IPv6 in the Enterprise

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Agenda

- The Perfect Storm/Everything over IP
- IPv6 Readiness and Advantages
- IPv6 and Security
- Investing in IPv6
- Balanced Value Delivery
- Core Components
- Adoption Framework and Taskforce
- Key Points

The Making of the "Perfect Storm"

IPv6 is on a network close to you.

- Major operating systems and equipment vendors already ship IPv6 as part of their product.
- IPv6 is already running on most networks although this is often a rogue or unwitting deployment
- Most network managers lack the tools to manage, monitor or even detect IPv6 usage in their networks.

We are at the dawn of a second revolution in network usage.

- Businesses assume the Internet already provides pervasive connectivity, It is unconcerned with the technical challenges.
- Business plans are made on the assumption of low cost connectivity.

80% of the world population is not yet connected

- What will happen when the rate of consumption of Internet addresses changes because of a new convergence model or new government stimuli ?
- What will happen when everything in our home, cars, offices, all the products we buy, all food and medicines packaging and perhaps even humans themselves are IP addressable?

Eye of the Storm – Everything over IP

The current IPv4-based infrastructure just cannot sustain the growth

- Growth of attached Internet-based "Devices or Things." From Mobile Devices to RFID Sensors

IPv6 is designed to solve many of the problems of IPv4

- Such as address depletion, seamless mobility, security, network plug-n-play, and extensibility.

The convergence to "everything over IP" is the real driving force

- Unified Communication, Storage, Desktop
- Making it possible for all things (from RFID sensors to cars to roads to buildings to fridges to hospital beds to intelligent wearables for emergency responders) to be IP addressable and always connected

General Comoditization of Network Transport

- General Theme of Migration to IP Transport from Fibre Channel

IPv6 and Security

- Create a security infrastructure using IPv6-aware firewalls, intrusion detection systems, Proxies, VPNs, DNS security, ACLs
- IPv6 provides many transition mechanisms which can easily circumvent existing IPv4 based security mechanisms.
  - These mechanisms need to be secured as well.
- IPv6 mandates the implementation of IPsec but does not require that IPsec be actually used.
- Need proper design, configuration, testing and understanding around v6.
- Think of the Control mechanisms in place for IPv4
  - Need these for v6

Industry IPv6 Readiness

- ALL major operating systems are shipping with IPv6 which are often enabled by default
  - Chrome OS, Apple MAC OS, BSD, HP-UX, AIX, Windows Vista, Windows Server 2008, Linux SuSe, Linux redhat and Solaris etc…
  - Android, Windows Mobile 5 and 6, Symbian and WebOS…
- On top of these platforms application vendors are at various stages of implementing IPv6 in their products.
  - Examples: Sony PlayStation Network, Windows Server 2008 Network Load Balancing, Windows Vista Peer-to-Peer framework, Apple "Back to My Mac“ (BTMM), Mozilla Firefox,
- Network Infrastructure
  - Routers, Switches, Firewalls, Load balancers, Optimization Devices and Proxies
- Internet Service Providers (not an exhaustive list)
  - NTT, ATT, Sprint, Free, Hurricane Electric , Bechtel, Google, Comcast…
- Most world regions (and governments) have IPv6 on their road maps and requirements
  - US Gov., Europe, France, Japan, Korea, India and China.

A lot of the Technical Ecosystem is ready for IPv6

IPv6 Advantages

IPv6 has several advantages over IPv4

- Larger Address Space
- Extensibility
- Network Plug-n-Play
- Multicast
- Mobility

IPv6 will not replace IPv4.

- It will be deployed alongside IPv4 where needed.
- There are many transition mechanisms available.
  - Dual IP stack implementation
  - Tunneling
  - Proxying and translation for IPv6-only hosts
- Choosing the right transition mechanism will depend on many factors.
  - Size of Organisation, Requirements and Use Cases.
- Co-Existence will be the status quo for along time to come.

Time to Strategically invest in IPv6

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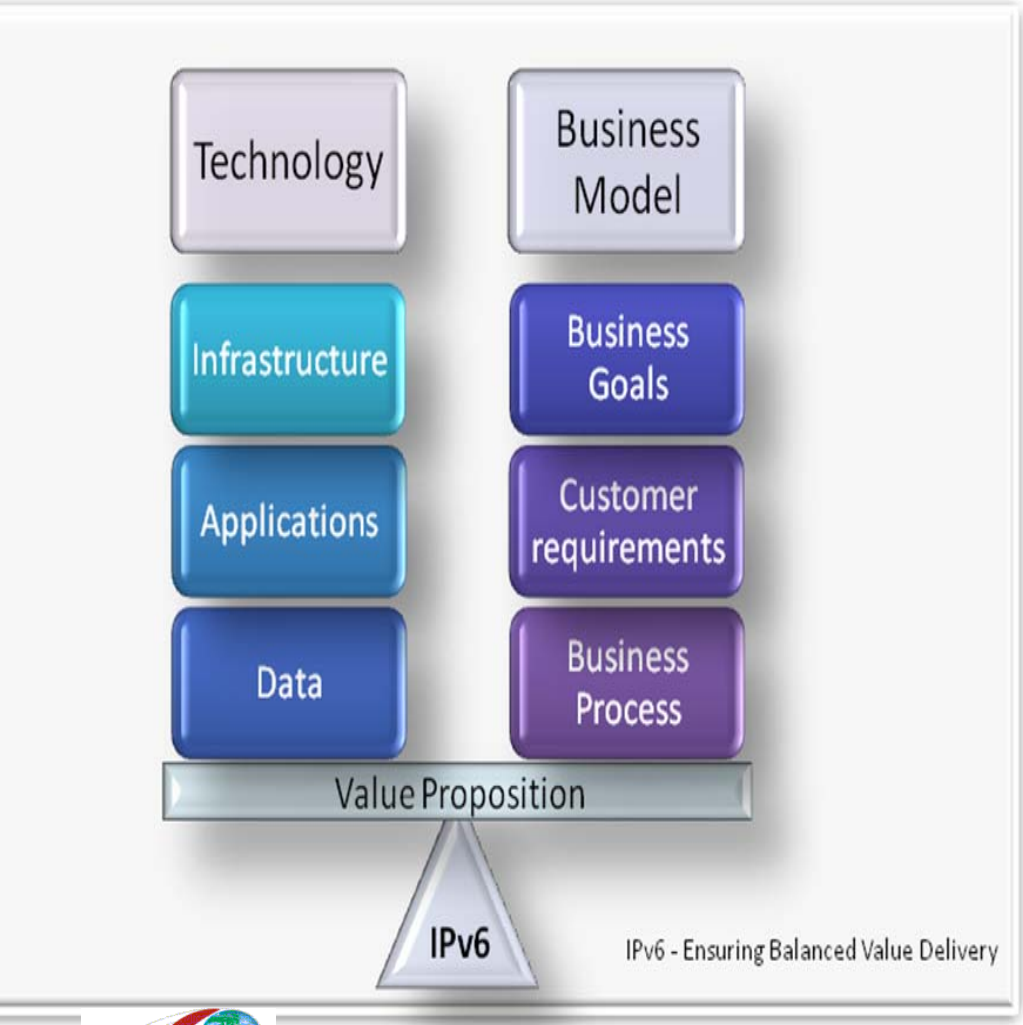
- Every product MUST support IPv6 for parity and leadership
  - No one would request money for supporting IPv4 in products: That is an implicit requirement
  - We need to treat IPv6 support the same way, "Make it implicit in our requirement."
- Integration of IPv6 is the only viable option

IPv6 is a Business Continuity Issue

- Customer-facing systems will not be visible to users on the new IPv6 Internet unless IPv6 is supported.
- Similarly internal network users will also need IPv6 connections to ensure they can reach the entire internet.
- Cost of supporting IPv6 is very relatively smaller when you make it part of the general IT roadmap (ref Bechtel, Google)
- Cost of doing nothing. Cost of IPv4 rationing

Ensuring Balanced Value Delivery



Evaluate your Business Drivers

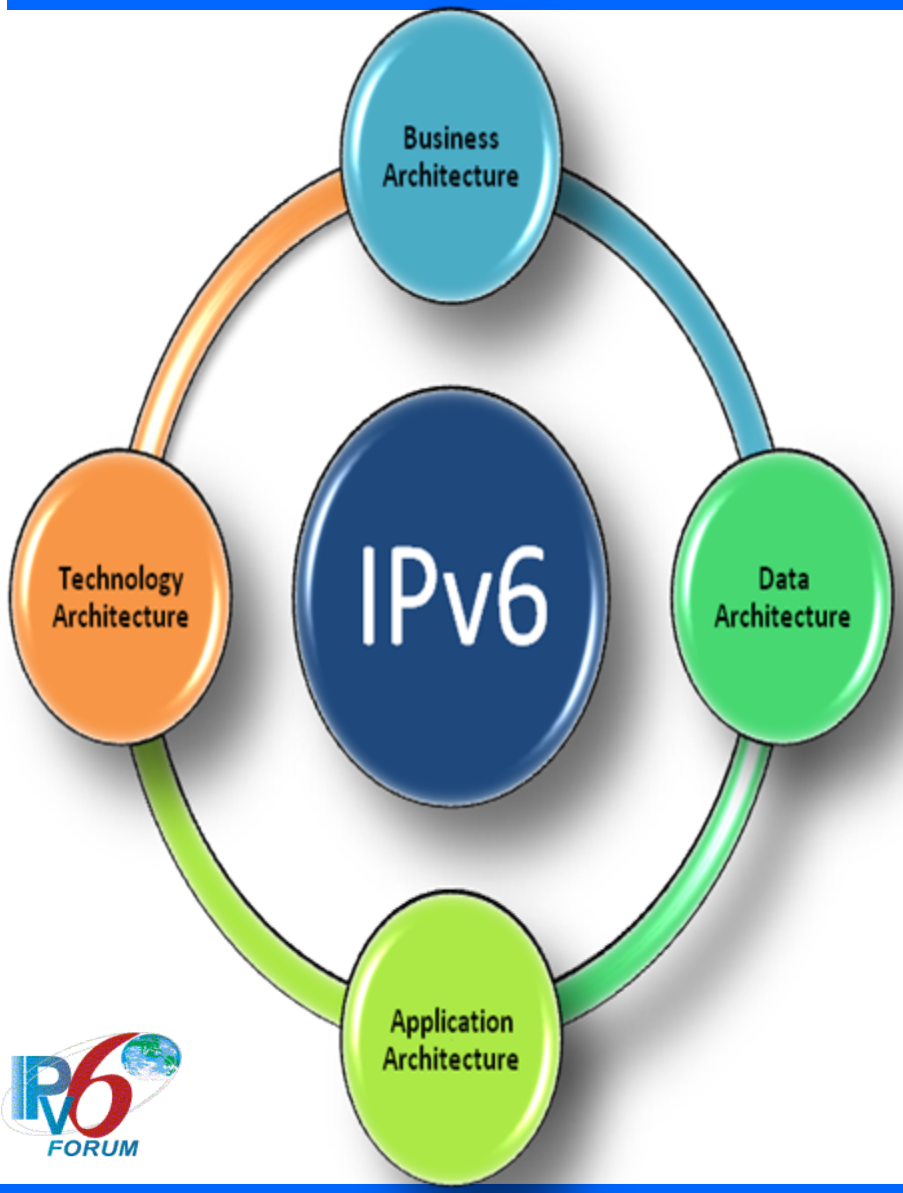
- Business Operating Model
- Goals
- Customer Requirements
- Business Process Requirements

Technology Impacts

- Infrastructure Requirements
- Applications and
- Data

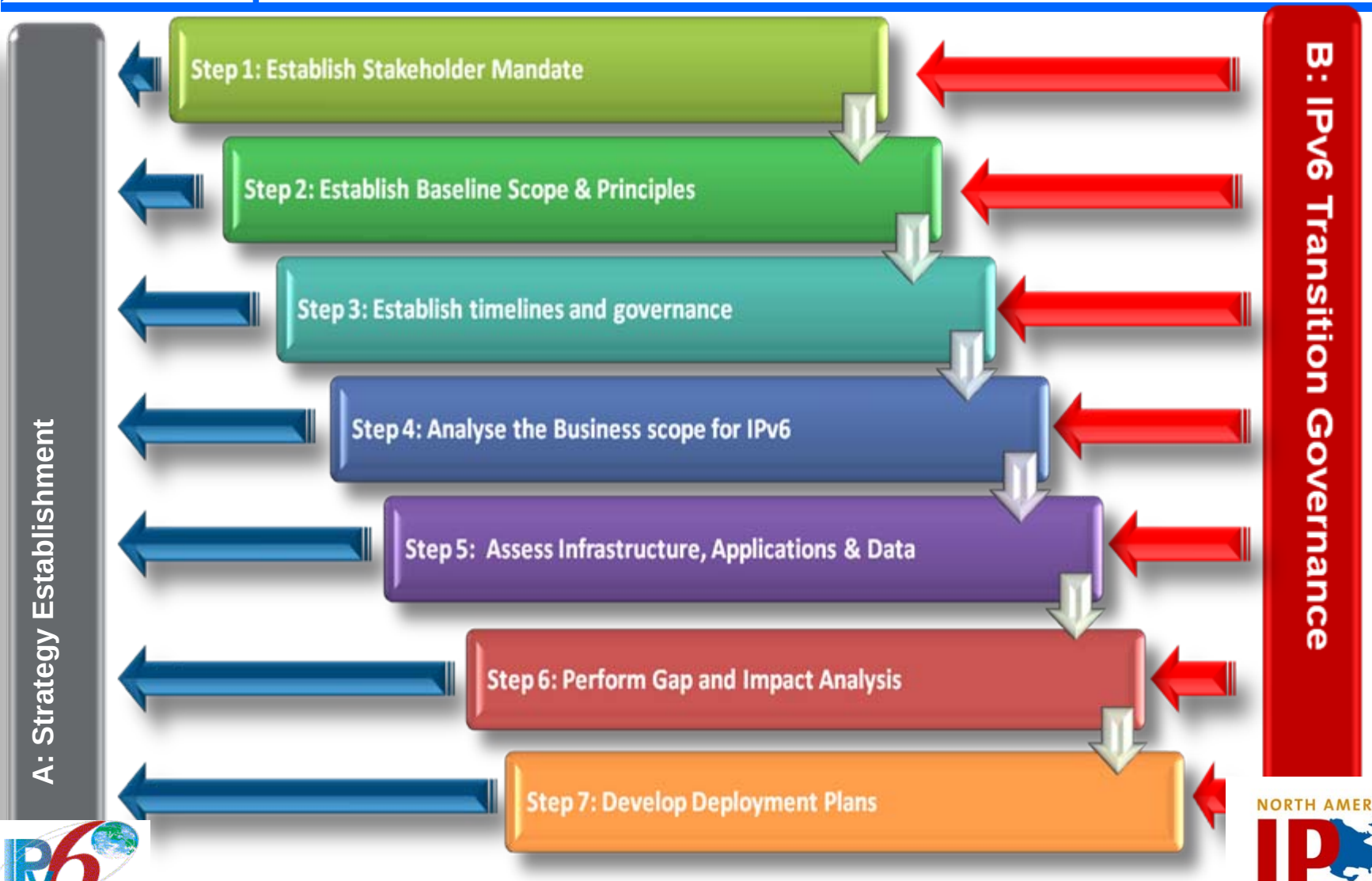
Just a technology approach will ultimately lead to failure

IPv6 Architectural Components



- Four Architectural Components
- Organisational Goals and Drivers
  - Overall business Case for IPv6 in the enterprise
- Sources and Types of Data
  - Address Plans, Firewall Policies and ACL's
- Applications
  - Which Processes Data and Support Business Process
- Infrastructure
  - Network, Compute, Middleware and End Points.

Develop IPv6 Framework



Establish your Task Force

- IPv6 is not a network Centric Affair
- Adoption will be a complex multifaceted undertaking.
- Establish your Taskforce with a Cross Section of Business and IT functions
- Seek Executive Sponsorship and a Mandate
- Establish the Governance Model for your deployment
- IPv6 Deployment and planning in the Enterprise will touch everyone in the organisation.
- Communicate, Communicate & Communicate

Conclusion – Key Points

- Now is the time to develop your Strategy
- Assess the drivers appropriate to your organization
- Global IPv4 Address Depletion by 2012
- Customers moving to IPv6
- Evaluate Government Mandates and Incentives
- Internal Requirements (Product Development etc.)
- Develop your Implementation and Deployment Strategy
- Start training and educating your staff now
- Determine address space needs
  - Acquire PA or PI space, develop Address Plan
- Build IPv6 requirements into all Technology and Sourcing Decisions

Q & A