

CNS SG/22 REPORT APPENDIX D

TERMS OF REFERENCE

SWIM Task Force

Objectives: In order to achieve B1-SWIM and the Seamless ATM Plan objectives, ATM and AIM systems - in compliance with global standards for the conceptualisation and exchange of aeronautical, flight and meteorological information - should be implemented in the high density FIRs and high density international aerodromes by November 2022 (PASL Phase III) and in all FIRs and international aerodromes by November 2025 (PASL Phase IV). To that end, the SWIM Task Force will:

- a) Benchmark the various successful implementations of SWIM in States and regions to adopt best practices;
- b) Develop and maintain a regional roadmap for SWIM services (ATM, AIM, MET, other), dependencies and enablers;
- c) Liaise with relevant regional contributory bodies to refine operational and communications requirements (example: ATFM/SG, ~~AIS~~ AAITF, MET IE/WG, ~~AMHS~~ ACSICG, CRV/OG, etc.);
- d) Complement global SWIM governance with regional procedures as needed and define how it can be implemented in APAC, with a particular focus on version management of concept and exchange models, architecture models, cyber-security, data quality management and maintenance of a trusted environment;
- e) Provide guidance and training to APAC member States and APANPIRG contributory bodies involved in SWIM-related work;
- f) Develop guidance/requirements for publishers/service providers and subscribers/service consumers;
- g) Promote enablement of ATM services as SWIM Application Services (SAS);
- h) Define how SWIM Registry/Registries and services will be implemented in the APAC region and what the minimum level of information a service needs to provide to the Registry/Registries;
- i) Support APANPIRG WG/TF regarding data exchange models of AIXM, FIXM, and IWXXM and examine if any extension is required for the operational use in APAC;
- j) Monitor developments by the IMP and escalate issues as required;
- k) Implement the APAC Regional SWIM; and
- l) Undertake any other tasks related to SWIM implementation that may arise in the future.

Considering the cross-disciplinary nature of SWIM, the Task Force will ensure proper coordination with relevant regional contributory bodies under APANPIRG.

Composition:

The SWIM TF will consist of experts from ATM, AIM, MET and CNS from Asia/Pacific States (ANS Providers), and from IATA and ICCAIA.

Conduct of the work:

The task force will conduct its work through Web Conferences, teleconferences, other electronic means of communications and Face-to-Face meetings.

Reporting:

The group will report to CNS SG ~~through ACSICG~~.

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STRATEGY FOR IMPLEMENTATION OF COMMUNICATION SYSTEMS TO SUPPORT AIR NAVIGATION SERVICE IN THE ASIA/PACIFIC REGION

Considering that:

- 1) legacy AFTN circuits are required until the ground systems of ATM Service Providers (ASP) and Airspace Users (AU) in reliant states are compatible with ATS Message Handling Service (AMHS), the successor implementation of the Aeronautical Fixed Service (AFS);
- 2) the Aeronautical Telecommunication Network (ATN) is specified in ICAO SARPs and technical manuals as the network supporting AFS implemented using either OSI protocols (ATN/OSI) or the Internet Protocol Suite (ATN/IPS) for both ground-ground and ground-air services;
- 3) many states have implemented ATN and AMHS in accordance with ICAO guidance (regional BBIS providing dual OSI/IPS stack routing at the AMHS level);
- 4) AN Conf/12 endorsed the Global Air Navigation Plan version 4 including the Aviation System Block Upgrades of the Globally Interoperable Services and Data improvement area based on System-Wide Information Management (SWIM) message exchange patterns (specified in the SWIM Operational Concept as IP-based web services);
- 5) APANPIRG adopted the Seamless ATM Plan (Version 2) in 2016 which includes the regional objective for SWIM and Common **aeRonautical** VPN (CRV) implementation; and
- 6) operational precedents of slightly different implementations of this SWIM concept exist in North America and Europe.

THE GENERAL STRATEGY FOR THE IMPLEMENTATION OF THE NECESSARY INTER-STATE COMMUNICATION SERVICES TO SUPPORT THE GLOBAL AIR NAVIGATION PLAN IN THE ASIA/PACIFIC REGION IS AS FOLLOWS:

- a) **Initiate transition ATSMHS and other applications to Internet Protocol Suite (IPS) based CRV. This would allow ATSMHS to be compatible to other regions using either CRV or other IP based networks.**
- b) continue deploying the ground-ground ~~ATN~~ backbone network of AMHS Message Transfer Agents (MTA) needed to support operational ground-ground services (as the infrastructure supporting AFTN such as X.25 becomes obsolete) and the air-ground services expected to migrate to ATN/IPS.
- c) acknowledge ICAO's acceptance of IP sub-networking and the precedent of PENS in Europe and FTI in North America and consider the consequent potential for superior approaches to APAC's ATN which is deployed as an aggregation of private leased point-to-point and other circuits including the Public Internet;
- d) apply guidance from ICAO technical panels primarily the Information Management and Communications panels in progressing regional planning and co-ordination in terms of

inter-state exchange of aeronautical, meteorological, flight information, voice communication services and surveillance data;

- e) permit **BBIS** and **BIS** ~~and non-backbone~~ States, and States in other regions with connections to the Asia/Pacific region, to connect their Message Transfer Agents (MTA) to ~~backbone~~ **BBIS** States using either the OSI-based ATN Internet Communications Services (ICS) or the ATN IPS on a bilateral basis;
- f) permit States with limited traffic to operate only UA terminals connected to the MTA of another State, subject to bilateral agreement. Such connections should use the CRV's IP VPN. In cases where is not practical, use of the public Internet subject to appropriate security provisions and access control is acceptable;
- g) complete migration from AFTN to AMHS within the time frame specified in the Regional Air Navigation Plan;
- h) once a robust ATN has been established, transition from the OSI-based ATN ICS to the AMHS MTA network using the ATN/IPS as specified in ICAO Doc 9896;
- i) consider options for augmenting the operational regional ATN to meet future operational requirements (including virtualizing the ATN over generic sub-networking infrastructure/services capable of supporting other higher-level communication services in addition to the ATN).

IN ORDER TO ACHIEVE THE ABOVE STRATEGY THE FOLLOWING ACTIONS ARE REQUIRED:

- i) Enhance AMHS to include the File Transfer Body Part (FTBP) sub-set of extended AMHS in order to support the exchange of IWXXM data using FTBP;
- j) Australia, Fiji, New Zealand and USA to replace their obsolete South Pacific AFS Network equipment with a subscription to the CRV managed service. In addition to sustaining operational voice and ground-ground data services, validate the 10 key points of the CRV proof-of-concept;
- k) Remaining APAC states to monitor outcomes of the proof of concept and consider subscription to the CRV service if it is beneficial given their particular circumstance;
- l) When CRV pilot is completed and service is accepted, BBIS States should prioritize the transition of AMHS MTA to CRV as well as coordinate with BIS States to join. Conversion of legacy interfaces (X.25, X.25 SNDCEF, and IP SNDCEF) to IPS should be utilized to support the AMHS transition to CRV.
- m) States and ASP/AU to participate in the SWIM Task Force and nominate subject matter experts to implement Phases 2 and Phase 3 of the Seamless ATM plan Version 2 adopted by APANPIRG in 2016. ~~Three phases are identified in the SWIM Task Force's work plan:~~
 - a. ~~Definition phase~~
 - b. ~~Implementation phase 1—expansion of services and preparation of phase 2~~

- c. ~~Implementation phase 2—generalization.~~
- n) Support the transition to FIXM with initial focus on the regional ATFM.

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CATALOGUE OF ASIA AND PACIFIC FLIGHT INSPECTION AND FLIGHT VALIDATION
SERVICE PROVIDERS – Tenth Edition – April 2018.

Available on Request (50 pages)

Conclusion APANPIRG 26/44 (Excerpt from APANPIRG/26 Meeting Report)

3.4.50 ADS-B SITF proposed the revised wording for an Asia/Pacific Region ADS-B forward fitment commencing in 2018. It was pointed out that as the lowest cost of fitment of ADS-B was during manufacture, the proposal would allow the avoidance of later retrofit costs, bringing long term savings to the aviation community without any significant cost in the short term. While the Asia/Pacific Region had taken the pragmatic view of ADS-B implementation using DO-260 and DO-260A, implementation of DO-260B would leverage off the Europe (from 2016) and FAA mandates (from 2020 not only for forward fit) and promote global harmonization. Mandates for forward fit would minimize the economic burden on aircraft operators, as it would not apply to existing aircraft.

3.4.51 Defining a forward fit mandate according to the date of issue of a certificate of airworthiness could result in the mandate being applied to an imported aircraft that is quite old. Mandates determined by date of manufacture were a better option. The meeting noted that the overall purpose was to commence the transition to a DO-260B environment by applying only to newly manufactured aircraft from a defined future date. Accordingly, the APANPIRG/26 adopted the following Conclusion:

Conclusion APANPIRG/26/44 – ADS-B OUT Forward Fit Equipage

That, States/Administrations in APAC Region be strongly encouraged to mandate that registered aircraft with a maximum certified take-off mass exceeding 5 700 kg or having a maximum cruising true airspeed capability greater than 250 knots, with a date of manufacture on or after 8 June 2018 (two years after the European forward fitment mandate is effective) be equipped with ADS-B avionics compliant with Version 2 ES (equivalent to RTCA DO260B) or later version.
