



Cisco Expo
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Service Provider Voice Architecture

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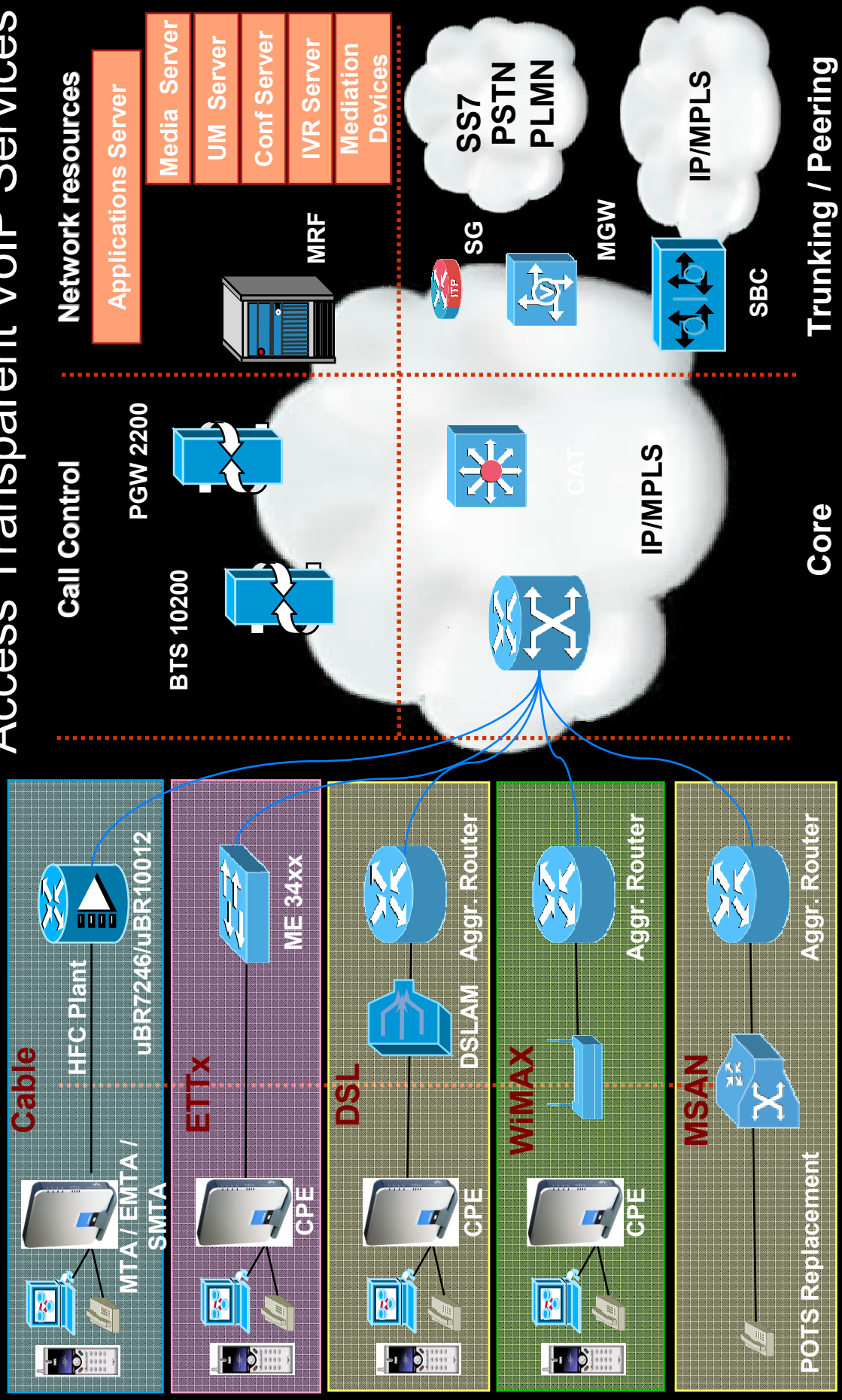
Enable Your Network
Empower Your Business

Agenda

- Cisco SP Voice Architecture Overview
- Relation to SEF, IMS and TISPAN
- Product Overview
 - PGW 2200, ITP, MGWs, SBC, BTS 10200
- Service Example FMC

Cisco SP Voice Network Architecture

Access Transparent VoIP Services





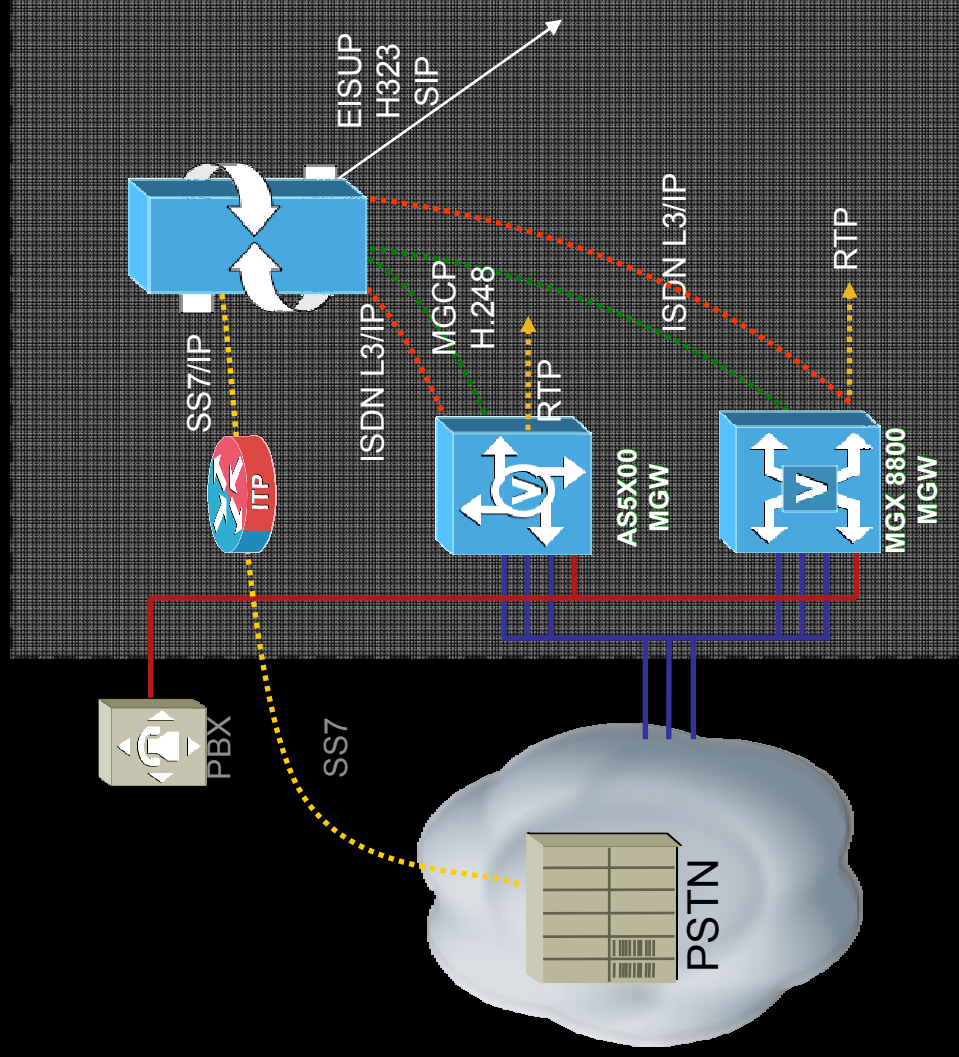
Cisco PGW 2200



Cisco PGW 2200

PSTN Gateway and IMS MGCF, BGCF

- Redundant Architecture
- Variety support of SS7 country specific implementation protocols platforms for performance scaling applications/services (pre/post-paid CC, carrier pre-select, MSC trunking, ...)
- regulatory features (LNP, LI, ...)
- billing interfaces

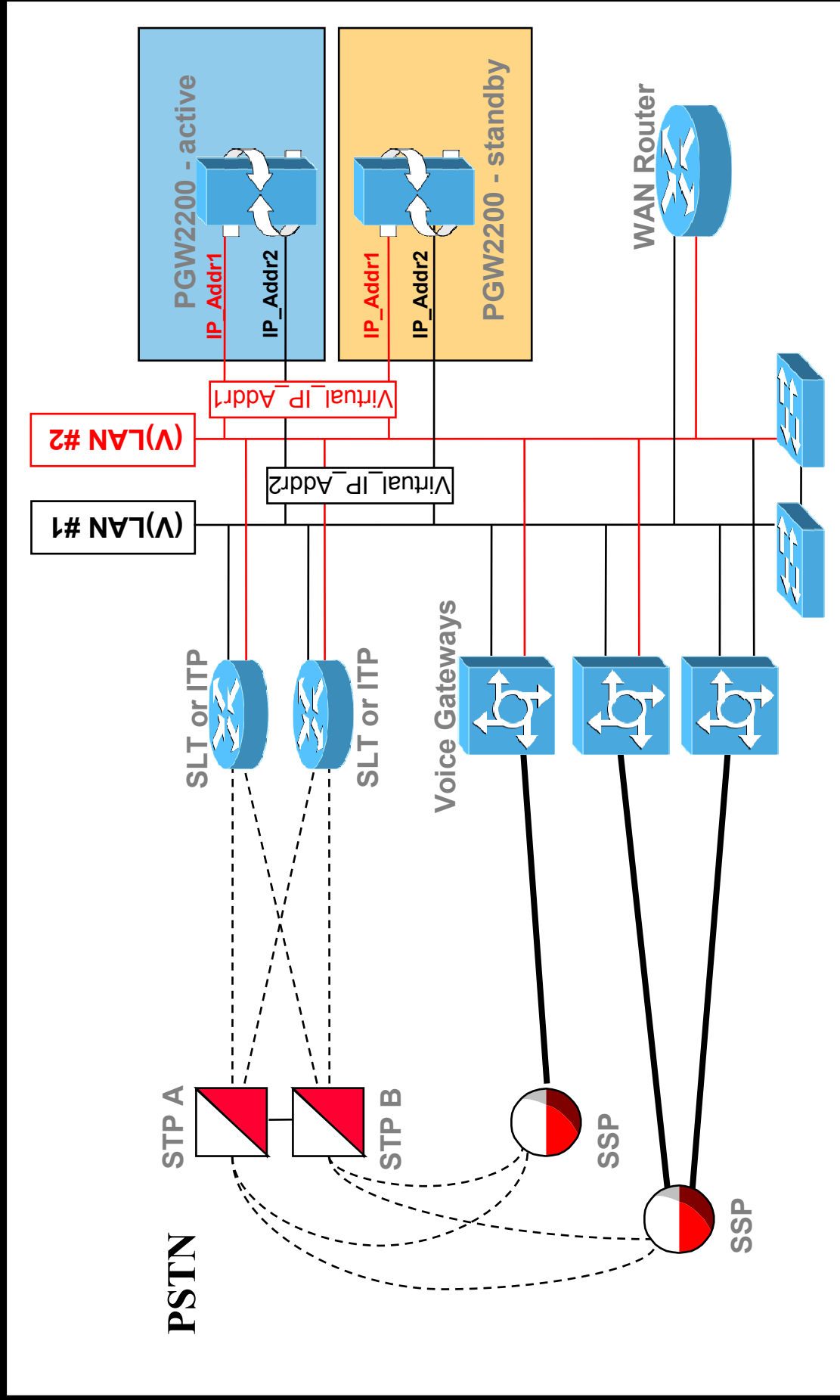


Cisco PGW 2200 Softswitch

- A Class 4 transit softswitch helping service providers and enterprises to deploy a network of VoIP media gateways in an economical way
- Product Success
 - 600+ customers, over 1000 nodes sold and 3 million DS0 ports controlled
 - Controls PSTN interconnect in over 75 countries
 - Tier 1 references in the Service Provider space
 - One third of customers are Enterprises
- Interoperability
 - Designed to interwork with multiple legacy and NGN products
 - around 90 variants of SS7 and PRI, plus QSIG and DPNSS
 - Interop with IP-based networks and applications using H.323, SIP, MGCP and H.248
- Reliability and Scalability
 - Active/standby mated pair supports carrier-class reliability requirements
 - Support of new Sun Fire X4600 platform at 380 CAPS
 - Scales to support upto 64 interconnected PGW nodes
 - Scales to support thousands of media gateways in a network



Redundancy Overview



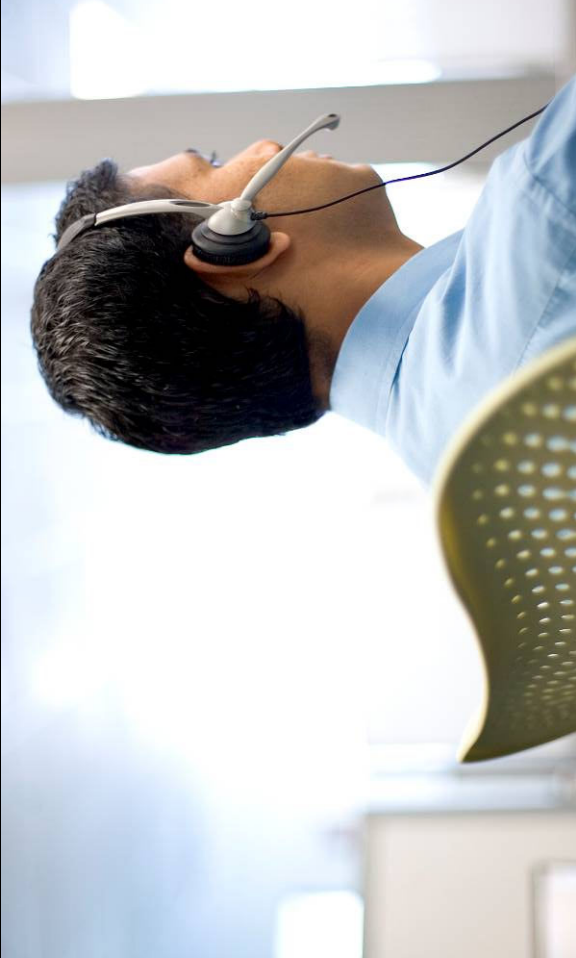
Current PGW & HSI Performance

@ 180 sec ACHT

SUN Platform	Product	TDM-TDM CAPS or TDM-H323	TDM-SIP CAPS	SIP-SIP CAPS
X4600 M2 32G RAM	PGW 9.7(3) patch 11	650	650 (380 on X4600)	650 (380 on X4600)
Netra 440	PGW 9.7(3) patch 11	162	135	135
Netra 240	PGW 9.7(3) patch 11	114 <i>tbc</i>	95 <i>tbc</i>	95 <i>tbc</i>
Netra 210	PGW 9.7(3) patch 11	47 <i>tbc</i>	40 <i>tbc</i>	40 <i>tbc</i>
Netra 240	HSI 4.3(2) patch 4	60	N/A	N/A
Netra 210	HSI 4.3(2) patch 4	40	N/A	N/A



Cisco ITP



Sample Cisco ITP Customers

North America



Europe



Emerging

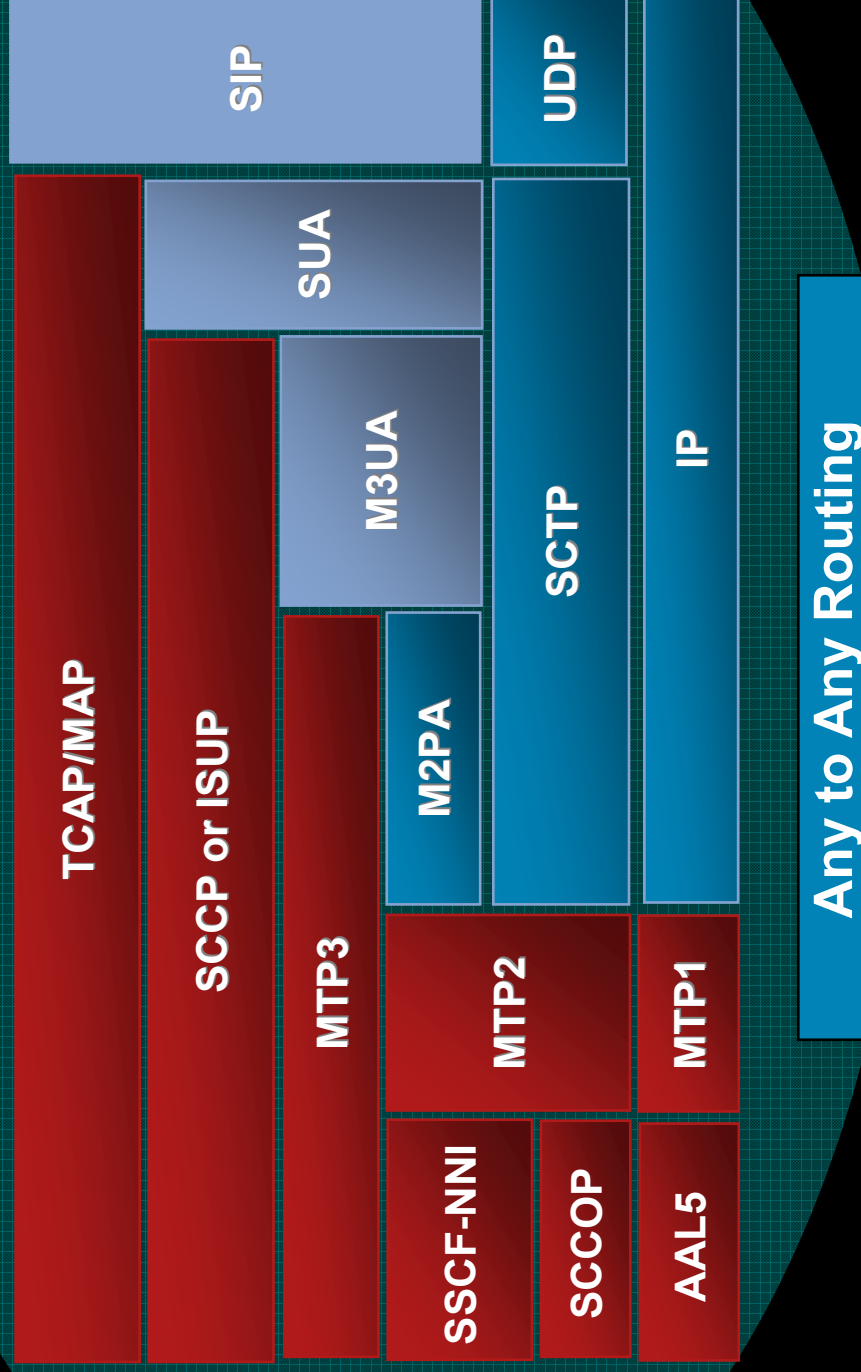


APAC

Cisco ITP Protocol Architecture



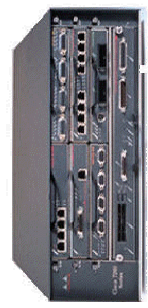
Cisco ITP IOS Base Bundle
(Specific and Controlled Features)



Cisco ITP Platforms and Services



	2811	7204/6	7301	7600
Core STP				✓
Signaling Gateway (+MLR/MO-Proxy)	✓	✓	✓	✓
Applications (WLAN)		✓	✓	





Cisco MGW



Cisco Media Gateways

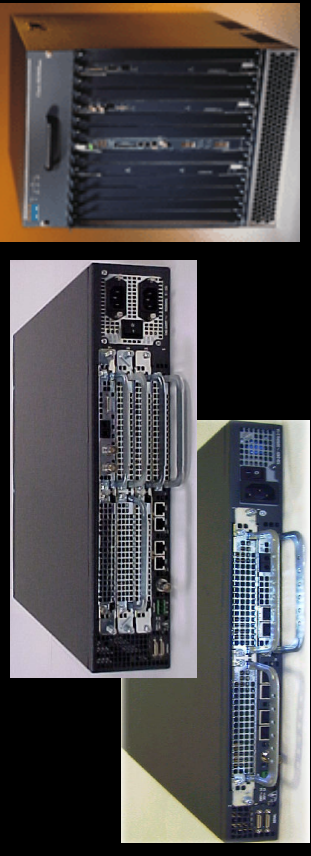
- Highest VoIP density, scalability and performance
 - Up to 120,000 Redundant DS0s in a 7' Rack with ECAN Backplane
 - Capacity of 45 Gbps
 - Over 2000 Calls/Sec per 7'Rack
- Broad range of Network Interfaces
 - FE, GE, POS OC-12, T1, E1, T3, E3, OC-3c/STM1-OC48c/STM16
- Optimized for Service Provider Voice Applications
 - Broad Application Support for Wireless, Wireline, and PacketCable compliant applications
 - No single point of failure. Active calls preservation
- Investment Protection
 - Evolutionary, Pay-as-you-grow Design

MGX 8880 Media Gateway



AS5350, 5400, 5850 Media Gateways

- Range from 2-8 T1/E1, to 8-32 T1/E1, to 24-86 T1/E1 or DS-3, STM-1 (240-4000 ports)
- Rich SIP Feature Set – compliant with most of RFC 3261, 3262, 3264
- All TDM interfaces (SS7/R2/T1CAS/PRI) are supported with SIP





Cisco SBC



Defining SBC

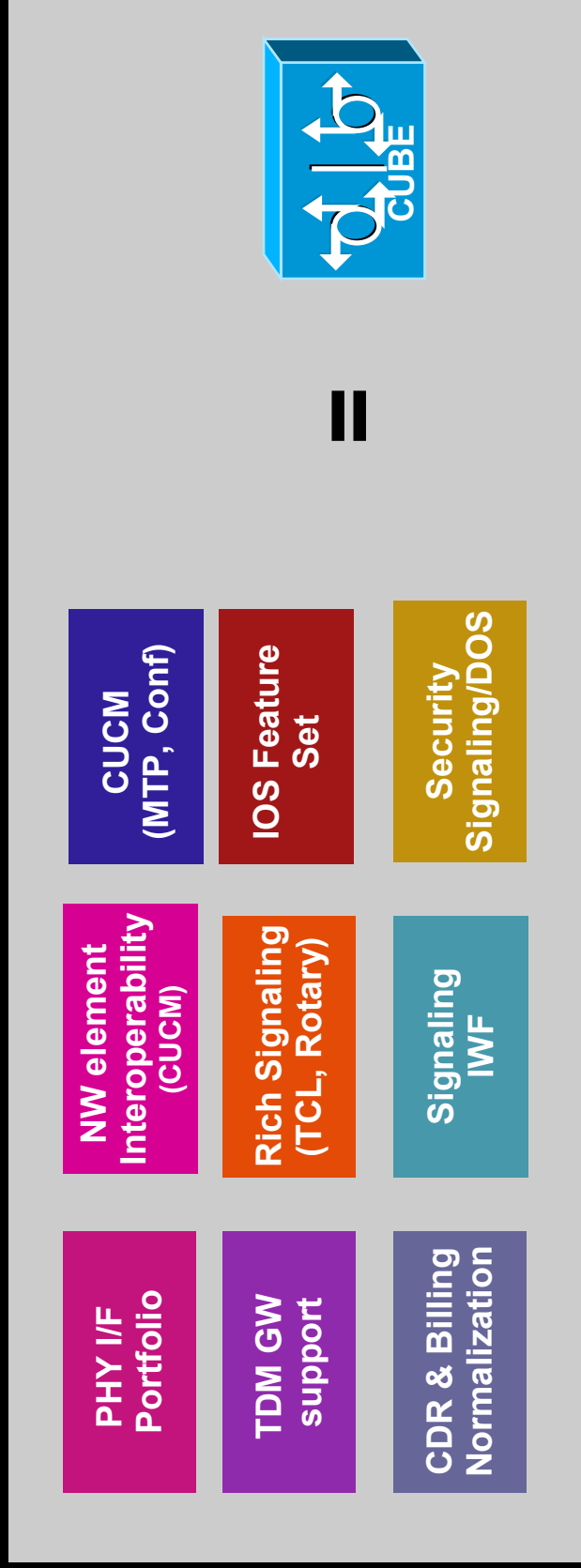
SBC Enables Direct IP to IP Interconnect Between Multiple Administrative Domains for Session-Based Services Providing: Protocol Interworking, Security, Admission Control and Management



- SBC is a tool kit of functions
- Depending on the application and deployment scenario, a different set of functions can be turned on/off

Cisco Unified Border Element

- Previously the “Multiservice IP-to-IP Gateway”
- SBC + Cisco Enhanced/Value-add Features



Title

- Cisco CUBE supports
1. SIP/H.323
 2. CUCM interworking
 3. Demarcation
 4. Security
 5. Transcoding

AS5000XM



Cisco 7301



Cisco 7200 VXR



Cisco 3800 ISR



Cisco 3700



Cisco 2800 ISR



Cisco 2600XM



Cisco XR12000



Cisco 7600



- Cisco SBC supports
1. NAT & FW traversal
 2. Security
 3. CAC & Policies
 4. Media & Protocol interworking
 5. IMS support(C-BGF, I-BGF, P-CSCF)

Scale



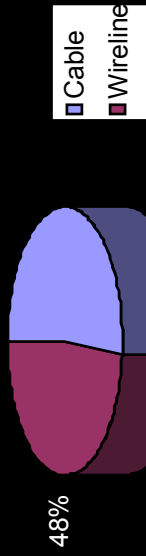
Cisco BTS 10200



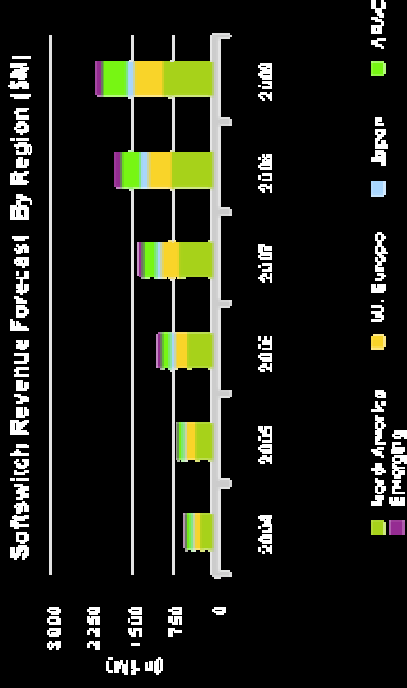
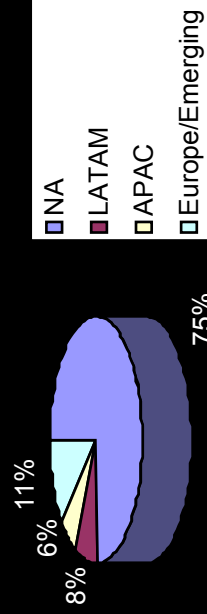
BTS 10200 Softswitch Market Adoption

8.5+ million BTS subscribers worldwide*

- More than 120 BTS platforms deployed
- Service Providers
- Cable/MSO
- Wireline
- Satellite



Global presence

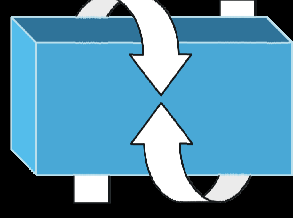


50% of US Cable VoIP subscribers

*as of Feb 2008

Cisco BTS 10200 Softswitch

- The BTS 10200 Softswitch delivers software-based* voice call control capabilities in Next Generation IP Service Provider networks.
- The BTS 10200 softswitch can provide traditional Class 5 subscriber services and Class 4 trunking support.
- The BTS 10200 offers a full suite of residential voice features and a strong suite of small business voice features.



BTS 10200
Softswitch

*runs on Sun servers

Title

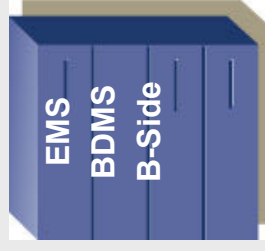
Primary

Server 1



Backup

Server 3



Minimum configuration

4 servers
co-located*

Fully Redundant Operation



Server 2



Server 4

- **Dual CA** configuration for switchover in the event of failure of the active CA
- **Dual Ethernet** support on each CA to provide alternative routes for signaling backhaul, MGCP, and network management traffic.

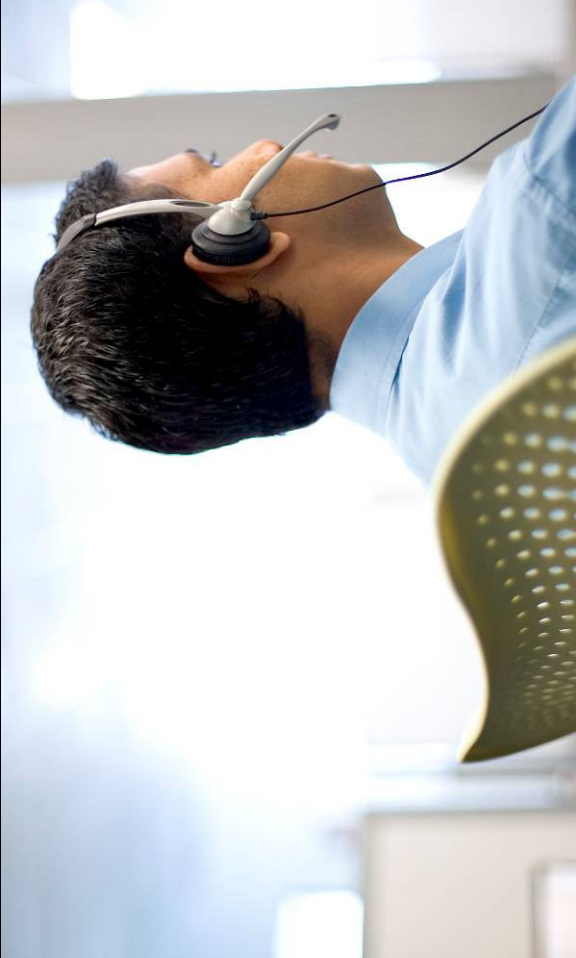
Cisco BTS 10200 Platform Support

Hardware	Processors	Memory	Disk Size	Subscriber Database Capacity
Netra 240	2 x 1280	8 GB	2 x 73 GB	125,000
Netra 440	4 x 1280	8 GB	4 x 73 GB	125,000
Netra 1280	4 x 1200	8 GB	2 x 73 GB	125,000
Netra 1280	8 x 1200	16 GB	2 x 73 GB	200,000
Netra 1280	12 x 1200	24 GB	2 x 73 GB	200,000
Netra 245	2 x 1500	16 GB	2 x 73 GB	125,000
Netra 445	4 x 1593	16 GB	2 x 73 GB	125,000
Netra 1290	8 x 1500	32 GB	2 x 146 GB	200,000
T2000 (R6)	8 core	16 GB	2 x 73 GB	tbd

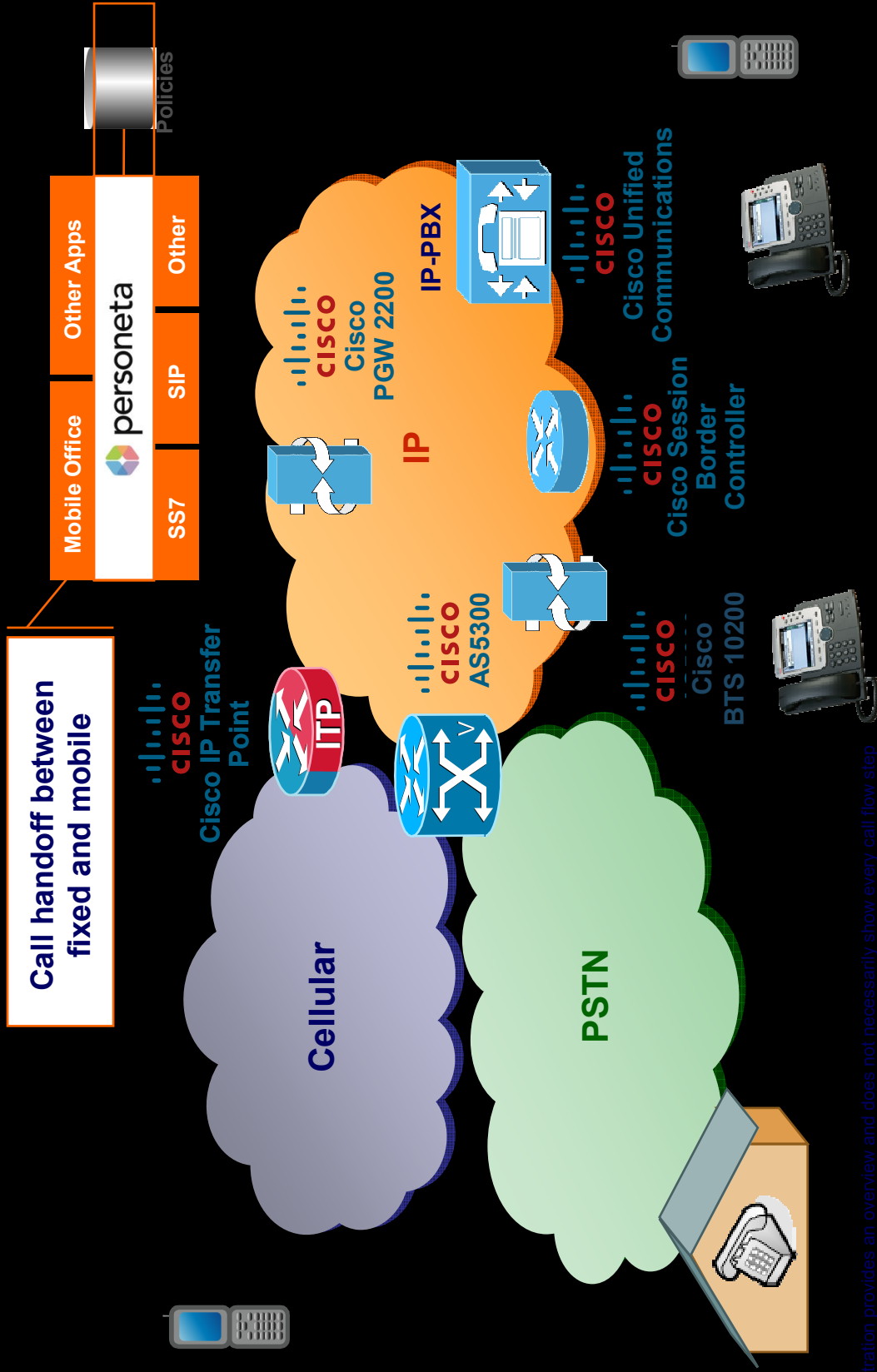


Service Example

FMC



Multiple Devices FMC Example



This illustration provides an overview and does not necessarily show every call flow step

Mobile Office Solution

Enterprise Integration

Access to enterprise data for directory, calendaring, and messaging

FMC

Multiple devices,
Home Zone/
Office Zone,
Dual-Mode phones,
and Mobility
Management

PBX

Integration
Integration covering
all types of PBXs;
also provides
integration
with voice mail

Hosted Media

Network IVR,
music on hold,
and
click-to-conference

Admin Tools

Web-based
tools for
tiered
service
management
and
self-care

Reachability

Configurable routing logic
for groups and individuals

Converged Voice VPN

Unified dialing plans; incoming, outgoing, and mid-call handling

Enables mobile operators to capture new enterprise revenues by integrating mobile and enterprise voice networks into a single communications environment

