RP100-S and RP200-S Room Presence

Product Overview

Issue   02

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About This Document

Purpose

This document provides the positioning, features, networking schemes, and technical specifications of the HUAWEI RP100&RP200 Room Presence (RP for short).
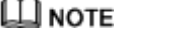
Intended Audience

This document is intended for:

- End users
- Agents

Symbol Conventions

The symbols that may be found in this document are defined as follows.

Symbol	Description
DANGER	Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.
WARNING	Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.
CAUTION	Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.
NOTICE	Indicates a potentially hazardous situation which, if not avoided, could result in equipment damage, data loss, performance deterioration, or unanticipated results. NOTICE is used to address practices not related to personal injury.
NOTE	Calls attention to important information, best practices and tips. NOTE is used to address information not related to personal injury, equipment damage, and environment deterioration.

Change History

Changes between document issues are cumulative. The latest document issue contains all the changes made in earlier issues.

Issue 02 (2018-06-30)

This issue is the second official release.

Add **5.11 Custom Background Picture**.

Modified **1 Product Positioning**.

Modified **7.1 Physical Specifications**.

Issue 01 (2018-03-23)

This issue is the first official release.

Contents

1 Product Positioning

To place equipment in conference rooms in a better layout, install and deliver equipment faster, and accommodate various kinds of conference scenarios, Huawei launches the highly integrated Room Presence (RP) solution (including RP100 and RP200). This solution is competent to support HD, smooth remote video conferences, greatly enhancing user experience from end to end.

The RP100&RP200 solution incorporates the high-performance and cost-effective codec, 1080p HD precision camera that supports 12x optical zoom, and digital microphone array. They, combined with the full-HD display, are placed on the integrated rack, which can be moved freely. With a compact remote control or touch panel (optional), users can enjoy consistent conference experience anytime, anywhere.

The RP100&RP200 solution spreads telepresence conferencing to conference rooms of all sizes.

Table 1-1 describes the appearances and features of the RP100 and RP200 and their differences in features.

Table 1-1 RP100 and RP200 models

Appearance	Feature	Difference
RP100-55S	They work with the core codec TE30. By default, they provide a 55" HD display and a microphone array VPM220.	● By default, an RP100 has an HD display. ● By default, an RP200 has two HD displays.

The RP100&RP200 solution provides certain custom models. **Table 1-2** describes the custom models available and their appearances and features.

Table 1-2 Appearances and features of the custom models

Appearance	Feature
RP100-46S	It works with the core codec TE30. By default, it provides a 48" HD display and a microphone array VPM220.
RP200-46S	It works with the core codec TE30. By default, it provides a 48" HD display and a microphone array VPM220.
RP200-55S	It works with the core codec TE30. By default, it provides a 55" HD display and a microphone array VPM220.

2 Product Highlights

All-in-One Design, Easy to Deploy and Install

- The RP comes with embedded cables, supports modular installation, and allows cables to be routed from either the front or rear panel. The RP requires only two persons and 0.5 hours for its installation.

- With a built-in Wi-Fi module, the RP supports the wireless microphone (optional), wireless presentation, and wireless touch panel (optional). Users need to connect only one video cable, one audio cable, and one composite cable (integrating a power cable, a network cable, and a microphone cable).

- The rack can be installed in fixed mode or on casters. It can be adjusted up or down. Its front and rear panels can be removed for maintenance.

- One- or two-screen models are available, and the screens of multiple sizes are provided.

HD Video, Audio, and Data Experience

The RP:

- Delivers crisp, smooth 1080p HD video to create a face-to-face video communication.

- Provides CD-quality AAC-LD audio, creating virtual 3D sound effects.

- Simultaneously transmits video and presentation at 1080p.

- Displays video and presentation in multiple modes.

User-Centered Design, Easy to Use

- The 3D user interface is available and different modules are visible to users of different roles. You can use the remote control to initiate calls or join conferences from the user interface.

- With the voice dialing function, users can quickly initiate or join a conference by speaking the name of a site in Chinese or English.

Next-Generation H.264 HP and VME Dual-Core Technologies

- The H.264 HP technology, combined with Huawei's proprietary Video Motion Enhancement (VME) technology, optimizes video images to be more pleasing to eyes while reducing the bandwidth consumption by 50%.

- Through intelligent face recognition and back-end video enhancement, the VME technology improves light adaptability, reduces bandwidth consumption, improves image definition, and enhances motion images.

High Network Adaptability and Security

- Using H.264 SVC, the RP excellently adapts to different line bandwidths, device capabilities, and network environments.
- The RP utilizes Huawei's exclusive Super Error Concealment (SEC) and Intelligent Rate Control (IRC) technologies.
- The RP supports firewall traversal through the standard H.460 protocol or Huawei's proprietary Super Network Passport (SNP) protocol.
- Media and signaling streams are encrypted in multiple ways, ensuring secure and stable running of the videoconferencing system.

3 Application Scenarios

3.1 On-Premises/IMS Hosted/SP Hosted Network

The RP connects to on-premises, IMS hosted, or SP hosted CloudVC/CloudEC networks, enabling video communication for enterprises and carriers. **Figure 3-1** shows the network diagram.

Figure 3-1 Networking diagram
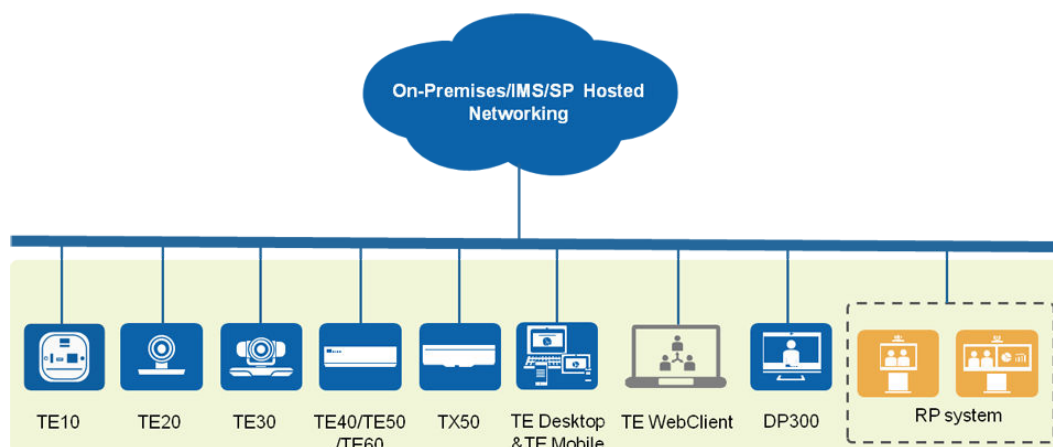
The network is described as follows:

● The RP connects to the on-premises network through the standard SIP or H.323 protocol.

● The standard SIP protocol is used for connecting the RP to the IMS or SP hosted network.

● Video, data, and presentation sharing can be implemented between the RP and various kinds of terminals and clients to deliver the optimal communications experience.

3.2 Built-in MCU-based Network

In the CloudVC on-premises networking scheme, the RP can hold multipoint conferences using its built-in MCU, without any intervention of the SMC2.0 or MCU. The built-in MCU

makes conference rooms of small- and medium-sized enterprises video-enabled. **Figure 3-2** shows the built-in MCU-based network of the RP.

Figure 3-2 Built-in MCU-based network
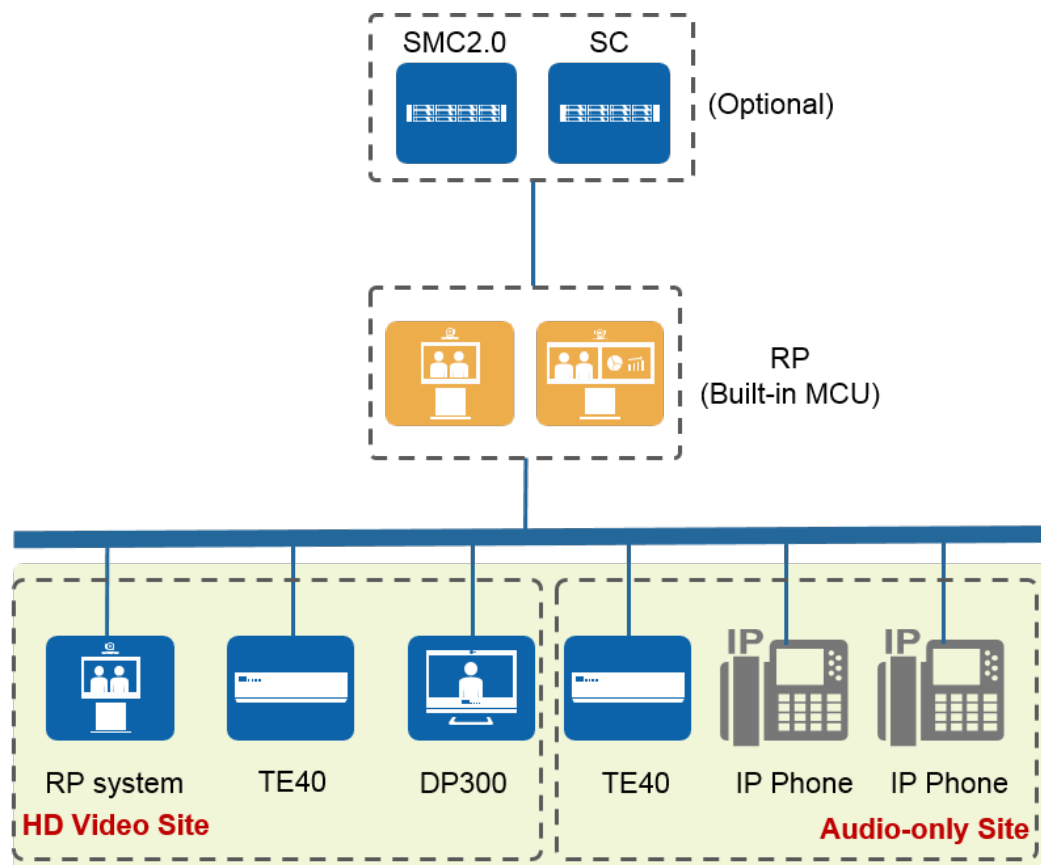
The network is described as follows:

- After having the built-in MCU enabled, the RP can hold both encrypted and unencrypted conferences.

  - An unencrypted conference can hold a maximum of three 576p 30 fps HD video sites and three audio sites, besides the site that initiates the conference. Each video site occupies 1.5 Mbit/s bandwidth. The total bandwidth occupied by the conference cannot exceed 4.5 Mbit/s.

  - An encrypted conference can hold a maximum of three 576p 30 fps HD video sites, besides the site that initiates the conference. Each video site occupies 1 Mbit/s bandwidth. The total bandwidth occupied by the conference cannot exceed 3 Mbit/s.

- SD and HD video sites and audio-only sites of the H.323 or SIP type can join conferences on this network. Sites can also join the same conference using different rates and protocols, as the built-in MCU can automatically negotiate the optimal bandwidth and video resolutions with those sites.

□NOTE

Audio-only sites can join conferences using IP phones only when the SC is deployed on the network.

- To hold conferences, users can call sites one at a time, or use a predefined conference template to call all sites simultaneously. After a conference starts, sites can call the built-in MCU to join in. The built-in MCU automatically detects new sites that join the conference and displays the site in continuous presence. Sites can specify continuous presence to view by themselves.

- This network supports presentation sharing through the H.239 protocol, as well as simultaneous video and presentation sharing through the Binary Floor Control Protocol (BFCP).

- The RP with a built-in MCU provides conference control functions, including requesting or releasing chair control rights, allowing or forbidding the chair site, locking or unlocking a conference, and selecting a screen layout.

3.3 Built-in MCU Networking with the RSE6500

In the CloudVC on-premises network, the RP that has a built-in MCU can be separately interconnected with the Recording & Streaming Engine (RSE), without the intervention of the SMC2.0 or MCU. **Figure 3-3** shows how the RP with the built-in MCU is networked with the RSE6500.

Figure 3-3 Built-in MCU networking with the RSE6500
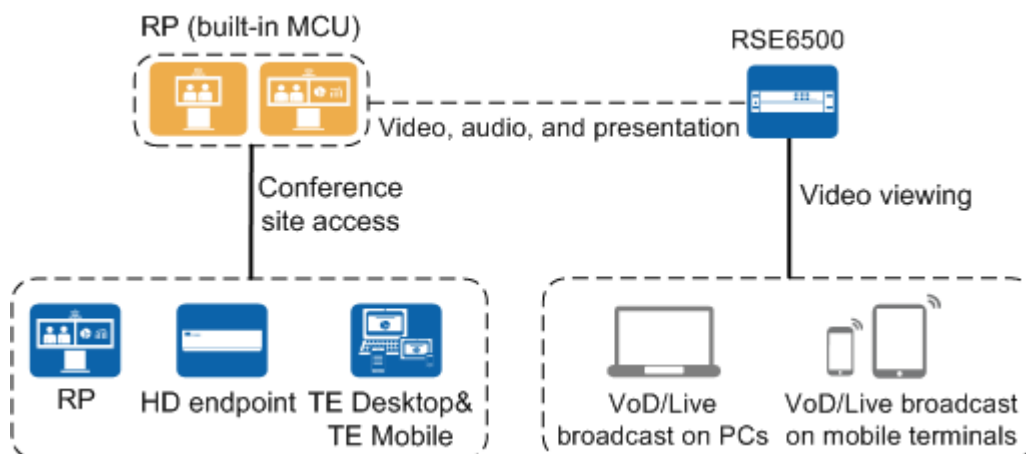
The network is described as follows:

- The MCU-embedded RP is deployed on the same IPv4 or IPv6 network as the RSE6500. It can contact the RSE6500 using the IP address.

- The MCU-embedded RP exchanges media streams with the RSE6500 to implement simultaneous recording of conference voice, video, and presentation. Recording control can be performed on either the endpoint or the RSE6500.

- Users can view live broadcast or VoD either from the RP web interface or from the RSE6500 web interface on their PCs, smartphones, or tablets.

☐**NOTE**

> On this network, the RP with the built-in MCU works with the RSE6500 in the simplest way. Without any intervention of the GK or SIP server, they are connected by their IP addresses.

3.4 Videoconferencing Solution Converging Telepresence, HD, and SD Sites and RP Series Products

Figure 3-4 Videoconferencing solution converging telepresence, HD, and SD sites and RP series products
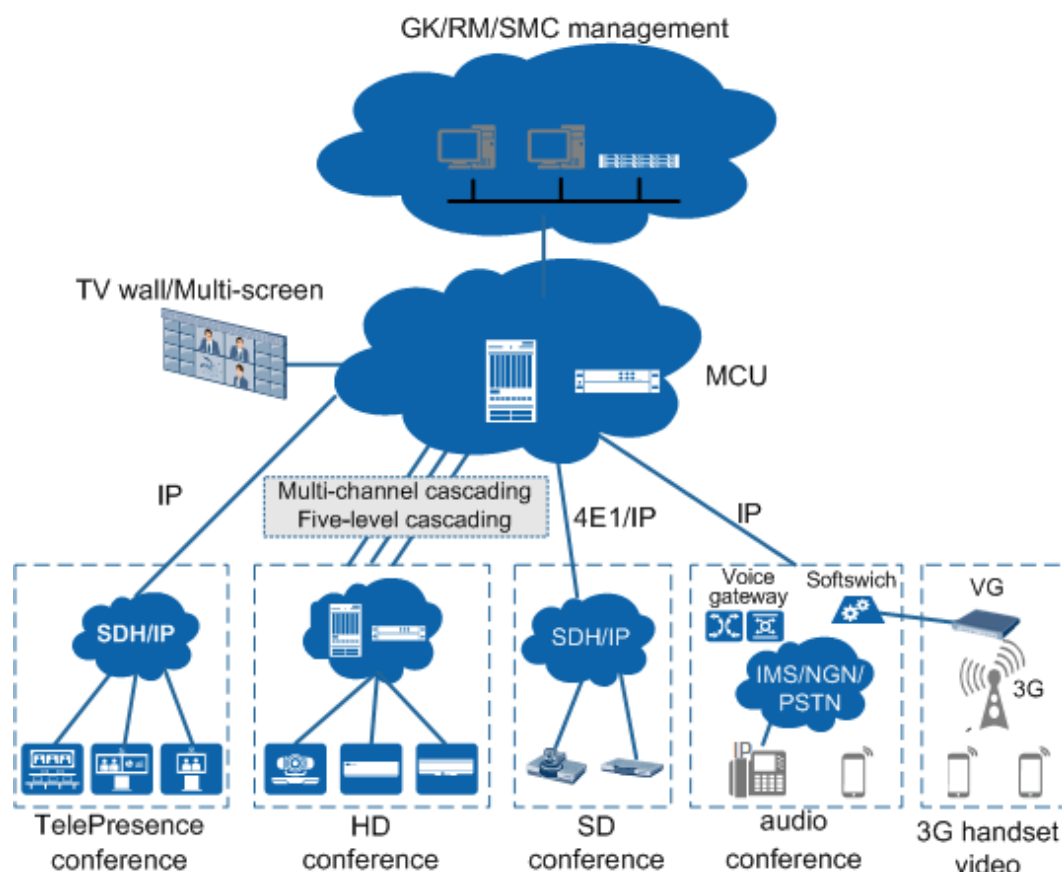
Figure 3-4 shows the networking diagram for the videoconferencing solution.

A hierarchical structure is adopted. At upper-level sites, telepresence products are deployed depending on the conference room size to ensure true-to-life quality for fulfilling interaction. At lower-level sites, a hybrid of HD and SD videoconferencing products can be deployed based on the site requirements to cut investment.

This solution has the following features:

- Ultra-HD video and sound localization are available for all telepresence sites, offering an optimal face-to-face communication experience.
- The telepresence system can interconnect with the SD and HD systems on the live network to enable interactive conference control between them.
- IP lines can be used to access a network, ensuring high line reliability.
- Universal transcoding VP9600 series MCUs as well as ViewPoint 8660 and ViewPoint 8650 are supported with the industry's highest security and stability.

- The deployment is easy. Reconstruction is performed based on the live network. Only upper-level offices require reconstruction. In lower-level offices, most legacy devices can be retained to protect investment.

- For sites that support 1080p and 720p, investment on HD displays, cameras, and other devices can be reduced.

3.5 All-Telepresence Solution

Figure 3-5 All-telepresence solution
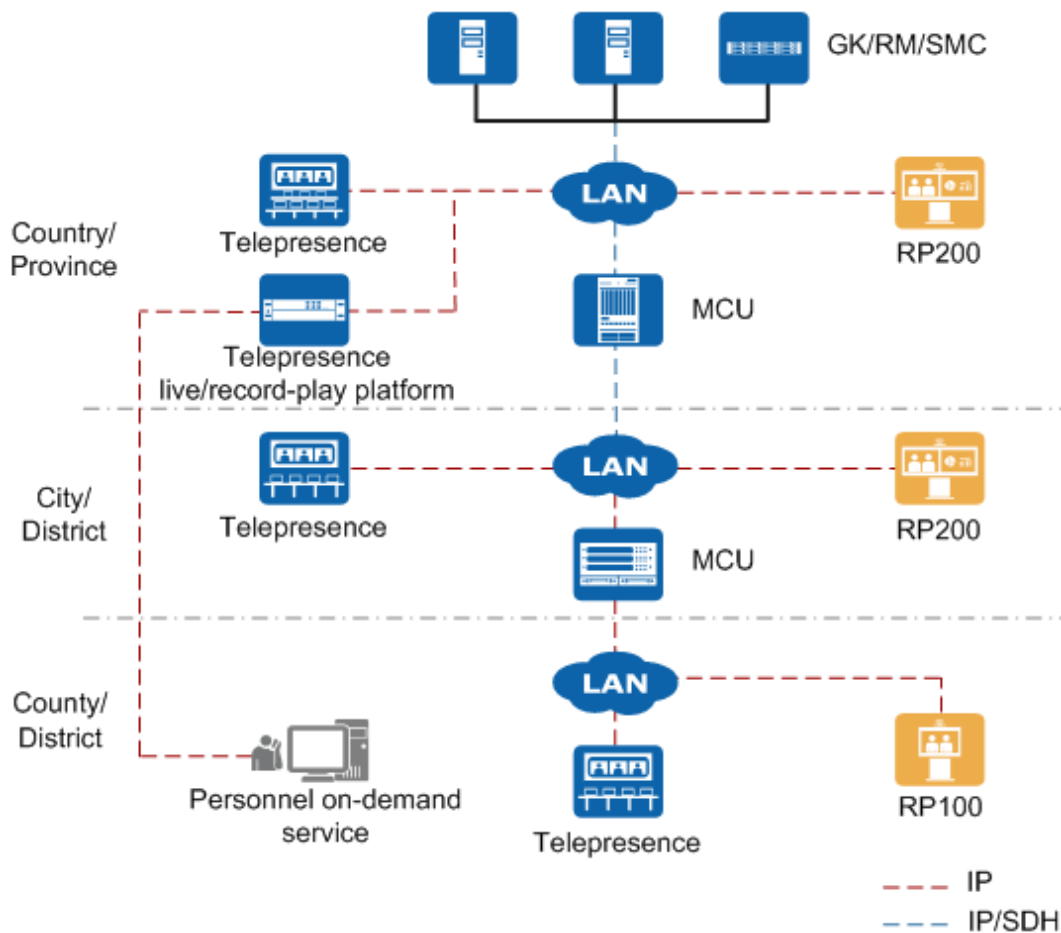
Figure 3-5 shows the networking diagram for the all-telepresence solution.

- The telepresence series products are deployed at all sites of the network. MCUs are deployed based on the actual network condition and capacity.

- The TP3106-70 or TP3206-55 system is suitable for medium- and large-sized sites, and the RP100 or RP200 system for small-sized sites and executive offices.

- Recording devices can be deployed at important sites based on customers' requirements.

This system has the following features:

- Ultra-HD video and sound localization are available for all telepresence sites, offering an optimal face-to-face communication experience.

- IP lines can be used to access a network, ensuring high line reliability.

- The industry's most secure and stable telepresence platform is used to connect to universal transcoding VP9000 series MCUs and CloudMCUs as well as ViewPoint 8660 and ViewPoint 8650. Additionally, the telepresence platform supports hierarchical and rights-based management in distributed mode.

- Uni-screen systems can access the network, bringing the telepresence experience to small conference rooms and executive offices.

- The telepresence recording and video on demand (VOD) functions are provided.

3.6 Networking with the ACS

The RP can interconnect with the Auto-Configuration Server (ACS) to implement management functions through the TR-069 service offered by the ACS.

Figure 3-6 shows the interconnection between the RP and the ACS.

Figure 3-6 Interconnecting with the ACS
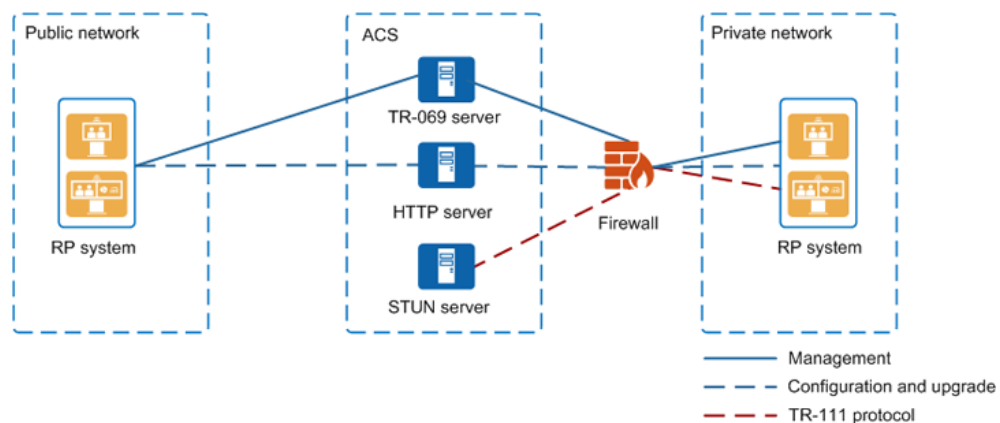
On this network:

- The RP communicates with the TR-069 server through the TR-069 protocol.

- The HTTP server is used to upload and download configuration files and download upgrade files.

- The Simple Traversal of UDP through NAT (STUN) server implements traversal between private and public networks and delivers management over all devices on both networks.

- The RP can be deployed on a public or private network, while the ACS must be deployed on a public network.

   - If the RP is deployed on a public network, it can be managed by the ACS through the TR-069 protocol.

   - If the RP is deployed on a private network, the STUN server needs to be deployed for traversal between private and public networks. After the deployment, the TR-111 protocol, an extension of the TR-069 protocol, will be available for the ACS to manage the RP.

4 Product Structure

4.1 Appearance
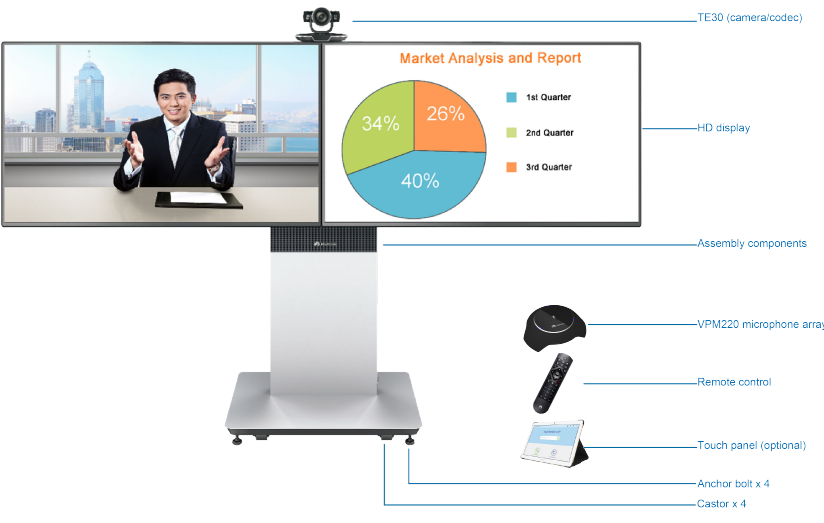
The RP100&RP200 solution is a compact telepresence solution developed by Huawei to meet the requirements of various telepresence conference scenarios. Generally, the RP solution falls into two types: RP100 that has only one screen and RP200 that have two screens.

The RP100&RP200 solution comprises the following: HD precision camera, core codec, full-HD display, assembly components, VPM220 digital microphone array, remote control, touch panel (optional), and VPM220W wireless microphone (optional). The base of the RP is equipped with castors and anchor bolts so that the RP can be moved or fixed. **Table 4-1** describes the appearance of the RP100 and RP200 models.

Table 4-1 RP100 and RP200 models

Product Model	Appearance
Standard Model	

Product Model	Appearance
RP100-55S	TE30 (camera/codec) — HD display — Assembly components — VPM220 microphone array — Remote control — Touch panel (optional) — Anchor bolt x 4 — Castor x 4
Custom Model	
RP100-46S	TE30 (camera/codec) — HD display — Assembly components — VPM220 microphone array — Remote control — Touch panel (optional) — Anchor bolt x 4 — Castor x 4

Product Model	Appearance
RP200-46S	
RP200-55S	

4.2 Codec

Each model of the RP-S series products comes with Huawei's next-generation videoconferencing endpoint TE30, which provides a 1080p HD codec, HD precision camera, and stereo microphone, as shown in **Figure 4-1**.

Figure 4-1 Codec

The TE30 has the following features:

● Uses Huawei's proprietary Video Motion Enhancement (VME) 2.0 technology and an H. 264 High Profile (HP) dual-core driver to:

 – Provide shaper and clearer video when compared with other leading products in the same lighting and camera conditions. The latest hardware processing chip and H. 264 encoding and decoding technology used in the codec greatly improve the video compression ratio.

 – Deliver crisper, smoother, and more vivid video, with an increased video compression ratio without raising the bandwidth.

 – Provide users with clear full-duplex digital audio by integrating the Acoustic Echo Cancellation (AEC), Automatic Gain Control (AGC), and Automatic Noise Suppression (ANS) technologies. The codec also provides efficient algorithms for packet loss concealment and reliable signaling and media stream encryption technologies.

● Embeds an HD precision camera that supports 1080p@60 fps and 12x optical zoom.

 The camera supports Automatic White Balance (AWB), Automatic Exposure (AE), and Automatic Focus (AF). It is able to work in kinds of environments and deliver superb video experience. The codec also supports Far-End Camera Control (FECC), which enables users to view video from any angle and have a true-to-life conference experience.

4.3 Touch Panel

The RP uses the MediaPad T3 as the touch panel, as shown in **Figure 4-2**.

The MediaPad T3 is a new-generation tablet developed by Huawei. It has a compact and sleek design with ultra-narrow frames.

MediaPad T3 runs Android and has loaded the brand-new Huawei touch-enabled telepresence system. Users can easily control conferences through simple tap and slide operations on the touch panel.With the MediaPad T3, only one device is needed for all conference control operations and the on-screen menus are also easy to follow.

Figure 4-2 Touch Panel

4.4 Microphone Array

The HUAWEI VPM220, as shown in **Figure 4-3**, provides the end-to-end MPEG-4 Low Delay Audio Coder (AAC-LD) solution, creating an unprecedented audio experience.

Figure 4-3 Microphone array

- High-quality audio

  The VPM220 supports a sampling rate up to 48 kHz and a full frequency range. It is able to sample sound at rates lower than 22 kHz, which means that it can completely pick up sound recognized by human ears. Based on the integration of digital signal processing and transmission technology and support for the AEC, AGC, and ANS functions, the VPM220 performs well in reduction of signal loss, while offering a hi-fi stereo experience.

- Superb sound experience

  Embedded with three heart-shaped microphones, a single VPM220 supports 360-degree audio pickup with an optimal range of six meters. In this way, participants at the local site will not miss any sound nuances of those at the remote site.

- Power saving

  Designed to be highly energy-efficient, the VPM220 requires at most 2.5 W of power when running.

4.5 Assembly Components

The major assembly components of the RP series products include the TV cabinet, equipment cabinet, and multi-functional socket. The assembly components have a simple and sleek appearance.

- Professional design

  The RP series products are height adjustable at the 0 mm and 150 mm levels. They each offer two installation options adaptable to a variety of environments and requirements: fixed or movable with optional casters. They also provide front and rear access for simple maintenance.

- User-centered design

  The assembly components were designed with the best practices of user-centered design (UCD) experts. The embedded cables and devices contribute to the sleek appearance, improving the conference environment.

5 Functions and Features

5.1 Voice Dialing

The RP uses speech recognition technology to support point-to-point voice calls on the remote control screen in both Chinese and English, and also allows users to initiate multipoint conferences through templates. The RP can recognize site names, conference names, and names of predefined conferences. It can automatically call sites to join conferences or initiate SiteCalls to initiate conferences, simplifying user experience.

If there is only one site shown in the list after voice dialing is made, then a call is initiated automatically.

If there are two or more sites displayed in the list, users can choose one to make a call.

Figure 5-1 Voice dialing list
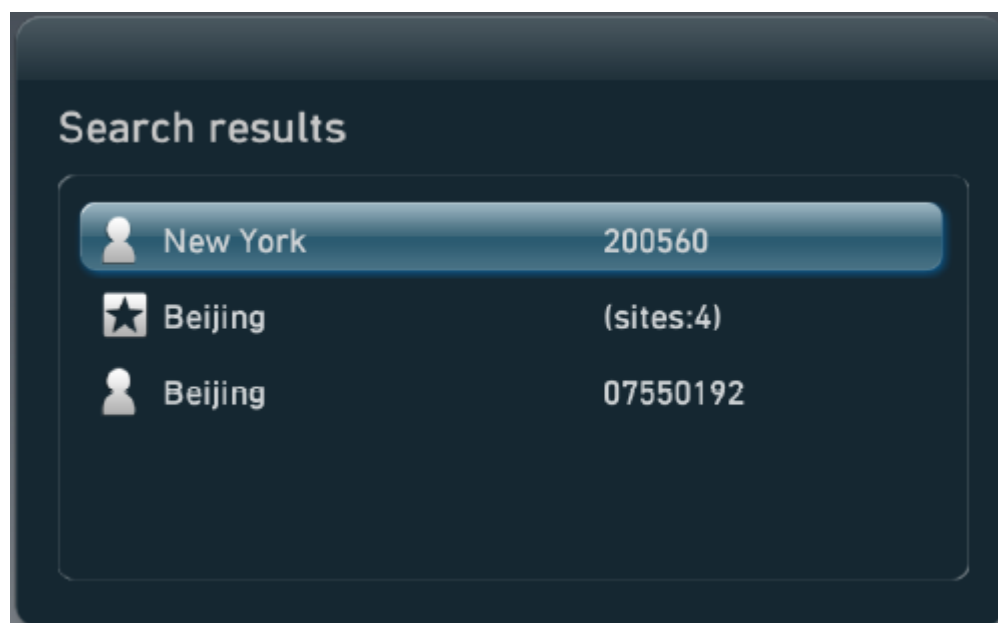
5.2 SiteCall

SiteCall is a unique conference function provided by Huawei. It allows users to define conferences and participants on the RP, making it simple to initiate a multi-party conference. Users can create conferences using the touch panel, web interface, or remote control of the RP. After setting conference parameters (such as the conference name, data rate, and number of sites), the users can start the conference. The RP can initiate conferences through H.323 or SIP.

5.3 P2P to Multipoint

When the RP is connected to an MCU, you can turn a P2P call into a multipoint call, increasing conference efficiency. Below are different scenarios where this may be necessary.

Local Site Receiving Calls from Other Sites

If two sites are having a P2P call and one of the sites receives another incoming call (or multiple incoming calls), that site can perform one of the following operations:

- Answer&Merge: Answer calls from other sites and turn the P2P call into a multipoint conference.
- Answer&Hold: Answer calls from other sites and place the original P2P call on hold.

  Then you can place calls on hold or merge calls as follows:
  - Call Hold: The site in an active call can be placed on hold or released, and the site on hold can be resumed off hold or released. In call hold state, the local and remote sites cannot hear or video each other. They can do this only after the call hold operation is canceled.
  - Merge: Place the original P2P call on hold, and set up a call with another site or to several other sites, and turn the P2P call into a multipoint conference.
- Answer&Release: Answer calls from other sites and release the original P2P call.
- Ignore: Ignore calls from other sites, close the incoming call notification dialog box, and continue the original P2P call.
- Reject: Reject calls from other sites and continue the original P2P call.

Local Site Placing Calls to Other Sites

If two sites are having a P2P call and one of the sites calls another site (or multiple sites), that site can perform one of the following operations:

- Hold&Call: Place the original P2P call on hold and place a call to another site or to several other sites.

  Then you can place calls on hold or merge calls as follows:
  - Call Hold: The site in an active call can be placed on hold or released, and the site on hold can be resumed off hold or released. In call hold state, the local and remote sites cannot hear or video each other. They can do this only after the call hold operation is canceled.
  - Merge: Place the original P2P call on hold, and set up a call with another site or to several other sites, and turn the P2P call into a multipoint conference.

- Add: Add sites to the original P2P call to turn it into a multipoint conference.
- Cancel: Cancel calling another site or several other sites and continue the original P2P call.

5.4 Screen Layout Adjustment

By adjusting the screen layout, you can view multiple channels of video on the same monitor.

The screen layout can be full-screen, PiP, 2-pane, and 3-pane.

- Full-screen: Only one channel of video or presentation is available, and it is displayed in full-screen mode.
- PiP: One channel of video is displayed in full-screen mode, and at the same time, another channel of video is displayed in an inset window that can appear in any corner of the display. By default, the smaller video is displayed in the lower right corner and is approximately 1/16 of the full-screen video.
- 2-pane: Users view two sites on a single monitor in two panes. The two panes are of the same size and can display video or presentation.
- 3-pane: Users view three sites on a single monitor in three panes. Each pane is about 1/3 of the screen and can display video or presentation.

Figure 5-2 shows some sample layouts.

Figure 5-2 Sample screen layouts
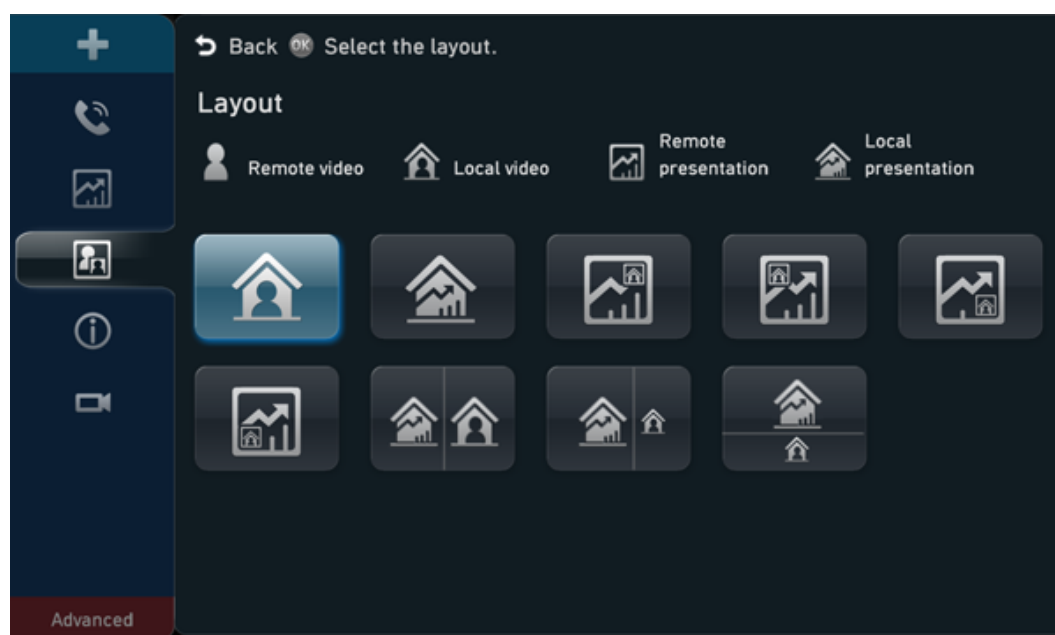
5.5 Multi-Language User Interface

The RP supports multiple languages on its user interface (touch panel or remote control) and web interface.

- User interface (touch panel):
  - HUAWEI MediaPad T3 (version in China): Simplified Chinese, Traditional Chinese (Taiwan) and English.
  - HUAWEI MediaPad T3 (version outside China): English, Simplified Chinese, Arabic, Russian, Spanish (Europe), French (Europe), Traditional Chinese (Taiwan), Japanese, Portuguese (Brazil), and Thai
- User interface (remote control) and web interface: English, Simplified Chinese, German, Spanish (Europe), French (Europe), Norwegian, Italian, Polish, Russian, Portuguese (Europe), Portuguese (Brazil), Hungarian, Finnish, Romanian, Czech, Swedish, Arabic, Turkish, Greek, Thai, Japanese, Dutch, Indonesian, Malaysian, and Traditional Chinese (Taiwan)

The RP supports daylight saving time (DST) and flexible settings for the time format, time zone, and time. It allows users to customize time settings and displays the default format based on the user location.

5.6 Conference Recording

The RSE server can record conferences, including local conferences, conferences initiated using the built-in MCU, and conferences initiated using a standalone MCU. Explanations of conference recording in different scenarios are given below.

- Local conference

  The RSE server's IP address is set on the endpoint, and neither the RP or the RSE server needs to be registered with a GK server.

- Multipoint conference hosted by SMC2.0

  An SMC2.0 uniformly allocates RSE resources. The SMC2.0 sends RSE site information to the MCU, and the MCU adds the specified RSE to the conference to enable recording. Operations such as starting conference recording and configuring the RSE server can be performed on the SMC2.0. The SMC2.0 also supports automatic conference recording and automatic activation of the conference recording function.

- Multipoint conference directly initiated from the RP

  The RP and RSE server need to be registered with a GK server. The URL or IP address of the RSE server needs to be configured on the RP. During a multipoint conference, the chair site and the site where the built-in MCU is used can perform recording operations.

- Multipoint conference hosted by a built-in MCU

  Conferences are recorded by the RSE server without the participation of the MCU. Neither the RP or RSE server needs to be registered with a GK server. The RP adds the RSE server to the conference by calling the IP address of the RSE server, after which the RSE server allocates recording resources and completes the recording task. This mode is simple, flexible, and convenient.

5.7 Wi-Fi Connectivity

The RP has a built-in Wi-Fi module and is able to function as a Wi-Fi client, a Wi-Fi server, or both simultaneously. The maximum bandwidth is 54 Mbit/s and the frequency is 2.4 GHz.

If the RP has the Wi-Fi client function enabled, it automatically detects and connects to Wi-Fi servers. You can set the RP IP address in DHCP or static mode. If a wired network

deployment is not suitable, the endpoint can connect to the Internet through a wireless router. Therefore, the Wi-Fi client can be enabled when wired networks are unavailable and the RP needs to access networks through wireless routers.

If the RP has the Wi-Fi server function enabled, wireless devices such as PCs can access to Wi-Fi networks by connecting to the RP Wi-Fi hotspot, eliminating the need for physical connections.

If a user also purchases a wireless microphone or touch panel, the user can connect it to a RP through Wi-Fi to control the product.

Figure 5-3 shows the Wi-Fi network.

Figure 5-3 Wi-Fi network
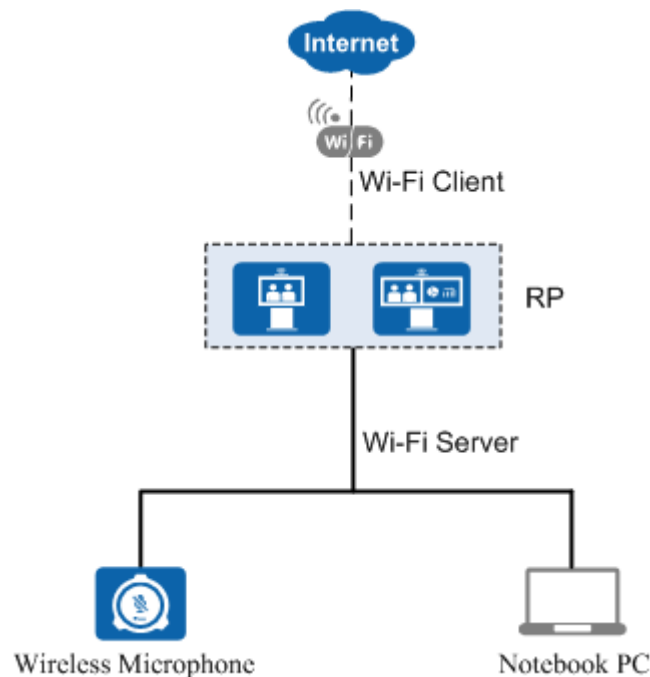
5.8 Wireless Data Sharing

Three wireless data sharing clients are available: Air Content Sharing client, AirPresence PC client, and AirPresence mobile client.

- The Air Content Sharing client runs only on Windows PCs.
- The AirPresence PC client runs on Windows PC and Macs.
- The AirPresence mobile client runs on Android and iOS mobile devices.

The three wireless data sharing clients have the following features:

- All of them can connect to the RP over Wi-Fi or an IP network.
- You can enter the projection code on the AirPresence mobile client to connect it to the RP.

- The AirPresence mobile client supports document and picture sharing. If the operating system of the mobile device is Android 5.0 or later, the AirPresence mobile client also supports screen sharing.
- The Air Content Sharing client and AirPresence PC client support desktop sharing, including audio and video files played on PCs, documents, and pictures.

5.9 Automatic Configuration Via a USB Device

The RP can automatically import its configuration files from a USB device, allowing a plug-and-play setup. The process is simple and efficient and no professional knowledge is required. The USB device that contains the configuration files can be obtained from agents or operators. When the configuration files are imported to the RP from the USB device, all configuration data is loaded automatically.

5.10 Startup Video Customization

The RP allows you to use the upgrade tool to replace the startup progress bar and Huawei logo with a custom video.

5.11 Custom Background Picture

When the RP is not in any conferences, local video is displayed on the connected screen by default. A custom background picture made using the upgrade tool can be configured to appear on the screen instead of local video.

5.12 Network Address Book

The network address book stores all site information. The administrator can import or export the address book and update the entries in batches using the web interface.

No matter whether the RP is located in on-premises, IMS hosted, or SP hosted networking scheme, it can access the LDAP address book through the corporate directory.

- If the network address book is stored on an FTP server, the RP automatically downloads and synchronizes site information from the FTP server upon startup. The administrator can also manually download or update the address book.
- If the network address book is stored on an LDAP or corporate directory server, the RP searches for sites from the LDAP or corporate directory server. The sites that are found on the LDAP server can be saved to the local address book, but the sites that are found on the corporate directory server cannot.

5.13 Real-time Viewing of HD Images

Using the remote video surveillance function, users can log in to the conference management web page to view the specified video source while the conference is going on. Both local and remote video can be viewed in real time, as shown in **Figure 5-4**.

Figure 5-4 Viewing video

> ⚠ **CAUTION**
>
> This function may lead to a breach of personal privacy. Ensure that its use complies with local laws and regulations.

5.14 Seamless Convergence with IMS and USM

The RP can connect to the IMS hosted network (core component: IMS) or the SP hosted network (core component: USM) through the SIP protocol and then initiate or join HD video conferences to communicate with other clients and terminals.

5.15 Interworking with the Lync System

Skype for Business (new-generation Lync client), Lync 2013, and Lync 2010 are corporate-level unified communications platforms released by Microsoft. Lync Online (a part of Office 365) is Microsoft's high-end cloud service as well as an application suite based on the cloud platform. This suite can deliver communications services by audio, video, and data to devices, such as PCs and smartphones. According to Microsoft's relevant protocols and processes, the RP preferentially uses the Lync gateway to communicate with the Lync system, including Skype for Business, Lync 2013/2010, and Lync Online (Office 365), to enable video communications at a resolution of up to 720p 30 fps. In some scenarios where the Lync gateway is not suitable, use the PXP Integrated Media Server. Enterprises that have the Lync platform deployed can access the videoconferencing system using devices, such as PCs, smartphones, and tablets.

5.16 Interconnection with the ACS

The RP can be connected to the Auto-Configuration Server (ACS) and then is managed by the ACS through the TR-069 protocol. Various management operations are allowed, such as defining and querying system parameters, upgrading the RP, managing private and public networks, querying alarms, and collecting logs of the RP. Currently, the ACS can only be Huawei eSight, Huawei Terminal Management System (TMS), or China Mobile Device Management (DM) system.

5.17 Interconnection with the BroadSoft Platform

The RP can interconnect with the BroadSoft platform and then automatically obtain configuration data from this platform and complete the configuration process.

5.18 Interconnection with the DDNS

The RPs can be connected to a third-party Dynamic Domain Name System (DDNS). After that, once any RP's IP address is changed, the DNS will immediately detect that change and find the new IP address based on the fixed domain name. In this way, the RPs can be managed based on its domain name.

5.19 Third-Party APIs

The RP provides HTTP-based third-party APIs to implement various functions, such as login authentication, conference setup, conference control, presentation sharing, address book, system configuration, and status query. Users can choose necessary APIs based on their actual needs to develop required functions and integrate them into other products or applications.

5.20 Network Adaptability

With powerful network adaptability, the RP provides smooth, sharp HD video even in the case of unstable network conditions and low bandwidth.

- The RP supports H.264 SVC and is adaptable to different bandwidths, device capabilities, and network requirements.
- Patented Super Error Concealment (SEC) ensures high-quality video experiences even with packet loss at 20%.
- The AEC, automatic gain control (AGC), and ANS technologies and the AAC-LD standard ensure clear and smooth audio quality even with packet loss at 20%.
- Huawei's Intelligent Rate Control (IRC) technology automatically detects network service bandwidth occupation and intelligently selects the optimal resolution based on the bandwidth to ensure conference quality.

5.21 Security

The RP provides a variety of security features, including system layer security, network layer security, firewall technology (NAT), secure public-private network traversal, network diagnostics, web request authentication, protocol anti-attack measures, protection of sensitive data, and system management and maintenance security.

System Layer Security

Security maintenance of the system layer ensures a smooth running of the operating system and also supports stable services at the application layer. The RP uses Linux, which is more secure and immune to viruses than Windows.

Network Layer Security

The on-premises, IMS hosted, and SP hosted networks have implemented different network layer security policies.

- On-premises network:
    - The RP, SMC2.0, and MCU are deployed in the trusted zone, isolated from the Demilitarized Zone (DMZ) and the untrusted zone. Firewalls are deployed for security domain division and access control.
    - Terminals (such as TE Desktop and TE Mobile) in the untrusted zone communicate with NEs in the trusted zone through the Session Border Controller (SBC) or Switch Center (SC) in the DMZ.
- IMS hosted and SP hosted networks:
    - The RP is deployed in the untrusted zone, isolated from the DMZ and the trusted zone through the SBC or the extranet firewall.
    - If the DMZ is deployed, install the SBC, SC, USM Proxy, and MediaX Proxy in the DMZ for RP connections.
    - If no DMZ is deployed, the RP connects to the trusted zone through the SBC. The USM Proxy and MediaX Proxy are not required.
    - On network borders between the DMZ and the trusted and untrusted zones, firewalls are deployed to implement security domain division and access control.

Firewall Technology (NAT)

The firewall protects your IP network by separating the internal and external network communication data. Using Network Address Translation (NAT) technology and exchanging signaling between public network protocols and private network protocols, the firewall enables sites on local area networks (LANs) in different places to enjoy the convenience of communication through video conferences. With NAT, a device on an LAN is allocated a dedicated internal IP address that uniquely identifies the device on the LAN, and the device uses an external IP address to communicate with external devices. Through NAT mapping, multiple internal IP addresses are mapped to one external IP address. NAT mapping not only reduces the number of IP addresses that are needed for users on a private network to access the Internet, but also enhances the security of the private network.

Secure Public-Private Network Traversal

The standard H.460, SIP Interactive Connectivity Establishment (ICE), and exclusive Super Network Passport (SNP) firewall traversal technologies are used to set up secure connections between the public and private networks or between different private networks through firewalls.

Network Diagnostics

To ensure superb audio and video, you can use the diagnostic tool released with the RP software version to check the network performance, including:

- Connectivity

- Route information

- Bandwidth

- Whether required ports are blocked by firewalls and whether the destination ports are enabled

- Network quality indexes, including QoS, latency, jitter, packet loss rate, and out-of-order rate

- NAT device type

- Whether the changes that the ALG has made for H.323 and SIP messages are correct

To start network diagnostics, connect the diagnostic tool to the RP. To set up the connection, the user name and password are required, which are encrypted and then transmitted to the RP.

Web Request Authentication

- When a user requests access to a specified web page or submits a servlet request, the RP checks whether the user's session identifier is valid and whether the user is authorized to perform the operation.

- The server implements the final authentication on the user.

- Before transmitting user-generated data to clients, the server verifies the data and encodes it using HyperText Markup Language (HTML) to prevent malicious code and cross-site scripting attacks.

- Web security software is used to scan the web server and applications to ensure that there are no high-risk vulnerabilities.

Protocol Anti-Attack Measures

- The communication matrix is provided in the product documentation. Do not enable the services and ports that are not mentioned in the communication matrix.

  The communication port matrix contains the following information: open ports, transport layer protocols used by the ports, network elements (NEs) that use the ports to communicate with peer NEs, application layer protocols used by the ports and description of the services at the application layer, whether services at the application layer can be disabled, authentication modes adopted by the ports, and port functions (such as data traffic control).

- The RP utilizes multiple encryption measures, including H.235 (for encryption of media and signaling streams), Secure Real-time Transport Protocol (SRTP), Transport Layer Security (TLS), and Hypertext Transfer Protocol Secure (HTTPS), to ensure secure and stable running of the videoconferencing system.

- For network management, the RP supports the Simple Network Management Protocol v3 (SNMP v3), which features higher adaptability and security. User names are needed to connect the network management system to the RP.

- Robustness testing tools are used to scan protocols to ensure that there are no high-risk vulnerabilities.

- By default, the File Transfer Protocol over SSL (FTPS) and LDAP over SSL (LDAPS) are used to encrypt the address book, ensuring data integrity and preventing data from being stolen.

Protection of Sensitive Data

- The log, diagnostic, debug, and alarm information must not contain sensitive data.
- Sensitive data must be transmitted through secure channels or transmitted after being encrypted.
- To prevent sensitive data from being disclosed, the RP checks the complexity of the password. A password is displayed as "." or "*" when entered in the password input box, and the entered password cannot be copied.
- Sensitive data such as passwords and ciphering context must not be recorded in logs. If sensitive data really needs to be recorded, it should be displayed as "***".
- Standard encryption algorithms (proprietary algorithms not allowed) and key negotiation mechanisms are used.

System Management and Maintenance Security

- Software packages (including patches) are released only after they are scanned by at least five types of mainstream antivirus software and no alarm is generated. Explanations are provided for alarms under special circumstances.
- All user operations and system abnormalities are recorded into logs.

Product Safety Design

- Non-metal components in the product shell are made of V1 category combustion-proof materials.
- The component safety design complies with both Chinese and European standards, and structural components also adhere to the European Commission Directive 2006/42/EC on machinery.
- Labels and safety symbols are provided.

6 Operation and Maintenance

6.1 Using the Touch Panel

The endpoint provides an optional Android-based, 10-inch touch panel. With an intuitive and customized UI, the touch panel provides a superb gesture control experience, allowing users quick access to conference functions.

On the touch panel UI, you can perform operations such as finding a scheduled conference and joining it simply by one tap, creating a point-to-point or multipoint conference, sharing presentation, viewing a specified site or presentation, setting continuous presence, performing conference control, defining system settings, conducting a diagnosis simply by one tap, and controlling microphones, speakers, and cameras. If the Far-End Camera Control (FECC) function is enabled for a remote camera during a conference, you can also use the touch panel to control the remote camera. **Figure 6-1** shows the home screen of the touch panel UI.

Figure 6-1 Home screen of the touch panel UI

6.2 Using the Remote Control

A remote control is provided to allow convenient operations for users. The remote control UI adopts the "what you see is what you get" design, which is easy to understand and use.

Using the remote control, users can perform various operations, such as initiating a conference, making a voice call, controlling a conference, controlling captions, modifying system configurations, controlling the microphones and speakers, and selecting and controlling cameras. **Figure 6-2** shows the home screen of the remote control UI.

Figure 6-2 Home screen of the remote control UI
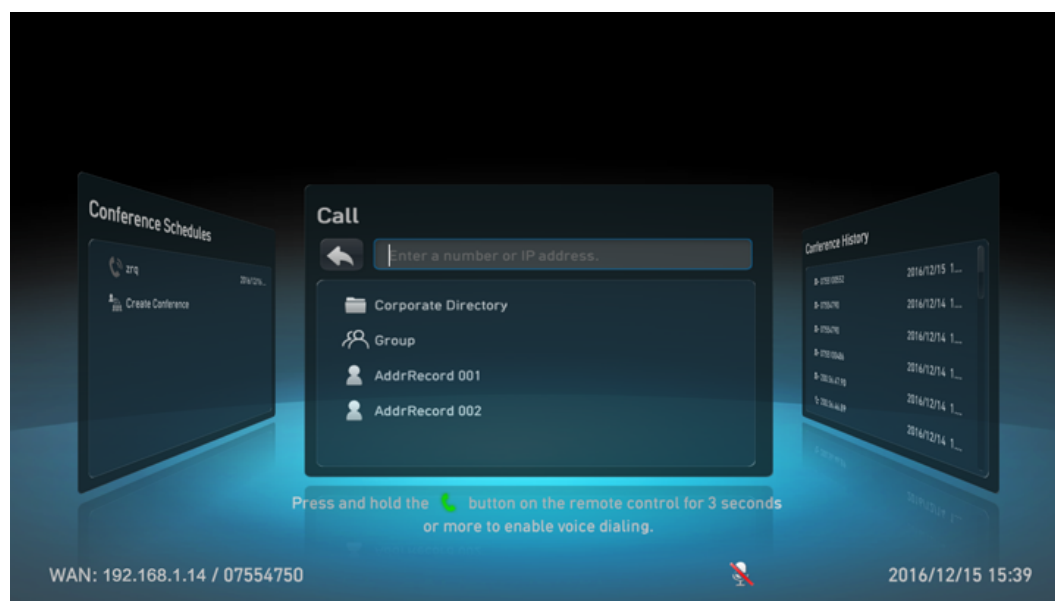
6.3 Using the Web Interface

Web-based management is supported, which allows users to initiate calls, control conferences, save address books, and modify system configurations. Users in different locations can concurrently access and use the RP through the web interface, which eliminates the restriction of space. The administrator can also control the RP remotely using its web interface. The web interface supports concurrent operations by a maximum of 10 users (including API users). The same user name and password can be used by multiple users. When multiple users perform operations on the web interface, the last operation takes effect. **Figure 6-3** shows the home page of the web interface.

Figure 6-3 Home page of the web interface
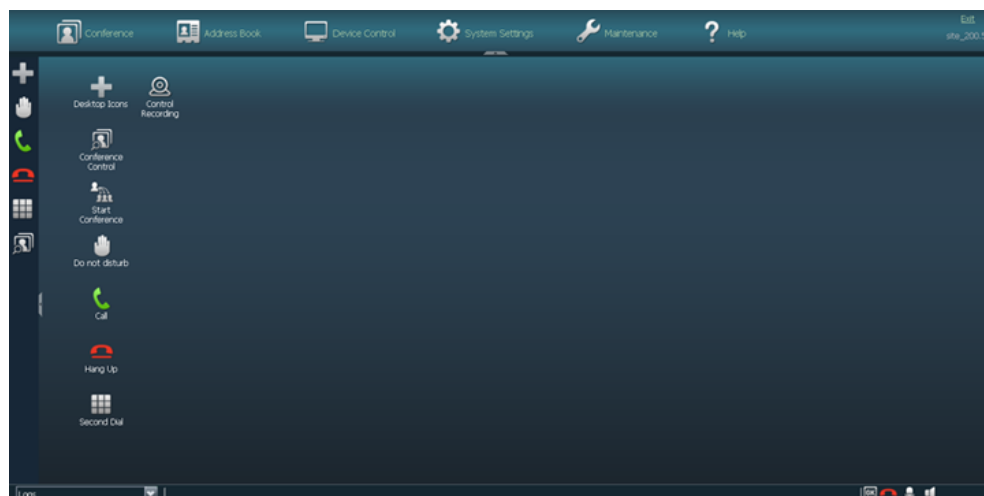
6.4 Log Management

Operation and error logs are recorded for the RP, helping users maintain the system and locate faults.

Logs are saved as files in the codecs. Users can query historical logs either on the web interface or using the remote control. Querying logs of the specified date is supported. Using the web interface, users can export logs as files to the local PC for detailed analysis, or delete all historical logs. If you use the touch panel, you can query its logs.

6.5 Inspection

- The SMC can automatically perform the following inspection tasks on the RP:
    - Check the status of IP lines.
    - Check the system software version, CPU, memory, temperature, and fan.
    - Check the H.323 and SIP registration status.
    - Check common configurations, including the answer mode, touch panel, presentation, and Huawei GK.
    - Check the connection status of the built-in camera and the working status of its PTZ.
    - Conduct a diagnosis on local audio and video loopback.
    - Continue inspection after the RP restarts or ends a call.
    - Stop inspection anytime.
    - Receive the inspection status and result.
- The Versatile Tools Suite (VTS) collects the information about the network status, system status, connection status, hardware running status, and faults of the RP.

6.6 CHR Collection

CHR collection is unsupported when the built-in MCU of the RP is functioning.

After connecting to eSight, the RP periodically sends its session and media CHR data files to eSight. The SessionInsight obtains the files from eSight and analyzes them to quickly locate faults. For the RP, CHR data files can also be exported offline and then manually imported into the SessionInsight for analysis.

6.7 System Upgrade

The RP can be upgraded automatically or manually. By upgrading the system software of the RP to the latest version, users can enjoy enhanced and the latest features and functions.

Manual upgrade: Users use the upgrade tool to initiate the system upgrade. They can also upgrade the system on the web interface.

Automatic upgrade: The RP automatically triggers a system upgrade at the interval specified by users.

The touch panel can be upgraded through the RP or manually upgraded.

6.8 Disaster Recovery

On the IMS hosted and SP hosted network, two EUAs are deployed in active/standby mode. If the RP fails to connect to the active EUA, it automatically switches to the standby EUA for obtaining required information.

7 Technical Specifications

7.1 Physical Specifications

Table 7-1 lists the physical specifications.

Table 7-1 Physical specifications

Item	Specifications
Electricity supply requirements	
Input voltage	100 V AC to 240 V AC; 50 Hz to 60 Hz
Power (without illumination and air conditioning)	Standard model: RP100-55S: 236 W Custom model: ● RP100-46S: 192 W ● RP200-46S: 324 W ● RP200-55S: 412 W
Environmental requirements (operating state)	
Ambient temperature	0°C to 40°C (32°F to 104°F)
Relative humidity	10% to 90%
Minimum illuminance	7 lux
Recommended illuminance	> 300 lux
Altitude	< 5 km
Environment requirements (non-operating state)	

Item	Specifications
Ambient temperature	−20°C to +60°C (-4°F to 140°F)
Relative humidity (non-condensing)	10% to 90%
Dimensions and weight	
Dimensions (H x W x D)	Standard model: RP100-55S: 1.245 m x 0.618 m x 1.741 m (4.08 ft. x 2.03 ft. x 5.71 ft.) Custom model: ● RP100-46S: 1.088 m x 0.618 m x 1.645 m (3.57 ft. x 2.03 ft. x 5.40 ft.) ● RP200-46S: 2.176 m x 0.618 m x 1.645 m (7.14 ft. x 2.03 ft. x 5.40 ft.) ● RP200-55S: 2.490 m x 0.618 m x 1.741 m (8.17 ft. x 2.03 ft. x 5.71 ft.)
Gross weight	Standard model: RP100-55S: 129.1 kg (284.62 lb) Custom model: ● RP100-46S: 121.2 kg (267.20 lb) ● RP200-46S: 141.5 kg (311.95 lb) ● RP200-55S: 155.3 kg (342.38 lb)
Net weight	Standard model: RP100-55S: 99.1 kg (218.48 lb) Custom model: ● RP100-46S: 90.4 kg (199.30 lb) ● RP200-46S: 108.6 kg (239.42 lb) ● RP200-55S: 124.0 kg (273.37 lb)
Wi-Fi features	
Technical standard	IEEE 802.11 b/g/n
Working frequency band	2400 MHz to 2483.5 MHz
Maximum transmit power	<20 dBm
HD camera	
Lens	
Image sensor	2-megapixel, 1/3-inch CMOS
Resolution	1080p 60 fps (1920 x 1080 pixels) (highest resolution supported)

Item	Specifications
Video	
Zoom	A maximum of 12x optical zoom
Focal length	F = 3.9 mm to 46.8 mm
Aperture	F1.8 to F2.8
Maximum horizontal field of view	72°
Maximum vertical field of view	30°
Maximum pan/tilt range	+/-100° (pan), +/-30° (tilt)
Maximum number of presets	30 for the local camera and 16 for a remote camera
Image mode	
Image mode	Three image modes: standard, vivid, and natural
Automatic adjustment	
Automatic adjustment	Automatic white balance (AWB), automatic exposure (AE), and autofocus (AF)
Exposure mode	Auto and manual
White balance	Auto and manual
HUAWEI intelligent camera (VPT300)	
Exposure mode	Auto and manual
White balance	Auto and manual
Sound pickup capabilities	Sound pickup distance: 10 m; sound pickup range: 140°
Special functions	
Installation method	Ceiling-mounted for the HD camera
Camera control	Far-End Camera Control (FECC) supported
Full HD display	

Item	Specifications
Screen	Standard model: Samsung 55" display for RP100-55S Custom model: Samsung 48" or 55" display ● RP100-46S: 48 inches ● RP200-46S: 48 inches ● RP200-55S: 55 inches
Resolution	1920 x 1080 pixels

7.2 Performance and Capacity

Table 7-2 lists the RP performance and capacity specifications.

Table 7-2 Performance and capacity

Item	Specifications
Call bandwidth (IP)	64 kbit/s-4 Mbit/s
Video resolution	● 1080p 30 fps with a minimum bandwidth of 512 kbit/s (optional) ● 720p 60 fps with a minimum bandwidth of 512 kbit/s (optional) ● 720p 30 fps with a minimum bandwidth of 384 kbit/s ● 4SIF/4CIF with a minimum bandwidth of 128 kbit/s ● SIF/CIF/SQSIF/SQCIF/QSIF/QCIF with a minimum bandwidth of 64 kbit/s
Presentation resolution	● Input: VGA (640 x 480) 60/72/75/85 fps, SVGA (800 x 600) 56/60/72/75/85 fps, XGA (1024 x 768) 60/70/75/85 fps, 1152 x 864 60/75/85 fps, 1280 x 600 60 fps, WXGA (1280 x 768) 60/75/85 fps, WXGA (1280 x 800) 60/75/85 fps, 1280 x 960 60/75/85 fps, SXGA (1280 x 1024) 60/75/85 fps, 1360 x 768 60 fps, 1366 x 768 60 fps, 1440 x 900 60 fps, XGA+ (1400 x 1050) 60 fps, 720p 60/75/85 fps, 1080p 60 fps, 1600 x 900 60 fps, 1600 x 1200 60 fps, 1680 x 1050 60 fps, 1920 x 1200 60 fps ● Output: 800 x 600, 1024 x 768, 1280 x 1024, 1280 x 720, 1920 x 1080 ● Coding/Decoding resolution: 800 x 600, 1024 x 768, 1280 x 1024, 1280 x 720, 1920 x 1080

Item	Specifications
Dual-stream (video + presentation) capability	720p 30 fps for both video and presentation (highest capability) or 1080p 30 fps for video and 1080p 5 fps for presentation (optional)
AirPresence mobile client	How to download: ● For Android smartphone or tablet users, search for **AirPresence** in Huawei HiApp or Google Play. ● For iPhone or iPad users, search for **AirPresence** in App Store. ● You can also obtain the installation file from the RP software package. Operating system and hardware: ● Android 4.0 or later, CPU with the ARMv7 Neon chip or above, dominant frequency of 1.5 GHz or above, memory of 1 GB or above iOS 7.0 - 11.1 on iPhone 7 Plus, iPhone 7, iPhone 6s Plus, iPhone 6s, iPhone 6 Plus, iPhone 6, iPhone SE, iPhone 5s, iPhone 5c, and iPhone 5 Presentation sharing: ● The AirPresence mobile client on Android supports PDF files and PNG, JPG and BMP images. ● The AirPresence mobile client on iOS supports PDF, Word, Excel, and PPT files and PNG, JPG and BMP images. ● On the AirPresence mobile client, the document to share cannot exceed 30 MB, and the image to share cannot exceed 8 MB. ● The screens of mobile phones running Android 5.0 or later can be shared at a resolution of 720p 10 fps.
AirPresence PC client	Obtain the installation file from the RP software package. Operating system and hardware: ● 32-bit Windows XP, 32-bit or 64-bit Windows 7, 8, 8.1 or 10 ● 32-bit and 64-bit macOS 10.7 to 10.11 Presentation sharing: ● Maximum resolution: 720 and 1024 x 768 ● Maximum frame rate: 15 fps

Item	Specifications
Air Content Sharing Client	How to download: Download client from the RP's web interface. Operating system and hardware: ● 32-bit and 64-bit Windows Vista, Windows 7 ● 32-bit and 64-bit Windows XP Presentation sharing: ● Maximum resolution: 720 and 1024 x 768 ● Maximum frame rate: 15 fps
Other video features	● VideoIntensifier ● ViewProcessing ● Super Error Concealment
Audio features	AEC, ANS, AGC, VoiceClear, AudioEnhancer, and lip synchronization
Built-in MCU capability	Maximum number of connected sites: ● Non-encrypted conference: four 576p 30 fps video sites (local site included) and three audio-only sites ● Encrypted conference: four 576p 30 fps video sites (local site included) Maximum bandwidth: ● Non-encrypted conference: 4.5 Mbit/s (1.5 Mbit/s for each video site) ● Encrypted conference: 3 Mbit/s (1 Mbit/s for each video site) Continuous presence per port: supports a maximum of 3 video panes

7.3 Standards Compliance

Table 7-3 lists the standards that the RP complies with.

Table 7-3 Standards compliance

Item	Specifications
Video encoding and decoding protocols	H.264 SVC, H.264 HP, H.264 BP, H.263, H.263+, and RTV
Audio encoding and decoding protocols	AAC-LD, G.711A, G.711U, G.719, G.722, G.728, G.729A, HWA-LD, G.722.1, and G.722.1C
Multimedia frame protocols	ITU-T H.323 and IETF SIP

Item	Specifications
Dual-stream standard	ITU-T H.239 and BFCP
Network transmission protocols	TCP/IP, RTP, RTCP, FTP, DHCP, SNMP, Telnet, HTTP, SSH, HTTPS, PPPoE, SNTP and TR-069
Other communications protocols	H.225, H.235, H.241, H.245, H.281, H.350, H.460, T.140, RFC2833, and DTMF
IP protocol	IPv4 and IPv6 dual stack
Wi-Fi	IEEE 802.11 b/g/n WEP, WPA, WPA2, and WPS authentication
Protocol for signaling and media stream encryption	H.235, TLS, and SRTP
H.323 Far-End Camera Control (FECC)	H.281 and H.224

A Glossary

Numerics

4CIF

4 x Common Intermediate Format

A video resolution of 704 x 576 pixels.

4SIF

4 x Source Input Format.

A video format with a resolution of 704 x 480 pixels and using progressive scanning.

A

AAC

advanced audio coding

API

Application Programming Interface

An application programming interface is a particular set of rules and specifications that are used for communication between software programs.

B

built-in MCU

A built-in unit of an endpoint, by using the built-in MCU, the endpoint can hold a multipoint conference that supports multiple functions, such as site access, video exchange, audio mixing, data processing, and signaling interaction.

C

CHR

Call History Record

CIF

Common Intermediate Format

CSCF

Call Session Control Function

The core component of the IMS network. It performs the functions such as registration, authentication, session control, service triggering, topology hiding, QoS control, NAT traversal, and security management.

camera

A device for recording visual images in the form of photographs, movie film, or video signals.

chair site	A site that has chair control rights.
D	
DMZ	Demilitarized Zone
	A buffer area between an insecure system and the secure system and is used to solve the problem that the external network equipped with a firewall cannot access the internal network server. The DMZ is located between the internal network and the external network. In the DMZ, some public server facilities, such as the enterprise Web server and FTP server, can be located. The DMZ effectively protects the internal network.
DNS	Domain Name System
	A mechanism of mapping easy-to-remember domain names to IP addresses recognizable for network devices.
DST	Daylight Saving Time
DTMF	Dual Tone Multiple Frequency
	Multi-frequency signaling technology for telephone systems. According to this technology, standard set combinations of two specific voice band frequencies, one from a group of four low frequencies and the other from a group of four high frequencies, are used.
E	
EUA	Enterprise Unified Address Book
	A next-generation address book server launched by Huawei. It provides LDAP-based unified address book services for Huawei videoconferencing and enterprise communication solutions.
G	
G.722	Audio codec standard that uses adaptive differential pulse-code modulation (ADPCM). Its data rate is 48 kbit/s, 56 kbit/s, or 64 kbit/s.
G.728	Audio codec standard that uses low-delay code excited linear prediction (LD-CELP). Its data rate is 16 kbit/s.
H	
H.239	A standard recommended by ITU-T. It enables a video conference to have simultaneous transmission of both video and data content (for example, computer desktop).
H.263	A video codec standard for video conferences at low rates. Five formats are available, SQCIF, QCIF, CIF, 4CIF, and 16CIF.
H.264	Compared with H.263, H.264 can provide the same-quality video at half of the bit rate, with strong error resilience characteristics.

H.323 protocol	A communication control protocol defined by the International Telecommunication Union (ITU). It offers multimedia services in the packet-switched (PS) network. Call control is an essential component in H.323 and is used to establish point-to-point media sessions and multi-point media conferences.	
HD	high definition	
HD display	An HD plasma TV that is used to display the video from a telepresence codec.	
HDMI	high definition multimedia interface	
HEVC	High Efficiency Video Coding	
	High Efficiency Video Coding, also known as H.265, is a next-generation digital video compression format developed by the ITU-T Video Coding Experts Group (VCEG) together with the ISO/IEC JTC1 Moving Picture Experts Group (MPEG). Compared with its previous generation (H.264), HEVC offers a higher data compression ratio.	

I

ICE	intelligent concept extraction
IMS	IP multimedia subsystem

L

LDAP	Lightweight Directory Access Protocol
	A network protocol based on TCP/IP, which allows access to a directory system agent (DSA). It involves some reduced functionality from X.500 Directory Access Protocol (DAP) specifications.

M

multipoint call	A site makes calls to multiple sites, to hold a conference that has multiple participants.

P

PPPoE	Point-to-Point Protocol over Ethernet
PiP	Picture-in-Picture
point-to-point call	A site makes a call to another site, to hold a conference that has two participants.
presentation	During a conference, the local site shares the content input from a computer with remote sites, such as an excel file, a diagram, or slides.

R

RSE	Recording & Streaming Engine

S

S/PDIF	Sony/Philips Digital Interface Format

SBC	session border controller
SD	Standard Definition
	A video format with the resolution below 720p.
SIF	Source Input Format
SIP URI	It is used for SIP to identify users. A SIP URI includes a user name and a domain name. It can also contain other parameters.
SIP trunk	A packet trunk. Different from a physical channel defined by a circuit relay, a SIP trunk defines a logical channel, which solves the issues about interoperability authentication and call addressing between the local office and the peer office.
SMC	Service Management Center
	A videoconferencing service management system that manages videoconferencing devices (including GKs, MCUs, and participant endpoints) and allocates videoconferencing resources.
SP	Service Provider
	A service provider (SP) is defined as a company or organization, making use of an electronics communications network or part thereof to provide a service or services on a commercial basis to third parties.
SRTP	Secure Real-time Transport Protocol
	A real time transport protocol with enhanced security and encryption mechanism-based RTP.
SSH	Secure Shell
	A set of standards and an associated network protocol that allows establishing a secure channel between a local and a remote computer. A feature to protect information and provide powerful authentication function for a network when a user logs in to the network through an insecure network. It prevents IP addresses from being deceived and simple passwords from being captured.
STUN	Simple Traversal of UDP through NAT
Switch Center	A Switch Center (SC) is Huawei's new-generation network switch system that provides H.323 GK, SIP server, and media proxy functions.
T	
TCP/IP	Transmission Control Protocol/Internet Protocol
TLS	Transport Layer Security
TMS	terminal management system
touch panel	The touch panel is connected to the telepresence system wirelessly. Without cable restriction, users can use the touch panel conveniently. From the touch panel, users can perform operations, such as dialing a number, calling a contact, answering or rejecting a call, controlling a conference, and switching the display mode.

V

VGA   Video Graphics Array

W

WPA   Wi-Fi Protected Access

A wireless security protocol replacing WEP and aiming to provide more powerful security performance for the IEEE 802.11 WLAN. WPA is a subset of IEEE 802.11i, whose core is IEEE 802.1x and TKIP.

Wi-Fi   Wireless Fidelity

A short-distant wireless transmission technology. It enables wireless access to the Internet within a range of hundreds of feet wide.

X

XGA   Extended Graphics Array