

ShoreTel Unified Messaging



ShoreTel provides a comprehensive Unified Messaging solution for a full range of customer messaging needs, including the messaging systems and access to voicemail and e-mail by a choice of popular methods.



This guide describes the ShoreTel® Unified Messaging solution. It provides an overview of the solution's benefits, key features, reliability characteristics, integration capabilities, and product specifications.

Enhancing Communications with Integrated Messaging

ShoreTel's solution improves productivity with better ways to communicate. It offers the ability to simply scale when needed without port and disk limitations. Lower total cost of ownership (TCO) is easily achieved because the system is easy to install and administer for the dynamic workforce environment. Users can send and retrieve messages wherever they are with their mobile devices. The ShoreTel solution can also be seamlessly integrated with other PBXs and other voicemail systems.

Product Overview

A key and integral component of ShoreTel's IP Unified Communications system, ShoreTel's Unified Messaging system provides a simple yet robust integrated messaging solution. It is a native, fully integrated component of the ShoreTel system that can also be easily integrated as a standalone solution with other systems. The ShoreTel system improves individual and organizational productivity with a complete

Unified Messaging solution, including voicemail, an embedded automated-attendant, and desktop tools for subscribers. Management of the messaging features is centralized through ShoreWare® Director, which is the same management interface through which voice services are defined for users. The ShoreTel Unified Messaging solution is built to grow with your needs. It scales seamlessly up to 10,000 mailboxes, which can be centralized or distributed across a network on standard servers.

It is an ideal solution for organizations that have traditional voicemail usage and intend to maintain independent e-mail and voicemail systems in combination with a proven telephony platform for overall reliability.

Subscribers can use the following popular interfaces and clients for ShoreTel's Unified Messaging solution.

Any-Telephone access is available with ShoreTel's embedded telephone user interface (TUI), which can be used to access voice messages stored on ShoreTel's voicemail server and interface with ShoreTel's embedded auto-attendant.



“The entire system is managed through a single browser...”

Hands-Free access is available through SpeechBridge, which is a ShoreTel technology partner provided add-on product that provides speech-based access to ShoreTel’s embedded auto-attendant, as well as Microsoft’s Outlook® e-mail messages and calendar-based schedule.

Visual access is available through either ShoreWare Personal Call Manager for the PC or ShoreWare Mobile Call Manager for mobile devices. Both provide a simple visual display and access to voicemails stored on ShoreTel’s voicemail server and access to the corporate and Outlook personal directories.

The following diagram illustrates the different components that ensure this solution meets the needs of most enterprise messaging environments.

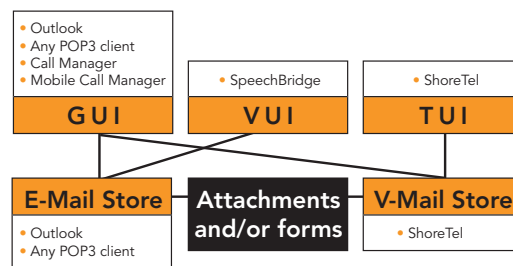


Figure 1: Access of messages through ShoreTel’s Unified Messaging Solution

Note: Voicemail forms are available to Microsoft Outlook and voicemail file attachments are available to any POP3 e-mail client. Access to Outlook is provided by the Outlook client and SpeechBridge. Access to the voicemail store is provided by either the ShoreTel TUI, Call Manager, or by the Mobile Call Manager.

Benefits

Better communications improve productivity

With an integrated messaging infrastructure, employees can communicate faster and easier—helping to boost productivity. All users are on a single system for seamless access to features like cross-enterprise directory search, reply, forward, broadcast, and distribution lists. An intuitive desktop makes features easily accessible, rather than hidden behind cryptic keypad sequences. ShoreTel Unified Messaging also lets mobile employees stay in instant contact through features like Find Me and message notification.

Seamless scalability without port and disk limitations

ShoreTel voicemail and automated services run on standard servers distributed across your IP network, and voicemail storage is limited only by the size of the hard disk.

Lower TCO with easy installation and simple administration

The ShoreTel system has been widely recognized for ease of management, starting with smooth software installation and updates. The entire system is managed through a single browser interface that is very easy to learn. When a new user is added to the system, the change is dynamically propagated across all locations. With a single click, updating occurs across ShoreGear® voice switches, the voicemail system, unified message service system, the automated attendant, and all user directories. An e-mail is sent to the user with a link to download their desktop software.

Mobility

Subscribers can send and retrieve messages even when they are away from their office. ShoreTel’s Unified Messaging solution provides subscribers with mobile access to their voicemail messages from any touchtone phone and visual access to voicemails with the ShoreWare Mobile Call Manager. Subscribers can also add-on SpeechBridge for “hands-free” remote access to Outlook e-mails and calendar schedules.

Switch Integration

The ShoreTel Unified Messaging solution supports multiple PBX integrations from many of the major manufacturers. ShoreTel’s voicemails can also be integrated with other voicemail systems that support the AMIS standard.

Key Features

Unified Messaging

The ShoreTel system provides visual voicemail to the PC desktop with ShoreWare Personal Call Manager and to the mobile phone with ShoreWare Mobile Call Manager, as well as to Microsoft Outlook with your choice of an e-mail message form that can be played on the PC or on your desktop phone, and/or an e-mail with a standard WAV Audio for Windows formatted message attachment that can be played on your multimedia PC (which can also be embedded in other documents). Both the message form and message attachment can be conveniently viewed and filed within the Outlook mailbox. As can be seen in the following figure, the “form” option provides the additional convenience of replying directly to the sender with a message or with a call—and message synchronization with your voicemail box. ShoreTel’s Outlook integration also includes

“Users can be notified via e-mail, mobile phone, or pager when a message has arrived.”

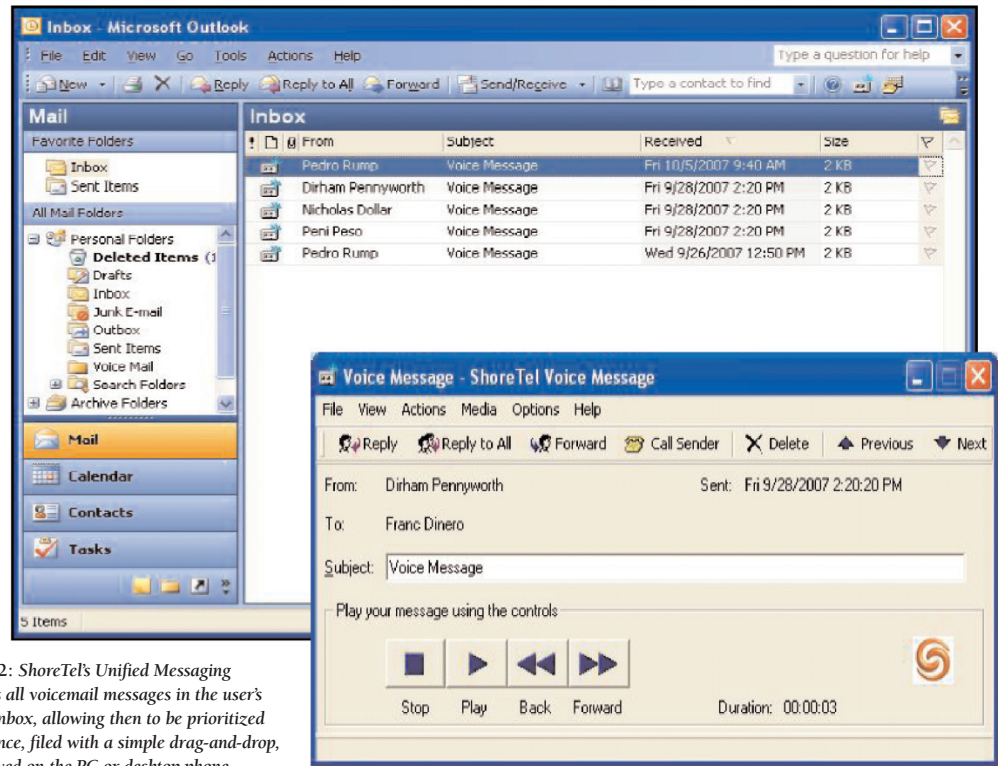


Figure 2: ShoreTel's Unified Messaging presents all voicemail messages in the user's e-mail inbox, allowing them to be prioritized at a glance, filed with a simple drag-and-drop, and played on the PC or desktop phone

directory dialing using the user's contacts, contact screen pops, and calendar integration with the user's preferred call routing rules (ShoreTel Call Handling Modes).

Message Notification Using the ShoreWare Call Manager voicemail escalation notification option, users can be notified via e-mail, mobile phone, or pager when a message has arrived. This feature also offers notifications that can be applied in repetitive cycles to ensure that the message always gets attention.

Voicemail ShoreWare voicemail requires no additional hardware and consumes no ports. Storage is limited only by the size of the hard disk. The system provides 32.5 hours of voice storage per gigabyte of hard disk space. In multi-site configurations, voicemail servers can be distributed at larger locations to provide survivable voicemail as well as provide WAN bandwidth savings. Users can record personal greetings, as well as manage their mailbox for the ShoreWare Call Manager from any telephone. The powerful message notification feature can alert users to new messages by calling them at an external number, paging them, or sending them an e-mail. The voicemail system supports up to 10,000 mailboxes and features multilingual

support for Danish, Dutch (Netherlands), English (UK and US), Italian, French (France), German, Spanish (Spain and CALA), and Swedish.

Auto-Attendant The Unified Messaging solution also includes an embedded auto attendant that provides 24-hour automated call answering and routing to improve service and enhance a company's image for inbound callers. Outgoing prompts can be customized and linked to the time of day and/or day of week. Individual groups, such as technical support and sales organizations, can have their own menus with unique greetings and options. Like the ShoreWare voicemail application, the ShoreWare Auto-Attendant also consumes no physical ports and can be distributed at larger locations to save valuable WAN bandwidth.

TUI ShoreTel's TUI gives Subscribers the ability to simply and effectively manage messages, communicate, administer greetings, and customize call routing preferences on-the-fly from any touchtone phone 24 hours a day.

Speech Access The speech solution provided by ShoreTel's certified technology partner is a very competitively priced stand-alone option that is provided as a sealed Linux-based appliance to provide this service to customers. It eliminates

“If a remote voicemail server fails, calls can automatically route to another server.”

dial-by-name pain, remembering employee extensions, aggravating menu trees, needing a PC to check e-mail or schedules, and steering with your knees while using your smartphone. It is an open standards speech platform built on VoiceXML and .NET, which supports auto-attendant, calendar, and e-mail services. This system interfaces to the ShoreTel system via SIP. The system supports up to 10,000 directory names, 46 simultaneous sessions, and over 8,000 sessions per hour (depending on auto-attendant, calendar, and/or e-mail combination/usuage patterns).



Figure 3: Messages can be prioritized at a glance and accessed with a single click with the ShoreWare Mobile Call Manager

Visual Voicemail Subscribers can instantly prioritize their messages and listen to them with just a couple simple clicks from Personal Call Manager on the PC, mobile phone with Mobile Call Manager, or with Outlook. Messages can be instantly sorted with either Personal Call Manager or Outlook and subscribers can respond with a

message or callback with the click of a button with Call Manager or Mobile Call Manager. Messages can be prioritized at a glance and accessed with a single click with Personal Call Manager.

Reliability Through Distributed Architecture

ShoreTel's Unified Messaging solution is fully integrated into the highly reliable ShoreTel system. This is a distributed architecture leveraging the IP network. The ShoreTel system distributes the voicemail and automated attendant functions to servers across the network. In the event of a WAN outage, the remote voicemail will continue to operate uninterrupted. If a remote voicemail server fails, calls can automatically route to another server.

Even though there may be multiple servers, they behave seamlessly as one solution from both the management point of view (add, delete, etc.) as well as the user point of view (forward, reply, broadcast, etc.). In the event the WAN is lost, each remote site's voicemail server will operate independently for the users at the remote site, provide all system auto-attendant menus to callers, and be able to take messages for users located at other locations and push the messages back into their mailbox when the WAN is restored.

Unified messaging is hosted either on the ShoreTel headquarter server that also hosts the ShoreWare Director management interface and

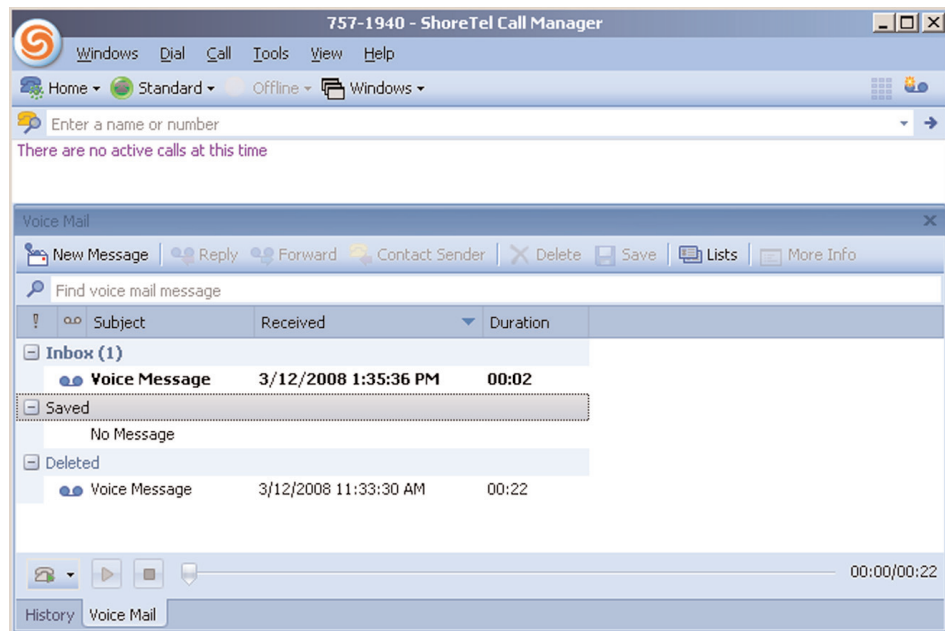


Figure 3: Messages can be prioritized at a glance and accessed with a single click with the ShoreWare Call Manager

“Personal Call Manager integrates with Outlook and provides call control and visual voicemail.”

other system services or it can be distributed via the ShoreWare Distributed Voice Services application, and deployed on a server at one or more remote locations.

The ShoreTel UC system is arranged in a site hierarchy, in which users are assigned to a site, utilizing the first application server above them in the hierarchy. ShoreTel’s application servers include a full set of applications:

- Σ• Auto-attendant
- Σ• Voicemail
- Σ• Application call control interface
- Σ• Call detail reporting (CDR)

The application servers each have full access to the configuration database maintained on the headquarter’s server (HQ Server), which is the root for the site hierarchy. All application servers cache the configuration database in order to survive network outages or any other condition that makes the database unavailable to them.

Implemented in this way, the ShoreTel application servers are components in a modular architecture that enhances reliability. Each server provides applications for a fraction of the sites, and should it become unavailable, the outage affects only that portion of the overall system. The application server reliability features are outlined below:

Auto-attendant: Each auto-attendant has a complete copy of all data, including recorded prompts, schedules, and menus. Users of the auto-attendant are unaffected by failure of other servers. Individual sites can be configured with multiple servers to provide auto-attendant backup should a server fail. When multiple auto-attendant servers are configured, they share the load, and a server is picked randomly to provide service.

Voicemail: When an organization deploys more than one voicemail server, each server contains the recorded name and personalized greetings for every user. If one of the voicemail servers fails, another will record messages for users assigned to the failed server—even if they are at a different site. When the failed server is restored, messages are transferred back to it from the fallback server. Individual

sites can be configured with multiple servers to provide voicemail backup should a server fail. When multiple voicemail servers are configured, they share the load, and a server is picked randomly to provide service.

Application Call Control Interface: ShoreTel users are provided with the Personal Call Manager application that integrates with Outlook and provides call control and visual voicemail. This interface is basically unaffected by failure of other services—the Telephony Application Programming Interface (TAPI) endpoints controlled by the unavailable server are simply removed and then recreated when the server is restored.

Call Detail Reporting: Each Server collects CDR data at the end of each call and then forwards it to the HQ Server where all the CDR data is merged into a single database. If the HQ Server is unavailable, up to two hours of CDR data is cached locally and then transmitted to the HQ Server when it becomes available again.

The following deployment case provides an example of how the ShoreTel system survives several failure scenarios with minimal backup components.

Ecosystem

The system for this particular example is deployed over three sites. Each site includes the following components:

- 1) Site A: HQ Server
- 2) Site B: DVM (Distributed Voicemail server)
- 3) Site C: DVM

Case 1: The HQ Server fails

- 1) Site A: The system goes to BAA (backup auto-attendant), callers cannot leave messages.
- 2) Site B: The DVM continues to play announcements, record messages, and make messages available to integrated-Outlook and the Call Manager. Users at this site can also continue to listen to their voicemails by phone, and voicemails can still be forwarded as voicemail attachments.
- 3) Site C: Unaffected (same as site B)

Note: A backup HQ Server can be deployed at Site A to increase survivability in this case.

“Standalone Integration easily integrates the ShoreTel voicemail system with the customer’s legacy PBX.”

Case 2: Full WAN failure

- 1) Site A: Unaffected
- 2) Site B: Unaffected
- 3) Site C: Unaffected

Case 3: Site B DVM failure

- 1) Site A: Unaffected
- 2) Site B: The HQ server continues to play announcements and record messages for site B, and messages will become available to integrated-Outlook/Personal Call Manager and by phone and as voicemail attachments when the DVM at site B becomes available again.
- 3) Site C: Unaffected

Standalone Integration

ShoreTel’s Standalone Voicemail Integration solution is ideal for large enterprises, and medium enterprises with multiple sites where the successful replacement of unsupported legacy voicemail systems (while preserving their PBX investment) depends on the tight integration between ShoreTel’s voicemail system and the existing PBX. It is a proven solution that easily integrates the ShoreTel voicemail

system with the customer’s legacy PBX. This creates highly satisfied customers who have successfully replaced their EOL voicemail systems with ShoreTel’s voicemail system, while preserving their PBX capital investment.

It is important for voicemail systems to have information about calls as they arrive, so callers hear the correct greeting for the person they are calling. To achieve this, the industry standard Simplified Message Desk Interface (SMDI) protocol is used to communicate between the voicemail system and the PBX. This protocol seamlessly integrates ShoreTel’s voicemail system with the major PBXs, KSUs (small office multi line telephone system), and IP-PBXs available today. In some cases, the ShoreTel voicemail system can communicate directly with the existing PBX because both support the SMDI protocol. In other cases, an appliance (ShoreTel provided PBXLink) must be used between the ShoreTel voicemail system and the PBX to translate SMDI to the protocol used by the PBX. The following table describes possible PBX integrations.

Vendor	PBX	Phone Type	PBYLink 48	PBKLink DMI-4	PBXLink DMI-4 Plus	SMDI
Avaya/Lucent	System 75	7405	•			
	System 85	7405/7434	•			
	Definity 2-wire	8434	•			
	Definity 4-wire	7434	•			
	G3					•
Centrex	Centrex					•
Mitel	SX 50	420 (DNIC)		•		
	SX200/2000	430 (DNIC)			•	
NEC	NEAX	MCI Port	•			
Nortel	Meridian 1	2616	•			
	Option 11		•			
	Norstar	7324		•		
	SL-100					•
Siemens	300E	Optiset Adv			•	
	Any Centrex SMDI capable PBX				•	

Product Specifications

Minimum Hardware Requirements

(100 users, 1,000 CPH)
E2160/Single DualCore 1.8 GHz or better
1 GB RAM or better
80 GB hard disk space or better
300 MB hard disk space for sw
30 MB hard disk space per hour of voicemail storage
100 Base-T Ethernet NIC

Software Requirements

Windows Server 2003, Standard or Enterprise (SP2)
Windows Server 2003 R2, Standard or Enterprise

Small Business Edition Integrated Server

(50 users, 500 CPH)
Celeron D 2.4 GHz or better
1 GB RAM or better
80 GB hard disk space or better
CD ROM or better
100Base-T Ethernet NIC
One or more Ethernet ports
One or more USB ports
Microsoft Windows Server 2003 for Telecommunications Systems

Dial Plan Support

Austria	Mexico
Australia	Netherlands
Belgium	New Zealand
Brazil	Portugal
Canada	Germany
Denmark	Singapore
France	Spain
Germany	Switzerland
Hong Kong	Sweden
Ireland	United Kingdom
Italy	USA
Malaysia	

Language Support

Danish
Dutch
English (UK)
English (US)
French (France)
German (Germany)
Italian
Spanish (Spain)
Spanish (CALA)
Swedish

Voicemail

10,000 mailboxes
21 servers
3,000 mailboxes/main server
2,000 mailboxes/distributed server
254 calls/server
Unlimited storage
99 personal distribution lists

Messaging Controls

Play
Record
Pause
Rewind
Fast forward
Delete
Save
Skip
Reply
Reply to additional targets
Reply all
Reply with call back
Call sender
Forward

Compose Message Controls

Mark urgent
Address by extension
Address by name
Address by distribution list
Broadcast

Call Handling Modes

Standard
In a meeting
Out of office
Extended absence
Custom

Call Forwarding

Greeting

Transfer to Personal Assistant

Recorded Name

Find Me

Message Notification

Escalation notification
Stutter dial tone
FSK message waiting
Voicemail full notification
Dial pager
Dial extension
Dial external number

Management Features

Auto delete by number of days
Login security
Change password
Force password changes
Force change from default password
Password length limits
Voicemail permissions
Message length
Number of messages
Broadcast
1,000 system distribution lists
Message notification
Automatic message forward
Automatic delete after forwarding

Legacy Integration

SMDI
AMIS

Auto-Attendant

256 menus
256 levels
256 schedules
254 calls per server
Extension access
DID access
DNIS access
Play and record prompts over telephone or PC
Scheduled modes per menu (4)
On-hours
Off-hours
Holiday
Custom
Single digit actions
Dial by first name
Dial by last name
Go to extension
Go to menu
Hang up
Repeat prompt
Take a message
Take a message by first name
Take a message by last name
Transfer to extension

Multi-digit Actions

Go to extension
Go to menu
Take a message
Transfer to extension

Other Actions

Time out (configurable)
Too many errors
Invalid entry

“ShoreTel voicemail and automated services run on standard servers distributed across the IP network.”

License Types and Capabilities

ShoreTel offers three types of competitively priced licenses to meet the different deployment strategies of its customers. The “Extension and Mailbox” (Combo) license is the most popular for the enterprise, as it offers subscribers full use of the Call Manager and Unified Messaging capabilities. The “Mailbox-Only” license is customized primarily for those customers who integrate ShoreTel’s Unified Messaging solution with their legacy PBX’s. The following table describes what features are available to these licenses as well as features available to the “Extension-Only” license, which can be added to the “Mailbox” license once customers make the transition to a full ShoreTel system.

Further Reading

- ShoreWare Personal Call Manager, Datasheet, ShoreTel
- Small Business Edition, Datasheet, ShoreTel
- Building Reliable IP Telephony Systems, White Paper, Ed Basart, ShoreTel
- Standalone Voicemail Integration, Solutions Brief, ShoreTel

PBX features	Licenses		
	Combo	Extension Only (includes 3rd-party SMDI-based VM to ST PBX)	Mailbox Only (includes ST SMDI-based VM to 3rd-party PBX)
Use SoftPhone (requires SoftPhone license too)	yes	yes	no
Make call, take call, etc.	yes	yes	no
Voice mail features			
Configure call handling modes	yes	yes	yes
Forward calls to configured destination	yes	yes	no ¹
Create and play greetings	yes	no	yes
Use the Personal Assistant	yes	no	yes
Notification escalation	yes	no	yes
Configure Find Me	yes	no	yes
System call handling schedule	yes	no	yes
Create call handling notes	yes	yes	yes
Record name	yes	no	yes
Assign extension (7-3-1— requires voicemail box)	yes	no	yes
Automated attendant features			
Dial by number, name	yes	yes	yes ²
Transfer to / Go to extension	yes	yes	yes ²
Message by number, name	yes	yes	no
Advanced features			
Office Anywhere	yes	yes	no
Member of a hunt group	yes	yes	no
Member of a workgroup	yes	yes	no
Call Manager features			
Standard, Professional, Workgroup, and Operator Call Manager	yes	no mailbox features	no extension features
Extension monitor	yes	Oper. only features	no
Agent monitor	yes	no mailbox features	no
Queue monitor	yes	no mailbox features	no
Voicemail viewer	yes	no	yes
Call history	yes	yes	no
System directory	yes	no mailbox features	no extension features
Outlook features			
Fwd voicemail as wav attachment	yes	no	yes
Voicemail form integration	yes	no	yes
Outlook Contact/Quick Dialer	yes	yes	no
Outlook Contact/Screen Pop	yes	yes	no
Outlook Calendar integration	yes	yes	yes



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¹ Forwarding calls is typically handled by the PBX, however, when the call gets to the ShoreTel voicemail system, the call will follow the ShoreTel voicemail system forwarding conditions.

² Calls will be directed to mailbox only.