



International Civil Aviation Organization and the Directorate General of Air Communication, Indonesia

SIXTH MEETING OF AERONAUTICAL TELECOMMUNICATION NETWORK (ATN) TRANSITION TASK FORCE OF APANPIRG



Bali, Indonesia, 26-30 April 2004

**Agenda Item 5: Review Table and Chart for the ground-to-ground part of the
CNS FASID - AIDC**

INFORMATION FOR AIDC TRANSITION

(Prepared by Japan)

(Presented by Japan)

Summary

This paper presents information for the transition from AFTN-based AIDC to ATN-based AIDC.

1 Introduction

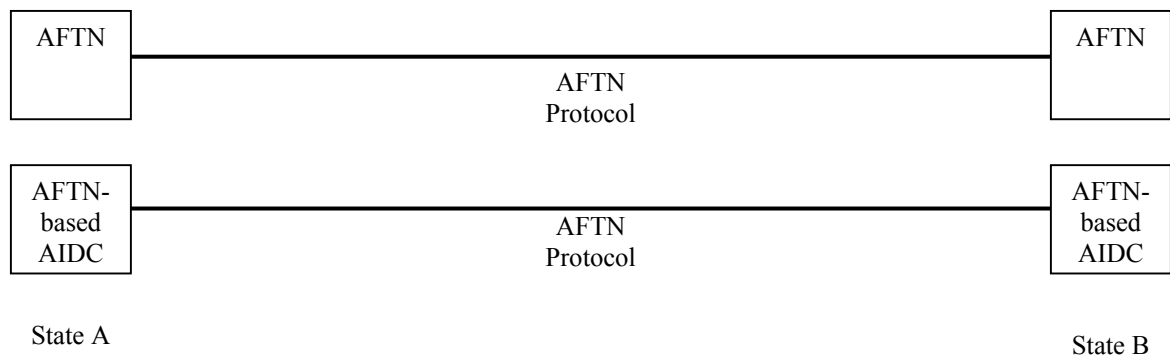
1.1 This paper presents information for the transition from AFTN-based AIDC to ATN-based AIDC.

2 Discussion

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

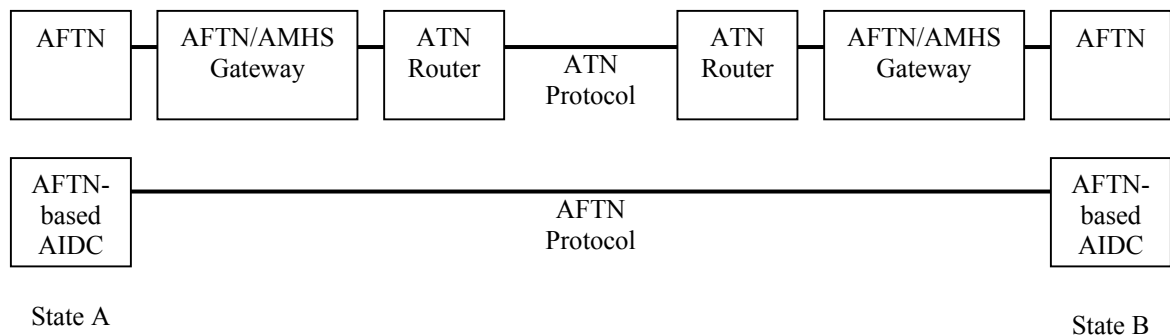
(1) Existing AFTN Connections

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.)

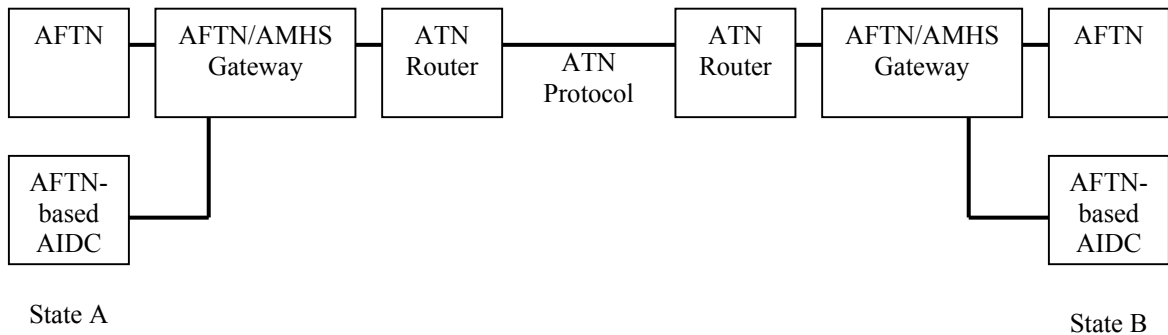


(2) AFTN/AMHS Gateway implementation for AFTN

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.



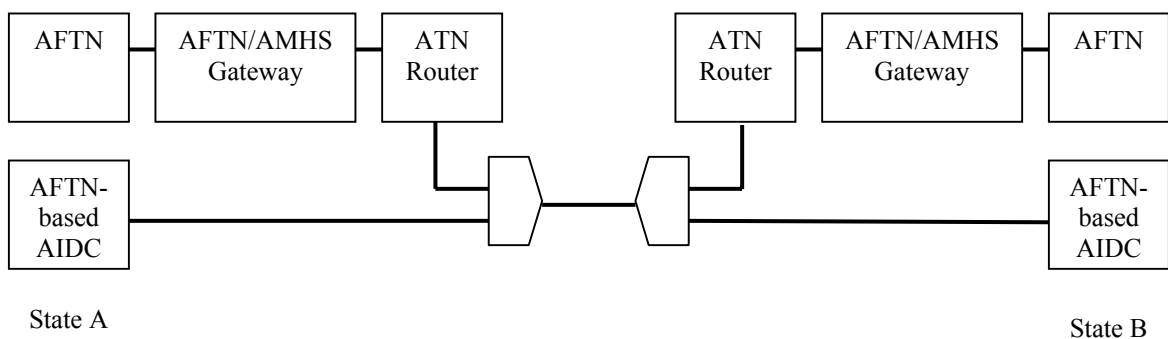
In such a case, it is conceivable that there may be a proposal to use the AFTN/AMHS Gateway also to allow the AFTN-based AIDC to share the ATN line, allowing the remaining AFTN-based communication line to be eliminated to reduce cost, as shown below.



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:

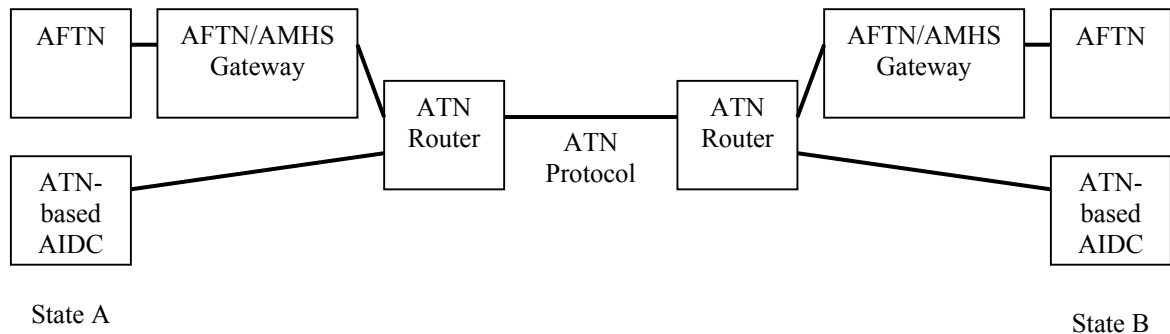
- 1) The reliability and response time of the AFTN-based AIDC connection will be degraded due to communications having to pass through ATN systems unrelated to AIDC on the communication route.
- 2) The response time of the AFTN-based AIDC connection will further be degraded because AMHS (AFTN/AMHS Gateway) 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.

3 Action by the Meeting

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