

INTRODUCING THE CISCO UNIFIED COMMUNICATIONS SYSTEM

Business Challenges Today

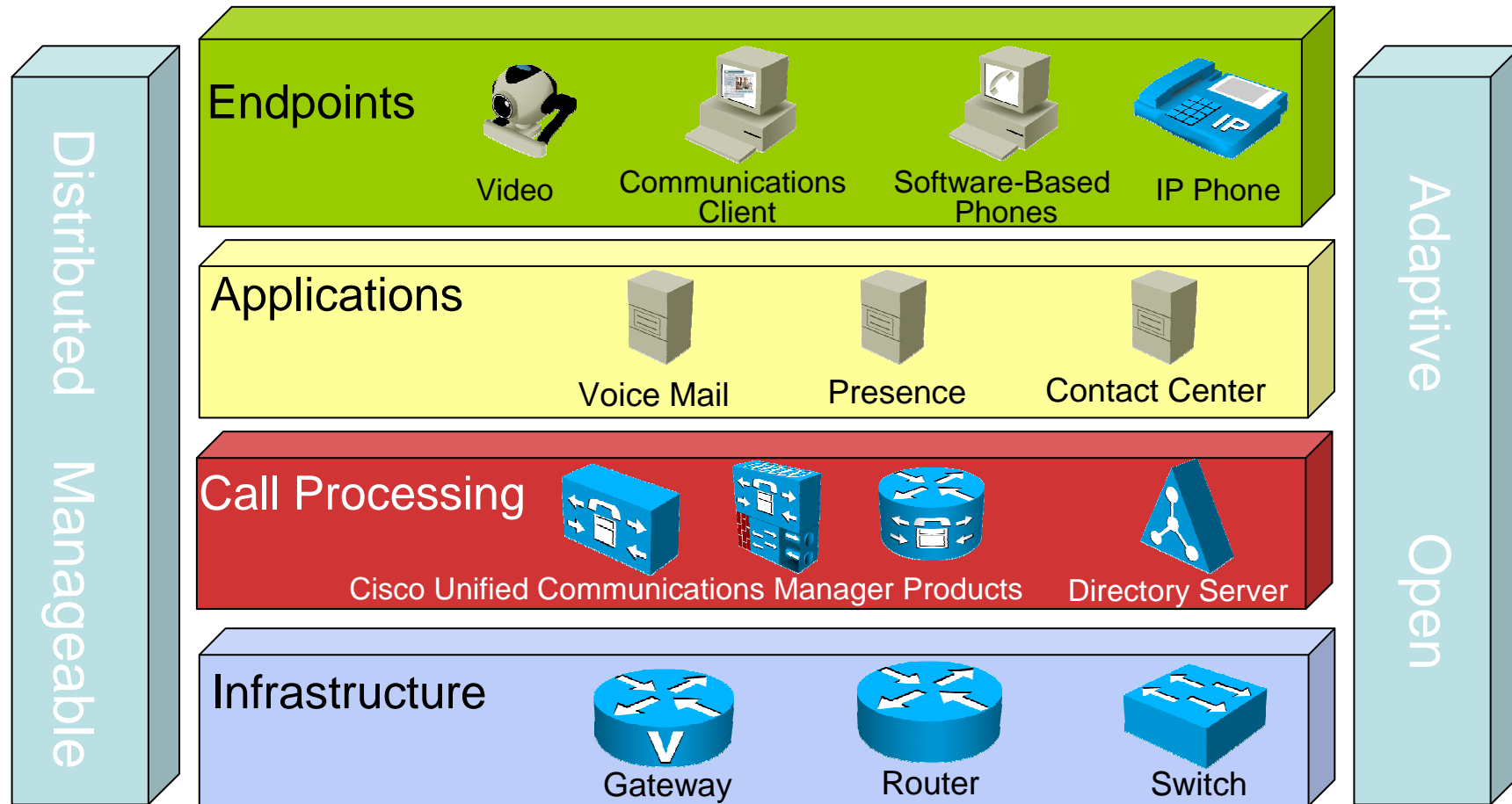
- Ever-changing complex business needs
- Teams that are not in the same physical location
- Telecommuting and mobile staff
- The need to lower costs and increase productivity
- The cost of supporting separate infrastructures for voice, video, and data
- The lack of flexibility with traditional solutions

Benefits of Cisco Unified Communications

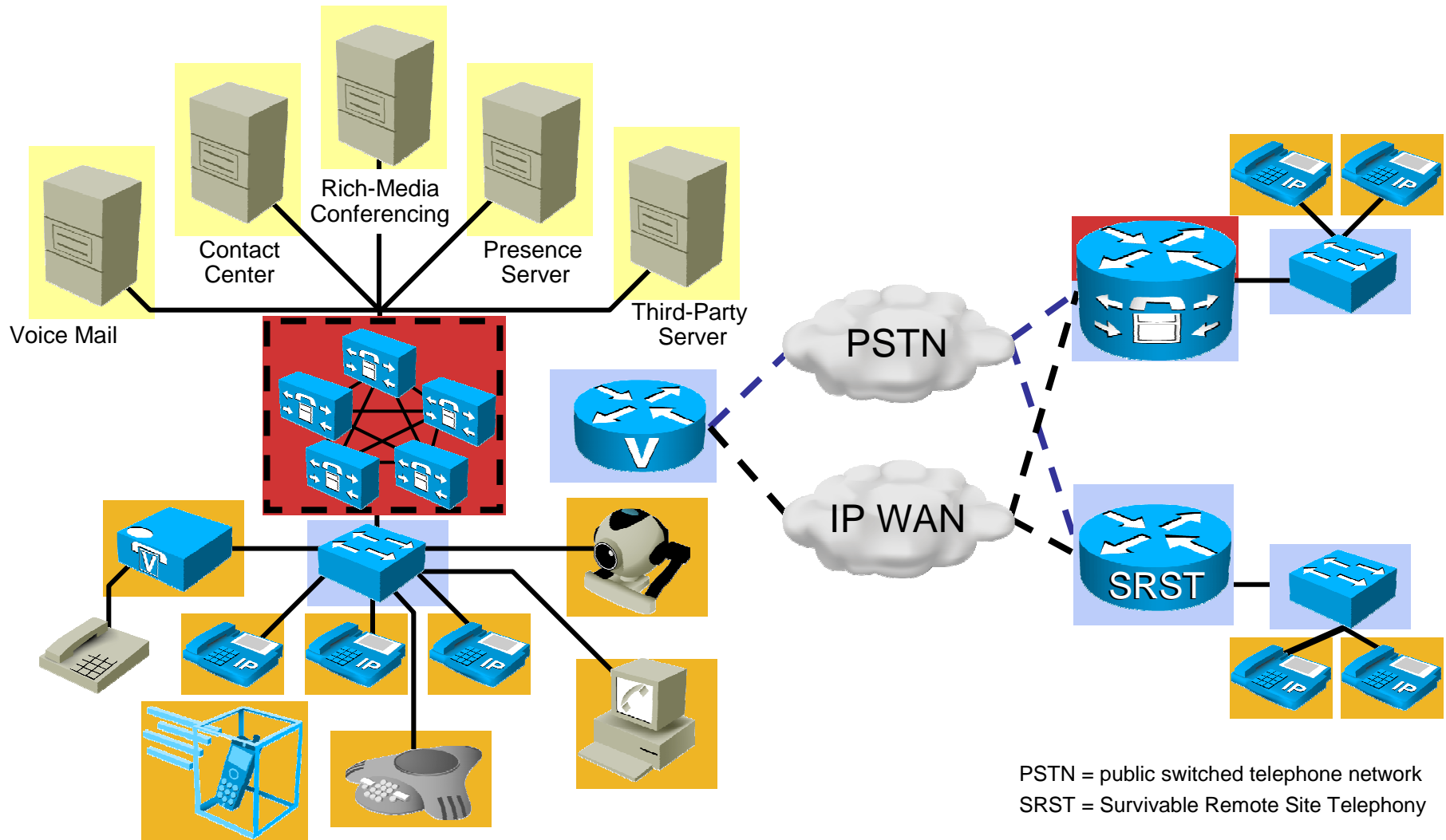
- Enhances the way every department within your organization does business
- Enables effective interactions with virtual teams all over the world
- Works on-the-go in real time as if you were everywhere at once
- Makes everyone more efficient and productive
- Reduces aggregate costs, which lowers total cost of ownership
- Increased business agility due to continuous innovation and quick adaptation to changes



Cisco Unified Communications Layers



Infrastructure



PSTN = public switched telephone network
SRST = Survivable Remote Site Telephony

Call Processing

Network Infrastructure	Wireless Routers Switches Unified Communications Applications Cisco Unity Express for Voicemail	Add network infrastructure as required Ability to add services: collaboration, messaging, customer contact, etc.		
		Mobility Services Presence Services Video Services	Presence Services Mobility Services Messaging Services Video Services	Mobility Services Presence Services Video Services
	Cisco Unified Communications Manager Express	Call Processing Services	Call Processing Services	Call Processing Services
	Up to 48 users	Up to 240 users	Up to 500 users	30,000 + users
Cisco Unified Communications Applications				
Call Processing				
Solution Components	Cisco Unified Communications 500 Series for Small Business	Cisco Integrated Services Routers	Cisco 7800 Series Media Convergence Servers	Cisco 7800 Series Media Convergence Servers
	Cisco Smart Business Communications System	Cisco Unified Communications Manager Express	Cisco Unified Communications Manager Business Edition	Cisco Unified Communications Manager

Platform

Call Processing—Cisco Smart Business Communications System

- Is composed of:
 - Cisco Unified Communications 500 for Small Business platform, which provides call processing
 - IP phones
 - Wireless access point (optional)
 - Cisco Unity Express, which provides voice mail and auto-attendant services
- Includes switching, basic VPN, and firewall capabilities
- Provides a simpler platform for easier training
- Is plug-and-play
- Includes many integrated ports such as:
 - IP phone station, analog trunks, digital trunks, SIP trunks, analog stations, MOH, and expansion



Call Processing—Cisco Unified Communications Manager Express

- IP telephony solution for 240 users or less integrated into Cisco Integrated Services Routers
- Full-featured solution for small business, enterprise branch office, or service provider-managed service
- Robust networking across sites using H.323 or SIP
- Voice mail and auto attendant with integrated Cisco Unity Express or Cisco Unity Unified Messaging
- PBX or key switch configuration
- Many options, including video telephony, teleworker support, Cisco IP Communicator, basic call center functions, SIP phone support, and more
- Centralized provisioning and fault reporting using Cisco Unified Provisioning Manager and Cisco Unified Operations Manager



Call Control—Cisco Unified Communications Manager

- Choice of operating system:
 - Windows-based servers
 - Linux-based appliance
- Call processing for up to 30,000 seats
- Signaling and device control
- Dial plan administration using a GUI
- Many phone features
- Directory services that can be standalone or integrated with an existing directory
- A standardized interface to external applications for expanded functionality



Endpoints

Commercial/Retail

Cisco Unified IP Phones:
7931G/7921G



Color Touch

Cisco Unified IP Phones:
7970G/7971G-GE/7975G



Mobility

Cisco Unified IP
Phones:
7921G/IPC



Video

Cisco Unified IP Phones:
7985G
Software: Cisco Unified
Video Advantage



Business Class

Cisco Unified IP Phones:
7940G/7960G/7941G/7961G



Conference

Cisco Unified IP Phones:
7936G/7937G



Advanced Media

Cisco Unified IP Phones:
7942G/7945G/7962G/7965G/7975G



Take advantage of continuous development in endpoints plus custom and off-the-shelf IP phone applications

CISCO UNIFIED COMMUNICATIONS APPLICATIONS

Cisco Messaging Choices

Products	Users	Messaging Type	Platform	TDM* PBX Integrated	Networking	Redundancy
Cisco Unity Express	Up to 250	Voice mail and integrated messaging	Router-based	No	Yes	No
Cisco Unity Connection	Up to 3000	Voice mail and integrated messaging	Server-based	Yes	No	No
Cisco Unity	7500 per server	Voice mail, integrated messaging, and unified messaging	Server-based	Yes	Yes	Yes

*TDM=time-division multiplexing

Cisco Unity

- Is a messaging platform for large enterprises and multisite deployments
- Provides voice mail, unified messaging, and integrated messaging options with speech access
- Is ideal for large multisite, networked deployments
- Provides powerful capabilities to ease migration to IP communications
- Has features that facilitate Octel and Nortel EOL system replacement
- Is a global solution with support for many languages



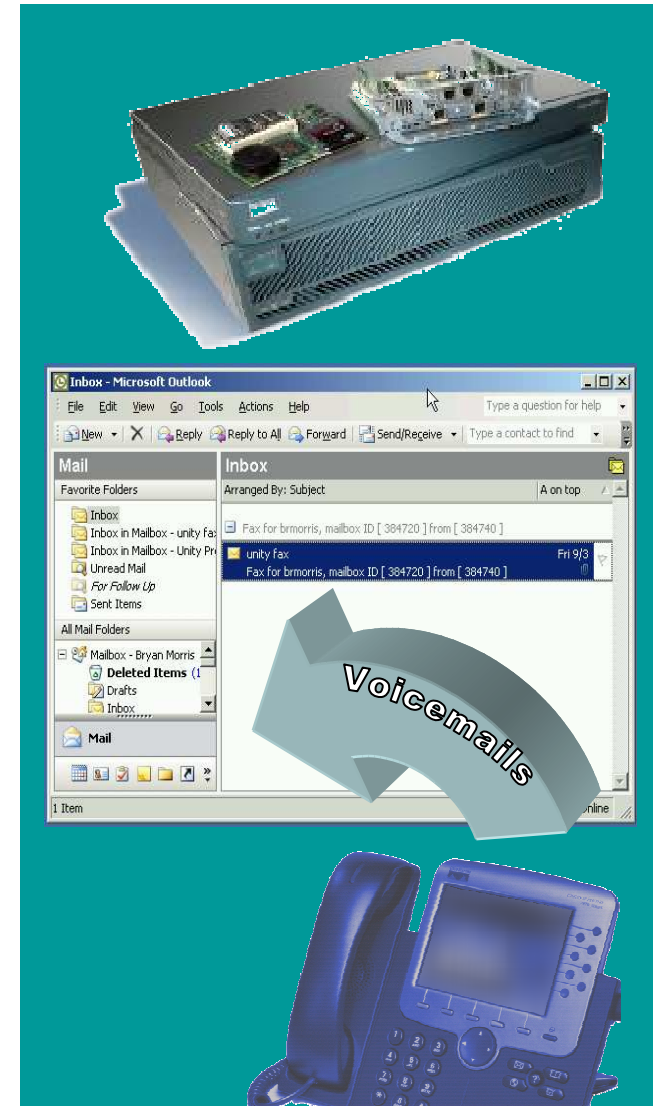
Cisco Unity Connection

- Voice and integrated messaging solution for medium-sized organizations
- Integrated messaging allows receipt of voice mail using an e-mail client
- For medium-sized deployments
- Many languages
- Powerful voice user interface:
 - Speech navigation for voice mail browsing
 - Speech-enabled directory dialing
 - Text-to-speech technology
- Personal call transfer rules:
 - Based on time of day, caller ID, and calendar
 - Forward calls to single number or series of numbers
 - Select which calls to accept in real time



Cisco Unity Express

- For small deployments
- Rich features and functionality
 - IMAP compliant e-mail integration
 - “Browse” voice mailbox using Cisco IP Phone display
- IVR capabilities for efficient call routing and an improved customer experience
- Support for fax messages
- Easy to configure, deploy, and manage with Cisco Unified Communications Manager, Cisco Unity, and Cisco Unified Communications Manager Express
- Support for many languages



Auto-Attendants

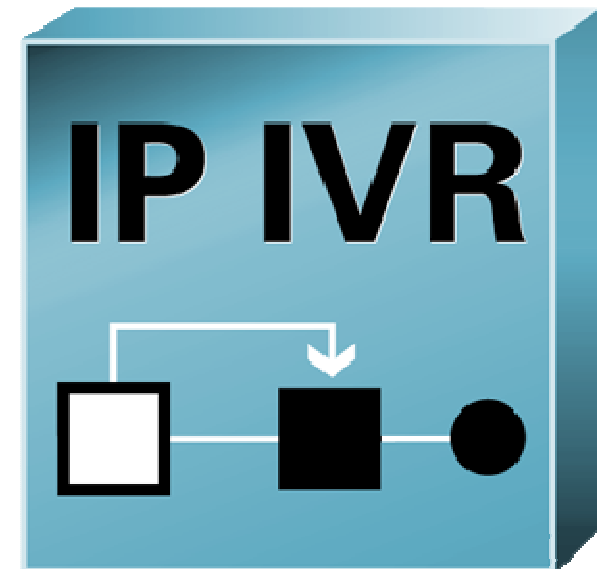
- Auto-attendants allow callers to self-route and provide basic treatment for callers.
 - Replaces the operator
 - Provides the following:
 - Directory functions
 - Self-routing to an extension
 - Basic menus
 - Can implement informational applications
- Cisco Unity has a built-in auto-attendant.
 - Provides a web interface to build auto-attendant functionality
- Cisco Unity Express has a built-in auto-attendant.



Example: A caller hears “Thank you for calling ACME. If you know the extension of the party you are trying to reach, you may enter it at any time. Press 1 for sales, 2 for support, 3 for a directory of users, or press 0 for an operator.”

Cisco IP IVR Overview

- Cisco IP IVR provides advanced call treatment and has the following characteristics:
 - Is an IP-based IVR
 - Provides self-service applications
 - Can provide call treatment and queuing for call center calls
 - Is fully integrated with Cisco Unified Communications Manager and Cisco Unified Contact Center Enterprise
 - Supports multiple languages
 - Provides historical reporting



Example: A caller hears “Thank you for calling telephone banking. Please enter your account number followed by your PIN. ...Your account balance is \$37.23.”

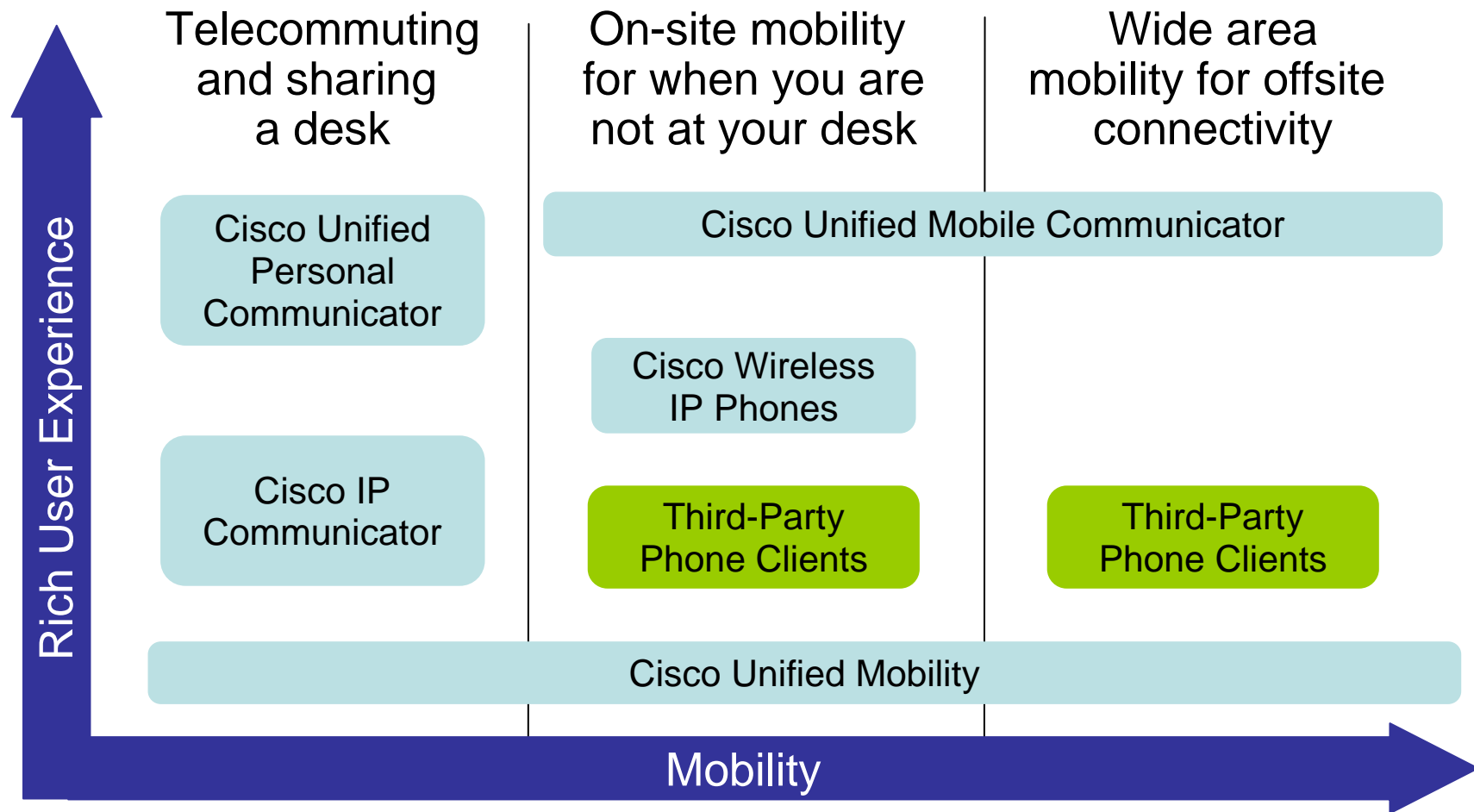
Cisco Unified Contact Center Express

- Contact center in a box:
 - ACD
 - Integrated IVR functions
 - Screen pop-ups to agents
 - Outbound dialing capabilities
- Entire solution on one server
- Virtual contact center
- Support for Cisco Unified E-mail Interaction Manager and Cisco Unified Web Interaction Manager



Example: “Thank you for calling ACME airlines. All agents are currently helping other customers. Your call will be answered in the order it was received.”

Cisco Unified Communications Mobile Solutions



Cisco Unified Personal Communicator

- Increases productivity and reduces phone tag with presence indicators
- Streamlines communication methods for more effective interactions:
 - Instant messaging, voice, video, and web conferencing
- Provides an intuitive user interface for Mac and PC
- Enhances collaboration using instant messaging
- Expands access with Outlook toolbar
- Allows you to take control of your “reachability”



Cisco Unified Mobile Communicator

- Has an intuitive, common user experience across different mobile handsets
- Extends unified communications to mobile phones and smart phones
- Supports BlackBerry, Symbian OS, and Windows mobile handsets (phased)
- Supports multiple mobile operators and networks



Cisco IP Communicator

- Uses a PC to deliver advanced Cisco Unified IP phone telephony capabilities
- Provides access to phone extensions and services outside of the office



Cisco Unified Video Advantage

- Adds cost-effective video to Cisco Unified IP phones, including Cisco IP Communicator
- Provides a familiar user experience for voice and video using phone numbers
- Combines software, camera, and an IP phone



Presence

- “Presence” is real-time information about the willingness and availability of a person to communicate.
- Examples of presence in action today are:
 - Instant message “Buddy List” status indication
 - “Busy” tone on traditional phones
 - Cisco Contact Center Agent status
- Business applications are enhanced with presence and location information, creating streamlined business processes.



Cisco Unified Presence

- Provides enhanced user-based presence capabilities through many client endpoints:
 - Cisco Unified Personal Communicator
 - Cisco Unified Mobile Communicator
 - Cisco Unified IP Phone Messenger
 - Microsoft Office Communicator
 - IBM Sametime Communicator
- Enables rapid presence application development
 - Masks the intricacies of presence and data collection from the presence applications
- Supports standards to facilitate greater application functionality and choice



Cisco TelePresence Meeting



- Creates a face-to-face experience regardless of the location of participants:
 - Life-size, high-definition video
 - High-quality audio
- The Cisco TelePresence Multipoint Switch extends the Cisco TelePresence experience:
 - Supports both point-to-point and multipoint meetings

**CISCO UNIFIED
COMMUNICATIONS
SOLUTIONS**

Outline

- Cisco Unified Communications Manager Express Overview
- Cisco Unified Communications Manager Overview
- Cisco Unity Connection Overview
- Cisco Unified Presence Overview

Cisco Unified Communications Manager Express Overview

Cisco Unified Communications Manager Express capabilities include:

- IP telephony
- Video telephony
- Support for up to 350 IP phones
- Conferencing
- Tcl* scripts
- Support for third-party applications
- Router-based architecture

* Tcl = Tool Command Language

Cisco Unified Communications Manager Express Supported Platforms

Cisco platforms that support Cisco Unified Communications Manager Express Version 8.0 are:

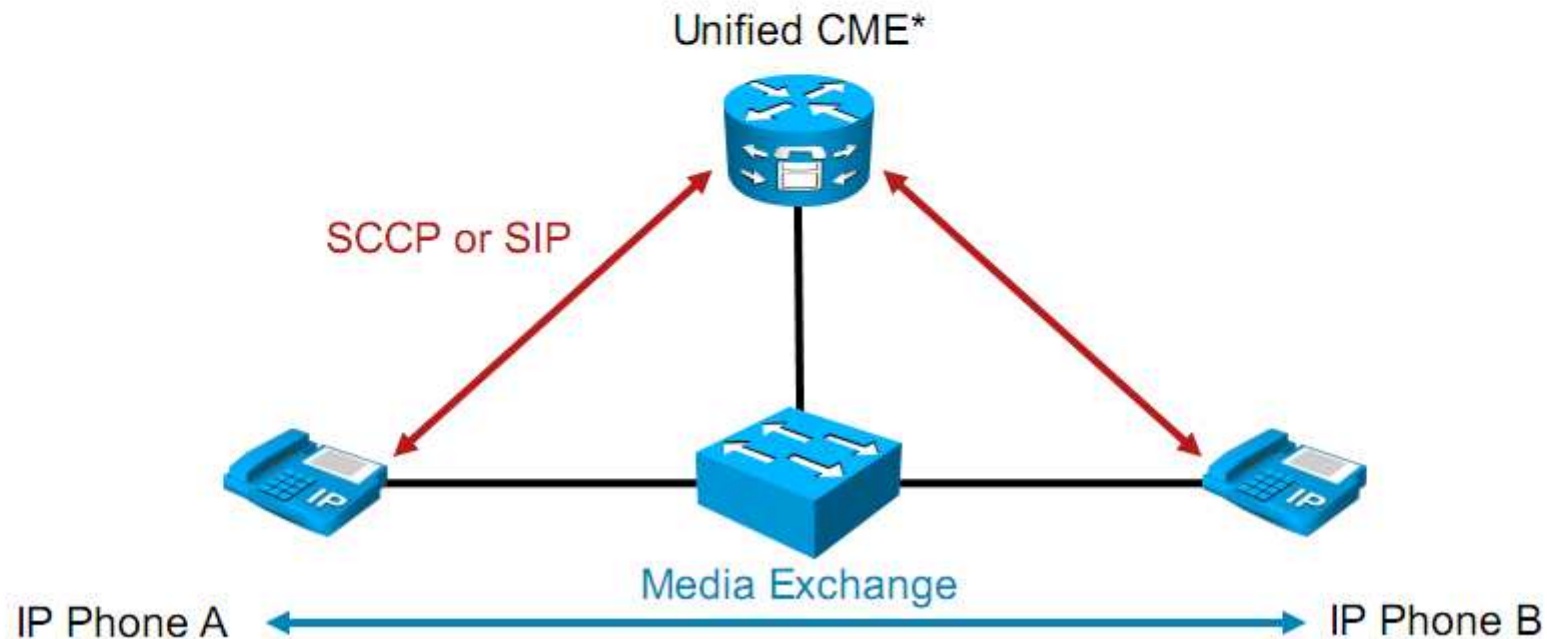
Platform	Max. Phones	SM* Slots	Max. T1/E1 Ports
Cisco 2901 ISR G2	35	N/A	8
Cisco 2911 ISR G2	50	1	12
Cisco 2921 ISR G2	100	1	12
Cisco 2951 ISR G2	150	2	16
Cisco 3925 ISR G2	250	2	16
Cisco 3945 ISR G2	350	4	24

- Cisco multiservice routers and Integrated Service Routers are supported.

* SM = Service Module

Cisco Unified Communications Manager Express Data Streams

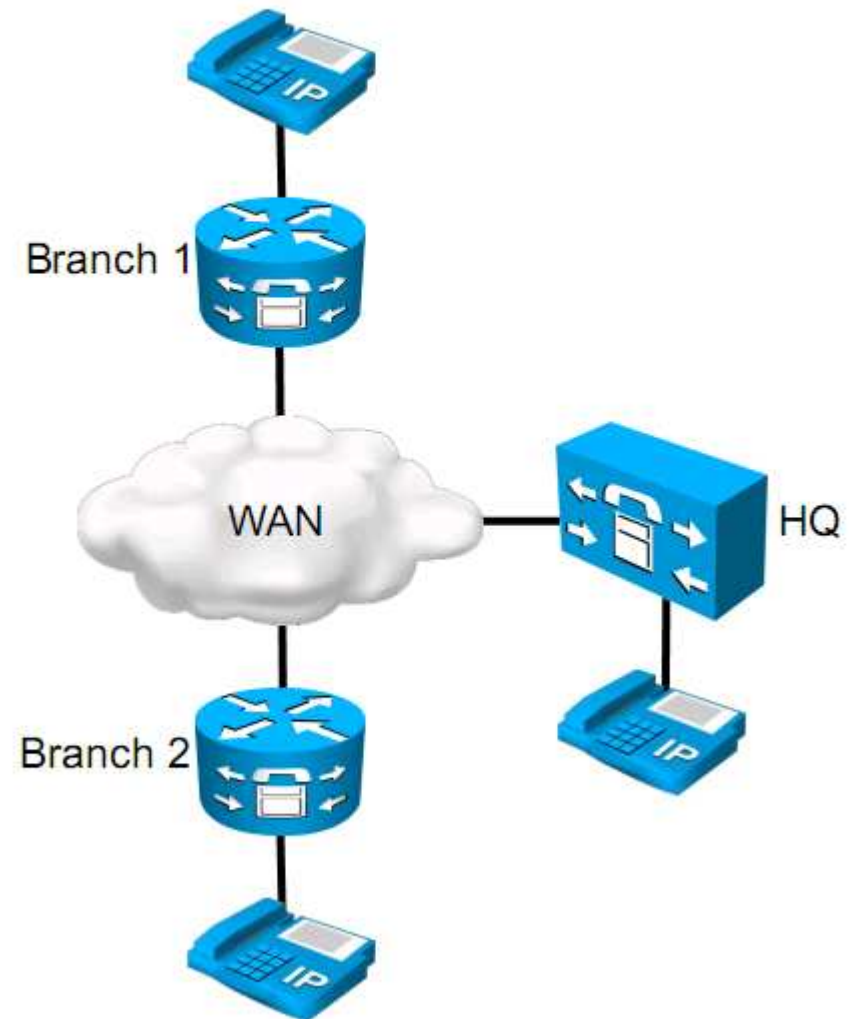
- Signaling and Session Control flows between Cisco Unified Communications Manager Express and the IP phone.
- Cisco Unified Communications Manager Express instructs the IP phones to listen on a port.
- The audio stream flows directly between the IP phones.



* Unified CME = Cisco Unified Communications Manager Express

Cisco Unified Communications Manager Express Key Features

- Call processing
- Signaling and device control
- Configuration via CLI or GUI
- Directory services
- CTI support
- Single or multisite deployments
- Internetworking with Cisco Unified Communications Manager
- Remote teleworker



Cisco Unity Express Overview

The main capabilities of Cisco Unity Express are:

- Provides voice mail features
- Auto-attendant capabilities
- IVR* support
- Support for fax messages
- Survival remote site voice mail

* IVR = Interactive Voice Response

Cisco Unity Express Modules

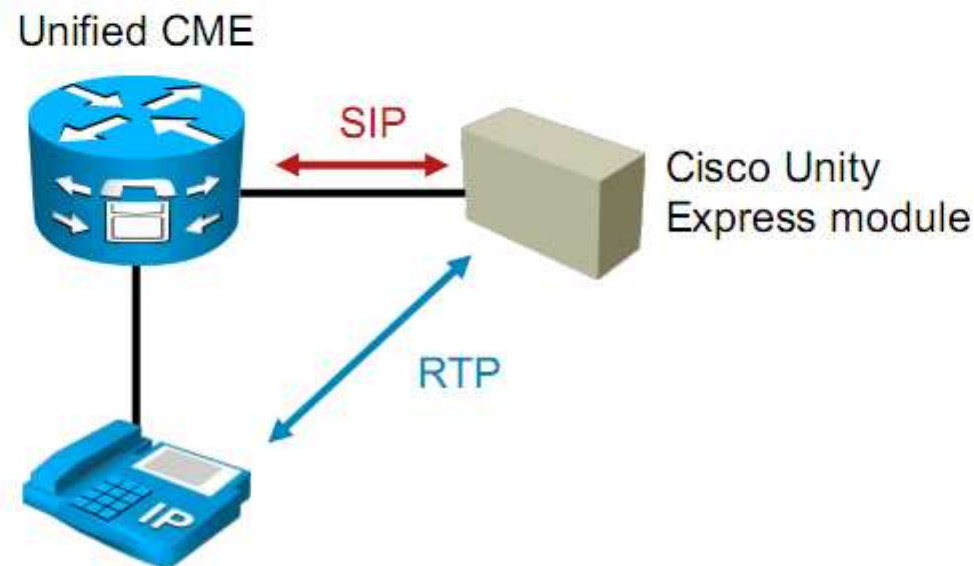
Platform	Hardware	Bundled Ports	Max. Ports	Max. IVR Sessions	Max. Mailboxes	Storage (hours)
Cisco 2800 / 3800 Series	AIM2-CUE-K9	6	6	6	65	14
	NME-CUE	8	24	24	275	300
Cisco 2900 / 3900 Series	ISM-SRE-300-K9	2	10	10	100	60
	SM-SRE-700-K9	4	32	32	300	600

The number of maximum mailboxes, ports, and IVR sessions depends on Cisco Unity Express stock-keeping units (SKU) license files.



Cisco Unity Express Data Streams

- The signaling and session control signal flows between the Unified CME* and the Cisco Unity Express module (back-to-back Ethernet).
- The audio stream flows between the IP phone and the Cisco Unity Express module.
- Cisco Unity Express supports only G.711 audio streams. Transcoders are necessary for G729 calls.



* Unified CME = Cisco Unified Communications Manager Express

Cisco Unified Communications Manager Overview

The capabilities of Cisco Unified Communications Manager are:

- Support for audio and video telephony
- Up to 30,000 phones supported per cluster
- Runs as an appliance with a hardened operating system
- Based on IBM Informix database
- Disaster Recovery System (DRS) for backup-and-restore mechanism
- Cisco Unified Serviceability and Cisco RTMT offer management and troubleshooting functionality

Cisco Unified Communications Manager Hardware Requirements

Cisco Unified Communications Manager can be installed on:

- Cisco MCS 7800 servers
- Cisco Unified Computing System
- Or on approved third-party servers

The following general server hardware is required for the installation:

- 2 GHz Processor
- 2 GB RAM
- 72 GB Hard Disk



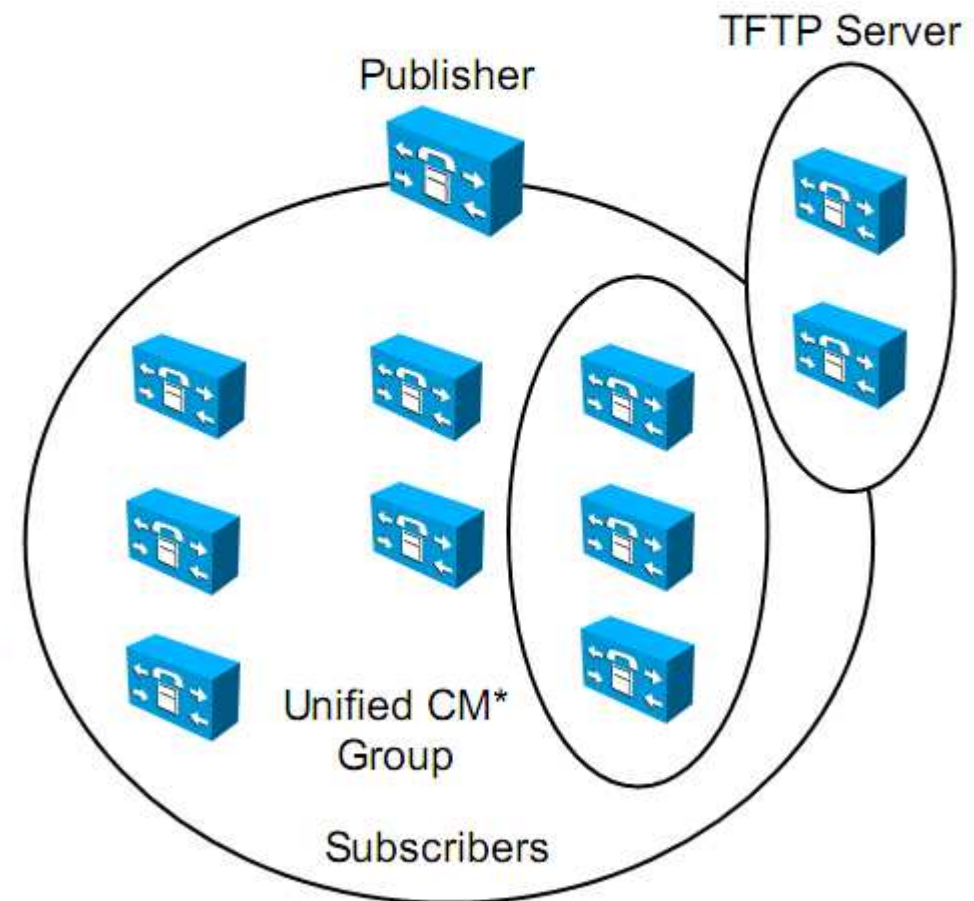
Overview of Cisco Unified Computing System Solution

Cisco Unified Communications Applications version 8.0 is supported in a virtual (VMware) environment:

- In a VMware installation, Cisco Unified Computing System hardware must be used
- VMware ESXi 4.0 with a SAN is supported
- Specific VMware configurations and support
- Cisco Unified Communications Manager migration can be done via the Disaster Recovery Framework (DRF)
- Mixed cluster with physical and virtual servers is supported
- License key uses a virtual MAC address

Cisco Unified Communications Manager High Availability

- Up to 30,000 IP phones in a cluster
- Up to 8 subscribers running the Cisco CallManager Service
- Up to 3 subscribers running in a Unified CM* Group
- Up to 2 servers running the TFTP service
- Additional servers can be used for media resources, etc.

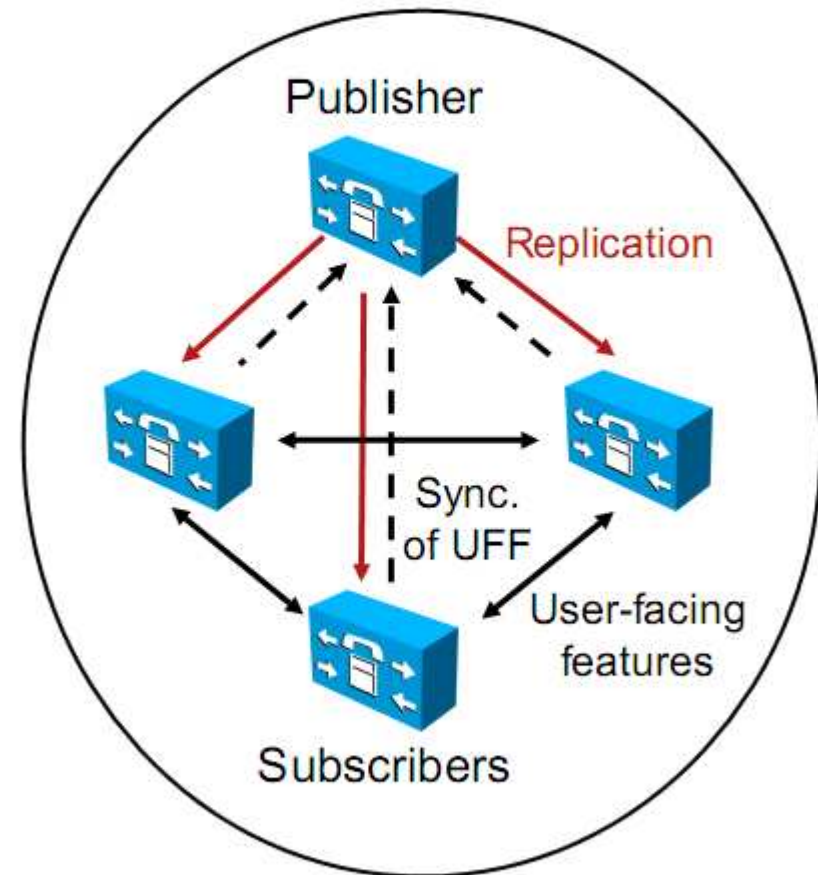


* Unified CM = Cisco Unified Communications Manager

Database Replication and User-Facing Features

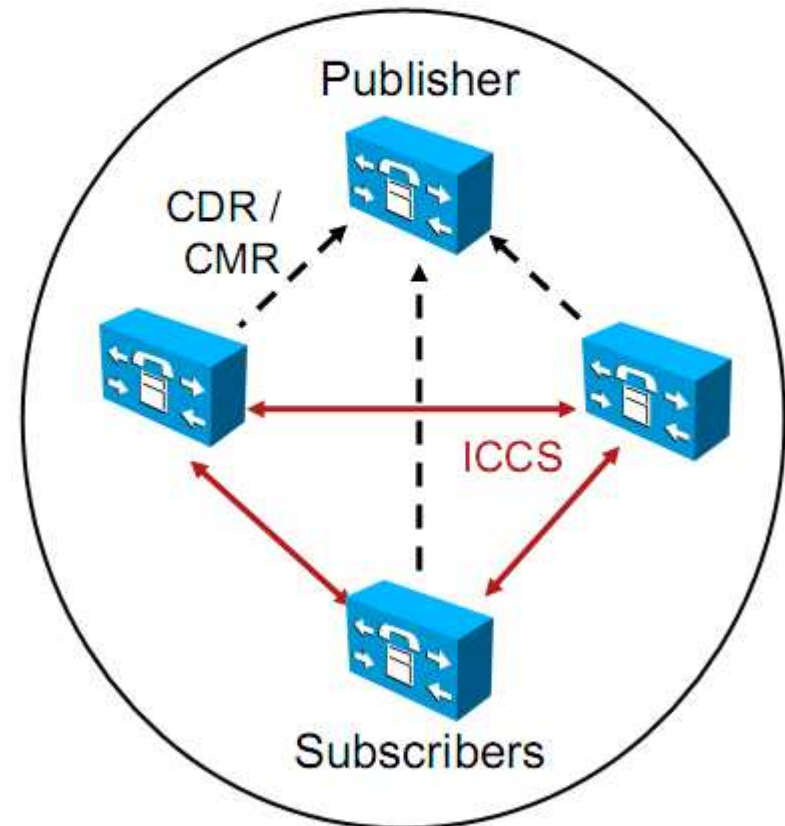
IBM Informix Database:

- Owned by the publisher.
- One-way replication.
- All changes are made on the publisher.
- If the publisher is down
 - User-facing features (UFF), such as call forwarding, etc., are changed on the active subscriber.
 - Changes to the subscriber are replicated to the other servers in the cluster.
- When the publisher is back, the subscriber synchronizes the changes to the publisher.



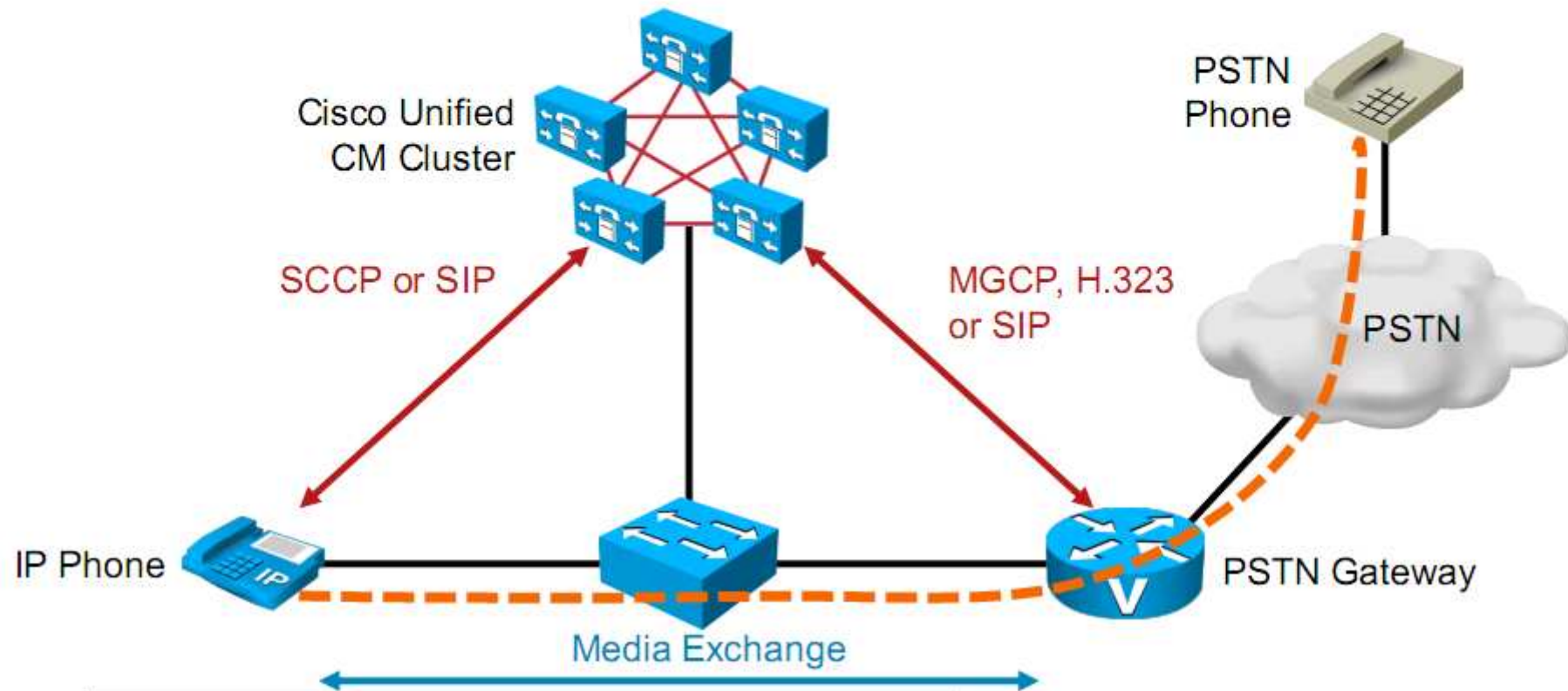
Intracuster Communication

- Intracuster Communication Signaling (ICCS) replicates run-time data like registration of devices to all nodes running the Cisco CallManager Service.
- Call Detail Records (CDRs) and Call Management Records (CMRs) are collected by the subscribers.
 - The data is periodically uploaded to the publisher.
 - Billing system connects only to the publisher.



Cisco Unified Communications Manager Data Streams

- Signaling and session control flows between Cisco Unified CM* and the IP phone and between Cisco Unified CM and the PSTN gateway.
- The audio stream is terminated by the PSTN gateway.



* Unified CM = Cisco Unified Communications Manager

Cisco Unified Communications Manager

Key Features

Cisco Unified Communications Manager offers a wide range of features:

- Call processing
- Signaling and device control
- High scalability
- Configuration via GUI
- Directory services that can be stand-alone or integrated with an existing directory
- CTI support
- Phone application support (XML)

Cisco Unity Connection Overview

Cisco Unity Connection is a feature-rich voice messaging platform:

- Cisco appliance- or Cisco Unified Computing System-based installation
- Up to 20,000 users per server
- Access voice messages from anywhere
- Integration with LDAP*
- Support for Microsoft Exchange
- Voice Profile for Internet Mail (VPIM)
- Supports Survival Remote Site Voicemail

* LDAP = Lightweight Directory Access Protocol

Cisco Voice Messaging Systems Overview

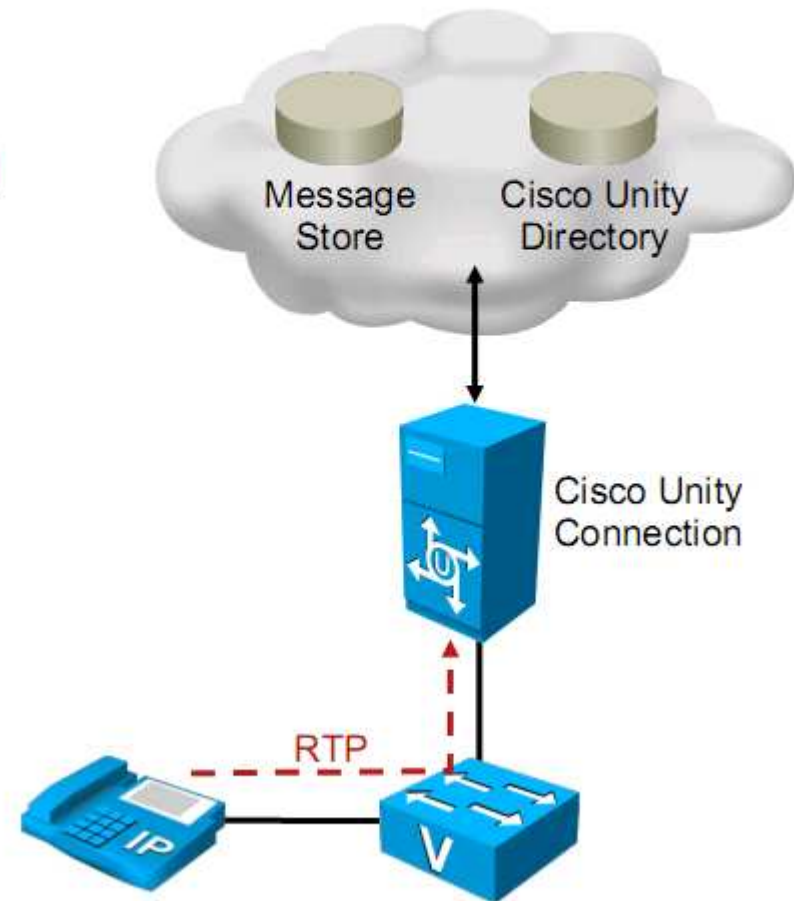
- Cisco Unity Connection can run co-resident on Cisco Unified Communications Manager Business Edition.
- All voice-mail systems support VPIM, which allows different deployments to connect seamlessly.

	Max. Mailboxes	Platform	Redundancy
Cisco Unity Express	300	Router	No
Unified CM* Business Edition	500	Appliance	No
Cisco Unity Connection	20,000 per Server	Appliance	Active / Active
Cisco Unity	15,000 per Server	Windows Server	Active / Passive

* Unified CM = Cisco Unified Communications Manager

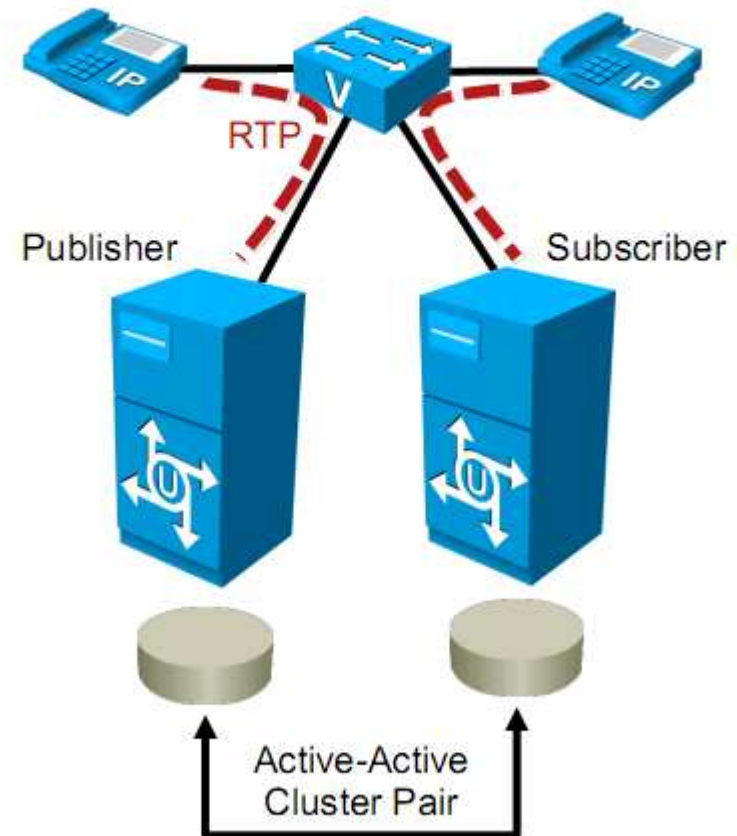
Cisco Unity Connection Architecture

- Cisco Unity Connection stores messages locally in its own file system.
- Cisco Unity Connection uses the IBM Informix database for configuration data.
- Audio stream for voice messages flows between the caller and the Cisco Unity Connection system.



Cisco Unity Connection High Availability

- Cisco Unity Connection supports a two-server active-active pair for high availability.
- Both servers accept audio calls, HTTP, and IMAP* requests.
- Role separation is consistent with the Cisco Unified Communications Manager clustering scheme.
- One server is designated as the primary node, which “owns” the database and message store.
- Secondary node subscribes to database and message store services from publisher.



* IMAP = Internet Message Access Protocol

Cisco Unified Presence Overview

The capabilities of Cisco Unified Presence are:

- Presence awareness
- Up to 15,000 users per cluster
- Enterprise Instant Messaging
- Interdomain federation with SIP or XMPP*
- Peer-to-peer file transfer
- Message compliance
- Secure messaging
- Cisco Unified Mobility Advantage integration

*XMPP = Extensible Messaging and Presence Protocol

Cisco Unified Personal Communicator Overview

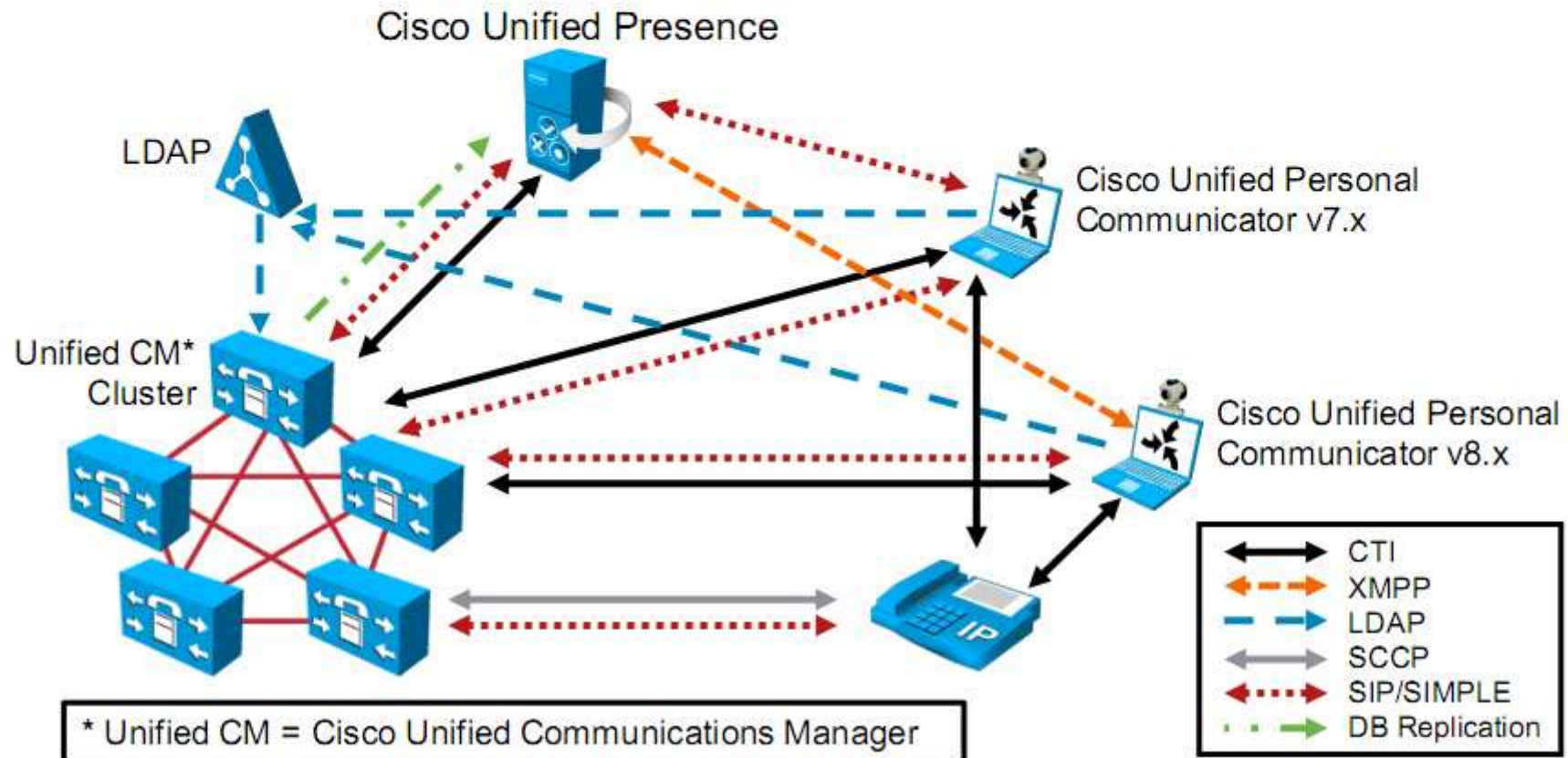
The Cisco Unified Personal Communicator characteristics are:

- Based on Cisco Unified Client Services Framework (CSF)
- Instant messaging support for point-to-point chat, multiuser chat, persistent chat
- Voice and video support
- Web conferencing via Cisco Meeting Place and Cisco WebEx
- Integration with voice-mail systems and visual voice-mail functionality
- LDAP support for enhanced user information



Cisco Unified Presence Deployment

- LDAP authentication, user search, and name resolution from LDAP server.
- SIP connection to Cisco Unified Communications Manager cluster to receive presence status (for example, phone on- and off-hook status).



OVERVIEW OF ADMINISTRATOR END-USER INTERFACES

**CISCO UNIFIED
COMMUNICATIONS MANAGER
ADMINISTRATOR INTERFACES**

Cisco Unified Communications Manager Web Interface

- Login to Cisco Unified CM Administration: <https://<Node-IP>/ccmadmin>
- Use Navigation box to switch between applications



- Enter username and password
- After logging in to the Cisco Unified CM Administration, the following GUI opens



Cisco Unified Communications Manager Serviceability

Allows administrators to:

- Configure alarms and traces
- Configure CDR disk storage and external billing servers
- Activate, deactivate, start, stop, and restart network and feature services
- Configure SNMP settings
- Configure serviceability reports



Cisco Unified Communications Manager Services

- Network Services:
 - Required for the Cisco Unified Communications Manager system to function; for example, Database, or Platform Services
 - Cannot be activated or deactivated
- Feature Services:
 - Enable certain Cisco Unified Communications Manager application features; for example, Cisco CallManager or Cisco TFTP service
 - Must be activated manually

Platform Services		
	Service Name	Status
<input type="radio"/>	A Cisco DB	Running
<input type="radio"/>	A Cisco DB Replicator	Running
<input type="radio"/>	Cisco Tomcat	Running
<input type="radio"/>	SNMP Master Agent	Running
<input type="radio"/>	MIB2 Agent	
<input type="radio"/>	Host Resources Agent	
<input type="radio"/>	Native Agent Adapter	
<input type="radio"/>	System Application Agent	
<input type="radio"/>	Cisco CDP Agent	
<input type="radio"/>	Cisco Syslog Agent	
<input type="radio"/>	Cisco Certificate Expiry Monitor	
<input type="radio"/>	Cisco Certificate Change Notification	
<input type="radio"/>	Cisco License Manager	

Network Services

Feature Services

CM Services			
	Service Name	Status	Activation Status
<input type="radio"/>	Cisco CallManager	Started	Activated
<input type="radio"/>	Cisco Tftp	Started	Activated
<input type="radio"/>	Cisco Messaging Interface	Not Running	Deactivated
<input type="radio"/>	Cisco Unified Mobile Voice Access Service	Started	Activated
<input type="radio"/>	Cisco IP Voice Media Streaming App	Started	Activated
<input type="radio"/>	Cisco CTIManager	Started	Activated
<input type="radio"/>	Cisco Extension Mobility	Started	Activated
<input type="radio"/>	Cisco Dialed Number Analyzer	Started	Activated
<input type="radio"/>	Cisco DHCP Monitor Service	Started	Activated

Cisco Unified Communications Manager Operating System

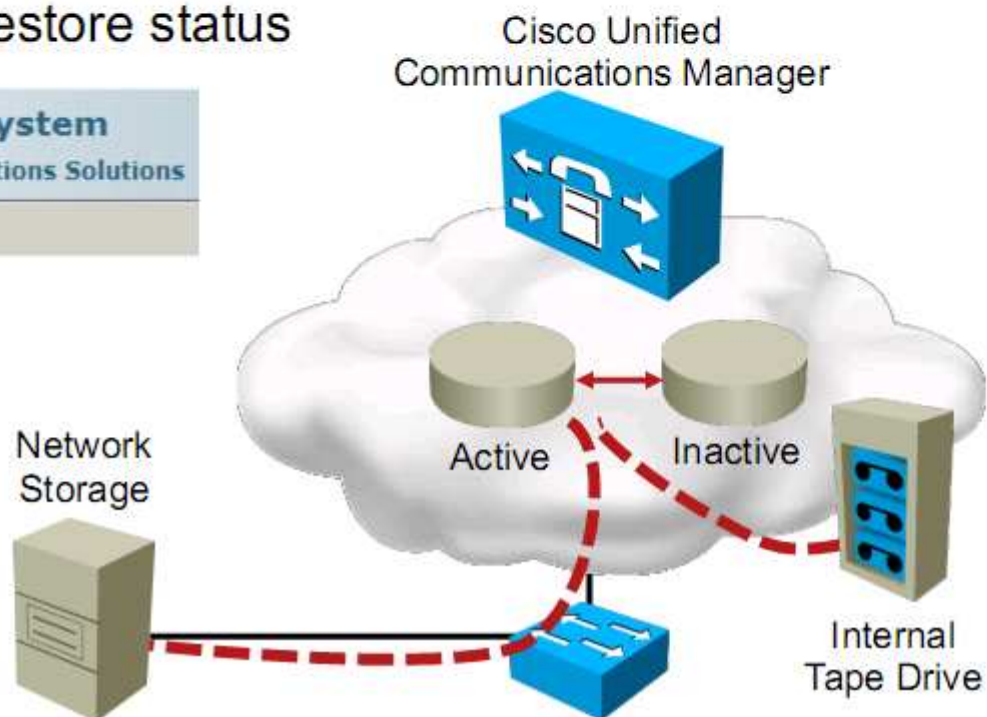
Allows configuration and management of the Cisco Unified Communications Manager operating system, for example:

- Check software and hardware status.
- Upgrade system software and install options.
- View or update IP address.
- Manage server security, including IPsec and certificates.
- Ping other network devices.
- Manage remote support accounts.



Disaster Recovery System

- Provides a user interface for backup and restore tasks
- Supports full cluster backups
- Supports ad hoc and scheduled backup jobs
- Provides a restore wizard with a full restore history
- Monitors the current restore status



Cisco Unified Reporting

Cisco Unified Reporting performs the following tasks:

- Generate, run, and download system reports
- Analyze configuration mismatches

The screenshot shows the Cisco Unified Reporting web interface. At the top, there is a navigation bar with 'System Reports' and 'Help'. Below this is a sidebar menu with various report categories like 'Report Descriptions', 'Unified CM Cluster Overview', 'Unified CM Data Summary', etc. The main content area displays a message: 'OK: Report opened successfully.' followed by the report title 'Unified CM Device Counts Summary'. Below the title, there are icons for report actions (print, download, refresh). The report description states: 'Provides a list of device counts by model. Created on Fri Jan 29 17:10:54 CET 2010'. A section titled 'Unified CM Cluster Name' explains that it lists the cluster name and publisher server name/IP, with a table showing 'HH-CM-2-Cluster' and 'hh-cm-2'. Finally, a 'Summary of Device Counts' section contains a table with columns for Device, Protocol, and Count.

Device	Protocol	Count
Analog Phone	SCCP	1
CTI Port	SCCP	93
CTI Route Point	SCCP	24
Cisco 12 S	SCCP	1
Cisco 3911	SIP	2
Cisco 6921	SCCP	1

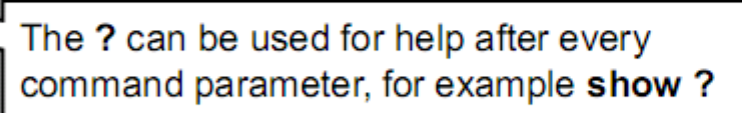
Access the CLI

- To access the command-line interface, use the administrator username and password configured during installation.
- The CLI can be used for network connectivity validation and troubleshooting.

Access to the CLI through SSH only.

```
admin: ?
  delete*
  file*
  help
  quit
  run*
  set*
  show*
  utils*

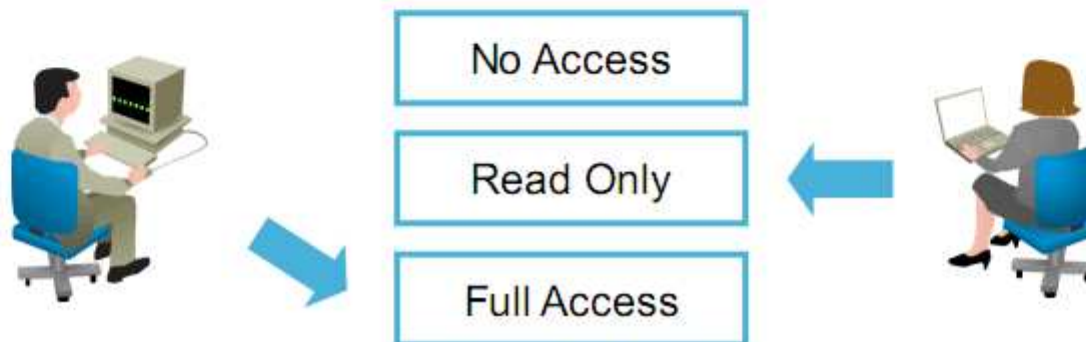
admin: utils service restart <ServiceName>
```



User Management: Roles

Role characteristics:

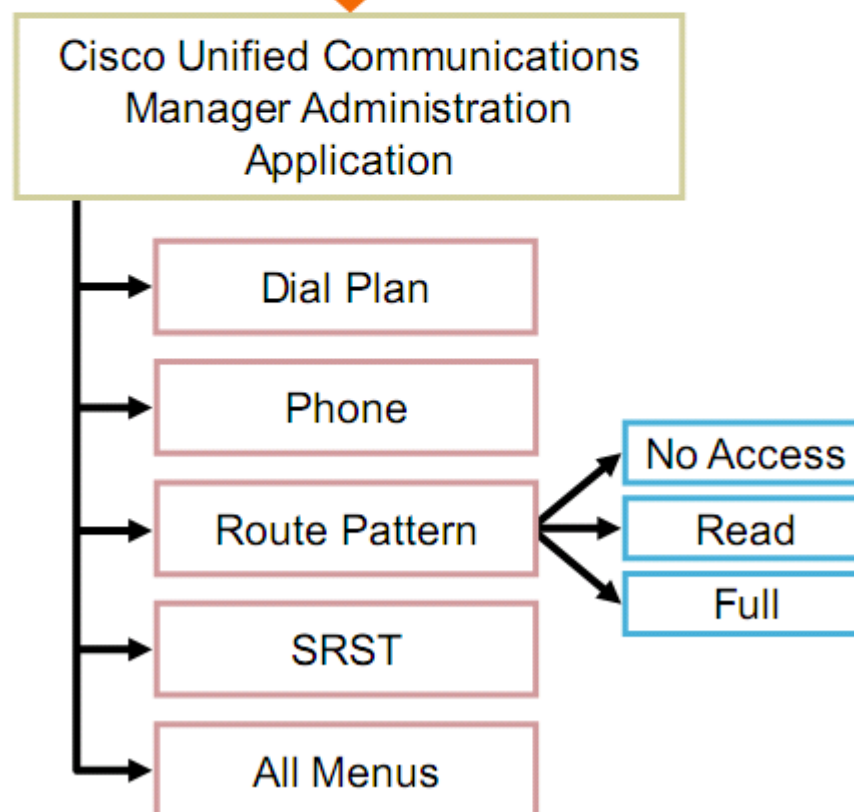
- Configure end users and application users with different privilege levels:
 - No access
 - Read only (view)
 - Full access (view and modify)
- Roles comprise groups of resources (on a menu basis) for an application:
 - Default standard roles (CCM end users, CCM admin users, etc.)
 - Custom roles



Custom Roles

Custom Roles can be defined on a menu basis for applications:

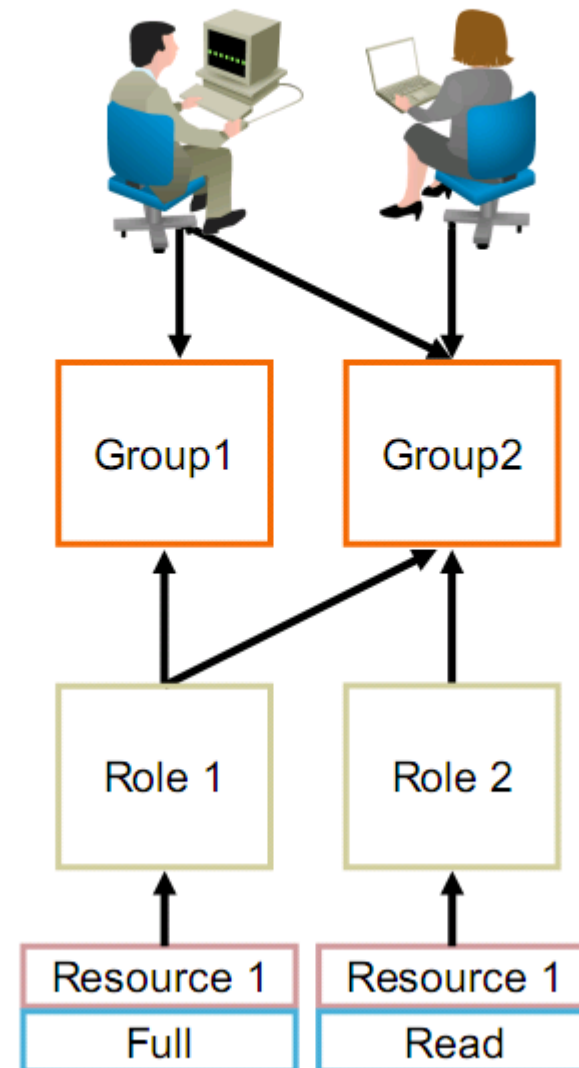
- Cisco Unified Communications Manager Administration
- Cisco Unified Communications Manager Serviceability
- Cisco Computer Telephone Interface
- Cisco Unified Communications Manager AXL Database
- Cisco Extension Mobility
- Cisco Unified Communications Manager End User



User Management: Group

Group characteristics:

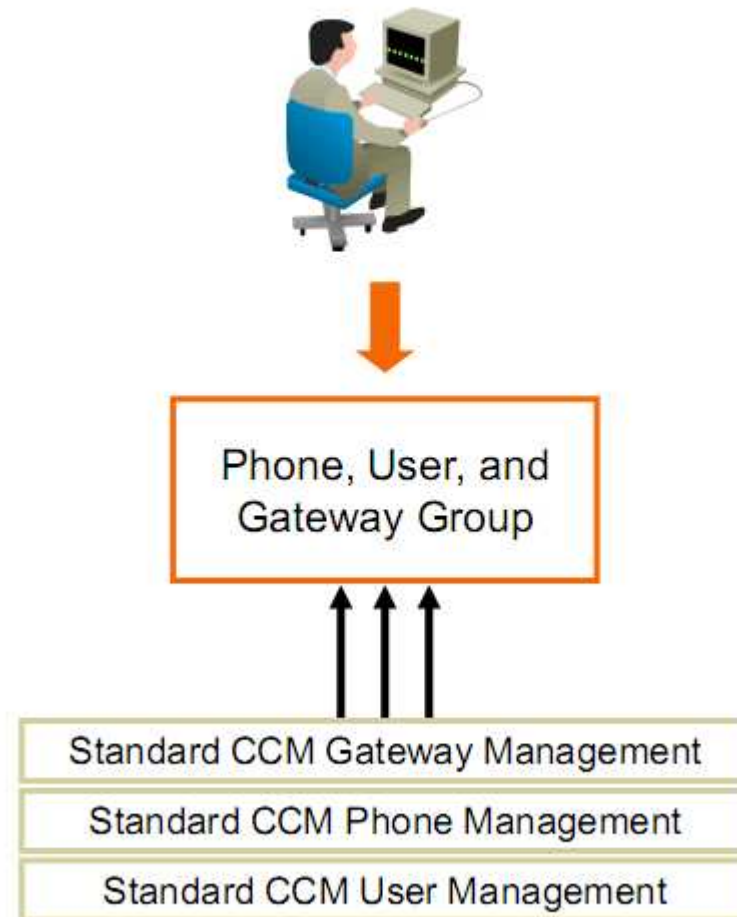
- Comprise lists of application users and end users
- Add a user group first
- Add users to a user group
- Assign roles to a user group
- Users may belong to multiple user groups
- User management parameter determines the effective privilege of the user
- Default is **maximum privilege** level



Design Example with Default Roles

Design access rights with default standard roles:

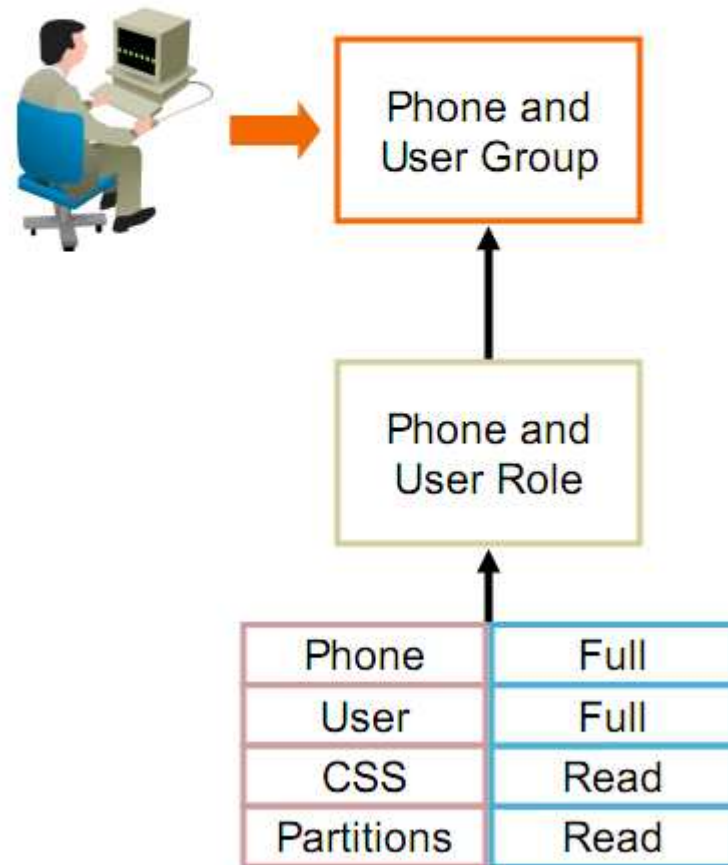
- Administrator can configure
 - Phones
 - Users
 - Gateways
- Administrator has no access to the other menus
- Create a new group and assign the relevant default roles.



Design Example with Custom Roles

Design access rights with custom roles:

- Administrator can configure:
 - Phones
 - Users
- Administrator can view:
 - Calling search spaces
 - Partitions
- Administrator has no access to the other menus
- Create a new role, specify the resources, and assign the custom role to the group.



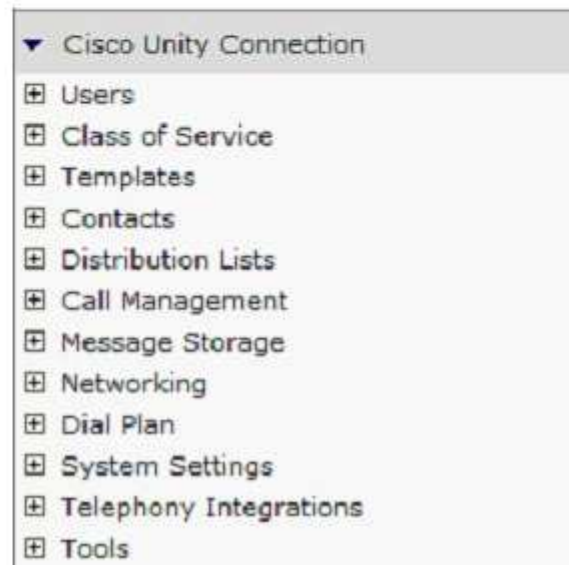
CISCO UNITY CONNECTION ADMINISTRATOR INTERFACES

Access the Web Interface

- Cisco Unity Connection Administration: <https://<Node-IP>/cuadmin>



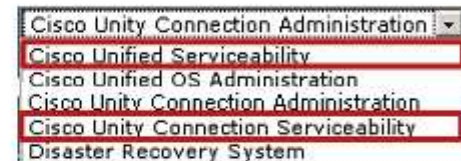
- After logging in to the Cisco Unity Connection Administration the following GUI appears:



Cisco Unity Connection Serviceability

Cisco Unity Connection services are separated as follows:

- Cisco Unified Serviceability provides network and feature services; for example, Cisco Tomcat for web server feature.
- Cisco Unity Connection Serviceability provides services for database and optional feature activation; for example, Connection License Server for license provisioning.



Cisco Unified Serviceability Network Services

Platform Services		
	Service Name	Status
<input type="radio"/>	A Cisco DB	Running
<input type="radio"/>	A Cisco DB Replicator	Running
<input type="radio"/>	Cisco Tomcat	Running
<input type="radio"/>	SNMP Master Agent	Running
<input type="radio"/>	MIB2 Agent	Running
<input type="radio"/>	Host Resources Agent	Running
<input type="radio"/>	System Application Agent	Running
<input type="radio"/>	Cisco CDP Agent	Running
<input type="radio"/>	Cisco Syslog Agent	Running
<input type="radio"/>	Cisco Certificate Expiry Monitor	Running
<input type="radio"/>	Cisco Certificate Change Notification	Running

Cisco Unity Connection Serviceability

Base Services				
Service Name	Running Time	Activate Status	Service Status	Change Service Status
Connection Administration	38:46:47	Activated	Started	Stop
Connection DB Event Publisher	38:46:51	Activated	Started	Stop
Connection License Server	38:46:49	Activated	Started	Stop
Connection SNMP Agent	38:46:48	Activated	Started	Stop

CISCO UNITY EXPRESS ADMINISTRATOR INTERFACES

Access the Web Interface

- Cisco Unity Express Administration: <http://IP-Address/admin>
- Access with HTTP or HTTPS
- Authentication credentials are defined during the installation



admin Log Out About Help

Cisco Unity Express Version 8.0
Authentication: Local
Cisco Systems © 2005 - 2010. All rights reserved.

Cisco Systems © 2005 - 2010. All rights reserved.

Access the Command Line Interface

- Use the command **service-module internal-Service-Module** *slot/unit session* to open a back-to-back terminal connection from the router.
- Use the CLI for system maintenance and upgrades.
- For troubleshooting syslog files and trace output messages.
- The CLI structure is similar to the Cisco IOS Software; use the ? for help.

```
Router#service-module internal-Service-Module 0/0 session

Trying 172.20.1.4, 2194 ... Open

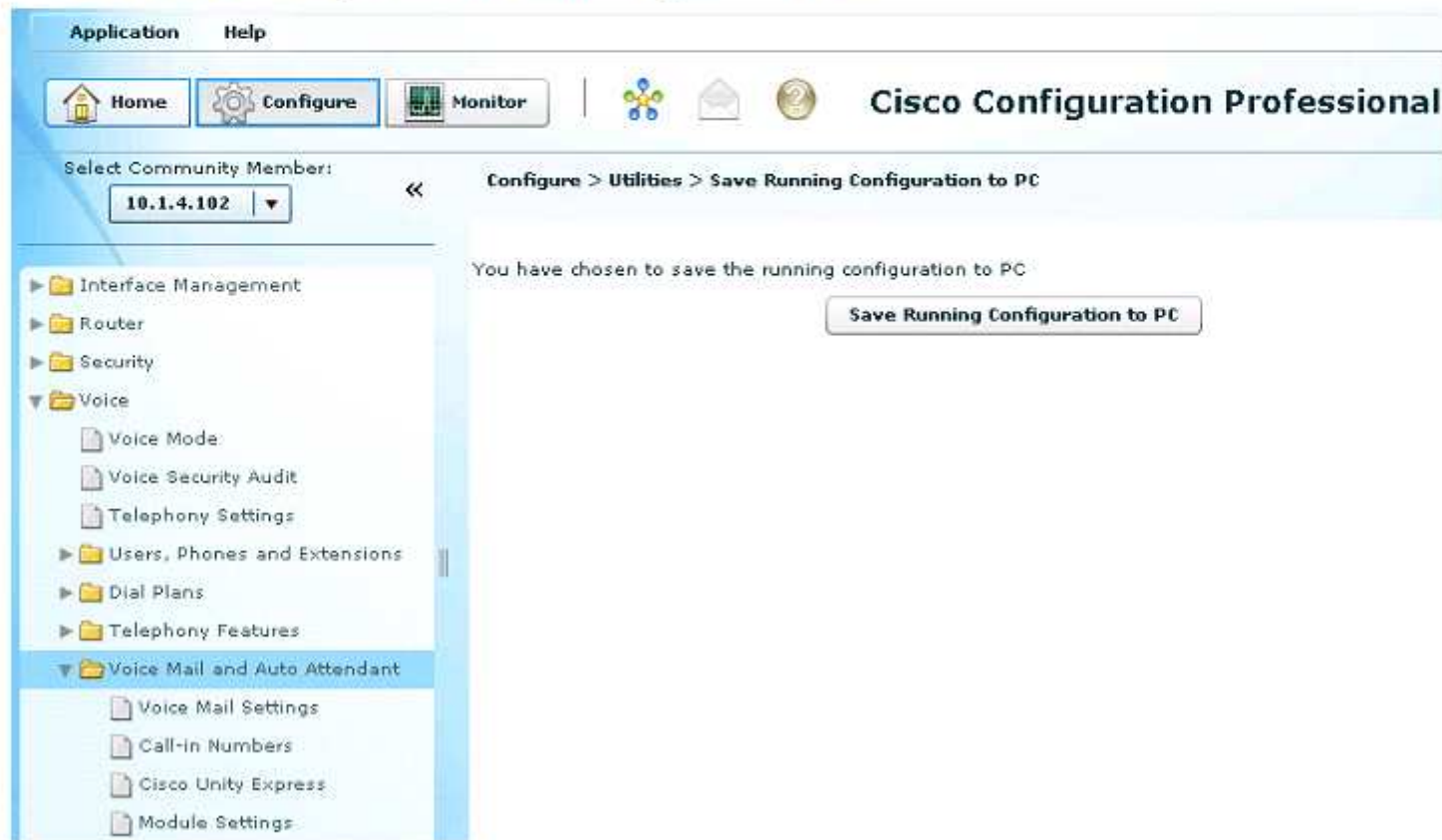
CUE#
CUE#username jdoe create
CUE#username jdoe password cisco
CUE#username jdoe group Administrators
CUE#exit

Session closed

Router#
```

Configuring Cisco Unity Express with Cisco Configuration Professional

- Allows simple configuration of voicemail boxes and group delivery mailboxes (GDM).
- Troubleshooting and monitoring features.



Comparing the Interfaces

- To configure users and Cisco Unity Express system settings, the GUI or Cisco Configuration Professional is recommended.
- However, for full feature functionality, use the CLI.

Functionality	CCP	GUI	CLI
Administrator Know-How	Few	More	Plenty
User Administration	Basic	Nearly Complete	Complete
System Administration	Basic	Nearly Complete	Complete
Upgrade Tasks	-	X	X
System Troubleshooting	-	Basic	Complete

END USER INTERFACES

Outline

- Cisco Unified Communications Manager End-User Interfaces
- Cisco Unified Communications Manager Express End-User Interfaces
- Cisco Unity Express End-User Interfaces
- Cisco Unity Connection End-User Interfaces
- Cisco Unified Presence End-User Interfaces

**CISCO UNIFIED
COMMUNICATIONS END USER
INTERFACES**

Configure End Users to Access User Website

End users must be configured to have access to the user website:

- Go to **User Management > End User** and select a user
- **Standard CCM End Users** is the default group with read and update permission.
- A customized group with particular access can be configured.

Permissions Information

Groups: Standard CCM End Users

Roles: Standard CCM End Users, Standard CCMUSER Administration

Buttons: Add to User Group, Remove from User Group, View Details, Save

Annotations:

- Enables end users to log in to user website
- Defines the permission on user website

Customize User Website Permissions

Role Information

Application* Cisco Call Manager End User

Name*

Description

Resource Access Information

Resource	Description	Privilege	
		<input checked="" type="checkbox"/> read	<input type="checkbox"/> update
CCMUser: Access List		<input checked="" type="checkbox"/> read	<input checked="" type="checkbox"/> update
CCMUser: Device		<input checked="" type="checkbox"/> read	<input type="checkbox"/> update
CCMUser: Directory		<input checked="" type="checkbox"/> read	<input type="checkbox"/> update
CCMUser: Fast Dials		<input checked="" type="checkbox"/> read	<input checked="" type="checkbox"/> update
CCMUser: IP Phone Services		<input checked="" type="checkbox"/> read	<input type="checkbox"/> update
CCMUser: Line Settings		<input checked="" type="checkbox"/> read	<input type="checkbox"/> update
CCMUser: Personal Address Book		<input checked="" type="checkbox"/> read	<input type="checkbox"/> update
CCMUser: Plugins		<input checked="" type="checkbox"/> read	<input type="checkbox"/> update
CCMUser: RemoteDestination		<input type="checkbox"/> read	<input type="checkbox"/> update
CCMUser: Service URL		<input type="checkbox"/> read	<input type="checkbox"/> update
CCMUser: Speed Dial User		<input checked="" type="checkbox"/> read	<input type="checkbox"/> update
CCMUser: User Settings		<input checked="" type="checkbox"/> read	<input checked="" type="checkbox"/> update

The default permissions of Standard CCMUser Administration can be changed or a new role can be added:

- Customized user groups must contain the Standard CCM End Users role to enable login.
- Effective access privileges from overlapping roles or user groups can be configured in the enterprise parameters:

User Management Parameters

[Effective Access Privileges For Overlapping User Groups and roles](#) * Maximum

Customize CCMUser Enterprise Parameters

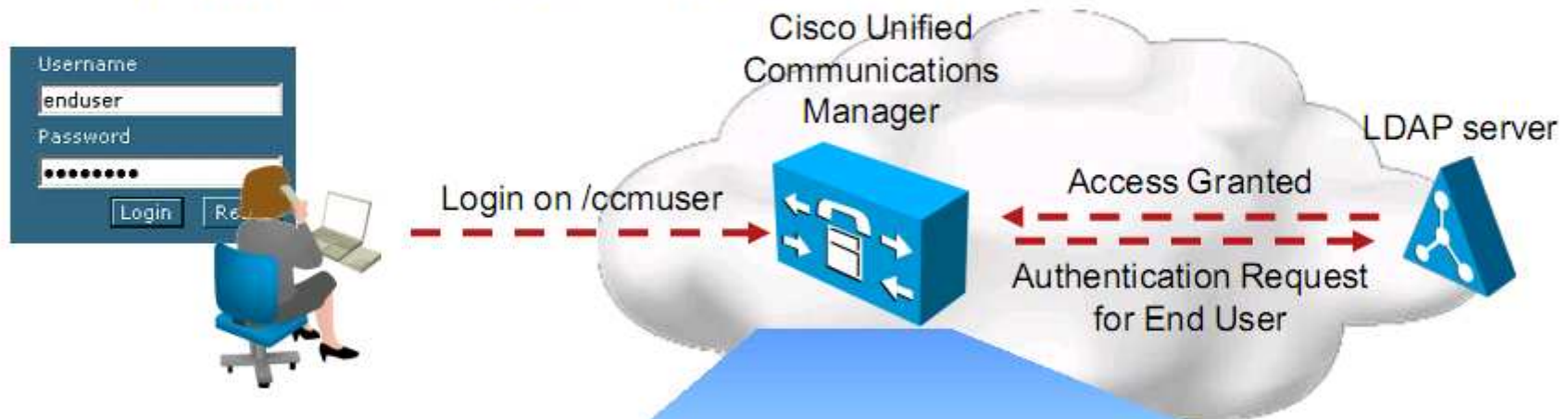
CCMUser parameters can be changed in **System > Enterprise Parameters** web page:

- Systemwide parameters can be used to enable or disable parts of the user website.
- Can be used to hide particular features that are not used within an enterprise (for example, download plug-ins).

Show Ring Settings *	True	False
Show Call Forwarding *	Show Only Forward All	Show All Settings
Show Speed Dial Settings *	Show All Settings Hide All Settings	True
Show Cisco IP Phone Services Settings *	Show Only Forward All	True
Show Personal Address Book Settings *	True	True
Show Message Waiting Lamp Policy Settings *	True	True
Show Line Text Label Settings *	True	False
Show Locale for Phone Settings *	True	True
Show Locale for Web Pages Settings *	True	True
Show Change Password Option *	True	True
Show Change PIN Option *	True	True
Show Download Plugin Option *	True	True
Show Online Guide Option *	True	True
Show Directory *	True	True
Show Mobility Features Option *	True	True
Show Manager Name in Directory *	True	True
Show User Id in Directory *	True	True
Show Extension in Directory *	True	True
Show LDAP Extension in Directory *	True	True

End-User LDAP Authentication

- Enabled LDAP authentication forwards authentication requests to the LDAP server.
- Without enabled LDAP authentication, end-user password management is performed on Cisco Unified Communications Manager.



-LDAP Authentication for End Users-

Use LDAP Authentication for End Users

LDAP Manager Distinguished Name*

LDAP Password*

Confirm Password*

LDAP User Search Base*

Device Settings

To login to the user pages go to <https://<Node-IP>/ccmuser>

- Device settings allow you to manage associated devices
- Line Settings: Call Forward, line text label, MWI, etc.
- Speed Dials: Add or update speed dials for specific devices.
- Phone Services: Configure IP Phone Service subscription.
- Service URL: Edit Service URL names on base phone.

The screenshot displays the Cisco Unified Communications Manager user interface. On the left, a sidebar menu under 'User Options' includes 'Device', 'User Settings', 'Directory', 'Personal Address Book', 'Fast Dials', 'Mobility Settings', and 'Plugins'. A blue arrow points from the 'Device' menu item to the main content area. The main content area is titled 'Device' and contains the following fields:

- Name:** SEP002608D96670
- Model:** Cisco 9951
- Description:** Cisco 9951
- User Locale:** English, United States

Below the 'Device' section is the 'Do Not Disturb' section, which includes:

- Do Not Disturb
- DND Option*:** Ringer Off
- DND Incoming Call Alert:** < None >

At the bottom of the page, there is a navigation bar with the following buttons: Save, Reset, Apply Config, Line Settings, Speed Dials, Phone Services, and Service URL. The 'Line Settings', 'Speed Dials', 'Phone Services', and 'Service URL' buttons are highlighted with red boxes.

User Settings

- User settings can be used to set locale, PIN, and password, if these settings are not LDAP synchronized.
- Passwords are never synchronized with Cisco Unified Communications Manager.

The image shows a user interface for configuring user settings. On the left, a sidebar titled 'User Options' contains a list of settings: Device, User Settings (highlighted with a blue arrow), Directory, Personal Address Book, Fast Dials, Mobility Settings, and Plugins. The main content area is divided into two sections. The first section, 'Phone PIN', contains three input fields: 'Current PIN' (masked with six dots), 'New PIN' (masked with six dots), and 'Confirm PIN' (masked with six dots). The second section, 'User Locale', contains a dropdown menu labeled 'Locale' with the value 'English, United States' selected. At the bottom of the main content area is a 'Save' button.

Directory and Fast Dial

- Directory allows search queries in the enterprise directory and enables dialing from the User website, if the Cisco WebDialer service is active.
- Personal Address Book contains individually added addresses.
- Fast Dials can be mapped to a personal address book entry.

The screenshot displays the Cisco WebDialer interface with three main sections:

- User(s)**: A search interface for the enterprise directory. The search criteria are: User ID begins with 'jdoe'. The search results are empty, with a message: "No active query. Please enter your search criteria using the options above."
- Personal Address Book (1 - 1 of 1)**: A search interface for the personal address book. The search criteria are: Nick Name begins with 'Joe'. The search results show one entry:

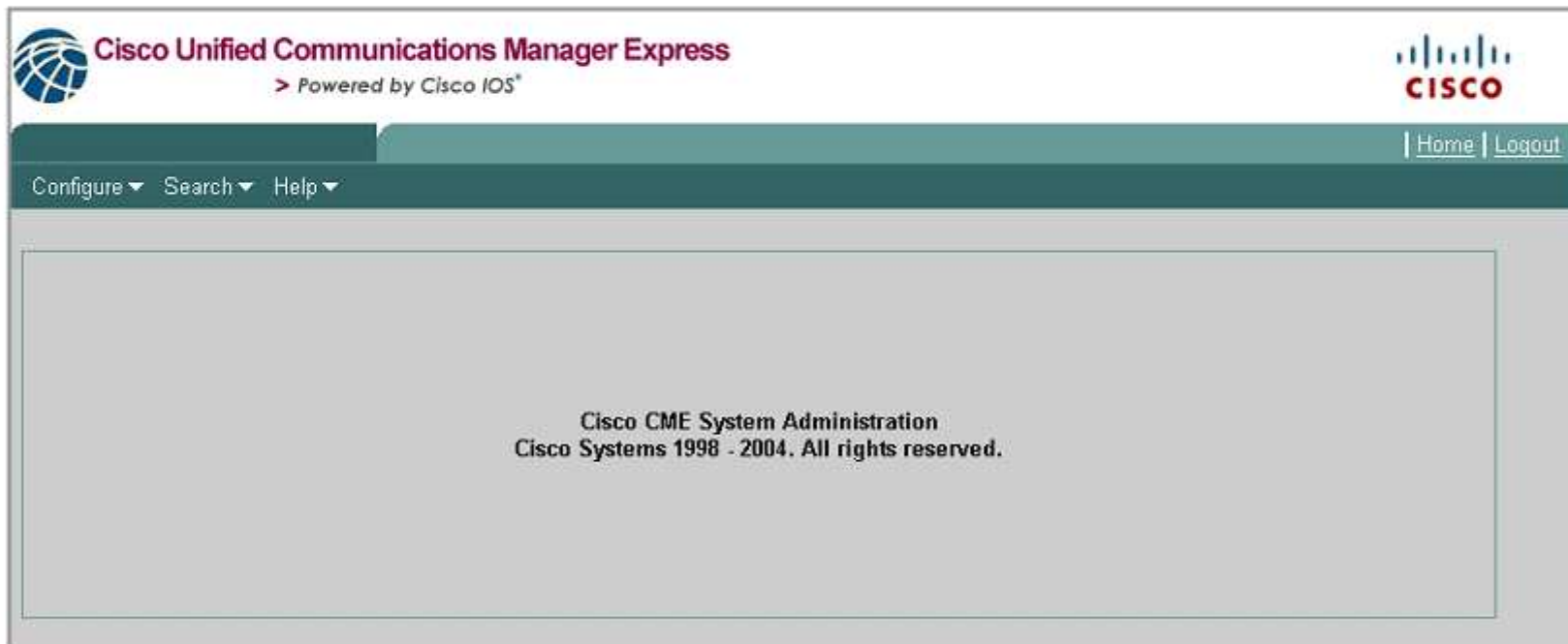
<input type="checkbox"/>	Nick Name ^	First Name	Last Name
<input type="checkbox"/>	Joe	John	Doe
- Fast Dials Phone Book (1 - 1 of 1)**: A search interface for the fast dials phone book. The search criteria are: Fast Dial begins with (empty). The search results show one entry:

<input type="checkbox"/>	Fast Dial ^	Phone Number	Phone Type	Nick Name	First Name	Last Name
<input type="checkbox"/>	1	+14085551001	Home	Joe	John	Doe

**CISCO UNIFIED
COMMUNICATIONS MANAGER
EXPRESS END USER
INTERFACES**

Cisco Unified Communications Manager Express End-User Interfaces

- Cisco Unified Communications Manager Express End User:
<http://<Node-IP>/ccme.html>



End-User Web Interface

End users can edit their IP phone settings:

- Change ring settings
- Manage speed dials and fast dials
- Change the password

Phone Physical ID: 0001.1D93.4F29
Phone Sequence Number: 1
Phone Type: 7962

Line Information

Line 1 [100]:

Speed Dial Information

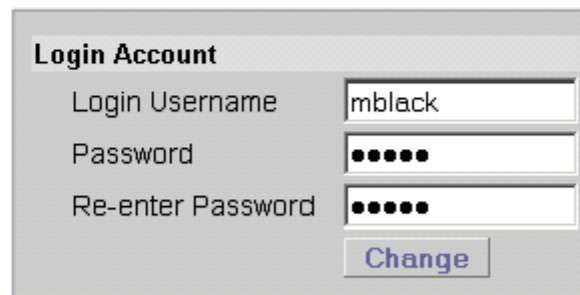
Note: The number of speed dial that will display on your phone depends on the type of phone, and the number of lines configured.

Speeddial 1:	<input type="text" value="901200"/>	Label:	<input type="text" value="John Doe"/>
Speeddial 2:	<input type="text"/>	Label:	<input type="text"/>
Speeddial 3:	<input type="text"/>	Label:	<input type="text"/>
Speeddial 4:	<input type="text"/>	Label:	<input type="text"/>
Speeddial 5:	<input type="text"/>	Label:	<input type="text"/>

Enable Web Access for End Users

Web access can be configured from CLI or administrator GUI:

- In the GUI, choose **Configure > Phones**, select the phone, and add login account information.
- In the CLI, enter global configuration mode and configure the username and password.



The screenshot shows a configuration window titled "Login Account". It contains three input fields: "Login Username" with the value "mblack", "Password" with six dots, and "Re-enter Password" with six dots. A "Change" button is located at the bottom right of the window.

Login Account	
Login Username	mblack
Password	••••••
Re-enter Password	••••••
Change	

CISCO UNITY EXPRESS END USER INTERFACES

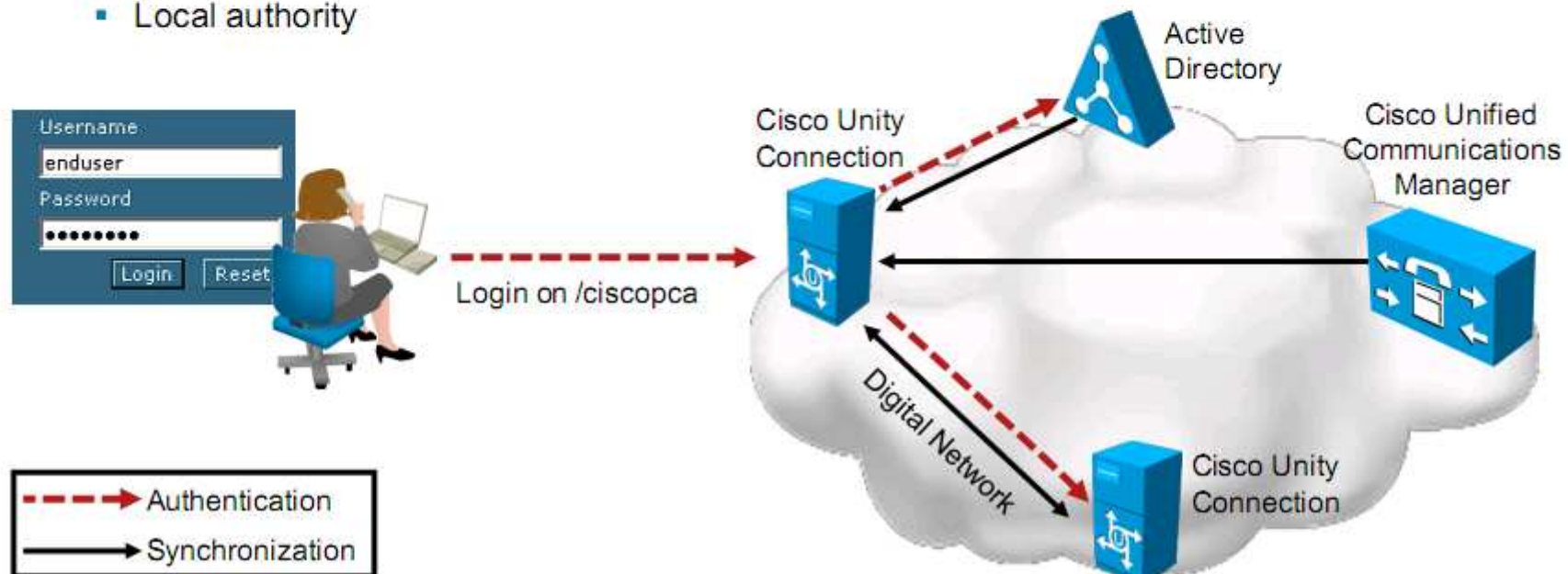
Authentication and Synchronization

Users can be synchronized from:

- LDAP server (for example, Active Directory)
- Cisco Unified Communications Manager
- Cisco Unity Connection or Cisco Unity Digital Network

Authentication can be configured with:

- LDAP server
- Cisco Unity Connection or Cisco Unity Digital Network
- Local authority



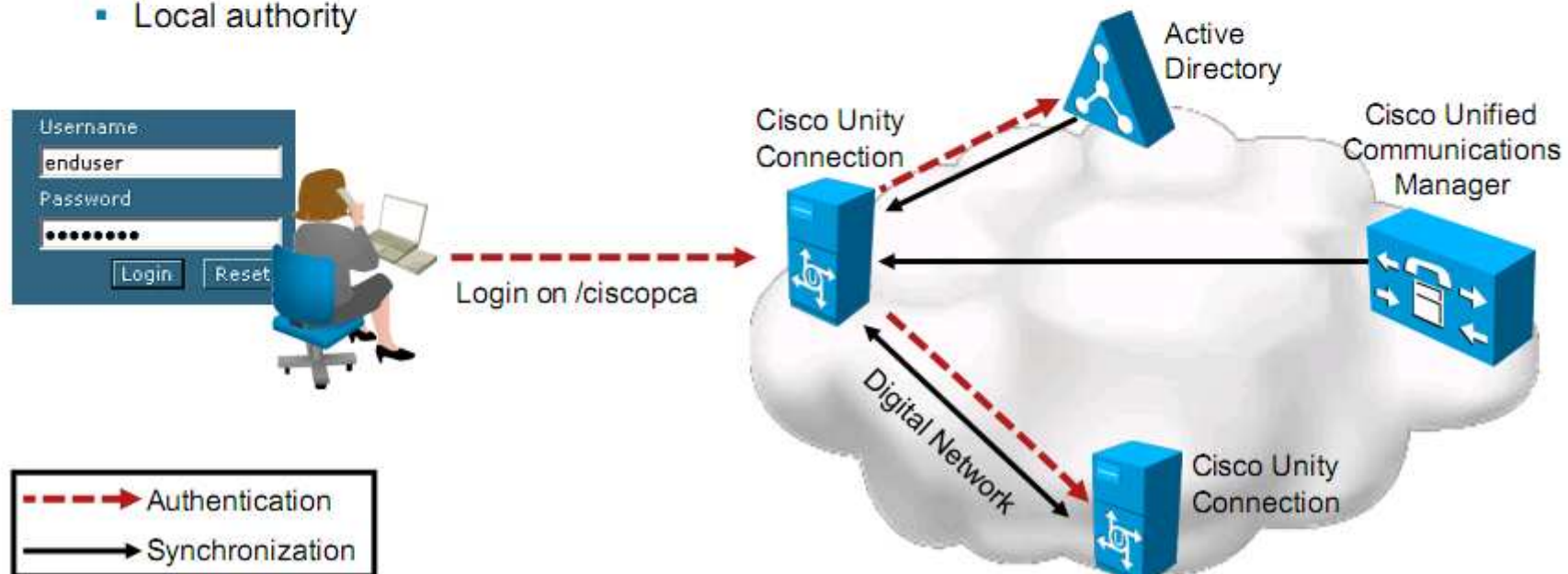
Authentication and Synchronization

Users can be synchronized from:

- LDAP server (for example, Active Directory)
- Cisco Unified Communications Manager
- Cisco Unity Connection or Cisco Unity Digital Network

Authentication can be configured with:

- LDAP server
- Cisco Unity Connection or Cisco Unity Digital Network
- Local authority

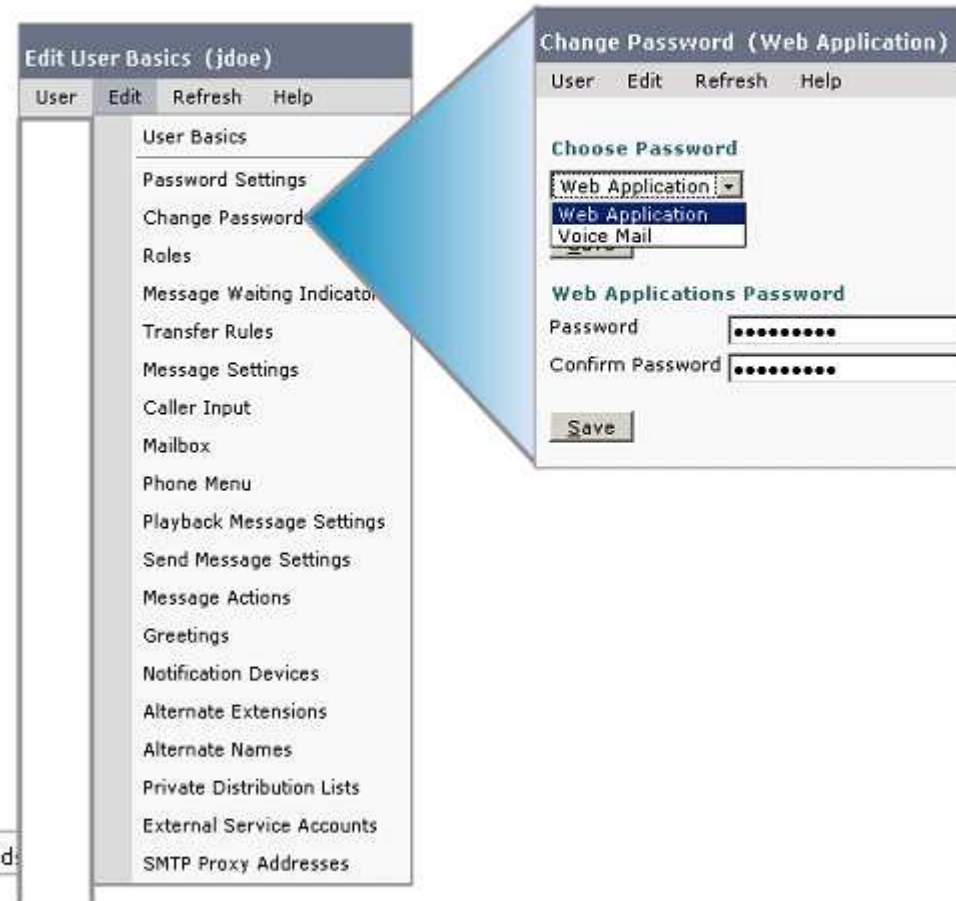


Administrator Enabled User Login

- If end users are locally created, set a password in the administration web interface.
- Cisco PCA can be enabled on a class of service basis.
- Associated class of service for the end user must be configured to allow access:

Features

- Allow Users to Use Personal Call Transfer Rules
- Allow Users to Use the Cisco Unity Connection Assistant
- Allow Users to Use Unified Client to Access Voice Mail
- Allow Users to Use the Cisco Unity Connection Inbox and RSS Feeds



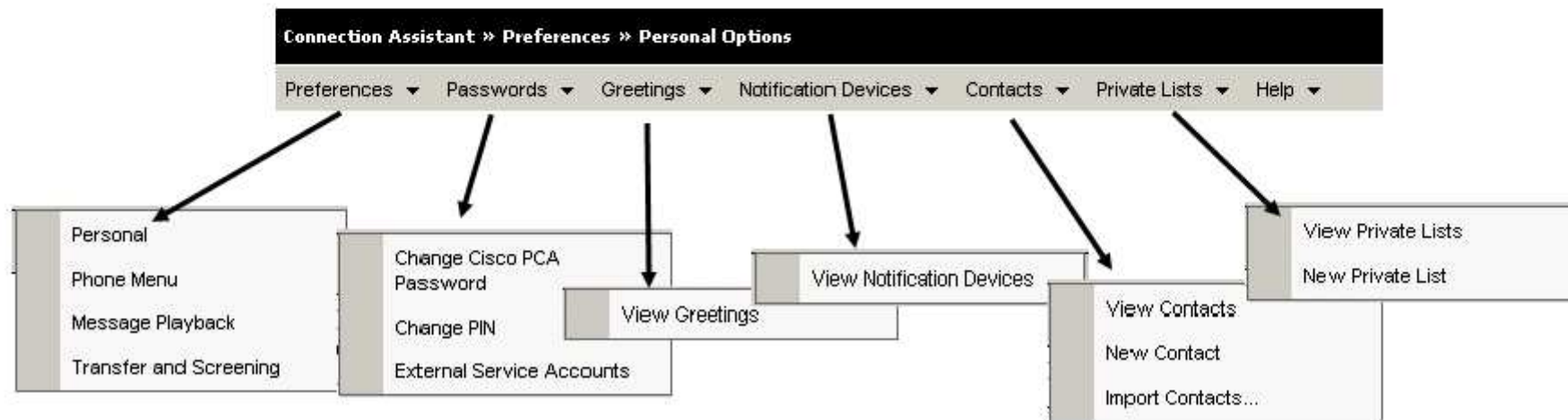
The image shows two screenshots from a web administration interface. The left screenshot is titled "Edit User Basics (jdoe)" and displays a menu with "Change Password" highlighted. A blue callout arrow points from this menu item to the right screenshot. The right screenshot is titled "Change Password (Web Application)" and shows a "Choose Password" section with a dropdown menu set to "Web Application" and "Voice Mail" as an option. Below this are "Web Applications Password" fields for "Password" and "Confirm Password", both filled with dots, and a "Save" button.

Cisco Unity Connection Assistant

Applications

The Cisco PCA lets you access the following Cisco web tool(s):

- Cisco Unity Connection Assistant**
The Cisco Unity Connection Assistant lets you customize how you and your callers interact with Cisco Unity Connection by phone. You can also use it to personalize your Cisco Unity Connection settings -- including your recorded greetings and message delivery options -- or to set up message notification devices and create private lists.
- Cisco Unity Connection Inbox**
The Cisco Unity Connection Inbox lets you listen to, compose, reply to, forward, and delete voice messages.
- Personal Call Transfer Rules**
Personal Call Transfer Rules let you create and manage rules to send calls to any contact, destination, or groups of contacts or destinations that you specify.



- Depending on the permissions, the user interface can look different.

Cisco Unity Connection Inbox

Applications

The Cisco PCA lets you access the following Cisco web tool(s):

[Cisco Unity Connection Assistant](#)

The Cisco Unity Connection Assistant lets you customize how you and your callers interact with Cisco Unity Connection by phone. You can also use it to personalize your Cisco Unity Connection settings -- including your recorded greetings and message delivery options -- or to set up message notification devices and create private lists.

[Cisco Unity Connection Inbox](#)

The Cisco Unity Connection Inbox lets you listen to, compose, reply to, forward, and delete voice messages.

[Personal Call Transfer Rules](#)

Personal Call Transfer Rules let you create and manage rules to send calls to any contact, destination, or groups of contacts or destinations that you specify.

Actions ▾ Help ▾

- View Inbox
- View Deleted Items
- New Message
- Refresh Message List

Deleted [icon] Delete selected [icon] New message [icon] Refresh messages [icon] View Deleted Items [icon] Help [icon]

Personal Call Transfer Rules

Applications

The Cisco PCA lets you access the following Cisco web tool(s):

[Cisco Unity Connection Assistant](#)

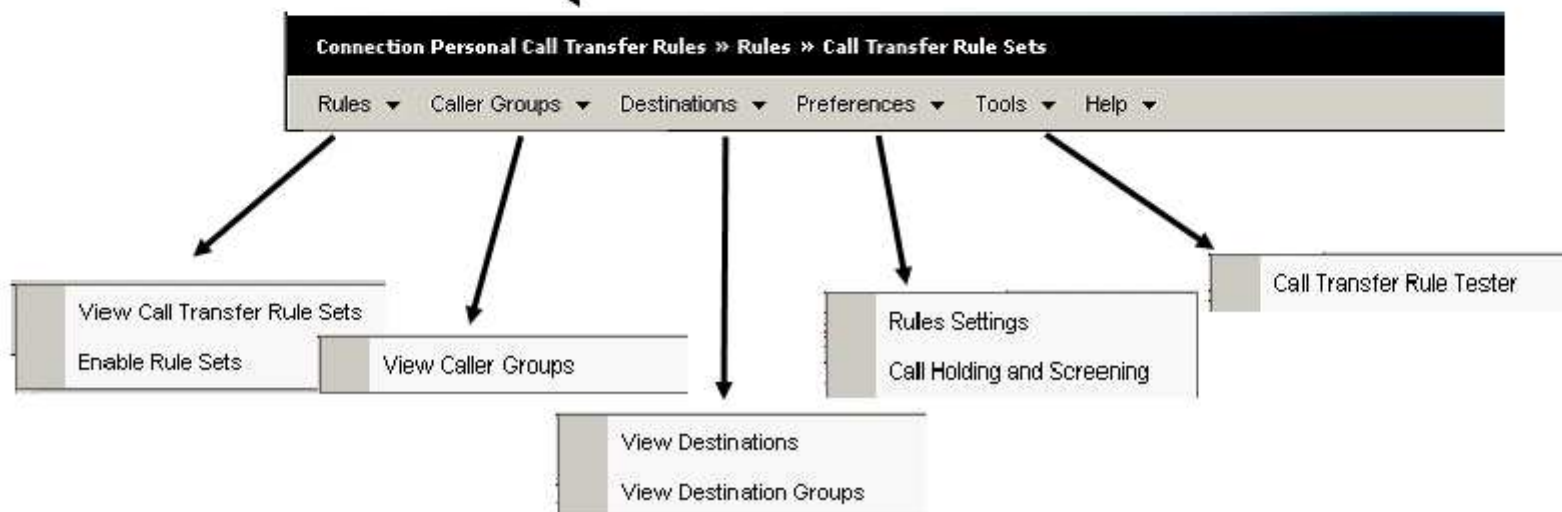
The Cisco Unity Connection Assistant lets you customize how you and your callers interact with Cisco Unity Connection by phone. You can also use it to personalize your Cisco Unity Connection settings -- including your recorded greetings and message delivery options -- or to set up message notification devices and create private lists.

[Cisco Unity Connection Inbox](#)

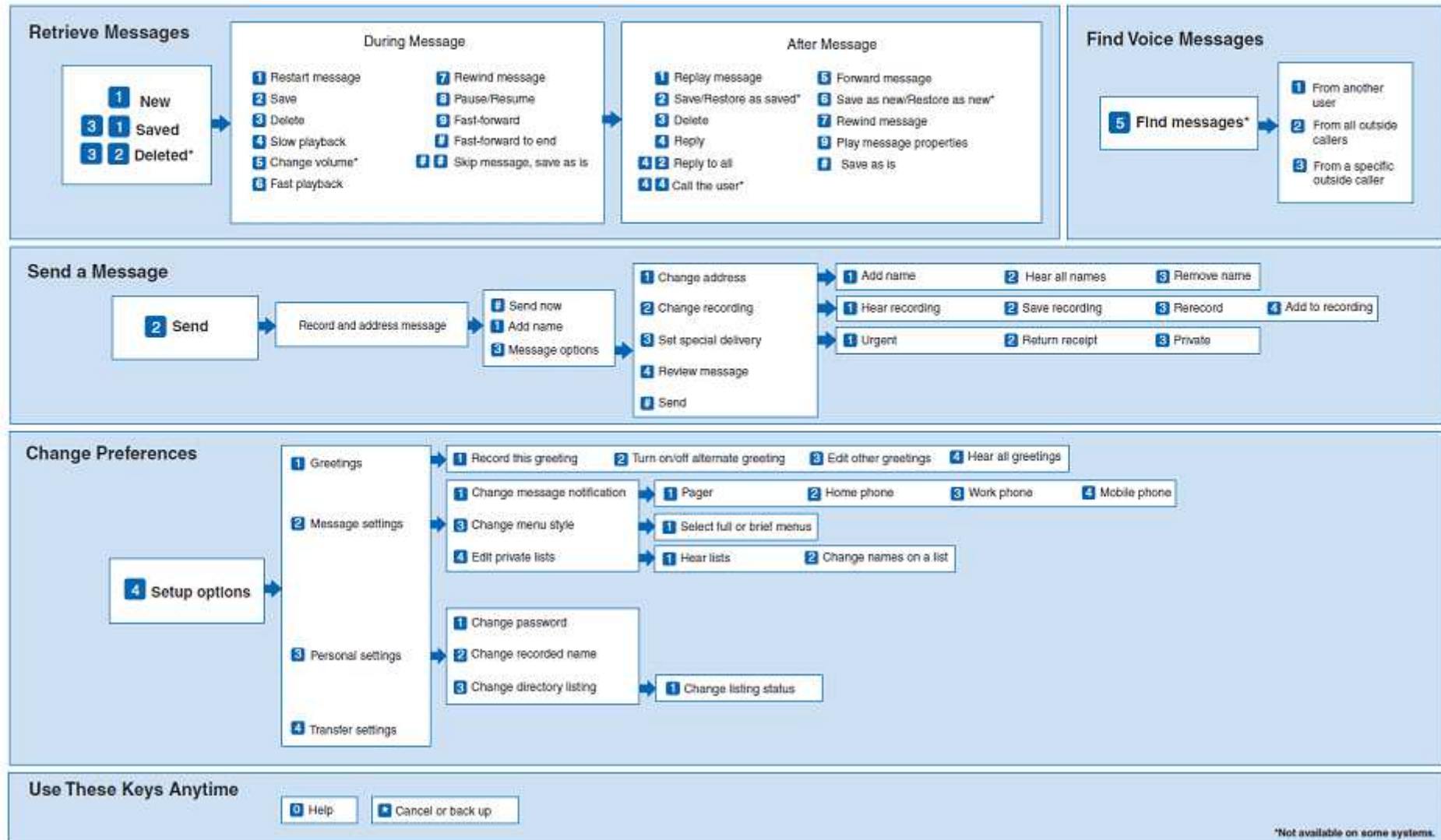
The Cisco Unity Connection Inbox lets you listen to, compose, reply to, forward, and delete voice messages.

[Personal Call Transfer Rules](#)

Personal Call Transfer Rules let you create and manage rules to send calls to any contact, destination, or groups of contacts or destinations that you specify.



Telephone User Interface



Cisco Visual Voicemail

End users manage their voice-mail inbox with an XML application on the phone:

- Must be configured as a phone service on Cisco Unified Communications Manager.
- Cisco Visual Voicemail parameters must be configured on Cisco Unity Connection.

