



ICAO APAC ACSICG

ELEVENTH MEETING

(Bangkok, 19 - 22 March 2024)

Agenda Item 8: AFS to SWIM transition matters

AMHS/SWIM GATEWAY PROGRESS & FF-ICE MIGRATION PLANS

(Presented by SWAMWAY Study Group under the cooperation of ICAO EUR NAT/AST TF)



Agenda

- 1) Introduction
- 2) SWAMWAY SG activities during 2023
- 3) Progress and development of the AMHS/SWIM Gateway specification
- 4) Identified use cases
- 5) Next steps for the AMHS/SWIM Gw
- 6) European strategy towards FF-ICE migration
- 7) Q&A



Introduction

- AMHS To SWIM Transition Task Force (AST TF) under ICAO EUR NAT is working on the transition from AMHS to SWIM within the framework of AFS
- AST TF is made up of two working groups, namely, AST Planning Group (Engineering) and AST Operations Group (Operational)
- SWAMWAY Study Group (SWAMWAY SG) is a technical group under AST Planning Group with no political nor economical interest → Development of the AMHS/SWIM Gw specification



Introduction

- AMHS/SWIM Gateway specification was endorsed by ICAO European Aviation System Planning Group (EASPG) during EASPG/05 at the end of 2023
- AMHS/SWIM Gw specification is now ICAO EUR NAT Document 047 under the maintenance of AST TF



SWAMWAY SG activities during 2023

- Summary of the activities undertaken during 2023:
 - 8 follow-up meetings to improve the wording of the AMHS/SWIM specification
 - Specific discussions to further assess potential use cases of the Gateway
 - 1 demo with Eurocontrol (European organization supporting ANSPs for transversal matters, e.g., migration to SWIM)
 - 2 workshops with ICAO Regional offices: APAC and MEA



Progress and development of the AMHS/SWIM Gateway specification

- General progress and development:
 - Overall review of the complete specification
 - Fine tune some definitions already provided in the specification
 - Agree on a change control procedure and change control template document (similar to the one used for ICAO EUR NAT Docs)
- Specific progress and improvements provided:
 - Some references have been added and others corrected
 - Some typos have also been corrected



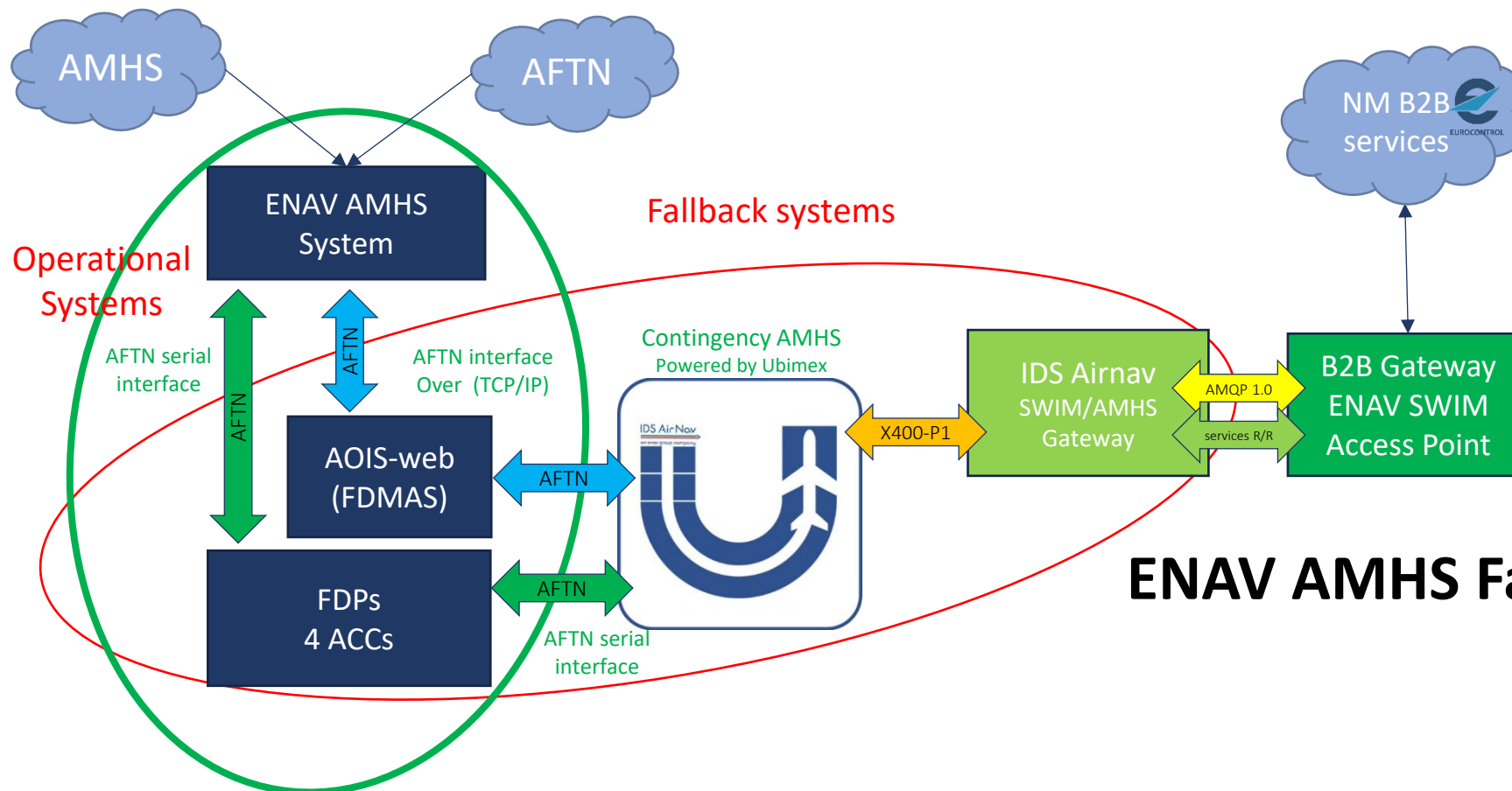
Progress and development of the AMHS/SWIM Gateway specification

- Specific progress and improvements provided (Cont.):
 - Use of Interpersonal Messages (IPM) elements (section 4.4.1.22) has been completely reviewed → changes on Table 7 (Use of IPM elements)
 - Control Functions (section 4.5.1.1) has also been updated making minor and editorial changes
 - Generation of Interpersonal Messages (IPM) (section 4.5.1.25) has also been completely reviewed → changes on Table 12 (IPM Generation)



Identified use cases

The AMHS/SWIM gateway connected to the IDS Airnav AMHS is configured as a contingency AMHS system.



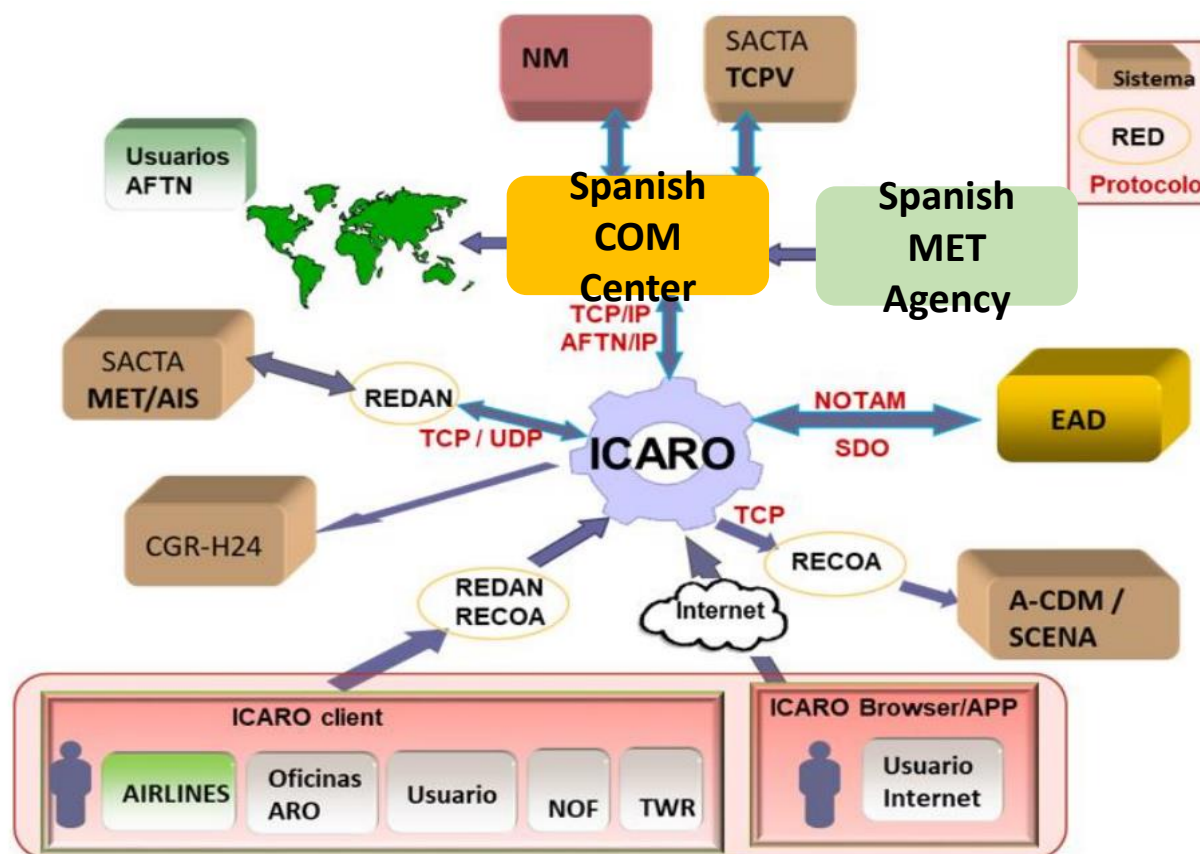
In case of failure of the AMHS service or the network, this solution would be able to send and receive ATS messages via SWIM.

ENAV AMHS Fallback solution



Rationale!

Identified use cases

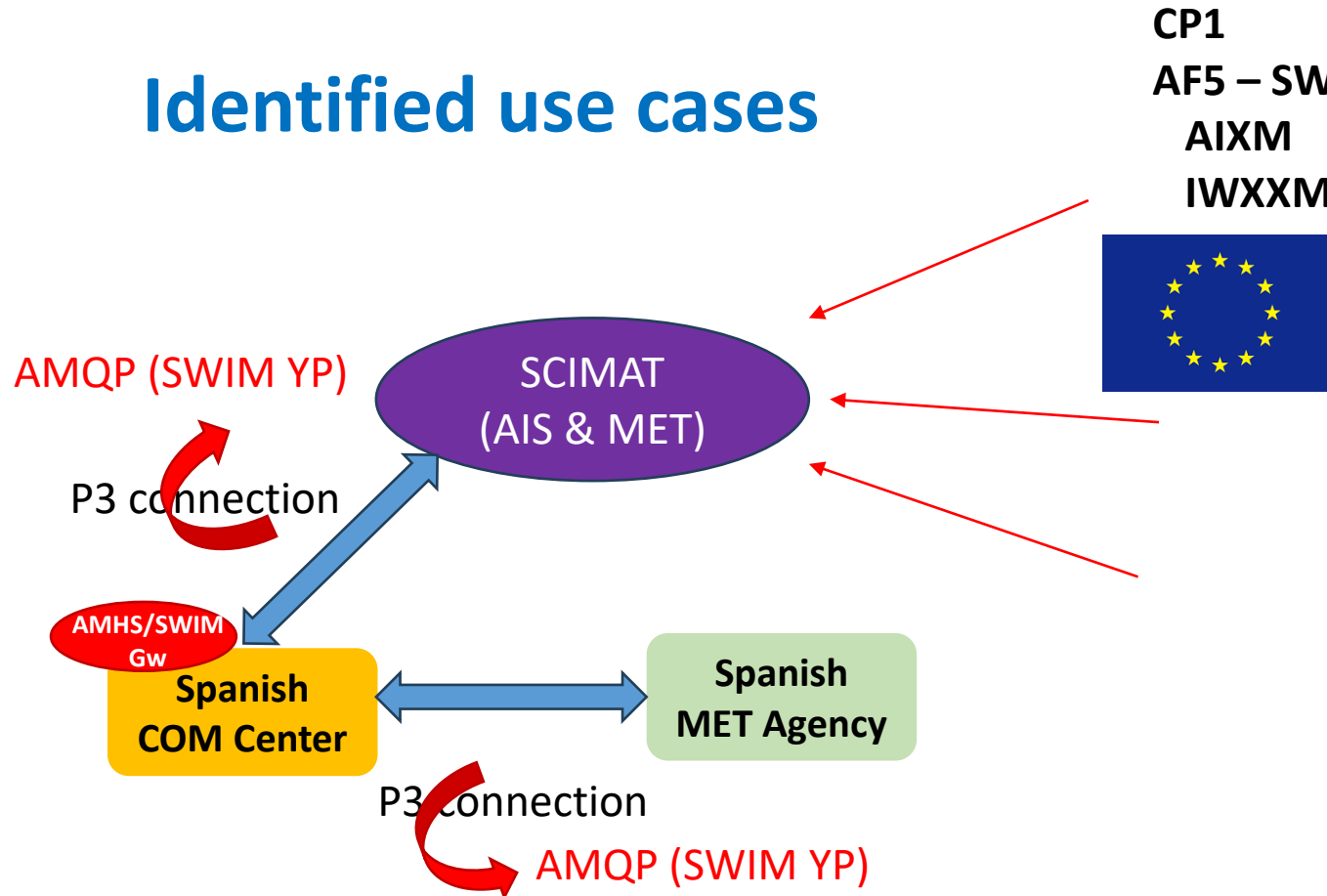


- ICARO is a system distributing FPL and MET information
- Some of the Spanish users are still AFTN/IP users, e.g., GCCCATS (Canaries contingency FDP System), LESCYPX (Centralized FDP System), etc.)
- These users will receive XML information because of **European Common Project One (CP1) Regulation**, however XML doesn't fit within AFTN/IP
- These users will use the AMHS/SWIM Gw rather than implementing a "dual stack" solution (AFTN/IP and AMQP)
- This approach is possible whenever there is no change in the application (NOTAM → DNOTAM)

ENAIRES's adaptation to SWIM



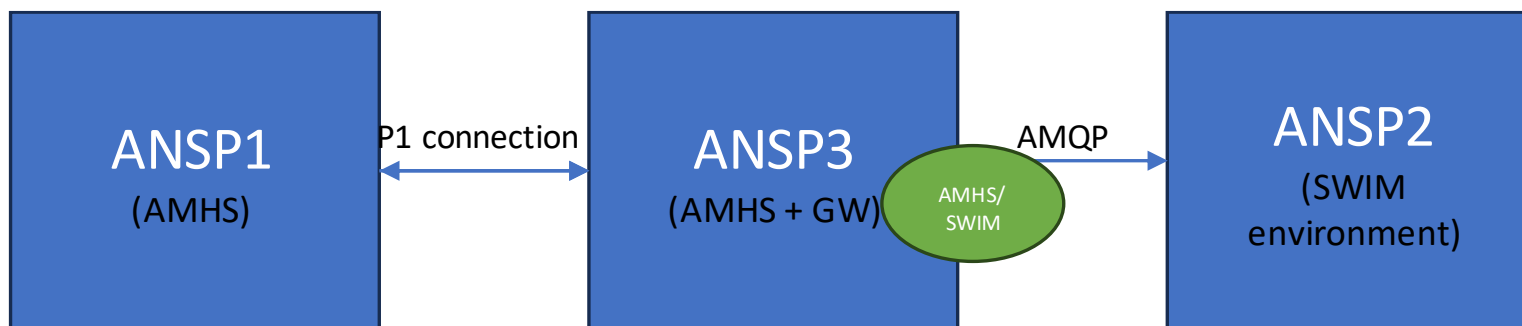
Identified use cases



- European Common Project One (CP1) Mandate → AF5 SWIM, Deadline Dec 2025
- Progressive migration from legacy technologies (AFTN/IP, AMHS) to SWIM Yellow Profile (AMQP)
- With the use of the AMHS/SWIM Gw there is no impact on the final users

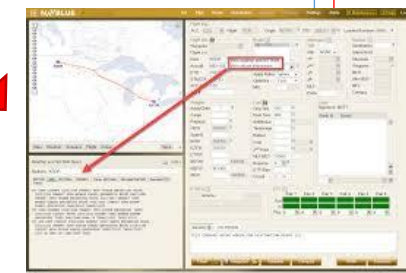
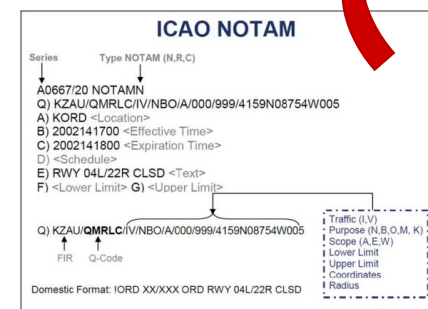


Next steps for the AMHS/SWIM Gw



- Use of micro-services, e.g., NOTAM → D-NOTAM

- Addressing (AFTN-like addresses)
- Routing (directly linked to routing, routing based on the use of AFTN-like addresses)





European strategy towards FF-ICE migration

■ Context and framework

■ Common Project One (CP1) Mandate (EU 2021/116)

■ Implementation of AF5:

- Family 5.1.1. Common infrastructure components (PKI, SWIM Registry)
- Family 5.1.2 SWIM YP technical infrastructure and specifications (Protocols, standards, use of NewPENS, etc.)
- Family 5.1.3 Aeronautical information exchange (ARES, digital NOTAMs, Airspace use plans, ...)
- Family 5.1.4 MET information exchange (MET information for aerodromes, ENR, aids, ...)
- Family 5.1.5 Cooperative network information exchange (Network operations, ATFCM, ...)
- Family 5.1.6 Flight information exchange (FF-ICE/R1, FUM, ...)

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European strategy towards FF-ICE migration

- Implementation of AF5:
 - Family 5.1.6 Flight information exchange (FF-ICE/R1, FUM, ...)
 - Scope:
 - Related to FF-ICE Release 1 Services:
 - flight plan and routes generation and validation;
 - flight plans, 4D trajectory, flight performance data, flight status;
 - flights lists and detailed flight data;
 - Related to flight update departure information;
 - Flight update messages ('FUM') (Network Manager Business to Business (B2B) service)



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European strategy towards FF-ICE migration

- FF-ICE Release 1:
 - Different European projects on going to migrate from current ICAO 2012 FPL/ADEXP format to FF-ICE/R1 (eFPL):
 - Make use of available and additional information to better plan and manage ATM operations
 - Integration of relevant flight and flow information in ANSP's ATM systems (FDPS)
 - Better coordination among ANSPs, Airport Operators and the NM to profit from the new information available on eFPL
 - Improvement on operational filing of eFPL for airlines



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European strategy towards FF-ICE migration

- FF-ICE Release 1:

- Specific objectives and activities:

- Transition from current ICAO 2012 FPL to FF-ICE/R1 eFPL → New system interface
 - ATS Reporting Offices (AROs) will also adapt to work with FF-ICE/R1 → consumption of NM SWIM filing service, NOTAM function with enriched Preflight Information Bulletins (PIBs)
 - Provision of Flight Specific Performance Data
 - Implementation of the Global Unique Flight Identifier (GUFI) → better flight identification
 - General improvement on cybersecurity and redundancy



Action by the Meeting

The ACSIG is invited to

- a) note the content of this paper;
- b) provide comments about the proposed use cases;
- c) identify potential synergies with EUR/NAT Region, and;
- d) promote the exchange of information in terms of activities, projects and initiatives with a common interest for APAC and EUR/NAT Regions.



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Back-up slides