INTERNATIONAL CIVIL AVIATION ORGANIZATION
WESTERN AND CENTRAL AFRICA OFFICE

Second Meeting of the AFI Message Handling System Implementation Task Force
(AFI/AMHS/I/TF/2)
(Dakar, Senegal, 30-31 May 2013)

Agenda Item 3: Planning and implementation of AMHS- Planning and Implementation Activities

AMHS Planning and Implementation Activities in other Regions

(Presented by the secretariat)

SUMMARY
The purpose of this paper is to review the Status of Planning and implementation in other Regions
Action by the meeting is at paragraph 3.
References : Reports on the first meeting of the AFI AMHS implementation Task Force Report on APIRG CNSG/4 and APIRG/18 meetings *Note: References can be downloaded from www.icao.int/wacaf.*
Related **ICAO Strategic Objectives**: **A**: ***Safety; B: Air Navigation Capacity and Efficiency*** Related **ICAO ASBU Blocks and Modules**: **B0-25 AIDC; B0-30 AIM; B0-105 MET**

1. Introduction

The implementation of AMHS within AFI region in accordance with AFI Air Navigation Plan (AFI ANP) should be conducted in the framework of ICAO Aviation System Blocks Upgrades (**ASBU**) and the Global Air Navigation Plan (**GANP**) derived from the conclusion of ICAO 12th Air Navigation Conference held in November 2012.

Therefore implementing AMHs as a component of ATN must take into consideration the similar project in development within other ICAO neighboring Regions in order to ensure seamless reliable and interoperable Aeronautical Ground/Ground communication.

2. Discussion

2.1 AMHS implementation activities in APAC region

The activities for the implementation of AMHS in APAC Region currently conducted under the coordination of ICAO APAC Regional Office (Bangkok) have been various during these seven past years.
On April 2005 the basic documents for the implementation of AMHS were developed or reviewed and updated:

APAC ATN Routing Structure (Second Edition March 2004): provides technical guidance on the transition to the Aeronautical Telecommunication Network (ATN) for the ground-ground data communications in the ICAO ASIA/PAC Region. The routing architecture is based upon the need for a ground-ground infrastructure to eventually replace the existing AFTN infrastructure. For this reason, the routing architecture uses the existing AFTN infrastructure as a guideline for the positioning of ATN equipment:

- APAC **AMHS System description** (First Edition April 2005): describes the functionality, system, performance, information security, and system management requirements of the AMHS system in the Asia/Pacific region.
- APAC **ATSAMHS Naming Plan** (Third Edition April 2005): provides planning and technical guidance on the naming convention for the transition of ground Aeronautical Fixed Telecommunication Network (AFTN) services to the ATS Message Handling System (AMHS) within the ASIA/PAC Region.
- APAC **AMHS Naming Registration Form** (Second Edition April 2005): Table for the registration of States/Administrations and Organizations in accordance with the provision from DOC 9880;
- APAC **AMHS Network Management Operational Procedure Guidelines** (September 2009): provides guidance in the regional, global, and local operation of the AMHS systems located in and associated with Communication's Centers operating AMHS systems or user agents.
- An **ASIA/PAC AMHS Manual** was developed to address the test procedure for the Ground-Ground (G/G) Aeronautical Telecommunication Network (ATN) router connection.

The regional coordination activities are ongoing and the Eleventh Working Group meeting of the Aeronautical Telecommunication Network Implementation Co-ordination Group (ATNICG WG/11) of APANPIRG was held in Bangkok, Thailand, from **26 to 28 September 2012**.

The meeting reminded that a strategy needs to be developed as to whether the regional priority should be to have a common super network or should the priority be assigned to developing solutions around discrete networks that already exist taking into consideration the benefits for other regions of using a common network like PENS in Europe, FTI in North America, MEVA in Caribbean or REDDIG in South America.

During this meeting, coordination was made within APAC region to update the regional strategy and planning and proposals were made to improve APAC AMHS and IP Implementation documents.

The updated interconnection plan and the other relevant documents can be downloaded @: http://www.bangkok.icao.int/cns/meeting

2.2 AMHS implementation activities in NAAC Region

The activities for the implementation of ATSAMHS in NAAC region follow CAR/SAM Regional Strategy for the deployment of the ATN and its applications including AMHS adopted by GREPECAS 13 Meeting**.**

The strategy is divided into short medium and long term covering the period from 2005 to over 2015.

The CAR/SAM ATN Task Force also developed a complete AMHS Management Domains (MD) and addressing information register for CAR/SAM Region on March 2008.

The CAR SAM ATN Task Force held it fourth meeting at the end of June 2008 in Santo Domingo, Dominican Republic with the scope to:

- Ensure smooth transition from Aeronautical Fixed Telecommunication Network (AFTN) to AMHS environment and,
- Prevent any possible interruption in the AFTN and Air Traffic Voice service operation during the transition period.

The updated CAR-AMHS implementation Plan and Matrix can be downloaded @: http://www.mexico.icao.int/CNS.html#Communications.

2.3 AMHS implementation activities in SAM region

The SAM Region has implemented AMHS capability operating on REDIG and CAFSAT Networks. In order to ensure the interoperability when interconnecting AMHS equipment it was developed under the coordination of SAM Regional Office draft model of Memorandum of Understanding (MoU) aiming to

providing the planning for the interconnection of AMHS systems, establishing standard procedures that take into account the operational, technical, administrative, and financial aspects involved.
This model of MoU provides guidance material that can be useful to AFI Region among which the following:

- The States that have implemented or are planning to implement AMHS systems should register before the ATS message transmission management centre (AMC), according to ICAO State letter AN 7/49.1-09/34 of 14 April 2009 on management and updating of information on addresses of the air traffic service (ATS) message handling system (AMHS), and the procedure for registering a State representative as user of the AMC.
- The ATN/TF/5 meeting reviewed the IPv4 addressing scheme and, in this respect, considered that, at the national level, the States, when implementing AMHS systems based on IP, could adopt the Ipv4 addressing scheme. The meeting also considered that, for intra-regional links between AMHS systems, the Ipv4 addressing scheme shall be used, and, accordingly, formulated a Ipv4 addressing scheme for ATN ground-ground applications at the intra-regional level including the interface with AFI Region (WACAF) an example as presented during the first meeting for the AFI AMHS Task Force.

- For the interconnection of the AMHS systems installed in the Region, consideration has been given to conducting trials between MTAs to check the interoperability of AMHS systems, and a study of the bandwidth required for their interconnection.

The interoperability and the potential address conflict require that the implementation of AMHS in AFI be conducted taking into consideration the addressing scheme within the other regions.

The eleventh Workshop/Meeting of the SAM Implementation Group held in Lima, Peru from 13 to 17 May 2013 made an assessment of operational requirements to decide on the implementation of improvements to communication, navigation and surveillance (CNS) capabilities for en-route and terminal area operations.

The meeting updated the AMHS interconnection action plan, as well as the information on AMHS systems implemented in the Region, reviewed the Guide for the operational interconnection of AMHS systems in the SAM Region, taking into account the updated Eurocontrol document and addressed the issues related to the use of the OSI or TCP/IP model for AMHS interconnection purposes.

The guidelines documents on AMHS implementation in the SAM region can be downloaded @: http://www.lima.icao.int/eDoc

2.4 AMHS implementation activities in MID region

The activities on the implementation of AMHS in the MID Region have been conducted through the meetings of the MIDANPIRG Internet Protocol Suite Working Group (IPS WG).
The First Meeting of the MIDANPIRG Internet Protocol Suite Working Group (IPS WG/1) held in Cairo from 12 to 14 May 2009 took some important conclusions among which the following:

DRAFT CONCLUSION 1/1: MID ATN COMPATIBILITIES

That,
a) MID ATN will be ***IPS based and will maintain compatibility with AFTN, CIDIN and ISO/OSI based implementation and in close coordination with adjacent region;*** *and*
b) phase out of any protocol will be based ***in close coordination within MID Region and with the adjacent Region.***

This conclusion calls for a close coordination between AFI, EUR, APAC and MID regions for a harmonized implementation of AMHS.

The meeting also developed the draft **MID REGION ATN PLANNING AND IMPLEMENTATION DOCUMENT.**

The second Meeting of the MIDANPIRG Internet Protocol Suite Working Group (IPS WG/1) held in Cairo from 11 to 12 October 2009 updated the MID REGION ATN PLANNING AND IMPLEMENTATION DOCUMENT and urged MID States to:

- continue with the implementation of digital high speed links to support the implementation of ATN and,
- designate three users to AMC and send their details to ICAO MID Regional Office as soon as possible in accordance with the provision of attachment B to ICAO State letter AN 7/49.1-09/34 dated 14 April 2009

The Fourth Meeting of Aeronautical Telecommunication Network/Internet Protocol Suite Working Group (ATN/IPS WG/4) of the MID Region was convened in Cairo from 21 to 23 May 2012.
The meeting made the follow up of the conclusions and decisions of MIDANPIRG/13 and other meetings relevant to ATN/IPS Terms of Reference reviewed and updated the MID ATN plans and implementation issues and updated the status of implementation of AMHS in the region.
The relevant documents can be downloaded @: http://www.icao.int/MID/Pages/meetings.aspx

2.5 AMHS implementation activities in EUR/NAT region

The AUR/NAG region has been leading the activities of development and implementation of ATN including ATSAMHS.
The ICAO EUR/NAT AMHS Workshop took place in Paris, France, from 5 to 6 June 2008 and provided the AMHS Community with various basic consolidates documents aiming to facilitating the implementation of AMHS:

- AMHS Security Plan Security Controls and Documentation developed by USA FAA;
- Air Traffic Service Message Handling (AMHS) Over TCP/IP Network
- AMHS Transition AMHS Transition-migration issues and accommodation of different
- Safety and Quality in the AMHS implementation phase

The ATS Messaging Management Centre (AMC) in the AMHS Life Cycle developed by EUROCONTROM was presented to the meeting.

The **ATS Messaging Management Manual (EUR Doc 021)** describes the framework in which the off-line network management services of the ATS Messaging Management Centre (AMC) are provided to States/ANSPs in the ICAO EUR Region, and, in a more limited manner, to States/ANSPs in other Regions, under control by the **Aeronautical Fixed Services Group (AFSG)**, a subgroup of EANPG

The goal of the ATS Messaging Management Centre with regard to AMHS is twofold:

- AMC facilitates the transition from CIDIN/AFTN to AMHS;
- AMC provides new tools in support of AMHS operation, address management and user capabilities management, which will serve during transition and in the target of AMHS network.

The Seventeenth Meeting of the EANPG Aeronautical Fixed Service Group (AFSG) was held from 22 to 26 April 2013 in the ICAO EUR/NAT Office in Paris.

The meeting reviewed the latest developments on ATN/AMHS in line with the CNS technologies Roadmap defined by the 12th Air navigation Conference in the framework of ICAO Aviation Block Upgrades, addressed issues pertaining to operational Network, Regional AFS Planning matters and Technical/Documentation.

In this regard it was noted that the EANPG had endorsed the AFSG proposed amendments to the EUR AMHS Manual (Doc 020), EUR ATS Messaging Management Manual (Doc 021), EUR AFS Security Guidelines (Doc 022R) and the EUR NSAP Address Registry which had become EUR Doc 028.

The meeting was also informed that the EUR AMHS COM Centre Training guidelines were approved as EUR Doc 026 and the provisional edition of the IP Infrastructure Test Guidelines for EUR AMHS was approved as EUR Doc 027.

An overview on AMC is presented in Working Paper 3C.

3. Action by the meeting:

3.1 The meeting is invited to:

a) Take note of the above information

b) Develop a draft ATN/AMHS implementation strategy,

c) Review the required documents: AFI ATN/AMHS Implementation Plan Document, AFI ATN Routing Structure, ATSAMHS Naming Plan, AFI AMHS Test Procedure Manual AMHS Addressing Directory and other additional aiming to facilitating the implementation of AMHS

d) Encourage States to undertake a cooperative approach, through the development and conclusion of Memorandums of Understanding (MoUs) when implementing AMHS to ensure harmonized implementation and system interoperability.