Australian IPv6 Summit 2012

AUSTRALIAN INDUSTRY GROUP

Internet Society of Australia

CLOUD AND IPV6

BY **CIPRIAN POPOVICIU**

Ciprian Popoviciu
President & CEO Nephos6

Standards:
RFC 4779
RFC 5180
RFC 5375
RFC 5741
RFC 6105
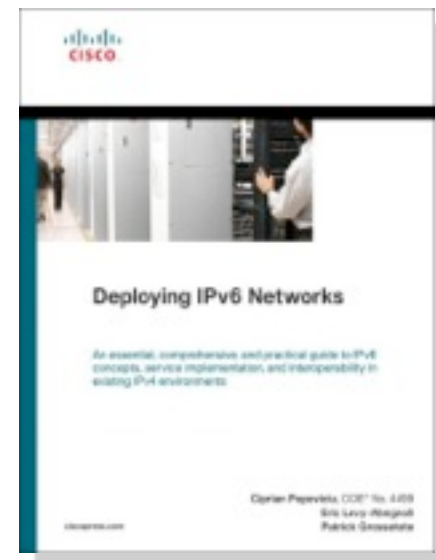
Nephos (νέφος) = Cloud, 6 = IPv6

Agenda

- The IT environment context
- IPv6 + Cloud Considerations
- Cloud Support for IPv6
- Conclusions

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1. The IT Environment Context

"You cannot ignore Cloud and you cannot wish IPv6 away."

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Access
Managed Services
Security
Zero Touch Provision
Storage
Virtualization
Layer 2 or 3
Cloud
Video
ACME
Telepresence
VPN
WAN Acc
VDI
VOIP
IPv6
Management

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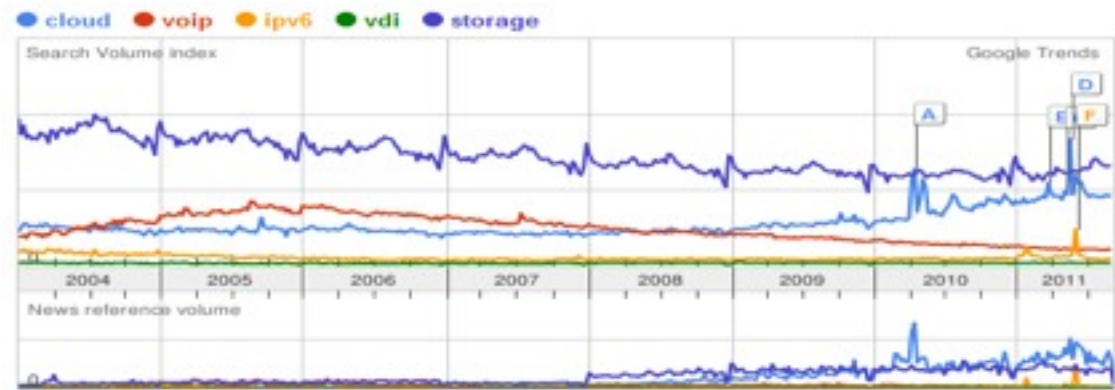
Business Problem

- 78% of IT leaders said made/making the transition to IPv6
- 94% of work began within the past two years
- 54% deemed the move essential to the organization
- 73% were concerned about missing out on the benefits
- 92% indicate that security team is involved in transition efforts
- 56% believe responsibility should fall on SP and the company
- 63% indicate an executive committee is overseeing the effort
- 55% have sought/plan to seek assistance of consultants

Cisco Survey: http://www.networkworld.com/news/2011/052411-cisco-ipv6.html

Transitions Context – Three Major Inflection Points

Driver

Business Results

The inflection points are complex, simultaneous, interdependent and touch every aspect of IT

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Transitions Timeline

The transition will take time, start early
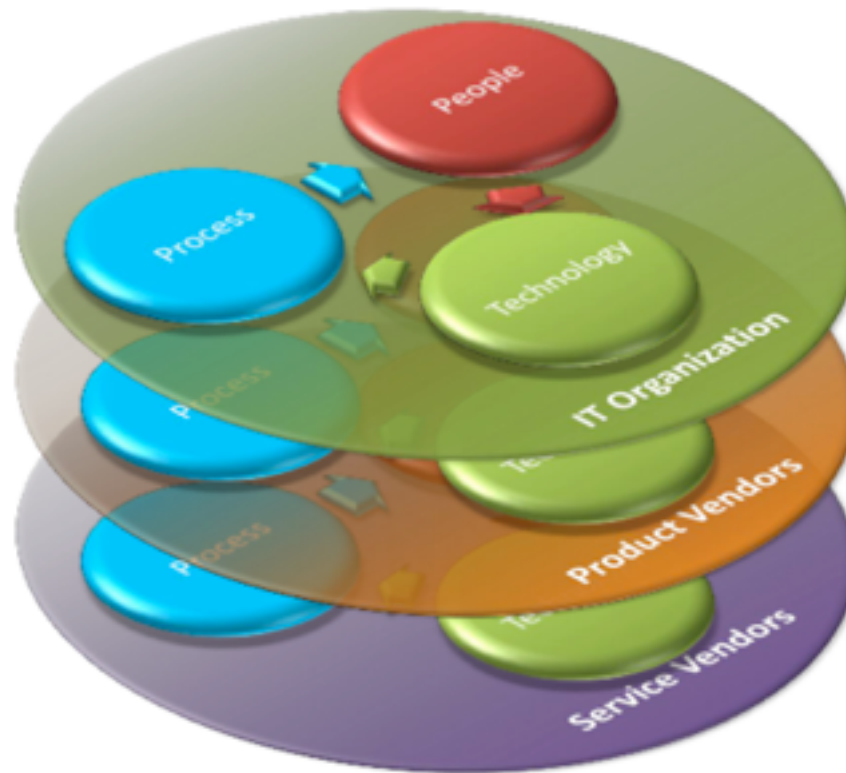
Transitions Scope

Current Architecture (Start) → Target (End) Architecture
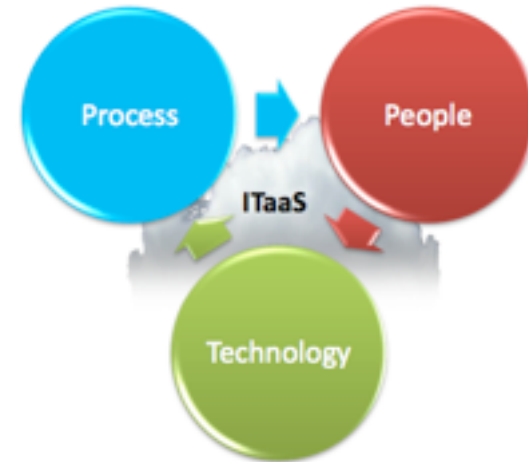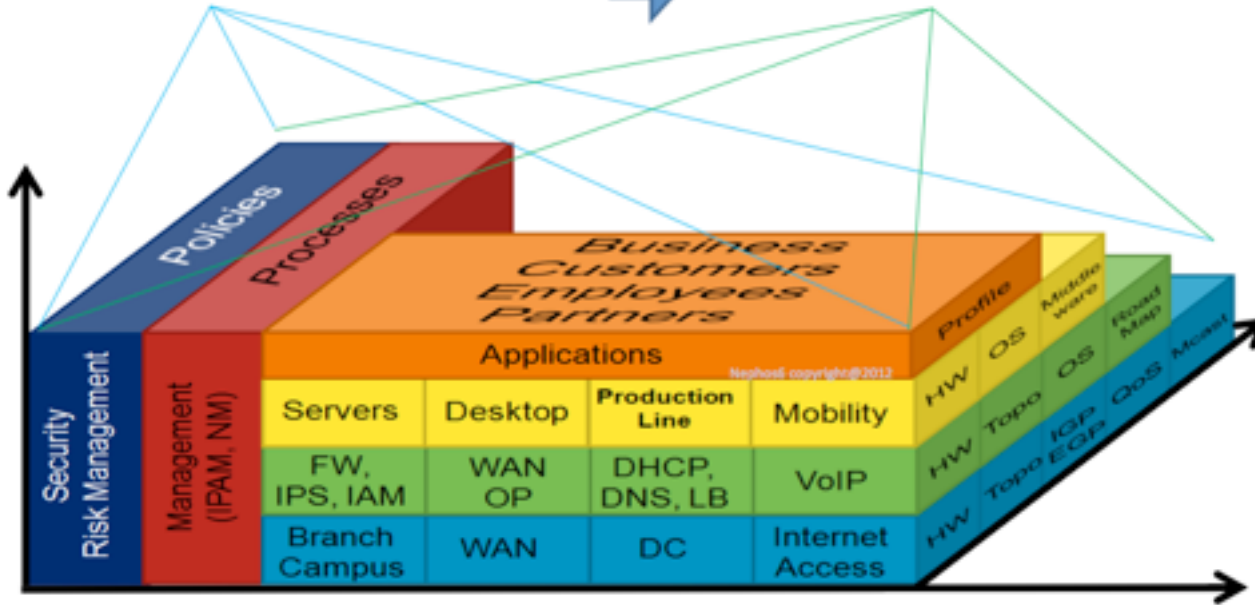
It is about the three key dimensions of any IT env

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Transitions Extended Scope

The timeline and success of your IPv6 project depends on the readiness of the ecosystem

Aligning the Transitions
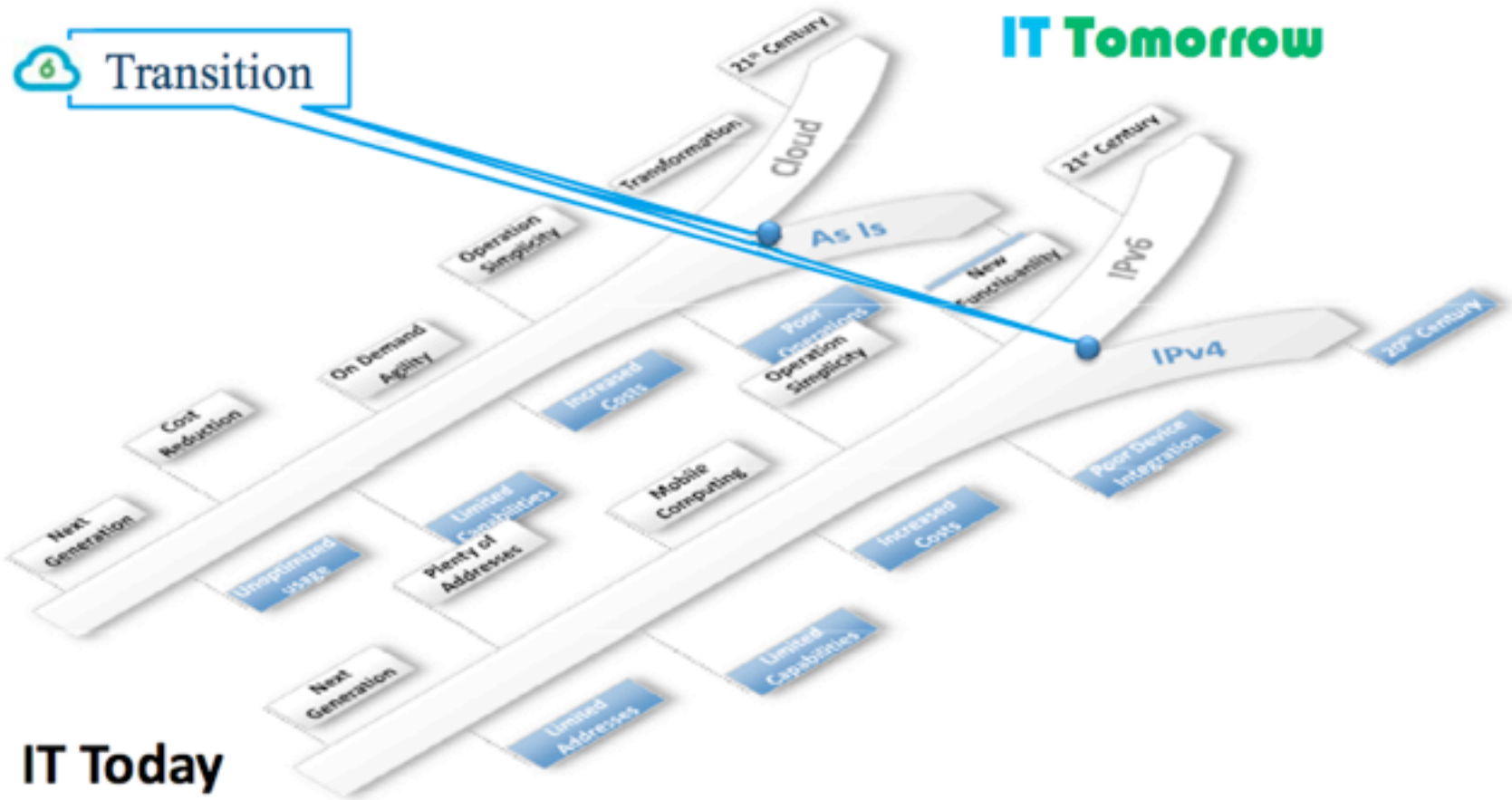
2. IPv6 + Cloud Considerations

"The promise of Cloud cannot be fully met without IPv6."

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IPv6 + Cloud – Addressing, addressing, addressing

- Easy, direct access to Cloud resources
- Sufficient address space to meet the growing needs for compute resources
- Easier management of the IP address space for the creation and removal of compute resources
- Easier management of the IP address space for the creation of Virtual Private Clouds
- One ID

Do not trivialize the power of plentiful IP address space

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IPv6 + Cloud – Protocol Specific Considerations

- NDP better than ARP in large broadcast domains
- SLAAC as a provisioning option
- IPv6 <-> ISIS <-> TRILL
- New architectural models
  - VXLAN ID -> Flow Label
  - VXLAN Mapping -> Multicast
  - VXLAN interconnect -> Additional options

Great opportunities for innovation

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IPv6 + Cloud – Protocol Specific Considerations
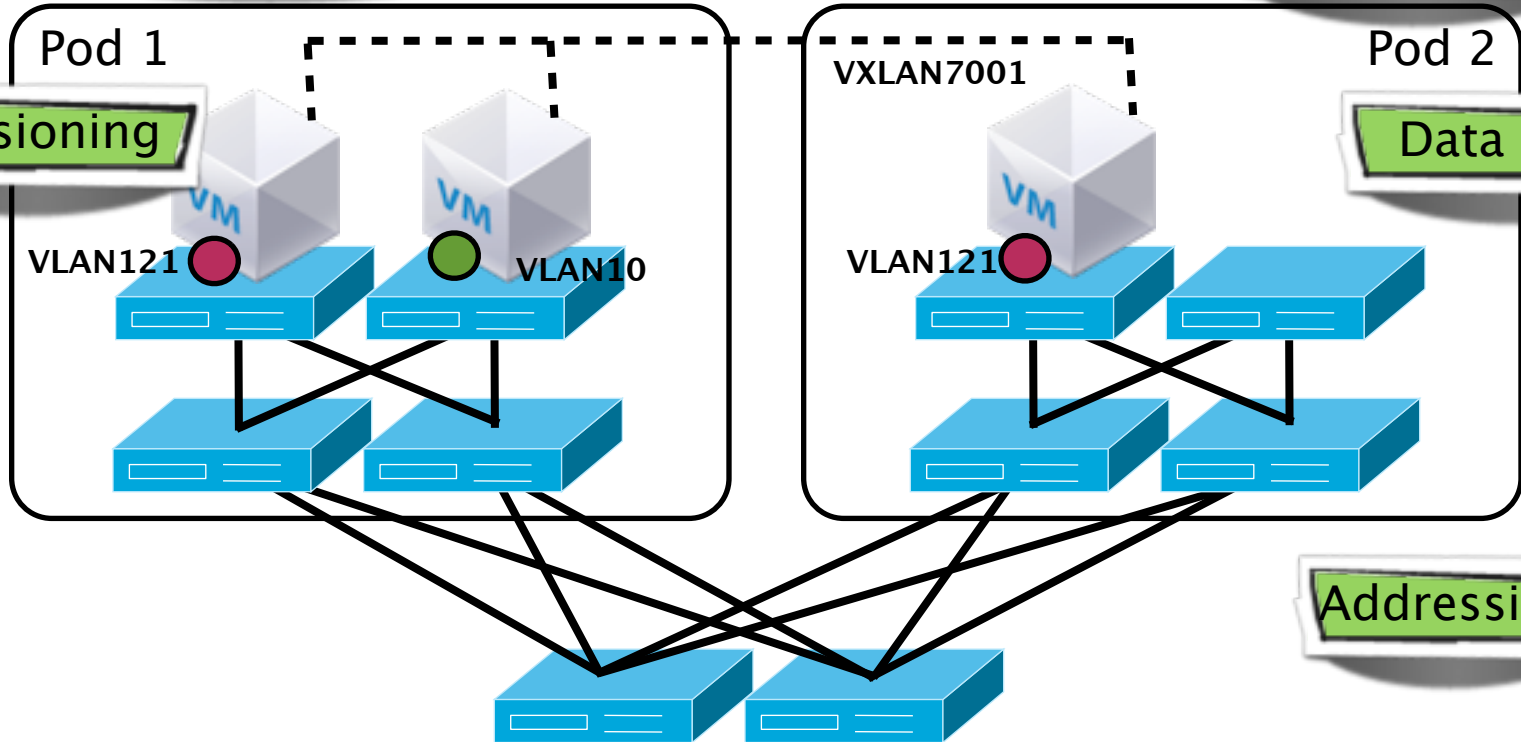
3. Cloud Support for IPv6

"Host Virtual, Inc. has seen a 473% increase in its customers' use of dual-stack IPv4 and IPv6 hosting services since late last year."

Private Cloud

- Openstack – Support with API 1.1
  http://www.cybera.ca/tech-radar/using-openstack-with-ipv6
- Openflow – Support with 1.2 specification
- Proprietary implementations might claim support but I have my doubts it is complete or even working support

To orchestrate your Private Cloud you will need to assess IPv6 readiness of tools. Another full assessment or another line item, your call.

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Providers – IaaS and Hosting

Rackspace:

- [Private Cloud](#)
- [Critical Sites](#)
- [Dedicated server configurations](#)

(Servers, Firewalls, Load Balancers)

- [Cloud Sites](#)
- [Email & Apps](#)
- [Cloud Files](#)
- [Cloud Load Balancers](#)
- [Cloud Servers](#) (WIP)

AWS:
- AAAA and PTR but no transport
- Elastic Load Balancer
- No support in VPC

challengers / leaders

Amazon Web Services
Savvis
CSC
Bluelock
Terremark
NaviSite
OpSource
IBM GoGrid
Rackspace
Tier3
Hosting.com
Joyent
iland
SoftLayer
Carpathia Hosting
Virtacore Systems
AT&T
Tata Communications
Datapipe

ability to execute

niche players / visionaries

completeness of vision

As of December 2011

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Providers – IaaS and Hosting

Softlayer:

- Access
- Provisioning? cPannel (11.36)

Voxel:

- VoxCLOUD
- VoxSERVER

CA/3Tera:

- Applogic

Host Virtual:

- Dual–stack out of the box

Differentiating Opportunity

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Interview Based Research

16 out of 41:
- **Bluelock (IaaS)**
- Brightbox (IaaS)
- Cloudflare (PaaS)
- Dropbox (IaaS/SaaS)
- HP (IaaS/PaaS/SaaS)
- Linode (IaaS)
- NTT Comm (IaaS)
- Oxygen Cloud (IaaS)
- **Rackspace (IaaS/PaaS)**

- **Softlayer (IaaS)**
- **Tata Comm (IaaS/SaaS)**
- **Terramark (IaaS/PaaS)**
- **Virtacore Sys (IaaS)**
- Windows Azure (PaaS)
- Windstream (IaaS)
- XO Comm (IaaS/PaaS)

16 claim native access

Test Based Research

CSP	Address	Connection	LB	VPC	FW	VPN-GW	IDS
AWS	🔴	🟡	🟡	🔴	🔴	🔴	🔴
Rack	🔴	🔴	🔴	🔴	🔴	🔴	🔴
Soft	🟢	🟢	🔴	⚪	⚪	⚪	⚪

Address – IPv6 Address
Connection – Native IPv6
LB – Load Balancer access
VPC – Virtual Private Cloud

FW – Firewall
VPN-GW – VPN Gateway
IDS – Intrusion Detection

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5. Conclusions

- Address both inflection points within a common, comprehensive, corporate wide strategy
- An IPv6 perspective will change your Cloud architecture for the better and vice versa
- Leverage funding and prioritization
- Many opportunities for innovation
- Work with the providers

The promise of Cloud cannot be fully met without IPv6.

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e: contact@nephos6.com

p: (919)647-4773

w: www.nephos6.com