

# Product Catalogue for Fixed Network Solutions



# Looking for the Next Generation Network?



## It's already here at Huawei.

Huawei's U-SYS Next Generation Network solution is up and running.

Based on Huawei's extensive investment in research and development and intimate understanding of the telecom industry, the U-SYS NGN solution is a complete, carrier-grade solution with total ATM/IP convergence.

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Better still, U-SYS is able to provide customized packet voice and multi-media services while retaining pre-existing PSTN/ISDN services. It's also ready to provide future services with open and standard interfaces.

To find out more about the U-SYS NGN solution, don't wait for tomorrow, talk to Huawei today.



partner for a networked world

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*As global supplier of total network solutions, Huawei has forged a strategic partnership with many multinational telecom carriers, providing faster, cost-saving, and customized solutions for them to address diverse market demands. Whatever voice service, broadband data service, or multimedia service you want, Huawei fixed network solutions offer you a satisfying answer.*

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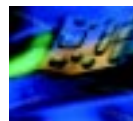
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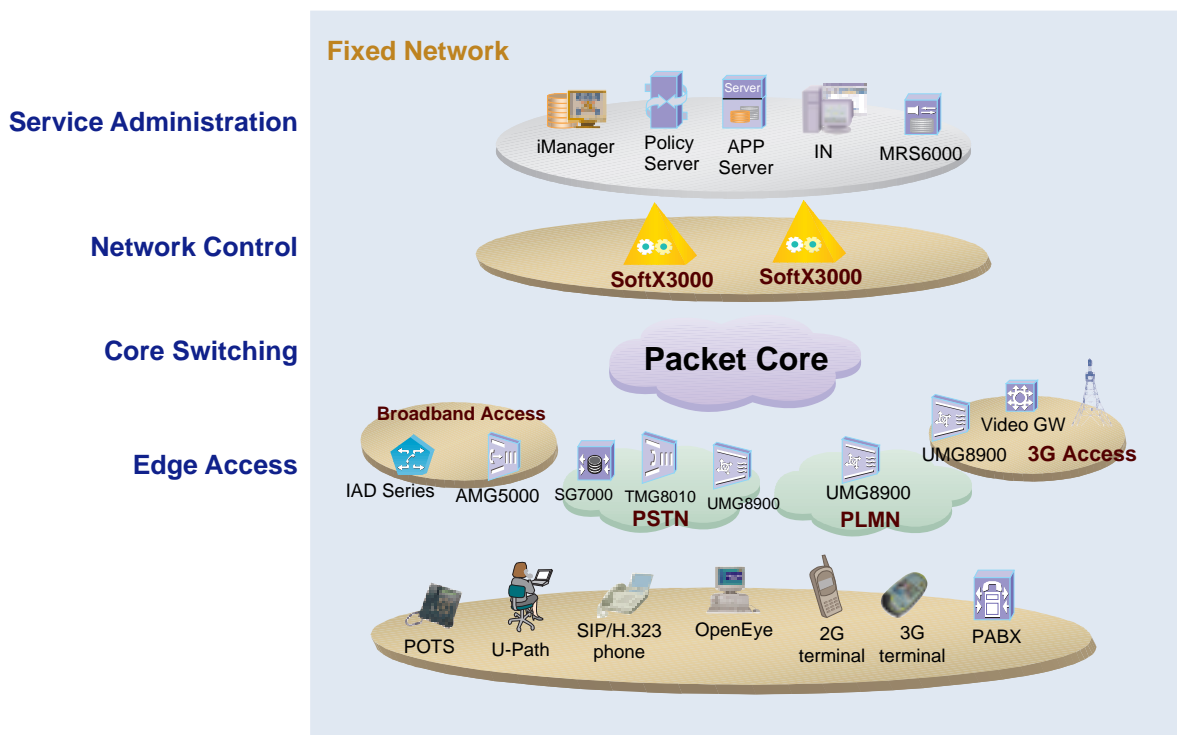
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# Overview

The technical progress and a higher level of demand require an evolution from the existing PSTN network to the Next Generation Network (NGN) an open network system providing multi-media services integrating voice, video and data. In order to meet the constructing requirements of operators, Huawei U-SYS NGN solution is anchored in the technological framework as the world's leading system, adopts a popular design idea and has the following features, service-driven, integrated network with the open network architecture and diversified access means.


























*U-SYS - Huawei's NGN solution*

U-SYS is a unified solution integrating voice, data and multimedia, catering for fixed network and mobile network.

# Introduction

U-SYS includes softswitch (SoftX3000), signaling gateway (SG7000), trunk media gateway (TMG8010), access media gateway (AMG5000), universal media gateway (UMG8900), media resource server (MRS6000), integrated access device (IAD), service application server (APP Server), enterprise communication assistant (U-Path), multimedia client terminal software (OpenEye), and operation support system iOSS (iManager N2000).

iOSS	Integrated operations support system		
U-NICA	AppServer Application server		
MRS6000	Media resource server		
Policy Server	Policy server		
SoftX3000	SoftSwitch		
SG7000	Signaling gateway		
TMG8010	Trunk media gateway		
UMG8900	Universal media gateway		
AMG5000 series	Access media gateway		
IAD series	Integrated access device		
U-PATH	Enterprise communication assistant		
OpenEye	Multimedia client terminal software		

## U-SYS key Components

# Main Features

Huawei's NGN solution, U-SYS is an unified solution for the fixed and mobile network, integrates voice, data and multimedia applications.

Sets up carrier's preponderance in the aspects of network, user-access and services.

## Network advantages

- Security design
- Availability/Reliability design
- Manageable system
- Carrier class components

## User-access advantages

- AMG and IAD series
- Community solution
- Enterprise solution

## Service advantages

- 100% compatible with PSTN services
- CS2 IN services
- Multimedia services
- Integrated services
- IP Centrex and U-Path
- Open service interface Parlay API

## U-SYS SoftX3000

SoftX3000 is a service and resource control core of U-SYS that exhibits all service characteristics of Class5, Class 4 and IP Centrex.

### Specifications and Features

- Processing capacity: 16,000K BHCA, 2000K subscribers/360K trunks.
- Available bearer network: IP, ATM, TDM
- Cabinet dimensions: 600mm(width) x 800mm(depth) x 2,100mm(height) (with top cover)/1946.5mm
- Availability: 99.99983%
- Supports both C4 and C5 services, inheriting all basic and supplementary PSTN services.
- Supports(H.323, BICC,SIP) packet trunks.
- Supports both H.248 and MGCP media gateway access modes.
- Supports third party API (Parlay API, SIP)



SoftX3000

## U-SYS SG7000

SG7000 is a gateway for signaling-interworking between PSTN and NGN, providing "SS7 over IP" function.

### Specifications

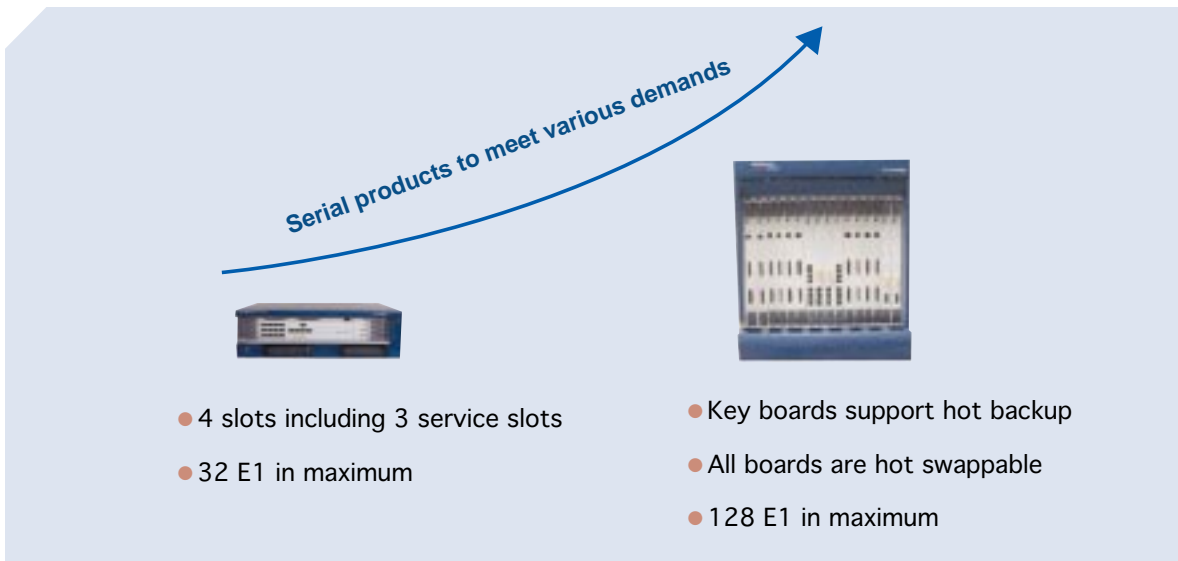
- Capacity: 5120 64Kbps links or 640 2Mbps links.
- Reliability: totally-distributed process, all key parts supporting 1+1 redundancy or loadsharing.
- Processing capability: 64K 0.95Erl, 2M 0.6 Erl.
- Protocols supported: M2UA, M3UA,M2PA,SCTP etc of SIGTRAN.



SG7000

## U-SYS TMG8010

TMG8010 is the trunk media gateway located at the edge access layer, which connects the PSTN and NGN. It implements conversion between TDM voice and packet voice. It can be deployed as VoIP trunk gateway with embedded signaling gateway (SG) functionality.



Serial products to meet various demands

- 4 slots including 3 service slots
- 32 E1 in maximum
- Key boards support hot backup
- All boards are hot swappable
- 128 E1 in maximum

### TMG Product Series

#### Specifications

- Support VoIP/FoIP functions
  - Codec: G.711, G.723 and G.729
  - Voice quality: Echo Cancellation, Silence Suppression and Comfort Noise Generation, Jitter Buffer.
- Support H.248/H.323
- Support PSTN, IP and ATM interface
- Large signal processing capacity: SS7, R2, PRI, SCTP, M2UA, IUA and V5UA
- Unified interface: VoIP, FoIP and RAS in the same trunk



## U-SYS UMG8900

As a large-capacity Universal Media Gateway (UMG) offering all services of PSTN, it implements the smooth evolution to NGN. The core network supports TDM, ATM (IPoA mode) and IP networking modes, and provides Trunk Gateway (TG), embedded Signaling Gateway (SG) and large-capacity access gateway (AG) functions simultaneously.

### Specifications

#### ■ Capacity: Packet switch and TDM switch

- TDM switch: 32,000 port/frame, up to 360,000 ports in 15 frame cascading
- Packet switch: 10,000 port/ frame, up to 70,000 ports in 7 frame cascading

#### ■ Networking:

- Flexible networking of TDM, ATM, and IP
- Extensive application: Trunk media gateway, Access Media Gateway and wireless media gateway
- Various voice and video codec(G.711, G.723, and G.729), fax (G.711 or T.38), Modem, etc.

#### ■ Interface

- Packet switch: FE, GE, 155M ATM/POS, etc.
- TDM switch: E1/ T1, SDH155M, etc.
- Protocol :H.248 / M2UA / IUA / V5UA / SCTP



UMG8900

## U-SYS AMG5000

Located at the access layer of the NGN, AMG5000 series supports Media Gateway Controller Protocol (MGCP) and H.248 to convert the media stream, and provide IP access for traditional Plain Old Telephone Service (POTS) subscribers and Private Branch exchange (PBX) subscribers. Sizes available of AMG5000 service interfaces are: 80/160/320/1216 POTS.

### Specifications

- Serialized 80/160/320/1216 integrated broadband/narrowband access via POTS/AT0/ADSL/VDSL



AMG5000



**AMG5320**



**AMG5150**

- Gateway Protocol: MGCP/H.248
- Uplink 2\*FE load sharing
- Codec: G.711, G.723 and G.729
- Internal/external line diagnosis
- Redundant backup design: 1:1 hot backup mode for control components and uplink ports.

## U-SYS IAD

Residing at the access layer of NGN, IAD adopts VoIP technology to encapsulate analog voice signals into data packets that can be transmitted over packet-switched network. In order to provide telephone service over global IP networks at a very low cost, IAD also implements access for data and visual terminals.

### Specifications

- Serial products : 1/2/4/8/16/32 ports
- User Interface: FXS, FXO, 10/100Base-T
- Network Interface: 10/100Base-T, ADSL, VDSL
- Built in LANSWITCH
- MGCP/H.248/H.323 supported
- FSK mode CID supported
- VLAN user separations
- User level authentication



**IAD Product**

## U-SYS U-PATH

As a packet terminal to access the packet core network, the U-Path provides the IP Centrex solution in association with SoftX3000.

### Specifications

- U-Path is a carrier-level IP Centrex solution, not only providing functions such as carrier-class conversation quality, management and operation, but also high reliability, usability and maintainability.
- Provides flexible and convenient access. It completely inherits and expands the management capability on traditional Centrex services and supplementary service.
- Supports the complete management on voice service, data service and multimedia service: e-secretary, communication stewardship, communication assistant, and enterprise portal etc. .



U-PATH

## U-SYS OpenEye

OpenEye is a truly individual and family oriented multimedia communication platform. Its application requires no special knowledge on videoconferencing since it is a multimedia PC-based pure software terminal with friendly GUI.

### Specifications OpenEye

- Multiple protocols and standards: H.232, MGCP, SIP
- Call and conference : With H.261/H.263 and G.711/G.723.1 for video/audio Processing
- Multiple new telephone services such as call forwarding, call waiting, internet call waiting and DTMF collection



OpenEye

## U-SYS MRS 6000



**MRS 6000**

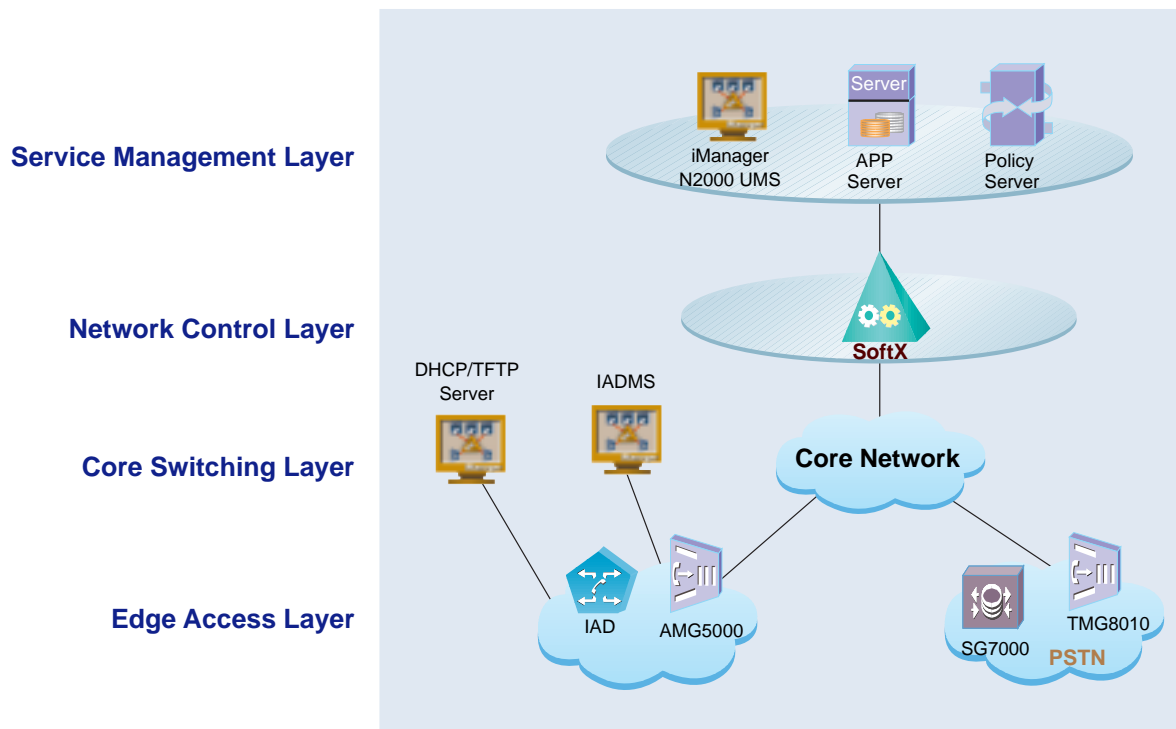
MRS6000 is an IP-attached device that can be located in the Service Management Layer of the network and it can be deployed near the communities of interest in remote central offices. It will have one or multiple SoftSwitches or Application Servers controlling it through MGCP or SIP protocol to provide enhanced service processing, such as audio conferencing, voice mail, Interactive Voice Response services, etc.. These services are typically usage based and shared among many users.

### Specifications

- Protocols: H.248, SIP, VoiceXML
- Ports: FE/GE
- Basic functions:
  - Tone playing & detect/send DTMF
  - Codec: G.711, G.723, G.729
- Enhanced functions:
  - Voice recognition ASR/ Syntax transform
  - Text to Speech
  - Unified Messaging/Voice Internet/Mail
  - Voice/Video Conference
  - Multimedia Record & Playback
- Capacity:
  - Support 18,000 G.711 voice stream or 2,880 G.729 voice stream
  - Support 48 hours G.729 announcement or 6 hours G.711 announcement

## U-SYS iManager N2000

iManager N2000 implements a unified management on Huawei Next Generation Network (NGN) components, including SoftX3000, SG7000, UMG8900, TMG 8010, AMG5000, and Integrated Access Devices (IADs). It also provides NGN service management, including provisioning of IADs, user management, and management of NGN resources (device resources and service resources). In addition, iManager N2000 (UMS) also provides Graphic User Interfaces (GUIs) for device configuration management, network monitoring, and service management.



*Networking diagram of iManager N2000 (UMS)*

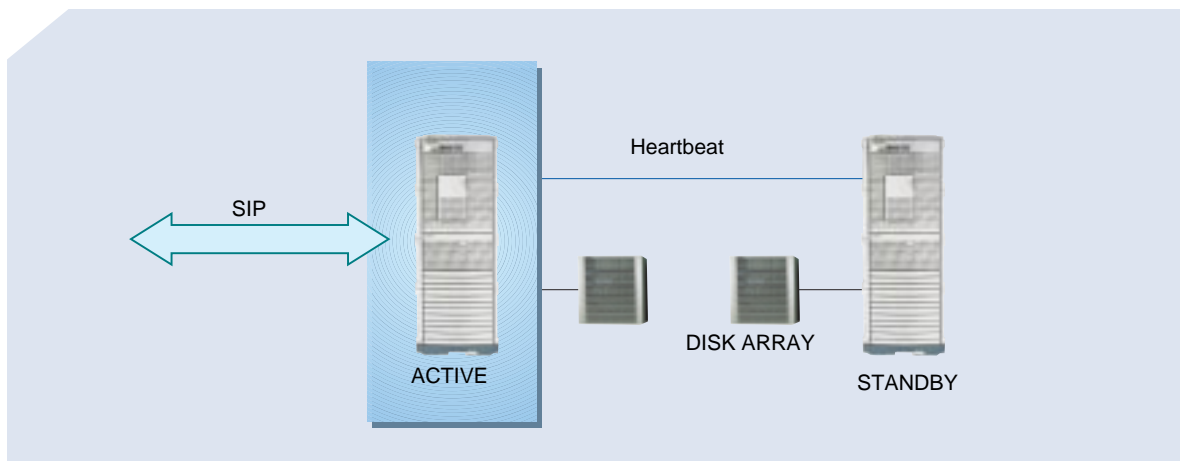
### Specifications

- Include Network Management System (NMS) and IAD Management System (IADMS).
- Provide overall and uniform management on devices such as SoftX3000, SG7000, UMG8900, TMG8010, AMG5000, IADs, etc.
- Run on either Unix platform or PC to meet different cost requirements.
- Simple and convenient centralized operation and maintenance

- Flexible service distribution system
- Interface to accounting system: provide an XML interface to the accounting system.
- Analysis of alarm relativity: support the analysis of alarm relativity.
- Template-based alarm querying and measuring, and various alarm functions
- Perfect security and log functions: Authority and region management can be easily accomplished based on user, user group, operation set, and device set.

## U-SYS U-NICA Appserver

U-NICA is an important part of U-SYS system, which is in charge of services provisioning and interfaces opening in NGN Network.



*U-NICA Appserver*

### Specifications

- Integration of various voice, multimedia, and data for packet voice, packet multimedia, and H.323, PSTN via soft switch
- CTD, Web Phone, and controlled multimedia call
- Controlled multi party multimedia session

# Who can help you build **operable, manageable yet profitable carrier-class** broadband networks?



## Huawei can with the SmartAX series of products.

When it comes to building a carrier-class broadband network, nothing compares to the SmartAX range of products. Here's why.

### Smart Test

Facilitates the provision and maintenance of xDSL

### Smart Management

Reduces maintenance costs and improves

### Smart Access

Adapts to any carrier network

### Smart Services

Enables tailoring of specific services for specific customers

Huawei's SmartAX products are operating extensively and stably in networks throughout the world, including China, America, South Korea, Singapore, Brazil, Saudi Arabia, Russia and Hong Kong. To increase your network's value, talk to Huawei now.

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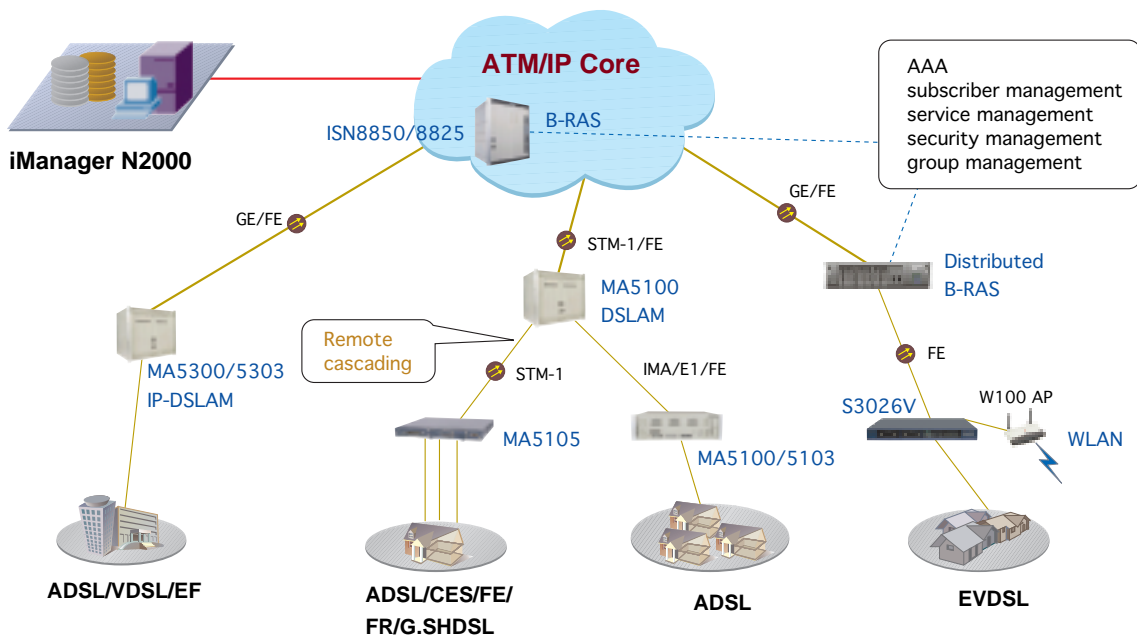
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# OVERVIEW

Nearly 5 million lines of Huawei SmartAX DSLAM had been deployed in many countries and regions by June 2003, including China, Hongkong, Brazil, Malaysia, Thailand, Saudi Arabia, etc. According to Gartner statistics, SmartAX ranks No.1 of China DSL market in 2002, and No.2 of the worldwide DSL market in 2nd quarter 2003.

## SmartAX Broadband Access Solution



*Operable and Manageable Broadband Network With SmartAX*



# Main Features

## Smart Access

- Family of DSLAM fully adapts to networks, leads DSLAM evolution trend and protects investment.
- Abundant service interfaces meet residential needs and business demand aimed at different partitioning customers
- Flexible networking Extends DSL service ability

## Smart Test

- Through the plug-and-play BTS test board, service providers can conduct pre-qualification test before provisioning, complete sample test to find latent fault, spend less time in locating fault and improve customer's satisfaction.

## Smart Services

- Multicast video over XDSL service
- Voice over IP service
- Leased line service

## Smart Management

- Unified and centralized management platform, reducing your cost
- Terminal management, make your work easy
- High reliability and monitoring function for environment and power, make your data and network safer

## Main user list

- China Telecom
- China Netcom
- China Unicom
- China CRC
- Hutchison Telecom
- SingTel, Singapore
- Telecom Asia, Thailand
- JTB, Brunei
- Brazil Telecom
- Brazil Telemar
- Chile Entel
- Saudi Telecom Company (STC)
- Egynet, Egypt
- Russia Sibchallenge
- .....

## SmartAX MA5100 series Multi-service Access System



**MA5100**

### SmartAX MA5100

- 19-inch wide, 9U high;
- 16 slots, including 14 service slots;
- Upstream interface: ATM STM-1/4, IMA E1, ATM E3, FE, GE;
- Service interface: ADSL(32-port,built in splitter/board), VDSL(24-port,built in splitter/board), Ethernet, G.SHDSL, FR, CES.



**MA5103**

### SmartAX MA5103

- Frame-type: 7 slots, including 6 service slots(DC);
- Box-type: 4 slots, including 3 service slots(AC);
- 482.6mm(w) \* 420mm(d) \* 225.25mm(h);
- Upstream interface: ATM STM-1/4, IMA E1, ATM E3, FE;
- Service interface: ADSL(32-port, built in splitter/board), Ethernet, VDSL G.SHDSL, FR, CES.



**MA5105**

### SmartAX MA5105

- 19-inch wide, 1U high, box type, modular structure;
- Upstream Interfaces: ATM E1, IMA E1, FE;
- Service Interfaces: ADSL/G.SHDSL (16 port, built-in splitter / board);
- Two slots for service board.

## SmartAX MA5300 series IP integrated access platform



**MA5300**

### SmartAX MA5300

- 19-inch wide, 9U high;
- 16 slots, including 14 service slots;
- Upstream interface: FE, GE;
- Service interface: ADSL(48-port/board), VDSL(24-port/board), G.SHDSL, Ethernet.

### SmartAX MA5303

- Box-type, 5U high;
- 7 slots, including 6 service slots;
- Upstream interfaces: FE, GE;
- Service interfaces: ADSL(48-port/board), VDSL(24-port/board), G.SHDSL,Ethernet.



**MA5303**

### SmartAX S3026V EVDSL Access System

- 1U high, 19-inch boxed structure;
- 24 VDSL ports, built-in splitter;
- 2 FE uplink ports;
- Ethernet access over VDSL.



**S3026V**

## Quidway ISN 8850 – Intelligent IP Service Switch

- Provide subscribers management, service management and AAA.
- 19-inch, 9U high, 10U deep;
- 11 service slot;
- Power supply: 220VAC/-48VDC;
- Interface:
  - ATM interface: STM-1 (maximum 64), STM-4 (maximum 16);
  - Ethernet interface: GE (maximum 22); FE (maximum 176);
  - POS interface;
  - Packet forwarding performance: 30Mpps.



**ISN8850**

## Quidway ESR 8825 – Edge Service Router



**ESR8825**

- Provide subscribers management, service management and AAA.
- 19-inch, 9U high, 10U deep;
- 11 service slots;
- Power supply: 220VAC/-48VDC;
- Interface:
  - ATM interfaces: STM-1(maximum 40), STM-4(maximum 10);
  - Ethernet interfaces: GE(maximum 16); FE(maximum 128);
  - POS interface;
  - Packet forwarding performance: 23Mpps.

## SmartAX MA5200F Broadband IP Access System



**MA5200F**

- 19-inch wide, 2U high, 15-inch deep;
- Power supply: 220V AC or -48V DC;
- Interfaces:
  - 24 FE(single-mode/multi-mode/base-T) and 2 GE;  
(single-mode/multi-mode)
  - 3Mpps (2GE) line speed forwarding;

# After installing **100 million ports** in just 10 years, we have one thing to say.



## Thanks.

In 1993, Huawei installed its first switching and access system port. In 2002, it installed its 100 millionth.

Huawei C&C08 switches and HONET access networks are now operating in 40 countries and regions worldwide, including Russia, Spain, Brazil, Hong Kong, Singapore, Malaysia and Egypt.

But such an impressive achievement is not due to Huawei alone. In fact, we take our hats off to all our clients, who were savvy enough and quick enough to see the many advantages of our range of low-cost and multi-service networks.

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Now, more and more operators are seeing the same advantages. They recognize that our switching and access networks can fully optimize their networks. And they've heard how our U-SYS Next Generation Network solution is already up and running.

In fact, word is spreading so fast that we're receiving enquiries from virtually every corner of the world. So if you'd like to find out how our switches and access networks can benefit your business, contact your nearest Huawei representative today.



**Huawei Technologies**

**partner for a networked world**

# C&C08 EV

## OVERVIEW

By the end of June 2003, over 120 million lines of C&C08 EV switches have been deployed on the networks in more than 40 countries and regions, including China, Hong Kong, Singapore, Russia, Spain, Brazil, Ecuador, Peru, Chile, Thailand, Nigeria, Zimbabwe, Tanzania etc.

Hold largest position of market share in China for last 3 years.

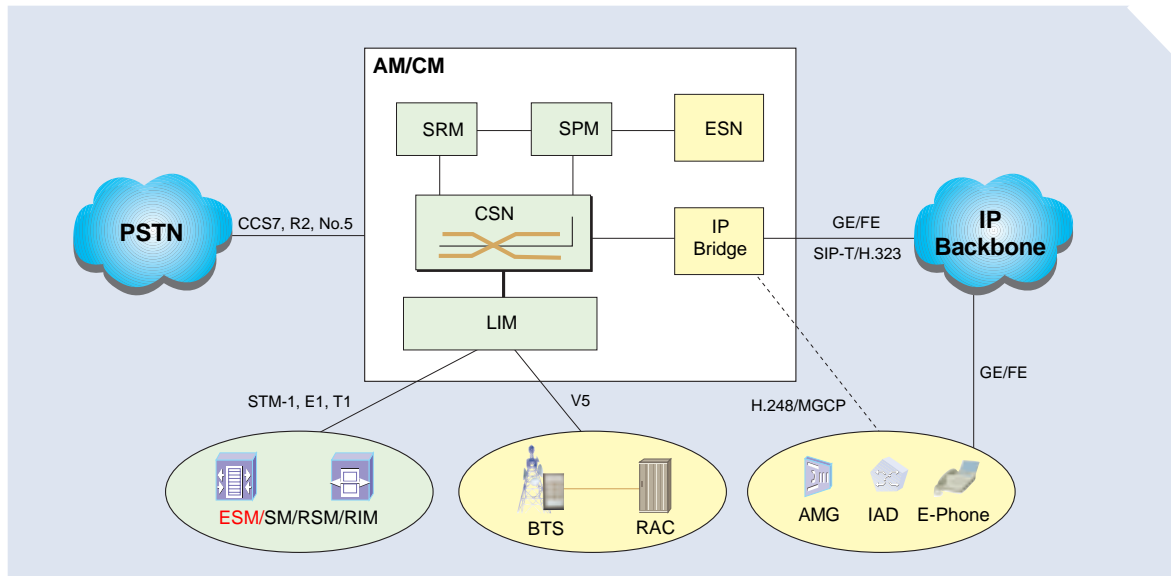
### Features and benefits

- IP Bridge: provides VoIP, SIP-T trunk, IP-based services, IP and TDM integrated in one switching platform
- ESN: low-cost service provisioning for both business and resident users, supports IP Centrex, large capacity authentication, Pre-selection, PPS, NP, etc.
- Multi-access units: IP access unit + CDMA 2000 WLL + TDM access unit, reduce CAPEX vastly.

### Specifications

- System capacity: 1,200,000 sub lines, 240,000 trunks, BHCA: 6M
- Signallings and protocols: CCS7, R1, R2, V5.2, PRA, No.5, MGCP, SIP/SIP-T, H.248, H.323.
- User interfaces: POTS, ISDN, V.35, V.24, ADSL, SHDSL, VDSL, Ethernet
- Remote switching module: ESM, supporting stand-alone mode, 50,000 sub lines or 10,000 trunks
- System reliability: MTBF: 22.39 years, MTTR: 0.5 hours, Fault-time: 1.34 min / year, Availability: 0.99999745
- 32 POTS or 8 ISDN / board, 16 E1 / board, STM-1 interface (63 E1 / board), 16 ADSL / board
- For an exchange of 100,000 trunks: requires only 9 racks, covering 3.96m<sup>2</sup> floor space
- Power Consumption: 0.3w / line (Normal hours), 0.5w / line (Busy hours)

## C&C08 EV Switching System



C&C08 EV, (C&C08 enhanced version), is a consolidated equipment which was especially designed to maximize operator benefit to meet the unique challenges of today and future. C&C08 EV has the same mature hardware platform and O&M system of C&C08, so it inherits the features of high reliability and perfect interconnection capability of C&C08. Through easy upgrading, adding ESN, IP Bridge and multi-access unit, C&C08 EV can provide many NGN services to boost revenue and meet future requirements.

### IP Bridge

C&C08 EV IP Bridge provides SIP-T trunk to realize long distance VoIP solution. What's more, when C&C08 EV is used as IP local exchange, it supports a series of NGN components like IAD, AG, soft-phone (OpenEye) to provide a range of IP-based services to satisfy user's demands, such as IP Centrex.

IP Bridge offers three main functions, the conversion between TDM flow and IP packet, IP stream convergence and forwarding IP packet to the IP backbone. SPM processes VoIP users' access control protocol and calls.

Compared with traditional independent gateway mode, IP Bridge adopts plug-and-play mode, featuring unified O&M system, it requires fewer devices and it free from interconnection related problems.

#### ESN

ESN (enhanced service node) features enhanced services to boost revenue. C&C08 EV's SPM (service process module) provides basic services, such as basic and supplementary PSTN services, ISDN services, IP Centrex, built-in PPS, built-in large capacity NP and etc. The enhanced value-added services are of three major types , the gateway services to meet special needs of gateway exchange, the industrial services to satisfy the variable needs of business user's, and the built-in intelligent services to fulfill operators requirements for low costs and quick service.

#### Multi-Access Unit

Multi-access unit provides different access modes to suit different situations, such as integrated access for dense areas, ADSL access for scattered users, wireless access for remote or mountainous areas, AMG or IAD for those localities where customers need VoIP and data services.

ADSL access is a low cost solution to meet surfing demand of scattered areas. This mode requires no additional DSLAM equipment and can utilize existing transmission and O&M resources.

Wired/Wireless integrated access is a solution based on CDMA2000, quick service coverage solution for areas like lakes or mountainous regions where it is difficult to pave copper cables. High-speed wireless data access is also supported. Integrated access features integrated broadband and narrowband service accessing, integrated transmission and network management, series of product specifications.

VoIP and data service access is suitable for the telecom carriers that lack backbone cable resources.



### Main user list

- China Telecom
- China Netcom
- China Mobile
- China Unicom
- China Railcom
- Telmos, JSC, VTK etc 23 States  
Telcom
- "Namangan Telecom" (Uzbekistan)
- Georgian Electrical Communications
- Aztelekom (Azerbaijan)
- Georgia Electrosvyaz (Georgia)
- Telcard Company (Kyrgyzstan)
- Kyrgyz telecom (Kyrgyzstan)
- WinLine (Kyrgyzstan)
- KasKor-Telecom, Kazakhstan
- Kazak Telecom, Kazakhstan
- Bulgaria Telecom Co., Ltd.
- Hutchison Global Crossing Limited  
(Hong Kong)
- Wanbao Telecom (H.K) Ltd.
- China Unicom International Ltd.  
(Hong Kong)
- PT.TELKOM (INDONESIA)
- PT.RATELINDO (INDONESIA)
- Digi (Malaysia)
- CAT (Thailand)
- TOT (Thailand)
- SCO (Pakistan)
- PTCL (Pakistan)
- NTC (Pakistan)
- Bangladesh Rural Telecom Authori-  
zation (BRTA)
- Bangladesh Telephone & Telegraph  
Board (BTTB)
- Paptelco (Philippine)
- CAMINTEL (Cambodia)
- VSNL ( India)
- Vietel (Vietnam)
- ATT L.A. (Peru)
- ENTEL (Chile)
- CHILESAT(Chile)
- CTBC (Brazil)
- ANDINATEL (Ecuador)
- PACIFICTEL (Ecuador)
- EDATEL (Columbia)
- Ministere Des Postes Et Telecomm-  
unication (PTT)
- Telecom Egypt
- STC (Saudi Arabia)
- ARAMCO (Saudi Arabia)
- Telekom TUNISIA
- Telecom Algeria
- Nigeria Telecom Ltd
- Posts and Telecommunications  
Corporation (Zimbabwe)
- Tanzania telecom
- Ministry of Communication and News  
Technologies of Information of the  
Cote Divoire
- Telkom Kenya Ltd (TKL)
- Malawi Telcom Ltd. (MTL)

# All in one. One for all.



## HONET Integrated Services Access Network.

Huawei's "All in One, One for All" HONET philosophy allows you to enjoy both broadband and narrowband services in one flexible integrated platform offering voice and data access via copper, fibre optic or even wireless connections.

### Narrowband and broadband all in one system

- Abundant service interfaces including POTS, ISDN, Leased Line, ADSL, G.SHDSL, VDSL, Ethernet and more
- All service board slots are compatible

### Built-in MSTP (VP-RING) with flexible networking

- Utilises existing SDH/PDH and microwave transmission systems to reduce investment required
- Built-in MSTP (VP-RING) significantly reduces cost of self-networking and improve the efficiency of transmission.

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### Unified NMS with powerful testing and monitoring functions

- Unified management of all services through iManager N2000
- Convenient testing of subscriber line and monitoring functions of remote cabinet reduce operating and management expenses

### Smooth migration to NGN

- By adding VoIP board and upgrading software to support H.248/MGCP protocol, HONET can migrate to NGN smoothly

Huawei's HONET solutions are already successfully operating in 36 million ports applications worldwide. So successfully in fact that it is rapidly gaining the reputation of being the best available. To find out what HONET can do for your business, call Huawei today.



**Huawei Technologies**

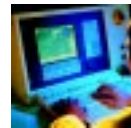
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## OVERVIEW

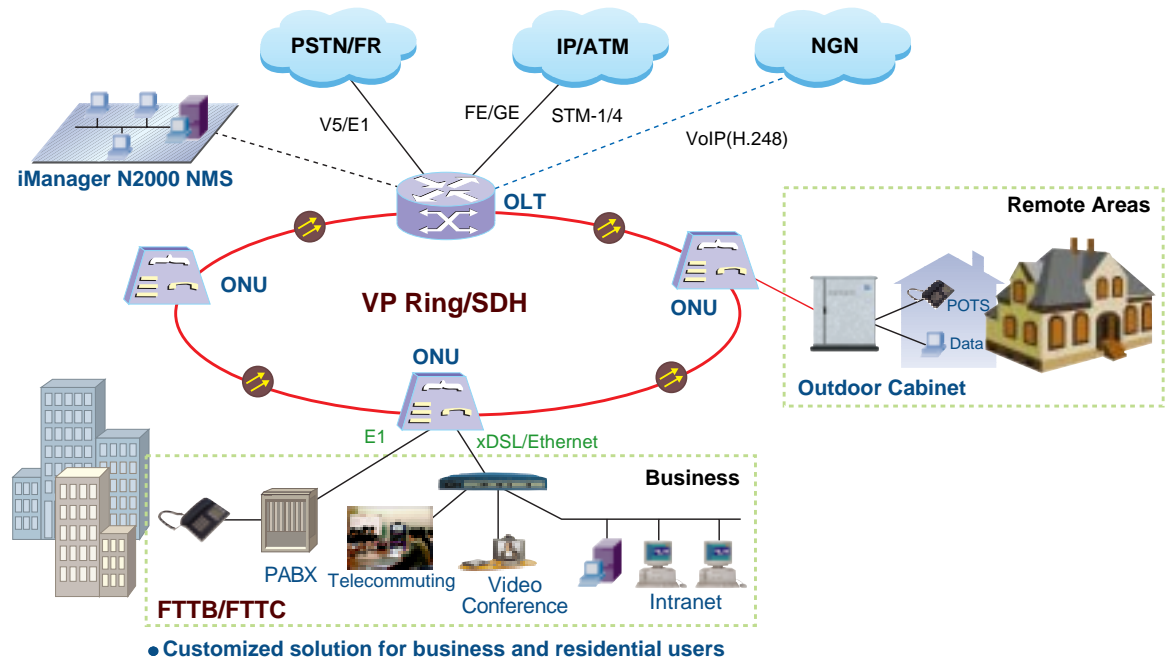
Access network technology created by Huawei has answered the call from 25 countries around the world, building access networks that today handle 36 million lines - and still growing. This technology has been put to work across China, Hong Kong, Singapore, Saudi Arabia, Russia, Egypt, Brazil and more.

With universal architecture of ATM/IP/TDM integrated platform, Huawei's HONET integrated access network optimizes the structure of the network and reduces the cost of construction. It enables carriers to continue providing legacy services as voice, leased line alike and advanced broadband services of xDSL and Ethernet that meets all customer needs. It is the ideal broadband-ready and NGN-ready vehicle, greatly protecting carriers' precious investment and generating sustaining revenues. With our unique "All-in-One & One-for-All" design, the last mile becomes a breeze, not a bottleneck.

Hardly surprising then, the name Huawei is seen standing tall all around the world. Wherever you are, whatever your network needs, speak with Huawei. We deliver, worldwide.



## HONET Integrated Access Network



HONET can provide diversified broadband and narrowband services. It consists of integrated service gateway OLT at office side, integrated access unit ONU at remote side, built-in transmission system and integrated network management system iManagerN2000. It supports OLT-ONU networking and ONU-independent networking. Both OLT and ONU adopt modular design. They can be flexibly configured according to actual network situation.

Located at the central office side, the OLT connects to the backbone equipment for protocol processing and service cross-connecting and transmits various services to backbone networks like PSTN, FR/Leased Line, ATM network and IP network.

The ONU locates at remote side and is distributed at every service node. It realizes FTTx such as Fiber To The Building and Fiber To The Curb and imple-

ments service access of various subscribers such as POTS, ISDN, E&M trunk, VF leased line, ADSL, Ethernet, SHDSL, VDSL, E1, V.35, and V.24, etc.

The OLT and the ONU are connected through optical transmission system. There are two implementation modes. One is using SDH or Metro optical transmission system. The other is VP (Virtual Path) Ring networking through embedded optical transmission cards of the OLT (MD5500) and the ONU (UA5000).The optical transmission system carries all kinds of services between ONU and OLT. An OLT can be connected with several ONUs to form various network topologies such as ring, tree, star and chain.

The iManager N2000 realizes unified management of both broadband and narrowband services.

## Main user list

- China Telecom
- China Unicom
- PCCW
- SingTel
- Telecom Egypt
- Ecuador Pacifictel S.A
- PTCL (Pakistan Telecommunication Company Limited)
- .....
- China Netcom
- China CRC
- USI (Russia)
- Saudi Telecom Company (STC)
- CTBC, Brazil
- Thailand-TOT
- Tanzania Telecom
- Botswana Telecom

## Main Features

- BroadBand & NarrowBand in the same frame, simplifying network structure and lowering costs.
- Flexible networking by built-in VP Ring/SDH transmission, with or without OLT, cutting networking costs.
- A full portfolio of indoor and outdoor cabinets, adapting to different application scenarios.
- Unified iManager NMS with powerful monitoring and testing functionality, reducing OAM&P costs.
- NGN-ready platform, protecting previous investment and generating sustaining revenues.
- POTS and all PSTN complementary services, such as Centrex, CID,
- 16KC/12KC charging, reversed polarity charging.
- ISDN BRI/PRI
- A broad range of interfaces to FR/Leased Line
  - Nx64kbps (1~31)
  - Subrate: 2.4kbps, 4.8kbps, 9.6kbps, 19.2kbps, 48kbps, etc.
  - 2B1Q transparent extension
  - E1
- Supporting image services
  - Video desktop (128kbps and 384kbps)
  - Video conference
- Dedicated network services:
  - 2/4-wire voice frequency dedicated line
  - E1/ T1 leased line
  - Conference telephone
  - Scheduled telephone
- Broadband services:
  - ADSL, G.SHDSL, VDSL, Ethernet, etc.

## HONET Product Series

To meet subscribers' individual requirements, HONET provides a full series of products such as indoor equipment, outdoor equipment, optical transport unit, etc. Among the broad range of products that Huawei makes available are listed as below.

### HONET OLT

#### Features:

- Operating voltage: -40V ~ 57V DC
- Power consumption: 900W (when fully configured)
- Dimensions:
  - B68-21 cabinet: 2100mm(H) x 600mm(W) x 800mm(D)
  - B68-22 cabinet: 2200mm(H) x 600mm (W) x 800mm(D)
  - B66-22 cabinet: 2200mm(H) x 600mm(W) x 600mm(D)
- Ambient humidity: 5%-85%
- Ambient temperature: -5°C ~45°C

#### MD5500 (Key Component of OLT)

#### Features:

- Capacity: 5G ATM and 4K\*4K TDM switching
- Built-in BRAS Function
- Interfaces: V5, E1, STM-1/4, ATM E3, IMA E1, FE, GE



MD5500

### HONET ONU

ONU has indoor and outdoor types with flexible components as following:

#### Indoor ONU

##### 1-1 ONU-F01A

#### Features:

- Capacity: 1120L
- Operating voltage: - 40V ~ -57V DC
- Dimensions: 1800mm(H)\*600mm(W)\*600mm(D)
- Ambient humidity: 5% ~ 95%
- Ambient temperature: -10°C ~ 55°C



ONU-F01A



**ONU-F02A**

**1-2 ONU-F02A**

**Features:**

- Capacity: 1952L
- Operating voltage: - 40V ~ -57V DC
- Dimensions: 2200mm(H)\*600mm(W)\*600mm(D)
- Ambient humidity: 5% ~ 95%
- Ambient temperature: -10°C ~ 55°C



**ONU-160B**

**1-3 ONU-160B**

**Features:**

- Capacity: 160L
- Operating voltage: -40V~ -57V DC
- Dimensions: 800mm(H) x 500mm(W) x 300mm(D)
- Ambient temperature: -20°C ~ 55°C
- Ambient humidity: 5%~95%



**ONU-160A**

**1-4 ONU-160A**

**Features:**

- Capacity: 160L
- Operating voltage: - 40V ~ -57V DC
- Dimensions: 308mm(H)\*436mm(W)\*531mm(D)
- Ambient humidity: 5% ~ 95%
- Ambient temperature: -10°C ~ 55°C



**ONU-F01D100**

**Outdoor ONU**

**1-4 ONU-F01D100**

**Features:**

- Capacity: 160L
- Operating voltage: - 40V ~ -57V DC
- Dimensions: 900mm(H)\*760mm(W)\*420mm(D)
- Ambient humidity: 5% ~ 95%
- Ambient temperature: -45°C ~ 60°C



### 1-2 ONU-F01D200

#### Features:

- Capacity: 320L
- Operating voltage: - 40V ~ -57V DC
- Dimensions: 1200mm(H)\*1250mm(W)\*550mm(D)
- Ambient humidity: 5% ~ 95%
- Ambient temperature: -45°C ~ 60°C



ONU-F01D200

### 1-1 ONU-F01D500

#### Features:

- Capacity: 736L
- Operating voltage: - 40V ~ -57V DC
- Dimensions: 1550mm(H)\*1550mm(W)\*550mm(D)
- Ambient humidity: 5% ~ 95%
- Ambient temperature: -45°C ~ 60°C



ONU-F01D500

### 1-3 ONU-F01D1000

#### Features:

- Capacity: 1152L
- Operating voltage: - 40V ~ -57V DC
- Dimensions: 1650mm(H)\*1850mm(W)\*550mm(D)
- Ambient humidity: 5% ~ 95%
- Ambient temperature: -45°C ~ 60°C



ONU-F01D1000

### UA5000 (Key Component of ONU)

#### Features:

- Upstream Interfaces: TDM E1, ATM E1, IMA E1, ATM STM-1/4, ATM E3, FE, GE;
- Downstream interfaces: POTS, ISDN, E1, Subrate, N x 64k, ADSL, Ethernet, G.SHDSL, VDSL.



UA5000

### Optical transport unit

Besides VP Ring networking, HONET also supports SDH networking. The SDH equipment can be either built-in transmission system of HONET, or other standard external transmission systems.



**OptiX 155/622H**

#### **OptiX 155/622H**

Box-shaped structure, it provides maximum 63 x E1 electrical interfaces, six pairs of STM-1 optical interfaces or three pairs of STM-4 optical interfaces in one set.



**OptiX Metro1000**

#### **OptiX Metro1000**

Box-shaped structure, it provides maximum 63 x E1 electrical interfaces, six pairs of STM-1 optical interfaces or three pairs of STM-4 optical interfaces, 8 x 10M/100M or 4 x ATM155M interfaces in one set.

# Bring videoconferences to life with ViewPoint 8000.



## The easy-to-use, affordable videoconferencing system.

Combining powerful state-of-the-art technology with attractive design features, the ViewPoint 8000 takes videoconferencing to a whole new level.

You enjoy striking, lifelike video and superb sound quality, plus the easiest conference initiation procedure available. In fact, with ViewPoint 8000, starting a videoconference is as easy as making a phone call.

Best of all, this amazing technology is surprisingly cost-effective, especially when you consider all these important features:

[www.huawei.com](http://www.huawei.com)

- Easy to use, install and maintain
- Technologically advanced, fully compatible with ITU H.323/H.320
- High-quality, lifelike video & audio
- High access capability
- Comprehensive conference control
- Complete product range from MCU to gateway and video terminals

To find out more about ViewPoint 8000 and how it can improve your next meeting, talk to Huawei today.



Huawei Technologies

partner for a networked world

# Huawei Video Communication

## Huawei's Multimedia Technologies

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Established in May 1994, Huawei's Multimedia Product Line consisted of a Pre-research Dept., an Audio & Video Research Dept., and a Protocol Research Dept, specializing in tracking and researching new technologies in video communication. Its R&D focuses on key products, such as videoconferencing, MPEG, CATV.

In December 1999, the MPL launched ViewPoint 8000 Video Communication System, the first videoconferencing system fully compatible with H.323/H.320 standards in the country, which indicates that its videoconferencing products have come up to the leading level in the industry and represents the direction of the development in videoconferencing technology.

Huawei Holds over 50 patents in technologies, such as multilevel cascading, digital caption, ViewProcessing, ServiceLock and GroupLink, Huawei's MPL adopts cutting edge videoconferencing technologies, while incorporates an H.323 protocol stack with full intellectual property. The ViewPoint Series is an idea choice for numerous carriers and large-sized enterprises.

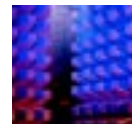
## Global Market Strategy

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Huawei has entered Multimedia Technologies markets in North America, South America, Europe, Asia, Russia, Middle East and North Africa, and will continue to seek business relationships around the world in this area.

## Innovation and Progress

- In Oct. 1995, Huawei started manufacturing video communication equipment, and launched the The ViewPoint 2000 series products.
- In Dec. 1999, Huawei introduced the The ViewPoint 8000 serial products, indicating the beginning of new generation videoconferencing products.
- In Dec. 2000, Huawei, along with China Telecom, drafted General Technical Requirements for Video Communication System, the first standard of videoconferencing system in China.
- In Dec. 2000, ViewPoint 8000 was used for the ISDN and IP integrated access network for Beijing Telecom.
- As of Sept. 2001, ViewPoint 8000 comprised 90% of the market share in China Telecom.
- In Sept. 2001, China Ocean Ship Corporation (COSCO) adopted the The ViewPoint 8000 to connect its branch offices in HongKong, Tokyo, Singapore, Sydney, New Jersey, Hamburg and various Chinese cities.
- In March 2002, The ViewPoint was awarded the Public Videoconferencing Service Certification, the first of its kind issued by China Telecom. Huawei Video Communication

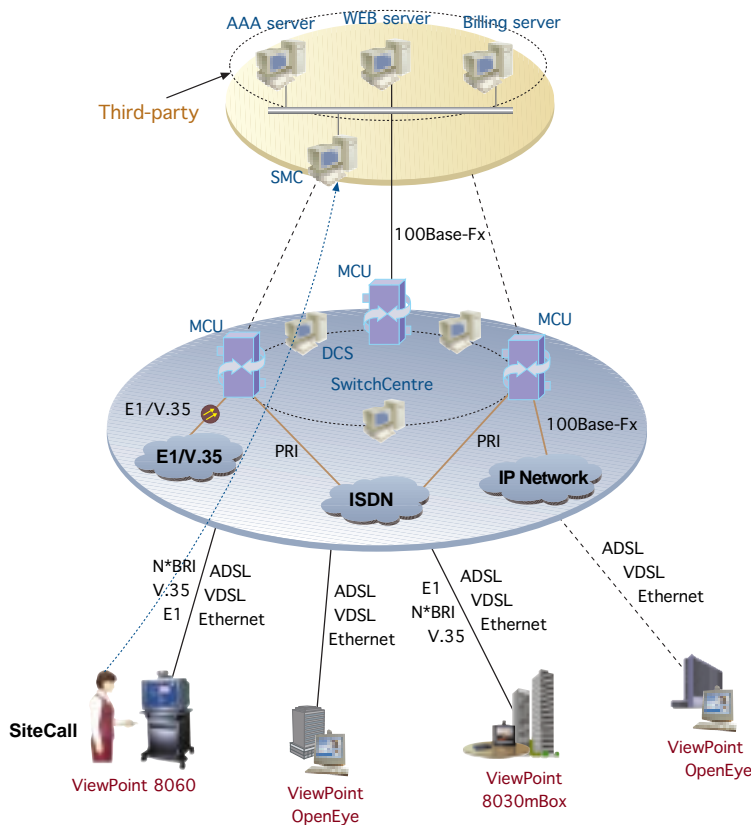


# Architecture

## The ViewPoint 8000 Video Communication Architecture

The ViewPoint 8000 videoconferencing system can make full use of the existing network resources, and provide operators and end use customers with excellent video service operation solutions, in order to facilitate wide application of video services in distance learning, business meetings, telemedicine, emergency communications and administrative conference.

The videoconferencing system should have three basic layers: Management Layer, Switching Layer and User Layer.



### Management Layer

Including Service Management Center (SMC), Service Database . Management Layer provides centralized service management, resource management, dynamic topology, third party interface, statistics and query ; Enabling operation and management of videoconferencing service.

### Switching Layer

Including Multipoint Control Unit (MCU), SwitchCentre, Data Conference Server (DCS). The components of this layer provide large capacity, high reliability, seamless expandability and multi-interface access.

### User Layer

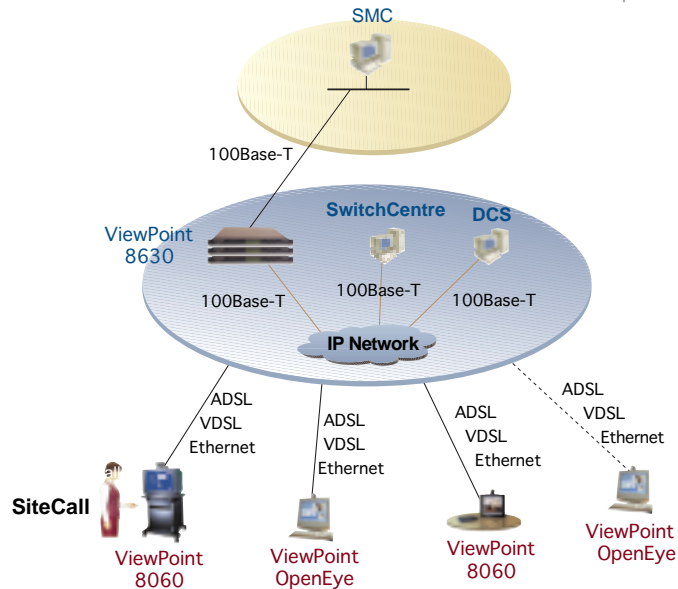
Users can access video communication network through IP, ISDN, E1, and V.35 interface. services application is as convenient as making a phone call.

# Solutions

## IP Video Communication Networking

### Benefits & Features

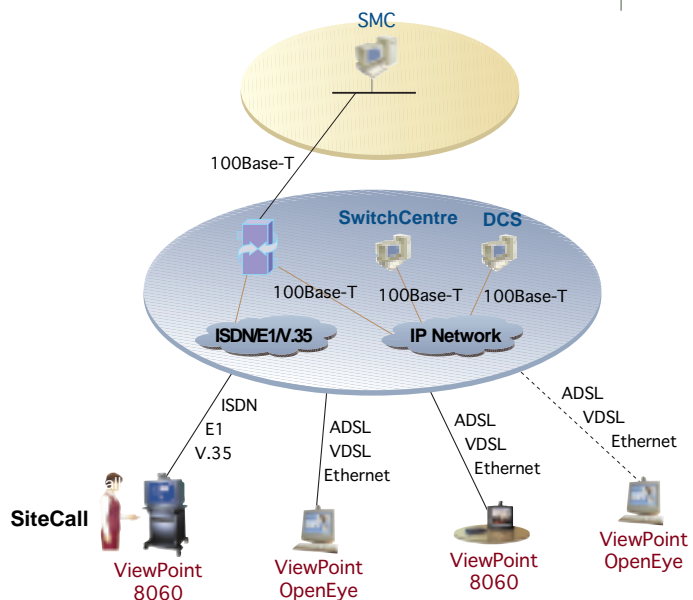
- Automatical resource allocation
- Service access code
- Modular stack
- Comprehensive conference control
- Easy-to-use service
- Simple installation



## Integrated Video Communication Networking

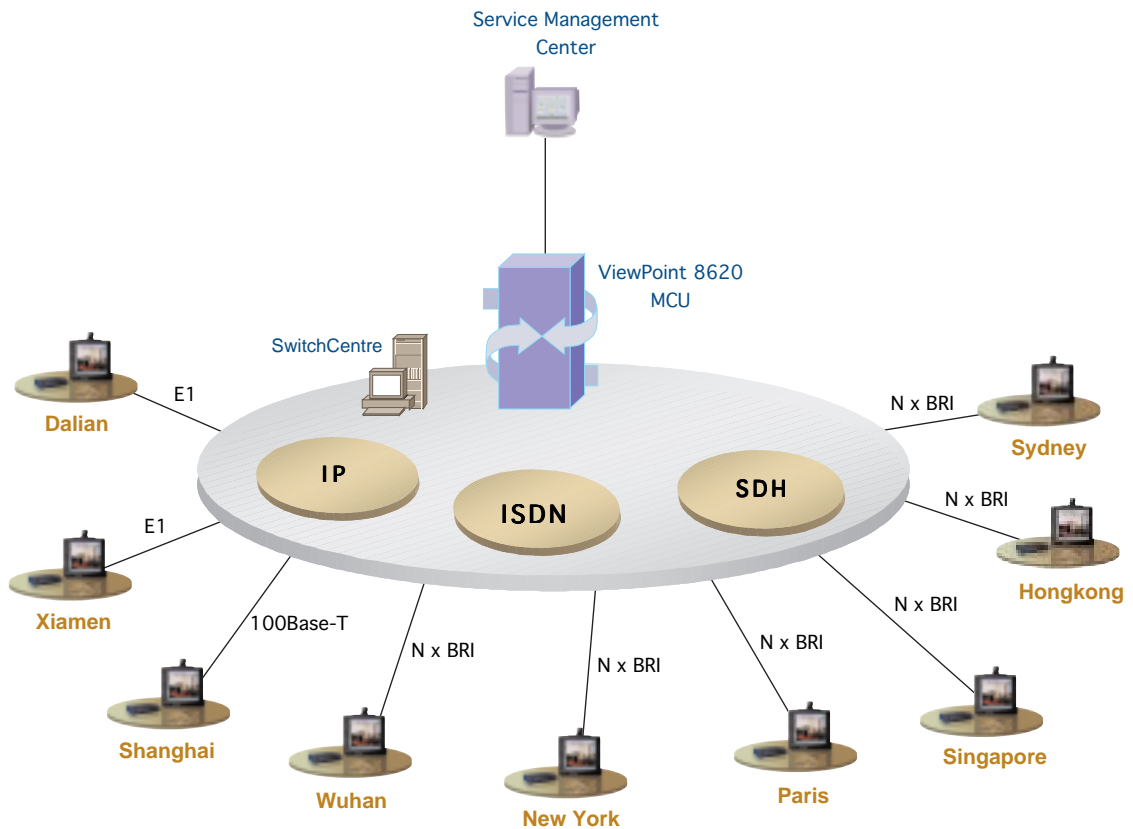
### Benefits & Features

- Automatical resource allocation
- Service access code
- Modular stack
- Extensive connectivity
- Comprehensive conference control
- Easy to use service
- Simple installation



# Applications

## Videoconferencing System Of COSCO



In Sept. 2001, China Ocean Ship Corporation (COSCO) constructed a global videoconferencing network based on IP, ISDN and E1 networks with the ViewPoint 8000 Video Communication System including one ViewPoint 8620 and twenty-six ViewPoint terminals.

Impressed by the wonderful performance of the ViewPoint 8000 Video Communication System, COSCO is going to expand the system to cover its other global branches.



## Main User List

- Hutchison Telecom (HongKong)
- Beijing University
- Beijing Telecom
- Guangdong Telecom
- Anhui Telecom
- Heilongjiang Telecom
- Hebei Telecom
- Dalian Telecom
- Fujian Unicom
- Zhejiang Unicom
- Anhui Provincial Flood-Proof  
Headquarters
- Shandong Mobile
- Jiangxi Provincial Public Security  
Department
- Guangzhou Railcom
- Heilongjiang Water Conservancy
- National ARFT
- Henan Securities
- Xinjiang Power Corporation
- Anhui Broadcast &  
Television Department
- Heilongjiang University
- Sichuan Post
- Jilin Broadcast&Television Department
- JiangxiBroadcast&Television Department
- COSCO(China Ocean Shipping Corp.)
- Indonesia Telecom
- Shanghai Telecom
- Fujian Telecom
- Hubei Telecom
- Henan Telecom
- Sichuan Telecom
- People's Bank of China,  
Guangzhou
- Heilongjiang Unicom
- Yunnan Unicom
- Ningxia Power Corporation
- Chongqing Mobile
- China Railcom Headquarters
- Hebei Power Corporation
- Zhengzhou Railcom
- Heilongjiang Railcom
- Network Center, National ARFT
- Shenzhen Broadcast &  
Television Department
- Harbin Broadcast &  
Television Department
- Yunnan Broadcast &  
Television Department

# Terminal Series

## ViewPoint 8060

The ViewPoint 8060 is a portable, smart easy-to-use video terminal intended for group users. The integrated main camera and the color-coordinated interface make the installation more convenient.

The ViewPoint 8060 is an H.320/H.323 dual-mode videoconferencing terminal supporting IP, ISDN, E1, V35/RS449/RS530 networks which features simple installation, easy to use, lifelike video, crystal clear audio, superior network adaptability and easy maintenance. Its user friendly GUI and unique SiteCall function makes it easier to convene a conference.



**ViewPoint 8060**

### Benefits & Features

- H.320/H.323 compliant
- Simple installation
- Easy to use
- Multi access interface
- High video quality
- Extraordinary audio quality
- Comprehensive conference control
- Unique SiteCall
- Excellent desktop transmission
- Superior network adaptability
- Easy maintenance

## ViewPoint 8030mBox

The ViewPoint 8030mBox is a portable, smart, easy-to-use video terminal designed for group users. The separate main camera makes it more flexible by allowing the user to choose the location of the main camera.

The ViewPoint 8030mBox is an H.320/H.323 dual-mode multimedia client terminal software supporting IP, ISDN, E1, V35/RS449/RS530 networks which features flexible placement, easy to use, lifelike video, crystal clear audio, superior network adaptability and easy maintenance. Its user friendly GUI and unique SiteCall function make it easier to convene a conference.

### Benefits & Features

- H.320/H.323 compliant
- Easy to use
- Multi access interface
- High video quality
- Extraordinary audio quality
- Comprehensive conference control
- Unique SiteCall
- Excellent desktop transmission
- Super network adaptability
- Easy maintenance



**The ViewPoint 8030mBox**

## ViewPoint OpenEye



**ViewPoint OpenEye**

The ViewPoint OpenEye is a software videoconferencing terminal oriented toward personal video communication.

As a desktop videoconferencing terminal, the ViewPoint OpenEye features the simplest hardware configuration, user friendly GUI, high quality video & audio and network adaptability, which is essential personal video service over broadband networks.

### Benefits & Features

- H.323 compliant
- Simple hardware configuration
- Easy to use
- High video & audio quality
- Comprehensive conference control
- Unique SiteCall
- Security assurance

# MCU Series

## ViewPoint 8630

The ViewPoint 8630, a compact, integrated Multipoint Control Unit, is designed to provide videoconferencing service for private network users over broadband.

The ViewPoint 8630 features compact structure, easy installation and large IP access capacity. It represents a price/performance breakthrough for MCU technology. Selecting The ViewPoint 8630, users can enjoy high-performance video communication over IP network with affordable cost.

One module of the ViewPoint 8630 allows up to 96 subscribers to access over IP network and up to 48 conferences to be held at the same time. Additionally, it can be stacked or cascaded to reach larger capacity.

It is housed in an easy-to-install standard chassis which is 19-inch in width , 1U in height, and it can be mounted into a standard 19-inch cabinet with other chassis together.

The effective QoS guarantee ensures the unmatched network adaptability, which is fitter for IP network based on packet switching technology.

It can also provide continuous presence, comprehensive conference control, streaming multicast and unique SiteCall. These functions make the conference more and more wonderful.

### Benefits & Features

- H.323 compliant
- Compact & integrated structure
- Simple install & configuration
- Large IP access capacity
- Continuous presence
- Cascadable & stackable
- Unmatchable network adaptability
- Unique SiteCall
- Comprehensive conference control
- Streaming multicast
- Simple maintenance



ViewPoint 8630

## ViewPoint 8620E



**ViewPoint 8620E**

The ViewPoint 8620E video switching platform is designed as a complete video communication solution for enterprises and private network users.

The ViewPoint 8620E integrates all the function modules of the videoconferencing system into a small size cabinet which is easy to install and maintain. In addition, it provides high reliability, multi-interface and easy expandability.

It can be used over multiple communication networks including narrowband networks based on circuit-switching technology and broadband networks based on packet-switching technology. Users can access H.320 and H.323 system without an external gateway.

It offers broad connectivity with IP, ISDN, E1/T1, V.35 and PSTN access capability, thus providing videoconferencing service over all kinds of networks, and can be stacked or cascaded with multi levels to provide larger capacity. It is housed in an easy-to-install cabinet which is 19-inch in width, 14U in height. Each board in the cabinet is hot swappable, and the machine can operate 24 consecutive hours without interruption.

It can also provide powerful continuous presence, speed and protocol transcoding functions, comprehensive conference control and unique SiteCall. All of these functions make the conference more productive and natural.

### Benefits & Features

- H.320/H.323 compliant
- Compact structure
- Carrier class reliability
- Speeds & protocols transcoding
- Powerful continuous presence
- Cascadable & stackable
- Unmatchable network adaptability
- Unique SiteCall
- Comprehensive conference control
- Simple maintenance

## ViewPoint 8620

The ViewPoint 8620 video switching platform is designed as a most powerful multipoint control unit solution for telecom carriers or enterprises requiring large capacities.

The ViewPoint 8620 provides all the functions of traditional videoconferencing MCU equipment which processes voice mixing, video switching and data sharing, additionally, it features high reliability, large access capacity, multi-interface and easy expandability.

It can be used over multiple communication networks including narrowband networks based on circuit-switching technology and broadband networks based on packet-switching technology. Users can access H.320 and H.323 system without an external gateway.

It offers broad connectivity with IP, ISDN, E1/T1, V.35 and PSTN access capability, thus providing videoconferencing service over all kinds of networks, and can be stacked or cascaded with multi levels to provide larger capacity.

It is housed in an easy-to-install cabinet, which is 43U in height, 19 inches in width. Each board in the cabinet is hot swappable, and the machine can operate 24 consecutive hours without interruption.

It can also provide powerful continuous presence, speed and protocol transcoding, comprehensive conference control and unique SiteCall . All of these functions make the conference more productive and natural.



**ViewPoint 8620**

### Benefits & Features

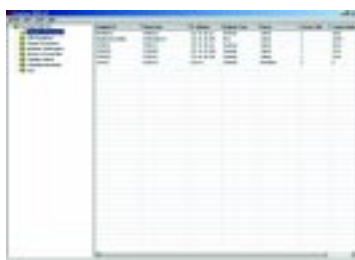
- H.320/H.323 compatibility
- Switching Architecture
- Carrier class reliability
- Multi-way speeds & protocols transcoding
- Powerful continuous presence
- Cascadable & stackable
- Unmatchable network adaptability
- Unique SiteCall
- Comprehensive conference control
- Simple maintenance

# Server Products

## H.323 ViewPoint SwitchCentre

The ViewPoint SwitchCentre is designed as a complementary product which is essential for managing a realtime IP communication network.

Via the ViewPoint SwitchCentre, network managers can configure, monitor and manage the activities of any registered endpoint. It can register up to 4000 nodes and manage 1,000 concurrent calls.



**SwitchCentre**

### Benefits & Features

- Node registration management
- Node calling management
- Node bandwidth management
- Node address resolution
- Node service management
- Neighborhood gatekeeper
- Event log



## ViewPoint SMC

The ViewPoint SMC(Service Management Center) is designed as a centralized service management center the plays an important role in the videoconferencing system.

Via the ViewPoint SMC, users can call a conference without any assistance of the operator. After receiving the reservation information, the ViewPoint SMC will allocate the resources and schedule conferences automatically according to the reservation. After the conference, users can review conference details as required.

### Benefits & Features

- Centralized resource management
- Dynamical topology
- Conference scheduling
- Service status inquiry
- 3rd party interface



SMC

## T.120 ViewPoint DCS



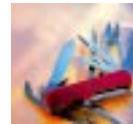
DCS

The ViewPoint DCS (Data Conference Server) is designed as a complementary product which enhances the video conference with data communications.

Via the ViewPoint DCS, the video conference participants can chat, exchange diagrams, graphics and presentations, use white boards and conduct slide lectures simultaneously with other sites.

### Benefits & Features

- Large access capacity
- Multi data conference capability
- Data flow control
- Security control
- Cascadable
- Event log



# Product Catalogue for Fixed Network Solutions



# HUAWEI TECHNOLOGIES

Established in 1988, Huawei Technologies is a high-tech enterprise which specializes in research and development (R&D), production and marketing of communications equipment, providing customized network solutions for telecom carriers in optical, fixed, mobile and data communications networks. Huawei's customers include China Telecom, China Mobile, China Netcom, China Unicom as well as Thai AIS, South Korea Telecom, SingTel, Hutchison Telecom, PCCW HKT, Telemar (Brazil), Rostelecom (Russia), etc.

Huawei's products can be divided into the following categories: fixed network, mobile network, data communications and optical network --- ranging from switching, access network, optical transport, intelligent network, support network, GSM, GPRS, W-CDMA, cdma2000 1x, full series of routers and LAN switches, videoconferencing to other key telecom technology fields. Most important of all, Huawei products are based on its independently designed ASIC chips. Its ASIC designing capability is among the most advanced in this field worldwide. This allows Huawei to consider the needs of its customers from start to finish, from the chip to the network.

This experience is invaluable as Huawei expands its penetration into international markets, with its international revenues saw strong growth of 68%, reaching US\$552 million in 2002 compared with US\$328 million in 2001.

In order to support its global operations Huawei has set up 32 branch offices worldwide. Eight regional headquarters and a host of customer support and training centres have been established. Several research institutes including Dallas (USA), Bangalore (India), Stockholm (Sweden), Moscow (Russia), Beijing and Shanghai have been set up, and a joint venture in Russia is operating successfully. Huawei's products are in application in over 40 countries, including Germany, Spain, Russia, Brazil, Thailand, Singapore, Egypt and South Korea.

Among Huawei's 22,000 employees, 46% are engaged in R&D. Each year, Huawei invests no less than 10% of its sales revenue into R&D. To ensure a steady and sustainable growth and to sharpen the core competitive edge, Huawei emphasizes the importance to partner with leading global players in the industry on both product development and marketing. Huawei has been cooperating with Texas Instruments, Motorola, Microsoft, Intel, Sun Microsystems and others.

Since 1997, Towers Perrin, Hay Group, PwC and FhG have been acting as Huawei's consultants on employee stock option plan, human resource management, financial management and quality control.