



International Civil Aviation Organization

**THE EIGHTH MEETING OF AERONAUTICAL
TELECOMMUNICATION NETWORK (ATN)
IMPLEMENTATION CO-ORDINATION GROUP
OF APANPIRG (ATNICG/8)**

Jakarta, Indonesia, 18 - 21 March 2013



Ministry Of Transportation
Republic of Indonesia

Agenda Item 9: Review and update Subject/Tasks List and Action Items List etc.

**REVIEW STRATEGY FOR THE IMPLEMENTATION OF AERONAUTICAL
TELECOMMUNICATION NETWORK (ATN)**

(Presented by the Secretariat)

SUMMARY

This paper presents regional strategy for the implementation of ATN adopted by APANPIRG in 2010 for review by the meeting. This paper may be considered together with WP/09.

1. INTRODUCTION

1.1 Strategy adopted by APANPIRG/21 in September 2010 for the Implementation of Aeronautical Telecommunication Network (ATN) in the Asia/Pacific Region defined implementation strategy in terms of backbone network of ATN/OSI routers and AMHS Message Transfer Systems (MTS). Strategy further described the configuration recommended for interconnecting Message Transfer Agents (MTAs) of the States both within the region and with the MTAs from other regions.

1.2 APANPIRG, through its Conclusion 19/20 urged the States hosting BBIS to **implement ATN over IPS in addition to ATN over OSI** and complete this implementation of Dual Stack ATN (ATN/OSI and ATN/IPS) by 2011. Status of implementation was reviewed in the subsequent meetings and it was observed that implementation of dual stack ATN/AMHS had been more or less completed in the BBIS hubs.

1.3 The Strategy adopted in APANPIRG/21 and the work programme of the Group more or less limits itself to the implementation of ATN/AMHS and does not provide for integrating communication systems and inter-operability for any to any exchange of messages which are now being planned to be introduced.

2. DISCUSSION

2.1 ATNICG was established by APANPIRG through its Decision 16/31 in 2005 recognizing the need for extensive coordination among the States to ensure the satisfactory transition from AFTN to ATN without causing any disruption to services. The Group took up the task and developed an efficient mechanism to facilitate regional implementation through development and

adoption of a set of regional guidance documents, a monitoring mechanism and facilitating coordination amongst the regional States. Aeronautical Telecommunication Network was the only communication system envisaged in the ICAO CNS/ATM System in 1990s. Adoption of any other system to meet communication requirements was not envisaged at that stage.

2.2 Year 2011 was adopted as the target date or timeline for the implementation of dual stack systems for the States hosting BBIS hubs. The timeline has been more or less met. Almost all the States hosting BBIS hubs have completed the implementation of dual stack systems and are in the process of interconnecting them as per the regional ATN plan. Many States hosting BIS hubs have also completed the implementation and some of these systems are operational.

2.3 With this excellent infrastructure in place, it is probably time for the Group to move forward and take up its operational utilization to support improvement of AFS efficiency. As India has pointed out in WP08, States, which have already implemented AMHS system are saddled with a number of 'opportunity costs' which include the requirement of additional manpower to simultaneously operate both AFTN and AMHS, implications arising out of keeping the systems inoperative, rental for hired but unutilized media and regular software upgrades etc. Utilization of investment in the implementation of ATN/AMHS has been taken up by ATNICG in many of its earlier meetings. ATNICG WG/11 formulated Draft Conclusion 11/1 which urged the States to resolve bilateral issues on urgent basis to support the way for effective use of the network. While such an action will support quicker implementation of ATN/AMHS it will not be able to stop the usage of AFTN. The problem of simultaneous operation of AFTN and AMHS will continue till such time AFTN becomes completely redundant.

2.4 Till date, AMHS is the only application as message management service that has been stressed upon for implementation in the ATNICG. During more than four decades of the existence of AFTN, a number of very important operational applications including some automatic applications have been developed over AFTN and that is one of the reasons, why AFTN cannot be discarded so easily. Probably, one of the directions the Group could choose to adopt is to take up the development of applications over AMHS, which will make the corresponding AFTN applications redundant. New applications over AMHS could also be considered to make it more attractive.

2.4.1 USA informed ATNICG WG/11 about the plans for testing the delivery of XML-based OPMET messages over AMHS between USA, Singapore and the UK. The result of testing has been provided in IP18 by USA and Singapore. Next obvious step in this direction will be to test the system for the transmission of OPMET messages in the prescribed format. ATNICG/11 developed Draft Conclusion 11/3 inviting ICAO to provide guidance on the requirement for end-user product/message in respect of XML coded NOTAM and OPMET messages. Global RODB (MET) Coordination Meeting held in Brussels on 4 and 5 March, 2013 assigned target release date for Version 1 of ICAO meteorological model (iWXXM) in July 2013, which will be the model to use for digital exchange of OPMET (METAR/SPECI, TREND, TAF, SIGMET). This model is expected to be used in future for exchange of OPMET data. IQ It would be useful to test the OPMET messages in this prescribed format in the future.

2.4.2 One of the significant applications for AFS in use is the exchange of surveillance data between the automation systems. May be the Group can take up further development of radar (surveillance) data exchange over an appropriate means as an application.

2.4.3 As per para 4.9 of ATNICG/1 Report, development of ICD for ATN-based AIDC in the region was required to be completed in 2007. ATNICG/2, subsequently decided to postpone the development till such time the relevant material is updated by ACP. Nothing has progressed in this direction and AIDC is still being proposed to be implemented over AFTN only.

2.5 Implementation of ATN/AMHS started based on the requirements included in ICAO Annex 10 Volume 3 and guidance provided in Doc 9705. Initially, ATN over OSI only was prescribed and subsequently ATN over IP was included. The situation changed once again and the recommendation on introduction of SWIM was adopted by AN Conf/12. Technology has been changing very fast and there is a move now towards adoption of commercially available systems. Use of public internet is also been seen as an economically viable option for use in some specific environment. Under the circumstances, ATN may not remain the only communication option to meet ATM/AIM/OPMET data exchange requirement. Even if ATN remains relevant in future, its integration with other systems (like SWIM) will become a significant operational issue. The Group, hence should consider to widen its work programme to include all operational communication. Following Terms of Reference could be considered for adoption:

Coordinate implementation of communication services identified and assigned by APANPIRG and ICAO in the Asia and Pacific Regions to meet operational requirements, achieve inter-operability and address regional implementation and inter-regional operation related issues.

2.6 The document placed at Attachment to this paper could be considered as the Strategy for the implementation of ATN and other communication infrastructure in the region. This Strategy envisages implementation of ATN as the main purpose and integrates other emerging communication systems into the ATN system.

3 ACTION REQUIRED BY THE MEETING

3.1 The meeting is invited to deliberate the proposals made in the paper and consider to formulate following Draft Decisions:

Draft Decision 8/xx - ATNICG Terms of Reference

That, the Terms of Reference for the ATN Implementation Coordination Group be revised to read as follows:

Coordinate implementation of communication services identified and assigned by APANPIRG and ICAO in the Asia and Pacific Regions to meet operational requirements, achieve inter-operability and address regional and inter-regional implementation and operation related issues.

Draft Decision 8/ xx - ATN and other Communication infrastructure implementation Strategy

That, the document placed at Appendix XX to the report be adopted as the Strategy for the implementation of Aeronautical Telecommunication Network and other Communication Infrastructure in the Asia/Pacific Region to meet the operational requirements.

**STRATEGY FOR IMPLEMENTATION OF COMMUNICATION SYSTEMS TO SUPPORT OPERATIONS ~~THE~~
AERONAUTICAL TELECOMMUNICATION NETWORK (ATN)
IN THE ASIA/PACIFIC REGION**

Considering that:

- 1) the requirement ~~offer~~ a robust ground-to-ground Aeronautical Telecommunication Network (ATN) and integration of future communication systems to meet the growing need for digital data communication to support the Air Traffic Management Concept and other aeronautical applications;
- 2) the availability of ICAO SARPs and technical manuals for the ATN based on the OSI protocols (ATN/OSI) and the Internet Protocol Suite (ATN/IPS), and the availability of equipment and readiness of vendors to support both ATN/OSI and ATN/IPS ground-to-ground communications. Availability of other new communication systems under consideration for adoption;
- 3) ~~Availability~~the availability of AMHS Transition and Implementation guidance materials required to assist States to ensure harmonization of procedures and protocols and thereby assure inter-operability within the region.;
- 4) the need to develop operational applications over AMHS to support complete replacement of States currently using AFTN terminals for communication with AMHS other States, and the need to replace these aging terminals with ATN Message User Agents (UA); and
- 5) the backbone States in the Asia/Pacific region have already implemented, or are in the process of procuring and implementing, dual stack AMHS based ATN/OSI and ATN/IPS. Some States hosting BIS have also implemented dual stack AMHS and some are in the process of implementation~~AMHS-based ATN/OSI.~~

THE GENERAL STRATEGY FOR THE IMPLEMENTATION OF THE ATN AND OTHER COMMUNICATION INFRASTRUCTURE AND ASSOCIATED ATN APPLICATIONS IN THE ASIA/PACIFIC REGION IS AS FOLLOWS:

- a) strategically deploy ~~the ground-ground~~ backbone network of ATN/~~OSI~~ routers and AMHS Message Transfer System (MTS) to provide a reliable communication service infrastructure to initially support ground-to-ground applications and the planned ~~ATN/OSI~~ air-ground applications.
- b) strategically deploy ~~the an ATN/IPS backbone~~ network as a private network which comprises dedicated point-to-point and other circuits including without connection to the Public Internet, to support data communication, ~~and migrate ATN/OSI router interconnections from X.25 sub-network to IP sub-network connectivity~~;
- c) permit non-backbone States, and States in other regions with connections to the Asia/Pacific region, to connect their Message Transfer Agents (MTA) to backbone States using either the OSI-based ATN Internet Communications Services (ICS) or the ATN IPS on a bilateral basis;

- d) permit States with limited AFS connections or traffic with other States to operate only UA terminals and to use the MTA of another State, subject to bilateral agreement. Such UA to MTA connections may use the Public Internet subject to appropriate security provisions and access control;
- e) complete migration from AFTN to AMHS within the time frame specified in the FASID ~~;~~ **and**
- f) once a robust ATN/IPS backbone network has been established, eventually phase out use of the ATN ICS by AMHS and operate the AMHS MTA network using the ATN/IPS as specified in ICAO Doc 9880 section 3.2.2.2.3.
- g) Integrate future communication systems with the operational regional ATN Network to form an integrated communication infrastructure in the region to meet all the operational requirements.**
- h) Migrate currently used AFTN applications to operate over AMHS. Develop new operational applications over AMHS**

IN ORDER TO ACHIEVE THE ABOVE STRATEGY THE FOLLOWING IS REQUIRED OF STATES IN THE ASIA/PACIFIC REGION:

- ~~g) i)~~ States shall provide implementation in compliance with Annex 10 SARPS and ICAO Manuals, and with the Plans, Policies and AMHS Transition and Implementation guidance materials adopted by APANPIRG;
- ~~h) j)~~ Backbone States shall implement AMHS MTAs that support both the ATN ICS and ATN/IPS network services as specified in ICAO Doc 9880 section 3.2.2.2. Non-backbone States may implement MTAs that support either or both network services.
- ~~i) k)~~ Backbone States shall implement ~~ATN/OSI routers with X.25 sub-network capability and later migrate to IP sub-network capability for interconnection with other Backbone States and Non-backbone States.~~
- l) States shall take initiative to participate in the operational testing of applications over AMHS**
- ~~j) m)~~ States shall work co-operatively to assist each other on a multinational basis to implement the ATN and AMHS in an expeditious and coordinated manner and to ensure system inter-operability; and
- ~~k) n)~~ States shall organize training of personnel to provide necessary capability to maintain and operate the ground-to-ground ATN infrastructure and applications.
