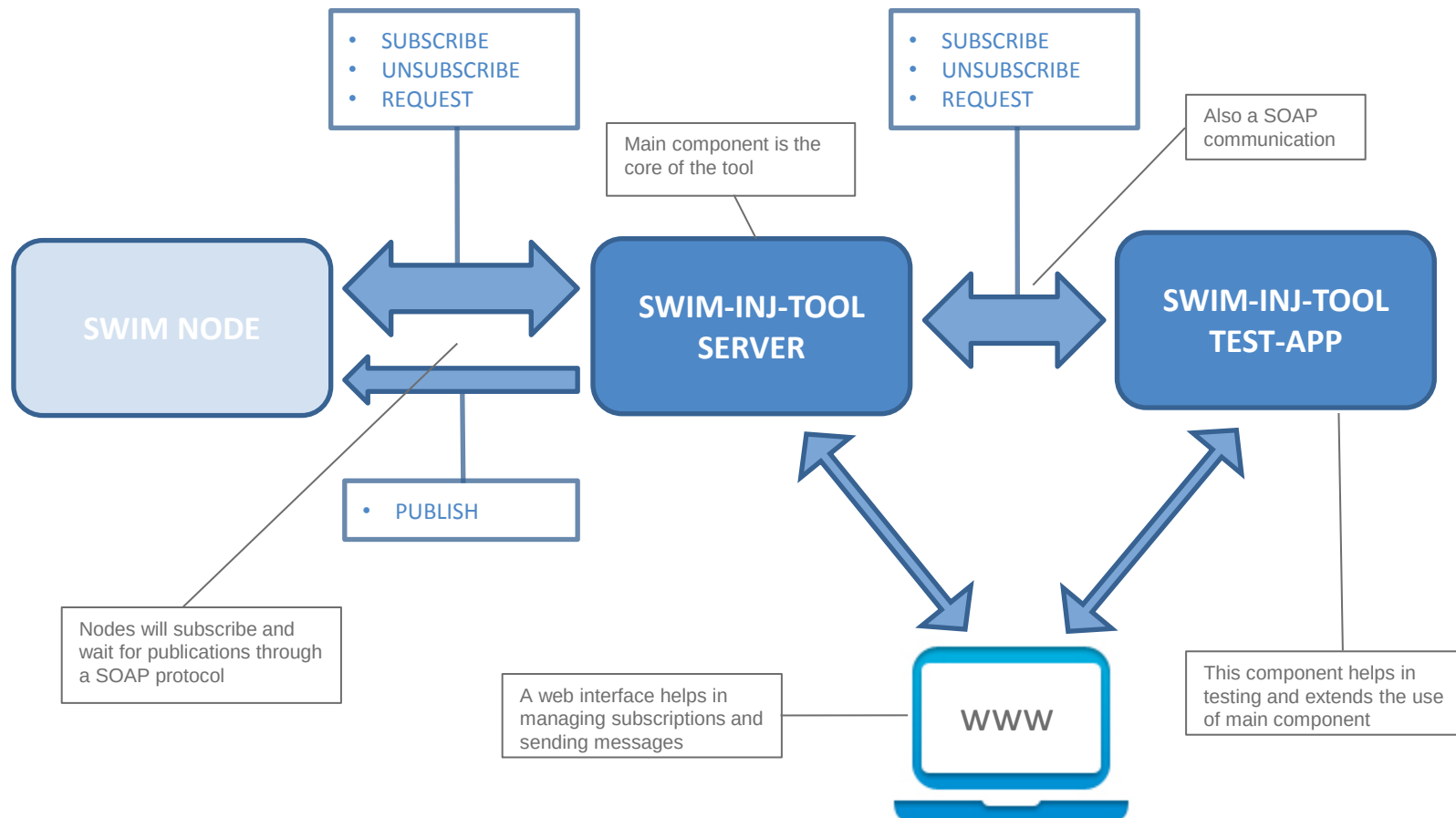
- Ground Node: Prototype #01 Ground SWIM Access Point
- Air Node: Prototype #02 Aircraft SWIM Access Point
- HMI tools: SWIM Enabled Applications
- Data provider tool
- WAN: Datalink tool / SATCOM Emulator

Datalink tool: SATCOM emulator



Data provider tool

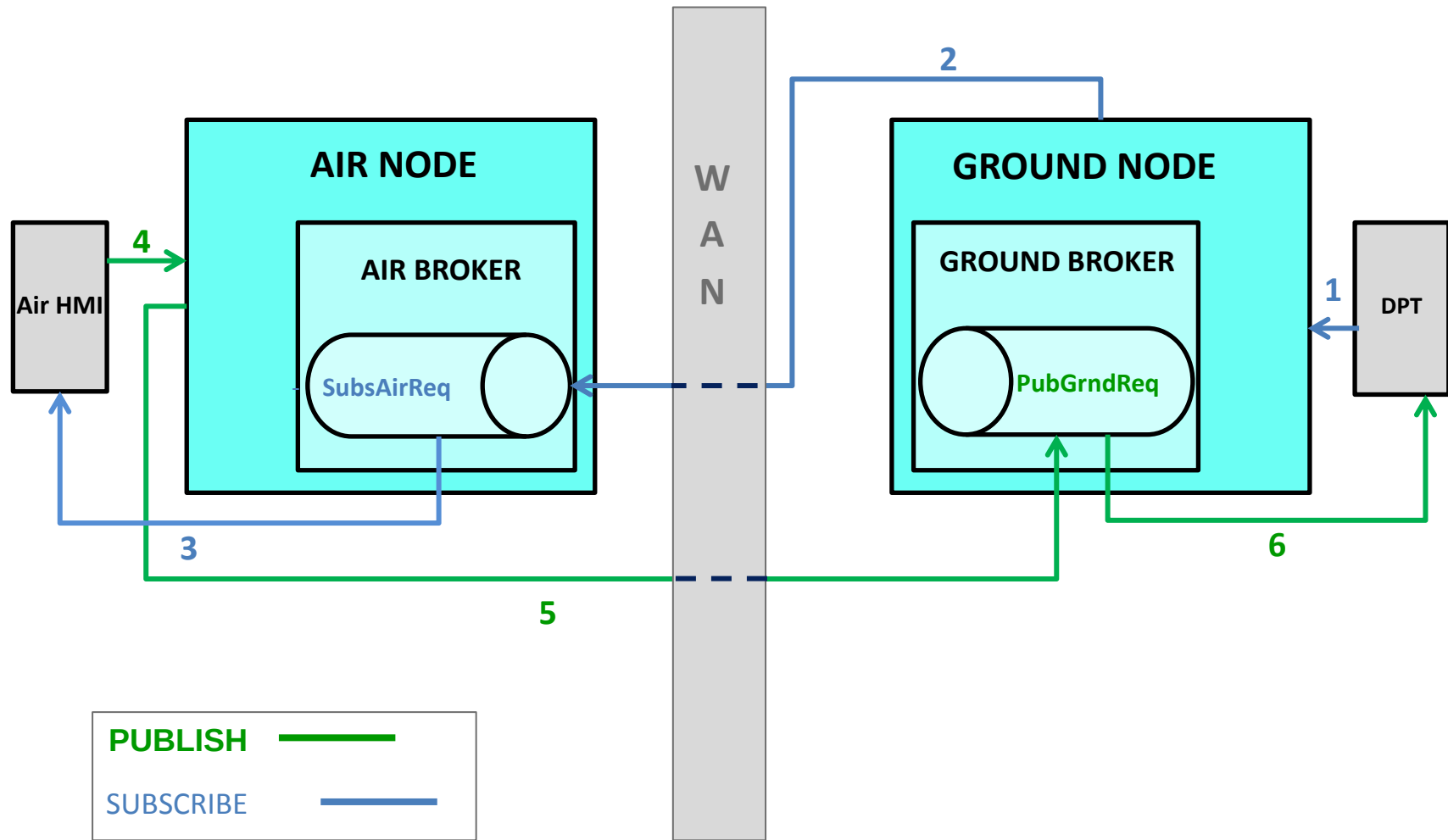
➤ Architecture:



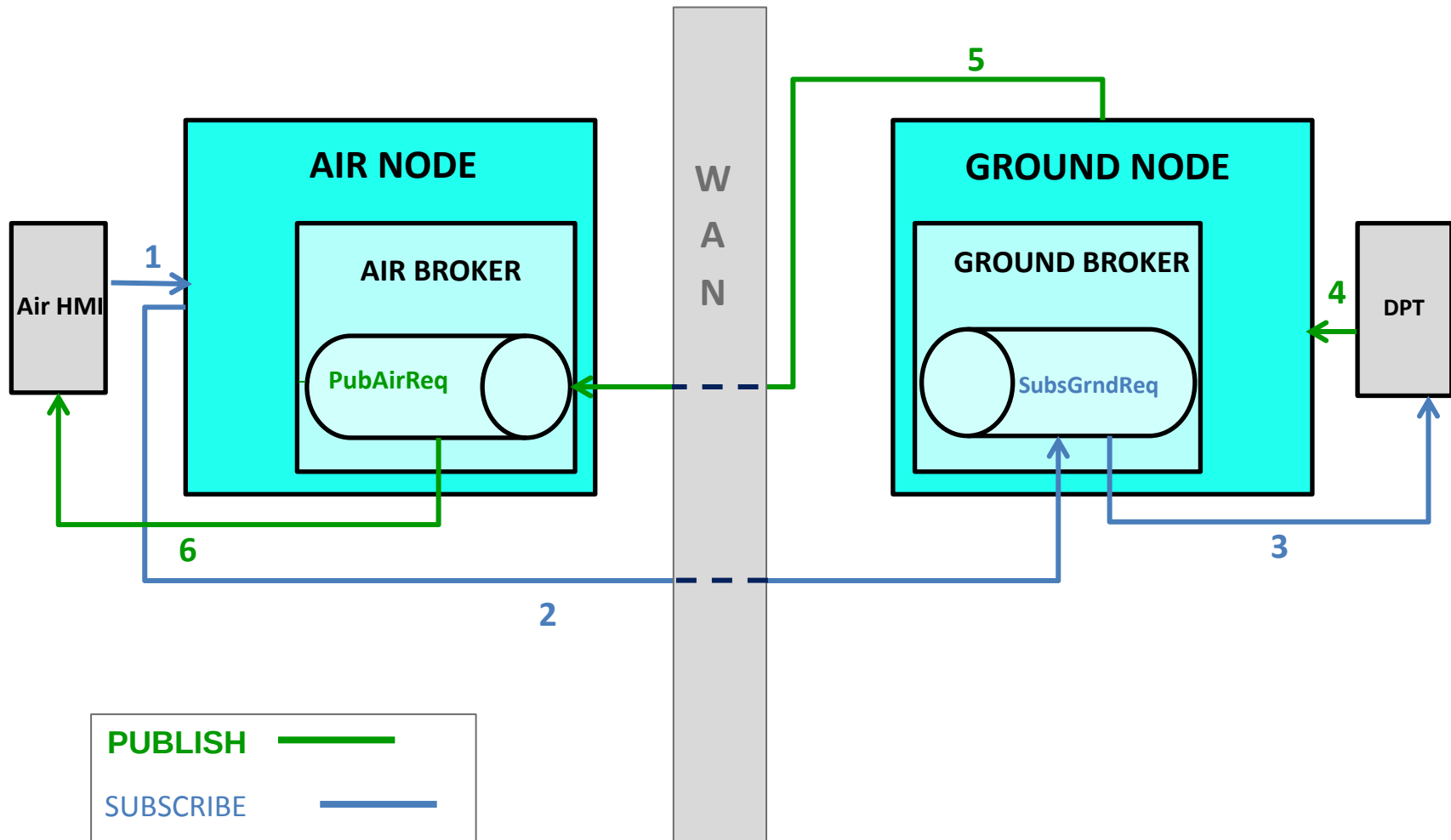
HMI tools: Test applications

- Airborne SWIM enabled application
 - Two graphical interfaces representing different aircraft. Their active functions through HMI are:
 - Subscribe/Unsubscribe to specific data from Ground Node
 - Publish MET information
 - Request specific information to the Ground Node
- Ground SWIM enabled application
 - Similar to the airborne. Its active functions through HMI are:
 - Subscribe/Unsubscribe to specific data from an aircraft
 - Request information to an aircraft
 - Publish MET or AERO information
- Data provider web application (server and client)
 - Its active functions through HMI are:
 - Subscribe/Unsubscribe to specific data from an aircraft
 - Request information to an aircraft
 - Publish MET or AERO information

SWIM Access Point Publish/Subscribe Air-Ground

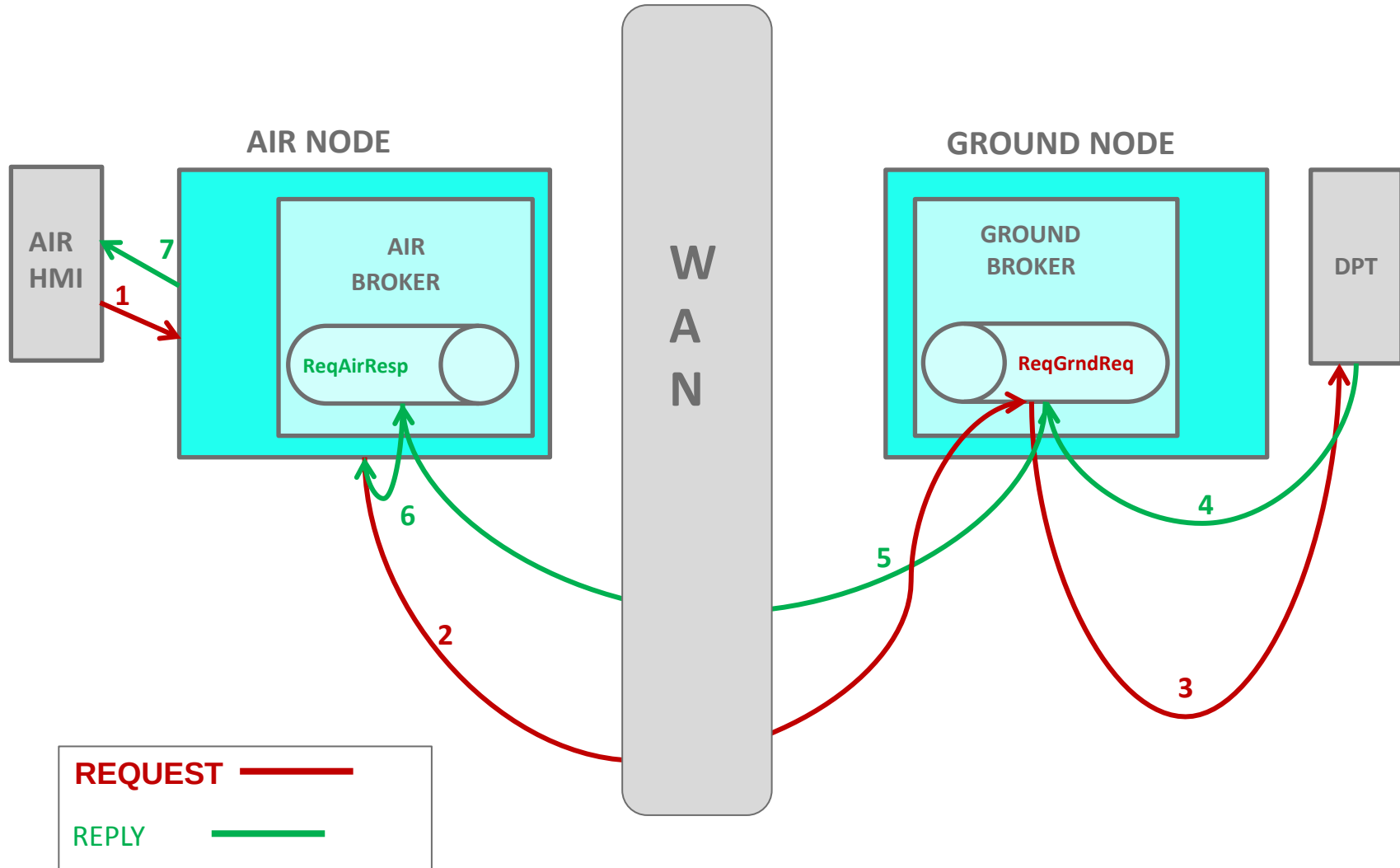


SWIM Access Point Publish/Subscribe Ground-Air

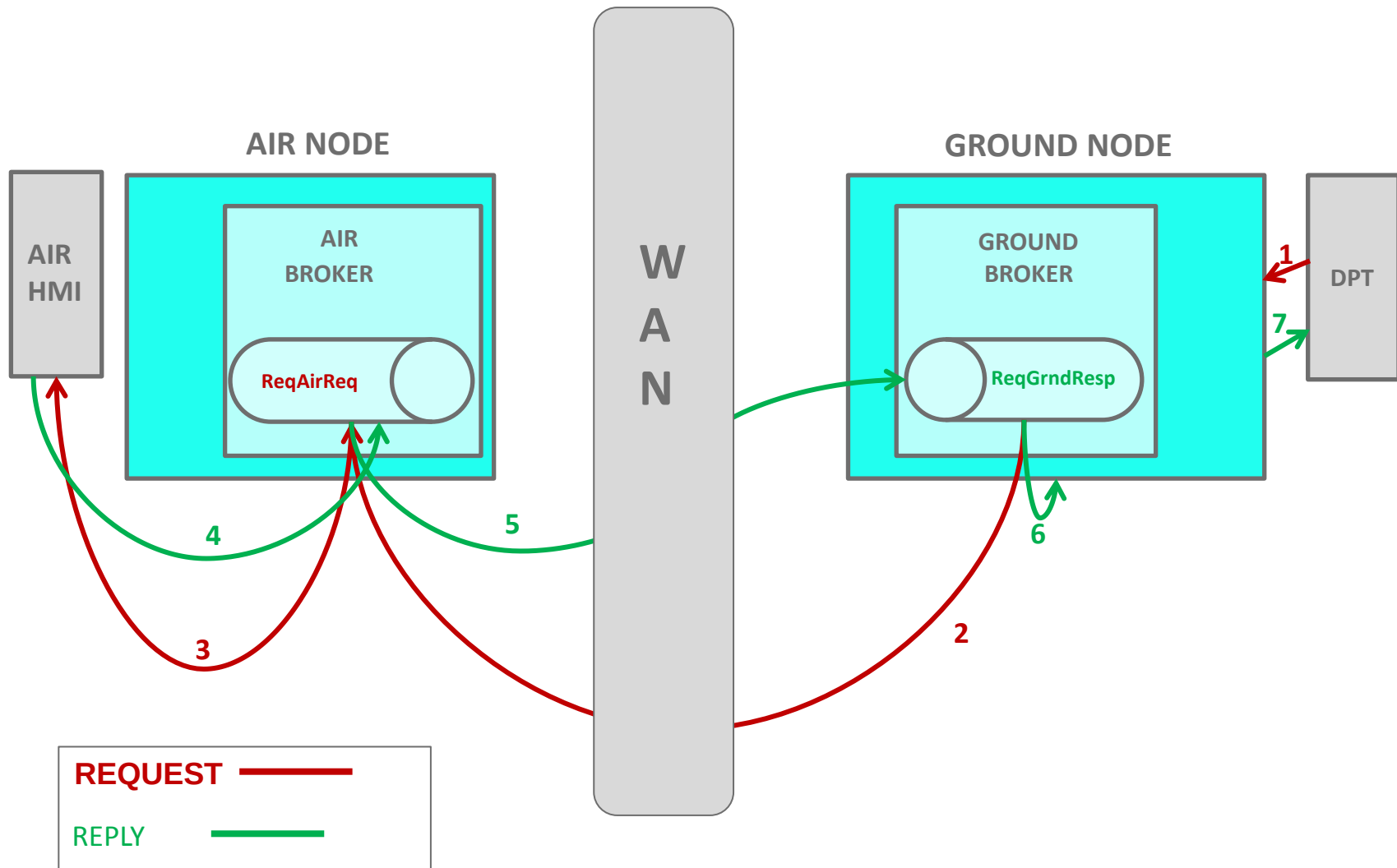


SWIM Access Point Request/Reply

Air-Ground

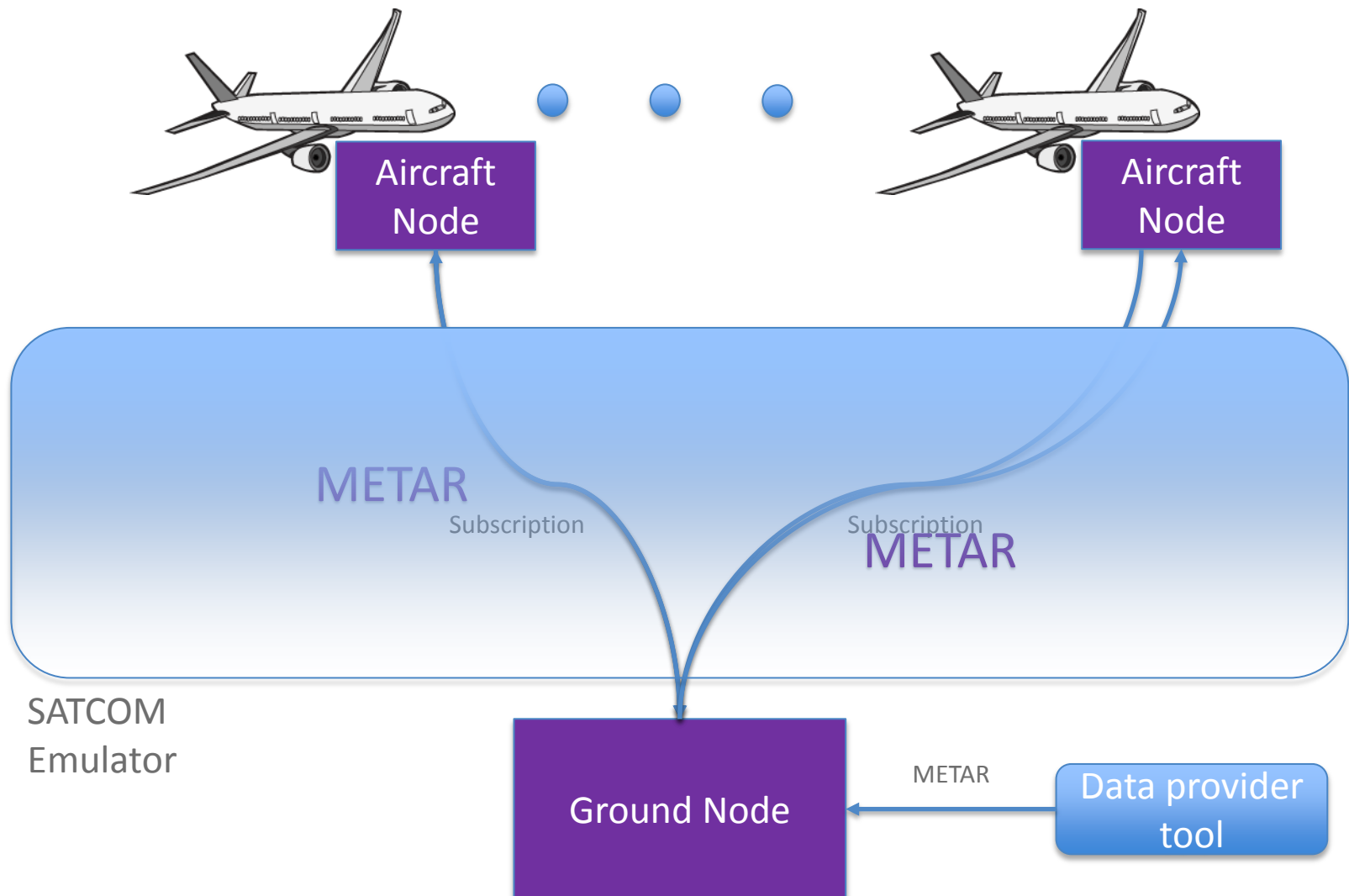


SWIM Access Point Request/Reply Ground-Air



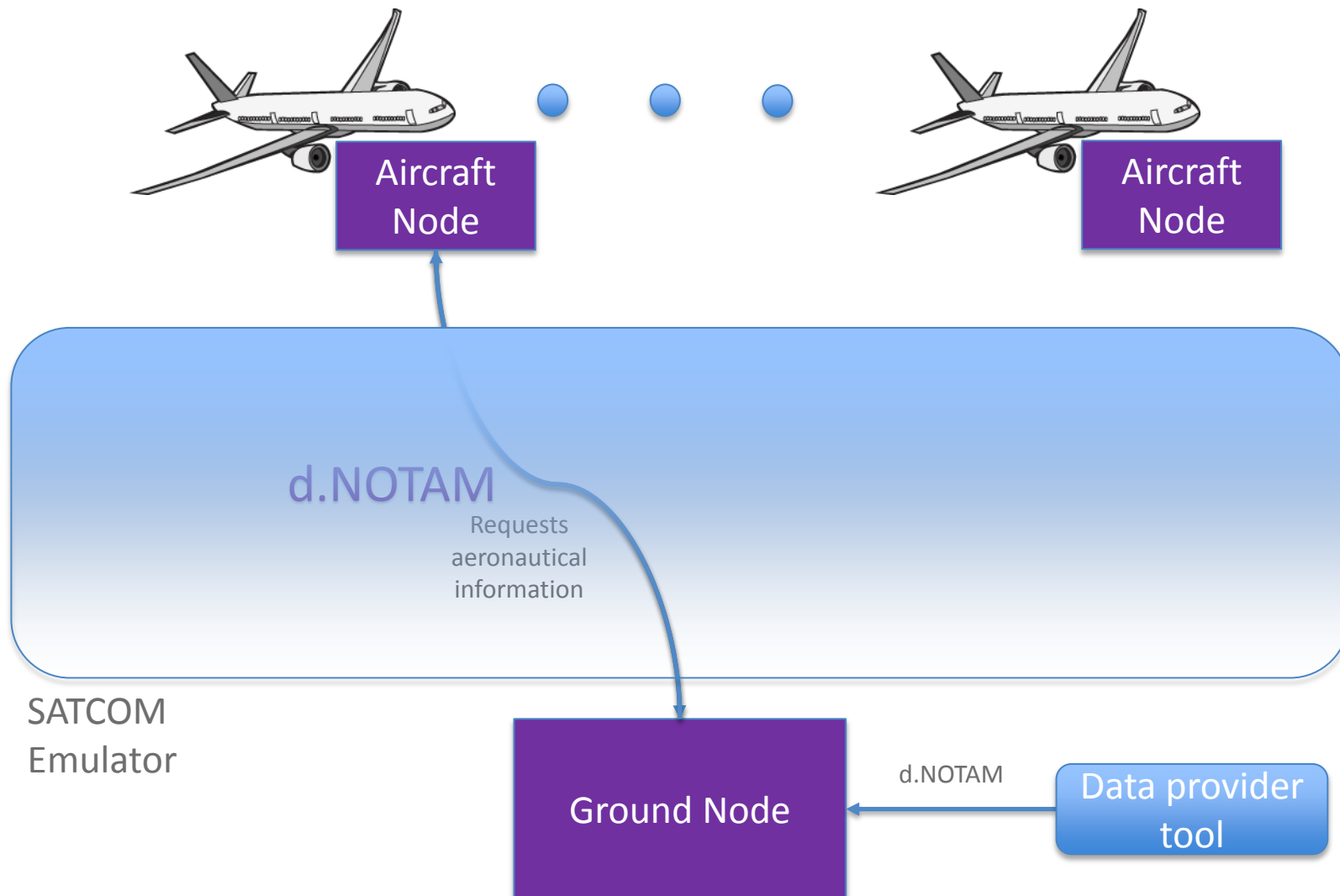
Test scenario 1:

Uplink publish / subscribe

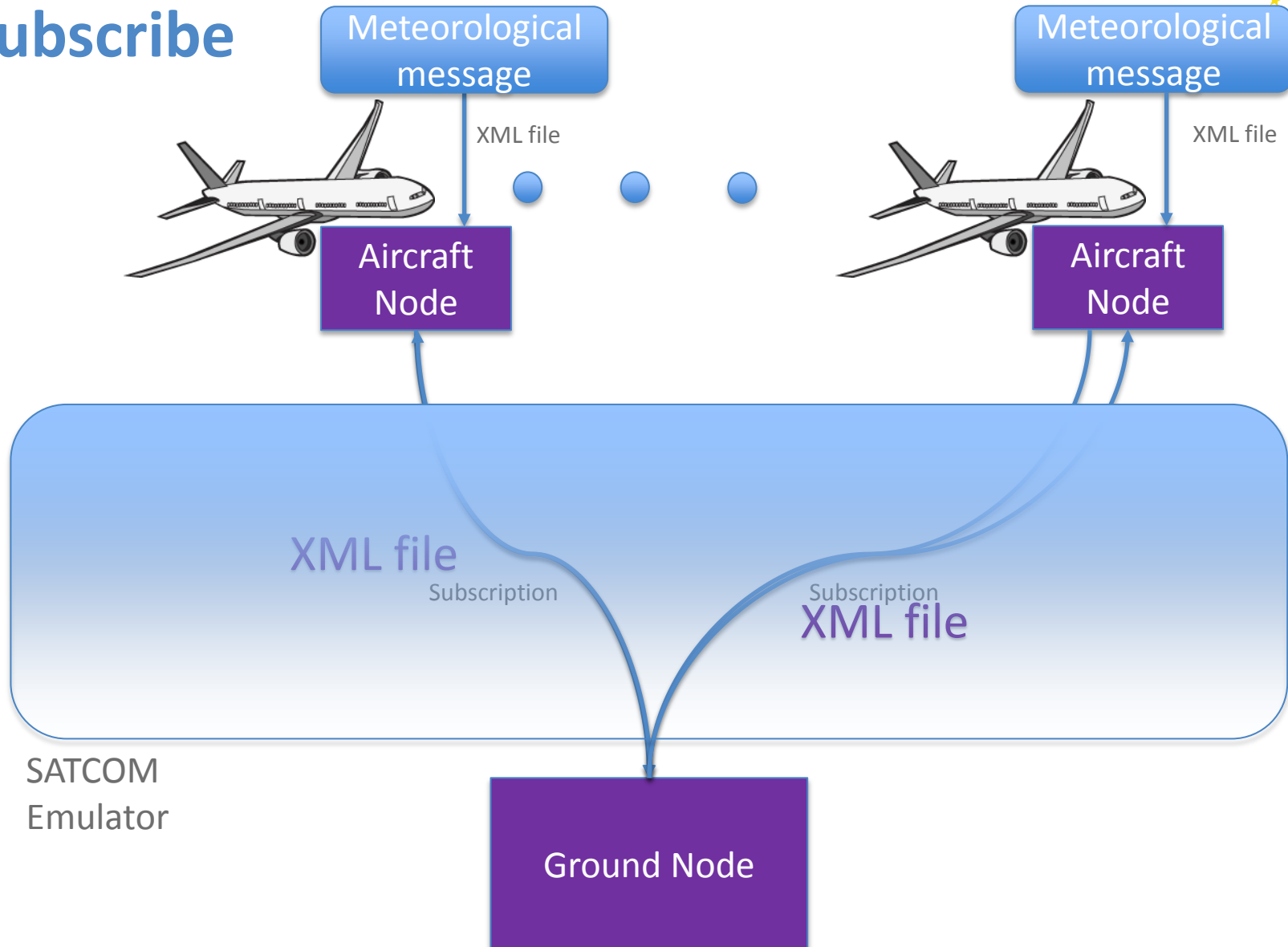


Test scenarios 2:

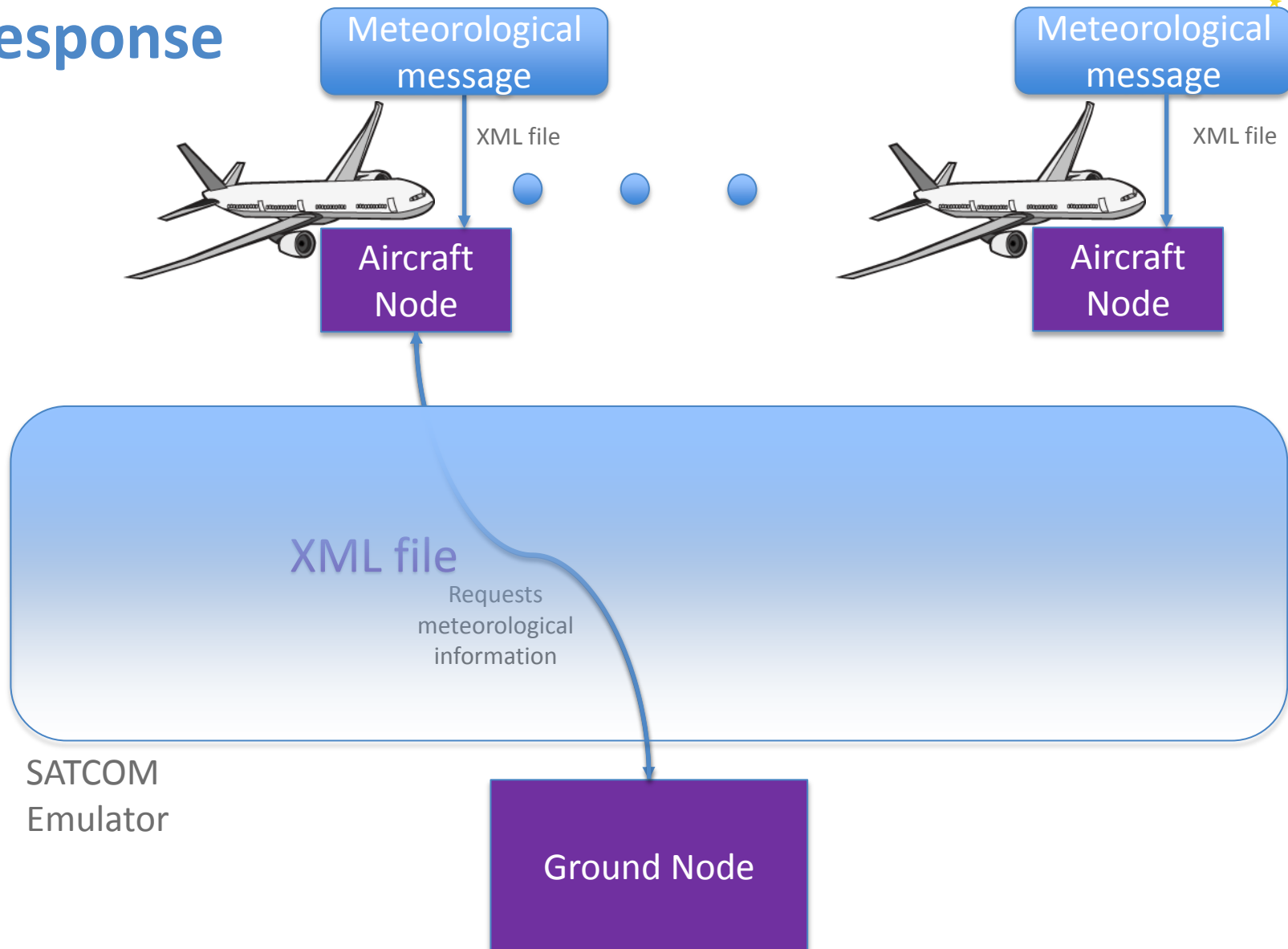
Uplink request / response



Test scenario 3: Downlink publish / subscribe

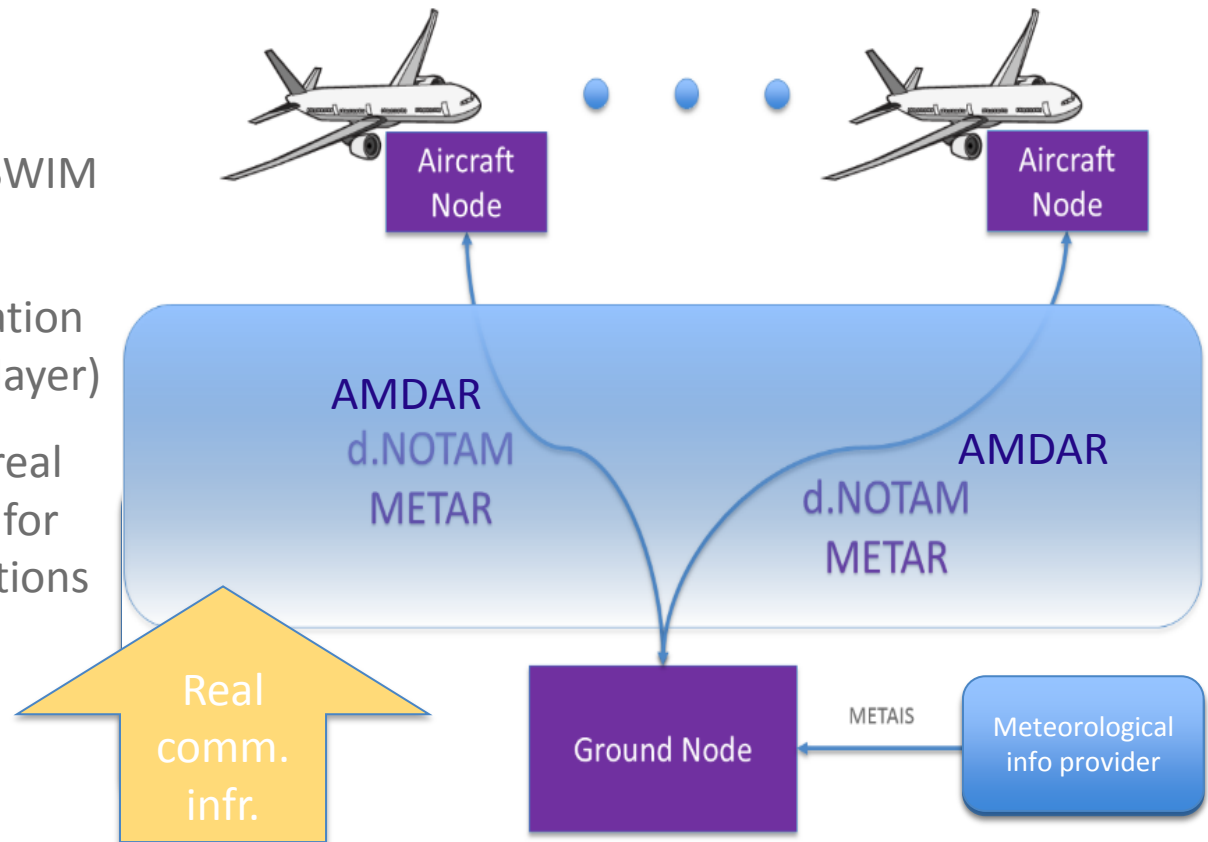


Test scenario 4: Downlink request / response



TRL6 EXE2 options (1/2)

- Data Enrichment
- Connect to airborne SWIM Nodes
- Use a real communication infrastructure (lower layer)
- Send messages from real services (e.g. AMDAR for downlink communications or/and connect to a meteorological information provider) (upper layer)



TRL6 EXE2 options (2/2)

- Data Enrichment
- **Connect to airborne SWIM Nodes**
- Use a real communication infrastructure (lower layer)
- Send messages from real services (e.g. AMDAR for downlink communications or/and connect to a meteorological information provider) (upper layer)



- **Connect to airborne SWIM Nodes**



Thanks to



- Test Execution
 - Víctor Gómez Villanueva – System Engineer SESAR
 - José Ángel Álvarez Quirós – System Engineer SESAR
 - Daniel Franco Antón – Test Engineer
 - Isaac Gómez Giner – Test Engineer
- Observer
 - Leonard Glaser-Opitz – LPS SR (Slovakia) – Observer
- Support
 - José Luis Santiago Navarro – System Engineering Manager
 - Manuel Baz Cerro – Product Manager
 - Natalia Hernando Gabriel – Test Engineering Manager
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 - David Fernández Piñas – System Engineer (Indra Space Division)
 - Hyung-Woo Kim – Indra PJ17 Project Manager



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Thank you very much for your attention!



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