ATNP/WG2/2/Report
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AERONAUTICAL TELECOMMUNICATIONS NETWORK PANEL

Melbourne, FL USA
23.1.95-27.1.95

ATN Internet Working Group 2 (WG2)

Second Meeting Report

Issue 1.1

Final

Contents

Appendices

1. Introduction

At the initial ATNP-1 meeting held in Montreal 8-21 June 94, three working groups were created in order to further the work of the panel. This is a report of the second meeting of Working Group 2 (WG2) of the ATNP.

14 experts from 5 countries and 2 international organisations attended the meeting. The list of attendees is attached to this report as Appendix A. The list of papers submitted for WG2 consideration at this meeting is attached to this report as Appendix B.

2. Agenda Item 1 - Approval of Agenda and Meeting Objectives

Mr Sharma, Rapporteur of WG2 opened the meeting and drew the participants attention to the working papers that had been prepared for the meeting and, in particular, to working paper 51 (WP51) comprising the agenda, a list of all working papers, their assignment to agenda items, a list of meeting objectives, and a proposed schedule for the meeting. This had been prepared by Mr Sharma in advance of the meeting. He also welcomed Mr Sandrelli (Italy) and Mr Briand (Eurocontrol) who were attending the working group for the first time.

The agenda and schedule were approved with some minor re-organisation to permit one delegate to leave early.

3. Agenda Item 2 - Report on the Progress of WG2/1 Deliverables

The Status of WG2/1 Deliverables is summarised in the following table:

Ref	Deliverable	Comp.	Pri	Dep.	Status
WG2-1	Finalise Draft WG2 Work Plan UK	30/11/94	1	NIL	Ready for Review (WP52)
WG2-2	Develop CNS/ATM-1 Internet Package Definition (comprising PRL & definition of mechanisms to support optional non-use of IDRP) and, where necessary, Defect Reports and supporting draft Change Proposals required to support Package 1. FRANCE*/UK/US/SITA/EUROCONTROL	31/12/94	1	WG2-8	Report of first meeting of Task Force available at this meeting (WP64), but no draft deliverable.
WG2-3	Respond to proposals regarding optional non-use of IDRP for CNS/ATM-1 Package US	24/11/94	1	NIL	WP71 provides US response
WG2-4	Develop Network Operating Concept EUROCONTROL*/GERMANY/SITA/FRANCE/USA/UK	28/2/95	2		Outline available as WP57.
WG2-5	Develop ATN SARPs Validation Strategy	30/11/94	2	NIL	Completed at first meeting

Ref	Deliverable	Comp.	Pri	Dep.	Status
WG2-6	CCB Terms of Reference	28/10/94	WG 2/1	N/A	Completed at first meeting
WG2-7	Enhance ATN Requirements Database EUROCONTROL	31/12/94	2	WG2-5	Work in progress (WP58)
WG2-8	Review and agree ATN User Requirements, submit Defect Reports and supporting draft Change Proposals EUROCONTROL*/GERMANY/JAPAN/US/UK	31/12/94	2	NIL	Not yet started
WG2-9	Agree, if necessary, changes to ATNP WG2 Terms of Reference for endorsement by WG of Whole meeting in March '95	28/10/94	WG 2/1	N/A	Completed
WG2-10	CCB Resolution on submitted Defect Reports and supporting CCB approved Change Proposals CCB	15/1/95	1	WG2-11 to WG2-22 WG2-1 WG2-2 WG2-5	Completed
WG2-11	Review ATN Routing Concept (WG2/WP-31) and, if appropriate, develop Defect Report for CCB Review EUROCONTROL*/US	28/2/95	2	12	For discussion at this meeting.
WG2-12	Develop additional guidance material related to ATN addressing for submission to CCB as a defect report(s) and supporting draft Change Proposals GERMANY*/US/FRANCE/EUROCONTROL	28/2/95	2	11	In progress
WG2-13	Review, modify and enhance, where appropriate, operational requirements proposed with respect to ATN addressing, develop (if appropriate) Defect Reports and supporting draft Change Proposals for submission to CCB EUROCONTROL*/GERMANY	28/2/95	2	NIL	In progress, draft operational requirements attached to WP69 Closed at this meeting, result to be incorporated in WG2-8.
WG2-14	Review QoS related ATN SARPs and Guidance Material and develop Defect Reports and supporting draft Change Proposals, where appropriate GERMANY*/EUROCONTROL	28/2/95	2	NIL	In progress
WG2-15	Develop Defect Reports and supporting draft Change Proposals for alignment with ICAO ATN Manual, 2nd Edition text. US	31/12/94	1	NIL	In CCB process

Ref	Deliverable	Comp.	Pri	Dep.	Status
WG2-16	Develop Defect Reports and draft Change Proposals to counter those Change Proposals produced in WG2-15 that are not considered relevant for draft SARPs US	31/12/94	1	WG2-15	Ongoing
WG2-17	Develop Defect Reports and supporting draft Change Proposals for resolution of 'unresolved defects from SICASP/V'. EUROCONTROL	31/12/94	2	NIL	Done and reviewed at CCB
WG2-18	Develop Defect Reports and supporting draft Change Proposals relevant to the proposed Mobile SNDCF PICS Proforma EUROCONTROL.	31/12/94	2	NIL	Outstanding and for discussion under Agenda 5. WG2-2 will incorporate.
WG2-19	Develop Defect Reports and supporting draft Change Proposals identified in WG2/WP-22 EUROCONTROL	31/12/94	2	NIL	Done and reviewed at CCB
WG2-20	Develop Defect Reports and supporting draft Change Proposals identified in WG2/WP-34 FRANCE.	30/11/94	2	NIL	Done and reviewed at CCB
WG2-21	Develop Defect Reports and supporting draft Change Proposals identified in WG2/WP-46 GERMANY	31/12/94	2	NIL	Done and reviewed at CCB
WG2-22	Develop Defect Reports and supporting draft Change Proposals identified in WG/WP-7. US	31 /12/94	2	NIL	In CCB Process
WG2-23	Create Version 1.0 of Draft SARPs & Guidance Material and Version 1.0 of ATN Requirements Database CCB	15/1/95	1	WG2-15	In progress following CCB. Planned completion date 10/2/95
WG2-24	Create a checklist of ATN Subnetwork Requirements and review and comment on draft VDL SARPs. SITA*/ US	March 1995	2	NIL	In progress
WG2-25	Systems Management draft SARPs and Guidance Material for CNS/ATM-1 Package (Initial) SITA*/US/France/Japan/Eurocontrol	31/12/94	1	WG2-2	Draft available as WP53

4. Agenda 3 - Review of WG2 Work Plan

WP52 was presented by Mr Sharma. It was agreed that the Working Group should plan dates of meetings, at least two meetings ahead, and, when setting target dates, that the voluntary nature of commitments to prepare deliverables should be taken into account. It was agreed that the work plan would be revisited for further review under agenda item 10.

It was agreed that working papers should be distributed two weeks in advance by EMail. Mr Sharma accepted responsibility for FAXing copies of documents to WG2 members that did not have EMail facilities. Mr Sharma will also FAX an up-to-date list of available working papers to WG2 members two weeks before the meeting, so that WG2 members may ensure that they have all relevant working papers.

The work plan indicated that the development of the CNS/ATM-1 Package SARPs and Guidance Material must be completed by the meeting scheduled for January/February 1996. The work plan also indicated that results of validation activities must be available by the meeting scheduled for June 1996.

The WG agreed on the need for such a work plan and requested that the gannt chart be modified to reflect the WG2-x deliverables identified to date. Mr Sharma accepted an action to update the plan accordingly.

ACTION 2/26 - UK - TO UPDATE THE WG2 WORK PLAN TO REFLECT WG2-X DELIVERABLES

5. Agenda 6 - Development of SARPs and Guidance Material for CNS/ATM-1 Package Systems Management

WP61, the report of the first meeting of the Systems Management Task Force, was presented by Ms Thulin (SITA). The assumptions made by the task force were reviewed, and is was agreed that while the exchange of Systems Management Information over the air/ground data link will not be considered mandatory for CNS/ATM-1 Package, it cannot be assumed that this will always be true. It was also agreed that the title and scope of the work should reflect CNS/ATM-1 Package only.

In the ground environment, it was agreed that Systems Management information may be exchanged between Administrative Domains as a local matter, provided that the safety and regularity of flight were not compromised. It was agreed to develop a Flimsy that would document the WG2 approved assumptions. It was further agreed that these assumptions should be incorporated in the Systems Management Guidance Material.

It was also agreed that assumption 5 was a conclusion rather than an assumption, and the US will submit a defect report identifying ATN Manual deficiencies in respect of route tracing.

ACTION 2/27 - US - PREPARE DEFECT REPORT INDICATING USE OF CLNP PARTIAL ROUTE RECORDING AND THE BENEFITS OF CLNP ECHO REQUEST/RESPONSE FUNCTIONS

WP53, draft Systems Management Guidance Material, was presented by Ms Thulin. It was agreed that this activity will continue to develop subsets for MOs, until the Systems Management Concept has been provided by WG1, when their appropriateness will be reviewed. It was agreed that the Systems Management Concept for CNS/ATM-1 Package being developed by WG1 should be reviewed with a view to incorporating it into the Systems Management Guidance Material.

It was further agreed that the terminology would be revised to use standard OSI terminology, and that section 4 on “Management Information”, would also include in its scope, the Naming of MOs, and the development of Managed Objects for the Mobile SNDCF.

6. Agenda 4- Review of CCB Recommendations

WP67, the report of the CCB meeting, held the preceding week, was presented by Mr Sanford (US). It was noted that no further meetings of the CCB are scheduled, with electronic communication expected to be sufficient. However, further meetings may be necessary if it is necessary to review the procedures. Mr Sanford also accepted an action to update the CCB Procedures (WP66) to include a new figure that had been produced to more accurately describe the CCB procedure.

ACTION 2/28 - US - TO UPDATE CCB PROCEDURES TO INCLUDE NEW FIGURE ON CCB PROCEDURES

Dates were also assigned to the CCB actions.

There was also discussion of technical problems concerning the compression tools specified by WP66 for use with Unix. It was agreed to resolve this by making available source code to public domain utilities on the CENA Server.

ACTION 2/29 - FRANCE - MAKE SOURCE CODE OF UNIX UTILITIES AVAILABLE ON CENA SERVER

The meeting then progressed to a review of the conclusions of the CCB meeting, as follows:

Conclusion 1. See Section 8 - Review of Flimsies.

Conclusion 2. See Section 8 - Review of Flimsies

Conclusion 3. The recommendations on VRCI authors were recognised.

Conclusion 4. The identified defect reports were reviewed as follows:

a) DR10 and DR17 Accepted and CP7 and CP14 Rejected. It was further noted that there is a more fundamental defect in that the Transport Layer SARPs do not consider how the Security Type applies to the transport layer functions

ACTION 2/30 - EUROCONTROL - PREPARE DEFECT REPORT ON LACK OF TL SARPS FOR HANDLING THE SECURITY TYPE

b) CP8 rejected. Further discussion and explanation needed to develop a proper handling of Congestion Management. In respect of DR50, although the text appeared to be wrong, Mr Colliver (France) reported that he believed that this text had been deliberately prepared by the TULIP Working Group and the advice of former members should be sought. It was agreed that a DR properly scoping the Congestion Management problem was necessary.

ACTION 2/31 - ALL - MAKE PROPOSALS ON CONGESTION MANAGEMENT.

c) It was agreed that the draft SARPs only need to have an ES-IS PRL for use over the air-ground data link. Requirements for ES-IS in fixed systems should be deleted and/or moved to guidance material. It was agreed that a further DR was necessary to scope this work, and that clarification was necessary on the scope of recommendations.

ACTION 2/32 - EUROCONTROL - SUBMIT DR SCOPING ES-IS DEFECTS AND PROPOSE CHANGES

ACTION 2/33 - CHAIRMAN - SEEK GUIDANCE FROM THE ICAO SECRETARIAT ON WHETHER INTRA-DOMAIN MATERIAL SHOULD BE RECOMMENDATIONS OR GUIDANCE

d) DR 20 was withdrawn, with a recommendation that the any submitting State or Organisation should submit defect reports that identify the precise cases where change is necessary. As a general principle, it was agreed that a DR may be submitted where redundancy is identified between text and PRL in the draft SARP, and/or other SARPs text. In general, requirements text should be removed (based on the CCB process), when it is already defined in APRLs, or other SARPs text.

e) The proposed change provided with DR23 was accepted provided that the revised text does not make a reference to ISO/IEC 10608. It was agreed that interoperability with non-ATN systems should not be unnecessarily prevented, as no User Requirements were known to exist which explicitly preclude the ATN from interoperating with non-ATN systems

ACTION 2/34 - EUROCONTROL - GENERATE CP BASED ON DISCUSSION OF DR23

f) DR 40 was accepted, and it was agreed that the referenced text in A5-4 should be deleted.

ACTION 2/35 - EUROCONTROL - GENERATE CP TO DELETE THE TEXT IN A5-4 IDENTIFIED BY DR40

g) DR47 was accepted. It was agreed that this DR reflected a wider problem of "support" versus "use" and it was also noted that the empty RIB_Att was now associated with General Communications and hence valid for use in an ATN context. It was also noted that for General Communications, there had to be rules ensuring that the empty RIB_Att was always used, in order to avoid routing black holes should some systems support the empty RIB_Att for General Communications only, and others support a RIB_Att explicitly identifying General Communications only.

ACTION 2/36 - EUROCONTROL - GENERATE DR IDENTIFYING LACK OF SPECIFICATION TO AVOID "BLACK HOLES" WHEN ROUTING IN SUPPORT OF GENERAL COMMUNICATIONS.

The CCB Procedures (WP66) were presented to the meeting. It was agreed that the procedures document would be subdivided into two documents. The first of these will be concerned with procedural aspects and will be maintained by the CCB Chair. The Second document will deal with configuration management aspects, and will be maintained by the validation archive configuration manager.

ACTION 2/37 - CCB CHAIR /VACM - TO DERIVE PROCEDURES AND CONFIGURATION MANAGEMENT DOCUMENT FROM WP66

Mr Colliver presented WP65 and WP70. It was noted by the meeting that the Configuration Management system described in WP65 was now set up and running. It was also noted that both WPs 65 and 70 comprised a major contribution to WP66.

The Working Group endorsed the following CCB Actions and adopted them as its own actions, as recorded below.

ACTION 2/38 - CCB CHAIR - TO SEND OUT THE CCB DECISION MESSAGE(S) FOLLOWING THE AD-HOC WG2 MEETING

ACTION 2/39 - CCB CHAIR AND VACM - TO BEGIN COORDINATION TO AUTOMATE VRCI UPDATE PROCESS

ACTION 2/40 - EUROCONTROL - UPDATE THE DATABASE TO REFLECT VERSION 1.0 SARPS ALIGNMENT.

ACTION 2/41 - FRANCE - PRODUCE SOFT VERSION 1.0 SARPS TO REFLECT DR95010001.

ACTION 2/42 - FRANCE - PRODUCE THE CHANGE PROPOSAL CORRESPONDING TO DR95010001

ACTION 2/43 - CCB CHAIR - PRODUCE NOTIFICATION ON ATN-INTERNET-TECHNICAL EXPLAINING VRCI LIST SCOPE AND USE INCLUDING THE FACT THAT DRS AND CPS WILL NO LONGER BE SENT TO THE ATN-INTERNET-TECHNICAL LIST

ACTION 2/44 - US - TO EVALUATE DR 95010048 WITHIN THE TWO WEEK PERIOD FROM SUBMISSION WITH RESPECT TO THE PENDING STATUS.

ACTION 2/45 -FRANCE - CREATE THE VRCI MAILING LIST AND SUBSCRIBE CCB MEMBERS

7. Agenda Item 5 - Development of Internet SARPs and Guidance Material for CNS/ATM-1 Package

7.1 US Position Statement

WP71 was presented by Mr Crocker (US). The meeting noted that this US position statement had already been presented and discussed by the Paris meeting of the WG2-2 Task Force, the report of which was available as WP64.

7.2 Report of the WG2-2 Task Force

WP64, the report of the Paris meeting of the WG2-2 Task Force, was presented by Mr Colliver who thanked Mr Whyman (Eurocontrol) for providing the material on which the report was based. Mr Hof (Eurocontrol) commented that the references in the report to the "Eurocontrol Position" could be mis-understood because representatives primarily operate as independent experts. Mr Crocker also drew the meeting's attention to WP55, which he would present later, which had been prepared in response to discussion at the Task Force meeting on the non-use of the Security Attributes. WP64 documented the outstanding technical reasons which presented the deliverable from being completed in order for it to be made available to this meeting.

Mr Sharma pointed out that in his planning of the meeting, he had assumed that the deliverables would be available. He requested that, in general, Task Force Reports be made available as soon as possible after any Task Force Meeting, and, where it was evident that a task could not be completed as planned, that he be informed as soon as possible.

In discussion of the report, Mr Colliver agreed to prepare a Flimsy making proposals on how network and transport priority and QoS should be handled by the transport layer and presented to its user.

Mr Whyman presented the discussion on the possible non-use of Security Attributes in IDRP and CLNP and their replacement by an addressing convention. No firm decision was taken at this stage, and further discussion was deferred until the presentation of WP55.

Mr van Trees (US) reported that there were User Requirements from the ADSP amongst others for direct setting of transport timers. Following discussion of this point, it was, however, uncertain as to whether such timer settings were to be initial values or fixed for the duration of a transport connection, in which case the Transport User would have to be responsible for QoS Maintenance. It was agreed that the proper boundary between WG2 and WG3 was the transport service defined in ISO 8072 and that it was not intended that applications should be specified to make direct use of the Transport Protocol. Mr Briand (Eurocontrol) agreed to prepare a Flimsy on the Transport Service and QoS, identifying the pitfalls involved in the setting of timer values by the Transport Service User.

In discussion of paragraph 3.2.6 of WP64, it was agreed that item 2 was a non-issue. i.e. the transport connection parameter referred to was a least upper bound rather than a minimum. Under Item 3, it was noted that France had withdrawn its proposals that some IDRP Mandatory protocol elements should be optional for CNS/ATM-1 Package.

In the report of the discussion of X.25 Fast Select and Priority, it was agreed that the availability of these facilities could not be determined simply from network type, and had to be determined from *a priori* information taking into account the DTE Address of the destination. This would impact ATN implementations.

7.3 US Proposal for a/g Routing Information Exchange

Mr Signore (US) presented WP55, which describes a protocol that MITRE has developed and implemented for the exchange of routing information over an air/ground data link. He informed the meeting that this protocol had been developed and tested over the last two years to a point where MITRE had confidence in its correct operation. As described in WP55, it was not immediately compatible with existing ATN Routing Information Protocols, but Mr Signore informed the meeting that he did not believe that the modifications needed would be significant and it was intended to have a complete proposal in time for the March meeting of the working group. However, the proposal in WP55 was to replace the provisions contained in section A6.1 of the version 0.0 draft SARPs, with the mechanisms documented in WP55.

It was stated that the reason for proposing this approach was an agreed US position that there is a need for some dynamic information exchange over an air/ground data link in order to give up-to-date information on reachability.

Commenting on this paper, Mr. Herber (Germany) stated that the group should carefully note the position indicated in this paper. In general, he supported the requirement of (1) protecting the air ground S/N from irrelevant traffic and to (2) provide the ground ATC with the flexibility necessary to perform its own routing policy with respect to S/N used for various ATC related traffic (for instance to avoid additional costs when using e.g. satellite networks). On the other hand, the proposed protocol may be well known to the US, it is unknown to the rest of the world, with significant implications for design, implementation and validation.

Ms Thulin then asked the US to make clear their underlying requirement, as what they had stated as their position was a solution rather than a requirement. There then followed discussion on what the underlying requirements were. In conclusion, these were accepted for the basis of the discussion as:

OR1. An End System (Ground or Airborne) must have the ability to specify, on a per application type basis, the air-ground data link to be used in support of its air-ground communications.

OR2. Mechanisms must exist to ensure the timely delivery of user data.

In discussion, it was understood that requirement 2 is primarily concerned with ensuring availability of a communications path i.e. that mechanisms exist to recover from faults in a period that is of the order of seconds. However, it was also understood to be a secondary desire to ensure the rapid uptake of planned changes to the network topology.

The working group accepted the above as a US position.

In determining whether to accept or reject the US proposal in WP55, it was noted that there were essentially three alternatives before the working group:

Option 1. The use of IDRP over an air-ground data link as specified by version 0.0 of the ATN Manual.

Option 2. The optional non-use of IDRP over an air-ground as proposed in WP25 and WP35, as presented at the San Diego meeting and reviewed at the WG2-2 Task Force Meeting in December 1994.

Option 3. The WP55 proposal as an optional alternative to IDRP over an air-ground data link, whilst optionally allowing the use of IDRP.

In order to help compare these alternatives, the working group agreed the following goals for CNS/ATM-1 Package:

G1. To minimise impact on planned ATN conformant system acquisitions currently underway in States and Organisations.

G2. To ensure that all CNS/ATM-1 Package requirements can be validated in the relevant timeframe (over the next 12-18 months).

G3. To minimise the impact of ATN software in avionics systems (in terms of lines of code)

G4. To minimise the impact on current avionics developments.

An attempt was then made to compare the different proposals, by drawing a matrix to indicate the compliance of each proposal against the agreed requirements and goals. However, with the exception of option 1, it was not possible to gain a sufficient degree of consensus in order to complete the matrix, as neither of the other two options was sufficiently understood by all States and Organisations present. In the case of option 2, it was recognised that there was uncertainty as to how security was to be handled. This was because neither of the approaches given in WP25 and WP35 had been acceptable to the US, and although alternative and more acceptable approaches had been discussed, no written proposal was before the working group. In the case of option 3, the proposed protocol had only been presented for the first time and a complete proposal was not yet ready.

Mr Sanford proposed that the options be referred back to the Task Force on WG2-2, for further consideration. However, several objections to this were raised to this on the grounds that the CNS/ATM-1 Package timeframe did not permit any further delay or uncertainty, given that the March deadline for the definition of CNS/ATM-1 Package Internet Requirements seemed to be a common objective of all States and Organisations present.

Mr Colliver proposed that as a result of the US's clearly stated requirements and the impossibility of agreeing an interim solution to meeting these requirements within the CNS/ATM-1 Package timeframe, that IDRP over the air-ground data link be included in CNS/ATM-1 Package. As this was already agreed in the ATN Manual, this appears to be the only commonly accepted solution to meeting the requirements.

Mr Crocker gave his concern that the original reasons for not including IDRP air-ground in CNS/ATM-1 Package were still valid. Ms Thulin said that for SITA, option 1 was acceptable, but that in the near term they would still implement option 2 as part of their own transition strategy. Mr Sharma said that the UK/France ADS trials are also progressing along the option 2 route.

Mr Crocker proposed that we try to isolate the air-ground issue from the other CNS/ATM-1 Package work. Mr Colliver agreed with this, and proposed that we assume IDRP air-ground for CNS/ATM-1 Package and look for other optimisations, such as in QOS. At the same time, options 2 and 3 will be discussed in parallel, on an informal basis between the interested parties.

Mr Sharma summed up that this was the agreed strategy and hence the proposal to replace the text contained in A6.1 of the draft SARPs will that contained in WP55 was still open.

Note: Later in the meeting, the US made available WP72, which was a revision of WP55, intended to resolve the issues raised with regard to Route Initiation.

7.4 The Organisation and Structure of the Draft SARPs

Mr Sharma presented WP54, which proposed an outline for the draft SARPs and Guidance Material, each described as separate documents.

In discussion, there was wide support for improving the presentation of the draft SARPs, in comparison with the ATN Manual, and in particular to improve the sections on architecture. However, there were concerns raised as to the practicability of doing this while maintaining the CCB process and traceability of requirements from the ATN Manual to the draft SARPs.

It was therefore agreed that the version of the draft SARPs agreed at the Toulouse meeting will be evolved via the CCB process to the CNS/ATM-1 Package SARPs. Through the CCB process, a Defect Report and a corresponding series of Change Proposals will be submitted in order to identify package 1 text, and to flag APRL entries in order to indicate their CNS/ATM-1 Package status. As a result of the CCB process, this material will be identified in the soft copy draft SARPs. When CNS/ATM-1 Package is produced, a document only containing the CNS/ATM-1 Package material will be generated automatically or alternatively, the non-package 1 text may stay as note material. As a result, it was noted that the working group will not deliver “”Product 1” as originally agreed at San Diego to ATNP/2.

ACTION 2/46 - US- GENERATE DEFECT REPORT TO INITIATE THE PRODUCTION OF THE DRAFT CNS/ATM-1 PACKAGE SARPS FROM THE ATN MANUAL MATERIAL

7.5 Guidance Material on Route Initiation

WP68 was presented by Mr Whyman. He explained that this paper was produced as a result of an action from the Paris meeting of WG2-2 and provided new Guidance Material on Route Initiation. He noted that the final section was concerned with the optional non-use of IDRP and that this may be no longer relevant. He asked the working group to review this document and provide comments by the March meeting.

ACTION 2/47 - ALL - REVIEW WP68 AND COMMENT

7.6 Defect in the Routing Concept

Mr Whyman again presented WP31, which had previously been presented at ATNP/1 and the first meeting of WG2. He reported that this paper provided Guidance Material describing the ATN Routing Concept and had been produced as a result of an action from the last ISDG meeting in March 1994; its progression had been delayed due to the fact that it had necessarily assumed a resolution of a perceived defect in the Routing Policy of an ATN Island, which is described in WP30.

In discussion, given that this was the third meeting at which this working paper was tabled, it was agreed that this defect could not be allowed to continue without being resolved, although the US still had reservations about changing the addressing plan to permit a route to all mobiles, but did not yet have a worked out alternative. It was agreed that a Defect Report should be raised forthwith incorporating a draft Change Proposal, and passed to the CCB process, with the intention that the issue be finally settled at the March meeting.

ACTION 2/48 - EUROCONTROL - SUBMIT DEFECT REPORT AND DRAFT CHANGE PROPOSAL CONTAINED IN WP30 TO THE CCB.

ACTION 2/49 - ALL - BE PREPARED TO RESOLVE THIS DEFECT REPORT AT THE MARCH MEETING

7.7 The ATN Requirements Database

Mr Briand presented WP58. This paper analyses the CCB recommendations for changes to the ATN Requirements Database, and makes recommendations on their progression. The disposition of the recommendations is as follows:

Recommendation 1. Not Accepted: the Validation Methodologies field will be created and initially filled with null values.

Recommendation 2. Accepted

Recommendation 3. Accepted

Recommendation 4. Accepted

Recommendation 5. Not Accepted: as and when a proposal is made to use the Critical Path Item field, Eurocontrol will create it as described in attachment A of WP58.

Recommendation 6. Accepted.

Mr Hof proposed that WG2 should present its approach to validation and change control to WG3 and the Working Group of the Whole, in order to ensure consistency of approach by all working groups of the ATNP. This was agreed. Mr Sanford offered to present the CCB process and Mr Briand offered to present the ATN Requirements Database. Mr Sharma agreed to present the overall process.

ACTION 2/50 - US - PREPARE PRESENTATION ON THE CCB PROCESS FOR MARCH MEETING.

ACTION 2/51 - EUROCONTROL - PREPARE PRESENTATION ON THE ATN REQUIREMENTS DATABASE FOR THE MARCH MEETING.

ACTION 2/52 - UK - PREPARE PRESENTATION ON THE VALIDATION STRATEGY FOR THE MARCH MEETING.

7.8 Preparation of the CNS/ATM-1 Package Specification

Mr Colliver again presented WP35 and WP37, which had previously been presented at the San Diego meeting. He observed that following the previous day's agreement on CNS/ATM-1 Package, WP35 would now need to be revised. He also proposed to change from the example PICS format to a PRL format, and would also implement the other changes agreed at the Paris WG2-2 meeting and this meeting. He also proposed that as part of the logical evolution of the document, WG2-2 should look at further areas of simplification including QoS.

Mr Colliver also described the close relationship between WP35 and WP37 and the NATSPG Trials.

In this context, Mr Crocker again voiced his concerns about the impact of the previous day's decision to proceed with the use of IDRP air-ground for package 1, and he hoped it would be possible to develop an "option 2.5". This being a compromise between options 2 and 3. Following discussion, Mr Sharma ruled that for the purposes of progressing the work, that WG2-2 Task Force should assume IDRP over the air-ground link, as had been agreed during the previous day's discussion. However, discussions on an option 2.5 may still proceed in the background on an informal basis, and, if agreement could be reached on an option 2.5, by the interested parties, then it should be incorporated in the WG2-2 deliverable. It was agreed that the WG2-2 deliverable should be made available on 3rd March 1995 at the very latest.

In order to help progress the development of WP35 and WP37 towards a package 1 specification, Eurocontrol offered to provide existing PRLs for all the ATN Protocols. This was accepted. Mr Colliver also asked for assistance and guidance on the future progression of the PRLs for ISO 8208.

ACTION 2/53 - EUROCONTROL - PROVIDE EXISTING PRL TABLES TO MR COLLIVER

ACTION 2/54- UK/FRANCE - TO MAKE AVAILABLE APPENDIX B TO THE UK/FRANCE ADS TRIALS COMMON TECHNICAL SPECIFICATION TO WG2

ACTION 2/55 - ALL - REVIEW AND COMMENT ON ISO 8208 PRLS IN WP37 AND APPENDIX B TO THE UK/FRANCE ADS TRIALS COMMON TECHNICAL SPECIFICATION.

7.9 The Network Operating Concept

Mr Hof presented WP57 providing an outline of the proposed Network Operating Concept for CNS/ATM-1 Package. Following discussion, the need for such work was agreed. Mr Hof stated that he agreed to continue with the work and proposed to bring it to the attention of the Working Group of the Whole. This was agreed.

ACTION 2/56 - EUROCONTROL - PREPARE A PRESENTATION ON THE NETWORK OPERATAING CONCEPT FOR PRESENTATION TO THE WORKING GROUP OF THE WHOLE

7.10 Actions Assigned to Germany

Mr Herber presented WP69, which provides a summary report of those actions assigned by WG2 to Germany, and is an information paper. The discussion focused on the contribution to WG2-13 provided as an attachment. These were proposed as operational requirements for Addressing. However, it was agreed that these requirements had a significantly wider scope than addressing. It was proposed that these requirements should be included in WG2-8. This was agreed and WG2-13 was closed.

7.11 New Task on Performance Issues

Mr Sharma presented WG60. This noted that WG2 had overlooked a requirement from WG1 to provide issues for consideration during the development of Operational Requirements for ATN Performance. It was agreed that the necessary WG1 input should be developed during the March Meeting.

8. Review of Flimsies

Mr Crenais presented Flimsy #1 on Systems Management. This was agreed with changes and attached to this report as appendix E.

Mr Colliver presented Flimsy #2 on Priority and QoS in the transport and network layers. In discussion, it was noted that possible defects exist in the ATN Manual on the lack of SARPs for priority based discard strategies and queue management. The need for a properly defined QoS Architecture was also agreed and Eurocontrol accepted an action to prepare proposals in this area. Any such proposals will also be made available to WG3 and WG1.

ACTION 2/57 - EUROCONTROL - BRING FLIMSY #2 TO THE ATTENTION OF THE APPROPRIATE WG1 TASK FORCE

It was also noted that WG2-14 will be affected by any defect reports generated as a result of this discussion. It was that this Flimsy be presented at the March WG3 Meeting.

ACTION 2/58 - GERMANY - ENSURE THAT IMPACT OF ANY DEFECT REPORTS RAISED ON PRIORITY AND QOS THAT AFFECT WG2-14 IS REPORTED TO THE CCB.

With corrections, Flimsy #2 was agreed and is attached to this report as appendix F.

Flimsy #3 was presented by Mr Sanford. Mr Crocker proposed that no further action be taken on this flimsy until further input, based on current activities, is received on Congestion Management at the March meeting. This was agreed and Flimsy #3 is attached to this report as appendix G.

ACTION 2/59 -US- TO PROVIDE RESULTS OF CONGESTION MANAGEMENT VALIDATION ACTIVITIES

Flimsy #4 was presented by Mr Briand. This was agreed with corrections and is attached to this report as appendix H. It was agreed that this Flimsy be presented at the March WG3 Meeting.

As a result of the discussion on the flimsies, the outstanding recommendations of WP67 were revisited and both were accepted.

9. Agenda Item 7 - Review Progress on ATN Validation Activities

Mr Sharma presented WP59, which proposed an outline for the Validation Report to be provided to ATNP/2. The paper made a number of proposals, the disposition of which is as follows:

Recommendation 1. Agreed.

Recommendation 2. Agreed with an assessment of the Quality of the Validation Tools added to the Validation Strategy.

Recommendation 3. Deferred to March Meeting.

10. Agenda Item 8 - Co-ordination with other bodies

The need to liaise with the NATSPG was raised and Mr Sharma agreed to take responsibility for this:

ACTION 2/60 - UK - INITIATE LIAISON WITH THE NATSPG

Mr Sanford reported that he believed that we should liaise with ISO JTC1/SC6 given that proposed changes to CLNP were being discussed at SC6 in order to align future versions with IPv6. It was agreed that we should make known are views to SC6. However, it was noted that the Director of the Air Navigation Bureau had already ruled out any formal liaison via the ICAO Secretariat, at ATNP/1. Therefore this had to be done through national delegations.

ACTION 2/61 - ALL - INFORM ISO NATIONAL MEMBER BODIES OF THE CONTINUING DEVELOPMENT OF THE ATN AND THE PROTOCOLS USED.

11. Agenda Item 9 - AOB

There was no other business.

12. Agenda Item 10 - Conclusions and Action List

The Work Plan (WP52) was again presented by Mr Sharma. It was noted that the deadline for technical changes to the draft SARPs was January/February 1996. It was also noted that the deadline for the results of validation activities was June 1996.

ACTION 2/62 - UK - PRESENT PROPOSALS ON WG2 LIAISON WITH WG1 AND WG3 TO THE WORKING GROUP OF THE WHOLE.

ACTION 2/63 - ALL - TO PROVIDE COMMENTS ON WORK PLAN TO MR SHARMA

13. Dates of Future Meetings

The Working Group agreed that there was a perceived need for a meeting in June 1995. Mr Sandrelli offered to host this meeting in Rome, and the week of 12th June was agreed as a suitable meeting date. The US offered Washington as a venue if for any reason, it was not possible to hold the meeting in Rome. It was agreed to review the need for this meeting in March.

List of Participants

NAME	TITLE/ORG NAME	ADDRESS	CITY/STATE/ZIP/ COUNTRY	PHONE	FAX	E-MAIL	DELEGATION
BRIAND, Jean-Pierre	Eurocontrol Experimental Centre	B.P. 15	91222 Brétigny-sur-Orge FRANCE	33-1-69-88-76-19	33-1-69-88-73-33	bri@eurocontrol.fr	EUROCONTROL
COLLIVER, Forrest	Centre d'Etudes de la Navigation Aerienne (CENA)	7 bd, Edouard Belin - B.P. 4005	31055 Toulouse Cedex FRANCE	33-62.25.95.73	33-62.25.95.99	colliver@cenatls.cena.dgac.fr	FRANCE
CRENAIS, Jean-Michel	Centre d'Etudes de la Navigation Aerienne (CENA)	7 bd, Edouard Belin - B.P. 4005		33-62-25-9525	33-62-25-95-99	crenais@cenatls.cena.dgac.fr	FRANCE
CROCKER, Kenneth L.	The MITRE Corporation	7525 Colshire Drive	McLean, VA 22102-3481 USA	703-883-7578	703-883-1251	kcrocker@mitre.org	USA
GUTZMEROW, Guenter	Deutsche Flugsicherung	Kaierleistr. 29-35	D 63067 Offenbach GERMANY	49-69-80542440	49-69-80542495	100446.3475@compuserve.com	GERMANY
HERBER, Andreas	Deutsche Flugsicherung - Divison SET	Kaiserleistrabe 29-35 D-63067 Offenbach am Main	GERMANY	49-69-80-54-2121	49-69-80-54-2195		GERMANY
HOF, Henk J.	Div. DED1, EUROCONTROL		Bruxelles BELGIUM	32-2-729-3329	32-2-729-9044	HOF.HENK@eurocontrol.be	EUROCONTROL
SANDRELLI, Fabrizio	Alenia	Via Tiburtina, km. 12,400	00131 Roma	06 4197 3634	06 419 7 3729		ITALY
SANFORD, Dave	The MITRE Corporation	7525 Colshire Drive	McLean, VA 22012-3481 USA	703-883-7027	703-883-1251	dsanford@mitre.org	USA
SHARMA, Akhil K.	NATS, Comms 3, CAA Room K320	45-59 Kingsway	London WC2B 6TE UNITED KINGDOM	44-71-832.6281	44-71-832.5464	akhil@c3-nats.demon.co.uk	UNITED KINGDOM
SIGNORE, Ted	The MITRE Corporation	7525 Colshire Drive	McLean, VA 22012-3481 USA	703-883-7919	703-883-1251	signore@mitre.org	USA
THULIN, Helene	SITA	18 rue Paul La Fargue	92904 La Defense 10 FRANCE	33-1-4641-1187	33-1-4641-1978	thulin@eg.par.sita.int	SITA

NAME	TITLE/ORG NAME	ADDRESS	CITY/STATE/ZIP/ COUNTRY	PHONE	FAX	E-MAIL	DELEGATION
VAN TREES, Stephen P.	Stanford Telecom	1761 Business Center Drive	Reston, VA 22090 USA	703-438-8014	703-438-8112	vantrees@sed.stel.com	USA
WHYMAN, Tony	MWA Ltd.	21 Orchard Close Alresford	Hants SO24 9PY UNITED KINGDOM	44-1-962-735580	44-1-962-735581	whyman@mwassocs.demon.co.uk	EUROCONTROL

List of Working Papers

No.	*Title*	*Presented By*	*Agenda Item*
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WG2/WP-52	ATN Internet WG - Work Plan	A Sharma	3
WG2/WP-53	ATN Systems Management Guidance Material	H Thulin	6
WG2/WP-54	Proposed Structure for CNS/ATM-1 Package SARPs & Guidance Material "Product 2"	A Sharma	5
WG2/WP-55	CNS/ATM-1 Package Implementation Definition	T Signore	5
WG2/WP-56	*Withdrawn*		
WG2/WP-57	Proposed Structure for ATN Network Operating Concept	H Hof	5
WG2/WP-58	Report on ATN Database modifications	J P Briand	5
WG2/WP-59	Proposed Structure for WG2 ATN Validation Report "Product 3"	A Sharma	7
WG2/WP-60	Extract from WG1/1 Report (para 6.1) related to the identification of network performance type issues.	A Sharma	5
WG2/WP-61	WG2-25 Report (Systems Management)	H Thulin	6
WG2/WP-62	*Not Available*		
WG2/WP-63	*Not Available*		
WG2/WP-64	WG2-2 Task Force Report	F Colliver	5
WG2/WP-65	ATNP Configuration Control Board (CCB) Configuration Management (CM) Procedures	F Colliver	4
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WG2/WP-67	Report of CCB1	CCB Chair	4
WG2/WP-68	Proposed Guidance Material in Support of Route Initiation	A Whyman	5

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WG2/WP-70	Comments on ATNP CCB Configuration Management Procedures	F. Colliver	4
WG2/WP-71	US Position Statement	K. Crocker	5
WG2/WP-72	CNS/ATM-1 Package Policy Implementation Definition	K. Crocker	5

Agenda

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2.	**Report on Progress on WG2/1 Deliverables**	69
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4.	**Review of CCB Recommendations**	65,66,67,70
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6.	**Development of SARPs and Guidance Material for CNS/ATM-1 Package Systems Management**	61, 53
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9.	**Any Other Business**	
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Action List

Ref	State/ Organisation	Action	Date
Action 2/26	UK	To update the WG2 Work Plan to reflect WG2-x deliverables	3/3/95
Action 2/27	US	Prepare Defect Report indicating use of CLNP Partial Route Recording and the Benefits of CLNP Echo Request/Response Functions	3/3/95
Action 2/28	US	To update CCB Procedures to include new Figure on CCB Procedures	3/3/95
Action 2/29	France	Make Source Code of Unix Utilities available on CENA Server	3/3/95
Action 2/30	Eurocontrol	Prepare Defect Report Prepare Defect Report on lack of TL SARPs for handling the Security Type	3/3/95
Action 2/31	ALL	Make Proposals on Congestion Management.	3/3/95
Action 2/32	Eurocontrol	Submit DR scoping ES-IS defects and propose changes	3/3/95
Action 2/33	Chairman	Seek Guidance from the ICAO Secretariat on whether intra-domain material should be recommendations or Guidance	10/2/95
Action 2/34	Eurocontrol	Generate CP based on discussion of DR23	3/3/95
Action 2/35	Eurocontrol	Generate CP to delete the text in A5-4 identified by DR40	3/3/95
Action 2/36	Eurocontrol	Generate DR Generate DR identifying lack of specification to avoid “Black Holes” when routing in support of General Communications.	3/3/95
Action 2/37	CCB Chair /VACM	To derive procedures and Configuration Management Document from WP66	7/2/95
Action 2/38	CCB Chair	To send out the CCB Decision Message(s) following the ad hoc WG2 meeting	6/2/95
Action 2/39	CCB Chair and VACM	To begin coordination to automate VRCI Update Process	
Action 2/40	Eurocontrol	Update the Database to reflect Version 1.0 SARPs alignment.	10/2/95
Action 2/41	France	Produce soft version 1.0 SARPs to reflect DR95010001.	10/2/95
Action 2/42	France	Produce the Change Proposal corresponding to DR95010001	10/2/95
Action 2/43	CCB Chair	Produce notification on atn-internet-technical list explaining VRCI list scope and use including the fact that DRs and CPs will no longer be sent to the atn	7/2/95
Action 2/44	US	To evaluate DR 95010048 within the two week period from submission with respect to the pending status.	30/1/95
Action 2/45	France	Create the VRCI Mailing List and Subscribe CCB Members	3/2/95

Ref	State/ Organisation	Action	Date
Action 2/46	US	Generate Defect Report to initiate the production of the draft CNS/ATM-1 Package SARPs from the ATN Manual Material	3/3/95
Action 2/47	ALL	Review WP68 and comment	3/3/95
action 2/48	Eurocontrol	Submit Defect Report and draft Change Proposal contained in WP30 to the CCB.	3/2/95
Action 2/49	ALL	Be prepared to resolve this Defect Report at the March Meeting	17/3/95
Action 2/50	US	Prepare presentation on the CCB Process for March Meeting.	17/3/95
Action 2/51	Eurocontrol	Prepare presentation on the ATN Requirements Database for the March Meeting.	17/3/95
Action 2/52	UK	Prepare presentation on the Validation Strategy for the March Meeting.	17/3/95
Action 2/53	Eurocontrol	Provide existing PRL Tables to Mr Colliver	3/2/95
Action 2/54	UK/France	To make available Appendix B to the UK/France ADS trials Common Technical Specification to WG2	3/2/95
Action 2/55	ALL	Review and comment on ISO 8208 PRLs in WP37 and Appendix B to the UK/France ADS trials Common Technical Specification.	
Action 2/56	Eurocontrol	Prepare a presentation on the Network Operataing Concept for Presentation to the Working Group of the Whole	17/3/95
Action 2/57	Eurocontrol	Bring Flimsy #2 to the attention of the appropriate WG1 Task Force	3/2/95
Action 2/58	Germany	Ensure that impact of any Defect Reports raised on priority and QoS that affect WG2-14 is reported to the CCB	.3/2/95
Action 2/59	US	To provide results of Congestion Management Validation Activities	3/3/95
Action 2/60	UK	Initiate Liaison with the NATSPG	3/3/95
Action 2/61	ALL	Inform ISO National Member Bodies of the continuing development of the ATN and the protocols used.	n/a
Action 2/62	UK	Present proposals on WG2 liaison with WG1 and WG3 to the Working Group of the Whole	3/3/95
Action 2/63	ALL	To provide comments on Work Plan to Mr Sharma	24/2/95

Flimsy #1: Assumptions Regarding ATN CNS/ATM-1 Package Systems Management

1. Introduction

This flimsy proposes high-level assumptions regarding the support of System Management functions for CNS/ATM package 1 .

These assumptions were developed from principles agreed at the WG2-25 Task Force meeting held on 15 December 1995 at the DNA "Direction de la Navigation Aérienne" premises in Paris, France.

2. Assumptions regarding ATN System Management for CNS/ATM package 1

Participants of the meeting agreed that:

Given the current lack of well identified operational requirements regarding Systems Management for the ATN internet , the definition and implementation of a global ATN Systems Management solution cannot be achieved within the timeframe foreseen for the package 1 SARP acceptance. Consequently , within this timeframe:

1. No exchange of Systems Management information will be required between routers of different administrative domains .

2. No exchange of System Management information will be required by means of a management protocol over the air/ground links. This does not preclude the exchange of routing information, by means of routing information exchange protocols.

3. The exchange of System Management information within an administrative domain is considered a local matter and can be achieved by any means deemed appropriate.

Nevertheless, it is desirable that:

a) An ATN Management Information Model (i.e set of Managed Objects) be defined for package 1 in order to allow the support of local Management functions as well as the development of a future global ATN Systems Management solution.

b) The exchange of Systems Management information across administrative domain boundaries be possible as long as it does not compromise the safety and regularity of flight.

Flimsy #2: Use of Transport Network and Subnetwork Priority/QoS in the ATN Internet

1. Background Information

1.1 Problem Statement

During the ATNP Working Group 2 discussion of the current draft ATN Internet SARPs and Guidance Material regarding transport, network and subnetwork priority/QOS provisions, it was observed that a number of areas of mis-specification or over-specification may exist:

1. in the area of semantic relationships and associated mapping among transport, network and subnetwork priorities; and,
2. in the area of semantic relationships and associated mapping among transport, network and subnetwork Quality of Service (QOS).

Further, certain ambiguities exist within the draft SARPs text regarding the proper invocation of these functionalities by the Transport Service User (TS-User).

1.2 Scope of this Flimsy

This flimsy presents the sense of the ATNP Working Group 2 discussion on these matters, and presents resulting recommendations for preparation of defect reports and coordination statements for other bodies.

1.3 Background on Priority Discussion

Regarding priority, the main observation of Working Group 2 (WG2) was that the ATN Manual is almost certainly defective in requiring not just a fixed relationship (independent of applications) between transport and network priority (Table A5-1 of the ATN SARPs and Guidance Material (V0.0)), but in also requiring that this mapping is explicitly implemented in the transport layer. It was observed that the specification of network and transport priority as separate parameters at the TS-User service boundary, in principle, should be allowed, since this approach would meet the requirements underlying Table A5-1, supporting transfer of TS-User PDUs in an appropriate manner through the ATN Internet. It was also observed that this approach would then fail to meet certain implementation requirements contained in the ATN SARPs and Guidance Material (V0.0) which, by themselves, have nothing to do with interoperability and appear to constitute over-specification.

This in turn led to a discussion on the semantics and proper use of transport and network priority. It was agreed that the purpose of network priority was to identify the relative priority of data for transmission through the network and to determine access to limited resources. On the other hand, the purpose of transport priority in the ATN was to signal the relative priority of the transport connection between peer applications.

Given such conclusions, there is no need to mandate the strict relationship between transport and network priority given in Table A5-1. It was agreed that while Table A5-1 is the preferred default, applications should be able to specify different relationships if desired.

1.4 Background on Quality of Service (QOS) Discussion

The discussion on Quality of Service (QOS) followed a similar path, and similar conclusions were reached. This problem is slightly different in its detail, since the semantics of QOS are dissimilar between the Transport and Network layers in the ATN, and thus no mapping algorithms are mandated within the ATN SARPs and Guidance Material (V0.0). However, the underlying principles to be applied are the same.

2. Recommended Use of Priority in the ATN Internet

2.1 Principles

The following principles were agreed with respect to Transport, Network and Subnetwork layer use of priority.

a) Transport priority is only of significance between the end-users of the transport service; thus, there is no requirement that transport priority be used within the transport protocol layer for internal processing purposes or for internal resource allocation purposes.

b) There is no mandatory fixed relationship between transport and network layer priorities. In addition, transport and network layer priorities are of different and possibly unrelated semantics.

c) The semantics of network layer priority must be specified and invoked in a manner to support correct mapping to the Subnetwork Service (SN-Service) priority. This mapping relationship is specified in the ATN SARPs and Guidance Material (V0.0), and thus no change is proposed at this time.

d) The syntax and semantics of the mapping of ATN SN-Service priority to the priority parameters provided by any given ATN subnetwork are specified by the SARPs appropriate to that subnetwork, and are not specified within the ATN SARPs and Guidance Material (V0.0).

2.2 Recommended Actions

The principles agreed above lead to the following recommended actions:

a) Based on the principles in 2.1, appropriate defect reports must be prepared to modify the ATN SARPs and Guidance Material (V0.0) to reflect the decoupling of Transport and Network layer priorities from each other, as is now specified.

b) Based on the principles in 2.1, ATN TS-Users (i.e. ATN applications and upper-layer protocol stacks) may need to be designed in a manner to support the separate conveyance of Network and Transport layer priority information to the ATN Network and Transport layer protocols, respectively.

3. Recommended Use of QOS in the ATN Internet

3.1 Principles

The following principles were agreed with respect to Transport, Network and Subnetwork layer use of QOS.

a) Transport QOS is only of significance between the end-users of the transport service; thus, there is no requirement that transport QOS be used within the transport protocol layer for internal processing purposes or for internal resource allocation purposes.

b) There is no mandatory fixed relationship between transport and network layer QOS. In addition, transport and network layer QOS contains different and possibly unrelated semantics.

c) The semantics of network layer QOS must be invoked in a manner to support correct mapping to the Subnetwork Service (SN-Service) QOS. This mapping relationship is specified in the ATN SARPs and Guidance Material (V0.0), and thus no change is proposed at this time.

d) The syntax and semantics of the mapping of ATN SN-Service QOS to the QOS parameters provided by any given ATN subnetwork are specified by the SARPs appropriate to that subnetwork, and are not specified within the ATN SARPs and Guidance Material (V0.0).

3.2 Recommended Actions

The principles agreed above lead to the following recommended actions:

a) Based on the principles in 3.1, appropriate defect reports must be prepared to modify the ATN SARPs and Guidance Material (V0.0) to reflect the decoupling of Transport and Network layer QOS from each other, as is now specified.

b) Based on the principles in 3.1, ATN TS-Users (i.e. ATN applications and upper-layer protocol stacks) may need to be designed in a manner to support the separate conveyance of Network and Transport layer QOS information to the ATN Network and Transport layer protocols, respectively.

4. Coordination Issues

The information contained in this flimsy should be communicated to ATNP WG1 and WG3 for comment and feedback during the upcoming joint meeting of the ATNP Working Groups in March 1995. Following this, a coordination statement should be prepared by the joint Working Group meeting to communicate relevant information to the ICAO ADS Panel, and to the other panels developing ATN subnetwork SARPs (i.e. SICAS Panel and AMC Panel).

Flimsy #3: Congestion Avoidance Use and Algorithm Issues

At ATNP WG2/2 discussion of defect reports discussed at the preceding CCB meeting called into question both the specific choices and impact of congestion avoidance algorithm material in the draft ATN SARPs and Guidance material, and also whether the mandatory elements were appropriate, pending review of literature, simulation and implementation work designed to test various algorithms effects in decreasing congestion in network systems with many elements.

Based on review of DR95010050 with the related VRCIs identifying defects and proposing changes in the congestion avoidance area, DR 95010011, CP9501008 and DR95010024, it was agreed that our understanding of congestion in networks was not mature enough to designate of Congestion Experienced (CE) flag by routers in NPDUs as either “upstream” and “downstream”. For near term implementations, if the CE flag is set by routers this should be done in a manner which sends this information in all directions.

DR95010050 notes references to source Network entities and groups of NSAPs which can imply to some users that a direction is used in which congestion experienced is signaled. ISO 8473 refers only to signaling information to NPDU destinations, and has no suggestion that routers will maintain information as to the source of NPDUs causing congestion.

Discussion showed that the primary issue above did not affect the related VRCIs and that as agreed by the CCB. The status agreed by the CCB for DR95010011 and CP95010008 were agreed, with DR95010011 accepted and CP95010008 rejected. Some of the information in CP95010008 should be checked to see if it exists in the SARPs in the process of preparing a new CP, but clearly this material is too detailed to be inserted where the CP proposes and the text implying signaling to specific groups of NSAPs should be worded so that it does not imply selective setting of the CE flag in routers.

DR95010024 should be accepted and guidance should be given to the writer of the corresponding CP, that ATN30 should be rewritten to be broken into three separate recommendations (pg A8-11), these 3 recommendations derive from A8.2.6., expressed below as PRL Questions.

1) Do you support CA measures on reaction to NL signaling of ER NPDU receipt?

2) Do you support CA measures on reaction to NL signaling of CE flag?

3) Do you support CA measures on reaction to TL time-out?

Also as noted in DR95010024, in A8.2.6 (pg A8-26) the recommendation calls out the 4 rules, the CCB agreed that if recommendation is taken all 4 rules must be implemented.

Flimsy #4: Timer Settings in the Transport Layer

An ADS user requirement in the context of CNS/ATM CNS/ATM-1 Package has led to the requirement to support the setting of transport timer values by applications. This issue was raised at the WG2 task force 2 meeting in December and discussed during the 2nd WG2 meeting.

It is the WG2 view that this is not the optimal approach to controlling the transport layer operation. WG2 recommends that WG3 consider expressing their level of control on transport operation in terms of QOS parameters to be used and ranges of QOS values to be passed across the TS boundary. Giving responsibility of settings timers to applications will require that WG3 address the issues of QOS mappings, QOS maintenance and congestion avoidance in the transport and network layers.

The following summary of discussions is provided in support of this recommendation.

1. On implementation of the Transport Service boundary

As defined in OSI model, and as currently stated in Appendix 8 (A8.2.3, note 3) provision of the transport service does not require that an interface be implemented. Local implementations are free to adopt either the “embedded layer” approach (i.e., application controls the sending of TPDUs or even NPDUs) or the “transport interface” approach (i.e., layer separation and hiding of implementation details).

In the “embedded layer” approach the application has full control on the transport settings including timer settings.

In the “transport interface” approach, although most implementations are based on the ISO 8072 transport service definition, nothing prevents a transport provider from allowing additional information to be passed across the interface, such as timer settings, local management info, etc. In the case where both QOS values and timer settings are passed to the transport entity there is a potential conflict in the way they should be dealt with by the protocol.

In conclusion, current SARP text already allows an application to set and control transport timers if this is considered necessary in an implementation. Being a local implementation matter, making this a requirement would fall out of the scope of SARPs.

2. On requiring timer settings by applications

The view of the working group is that transport timer settings are preferably derived from QOS parameter values passed across the transport service boundary. This view is based on the following:

- the application may be unaware of the precise transport/network conditions which prevail at the time the connection is requested. The same applies to the route(s) that NPDUs will follow.

- Transport implementations may adopt local policies to optimise the settings of transport timers e.g. adaptive timer settings based on network monitoring, congestion avoidance algorithms, etc.

Additional information may be provided in the form of guidance on these matters.

Upper layer SARPs are expected to make requirements and recommendations on underlying providers in terms of QOS parameter values.

3. On independence of transport connections w.r.t. QOS

The issue was raised as whether it was possible for an ES to support multiple applications with different timer requirements unless each such application includes its own instance of the transport protocol. This appears to be possible already in some existing implementations. It is recognised that this does not guarantee complete independence for the following reasons:

- The transport service QOS is agreed to be a "weak QOS" i.e., the underlying provider does its best to meet the requests and propagate them to underlying layers and subnetworks. The implementation is allowed to downgrade the QOS or ignore some of the requests as appropriate. Under this model a transport entity may downgrade a TC QOS because of another TC (or application) that imposes a burden on the network.

- Even when the transport entity is multiply instantiated, the underlying operating system characteristics may be such that one entity may be affected by others.

The means by which this independence is ensured is considered to be an implementation issue.

4. Recommendations

It is the WG2 view that the application directly setting timers is not the optimal approach to controlling the transport layer operation. WG2 recommends that WG3 consider expressing their level of control on transport operation in terms of QOS parameters to be used and ranges of QOS values to be passed across the TS boundary. Giving responsibility of settings timers to applications will require that WG3 address the issues of QOS mappings, QOS maintenance and congestion avoidance in the transport and network layers.