The future for IPv6

Luc Imbert, Business Development Manager, Cisco Europe, talks to InterComms about Cisco's role in supporting IPv6

Luc Imbert.

Luc Imbert is in charge of IPv6 for the Public Sector Segment at Cisco Europe. He is in a permanent discussion with end users and technology players as well as Institutions and Administrations. With a strong background in solution incubation especially around mobility and convergence areas, Luc has an active role in innovation stimulation. Before addressing the Public Segment he worked in the Service Provider and Mobile Service Provider space. Luc Imbert joined Cisco in 2000 from Nokia and the France Telecom group before.

Q: What is happening in the area of Video Assurance Service Delivery?

A: Most of the service providers are transitioning to becoming experience providers. They want to provide a service provider's needs.

Q: What does IPv6 mean for Cisco?

A: The networks, the internet, are evolving platforms. The 'hard stop' of IPv4 addresses will for sure happen, and will happen soon, between 2010 and 2012 according to different sources. At that date the internet will not stop working but new entrants and new applications will be developed differently, potentially in a slower pace if IPv6 does not relay IPv4.

Q: Do you think the 'hard stop' for the availability of new IPv4 addresses is overstated, is in another Y2K or not?

A: The networks, the internet, are evolving platforms. It's likely that IPv6 will coexist with IPv4.

Q: What is Cisco doing to ensure governments; customer and consumers understand the situation and act accordingly?

A: Governments and public administrators understand the implications of IPv6. Whether you refer to the US federal Mandate for IPv6 compliance issue in 2005, the European Commission communication in May 2008, or the OECD June 2008 Seoul report, they all refer to IPv6 as a potential facilitator for the global economy and are aware of the implications of delaying implementation.

Cisco believes an early assessment of networks, applications, organisations and skills is essential for the success of IPv6. Cisco offered access to IPv6 with its first IOS release in February 2001 with IOS 12.2(2)T.

Cisco supports the European Commission in its research and education efforts through major IPv6 projects aiming at a clear exploration, understanding, dissemination and implementation of IPv6 as a Network evolution. Further content can be found at www.6net.org, www.6diss.org, www.u-2010.eu and www.6deploy.org.

Q: What else are you doing to ensure an orderly transition? Cisco initially announced its three-phase IPv6 roadmap in June 2000, could you outline this and update us as to whether this has evolved over time progress so far?

A: In June 2000 we issued a three-phase plan. In this plan IOS IPv6 availability was phase one, executed in February 2001, the second phase related to hardware implementation, which started in October 2001 and encompassed IPv6 Hardware Forwarding for CRS-1, C12K, C10K, ASR1000, C7600, Cat6K, Cat4K, Cat3K, MDS9500 and Nexus 7000. The third phase relates to advanced features and advanced technologies, which includes 6VPE, EIGRPv6, FHRP, network management and production features. We are also addressing IPv6 for DataCenter, Mobile Wireless, Broadband, Unified communications and advanced technologies in general.

As part of this strategy Cisco has developed assessments tools and services frameworks to make sure our customers can plan and assess the impact IPv6 will have on their networks and processes. In addition we are making IPv6 basic components available in our IOS basic package for the catalyst portfolio.

Q: Rather than focussing on the stick of address availability, what is the carrot that IPv6 provides in terms of greater functionality and services?

A: In addition to the improvement in address availability, IPv6 offers benefits in mobility, continuity and accessibility. Natively, the address acquisition process in IPv6 facilitates local peers auto-discovery and communication capability. The amount of address space makes it possible to have anybody or anything visible and accessible to the rest of the world, helping to facilitate the implementation of collaboration and converged services.

Q: How are Cisco implementing these opportunities in new products?

A: Our approach is to look at IPv6 not from a product perspective, but from a systems perspective. We have identified deployment models and have defined IPv6 baselines to provide a common set of services and management capabilities across our product portfolio. In ►

addition to this, Cisco is investing significantly in hardware to ensure IPv6-based services could be activated without compromising performance. Our new hardware components are designed to support both IPv4 and IPv6, including the IPv6 unique characteristics, which is pre-requisite to deliver a complete set of network services for IPv6. Cisco's LAN (Catalyst Family), WAN (Cisco Routers), data centre (Nexus range), security services (e.g. ASA, IPS) support IPv6 today. Cisco is actively working to develop the portfolio of applications over an IPv6 infrastructure.

Q: How will IPv4 and v6 coexist in what will be inevitably a heterogeneous environment for many years to come?

A: Some end-systems may never be upgraded to IPv6 and will stay IPv4 until they are retired from service. The presence of such devices on networks means that IT managers will keep IPv4 connectivity for the foreseeable future in an effort to maintain the service to these legacy devices.

To maintain full connectivity to both IPv4 and IPv6, we're likely to see dual-stack networks that support IPv4 and IPv6 natively. However, in order to reduce costs, we expect that after broad IPv6 adoption, network operators will look to decommission IPv4 in parts of the network where it makes sense.

Q: Looking a bit further to the future, IPv6 quadruples the number of network address bits. Is this enough?

A: At the outset, one must note that quadrupling the network address, multiplies the number of addresses available by a factor of (2^96) that is a significant increase in comparison with IPv4. It's taken about 30 years to exhaust the IPv4 address pool. IPv6 address policy makers have started allocating a limited number of available addresses so if IPv6 addresses are consumed at a high rate it's possible to adopt a more restrictive allocation policy for the rest of the available address pool. If we take into account that IPv4 address pool last 30 years, even if IP usages are dramatically increased, it is likely that IPv6 will last a longer than IPv4.

For more information:
http://www.cisco.com/UK