

Report of the 13th Meeting of ATNP Working Group 2

Redondo Beach, California, USA

27-30 October 1997

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

0. Meeting Organizational Issues

Mr. Jones of the FAA, and rapporteur of WG2, welcomed the ATNP working group members to the meeting. He 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-411 (Attachment 1 to this report), the proposed agenda for the meeting. The agenda was approved as proposed.

2. Review and Approval of the report of twelfth Meeting of WG2 (Langen)

Mr. Jones introduced WP-412, the Report of the twelfth Meeting of WG2. No changes were required and the report was approved as submitted.

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

Mr. Paydar presented WP-425, providing an update from the panel secretary. He reported a recent change in the panel membership from the U.S. He reported that the Core ATN SARPs were sent out to States on 27 June 1997. He indicated that 45 replies had been received by 20 October. He noted that the comments were of editorial in nature with none related to the fundamental concepts, foundation, architecture, or system level requirements. He noted that only five States had requested copies of the SARPs appendix (i.e., the technical sub-volumes).

Mr. Paydar indicated that the current ICAO baseline of the draft ATN CORE SARPs is version 2.1, a soft copy of which has been provided to the ATNP CCB as was put on the PC in the meeting for members desiring a copy.

Mr. Calow presented WP-418 covering a number of topics from WG1. This working paper covered material of interest to WG2 as well as material for WG3. Attachments 4 (potentially), 5, 7, 8, 9 and 10 were viewed by WG1 as being of interest of WG2.

Generally these attachments were materials related to the next generation of ATN SARPs, for ATNP/3. WG2 was asking to review these materials, provide feedback to WG1 and to develop ICS SARPs and Guidance Material for ATNP/3. The topics of interest to WG2 were security, systems management, and potentially the ATN/CIDIN gateway.

The discussion on attachment 4 on the CIDIN gateway concluded that if the CIDIN SNDCF were retained in SV-5 then a note and cross-reference should be added to the material on the CIDIN/ATN gateway. However the working group felt that it might be appropriate to eliminate the CIDIN SNDCF once the CIDIN/ATN gateway is added. Mr. Jones subsequently introduced Flimsy 7 proposing that WG1 providing their inputs of the possibility of elimination of the CIDIN SNDCF. Mr. Herber indicated that it is appropriate to retain the CIDIN SNDCF even if a CIDIN/ATN gateway were to be added to the ATN SARPs. Mr. Herber, with further inputs from Mr. Gosselin, noted that a working paper on the CIDIN/ATN gateway that was submitted to WG1 confused the issues of using CIDIN as an ATN subnetwork vs. the use of a CIDIN/ATN gateway. Mr. Herber agreed this was the source of some of the confusion on the use of CIDIN. The working group agreed that the CIDIN SNDCF should be retained in the ICS SARPs and therefore agreed to not forward the flimsy to WG1.

Mr. Calow presented WP-426 that covered additional materials not covered in WP-418. Materials related to systems management and multicasting.

The discussions on the topics of WP-418, other than CIDIN, and the topics of WG-426 are reflected under agenda item 6.

Mr. Bigelow presented attachment 5 to WP-418 posing a number of questions for WG2 related to the authentication of routing information exchanges between BISs. The paper proposed that authentication be used only among air-ground and ground routers and not be used between air-ground and airborne routers. Three alternatives for the distribution of public key information to ground and air-ground routers were proposed. Mr. Tamalet raised an issue with not using authentication for routing information exchanges across the air-ground path. He postulated the case when a mobile user could advertise multiple addresses, appearing as multiple aircraft. He felt this could result in denial of service if this unauthorized user advertised the same address as an authorized user. Mr. Bigelow pointed out that at least some of the concerns raised could be addressed by means other than use authentication mechanisms. There was agreement with the three alternatives presented in attachment 5 to WP-418 for ground routers to obtain the public key information for other ground routers. Mr. Bigelow, Tamalet and Adnams agreed to get together to prepare a flimsy to propose a response to WG1. This flimsy would indicate the areas that WG2 agrees with the WG1 proposals related to security and would address any the issues of concern to WG2 arising from not using authentication for routing information exchanges between mobile routers and air-ground routers. There was some concern over the consequences of allowing routers without security provisions operating indefinitely after the security enhancements become available. It was noted that perhaps a

router supporting authentication services could impose different policies, procedures or constraints on routers not supporting authentication services,

Mr. Bigelow presented attachments 7 and 8 to WP-418 that provided draft text for Core and SV-1 SARPs to add security provisions. He explained the proposed security architecture is based on ITU-T Rec. X.509 and using public/private keys and digital signatures for authentication. He explained that the schedule for completing the Core and SV-1 SARPs for security is by June of 1998. There were no questions or discussion on the specific contents of the draft SARPs material.

4. Review Status of Action Items from the 12th Meeting of WG2

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

ACTION ITEM 8/7 - Continue Simulation work to determine optimum value for congestion management beta value.

Status: Mr. Adnams reported that EC should have results to report by the next WG2 meeting.

ACTION ITEM 11/5: Submit information or offer deletion of future work item on investigation into provision of broadband transport

Status: CLOSED - This action item closed based on no planned activities on this topic.

ACTION ITEM 11/8: Report on progress of development of HF datalink SARPs by AMCP

Status: CLOSED - Mr. Jones reported that WP-415 was submitted to this meeting to address this action item and suggested the group would need to review the need to retain this open action item after reviewing WP-415. A new action item was created that replaces this action item.

ACTION ITEM 11/9: Propose use of Type 2 BISPDU Authentication of IDRP data for CNS/ATM-2 SARPs

Status: CLOSED - This open action item is related to the inputs from WG1 in WP-418. This action item was replaced with a new action item to develop the ICS security provisions.

ACTION ITEM 12/1: Mr. Tamalet will send an announcement to the internet technical list on the existence of the WG2 SDM list and will invite participation in the SDM activities.

Status: CLOSED

ACTION ITEM 12/2: Mr. Graf will provide a defect report to the ATN CCB to correct the text describing transport timers.

Status: CLOSED

ACTION ITEM 12/3: Mr. Van Trees will generate a defect report/change proposal based on WP-410 and the comments of WG2 for submission the ATN CCB.

Status: CLOSED

ACTION ITEM 12/4: A defect report for submission to the ATN CCB will be written by Mr. Whyman to address the issues uncovered with V.42bis. A change proposal will also be prepared recommending an alternative compression algorithm. *Note: These will be coordinated with Mr. Graf.*

Status: CLOSED – Mr. Graf submitted the defect report.

ACTION ITEM 12/5: A subgroup, lead by Mr. Crenais, was task to draft a response to AMCP and to electronically coordinate the response with the WG2 members. Mr. Jones, Mr. Hennig and Mr. Bigelow offered to provide inputs to Mr. Crenais by 15 July and the goal was to provide a fully coordinated flimsy to the WG2 rapporteur by July 31 delivery to the panel secretary.

Status: CLOSED - Note: Upon request from a member, the rapporteur agreed to make the letter to ICAO available.

ACTION ITEM 12/6: Paul Hennig will introduce the topic of CM addressing and CM address data base requirements at the JWG.

Status: CLOSED

ACTION ITEM 12/7: Paul Hennig will prepare a policy statement from IATA on CM addressing to WG2/WG3.

Status: CLOSED – Mr. Hennig indicated that IATA felt they were not the appropriated organization to address this issue. AEEC will address this with a proposal into their mid-term meeting in April 1998. Mr. Hennig accepted a new WG2 action item (13/1) to report on the AEEC position back to WG2.

5. Package-1 ICS Documentation

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

Mr. Hennig had accepted an action item (number 12/7), at the Langen WG2 meeting, to solicit a policy statement from IATA on context management addressing. Mr. Hennig reported that IATA felt they were not the appropriated organization to address this issue. AEEC will address this with a proposal into their mid-term meeting in April 1998. Mr. Hennig accepted a new WG2 action item (13/1) to report on the AEEC position back to WG2.

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. Graf presented WP-416 on the status of proposed defect reports relating to the ATN ICS SARPs. He reported the six defect reports have been submitted to the CCB. Five of these defect reports are considered to be minor. Only the defect related to the optional use of V.42bis is considered a significant defect in the SARPs. This issue was first presented to WG2 at its 12th meeting in Langen. Of the six defect reports submitted to date, two have been accepted by the CCB and the remaining four are pending. Note there was a CCB meeting held just during the time period of the WG2 meeting in Redondo Beach that addressed the pending defect reports.

5.2 ICS Guidance Material

Mr. Gosselin presented WP-419 on WG1 proposed deletions on ICS Guidance Material. He indicated that the Comprehensive ATN Manual (CAMAL) being produced by WG1 consolidates all of the guidance material for the ATN. The working paper proposes to delete the address material from the ICS area of the guidance material and to consolidate the naming and addressing material in Part 2, chapter 6 of the CAMAL. The group agreed with the proposal to consolidate the naming and addressing material.

Mr. Herber and Mr. Cardwell offered to assist Mr. Gosselin in updated chapter 2 of the ICS GM for incorporation into the CAMAL.

Mr. Cardwell introduced Flimsy 1, draft GM for chapter 2 of ICS. He noted that Mr. Herber had prepared most of the proposed revisions. After the paper was introduced, Mr. Jones requested the members review the paper and be prepared to discuss it the following day. During the subsequent discussion the working group agreed to the material as presented in Flimsy 1.

Mr. Cardwell presented WP-429 proposing additional ICS guidance material, for the CAMAL, to address the scalability of the ATN routing architecture. This working paper described a review of three working paper previously presented to WG2 (i.e., WP-367, WP-374 and WP-391). All three of these previous working papers address approaches to network architectures and topologies to achieve a scaleable routing architecture. The working paper concluded that the ICS SARPs and GM already the needed functionality

needed to achieve a scalable routing architecture. Additions to the ICS guidance material was proposed to section on “the impact of routing updates” explain how to use of a hierarchy of ATN islands having a small number of BISs are an optimal arrangement for scalability. Also the concept of ‘route server’ is introduced into the ICS guidance material. The working group suggested a number of changes and additions to the text and approved the modified version for incorporation into the CAMAL as guidance on the ICS.

5.3 Additional Validation Results

Mr. Cardwell presented WP-424 describing issues related to the ICS SARPs uncovered during the ADS-Europe work. Three potential defects were identified that were discussed by the working group. These potential defects and the disposition of WG2 were:

a) A problem was encountered with the route establishment. Some implementations did not immediately generate an ISH as soon as the call was established.
WG2 disposition: text will be added to the ATN ICS guidance material in the CAMAL to indicate that the intent is to generate the ISH immediately after the call is established.

Mr. Cardwell agreed to prepared text for the CAMAL to address this issue.

b) The ATN SARPs do not make it clear what happens on receipt of an SNDCF Error Report. Mr. Cardwell and Mr. Graf agreed to prepare a defect report to clarify that a reset is generated upon receipt of an SNDCF Error Report.

c) The AMSS subnetwork, as used for the ADS-Europe trials, has a problem when the aircraft was transitioning from one GES to the next. The loss of a path via the first GES was not promptly reported resulting in the ATN router believing that two valid paths existed when in reality the only valid path was via a second GES. WG2 had previously prepared (at its 12th meeting in June 1997) a flimsy and sent it to the AMCP stressing the need for the AMSS SARPs to require, or at least recommend, timer settings consistent with the need for the AMSS subnetwork to be able to detect a loss of connectivity in a timely manner and to then issue a leave event. The working group concluded that no change was required to ATN SARPs or GM but need to make certain AMCP addresses this issue. However ATNP WG2 members were encouraged to coordinate with their AMCP members to ensure that that AMCP acted upon this issue previously raised by ATNP WG2.

Mr. Cardwell prepared an update to the working paper and presented it as WP-424a. This revised version included proposed revisions to the ICS guidance material and a proposed defect report against the ATN SARPs. The working group approved the revised paper.

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

5.4 Implementation Plans

Mr. Herber presented WP-414 describing an experimental ATN Topology and ATN Addresses allocated in Germany. This information paper described the Demonstrator and ATN Research Testbed (DART) and how this testbed will be used to support trials with an emphasis on developing a plan for NSAP addressing for Germany. The DART will also be used for joint ATN trials. The DART has been connected to an ATN Trials Router operated by Eurocontrol at Bretigny and can thus be seen as an extension of the ATN trials infrastructure set up in Europe.

Mr. Adnams provided a verbal report on the status of the Eurocontrol ATN Trials Infrastructure project (ATIF). ATN components like the Trials End System (TES) and Trials ATN Router and Transport Server (TAR-TTS) have been integrated into a distributed European ATN Trials Infrastructure, which is being connected to other regions (e.g., the U.S. and Australia). ATIF now has a large installed user community administered from Brétigny including (Maastricht, ADS Europe, NATS, Irish CAA, Italy, Holland, Germany, Norway, Spain and CENA - Toulouse). The Airborne side has now also been addressed and experimental compliant systems are available on the PC platform. Flight trials with 7 layer ATN and multiple subnetworks exercising a subset of the ADS and CPDLC SARPs will be conducted in early 1998. The first version of the ATIF Network Management Center will be delivered in December 1997, it will be used to remotely monitor and configure the ATIF systems that have been distributed in Europe. The first version uses the proprietary log and trace information in ATIF systems and communicates "out of ATN band". Future upgrades to support ICAO Systems Management SARPs validation are under study. A study to integrate new subnetworks such as Asynchronous Transfer Mode into ATIF is underway.

Mr. Hennig reported that ATNSI has let three contracts, namely the ATN Router Reference Implementation (RRI) contract with the Aeronautical Communications, Inc. consortium, the Conformance Test Suite (CTS) contract with an ARINC led consortium, and a Configuration Management contract to handle ATNSI internal matters. ATNSI expects a formal agreement with the US/FAA and Eurocontrol by year-end wherein their CTS is joined with the Eurocontrol Reference ATN Facility (RAF) program into the Common American European Reference ATN Facility (CAERAF). The RRI software delivery schedule calls for initial delivery 12/98, interim delivery mid-1999, and final software delivery 12/99. Further, the ATNSI program expects several aircraft certifications during first half of 2000, and a six-month operational evaluation with in-service pilots and controllers during second half of 2000. Four scenarios are under review for operational evaluation venues, namely:

- a) AOC only worldwide, using ATN SARPs,
- b) CNS/ATM-1 in the ICAO North Atlantic region (including AOC over ATN),
- c) CNS/ATM-1 within the FAA Flight 2000 program (including AOC over ATN), and

- d) CNS/ATM-1 as part of an U.S. enroute domestic datalink program (including AOC over ATN).

All participants are expected to reach common program consensus in January 1998.

Mr. Jones indicated that FAA and Eurocontrol are working a common test facility to support certification of ATN systems. The Combined American European Reference ATN Facility (CAERAF) will be a test facility intended to support the certification of ATN systems. This combines the efforts previously reported for the FAA/ATNSI Conformance Test Suite (CTS) and the Eurocontrol Reference ATN Facility (RAF) to produce a more comprehensive facility than either of these capabilities alone. Mr. Adnams stated that for the CAERAF project, ATNSI and Eurocontrol will sign an Agreement under the umbrella of the FAA-EUROCONTROL MoC. This signature is planned for November this year and follows the signature of the MoC changes, which are necessary for this project. The Call for Tender is planned for December (1997) and the contract is planned to start Mid 1998 with CAERAF completion end 1999.

Mr. Adnams reported that Pro-ATN Part 1 will conclude in mid 1998 with an initial demonstration using services developed in the EOLIA project. Part 2 will be the Validation and Operation phase of the project using the deployed network and will last for approximately 1.5 years. PROATN and the ATNSI RRI project are coordinating on some specification work and coordinated trials with ATNSI for bench testing leading up to subsequent flight trials would be highly desirable.

Mr. Cardwell presented WP-423 providing a summary of the ATN Compliant Communications – European Strategy Study (ACCESS) project. This information paper described the 3 phases of the project that includes the development of an implementation plan for the introduction of the ATN in the European core area. It also includes trials for the ATSMHS application.

Mr. Adnams reported that the ACCESS project results will be taken into account by the Eurocontrol ATN Implementation Task Force whose interim report will be made public in December 97. The Task Force includes the development of a cost benefit analysis.

Mr. Tamalet presented WP-422 presenting a proposed routing organization of the European ATN. This information paper described activities associated with the ACCESS project and the described study as covering both the European supported north Atlantic and the core European areas. The working paper presented one of the two proposed routing architectures under review in the ACCESS project. The working paper proposed to serve the European region with multiple ATN ‘sub-islands’. Each sub-island would be a routing domain confederation (RDC). Each sub-island would include a backbone route server and the European region would be served by a higher-level backbone router. Within each sub-island RDC there could be multiple States each with their own RDC and BIS that connects to a sub-island route server for the associated sub-island. Within a given State, routers were proposed at major airports and at area control centers. The paper presented a generic scenario as an example routing architecture for France. Mr.

Hennig asked if any airlines are involved in the ACCESS work. Mr. Crenais indicated that IATA had provided input to some of the ACCESS tasks and was also involved in the Eurocontrol task force [ATNI-TF] which received the output of the ACCESS study. Mr. Tamalet offered to provide copies of the ACCESS report to interested ATNP WG2 members.

Mr. Tamalet presented WP-421, a user's manual for the ATN address repository. This information paper described the structure of the ATNP NSAP address repository and the address registration procedures. This builds upon the agreements at prior ATNP WG meetings and provides an automated tool. Mr. Tamalet presented Flimsy 3 to inform WG3 on the availability of the user's manual for the ATN address repository.

6. Package-2 ICS Documentation

Mr. Hennig presented Flimsy 8 proposing a SARPs version/revision process. The flimsy pointed out a number of issues on how to achieve backward compatibility and the role that version numbering will play in achieving backward compatibility. The working paper included four recommendations directed mainly toward WG1 and the WG2. The intent is that version 1.0 will correspond to the ICAO approved initial SARPs as published in 1998. Mr. Graf pointed out the proposed use of the NSAP version field would cause a lot of problems as the system would need to be given new NSAP within a different routing domain. Also route aggregation would be impacted. As a result, Mr. Hennig agreed to modify the proposal in Flimsy 8 to not use the NSAP version field to identify the ICAO SARPs version.

The working group agreed with the recommendation in the flimsy that WG2 document the mechanisms whereby Defects and/or Enhancements to the ICS can be identified by operational components.

The discussion of the flimsy raised the issue on the specific defect that had been identified at the 12th meeting of WG2 against the Sub-Volume provisions for V.42bis compression. The group concluded that Mr. Graf, the subject matter expert on the CCB for S-V 5, should pursue getting V.42bis removed from the SARPs even if the proposed alternative is not progressed in time for inclusion in the initial ICAO published SARPs.

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 list) by mid-November.

6.1 Security Mechanisms

Mr. Bigelow presented attachment 5 to WP-418, communiqué from WG1, posing a number of questions for WG2 related to the authentication of routing information exchanges between BISs. The paper proposed that authentication be used only among air-ground and ground routers and not be used between air-ground and airborne routers.

Three alternatives for the distribution of public key information to ground and air-ground routers were proposed. Mr. Tamalet raised an issue with not using authentication for routing information exchanges across the air-ground path. He postulated the case where a mobile user (or pseudo mobile user) could advertise multiple addresses, appearing as multiple aircraft. He felt this could result in denial of service if this unauthorized user advertised the same address(es) as legitimate authorized users. Mr. Bigelow pointed out that at least some of the concerns raised could be addressed by means other than use authentication mechanisms.

Mr. Bigelow, Tamalet and Adnams agreed to get together to prepare a flimsy to propose a response to WG1. This flimsy would indicate the areas that WG2 agrees with the WG1 proposals related to security and would address any the issues of concern to WG2 arising from not using authentication for routing information exchanges between mobile routers and air-ground routers. There was some concern over the consequences of allowing routers without security provisions operating indefinitely after the security enhancements become available. It was noted that perhaps a router supporting authentication services could impose different policies, procedures or constraints on routers not supporting authentication services,

Mr. Bigelow presented Flimsy 2, which was prepared in response to the WG1 communiqué related to the WG1 position of needs for security services on the ATN. The Flimsy indicated that it was felt that the risk from not providing for authentication of IDRPs exchanges from an airborne router to a ground router was greater than stated in the communiqué from WG1. There were several issues with the Flimsy. First the flimsy included material more detailed than necessary on one possible technical solution for how to provide authentication from IDRPs exchanges between air airborne and a air-ground router. A more general issue that the group felt needed to emphasize the need for a system concept for network security and a establishment of a sunset date for routers not supporting the ATN security provisions. Mr. Bigelow subsequently presented a revised Flimsy 2(a). The revised flimsy addressed the backward compatibility requirements and some of the issues surrounding the use of authentication between aircraft and air-ground BISs. The working group approved Flimsy 2a for submission to WG1.

There was agreement with the three alternatives presented in attachment 5 to WP-418 for ground routers to obtain the public key information for other ground routers. The three alternatives described were:

- a) ground and air-ground ATN BIS routers implement a X.500 user agent;
- b) use local manual configuration to input the address and public key information for the other BISs from which to accept IDRPs updates; and
- c) use systems management to remotely configure the address and public keys for the other BISs from which to accept IDRPs updates.

Mr. Bigelow presented attachments 7 and 8 to WP-418 that provided draft text for Core and SV-1 SARPs to add security provisions. He explained the proposed security

architecture is based on ITU-T Rec. X.509 and using public/private keys and digital signatures for authentication. He explained that the schedule for completing the Core and SV-1 SARPs for security is by June of 1998. There were no questions or discussion on the specific contents of the draft SARPs material.

Mr. Moulton was confirmed as the WG2 point of contact for the development of the ICS SARPs and GM security provisions for ATNP/3.

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

Mr. Moulton presented Flimsy 5 proposing the work plan to develop the SARPs and guidance material for ICS security provisions. The first draft of the ICS security SARPs and guidance materials will be available by the 15th meeting of WG2 (tentatively scheduled for June 1998). A copy of Flimsy 5 is attached to this report.

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

Mr. Jones presented WP-415 providing a status report of the HF Data Link (HFDL) SARPs being developed by the AMC Panel. He reported that the HFDL SARPs may be ready for panel approvals as early as April of 1998. The HFDL draft SARPs defines the subnetwork as consistent with the generic mobile SNDCF as currently defined in Sub-Volume 5 of the ATN SARPs. He suggested that WG2 member may want to coordinate with their state's AMCP member to track changes to the HFDL draft SARPs as they mature.

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

6.3 QoS management functions

No material was presented under this agenda item.

6.4 Systems Management

Mr. Moulton presented attachments 9 and 10 to WP-418 containing the proposed changes to the Core and Sub-Volume 1 ATN SARPs to incorporate system management provisions. He noted that an IS would also become an ES for the systems management function. Mr. Adnams presented WP-426 Attachment A, a systems management tasking update. This was a proposal from WG1 on the appropriate tasking for WG1, WG2 and WG3 to progress the incorporation of systems management provisions into the ATN SARPs. He indicated that the ATN communications services, including the upper layer efficiency enhancements, as defined in sub-volume 4, should be used to support the system management application. He noted that the ATN SARPs should define the minimum set of required standard managed objects as well as any ATN specific managed objects. He

also noted that there is coordination ongoing between the European and American ATN projects to define a common set of managed objects. The results of these efforts will be brought into future ATNP WG meeting. He reviewed the proposed tasking for WG2. This was described in 7 tasking items in Attachment A to WP-426.

Mr. Moulton noted there will be a joint meeting of the WG1/SG3, WG3/SG3 and WG2 members supporting the development of ICS systems management provisions. The meeting is anticipated to last 4 days during the week of 19 January 1998. The location is to be determined.

It was pointed out that WG1 has proposed a Sub-Volume 6 to presents the requirement for systems management.

Mr. Adnams presented WP-427, the draft systems management guidance material from WG1. This document presents the overall ATN system management overview and it is still in a early stage of development and is expected to mature by the next meeting.

Mr. Adnams presented WP-428 proposing a managed object template for ATN SARPs. The working paper proposes template to be used for SARPs development in the definition of managed objects. The working group accepted the proposed template as the basis for the definition of the ICS managed objects.

Mr. Tamalet was confirmed as the WG2 point of contract for the development of the systems management ICS SARPs and GM provisions for ATNP/3.

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.

Mr. Tamalet presented Flimsy 4 proposing a work plan for the development of the systems management work items allocated to WG2. The flimsy proposed to have the first draft SARPs text for system management by the 14th meeting of WG2 in March 1998. Flimsy 4 is attached to this meeting report.

6.5 Financial Accounting Mechanisms including identification of Network Cost Parameters

No material was presented under this agenda item.

6.6 Multicast/Broadcast Functions

Attachment B to WP-426 conveyed a WG1 working paper on multicast. Mr. Jones reminded the working group that a WG2 flimsy to WG1 has been generated at the Langen meeting requesting a decision on the requirement to support multicasting in the ATN SARPs. IATA expressed a need for multicasting to WG1 during their meeting in Langen.

Mr. Paydar, the panel secretary, explained that based on a request from WG1 out of the Langen meeting, he investigated if ICAO can accept operational requirements from industry organizations. The results of this investigation have shown that such requirements can be accepted for the considerations of ICAO panels. Mr. Calow had indicated that WG1, at its meeting in Redondo Beach, had endorsed the support for multicast in the ATN SARPs enhancements for ATNP/3.

Mr. Adnams presented Attachment B to WP-426 describing the alternatives for multicasting. The recommendation of the material was to support an 'unreliable' multicasting service.

WG2 accepted to progress multicast as a proposed enhancement to the ICS at ATNP/3. Mr. Hennig was confirmed as the WG2 point of contact to progress the ICS SARPs and guidance material on multicasting for ATNP/3.

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

Mr. Hennig presented Flimsy 6 proposing the work program to develop the ICS SARPs and guidance material for adding supporting for multicasting. The flimsy proposed to have the first draft SARPs for multicasting available for WG2 review at its 14th meeting in March 1998. A copy of Flimsy 6 is attached to this report.

6.7 ATN ICS Subsets

No material was presented under this agenda item.

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

No material was presented under this agenda item.

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

7. Future Work Plan

Mr. Jones presented WP-420 proposing to delay the meeting of ATNP/3 until the Sept. 1999 time frame. WG2 endorsed the proposal as the delay was viewed as necessary to complete the key item of the work programme, as assigned to WG2 by ATNP/2.

7.1 Plans for 14th meeting of WG2

Mr. Nunes presented WP-417, an information paper describing the arrangements for the 14th meeting of WG2. The WG2 meeting will take place 16-20 March 1998 at the Rio

Othon Place Hotel, Av. Atantica, 3264 – Copacabana, Rio de Janeiro, Brasil (phone +55 21 522-0262 and fax +55 21 522-1697).

8. Any Other Business

The working group considered the most appropriate schedule for working group 2 meetings in 1998 in the case where ATNP/3 is delayed until 1999. The group supported meetings in March, late June/early July, and October 1998.

Mr. Paydar asked the group if any considerations had been given to emerging new satellite based subnetworks. The group concluded that it was the responsibility to the AMCP to initiate any development of SARPs for new mobile subnetworks and ATNP WG2 should only become involved as the AMCP has progressed the subnetwork SARPs to the point that coordination becomes appropriate.

9. Conclusions and Action List

The meeting adjourned on 30 October 1997.

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.

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

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.

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

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

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.

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

Attachments

1. Agenda for the 13th Meeting of ATNP WG2
2. WG2 13th Meeting Attendance
3. List of Working Papers
4. Flimsy 4 - Proposed Work Programme for ICS systems management SARPs and GM
5. Flimsy 5 – Proposed Work Programme for ICS security SARPs and GM
6. Flimsy 6 – Proposed Work Programme for ICS multicast SARPs and GM

**Agenda for the
13th Meeting of ATNP WG2
27-30 October 1997
Redondo Beach, California USA**

0. Meeting Organizational Issues
1. Approval of the Agenda
2. Review and Approval of the report of 12th Meeting of WG2 (Langen)
3. Inputs/Issues from other ICAO Bodies (e.g., Panel Secretary, CCB, WG1, etc.)
4. Review Status of Action Items from the 12th Meeting of WG2
5. Package-1 ICS Documentation
 - 5.1 ICS SARPs (consideration of requests from the CCB and/or ICS SME).
 - 5.2 ICS Guidance Material
 - 5.3 Additional Validation Results
 - 5.4 Implementation Plans
6. Package-2 ICS Documentation
 - 6.1 Security Mechanisms
 - 6.2 Additional and/or revised SNDCFs for mobile and/or ground subnetworks
 - 6.3 QoS management functions
 - 6.4 Systems Management
 - 6.5 Financial Accounting Mechanisms including identification of Network Cost Parameters
 - 6.6 Multicast/Broadcast Functions
 - 6.7 ATN ICS Subsets
 - 6.8 Enhancements to the ICS SARPs/GM based on New or Revised User Requirements
 - 6.9 Enhancements to the ICS SARPs/GM based on Operational Experience
7. Future Work Plan
 - 7.1 Plans for 14th meeting of WG2
8. Any Other Business
9. Conclusions and Action List

Attachment 2

WG2 13th Meeting Attendance

	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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Sy. Manag.					
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LIST OF WORKING PAPERS

ATNP WG2 – 13th Meeting –Redondo Beach, California, USA – 27-30 Oct. 1997

No	Agenda Item	Presenter	Title
412	1	R. Jones	Proposed Agenda for 13 th Meeting of ATNP WG2
413	2	R. Jones	Report of the 12 th Meeting of ATNP WG2
414	5.4	A. Herber	Experimental ATN Topology and ATN Addresses allocated in Germany
415	4	R. Jones	Status Report on HFDL Subnetwork SARPs
416	5.1	A. Herber K-P Graf	Status of Proposed Defect Reports relating to ATN ICS SARPs
417 (IP)	7.1	L. Castro	Information on the Forthcoming ATNP Working Groups Meeting in Rio de Janeiro (Brazil)
418	3/6	T. Calow	Communiqué from WG1 (on Security, Multicasting, etc.)
419	3/5.2	B. Gosselin	WG1/SG1 Suggestions on ICS Guidance Material
420	7	R. Jones	Schedule for ATNP/3
421 (IP)	5.4	S. Tamalet	ATNP NSAP Address Repository User Manual
422 (IP)	5.4	S. Tamalet	A Proposal for the Routing Organisation of the European ATN
423 (IP)	5.4	B. Cardwell	ACCESS – A Project Summary
424	5.3	B. Cardwell	Issues Arising from Further ICS Validation
425	3	M. Paydar	An update from the Panel Secretary
426	3/6	T. Calow	Communiqué from WG1 on Systems Management
427	6.4	M. Adams	Draft Systems Management Guidance Material
428	6.4	M. Adams	Draft Managed Objects Template for ICS
429	5.2	B. Cardwell	Draft GM on ATN Scalability
430			
431			

Flimsy 1 – Proposal for Amendments of ICS Guidance Material, Chapter 2, Herber/Cardwell

Flimsy 2 – Response to WG1 communiqué to WG2 on security issues

Flimsy 3 – WG2 input to WG3 on ATN address repository

Flimsy 4 – Proposed Work Programme for ICS systems management SARPs and GM

Flimsy 5 – Proposed Work Programme for ICS security SARPs and GM

Flimsy 6 – Proposed Work Programme for ICS multicast SARPs and GM

Flimsy 7 – To WG1 questioning the need to retain CIDIN as an ATN subnet in SV-5

Flimsy 8 – ATN version numbering

ATTACHMENT 4

**ATNP/WG2
Flimsy 4**

Proposed work plan for the development of the System Management Work Items that have been allocated to WG2

WG2

**27 October – 30 October 1997
Redondo Beach, USA**

Presented by: Stéphane Tamalet

The WG2 tasking for System Management that has been proposed by WG1, has been accepted by WG2. The Work Program for WG2 on System Management consists of 7 work items (numbered a) to g) below). This Flimsy proposes a work plan for the development of the different work items.

a) Develop SARPS and Guidance for the set of MOs for all classes of ATN Internet Systems needed to support Performance assessment, Accounting and Fault detection (with Configuration and Security support as needed), for ground-ground and air-ground communications.

Proposed Work Plan:

November 97:

An ATNSI internal project document, called the Functional Requirement Specification (FRS) document, is being developed by Vertel in the scope of the ATNSI/RRI project, on the basis of initial ProATN and ATNSI MIB definition documents and of other documents proposing a list of favorite MOs (these documents have been prepared by persons who have an expertise in the ATN Network Management domain).

The FRS is expected to contain:

1. A section developing a Concept of Operations (CONOPS) for ATN System Management
2. A section defining a minimum set of MOs
3. A definition of required systems management functions

End of November 97:

The FRS document is made available for review by the persons involved in the production of SARPS for System Management.

Action for Martin Adnams to get an agreement from ATNSI for the availability of the FRS document for limited review.

December 97 - January 98

The FRS document is reviewed and used as a basis for the production of a WG2 document defining the MOs retained for the SARPs (Action for S. Tamalet). The MOs are defined using the Managed Object Requirement Templates (MORTs) defined by WG1.

Guidance is produced explaining the rationale for the selection of MOs, the operations level descriptions of the MOs (including purpose and intended use with examples where appropriate), and the MORT syntax (Action for Paul Hennig)

End of January 98:

A first version of the SARPs and Guidance for the MOs is presented and reviewed at the January joint subgroups meetings (WG1/SG3, WG3/SG3, WG2).

February 98:

Update of the SARPs and Guidance on MOs on the basis of the observations made during the meeting.

March WG2 meeting:

Presentation of the documents to WG2

b) Develop SARPs and Guidance for management exchanges over the air-ground during flight for real-time event and fault reports of serious operational consequence.

Proposed Work Plan:

December 97: The CONOPS section of the ATNSI FRS document is reviewed and used as a basis for the production of the ATN CONOPS in the ATN Guidance Material. The ATN CONOPS is further developed if necessary for inclusion of sections covering work item b) issues.

January 98:

Delivery of a first version of the ATN SARPs and GM including the CONOPS (Action for Tony Kerr)

c) Develop Guidance Material for the implementation of distributed management of the ATN Internet within organisations on the ground (i.e. manager to agent communications)

Proposed Work Plan:

Same Work Plan as for Work Item b)

d) Provide SARPs and Guidance for the MOs and access mechanisms required for reference testing of the ATN Internet

Proposed Work Plan:

After January subgroups meeting:

The WG2 document describing the MOs is made available to persons working in the CAERAF context (Action for Martin Adnams)

February 98:

The document is reviewed in the CAERAF context

End of February 98:

Comments from CAERAF are distributed

During the WG2 meeting, at Rio:

Comments from CAERAF are incorporated in the working version of the SARPS and GM on the definition of MOs.

e) Provide SARPS, Guidance to aeronautical standards bodies for the distributed management of ATN Systems within aircraft and for Airline/CAA ground access to manage those systems.

Proposed Work Plan:

This is considered as a low priority work item. It will be considered after the March WG2 meeting.

f) Identify Management information (MOs) needed for enforcing Service Level Agreements with Service Providers

Proposed Work Plan:

This is considered as a low priority work item. It will be considered after the March WG2 meeting.
(definition of a summary MIB)

g) Provide Guidance to link system events to actions needs to enable the exchange of application data (i.e. between s/n connectivity JOIN/LEAVE, IDRPs connection, TP4 connection, Context management exchange and Application associations).

Proposed Work Plan:

This is considered as a low priority work item. It will be considered after the March WG2 meeting.

ATTACHMENT 5

WG2

Flimsy 5 Security

The WG2 plans for additions to the ATN SARPs for ATNP/3 includes provisions for the inclusion of security provisions in the ICS SARPs. This flimsy presents an overview of the plans for completing the security tasks.

WG 2 Security Work Plan

The Working Group 2 Security Tasking consists of:

1. Addition to SARPs for IDRPs authentication messages
2. Liaison with WG 3 on X.500 Directory Schema
3. Liaison with WG 3 on X.509 certificate definition
4. Liaison with WG1/SG 3 (Systems management) for definition of certificate exchange for IDRPs
5. Liaison with WG 3 on certificate management

Addition to SARPs for IDRPs authentication

WG2 is tasked to develop modifications to the ICS SARPs to include the use of authentication in the IDRPs messages. The modifications must include Guidance Material on where authentication is required, where it is not to be used, and how it should operate.

IDRPs authentication includes provisions for use of the IDRPs authentication procedures, specification of an algorithm, and use/non-use over the air-ground link.

Schedule:

1. Add SARPs material for authentication procedures in IDRPs -
first draft done by 15th meeting of WG2
second draft by December 1998
completed draft by the penultimate meeting of WG2 prior to ATNP/3
2. Add Guidance material for authentication procedures in IDRPs and on the exchange of keys, and key management -
first draft done by Summer 1998
second draft by December 1998
completed draft by WG2 meeting prior to ATNP/3

Liaison with WG 3 on X.500 Directory Schema

WG2 will work with WG3 in the definition of the X.500 Directory Schema. The coordination is needed to ensure that the schema include provisions for the specification of IDRPs security mechanisms including provisions for X.509 certificates.

Liaison with WG 3 on X.509 certificate definition

WG2 will work with WG3 in the definition of the X.509 certificate to include the requirements for IDRPs authentication.

Liaison with WG1/SG 3 (Systems management) for definition of certificate exchange for IDRPs

WG2 will work with WG1/SG3 in the definition of procedures for exchanging certificates and keys between IDRPs entities using system management; or in the definition of procedures for exchanging keys using an appropriate mechanism.

Liaison with WG 3 on certificate management

WG2 will work with WG3 in developing the procedures for the management of certificates with in the scope of the directory. This will include requirements for Certificate Authorities and the add/deletion of certificates within the ATN directory.

Future Meetings:

WG2 Security Experts will meet along with the WG1/SG2 Security Sub-Group during the week of January 19, 1998 at a location to be determined.

Liaisons - on-going

ATNP WG2
Redondo Beach
27-30 October 1997

FLIMSY 6

**Proposed Workplan for
Multicast SARPs and Guidance Material**

Assumptions:

- 1) User requirements are as specified in WG1-10, WP15, Appendix B, Chapters 1.1, 1.3 and 1.4
- 2) User requirements are satisfied by the implementation of Unreliable Multicast Communications Service (i.e., connectionless multicast transport service) as described in the reference working paper
- 3) User requirements do not need enhanced IS-IS Routing Protocol SARPs

Workplan

- 1) Enhance ATN NSAP Addressing Plan SARPs and Guidance Material (Tony Whyman)
- 2) Enhance IDRP Routing Protocol SARPs and Guidance Material (Tony Whyman)
- 3) Enhance ES-IS SARPs and Guidance Material (e.g., dynamic assignment of multicast addresses) (Jim Moulton)
- 4) Monitor WG3 development of connectionless ACSE / Presentation / Session Upper Layer Communication Services (Paul Hennig)

Schedule:

Initial draft of SARPs available in Rio