



WITSA Input to the NSF/OECD Workshop: Social and Economic Factors Shaping the Future of the Internet (01/31/2007): Position on Next Generation Networks & Policy Implications

The idea that full productivity potential of information technology only began to be realized when computers were networked together suggests that communication technology is a key lever to unlocking the full potential of IT. Without a firm understanding of the fundamental trends associated with this phenomenon and the challenges that will follow, decision makers in government and industry may fail to realize the full benefits of Next Generation Networks for society and their companies. Our expectation is that the widespread networking of IT that began in earnest in the mid-1990 represents just the opening phase of a phenomenon, which is now being accelerated by Next Generation Networks. NGNs will force society to confront a number of important challenges, including public policy issues into the future:

Interoperability and reliability across diverse applications – Attaching multiple devices to Next Generation Networks to perform multiple applications will require sophisticated adherence to standards that support these multiple uses. Mass-market adoption of services offered over Next Generation Networks will require more dependability and greater ease of use. Interoperability and standards are key to the success of Next Generation Networks and the coexistence and cooperation among standards bodies has to be a much higher priority.

Security- While legacy networks tend to be secure because of their simplicity, as networks migrate to Next Generation Networks, security challenges are becoming more complex. While industry is working to address these vulnerabilities, carriers offering network services based on IP will not only need to protect their infrastructure from attacks, but will also be expected to protect their customers' end-systems. Standards, such as DNSSEC (DNS Security Extensions Securing the Domain Name System) can improve security by improving authentication procedures.

Privacy & Spam- Data management or data mining can make recommendations based on past behavior. However, the same functionality can lead to unanticipated and unwanted disclosure of information. Consumer expectations will need to be addressed with tools and other options that allow users to enforce their privacy preferences. Unwanted communication, in the form of spam, or SPIT (Spam over Internet Telephone) are more than just nuisances. Much, if not most, of this traffic relies on various form of deception to reach consumers. Strong enforcement and technical tools can help consumers avoid this problem.

Competition Issues- Policies to promote competition among multiple broadband network operators will enhance the extent of consumer choice and the scope of the consumer's right to connect. Such competition is the best safeguard against discrimination by network operators against the services and applications of edge providers, for example, through port blocking.

Spectrum Issues- The added mobility that users will benefit from with Next Generation Networks will depend upon the availability of adequate spectrum – both licensed and unlicensed. Inefficient and duplicative use of spectrum needs to be phased out to optimize this valuable resource. The Digital TV transition to is a good example of improved spectrum use.

IPv6 (Internet Protocol Version 6) and ENUM: Marketplace adoption of IPv6 has been slow so far in the US. ENUM is a related technology protocol that allows the translation of normal telephone numbers into a format that can be used to store and retrieve Internet addressing information, which can in turn be used to route communications over the Internet.

Other issues which have policy impacts are:

Interconnection: new interconnection models will be needed to address new architectures based on new parameters other than traditional ones.

End-to-End Quality of Service This will include different parameters defined to ensure end-to-end quality of service within networks or perceived by the customer.

Access to emergency services: This will include the identification of the type of services and the implementation conditions to ensure access to emergency services in NGN environments.

Role of Universal Service in NGN environments: The universal service concept needs to define the services covered by universal service obligations and how best to ensure these obligations (i.e. affordability and accessibility).