CLOUD ADOPTION – STRATEGIC DRIVER FOR IPV6 TRANSITION

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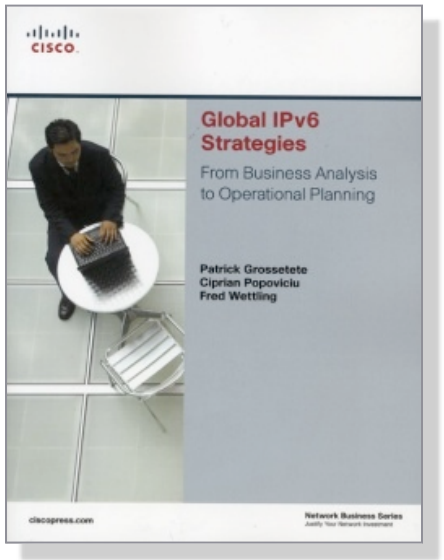
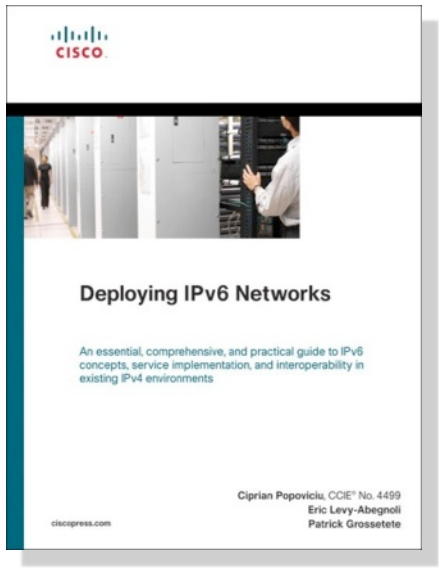
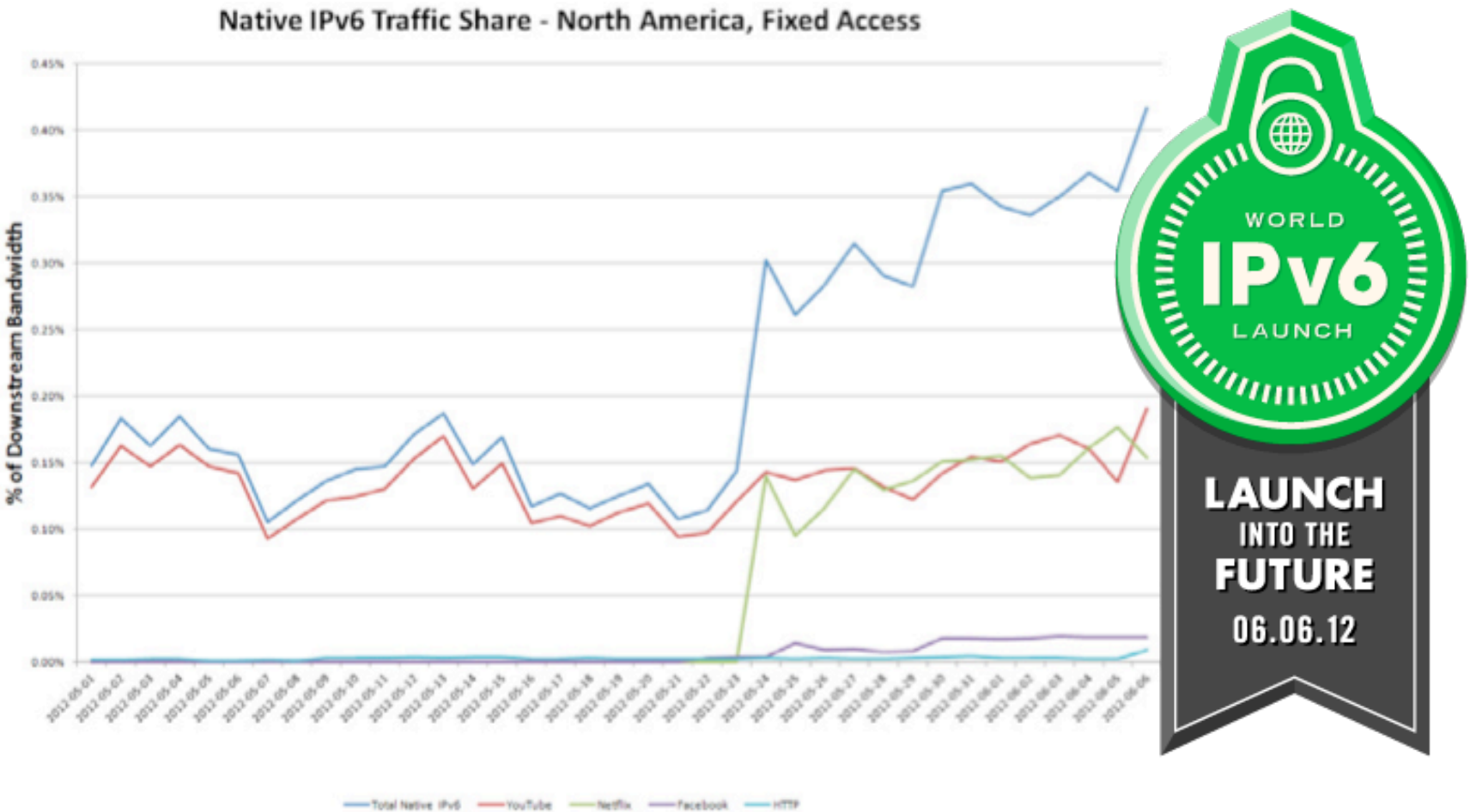
Standards:
RFC 4779
RFC 5180
RFC 5375
RFC 5741
RFC 6105





Nephos (νέφος) = Cloud, 6 = IPv6

We launched!



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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

Zero Touch Provision

Security

Storage

Layer 2 or 3

Virtualization

Video

Cloud

Telepresence

ACME

VPN

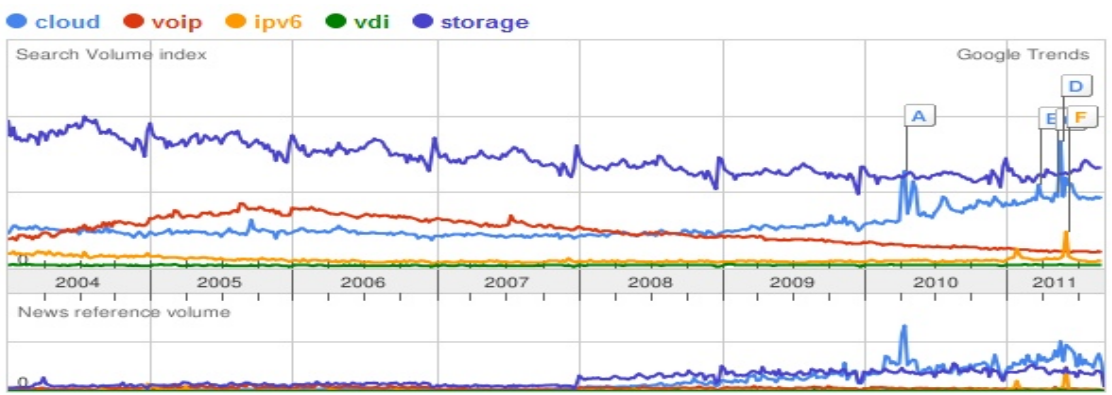
WAN Acc

VDI

IPv6

VOIP

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

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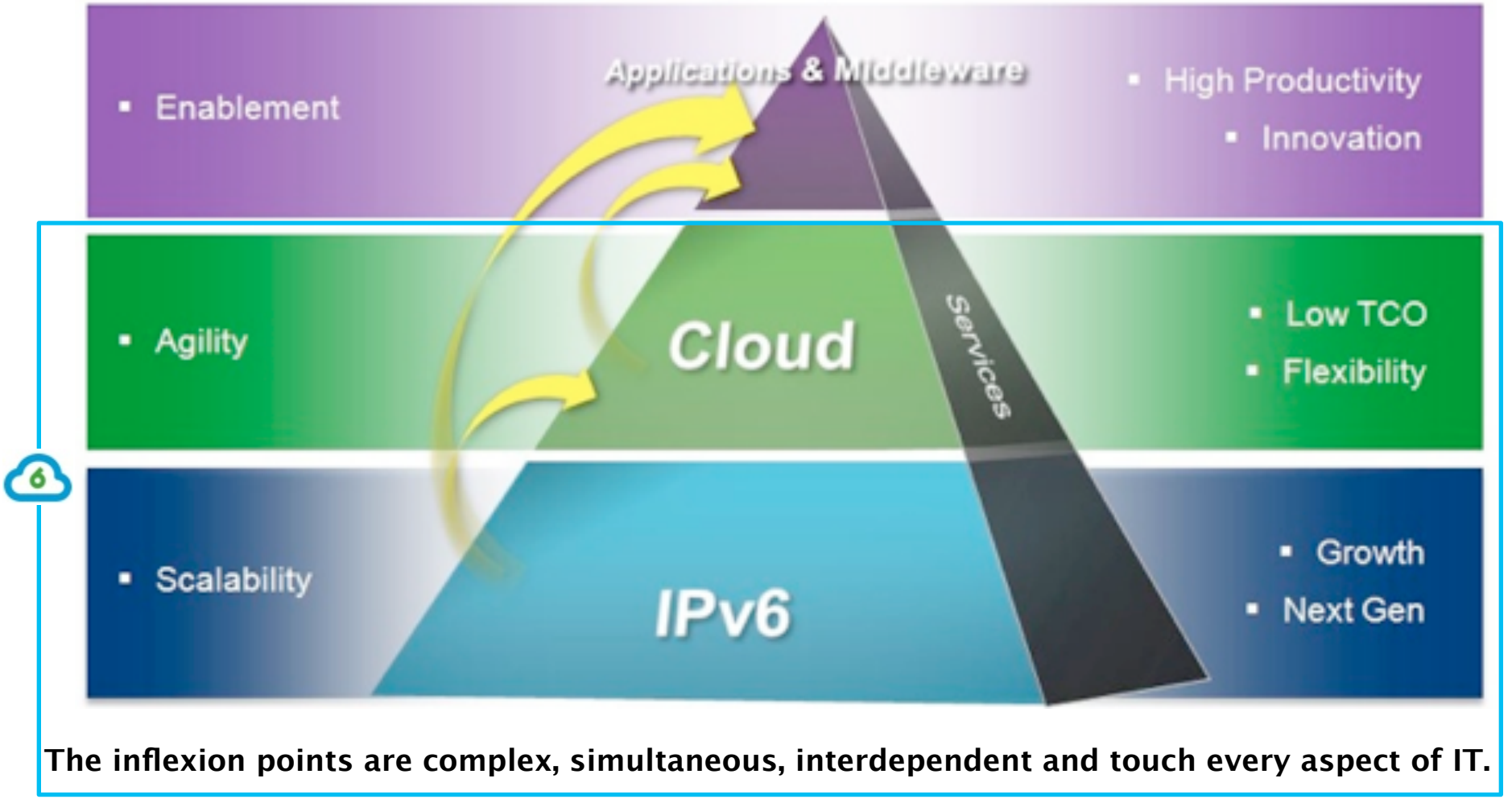
Market Opportunity – Three Major Inflection Points



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

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The Transition Process

The transition will take time, start early

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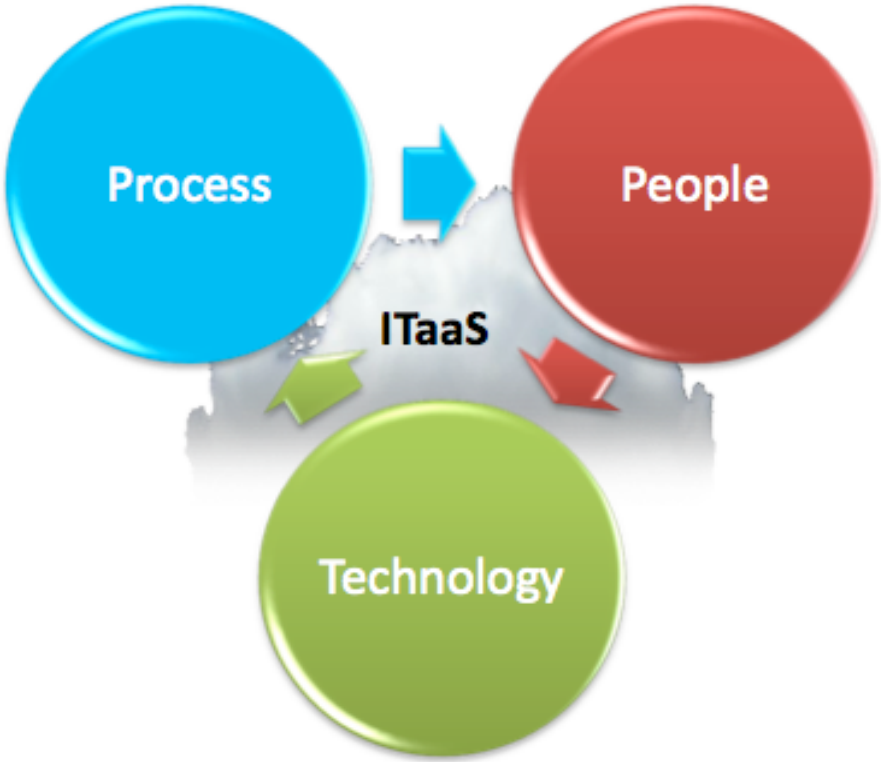
Scope of the Transitions



It is about the three key dimensions of any IT env

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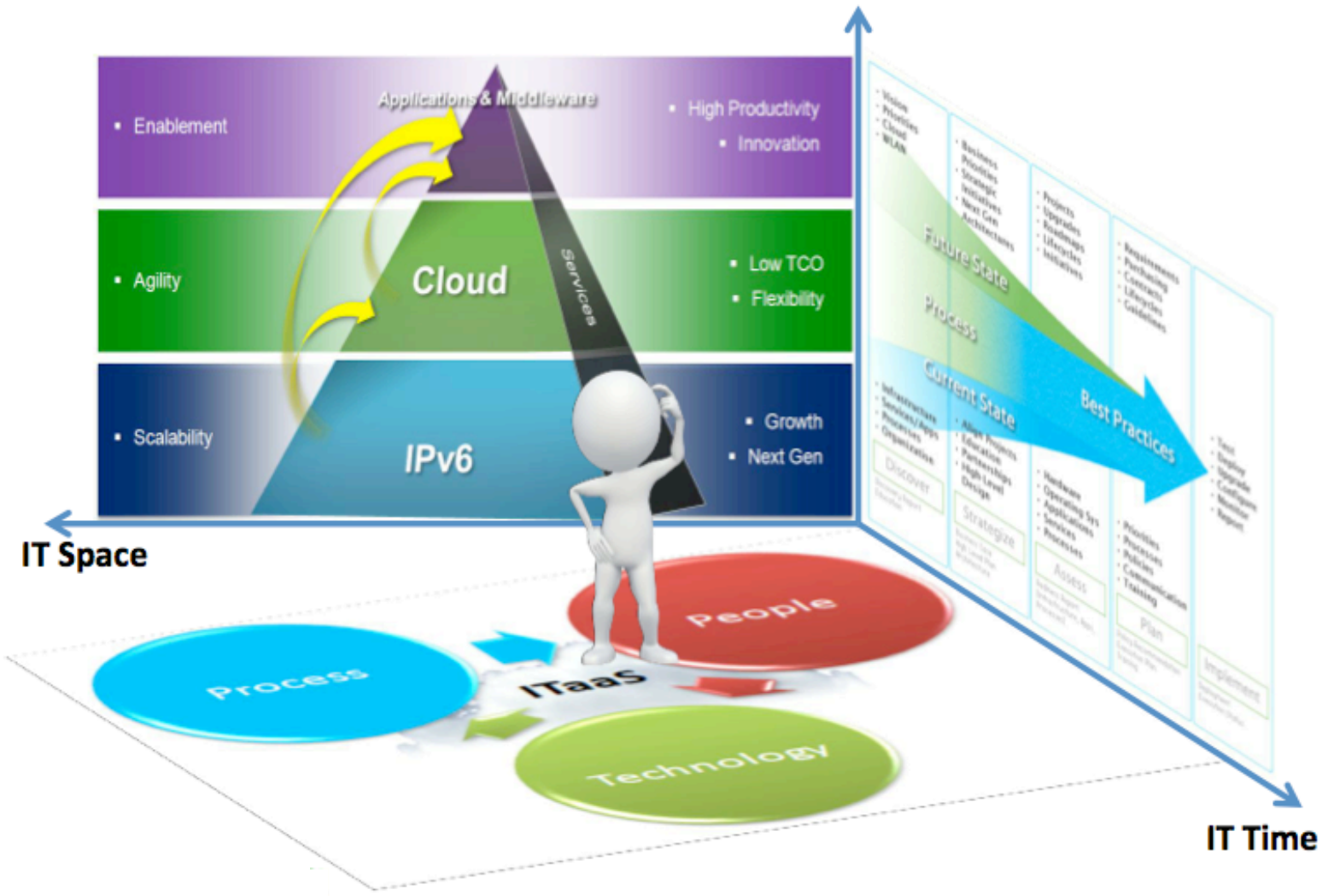
IT Brane Approach



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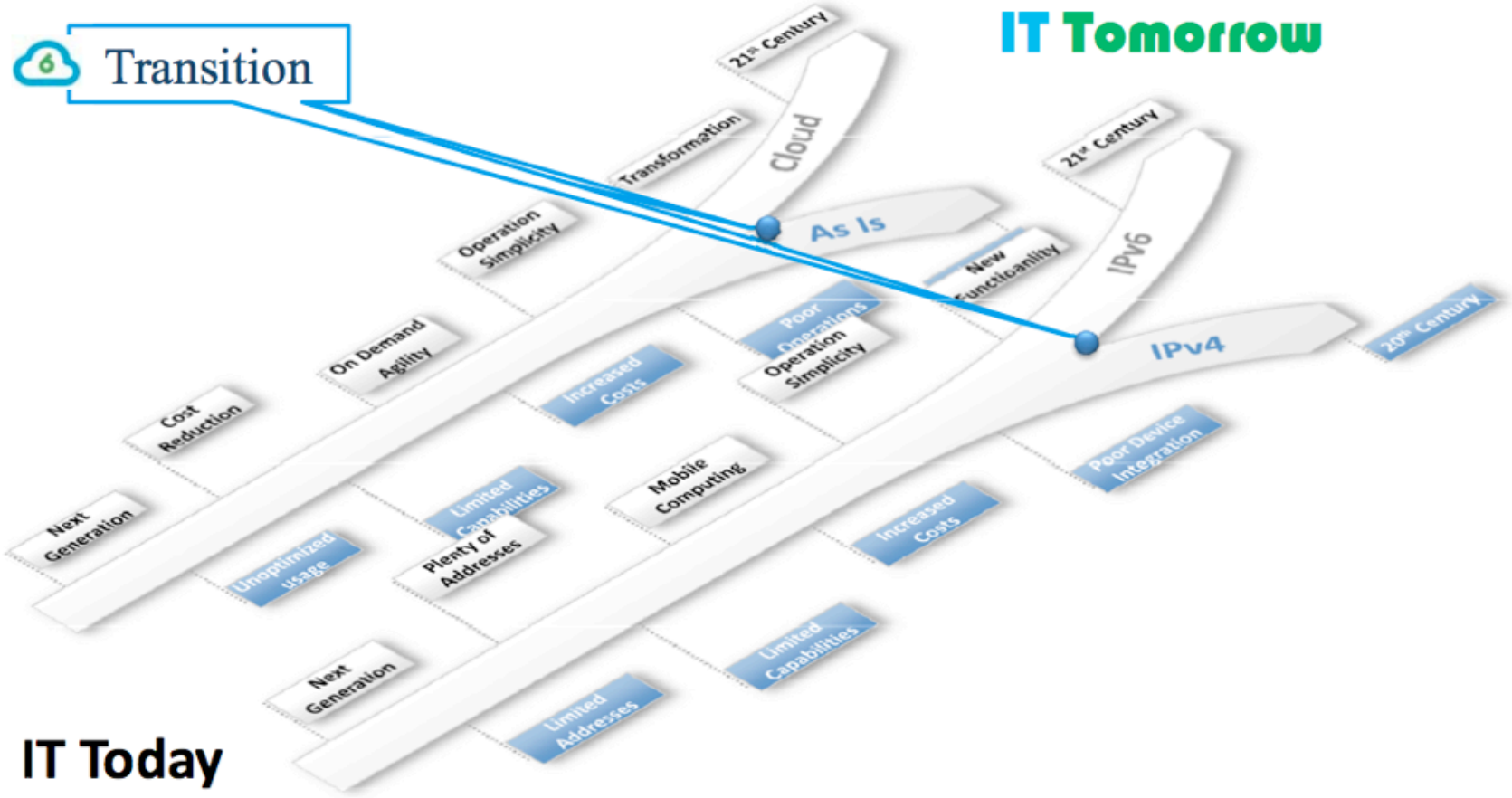
Dealing with the Transitions



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

Do not trivialize the power of plentiful IP address space

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IPv6 + Cloud – More addressing …

- Reclaim IPv4 address space used for East-West and operational traffic
- Large enough addresses to embed customer, service type or service tier relevant information
- One ID

The IPv6 address can become the key tie between next generation applications and infrastructure

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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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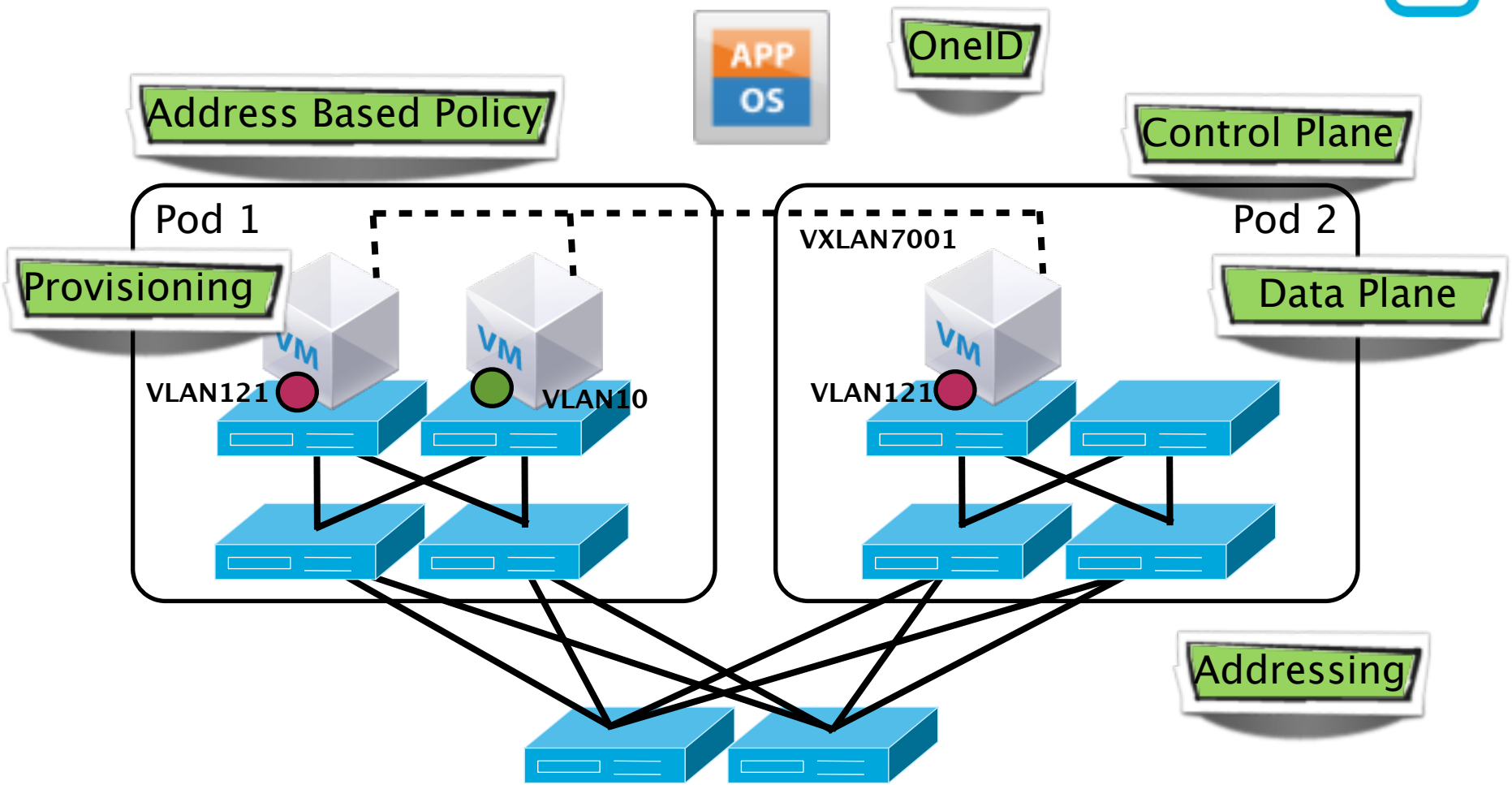
IPv6 + Cloud – Protocol Specific Considerations



Great opportunities for innovation

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IPv6 + Cloud – Optimize Transitions

- Align requirements and lifecycles for cost reduction
- Avoid re-work due to sub-optimal design/plan for each transition taken independently
- Define the next generation architecture of your IT Environment to leverage the capabilities and observe the needs of both sets of technologies

These principles are applicable to any strategic IT initiative, IPv6 touches everything

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Your IPv6 + Cloud Game Plan

- DC Infrastructure (network, compute, storage, appliances and foundational services) is IPv6 ready
- Infrastructure outside the Data Center (WAN, WAN acceleration) is IPv6 ready
- Orchestration components are IPv6 ready, particularly the DDI
- Application profiling for Cloud should include IPv6 readiness evaluation
- Double the arguments for managing out legacy
- Do not forget readiness of staff (training)

Ask Cloud providers about their IPv6 readiness

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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."

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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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Public and Virtual Private Cloud

Ask your CSP:

- Is the service dual stack capable?
- Is access native or tunneled?
- Is there functionality parity between IPv4 and IPv6? (load balancing, IP portability, manageability, security)
- Is it equally easy to provision IPv6 or dual-stack services as it is to provision IPv4 services?
- Are any solutions offered that make transitioning to IPv6 easier?

Most providers claim support but demand drives

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Providers – IaaS and Hosting

Rackspace:

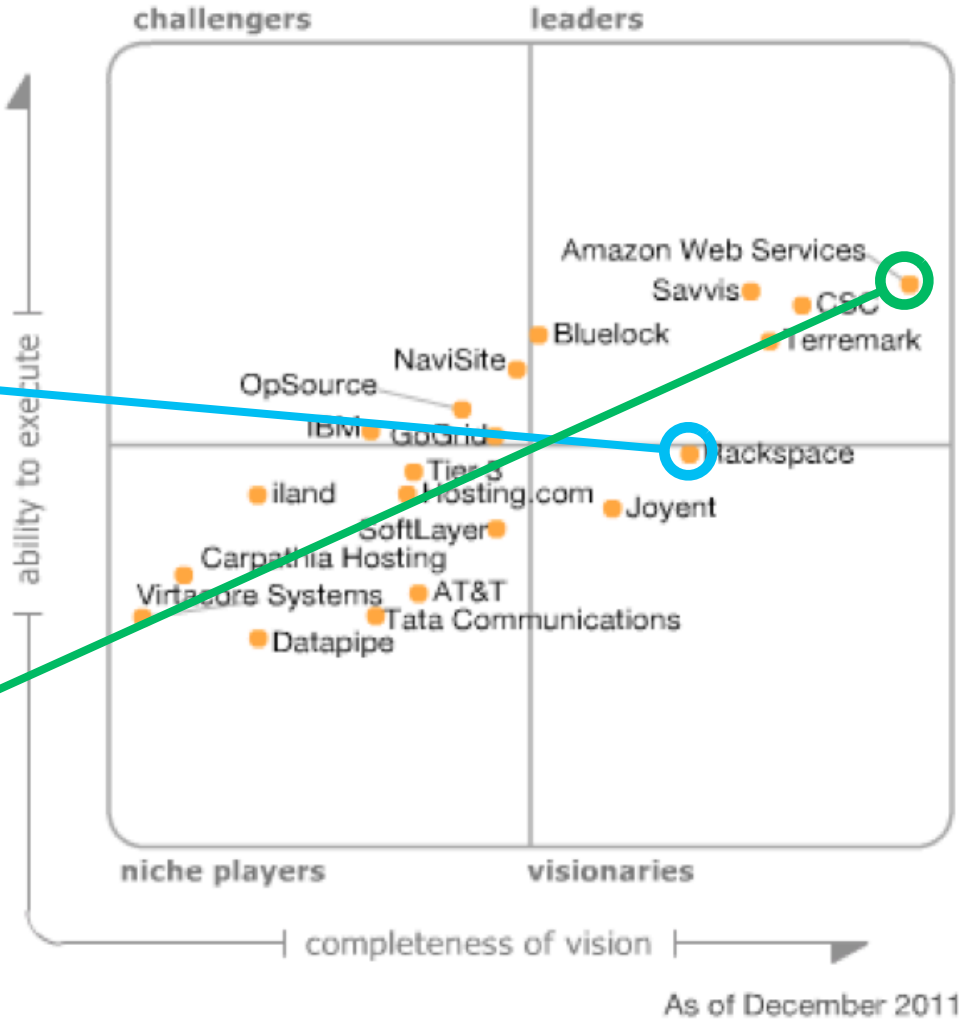
- Private Cloud
- Critical Sites
- Dedicated server configurations

(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



Providers – IaaS and Hosting

Softlayer:

- Access
- Provisioning? cPannel (11.36)

Voxel:

- VoxCLOUD
- VoxSERVER

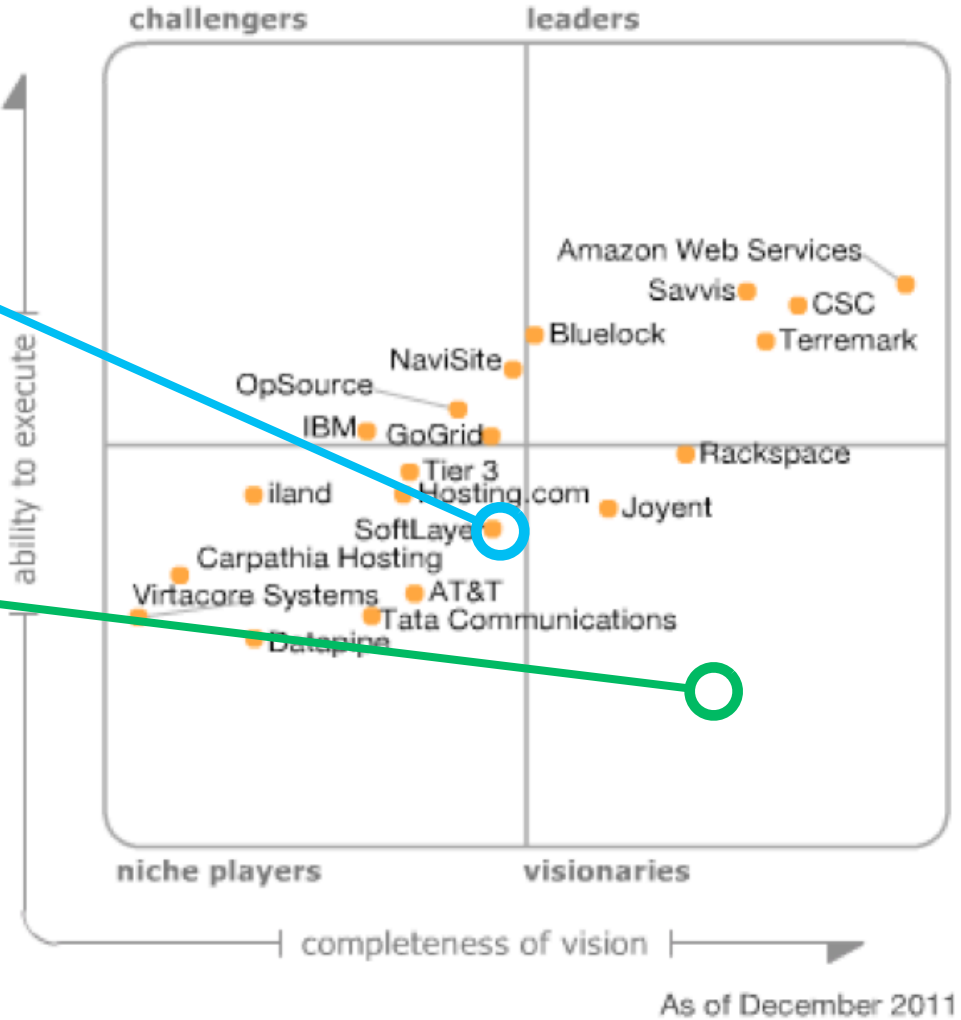
CA/3Tera:

- Applogic

Host Virtual:

- Dual-stack out of the box

Differentiating Opportunity



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

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Test Based Research

CSP	Address	Connection	LB	SG-ACLs	VPC	FW	VPN-GW	IDS
AWS								
Rack								
Soft								

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5. Conclusions

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- 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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Business Transformation One Step at a Time

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