ATNP WG2 – WP448

Report of the 14th Meeting of ATNP Working Group 2

Rio de Janeiro, Brazil

16-19 March 1998

******** Proposed Final ********

0. Meeting Organizational Issues

Mr. Jones of the FAA, and rapporteur of WG2, welcomed the ATNP working group members to the meeting. Mr. Nunes, the an advisor to the panel member from Brazil and host for the working group meetings, provided information on the office support and other arrangements for the meeting. After introductions of the WG2 participants, the working papers were collected and assigned working paper numbers.

1. Approval of the Agenda

Mr. Jones, Rapporteur of WG2, presented WP-430 (Attachment 1 to this report), the proposed agenda for the meeting. The agenda was approved with only minor corrections.

2. Review and Approval of the report of 13th Meeting of WG2 (Redondo Beach)

Mr. Jones introduced WP-431, the Report of the 13th Meeting of WG2. Mr. Cardwell requested minor changes to the report text describing the ACCESS project. With the suggested corrections the report was approved.

3. Inputs/Issues from other ICAO Bodies (e.g., Panel Secretary, CCB, WG1, etc.)

The panel secretary, Mr. Paydar, reported to the Working Group on several items related to the publication of ATN SARP and manuals as well as issues on the arrangements for ATNP/3. He also noted that new panel members have been nominated from A.S.E.C.N.A. and from Argentina. He indicated that the detailed SARPs will be published as a 'special' ICAO manual ("Manual of Technical Provisions of the ATN" - ICAO Doc 9705-AN/956). Both the core ATN SARPs and the Doc 9705 are expected to be published in the August 1998 time frame. The final version of the Doc 9705 was produced out of a CCB meeting held in Montreal in December 1997. The Core SARPs was updated to reflect that the detailed part is being published as a manual, rather than an appendix within Annex 10. The working group Rapporteurs were consulted on the changes to the core SARPs. Electronic versions of the Core SARPs and the Doc 9705 (i.e., version 2.2) were made available by the secretary in WordPerfect 8.0 format. The inputs from the panel secretary were noted by WG2.

Mr. Adnams indicated that an electronic copy of the manual of technical provisions is available in Adobe Acrobat format from the World Wide Web site:

http://www.fans-is.com/atnpanel.htm#sarps

A number of inputs had been received from other ICAO bodies. At the rapporteur's request a breakout group was formed to review WPs 432, 433, 434 and 435 and to report back to the working group with the results of their review. This subgroup was also requested to draft responses to AMCP and SICASP as appropriate to respond to the inputs from these bodies.

Mr. Jones presented WP 432 providing informal inputs from the technical subgroup (TSG) of WG1 of the SICAS Panel. It was noted that this material was not formally communicated via the ATNP secretary. This working paper presented draft guidance material on the Mode S subnetwork ISO 8208 interface. ATNP WG2 was requested to note the material and to provide any feedback as appropriate. A breakout group reviewed the materials from the SICASP TSG and prepared Flimsy 5 as a communiqué back to the SICASP TSG. Mr. Cardwell reported that while the proposal from SICASP was considered valid, it will required a modification to the ATN SARPs. The working group approved Flimsy 5. The SICASP TSG input noted that the same situation may also apply to the VDL subnetwork. The breakout group also prepared Flimsy 6, a communiqué to AMCP, to confirm the applicability to the VDL subnetwork. After some discussion it was decided to modify Flimsy 6 make it more general by indicating that the same situation reported by SICASP may also be applicable to other mobile subnetworks. Mr. Crenais prepared an update to Flimsy 6, which was approved. He indicated he would attempt to obtain an electronic copy of the SICASP working paper to attach to Flimsy 6. The breakout group proposed to prepare a defect report for submission to the ATNP CCB.

ACTION ITEM 14/1: Mr. Crenais to attempt to obtain a copy of the SICASP TSG working paper on "the DTE ISO 8208 interface" and attach this to WG2 Flimsy 6. He will e-mail this to the WG2 rapporteur who will provide it to the panel secretary.

ACTION ITEM 14/2: Mr. Tamalet to prepare a defect report against the ATN SARPs to address the ISO 8208 interface issued identified as a result of the SICASP TSG input.

Mr. Jones presented WP 435 providing materials from two communiqués from the AMC Panel. The first communiqué was a response from WGD SG2 of AMCP to the ATNP WG2 comments on "Draft Design Guidelines for Navigation/Surveillance Data Links." The AMCP response was to note the ATNP WG2 comments and to generally agree.

The second set of material provided in WP 435 was the response of AMCP WGD to ATNP WG2 comments on the "draft Design Guidelines for VDL Mode 3." Most of the ATNP WG2 comments were accepted, six were accepted but proposed correction was amended, one was rejected, and three are still being investigated by AMCP. Mr. Cardwell presented Flimsy 8, a draft communiqué to AMCP responding to the AMCP WGD inputs. The flimsy was approved for transmission to AMCP without change.

Mr. Jones presented WP 434 providing a communiqué from AMCP WGA. This input from AMCP was in response to ATNP WG2 Flimsy 7, a communiqué to AMCP out of the WG2 meeting in Langen, Germany in June 1997. The response from AMCP WGA included queries on three specific topics related to the ICS. Specifically on guidance for the join and leave event reporting, the priority level of IDRP keep-alives, and the role of the option for the non-use of IDRP. Mr. Tamalet presented Flimsy 7, a draft communiqué to AMCP. There was considerable discussion on what guidance should be provided to AMCP on the needed timing

for the generation of a leave event and on the role of the IDRP keepalives vs. subnet generated leave events. Mr. Jones agreed to revise the flimsy to reflect the inputs from the working group. The updated Flimsy 7 was reviewed and approved after one additional change.

Mr. Sayadian presented WP 433 providing the status of the HFDL SARPs being developed by the AMCP. He reported that the HFDL SARPs will be presented to AMCP/5, in April 1998, for approval. The U.S. member to the AMCP took an action item from the AMCP WGE to request that ATNP WG2 review the draft HFDL SARPs and provide written comments by 2 April 1998. It was noted that this was not formally communicated via the ATNP secretary. Flimsy 9 was prepared by Mr. Cardwell as a communiqué to AMCP WGE. The Flimsy indicated that the Core HFDL SARPs material was found to be consistent with the ATN ICS. The flimsy also indicated that there was not adequate time to review the detail technical manual for HFDL and any comments from ATNP WG2 members will be provided via their AMCP panel members. Flimsy 9 was approved by WG2.

ACTION ITEM 14/3: Mr. Jones to provide the communiqués developed by WG2 (Flimsies 5, 6, 7, 8 and 9) to the ATNP secretary for delivery to the specified ICAO panels (i.e., AMCP and SICASP).

Mr. Paydar reported that there have been recent ICAO Circulars 216 and 238 related to the need for consistent human factors to ensure the correct interpretation of information. He suggested that this might apply to the presentation of systems management information to a systems manager. The working group noted this input.

4. Review Status of Action Items from the 13th Meeting of WG2

The open action items from the previous meeting were reviewed with the following results:

ACTION ITEM 13/1: Mr. Hennig will report to the next meeting of WG2 on the status AEEC developing a position on context management addressing.

Mr. Hennig reported that AEEC met on 28 Jan.1998 where it was agreed that the issues related to context management would be the responsibility of the AEEC data link subcommittee. The material AEEC develops on context management addressing will be put into specification 638. The next AEEC meeting is being held 20-23 April.

ACTION ITEM 13/2: Mr. Graf to submit a defect report based on the Attachment B to WP-424a.

Closed: the defect report was submitted as PDR #48 in October 1997.

ACTION ITEM 13/3: Mr. Adnams and Mr. Tamalet are to investigate the viability of the 'deflate' algorithm as an alternative to V.42bis and submit the results to the ATNP ICS SME and WG2 SEM list by mid-November.

Closed: A defect report was submitted and subsequently (December 1997) the CCB approved the use of the deflate algorithm as a replacement for V.42bis.

ACTION ITEM 13/4: Mr. Moulton, with support of WG2 members, will organize and facilitate the development of draft SARPs and GM for security.

Closed: The initial inputs on the use of authentication services for IDRP exchanges were provided. While not in the form of draft SARPs and GM for the ICS, this material will be used as the basis to develop such material.

ACTION ITEM 13/5: Ron Jones will report on the status of the HFDL SARPs at the 14th meeting of ATNP WG2.

Closed: An update on the status of the HFDL SARPs was provided in WP 433.

ACTION ITEM 13/6: Mr. Tamalet, with support of WG2 members, will organize and facilitate the development of draft SARPs and GM for systems management.

Closed: Substantial inputs on systems management were provided to the WG2 meeting.

ACTION ITEM 13/7: Mr. Hennig, with support of WG2 members, will organize and facilitate the development of draft SARPs and GM for multicasting.

Closed: Two working paper were presented on the subject. However, work still remains to draft the SARPs and GM for multicasting.

5. Package-1 ICS Documentation

5.1 ICS SARPs (consideration of requests from the CCB and/or ICS SME).

No working papers were presented under this agenda item.

5.2 Additional Validation Result

No working papers were presented under this agenda item.

5.3 Implementation Plans

Although no papers were presented under this agenda item, several WG2 members provided verbal updates on implementation plans within their State or region.

Mr. Adnams reported that Eurocontrol (ATN trials infrastructure) has very recently conducted the first flight trails using the full 7-layer end system stack with CPDLC and ADS. Both AMSS and Mode S have been used as mobile subnetworks.

Pro-ATN will have 'Part 1' demos in June and 'Part 2' in 1999, Part 2 demos will include systems management and will include cooperative testing with ATNSI products.

Mr. Adnams reported that Eurocontrol is proceeding with the plans to develop the Combined American European Reference ATN Facility (CAERAF). The CAERAF will incorporate the Conformance Test Suite, from ATNSI, and will add functionality to produce a facility for

testing of both airborne and ground ATN systems. Agreements have been signed between Eurocontrol and the FAA, and between Eurcontrol and ATNSI. The CAERAF development contract will be awarded in late 1998 with delivery in late 1999.

Mr. Hennig briefed on ATN Systems, Inc. (ATNSI) progress since WG2/13 in Redondo Beach. ATNSI is owned by 11 USA flag carriers and is progressing its work under a cooperative agreement with the FAA. . ACI Consortium delivery dates are 31 MAR 99 for RED label avionics and 30 JUN 99 for BLACK label avionics. He also reported on considerations with AEEC on "ATN-Lite" (fully SARPs compliant, but less than full function utility) will be used for AOC over ATN using VDL Mode 2 (VM2), and is expected in 2000. He reported that the AEEC Datalink Systems Subcommittee expects to complete Specification work for both ATN-Lite and for CNS/ATM-1 in 1998 (two meetings are set: Ad Hoc meeting17-19 March at RTCA, 20-23 April in Annapolis). He also reported on recent coordination between ATNSI and FAA that has identified plans to introduce CNS/ATM-1 services (CPDLC) is in the FAA's Flight 2000 (F2K) Program with potentially 2001 for Oakland enroute initial operational capability); 2003 estimated to begin USA national roll out in all FAA Enroute Centers.

Mr. Cardwell provided an update on the ACCESS (ATN Compliant Communications - European Strategy Study) Project. The project participants are NATS, STNA and the DFS and the project is sponsored by the European Commission. The project continues to work on the definition of a proposed network topology for the ten Western European States under consideration. The first project interim deliverable was expected mid-April 98 and would cover the selection of ground-ground and air-ground subnetworks, routing architectures, an addressing plan and a methodology for assessing network capacity/performance.

Work is already in progress for the second interim deliverable, which would address network implementation issues including third party service provision, safety and certification, security and system management. These tasks were intending to apply the work in progress in various international groups to the proposed ATN architecture developed in the first interim deliverable. The second interim deliverable should be completed in August 98.

A second part of the ACCESS Project addresses ATSMHS interoperability, but that is not relevant to the work of ATNP WG2. The ACCESS project is scheduled to complete in late 98/early 99.

Mr. Jones reported on the FAA plans for ATN implementations. As noted by Mr. Hennig, the Flight 2000 project is currently developing plans for implementing CPDLC services, perhaps around 2001/2002, at an en route center. This was a recent consideration and the details have yet to be fully defined. He noted that the Flight 2000 project may support a limited subset of CPDLC messages. National deployment of SARPs compliant CPDLC is expected to begin in the 2003 time frame, limited to available funding. Terminal CPDLC services are anticipated to become operational in the 2005 time frame and plans for initial SARPs compliant oceanic CPDLC services are not clear at this point.

Mr Crenais informed the meeting about the expected development of the SPACE (Study and Planning of AMHS Communications in Europe) project by a consortium (yet to be formally established) between Eurocontrol, France (STNA), Germany (DFS), Spain (AENA) and United Kingdom (NATS), under a project leadership by STNA. This project would be partly

funded by the European Commission, under the same framework as the ACCESS project. The goal of SPACE is to define a master plan, including transition considerations, for the implementation of AMHS in Europe. Although, the SPACE contract between the consortium and the European Commission has not yet been signed, a kick-off meeting has already been organized and the project should be formally established in the coming weeks.

Mr Crenais informed the meeting about the progress of the PHARE-ATN project (P-ATN). PHARE is a cooperative programme between Eurocontrol, NLR (Netherlands), DLR (Germany), DERA/NATS (United Kingdom) and CENA (France). The PHARE programme aims at studying future ATM services, including data link. P-ATN is one of the projects included in the PHARE programme. Its main objective is to provide an ATN network connecting the PHARE sites and supporting the various ATM services studied in the overall programme.

P-ATN internet layers are based on the EURATN software while the upper layers have been developed separately in 1995-1996. Further work led to the implementation of a CPDLC ASE, a specific Trajectory Negotiation ASE using PER encoding and other ASEs (downlink of aircraft parameters and position reporting) using an approach which slightly differs from ATN concepts (e.g. BER encoding).

The P-ATN network is now deployed on four interconnected ground sites : CENA (Athis-Mons and Toulouse, France), DERA/NATS (Bedford, UK) and NLR (Amsterdam, Netherlands). In addition, three airborne platforms are equipped with P-ATN software and an SDU Data/3 : two real aircraft (DERA BAC 1-11 and NLR Citation) and one cockpit simulator (CENA Toulouse) allowing to simulate up to 250 simultaneous connections with aircraft. All these sites are interconnected via X.25 WANs (SITA and TRANSPAC) and via satellite for air ground communications.

Several PHARE demonstrations involving P-ATN will be organized by CENA and NLR in the second half of 1998. These demonstrations will involve the DERA aircraft, the NLR site and the CENA cockpit simulator and ground sites. Airborne applications will mainly be FMS type and will exchange information pertaining to trajectory, controller-pilot dialogues, position reporting, etc. with ground applications involved in Trajectory Negotiation process, changes of frequency. Pilots and controllers will be involved in these demonstrations via sophisticated HMIs.

6. Package-2 ICS Documentation

6.1 Security Mechanisms

Mr. Calow presented WP 446 providing inputs on ATN security from WG1. Attachments of this working paper included updated drafts of the Core and SV-1 SARPs security provisions and a proposal from WG1on the appropriate coordinated activities between WG1, WG2 and WG3. WG2 was requested to review the draft Core and SV-1 SARPs security provisions and to develop the security provisions for the SV-5 consistent with the provided draft materials. WG2 was also requested to provide an appropriated response to WG1 on the proposed schedule for the development of the SARPs and Guidance Material for security enhancements to the ICS. The working group felt that it would be appropriate have an initial draft at the October 1998 WG meetings and a complete, mature draft by the January 1999 meeting and a

final draft for submission to ICAO for ATNP/3 in June 1999. Mr. Tamalet questioned on how security would be applied to aircraft not equipped with IDRP. Mr. Jones noted that it was probably not a problem since such an aircraft could not advertise that it is a transit routing domain. Mr. Hennig noted that aircraft not supporting the security provisions will be present within the system for many years after package 2, supporting sercurity, becomes a standard.

Mr. Hennig prepared flimsy 1 to WG1 asking that they consider the requirements for the systems management and security provisions when using connectionless upper layer services and for multicast services. Flimsy 1 is provided as attachment 4 to this meeting report.

Mr. Moulton provided WP 445 on IDRP security. The paper was not discussed as it was superceded by Flimsy 4.

Mr. Jones provided WP 447 providing alternatives for BISs to access X.509 certificates in support of ATN security services. The paper was not discussed as it was superceded by Flimsy 4.

A small breakout group was convened to consider the alternatives discussed in WP 445 and WP 447 and to develop a recommended approach for IDRP authentication and a work plan to progress the work. Flimsy 4 was prepared to document the results of these discussions. Flimsy 4 was presented to the working group by Mr. Moulton. Flimsy 4 is provided as attachment 7 to this meeting report. The flimsy indicated that digital signatures are to be used for IDRP exchanges between airborne BISs and air-ground BISs and for all IDRP exchanges between air-ground and ground BISs. Air-ground and ground BISs will need to obtain the peer's public key. The specific mechanism for doing this a local matter. Guidance material will need to be provided on the alternatives. Mr. Tamalet noted that the IDRP standard allows only for exchange of digital signatures on connection establishment, not on updates. The flimsy was modified to indicate this was an issue to be investigated. Mr. Tamalet suggested that perhaps other network layer security provisions should be considered. Mr. Bigelow indicated that such suggestions would need to be input and considered by WG1, SG2 and accepted by WG1 for incorporation into the overall ATN security framework before WG2 could pursue such additions.

ACTION ITEM 14/4: Mr. Moulton, the WG2 Point of Contact for ICS security, will coordinate with WG1/SG2 and WG3/SG3 to ensure the development of ICS security requirements consistent with the system level requirements and the definition of X.500/X.509 services being defined by these groups.

6.2 Systems Management

Mr. Tamalet presented WP 437on the fault management requirements for the ATN ICS SARPs. The working paper identifies the error cases that may occur at the ICS level in ATN ESs and ISs and discussed the importance of these events and their possible consequences on the operation and performance of the network. The ultimate goal of the working paper was to identify the MO attributes, notification and actions that would be needed in the ATN system for fault management. It was noted by Mr. Adnams that the work represented by this working paper has been performed bottom up, as the systems management operational concept document has yet to be completed. However, WG1 plans to have an initial draft of this by the June 1998 working group meetings.

Mr. Tamalet presented WP 438 on the performance management requirements for the ATN ICS SARPs. The object of the working paper was to identify/justify the MO attributes that should be included in the ATN management information base. The working paper identified 29 requirements for monitoring of the performance of the ATN ICS. Each of these requirements may be related to one or more MO. A few of the stated requirement are ATN unique while most could be satisfied through the use of standard MOs.

Mr. Tamalet presented WP 440 on the elements of management information related to the ATN network layer. This working paper presented a first draft specification of management information related to the network layer within the ATN system. The ATN network layer management information was defined by specifying:

a) the managed object class definition of the ATN network layer MOs following the MO template that has been proposed for use in the ATN SARPs; and
b) the action type operations on the attributes of ATN network layer MOs that are available to the ATN system management

Mr. Tamalet presented WP 441 on the elements of management information related to the ATN transport layer. This working paper presented a first draft specification of management information related to the transport layer within the ATN system. The ATN transport layer management information was defined by specifying:

a) the managed object class definition of the ATN transport layer MOs following the MO template that has been proposed for use in the ATN SARPs; and
b) the action type operations on the attributes of ATN transport layer MOs that are available to the ATN system management

Mr. Tamalet presented WP 436 on the elements of accounting management for the ATN ICS. This working paper focuses on defining meter services, which provide basic capabilities for measuring the ATN internetwork utilization. The intent of this activity is to identify the management object classes and/or attributes that will have to be implemented in ATN systems for ATN internetwork accounting purposes. The paper only addressed accounting at the CLNP level, not at transport or application level. The OSI accounting model (ISO 7498-4) defines three basic entities:

a) a METER, which performs measurements and aggregates the results of those measurements;
b) the COLLECTOR, which is responsible for the integrity and security of the METER data in short term storage and transit; and
c: the APPLICATION, which processes/formats/stores METER data. APPLICATIONS implicitly manage METERS.

The paper presented a model for ATN ICS accounting, both for ground-ground and for air-ground. The minimal METER granularity required for ground-ground internet communications accounting was discussed. The working group supported the proposals in the paper. The working group also recognized the need to coordinate with WG1 and WG3 on the overall ATN provisions for accounting management.

Related to WP 440 and WP 441, Mr. Tamalet mentioned that there were problems with the transport and network priority management. Mr. Adnams indicated that the table was intentionally removed and that it may be difficult to have it added back in.

Mr. Tamalet presented WP 439, an information paper on the ACI and ProATN projects convergent management information base (MIB). The overall document was quite large and was not presented for review by WG2. However, an electronic version was made available. WP 339 was an extract from the draft ACI/ProATN document (i.e., not yet a final document). The convergent MIB accounts for inputs from:

a) ICAO draft recommendations;
b) ACI's MIB defined in the Functional Requirements Specification for the Network Management Agent;
c) ProATN's MIB defined in the Functional Specification of Network Manager/Agent ICD.

There were discussion on a number of overall issues related to the specification of ICS systems management provisions in SARPs and guidance material. There was a discussion on what level of detail should be included as standards vs. recommended practices vs. guidance material for the MOs. There has not been a decision on allowing a manager in one administration to manage ESs and ISs in a different administration. If this were to be allowed then the associated MOs would need to be fully defined at a detailed level in SARPs to ensure interoperability.

An issue was raised about whether ATNP could specify managed objects for the subnetworks. After a brief discussion, the group agreed that the actual definition of the managed objects is the responsibility of the groups actually developing the associated subnetwork SARPs. It was agreed that as we further progress the system management definitions that straw-man proposals to the other panels would be generated and communicated to them.

A breakout group from WG2 met with a group of systems management experts from WG3 to discuss issues related to systems management. The results of these discussions were reported back to WG2 in Flimsy 3, which was presented by Mr. Hennig. Flimsy 3 is included as attachment 6 to this meeting report. The main open issue is to determine if the definition of managed objects should be included in the SARPs and/or guidance material. Since only MOs exchanged between administrations/organizations should be subject to standards.

Mr. Jones indicated there had been some discussions between the working group rapporteurs concerning the need for a consolidated effort of the experts working on systems management. Mr. Calow prepared Flimsy 10 proposing to expand the role of WG1, SG3 into a subgroup of the JWG with responsibility for developing the detailed materials related to all aspects of systems management. There was some discussion on the proposals, but WG2 generally supported the formation of the combined subgroup. However, it was reported that WG3 had not supported the proposed. It was felt that as an alternative WG2 could form a systems management subgroup that could participate in joint meetings with the WG1 and WG3 subgroups task work on systems management. It was felt that such a WG2 subgroup was necessary in order to allow for formal WG2 representation in joint discussions at the subgroup level. The working group approved the formation of SG1. The terms of reference for this

WG2 subgroup are provided as attachment 8 to this meeting report. Mr. Tamalet was confirmed as the chairman of WG2/SG1.

Rapporteurs Note: Subsequent to the conclusion of the WG2 meeting the WG2 rapporteur was informed that WG3 had additional discussions and had decided to support the proposal for a system management subgroup to the JWG. WG2 will need to revisit this topic at its next WG2 meeting.

ACTION ITEM 14/5: Mr. Tamalet, will organize the work programme of WG2 subgroup 1 consistent with the subgroup's terms of reference.

ACTION ITEM 14/6: Mr. Hennig to provide input to next WG2 meeting on IATA expectations for remotely managing airborne resources.

6.3 Multicast/Broadcast Functions

Mr. Moulton presented WP 444 providing the status of ISO multicast standards. He reported that ISO created extensions to ISO Standards 8348, 8473, 9542. He also noted that there are multicast extensions to the ISO connectionless transport standard. He reported that all of these extensions are now accepted as standards within ISO/ITU-T.

Mr. Adnams presented WP 442 providing a proposed specification for the support of connectionless multicast transport service supported by multicast procedure in the ATN internet. He reported there is a strong similarity between what is proposed in WP 442 and what had been reported in WP 444. However, he noted that work would be required to review WP 444 to confirm that approved ISO/ITU-T standards are used as the basis of the proposed ATN multicast service. The working paper identified seven issues associated with the specification of the ATN multicast service. Once potentially significant issue is in applying security mechanisms to the multicast service. Mr. Adnams proposed that the group review the proposals and electronically coordinate before the next WG2 meeting. Mr. Adnams pointed out that the paper suggests the best technique is to apply security when joining the group (i.e., with ES-IS). The approach proposed in the working paper does not limit who can join a given group.

The working group agreed that the ATN multicast service should be based on approved ISO/ITU-T standards where such standards exist. A small group consisting of Mr. Hennig, Mr. Adnams and Mr. Moulton generated a proposal on the approach for WG2 to progress the SARPs and GM for the ATN multicast service. Flimsy 2 was prepared to address this topic. Flimsy 2 is provided as attachment 5 to this meeting report. Electronic distribution and coordination to progress the SARPs and GM for multicasting for the next WG2 meeting will be accomplished via e-mail using the CENA ATNP exploder. Mr. Whyman was identified as the SV-5 editor for the multicasting enhancements. Mr. Moulton, Mr. Tamalet, and Mr. Hennig offered to assist the editor in reviewing materials and resolving comments. It was reported that WG3 had confirmed Mr. Kerr as the editor for SV-4 for the multicasting enhancements. WG2 members are encouraged to provide comments on WP 444 and WP 442 and future materials related to ATN multicast distributed electronically to WG2 members.

ACTION ITEM 14/7: Mr. Whyman, with support from Mr. Moulton, Mr. Tamalet and Mr. Hennig to coordinate with other WG2 members for the further development of SARPs and

GM for ATN ICS multicasting services. Coordination with related WG3 activities will be accomplished via coordination with Mr. Kerr. Mr. Moulton to disseminate ISO 10747 (IDRP) relevant material to WG2 members.

6.4 Additional and/or revised SNDCFs for mobile and/or ground subnetworks

Mr. Adnams presented WP 443 proposing a SNDCF definition be added to the ICS SARPs for subnetworks using Asynchronous Transfer Mode (ATM). This paper proposes the use of AAL5. The proposed SNDCF presents the mapping from the ATN requirements to the facilities of the AAL5 ATM interface. The paper proposes, when used as a wide area network, to use PVCs when possible, rather than SVCs. PVCs are generally what is available in commercial ATM networks while implementations for SVCs are still evolving and when offered tend to be vendor specific.

The working group agreed to progress the work to define the SNDCF for the use of ATM networks as ATN ground subnetworks, but not as mobile subnetworks, unless the SARPs for a mobile subnet using ATM is forthcoming from AMCP or another ICAO panel. Mr. Adnams agreed to serve as the point of contact with WG2 for the development of SARPs and guidance material to incorporate ATM ground networks as subnetworks of the ATN.

Mr. Tamalet questioned the proposal to support compression within an ATM SNDCF as this adds considerable complexity. The working group felt if this capability were to be included, it would need to be an option. Comments are due on the contents of WP 443 by 1 May on the proposed ATM subnet material. The working paper will be placed on the CENA server the week of 23 March and an e-mail announcement sent to the WG2 mailing list.

ACTION ITEM 14/8: Mr Adnams will serve as the point of contact with WG2 for the development of SARPs and guidance material to incorporate ATM ground networks as subnetworks of the ATN. The updated draft SARPs (proposed by version 1.0 of the SARPs) will be posted to the CENA server in mid-May.

6.5 QoS management functions

Mr. Tamalet presented WP 438, which identified the requirements for performance management in the ATN. The object of the working paper was to provide the basis for the identification, or the justification, of the MO attributes that will need to be included in the ATN management information base.

6.6 ATN ICS Subsets

No working papers were presented under this agenda item.

6.7 Enhancements to the ICS SARPs/GM based on New or Revised User Requirements

No working papers were presented under this agenda item.

6.8 Enhancements to the ICS SARPs/GM based on Operational Experience

No working papers were presented under this agenda item.

7. Future Work Plan

7.1 Plans for 15th meeting of WG2

The previously held ATNP Joint Working Group meeting had discussed the arrangements for future working group meetings. The next working group meetings will be held at the Holiday Inn, Jaarbeursplein 24, Utrecht, Netherlands (phone: +31 30 2977977 and fax: +31 30 2977999). Reservations must be made by 8 May 1998. Reservations should be made directly with the hotel with reference to "ATNP Working Group Meetings." The points of contact for the meeting are:

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WG2 will meet from 29 June 1998 through 1 July 1998 (Monday through Wednesday).

The overall schedule for the meetings in Utrecht is:

Monday	22 June 1998	WG1/SG2
Tuesday	23 June 1998	WG1
Wednesday	24 June 1998	WG1
Thursday	25 June 1998	CCB (morning), JWG (afternoon)
Friday	26 June 1998	joint meeting of the Systems Management Subgroups (WG1/SG3, WG2/SG1 and WG3/SG3)
Saturday	27 June 1998	joint meeting of the Systems Management Subgroups (if needed)
Monday	29 June 1998	WG2 and WG3 meetings with a joint session from 1100 to 1300 for a report from System Management Subgroups and discussion
Tuesday	30 June 1998	WG2 and WG3 meetings
Wednesday	1 July 1998	WG2 and WG3 meetings
Thursday	2 July 1998	WG3 meeting

The tentative arrangements for subsequent ATNP working group and panel meetings are

28 September – 9 October 1998 Working Groups in Bordeaux, France
18 – 29 January 1999 Working Groups in Honolulu, Hawaii, USA
17 – 28 May 1999 Working Groups in Vancouver, Canada
27 September – 8 October 1999 Working Groups in Spain
6 – 17 December 1999 ATNP/3 in Montreal, Canada

8. Any Other Business

There were no working papers, nor discussions under this agenda item.

9. Conclusions and Action List

The following action items were assigned by the 14th meeting of ATNP WG2.

ACTION ITEM 14/1: Mr. Crenais to attempt to obtain a copy of the SICASP TSG working paper on "the DTE ISO 8208 interface" and attach this to WG2 Flimsy 6. He will e-mail this to the WG2 rapporteur who will provide it to the panel secretary.

ACTION ITEM 14/2: Mr. Tamalet to prepare a defect report against the ATN SARPs to address the ISO 8208 interface issued identified as a result of the SICASP input.

ACTION ITEM 14/3: Mr. Jones to provide the communiqués developed by WG2 (Flimsies 5, 6, 7 and 8) to the ATNP secretary for delivery to the specified ICAO panels (i.e., AMCP and SICASP).

ACTION ITEM 14/4: Mr. Moulton, the WG2 Point of Contact for ICS security, will coordinate with WG1/SG2 and WG3/SG3 to ensure the development of ICS security requirements consistent with the system level requirements and the definition of X.500/X.509 services being defined by these groups.

ACTION ITEM 14/5: Mr. Tamalet, will organize the work programme of WG2 subgroup 1 consistent with the subgroup's terms of reference.

ACTION ITEM 14/6: Mr. Hennig to provide input to next WG2 meeting on IATA expectations for remotely managing airborne resources.

ACTION ITEM 14/7: Mr. Whyman, with support from Mr. Moulton, Mr. Tamalet and Mr. Hennig to coordinate with other WG2 members for the further development of ATN ICS multicasting services. Coordination with related WG3 activities will be accomplished via coordination with Mr. Kerr. Mr. Moulton to disseminate ISO 10747 (IDRP) relevant material to WG2 members.

ACTION ITEM 14/8: Mr Adnams will serve as the point of contact with WG2 for the development of SARPs and guidance material to incorporate ATM ground networks as subnetworks of the ATN. The updated draft SARPs (proposed by version 1.0 of the SARPs) will be posted to the CENA server in mid-May.

LIST of ATTACHMENTS

1. Meeting Agenda
2. Meeting Attendance
3. List of Working Papers and Flimsies
4. Flimsy 1
5. Flimsy 2
6. Flimsy 3
7. Flimsy 4
8. ATNP WG2 Subgroup 1 – Terms of Reference

ATTACHMENT 1

Agenda for the
14th Meeting of ATNP WG2
16-19 March 1998 (Monday through Thursday)
Rio de Janeiro, Brazil
Meeting Hours: 0900-1700

0. Meeting Organizational Issues

1. Approval of the Agenda

2. Review and Approval of the report of 13th Meeting of WG2 (Redondo Beach) – WP431

3. Inputs/Issues from other ICAO Bodies (e.g., Panel Secretary, CCB, WG1, etc.)

4. Review Status of Action Items from the 13th Meeting of WG2

5. Package-1 ICS Documentation

   5.1 ICS SARPs (consideration of requests from the CCB and/or ICS SME).

   5.2 Additional Validation Results

   5.3 Implementation Plans

6. Package-2 ICS Documentation

   6.1 Security Mechanisms

   6.2 Systems Management

   6.3 Multicast/Broadcast Functions

   6.4 Additional and/or revised SNDCFs for mobile and/or ground subnetworks

   6.5 QoS management functions

   6.6 ATN ICS Subsets

   6.7 Enhancements to the ICS SARPs/GM based on New or Revised User Requirements

   6.8 Enhancements to the ICS SARPs/GM based on Operational Experience

7. Future Work Plan

   7.1 Plans for 15th meeting of WG2

8. Any Other Business

9. Conclusions and Action List

ATTACHMENT 2
WG2 14th Meeting Attendance
Rio de Janeiro, Brazil 16-19 March 1998

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	Adnams, Martin	EUROCONTROL	96 Rue de la Fusée 1130 Brussels, Belgium	32-2-729-3328 32-2-729-9085	martin.adnams@eurocontrol.be
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	Cardwell, Brian	NATS	C31, Spectrum House, Gatwick Road, Gatwick Airport South, West Sussex, UK RH6 0LG	44-1293-576 401 44-1293-576 399	cardwellb@natsgcs.co.uk
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	Crenais, J Michel	STNA	1 Av Du Dr M Grynfogel B.P.1084 31035 Toulouse, Cedex, FRANCE	33-5-62-14-54-88 33-5-62-14-54-01	crenais_jean-michel@ccmail.dgac.fr
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	Hennig, Paul	Staff Engineer IATA (United)	United Airlines WHQKO 1200 Algonquin Rd Elk Grove IL 60007	1-847-700-4312 1-847-700-4477	paulhennig@aol.com
	Jones, Ron	FAA	AND-720 800 Independence Ave. SW Washington, DC 20591 USA	1-202-493-4705 1-202-493-5022 *effective 30 March 1998*	ronnie.jones@faa.dot.gov
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ATTACHMENT 3

ATNP WG2 14th Meeting
16-19 March 1998
Rio de Janeiro, Brazil

LIST OF WORKING PAPERS

WP No.	Agenda Item	Presenter	WP Title
430	1	R. Jones	Proposed agenda for 14th meeting of ATNP WG2
431	2	R. Jones	Report of the 13th meeting of ATNP WG2, Redondo Beach CA
432	3	R. Jones	Input Received from SICASP Technical Subgroup
433	3	L. Sayadian	Status of HFDL SARPs being developed by the AMCP WGE
434	3	R. Jones	Communiqué from AMCP
435	3	R. Jones	Communiqués from AMCP on VDL
436	6.2	S. Tamalet	Elements of Accounting Management for the ATN Internet Communications
437	6.2	S. Tamalet	Fault Management Requirements for the ATN ICS
438	6.5	S. Tamalet	Performance Management Requirements for the ATN ICS
439 (IP)	6.2	S. Tamalet	ACI and ProATN projects convergent MIB
440	6.2	S. Tamalet	Elements of management information related to the ATN Network Layer
441	6.2	S. Tamalet	Elements of management information related to the ATN Transport Layer
442	6.3	M. Adnams	ATN Multicast
443	6.4	M. Adnams	SNDCF for ATM
444	6.3	J. Moulton	Status of ISO multicast standards
445	6.1	J. Moulton	IDRP security
446	6.1	T. Calow	WG1 Materials on Security
447	6.1	R. Jones	Alternatives for BIS access to X.509 certificates
448			
449			
450			
451			
452			
Flimsy No.			
1	6.1/6.2	P. Hennig	Suggested Work Required by ATNP/3
2	6.3	P. Hennig	Multicast Peer Review Action Plan
3	6.2	P. Hennig	Systems Management Resolutions and Action Plan
4	6.1	J. Moulton	Work Plan and Solution for IDRP Authentication
5	3	B. Cardwell	Communiqué to SICASP Technical Subgroup
6	3	J. Crenais	ATNP WG2 Communiqué to AMCP
7	3	S. Tamalet	ATNP WG2 Response to AMCP (AMCP WGA, Flimsy 12-24a)
8	3	B. Cardwell	Communiqué to AMCP WGD
9	3	B. Cardwell	Communique to AMCP WGE
10	6.2	T. Calow	Proposal to form a joint subgroup on systems management
11	6.2	R. Jones	WG2 Subgroup 1 – Terms of Reference

ATTACHMENT 4

FLIMSY 1
WG2/14
16 March 1998
Rio de Janeiro

WG2 FLIMSY to WG1
Suggested Work Required by ATNP/3

Because WG2 perceives that WG1SG2 (security) and WG1SG3 (system management) have not included consideration of connectionless upper layer and internet service, and for the multicast capability using the connectionless upper layer and internet service;

Therefore, WG2 suggests that WG1 consider both the actual development of, and the tasking of additional development of, appropriate SARPs and GM for both security and system management associated with the connectionless upper layer and internet service, and with the multitask capability over the connectionless upper layer and internet service.

For security, the mechanism to authenticate peer applications (e.g., AOC, SAM, etc.) using the connectionless upper layer and internet service, and authentication among multicast peer applications should be addressed.

For system management, appropriate MOs should be identified and documented.

ATTACHMENT 5

FLIMSY 2.1
WG2/14
17 March 1998
Rio de Janeiro

Multicast Peer Review Action Plan

1. Use of email (atnp_wg2@cenatls.cena.dgac.fr) for all exchanges
   This FLIMSY and WP442 will be the first blaster material exchanged
   WP442 is Issue 1.0 baseline
   WP444 is information material to harmonize WP442 with ISO & ITU-T standards

2. Note ISO/IEC JTC1/SC6 work-in-progress on IDRP multicast
   Jim Moulton will try to make this work available on the blaster

3. Identify core volunteers (Jim Moulton, Stephane Tamalet, Paul Hennig) to assist the editor(s) in resolution of comments and/or preparation of new material
   Comments and/or new material is expected from members of the WG2 blaster
   Editor of SV5 multicast SARPs and GM is Tony Whyman
   Editor of SV4 multicast SARPs and GM is Tony Kerr

4. Schedule:
   By COB Friday 17 April, comments on Issue 1.0 to blaster
   By COB Friday 1 May, Issue 2.0 to blaster, this issue will be aligned to existing published ISO standards where possible and will include the resolution of comments.
   By COB Friday 22 May, comments on Issue 2.0 to blaster

5. Issue 3.0 into Utrecht

ATTACHMENT 6

WG2/14 FLIMSY 3.2
WG3/12 FLIMSY 1.2
17 March 1998
Rio de Janeiro, Brazil

JOINT WG2/3 FLIMSY
SYSTEM MANAGEMENT RESOLUTIONS AND ACTION PLAN

1. Any managed object (MO) deemed important enough to be detailed in either SARPs or Guidance must be defined using GDMO to assure interoperability. This applies regardless of whether or not any particular MO is specified to be exchanged across administrative boundaries (manager-manager or agent-manager).

2. A baseline managed object containment tree has been proposed. Between Rio and Utrecht, WG2 and WG3 system management experts will review the proposed MO containment tree for format and content, focusing on the subtrees in their areas of expertise. The goal is an agreed-to MO containment tree at Utrecht.

3. Another goal for Utrecht is identification of at least one (1) managed object (MO) which all States and organizations agree to share, agent-to-manager or manager-to-manager. If at least one (1) MO cannot be identified and agreed to by Utrecht, then all system management material may only be Guidance unless "health of the system" suggests SARPs are necessary for what, in essence, is a local matter.

4. IATA will present a paper at Utrecht explaining how commercial airlines intend to manage their airborne resources.

ATTACHMENT 7

WG2/FLIMSY 4
March 17, 1998

WG 2 Flimsy
Proposed Work Plan and Solution for IDRP Authentication

1. For the purpose of IDRP authentication, only the use of digital signatures.
2. Both IDRP connection requests and IDRP routing updates will use digital signatures.
3. For airborne routers, only the down-link IDRP exchanges will be authenticated.
4. Proposed Solution
   - For airborne routers:
     the aircraft will have a pre-loaded private key.
     the certificate will be (at a minimum) aircraft-based.

     the router will calculate a digital signature using its private key and place it in the IDRP header.
     the router will ignore any value in the authentication field received from an air-ground router.
   - For air-ground routers:

     the air-ground router will authenticate the digital signature on each airborne router exchange based on the retrieved public key.
     the air-ground router may obtain the public key through any means available to it including the use of an X.500 look-up or through local caching.
     the air-ground router will not digitally sign IDRP exchanges to the airborne router.
   - For ground-ground BIS routers:
     all BIS routers will use authentication.
     each BIS will use its private key (pre-loaded) to generate a digital signature for all IDRP exchanges.
     each BIS will authenticate the IDRP exchanges by obtaining the public key of the associated BIS and confirming the digital signature. A BIS can obtain the public keys through several different methods such as X.500 look-up, local cache, or other local means. The method used is a local matter.
5. Guidance Material is needed on obtaining keys, the use of authentication for routers in a single administrative domain, and use of authentication.
6. Proposed detailed SARPs text is expected before the Utrecht WG 2 meeting.
7. An investigation as to whether there is a place in the IDRP UPDATE pdu for authentication information is required to ensure that a standard way of protecting these pdus can be used..

ATTACHMENT 8

ATNP WG2 - FLIMSY 11

WG2 Subgroup 1 – Terms of Reference

Subgroup 1 of ATNP WG2 is formed for the purpose of progressing enhancements to the ATN SARPs and guidance material related to systems management provisions of the Internet Communications Service.

1) Subgroup 1 is tasked to:

   a) Review the proposed ATN systems management framework prepared by ATNP WG1 and provide comments to WG1/SG3 on the applicability of the proposed ATN systems management framework.

   b) Develop that part of the Management Information Base (MIB) and containment tree associated with the ICS consistent with the overall ATN MIB and containment hierarchy.

   c) Develop SARPs and/or guidance material for the implementation of distributed management of the ATN Internet within administrations (i.e. manager-to-agent communications).

   d) Investigate, and develop SARPs and/or guidance material as appropriate, for management exchanges (i.e., manager-to-agent and manager-to-manager) across administrative boundaries.

   e) Identify the minimum set of information ATN Internet systems need to support Performance Assessment, Accounting, Fault Detection, Security, etc. to managers, for ground-ground and air-ground communications.

   f) Provide SARPS and/or Guidance for the Managed Objects and access mechanisms required for reference testing of the Internet.

   g) Develop guidance appropriate for aeronautical standards bodies on distributed management of ATN systems within aircraft and for airline ground access to manage those systems.

   h) Identify management information needed for enforcing service level agreements with service providers.

2) Coordinate with the other subgroups of the other ATNP working groups on the development of ATN system management SARPs, guidance material, operating concepts and other systems management related documentation. This includes participation in joint meetings with the subgroups of ATNP WG1 and WG3, as needed.

3) Produce the ICS related systems management SARPs and guidance material as per the following schedule:

   a) initial draft for review at the October 1998 WG2 meeting

   b) complete draft for review at the January 1999 WG2 meeting

   c) final draft for review at the June 1999 WG2 meeting