The Enterprise Network In The Era Of The Cloud

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Agenda

Dynamics of the Cloud Era

Vision for the New Network

Essential Guidance

Cost 'Take-Out'

- Data Center Consolidation
- Virtualization
- Cloud?
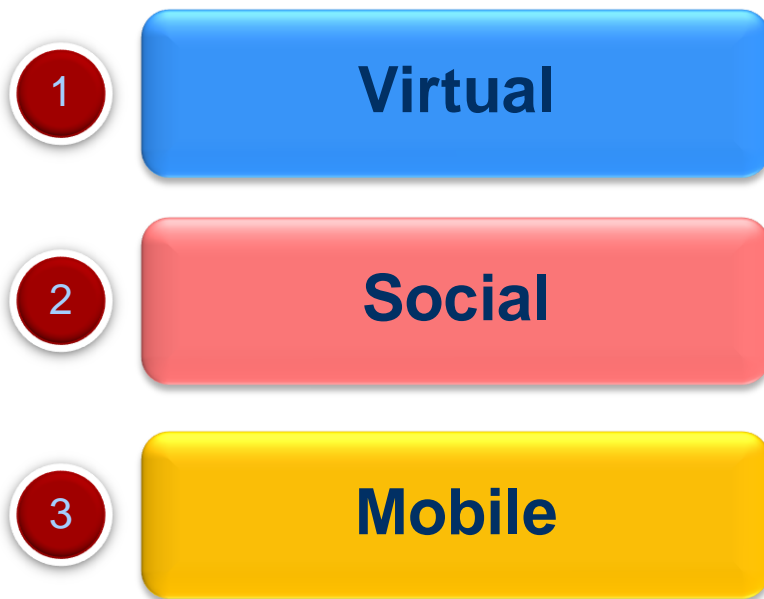- Outsourcing?

Business Alignment

- Metrics (measurement)
- Collaboration
- LoB Application Modernization
- Business Analytics

Risk Management

- IT Governance
- Business Continuity
- Disaster Recovery
- Security
- Compliance

Key Themes Driving Enterprise Network Evolution

1 Virtual

2 Social

3 Mobile

The enterprise network is evolving from a fixed, data-centric, client-server topology to an application-driven, multi-media and mobile network, that is more closely aligned with business needs than ever before.
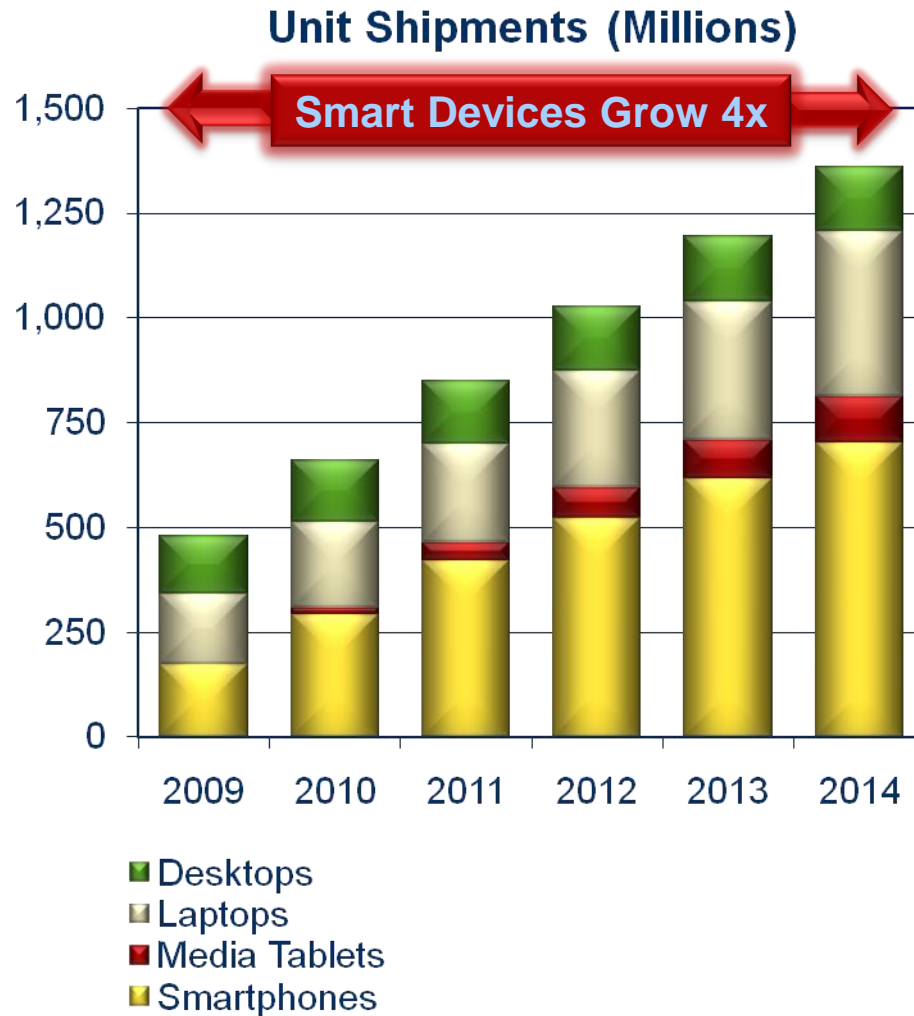
Data centers have become the cornerstone of business…

MORE DEVICES

MORE APPLICATIONS

MORE CONTENT

MORE ON-DEMAND ACCESS

…But the edge of the network is undergoing its own transformation

Smart Mobile Devices: Diversity, Explosion

Unit Shipments (Millions)

Smart Devices Grow 4x

Legend:
- Desktops
- Laptops
- Media Tablets
- Smartphones

Years: 2009, 2010, 2011, 2012, 2013, 2014

Y-axis: 0, 250, 500, 750, 1,000, 1,250, 1,500

In 2011, 2x 'smart' mobile devices ship than laptops

Drive an explosion in social interactions, mobile transactions and digital content creation

Server and network infrastructure needs to support resulting edge, application and database workloads

Collaborative, Web and Security Infrastructure also important

Video, and more, video:
Impact on the enterprise network

Video and related applications proliferate

- Video-conferencing no longer niche

- Video-surveillance and other streaming apps

- Enterprise video collaboration (training, marketing)

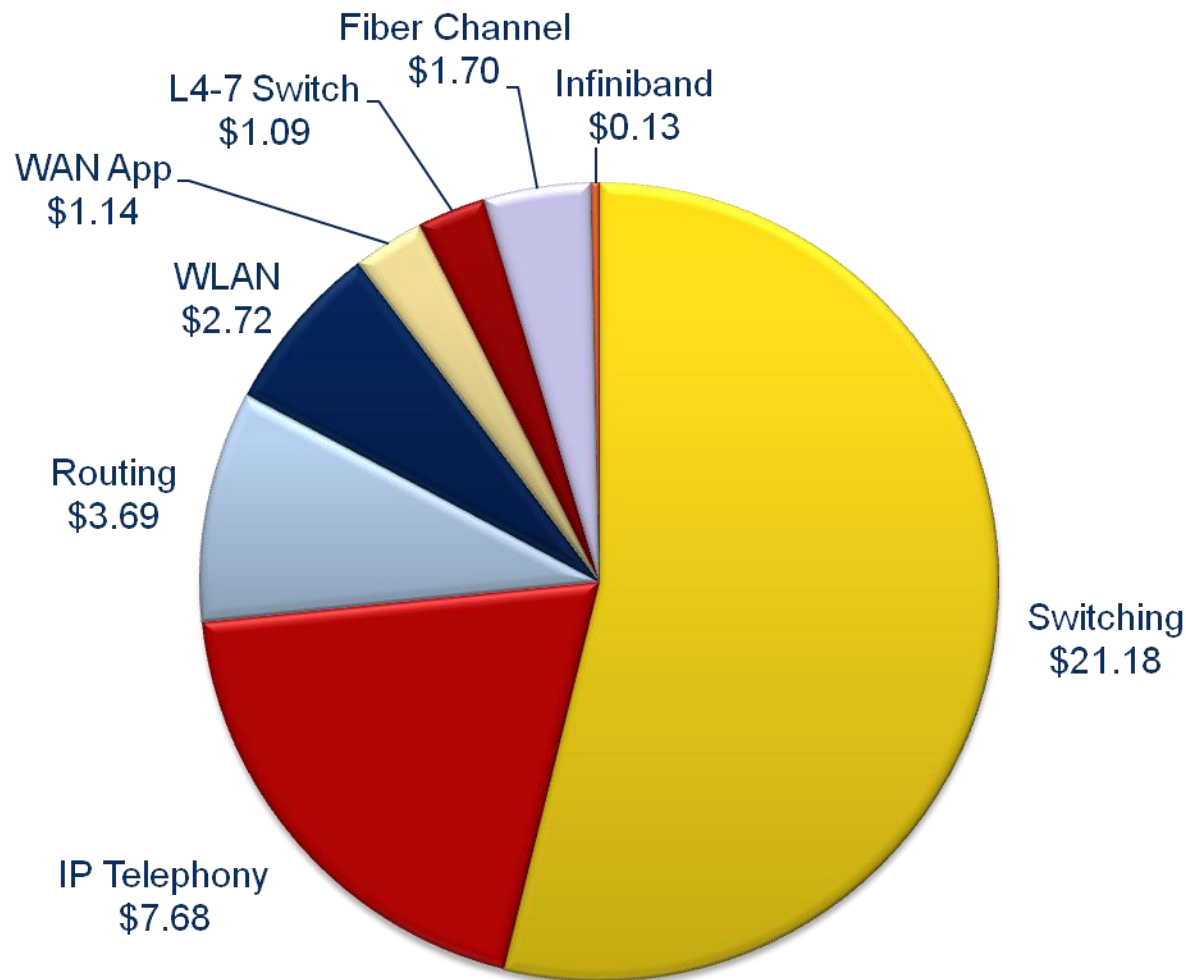## IT will react to this video explosion

- Throw more bandwidth at the problem

    – Vendors will roll out 40/100G sooner

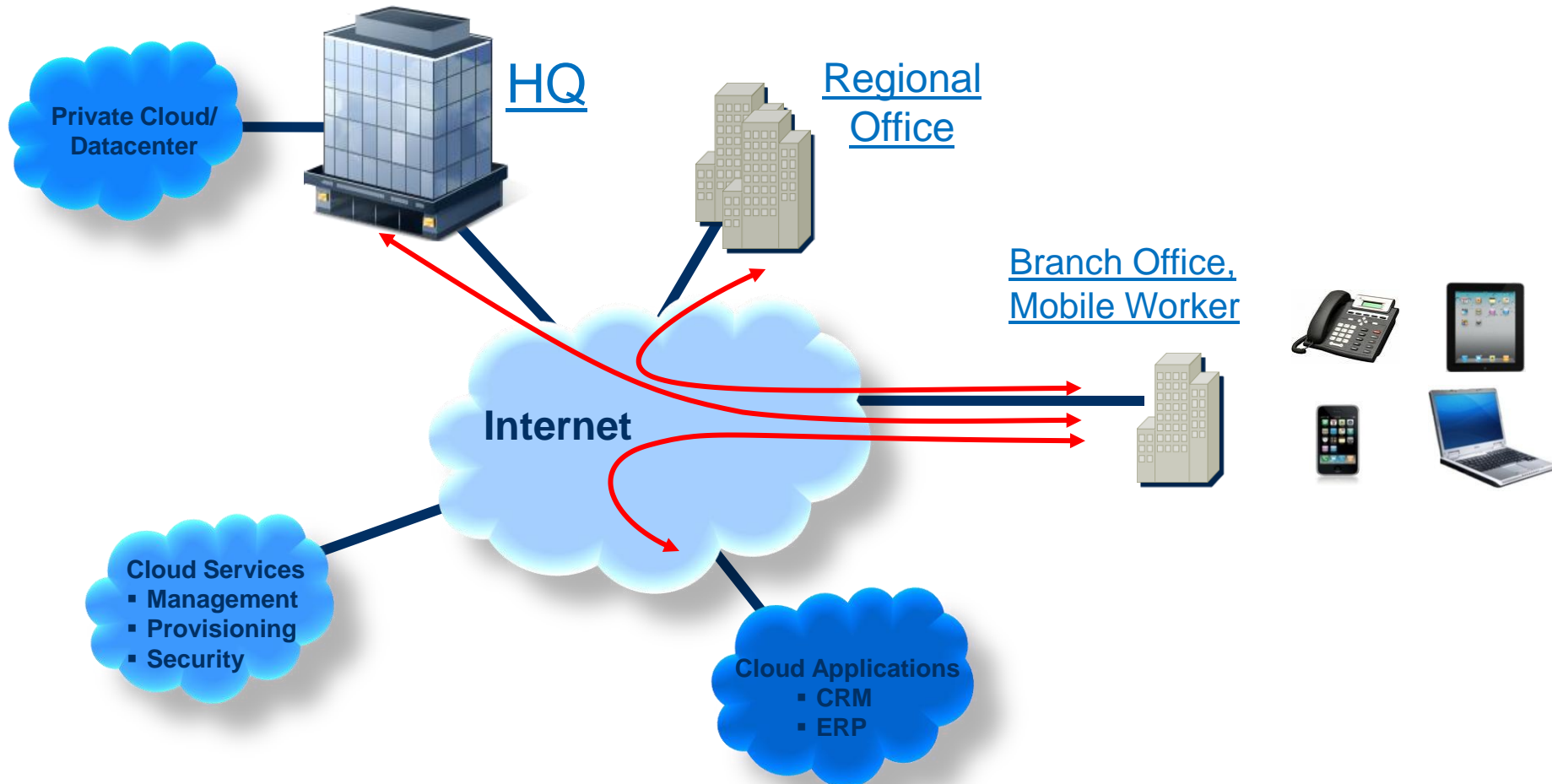- Improved compression technologies

- Network intelligence

Continued Growth in the WW Enterprise Network Equipment Market

© IDC

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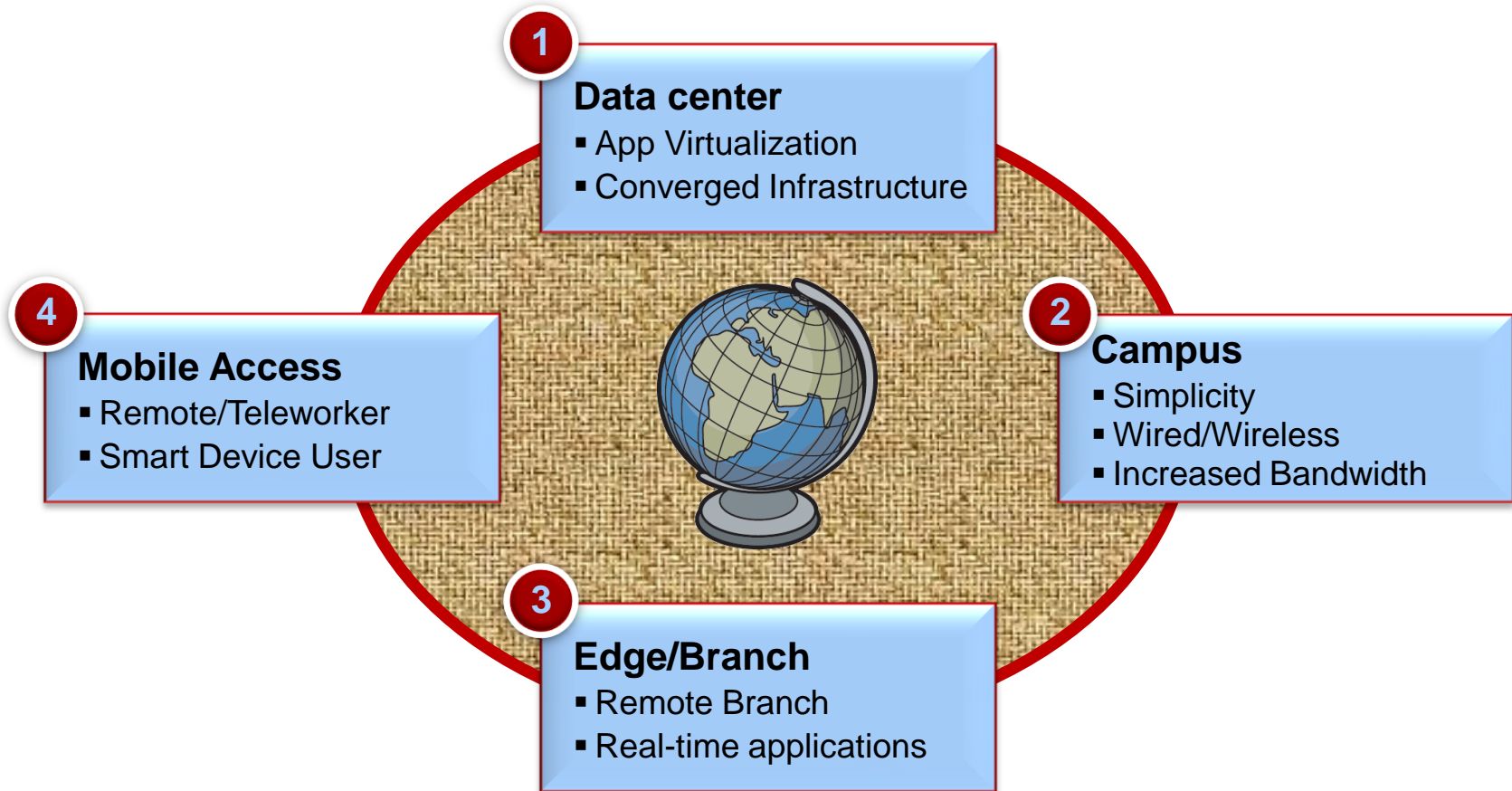# Enterprise Networking Forecast by Technology – 2011

Fiber Channel $1.70

L4-7 Switch $1.09

Infiniband $0.13

WAN App $1.14

WLAN $2.72

Routing $3.69

Switching $21.18

IP Telephony $7.68

Today's Traffic Flows: Many to Many

Private Cloud/ Datacenter

HQ

Regional Office

Branch Office, Mobile Worker

Internet

Cloud Services
- Management
- Provisioning
- Security

Cloud Applications
- CRM
- ERP

Evolution to peer-to-peer communications of business and collaboration applications

The New Enterprise Network

1 · Data center
- App Virtualization
- Converged Infrastructure

4 · Mobile Access
- Remote/Teleworker
- Smart Device User

2 · Campus
- Simplicity
- Wired/Wireless
- Increased Bandwidth

3 · Edge/Branch
- Remote Branch
- Real-time applications

The New Enterprise Network is an efficient, intelligent, converged fabric that extends from the edge to the data center

The New Enterprise Network is also VIRTUAL
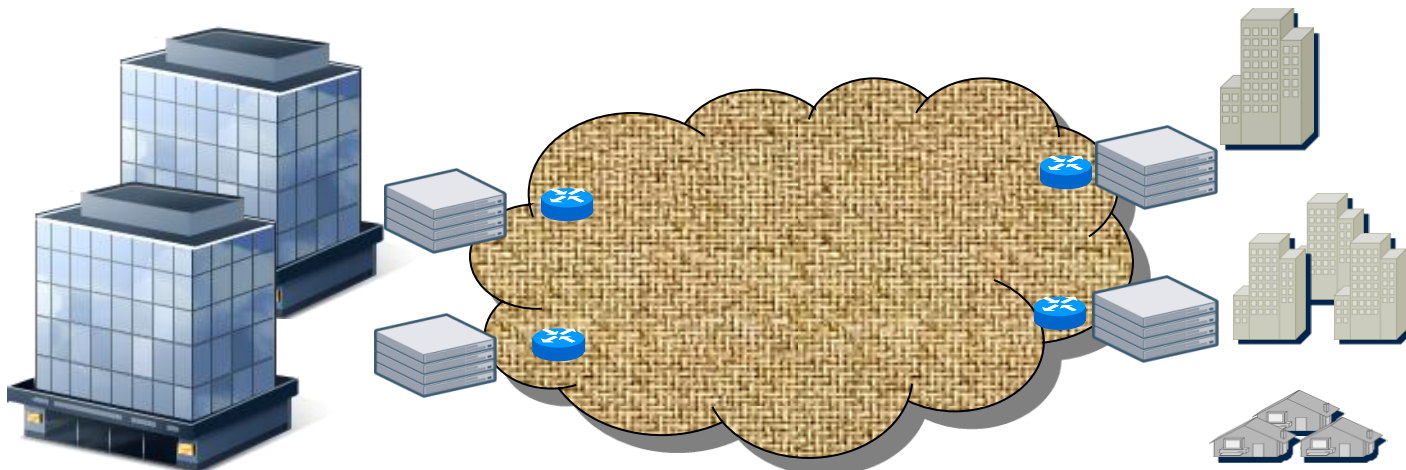
Virtual Services Fabric
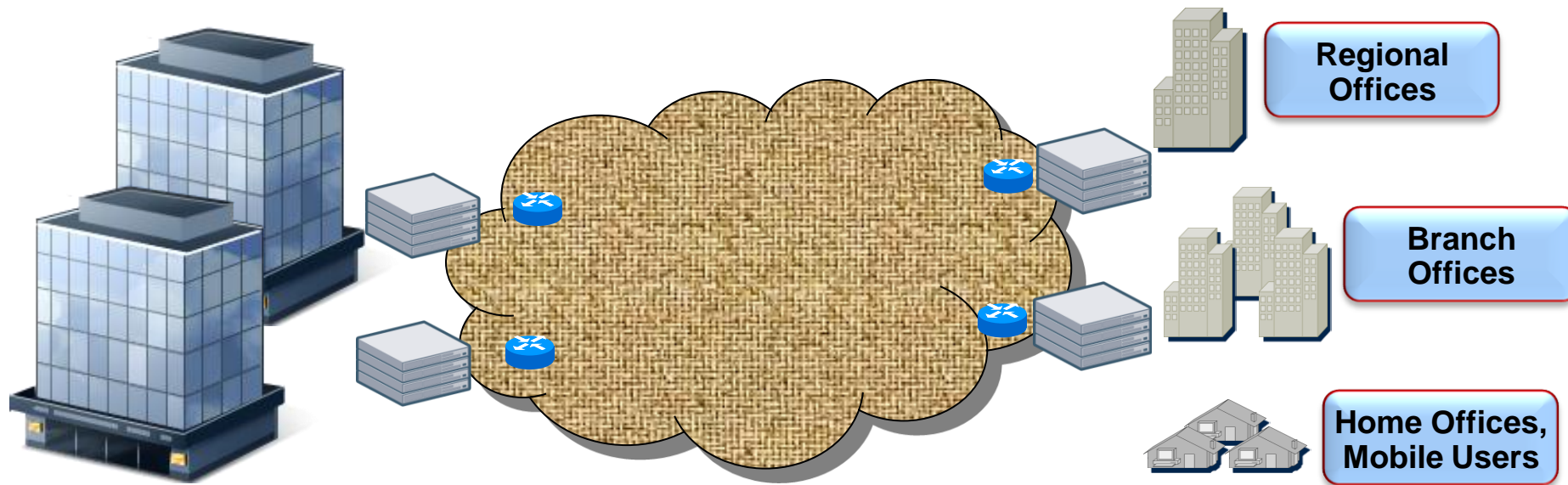
Extends from the edge to the Core/Datacenter

Provides integrity of identity from the user to the datacenter

Adds Intelligence to your network infrastructure

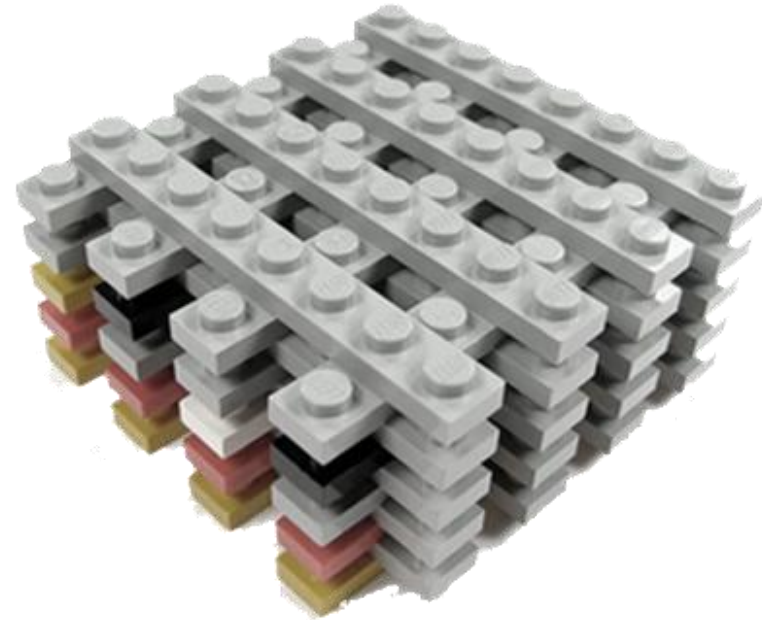- Orchestration of Data, Management and Control Plane

Adding Network Intelligence

Data	▶	Distributed
Management		**Centralized**
Control		**Hybrid?**

Best practices include:

- Default build for IT

- Simpler, efficient provisioning, configuration

- Optimized Traffic Separation, Shaping

- Automation

- Regulatory, Compliance

Built-in Intelligence based on user, device, application, context and location

Will the network be delivered through the cloud?

Virtual Network Services – Examples

Visibility & Reporting	+ Visibility/Monitoring, Reporting on events based on severity
Identity Management	+ Authenticate user and provide appropriate application access
Device Intelligence	+ Auto-discovery of device on wired or wireless network
One-Click Provisioning	+ Automated provisioning and configuration of network devices
Content Filtering	+ Enforcing policy based on content (or user, location, device, etc)
Traffic Shaping	+ Bandwidth limiting, traffic optimization, etc.
Diagnostics	+ Cloud-based diagnostic tools, auto-remediation

Campus Core to Network Edge

Drivers

- Reduce TCO

- Simplify; Minimize overlay networks

- Mobile device explosion

- Video

- Multi-site, geographic expansion

- Regulatory compliance

Requirements

- Unify wired/wireless at the edge

- Built-in redundancy

- Device visibility, management

- Energy efficiency

- Security across the network
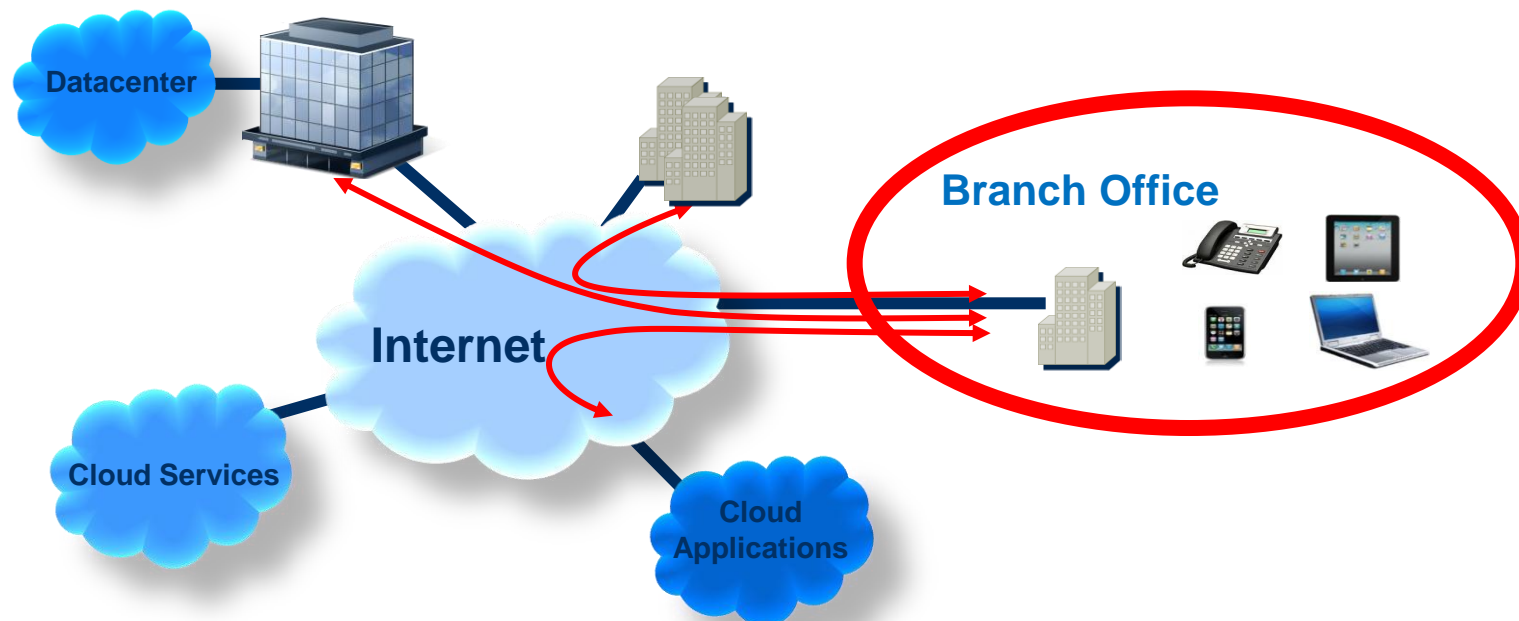
- Traffic optimization, shaping

Remote Branch Network

Strategic opportunity for IT to add business value

Need for "many to many" even greater with real-time access needs, exponential transaction growth

Traffic partitioning, shaping, bandwidth controls, content filtering

Delivering network as a cloud-based service?

Smart Mobile Devices

Revenge of the consumer

- 2011 brings a different level of legitimacy to mobility in the enterprise

Mobility

- Healthcare, Retail best use cases but penetration becoming universal

Collaboration

- Communicate with employees, partners and suppliers globally

- Cross-platform mobile apps for business applications

IDC
Analyze the Future
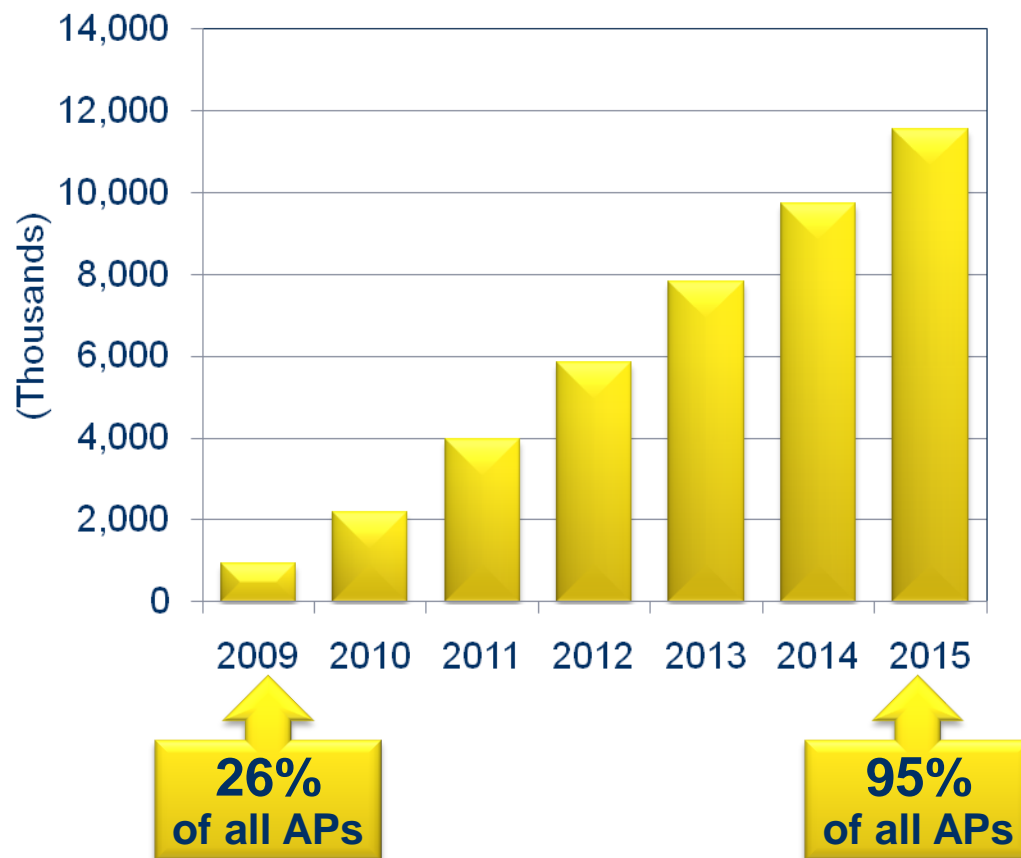
Increased diversity in 802.11n deployments

- Single radio to multi-radio, multi-spatial streams

Tablets, smartphones drive demand

Architectures become relevant

Wireless best practices migrate over to unified network

Total 802.11n Enterprise-Class Access Points Shipped

(Thousands)

14,000
12,000
10,000
8,000
6,000
4,000
2,000
0

2009 2010 2011 2012 2013 2014 2015

26%
of all APs

95%
of all APs

Source: Worldwide Enterprise WLAN Equipment 2010–2015 Forecast and Analysis, IDC, March 2011

Unified Wired/Wireless?

Variants of centrally managed Wireless LANs continue to proliferate in the enterprise

- Differentiation mostly around how to handle the control and the management plane

Unified- Wired and Wireless finally getting attention, with initial focus on

- Management

- Security

- QoS

Competitive landscape will change based on level of integration offered

- Wired networks stand to benefit from this transition

Essential Guidance

The dynamics around "Virtual, Mobile, Social" require a new way of rethinking the network

Today's New Normal is Dynamic

- Enterprises are investing in the network- Data center to the network edge
- New ways of deploying the network includes virtual network services.
- Rethink the network; take costs out & increase flexibility

Architect your network for tomorrows needs

- An intelligent, secure network that excels in application performance

Cloud will Drive Change on the Enterprise Network

- Unified Fabric is becoming a reality
- Many to Many
- 40/100G is coming- the drivers are there
- WAN is still complex and needs to be an enabler

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