

ADS-C Common Service

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These projects have received funding from the SESAR Joint Undertaking under the European Union's Horizon 2020 research and innovation programme under grant agreements No 101017626 and 872320

ADS-C Common Service – Architecture & Concept

ADS-C Common Service (ACS)

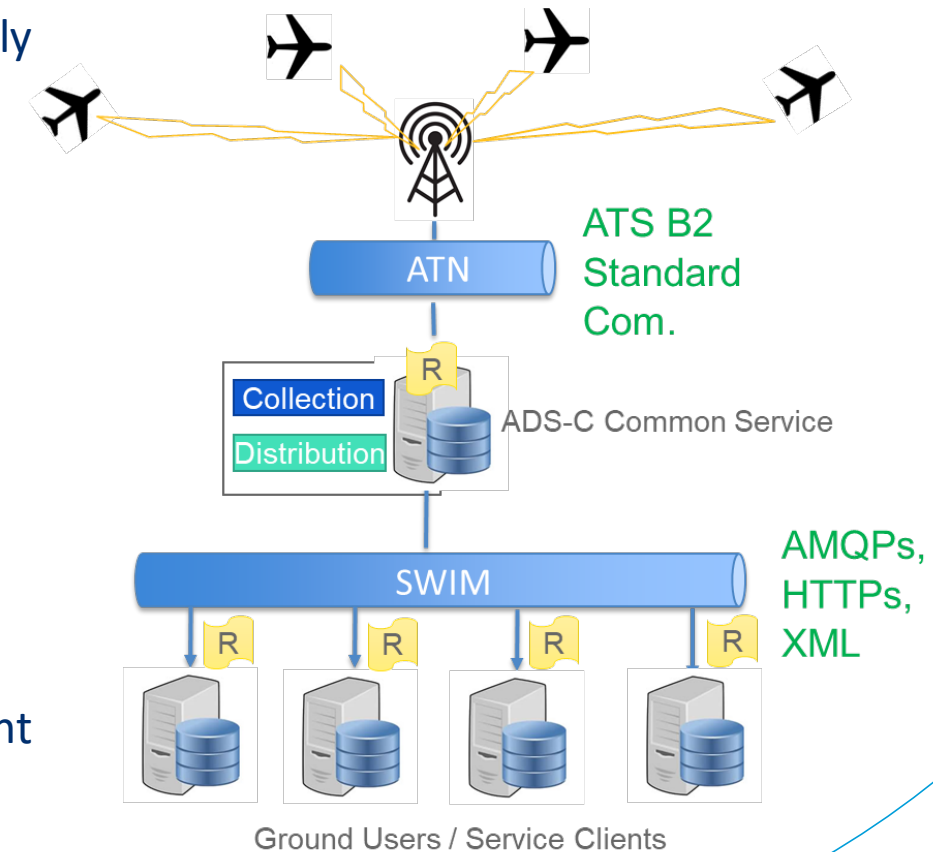
- assumes responsibility for collecting ADS-C data from airborne users
- distributes this data to entitled ground users
- establishes and maintains an ADS-C connection with an aircraft for as early and as long as possible

Main goals & benefits

- Reduce ATN network load (avoiding redundancy on the A/G link)
- Less complexity for clients, lower costs
- Improve ADS-C data access and faster deployment
- Support high number of clients / ground users

Assumptions

- Operational need (for ANSPs and other users) to receive ADS-C data beyond their area of interest
- Multiple users with simultaneous interest in ADS-C data for the same flight
- Standard ADS-C contracts can cover most user needs, most of the time



ADS-C Common Service – PJ38 Contribution

Requirement and Specification Work

1. „ADS-C Common Service Requirements“

(Focus on ADS-C Contract Management and Data Collection from Airspace Users, ATN-side)

2. „ADS-C Common Service SWIM ICD“

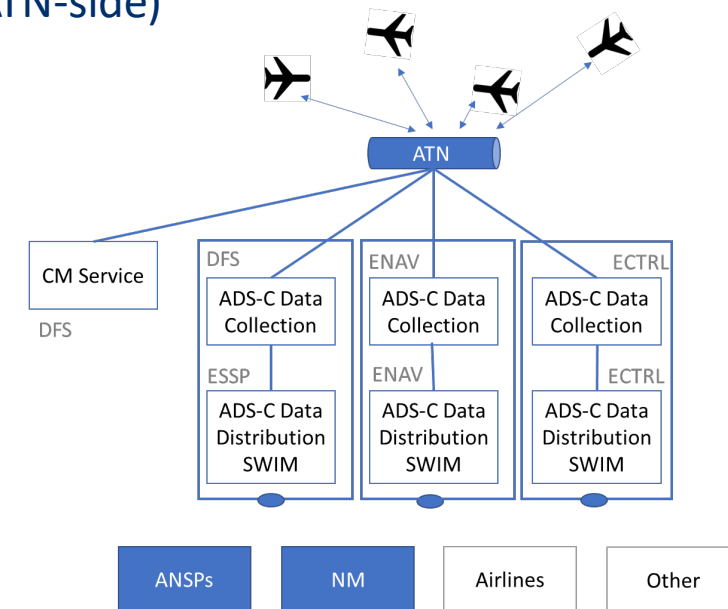
(Focus on Data Sharing and Distribution, SWIM Interface to Ground Clients)

Software Development

- Development of ADS-C Common Service Prototypes by several manufacturers (Airtel, Leonardo) and ECTRL and development of Clients
- TRL7 Maturity

Live Service Provision

- Hosting and Service Provision of three ADS-C Common Service Instances (ESSP/DFS, ECTRL, ENAV)
- 24/7 ADS-C Data Collection and Distribution for more than a year
- Supported by 6 Airlines (AFR, BAW, EZY, IBE, NVR, WZZ), connecting more than 40.000 flights
- Supporting PJ38 Operational Exercises



ADS-C Common Service – Regulatory Context and Support to Standardisation

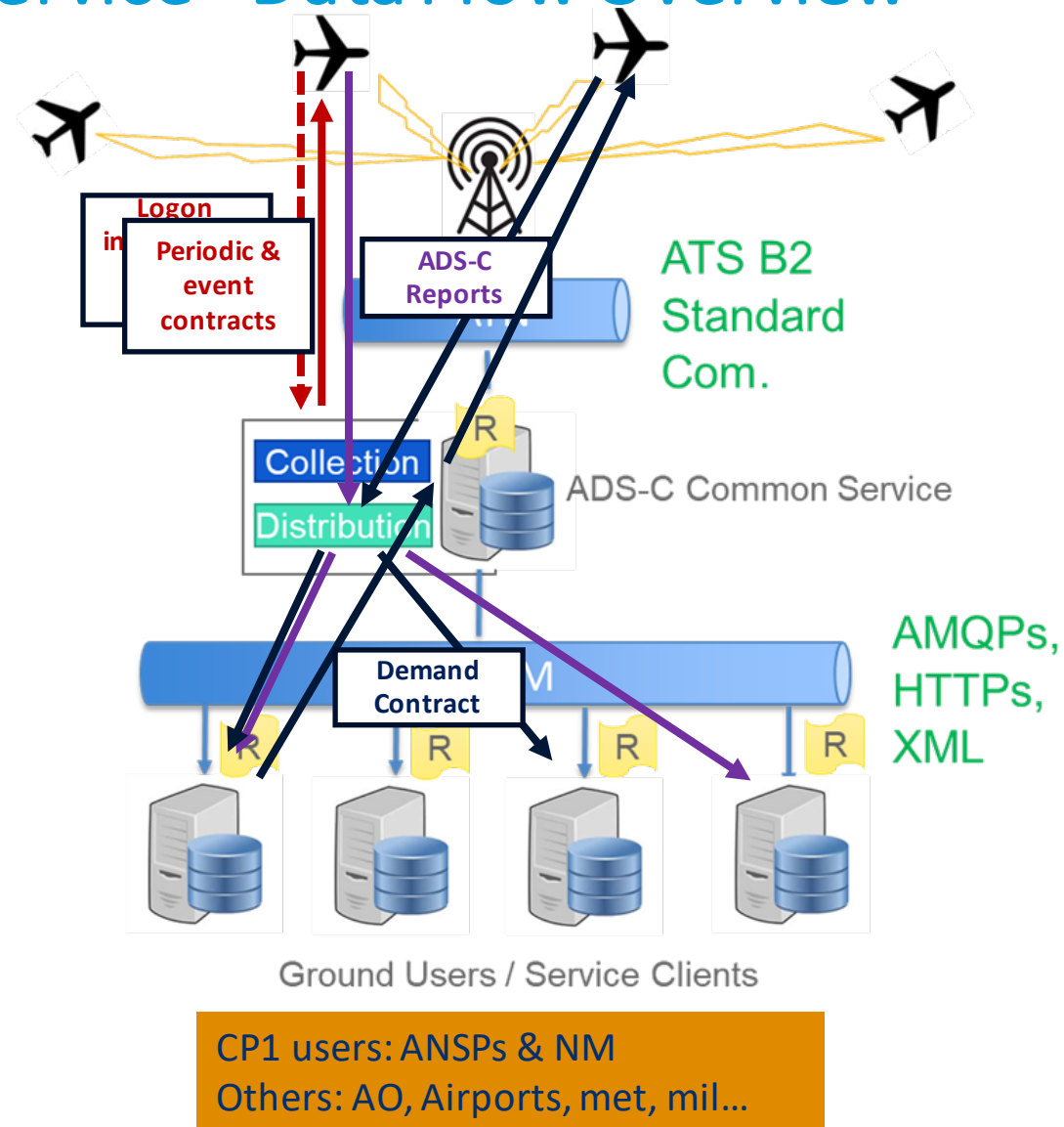
European Regulation Context

- CP1 (IR EU No. 2021/166) mandates sharing / distribution of ADS-C data on the ground for ANSPs and NM (AF6 Family 6.3.1),
- No specific solution architecture is prescribed (no specific ACS mandate)
- ADS-C Common Service is the SESAR-proposed solution to share ADS-C data between ground actors (beyond ATSU) supported by a large group of ANSPs, ECTL and many other stakeholders
- Industrialization Maturity Gate Dec 2023, Implementation Target Date Dec 2027

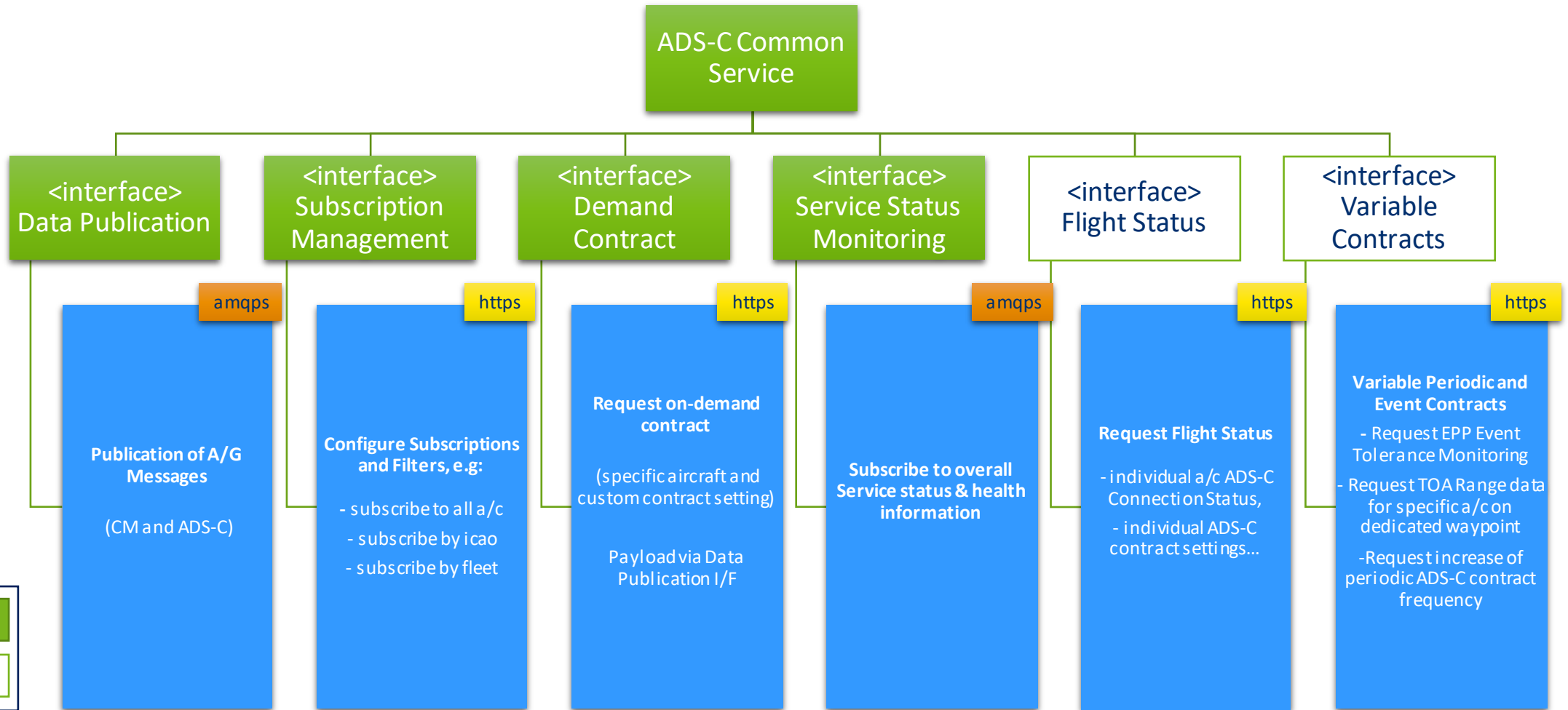
PJ 38 Support to Standardization

- Transfer of ADS-C Common Service Requirements to OEP WST 12.2 (via PJ38 DEMOR R1 and R2, Appendix N)
- Support to OEP WST 12.2 CONOPS and standards drafting process
- Addressing needs of CP1 Requirements for ADS-C Data Sharing and Distribution (SESAR Family 6.3.1)

ADS-C Common Service - Data Flow Overview



ADS-C Common Service - User Interfaces (SWIM)



All messages XER encoded

ADS-C Common Service - Summary and Outlook

PJ38 team has

- Drafted and agreed a comprehensive specification package for ADS-C common Service
- Implemented the key parts of this specification in ACS service prototypes and ACS clients
- Demonstrated TRL 7 maturity for these implementations for more than 1 yr. in a live environment
- Successfully supported a substantial range of operational validations with the ACS implementations
- Delivered the validated specification material as an input to standardization activities in OEP WST 12.2

ADS-C Common Service is considered as a key enabler for the future large-scale deployment of Initial Trajectory Sharing in the European Airspace

PJ38 ACS work has made a major contribution to deliver to AF6 of the CP1

***Outlook:** HERON project sWP 2.5 is already in ramp-up to proceed with ACS industrialization and further increase the level of maturity based on PJ38 work and OEP standardisation fully committed to deliver on the CP1 implementation target

THANK YOU FOR YOUR ATTENTION

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