ATN-PANEL-WORKING GROUP
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THE AIRLINES NEED FOR AN EARLY
DEFINITION OF THE CNS/ATM-1 PACKAGE.

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Introduction:

At the first ATN Panel and subsequent working group meetings, there was a consensus on the need for CNS/ATM-1 Package SARPs to be ready by the end of 1996 for ATNP/2.

The purpose of this CNS/ATM-1 Package is to provide a basis for the construction of ATN aircraft avionics and ground-based equipment for an early operational implementation.

This paper addresses a concern within the airline community that due to the long lead time required for operational approval of equipment, a final definition of this Package is needed not later than June 1995.

Background:

Airlines are not in the position to wait for a return on investment (ROI) over a long period, and it is likely that commercial ATS providers would also like to see some early ROI. As generally understood, greater benefits from the CNS/ATM concept will occur when we approach full global implementation. Therefore, to realise a workable CNS/ATM transition path, both functionality and benefits should be achieved in steps based on a short payback, and not on technical excellence.

In the production of equipment, a design freeze is essential to enable the manufacturing and installation of equipment to proceed. While in the past industry could take a certain calculated risk on specific system elements, the complexity of the new systems, the extended air-ground interdependencies and the extended global environment force manufacturers to rely more on ICAO standards. Since ICAO has become the leader for ATN standards, a final definition of the CNS/ATM-1 Package by June 1995 is essential to ensure a sound basis for the implementation of a global ATN.

The Problem:

The ATN Panel is well aware of FANS-1, which is nearing implementation in the Asia/Pacific Region. If there is not an ATN equivalent beginning mid-1997, there is the potential that FANS-1 will spread to other areas where early ATM benefits can be derived for airlines and ATC service providers. In general within the aviation community there is agreement that FANS-1 is an interim step towards the full CNS/ATM systems. Carriers, who are not able to derive early benefits from FANS-1, are waiting for the initial ATN implementation of CNS/ATM.

Presently there is no ICAO definition of the CNS/ATM-1 Package. Therefore, any delay in defining the ICAO CNS/ATM-1 Package is likely to proliferate FANS-1.

A further problem is that the ICAO CNS/ATM-1 package should be defined to some extent to be backwards compatibility with FANS-1. The financial commitment to FANS-1 will continue until the ICAO CNS/ATM-1 Package is standardised and approved for operational implementation.
If an ICAO CNS/ATM-1 Package standardised at ATNP/2 can not be operationally available in the 1997/1998 time frame, it is unlikely that it will ever be implemented.

The industry need:

It is evident that the industry needs a final definition of the ICAO CNS/ATM-1 Package as the basis for the first set of SARPs. Within this definition several considerations are necessary to ensure an implementation of this CNS/ATM-1 Package, including the following:
1. The ICAO CNS/ATM-1 package must be finalised by June 1995.
2. The definition should be considered as a design freeze for which validated SARPs will available by ATNP/2.
3. The definition should enable the operational implementation of the full functionality of both airborne and ground systems in a 1997/1998 time frame (i.e. it should deviate only as absolutely necessary from existing implementations and standards).
4. The ICAO CNS/ATM-1 package should clearly be on a transitional path to the full CNS/ATM concept, retaining backwards compatibility with at least the next Version of SARPs.

It is guaranteed that operational experience will influence both design and operational concepts. The ATN Panel will probably go through several iterations of CNS/ATM packages since, in particular, the future global ATM concept has not been defined.
Therefore, it is recommended that a common Application Programming Interface (API) be developed for the CNS/ATM-1 applications, i.e. CMA, ADS and CPDLC, so that future communication infrastructure changes, e.g. short stack to full stack, will not impact the applications and vice versa the future applications changes will not impact the communication infrastructure.

Meanwhile, research and development needs to be ongoing and, while the CNS/ATM-1 Package is standardised, the Panel should begin to address the definition of CNS/ATM-2, which must be backwards compatible.

Conclusion:

To ensure an orderly implementation and transition towards a global ATN, the CNS/ATM-1 Package SARPs will be based needs to be finalised by June 1995. Failing to do so, will invalidate the industry need for a CNS/ATM-1 Package SARPs at ATNP/2 because the package cannot be validated and operational available when needed. Furthermore, it is essential that backward compatibility be maintained with future CNS/ATM Packages.