



ICAO ATN

including IPS Standardization (Internet Protocol Suite)

CNS/ATN/TF/5
Mexico City
12 – 13 June 2009

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ICAO ANB/CNS-AIRS

6/11/2009

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Outline

- ATN Standards Work Program
- Status of ATN/OSI documents 9705 and 9880
- The new ICAO ATN/IPS Doc 9896
- Coexistence of the ATN/OSI and ATN/IPS

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ATN Standards Work Program

ICAO Changes ...



- From 36th Session ICAO Assembly;
 - "Change towards developing performance based SARPs"
 - "give more strength to outside Standards-making organizations and utilizing their work within the ICAO framework, thus avoiding duplication of work"
 - "to reduce the overall activity of panels and to refocus the Secretariat more on implementation of Standards and less on Standards-making"
- From ICAO Secretariat
 - Review of the work program by the ANC of all Panels. Beginning 2007, work will need to demonstrate a direct linkage to a result area in the approved budget.
 - New work activities will need to be proposed using the Air Navigation program issue form and process agreed by the Air Navigation Commission (ANC)

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ATN Standards Work Program

Latest Annex 10 update

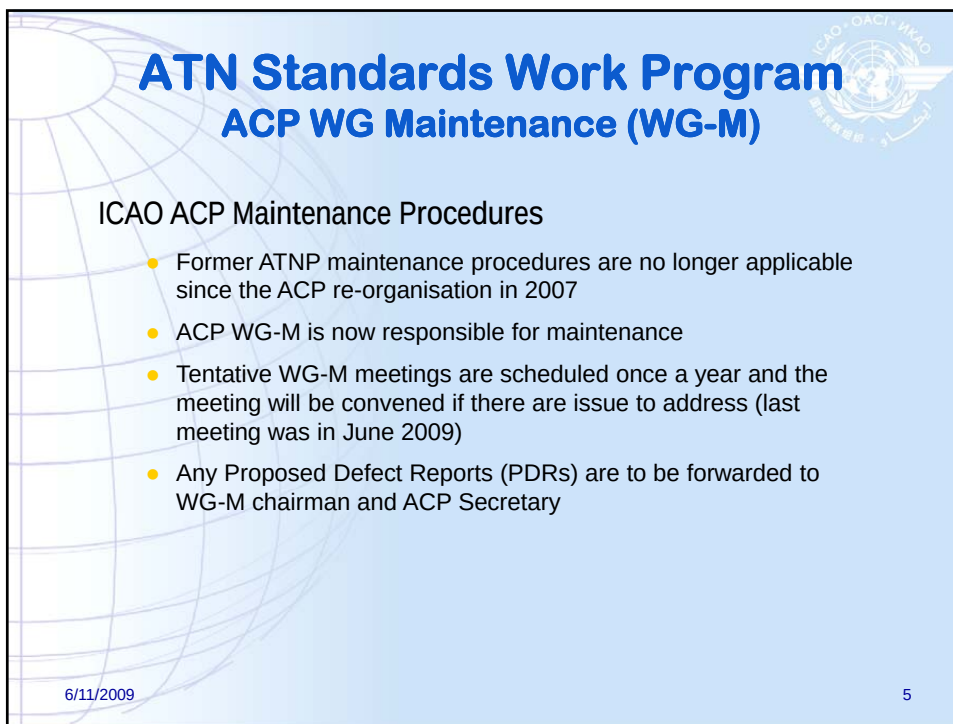


Amendment 83 of ICAO Annex 10, Volume III Part 1:

- Restructured to become more high-level
- Introduced two technical options for ATN deployment:
It retains the legacy "ATN/OSI" option, while also introducing "ATN/IPS"
- Applicability date of the amended Annex 10 was November 2008

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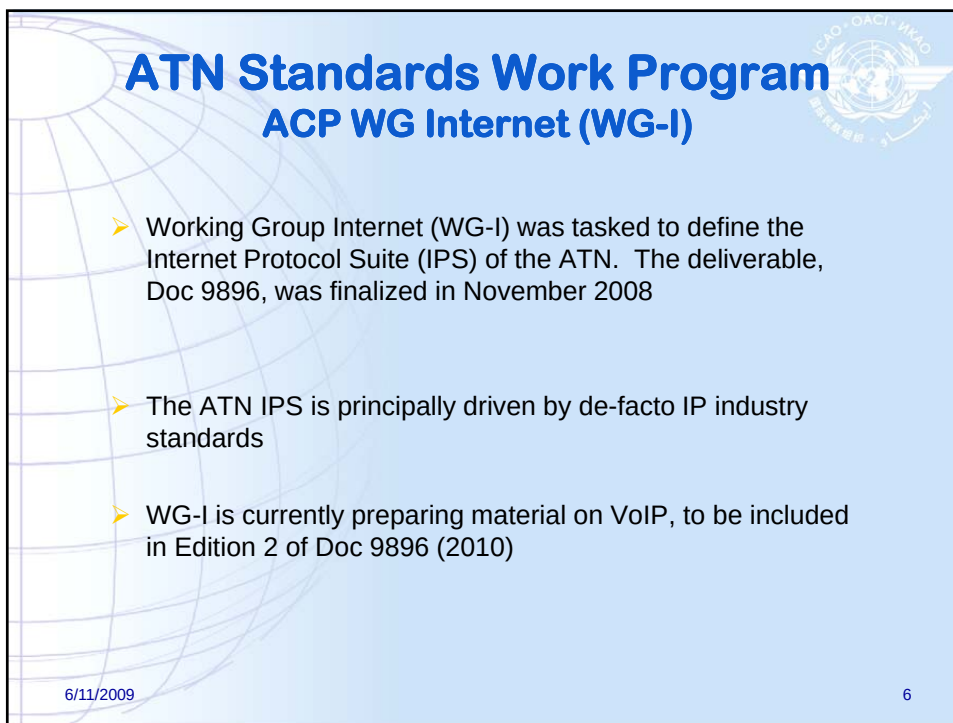
ATN Standards Work Program

ACP WG Maintenance (WG-M)

ICAO ACP Maintenance Procedures

- Former ATNP maintenance procedures are no longer applicable since the ACP re-organisation in 2007
- ACP WG-M is now responsible for maintenance
- Tentative WG-M meetings are scheduled once a year and the meeting will be convened if there are issue to address (last meeting was in June 2009)
- Any Proposed Defect Reports (PDRs) are to be forwarded to WG-M chairman and ACP Secretary

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ATN Standards Work Program

ACP WG Internet (WG-I)

- Working Group Internet (WG-I) was tasked to define the Internet Protocol Suite (IPS) of the ATN. The deliverable, Doc 9896, was finalized in November 2008
- The ATN IPS is principally driven by de-facto IP industry standards
- WG-I is currently preparing material on VoIP, to be included in Edition 2 of Doc 9896 (2010)

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Status of Documents 9705 and 9880

Gradual replacement of Doc 9705



Instead of releasing Edition 4 of Document 9705 (ATN/OSI Manual): Document 9880 is being published in stages

- Part I Air-ground applications (CM/PM-CPDLC) => *has been approved, advance version published on the ICAO-NET and on the ACP website*
- Part II Ground-ground applications
 - Part IIA (AIDC) => *approved, available on ICAO-NET and ACP website*
 - Part IIB (ATSMHS) => *approved, available on ICAO-NET and ACP website*
 - Part III, chapter 3 (ICS) => *approved, available on ICAO-NET and ACP website*
- Further migration of relevant material from Doc 9705 Edition 3 to Doc 9880 is being progressed by ACP WG-M

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The new Doc 9896 on ATN/IPS

Part I: "Networking"



Compatible with on-going IP implementations

- Includes:
 - Networking protocols
 - ✓ Provisions for mobility management
 - ✓ AS numbering and A/G addressing schemes
 - ✓ Provisions for security (IPSec, SSL/TLS, ATN Security)

VoIP material currently under development by ACP WG-I. Mostly references to EUROCAE material?).
Edition 2 of Doc 9896, foreseen in 2010

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The new Doc 9896 on ATN/IPS

Part II: “Applications”



Similar to the ATN/OSI Manual Document 9705/9880, the ATN/IPS Manual Document 9896 contains application-related provisions, especially to accommodate already existing applications:

- ATSMHS: RFC2126/RFC1006 (1st step), other IP native alternatives may be considered at a later stage, e.g. SMTP (potential 2nd step)
- AIDC/OSI: Too complex to migrate; no existing implementations. OLDI/FMTP is being considered as one alternative. Other alternatives may be used as well.
- A/G applications: Provisions for Context Management, Mobility, Security
- Transport layer guidance for legacy applications, including registered IANA port numbers.

New applications developed at a later stage to utilize the ATN/IPS, may be accommodated individually, in Doc 9896, or in other Documents which reference the ATN/IPS SARPs

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The new Doc 9896 on ATN/IPS

Part III: “Guidance Material”



- ATN/IPS Input – Guidance Material
 - IPv4/IPv6 migrations and translation
 - Connection oriented and connectionless transmission
 - Transport layer addressing
 - Multicast services for surveillance
 - Inter-domain routing
 - Quality of Service (QoS) management ...

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Coexistence of the ATN/OSI and the ATN/IPS



➤ ICAO Reference Documents Applicable to ATN

- ✓ Nov 2008 Amendment of Annex 10 SARPS introduces ATN/IPS in parallel to ATN/OSI
- ✓ Doc 9705 Edition 3 (+ PDRs) still applicable in parts, but has been largely superseded by Doc 9880
- ✓ Doc 9896 (ATN/IPS) has provisions for ATSMHS over TCP/IP while specifying an IPv6 network service

➤ External Reference Documents

- ✓ Mature Standards referenced rather than developing our own
- ✓ RFCs developed by the Internet Society (ISOC) Internet Engineering Task Force (IETF) are referenced in the new Annex 10 amendment and Doc 9896 as appropriate.
- ✓ EUROCAE and others also referenced.

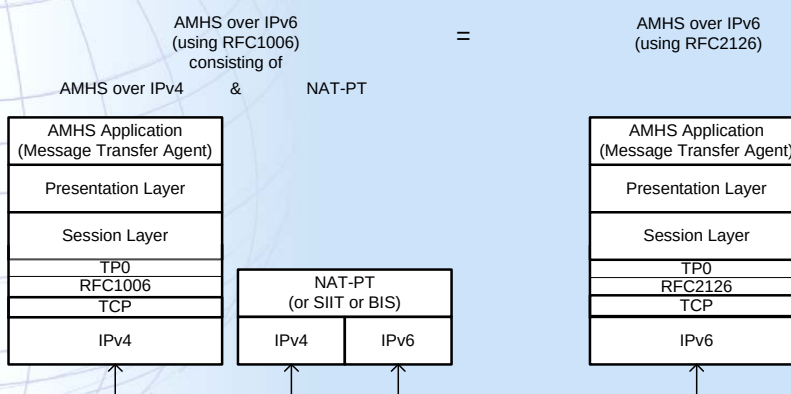
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Final Slide, a graphic



AMHS implementations over IPv4 and IPv6 are interoperable



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