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The Intercontinental Engineering and Planning Group (IEPG) Meeting Report

Introduction

The Coordinating Committee for Intercontinental Research Network (CCIRN) and the Intercontinental Engineering and Planning Group (IEPG) met in Paris on the 21st and 22nd May 1991. The CCIRN meeting was attended by Robin Erskine and the IEPG meeting was attended by Geoff Huston, representing both AARNet and the Pacific region. The roles of both these groups, their relation to comparable regional groups, and the background to their activities were described in the report of the October 1990 meeting of these bodies, so will not be repeated here.

These notes present a perspective on the current activities of the IEPG. The terms of reference of the IEPG is attached to this document, and following their endorsement by both bodies in the May 1991 meetings, these terms of reference provide a mandate for activity. While the terms of reference present a general view of the scope of activities, it does not encompass the specific current agenda of the IEPG.

There are two major thrusts of activity - the first is one of assessing current issues of general quality of service and operational integrity of the deployed network infrastructure. The task is seen as one of assessment of the scope of current perceived problem areas, quantification of the scope of activities which could redress such problems and coordination of the development and deployment of remedial tools. In so doing it is perceived that actual engineering and developmental tasks would be undertaken by other bodies, working in cooperation with the IEPG. The second major task is in attempting to define a position of rationalisation of the current intercontinental infrastructure. There is little doubt that the current trans-Atlantic link configuration is sub-optimal in terms of cost effectiveness, operational cohesion and resultant end user service support, and the Pacific region is also tending towards a situation where a number of different US bodies are placed in the role of providing Pacific regional services.

Organisational Structure of the IEPG

The IEPG membership is currently numbers 15 engineers, with 6 from Europe, 7 from the US and 2 from the Pacific (Japan and Australia).

The group was chaired for the first two meetings by Phil Gross of the US Corporation for National Research Initiatives (CNRI), who is also the chair of the Internet Engineering Task Force. With the pending move of this individual to ANS at the end of this month, the organisational structure was reviewed, and it is proposed that an executive group of four be set up, with one engineer from each of the three regions, and the outgoing chair. It is likely that the AARNet representative will fulfil this role for the Pacific group.

The chair of this group will in all likelihood be selected from the three regional conveners. It is noted that there is some pressure, particularly from the European group on the CCIRN to support the Pacific representative to this role, in order to ensure that the IEPG is not seen as an extension or an adjunct to the US sponsored IETF engineering group. A decision by the CCIRN on this matter is anticipated on June 15. The travel commitment associated with this role would entail attendance at the 2 IEPG meetings each year (US and Europe), and possible attendance at one of the three IETF meetings held each year and the RARE meetings (every effort is being made to ensure that the IEPG and CCIRN meetings coincide with these regional meetings to minimise the actual travel commitments). In terms of time commitment it is anticipated that this activity would require some 10 - 15% of available time, but it is also noted that many of the matters associated with the IEPG are reflections on engineering issues being faced within AARNet and PACCOM, so that the incremental load is not perceived as being a critical matter at this point in time.

In undertaking an active role in the IEPG it is anticipated that this will imply that a number of engineering tasks will be undertaken by Australian network engineers in the future, with the consequent benefit of assisting in the development of a broad base of technical practical expertise in this area of technological development in Australia. It is on this basis, together with the undertaking within AARNet to actively participate within the international research network, that this role in the IEPG is being considered.

IEPG Activity Agenda

The overall strategy of IEPG activity was outlined in the previous section. This broad outline can be refined to a further level of detail as follows:

- *Higher-level Management and Operational Issues.*

  These are issues requiring coordination and planning activity to be undertaken between the various high-level organisations. The current specific issues are:

  - *Global Routing* - addressing issues of traffic routing and flow to improve the overall stability, availability and quality of services;

  - *Global Name Services and Directory Services* - addressing issues of the coordination of distributed directories and name databases;

  - *Global registration issues* - addressing issues relating to the procedures and associated policies of the assignment of network addresses to end user bodies; and

  - *Coordination and planning of international links and network interconnections.*

- *Lower-level Management and Operational Issues.*

  This encompasses areas involving coordination and interaction of a more day-to-day operational nature. As such the issues include the implementation of policies, procedures and technologies as determined in the "higher-level" category. The areas of activity are:

  - *Network Operations Centre Coordination* - addressing operational procedures, including Computer Emergency Response Team bodies;

  - *Network Information Centre Coordination* - issues relating to the dissemination of user-oriented information regarding resources and services supported across the global networks; and

  - *Common methodologies and procedures* - including mapping formats, performance metrics and presentation technologies.

- *Applications and Services.*

  This area addresses the aspects of applications support which require further coordination and interaction on a global basis to address current user and operational requirements;

  EMail - addressing issues of quality of service and enhanced services;

  Security enhanced applications support;

  File Services - addressing issues including the distribution of files and file systems across the global networks; and

Directory Services - the end-user interface and application interaction with network directory services.

- *Multiprotocol Integration*

  This area addresses the mechanisms intended to allow a number of technologies to utilize a common network plant. This also covers interoperation across protocol stacks, phrased as an objective of ubiquitous interaction. The specific issues include:

  Integration and Internetworking - a general topic looking at tunnelling issues, and internetworking issues across a number of protocol families; and

  OSI Integration and Internetworking. With the significant development efforts underway at present on OSI tools, this area is one which requires specific attention.

In summary, the issues covered within the IEPG agenda are those concerning the current operations of the global internetwork, and the activities of coordination of effort undertaken through the IEPG are directed towards addressing current concerns with the overall quality of service as ultimately perceived by the end user population, and also concerns with the cost effectiveness of the resultant network infrastructure. The intended direction is one leading towards coherency and rationality in providing such services.

The meeting was presented with the outcomes of progress to date. A number of the identified IEPG issues actually entail some developmental activity. To date the management of these developmental items have been referred either explicitly as a new activity to the IETF, or consolidated with existing work within the IETF and the effective referral of activity items to other bodies has not happened to any great extent. This may in part be due to the outgoing chair of the IEPG also chairing the IETF, while other reasons include the relatively slow gathering of effort to service the IEPG from within the various participating organisations. It is anticipated that by using a structure of three regional convenors this pace of this activity will accelerate over the forthcoming year, and more activities will be defined for various groups to pick up.

The IEPG and AARNet

Some specific areas within this agenda of IEPG active tasks currently undertaken within the AARNet community include operational statistics and measurement of network performance, participation in the international pilot activities of X.500 directory services, and a potential activity associated with distributed file services.

As noted above it is considered to be of significant benefit to AARNet and the academic and research sector to continue to work in this area, and the IEPG is seen as one useful structure which can assist in successfully coordinating these activities with other engineering groups overseas.

Geoff Huston
Australian Academic and Research Network
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Terms of Reference for the

Intercontinental Engineering Planning Group (IEPG)

1. Statement of Goal and Purpose

The Intercontinental Engineering Planning Group (IEPG) is a technical engineering group working under the auspices of the Coordinating Committee for Intercontinental Research Networking (CCIRN). The goal of the IEPG is to work toward a more technically coordinated environment of global networking infrastructural services in keeping with the spirit of the CCIRN, including the goal of integrating international standards.

The CCIRN serves as a coordinating body among organizations which are planning or operating intercontinental computer networks. The IEPG, as an adjunct to the CCIRN, will provide the technical and engineering coordination to supplement CCIRN policy-level guidelines.

2. The Role of the IEPG

The IEPG will support the CCIRN in working towards coordination of the operations and planning of global networking infrastructural services. The IEPG will work with the CCIRN to develop and maintain a workplan, and to prioritize specific technical topics in this workplan on which to focus attention.

In pursuing its goals, the IEPG will strive to:

a) coordinate topology planning among CCIRN members to optimize networking capabilities. This could include the recommendation of new intercontinental connections to supplement or replace existing interconnections. It could include commenting on the impact on global operations of links planned by member or other organizations.

b) coordinate the operations and management of existing networking infrastructure to promote smooth global operations and interoperable global services. This could include coordination of registration, routing, monitoring, and other networking services as required to smoothly operate a global infrastructure.

c) promote the introducation of new networking services through the proposal and coordination of pilot projects.

The IEPG is not a technical development group. It will accomplish its goals by focusing on the use of existing technology and by coordination between its members. Where existing methods or technology are deficient, the IEPG will provide this information to other already existing developmental organizations. The IEPG will also strive to liaise with other existing operations coordination groups.

3. Membership

The IEPG membership is made up of network engineers selected by the CCIRN member bodies. IEPG membership is intended to be based on a stable membership of technical experts. The IEPG chair may invite non-member experts on a particular issue on a temporary basis.