

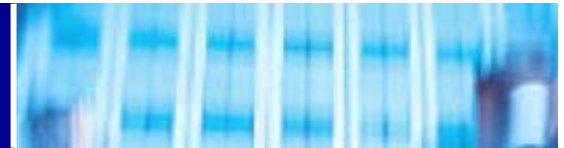
One Planet. One Network. Infinite Possibilities.

IPv6 in the Global Crossing IP Network

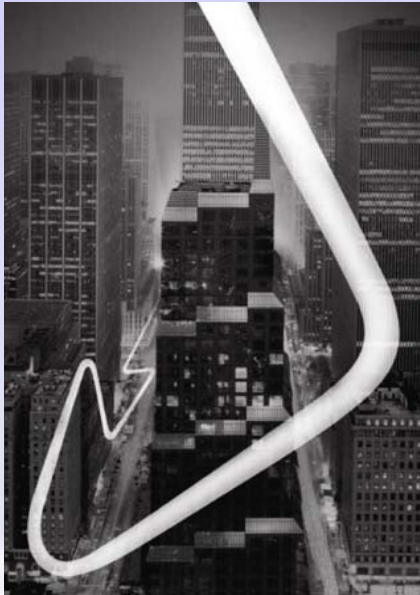
May 26, 2005

Ed Bursk, Vice President Government

Global Crossing Overview



Global Crossing was founded seven years ago based on an idea ahead of its time ... *Convergence of Services over the IP Network.*

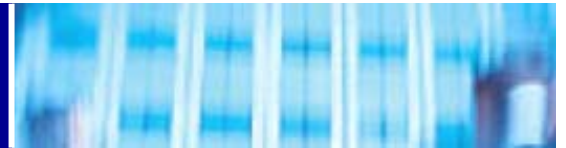


- Network:** Core network connects more than 300 cities in over 30 countries, delivers services to 575+ major cities in over 50 countries.
- Industry leading network performance: availability and packet delivery of “five nines” (99.999+%)
- Services:** A fully integrated and interoperable suite of IP and legacy services for carriers and enterprises including IP VPN Service, VoIP Service and IP Video
- Customers:** More than 40% of Fortune 500 companies; 700 carriers, mobile operators, ISPs

Positioned for Future Success: Plans are in place to transform Global Crossing and strengthen the company’s position in the current competitive environment.

- ➔ Over \$400m in secured debt financing obtained in December 2004
- ➔ Singapore Technologies Telemedia is committed to the success of Global Crossing
- ➔ Enables tightened focus on the IP business, and increased profitability

The Global Crossing IP Network



A Unique Asset

→ Purpose-built MPLS-based IP Network

- MPLS core over DWDM Fiber
- QoS in the Core
- MPLS LSP routing via RSVP-TE

→ Uniform global PoP architecture and Engineering policies

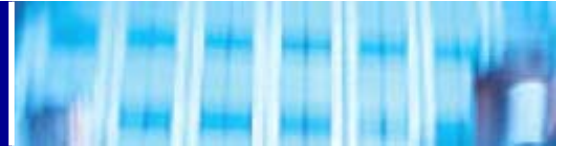
→ Extremely robust and high-performing

- Operates at over 99.999% Availability globally
- Consistent service quality and customer experience world-wide
- Performance guaranteed by market-leading SLAs

→ Flexible and powerful Network Infrastructure

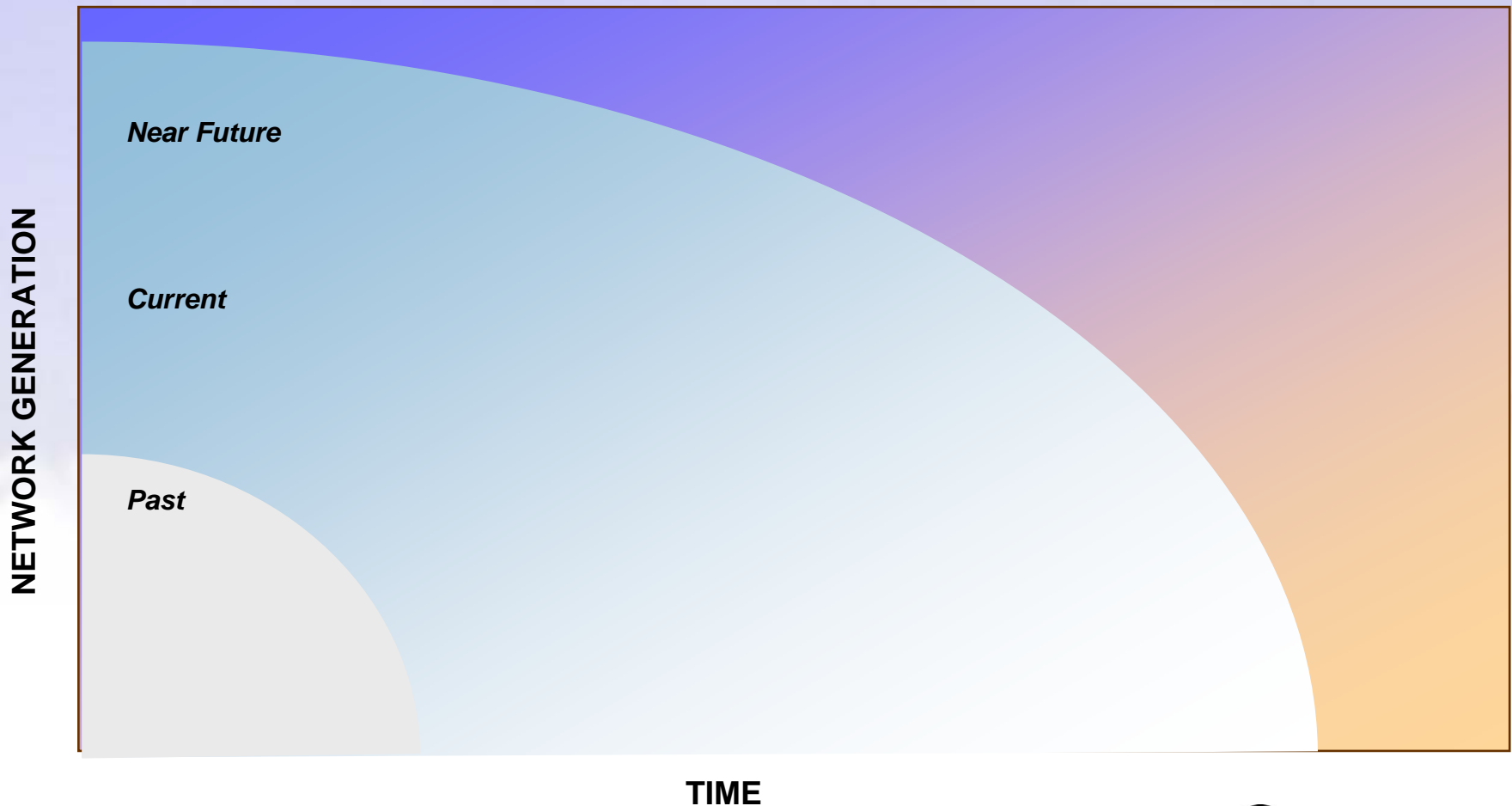
- Supports convergence of data, voice and video services/applications
- MPLS-enabled edge devices allow quick adoption of new technologies

Convergence



A Working Definition

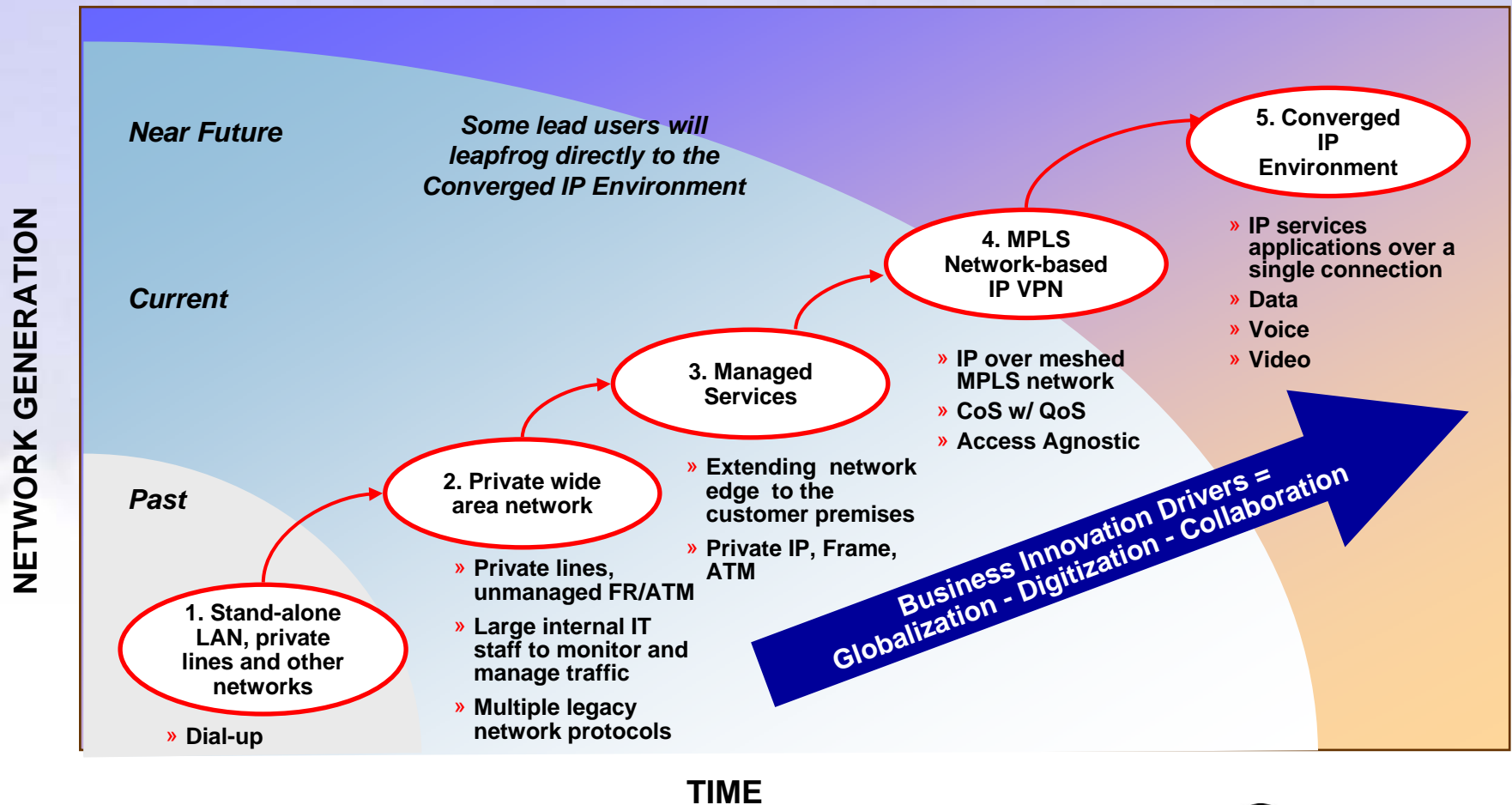
→ An end-to-end service architecture where all networking applications – voice, video, data, multimedia – are managed and delivered on a single IP based infrastructure



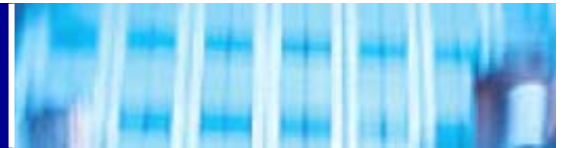
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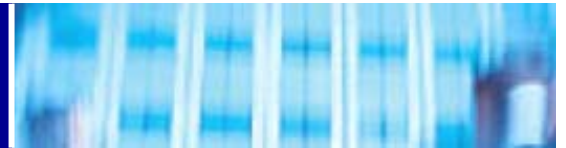
A Track Record of Innovation



Global Crossing is a consistent early-adopter of new technologies:

- Deployed the first global RSVP-TE based MPLS Network [1999]
- Main author of RFC 2873 [TCP Processing of IPv4 Precedence Field – 2000]
- Early Implementer of RFC 2547 VPNs [2001]
- Contributed to RFC 3210 [Applicability Statement for Extensions to RSVP for LSP-Tunnels – 2001]
- Helped author IETF draft-pan-lsp-ping [2001]
- One of the first to offer global Layer 2 VPN service [2002]
- IPv6 global overlay test network [2002]
- Contributed to RFC 3346 [Applicability Statement for Traffic Engineering with MPLS – 2002]
- Contributed to IETF draft-martini-l2circuit-encap-mpls [2002]
- Contributed to RFC 3564 [Requirements for Support of Differentiated Services-aware MPLS Traffic Engineering – 2003]
- Main author IETF draft-ietf-mpls-soft-preemption [2003]
- Contributed to RFC 3785 [Use of Interior Gateway Protocol (IGP) Metric as a second MPLS Traffic Engineering (TE) Metric – 2004]
- Production global IPv6 network [2005]

GC & IPv6: A Brief Overview



GC has been working on IPv6 for 4 years

→ Began developing IPv6 Service strategy in mid-2001

- Objective was to evolve v6 capabilities as market demand grew
- Near-Term: Dedicated overlay test network [GRE Tunnels]
- Long-Term: Upgrade IP Network with Dual-Stack Routers over MPLS

→ Deployed dedicated IPv6 trial routers late 2001/early 2002

→ Established first IPv6 Peering in 2001

- Currently Peering with 20 Partners

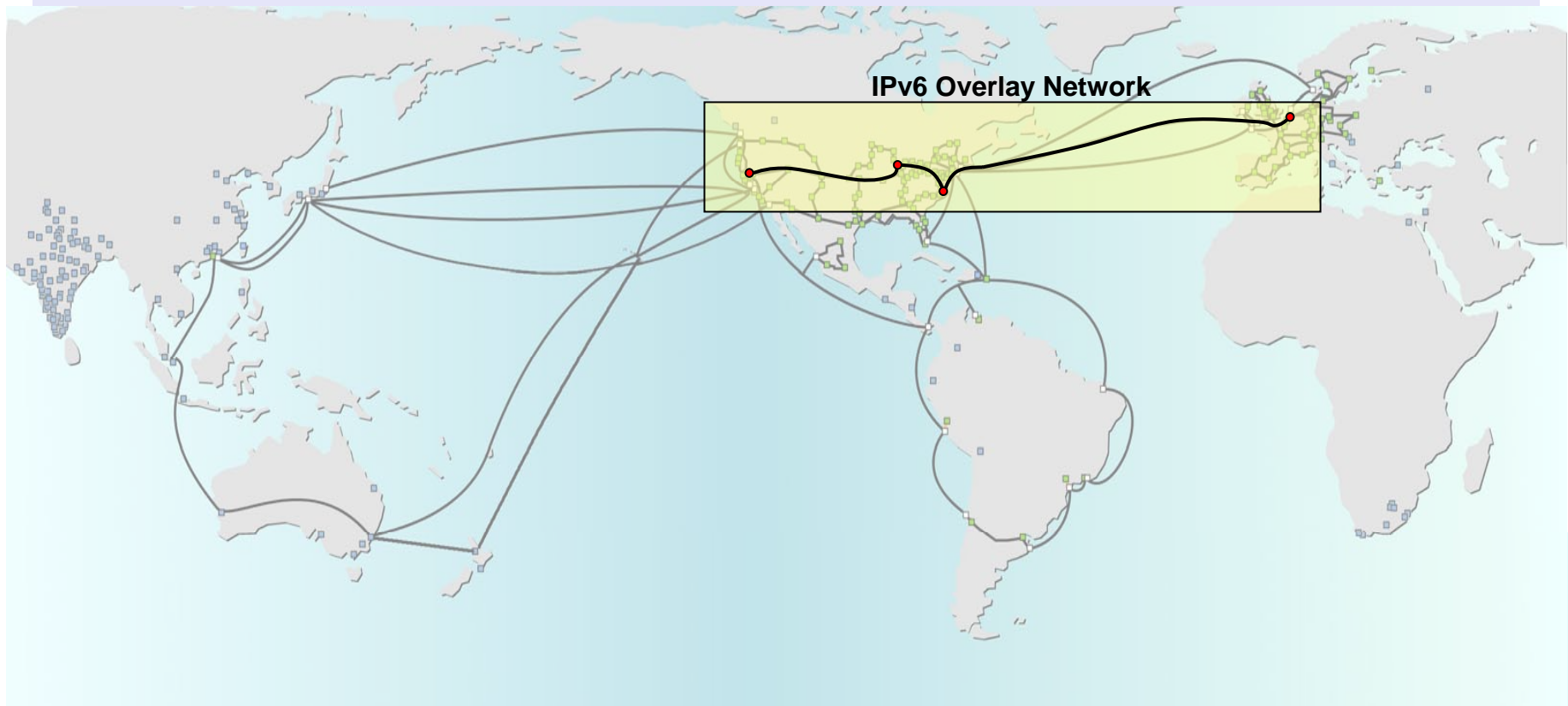
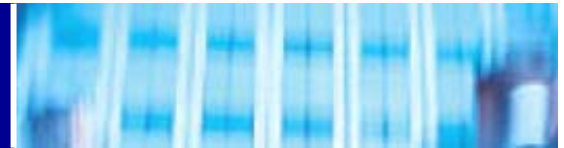
→ Provisioned first trial customer in 2002

- Currently roster of 30+ Customers

→ Finalized plan to upgrade IP Network in late 2004

→ IPv6 General Availability early 3Q05

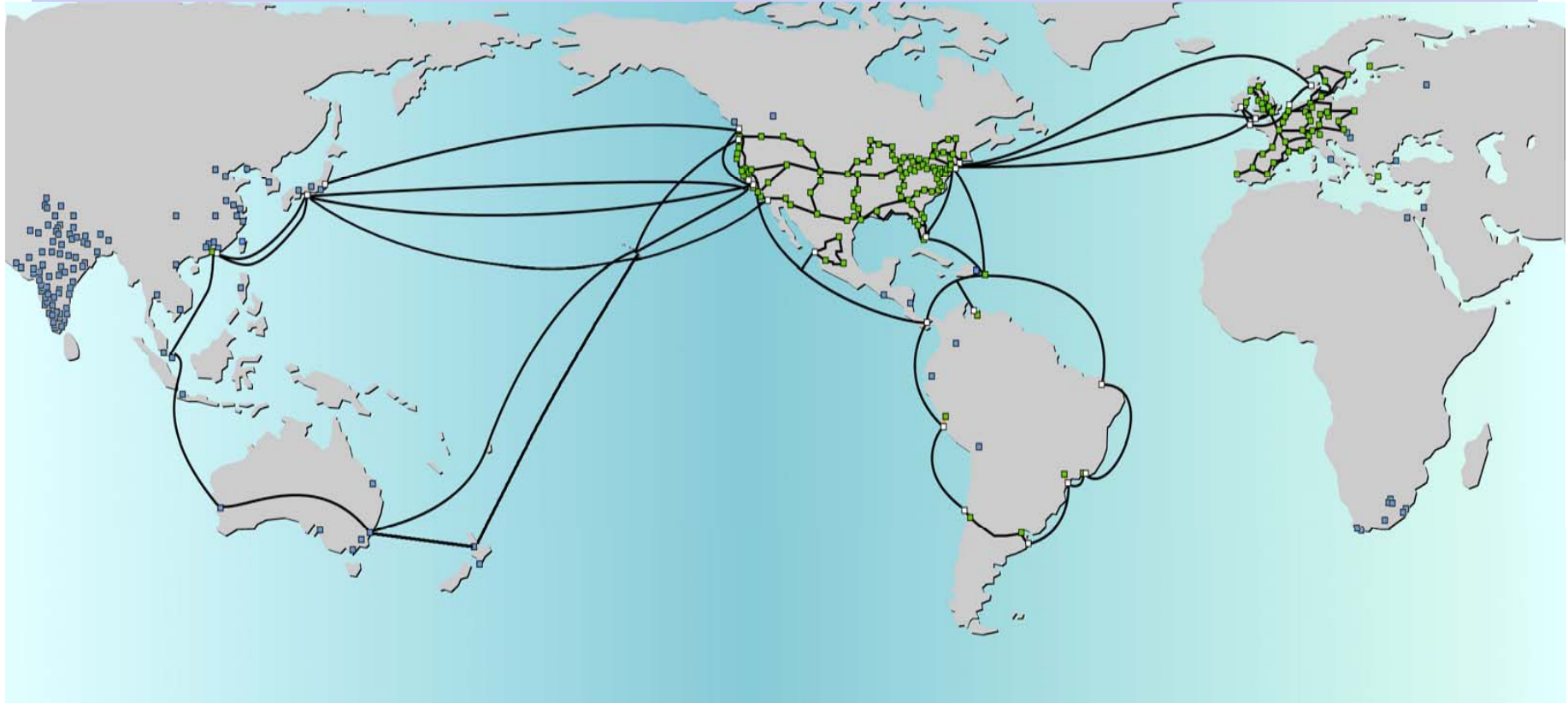
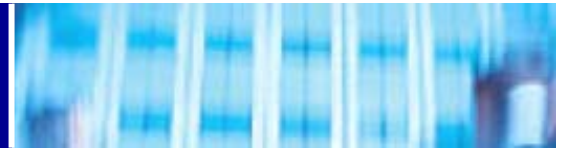
Current IPv6 Solution



IPv6 Overlay Test Network

- ➔ Dedicated IPv6 Routers: Amsterdam, Ashburn, Chicago, Palo Alto
- ➔ Connected via GRE Tunnels
- ➔ v6 Addresses Provided
- ➔ v6 DNS Delegation
- ➔ 2 Customer Trial Options
- ➔ 'Native' – Direct Connection
- ➔ Tunneled to IPv4 router

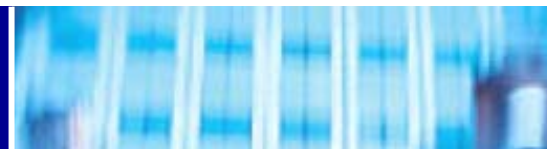
Production IPv6 Platform



IPv6 Production Network Features

- Dual-Stack Edge Routers
- Native v4/v6 over MPLS
- v4/v6 on the same Port & within the same VPN
- IPv6 Addresses provided
- IPv6 DNS Delegation
- IPv6 Caching Servers

v6 Production Footprint



AR [Internet Access]

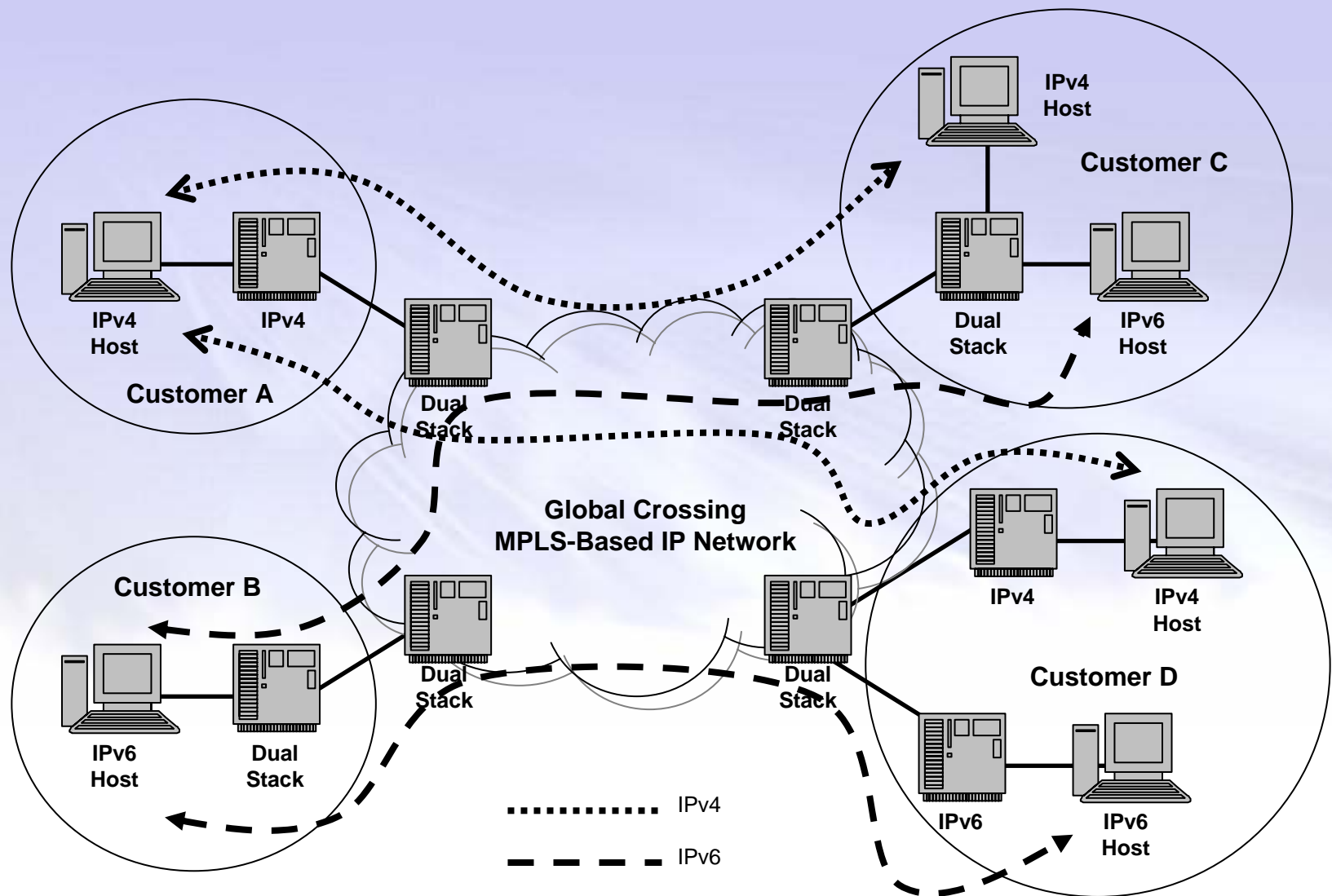
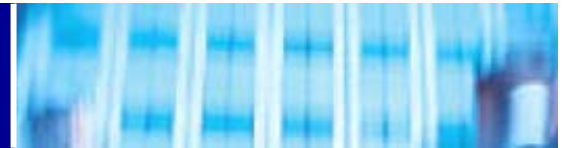
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| Anaheim | Hong Kong | Paris |
| Atlanta | Kansas City | Philadelphia |
| Boston | London | Phoenix |
| Buenos Aires | Los Angeles | Sacramento |
| Chicago | Madrid | San Francisco |
| Chile | Mexico City | San Jose |
| Cleveland | Miami | Sao Paolo |
| Copenhagen | Milan | Seattle |
| Dallas | Minnesota | Stockholm |
| Denver | Newark | Tampa |
| Detroit | New York | Washington D.C. |
| Dublin | Oslo | Zurich |
| Frankfurt | Palo Alto | |

PR [VPN]

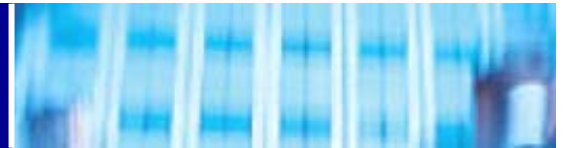
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| Amsterdam | Frankfurt | Nottingham |
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| Atlanta | Houston | Paris |
| Basingstoke | Leeds | Phoenix |
| Birmingham | London | Sacramento |
| Boston | Madrid | Sao Paolo |
| Buenos Aires | Manchester | Seattle |
| Chicago | Mexico City | Singapore |
| Cleveland | Miami | Sydney |
| Copenhagen | Milan | Tokyo |
| Dallas | Minnesota | Washington D.C. |
| Denver | New York | |

Additional Internet Access PoPs to be served by Tunneled v6 Connectivity: Basingstoke , Birmingham, Mitcham , Houston, Leeds, Manchester , Nottingham , Singapore, Rochester , Sydney , San Diego, Tucson, Tokyo, Basingstoke

IPv4/IPv6 Over MPLS



Applicability to Service Offerings



Enabled through Continued Development

- Though there is currently no “killer app” for IPv6 per se, it has begun to impact the continued evolution of networking devices and services
- Implementations by the Governments entities, Internationally, including the US Department of Defense, in the xSP community, and by Mobile Device, Software and Security vendors – these are the drivers of the evolution to IPv6
- **WiSE – a Wireless Provider Interconnection Fabric**
 - Increased address space supports proliferation of IP-enabled devices
 - Leveraging IPv6 as mobile industry moves to IMS architecture
- We are ready and able to support and power the next generation of IP-based applications on our global IPv6 platform



Thank You