



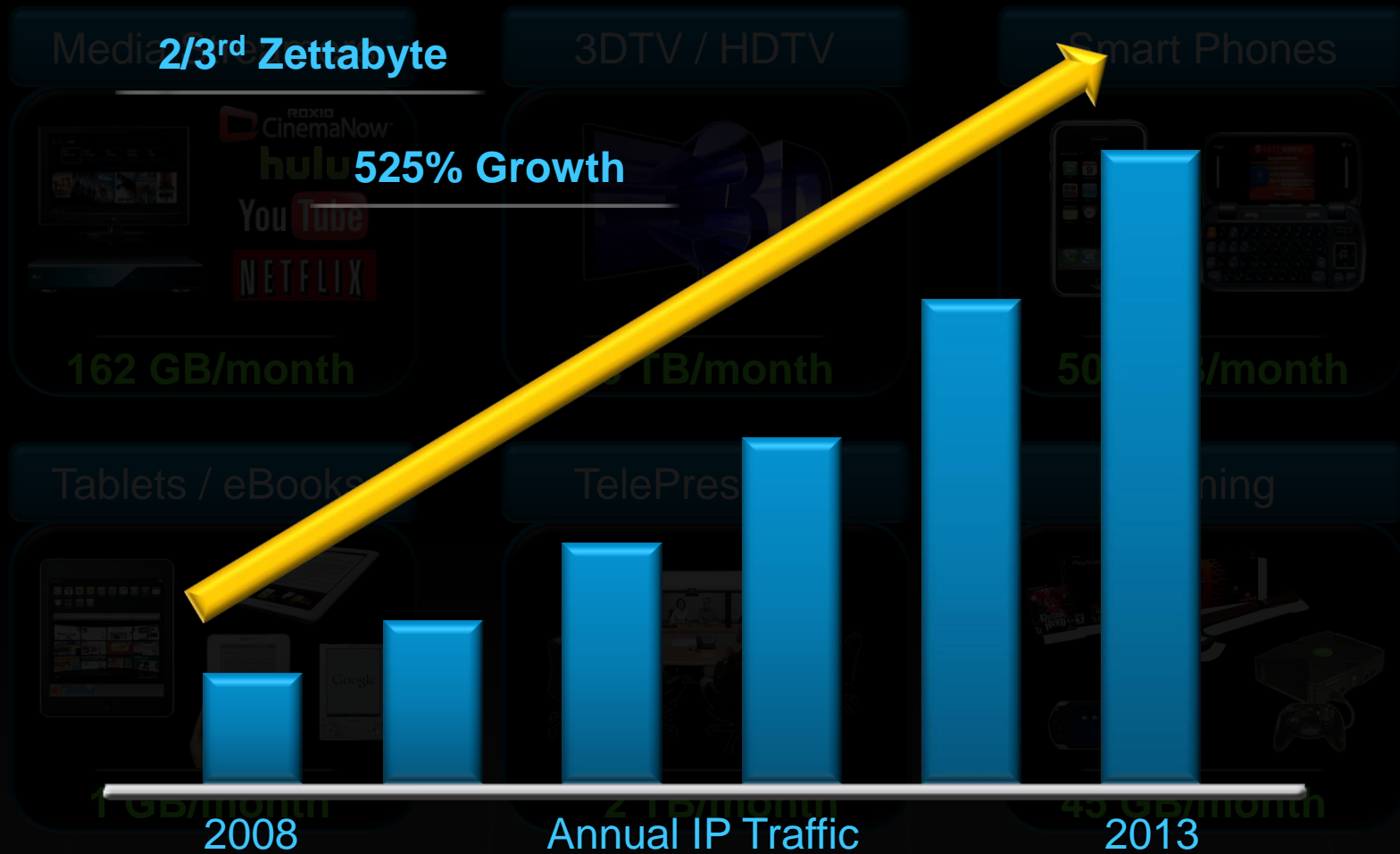
Cisco CRS-3

**Foundation for the
Next-Generation Internet**



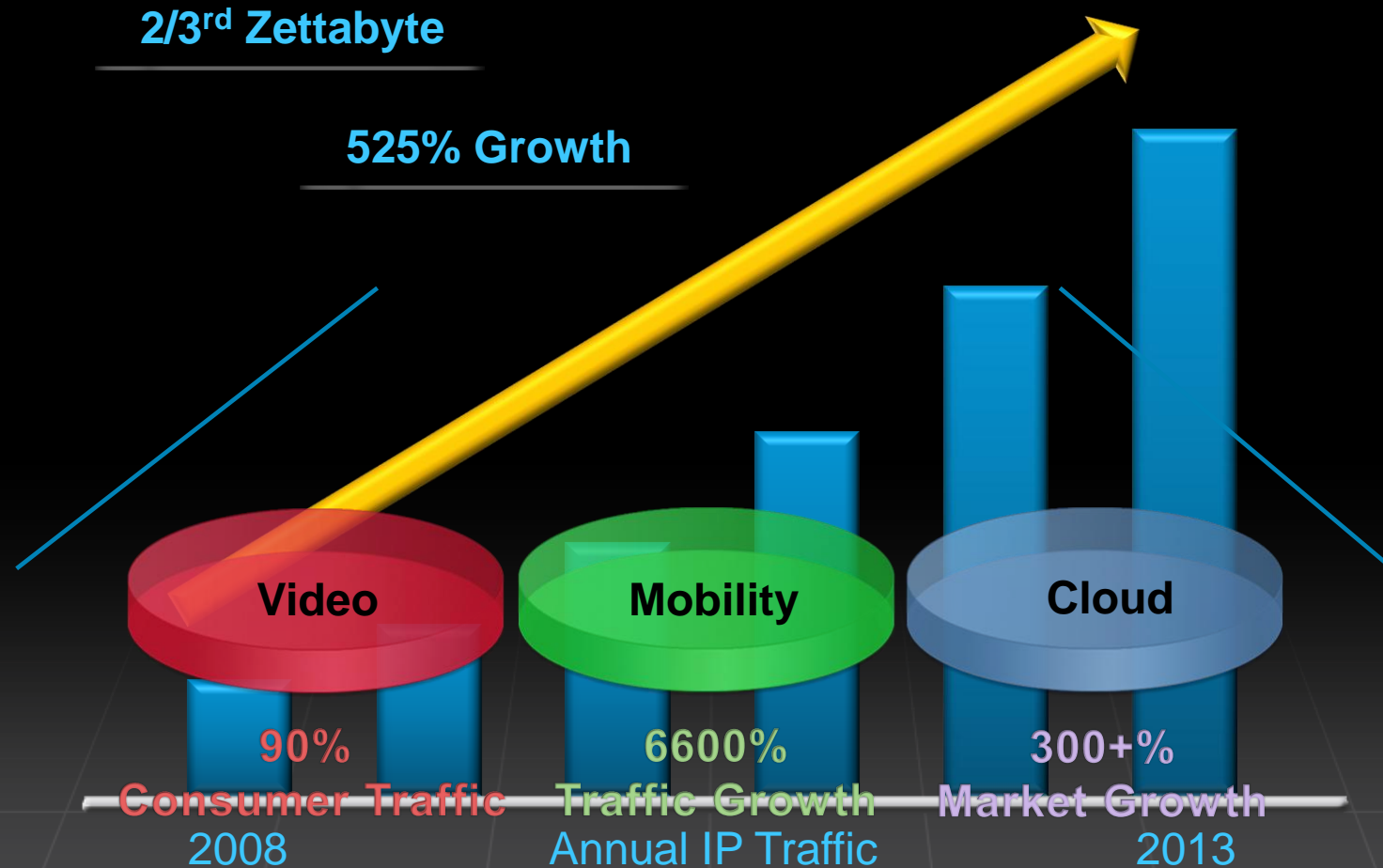
March 9, 2010

The Future of Bandwidth



Result: Explosive Growth of IP Traffic

Video, Mobile and Cloud to Dominate Growth 2008–2013

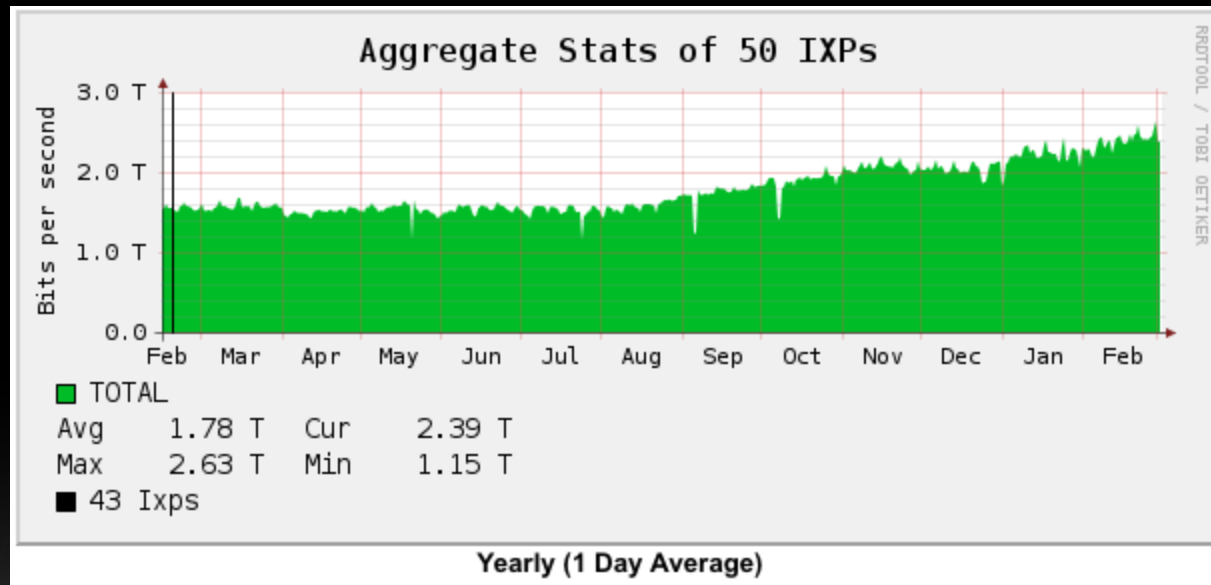


Traffic Mix of Tomorrow Fundamentally Different

Source: Cisco Visual Networking Index—Forecast, 2008-2013

European Traffic/Customer Examples

European Peering Traffic Growth

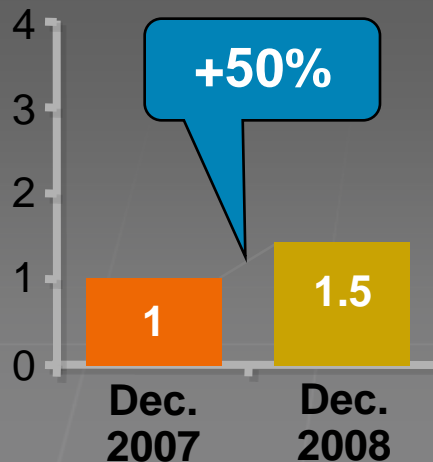


Traffic Doubling Every 18 Months

Orange, Fixed and Mobile Traffic Growth

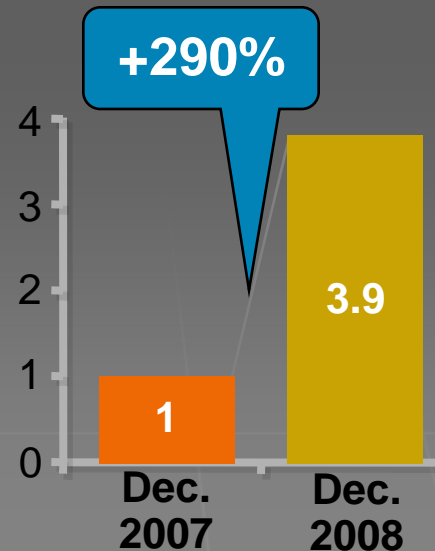
Traffic Growth on **Fixed** Network: 50%

- Growth of broadband subscriber base
 - Uptake of video services and IPTV



Traffic Growth on **Mobile** Network: 290%

- New HSPA-capable devices
- Video- and Internet-based services



Source: http://www.orange.com/en_EN/finance/invest-analysts/invest-days/att00009689/090303-1dayITN-VD.pdf

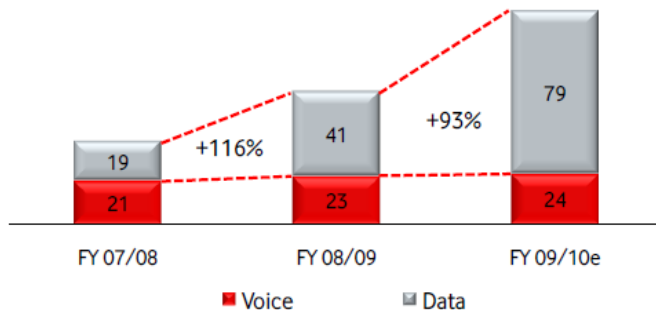
Vodafone Traffic growth

9

Vodafone Group Plc - Interim Management Statement Q3 09/10 | 4 February 2010

Europe: managing data growth to maintain a quality network

Traffic (Petabytes)



- Strong data traffic growth expected to continue
 - Increased data penetration and usage per customer
 - Data traffic mix shifting to smartphones
- Leading network
 - ~45% of 3G network at 7.2Mbps (March target 60%)
 - Average 35% utilisation in busiest hour
 - Only 7% of sites nearing capacity in busiest hour¹
 - Network quality proven by independent drive-by tests

Capacity management levers



- Continued strong investment in network capability
 - Over 3,000 new sites in FY 09/10
 - Traffic mgt and QoS optimisation tools across footprint
 - Femto/WiFi offload in 6 markets (1 nationwide)
 - Increased fixed broadband coverage (DSL and Fibre)
 - Further significant HSPA+ upgrades next year

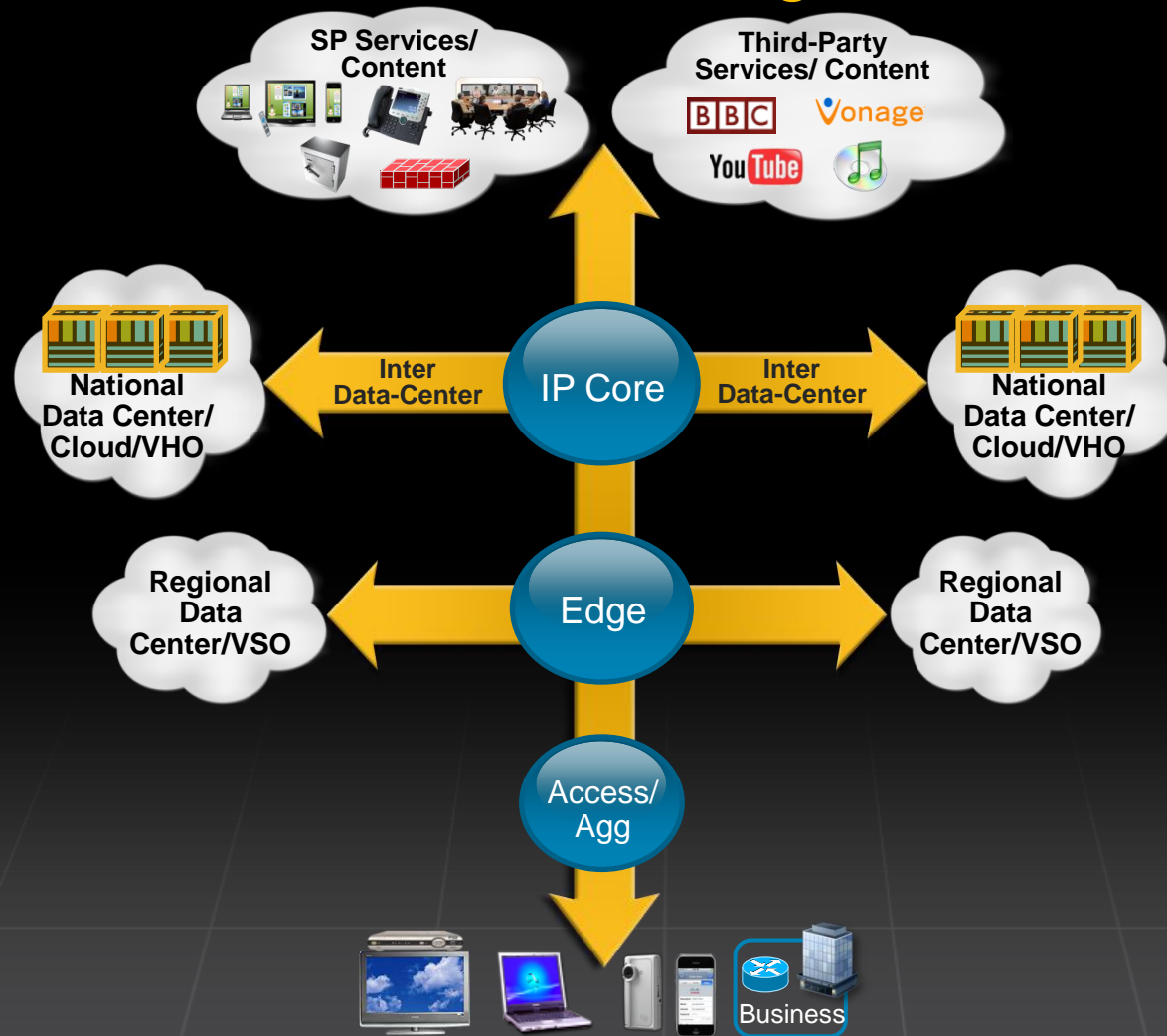
1. Share of sites 90% utilised during busy hour



Source: Vodafone, 2010

Next-Generation Internet

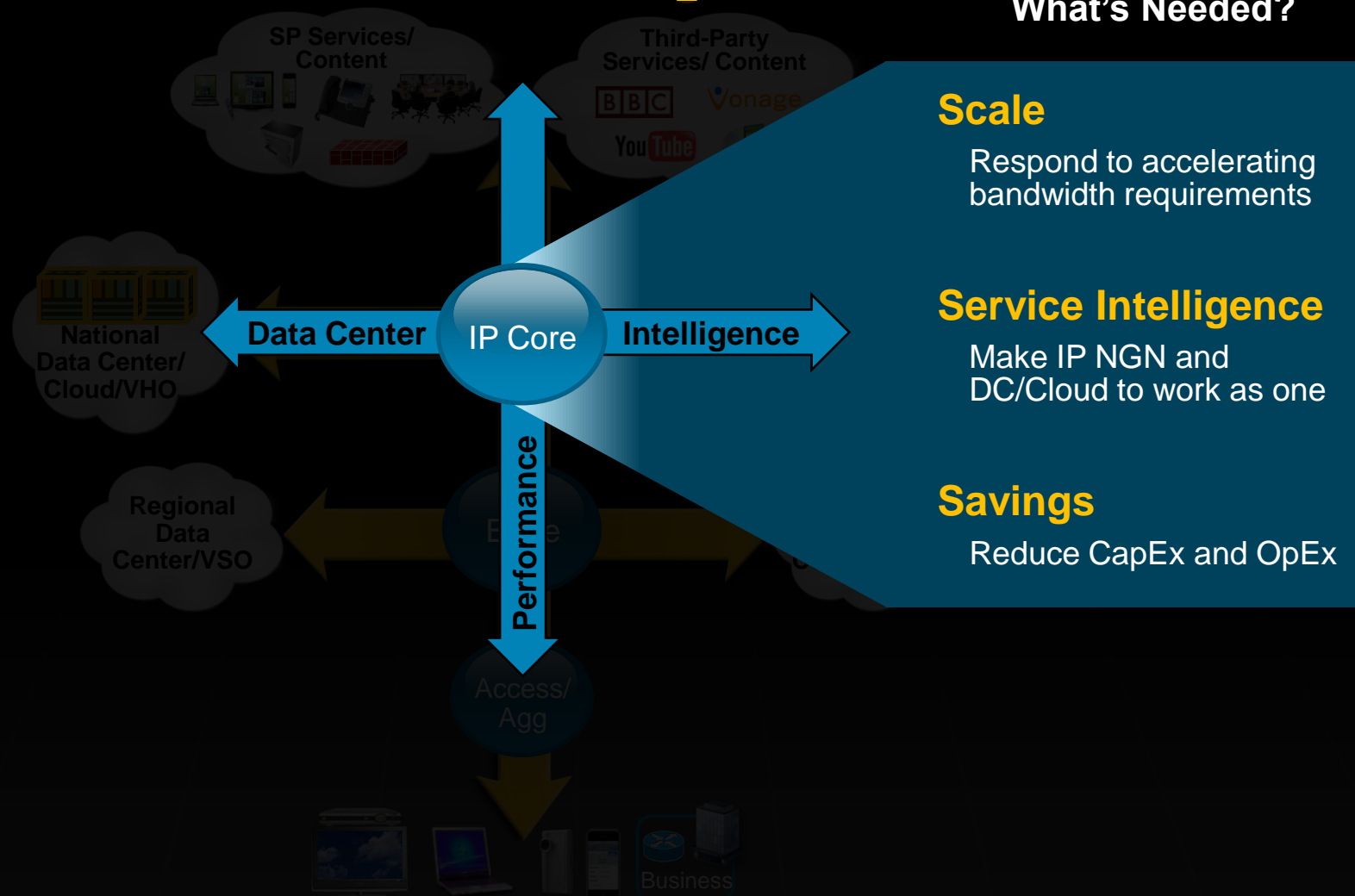
Multi-directional Networking



Next-Generation Internet Attributes

Multi-directional Networking

What's Needed?



Scale + DC/Cloud Services + Savings

Introducing CRS-3 = 3x CRS-1

IP Core



Unmatched Scale

3x CRS-1 = CRS-3 = 322Tbps



Unique Service Attributes

2x Intelligence (Core/IPv6 + Data Center/Cloud)



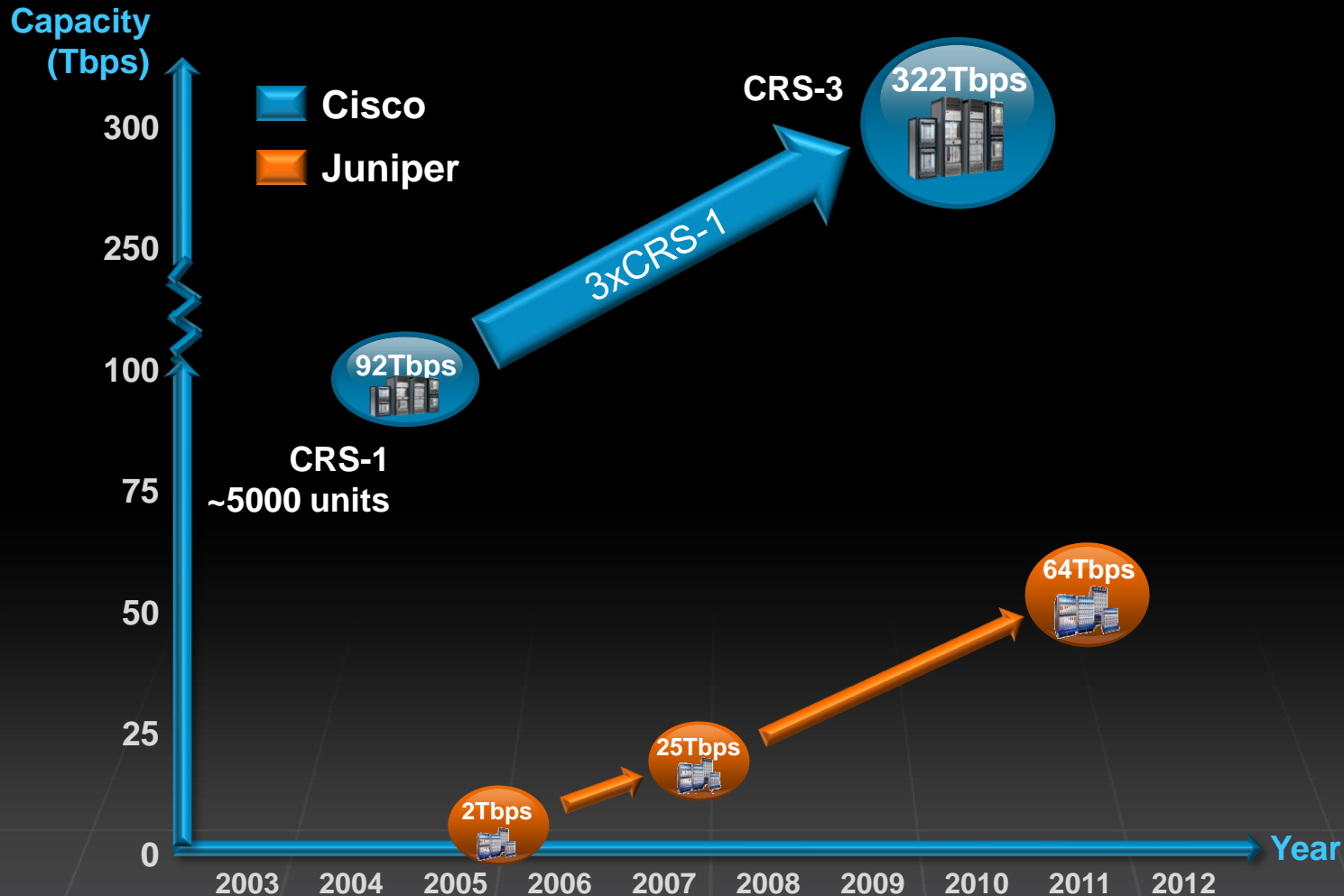
Unprecedented Savings

1x CRS Family Protecting Investments

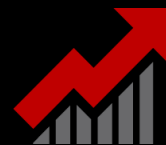
Foundation for the Next-Generation Internet

Unmatched Scale

CRS-3 = 3x CRS-1 Capacity



Cisco CRS-1 (2004) > Juniper T-Series (2011)



2x Intelligence

Powered by QuantumFlow Array

Cisco Design Innovation

Multiple Patents

Unique Attributes

Core + DC/Cloud Services



No Bottlenecks

Single-flow Forwarding

Massive, Multi-chassis Scalability

Proven 3-Stage Benes Fabric

Control & Data Plane Scale to 322Tbps

Tried, Tested and Ready

Introducing Data Center Services System

Intelligence Spanning Networks & DC/Clouds



Network Positioning System (NPS)

L3-L7 info for best path to content
Improves Experiences, reduces costs



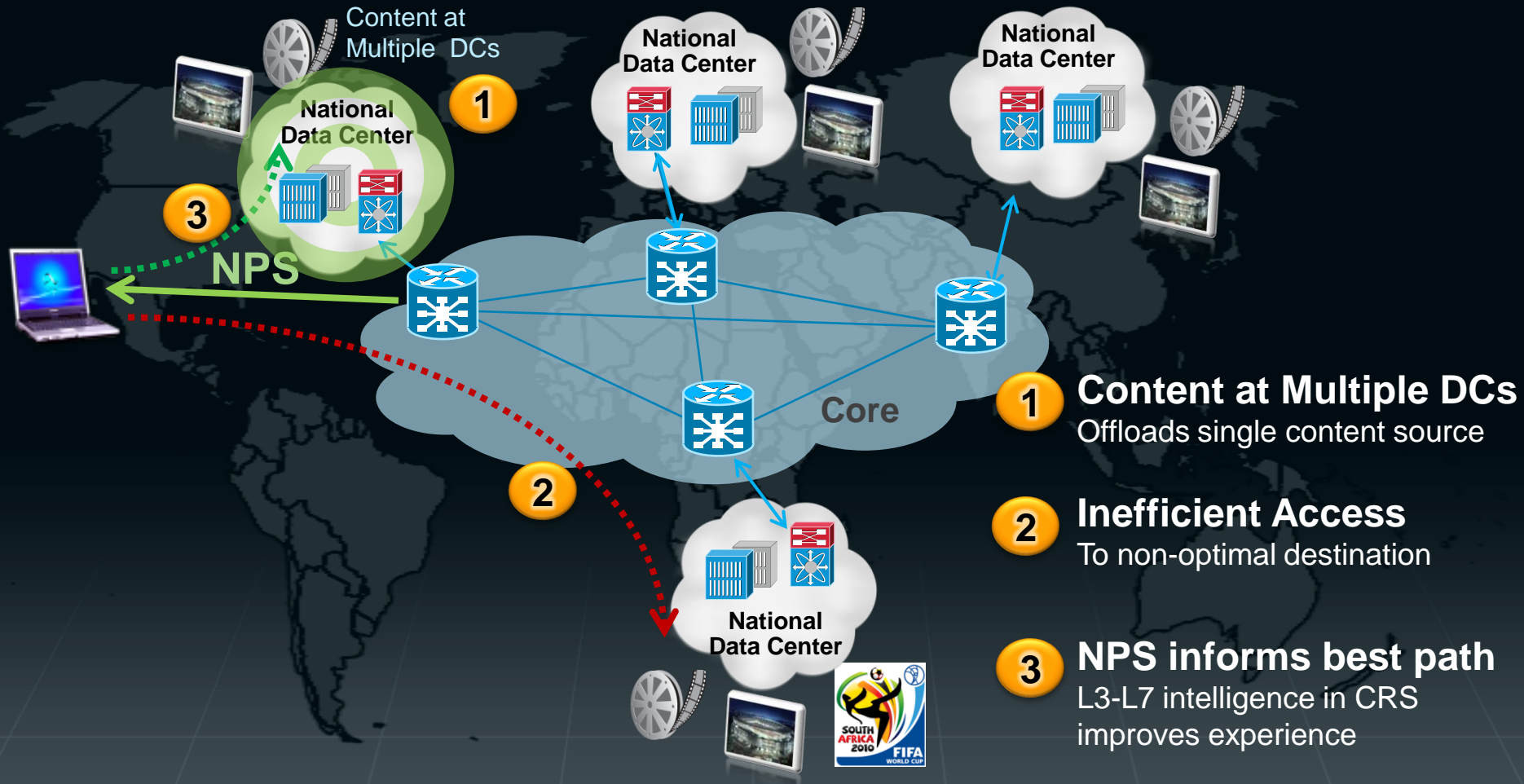
Cloud VPNs for IaaS

CRS + Nexus automate Inter-DC connections for UCS
'Pay-as-you-go' for compute, storage, network

Tight Linkages Between DC/Cloud and Core



Data Center Services System Network Positioning System (NPS)

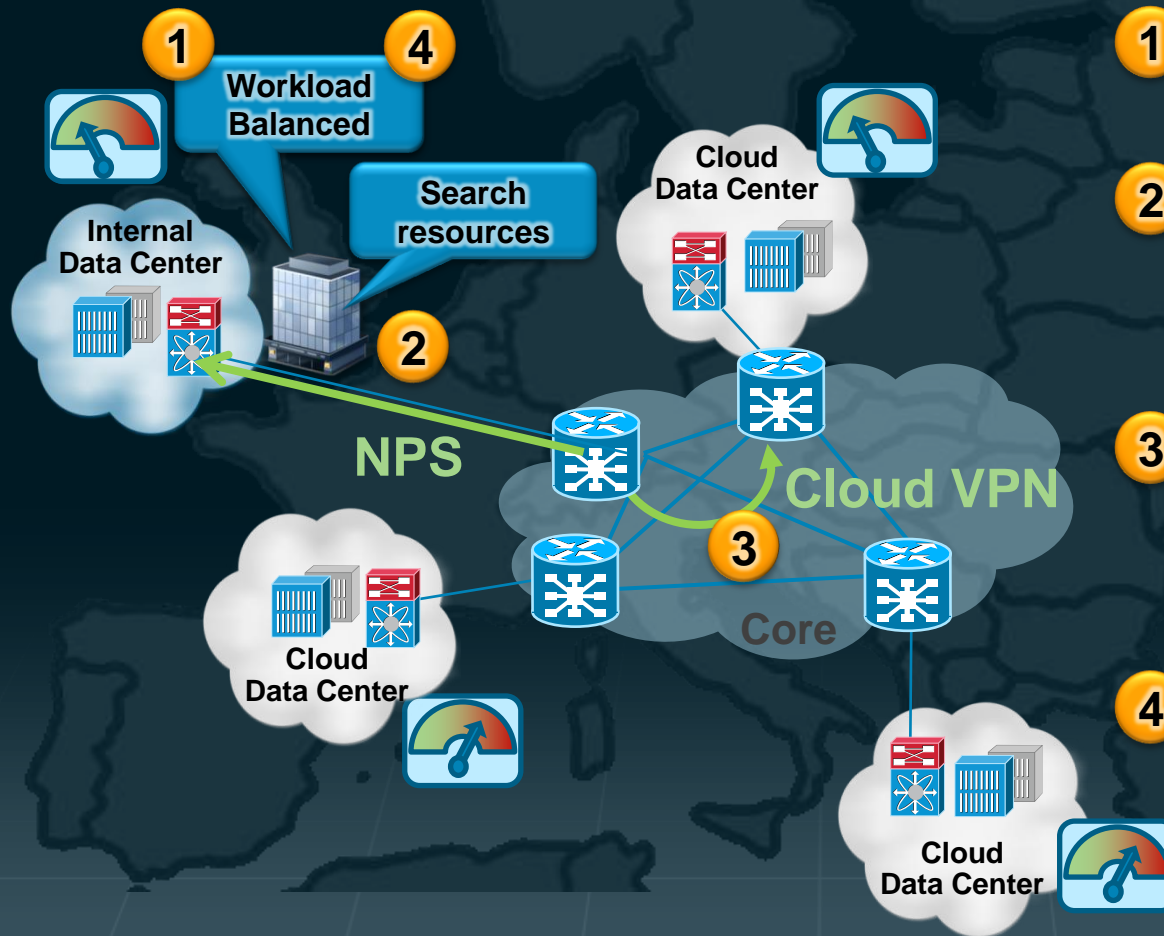


Improves Experiences, Reduces Costs



Data Center Services System

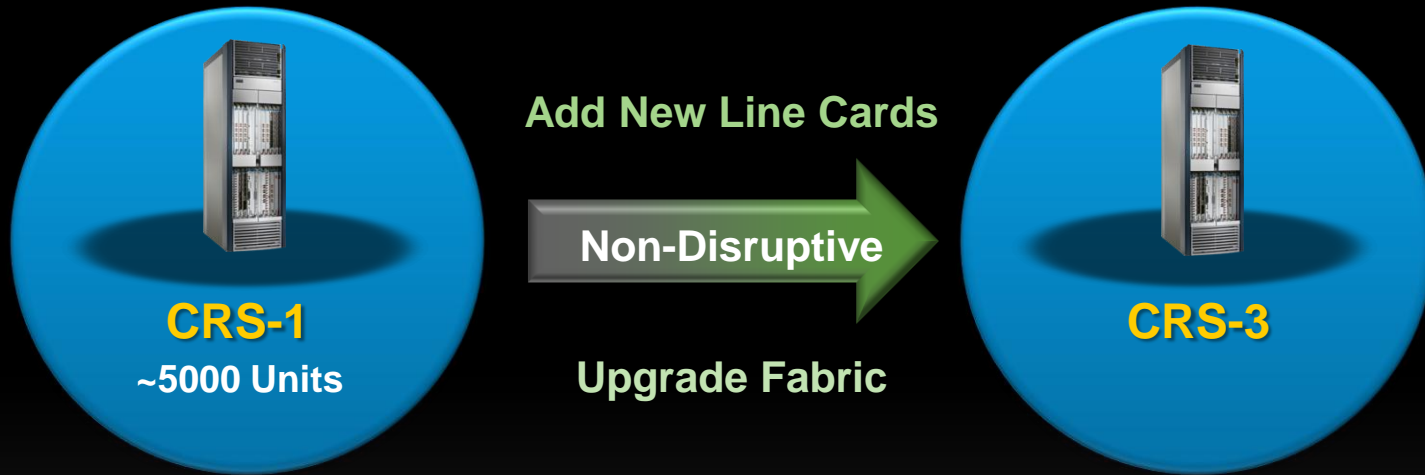
Cloud VPNs for IaaS



‘Pay-as-you-go’ for compute, storage, network

1x CRS Family

Investments Protected for Decades



Excellent Return on Investment

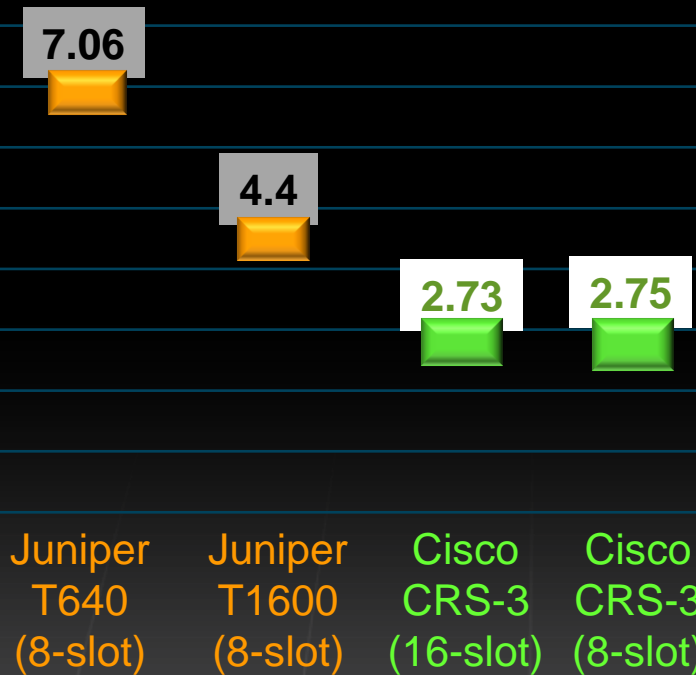


1x CRS Family

Unprecedented Savings

Watts/
Gig

10
9
8
7
6
5
4
3
2
1
0



CRS-3
Power
Reduction
Per Gbps

60%



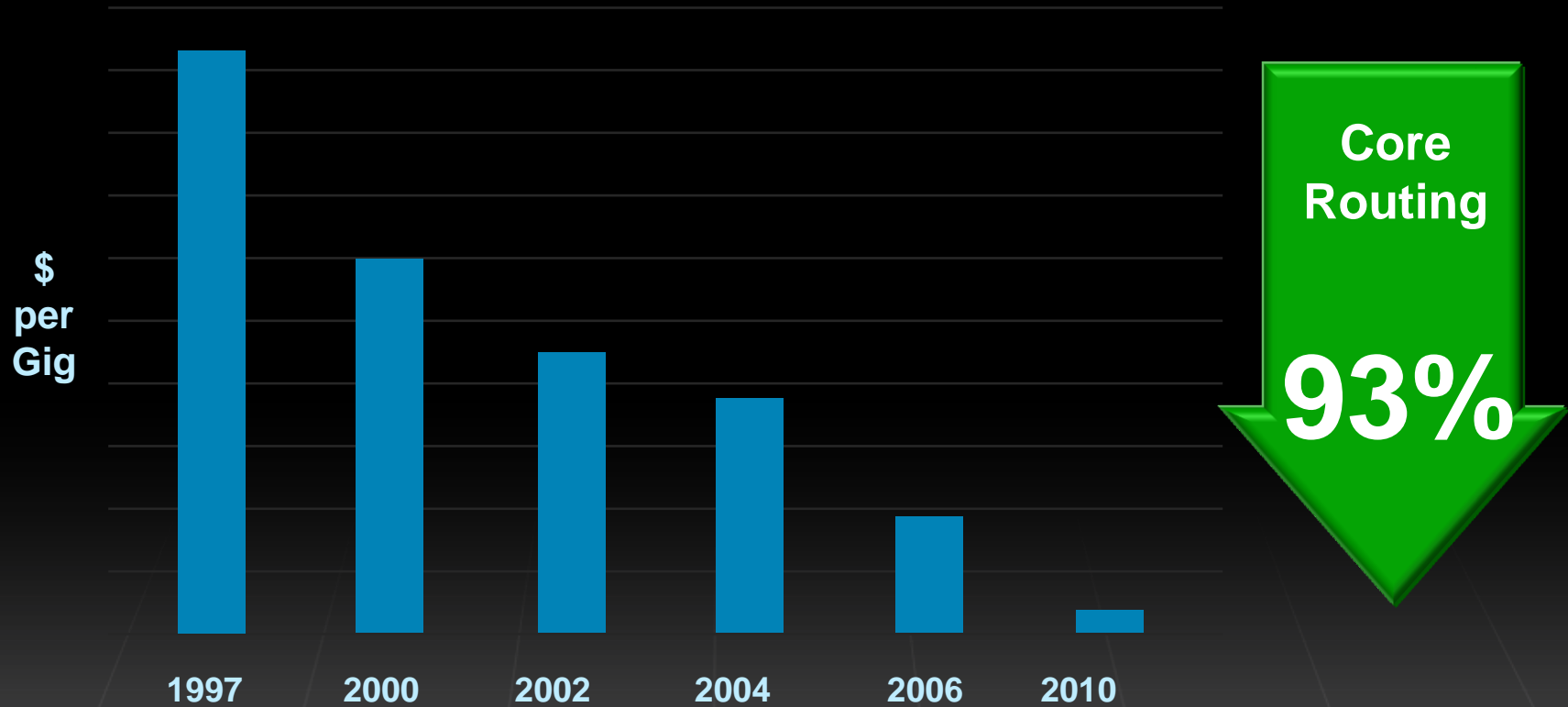
Even More with New:
Modular Power System

Significant Drop in Power and Cooling

Source: Current Published Documentation

1x CRS Family

Unprecedented Savings



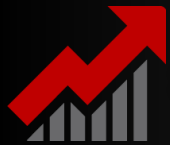
Driving down cost per Gig

Source: List Pricing, Cisco Core Routers

Outclassing Competition



JUNIPER
NETWORKS



Scale

322Tbps
1200% More Capacity

25Tbps



Services

**Core + NPS + Cloud VPN +
Carrier-Grade IPv6**

Core + ?



Savings

**No Power,
Chassis Upgrade**

**Rip & Replace
Power, Chassis**

Cisco Leadership in Multiple Dimensions



“We are entering the next stage of global communication and entertainment services and applications, which requires a new set of advanced Internet networking technologies”

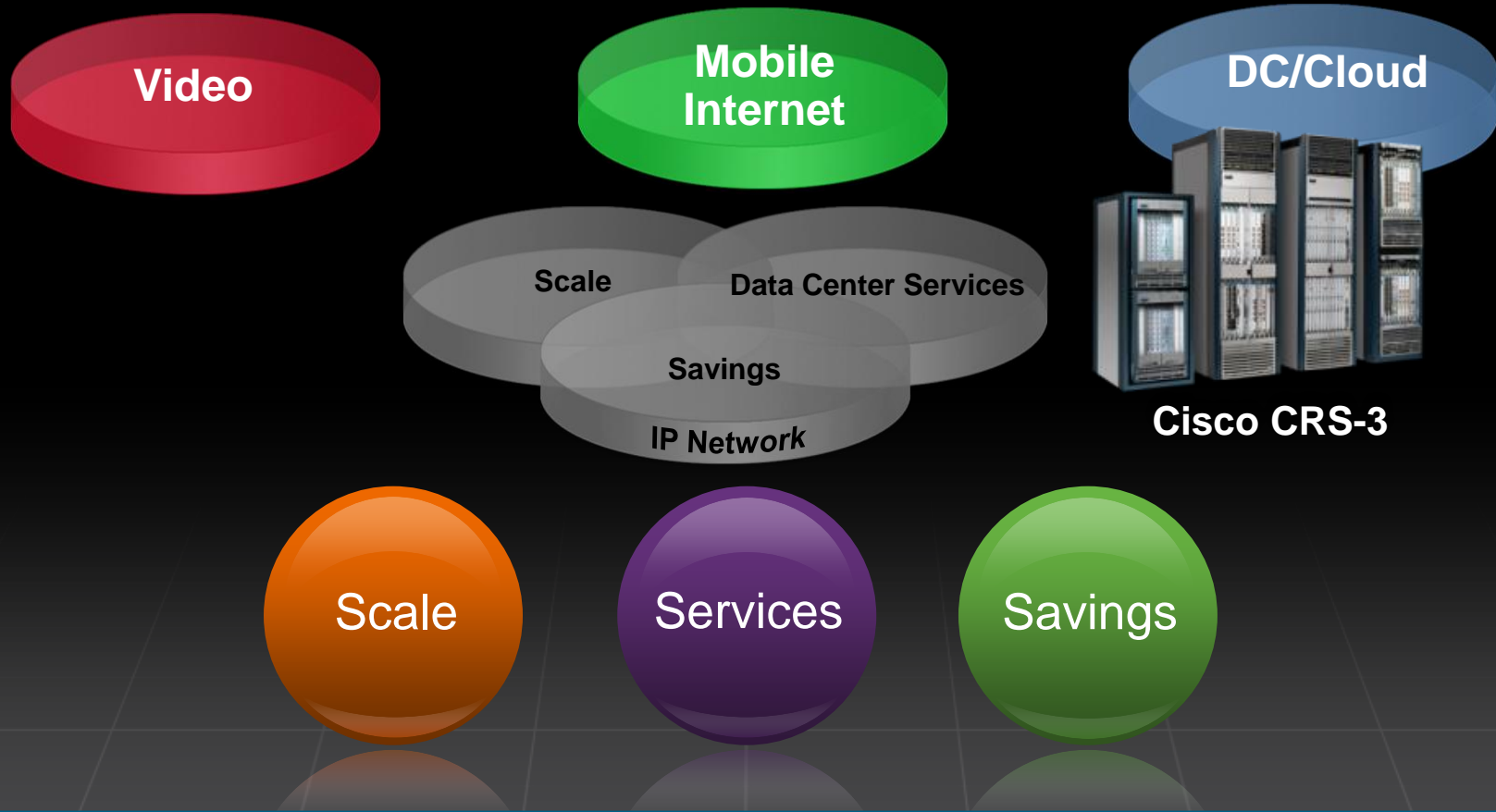


Keith Cambron, President and CEO,
AT&T Labs



Enabling You to Deliver

3 x Scale, 2 x Services, 1 x CRS Family



Begin the Transformation



CISCO