International Civil Aviation Organisation

Fifth Meeting of Aeronautical Telecommunication Network (ATN) Transition Task Force of APANPIRG

Phuket, Thailand, 9 – 13 June 2003.

Agenda Item 4: Review the development status of ATN technical documents

Need for ICAO (Asia /Pacific Region) ATN System Integrity Policy

(Presented by the Rapporteur of the ATNTTF Ad Hoc Working Group)

SUMMARY

During the 7th meeting of the ATNTTF Ad Hoc Working Group at Nadi, Fiji, in March 2003, a paper outlining a Draft Asia/Pacific ATN System Integrity Policy was presented. Upon review of the draft policy, it was determined that an introductory paper to describe the need for such a policy should be developed. In response the associated action item, this paper identifies the need for establishing an ATN System Integrity Policy for the Asia/Pacific region.

1. BACKGROUND

The ATN Transition Task Force (ATNTTF) has been assigned a number of tasks to prepare the region for the introduction of the ATN. The ATNTTF Ad Hoc Working Group has been developing technical documentation to support transition; however, in developing the technical details it has become apparent that in certain areas an overall policy is required. The general areas of concern are in the functional areas of Security and System Management together with the recognized need for a qualification program.

In order to advance the general topic in a consistent and cohesive fashion the ATNTTF Ad Hoc Working Group under the general topic of system integrity has begun to draft a set of policy statements oriented towards establishing common evaluation criteria (for functional capabilities and required assurance) and establishing a common process for certification and accreditation. Attachment A is the Draft Asia/Pacific ATN System Integrity Policy.

In order for the System Integrity policy to be effective ICAO and State/Organization must formally adopt the policy and designate the entities responsible for carrying out these policies.

2. SYSTEM INTEGRITY

System Integrity applies to ATN systems in design, implementation and operation. The System Integrity policy defines the rules (i.e., policy statements) governing the protection of ATN services and resources (both equipment and information) associated with ATN applications and operational processes from both unintentional defects and deliberate attack. The Asia/Pacific ATN System Integrity policy in its current form is intended to address protection of ground ATN systems from defects and attack. Although it does include aspects of a qualification program as might be implemented for example by a service provider, it is not intended to cover "aviation safety" generally or "avionics certification" in particular.

The policy rules for system integrity generally fall into two interrelated classes: (1) rules establishing criteria for evaluation, which are further differentiated as functional criteria, which establish the minimum required capabilities, and assurance criteria, which establish the level of assurance, i.e., the degree of rigour or formalization to be applied for evaluation; and, (2) rules governing the actual process of evaluation, that is, rules for certification and accreditation.

2.1 CRITERIA FOR EVALUATION OF SYSTEM INTEGRITY

Within the Information Technology industry a number of standards have evolved which attempt to deal with system evaluation with particular emphasis on evaluation of security aspects of a system. The primary standard from which evaluation criteria will be derived in the Asia/Pacific ATN System Integrity policy was developed by the International Organization for Standardization (ISO) and is called the Common Criteria (ISO/IEC 15408). The Common Criteria is evolved from the European Information Technology Security Evaluation Criteria (ITSEC) and the US Department of Defence Trusted Computer Security Evaluation Criteria (TCSEC). While the Ad Hoc Working Group does not wish to prescribe formal adherence to the Common Criteria, it does advocate its use as a primary reference for addressing system integrity issues. In its final form Asia/Pacific ATN System Integrity Policy will contain a set of explicit policy statements for the evaluation of system integrity derived from the Common Criteria as well as policy statements derived from general interoperability and compatibility considerations.

2.2 CERTIFICATION AND ACCREDITATION UNDER THE SYSTEM INTEGRITY POLICY

The process of conducting an evaluation of a system is termed *certification*. The process is designed to establish the extent to which the system under evaluation in its intended environment

meets the general evaluation criteria as defined in the system integrity policy statements. Certification produces the necessary information to entities responsible for deciding whether to place a system into operation. The certification process is meant to lead to actual authorization by responsible entities to place a system into operation. This authorization, termed *accreditation*, is the formal declaration that the evaluated system is approved to operate at an acceptable level of risk.

3. ICAO AND STATE/ORGANIZATION RESPONSIBILITY FOR SYSTEM INTEGRITY

For an overall system integrity policy to be effective it must have the full support of ICAO and the responsible States/Organizations. Through adoption of the appropriate policy, they define the scope, objectives, priority, and general strategy for the region's system integrity program.

Without the appropriate support and enforcement from responsible entities, the system integrity program will not have the necessary attention, funding, and resources. The responsible entities have the overall understanding of the region's goals and direction in aviation and this insight must accordingly direct the role of system integrity.

In addition to generally adopting the system integrity policy, ICAO and the participating States/organizations must assign Designated Approving Authorities (DAAs) who have the authority and accountability for the implementation of the system integrity policy.