IPv6 Services
Agenda

• The Need for IPv6
• Value of IPv6
• Market Drivers and Industry Trends
• Opportunity for IPv6
• Customer Profiles
• How to Help Your Customers Successfully Adopt IPv6
• Key Actions to Take
The Need for IPv6

• Global Internet growth requires that its overall architecture evolve to accommodate the new technologies that support the growing numbers of users, applications, appliances, and services.
• Internet Protocol Version 6 (IPv6) is designed to meet these requirements

These might include:
• Multiple internet-enabled mobile devices
• Billions of embedded sensors using technologies such as RFID, IEEE 802.15.4, and Personal Area Networks
• Home and industrial appliances
• Smart grids

Current IP address space unable to meet requirements of emerging applications and services

Need for larger address space

• IPv6 quadruples the number of network address bits from 32 bits (in IPv4) to 128 bits
• Provides more than enough globally unique IP addresses for every networked device on the planet
Value of IPv6

The unlimited address space provided by IPv6 allows us to deliver more and newer applications and services with reliability, improved user experience and increased security.

Connectivity to in-vehicle computers, television and cameras

Sophisticated peer-to-peer applications

Improved security over scanning attacks

Lower Power over Wireless Personal Networks

Sensor networks eg. RFID

Next-generation multicast

Internet-connected transportation systems

Distributed computing or gaming

Home and industrial appliances

IPv6 is about business continuity and innovation
IPv6 Simplifies Network Administration

- Simplified header for routing efficiency
- Deeper hierarchy and policies for network architecture flexibility, enabling efficient support for routing and route aggregation
- Serverless autoconfiguration, easier renumbering, and improved ready-to-use support
- Security with mandatory IP Security (IPsec) implementation for all IPv6 devices
- Improved support for Mobile IP and mobile computing devices (direct path)
- Enhanced multicast support with increased addresses and efficient mechanisms
Market and Industry Trends: Global Economy is Evolving to IPv6

Infrastructure Evolution

IPv6 OS, Content and Applications

National IPv6 Strategies

IPv4 Address Run-Out
Growth of the Internet

Internet growth – in terms of the number of connected devices - is accelerating at an exponential rate

- India added 15 million new subscribers in August – more than the population of Greece

- China Mobile has surpassed 500 million subscribers – more than the population of North America

- The ‘Embedded Internet’ will consist of over 15 billion devices by 2015

1 – Indian Regulator TRAI
2 – China Mobile
3 – Intel Embedded Internet Projections
Growth by Numbers

IMS Research: 5 billion Internet Connected devices (Aug 2010)

Ericsson 50 billion devices by 2020

IMS Research: 22 Billion Connected Devices by 2020

Intel: 15 billion devices by 2015

IP address sharing, Application gateways, Multi-level NATs...

IPv4 Routing

"Usable" Global IPv4 addresses

Addresses in Global Routing Table

Intel: http://news.bbc.co.uk/2/hi/8272003.stm

by Mark Townsley & Ole Trøan
October 2010
Summary: Market Drivers for IPv6 Transition

- Government mandates
- Business partner connectivity
- IPv4 addresses running out
- Connectivity to mobile devices – rapid increase
- World IPv6 Launch
Why Now? Opportunity for Partners

- Narrow window of opportunity to step up IPv6 Services
- Next 6-24 months will be crucial for IPv6 Internet Edge deployments
- Transform the initial engagement into customer intimacy
- Opportunity for Product pull-through
- Internet Edge – greenfield deployments for IPv6 resulting in millions of dollars of additional Product revenue
- Existing IPv4 addresses likely to attract premiums as they become scarce
Business Triggers for Organizations to Adopt IPv6

- Experiencing difficulty expanding into new global regions because public IPv4 Internet addresses are not available. This is compounded by IPv4 addressing redundancies as a result of mergers and acquisitions.

- Deploying innovative network environments, applications, and devices – including sensors supporting smart connected communities – that quickly expend assigned IPv4 addresses.

- Needing to maintain seamless connectivity across fixed and mobile users when using collaborative applications, and Network Address Translation is no longer an option.

- Implementing IPv6-based 4G mobile networks or connecting workers to these networks.

- Working in the public sector, or working with the government as a partner or supplier, where IPv6 is fast becoming the standard.

Opportunity: IPv6 Delivers Growth Across Industries

**Government / Public Sector**
- European Commission
- China and Japan Next Generation Internet (CNGI) project
- US Federal Mandate

**Utilities**
- Advanced Metering
- Smart Grids
- Home Energy Management
- Plug In Electric Vehicles

**Health Care**
- Home care
- Wireless asset tracking
- Imaging
- Mobility

**Mobile Providers**
- 4G
- MPLS
- Transport

**Consumer**
- Next generation set-top boxes
- Internet gaming
- IP-enabled appliances
IPv6 Enterprise Customer Profiles

**“Have To”**

**Who?**
- Governments and public sector agencies
- Customers selling to or dealing with governments

**Why?**
- National competitiveness
- Government mandated/incentive

**Segment Ask?**
- Support for NIST/USGv6, JITC/UCR2008/PBX1, ASLAN and ASVALAN, IPv6 Ready Logo

**“Need To”**

**Who?**
- Customers indirectly impacted by IPv4 exhaustion
- Content providers
- Global Enterprises with consumer or business interaction on the public internet
- Customers with user-provided devices on their networks

**Why?**
- IPv4 address exhaustion (indirect)
- Globalization
- IT Consumerization

**Segment Ask?**
- Product and services for IPv6 users

**“Want To”**

**Who?**
- Thought leaders and innovators looking for differentiation or competitive advantage
- Opportunistic use of IPv6 for solutions to specific business problems
- Early adopters preparing for coexistence

**Why?**
- IPv4 address exhaustion (direct)
- New applications
- Simplify operations
- M&A, VM addressing, cloud apps, remote desktop support, peer to peer apps

**Segment Ask?**
- Parity

**“Mainstream”**

**Who?**
- Large US/European enterprises
- Middle/small enterprise customers

**Why?**
- Internet evolution to IPv6

**Segment Ask?**
- Investment Protection

Not a matter of “IF” but “WHEN”
## Managing an Orderly IPv6 Transition

IPv6 is the foundation of a lifecycle management discussion

| Preserve | *Preserve the customer’s existing investment*  
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<td>• Audit and leverage existing IPv6 capabilities</td>
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| Prepare   | *Prepare a migration and deployment plan*  
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<td>• Identify and enable critical IPv6 functional areas</td>
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| Prosper   | *Prosper through the transition to IPv6 Internet*  
|-----------|------------------------------------------------|
|           | • Enable all systems with dual-stack capabilities  
|           | • Grow seamlessly as customers transition to IPv6 |

IPv6 is the foundation of a lifecycle management discussion
Preserve
Audit the Customer’s Existing IPv6 Capabilities

Over a Decade of Cisco Investment - Shipping Since 1996

These capabilities and more are already part of your customer’s investment
Prepare
Start with a Phased Plan Aligned with Customers’ Business Strategy

1. Identify the highest priority IPv6-critical areas in the network
2. Perform IPv6 Assessment on high priority areas to determine scope
3. Develop a design that enables IPv6 without disrupting the IPv4 network
4. Test and implement in pilot mode, then extend over time into production

Repeat for the Next IPv6-Critical Area in the Network
Prosper
Grow Seamlessly as Customer Transitions to IPv6

A well-structured migration plan provides insurance against unexpected costs as customers, partners, and suppliers move to an IPv6-enabled infrastructure.

Leverage Your Investment
A Decade of Cisco IPv6 Innovations

Make a Plan
Align Business and IT Strategy

Invest for Success
Deploy IPv6 Transition Support Technologies

Accelerate
Prosper through accelerated global customer reach. Unleash new business models
A phased plan is created during discovery.

- The most business-critical areas are identified, assessed, planned, designed, and tested first.
- Network optimization provides ongoing design support for incremental IPv6 changes and helps your staff succeed.
IPv6 Planning and Design

Decide on the deployment model before beginning any design. There are three deployment models to consider.

**Dual-Stack**
- Desktops, campus, hosts within the data center, and any connectivity to the outside world are both IPv4 and IPv6 enabled.
- Works well if some parts of the enterprise are IPv6 only, as they will still have access to all resources.
- IPv6 infrastructure invisible to users only capable of IPv4.
- Facilitates longer term IPv4 phase-out using incremental IPv6 deployment.

**Hybrid**
- Suitable for situations where all network assets cannot be IPv6 enabled.
- Access to IPv6 resources from an IPv6 desktop relies on tunnels across an IPv4 campus or enterprise backbone (either private or provider based).
- Supports options where either the access and distribution switches or core is not yet IPv6 enabled.

**Service Block**
- Facilitates quick support of IPv6 where campus network is not yet IPv6 enabled.
- Interim solution that can facilitate migration to the dual-stack model.
- Takes advantage of tunneling, like the hybrid model.

With increasing desktop support for IPv6, dual-stack is best practice across the entire network infrastructure: WAN, campus, data center.
These main integration techniques are required by all environments and adhere to these objectives:

- Network planning and operations managers must be able to schedule IPv6 deployment wherever and whenever needed.
- New or updated applications must work with any protocol. IPv4/IPv6 services are possible between hosts/applications.
- Incremental upgrade and deployment must be possible without service interruptions while reconfiguring routers.
- Operational costs, learning curve, and support requirements minimized.
Cisco IPv6 Services

IPv6 Discovery Service
Guidance in the early stages of considering a transition to IPv6

IPv6 Assessment Service
Determine how your network needs to change to support your IPv6 strategy

IPv6 Planning and Design Service (application aware)
Designs, transition strategy, and support to enable a smooth migration

IPv6 Implementation Service
Validation testing and implementation consulting services

Network Optimization Service
Absorb, manage, and scale IPv6 in your environment

A Phased-Plan Approach for Successful IPv6 Adoption
IPv6 Service Offers

IPv6 Network Architecture and Design
Selling Services for the overall IPv6 Strategy and Design to Enterprise and Public Sector customers

IPv6 Ready Internet Edge
Selling Services for getting the Internet Edge IPv6 Ready to Enterprise and Public Sector customers
# IPv6 Ready Internet Edge Services

## Key Service Features

- **Complete Design Solution**
  - Customized design recommendations

- **Ready to Implement**
  - Comprehensive assessment (infrastructure, systems and applications), design and training

- **Fixed Price, Fixed Scope**
  - Inclusive of common Internet edge / DMZ components

## Service Included Requires Additional Service Scoping

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| Internet Edge / DMZ Assessment | **Internet edge / DMZ components:**
                                | Cisco devices (< 500) non-Cisco devices, servers and applications (< 200) Security design assessment | Assessments for the entire network                                                                   |
| Design                         | Design package with best practice and testing recommendations                                 | Test plan and execution; custom designs have to be scoped separately                                  |
| Training                       | One, remote ‘knowledge transfer’ session                                                       | Overall end-to-end network infrastructure migration service related training                          |
Why Work with Cisco on IPv6
Leadership, Experience, Expertise

IPv6 Industry Leadership

• Co-Chairs of IETF IPv6, v6Ops, DHCPv6, MIPv6 working groups
• Founding member of IPv6 Forum
• Mobile networking IPv6 promotion council “Jun Murai” award

Extensive Experience

• IPv6 development leadership since mid-1990s
• Customers include government agencies, large enterprises, and some of the world’s leading service providers

Proven Methodologies and Architectures

• More than 8 years of global IPv6 professional services experience with proven methodologies, architectures, and best practice guidance
• As networks are evolving to IPv6, Cisco is ready to support the evolution
Key Actions to Take

Initiate discussion with customers
• They will avoid DIY challenges

Act before Competitors do

Position the Service
• Gauge customer Interest

Qualified Opportunity
• PID, Deal ID creation

Present sales collateral
• Proposal, SoW, MA

More Information
• Go to http://www.cisco.com/go/ipv6
• Contact your Cisco Partner Services Development Manager

More Resources:
• IPv6 Solution on Cisco.com
• IPv6: How to Get Started white paper
• IPv6 Solutions white paper
• IPv6 Services At-A-Glance
Thank you

For More Information:
cisco.com/go/ipv6