International Civil Aviation Organization

THE FIFTH MEETING OF AERONAUTICAL TELECOMMUNICATION NETWORK (ATN) IMPLEMENTATION CO-ORDINATION GROUP OF APANPIRG (ATNICG/5)

Kuala Lumpur, Malaysia, 31 May – 4 June 2010

Agenda Item 6: Review the implementation plan and status from other ICAO regions

IMPLEMENTATION OF ATN IN ICAO MID REGION

(Presented by Secretariat)

SUMMARY

Based on the recommendation of the First Meeting of IPS Working Group, MIDANPIRG adopted ATN over IPS for the region. In the proposed ATN network, three MID/APAC links between Kuwait to Pakistan, Bahrain to Singapore and Oman to India have been included. This paper provides an information on the plan and the status of implementation of ATN in the MID region.

1. Introduction

1.1 First Meeting of The MIDANPIRG Internet Protocol Suite Working Group (IPS WG/1) was held in Cairo, Egypt from 12 to 14 May 2009. The meeting was attended by fifteen participants, which included delegates from eight States. Mr. Mohamed Ali Saleh, Head of Aeronautical Communications, Civil Aviation Affairs, Bahrain was the Rapporteur of the meeting. The meeting considered issues related to the implementation of ATN in the MID region and reviewed the status of implementation.

1.2 After reviewing the provisions made in various documents and considering the contents of Amendment 83 to Annex 10 and the outcomes of MIDANPIRG/10 and 11 meetings on this subject, IPS WG/1 adopted following Draft Conclusion recommending the usage of IPS Protocol in the implementation of ATN in the MID region.

Draft Conclusion 1/1 - MID ATN COMPATIBILITIES

That,

a) MID ATN will be IPS based and will maintain compatibility with AFTN, CDIN 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.

2. Discussion

2.1 ICAO MID region has adopted IPS based ATN for implementation. Compatibility will be maintained between ATN and AFTN, CIDIN and ISO/OSI in the new system. ATN network planned for the region is as given below:

In this proposed network, three links to the APAC region have been indicated from Kuwait, Bahrain and Oman to Pakistan, Singapore and India respectively. Bahrain/Singapore circuit has been upgraded to 19.2 kpps and Kuwait/Pakistan and Oman/Mumbai circuits have been upgraded to 64 kpbs.

2.2 Based on the agreed plan, implementation of AMHS has been completed or is in very advanced state of completion in Bahrain, Egypt, Syria, Libya and Jordan etc.

2.3 On 3 March 2010, the AMHS link using VPN between Amman/Jordan and Abu Dhabi/United Arab Emirates was commissioned for operational use. The system at the Jordan end utilizes an integrated Avitech AFTN/AMHS system in Amman and the system at the United Arab Emirates is using the Comsoft system at Abu Dhabi. The circuit was first tested for compatibility as per ICAO EUR Doc 020 – EUR AMHS Manual Appendix E and then was made operational over commercial internet using VPN.

2.4 Meeting reviewed the short term addressing management arrangements circulated through ICAO State Letter AN 7/49.1-09/34 dated 14 April 2009 and decided that three nominees from each MID region States will be registered with EUROCONTROL as users. These three will include one engineer, one operator and one manager of the communication center. Detailed arrangements adopted in the region are given in the attachment to this paper. Bahrain updated its message switching system based on IP. The system supports AFTN, CIDIN and AMHS and provides gateway to other communication systems like Email, FAX, SITA and GTS.

2.5 While reviewing Attachment B to the State Letter AN 7/49.1-09/34 specifically relating to the registration process, the IPS WG/1 meeting of MIDANPIRG was of the view that the prescribed procedure was putting burden on AMC and the concerned ICAO MID Regional Office since RO is required to verify the credential of individuals in the State which is time consuming and not properly document. Based on above, meeting adopted the procedure given in ***Appendix 4B*** and developed following Draft Conclusion:

Draft Conclusion 1/3 - Registration to AMC

That,

a) ICAO MID Regional Office communicates the procedure developed by IPS WG to the concerned at ICAO HQ and EUROCONTROL for the modification of the registration procedure for MID Region as outlined in ***Appendix 4B*** to the report on Agenda Item 4; and

b) MID States designate three users to AMC and send their details to ICAO MID Regional Office as soon as possible.

2.6 On the issue of usage of internet for AFS, meeting adopted following Draft Conclusion:

Draft Conclusion 1/6 - Usage of Public Internet in MID Region

That MID States,

a) are encouraged to follow the guidelines ***Appendix 4D*** to the report on Agenda Item 4, when using the public internet for critical aeronautical communication;

b) Urgently provide the inventory on the public internet usage in their States to the ICAO MID Regional Office.

The meeting, however considered following criteria for the usage of public internet for AFS

--- Using the public internet should be limited for low Traffic and remote location within the State;

--- No public internet usage between International COM Center;

--- Proper security measures to be taken for the use of public internet;

--- inventory on the usage of public internet in MID States is required for documentation and further research and development; and

--- based on the research other uses could be added for the public internet usage

3. Action Required

3.1 The meeting is invited to note the progress made in the implementation of ATN/AMHS in MID region and the States in the APAC region are invited to make arrangements to progress implementation of AMHS connectivity with the reciprocal ends in the MID region.

3.2 The meeting is also invited to review the arrangements adopted in ICAO MID region in response to the ICAO State Letter ICAO State Letter AN 7/49.1-09/34 dated 14 April 2009.

3.3 The meeting may also review the internet usage policy adopted in ICAO MID region.

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Appendix 4B to the Report on Agenda Item 4

Modified REGISTRATION PROCEDURE for MID Region to access AMC

(Based on IPS Working Group agreement)

The following procedure is to be used by MID States for registering users to access the European ATS Message Management center (AMC)

1. In order to carry out the procedures described in Attachment A, of State letter AN 7/49.1-09/34 each MID State/ANSP should designate three AMC Users associated to its COM Centre. One engineer, one operator and Manager of the Com Center.

2. The MID State/ANSP send the details of the above three designated users to ICAO MID Regional Office.

3. The MID State/ANSP send the above three designated users to attend the AMC training as soon as possible.

4. ICAO MID Regional Office to send the details of MID States/ANSP designated users to AMC focal point.

5. The EUROCONTROL AMC Support Team create AMC accounts for all MID users as per the ICAO MID regional Office request.

6. The EUROCONTROL AMC Support Team send account details to designated users.

7. Users start accessing start accessing the AMC using http://www.eurocontrol.int/amc/.

8. If any designated user of the MID State/ANSP change his post and no longer requires access to AMC the concerned States send details to cease this particular account to ICAO MID Regional office who in turn notify Eurocontrol to stop the account.

9. Creation of new account should follow step 1-7

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Public Internet usage strategy and guidance

Security and Implementation Guidelines:

- All implementation must comply with ICAO document 9855.

- Internet based applications should be used for low traffic non-time critical applications where leased lines are not justifiable

- The user of the application should expect service outages and should have a fallback procedure during the internet based service outage
- Applications to be used via internet can be categorized into two groups:

- CAT1: View only facility

User can view only the data via internet such as AFTN messages or MET charts

- CAT2: Modify facility

User can send data via the internet such as sending AFTN messages or uploading AIS updates

- Authentication Requirements:
  - CAT1: username/password is required for this type of services with strong password policy
  - CAT2: two-factor authentication must be implemented for services in this category

- Authenticity and Privacy:
  - CAT1: The user should be able to verify the authenticity and integrity of the data received over the internet by implementing standard message signing or secure transfer protocol (HTTPS). Encryption of the data is not mandatory.
  - CAT2: mutual authentication is required where both ends the user and the server should be able to authenticate each other using PKI and the data must be encrypted using a minimum 128-bit
  - Users upon registration with the internet based service must be verified by some mean.

- Network topology
  - All internal systems must be protected by an enterprise class firewall from the external internet environment, no direct traffic allowed from the internet into the internal systems. All traffic must be forwarded to a proxy system placed in a DMZ with strong policy (such as system update and patching, minimum running services on systems ... etc)
  - Preferably systems exposed to the internet in the DMZ should have host based intrusion prevention or a dedicated intrusion prevention system appliance.

- Logging and Auditing
  - System exposed to the internet must be keep a log of all transactions with the user on the internet and the systems in the internal network.
  - Logs must be kept for a minimum period of 30 days.
  - The log must contain the original message received by the server with server time-stamp and user ID if available.
