



International Civil Aviation Organization

Sixth Meeting of CNS/MET Sub-Group of APANPIRG

Bangkok, Thailand, 15-19 July 2002

Agenda Item 3: ATN transition planning

COMMENTS ON THE TABLES CNS 1B, 1C AND 1D

(Prepared by Japan)

Summary

This paper presents comments by Japan on the tables CNS 1B (ATN Router Plan), CNS 1C (ATSMHS (Routing) Plan) and CNS 1D (AIDC (Routing) Plan), which have been generated in the Asia/Pacific Region. The comments are both of a general nature and those of Japan based on the latest planning.

1. INTRODUCTION

1.1 Tables CNS 1B (ATN Router Plan), CNS 1C (ATSMHS (Routing) Plan) and CNS 1D (AIDC (Routing) Plan) have been generated and are being filled in the Asia/Pacific Region. This paper presents both general comments on the tables and data updates based on the latest planning by Japan.

2. DISCUSSION

2.1 Table CNS 1B – ATN Router Plan

2.1.1 General Comments

Reference is made to Working Paper ATTF/4-WP12 presented at the Fourth ATN Transition Task Force Meeting held in Mumbai, India, 8–12 April 2002.

The descriptions for Column 4 “Type of Interconnection” are specified as follows in the Explanation of the Table which is found on the first page of Table CNS 1B:

- 1) Inter-Regional
- 2) Intra-Regional
- 3) Inter-Domain

“Domain” is very general term and the precise meaning of “Inter-Domain” in Table CNS-1B is not clear. A Region such as Asia/Pacific, a State such as Japan, or an organization within a State such as JCAB can all be regarded as “Domains”, albeit at different scales. In this sense, “Inter-Regional” and “Intra-Regional” also fall into the category of “Inter-Domain”.

Therefore, it is recommended to delete the term “Inter-Domain” and leave the other two.

Recommendation 1:

To delete “Inter-Domain” from the descriptions for Column 4 “Type of Interconnection” in the Explanation of the Table on the first page of Table CNS 1B.

2.1.2 Updates of Planning for Japan

According to the latest planning, the data for Japan is to be updated as shown in **Appendix 1**.

2.2 **Table CNS 1C – ATSMHS (Routing) Plan**

2.2.1 General Comments

Reference is made to Appendix G of the Report of Fourth ATN Transition Task Force Meeting held in Mumbai, India, 8–12 April 2002.

First Comment:

The title of the table is “ATSMHS Routing Plan”. However, this name does not seem appropriate because (1) there is no information regarding routing in the table, (2) there is another regional document for routing (IDRP and MTA) and use of the word “Routing” in the title of Table CNS 1C may lead to confusion, and (3) it is better to harmonize with the name of Table CNS 1B “ATN Router” Plan.

Therefore, it is recommended to change the title of the table.

Recommendation 2:

To change the title of Table CNS 1C to “ATSMHS Plan” instead of “ATSMHS Routing Plan”.

Second Comment:

The descriptions for Column 3 “ATSMHS Type” are specified as follows in the Explanation of the Table (on the first page of Table CNS 1C):

- 1) AFTN/AMHS Gateway
- 2) Message Transfer Agent (MTA) Server

On the other hand, the following four types of ATN End System performing ATS Message Handling Service are defined in the ICAO ATN SARPs (Doc. 9705 Edition 3):

- 1) AFTN/AMHS Gateway

- 2) ATS Message Server
- 3) ATS Message User Agent
- 4) CIDIN/AMHS Gateway

Of the above four types, CIDIN/AMHS Gateway is not applicable in the Asia/Pacific Region. In addition, ATS Message Server can be referred to as “ATSMHS Type” in the table, since the “ATS Message Server” and “ATS Message User Agent” are always used together and the latter is not related with ATSMHS regional routing.

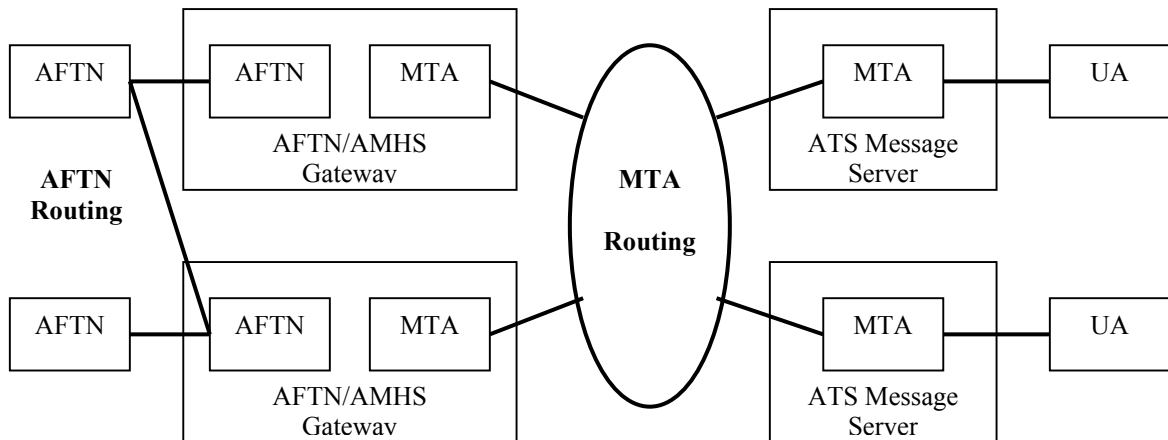
Therefore, it is recommended to use the following terms, which are clearly specified in the ICAO ATN SARPs, for the “ATSMHS Type” in the Table CNS 1C, in order to avoid unnecessary confusion:

- 1) AFTN/AMHS Gateway
- 2) ATS Message Server

Recommendation 3:

To change the second description to “ATS Message Server” instead of “Message Transfer Agent (MTA) Server” for Column 3 “ATSMHS Type” in the Explanation of the Table on the first page of Table CNS 1C.

Furthermore, it should be noted that the MTA (Message Transfer Agent) is included in both “AFTN/AMHS Gateway” and “ATS Message Server”, as shown below. Therefore the original description “Message Transfer Agent (MTA) Server” may lead to misunderstanding and confusion.



2.2.2 Updates of Planning for Japan

According to the latest planning, the data for Japan is to be updated as shown in **Appendix 2**.

2.3 Table CNS 1D – AIDC (Routing) Plan

2.3.1 General Comments

Reference is made to Working Paper ATTF/4-WP15 presented at the Fourth ATN Transition Task Force Meeting held in Mumbai, India, 8–12 April 2002.

First Comment:

The title of the table is “AIDC Routing Plan”. However, this name does not seem appropriate for the same reasons as given above for ATSMHS (*viz.* no routing information in the table, there is another regional document for routing and to harmonize with the name of Table CNS 1B).

Therefore, it is recommended to change the title.

Recommendation 4:

To change the title of Table CNS 1D to “AIDC Plan” instead of “AIDC Routing Plan”.

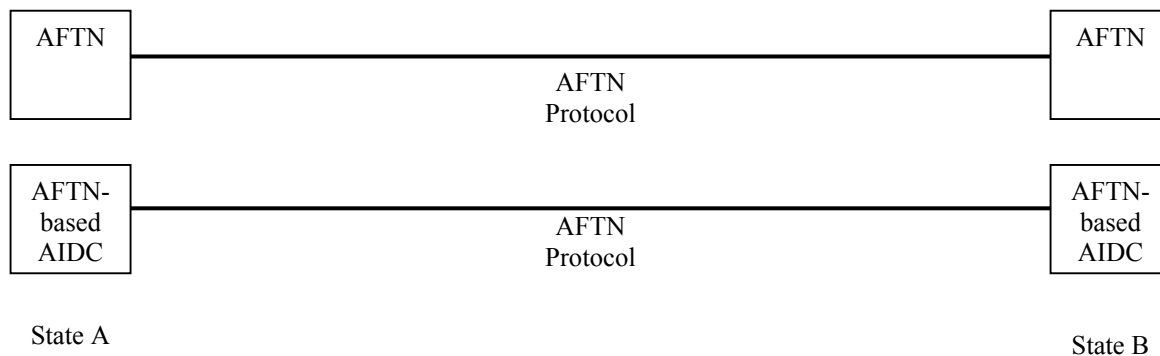
Second Comment:

The example indicated in the above Working Paper includes a name of “Gateway”. However, it is not practical to use an AFTN/AMHS Gateway for AFTN-based AIDC communications. In addition, the table is for ATN-based AIDC, and so the location of the ATN-based AIDC system must be written in Column 2 “Location of AIDC and system” and in Column 3 “AIDC pair”.

An example case of migration from an AFTN protocol-based communications environment to ATN are given below:

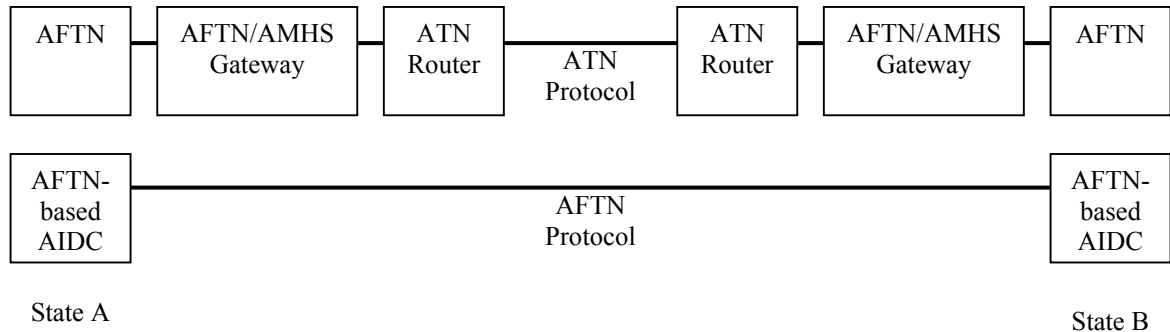
(1) Existing AFTN Connections

An AFTN connection and AFTN-based AIDC connection are implemented between State A and State B. (A common AFTN line may be shared by both applications in this case.)

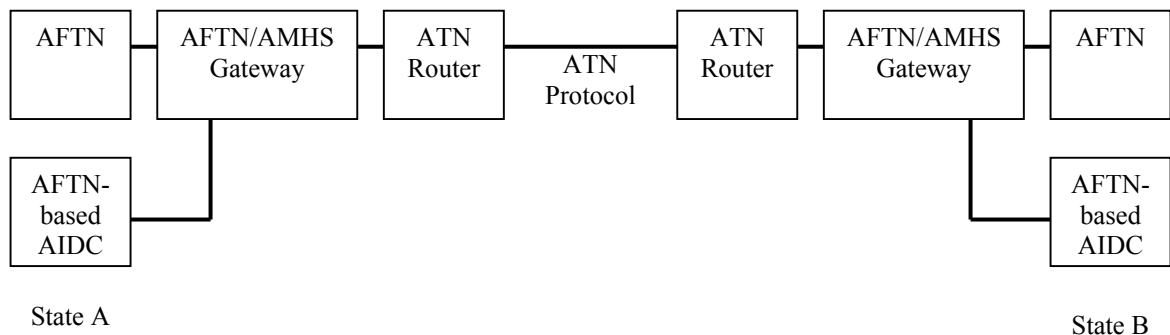


(2) AFTN/AMHS Gateway implementation for AFTN

An AFTN/AMHS Gateway is implemented to replace the AFTN connection with an ATN connection, with the AFTN-based AIDC connection remaining using a separate line from the ATN connection.



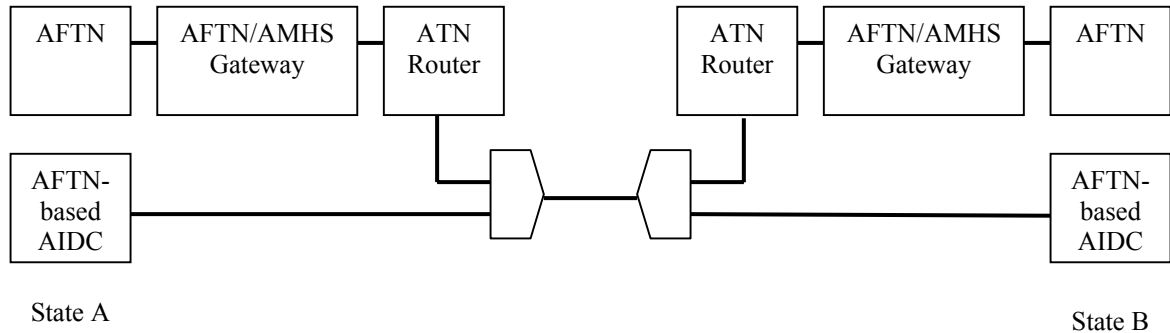
In such a case, it is conceivable that there may be a proposal to use the AFTN/AMHS Gateway also to allow the AFTN-based AIDC to share the ATN line, allowing the remaining AFTN-based communication line to be eliminated to reduce cost, as shown below.



While such an approach may be technically possible, it is not recommended. ATN systems (AFTN/AMHS Gateways and ATN Routers) are not required for AFTN-based AIDC connection; that is, it is possible to make a simple connection without those systems. Complicating the AIDC connection by introducing unnecessary elements will have negative implications such as:

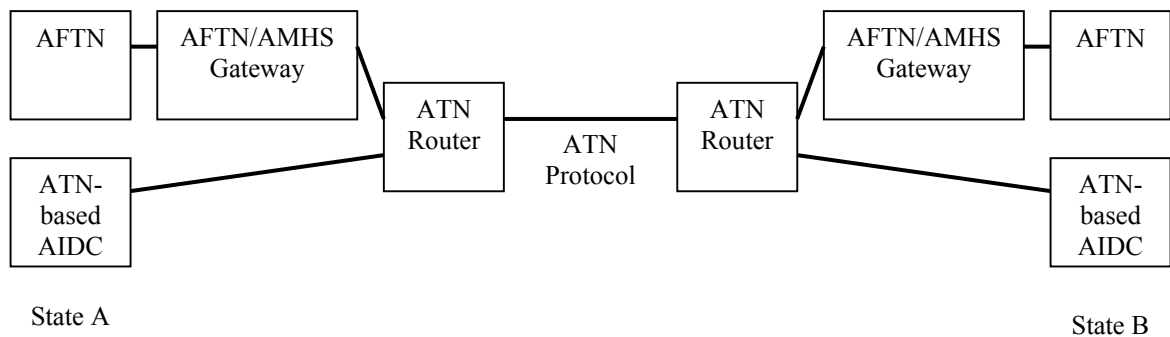
- 1) The reliability and response time of the AFTN-based AIDC connection will be degraded due to communications having to pass through ATN systems unrelated to AIDC on the communication route.
- 2) The response time of the AFTN-based AIDC connection will further be degraded because AMHS (AFTN/AMHS Gateway) uses a store-and-forward communication system, which is not amenable to the interactive nature of AIDC communications.
- 3) Message handling will be made considerably more difficult, especially in case of trouble in the system or communication line, since the AFTN/AMHS Gateway will be handling messages of different natures.

Instead, it is possible to eliminate the dedicated AIDC line to reduce cost by using multiplexing equipment to share a single line for both applications as shown below.



(3) Implementation of AFTN/AMHS Gateway and ATN-based AIDC

AFTN/AMHS Gateway and ATN-based AIDC are implemented. In this case there will be great benefit to utilize the common regional ATN Backbone among the States, not only between two States.



2.3.2 Some Comments

It should be noted that the nature of AIDC is different from ATSMHS (AMHS).

ATSMHS is related to communication and realizes the transfer of independent messages from point A to point B.

On the other hand, AIDC is related to both communication and to ATS operation (e.g. transfer of control). Though there is indeed a function of discrete message transfer between two points, the messages are not independent — their sequence is important and has meaning. Therefore, it is necessary to coordinate the details of ATS operation using AIDC communication (types of message to be used, their sequencing, and the conditions for their use) between the concerned States before AIDC can be implemented.

With this consideration, the CNS/MET SG does not have sufficient scope or expertise to discuss AIDC, and it is therefore recommended to task AIDC planning to an appropriate (existing or new) group associated with ATS operations, with appropriate experts (e.g. ATS Controllers).

3 ACTION BY THE MEETING

3.1 The meeting is invited to review the information provided in this paper and to:

- a) adopt the four recommendations (in Clause 2.1, 2.2 and 2.3) for Table CNS 1B, 1C and 1D;
- b) update the part of Japan in Table CNS 1B and 1C (given in the Appendices); and
- c) take into consideration the comment for Table CNS 1D (provided in Clause 2.3) when making/updating the table.

Appendix:

- 1. Table CNS 1B – ATN Router Plan (only the part of Japan)
- 2. Table CNS 1C – ATSMHS ~~Routing~~ Plan (only the part of Japan)

Appendix 1. Table CNS 1B – ATN Router Plan (only the part of Japan)

Administration	Location of Router	Type of Router	Type of Interconnection	Interconnection , Connected to router of:	Link Speed	Link Protocol	Target date of Implementation	Remarks
1	2	3	4	5	6	7	8	9
Japan	Tokyo	BBIS	Intra-Regional	Australia	64000bps	X.25	2003 2005	Proposed new service
		BBIS	Intra-Regional	China	64000bps	X.25	2005	
		BBIS	Intra-Regional	Hong Kong, China	64000bps	X.25	2003 2004	
		BBIS	Intra-Regional	Singapore	64000bps	X.25	2003 2005	
		BBIS	Inter-Regional	United States	64000bps	X.25	2003 2004	
		BIS BBIS	Inter-Domain Inter-Regional	Europe	64000bps	X.25	2005	Proposed new service May need to be BBIS for the short term
		BIS BBIS	Inter-Domain Inter-Regional	Russia Federation	64000bps	X.25	2005	May need to be BBIS for the short term
		BIS	Inter-Domain Intra-Regional	Republic of Korea	9600bps	X.25	2005	
		BIS	Inter-Domain Intra-Regional	Taipei	9600bps	X.25	2005	

Appendix 2. Table CNS 1C – ATSMHS ~~Routing~~ Plan (only the part of Japan)

Administration	Location of AMHS	AMHS Type	AMHS Pair	Target Date of Implementation	Remarks
Japan	Tokyo	AFTN/AMHS Gateway MTA	Brisbane	2005	
		AFTN/AMHS Gateway MTA	Beijing	2005	
		AFTN/AMHS Gateway MTA	Hong Kong	2004 2005	
		AFTN/AMHS Gateway MTA	Singapore	2005	
		AFTN/AMHS Gateway MTA	Salt Lake City	2004 2005	
		AFTN/AMHS Gateway MTA	Europe	2005	
		AFTN/AMHS Gateway MTA	Russian Federation	2005	
		AFTN/AMHS Gateway MTA	Seoul	2005	
	Naha	AFTN/AMHS Gateway	Taipei	2005	