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# Implementación y Servicios IPv6

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Diciembre 10, 2008

# Trends driving renewed interest in IPv6



## □ Adoption of network convergence has rekindled the need for IPv6, for three reasons.

### □ Planned services and devices:

- Provide wide array of IP services to a vast number of customers
- billions of new network-enabled devices from mobile phones to home appliances to entertainment systems, will create a demand for IP addresses that IPv4 cannot meet.

### □ Multiple service profiles to a single location:

- Multi-service offerings to a home or office will require varying levels of quality and security - all over the same IP connection from the same service provider.
- Applications such as VoIP, gaming, video conferencing cannot work through a NAT device. And if NAT is taken out of the picture, the conservation of IP addresses is also removed.

### □ New markets:

- Developing regions of the world with enormous populations and rapidly expanding economies—China and India being prime examples—are taken into account, IPv4 becomes entirely insufficient.

# The Tide is changing – IPv6 interest should grow



- ❑ **The change of attitude toward IPv6 in the U.S. can be attributed to three factors:**
  - **The aggressive IPv6 transition plans of several branches of the federal government: The government is a huge customer of IP services, and service providers understand that they must support IPv6 if they want to keep or gain federal agencies as customers.**
  - **An acknowledgement of the serious efforts taking place in Asia: American operators are feeling the need to stay competitive with their Asian counterparts.**
  - **Telcos, ISPs, and MSOs are now acknowledging that IPv6 is in their future.**
    - **Growing multi-service plans: As service providers plan multiple service offerings, they are seeing that IPv4 will not support projected addressing requirements.**

# The Tide is changing – IPv6 interest should grow



- ❑ **A variety of advanced education and research institutions have been for years test beds for IPv6**
  - ❑ Internet 2 used by these institutions used IPv6.
- ❑ **As more IPv6 networks are available, more applications will be developed taking advantage of its features**
  - ❑ **The military will benefit especially in areas as:**
    - Mobile workforce equipped with mobile IP devices
    - Presence services
  - ❑ **Civilian agencies**
    - Emergency and rescue teams
- ❑ **Cellular networks already support IPv6**
  - ❑ Most mobile users have IPv6 capable phones
- ❑ **A new wave of P2P applications in the near future**

## ❑ Next-Generation Technology

- ❑ Recognized by IETF as inevitable replacement for v4
- ❑ IETF cites technology advantages for routing, security, mobility
- ❑ Governments are starting to mandate support for IPv6

## ❑ Greater Security

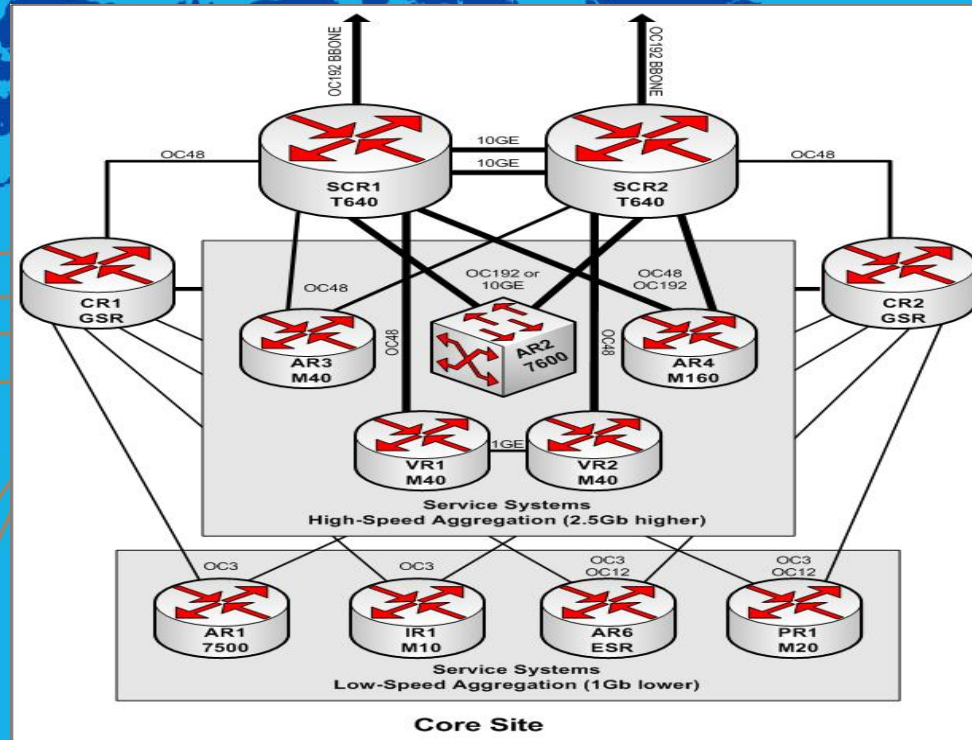
- ❑ Encryption—advanced capabilities
- ❑ Uses an agreed upon key & authentication headers
- ❑ Tunnel mode can be established to set up a secure association

## ❑ More features & benefits and operational Support for IP Convergence,

- ❑ fixed-mobile convergence,
- ❑ multi-media collaboration and multi-casting applications.

# GLOBAL CROSSING IPv6 NETWORK

# Converged IP



# IPv6 Implementation

## ❑ IPv6 was commercially available in 2005

- ❑ Pilot and beta projects started in 2003

## ❑ Engineering Project

- ❑ Upgrade the Access Routers to support Native IPv6 traffic
- ❑ Implementation of IPv6 routes over an MPLS core
  - Using 6PE for forwarding of IPv6 traffic from network edge to network edge
- ❑ DIA and IP VPN IPv6 testing confirmed functionality

## Systems

### ❑ Systems Support/Ordering Functions

- Update presales tools
- Update ordering entry systems
- Provisioning systems
- IPv6 WebDNS support



# Global Crossing IPv6—Key Differentiators



## □ Key Points of Differentiation for IPv6 from Global Crossing

- We were the first global communications provider with IPv6 natively deployed in its network
- We have more than 5 years experience with IPv6
- With more than 40 customers operating over IP
- Global Crossing has implemented IPv6 peering with more than 20 partners
- We run both IPv6 and the legacy IPv4 over our network; customers may mix protocols on the same port and within the same VPN
- There are no premium charges for our IPv6 capabilities

# What Does Global Crossing Provide with IPv6?



## □ Global Crossing IPv6 yields distinctive benefits:

### □ Future-Proofed Network Support

- IPv6 is protocol of choice to optimize the use of our MPLS-based core IP network
- Running both IPv4 and IPv6 in a “dual stack” mode during long protocol transition period provides seamless support for our customers and end hosts
- IPv4 > IPv6 transition is supported with tunneling
- Retaining IPv4 in our network allows our customers to maintain control in n their network with the existing tools

### □ Service Offer

- Dedicated Internet Access, IP Transit and IP-VPN

# What Does Global Crossing Provide with IPv6?



## □ User-Friendly IP Address Administrative Processes

### □ IPv6 Address Management

- Global Crossing provides IPv6 addresses to the customer, or the customer may provide their own IPv6 addresses
- IPv6 Address Requests
  - The v6 address management process is the same as the v4 address request
- IPv6 Address Justification
  - No justification process will be required for v6 addresses at this time

### □ Greater Efficiency & Security at No Extra Charge

- No additional charges for IPv6 service versus IPv4
- The bandwidth/per mbps charge will be the same for IPv4 and/or IPv6 service

### □ Service Level Agreements (SLAs)

- Same Guarantees As IPv4 as part of our standard product offerings

## □ IPv6 Peering strategy:

### □ More flexibility than IPv4 Peering

- There may be IPv6 players that we want to peer with, that we normally wouldn't consider for IPv4.

### □ As a general rule, any provider we currently peering with IPv4 we should automatically peer with for IPv6.

### □ Peering Policy and Peering contract has been updated to include IPv6

# How do we get the commercial side interested in IPv6?



- ❑ **On the commercial side, mandates will not drive widespread adoption of new products and services—only solving customers' problems will**
- ❑ **Most customers will not perceive a problem until they encounter exhaustion of IPv4 address space**
  - ❑ **IPv6 adoption will increase as it gets harder to justify space or more effort is required to re-use and optimize the use of existing IPv4 space**
- ❑ **It is just the beginning!! – Crunch time is coming**