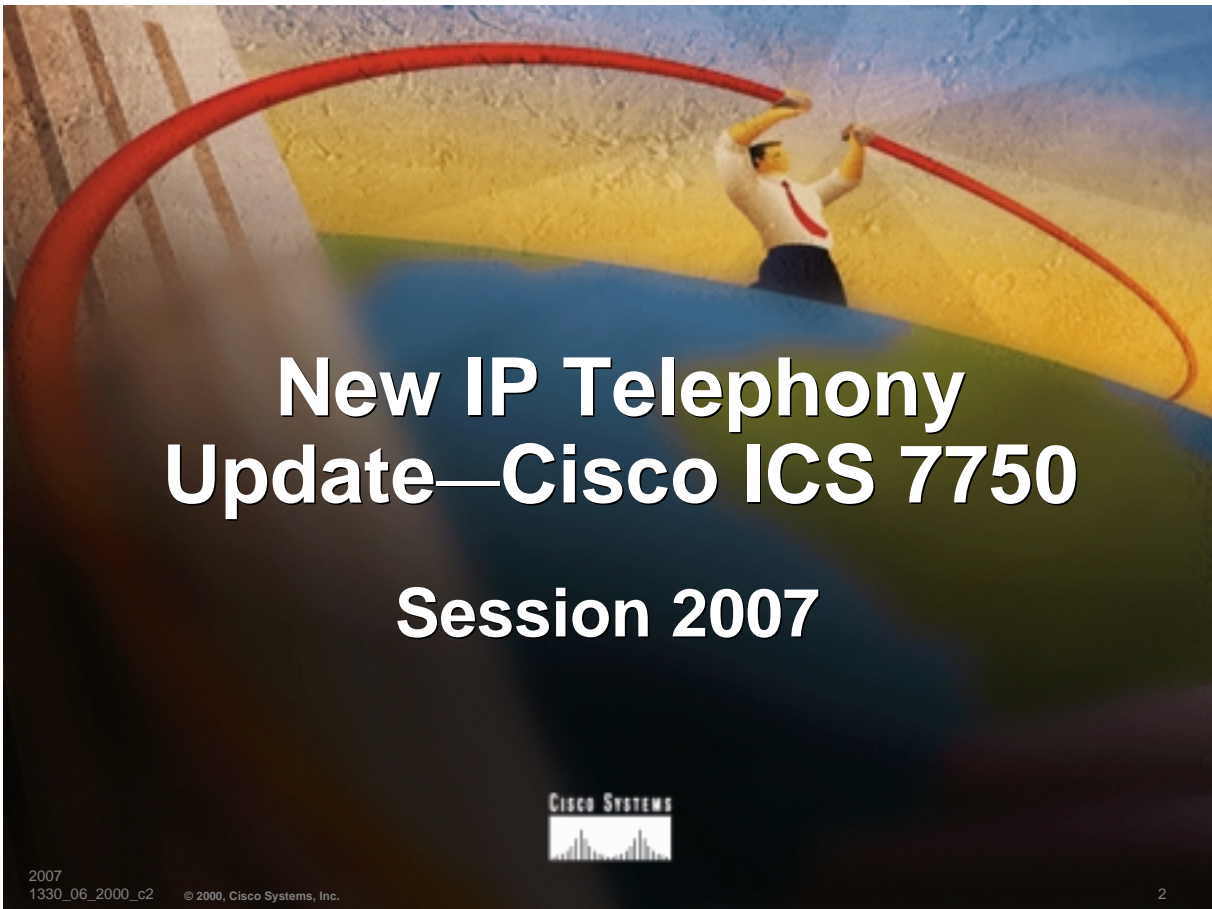




New IP Telephony Update—Cisco ICS 7750

Session 2007





Cisco ICS 7750

AVVID Solution for Small, Medium and Enterprise Branch Offices

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Agenda

- **Cisco ICS 7750
Product Overview**
- **Complimentary
Products**
- **Applications**
- **Design Considerations**
- **Summary**



ARCHITECTURE FOR
VOICE, VIDEO AND
INTEGRATED DATA

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Cisco ICS 7750

Product Overview

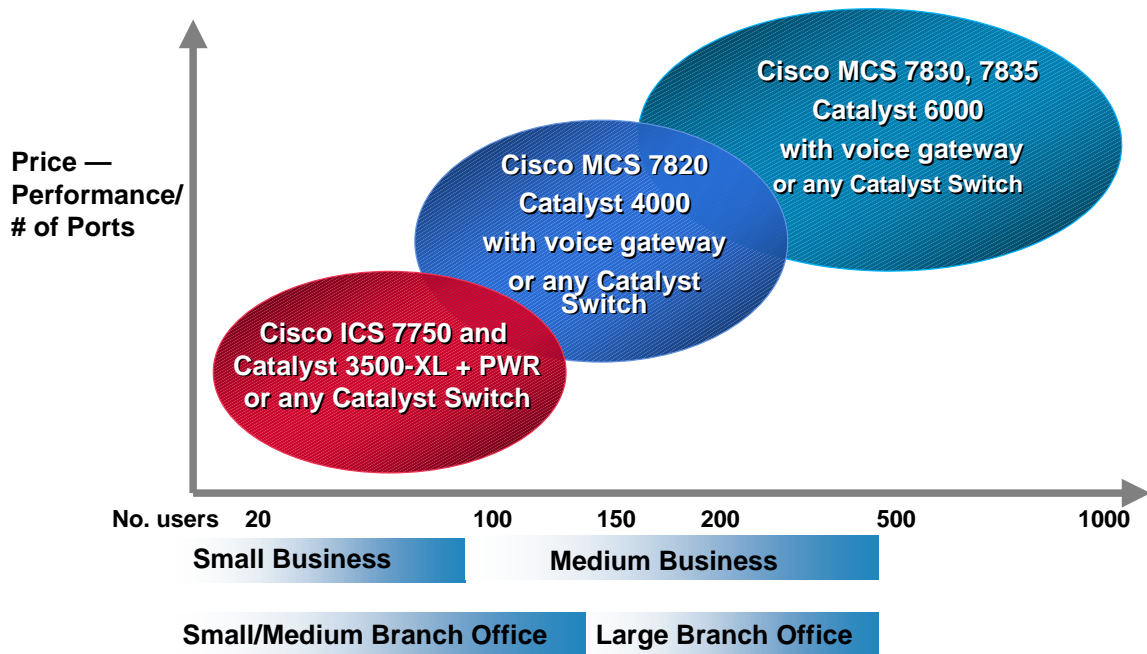
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Cisco AVVID Product Family: Scalable, End-to-End Solutions



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IP Telephony Buying Criteria

- Open architecture—standards based for interoperability
- Scalability—meet growth for the next 5 years, simple expansion
- High availability—10/100BaseT Fast Ethernet, fault tolerant
- Network solutions—Least cost routing, failover, network dial plan
- IP Phone—web based integration, CTI
- Redundancy options—CPU and power
- Applications—for today and tomorrow
- Service and support

Integrated Communications “Portal” for Businesses



Terminals

- IP phones
- Softphone
- Web attendant
- Desktop PC
- Wireless

Applications

- System Management
- Voice Mail
- AutoAttendant
- *Unified Messaging*
- *IVR*
- *Web CallCenter*
- *Personal Assistant*

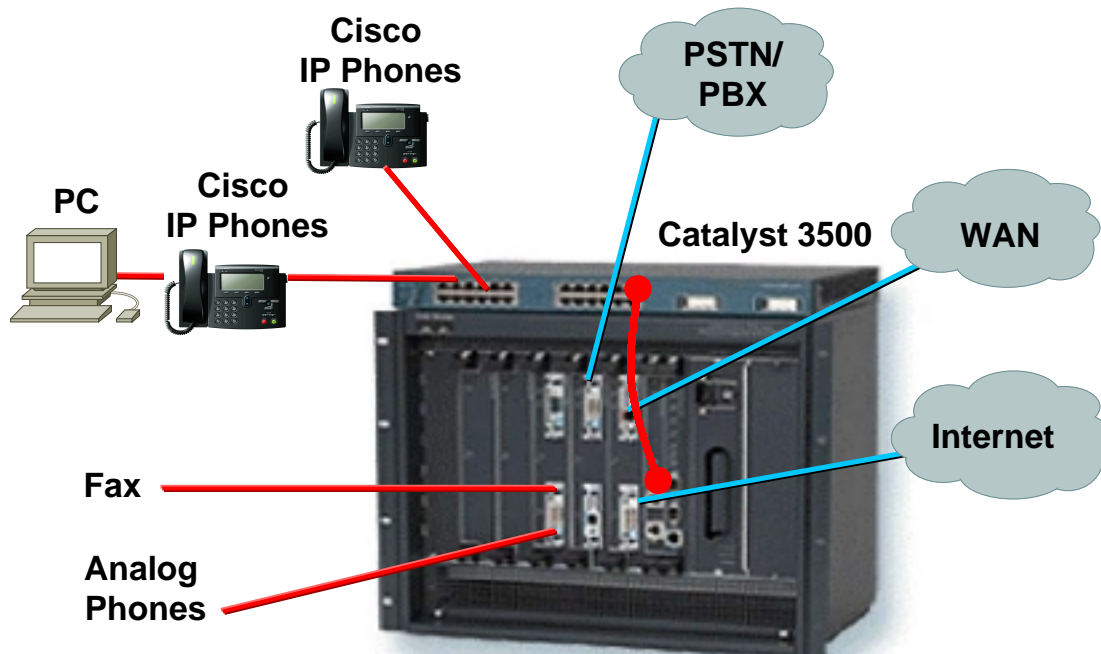
Connectivity

- PSTN
- WAN
- Internet

Multimedia

- Data
- Voice
- Video

Cisco ICS 7750 Typical System Configuration



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Cisco ICS 7750 Components Overview

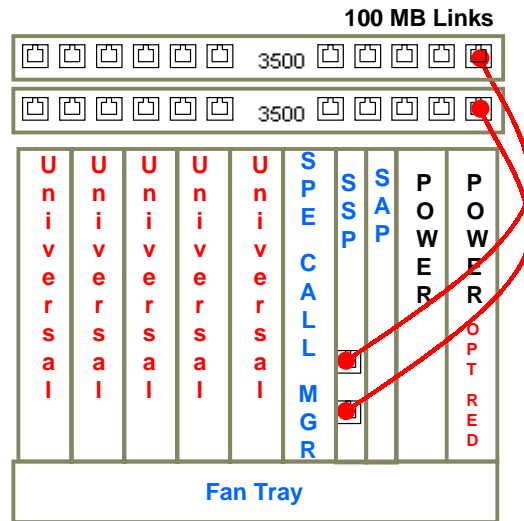
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Cisco ICS 7750 Components

- **System platforms:**
 - Catalyst data switches
 - Cisco ICS 7750 system
- **ICS system and resource cards:**
 - System Switch Processor
 - System Alarm Processor
 - Multiservice Router Processor
 - System Processing Engine
 - Analog Station Interface
- **ICS platform components:**
 - Power supply
 - Redundant power supply (option)
 - Fan tray
 - UPS (external option)



Cisco ICS 7750 Components

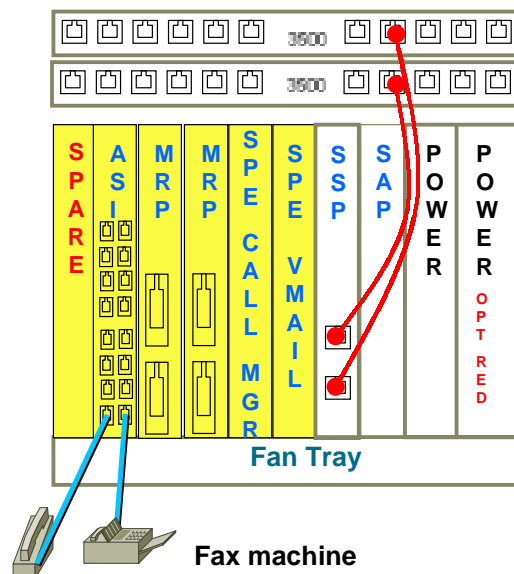
ICS Resource Cards

Six Universal Slots for:

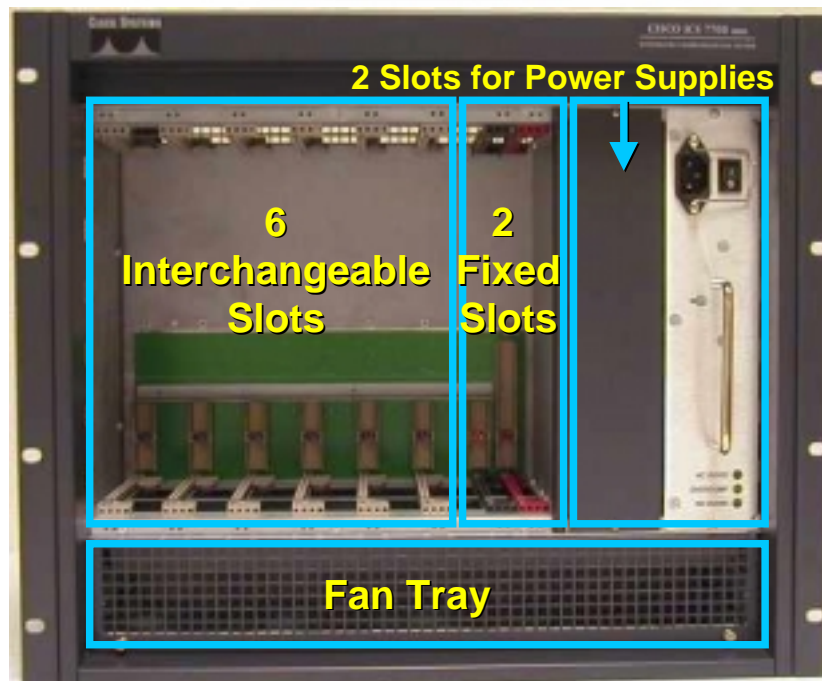
- Call Manager System Processing Engine (1+1 redundancy)
- Voice mail and applications SPEs
- MRP for router, trunk and DSP
 - VIC: FXO, FXS, E&M, T1-CAS with DSU/CSU
 - WIC: T1 with CSU and BRI

Future Releases:

- ASI—16 port analog, FXS ports
- DSP farm
- Higher density FXO
- E1
- ISDN PRI/BRI VIC
- Multi app SPE



Cisco ICS 7750 Chassis—Front View



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System Cards System Processing Engine (SPE)

- **Windows 2000 computer running system software**
- **Pentium II processor with up to 512 MB memory**
- **Resides in an interchangeable slot**
- **One is required, up to five allowed for redundancy/additional apps**

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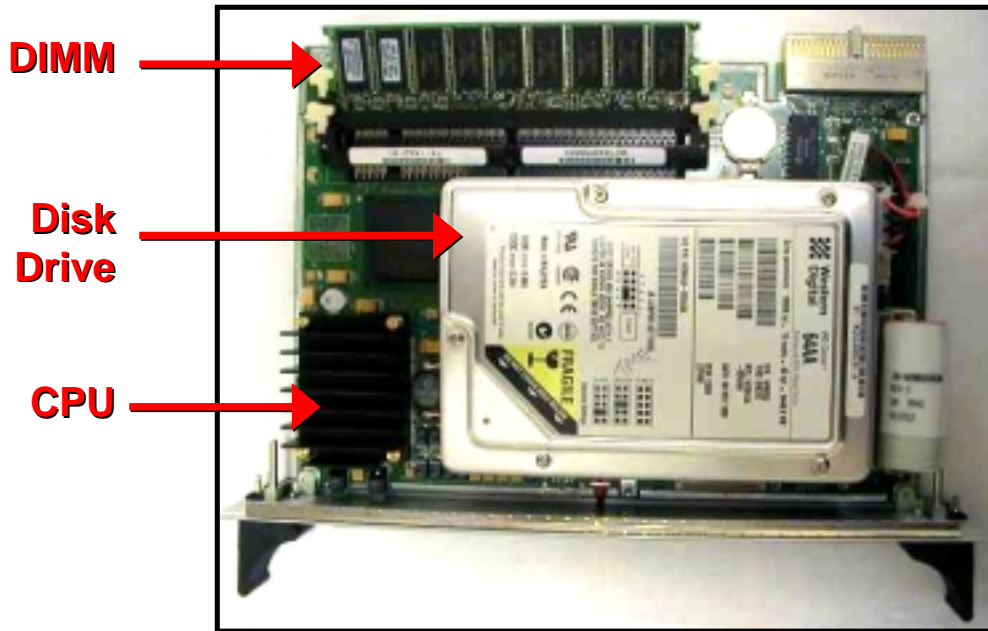
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Processor Cards

System Processing Engine (SPE)



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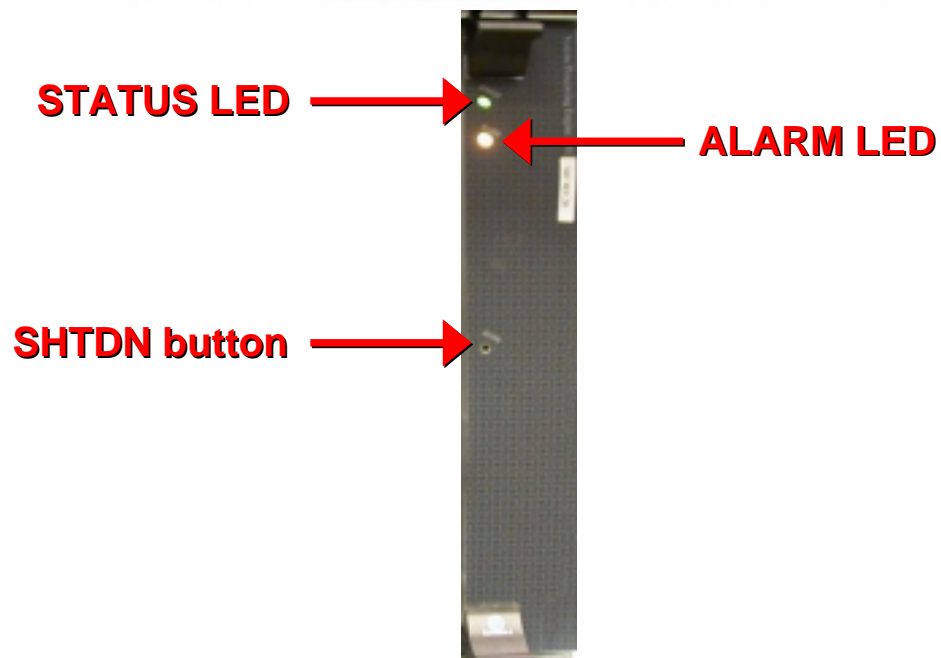
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Processor Cards

System Processing Engine (SPE)



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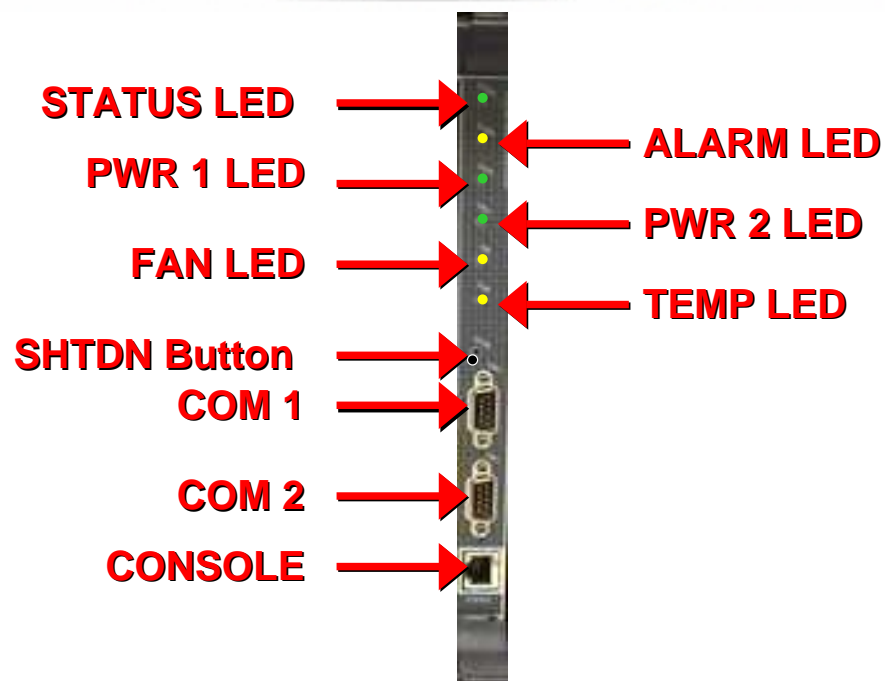
System Cards

Service Alarm Processor (SAP)

- **Monitors the status of:**
 - Chassis**
 - Power supplies**
 - Fans**
- **Communicates status to SPE**
- **Single SAP resides in fixed slot 8**

Processor Cards

System Alarm Processor (SAP)



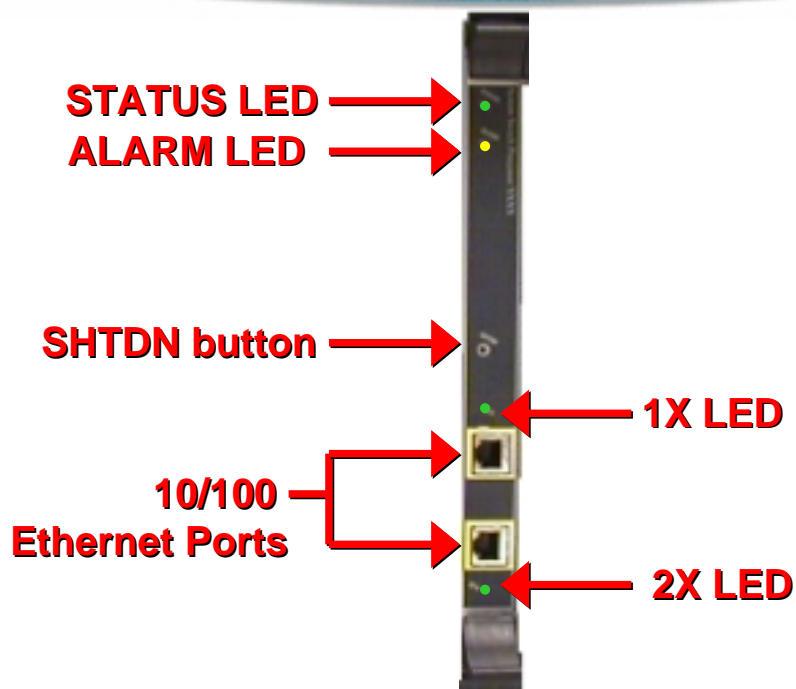
System Cards

System Switch Processor (SSP)

- Eight port Ethernet Switch
- Two RJ-45 switched 10/100 Ethernet ports connect to Catalyst switches
- All telephony signaling and voice destined outside the Cisco ICS 7750 will travel across these two ports
- Single SSP resides in fixed slot 7

Processor Cards

System Switch Processor (SSP)



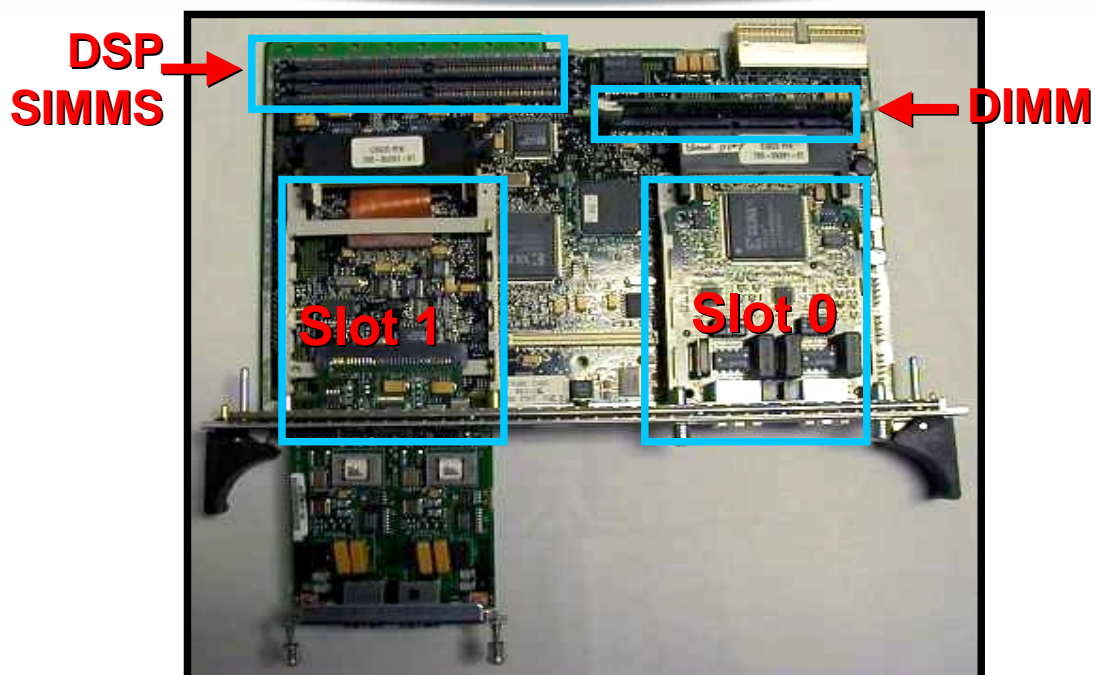
Processor Cards

Multiservice Route Processor (MRP)

- Voice and data router
- Supports up to two WIC/VIC's
- No Flash memory
- Resides in an interchangeable slot
- Maximum of five are supported

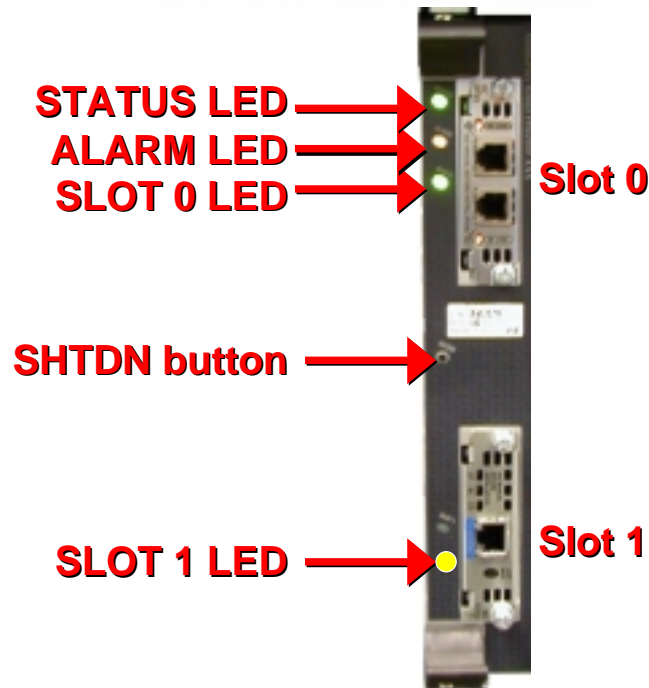
Processor Cards

Multiservice Route Processor (MRP)



Processor Cards

Multiservice Route Processor (MRP)



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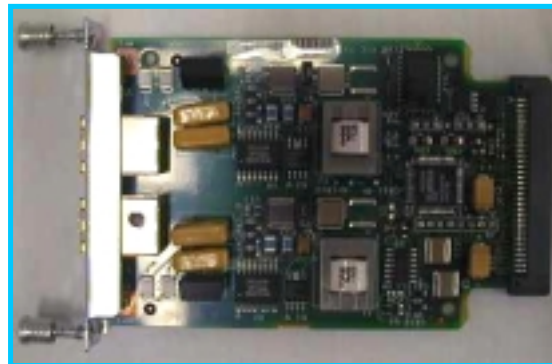
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Wan Interface Cards

(WICs)

- 1T WIC
- 2T WIC
- 2A/S WIC
- 1B-S/T WIC
- 1B-U WIC
- 1DSU-56K4 WIC
- 1DSU-T1 WIC



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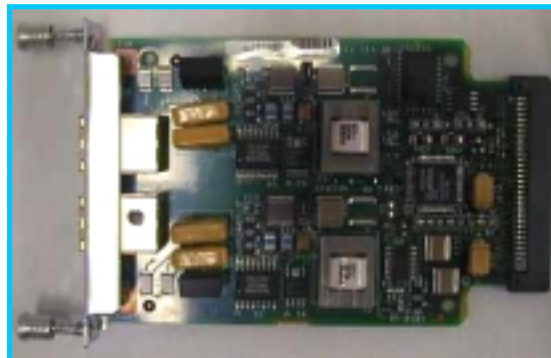
26

Voice Interface Cards (VICs)

- 2FXS VIC
- 2FXO VIC
- 2E&M VIC

MultiFlex Voice and Data

- 1MFT-T1 VWIC
- 2MFT-T1 VWIC



Cisco ICS 7750

Complimentary Products

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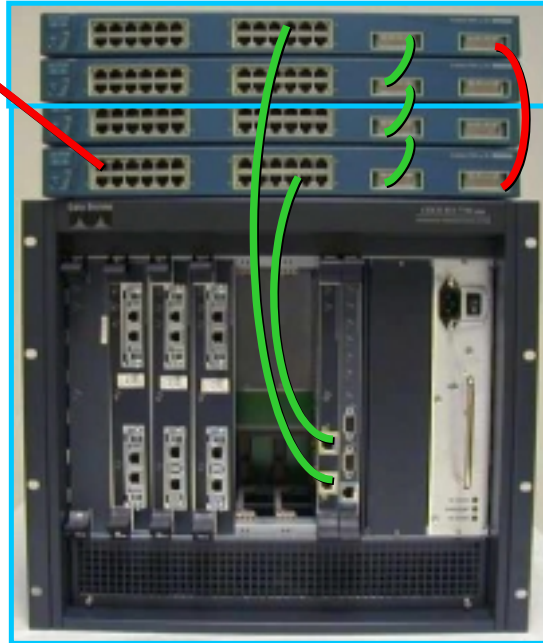
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Catalyst 3524-PWR-XL Stackable In-Line Power



- Line power for Cisco IP phones, with autodetect
- Enhanced voice quality (QoS)
- 24 10/100 Ethernet ports and 2 GBIC



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Cisco Second Generation IP Telephones



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Cisco 7960 IP Phone

- Two RJ-45, switched, 10/100Mbps, half—or full-duplex, Ethernet ports
- Headset and console ports
- Category 3 or 5 cabling for 10 Mbps connections
- Category 5 cable for 100 Mbps connections
- Supports G.711 and G729a compression

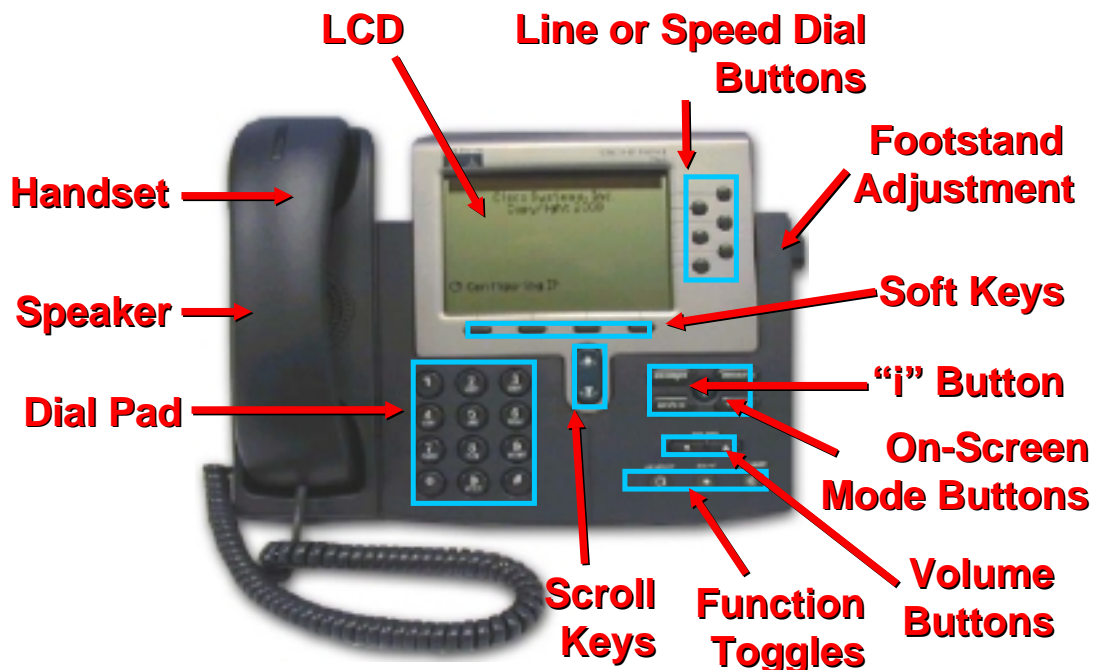
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Cisco 7960 IP Phone



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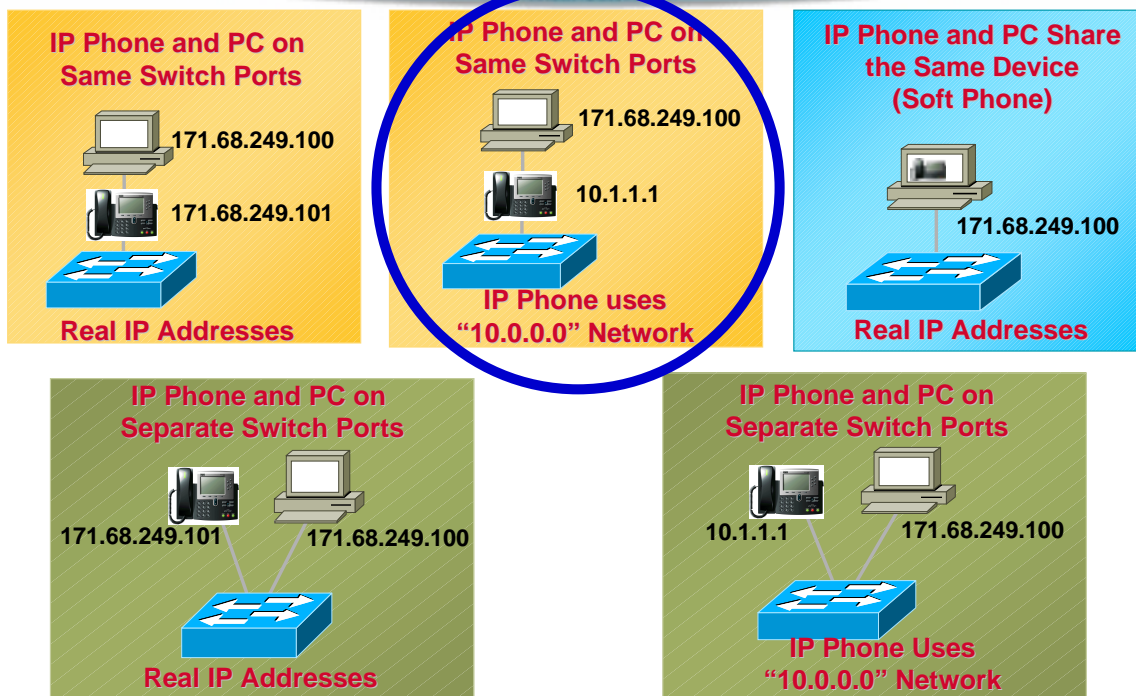
32

Cisco 7910 IP Phone

- Single-line phone with four fixed feature buttons
- Two-line, 20 characters per line, LCD display
- Two RJ-45 ports



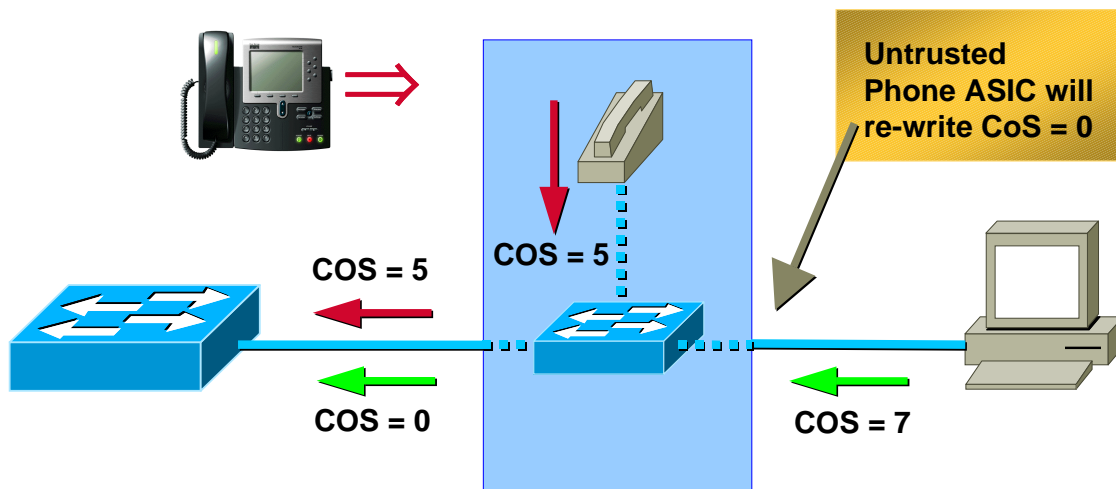
IP Addressing Deployment Options



What Happens Inside the Phone

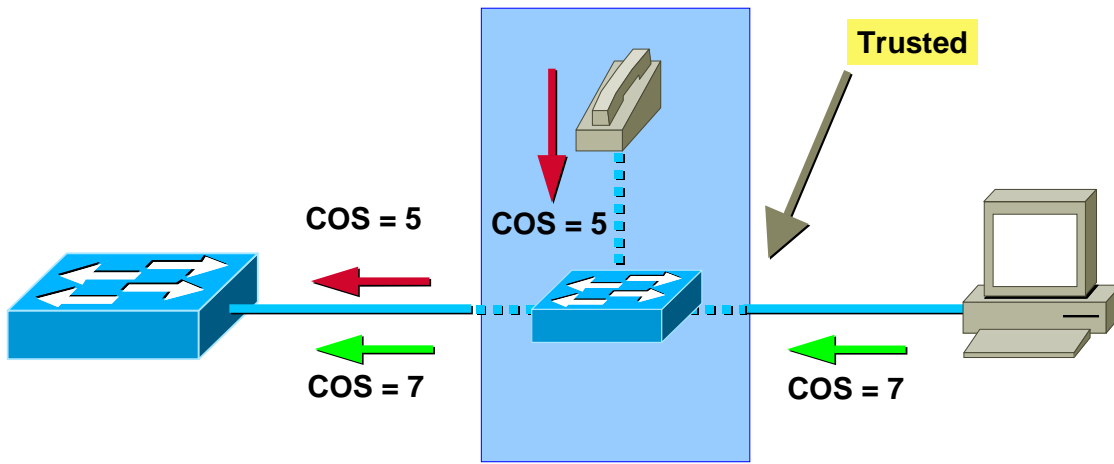
- IP phone sends voice packets (RTP stream) marked at CoS/ToS value 5
- PC may or may not send a CoS
- Phone can manipulate PC CoS
- Capabilities of switch will determine what can be achieved

PC Is Not Trusted Normal Mode



Phone Sets PC CoS to Zero

PC Is Trusted



Phone Does Not Change PC CoS

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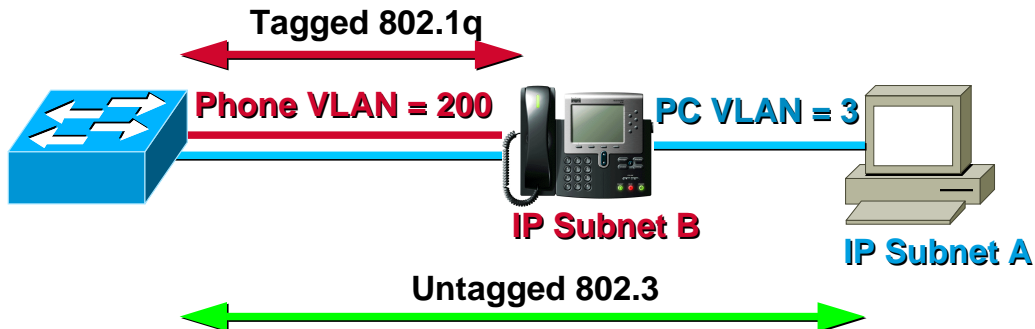
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Catalyst Auxiliary VLAN

This feature provides automatic phone VLAN configuration



- No end-user intervention required
- Provides the benefits of VLAN technology for the phone
- Preserves existing IP address structure
- Uses 802.1Q technology between switch and phone

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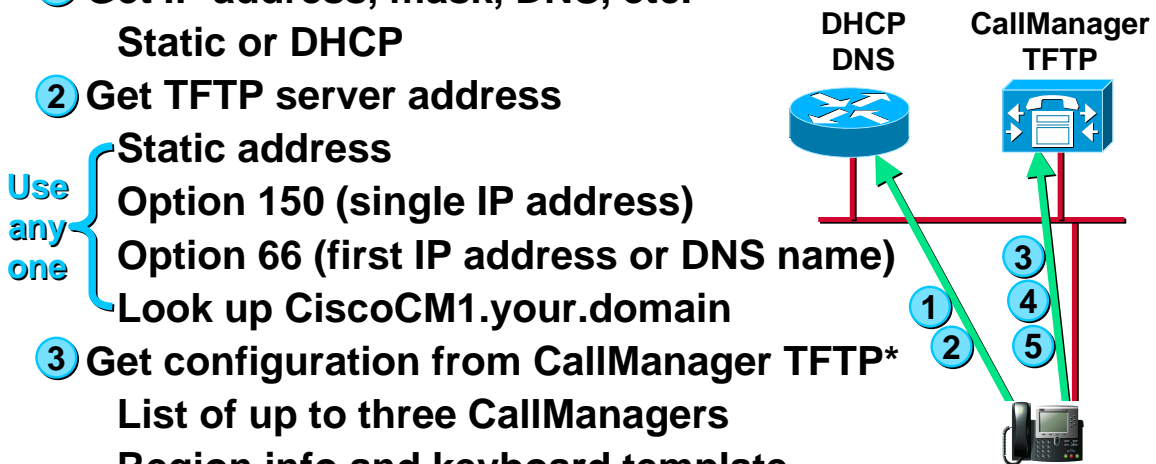
Catalyst Switch <-> Phone Interaction Plug and Play Operation



- Unpowered phone plugs into powered linecard port
- Port senses the device using phone discovery mechanism and reports it to the supervisor
- Supervisor checks power budget, allocates default amount and informs port to apply power
- Port turns on power to the phone and reports LinkUp to supervisor, once the PHY on the phone is enabled.
- If phone was powered by external patch panel or wall power, switch port will report LinkUp to Supervisor
- Phone begins CDP exchange with the switch and gets its VLAN ID (VVID) as well as reports actual power needed for operation.
- Phone will now send a DHCP request on that VLAN for an IP address

Phone's Actions on Startup

- 1 Get IP address, mask, DNS, etc.
Static or DHCP
- 2 Get TFTP server address
 - Static address
 - Option 150 (single IP address)
 - Option 66 (first IP address or DNS name)
 - Look up CiscoCM1.your.domain
- 3 Get configuration from CallManager TFTP*
 - List of up to three CallManagers
 - Region info and keyboard template
 - Version of code to run
- 4 Get new code (one time only)
- 5 Register with CallManager



Cisco ICS 7750 Applications

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ICS System Manager Cisco ICS 7750



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7700 ICS System Manager

[Logout](#) | [Glossary](#) | [Help](#)

[Home](#) | [Configure](#) | [Monitor](#) | [Event Manager](#) | [Software Upgrade](#) | [Security](#)

ICS 7750 System Manager is an integrated, easy-to-use interface to Operate, Administer, and Manage your Cisco ICS 7750.

Select **Configure** to setup your Multiservice Route Processor, System Switch Processor, and telephony applications.

Select **Monitor** to check real-time status of various components of ICS 7750.

Select **Event Manager** to diagnose and troubleshoot system problems.

Select **Software Upgrade** to manage software images.

Select **Security** to manage user access.

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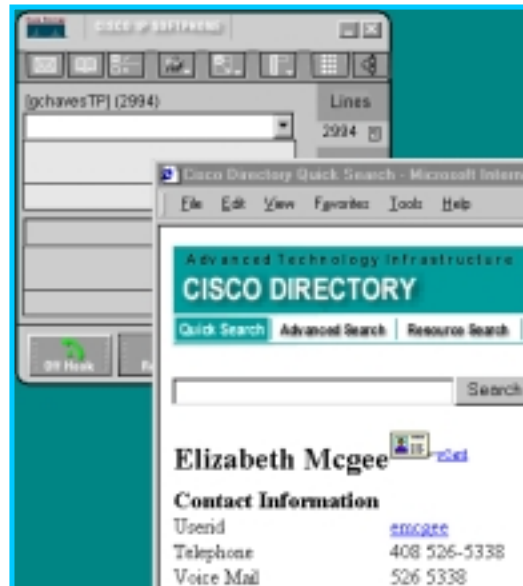
Cisco IP SoftPhone



Windows IP phone client for CallManager 3.0
Standards based: TAPI, DirectXMedia and LDAP

IP SoftPhone—Fingertip Features

- **Standalone or with IP phone**
 - Control IP phone**
 - Is phone on PC**
- **Easy feature access**
 - One click conference and transfer**
 - Keyboard shortcuts**
- **Directory integration**
 - Personal and public (LDAP)**
 - Dial by name/email address**



Cisco ICS 7750 Design Considerations

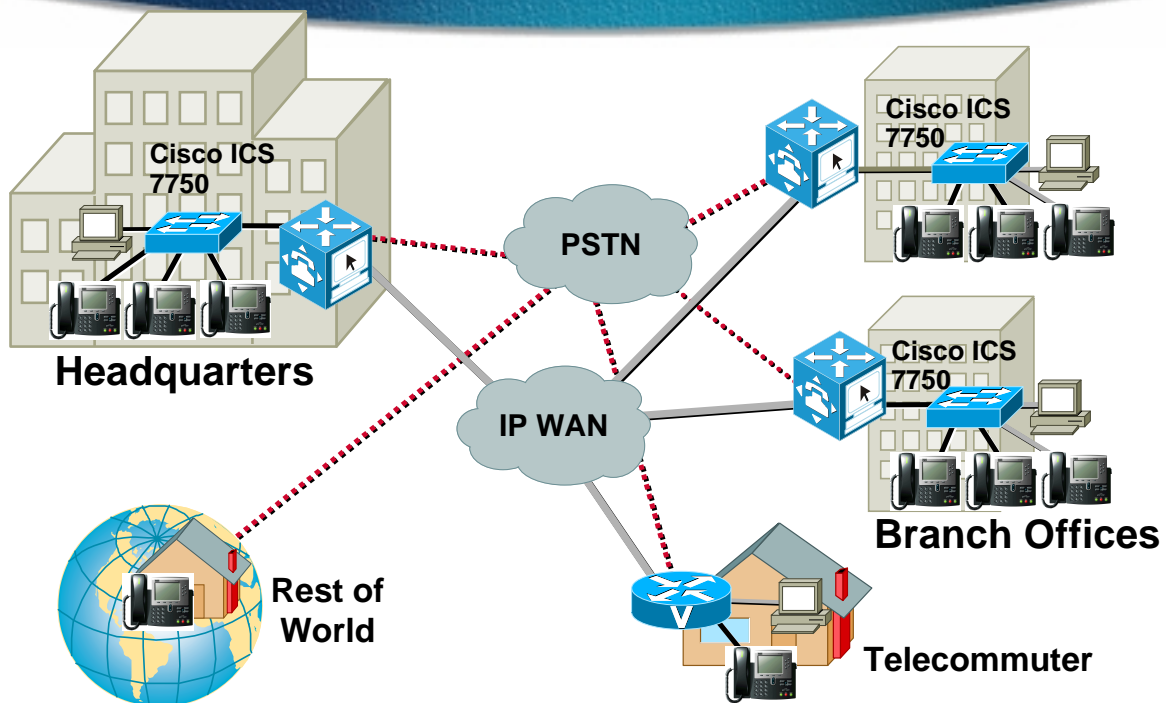
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An End-to-End AVVID Network



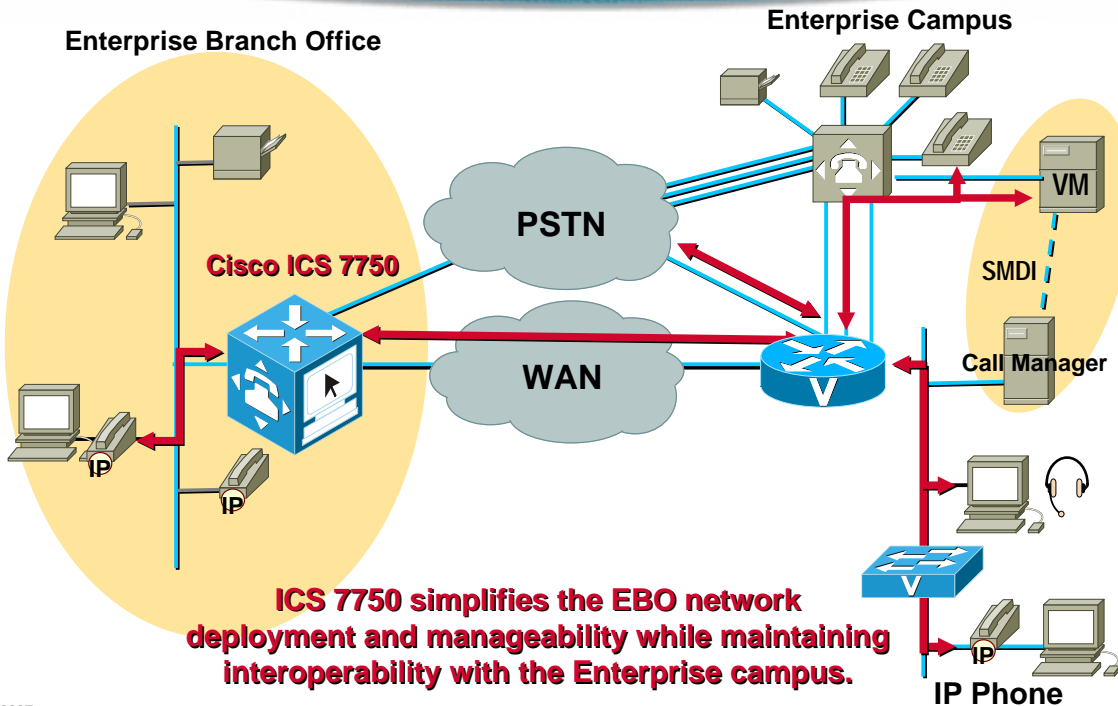
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Cisco ICS 7750 Solution for Enterprise Branch Office



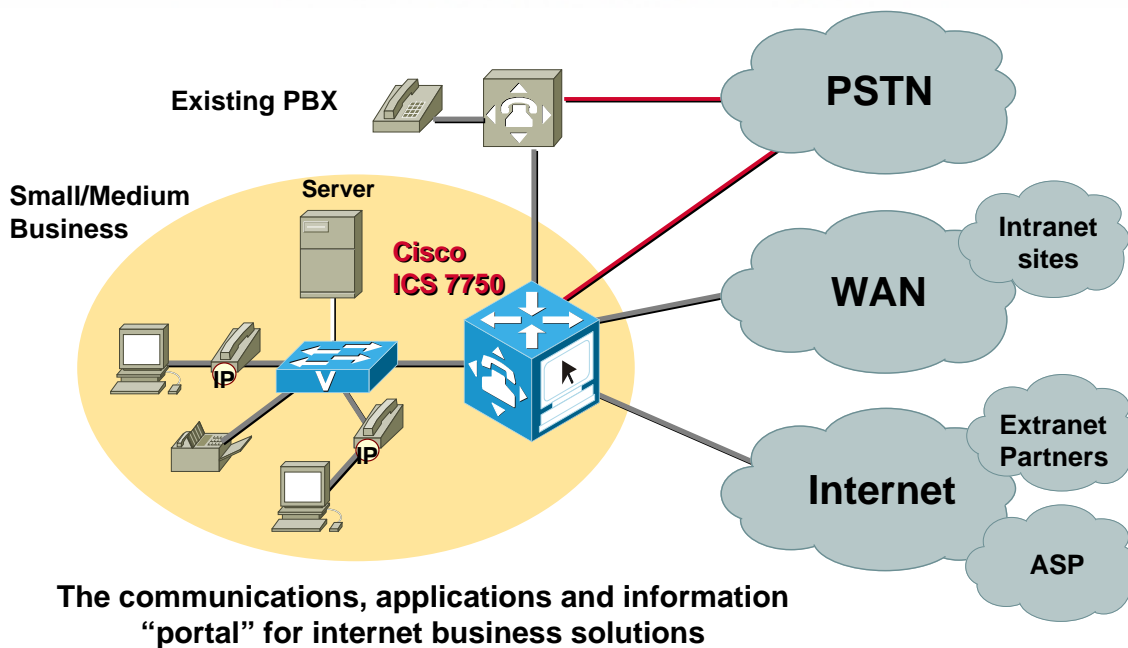
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Cisco ICS 7750 Solution for Branch Office and SMB



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Some Design Considerations

- Support for up to 214 devices per system
- Voicemail support from Cisco or 3rd party
- Switched network design for high availability
- Call manager cluster for redundancy and scaling
- Inline power to phone sets
- Single cable for phone and PC
- Quality of service from the desktop
- IP addressing plan

Cisco ICS 7750 Product Roadmap

Cisco ICS 7750	Q3 CY '00			
System Software Call Manager ICS System Mgr	Rel. 1.0	Rel 1.5	Re1 2.0	Rel 3.0
	Ver 3.0	Ver 3.0.2	Ver 3.1	Ver 3.1 or later
	Ver 1.0	Ver 1.5	Ver 2.0	Ver. 3.0
SPE	SPE 200	SPE 200	Faster SPE	same
Integrated Apps ISV Apps	External	VM , AA	TBD	TBD
		ISV apps	ISV apps	ISV apps
MRP	MRP 200	MRP 200	MRP 200	MRP 200
VIC support	FXO, FXS, E&M, T1 CAS	same	DID, E1 R2, E1/PRI, BRI, FXO-EU	FXO-M3
WIC support	1T, 2T, 2 A/S, BRI, T1, FT1	same	same	ADSL, G.703
New Functionality			8/16 FXS card, additional codecs	DSP farm
Theater	US, Canada	US, Canada	US, Canada, EMEA	APAC , EMEA

Cisco ICS 7750 Summary

- An integrated communications system:
 - Platform:** Converged business solution for IP data, voice, video and applications
 - Networks:** Multiservice LAN, WAN, PSTN, and legacy PBX connectivity
 - Applications:** Core voice applications and converged voice, data, and video applications
 - System Management:** Web-based tool manages entire system locally or remotely—voice, data networks, applications, common directory; works with CiscoView
 - Supports up to 150 users in typical configurations
 - Interoperates with other AVVID-based products
- Customer investment protection

For More Cisco ICS 7750 Information

- Attend other AVVID and Call Manager sessions at Networkers 2000
- www.cisco.com/warp/public/cc/cisco/mkt/iptel/7750/index.shtml



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