Cisco Unified Survivable Remote Site Telephony and Cisco Unified Enhanced Survivable Remote Site Telephony Version 10.5

Helping Provide Reliable Communications to Branch Offices, Teleworkers, and Cloud Telephony Deployments

As the enterprise extends its IP telephony deployments from central sites to remote branch offices and teleworkers, a critical factor in achieving a successful deployment is the capability to support backup call control at these remote locations. Cisco® Unified Survivable Remote Site Telephony (Unified SRST) and Cisco Unified Enhanced Survivable Remote Site Telephony (Unified E-SRST) provide cost-effective solutions for supporting redundant call control in remote branch offices and the homes of teleworkers. Both Cisco Unified SRST and Unified E-SRST support Cisco Unified Communications Manager and Cisco Business Edition. Cisco Unified SRST also provides reliable cloud communications and supports Cisco Powered Cloud Collaboration Services powered by Cisco Hosted Collaboration Solution (HCS).

Benefits of Centralized Call-Processing Architecture

Cisco Unified SRST or Unified E-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 for 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 and Benefits
Delivery of full feature set to remote 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

A centralized call-processing architecture must include a strategy for survivability of telephony service at the remote locations (that is, at branch offices and the homes of teleworkers) when access to the centralized call-processing services is interrupted because of a WAN outage or other factors. Call-processing redundancy in the remote location is particularly critical during an emergency (which may be the actual cause of the WAN outage).

Components of Centralized Call-Processing Architecture

Cisco Unified Communications Manager or Cisco Business Edition in combination with Cisco Unified SRST or Unified E-SRST, which is embedded in the Cisco IOS® Software, helps provide high-availability IP telephony to remote locations. When access to Cisco Unified Communications Manager from a remote location is lost, for example, as a result of a WAN link failure, Cisco Unified SRST or Unified E-SRST provides telephony backup services to help ensure that the remote location has continuous telephony service.

The enhanced reliability makes Cisco Unified Communications a cost-effective solution to help ensure telephony operation for all users in an organization, whether they are located in the headquarters or in a remote location.

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

Cisco Unified SRST Deployed with Cisco HCS

Cisco Powered Cloud Collaboration Service deployments powered by Cisco HCS are also a type of centralized call-processing architecture. Based on Cisco Unified Communications Manager, Cisco HCS offers industry-leading collaboration technologies for secure and scalable clouds from partners certified to offer Cisco Powered Cloud Services. Cisco HCS is located at the provider's data center with the enterprises it serves acting like remote-office locations. If communications from the Cisco Powered Cloud Service to the enterprise fail, Cisco Unified SRST provides the telephony backup service to help eliminate business disruption as described throughout this document.

How Cisco Unified SRST Works

Cisco developed Cisco Unified SRST technology for all Cisco IOS Software platforms that support call processing (refer to Table 2 for a complete list of supported platforms). Cisco Unified SRST integrates network intelligence into Cisco IOS Software, which acts as the call-processing engine for IP phones located in the remote locations during a WAN outage (Figure 1).

Figure 1. Centralized Cisco Unified Communications Manager Deployment with Remote Site Experiencing a WAN Failure and Cisco Integrated Services Router (ISR) Using Cisco Unified SRST
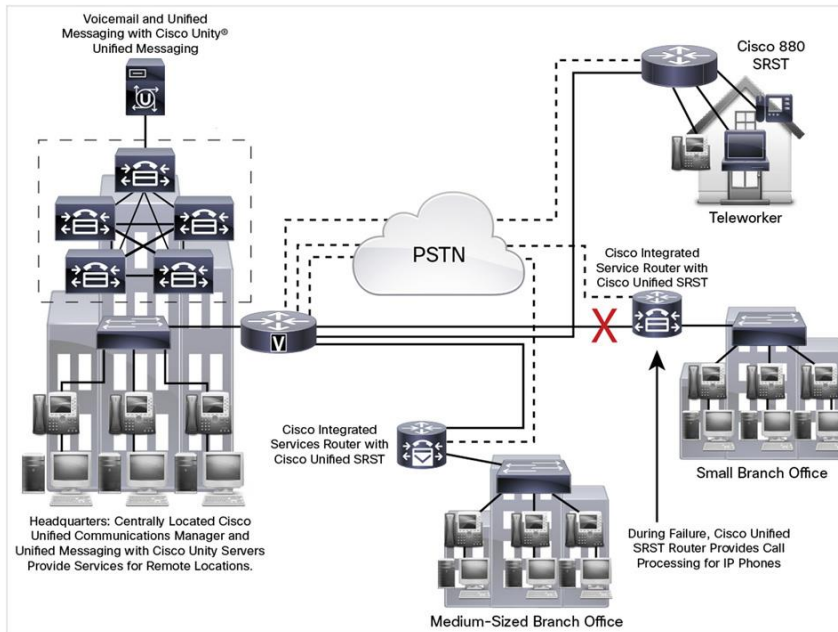
Cisco Unified SRST functions in the remote-location router to automatically detect a failure in the network and initiate a process to provide call-processing backup redundancy for the IP phones in that location and help ensure that the telephony capabilities stay operational. Upon restoration of WAN connectivity, the system intelligently and 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 the initial installation, simplifying deployment, administration, and maintenance. No IT staff is required at the remote sites to manage the Cisco Unified SRST application.

Cisco routers running Cisco Unified SRST also offer a secure voice mode with Cisco Unified SRST. If secure voice is deployed with Cisco Unified Communications Manager at the central site, secure Cisco Unified SRST allows you to keep calls secure during Cisco Unified SRST mode with Transport Layer Security (TLS) and Secure Real-Time Transport Protocol (SRTP) for signaling and media encryption. When the WAN link or Cisco Unified Communications Manager service is restored, Cisco Unified Communications Manager resumes secure call-handling capabilities.

Cisco Unified SRST supports Secure Client Control Protocol (SCCP) and Session Initiation Protocol (SIP) for Cisco IP Phones, providing basic telephony functions when the network SIP proxy or Cisco Unified Communications Manager is no longer available. The Cisco Unified SRST router uses the proprietary SCCP protocol to register the SCCP phones and the SIP registrar services to support SIP phones. 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 Cisco Unified SRST use, 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 at the central site in SRST mode.

How Cisco Unified E-SRST Works

Based on Cisco Unified SRST and Cisco Unified SRST Manager, Cisco Unified E-SRST delivers all the benefits of Cisco Unified SRST along with improved management capabilities and better end-user experiences in survivability mode.

Cisco Unified SRST Manager is the management tool and is included as part of the Cisco Unified E-SRST solution at no extra charge. It enables automatic provisioning of branch-office routers and provides a richer telephony experience during failover mode by auto-provisioning the branch-office routers with features such as hunt groups, call park and pickup, and an ephone template from the centralized Cisco Unified Communications Manager.

Cisco Unified SRST Manager resides at the central site and collects information from Cisco Unified Communications Manager or Cisco Business Edition. Cisco Unified SRST Manager collects configuration information required for advanced features such as hunt groups and pickup groups, and distributes the configuration information to the branch-office sites. If a WAN outage occurs, when the Cisco Unified E-SRST service running on the branch-office routers takes over call processing, it applies the configuration provisioned by Cisco Unified SRST Manager to provide enhanced telephony services at the branch-office sites.

Cisco Unified SRST Manager operates within a virtual machine, running in the VMware ESXi (5.0 or later) hypervisor environment. The software is packaged as an open-virtualization-archive (OVA) template for installation within the virtual-machine environment. The OVA file includes the Cisco Unified SRST Manager software, as well as the virtual-machine system settings preconfigured to operate with Cisco Unified SRST Manager.

For Cisco Unified E-SRST deployments, the branch office is configured in Cisco Unified Communications Manager Express-as-SRST mode on a Cisco Integrated Services Router (ISR). Cisco Unified E-SRST provisions the branch-office site using the Cisco Unified SRST Manager with information such as phone users, MAC addresses, and advanced telephony features configured on Cisco Unified Communications Manager or Cisco Business Edition.

Additional features in addition to Cisco Unified SRST include:

- Easy-to-use GUI interface for provisioning, monitoring, reporting, and troubleshooting remote-office sites
- Enhanced user experience in failover mode: Phone displays and basic functions including extensions, soft-key templates, phone types, etc. are carried over in survivable mode. These features are also carried over in survivable mode:
  - Call-forward no-answer, call-forward all, and call-forward busy
  - Time-of-day routing
  - Calling route restrictions for both incoming and outgoing directions
  - Hunt groups
  - Call park and call pickup
- Automatic synchronization with Cisco Unified Communications Manager and Cisco Business Edition for additions, deletions, and modifications of users and phones
- Calling-rule restrictions continued in failover mode

Figure 2 shows the supported topology model for Cisco Unified E-SRST at a branch-office site.

Figure 2.   Topology Model for Cisco Unified E-SRST on Branch-Office Site
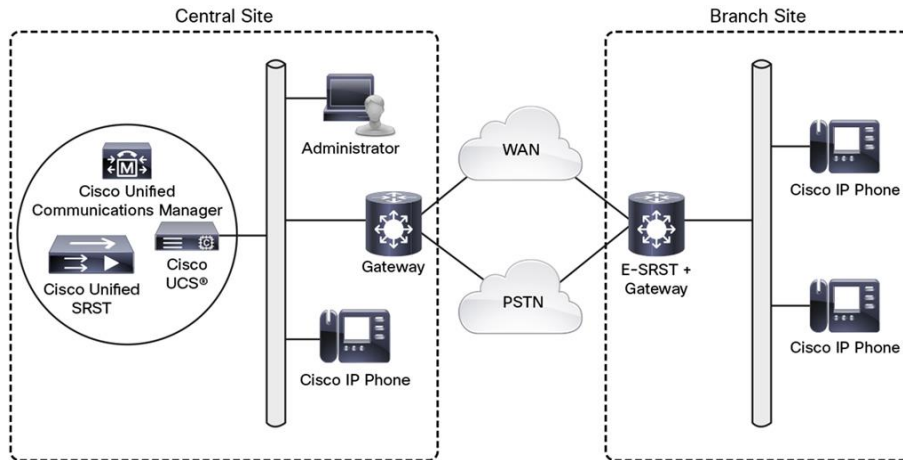
For more information about Cisco Unified Enhanced SRST and Cisco Unified SRST Manager, please refer to the administration guide at:
http://www.cisco.com/c/en/us/td/docs/voice_ip_comm/cusrst/admin/sccp_sip_srst/configuration/guide/SCCP_and_SIP_SRST_Admin_Guide/enhanced_srst.html.

Table 2 lists the platforms that support Cisco Unified SRST and Unified E-SRST.

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

Platform	Number of Phones Supported[*]	Part Number (Spare)
Cisco 800 Integrated Services Router	Up to 5 phones	FL-CME-SRST-5=
Cisco 2901 Integrated Services Router	Up to 35 phones	FL-CME-SRST-5=, FL-CME-SRST-25=, FL-CME-SRST-100=
Cisco 2911 Integrated Services Router	Up to 50 phones	FL-CME-SRST-5=, FL-CME-SRST-25=, FL-CME-SRST-100=
Cisco 2921 Integrated Services Router	Up to 100 phones	FL-CME-SRST-5=, FL-CME-SRST-25=, FL-CME-SRST-100=
Cisco 2951 Integrated Services Router	Up to 250 phones	FL-CME-SRST-5=, FL-CME-SRST-25=, FL-CME-SRST-100=
Cisco 3925 Integrated Services Router	Up to 730 phones	FL-CME-SRST-5=, FL-CME-SRST-25=, FL-CME-SRST-100=
Cisco 3945 Integrated Services Router	Up to 1200 phones	FL-CME-SRST-5=, FL-CME-SRST-25=, FL-CME-SRST-100=
Cisco 3925E Integrated Services Router	Up to 1350 phones	FL-CME-SRST-5=, FL-CME-SRST-25=, FL-CME-SRST-100=
Cisco 3945E Integrated Services Router	Up to 1500 phones	FL-CME-SRST-5=, FL-CME-SqRST-25=, FL-CME-SRST-100=
Cisco 4321 Integrated Services Router	Up to 50 phones	FL-CME-SRST-5=, FL-CME-SRST-25=
Cisco 4331 Integrated Services Router	Up to 100 phones	FL-CME-SRST-5=, FL-CME-SRST-25=, FL-CME-SRST-100=
Cisco 4351 Integrated Services Router	Up to 750 phones	FL-CME-SRST-5=, FL-CME-SRST-25=, FL-CME-SRST-100=
Cisco 4431 Integrated Services Router	Up to 1200 phones	FL-CME-SRST-5=, FL-CME-SRST-25=, FL-CME-SRST-100=
Cisco 4451-X Integrated Services Router	Up to 2000 phones	FL-CME-SRST-5=, FL-CME-SRST-25=, FL-CME-SRST-100=

[*] The numbers of phones supported by SRST have been changed to multiples of 5 starting with Cisco IOS Software Release 12.4(15) T3.

Cisco Unified SRST and Unified E-SRST Platform Information

Cisco Unified SRST and Unified E-SRST support 5 to 2000 phones on Cisco 800, 2900, 3900, and 4000 Series Integrated Services Router platforms. Details about currently supported platforms and the number of phones per platform are provided in the Cisco Unified SRST specifications sheet for each version, which is available at: http://www.cisco.com/c/en/us/support/unified-communications/unified-survivable-remote-site-telephony/products-device-support-tables-list.html.

Cisco offers ISR bundles with Cisco Unified SRST or Unified E-SRST at a discount when compared to separate purchase of bundle components. These bundles are listed in Table 3.

Table 3.   Cisco ISR Platform Bundles for Cisco Unified SRST or Unified E-SRST Deployments

Bundle Part Number	Includes
C3945E-CME-SRST/K9	Cisco 3945E voice bundle with packet voice digital signal processor (DSP) module (PVDM3-64), FL-CME-SRST-25 - Feature License for 25 CME/SRST users, and Unified Communications (UC) License PAK, Includes 25 Cisco Unified Border Element Sessions
C3925E-CME-SRST/K9	Cisco 3925E voice bundle with packet voice DSP module (PVDM3-64), FL-CME-SRST-25 - Feature License for 25 CME/SRST users, and Unified Communications (UC) License PAK. Includes 25 Cisco Unified Border Element Sessions
C3945-CME-SRST/K9	Cisco 3945 voice bundle with packet voice DSP module (PVDM3-64), FL-CME-SRST-25 - Feature License for 25 CME/SRST users, and Unified Communications (UC) License PAK. Includes 25 Cisco Unified Border Element Sessions
C3925-CME-SRST/K9	Cisco 3925 voice bundle with packet voice DSP module (PVDM3-64), FL-CME-SRST-25 - Feature License for 25 CME/SRST users, and Unified Communications (UC) License PAK. Includes 25 Cisco Unified Border Element Sessions
C2951-CME-SRST/K9	Cisco 2951 voice bundle with packet voice DSP module (PVDM3-32), FL-CME-SRST-25 - Feature License for 25 CME/SRST users, and Unified Communications (UC) License PAK. Includes 10 Cisco Unified Border Element Sessions
C2921-CME-SRST/K9	Cisco 2921 voice bundle with packet voice DSP module (PVDM3-32), FL-CME-SRST-25 - Feature License for 25 CME/SRST users, and Unified Communications (UC) License PAK. Includes 10 Cisco Unified Border Element Sessions
C2911-CME-SRST/K9	Cisco 2911 voice bundle with packet voice DSP module (PVDM3-16), FL-CME-SRST-25 - Feature License for 25 CME/SRST users, and Unified Communications (UC) License PAK. Includes 10 Cisco Unified Border Element Sessions
C2901-CME-SRST/K9	Cisco 2901 voice bundle with packet voice DSP module (PVDM3-16), FL-CME-SRST-25 - Feature License for 25 CME/SRST users, and Unified Communications (UC) License PAK. Includes 10 Cisco Unified Border Element Sessions

Cisco IP Phone Support

Cisco Unified SRST and Unified E-SRST are not dependent on Cisco Unified Communications Manager versions but on Cisco IP Phone loads. Table 4 lists the Cisco IP Phones supported by Cisco Unified SRST and Unified E-SRST with SCCP phone loads.

Table 4.   Cisco IP Phone Support Using SCCP

Phone	Cisco Unified SRST 7.0	Cisco Unified SRST 7.1	Cisco Unified SRST 8.0	Cisco Unified SRST 8.1	Cisco Unified SRST 8.5 and 8 (Supports SRST and E-SRST)	Cisco Unified SRST and E-SRST 10.5
Cisco Unified IP Phone 7975G, 7965G, 7962G, 7945G, and 7942G models	X	X	X	X	X	X
Cisco Unified IP Phone 7970G	X	X	X	X	X	X
Cisco Unified IP Phone 7931G	X	X	X	X	X	X
Cisco Unified IP Conference Phone 8831	-	-	X	X	X	X

Phone	Cisco Unified SRST 7.0	Cisco Unified SRST 7.1	Cisco Unified SRST 8.0	Cisco Unified SRST 8.1	Cisco Unified SRST 8.5 and 8 (Supports SRST and E-SRST)	Cisco Unified SRST and E-SRST 10.5
Cisco Unified Wireless IP Phone 7925G	X	X	X	X	X	X
Cisco Unified IP Phone Expansion Module 7915 and 7916 modules	X	X	X	X	X	X
Cisco ATA 180 Series Analog Telephone Adaptors	X	X	X	X	X	X
Cisco IP Communicator	X	X	X	X	X	X
Cisco Unified Video Advantage	X	X	X	X	X	X

Table 5 lists the Cisco IP Phones using SIP that are supported by Cisco Unified SRST and Unified E-SRST.

Table 5.   Cisco IP Phone Support Using SIP

Phone	Cisco Unified SRST 7.0 and 7.1	Cisco Unified SRST 8.0	Cisco Unified SRST 8.1, 8.5, and 8.6	Cisco Unified SRST and E-SRST 10.5
Cisco Unified IP Phone 8961, 9951, and 9971 models	X	X	X	X
Cisco Unified IP Phone 7975G, 7965G, 7962G, 7945G, and 7942G models	X	X	X	X
Cisco Unified IP Phone 7970G	X	X	X	X
Cisco Unified Wireless IP Phone 7925	-	-	-	X
Cisco Unified IP Phone Expansion Module 7915 and 7916 modules	-	-	-	X
Cisco ATA 180 Series Analog Telephone Adaptors	-	-	-	X
Cisco Unified SIP Phone 3901, 3911, and 3951 models	-	X	X	X
Cisco IP Phone 7821, 7841, and 7861 models	-	X	X	X
Cisco Unified IP Phone 6901, 6911, 6921, 6941, 6961, and 6945 models	-	X	X	X
Cisco Unified IP Conference Phone 8831	-	X	X	X
Cisco Jabber® for Windows and Mac	-	-	-	X
Cisco DX650	-	-	-	X
Cisco Unified 8841, 8851 and 8861 IP endpoints	-	-	-	X

Cisco IOS Software Image Support

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

Secure Cisco Unified SRST for SIP phones is available with Cisco Unified SRST 8.0 and later versions. Secure SIP SRST requires Cisco IP Phone Firmware Release 8.5(3) (SIP phone load) or later and Cisco Unified Communications Manager Version 7.13 or later.

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

Cisco Unified SRST Version	Cisco Unified E-SRST Version	Cisco IOS Software Release(s)	Cisco IOS-XE Software Version
Cisco Unified SRST 7.1	N/A	15.0.1M	
Cisco Unified SRST 8.0	N/A	15.1(1)T	
Cisco Unified SRST 8.1	N/A	15.1(2)T	
Cisco Unified SRST 8.5	Cisco Unified E-SRST 8.5	15.1(3)T	
Cisco Unified SRST 8.6	Cisco Unified E-SRST 8.5	15.1(4)M	
Cisco Unified SRST 9.0	Cisco Unified E-SRST 9.0	15.2(2)T	
Cisco Unified SRST 10.0	Cisco Unified E-SRST 10.0	15.3(3)M	
Cisco Unified SRST 10.5	Cisco Unified E-SRST 10.5	15.4(3)M	15.4(3)S

Supported Features

Unlike traditional telephony solutions, Cisco Unified SRST and Unified E-SRST provide robust support for many IP phone features through the duration of a WAN failure. Table 7 lists the Cisco Unified SRST features supported during WAN failure.

Table 7.   Cisco Unified SRST Features Supported During WAN Failure (also supported by Cisco Unified E-SRST)

Cisco Unified SRST Version (all are supported with Cisco Unified E-SRST)	Feature Set
Cisco Unified SRST 7.0 and earlier	● SRST detailed features are available at: http://www.cisco.com/en/US/docs/voice_ip_comm/cusrst/admin/srst/configuration/guide/srst41/srst41sa.html
Cisco Unified SRST 7.0	● Support for up to eight active calls per line ● Support for Cisco 880 Series Routers ● Call-detail-record (CDR) enhancement ● Cisco IOS Software Release 12.4(20)T ● Support for Tool Command Language (Tcl) script for automatic upload of CDR to FTP server
Cisco Unified SRST 7.1	● Cisco IOS Software Release 12.4(22)YB on Cisco ISR platforms, and Cisco IOS Software Release 12.5.0.1M on Cisco Integrated Services Routers Generation 2 (ISR G2) platforms: 　○ Increase of phone user scalability on Cisco ISR G2 platforms 　○ International +E.164 registration and basic call dialing 　○ New phone type: Cisco Unified IP Phone 8961, 9951, and 9971 model support on Cisco IOS Software Releases 12.4(24)T and 12.5.0(1)M
Cisco Unified SRST 8.0	● Cisco IOS Software Release 15.0(1)T on Cisco ISR platforms: 　○ Secure SIP SRST support on Cisco SIP Phones 　○ Five music-on-hold (MoH) streams stored in the SRST router flash memory 　○ New phone type: Cisco Unified IP Phone 6901, 6911, 6921, 6941, and 6961 model support
Cisco Unified SRST 8.5	● SRST support for +E.164 with support for supplementary service calls
Cisco Unified SRST 8.6	● Support for Cisco Unified IP Phone 6901 and 6911 models ● Support for Forced Authorization Code (FAC) ● Improved deployment flexibility with support for Secure Sockets Layer (SSL) VPN client on Cisco IP Phones (SCCP) ● Customizable programmable line keys and button layout control ● ISDN overlap sending on Primary Rate Interface (PRI) and Basic Rate Interface (BRI)
Cisco Unified SRST 9.0	● Support for Cisco Unified IP Phone 6921, 6941, 6945, 6961, 8941, and 8945 models ● Multiple calls per line ● Voice and fax support on Cisco ATA 187 Analog Telephone Adaptor

Cisco Unified SRST Version (all are supported with Cisco Unified E-SRST)	Feature Set
Cisco Unified SRST 10.0	• Cisco Jabber for Windows • Cisco Unified SRST permanent license • Version negotiation for Cisco SIP IP Phones • After-hours pattern-blocking support for regular expressions • Call park recall enhancement • Display support for name of called voice hunt groups • Prevention of local-call forwarding to final agent in voice hunt groups • Trunk-to-trunk transfer blocking for toll-fraud prevention on Cisco SIP IP Phones • Key-expansion-module (KEM) support for Cisco Unified IP Phone 8961, 9951, and 9971 models • Enhancement in speed-dial support • Support for voice hunt group
Cisco Unified SRST 10.5	• Support for Cisco IP Phone 7800 Series and Cisco DX650 • Increased scale with E-SRST (same as SRST now) • Support for last working configuration in E-SRST • Support for shared line • E-SRST 10.5 with SRST Manager 10.5 (Recommended version)

Cisco Unified Communications Services and Support

Cisco Unified Communications Services allows you to accelerate cost savings and productivity gains associated with deploying a secure, resilient Cisco Unified Communications Solution. Delivered by Cisco and our certified partners, the Cisco portfolio of services is based on proven methodologies for unifying voice, video, data, and mobile applications on fixed and mobile networks. The unique Cisco lifecycle approach to services can enhance your technology experience and offer true business advantage.

Conclusion

Cisco Unified SRST and Cisco Unified E-SRST offer a simple, cost-effective solution for customers who want the benefits of a centralized call-processing architecture with redundancy at remote branch offices and the homes of teleworkers.

For More Information

For more information about Cisco Unified Communications, please 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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