Draft Terms of Reference for the IPv6 Task Force

An Efficient and Rapid Transition to IPv6

Background

The rapid and continued growth of the Internet as the key infrastructure of the global knowledge economy now requires new policy measures to ensure that it can continue to meet new requirements. Europe, in particular, must act quickly if the constraints of the existing Internet protocols (IPv4) are not to hold back realisation of the Lisbon Strategy objectives.

It is anticipated that at current growth rates, the current Internet protocol (IPv4) will reach its limits in terms of possible new global IP addresses in 2005. A new version of IP, IPv6, has been developed and tested over the years since 1995. IPv6 offers major benefits both technologically, but also socially and economically[1] . Two key features inherent to IPv6 are mandated security and built-in mobility. Despite these benefits, IPv6 is not yet widely introduced outside a variety of pilot projects, although IPv6-"enabled" routers and servers will be available from most major suppliers in 2001.

A European initiative now, is of particular ***strategic*** importance because of the early introduction of 3G mobile communications and the integration of these systems with Internet access, and because of the competition, privacy and affordability benefits that can be realised:

- "Always-on" wireless access to the Internet to over one billion people by 2003 will require more unique addresses than can be made available in the global IPv4 address space. Without IPv6, wireless Internet access subscribers will therefore only get "local" addresses inside an address space controlled by their ISP/mobile operator. These "local" IPv4 addresses will limit access to other services and limit the visibility of the users on the global Internet.

- Integration of Internet-based systems into transportation means (cars, aircraft, trains, ships and freight transport) and associated infrastructures for e-Mobility and e-Commerce will require over 1 billion addresses by 2005;

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[1] The IPv6 protocols resolve a number of major shortcomings of the current IP version 4;
- They dramatically increase the address space, which allows a continuation of the end-to-end model that underlies the current Internet i.e. no gateways.
- They allow various "qualities of service" to be ensured, with different priorities and costs.
- They enable "end-to-end" security/privacy within the IP packets through the IPsec protocols, rather than on the transmission channel.
- They allow more efficient packet processing, allowing higher speeds.
- They permit the user to benefit from "plug and play" or autoconfiguration capabilities, thereby facilitating the access to information society services by all.

- In IPv6, each person could dispose of his/her part of the address space which could be accessible over any network and which could be transferred between access providers. This will greatly contribute to competition – equivalently to "number-portability" in telephony; and it may even come to be seen as a basic "human right". While IPv4 concerned communications between computers, IPv6 deals with communications between users and between the things they use, from their telephone to their car.

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The IPv6 Task Force which includes representatives of European ISPs, telecom operators, mobile operators, equipment supply industries, research networks, and key "application" sectors is invited to develop a comprehensive action plan **by end 2001**, aiming at ensuring the timely availability of IPv6. The following key specific targets are to be considered by the IPv6 Task Force:

- With a view to implement IP Multimedia under Release 5 in 2003, industry will be requested to submit contributions to 3GPP to accelerate the pace of development of specifications work on IPv6 for 3G mobile communication systems (UMTS);
- 3G operators to establish mechanisms for exchanging information on the use of IPv6 with a view to develop guidelines and best practises on the transition to IPv6;
- Operators and service providers, to consider on a priority basis how best to evolve towards IPv6 and to take early steps to obtain adequate IPv6 address allocations, while ensuring the users rights are safeguarded;
- Service providers (providing access through, telephony links, xDSL, Cable, fixed wireless to Internet services) to offer IPv6 capable services, by end 2003,
- Telecommunications operators to complete conversion of all "legacy" systems to IPv6 capability by end 2005;
- Conversion to IPv6 of Europe's Research and Education Networks (comprising the National Research and Education Networks and the European backbone GEANT), by 2003-2004 .
- Introduction of IPv6-based systems in cars, aircraft and freight-transport vehicles and infrastructures by end 2004;
- IPv6 connectivity in all new consumer-electronic devices by 2005;
- Enabling IPv6-based m-commerce by 2005;
- Increase and re-focus of the EU support to RTD and Trans-European Networks to accelerate and facilitate the coherent transition to IPv6 in the period from 2002-2004.
- Strengthening of IPv6 R&D activities within the IST Programme (and proposal of measures for FP6) notably on those aspects relating to inter-working and interoperability between systems and networks, to the development of innovative IPv6 based services and applications, and to middle-ware and management tools, by end 2001.