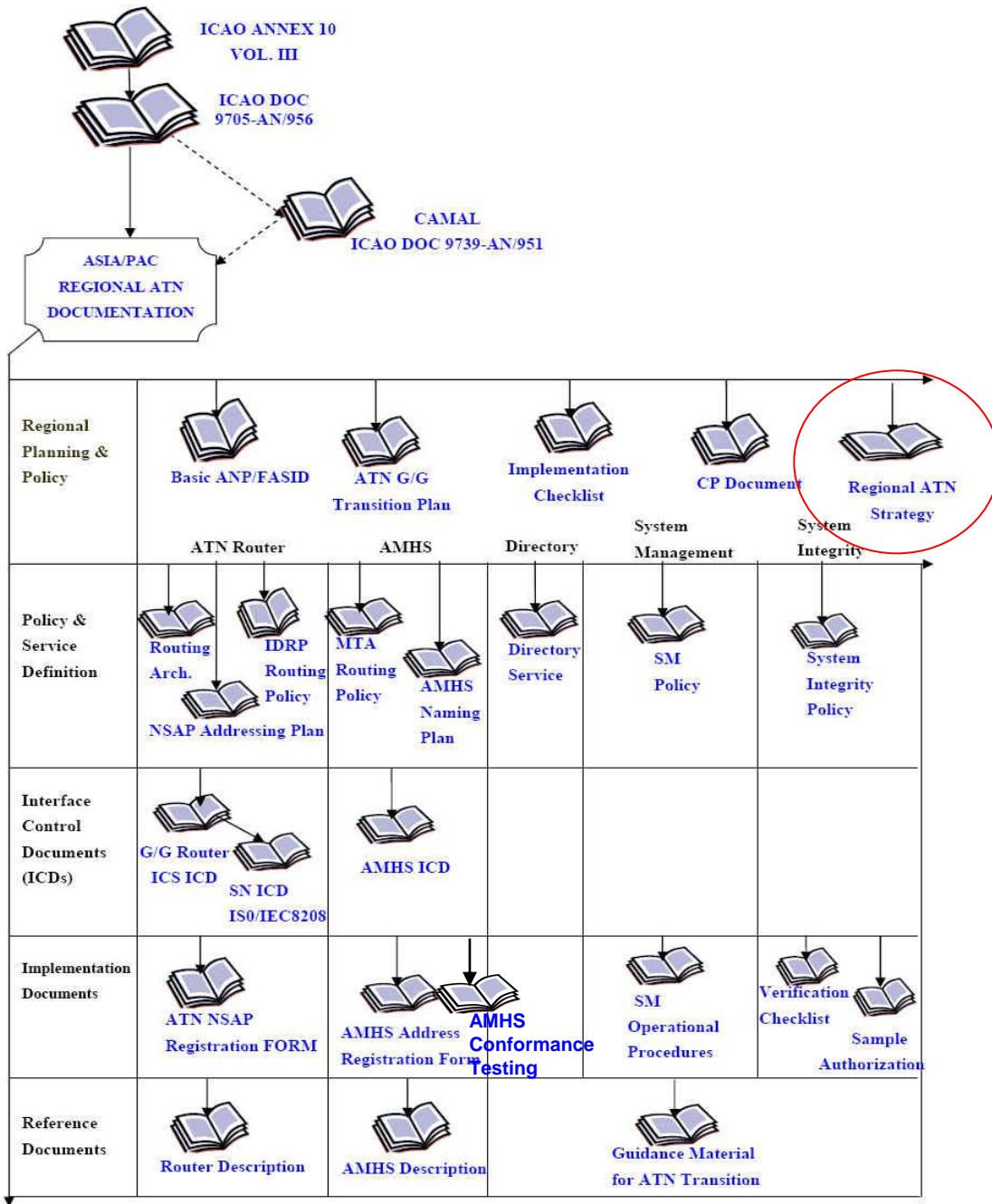


ASIA/PAC ATN Implementation Strategy

Civil Aviation Authority of Singapore

AMHS Implementation Planning Workshop
Bangkok, Thailand
27 to 28 January 2010



- Strategy for Implementation of ATN in the Asia/Pacific Region

Strategy for Implementation of ATN in the Asia/Pacific Region

- Developed by the Seventh Meeting of the ATN Transition Task Force (ATNTTF/7)
- Adopted by APANPIRG/16 under conclusion 16/29
- To assist States in the implementation of the ground-to-ground ATN in the APAC Region
- Need to be reviewed from time to time in light of developments and as required
 - Amended Regional Strategy was adopted by APANPIRG/17 under conclusion 17/21

Strategy for Implementation of ATN in the Asia/Pacific Region

- 1st Edition (with amendments)
- Considering that:
 - a. the requirement for a robust ground-to-ground Aeronautical Telecommunication Network (ATN) to meet growing need for a digital data communication to support the Air Traffic Management Operational Concept;
 - b. the availability of ICAO SARPs and Technical Manual for implementation of ATN;
 - c. the awareness generated in States for replacement of the present AFTN with digital data network by conducting various seminars and meetings;

Strategy for Implementation of ATN in the Asia/Pacific Region

- d. the availability of several guidance materials, interface control documents (ICDs) required to assist States to ensure harmonization of procedures and protocol to assure inter-operability within the region;
- e. the agreement in EUR region and [North American region](#) to provide gateways to support ATN protocol suites implemented in adjacent region;
- f. the feasibility of introducing SARPs compliment air-ground application in a secured network without prolonged delay;

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- g. work in progress in ACP of IPS SARPs development for ground-to-ground communications and study undertaken on the feasibility of air-ground IPS;
- h. the need to migrate to Binary Universal form of representation of meteorological data (BUFR) coded OPMET messages; the emerging need to use lower case letters in NOTAM messages;
- i. the trial and demonstrations conducted by several States in the Asia/Pac region for implementation of ATN/AMHS and actions taken by States for introduction of ATN/AMHS; and
- j. availability of equipment and readiness of vendors to support provisions of equipment for both OSI/IPS ground-to-ground and OSI air-ground communications.

Strategy for Implementation of ATN in the Asia/Pacific Region

- **General Strategy**
 - a. implementation be in full compliance with Annex 10 SARPs, PANS, ICDs and guidance materials adopted by APANPIRG;
 - b. in the Asia/Pacific Region ground-to-ground ATN will initially support the implementation of ATS Message Handling System (AMHS) to replace AFTN;
 - c. strategically deploy backbone ATN routers to provide fault tolerant infrastructure to initially support ground-to-ground applications and eventually support air-ground applications;
 - d. during the transition, some AFTN system may remain in operation. A reasonable time frame should be established for their replacement with AMHS;

Strategy for Implementation of ATN in the Asia/Pacific Region

- e. Message Transfer Agent (MTA) sites should provide AFTN/AMHS gateways during the transition phase;
- f. States should work co-operatively to assist each other on a multinational basis to implement the ATN expeditiously and to ensure system inter-operability;
- g. States should organize training of personnel to provide necessary capability to maintain and operate the ground-to-ground ATN infrastructure and applications;
- h. upon successful deployment of ground-to-ground ATN infrastructures and applications within the region, States gradually introduce ATN air-ground infrastructures and applications; and
- i. Strategically deploy network approach that permits dual stacks protocols (OSI/IPS) operations.

Revised Strategy for ATN Implementation in the Asia/Pacific Region

- To develop a common strategy that is necessitated by new developments
- Reviewed the change proposals developed at ATNICG/4 meeting
- ATNICG WG/6 identified the need to more clearly differentiate the general strategy from specific requirements of States to implement the Strategy
- Revised Strategy consists of three sections:
 - Considerations for the Strategy
 - Description of the General Strategy
 - States Requirement to Implement the Strategy

Revised Strategy for ATN Implementation in the Asia/Pacific Region

- **Considering**

1. The requirement for a robust ground-to-ground Aeronautical Telecommunication Network (ATN) to meet the growing need for digital data communication to support the Air Traffic Management Concept;
2. The availability of ICAO SARPs and technical manuals based on the OSI Protocol Suite (ATN/OSI) and the Internet Protocol Suite (ATN/IPS);
3. The availability of AMHS Transition and Implementation guidance materials required to assist States to ensure harmonization of procedure and protocols and thereby ensure inter-operability within the region;
4. The need to support States currently using AFTN terminals for communications with other States, and the need to replace these aging terminals with ATS Message User Agents;
5. That several States in the Asia/Pac region have conducted trials and demonstrations for implementation of AMHS and have taken actions for introduction of AMHS; and
6. The availability of equipment and readiness of vendors to provide equipment for both ATN/OSI and ATN/IPS ground-to-ground and ATN/OSI air-ground communications.

Revised Strategy for ATN Implementation in the Asia/Pacific Region

- **General Strategy**

- a. Strategically deploy a backbone network of ATN/OSI routers and MTAs to provide a reliable infrastructure to initially support ground-to-ground applications and the planned ATN/OSI air-ground applications;
- b. Gradually migrate ATN/OSI backbone routers from X.25 sub-network connectivity to IP sub-network connectivity using the IP SNDCF feature of ATN/OSI routers;
- c. Implement IP sub-network connections among backbone and non-backbone routers as a private network, i.e., without connection to the Public Internet;
- d. Permit non-backbone States to connect to backbone States using either ATN/OSI routers and MTAs, or IP routers and MTAs;

Revised Strategy for ATN Implementation in the Asia/Pacific Region

- e. Permit backbone States with connections to States in other regions to connect using either ATN/OSI routers and MTAs, or IP routers and MTAs on a bilateral basis;
- f. Permit States with limited AFTN or AMHS connections to other States to connect to MTAs in other States rather than operate their own MTAs;
- g. Permit States with limited AFTN or AMHS connections to other States to connect terminals to MTAs in other States using the Public Internet but with appropriate security provisions for access control;
- h. Within a reasonable time frame convert all AFTN systems to AMHS; and,
- i. Eventually operate AMHS applications only with IP routers and MTAs

Revised Strategy for ATN Implementation in the Asia/Pacific Region

- **States Requirement to implement the Strategy**
 - j. States shall provide implementations in compliance with Annex 10 SARPS and ICAO Manuals, and with the Plans, Policies, and AMHS Transition and Implementation guidance materials adopted by APANPIRG;
 - k. States having Backbone Boundary Intermediate Systems (BBIS) shall implement MTAs that support both ATN/OSI and ATN/IPS;
 - l. States having BBIS shall implement ATN/OSI routing with X.25 sub-network capability and optionally with IP sub-network capability for interconnection with other BBIS;

Revised Strategy for ATN Implementation in the Asia/Pacific Region

- m. States having BBIS that connect to States in other regions shall provide high availability connections (e.g., with redundant physical connections);
- n. States having Boundary Intermediate Systems (BIS) shall implement ATN/OSI MTAs, or ATN/IPS MTAs, or dual-stack MTAs;
- o. States shall work co-operatively to assist each other on a multinational basis to implement the ATN expeditiously and to ensure system inter-operability; and
- p. States shall organize training of personnel to provide necessary capability to maintain and operate the ground-to-ground ATN infrastructure and applications.

Thank You