出國報告(出國類別：其他)

美國鹽湖城通信中心觀摩報告書

服務機關：民用航空局飛航服務總台
姓名職務：蘇雅雅／報務員　　1 員
派赴國家：美國鹽湖城
出國期間：民國 96 年 10 月 20 日至 10 月 26 日
報告日期：民國 96 年 12 月 21 日

行政院及所屬各機關出國報告提要
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出國計畫主辦機關：交通部民用航空局
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出國類別：其他

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報告日期：96 年 12 月 21 日

分類號/目：H2/航空

關鍵詞：航空固定通信網 (AFTN)、航空通信網 (ATN)、飛航服務訊息處理系統 (AMHS)、飛航管理(ATM)

內容摘要：鹽湖城位於美國猶他州 ， 是負責美國西部和太平洋地區的國際電報轉發中心 ， 也是未來航空通信網路(ATN) ， 骨幹架構(BACKBONE)的一員 。 鹽湖城自 2005 年 3 月開始和日本使用 ATN/AMHS 的國際連線 ， 並採用 XF 的格式來傳送報文 ， 此次赴美國觀摩的目的為了解美國鹽湖城通信中心(Salt Lake City Communication Center)之業務及現行 AMHS 運作情形 。 而對於未來將採用的 CAAS 報文格式、ICAO-MD-Registry 會由哪個單位提供 ? 會採取何種資料格式 ， 以及如何交換的問題也詢問了 Mr. Hoang N. Tran ， 他是亞太地區 ATNICG(ATN Implementation Co-ordination Group)的主席。他提及未來的定址資料庫 AMHS Management Center(AMC)會由 Aero Thai 負責各國定址的註冊及更新， 至於採用何種資料格式來交換則必須經過會議來做決定。

目　　錄

美國鹽湖城通信中心報告書

壹、目的

航空通信網路(ATN)是 ICAO 資料網路的現行標準，也是 CNS/ATM 通訊基礎建設中重要的發展技術，它必須使用國際標準組織(ISO)的通訊標準來進行開放系統連結(OSI)，讓現有的航空固定通信網路(AFTN-Aeronautical Fixed Telecommunication Network)的使用者和系統可以移轉到 ATN 的架構上，即透過飛航服務訊息處理系統(AMHS) 。而歐洲各國也規劃將 OSI 架構的 ATN 運作轉移成以網際網路協定為基礎的 ATN 運作。

ATN 網路的應用包含：一、空對地的應用，如 CPDLC(Controller-Pilot Data Link Communications) 。二、地對地的應用，如飛航資料處理系統—AMHS(Air Traffic Service Message Handling System) 和 AIDC (Air Traffic Service Inter-facility Data Communication)。AIDC 的功能是當航機通過不同的 FIR 時， 航機的訊息即會透過 AIDC 來傳遞。AMHS 則是負責傳遞機場各單位間(包括航空公司)的飛航訊息資料，其使用的 X.400 網路通訊協定，使得傳輸的速率更快速，也更具可靠度。

在未來的 ATN 網路架構上，和我們相連的鄰區只有日本及香港，目前我們正積極的在進行與他們之間的測試階段 。 在報文格式上，我們目前採用的是 XF 格式，但因將來日本與香港都將轉為 CAAS 格式，以 ICAO 的立場，鼓勵各國統一使用 CAAS 格式，但依現階段而言，使用 XF 格式的國家多於 CAAS 格式，

因而相連兩國之間的報文傳遞格式就需靠溝通的進行來順利達成。

貳、行程

十月二十日　：由桃園國際機場搭乘 UA872 前往美國舊金山 。

十月二十二日：由舊金山搭乘 UA6069 前往鹽湖城 。

飛機於上午十時四十分抵達鹽湖城國際機場，隨即由通信中心經理 MR. HALLMAN 引領至機場的通信中心與值班人員見面。

下午與來自華盛頓的 Mr. Hoang N. Tran 見面。

適逢來自紐澤西的兩位技術人員 Ms. Naomi Ruschak 與 Mr. Richard Jensen 來到這裡處理 AMHS/GATEWAY 問題。

十月二十三日：對於通信中心的實際作業情形和目前使用 AMHS 的情況進行了解。

十月二十四日：鹽湖城至舊金山

十月二十六日：由舊金山搭乘 UA871 返回台北

參、觀摩鹽湖城通信中心過程

FAA 的 AFTN 航空固定網所有的電報均經由兩個主要的轉報中心來轉發至各地，美國東部的電報由亞特蘭大處理，美國西部和太平洋地區的國際電報則由鹽湖城負責，亞特蘭大和鹽湖城兩大中心並互為對方的備援。中心內分為兩大作業區 ： 一為 AFTN 與 AMHS 席位，一為氣象席位，各由一位報務員值班。AFTN 部分包含 NADIN I MSN(Message Switching Network) & NADIN II PSN(Packet Switching Network)系統的監控，其中包含報文製作、報文改正重發、公電的處理等。輪值的時間為: 早上 7 時至下午 3 時，下午 3 時至晚上 11 時，晚上 11 時至早上 7 時三班制。

鹽湖城通信中心的 AMHS，並無 AMHS UA 的建置，國內仍維持原有的 AFTN 系統運作模式，中心內的四部 AMHS 的 PC， 分別處理 AFTN⟷AMHS 地址轉換的設定、系統參數設定、警示報告(ALARM)以及報文的製作等。報務員發送報文進入 MTCU(Message Transfer and Control Unit)，只須和以前一樣的鍵入所需的 AFTN 八個字母的地址格式 ， 經過類似我們系統的 AFTN⟷AMHS 地址轉換機制即可自動轉換為 XF 或 CAAS 格式，從國外發送來的報文也相同，經由地址的轉換即可轉至國內的 AFTN 用戶。

在系統上， 鹽湖城通信中心正進行著 AFTN 系統的升級計劃， FAA 的目標是將系統轉為 IP 的環境，以避免使用過多不同的網路協定。在其通訊建置 FTI (Federal Telecommunications Infrastructure)上是以 IP 為連結，即透過網路

運作支援 ATM 功能。

NADIN I(National Airspace Digital Interchange Network)是舊有的航空固定通信網系統，在使用舊系統的同時並進行著系統的升級 NMR(NADIN I Message handling Replacement)， NMR 同時採用 IP 和 X.25 介面。這讓 AFTN 用戶可以直接使用 IP 連結， 也允許現有的 X.25 連結用戶將來能順利移轉為 IP 的連結方式。

來自 AFTN 用戶端的報文到達 NADIN I MSN 後會進入 NADIN II PSN 系統，於 2003 年 1 月開始使用的 NAIMES(NAS Aeronautical Information Management Enterprise System)也同時連結至 NADIN II，這個平台是設計讓使用者可利用 IP 進入 FAA 的網路來查詢飛航計劃及氣象的即時資料，不過使用者需經過註冊才得以取得帳號及密碼。

氣象信息交換中心 WMSCR(Weather Message Switching Center Replacement)於 2005 年 9 月正式啟用，為 10 年前研發替代原來的 WMSC 設備，其功能除原有的收集、處理與監控氣象資料，並增強其處理的速率和安全性。

在 ATN Router 方面，FAA 採用的是參照 ISO 標準的 ATN/OSI 以及 ATN/IPS 雙堆疊的架構，所謂雙堆疊指的是雙協定的堆疊，ATN/OSI 的路由器能夠在路由器間進行選路，並可直接和 ATN 端點系統連接，ATN/IPS 是一般網際網路所採用的通信協定，FAA 採用的版本為第四版(Internet Protocol version 4， IPv4)，並計劃採用 TCP/IPv6 新一代的網際網路通訊協定版本 。目前使用 IP 的方式連

結國內用戶以及中南美國家。

目前鹽湖城的 AMHS 僅與日本一條國際線路正式連線，使用的是 XF 的報文格式，未來日本與鹽湖城之間的格式將改變為 CAAS，當與日本這條 AMHS 線路不通時，報文會由 AFTN 的其他國際線路轉發 。在 ATN NETWORK 中，與鹽湖城連結的國際線路除日本外尚有澳洲和斐濟，與這兩個國家的測試時程也將於往後陸續進行。

肆、心得與建議

從 Mr. Hoang N. Tran 那裡了解到 ICAO 的 AMHS 建置僅就國際連線部分有所規範，至於各國內部的 AFTN 系統仍可繼續使用。Mr. Hallman 提及因國內 AFTN 用戶眾多，若全面改為 AMHS UA，整個 AMHS 環境會變複雜且將耗資太大，故不會考慮使用 AMHS UA。

鹽湖城和日本一樣都在升級各自的 AFTN 系統。也對於他們的操作人員進行在職訓練 。由於報務員必須對所列印出來的技術警告(Technical Alarm)進行處理，所以其對於有關設備的網路結構必須有清楚的了解，當然也包括各項設備升級之訓練課程。

鹽湖城通信中心的訓練規劃是督導的工作項目之一，督導不值席位班而是上行政班處理行政業務。以其在職訓練 OJT IP 為例，訓練課程的安排包括通信中心整個網路的架構， 操作設定等等，每位報務員會有指導員(Instructor)來負責教導協助報務員在訓練中遇到的問題。

在新進報務員的訓練方面，因鹽湖城並無配置相關軟硬體人員，而技術中心設在紐澤西， 兩地之間是靠電話連繫，僅在報務員無法處理的情況下，技術人員才會趕至中心處理，所以每位報務員皆須接受 2-4 年的軟硬體訓練。

台北通信中心自 2005 年 11 月開始使用新一代的飛航訊息處理系統(AMHS)，在台北的 AMHS 建置中，擁有 110 個 UA，23 個 AFTN 系統用戶，其中包含了 3 條國際線路，分別為福岡、香港和馬尼拉，依照規畫進度，我們的 AFTN 轉報業務

預計在 5 年後全部轉為 AMHS 環境，以台北通信中心既是 UA 的用戶也是管理者的身份，我們對於網路知識以及整個系統架構必須要有清楚的了解，在制度及實際工作上，翔安雖已有堅強的軟硬體工作人員駐守，然而對通信中心的同仁而言，每天需處理不同性質的席位，各類專業知識訓練的加強是需要的，唯有人員本身能力的升級才能在工作的應變上更具判斷力。

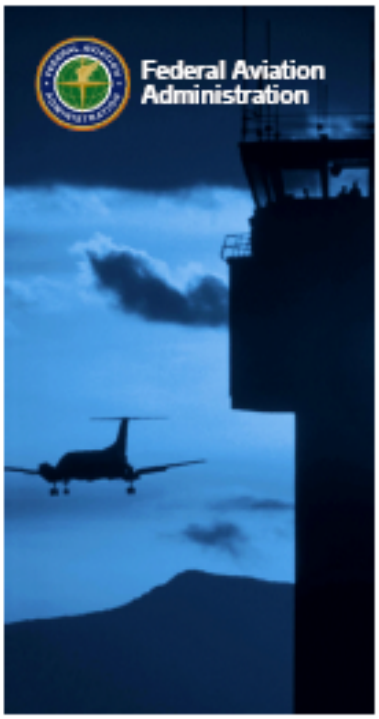
伍、縮語表

AFTN	Aeronautical Fixed Telecommunication Network
AIDC	Air Traffic Service Inter-Facility Data Communication
AMHS	Air Traffic Service Message Handling System
CNS/ATM	Communication Navigation Surveillance/ Air Traffic Management
CPDLC	Controller-Pilot Data Link Communications
ATN	Aeronautical Telecommunication Network
ICAO	International Civil Aviation Organization
IP	Internet Protocol
IPS	Internet Protocol Suites
MTCU	Message Transfer and Control Unit
OSI	Open System Interface
UA	User Agent

陸、附件

附件一 ：

SEAMLESS NETWORK FOR AERONAUTICAL FIXED SERVICE (AFS)



Presentation to: Representatives from Taiwanese CAA

Date: October 23, 2007

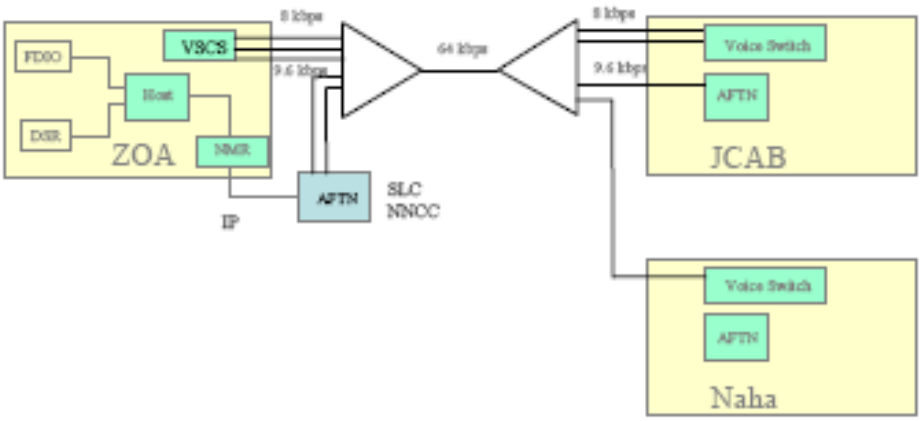
Topics

- Aeronautical Fixed Service (AFS) Background
- Aeronautical Fixed Telecommunication Network (AFTN) Service
- Air Traffic Service Message Handling System (AMHS) Service
- Global Transition Plan
- Federal Aviation Administration (FAA) Plan

Aeronautical Fixed Service Background

- The AFS, as specified in International Civil Aviation Organization (ICAO) Annex X, is designed to provide communication links between member States to exchange flight plans, meteorological data, NOTAM, and other ATC related messages to support the flight transfers between FIRs.
- The AFS is divided into Air Traffic Control (ATC) voice and Aeronautical Fixed Telecommunication Network (AFTN).
- The ATC Voice service is compressed into 8 kbps per channel. It is combined with AFTN service into a voice/data multiplexer. For example, the service between US and Japan is comprised of a 64 kbps circuit with voice/data Multiplexer on each site. There are three 8 kbps voice channels and two 9.6 kbps channels for AFTN and AIDC.
- The ATC voice service will not be addressed in this presentation since there is no plan to update or replace this service.

FAA/JCAB ATC Voice and AFTN Configuration



AFS Background
AFTN

- The AFTN was implemented in the 1970s and is based on ASCII which uses the "store and forward" function to distribute its messages.
- The AFTN network is based on dedicated circuits with a data rate of 50 Baud.
- In 1990s, the AFTN backbone was replaced by the X.25 network with dedicated circuits and data rates up to 9.6 kbps.
- Over the years, AFTN became the carrier for many more services such as Air Traffic Service Inter-Facility Data Communication (AIDC), Dynamic Oceanic Tracking System (DOTS), International Search and Rescue and many other messages to support ATC activities not covered in ICAO Annex X.

AFS Background
AFTN

- ICAO Annex X describes AFTN as a service based on the "store and forward" function for conveyance of text messages using character-oriented procedures. AFTN messages are forwarded on a hop-by-hop basis using pre-configured routes that are the most expeditious to affect delivery to the addressee. This means messages are routed by the application (AFTN switch) not by the network router. This operation is required so that messages exchanged between adjacent AFTN centers, including transit messages, are processed, stored and forwarded to the next AFTN center until the messages have reached their intended destination.
- AFTN has diversion routing lists agreed to by the administrations operating the communication centers where the AFTN switches reside. These lists are statistically configured and used to immediately reroute traffic in the event of a circuit outage in a fully automatic communication center or to manually reroute traffic within 10 minutes in a non-fully automatic communication center.

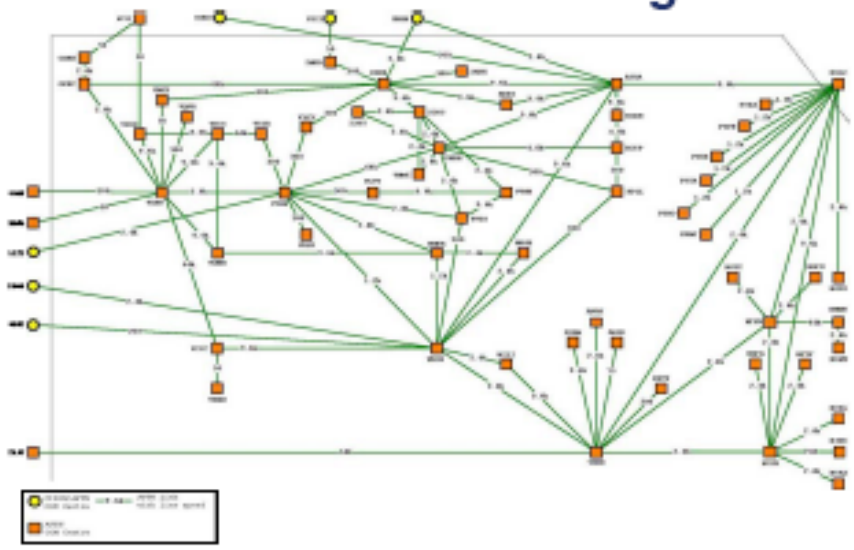
AFS Background-AFTN

- Under AFTN procedures, the sending station will hold messages transmitted, and in the event that continuity of message traffic is not maintained, they are re-transmitted. Continuity of message traffic is supervised by using sequence numbers applied to all traffic over a particular channel.
- The procedure for tracking of unknown or lost messages has been refined over the years. It requires the AFTN centers to manually contact one another to resolve problems. These problems can be easily traced through the dedicated X.25 port to determine the source of the lost or unknown messages to either the sending or receiving AFTN center.
- The European region adopted a slightly different version of X.25 called CIDIN
- To accommodate the incompatibility between X.25 and CIDIN, European States adopted an X.25 interface with other ICAO regions

AFS Background-AFTN

AFTN System

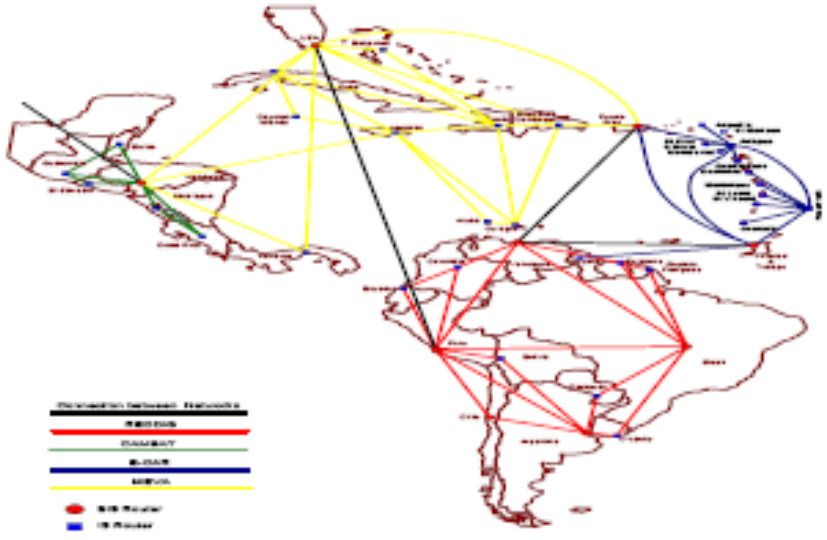
AFTN Asia/Pacific Region



October 23, 2007

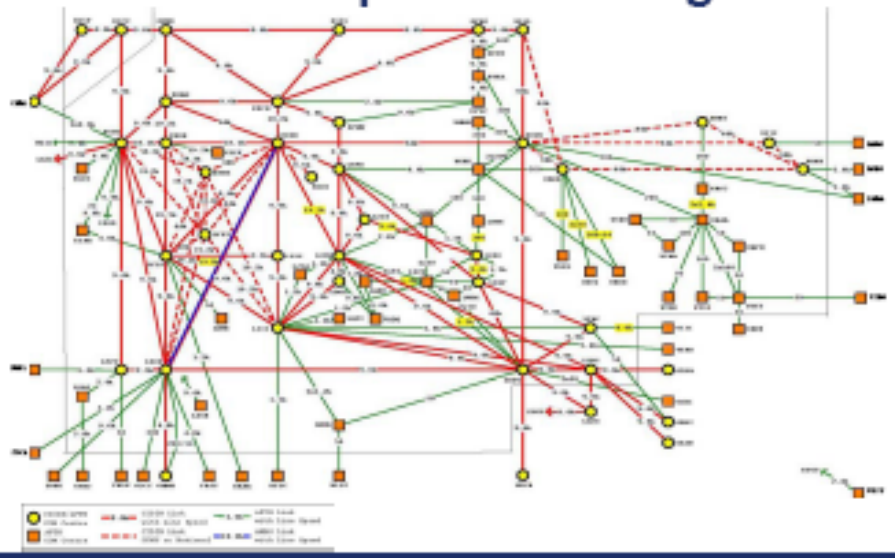
Federal Aviation Administration

CAR/SAM International AFTN Backbone



October 23, 2007

AFTN European/NAT Region



ATN AMHS Background

As defined by ICAO Doc. 9705, the ATN consists of two categories:

- Networks
  - Air to Ground (A/G) Router Network and
  - Ground to Ground (G/G) Router Network
- Applications
  - Air Traffic Service (ATS) Inter-facility Data Communication (AIDC)
  - ATS Message Handling System (AMHS)
  - AMHS/AFTN Gateway
  - Controller Pilot Data Link Communication (CPDLC)
  - Directory Service

AMHS Description

ICAO Doc 9705 distinguishes the service from the set of computing and communication resources implemented by ATS organizations to provide the ATS message handling service. The set of computing and communication resources is called the *AMHS*. For Basic ATS Message Service, the following AMHS entities are defined:

1.ATS Message Server (MS) - An X.400 Message Transfer Agent (MTA) and optionally one or more MSs

2.ATS Message User Agent (UA) – An X.400 UA designed to replace the AFTN Terminals

3.AFTN/AMHS Gateway – An MTA and an AFTN specific AU, called a Message Transfer and Control Unit (MTCU) with a corresponding Control Position.

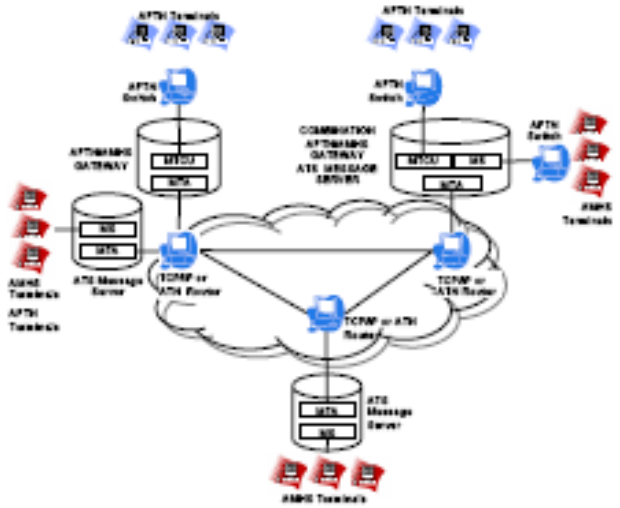
4.CIDIN/AMHS Gateway – An MTA and a CIDIN specific AU, called a Message Transfer and Control Unit (MTCU) also with a corresponding Control Position. The European region has decided to adopt a different approach during the transition which uses the AMHS/AFTN Gateway.

AMHS Description

Initial AFTN-AMHS Gateway System

AMHS Description

Evolving AMHS



AMHS Network

- The ICAO Doc. 9705 recommends two options for the establishing of an AMHS internet ..

1. ATN Router using X.25 subnet: ICAO Asia/Pacific has adopted this network protocol as their ATN Internet.
2. ATN Router using IP subnet (requires Sub Network Dependent Convergence Function (SNDCF): The ATN IP subnet will be able to utilize the Internet Protocol (IP) network (TCP/IP) but requires another ATN IP Subnet to receive the message due to Inter-Domain Routing Protocol (IDRP) encapsulated in the message.

   The IPS SARPs recommend TCP/IP as another alternative and the IP Router that supports AMHS using RFC 1006/2126 is considered

ATN Interconnection of Air/Ground and Ground/Ground Routers

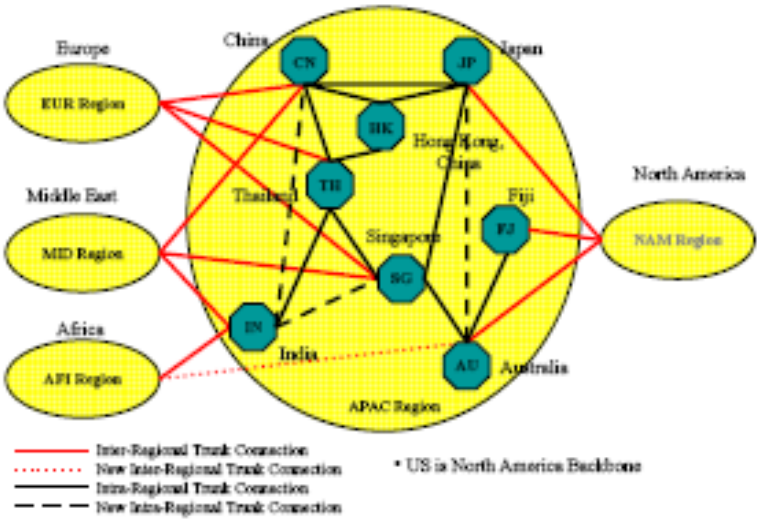
Aeronautical Communication Panel (ACP) Working Group I Planning

- The ACP has developed an Internet Protocol Suite (IPS) SARP for Ground-Ground network.
- This document recommends the use of IPv6 to replace the ATN X.25 network
- This IPS SARP is in the process of being adopted by ICAO.
- The IPS Transition Guidance Material is under consideration.

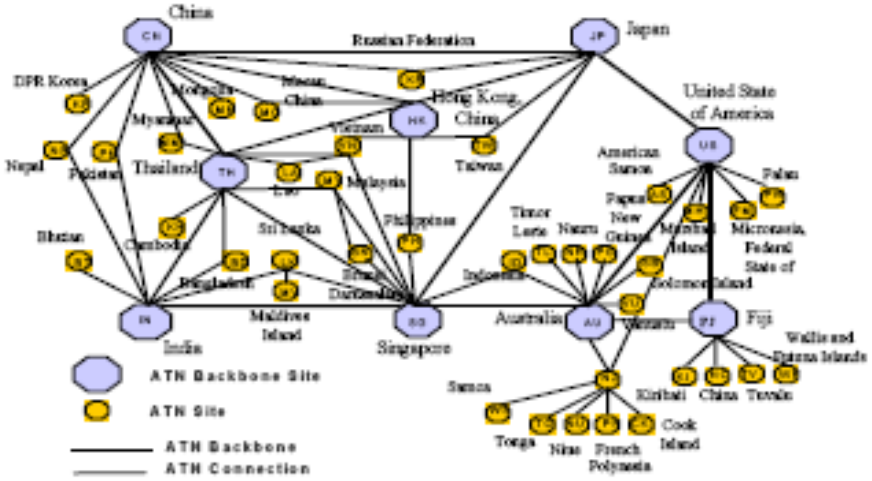
Asia/Pacific Regional Planning

- The Asia/Pacific has adopted the ICAO Doc. 9705 to replace its AFTN service.
- In March 2005, the first AMHS service was established between Japan and USA
- The Asia/Pacific Regional Facilities and Services Implementation Document (FASID) plans for AMHS major backbone to be deployed by 2008.

Asia/Pacific ATN Regional Backbone



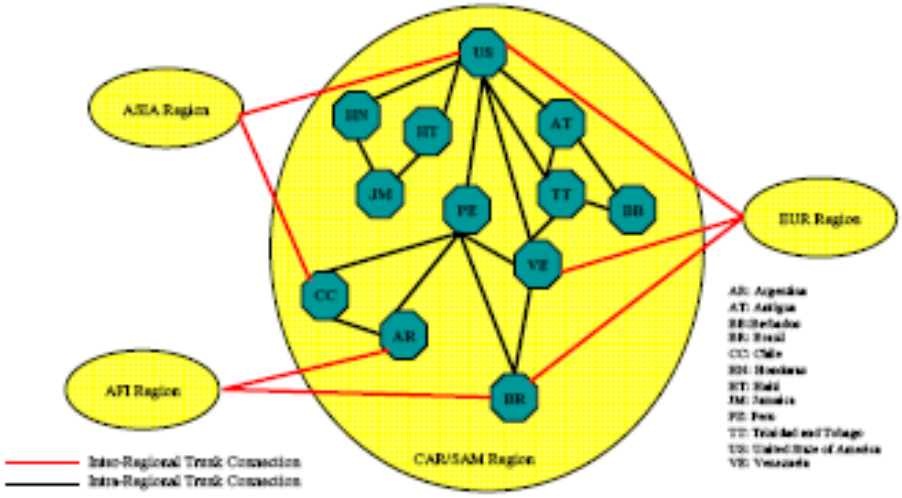
Asia/Pacific ATN Regional Router Plan



CAR/SAM Regional Plan

- In 2006, the CAR/SAM region adopted the ICAO Doc. 9705 and the IPS SARP to replace its AFTN service.
- Its approach is to implement IP router with AMHS and AMHS/AFTN Gateway.
- Many States in this region have obtained the AMHS and AMHS/AFTN Gateway.
- This region is projecting the first AMHS service over IP will be in 2008.

Notional CAR/SAM Regional ATN Backbone Architecture



European Regional Plan

- The European region adopted the ICAO Doc. 9705 and the IPS SARP to replace its AFTN service.
- The AMHS service between Germany and Spain has been established.
- The European region has been working closely with the CAR/SAM major backbone States to establish AMHS service.

Transition Plan

- Some ICAO regions have selected the ATN as the underlying AMHS network protocols (CLNP/TP4) while other regions have selected IPS-based networks for the AMHS.
- The use of different network protocols in different regions means that the direct communications between any MTA to any other MTA is not possible across all ICAO regions. Direct MTA to MTA communications is only possible where the MTAs are on networks using the same communication protocols.
- In those cases where different regions are using different network protocols, an AMHS MTA must act as the relay between the different networks.
- The dual operation of AMHS and AFTN will require global address coordination.
- A well coordinated upgrade of the circuit data rate will be needed to support alternative routing.
- The overhead of the AMHS address will require most of the existing AFTN circuits to be upgraded.

Transition Plan

Routing Policy should be developed to address the followings:

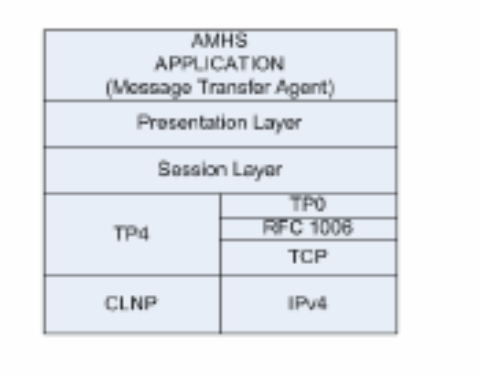
1. Intra-Region MTA routing during the AFTN/AMHS transition period: Specify the AMHS MTA address control policy during the transition between AFTN and AMHS
2. Intra-Region MTA routing at End-State Environment: Specify the AMHS MTA address control policy in the End-State Environment
3. Inter-Region MTA Routing during transition period: Specify the AMHS MTA address control policy during the transition of the AFTN/AMHS environment as well as different network protocols
4. Inter-Region MTA Routing at End-State Environment: Specify the AMHS MTA address control policy at the End-State environment. It is noted that due to network protocol incompatibility, the transition period may extend for a long period.

Transition Plan-New Requirement

- The Binary Universal Form Representation (BUFR) code was developed by the ICAO OPLINK Panel.
- The BUFR code is used to provide graphic meteorological data.
- The BUFR code can only be distributed by the AMHS since the AFTN can not support binary based message.
- The BUFR code has been adopted by the WMO and the ICAO.
- The ICAO Regional Offices have been analyzing the BUFR code to determine the impact to AMHS (AMHS X.500 based Directory Service versus modifying the MTA).

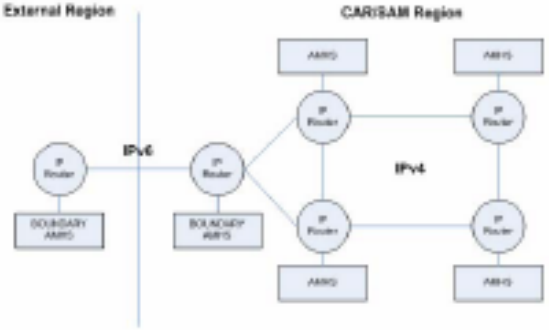
Transition Plan-IP

Protocol Stacks for Current AMHS Applications



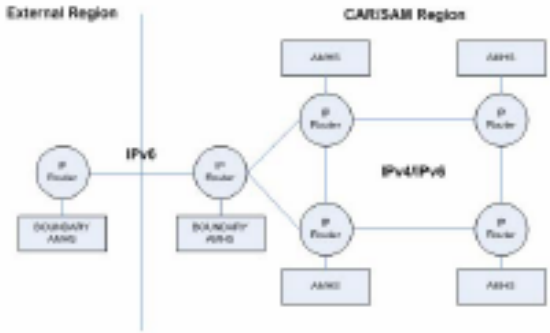
Transition Plan-IP

IPv4 Intra-Regional and IPv6 to External ICAO Regions



Transition Plan-IP

IPv4 and IPv6 Intra-Regional, and IPv6 to External ICAO Regions



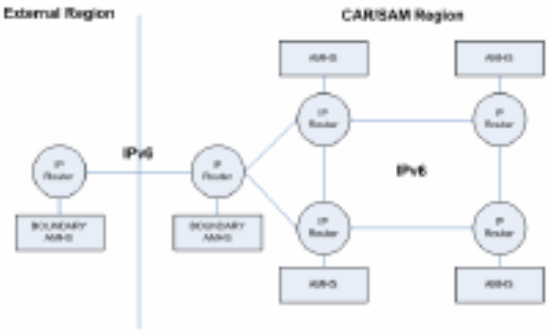
Transition Plan-IP

Protocol Stacks for Transition-Phase AMHS Applications

AMHS APPLICATION (Message Transfer Agent)	
Presentation Layer	
Session Layer	
TP0	TP0
RFC 1006	RFC 2126
TCP	TCP
IPv4	IPv6

Transition Plan-IP

End State IPv6 for Intra-region and Inter-region



IP Transition Issues

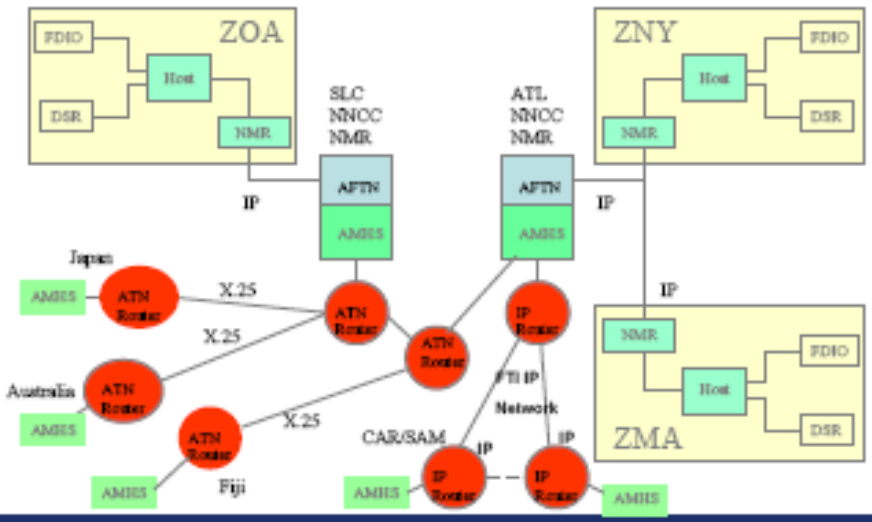
- The Technical Manual for the IPS will not be finalized by the Aeronautical Communication Panel (ACP) before 2008.
- The associated Guidance Material has not been developed by the ACP.
- Initial Implementations in the ICAO European Region are using AMHS over IPv4 in separate sub-regions. Two of these sub-regions are interconnected via IPv6 using a network address and protocol translation technique whereby IPv4 messages are converted to IPv6 across the interface and then back to IPv4.
- The aeronautical communication industry (i.e., AMHS system providers) has not fully developed the MTA to support IPv6.
- Many CAR/SAM member States have already implemented the AMHS or will replace the AFTN service in the near future.
- The Asia/Pacific region needs to work out the network protocol with European and South American regions (ATN router or IP router).
- A global AMHS network coordination is required to ensure smooth operation.
- Implementing security measures.
- IPv4 address is not uniformed.

Implementation Documents Needed

ICAO Regional ATN/AMHS Implementation Documents

Evolving ATN Interconnection of Air/Ground and Ground/Ground Routers

FAA ATN/AMHS Configuration



FAA Position

- The FAA is supporting the development of Internet Protocol Suite (IPS) SARPS for ground to ground aeronautical data communication.
- The FAA is moving toward a ground-to-ground IPS for aeronautical data communications.
- The FAA will continue to support ATN Open Systems Interface (OSI).
- The FAA encourages the use of the IP router as its network converts from X.25 to IP.

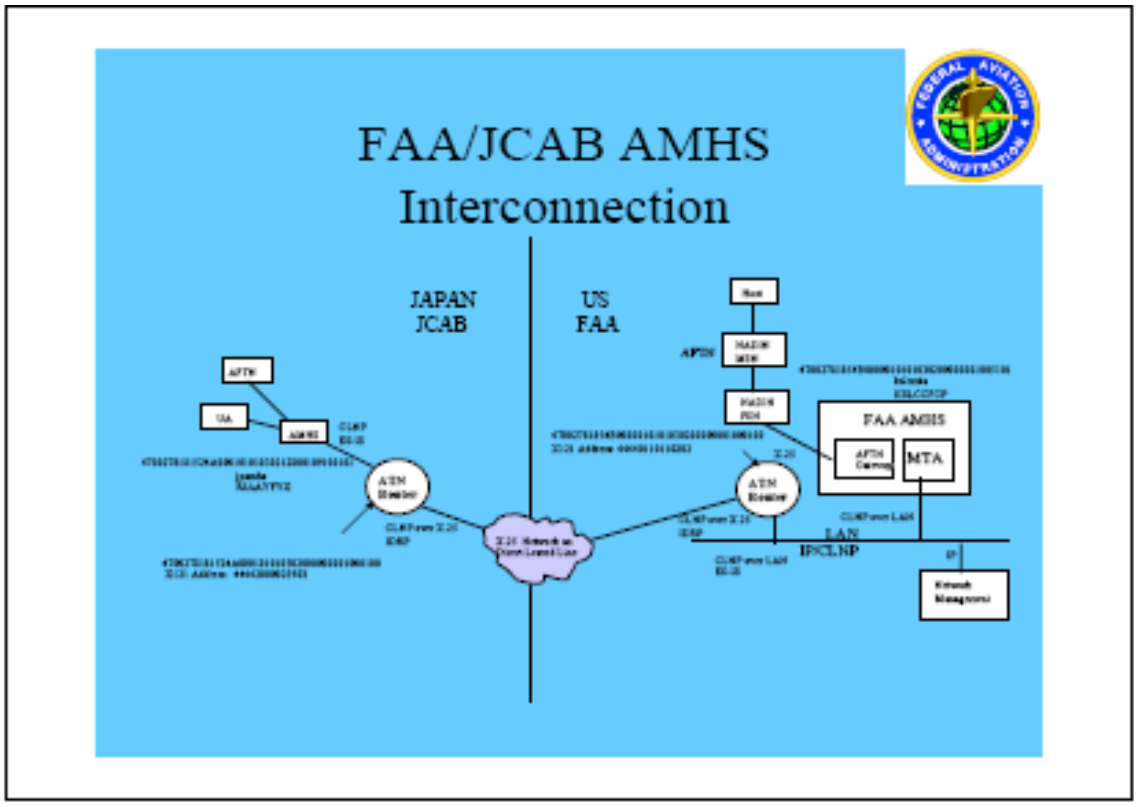
Acronyms

AFS	Aeronautical Fixed Service
ACP	Aeronautical Communication Panel
AFTN	Aeronautical Fixed Telecommunication Network
AIDC	Air Traffic Service Inter-Facility Data Communication
AMHS	Air Traffic Service Message Handling System
ATC	Air Traffic Control
ATN	Aeronautical Telecommunication Network
BUFR	Binary Universal Form Representation
CIDIN	Common ICAO Data Interchange Network
CLNP	Connection Less Network Protocol
DOTS	Dynamic Oceanic Tracking System
FASID	Facilities and Services Implementation Document
FIR	Flight Information Region
ICAO	International Civil Aviation Organization
IDRP	Inter Domain Routing Protocol
IP	Internet Protocol
IPS	Internet Protocol Suites
MTA	Message Transfer Agent
MTCU	Message Transfer and Control Unit
MTS	Message Transfer System
NOTAM	Note to Air Men
OSI	Open System Interface
SARP	Standard and Recommended Practices
SNDCF	Sub Network Dependent Convergence Function
UA	User Agent
WMO	World Meteorological Organization

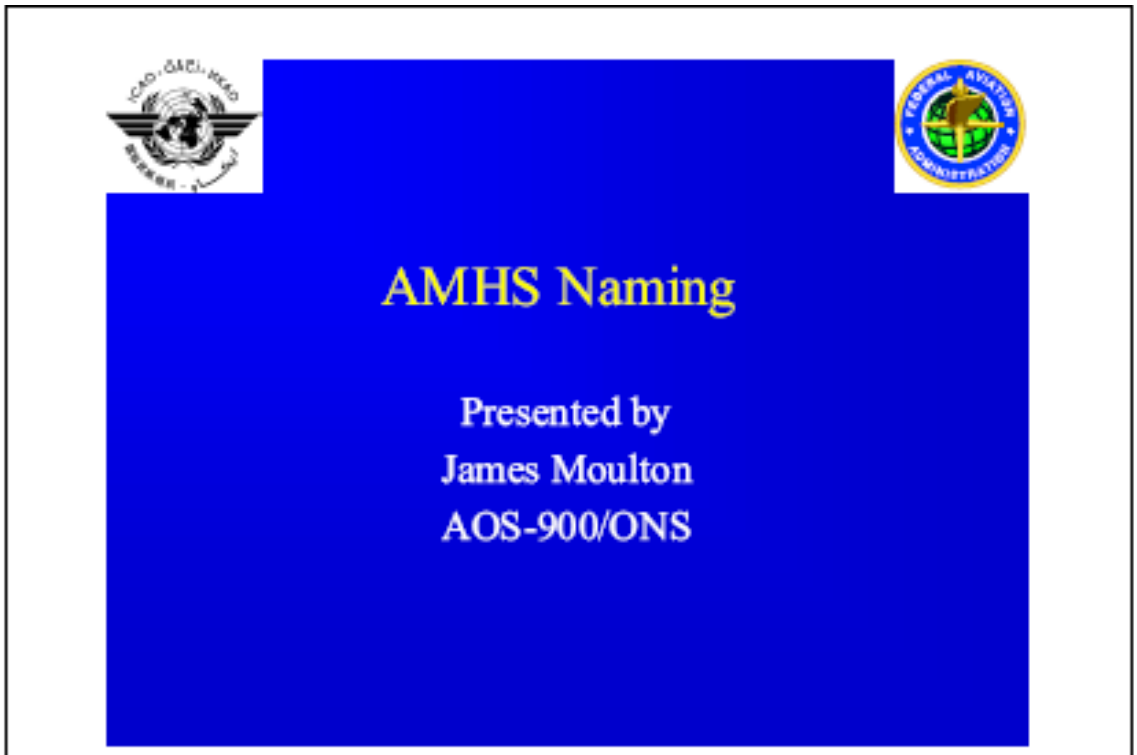
October 23, 2007

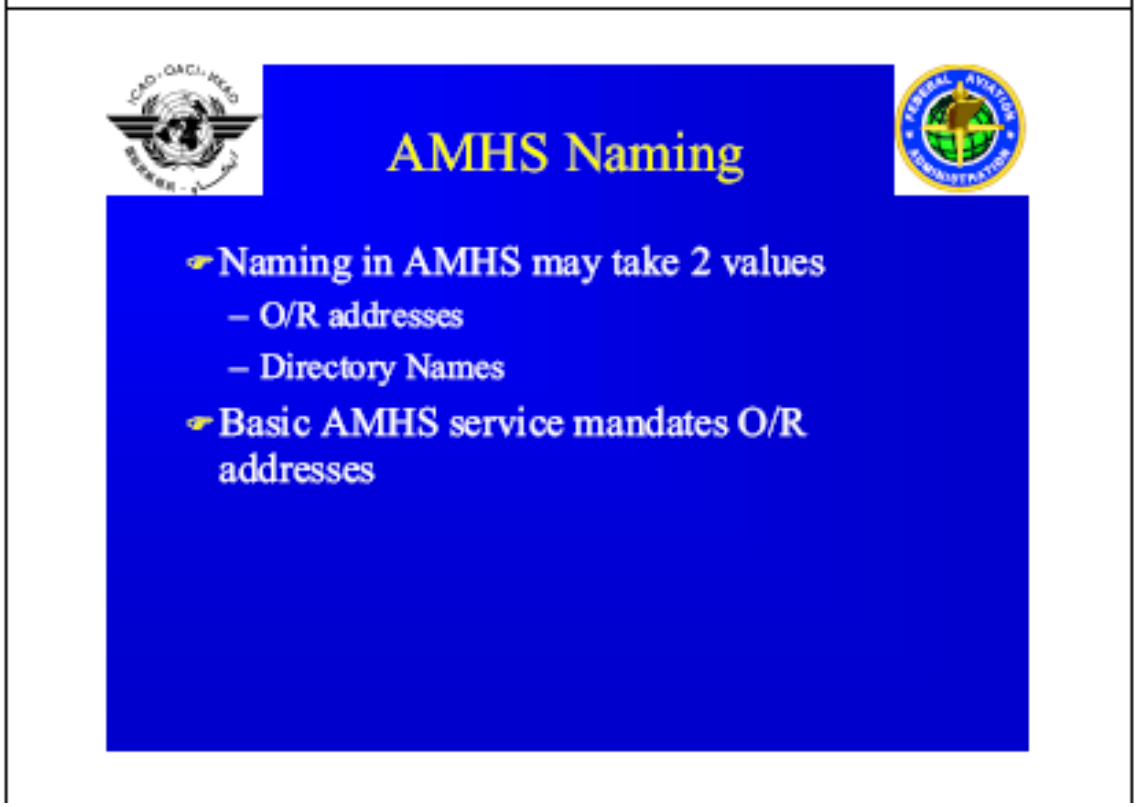
Federal Aviation Administration

附件二 ：


FAA/JCAB AMHS
Interconnection
JAPAN
JCAB
US
FAA
FAA AMHS
MTA
LAN
IPCLNP

附件三 ：


AMHS Naming
Presented by
James Moulton
AOS-900/ONS


AMHS Naming
Naming in AMHS may take 2 values
– O/R addresses
– Directory Names
Basic AMHS service mandates O/R addresses

AMHS Naming Overview

- ATN SARPs were modified in June 2001 to define a new Common AMHS Addressing Scheme, and to modify the XF-address format
- SARPs recommend the Common AMHS Addressing Scheme

AMHS Naming

- ATN AMHS supports 2 types of names
  - Common MF-addresses
  - XF- addresses
- XF- addresses are special purpose MF-addresses for AFTN address translation
- Other MF-addresses may be defined locally

XF- Address

- Consists of a set of attributes:
  - country
  - administration management domain
  - private management domain
  - organization
  - organizational unit name

XF-address Attributes

- Country
  - C=
    - XX (ITU-T defined non-zoned identifier) (preferred)
- Administration Management Domain
  - ADMD=
    - ICAO

XF-address Attributes

- Private Management Domain
  - PRMD=
    - 1 or 2 char country identifier from ICAO Doc 7910
- Organization
  - O=
    - AFTN
- Organizational Unit
  - OU1=
    - AFTN 8 character location identifier

MF-Address

- MF-Address is the general purpose AMHS addressing scheme
- A standardized MF-Address for AMHS was adopted at last ATN WG A meeting

AMHS MF-Address

- C=XX (uses ITU-T approved non-country code for country field)
- ADMD=ICAO (uses ITU-T approved organization code)

AMHS MF-Address (2)

- PRMD=
  - AA - first 2 characters of AFTN address as assigned by ICAO, or
  - BBBB - four character designator identifying a location as specified in ICAO Doc 7910 (char 1-4 of AF-address)

AMHS MF-Address (3)

- PRMD=
  - AACCC - first 2 char of AF-address as defined in ICAO Doc 7910 with a 3 letter designator as specified in ICAO Doc 8585 for organizations within a country
  - BBBBCCC - first 4 char as defined in ICAO Doc 7910 with a 3 letter designator as specified in ICAO Doc 8585 for organizations at a location

AMHS MF-Address (4)

- O=representing a geographical location
- OU1=AAAA (4 character of the ICAO location identifier)
- CN=either:
  - 8 char AFTN address
  - 5 char CIDN user
  - user name


Asia/Pacific AMHS Naming
Follows the new AMHS MF-address format
Consistent with approaches from other Regions
Recommends establishing Regional register