

Networks for the social communications revolution

by John Everard, CEO, Newport Networks Limited

The Internet has become a social network, an entertainment network, a business tool and, often, a telephony substitute. Operators are migrating to converged IP networks to lower costs and provide a wider range of services - many in real time. WebPages and email do not require real-time availability, but VoIP and IPTV do. The broadband networks that the Internet uses will have to be upgraded to provide quality of service similar to what we have become accustomed to with telephony.



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In the past year or so we have seen a greater variety of services offered on the Internet than we have in previous years. The Internet has become a social network, and we use it not only to retrieve information but to build out networks of professional and social contacts by interacting with other people in varied and media-rich ways. Before looking at how these activities affect the network itself, we should review some of the factors that have started this social communications revolution.

If the key to buying property is location, location, location, then the key to delivering media-rich services has been broadband, broadband, broadband. It is the widespread availability of cheap bandwidth that has enabled a wide range of existing technologies to become the multimedia tools of today. For example, digital cameras have been around for many years but if you wanted to email

or upload your holiday photos over a dial-up line - well you'd need patience. Webcams used to be the province of the Internet geek, now they are simply an add-on to your Instant Messaging, IM, software. Streaming video used to be limited to advertising the latest movie, now, with YouTube, everyone can be a movie producer. Effective use of all of these types of services requires broadband to make them viable on a large scale, and that is what we have seen happening. Without broadband, YouTube would not exist.

All of these services are still non real time, but they form the foundation of something much bigger - the Internet as a social networking medium. Email used to seem like the perfect way to get quick answers from our contacts, now email almost seems like a slow option. The rise of IM provides a more interactive option along with presence information that users are rapidly becoming accustomed to seeing. We know who is on-line and whether they are available to chat. The combined effect of all of these services is steering users to the

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next level of interaction - communicating in real time.

So how does this affect the behaviour of typical users who can now communicate through multiple channels while on the move? In practice this could mean that they will be reading email from a number of sources, with perhaps two or more IM clients and a Softphone. Now that the 'desk' is un-tethered, all these things are possible in the office, at home or in an airport. Nothing new, you may say, but again it is the scale on which this is happening. It is no longer for the select few but for an increasing proportion of the population, and most will take the delivery of these services for granted.

However, from the network perspective the nature of the game is changing rapidly. Delivering the bandwidth to the user is one thing, but supporting a mix of services that demand everything from near real time to real-time behaviour demands an evolution in the network architecture.

New network architectures

Service providers need to focus on the service part of the equation in order to maintain viable revenues. In addition, the changing usage patterns of the Internet have had a significant impact on the design of the network itself. As a result, networks are experiencing several types of convergence, including the convergence of services, network infrastructure and delivery platforms, and the approach of the regulators is evolving accordingly.

In parallel with the highly visible evolution of the Internet there is a much quieter revolution going on. Quieter, that is, from the consumer's point of view. The humble telephone network, which has been around for over 100 years, is being rebuilt from the inside out. We once used telephone lines to connect our computers; now, IP-based Next-Generation Networks are connecting our telephones. The users expect, at a minimum, that these networks provide service equivalence; that is, the new network must at least do what the old network did. With an IP core network in place, though, the stage is set for another revolution in terms of new services.

The difference in these networks is the emphasis on the types of service provided. Telephony is real time; the Internet is only becoming real time. As a result, the core elements required to deliver services are being redefined, and the carriers are leading the way, working to deliver what they do best

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- provide reliable, secure, quality-managed communications services. They have learned a great deal from early deployments of Next-Generation Networks and are now evolving towards application-oriented networks such as IMS, *IP Multimedia Subsystem*. Why IMS? Because IMS further separates the service elements from the transport elements. When a service is developed and deployed in an IMS environment, it can be delivered over a number of different physical network types to a wide range of terminal devices.

IMS-based networks impose order and control upon an open network, and provide user authentication and application quality management services for user created sessions. Many operators wish to deploy quality managed multimedia services in an IP environment; they combine the best from the Internet with best practices from telephony. The Internet offers intrinsic resilience through its highly distributed architecture. Softswitches and session border controller/gateway type functions are overlaid to create and manage connections through the network that can be quality managed, policed and secured. Session based policies are applied to every call in the network with every packet and every second accounted for. A quality service can be provided and charged for.

Regulation

Internet and telephony networks are running down parallel lanes, but have been subject to very different regulatory environments. The Internet has been largely unregulated, whereas telephony has always been heavily regulated, but even here we are seeing a convergence in approaches. Regulation of telephony these days is often subject to a lighter touch whilst Internet service providers are required to comply with data retention requirements for email and IM services. Lawful interception requirements are a good example of regulations spanning multiple technologies; a target under surveillance is now likely to have a warrant placed to monitor ISP log ins, email activity, IM activity, mobile phone usage, fixed-line usage and VoIP phone calls.

So does this mean telephony networks and Internet networks will converge? In the short term this is unlikely. Telephony networks will continue to be managed and controlled much more rigorously than the Internet.

Nevertheless, just as space shuttle technology finds its way into everyday life, and racing car technology is found in your town run-about, Internet services are benefiting from the cross-over from telephony and vice versa.

Delivering high-quality networks

A good example of network convergence can be found in new, purpose-built, triple-play networks. To be effective, the best attributes of both telephony and the Internet must be made available through a single managed service delivery. Such networks with multicast support provide the high bandwidth required by linear TV. They must also support consistent high-quality voice, withstand high peak call volumes and, of course, provide access to the Internet. Perhaps the most significant fact is that the network must support all these services at the same time and deliver consistent quality for every service. This is an IP-based network with its roots in the Internet, but with its management and control from telephony. These three services must be managed within the delivery network and 'groomed' for connection back to the core or indeed multiple cores. The importance of delivery network quality is recognised by content providers; to preserve their quality brand image, some only allow their content to be delivered over proven high-quality networks.

Are these high-quality engineered networks a taste of what is to come? I think the answer is yes. Our demands and expectations are becoming higher and this will reflect upon the quality engineering and service delivery required in the network. If a consumer is prepared to pay for better service, it is up to the network to identify this consumer and deliver the required quality of service.

We have come full circle. Better connections have opened up new services and created new communities and methods of interaction. Real-time demands are driving IP networks to impose session management to deliver the expected quality. Delivery of even better real-time, quality-engineered services to even more networks and devices is creating new interactive communities as the Internet meets telephony on a global scale. ●