Cisco Expo 2009

SP Access and Aggregation

Dave Sumter

Consulting Systems Engineer

CCIE 4942

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This is a “What’s New” presentation

1. New access & aggregation products
2. New implementation models for the access
3. Mobile Transport over Packet
4. New broadband aggregation models
5. The world goes green

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Service-optimized Packet Access Networks

Retail	*Mobile*	*Consumer*
Wholesale	*Fixed*	*Business*

NGN Service Optimized Architecture
Scalable / Flexible / Resilient / Optimized

Optimize cost through of operational and transport efficiency	*Multi-service capable, expandable*	*Implement Services & Functions at the appropriate layer*

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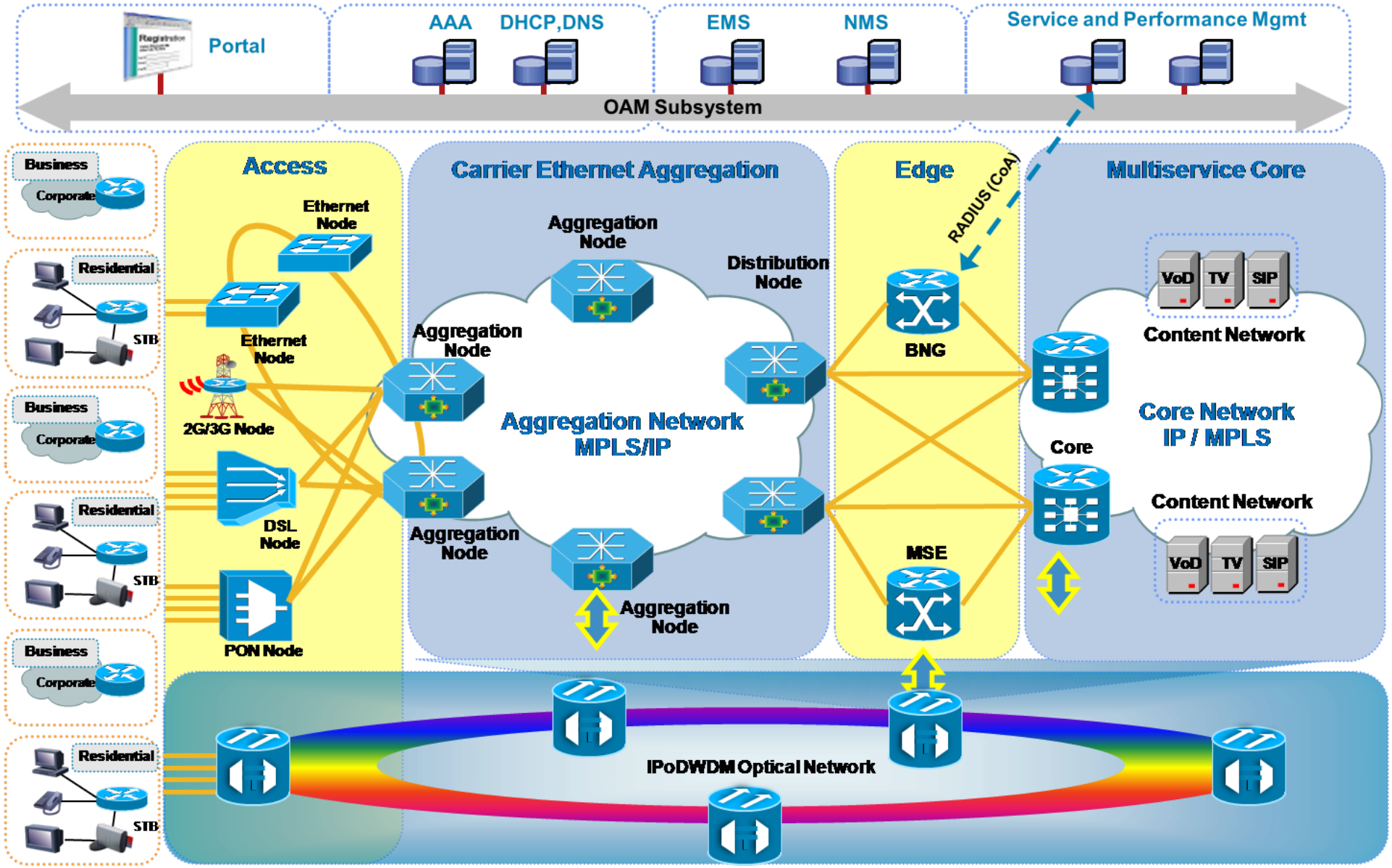
NGN Architecture



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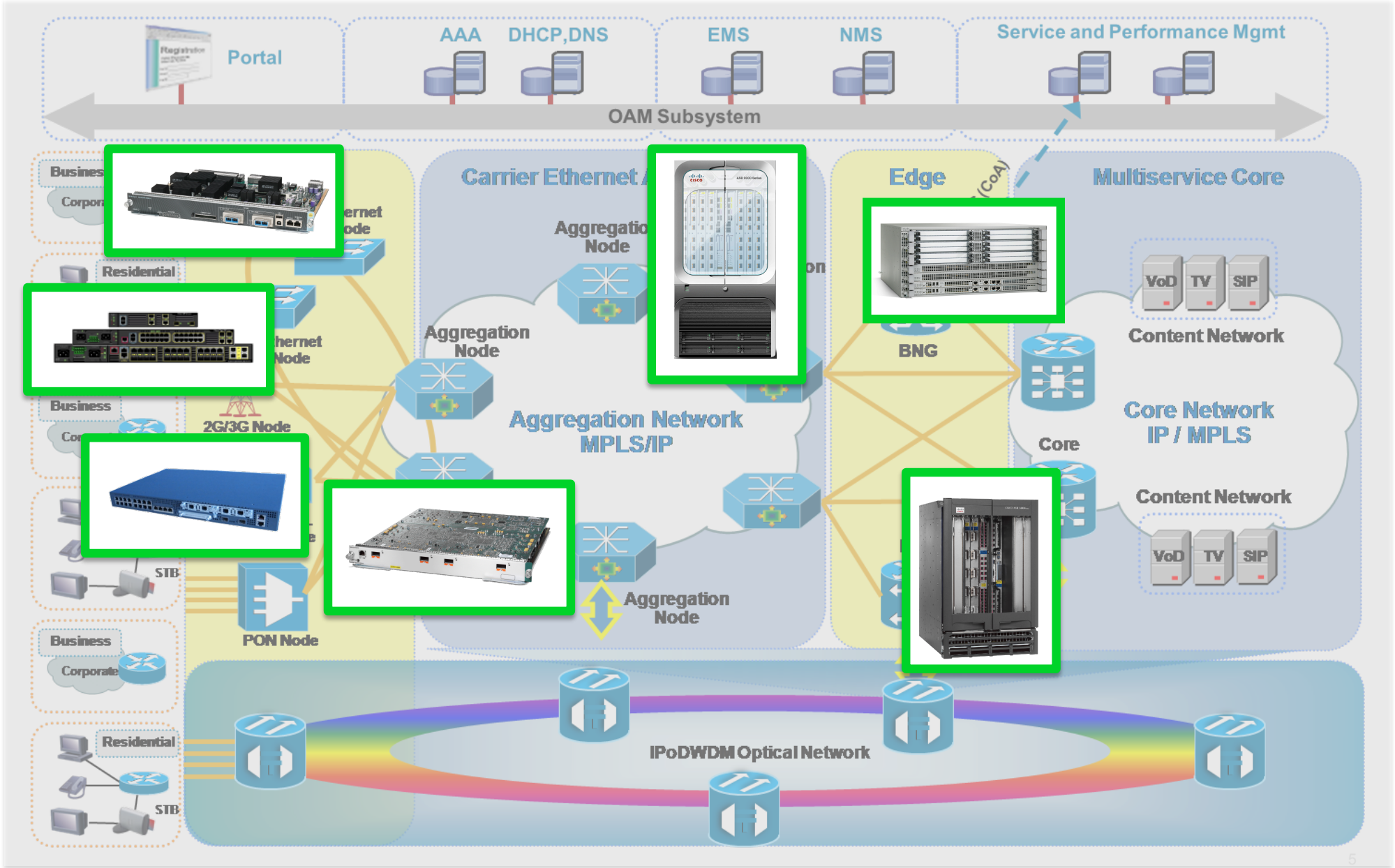
New Hardware



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ME3400E

The first purpose-built Ethernet access switches designed for both the E-FTTH triple-play and ETTB VPN services

Industry-leading hardware and software designed to simplify deployment, management, and troubleshooting of Metro networks

Provides the most complete security solution for Metro Ethernet access network

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Access Switch Positioning

Features and Positioning

ME3400
Residential Triple Play

Cost-effective products for Layer 2 and Layer 3 services

Security
Control Plane Security
IPSG and DAI
Port Security

QoS and Multicast:
Cisco MQC
IGMP Snooping and MVR

CE Standards
802.1ag
802.3ah
E-LMI
MEF

ME3400E
Business Access

Enhanced Layer 2 and Layer 3 access

All features in ME3400 plus:

Advanced Traffic Management
2R3C Policer
Selective QinQ
VLAN Translation
Port Loopback

High Availability
Redundant Modular PS and Fan
Alarm Contact
Dying Gasp

C3750-Metro
Premium Services

Advanced Layer 2 and Layer 3 access

MPLS
Layer 3: MPLS VPN
Layer 2: EoMPLS and H-VPLS

Advanced QoS
Hierarchical Queuing Framework
1K Hierarchical policers
8K Egress queues

High Availability
Redundant Modular PSs

Advanced QoS and Multicast:
PIM and Source Specific Multicast
IGMP and MVR

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Intro to Cat4500 Metro

1. ME-X45-SUP6-E and ME-X4624-SFP-E
2. Based on WS-X45-SUP6-E architecture
3. 20G NPU complex for Metro Ethernet Features
4. Flexible choice of 1GigE or 10 GE uplinks with TwinGig Module
5. Hierarchical Quality of Service
6. Service Scaling
7. Compatible with 4500* and 4500-E series Chassis
8. Programmable data plane
9. Compatible with E-Series and classic Line cards

NOTE: Requires a new fan tray in 4500 chassis.

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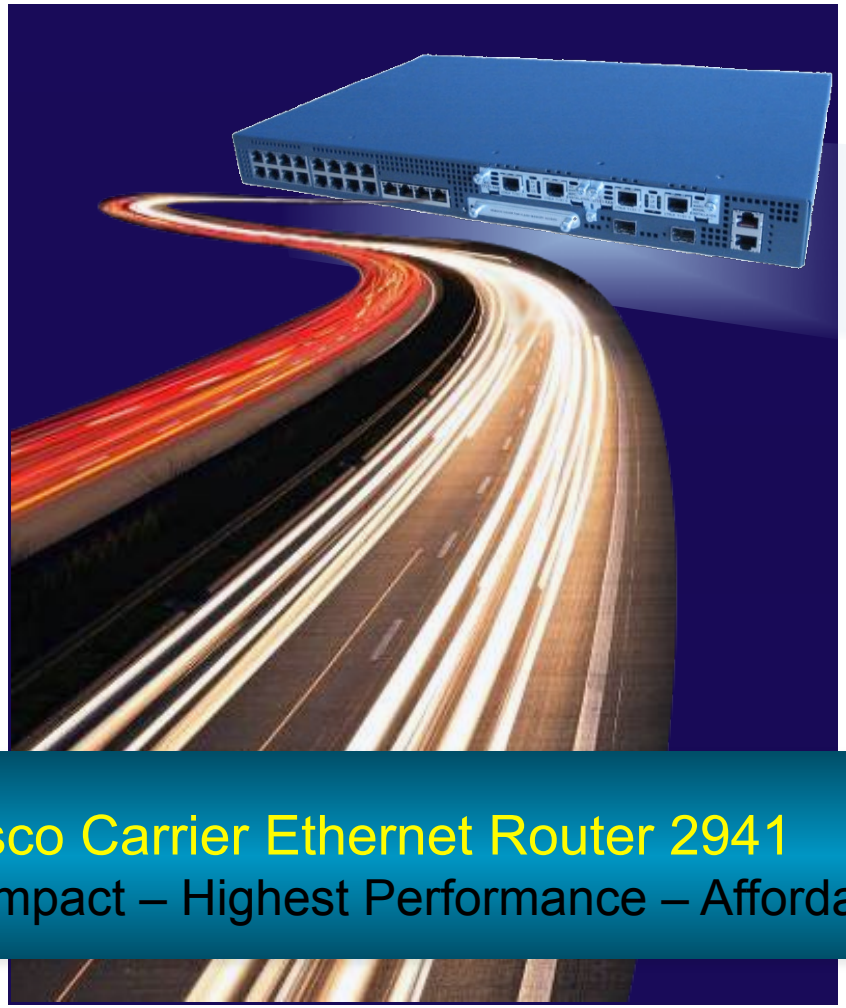
Introducing the MWR 2941



Cisco Carrier Ethernet Router 2941
Compact – Highest Performance – Affordable

- MToP Uniquely provides cell site through core IP-MPLS transport
  - IP SLA end-to-end
  - IP Security
  - 3-Screens delivery today
- Supports today's transport requirements on an All-IP capable architecture

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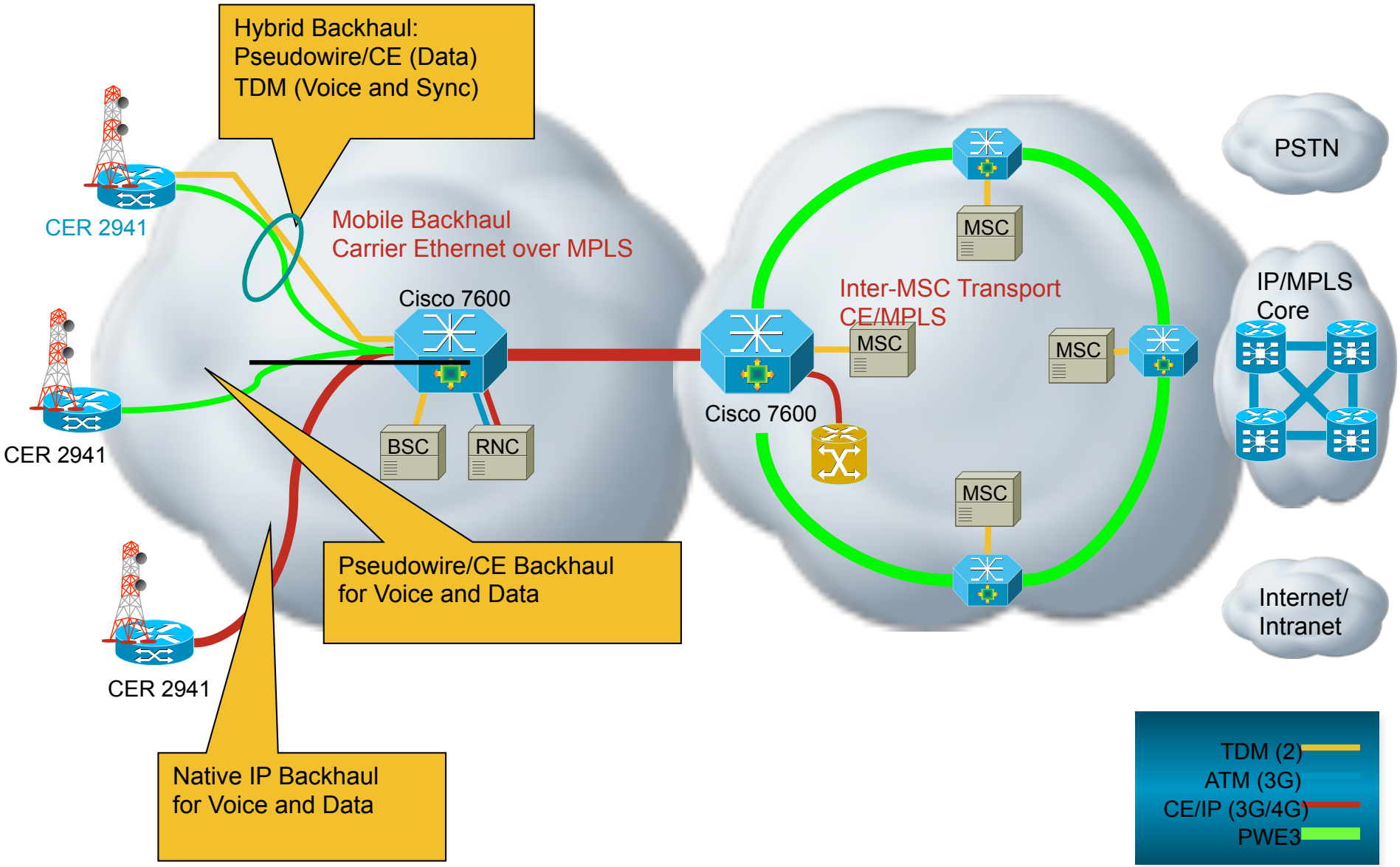
Mobile Transport over Packet



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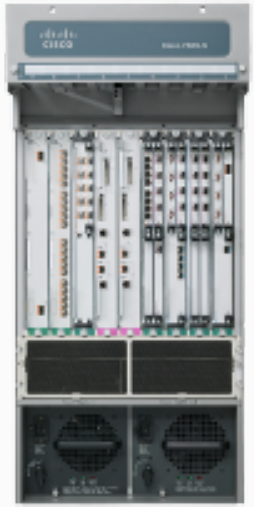
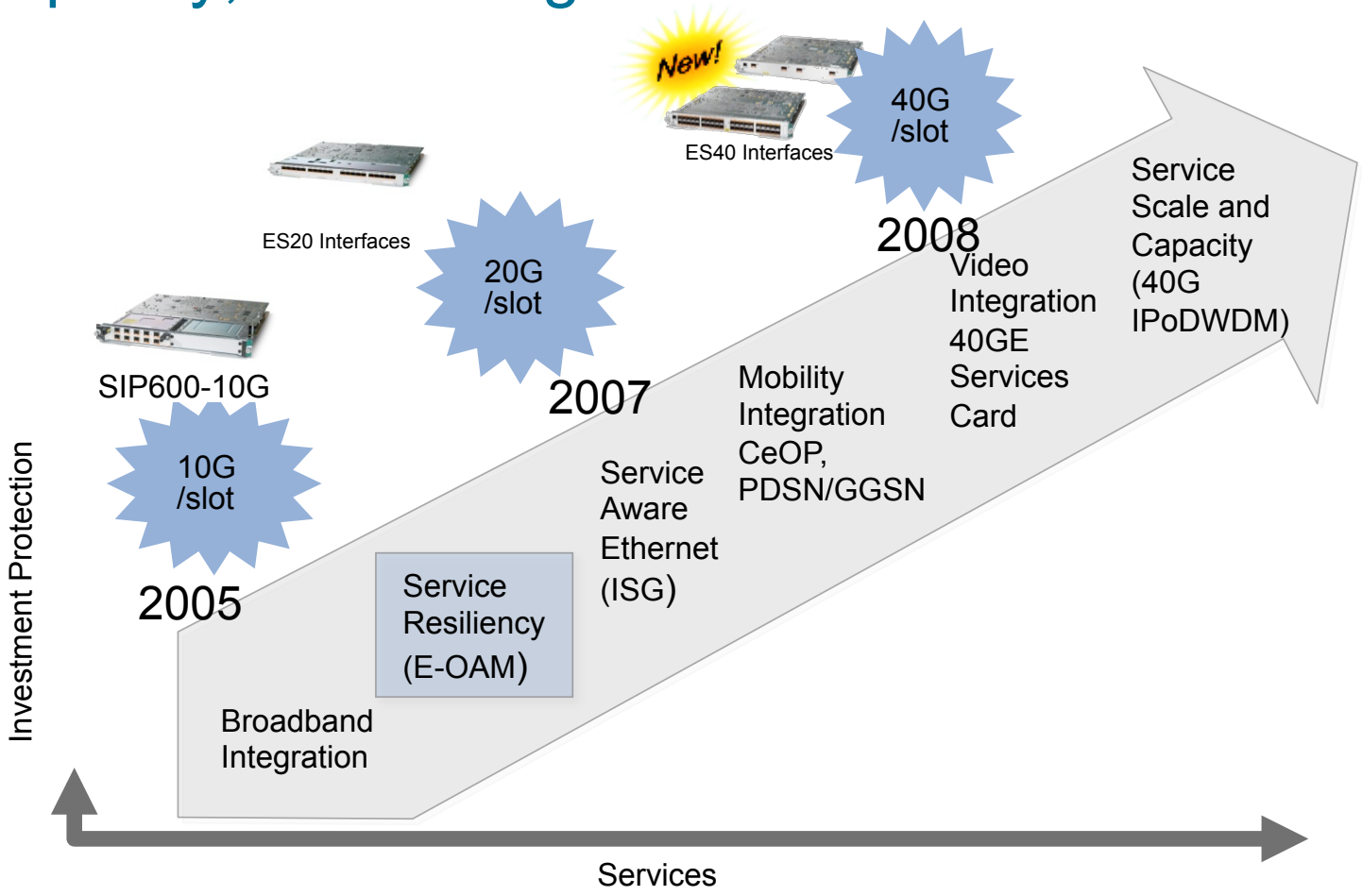
Scaling to 40G Without a Forklift Upgrade

Doubling the Capacity, Enhancing a Rich Feature Set



Cisco 7600 Series



Investment protection for more than 70,000 Nodes Installed

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Evolution to Service Rich 40G

Converged solution for Biz and Residential Services

- Ethernet Services Plus Family
  - GE & 10GE options (3C or 3CXL)
  - Dense QoS – 128K queues
  - High performance multicast
  - EVC, CFM, VPLS, H-QoS, H-VPLS, Y.1731, ANA support
- Subscriber Awareness Ethernet
- Lower power per GE – Up to 30% less vs ES20
- Investment Protection – Future enhancements 802.1ah, SyncE, & In-line Video Monitoring

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Power Consumption – ES+ Goes Green
Apples to Apples Comparison

	7609-S w/ ES+40		7609-S w/ ES+20		7609-S w/ ES20	
Slot 1	ES+40G	419w	ES+20G	305w	ES20-GE	340w
Slot 2	ES+40G	419w	ES+20G	305w	ES20-GE	340w
Slot 3			ES+20G	305w	ES20-GE	340w
Slot 4			ES+20G	305w	ES20-GE	340w
Slot 5	RSP720	340w	RSP720	340w	RSP720	340w
Slot 6	RSP720	340w	RSP720	340w	RSP720	340w
Slot 7	ES+4TG	399w	ES+2TG	297w	ES20-10G	340w
Slot 8			ES+2TG	297w	ES20-10G	340w
Slot 9						
	Dual Fan tray	480w	Dual Fan tray	480w	Dual Fan tray	480w
	Total power	2,397W		2,974W		3,200W

Product ID	Max Power (watts)
7600-ES+20G3C	277
7600-ES+20G3CXL	305
7600-ES+2TG3C	269
7600-ES+2TG3CXL	297
7600-ES+40G3C	391
7600-ES+40G3CXL	419
7600-ES+4TG3C	371
7600-ES+4TG3CXL	399

For power consumption calculation, please visit:
http://tools.cisco.com/cpc/launch.jsp

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Introducing ASR 14000

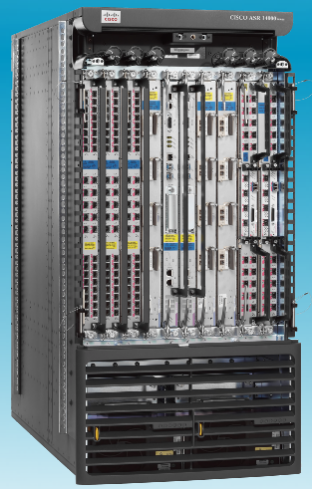
Leadership IP Peering

- Edge router complement to CRS-1
- Competitively priced

Carrier-class Edge Router

- Based on IOS-XR
- GE & 10GE linecards at 40 Gbps
- Deterministic forwarding perf.

4-slot



8-slot

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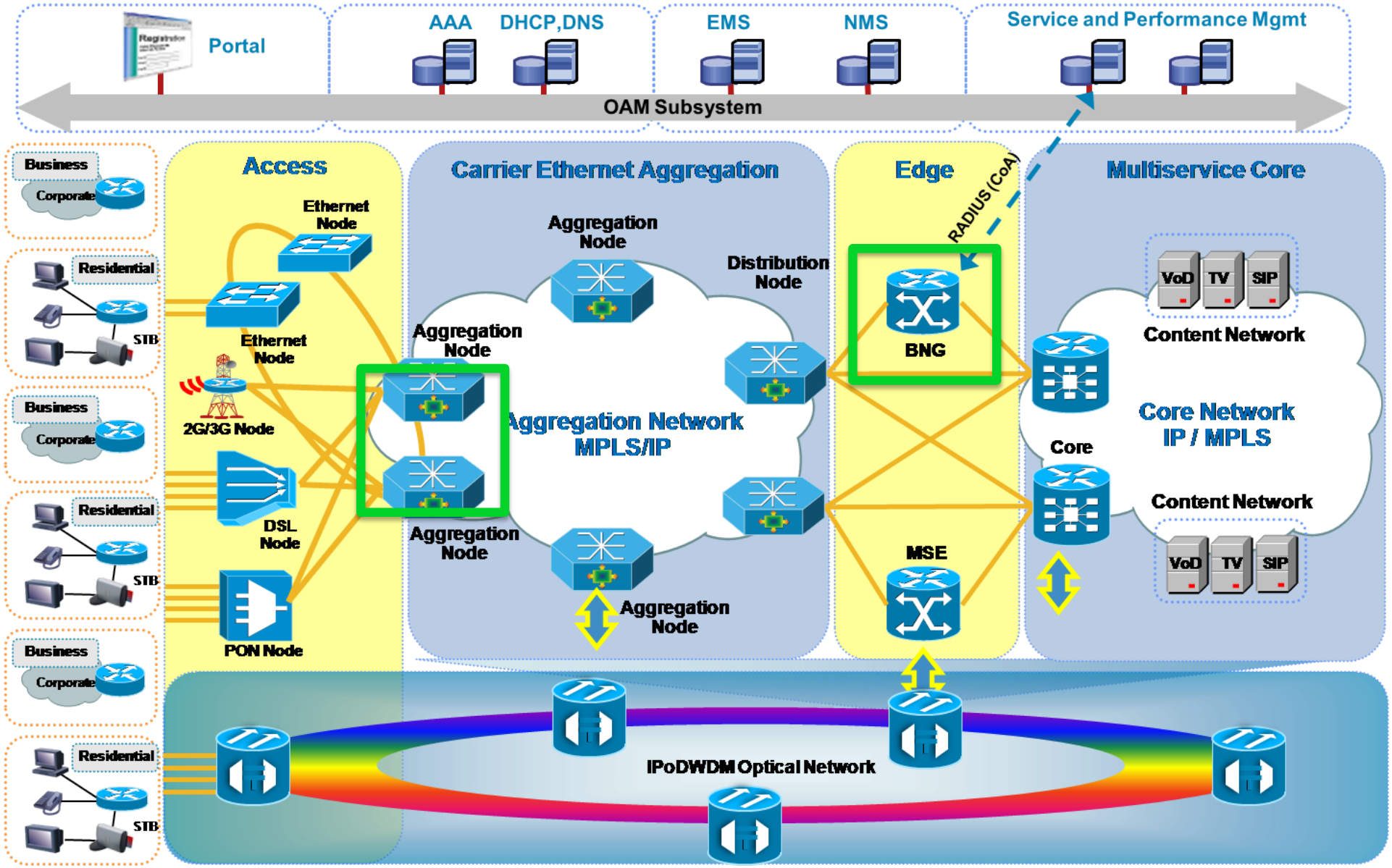
Broadband Aggregation Models



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Definitions

1. Single-Edge vs. Multi-Edge Services

   Single: all services destined to the same subscriber flow through one edge system, forming an integrated policy enforcement point

   Multi: services destined to the same subscriber do not flow through one edge system.

2. Centralized vs. Distributed Edge

   Centralized: Edge systems are concentrated in few IP PoPs and are connected to access nodes via an aggregation network.

   Distributed: Edge systems are dispersed in many IP PoPs close to the subscribers and may even be co-located with the access nodes

3. Clustered vs. Unclustered

   Unclustered: Allocating all subscribers for a particular service to one system

   Clustered: Allocating the subscribers to a particular service over many systems located in the same PoP

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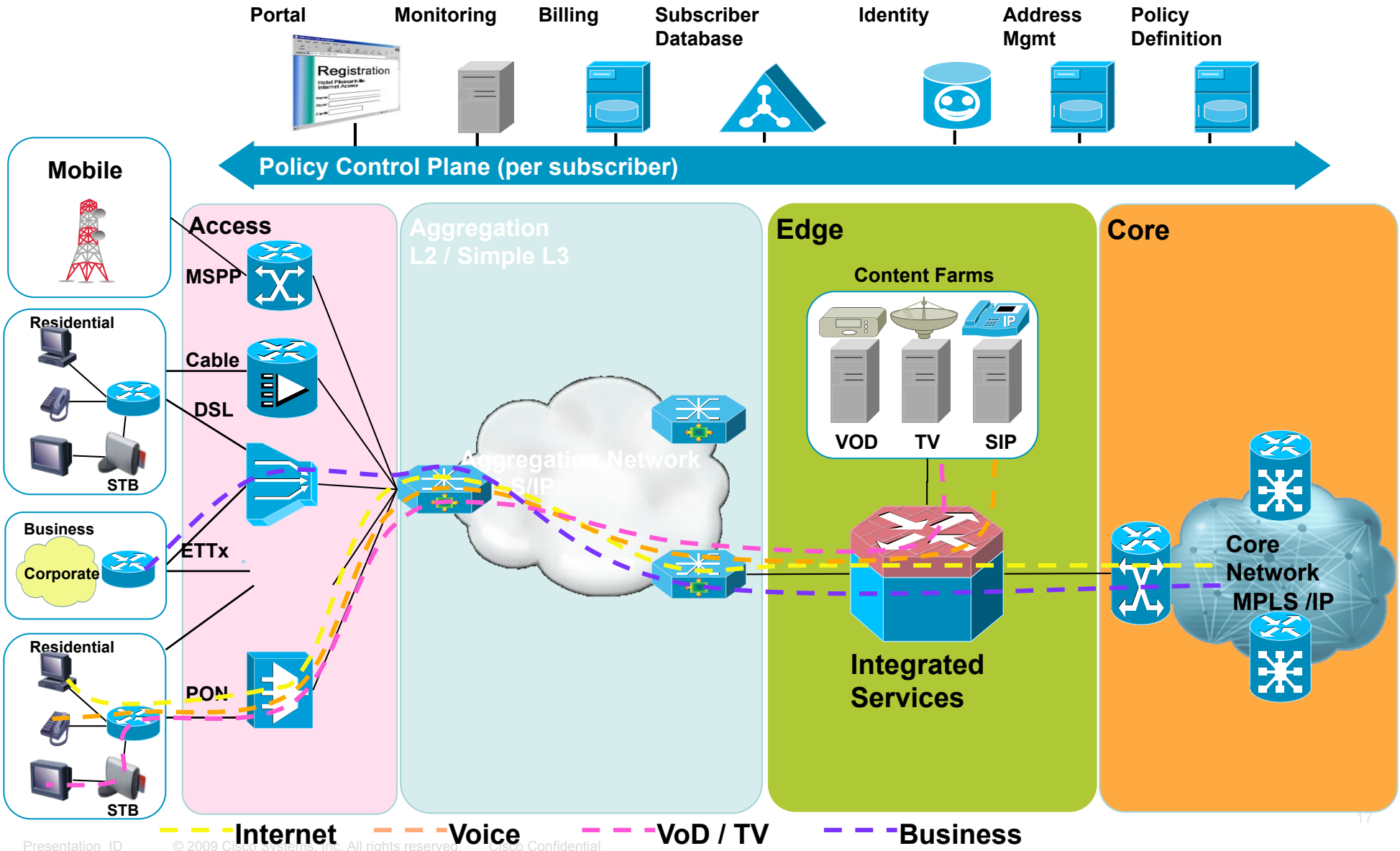
Centralized Unclustered Single-Edge



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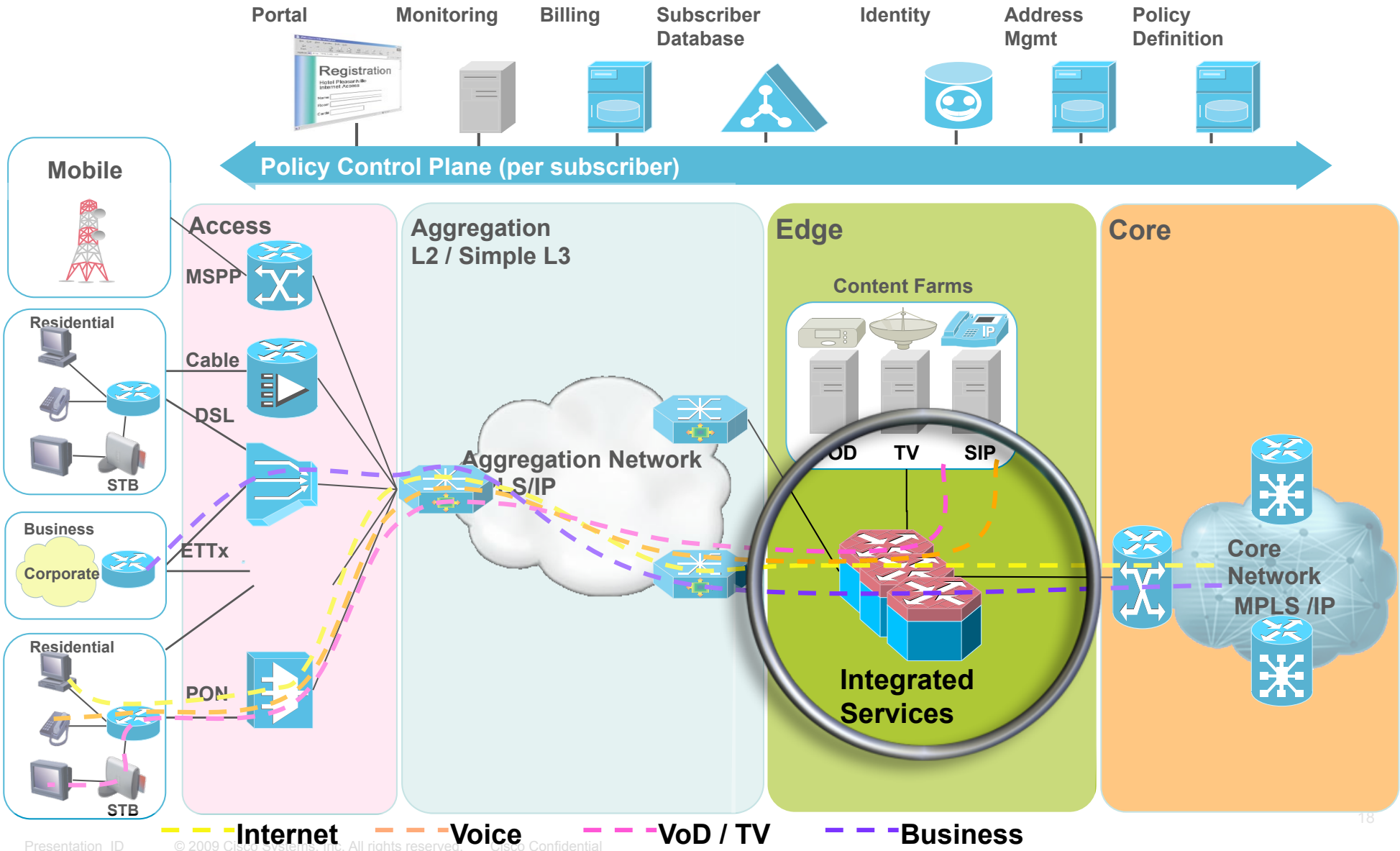
Centralized Clustered Single-Edge



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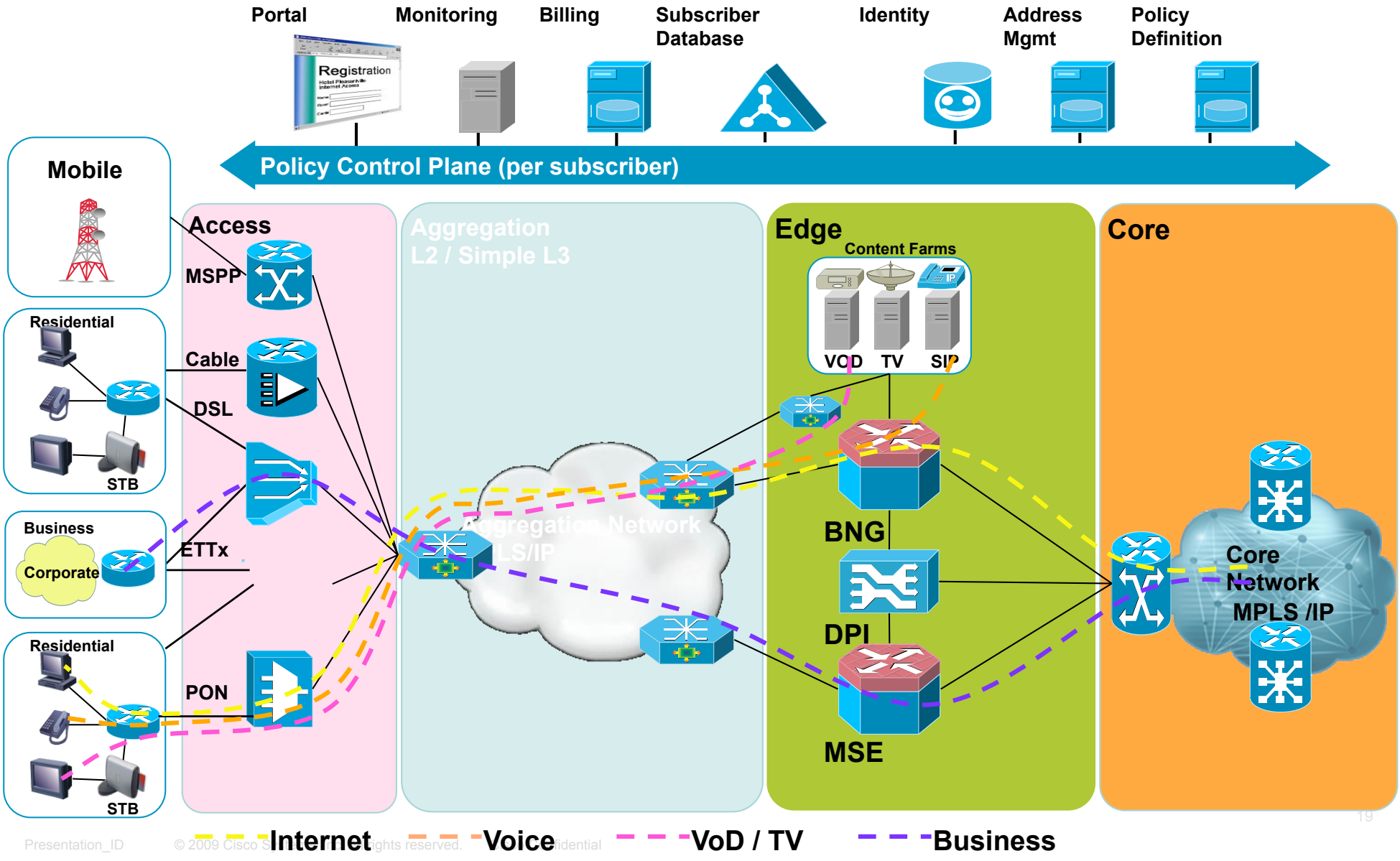
Centralized Unclustered Multi-Edge



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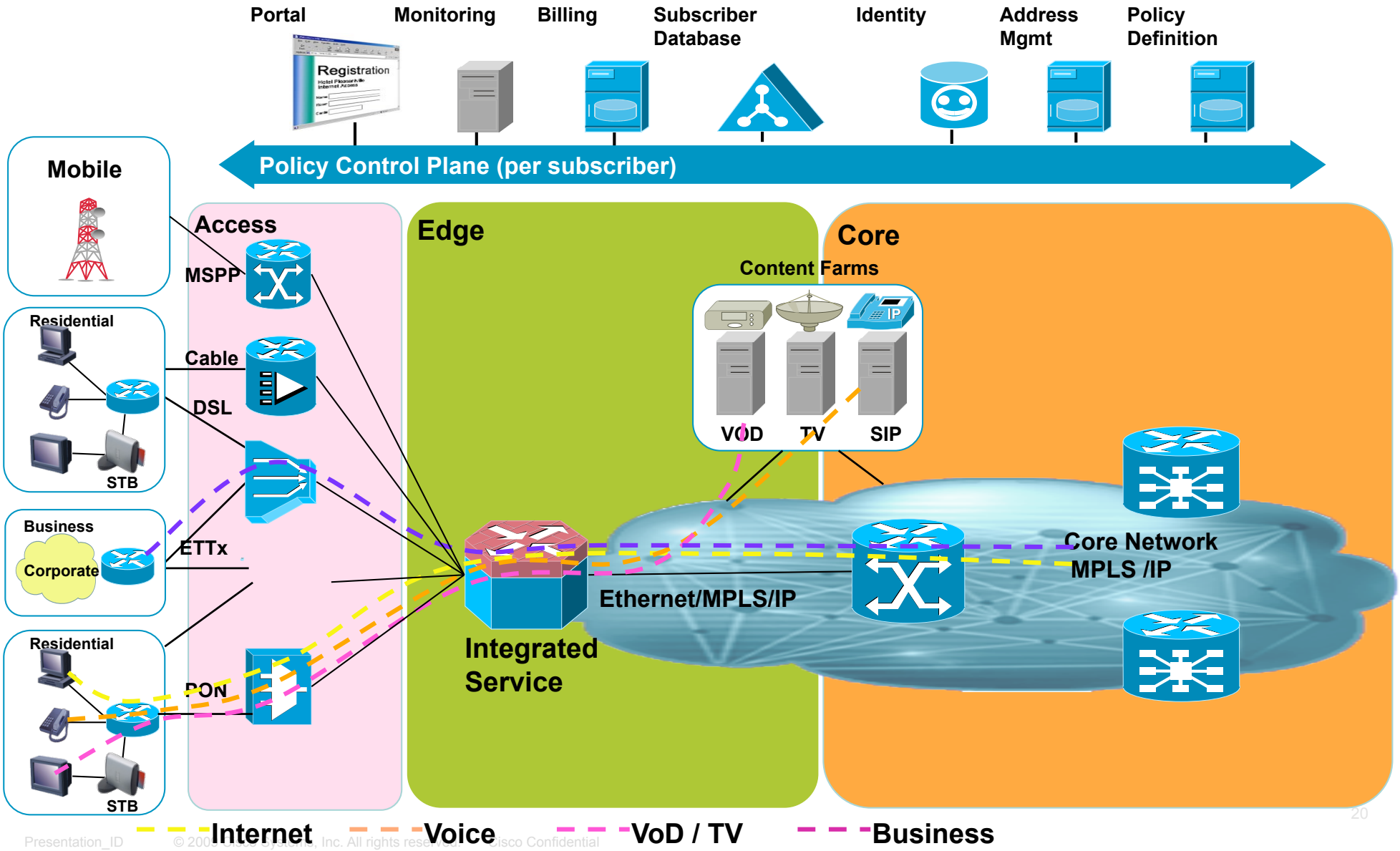
Distributed Unclustered Single-Edge



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High Level Product Positioning for BB Applications

7200/7301

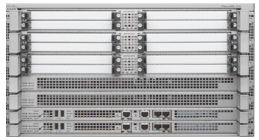
- Distributed low capacity BNG and LAC/LNS
- Extensive ATM and Ethernet BNG and L2TP feature set
- Widely deployed in all theatres; including large deployments in Japan and by Tier-2/3 SPs

ESR 10000

- High capacity BNG and LAC/ LNS
- Extensive ATM and Ethernet BNG and L2TP feature set
- Deployed in major Tier 1 SP networks in Europe and Tier 2/3 world-wide

7600–SIP400

- Carrier Ethernet plus Subscriber Awareness for Residential, Business convergence
- Subscriber Aware IP services
- BNG functionality introduced Q4CY07



ASR 1000

- Distributed Ethernet BNG and LAC/LNS
- Integrated services; per subscriber FW, DPI, and SBC without Service Blades
- Platform introduction Q2CY08; NTT-NGN early adoptor

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ASR 1000 Overview

1. Next-generation of Midrange router family
   - 2RU / 4RU / 6RU chassis
   - 5 / 10 / 20+ Gbps forwarding with services
   - Simple scale: 10-20-(40G) just by changing FP [5G-10G in 2RU]
   - Dual AC or DC power supplies
2. Differentiators
   - Designed for High Availability
   - HW redundancy for 6RU (RP and FP) with ISSU
   - SW redundancy for 2RU/4RU: In-service software upgrade, even with one RP
   - State of the art H-QoS (3 level, 128K+ queues)
   - Integrated services (no service blades), software-licensed based features (SBC, FW, NBAR, etc.)
   - Powerful control plane in RP –Route Reflector apps
3. Simple Migration
   - SPA support – same interfaces as 7600/12K/CRS-1
   - IOS features, CLI – simple migration from existing 7200 deployments

ASR 1006 6RU / 12 SPA slots

ASR 1004 4RU / 8 SPA slots

ASR 1002 2RU / 3 SPA slots

Initial target applications:

- Broadband (IPTV, Triple Play)
- IPSec Termination
- High-speed CPE/Managed Svcs
- BGP Route Reflector

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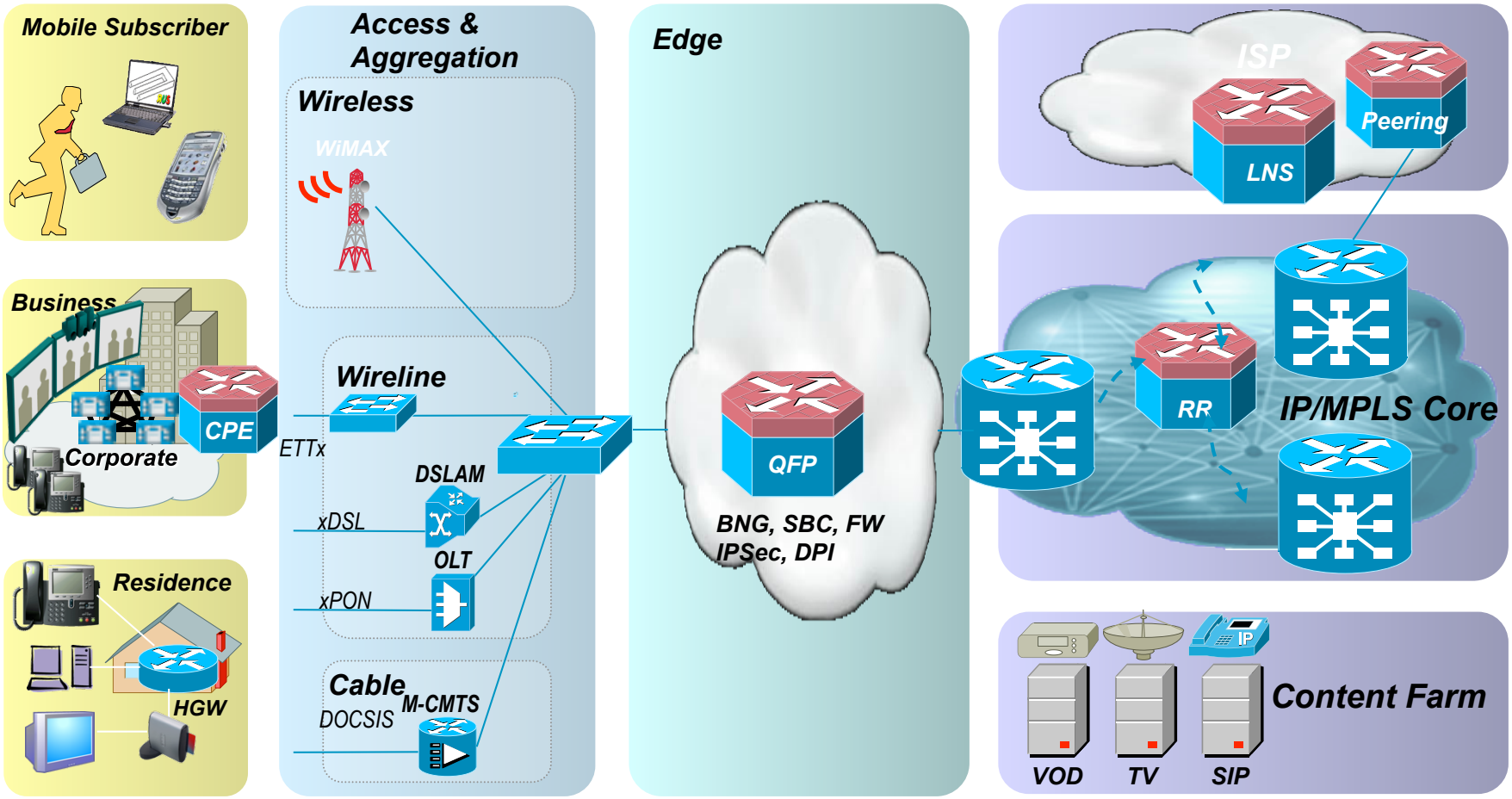
ASR 1000 in Service Provider IP Next Generation Networks



- *High Speed CPE*

- *BRAS-PPPoE*
- *LAC, PTA, ISG*
- *IPSec Aggregator*
- *VoIP SBC*
- *PE (L3VPN PE)*

- *LNS*
- *Route Reflector*
- *Internet Peering*

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Breakout Session Evaluation Form

Your session feedback is valuable

Please take the time to complete the breakout evaluation form and hand it to the member of staff by the door on your way out

Thank you!

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