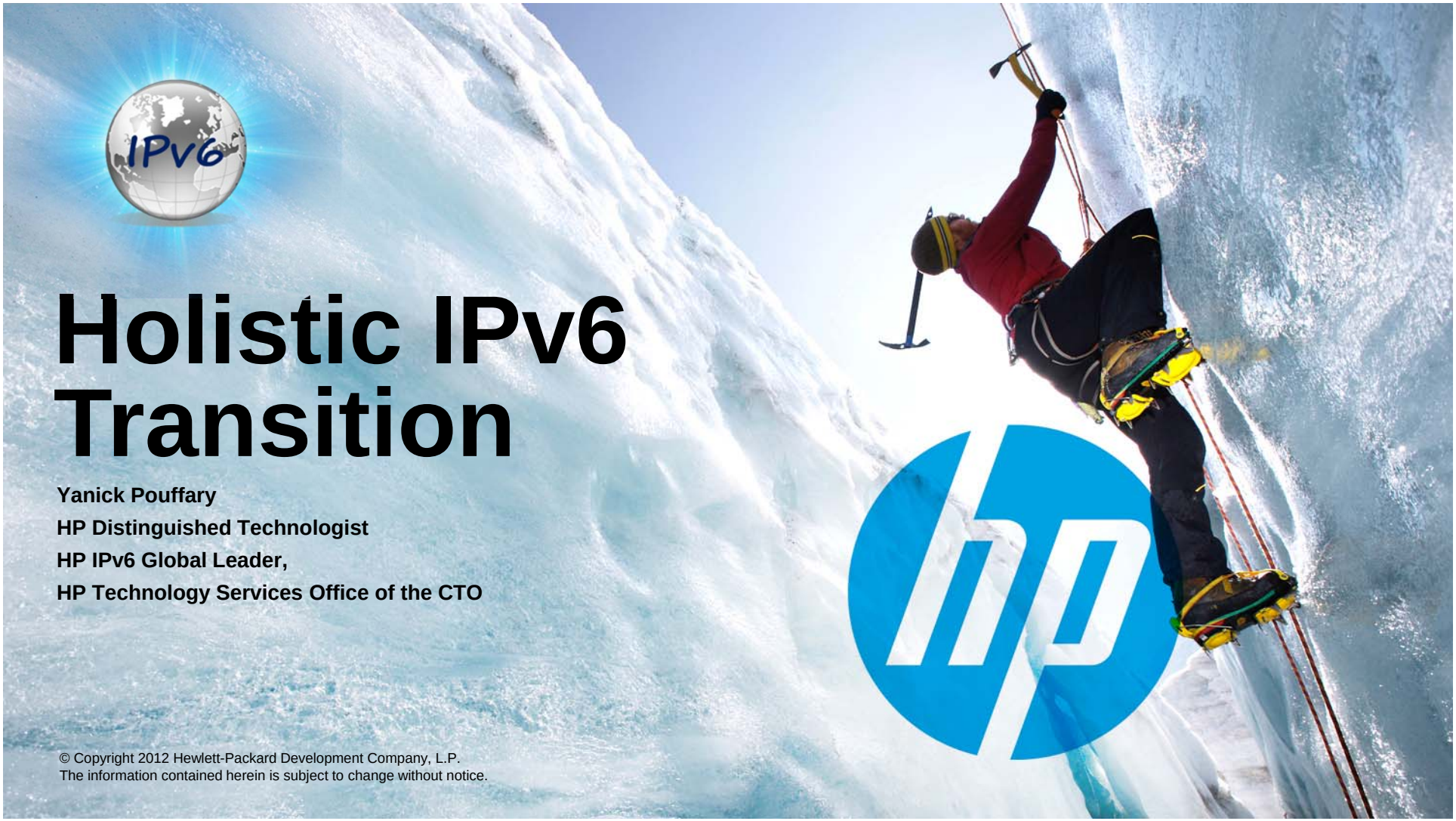
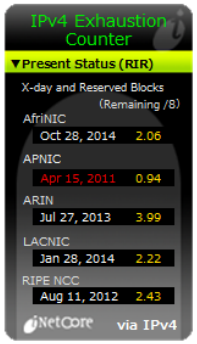
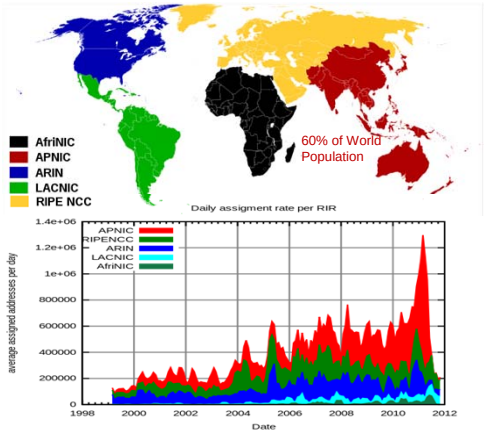


Holistic IPv6 Transition

Yanick Pouffary
HP Distinguished Technologist
HP IPv6 Global Leader,
HP Technology Services Office of the CTO

Why IPv6 and why now?





Internet is running on "empty" 2011 was an inflection year

Explosion of users, devices, connected appliances and applications

Virtualization and cloud computing

71% of the world population is not yet connected

Always on Connectivity is the "Killer App"

Challenges

Original Interim Evolution

They will coexist and share infrastructure for many years
More and more users will have IPv6 only
We need to secure seamless transition
IP connectivity challenge

	IPv4	IPv6
IPv4	OK	Challenge
IPv6	Challenge	OK

Different Challenges for Enterprises and Service Providers

IPv6 the new Internet

IPv6 Operational Advantages

- Robust, Effective, Efficient. Unlimited Address space.
- Extensibility. Enhanced Mobility.
- Optimized for next generation networks.
- End to End Services and applications.
- Enable Service Automation.
- Better Support for QoS.
- Policy driven operations.
- Free manpower from ordinary tasks.
- Rapid deployment.

IPv6 Ecosystem

- IPv6 has implications across the entire IT environment
- IPv6 is NOT a network centric affair

4 KEY PILLARS

Strategy to achieve Transformational Benefits

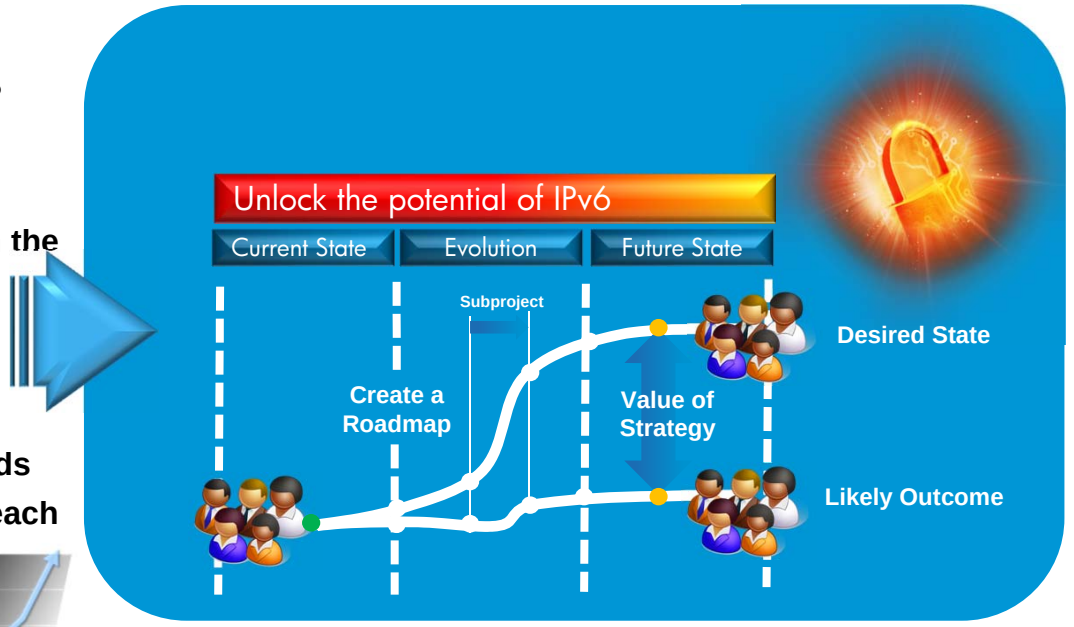
How will you get there?

Facts

- IPv6 is inevitable what is your inflection point?
- What is your organization's IPv6 plan?
- Decide how and what role you want to play
- What percentage of your business is reliant on the internet?

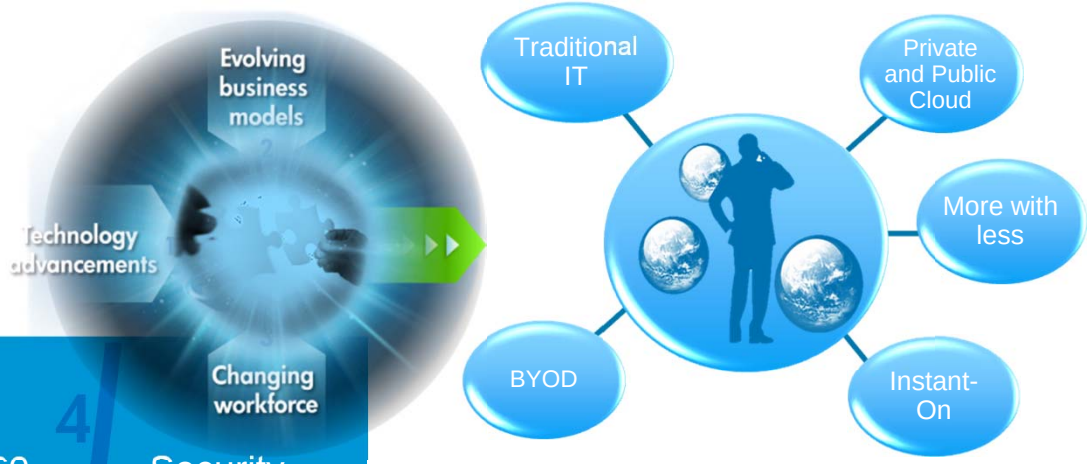
Pain Points

- Exploding support costs from IPv4 workarounds
- Inability to grow with business needs and to reach total customer base
- Inability to innovate



IPv6 Opportunities

Challenges are everywhere



1 Campus, branch challenges

- New applications
- UCC and video
- Mobility and access
- Desktop virtualization

2 Data center challenges

- Complex architectures
- Virtualization
- Time-to-service
- SaaS, PaaS, IaaS
- Cloud services

3 Enterprise-wide challenges

- Convergence
- Business continuity
- Limited staff & budget
- Management & reporting
- Green IT
- Lower TCO

4 Security challenges

- Unifying point solutions
- Regulatory compliance
- Zero-day protection
- Architecture integration

Six Domains in Scope

IPv6 traffic is already in your network now and uncontrolled

IPv6 is not only about technology

When will you need IPv6 inside the data center?

Will web enablement be your inflection point?

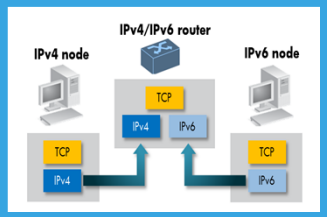
Are your applications IP dependent?

Many clients default and prefer IPv6 now

Establishing a Task Force is imperative

IPv6 influences every aspect of IT

IPv6 Transition



Dual Stack (IPv6 / IPv4)

IPv4 and IPv6 protocol stacks implemented on the same device. Dual stack devices inter-operate with IPv6-only devices using IPv6 and with IPv4-only devices using IPv4

+ Most simple and recommended approach, network is the same
– IPv4-only cannot communicate with IPv6-only, need to maintain 2 routing tables, need to maintain 2 firewall rule sets, requires additional memory and power, …

Tunneling (6-in-4 or 4-in-6)

One transport protocol is encapsulated as the payload of the other

+ Connect islands of IPv6 or IPv4 (compatible nodes across incompatible networks) recommended for site-to-site
– Security issues with tunneled protocols, reduced performance, complicated management & troubleshooting

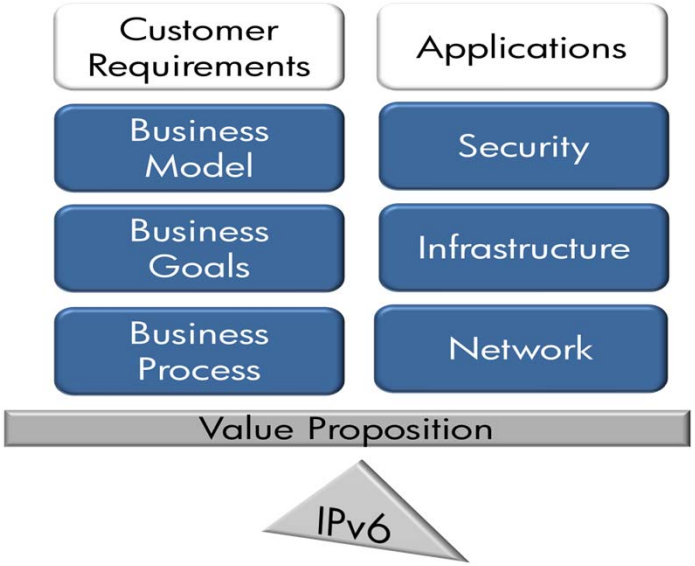
Translation (NAT-PT, NAT64/DNS64)

Translates IPv6 names & addresses into IPv4 names & addresses (and vice versa).

+ Enables IPv6-only host to communicate with IPv4-only hosts (and vice versa), No modification to IPv4 or IPv6 end nodes, only adjustments at boundary routers
– Application incompatibilities (e.g. VoIP), need for ALG, all NAT drawbacks Increased complexity in network topology, Reduced Performance (dep. on HW), complicated troubleshooting

IPv6 Transformation Journey

Joint Business & IT Task Force ensures a smooth path toward IPv6



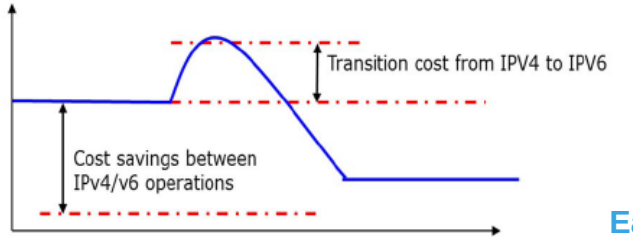
Requires business buy-in

Find ways to capitalize on IPv6 to meet your business and IT goals

Analyze risk, cost of starting now versus start later

Yesterday's thinking won't solve today's opportunities

Financial Impact



Costs for planning and preparation
Expenses for planning, trainings, transitions, upgrades, RIR fees, etc.

Investments for Hard- and Software
Investment in network equipment, management tools, etc.

Operational Savings
Reducing current operational costs through less complex NW & systems mgmt (no NAT) and better integration.
Centralized end2end management allows reduced admin. New equipment saves energy costs*[1].
No ISP Lock-in. Establishing global standards exploits synergies.

Cost Avoidance
Avoiding losses by externally driven, urgent, unstructured, ad-hoc IPv6 implementation projects and false investments in unsuitable products
(costs of not acting). Avoid IPv4 rationing*[2].

Future Wins
Enabling new business models that were not feasible with IPv4 (e.g. Telematics, Tire-Sensors, MS DirectAccess, etc.). Open up new markets*[3]. Productivity increases to mobile workforces.

Easy

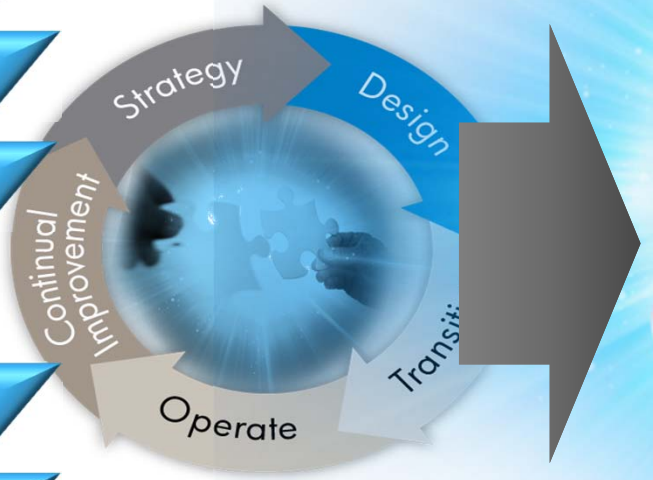
Predictability

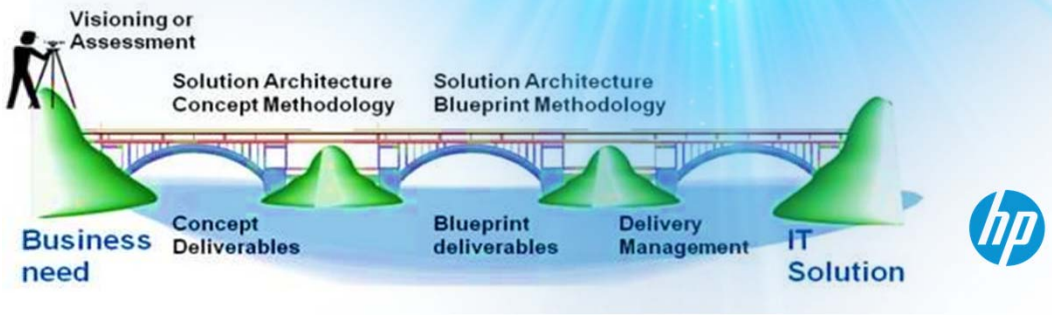
Complex

*[1]: Replacing all NW devices while maintaining port density, can charge off within 1 year and less.
*[2]: Microsoft paid $7.5 million to purchase 666,624 IPv4 addresses from Nortel, this is $11 per address.
*[3]: In 2011 there are more IPv6 connected devices in Asia than IPv4.

HP IPv6 Consulting Portfolio

- IPv6 Transformation Experience Workshop
- IPv6 Readiness Assessments
- IPv6 Architecture and Design
- IPv6 Web Start Service
- IPv6 Transition Consulting
- IPv6 Integration & Deployment



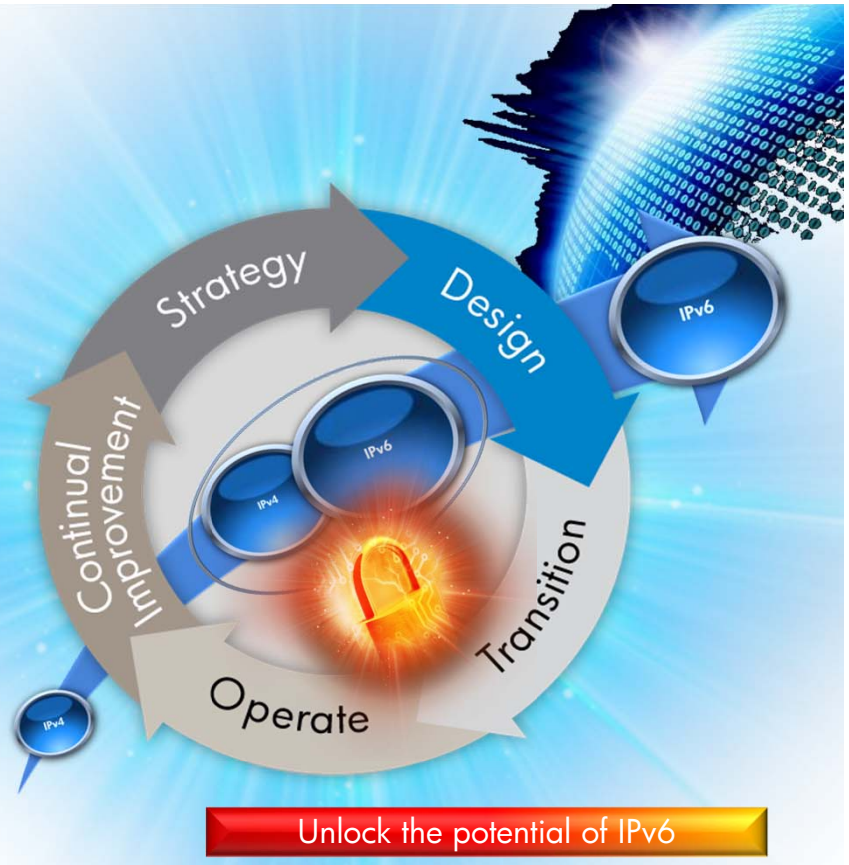


IPv6 Time to Act NOW

IPv6 transition is inevitable
Many countries, have mandated IPv6
IPv6 is a compliance requirement

IPv6 is one of the most significant technology changes in the history of the Internet

Remember - IPv6 is inevitable, what is your inflection point?
And … No actions leads to isolation



Thank you

www.hp.com/network/ipv6

www.hp.com/services/ipv6