



MAX PRESENCE

Product Description

Issue 01

Date 2017-10-31

Copyright © Huawei Technologies Co., Ltd. 2017. All rights reserved.

No part of this document may be reproduced or transmitted in any form or by any means without prior written consent of Huawei Technologies Co., Ltd.

Trademarks and Permissions



HUAWEI and other Huawei trademarks are trademarks of Huawei Technologies Co., Ltd.

All other trademarks and trade names mentioned in this document are the property of their respective holders.

Notice

The purchased products, services and features are stipulated by the contract made between Huawei and the customer. All or part of the products, services and features described in this document may not be within the purchase scope or the usage scope. Unless otherwise specified in the contract, all statements, information, and recommendations in this document are provided "AS IS" without warranties, guarantees or representations of any kind, either express or implied.

The information in this document is subject to change without notice. Every effort has been made in the preparation of this document to ensure accuracy of the contents, but all statements, information, and recommendations in this document do not constitute a warranty of any kind, express or implied.

Huawei Technologies Co., Ltd.

Address: Huawei Industrial Base
Bantian, Longgang
Shenzhen 518129
People's Republic of China

Website: <http://e.huawei.com>

About This Document

Purpose

This document provides the features, network, and technical specifications of the HUAWEI MAX PRESENCE.





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.

Symbol	Description
 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

Issue 01 (2017-10-31)

This issue is used for first office application (FOA).

Contents

About This Document.....	ii
1 Product Positioning and Highlights.....	1
1.1 Product Positioning.....	1
1.2 Product Highlights.....	1
2 Appearance and Components.....	3
2.1 Appearance.....	3
2.2 Components.....	3
2.2.1 Telepresence Host.....	4
2.2.2 Codec.....	5
2.2.3 Co-Optical Center Camera.....	5
3 Features and Benefits.....	7
3.1 Panoramic Image in Full View.....	7
3.2 Ultra HD Dual Stream Video Experience.....	7
3.3 Seamless Convergence of Videoconferencing and Surveillance Systems.....	7
3.4 Abundant Display Modes.....	8
3.5 Ultra-IMAX Cinema Audio Quality.....	9
3.6 Professional Customization.....	10
3.7 Intelligent Control and Management.....	12
3.8 Powerful QoS Adaptability.....	15
3.9 Minimal Bandwidth Requirement.....	15
3.10 Proven Conference Security.....	15
4 Typical Applications.....	17
4.1 Safe City.....	17
4.2 Emergency Command.....	18
4.3 Intelligent Transportation.....	19
4.4 Education.....	20
4.5 Administrative Conference.....	21
5 Technical Specifications.....	22

1 Product Positioning and Highlights

1.1 Product Positioning

Currently videoconferencing products are widely used, with HD video conferences now able to be held at small- to medium-sized sites. However, when the number of participants is large, negotiation between multiple sites is involved, and video and surveillance functions work concurrently, the videoconferencing experience is adversely affected due to restricted screen size and low quality, limited-functionality videoconferencing products. Driven by customer demand for a superior end-to-end videoconferencing experience, Huawei integrated its proprietary panoramic co-optical center camera technology and directed its extensive expertise in audiovisual technologies to launch the HUAWEI MAX PRESENCE. The HUAWEI MAX PRESENCE is a convergence of video, surveillance, and data functions. It implements flexible information sharing and visual cooperation and dispatch, providing an ultra-IMAX cinema audiovisual experience.

The HUAWEI MAX PRESENCE can integrate with a video surveillance system as well as interoperate with a telepresence system or HD/SD videoconferencing system to implement the seamless convergence of conferencing, dispatch, and surveillance functions.

The HUAWEI MAX PRESENCE is ideal for large and professional conference rooms. Based on customer demands, the HUAWEI MAX PRESENCE can be refitted on customers' existing devices. It comes with core components, such as the co-optical center camera, codec system, and intelligent central control system, and provides optional components, such as the video wall server, and third-party central control system.

1.2 Product Highlights

Infinite DOF

- 48:9 wide-screen and 3 x 1080p definition, achieving full-view presentation
- Ultra-wide-angle panoramic shooting and video in true-to-life dimensions, concurrently displaying the full view and close-ups
- Huawei proprietary co-optical center camera, implementing infinite depth of field (DOF) without ghost images and missing issues

Borderless Vision

The HUAWEI MAX PRESENCE uses 10 (2 x 5) 70-inch HD displays to provide a cinema-level immersive experience and achieve borderless full-view presentation.

Super Engine

- Adopts the TE80, the most powerful telepresence engine in the industry. Compared with a traditional telepresence system that uses three codecs, the HUAWEI MAX PRESENCE is more integrated, consumes less power, and provides better performance.
- Supports three channels of 1080p60 HD video streams and one channel of 1080p 60 fps content-sharing stream coding deliver superior video and content fluency.
- Uses H.264 HP and Video Motion Enhancement (VME2.0) technology to implement 1080p30 codec even when the bandwidth is only 3 Mbit/s.
- Uses H.264 SVC and super error concealment (SEC) technology to ensure stable audiovisual quality even if the packet loss rate reaches 20%.

Service Convergence

- Seamless convergence of videoconferencing, surveillance, and data services
- Diversified display modes, including the report mode, remote seminar mode, HD conference mode, and collaborative conference mode

Professional Customization

- Flexible deployment methods based on conference room layouts
- Customized illumination and acoustics solutions based on the conference room space

2 Appearance and Components

2.1 Appearance

The HUAWEI MAX PRESENCE 's cambered HD display unit is an elegantly minimalist design. The arc-shaped designs in the screens, ceiling, and walls expand participants' views to the maximum extent and ensure that the communication between participants in different locations is as simple and direct as communication in an "across-the-table" conference, as shown in [Figure 2-1](#).

Figure 2-1 HUAWEI MAX PRESENCE conference room



2.2 Components

The HUAWEI MAX PRESENCE is composed of system devices, and arc shaped splicing large-screen. As components are separated from each other, the HUAWEI MAX PRESENCE can be deployed, assembled, and disassembled quickly and flexibly in various scenarios.

- System devices include:
 - One telepresence host
 - One co-optical center camera
 - One codec
 - One switch
 - One wireless router
 - One touch panel
 - One sequence power supply
 - Power distribution units (PDUs)
 - Cables
 - One cabinet
 - Extended devices, containing audiovisual extended peripherals, one video wall server, one third-party central control system, and one large-screen system
- The arc-shaped splicing screen is composed of 10 (2 x 5) 70-inch Digital Lighting Progress (DLP) screens.

2.2.1 Telepresence Host

Figure 2-2 Telepresence host



As shown in [Figure 2-2](#), the HUAWEI MAX PRESENCE adopts the TH501 telepresence host that is independently developed by Huawei and runs VxWorks, an embedded operating system with industry-leading security. The telepresence host manages the core devices within the HUAWEI MAX PRESENCE intelligently and efficiently by integrating and controlling the devices through serial and network ports. After the telepresence host and the touch panel are connected to each other, all the core devices of the HUAWEI MAX PRESENCE can be intuitively managed.

2.2.2 Codec

Figure 2-3 Codec



As shown in [Figure 2-3](#), the HUAWEI MAX PRESENCE incorporates the TE80, a new generation telepresence engine dedicated for telepresence systems. Compared with a traditional telepresence system that uses three codecs, the HUAWEI MAX PRESENCE is more integrated, consumes less power, and provides better performance. The TE80 has the following industry-leading advantages:

- Has ultra-high integration.
- Supports three channels of 1080p60 HD video streams and one channel of 1080p 60 fps content-sharing stream super powerful codec capabilities.
- Uses H.239 and Binary Floor Control Protocol (BFCP) to implement dual stream.
- Uses H.264 SVC and SEC technology to ensure stable audiovisual quality even if the packet loss rate reaches 20%.
- Uses H.264 HP and VME technology to implement 1080p30 codec even when the bandwidth is only 3 Mbit/s.
- Implements reliable encryption of signaling and media streams.

2.2.3 Co-Optical Center Camera

The HUAWEI MAX PRESENCE uses the TC350, a co-optical center camera developed by Huawei, for video capture. The TC350 has higher resolution and a wider angle of view as compared with traditional cameras. It uses the industry-leading 1/1.7" CMOS image sensor to deliver video at a resolution of up to 1080p 60 fps.

The TC350 incorporates leading noise reduction technology to ensure that the captured video is of high quality, and that conference participants are displayed shadow-free in almost true-to-life dimensions and can make eye contact, creating a true "across-the-table" conference experience.

The co-optical center camera compensates for video differences and the small depth of field (DOF) caused by stitching together images from three cameras. It prevents video disturbance from the environment, light, background color, and color temperature to seamlessly integrate HD video on three large-DOF displays. The resolution of video delivered by a single screen reaches up to 1080p 60 fps.

The TC350 can be upgraded using the telepresence host or from the PC that has the upgrade tool installed.

To fit for various decoration styles, the co-optical center camera can be installed using any of the following methods:

- Totally embedded in the large-screen decorative board
- Partially embedded in the large-screen decorative board
- Totally exposed on the large-screen decorative board

3 Features and Benefits

3.1 Panoramic Image in Full View

The HUAWEI MAX PRESENCE 's large screen is composed of 10 (2 x 5) 70-inch DLP screens, displaying vivid images with high contrast and reliability. Huawei's proprietary co-optical center camera uses ultra-wide-angle (larger than 90 degrees) panoramic shooting to deliver shadow-free and seamless video in 48:9 wide screen. With ultra-large screens and infinite DOF, the HUAWEI MAX PRESENCE is ideal for any large-scale conferences, decreasing total cost of ownership (TCO) for customers.

3.2 Ultra HD Dual Stream Video Experience

The HUAWEI MAX PRESENCE takes the lead in introducing end-to-end four-channel 1080p technology in videoconferencing. It delivers amazing image quality and enables participants in every corner of the conference room to clearly see all delivered images in full detail.

The HUAWEI MAX PRESENCE uses standard H.239 and BFCP to simultaneously transmit three channels of video and one channel of presentation so participants can view ultra HD video and presentation at the same time. A presentation source can be the video under surveillance, slides, Word documents, flash files, HD images, as well as movies.

The HUAWEI MAX PRESENCE adopts advanced video technology. Used in every processing stage from video capture through video encoding and decoding to video display, the technology enables the HUAWEI MAX PRESENCE to deliver ultra HD video with unprecedented smoothness. In addition, the HUAWEI MAX PRESENCE supports up to four channels of video at a data transmission rate of 60 fps. These features combine to give participants a realistic experience that's the next best thing to being there in person.

3.3 Seamless Convergence of Videoconferencing and Surveillance Systems

With the seamless convergence of videoconferencing and surveillance systems, the HUAWEI MAX PRESENCE resolves the information sharing issues that arise due to separately constructed surveillance data centers and video conference rooms. As a result, surveillance

systems evolve from traditional "voice scheduling" mode to "HD video command" mode. Surveillance videos can be directly displayed in video conferences. Commanders can join conferences anytime, anywhere, to stay current with the latest onsite trends and make decisions efficiently.

The HUAWEI MAX PRESENCE uses standard-based videoconferencing products and is interoperable with the service-layer management software Service Manager Center (SMC) and multipoint control unit (MCU), HD/SD videoconferencing endpoints, and telepresence endpoints in Huawei videoconferencing solutions. The HUAWEI MAX PRESENCE uses the unified platform to make full use of customers' existing devices, meeting their requirements and reducing system maintenance costs.

3.4 Abundant Display Modes

The HUAWEI MAX PRESENCE provides four display modes to meet various application scenarios. Participants can choose to view a panoramic HD site in full screen, view different sites on multiple panes, and simultaneously view video, presentation, and surveillance video. A maximum of 10 sites can be viewed at a time.

- Report mode

This mode is applicable to report scenarios. The large pane in the middle displays the closeup of the leader or spokesperson while other small panes display the videos of main sites. As shown in [Figure 3-1](#), the large pane, composed of six (2 x 3) screens, displays the spokesperson while the other four small panes display one HD site each.

Figure 3-1 Report mode



- Remote seminar mode

This mode is applicable when two main sites are involved. In this mode, the video of a site is displayed in true-to-life dimensions in full screen. As shown in [Figure 3-2](#), the entire screen, composed of 10 small screens, displays the video of a TP3206 narrow-gap telepresence site.

Figure 3-2 Report seminar mode, displaying panoramic video



- HD conference mode
This mode is applicable when there are many sites. In this mode, the video and presentation of 10 HD sites can be displayed on the screen simultaneously. As shown in [Figure 3-3](#), each of the 10 panes displays one HD site.

Figure 3-3 HD conference mode, displaying video and presentation simultaneously



- Collaborative conference mode
This mode is applicable when videoconferencing, surveillance, and data services are involved. In this mode, participants can simultaneously view one command center site and seven surveillance videos or other HD sites. As shown in [Figure 3-4](#), the large pane, composed of three (1 x 3) screens in the middle of bottom, displays a telepresence site in full view, while the remaining seven small panes displays one surveillance video and six data and other sites.

Figure 3-4 Collaborative conference mode



3.5 Ultra-IMAX Cinema Audio Quality

The HUAWEI MAX PRESENCE provides cinema-level sound localization, and enables users to easily distinguish the location of a remote site speaker, making conversations go smoother. This feature is implemented with the combination of the following:

- AAC-LD that supports a maximum sampling rate of 48 kHz and CD quality audio
- AEC, AGC, and ANS technologies
- Built-in multi-channel speakers

Universal Transcoding

The HUAWEI MAX PRESENCE allows inconsistency between encoding and decoding protocols. If the encoding and decoding protocols are within the following range, the HUAWEI MAX PRESENCE is able to perform universal transcoding to offer maximum interoperability with devices of other models or by other suppliers:

- G.711A
- G.711U

- G.722
- G.728
- AAC-LD mono
- AAC-LD dual-channel
- AAC-LD three-channel

Transcoding for AAC-LD dual-channel and AAC-LD three-channel is available only for Huawei videoconferencing devices.

Lip Sync

During a video conference, audio and video streams are encoded and transmitted separately. Therefore, the audio and video received by remote sites may occasionally be out of sync, resulting in a poor videoconferencing experience. The HUAWEI MAX PRESENCE can solve the lip sync issue with appropriate settings.

Voice Activation

The HUAWEI MAX PRESENCE provides two voice activation modes: switching by speaker and switching by site. A user can therefore broadcast either of the following based on the user requirements:

- The site generating the highest volume, with voice activation switching by site
- The screen generating the highest volume, with voice activation switching by speaker
- Voice activation does not affect the performance of sound localization.

Sound Localization

The sound localization technology enables the first-row participants at an HUAWEI MAX PRESENCE site to easily localize any soft voice in any corner of the conference room of a remote three-channel site, implementing spatial audio in a specially-designed conference room.

3.6 Professional Customization

The HUAWEI MAX PRESENCE provides diversified deployment solutions and optional components based on customers' existing networks, devices, and functional requirements to help customers increase return on investment (ROI) and decrease TCO.

The HUAWEI MAX PRESENCE can be flexibly deployed based on conference room layouts, and offers customized illumination and acoustics solutions based on the conference room space.

Apart from the standard 10 (2 x 5) 70-inch DLP screens, screen types and combinations (number of screens) are customizable.

- Available screen types include: 70-inch DLP screens, 60-inch DLP screens, and 55-inch narrow-gap LCD screens with splicing gaps as small as 5.5 mm.
- Available screen combinations include: 2 x 6, 2 x 7, 3 x 6, 3 x 7, 3 x 8, and 4 x 8. [Figure 3-5](#) to [Figure 3-10](#) show these screen combinations one by one. Other screen combinations can also be provided based on the site requirements.

Figure 3-5 Screen combination 1 for displaying panoramic video: 2 x 6

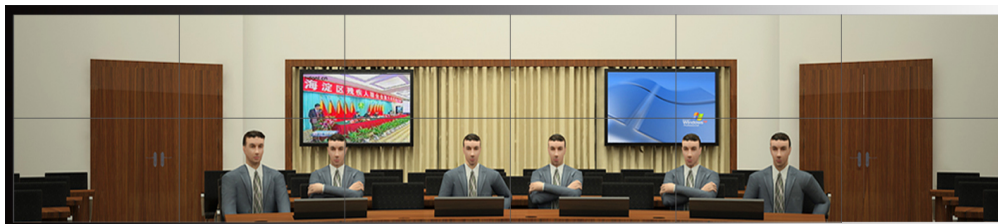


Figure 3-6 Screen combination 2 for displaying panoramic video: 2 x 7

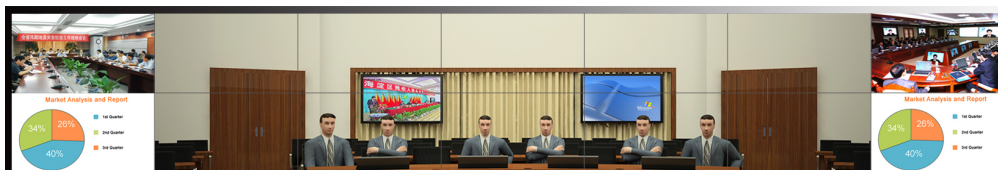


Figure 3-7 Screen combination 3 for displaying panoramic video: 3 x 6



Figure 3-8 Screen combination 4 for displaying panoramic video: 3 x 7



Figure 3-9 Screen combination 5 for displaying panoramic video: 3 x 8



Figure 3-10 Screen combination 6 for displaying panoramic video: 4 x 8



3.7 Intelligent Control and Management

The HUAWEI MAX PRESENCE uses an Android-based, 10-inch touch panel with an intuitive graphical user interface (GUI) that provides instant access to conferencing, contacts, presentation sharing, and many other functions.

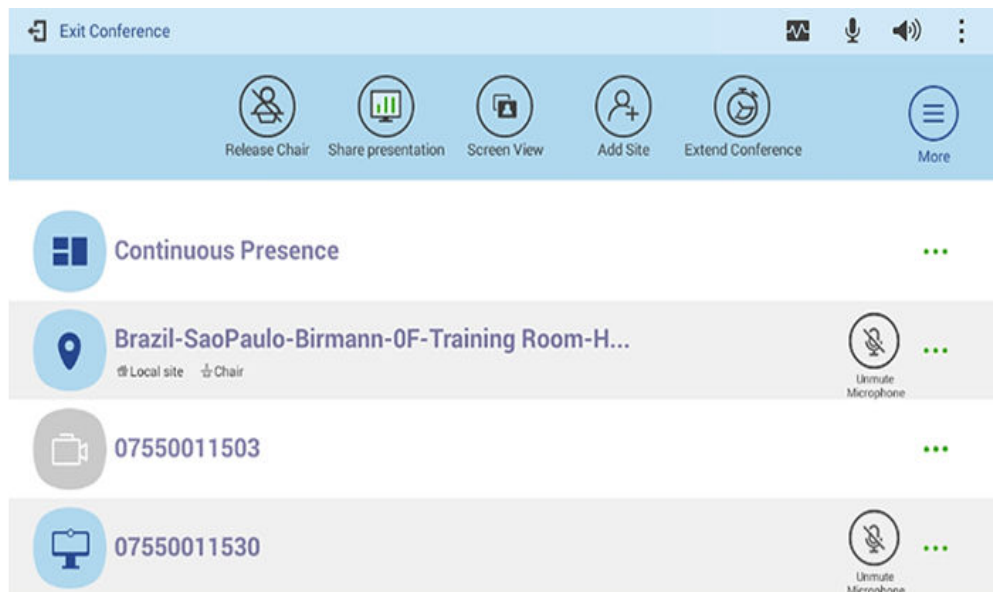
One-Tap Conference Control

From the touch panel, users can mute and unmute microphones and speakers, drag and scroll through sites, and perform the following conference control functions:

- Request or release chair control rights.
- View a site.
- Give the floor.
- Voice activation switching by site.
- Voice activation switching by speaker.
- Broadcast a site.
- View sites in turn.
- Switch the screen layout.
- Share presentations.

Unlike traditional conferences, conferences where the HUAWEI MAX PRESENCE is used do not require multiple control devices and operations do not involve multi-level menus. The touch panel provides a simple user interface (UI) for users to experience transparent technologies, as shown in [Figure 3-11](#).

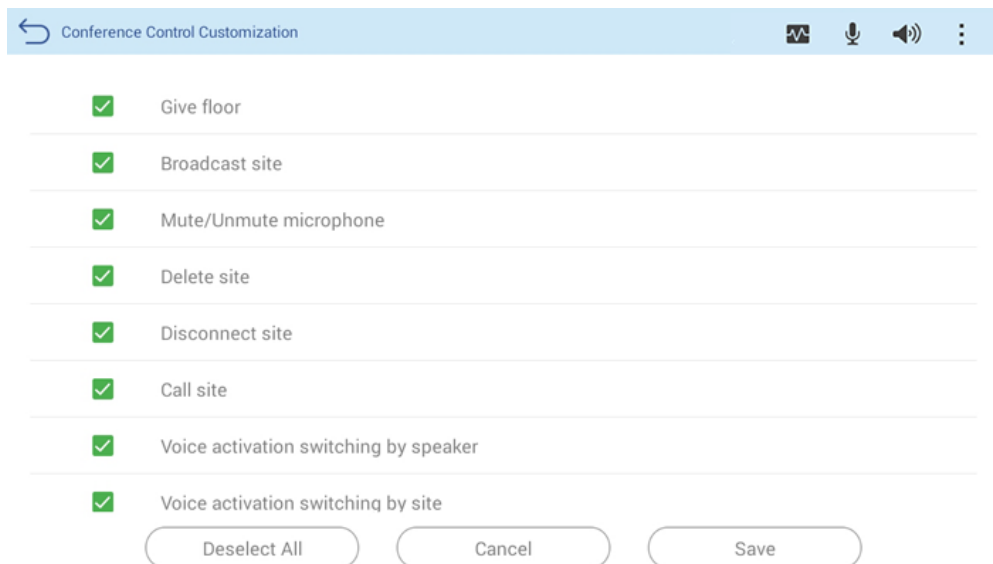
Figure 3-11 Conference control screen



Customizing the Conference Control List

Users can customize the conference controls to be displayed in the conference control list on the touch panel, as shown in [Figure 3-12](#).

Figure 3-12 Conference control list



Efficient Device Management

Maintenance personnel can log in to the HUAWEI MAX PRESENCE web interface to perform the following operations, as shown in [Figure 3-13](#):

- Monitor the operating status of core devices, such as the codec, telepresence host, and co-optical center camera.

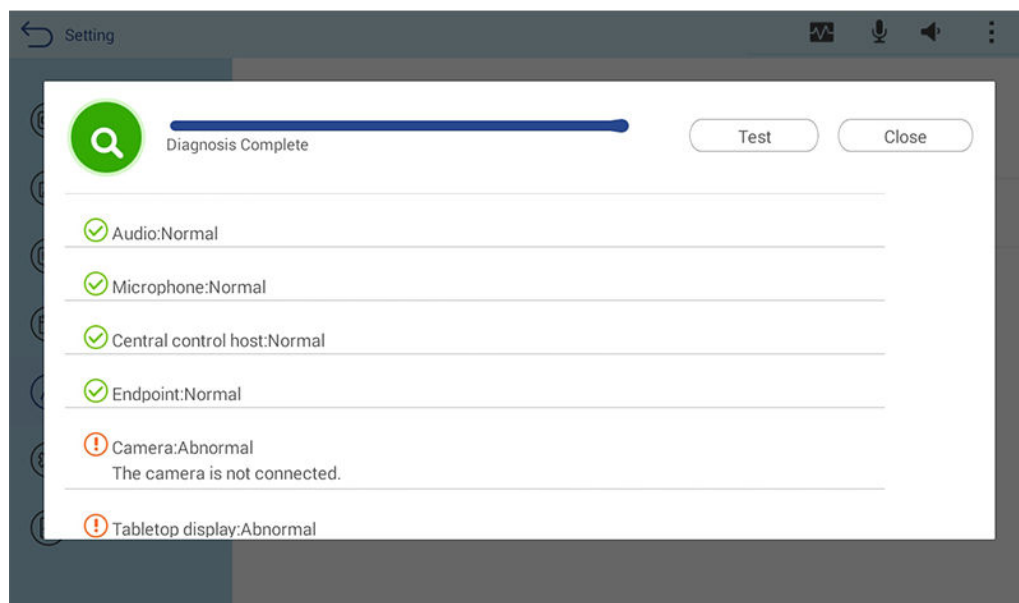
- Configure devices.
- Upgrade devices.
- Manage devices.
- Diagnose faulty devices.

Figure 3-13 Device control page



The MAX PRESENCE can detect its own devices and display all found issues on the touch panel. Users can resolve these issues based on the given handling suggestions, as shown in [Figure 3-14](#). The detection automatically starts after the MAX PRESENCE is powered on. The detection covers:

- Audio playing
- Microphone
- Camera status
- Presentation connection status
- Video output
- Telepresence host
- Relay
- Tabletop display

Figure 3-14 Automatic detection

3.8 Powerful QoS Adaptability

Packet loss may occur during data transmission over an IP network, degrading conference quality. The HUAWEI MAX PRESENCE supports Scalable Video Coding (SVC). With this support, video broadcasting devices are able to, while providing high video compression, send video streams with different frame rates and resolutions after one-time encoding. This enables videos to be delivered correctly, regardless of the network bandwidth, display screen specifications, and endpoint decoding capability. The HUAWEI MAX PRESENCE uses Super Error Concealment (SEC) 3.0 technology to automatically adjust the quality of service (QoS) and select the correct audiovisual processing policy based on transmission performance. The HUAWEI MAX PRESENCE greatly outperforms solutions without SEC technology. For example, a conference can be held smoothly even with a packet loss rate of 20%.

3.9 Minimal Bandwidth Requirement

The HUAWEI MAX PRESENCE uses H.264 HP. Compared with BP, HP has B slices, weighted prediction, field encoding, and other technology that significantly improves video compression ratio. By integrating HP, Huawei's proprietary VME technology, and technology that enhances pre- and post-processing of video, noise reduction, contrast, and edges, the HUAWEI MAX PRESENCE can deliver crisper, smoother, and more vivid video on the same bandwidth. The HUAWEI MAX PRESENCE is able to implement 1080p30 codec even when the bandwidth is only 3 Mbit/s.

3.10 Proven Conference Security

The HUAWEI MAX PRESENCE takes the following measures to ensure data security and stable conferencing:

- Anti-attack protocols and ports

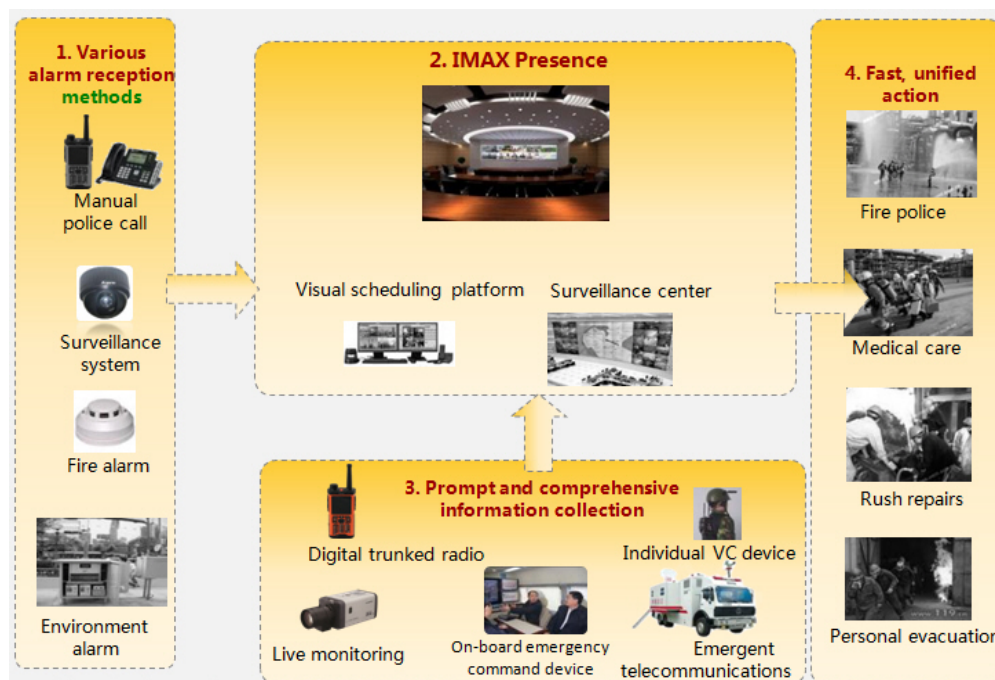
- Web security
- Sensitive data protection
- System management and maintenance security

Working with Huawei's MCUs and SMC, the HUAWEI MAX PRESENCE supports end-to-end signaling and media stream encryption and decryption for all services across the entire network. This encryption and decryption feature ensures security of conferences and user information.

4 Typical Applications

4.1 Safe City

Figure 4-1 HUAWEI MAX PRESENCE in safe city scenarios



On the network shown in [Figure 4-1](#):

- Video conferencing, monitoring signals, and GIS information can be displayed on the large screen synchronously to enable comprehensive scheduling by sharing data from the surveillance center when MAX PRESENCE is employed for consultation and decision-making.
- Combined with the mobile command vehicle and personal system, the real-time situation can be obtained to realize frontline command.
- MAX PRESENCE integrates all types of information, quickly assembles resources, delivers scheduling orders, and unifies joint teamwork, reducing losses.

This network solution has the following features and advantages:

- Wide-ranging information (including manual alarm, security surveillance, and sensor alarm) makes decision-making more evidentiary and deliberate.
- Provides a large screen with all information at a glance, creating the sense of "being there."
- Video conferencing and real-time interactive command enable better decision-making.
- Efficient calling and scheduling, and unified action.

4.2 Emergency Command

Figure 4-2 HUAWEI MAX PRESENCE in emergency command scenarios



On the network shown in [Figure 4-2](#):

- The HUAWEI MAX PRESENCE is deployed at top-level and lower-level command centers to implement cooperation and scheduling.
- The converged gateway platform at the media convergence layer is used to integrate videoconferencing and surveillance services. Surveillance center data is shared from the HUAWEI MAX PRESENCE site.
- The visual schedule console (video surveillance system) is used to merge upper-level and lower-level surveillance videos to eliminate information silos.
- Fulfills front command and real-time situation perception, combined with a mobile command vehicle and individual system.

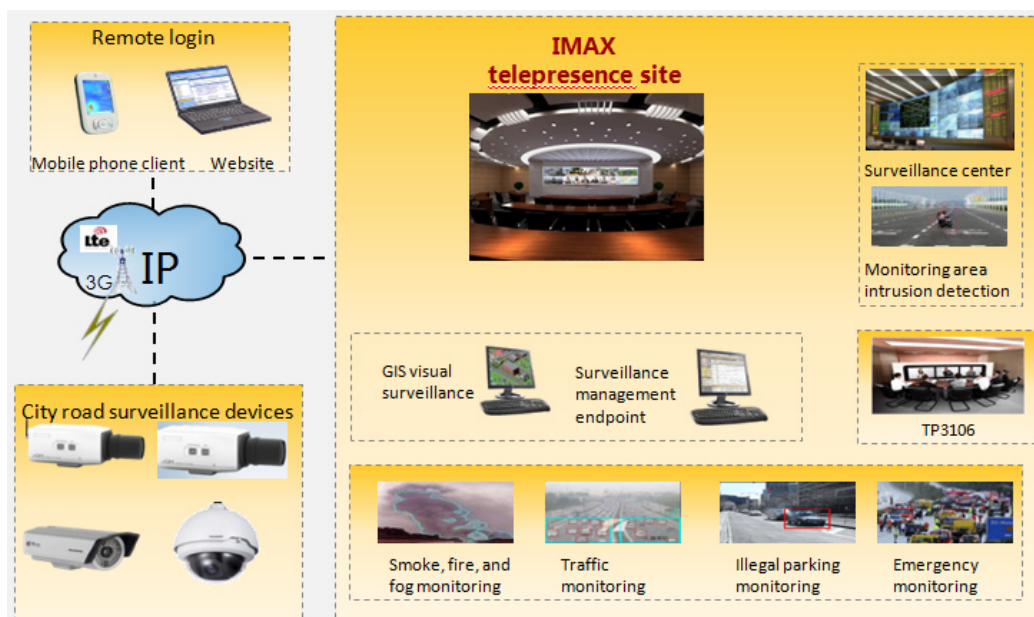
This network solution has the following features and advantages:

- The ultra-large screen displays all information, creating an in-person experience.
- Upper-level and lower-level videoconferencing and surveillance videos are merged to eliminate information silos.

- Multi-level collaboration and visual cooperation and dispatch are implemented.
- Real-time interactive decision-making through video conferencing and mobile command vehicle at the scene.

4.3 Intelligent Transportation

Figure 4-3 HUAWEI MAX PRESENCE in intelligent transportation scenarios



On the network shown in [Figure 4-3](#):

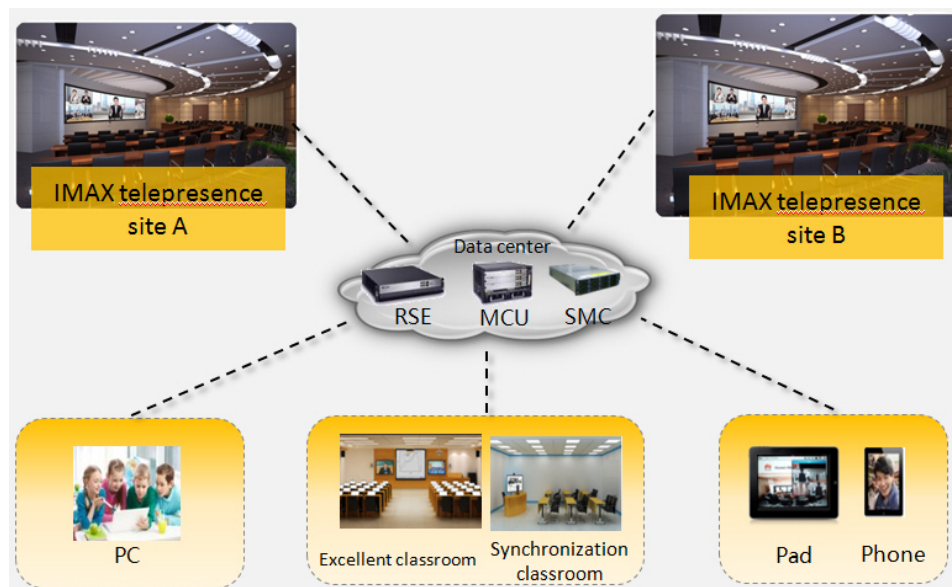
- The HUAWEI MAX PRESENCE is deployed in the main command center and interworks with road network surveillance centers to display all traffic conditions on the ultra-large screen.
- The visual schedule console is used to add road network surveillance videos to HUAWEI MAX PRESENCE conferences, sharing information with lower-level video systems.

This network solution has the following features and advantages:

- Instant and unified scheduling, command, and dispatch
- Voice communication based on the convergence of multiple networks, enabling emergence information to be clearly conveyed
- Convergence of videoconferencing and road surveillance systems, allowing onsite situations to be correctly displayed, which improves the accuracy and promptness of emergency decision-making

4.4 Education

Figure 4-4 HUAWEI MAX PRESENCE in education scenarios



On the network shown in **Figure 4-4**:

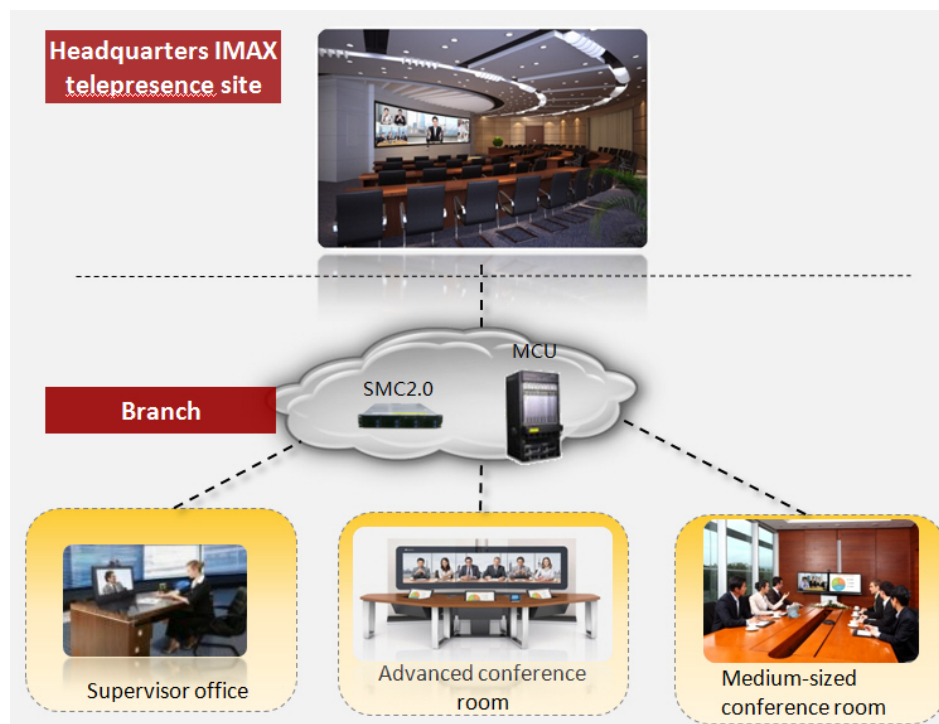
- The HUAWEI MAX PRESENCE is deployed in the center classroom to conduct seminars and onsite teaching.
- The HUAWEI MAX PRESENCE can interwork with campus surveillance systems.
- Recording servers are deployed to record and live broadcast lectures to enable distributed and offline learning.

This network solution has the following features and advantages:

- Bilateral interaction is implemented with panoramic HD audiovisual effects. An HUAWEI MAX PRESENCE classroom is able to house a maximum of 150 persons, creating a panoramic learning experience and immersive remote training experience.
- Fully integrates campus surveillance system and video conferencing.
- Participants can go to the HUAWEI MAX PRESENCE, telepresence, or videoconferencing classrooms as well as use their computers and tablets to attend lectures anytime, anywhere.

4.5 Administrative Conference

Figure 4-5 HUAWEI MAX PRESENCE in administrative conference scenarios



On the network shown in [Figure 4-5](#):

- The HUAWEI MAX PRESENCE is deployed at a headquarters site. Various endpoints can join to the conference. Panoramic telepresence systems, RP series telepresence systems, or HD systems are deployed at lower-level sites.
- The HUAWEI MAX PRESENCE can interwork with the enterprise operating data system, or large-scale deployment can be implemented using MCU cascading.

This network solution has the following features and advantages:

- MAX PRESENCE can be used for administrative meetings, remote training, enterprise data display, and so on.
- MAX PRESENCE and panoramic TP can each see images from the other. Room Presence enables browsing through multi-screen sites via Ontable, enhancing the meeting experience.
- At the HUAWEI MAX PRESENCE site, video, presentation, and enterprise operating data can be simultaneously displayed in difference panes on the ultra-large screen, which brings more direct and efficient communication.

5 Technical Specifications

Table 5-1 lists the technical specifications of the HUAWEI MAX PRESENCE.

Table 5-1 Technical specifications

Category	Item	Specifications
Standards compliance	Communication framework protocols	<ul style="list-style-type: none"> ● ITU-T H.323 ● IETF SIP
	Other communications protocols	H.225, H.233, H.235, H.241, H.245, H.281, H.283, H.350, H.460, and T.140
	Video protocols	H.263/H263+, H.264 HP, H264 BP, and H.264 SVC
	Audio protocols	AAC-LD (mono, dual-channel, and three-channel), G.722, G.711, and G.728
	Presentation protocols	H.239 and BFCP
	Encryption protocols	<ul style="list-style-type: none"> ● AES media stream encryption ● H.235 signaling encryption ● TLS ● SRTP
	Network transmission protocols	IPv6/IPv4, TCP/IP, FTPS, DHCP, SNMP, HTTP, HTTPS, Telnet, SSH, PPPoE, RTP, RTCP

Category	Item	Specifications
Resolution	Video resolutions	1080p 50/60 fps, 1080p 25/30 fps, 1080i 50/60 fps, 720p 50/60 fps, 720p 25/30 fps, 4CIF/4SIF, 2CIF/2SIF, CIF/SIF
	Presentation VGA input resolutions	1024×768 60/75Hz, 1280×768 60Hz, 1280×800 60/75Hz, 1280×1024 60/75Hz, 1366×768 60Hz, 1440×900 60Hz, 1400×1050 60Hz, 720p 60/75Hz, 1080 60Hz, 1600×900 60Hz, 1680×1050 60Hz
Bandwidth	Conference bandwidth	<ul style="list-style-type: none"> ● 720p 30 fps: 2.3 Mbit/s at minimum; 3 Mbit/s recommended ● 720p 60 fps: 3 Mbit/s at minimum; 4.5 Mbit/s recommended ● 1080p 30 fps: 3 Mbit/s at minimum; 4.5 Mbit/s recommended ● 1080p 60 fps: 6 Mbit/s at minimum; 9 Mbit/s recommended
Co-optical center camera TC350	Structure	Integrated structure with three built-in HD video camera lens
	Resolution	3 x 1080p 60 fps
	Angle of view	> 90°
	Power consumption	< 35 W
	Noise	< 35 db (working temperature)
Screen	HD display	<ul style="list-style-type: none"> ● Size: 70 inches ● Resolution: 1920 x 1080 pixels
	Touch panel	Size: 10 inches
Environmental requirements	Temperature range	<ul style="list-style-type: none"> ● operating: 0°C to 40 °C ● non-operating: -20 °C to +60 °C (-4°F to 140°F)

Category	Item	Specifications
	Relative humidity	<ul style="list-style-type: none"> ● operating: 10% to 90% ● non-operating: 10% to 90% (non-condensing)
	Altitude	< 3 km
	Reverberation time	0.3s to 0.5s
	Ambient noise	< 40 dBA SPL (noise in the area between microphones and seats)
	Recommended luminance	300 lux (illuminance per person)
	Conference room dimensions (H x W x D)	<ul style="list-style-type: none"> ● Minimum: 3000 mm x 15000 mm x 7800 mm (118.11 in. x 590.55 in. x 307.09 in.) ● Recommended: 3200 mm x 17200 mm x 13000 mm (125.99 in. x 677.16 in. x 511.81 in.)
Power	Input voltage	100 - 240 V AC, 50 Hz or 60 Hz