



International Civil Aviation Organization

**Seventh Meeting of CNS/MET Sub-Group of APANPIRG and
Tenth Meeting of CNS/ATM IC Sub-Group of APANPIRG**

Bangkok, Thailand, 15 – 21 July 2003

Agenda Item 3: Aeronautical Fixed Service

AFTN/AIS DATABASE UPGRADE

(Presented by New Zealand)

SUMMARY

Airways New Zealand is the provider of Air Traffic Services in New Zealand's Domestic and Oceanic Airspace. This paper provides a review of the upgrade of Airways' AFTN systems, their successful implementation and commissioning.

1. INTRODUCTION

1.1 In 2001 Airways embarked on a major upgrade program to replace its aging Aeronautical Fixed Telecommunications Network (AFTN) systems.

1.2 Reduced hardware and software maintenance support of the now obsolete 1990 AFTN message switch, and concerns over service capacity and availability meant it had reached the end of its economic life.

1.3 The AFTN replacement project, known as AMSAD (Aeronautical Message Switch / Aeronautical Database), not only provides current AFTN and Database functionality but has the ability to keep pace with the latest developments in AFTN and ATS message handling systems (AMHS). It provides an up-to-date windows interface through Airways' SkyLine ATM workstations and an enhanced environment in the NOTAM office.

1.4 AMSAD goes hand in hand with the new SkyLine ATM to provide Airways with modern air traffic systems for the new decade.

2. PROJECT PERFORMANCE

2.1 Airways selected Thales Information Systems as the supplier of the major AFTN Message Switch (AERMAC) and AIS Database (ANAIS) components for the AFTN upgrade.

2.2 The contract with Thales-IS was signed in late August 2001.

2.3 Critical Design Review of both AMS and AIS took place in November 2001 allowing the maximum development time for the manufacturer.

2.4 After successful factory and site acceptance tests, the AMS was commissioned in June 2002 and ran in parallel with the old system. Circuits were progressively moved from old to new message switches allowing for a staged transition of users.

2.5 The AIS Database system, after successful factory and site testing, was commissioned in November 2002 with the transfer of existing NOTAM and MET databases to the new system.

2.6 The project was commissioned on time, on budget and with the expected level of quality through close co-operation with the manufacturer and management of project scope.

2.7 From contract to commissioning:

- AFTN Message Switch took 40 weeks.
- AIS Database took 65 weeks.

2.8 Since commissioning, both AMS and AIS systems have operated with a high level of availability.

3. SYSTEM IMPLEMENTATION

3.1 The upgraded AFTN/AIS system provides a totally integrated ICAO-compliant system with the ability to expand to the proposed ATN.

3.2 The system provides AFTN User Terminals (AUT) and ATIS systems for 17 domestic control towers and 3 Air Traffic Control Centres. International connections are through Brisbane, Nadi, Tahiti and Oakland. Tonga, Samoa and Rarotonga are also serviced with AUTs. VOLMET and FISB (Flight Information Service Broadcast) are also provided in Auckland.

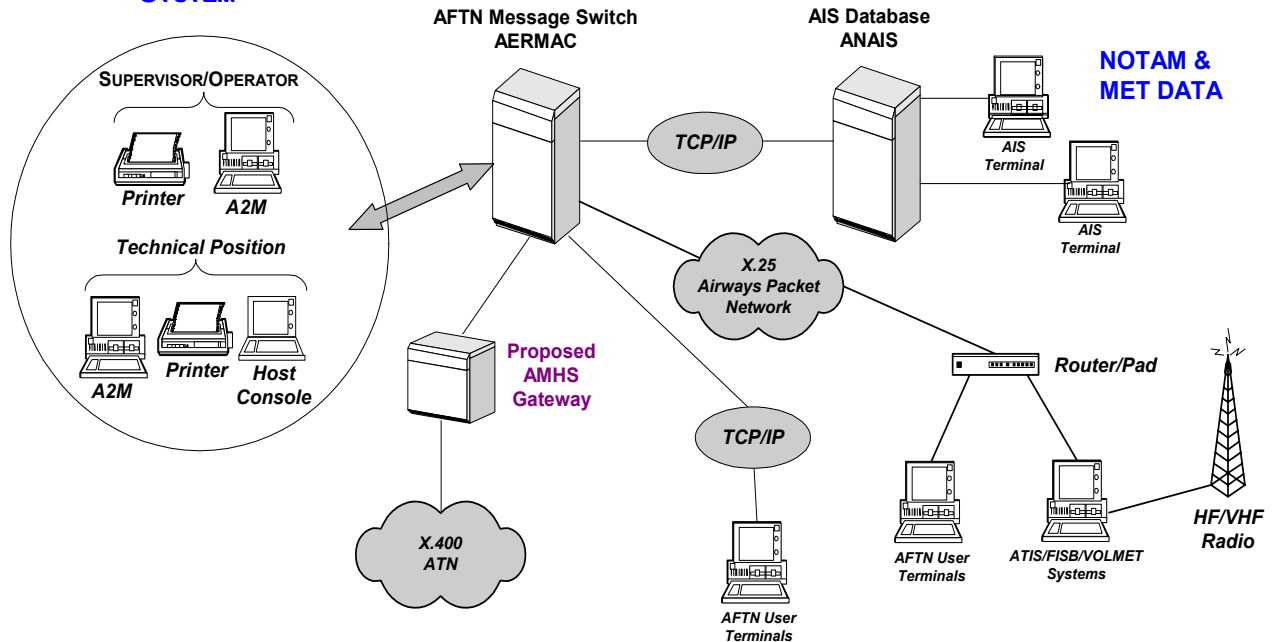
3.3 NOTAM Office functions are provided by AIS terminals connected to the ANAIS database via TCP/IP.

3.4 AFTN User Terminals are connected either by Airways' X.25 packet network or by a local TCP/IP network.

3.5 For Contingency operation, the AFTN/AIS systems are replicated at the Airways Development Centre in Christchurch and at the Ohakea ATCC.

3.6 ATN connectivity will be provided by an AMHS Gateway connected to the AFTN switch.

OPERATION OF THE SYSTEM



4. CONCLUSION

4.1 The AFTN/AIS replacement project success can be attributed to a number of key initiatives:

- The RFP (Request for Proposal) originally specified a replacement of the previous 'New Zealand specific' system. Selection of an ICAO-compliant COTS (commercial-off-the-shelf) system with minimal enhancement reduced Airways' exposure to development risk at the same time limiting overall cost and time overrun.
- Site visits to the manufacturing bases of the two short-listed providers proved a determining factor in the final selection.
- Once the contract was signed, strict control of the project scope ensured the financial, quality and time objectives were met.
- The Critical Design Phase was tightly controlled to ensure that the product detail met Airways' requirements and that no specification blow-out occurred.
- A good relationship was fostered and maintained with the manufacturer. This enabled close co-operation between the Airways and Thales-IS teams during all phases of the project.

5. ACTION BY THE MEETING

5.1 The meeting is invited to:

- (a) Review the content, and
- (b) Exchange views on the various matters discussed in this paper.

END