Cisco Unified Survivable Remote Site Telephony Version 4.1

As the enterprise extends its IP telephony deployments from central sites to remote offices, a critical factor in achieving a successful deployment is the capability to support backup call control at the remote branch office. Cisco® Unified Survivable Remote Site Telephony (SRST) provides a cost-effective solution for supporting redundant call control in the remote branch office.

Cisco Unified Communications is a comprehensive IP communications system of voice, video, data, and mobility products and applications. It enables more effective, more secure, more personal communications that directly affect both sales and profitability. It brings people together by enabling a new way of communicating, where your business moves with you, security is everywhere, and information is always available, whenever and wherever it is needed. Cisco Unified Communications is part of an integrated solution that includes network infrastructure, security, mobility, network management products; lifecycle services; flexible deployment and outsourced management options; end-user and partner financing packages; and third-party communications applications.

Benefits of Centralized Call-Processing Architecture

Cisco Unified SRST is a critical component of a centralized call-processing architecture in which a Cisco Unified Communications Manager cluster, located at a central site, provides telephony services for all sites of an organization. The architecture provides numerous benefits to enterprises, including centralized and simplified management. Table 1 lists the benefits of a centralized call-processing architecture.

Table 1. Benefits of Centralized Call-Processing Architecture

Centralized Call	Processing Features Benefits
Delivery of full feature set to remote branch locations, next-generation call centers, unified messaging services, embedded directory services, and mobility	Improved productivity
Centralized configuration and management	Reduced operating expenses
Simplified maintenance and troubleshooting	Reduced operating expenses
Converged voice and data network	Reduced operating expenses
Reduced installation cost (shared Cisco Unified Communications Manager resource)	Reduced initial expense

However, a centralized call-processing architecture must include a strategy for survivability of telephony service at the branch office when access to the centralized call processing is interrupted because of WAN outage or other factors. Call-processing redundancy in the branch office is particularly critical in an emergency (which may be the actual cause of the WAN outage).

Components of Centralized Call-Processing Architecture

The Cisco Unified Communications solution uses Cisco Unified Communications Manager (formerly Cisco Unified CallManager) in combination with Cisco Unified SRST, which is embedded

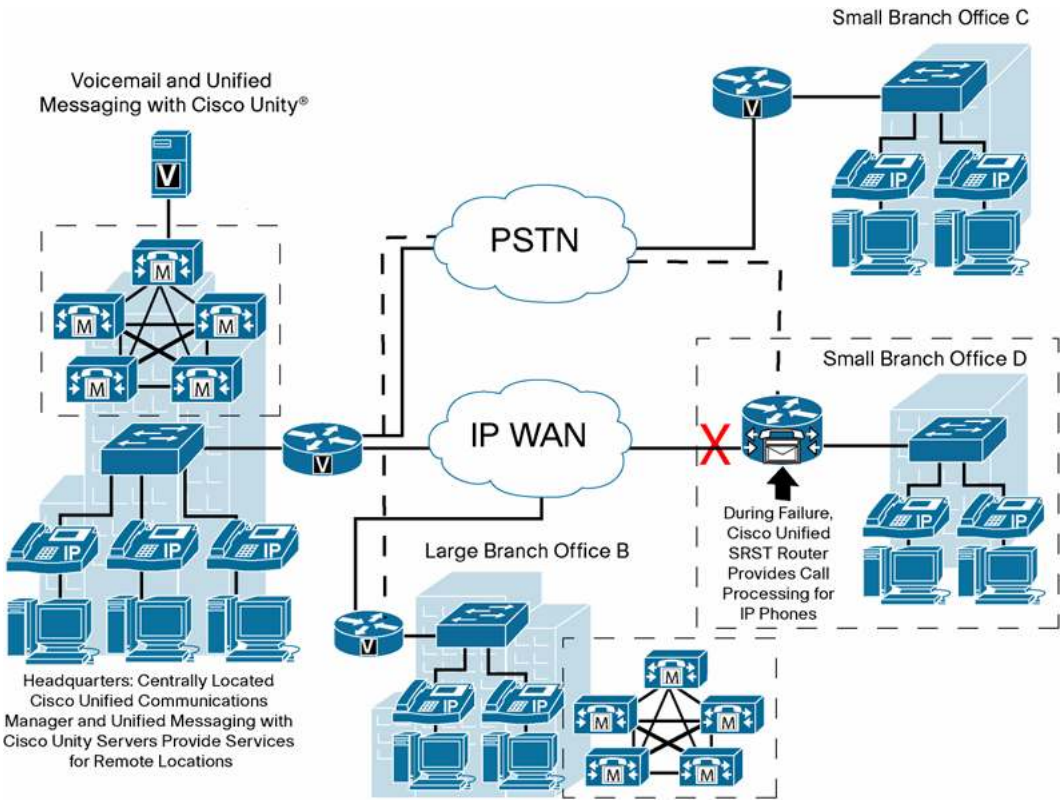
within the Cisco IOS® Software, to help provide high-availability IP telephony to branch offices. When access to Cisco Unified Communications Manager from the branch office is impeded, for example, as a result of a WAN link failure, Cisco Unified SRST provides telephony backup services to help ensure that the branch office has continuous telephony service over the Cisco network infrastructure deployed in the branch location. The enhanced reliability provided by Cisco Unified SRST makes Cisco Unified Communications a cost-effective solution to ensure telephony operation to all users in an organization, whether they are located in the headquarters or in a branch office.

Furthermore, in certain environments, the security of telephony communication is a critical requirement. The Cisco Unified Communications solution supports secure telephony communication between any two phones in the network, whether those phones are in the headquarters facility or at a branch office. Cisco Unified SRST contributes to this secure telephony communication solution by supporting the same secure telephony protocols in the branch office when the branch loses communication with the centralized Cisco Unified Communications Manager.

How It Works

Cisco developed Cisco Unified SRST technology for all Cisco IOS Software platforms that support voice (refer to Table 4 for a complete list). Cisco Unified SRST integrates network intelligence into Cisco IOS Software, which acts as the call-processing engine for IP phones located in the branch office during a WAN outage (Figure 1).

Figure 1. Centralized Cisco Unified Communications Manager Deployment with Remote Site Experiencing WAN Failure and Cisco Router Using Cisco Unified SRST



Cisco Unified SRST functions in the branch-office router to automatically detect a failure in the network and initiate a process to autoconfigure the router, providing call-processing backup

redundancy for the IP phones in that office and helping ensure that the telephony capabilities stay operational. Upon restoration of WAN connectivity, the system automatically shifts call processing back to the primary Cisco Unified Communications Manager cluster. The Cisco Unified SRST configuration needs to be completed only once, during installation, simplifying deployment, administration, and maintenance. No IT staff is required at the remote sites to manage Cisco Unified SRST.

Cisco routers with Cisco Unified SRST also offer secure voice mode with Cisco Unified SRST 3.3 and later. If you deploy secure voice with mode Cisco Unified Communications Manager at your main site, secure Cisco Unified SRST gives you the option to keep calls secure while in Cisco Unified SRST mode with transparent layer security (TLS) and Secure Real-Time Transport Protocol (SRTP) for signaling and media encryption, respectively. When the WAN link or Cisco Unified Communications Manager is restored, Cisco Unified Communications Manager resumes secure call-handling capabilities.

Cisco Unified SRST 3.4 and later supports Session Initiation Protocol (SIP) for Cisco Unified IP Phones, which provide basic telephony functions when the network SIP proxy or Cisco Unified Communications Manager is no longer available. The Cisco Unified SRST router with SIP enabled provides SIP registrar services during the outage and supports a back-to-back user agent, allowing for supplementary features such as call transfer and forwarding. Cisco Unified IP Phones using SIP register with the router with Cisco Unified SRST enabled when the WAN link is out of service.

Cisco Unified SRST offers fault monitoring using Simple Network Management Protocol (SNMP) with the SRST MIB, which allows you to remotely monitor the Cisco Unified SRST site using existing SNMP tools or CiscoWorks. The Cisco SRST MIB provides the network operations center details about Cisco Unified SRST activity, including duration of SRST use, IP phones registered or registration failure, and calls processed in SRST mode. A backup WAN link connection is required to receive Cisco SRST MIB data at the central site in SRST mode.

Table 2 lists the old part numbers for Cisco Unified SRST

Table 2. Cisco Unified SRST Platform Density and Feature License Part Numbers (Please note that the SRST licensing part numbers have been revised since May 2008. With the new installation on SRST 4.1, the customers will need to purchase with the new licensing part number. However the maximum number of phone support with SRST 4.1 will maintain unchanged.)

Platform	Number of Phones Supported***	Part Number	Part Number (Spare)
Cisco 1760-V Modular Access Router and Cisco 2801 Integrated Services Router	Up to 24 phones	FL-SRST-SMALL	FL-SRST-SMALL=
Cisco 2600XM Multiservice Router and Cisco 2811 Integrated Services Router	Up to 36 phones	FL-SRST-36	FL-SRST-36=
Cisco 2650XM Multiservice Router and Cisco 2821 Integrated Services Router	Up to 48 phones	FL-SRST-MEDIUM	FL-SRST-MEDIUM=
Cisco 2851 Integrated Services Router	Up to 96 phones	FL-SRST-96	FL-SRST-96=
Cisco 3725 Multiservice Access Router	Up to 144 phones	FL-SRST-144	FL-SRST-144=
Cisco 3825 Integrated Services Router	Up to 336 phones	FL-SRST-336	FL-SRST-336=
Cisco 3745 Multiservice Access Router	Up to 480 phones	FL-SRST-480	FL-SRST-480=

Cisco uBR7200 Series NPE-400 and NPE-G1 Network Processing Engines**	Up to 480 phones	FL-SRST-480	FL-SRST-480=
Cisco 3845 Integrated Services Router and Cisco Catalyst® 6500 Series Communications Media Module (CMM)	Up to 720 phones	FL-SRST-720	FL-SRST-720=

* The Cisco Catalyst 6500 Series CMM supports Cisco Unified SRST 4.0 with Cisco IOS Software Release 12.4, and Cisco Unified SRST 2.1 with Cisco IOS Software Release 12.2(13)ZC.
** The Cisco uBR7200 Series supports Cisco Unified SRST 2.1 only with Cisco IOS Software Release 12.3 Mainline.
*** The maximum number of SIP phones supported in SRST mode in this release differs as follows: Cisco 1751, Cisco 1760, Cisco 2610XM, Cisco 2611XM, Cisco 2620XM, Cisco 2621XM and Cisco 2801 support up to 24 phones; Cisco 2650XM and Cisco 2811 support up to 36 phones; Cisco 2821 supports up to 48 phones; Cisco 2691 supports up to 72 phones; Cisco 2851 supports up to 96 phones; Cisco 3725 supports up to 144 phones; Cisco 3825 supports up to 168 phones; Cisco 3745 supports up to 192 phones; and Cisco 3845 supports up to 480 phones.

Table 3 lists the new part numbers versus the old ones for Cisco Unified SRST:

Table 3. Unified SRST Part Number Comparison Matrix

	Part Number of Old Feature License	Part Number of New Equivalent Feature License
SRST	FL-SRST-240	FL-SRST-250
	FL-SRST-168	FL-SRST-175
	FL-SRST-96	FL-SRST-100
	FL-SRST-MEDIUM	FL-SRST-50
	FL-SRST-36	FL-SRST-35
	FL-SRST-SMALL	FL-SRST-25

Cisco Unified SRST Platform Information

Cisco platforms with Cisco Unified SRST support from 24 to 720 phones. Details about currently supported platforms and the number of phones per platform is provided in the Cisco Unified SRST specifications sheet for each version, which can be viewed online at http://www.cisco.com/en/US/products/sw/voicesw/ps2169/products_device_support_tables_list.html.

Cisco offers integrated services router bundles with Cisco Unified SRST at a discount when compared to the separate purchase of bundle components. These bundles are listed in Table 4.

Table 4. Cisco Unified SRST Bundles

Bundle Part Number	Includes
CISCO3845-SRST/K9	Cisco 3845 voice bundle with packet voice digital signal processor (DSP) module (PVDM2-64), Cisco Unified SRST license for 240 phones, and Cisco IOS Software Services feature set
CISCO3825-SRST/K9	Cisco 3825 voice bundle with packet voice DSP module (PVDM2-64), Cisco Unified SRST license for 168 phones, and Cisco IOS Software Services feature set
CISCO2851-SRST/K9	Cisco 2851 voice bundle with packet voice DSP module (PVDM2-48), Cisco Unified SRST license for 96 phones, and Cisco IOS Software Services feature set
CISCO2821-SRST/K9	Cisco 2821 voice bundle with packet voice DSP module (PVDM2-32), Cisco Unified SRST license for 48 phones, and Cisco IOS Software Services feature set
CISCO2811-SRST/K9	Cisco 2811 voice bundle with packet voice DSP module (PVDM2-16), Cisco Unified SRST license for 36 phones, and Cisco IOS Software Services feature set
CISCO2801-SRST/K9	Cisco 2801 voice bundle with packet voice DSP module (PVDM2-8), Cisco Unified SRST license for 24 users, and Cisco IOS Software Services feature set

Cisco Unified IP Phone Support

Cisco Unified SRST is supported by Cisco CallManager Version 3.01 and later. Cisco Unified SRST is not dependent on the Cisco Unified Communication Manager (formally known as Call Manager) version but on the IP phone loads.

Table 5 lists the Cisco Unified IP Phones supported by Cisco Unified SRST with Skinny Call Control Protocol (SCCP) phone loads.

Table 5. Cisco Unified IP Phone Support Using SCCP

Phone	Cisco Unified SRST 2.1	Cisco Unified SRST 3.3	Cisco Unified SRST 3.4	Cisco Unified SRST 4.0	Cisco Unified SRST 4.1
Cisco Unified IP Phone 7970G and 7971G-GE models	–	X	X	X	X
Cisco Unified IP Phone 7960G and 7940G models	X	X	X	X	X
Cisco Unified IP Phone 7961G, 7941G, 7961G-GE, and 7941G-GE models	–	X	X	X	X
Cisco Unified IP Conference Station 7935	X	X	X	X	X
Cisco Unified IP Conference Station 7936	–	X	X	X	X
Cisco Unified IP Phone 7912G	–	X	X	X	X
Cisco Unified IP Phone 7911G	–	X	X	X	X
Cisco Unified IP Phone 7905G	_	X	X	X	X
Cisco Unified IP Phone 7906G	_	–	–	–	X
Cisco Unified IP Phone 7902G	–	X	X	X	X
Cisco Unified Wireless IP Phone 7920	–	X	X	X	X
Cisco Unified Wireless IP Phone 7921G	–	–	–	_	X
Cisco Unified IP Phone Expansion Module 7914	X	X	X	X	X
Cisco Unified IP Phone 7931G	-	-	-	-	X
Cisco Unified IP Phone 7942 G **Cisco Unified IP Phone 7962 G**	-	-	-	-	X
Cisco Unified IP Phone 7945G **Cisco Unified IP Phone 7965G**	-	-	-	-	X
Cisco Unified IP Phone 7975	-	-	-	-	X
Cisco Unified IP Phone 7985	-	-	-	-	X
Cisco VG248 48-Port Analog Phone Gateway	X	X	X	X	X
Cisco ATA 180 Series Analog Telephone Adaptors	–	X	X	X	X
Cisco IP Communicator	–	–	–	X	X
Cisco Unified Video Advantage	–	–	–	X	X

Table 6 lists the Cisco Unified IP Phones supported by Cisco Unified SRST with SIP phone loads.

Table 6. Cisco Unified IP Phone Support Using SIP

Phone	Cisco Unified SRST 4.0	Cisco Unified SRST 4.1
Cisco Unified IP Phone 7970G and 7971G-GE models	X	X
Cisco Unified IP Phone 7960G and 7940G models	X	X
Cisco Unified IP Phone 7961G, 7941G, 7961G-GE, and 7941G-GE models	X	X
Cisco Unified IP Conference Station 7935	–	–
Cisco Unified IP Conference Station 7936	–	–
Cisco Unified IP Phone 7912G	X	X
Cisco Unified IP Phone 7906G	–	X
Cisco Unified IP Phone 7911G	X	X
Cisco Unified IP Phone 7905G	X	X
Cisco Unified IP Phone 7902G	–	–
Cisco Unified Wireless IP Phone 7920 and 7921G models	–	–
Cisco Unified IP Phone 7931G	-	-
Cisco Unified IP Phone 7942 G **Cisco Unified IP Phone 7962 G**	-	X
Cisco Unified IP Phone 7945G **Cisco Unified IP Phone 7965G**	-	X
Cisco Unified IP Phone 7975	-	X
Cisco Unified IP Phone 7985	-	-
Cisco Unified IP Phone Expansion Module 7914	–	–
Cisco ATA 180 Series Analog Telephone Adaptors	–	–

Cisco IOS Software Image Support

Table 7 summarizes the correlation between the Cisco Unified SRST version and Cisco IOS Software.

Secure Cisco Unified SRST is available with Cisco Unified SRST 3.3 and later for Cisco Unified IP Phones using SCCP and requires Cisco Unified CallManager Version 4.1(2) or later.

Cisco Unified SRST for SIP phones is supported with Cisco Unified SRST 3.4 and later and only with Cisco Unified IP Phones.

For the latest Cisco IOS Software release and features, consult the Feature Navigator at http://www.cisco.com/go/fn.

Table 7. Cisco Unified SRST Version and Cisco IOS Software Releases

Cisco Unified SRST Version	Cisco IOS Software Release
Cisco Unified SRST 2.0	Cisco IOS Software Release 12.2(13)T
Cisco Unified SRST 2.1	Cisco IOS Software Releases 12.2(15)T and 12.3 Mainline
Cisco Unified SRST 3.0	Cisco IOS Software Release 12.3(4)T
Cisco Unified SRST 3.1	Cisco IOS Software Release 12.3(8)T
Cisco Unified SRST 3.2	Cisco IOS Software Release 12.3(11)T
Cisco Unified SRST 3.3 Plus Secure SRST	Cisco IOS Software Releases 12.3(14)T and 12.4 Mainline
Cisco Unified SRST 3.4	Cisco IOS Software Release 12.4(4)T
Cisco Unified SRST 4.0	Cisco IOS Software Release 12.4(9)T

Cisco Unified SRST 4.1	Cisco IOS Software Release 12.4(14)T

Supported Features

Cisco Unified SRST provides robust support for many IP phone features through the duration of the WAN failure, a feature that is not available with other traditional telephony solutions. Table 8 lists the features supported during failure.

Table 8. Cisco Unified SRST Features Supported During WAN Failure

Cisco Unified SRST Version	Feature Set
Cisco Unified SRST 2.0	• Support for IP and analog phones • Rehoming of IP phones upon failure to branch router for call processing • Maintenance of local extension-to-extension calls upon failure* • Maintenance of extension-to-public switched telephone network (PSTN) calls upon failure • Up to 6 lines per phone • Call hold and pick up • Speed and last-number redial • Up to 24 line appearances per system • Primary line support • Maintenance of existing calls upon recovery • Analog foreign exchange office (FXO) and foreign exchange station (FXS) • Calling-party name • Caller ID and asynchronous-network-interface (ANI) support • WAN link support: Frame Relay, ATM, Multilink Point-to-Point Protocol (MLPPP), serial, ATM Adaption Layer 2 (AAL2), and DSL • Class of restriction • Music on hold (MOH), tone on hold, and music and tone on transfer (MOH for endpoint PSTN only) • Distinctive ringing • Direct inward dialing (DID) and direct outward dialing (DOD) • PSTN T1 and E1 channel-associated-signaling (CAS) trunks support • ISDN Basic Rate Interface (BRI) and Primary Rate Interface (PRI) support • Call-detail recording and RADIUS server • Interworking with Cisco Gatekeeper • Transfer to voicemail pilot number using PSTN • Alias lists for unregistered phones • Translation rules support • Tool Command Language (TCL)–based simple automated attendant and interactive voice response (IVR) on local gateways • Transfer across H.323 network of Cisco endpoints
Cisco Unified SRST 2.1	• Cisco Unified CallManager phone language support • Global-call-forwarding enhancement • In-band dual tone multifrequency (DTMF) voicemail integration • Enhanced dial-plan pattern

Cisco Unified SRST 3.0	• E1-R2 signaling support • Secondary dial tone • Dual-line appearance per button • 3-party G711 temporary conferencing • Call transfer with consult • MOH multicast from flash .au file in Cisco Unified CallManager mode • Support for Cisco Unified IP Phone 7905 • European date formats • Enhanced **dialplan-pattern** command • Increased directory-number maximums • Additional language options for IP phone • Configurable system message • Improved debugging for phones • Symmetric SIP gateway-to-gateway DTMF relay • Ringing timeout for phones • Cisco SIP phone support of basic calls only
Cisco Unified SRST 3.1	• Support for Cisco Unified Wireless IP Phone 7920 • Support for Cisco Unified IP Conference Station 7935 or Cisco Unified IP Conference Station 7936
Cisco Unified SRST 3.2	• Enhancement to the **alias** command • Enhancement to the **cor** command • Enhancement to the **pickup** command • Enhancement to the **user-locale** command • Increased number of phones supported on the Cisco 3745 Multiservice Access Router • MOH multicast from live feed in Cisco Unified CallManager mode • No timeout for call preservation* • RFC 2833 DTMF relay support • Translation profile support
Cisco Unified SRST 3.3	• Support for Cisco Unified IP Phone 7970G, 7971G-GE, 7961G, 7941G, 7961G-GE, 7941G-GE, and 7911G models • Enhancement to the **show ephone** command (new Cisco Unified IP Phone model keywords)
Secure Cisco Unified SRST 3.3 with Cisco Unified CallManager 4.1(2)	• Basic call • Call transfer (consult and blind) • Call forwarding (busy, no answer, and all) • Shared line (IP phones) • Hold and resume • Hold and pickup • Only secure calls between IP phones or Cisco Unified SRST routers
Cisco Unified SRST 3.4	• Fault monitoring with SNMP Cisco SRST MIB, including: • Cisco Unified SRST state and duration • Phone registration and failure • Threshold unregistration • Total calls handled in Cisco Unified SRST mode • Cisco Unified SRST support for Cisco Unified IP Phones using SIP loads • SIP proxy and registrar services in Cisco Unified SRST mode plus back-to-back user agent for support of supplementary features • SIP features: call forwarding, call hold, call transfer (blind and consult), distinctive ringing, time-based call blocking, and SIP phone-load features
Cisco Unified SRST 4.0	• Support for video calls with Cisco Unified Video Advantage client • Support for Cisco IP Communicator • Fax pass-though using SCCP with Cisco ATA 180 Series Analog Telephone Adaptors • Call preservation enhancements between IP phones and H.323-controlled voice gateways

Cisco Unified SRST 4.1	• SIP line-side feature enhancements, including SIP line-side support for Cisco Unified IP Phone 7971G-GE, 7970G, 7941G, 7961G, 7911G, and 7906G models • Dial-plan pattern and Keypad Markup Language (KPML) for faster dialing for SIP Phones • MoH for SIP phones • SIP caller ID update, status line update, and SRST status prompt with customizable message • E-911 support

* Prior to Cisco Unified SRST 3.2, active calls to the PSTN from Cisco Unified SRST IP Phones are maintained for most calls and dropped after approximately 3 minutes. Active calls between users on the same LAN are not affected by WAN failure, and security is maintained for the duration of the call.

Cisco Unified SRST 3.2 and later can preserve existing H.323 calls at the branch location if an outage occurs; disable the H.225 keepalive timer by entering the **no h225 timeout keepalive** command.

Cisco Unified Communications Services and Support

Using the Cisco Lifecycle Services approach, Cisco and its partners offer a broad portfolio of end-to-end services to support the Cisco Unified Communications solution. These services are based on proven methodologies for deploying, operating, and optimizing IP communications solutions. Initial planning and design services, for example, can help you meet aggressive deployment schedules and reduce network disruption during implementation. Operation services reduce the risk of communications downtime through expert technical support, and optimization services enhance solution performance for operation excellence. Cisco and its partners offer a system-level service and support approach that can help you create and maintain a resilient, converged network that meets your business needs.

Conclusion

Cisco Unified SRST, in combination with Cisco Unified Communications Manager, offers enterprises a simple, cost-effective solution for customers who want the benefits of a centralized call-processing architecture with redundancy at the remote office.

For More Information

For more information about the Cisco Unified Communications solution, visit the following:

Cisco Unified SRST product and technical information: http://www.cisco.com/go/srst

Cisco Unified Communications products, including Cisco Unified Communications Manager: http://www.cisco.com/go/unifiedcommunications

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