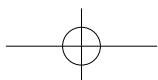


Huawei Telepresence Telemedicine Solution



HUAWEI ENTERPRISE ICT SOLUTIONS **A BETTER WAY**



Solution Introduction

Huawei Telepresence Telemedicine Solution is a telemedicine implementation of Huawei telepresence. Addressing the demands for HD medical video sharing, mobility, and medical equipment interconnection, the solution supports scenarios including remote consultation and surgery demonstration.



Figure 1-1 Huawei Telepresence Telemedicine Solution

- Huawei Telepresence Telemedicine Solution supports the following applications and scenarios:
 - Remote consultation
 - Remote surgery demonstration
 - Remote clinical guidance
 - Remote patient visits
 - Remote monitoring of intensive care units (ICUs) and neonatal intensive care units (NICUs)
 - Recording and playback of surgical procedures as training materials
 - Remote medical training
 - Mobile ward-round
 - Mobile consultation vehicles
- Industry-leading care-at-a-distance solution: Huawei Telepresence Telemedicine Solution goes beyond traditional telemedicine models; combining HD video, audio, and network-transmitted medical data, it offers patients "in-person" consultations with doctors located elsewhere.
- Telepresence in telemedicine: Huawei telepresence products are deployed in operating rooms, consulting room, specialists' rooms, consultation centers, and mobile ward-round application, to enable true-to-life communication.
- End-to-end solution: Huawei offers customer-oriented, end-to-end solutions. Huawei Telepresence Telemedicine Solution, like Huawei's other solutions, supports one-stop-shopping delivery, from multimedia classrooms, consultation centers, through networks and devices, to service platforms.

Solution Features

24/7 stability to help ensure medical treatment's continuity

Stability is at the core of Huawei products and, to Huawei, the most significant imperative for medical facilities. Absence of stability may result in system interrupts and specialists' disconnection during remote surgery and emergency treatment guidance, affecting care delivery and potentially even leading to patients' death. Huawei solutions provide a secure foundation for customers' systems.

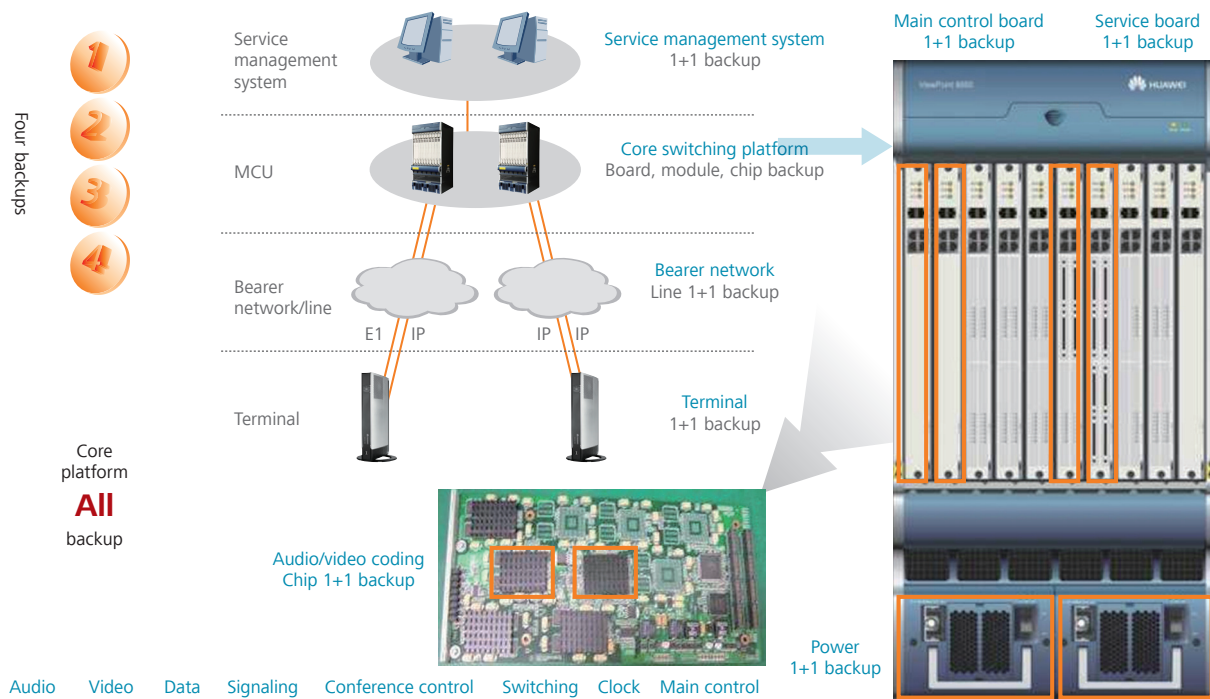


Figure 1-2 Solution's stability mechanism

1080p HD dual stream to deliver an "in-person" consultation and surgery observation experience, and lossless 3 Mbit/s or 5 Mbit/s video transmission and display.

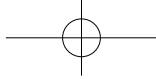
Currently, Huawei is the only videoconferencing vendor whose products support 1080p30 H.239 dual stream. Huawei Telepresence Telemedicine Solution enables simultaneous transmission of clear, lossless medical data and HD video from consultation rooms and operating rooms, blazing a trail in telemedicine (HD, real-time, and clear transmission) and transforming the delivery of healthcare. Huawei telepresence delivers video in true-to-life dimensions, enabling doctors to examine remote patients' appearance, and diagnose them based on the examination. Integrating HD video with real-time codecs, Huawei telepresence allows offsite personnel to view what is presented in front of the doctor leading a surgery, as if they were in the operating room. Huawei also addressed the transmission of videos with resolutions higher than 1080p at 3 Mbit/s or 5 Mbit/s, helping ensure that data transmitted to remote specialists is complete and accurate, alleviating misdiagnosis resulting from unclear evidence. Huawei Telepresence Telemedicine Solution provides a technical foundation for evidence-based medicine (EBM).

Converged patient data to be conveniently transmitted to remote specialists.

Huawei Telepresence Telemedicine Solution's integrated medical data collection system can transmit the following data to remote consultation specialists in real time:

- Results of patients' dynamic examinations, such as multi-parameter patient monitoring, type-B ultrasonic therapeutic tests, and endoscopy.
- Static historic data (including electronic medical record, CT images, medical images, and examination reports).

Consultations between two parties in separate medical systems are made possible through the solution's cross-system support.



Powerful access ability of the medical data collector, which supports interconnection with healthcare systems (such as HIS, PACS, and LIS) and interoperation with medical equipments from major equipment vendors, such as GE, Mindray, Olympus. Siemens, and KARL STORZ.

Using standard interfaces and Huawei's proprietary video self-adaptation technology, the medical data collector is interoperable with medical equipments with DVI-I, HDMI, SDI, HD-SDI, Composite, Component, and VGA interfaces. Therefore, it can collect data and signals from clinical workstations, surgical cameras, endoscopes, patient monitors, and medical equipments.

Deep integration with clinical workflow and unified service management platform.

Huawei Telepresence Telemedicine Solution is self-contained to deliver a high quality service. It is a comprehensive solution combining the open, standard-based, and unified platform with healthcare systems from major vendors.

Powerful network adaptability and packet loss concealment capability.

Equipment in Huawei Telepresence Telemedicine Solution uses Huawei's proprietary VideoIntensifier and ViewProcess technologies in conjunction with the latest H.264 codec to improve the video compression ratio, enabling the delivery of smoother and clearer video without increased bandwidth requirements. The solution's excellent equipment compatibility and network adaptability improve audio and video quality in poor network environments, delivering performance better than relevant international criteria and other videoconferencing products that do not use the Super Error Concealment (SEC) technology.

Solution Constituent Parts

Remote consultation center



Huawei Remote consultation center supports 1080p@50/60, eye to eye contact, image stitching, and directional sound, realizing natural "face to face" communication experience. Moreover, the consultation center integrates medical image screen and workstation, allowing still images and dynamic videos (including endoscopy and ECG monitoring) to be reproduced faithfully. It certainly provides a powerful diagnostic support to multidisciplinary specialists when performing remote consultation.

Remote medical training room



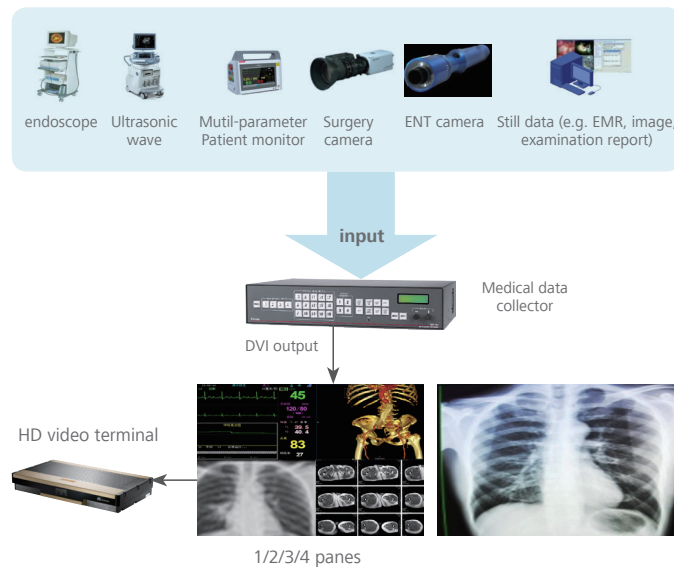
Huawei Remote medical training room contains a high end configuration, including HD camera and HD display system etc. The classroom provides various applications such as online medical training, instruction and surgery demonstration, promoting medical training level as well as caregivers' medical skills. The surgery and medical training process can be recorded for future medical education.

Specialist's room



Huawei Specialist's room integrates Huawei telepresence system with professional medical display and medical workstation. The comprehensive system provides powerful support to the real time communication between medical professionals and patients as well as the academic discussions among medical professionals.

Medical data collector



Features

- **Continuous presence:** displays four panes concurrently on the same screen, with pane video sources switchable.
- **Input:** supports four configurable video inputs for RGB, HDTV, S-Video, Composite, HD-SDI, and DVI signals, up to 19 medical data signal channels with resolutions up to 1080p.
- **Output:** one DVI and one RGB.
- **Video control:** allows users to adjust the size, location, brightness, contrast, color, hue, detail, and zoom of each pane.

Integrated medical cart dedicated for operating room



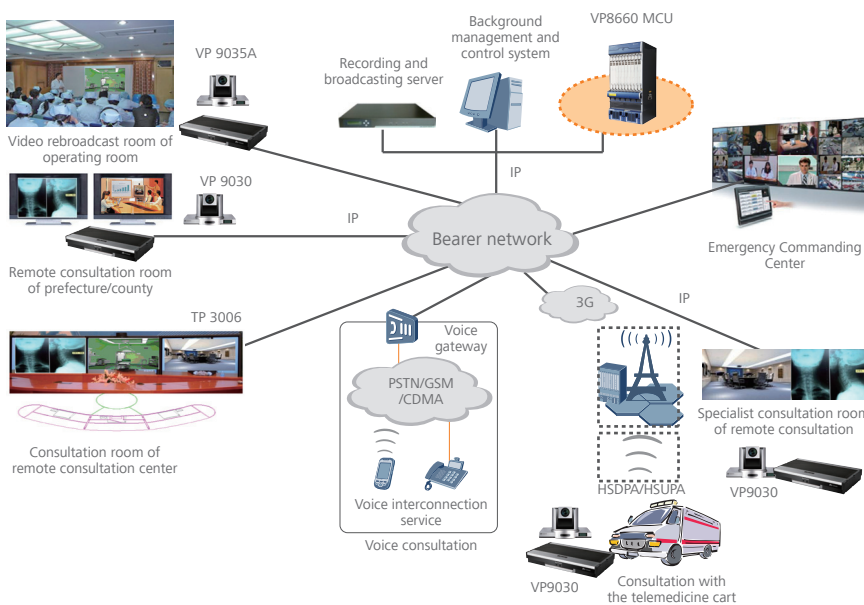
Features

- **CENTRIS® fingertip tilt**
 - Effortlessly adjust displays using Centris fingertip tilt technology.
 - Screen angle stays set after adjustment.
- **Telescopic height adjustment**
Integrated knob provides tool-less telescopic adjustment from 120 cm to 180 cm.
- **Portrait/Landscape capability**
Mounts in either portrait or landscape position.
- **Compact base**
Optimized for doorways and corner locations.
- **Lockable rear wheels**
Provides added stability.
- **Load capacity**
90.0kg

Success Stories

In China, Huawei Telepresence Telemedicine Solution has been successfully applied in the Peking University Third Hospital, First Affiliated Hospital of Zhengzhou University, Affiliated Hospitals of Fujian Medical University, and Henan Provincial Department of Public Health. In other countries, Huawei Telepresence Telemedicine Solution is also used by the local health ministries.

Telemedicine System of the First Affiliated Hospital of Zhengzhou University Resold by Henan Branch of China Mobile



Requirements and Challenges

- A surgical operation with a high difficulty requires HD video assistance and faithful reproduction of operation video
- Real-time communication of remote specialist consultation rooms
- Internal training and medical discussion

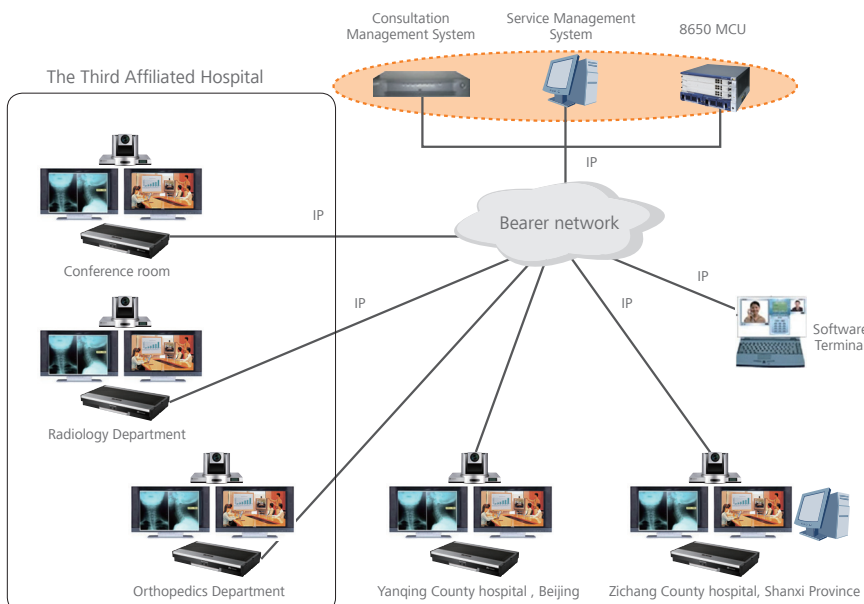
Solution

- Cooperate with Henan Branch of China Mobile to guide the customer jointly, organize activities such as visit of Huawei medical solution and telepresence experience, and show the strengths of products
- The solution covers the telepresence and HD networking (120 HD video endpoints) throughout the province, and can implement telemedicine and HD transfer of operating pictures

Customer Benefits

- The First Affiliated Hospital of Zhengzhou University: Remote consultation, operating assistance, internal training, and medical discussion
- Henan Branch of China Mobile: Establish a sample spot in the medical industry, provide a differential solution, and increase the revenue of bundled line lease service

Remote Medical Teaching System of the Third Affiliated Hospital of Beijing University



Requirements and Challenges

- Synchronous transmission of images like CT image in remote consultation
- Real-time communication of remote specialist consultation rooms
- Internal training and medical discussion

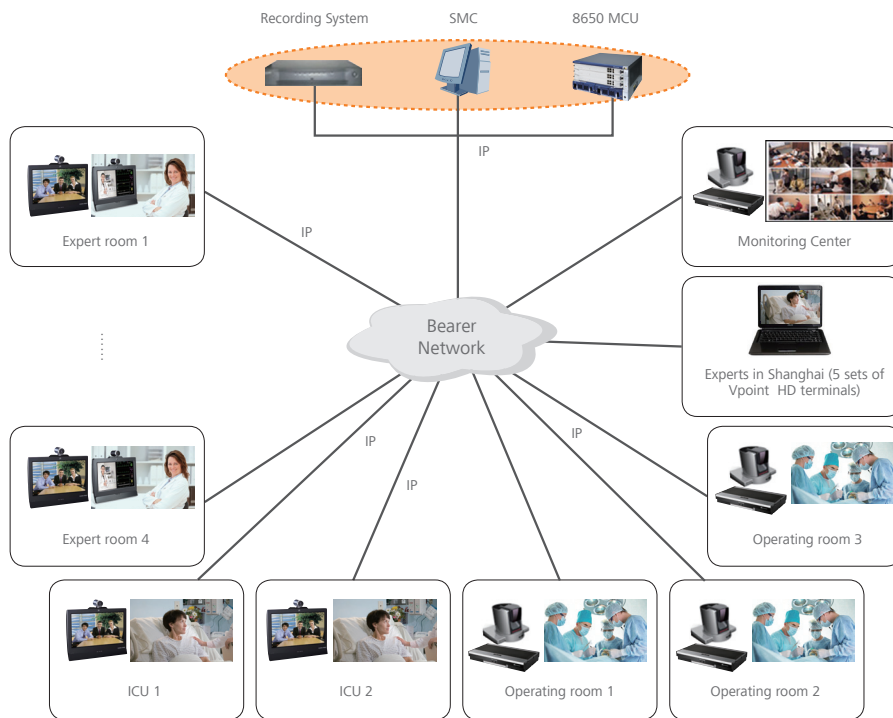
Solution

- Construct 3 HD remote consulting rooms in the Third Affiliated Hospital and the other two remote consulting sites in Yanqing county of Beijing and Zichang county of Shanxi Province, providing interconnection among different departments in the Third Affiliated Hospital and other connected hospitals

Customer Benefits

- Remote consultation, remote guidance between different departments (radiology/orthopedics departments)
- Remote medical training and discussion

Remote Consultation/Medical Teaching System of Jinlin Central Hospital



Requirements and Challenges

- Remote consultation for experts from Shanghai and Jinlin
- Remote monitoring of ICUs
- Tele-surgery demonstration and live broadcast

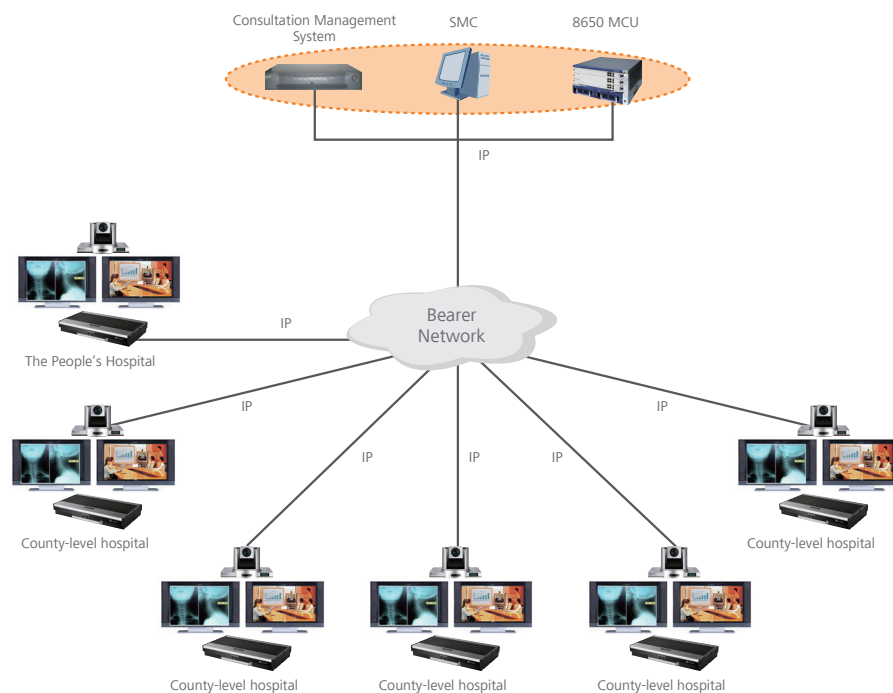
Solution

- Deploy four expert rooms with VP9050, two ICUs, three operating rooms and one monitoring center using existing IP network
- The five specialists at Shanghai end participate in consultation through PC software terminals

Customer Benefits

- Remote consultation, remote academic discussion
- Live broadcast, VOD for tele-surgery education
- Remote monitoring of ICUs

Remote Consultation System of the People's Hospital of Henan Province



Requirements and Challenges

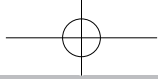
- Remote consultation; synchronous transmission of related patient data
- Consultation guidance to lower level hospitals
- Academic discussion

Solution

- Build up a remote consultation system among the People's Hospital and five county-level hospitals in Henan province, allowing better medical resources sharing and improving medical skills of the lower level hospitals

Customer Benefits

- Improving medical skills of lower level hospitals by providing remote consultation and guidance



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