

Cisco Survivable Remote Site Telephony Version 4.2

Cisco® Unified Communications Solutions unify voice, video, data, and mobile applications on fixed and mobile networks, delivering a media-rich collaboration experience across business, government agency, and institutional workspaces. These applications use the network as the platform to enhance comparative advantage by accelerating decision time and reducing transaction time. The security, resilience, and scalability of the network enable users in any workspace to easily connect anywhere, anytime, and anyplace, using any media, device, or operating system. Cisco Unified Communications is part of a comprehensive solution that includes network infrastructure, security, wireless, management applications, lifecycle services, flexible deployment and outsourced management options, and third-party applications.

As the enterprise extends its IP telephony deployments from central sites to remote offices, one of the critical factors in achieving a successful deployment is the ability 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.

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 a corporation. 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

Features	Benefits
Delivery of full feature set to remote branches, 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, 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 cause of a WAN outage in the first place.

Components of Centralized Call-Processing Architecture

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

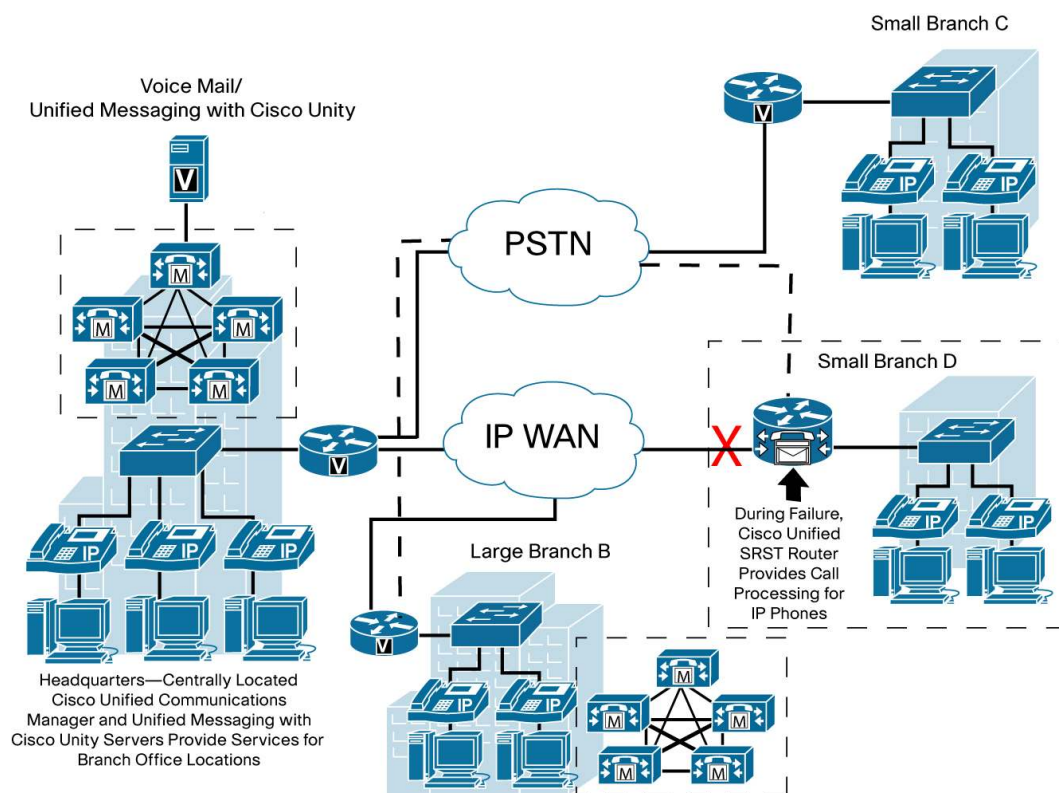
as a result of a WAN link failure, Cisco Unified SRST provides telephony backup services to help ensure that the branch office has continuous telephony service over the Cisco network infrastructure deployed in the branch. The enhanced reliability provided by Cisco Unified SRST makes the Cisco Unified Communications system a cost-effective solution to help 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 system 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 3 for a complete list). The Cisco Unified SRST feature 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 shows a centralized Cisco Unified Communications Manager deployment with a remote site experiencing WAN failure, and the Cisco router using Cisco Unified SRST.

Figure 1. Centralized Cisco Unified Communications Manager with Cisco Unified SRST Deployment



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 install, simplifying deployment, administration, and maintenance. No IT staff is required at the remote sites to manage the Cisco Unified SRST feature.

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 Cisco Unified Communications Manager at your main site, secure Cisco Unified SRST gives you the option to keep calls secure during Cisco Unified SRST mode using Transport 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 Version 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 to the Cisco Unified SRST enabled router when the WAN link is out of service.

Cisco Unified SRST offers fault monitoring using Simple Network Management Protocol (SNMP) with the SRST Management Information Base (MIB), which gives you the ability 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 usage, IP phones registered or registration failure, and calls processed during SRST mode. A backup WAN link connection is required to receive CISCO-SRST-MIB data to the central site during SRST mode. Table 2 lists part numbers for Cisco Unified Survivable Remote Site Telephony.

Table 2. Cisco Unified SRST Platform Density and Feature License Part Numbers

Platform	Number of Phones Supported*	Part Number	Part Number (Spare)
Cisco 1861 Integrated Services Router	Up to 8 phones	–	–
Cisco 2801 Integrated Services Router	Up to 24 phones	FL-SRST-SMALL	FL-SRST-SMALL=
Cisco 2811 Integrated Services Router	Up to 36 phones	FL-SRST-36	FL-SRST-36=
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 3845 Integrated Services Router and Cisco Catalyst® 6500 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 supports Cisco Unified SRST 2.1 with Cisco IOS Software Release 12.2(13)ZC.

Cisco Unified SRST Platform Information

Cisco platforms with Cisco Unified SRST support from 8 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_documentation_roadmap09186a008018912f.html.

Cisco offers integrated services router bundles with Cisco Unified SRST at a discount when compared to purchasing bundle components separately. These bundles are listed in Table 3.

Table 3. 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 feature license for 240 phones, and Cisco IOS SP Services feature set
CISCO3825-SRST/K9	Cisco 3825 voice bundle with packet voice DSP module (PVDM2-64), Cisco Unified SRST feature license for 168 phones, and Cisco IOS SP Services feature set
CISCO2851-SRST/K9	Cisco 2851 voice bundle with packet voice DSP module (PVDM2-48), Cisco Unified SRST feature license for 96 phones, and Cisco IOS SP Services feature set
CISCO2821-SRST/K9	Cisco 2821 voice bundle with packet voice DSP module (PVDM2-32), Cisco Unified SRST feature license for 48 phones, and Cisco IOS SP Services feature set
CISCO2811-SRST/K9	Cisco 2811 voice bundle with packet voice DSP module (PVDM2-16), Cisco Unified SRST feature license for 36 phones, and Cisco IOS SP Services feature set
CISCO2801-SRST/K9	Cisco 2801 voice bundle with packet voice DSP module (PVDM2-8), Cisco Unified SRST feature license for 24 users, and Cisco IOS SP Services feature set
C1861-SRST-C-F/K9	Cisco 1861 with 8 Power over Ethernet ports, 4 Foreign Exchange Subscriber(FXS) ports, 4 Foreign Exchange Office(FXO) ports, Cisco Unity Express, Cisco Unified SRST feature license for 8 users, and Cisco IOS SP Services feature set
C1861-SRST-C-B/K9	Cisco 1861 with 8 Power over Ethernet ports, 4 Foreign Exchange Subscriber(FXS) ports, 2 Basic Rate Interface ports, Cisco Unity Express, Cisco Unified SRST feature license for 8 users, and Cisco IOS SP Services feature set
C1861-SRST-F/K9	Cisco 1861 with 8 Power over Ethernet ports, 4 Foreign Exchange Subscriber(FXS) ports, 4 Foreign Exchange Office(FXO) ports, Cisco Unified SRST feature license for 8 users, and Cisco IOS SP Services feature set
C1861-SRST-B/K9	Cisco 1861 with 8 Power over Ethernet ports, 4 Foreign Exchange Subscriber(FXS) ports, 2 Basic Rate Interface ports, Cisco Unified SRST feature license for 8 users, and Cisco IOS SP Services feature set

Cisco Unified IP Phone Support

Cisco Unified SRST is supported with Cisco Unified CallManager Version 3.0.1 and later. Cisco Unified SRST is not dependent on Cisco Unified Communications Manager versions but on IP phone loads.

Table 4 lists the Cisco Unified IP phones supported by Cisco Unified SRST with Skinny Call Control Protocol (SCCP) phone loads.

Table 4. 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 SRST 4.2
Cisco Unified IP Phone 7970G and 7971G-GE models	–	X	X	X	X	X
Cisco Unified IP Phone 7960G and 7940G models	X	X	X	X	X	X

Cisco Unified IP Phone 7961G, 7941G, 7961G-GE, and 7941G-GE models	–	X	X	X	X	X
Cisco Unified IP Phone 7931G					X	X
Cisco Unified IP Conference Station 7935	X	X	X	X	X	X
Cisco Unified IP Conference Station 7936	–	X	X	X	X	X
Cisco Unified IP Phone 7912G	–	X	X	X	X	X
Cisco Unified IP Phone 7911G	–	–	–	X	X	X
Cisco Unified IP Phone 7905G	–	X	X	X	X	X
Cisco Unified IP Phone 7906G	–	–	–	–	X	X
Cisco Unified IP Phone 7902G	–	X	X	X	X	X
Cisco Unified Wireless IP Phone 7920	–	X	X	X	X	X
Cisco Unified Wireless IP Phone 7921G	–	–	–		X	X
Cisco Unified IP Phone 7985G	–		–	Audio calls only	Audio calls only	Audio and video calls
Cisco Unified IP Phone Expansion Module 7914	X	X	X	X	X	X
Cisco VG248 48-Port Analog Phone Gateway	X	X	X	X	X	X
Cisco ATA 180 Series Analog Telephone Adaptors	–	–	–	X	X	X
Cisco IP Communicator	–	–	–	X	X	X
Cisco Unified Video Advantage	–	–	–	X	X	X

Table 5 lists the Cisco Unified IP phones supported by Cisco Unified SRST with Session Initiation Protocol (SIP) phone loads.

Table 5. Cisco Unified IP Phone Support Using SIP

Phone	Cisco Unified SRST 4.0	Cisco Unified SRST 4.1	Cisco Unified SRST 4.2
Cisco Unified IP Phone 7970G and 7971G-GE models	X	X	X
Cisco Unified IP Phone 7960G and 7940G models	X	X	X
Cisco Unified IP Phone 7961G, 7941G, 7961G-GE, and 7941G-GE models	X	X	X
Cisco Unified IP Conference Station 7935	–	–	–
Cisco Unified IP Conference Station 7936	–	–	–
Cisco Unified IP Phone 7912G	X	X	X
Cisco Unified IP Phone 7906G	-	X	X
Cisco Unified IP Phone 7911G	X	X	X
Cisco Unified IP Phone 7905G	X	X	X

Cisco Unified IP Phone 7902G	–	–	–
Cisco Unified Wireless IP Phone 7920 and 7921G models	–	–	–
Cisco Unified IP Phone Expansion Module 7914	–	–	–
Cisco ATA 180 Series Analog Telephone Adaptors	–	–	–

Cisco IOS Software Image Support

Table 6 summarizes the correlation between Cisco Unified SRST versions and Cisco IOS Software releases.

Secure Cisco Unified SRST is available with Cisco Unified SRST 3.3 and later for Cisco Unified IP phones using SCCP and also requires Cisco Unified CallManager 4.1(2) or later. (Beginning with Version 4.3, Cisco Unified CallManager is called Cisco Unified Communications Manager.)

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 6. Cisco IOS Software Release(s)

Cisco Unified SRST Version	Cisco IOS Software Release(s)
Cisco Unified SRST 2.0	12.2(13)T
Cisco Unified SRST 2.1	12.2(15)T and 12.3 Mainline
Cisco Unified SRST 3.0	12.3(4)T
Cisco Unified SRST 3.1	12.3(8)T
Cisco Unified SRST 3.2	12.3(11)T
Cisco Unified SRST 3.3 Plus Secure SRST	12.3(14)T or 12.4 Mainline
Cisco Unified SRST 3.4	12.4(4)T
Cisco Unified SRST 4.0	12.4(9)T
Cisco Unified SRST 4.1	12.4(14)T
Cisco Unified SRST 4.2	12.4(11)XW2

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 from other traditional telephony solutions. Table 7 lists the features supported during failure.

Table 7. Cisco Unified SRST Features

Cisco Unified SRST Version	Feature Set
Cisco Unified SRST 2.0	<ul style="list-style-type: none"> • Support for IP and analog phones • Re-homing 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 six 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	<ul style="list-style-type: none"> • Cisco Unified CallManager/Communications Manager phone language support • Global call-forwarding enhancement • In-band dual tone multifrequency (DTMF) voicemail integration • Enhanced dial-plan pattern
Cisco Unified SRST 3.0	<ul style="list-style-type: none"> • E1-R2 signaling support • Secondary dial tone • Dual-line appearance per button • Three-party G711 temporary conferencing • Call transfer with consult • MOH multicast from flash .au file in Cisco Unified CallManager/Communications Manager 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 debugs 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	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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/Communications Manager mode • No timeout for call preservation* • RFC 2833 DTMF relay support • Translation profile support
Cisco Unified SRST 3.3	<ul style="list-style-type: none"> • 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)	<ul style="list-style-type: none"> • Basic call • Call transfer (consult and blind) • Call forward (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 router
Cisco Unified SRST 3.4	<ul style="list-style-type: none"> • Fault monitoring with SNMP CISCO-SRST-MIB including: <ul style="list-style-type: none"> ◦ Cisco Unified SRST state and duration ◦ Phone registration and failure ◦ Threshold un-registration ◦ Total calls handled during Cisco Unified SRST mode • Cisco Unified SRST support for Cisco Unified IP phones using SIP loads • SIP Proxy/registrar services during Cisco Unified SRST mode plus back-to-back user agent for support of supplementary features • SIP features: call forward, call hold, call transfer (blind and consult), distinctive ringing, time-based call blocking, plus SIP phone load features
Cisco Unified SRST 4.0	<ul style="list-style-type: none"> • Support for video calls with Cisco Unified Video Advantage Client • Support for Cisco IP Communicator • Fax pass-through 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	<ul style="list-style-type: none"> • 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 • Music on Hold for SIP phones • SIP caller ID update, status line update, SRST status prompt with customizable message • E-911 support
Cisco Unified SRST 4.2	<ul style="list-style-type: none"> • Support for Cisco 1861 Integrated Services Router

* 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 on the branch if an outage occurs by disabling the H.225 keepalive timer by entering the no h225 timeout keepalive command.

Cisco Unified Communications Services

Cisco and its certified partners can help you deploy a secure, resilient Cisco Unified Communications solution, meeting aggressive deployment schedules and accelerating business advantage. Cisco's portfolio of services is based on proven methodologies for unifying voice, video, data, and mobile applications on fixed and mobile networks.

Cisco's unique lifecycle approach to services defines the requisite activities at each phase of the solution lifecycle. Customized planning and design services focus on creating a solution that meets your business needs. Award-winning technical support increases operational efficiency.

Remote management services simplify day-to-day operations, and optimization services enhance solution performance as your business needs change.

Summary

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

For more information about the Cisco Unified Communications system, refer to 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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