



## 6INIT: IPv6 INternet IniTiative

### IPv6: An Answer to Build Future Network for the Information Society

*Dr. Sathya Rao, Telscom AG, Switzerland*

The specifications for the next-generation IP protocol known as "IPng" or "IPv6" are being developed as a solution for the future network solutions. IPv6 is both a near-term and long-term concern for network owners and service providers. IPv6 products have already come to market; but IPv6 development work will likely continue well into the next decade. Though it is based on much-needed enhancements to IPv4 standards, IPv6 should be viewed as a new protocol that will provide a firmer base for the continued growth of today's inter-networks.

IPv6 offers solutions to problems that cannot be solved under the existing IPv4-dominated Internet, in particular the requirement for IP address space to bring both new emerging Internet-enabled nations and a huge number of new household IP-enabled devices onto the Internet. It also offers solutions for quality of service (QoS), security and mobility, all critical features for the Internet of the next millennium.

Given the remarkable growth of the Internet, and business opportunities represented by the Internet, IPv6 has a key role to play for business interests, enterprise inter-networks, and the global Internet. IPv6 presents all networking interests with an opportunity for global improvements, and is now receiving the collective action that is needed to realise the benefits.

Recently European Commission has awarded an IST project named 6INIT to promote the IPv6 network deployment in Europe. The objective of the 6INIT project is to promote the introduction of IPv6 multimedia and security services in Europe. The 6INIT project will lead to the set-up of a first European operational platform providing end-users with native IPv6 access points and native IPv6 services. This European platform will be composed of six interconnected IPv6/IPv4 clouds distributed in six different European countries.

6INIT is a co-ordinated initiative of the major European telecommunications companies, equipment manufacturers, solutions / software providers and research labs. The project will lead to and provide a production IPv6 transit service to facilitate high quality, high performance, operationally robust and secure IPv6 networks with a view to both wider deployment of European E-commerce and the convergence of IP-based services.

This project covers many scientific and technological objectives because its scope is the integration, on different software and hardware environments, of many of the new network features. QoS, security, mobility, configuration management, IPv6... are still research topic, even if numerous solutions have been studied and if proposed standards exist. These solutions are not deployed at a large scale and many of them are still non-interoperable. The task of mixing all these new functionalities together currently represents a great scientific and technological challenge that we propose to address in this project.

The NTT of Japan and Viagenie/Canarie of Canada have joined the 6INIT project to validate the testing and implementing the first milestones of the New Internet across the Globe. NTT has already implemented a large non-native worldwide IPv6 network tunnelled through the 6BONE. The conversion of this international network into 'native' will set an example of how to deploy such a production network as a real case. Viagenie and Canarie see Europe's urgency as a leverage point for Canada to test and deploy an international network at the same time.

The primary services addressed within the project will be:

- interconnection of IPv6 native ntrworks and applications,
- setting up of telephony and videophony services,
- building IPv6 applications ( Stock Exchange, Remote Newspaper printing ),
- interconnection of IPv6/IPv4 networks.

Concepts for the commercial deployment of still experimental IPv6 and IPv4 differentiated and secured services will be investigated and their capacities to make usage of Internet and Intranet technologies more reliable for business customers will be analysed.

The vision of a commercially viable solution offering secure and differentiated services over the future Internet is one which helps formulate the goals to be achieved by this project.