softline

HUAWEI HARDWARE SOLUTION CATALOG

SERVERS ■ STORAGE ■ NETWORKING EQUIPMENT
DATA CENTERS ■ VIRTUALIZATION ■ IP TELEPHONY
AND UC ■ VIDEOCONFERENCING ■ VIDEO SURVEILLANCE

HUAWEI

Dear colleagues, partners, and friends!

You are holding in your hands the Huawei hardware solutions catalog. It may seem surprising, but sometimes Huawei is considered to be just one of Chinese hardware companies, or, at the best case, a telecommunication equipment manufacturer. Indeed, Huawei is the most influential company in the world in the field of telecommunication equipment. But this is also one of the largest, the most technologically advanced and, in my opinion, promising providers of solutions for corporate IT infrastructure, data centers, communications and cloud computing. I hope that this catalog will help you to get an idea about Huawei Company, its products and solutions. Softline Company is a certified Huawei partner, and we are ready to provide clients with its solutions and their full-fledged implementation. Working with Huawei is a great honor and responsibility for Softline.

Igor Borovikov,
Chairman of the Board of Directors of Softline

Dear colleagues, partners, and customers!

Huawei is a global leader of ICT solutions and operates in 170 countries and regions. Huawei's strategy in the enterprise domain focuses on close cooperation and integration with partners to deliver a wide range of highly efficient customer-centric ICT solutions and services that are based on a deep understanding of customer needs. Huawei's enterprise product portfolio covers enterprise networking, unified communications & collaboration (UC&C), cloud computing & data center, enterprise wireless, network energy and infrastructure services. Huawei is committed to serving as the most innovative and optimal ICT technology partner for global enterprises, accelerating their ICT development and improving their operational efficiency.
Softline is a leading global IT (Information Technology) services and solution provider operates in different market all around the world. We treasure this opportunity to work closely with Softline to provide joint solution to our common customer base.

Raymond Lau,
President of Partners and Alliance, Huawei Enterprise BG

Huawei is one of the most important strategic partners of Softline. Softline holds the highest Huawei partner status and has extensive expertise in products that it manufactures: IT equipment, applications, terminals and networking devices. Softline clients can purchase them at the most profitable conditions: they can benefit from special price proposals, as well as hardware acquisition following the leasing model. All of the above provides numerous opportunities for our clients and allows to implement IT projects of any complexity even when faced by the challenges of the current economic situation.

Content

Softline services for Huawei solutions

Planning
- Audit
- Implementation consulting
- Design
- Documentation development

Implementation
- Pilot implementation
- Testing
- Migration
- Update and modernization

Maintenance
- Education
- Guarantee and post-guarantee maintenance
- Technical support

Leasing
- Purchasing equipment following the leasing model helps to reduce capital expenses.

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Infrastructure Modernization for a Large Industrial Enterprise

Situation

Local area network equipment that was used by the enterprise was seriously out of date and required end-to-end modernization. Connection of users to network with 100 Mbit/sec bandwidth failed to satisfy the growing business requirements of the client that were placed on general infrastructure performance. It was decided to modernize the network in order to provide user connection at the speed of 1 Gbit/sec. Softline company was chosen as the project partner, as it has extensive experience in the field of implementation of infrastructure projects and design of telecommunication solutions.

Solution

In order to improve the data transfer speed, it was necessary to completely replace all networking equipment. In particular, it was necessary to replace access level switches with state-of-the-art high-performance devices with 1-gigabit RJ-45 ports for user connection and optical SFP and/or SFP+ ports for connection with distribution and core level switches.

After analyzing the client requirements, Softline specialists have developed and optimal variant of solving the task of the enterprise on the basis of Huawei products. This system not only met all technical requirements that were placed by the client, but also was much more affordable than the analogous solutions of competitors. During the project, the specialists of Softline have replaced the existing access level and aggregation switches and installed modern ones powered by Huawei technologies. SFP/SFP+ modules were replaced with their analogues manufactured by Russian company Modultech. Said transceivers are completely compatible with Huawei equipment. They have also developed a migration plan for new dynamic routing protocol and provided consulting assistance considering equipment configuration and further operation.

Result

As a result of the project, Softline specialists have modernized the segments of the enterprise Local Area Network and provided high data transfer speed.

'The works that were performed by our specialists have helped the customer to increase the performance of its equipment and optimize the expenditures on telecommunication infrastructure development and maintenance'.

Sergei Ovsyannikov, Head of the Hardware Solution Sales Line of Business of Softline company in North-Western Federal District
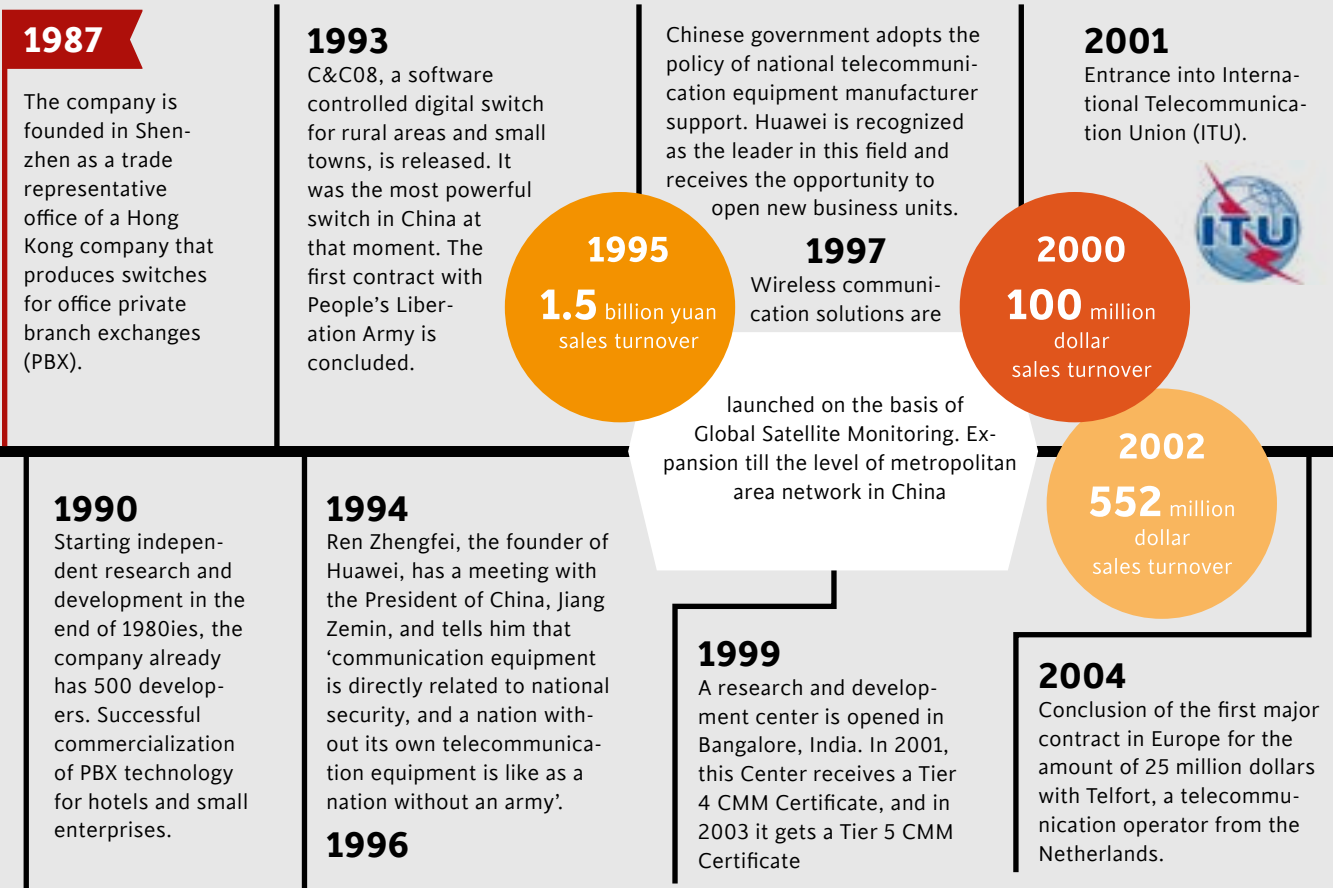
Why Huawei?

Worldwide ICT Leader

Huawei is the global leader in the field of information and telecommunication solution development. The company proposes competitive technologies in the field of telecommunication networks, corporate and client solutions. Huawei equipment for communication networks, IT products and solutions, as well as smart mobile devices that are used in 170 countries of the world.

Comprehensive Range of Solutions

Huawei started as a telecommunication equipment manufacturer for mobile operators, and has also achieved considerable success in the terminal device market and in the corporate segment (servers, storage systems, data center equipment, software solutions, etc.).
In fact, at the present time it is possible to build the entire IT infrastructure of any degree of complexity for a company of any size and industry on the basis of Huawei solutions.

History of Huawei

1987

The company is founded in Shenzhen as a trade representative office of a Hong Kong company that produces switches for office private branch exchanges (PBX).

1993

C&C08, a software controlled digital switch for rural areas and small towns, is released. It was the most powerful switch in China at that moment. The first contract with People's Liberation Army is concluded.

Chinese government adopts the policy of national telecommunication equipment manufacturer support. Huawei is recognized as the leader in this field and receives the opportunity to open new business units.

2001

Entrance into International Telecommunication Union (ITU).

1995
1.5 billion yuan sales turnover

1997

Wireless communication solutions are

2000
100 million dollar sales turnover

launched on the basis of Global Satellite Monitoring. Expansion till the level of metropolitan area network in China

2002
552 million dollar sales turnover

1990

Starting independent research and development in the end of 1980ies, the company already has 500 developers. Successful commercialization of PBX technology for hotels and small enterprises.

1994

Ren Zhengfei, the founder of Huawei, has a meeting with the President of China, Jiang Zemin, and tells him that 'communication equipment is directly related to national security, and a nation without its own telecommunication equipment is like as a nation without an army'.

1996

1999

A research and development center is opened in Bangalore, India. In 2001, this Center receives a Tier 4 CMM Certificate, and in 2003 it gets a Tier 5 CMM Certificate

2004

Conclusion of the first major contract in Europe for the amount of 25 million dollars with Telfort, a telecommunication operator from the Netherlands.

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Alternative to Western Manufacturers

Huawei proposes a full-fledged alternative to equipment from Western manufacturers for those organizations, for which it is undesirable to use Western hardware due to various reasons. The product variety and the quality of Huawei equipment is on par with those from Western manufacturers, and Huawei often surpasses them in terms of technical parameters and price.

In its turn, Huawei company adopted the decision to work on the Russian market in 1996, and, at the present time it has representative offices in 11 cities of Russian Federation.

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Innovation-Centric Approach

Huawei invests more than 10% of its revenue in Research and Development, and more than 45% of corporate employees (and their overall number is 150,000 persons) are involved in the research and development process. The company makes a solid contribution to sustainable development of society, economics and environmental protection, creates green solutions that help to reduce the consumption of power and natural resources.

What Does Huawei Mean? ?

Huawei is an official English transliteration of Chinese title

华为

One of the meanings of the 华 -hieroglyph is 'flower', which corresponds to the corporate logo. Another meaning is 'magnificent', and in modern Chinese it is used in the meaning 'China' and 'Chinese', including usage in company titles.
The second hieroglyph 为 means 'action' or 'achievement'.
Therefore, Huawei can be literally translated as 'Chinese achievement'.

2005
For the first time, the international turnover surpasses the sales in the local market.

2007
Partnership with all the largest telecommunication operators in Europe.

2011
Launch of GigaSite solution and architecture for U2Net solution.
20 cloud data processing centers are built.
More than 20 million smartphones sold.

2010
Sales turnover
21,8 billion dollars

2012
Active investment on European markets, growth of investments in the United Kingdom, creation of Research and Development center in Finland. Participation in development of 20% of all approved standards for 3GPP LTE Core.

2014
Huawei becomes a member of the 5G Infrastructure Association Board − a European council for organizing the next-generation communication networks supported by the European Commission. Huawei also announces participation in creation of a 5G research center in England.

2014
Sales turnover
46 billion dollars

2008
The World Intellectual Property Organization (WIPO) named Huawei the largest claimant with 1737 patent applications.

2009
The second place in the world in terms of wireless access equipment market share.

2013
Huawei opens Global Finance Center of Excellence in London, which performs financial risk management and provides efficiency, security and compliance of financial operations to global standards. The company is participating in development of global 5G ecosystem.

2015
The production of P8 and P8 Max hi-end flagship smartphones begins. Huawei becomes the third global mobile device producer (in accordance with Strategy Analytics).

Huawei Servers: Product Family

E9000

RH1288

RH2288

**Blade servers:
convergent infrastructure**

Dual-socket universal servers

Technological Features and Benefits

iBMC Controller

iBMC is an Intelligent Baseboard Management Controller that is installed in all servers manufactured by Huawei. The controller helps to perform remote server management, monitor their state, and implements the specifications of IPMI 2.0 (Intelligent Platform Management Interface) standard. Remote access to server management tools is possible via KVM, serial over LAN (SOL), via command line and through web interface. (In the previous generations of Huawei servers the predecessor of iBMC was called iMana.)

Please note: using the entire iBMC does not require any additional licensing.

The iBMC capabilities include:
▪ monitoring of such parameters, as temperature, voltage, fan rotation speed, device and component errors, physical security (for example, whether the cover is opened);
▪ notification in case of device hardware failures or operation parameters going beyond the allowance range;
▪ system start, shutdown and reboot, changing BIOS settings, firmware replacing;
▪ black box mode – recording the last server state, which has caused the system crash. It is possible to connect remotely and study the server status at the moment of failure;
▪ smart power supply and consumption management;
▪ Power Capping function allows to place a limitation on consumed power, including power consumption in particular time frames;
▪ and many other capabilities.

Carrier-class Electronic Equipment

Historically, Huawei is a telecommunication equipment vendor, and it follows the standards and allowances for electric characteristics of the components that are applied in this field. These standards stipulate lower inaccuracies and deviations than in computer equipment. Therefore, the server components experience lower electrical and temperature workloads and have a longer uninterrupted operation term.

HUAWEI

RH5885

RH8100

X6000

X6800

X8000

Enterprise-class multiprocessor servers

High-density servers

Open Management and Monitoring Infrastructure

Huawei servers can be managed both by in-house software solution, Huawei eSight, that is designed for administration of the entire enterprise infrastructure from one location, as well as by using popular administration systems, such as HP OpenView, Microsoft System Center, VMware vCenter.

SATA DOM Drives

SATA Disk on module is a solid-state drive that is designed in a very compact form factor and connected to SATA port for hard disks. SATA DOM suits great as a system boot disk or for various tasks that do not require intense read/write operations, for instance, log storage. Drives with 32, 64 and 128 gigabyte capacity are provided on all Huawei v3 generation servers.

RAS Technologies

RAS functions (reliability, availability, and serviceability) are offered by Intel Corporation in Xeon processor in order to increase the server fault-tolerance. RAS technologies include such tools, as data integrity control, search and correction of errors in memory and data buses, isolation of damaged memory blocks, memory mirroring. The main objective of all these features is the possibility to maintain stable server operation in case of malfunction detection.

Extended Temperature Range: 5°-45°C

For the majority of Huawei rack servers, the allowed temperature range lies between 5° and 45°C (server intake air temperature). It means that even constant 45°C temperature preserved over many years is a normal, permitted operation mode*. Such increase of operation temperature helps to save funds on data center cooling.

* There are limitations for 1U height server, as described hereinafter.

Dual-socket Multi-purpose Servers

Huawei servers FusionServer RH1288 V3 and RH2288 V3 are popular mass-production server models designed to perform a large number of tasks. High computing capacity and large volume of available disk space are harmoniously combined in them. Broad variety of configuration and rich expansion capabilities help clients to receive to receive the type of server that suits best for them.

FusionServer RH1288 V3

This is the most junior Huawei server model. It requires 1U of rack height and can be delivered with 1 or 2 processors, which allows to achieve high level of computational density for one rack volume unit. It is possible to install this server on adjustable dynamic rails with a special guide for cables (optionally), which help to pull the server towards the user from the front side of the rack without shutting it down and without risking to disconnect the cables from the plugs at the back side.

Main Characteristics

Form factor	1U 2-socket rack server
Number of processors	1 or 2
Processor	Intel Xeon E5-2600 v3, up to **14** cores
Memory	**16** modules of DDR4 DIMM/LDIMM
Number of disks	· 8 x 2.5" SAS/SATA HDD or SSD or · 4 x 3.5" HDD
RAID	RAID 0, 1, 10, 5, 50, 6 and 60, optional supercapacitor
PCIe slots	Up to **3** PCIe slots (one is occupied by a RAID card)
Integrated network	· 2 GE ports or · 4 GE ports or · 2 10GE ports
Power supply units	Two with 1+1 hot hot-swappable mode, **up to 750 Watt**
Fans	5 fans with N+1 hot standby mode
Operational temperature	5ºC–45ºC*

* When working in 45ºC mode, RH1288 V3 does not support SSD cards. Failure of one fan can lead to loss of processor performance.

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FusionServer RH2288 V3 and RH2288H V3

This server with 2U height mostly differs from the junior model, RH1288, in that it has more slots for hard disks and PCI Express cards. There are 4 available drive bay configurations – for 8, 10, 12 and 26 disks, wherein the configuration can be chosen when ordering the server, and afterwards the upgrade is impossible. In 12- and 25-disk configurations it is possible to install additional disks into a special area at the rear side of the server. It is also possible to install PCI cards in the bay. RH2288H modification differs from the basic version in that:

- it allows to install processors with more cores;
- it has more slots for memory modules;
- it is possible to install up to 2 additional graphic computers;
- it supports more powerful supply units;
- it is possible to install a sensor TFT screen, which displays data about general system state and diagnostic messages, at the front panel.

Main Characteristics

	RH2288	RH2288H (only differences)
Form factor	2U 2-socket rack server	
Number of processors	1 or 2	
Processor	Intel Xeon E5-2600 v3, up to **14** cores	Intel Xeon E5-2600 v3, up to **18** cores
Memory	**16** modules of DDR4 DIMM/LDIMM	**24** modules of DDR4 DIMM/LDIMM
Number of disks	· 8 x 2.5" HDD or · 10 x 3.5" HDD or · 12 x 3.5" + 2/4 x 2.5" or 3.5" HDD or · 25 x 2.5" + 2/3 x 2.5" HDD	
RAID	RAID 0, 1, 10, 5, 50, 6 and 60, optional supercapacitor	
PCIe slots	Up to **6** PCIe slots (one is occupied by a RAID card)	Up to **9** PCIe slots (one is occupied by a RAID card)
Integrated network or 2 10GE ports	2 or 4 GE ports	
Power supply units	Two with hot power supply standby in N+1 mode, up to **750 Watt**	Two with hot power supply standby in 1+1 mode, up to **1200 Watt**
Fans	4 with hot standby in N+1 mode	
Operational temperature	**5°C–45°C**	

The list of graphic/computing extension cards that are certified for installation:
- NIVIDA Qudar o2000 and o4000,
- NVIDIA GRID K1 and K2,
- NVIDIA Tesla M2090, K10 and K20,
- NVIDIA Quadro K2000,
- Intel Xeon Phi.

Enterprise-class Multiprocessor Servers

4-socket RH5885 and 8-socket RH8100 server, as well as 16-socket server that will be released by the end of 2015 are designed for tasks that demand high reliability and greater computing resources − large databases, business intelligence systems, virtualized server infrastructure and supercomputing. All these servers are certified for SAP HANA and can be officially used for creating various solutions based on this platform.

Due to the reason that these servers are designed to be used on critical business applications, hot standby is supported not only for power supply units and fans, but also for memory modules, PCI cards and even processors (in RH8100).

FusionServer RH5885

RH5885 is a powerful 4-socket server on the basis of Xeon E7, which perfectly suits for the most important and sensitive tasks, such as big databases, virtualization, business intelligence or high performance computing. RH5885H is a modification that differs from the basic version in that in that it has more memory modules and slots for PCI cards, wherein 4 support hot standby mode. Furthermore, in this modification, the memory modules are installed in sliding rails and have operation status indicators.

Main Characteristics

	RH5885	RH5885H (only differences)
Form factor	4U 4-socket rack server	
Number of processors	2 or 4	
Processor	Intel Xeon E7-4800 v2 with 6, 8, 10, 12 or 15 cores	
Memory	48 modules of DDR3 DIMM, up to 3 TB in total	96 modules of DDR3 DIMM, up to 6 TB in total
Number of disks	8 or 23 x 2.5" HDD or SSD	
RAID	RAID 0, 1, 10, 5, 50, 6 and 60	
PCIe slots	7 PCIe slots	16 PCIe slots, 4 of them with hot standby
Integrated network	2 or 4 GE ports or 2 10GE ports	
Power supply units	2 or 4, with hot standby, 1+1 or 2+2 fault-tolerance	
Fans	5 with hot standby, N+1 fault-tolerance	
Operational temperature	5°C–40°C	

FusionServer RH8100

High-performance 8-socket server RH8100 provides impressive computing capacity and allows to easily increase it. Intel Xeon E7 processors provide access to a large number of RAS functions, including in-memory error discover and correction, hot standby for memory modules, and many others.

The server has modular structure. 8 retractable modules with processors and 16 modules with hot-swappable memory are drawn out from the front panel on rails.

The server can be divided to two hardware-independent 4-socket servers (by using the FusionPar function), each with its own disks, network ports, PCI slots and administration tools (in order to support RAID in each independent server it is necessary to offer a configuration with two RAID controllers).

Main Characteristics

Form factor	8U
Number of processors	4 or 8
Processor	Intel Xeon E7-8800 v2 with 6, 8, 10, 12 or 15 cores
Memory	192 modules of DDR3 DIMM, up to 12 TB in total
Number of disks	12 or 24 x 2.5" HDD or SSD, SAS or SATA
RAID support	RAID 0, 1, 10, 5, 50, 6 and 60, up to 2 GB cache
PCIe slots	Up to 16 PCIe slots (6 of them are used only for installation of GPGPU/SSD cards)
Integrated network	· 8 GE ports or · 4 10GE ports or · 4 GE ports + 2 10GE ports (on two separate network cards)
Power supply units	2 or 4, with hot standby, 1+1 or 2+2 fault tolerance
Fans	8 with hot standby, N+1 fault tolerance
Operational temperature	**5°C–40°C**

High-density Servers for high-Scale Deployment in Data Centers

X8000 Full-rack Server

X8000 server is a rack with a 44U height that is filled with 80 one- or two-socket 1U servers with half width. All servers are powered by shared power supply units and have a common cooling system with 12 fans. The rack is provided as a ready-to-use pre-assembled solution. This allows to connect it and put into operation in the shortest timescale.

Extensive selection of computing nodes can be mounted in X8000: single-socket DH310 node, Dual-socket DH320 and DH321 nodes, as well as specialized data storage node DH628 with up to 2 petabyte disk space.

	DH310 V2	DH320 V2	DH321 V2	DH628 V2 (Storage node)
Processor	1 * Intel Xeon E3-1200 v2	2 * Intel Xeon E5-2400 v2	2 * Intel Xeon E5-2600 v2	2 * Intel Xeon E5-2400 v2
Memory	4 modules of DDR3 DIMM	12 modules of DDR3 DIMM	16 modules of DDR3 DIMM	8 modules of DDR3 DIMM
Disks	1 x 3.5" SATA HDD	2 x 2.5" SAS/ SATA HDD or SSD	2 x 2.5" SAS/ SATA HDD or SSD	·12 x 3.5" SATA/ SAS HDD with hot-swappable or ·12 x 2.5" SATA/SAS HDD or SSD with hot-swappable + 2 x 2.5" SATA HDD or SSD
Network and PCIe slots	2 GE ports	2 GE ports 2 PCIe slots	2 GE ports 1 PCIe slot	2 GE ports 2 PCIe slots

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X6000

This server's architecture is similar to that of X8000. The chassis with 2U height can contain 2 full-width servers or 4 half-width servers and provide them with power supply and/or cooling. Several models of full-size and half-size single-socket and Dual-socket computing nodes are available for installation in X6000.

X6800

This is a new high density model that has a chassis with 4U height, to which the computing nodes are installed in a vertical position. In total it has 8 slots for nodes, but at the present time only Dual-thickn nodes that occupy two slots are available for this mode.
Power supply is provided by 4 power supply units, and cooling is provided by 8 fans, all these components support hot standby. 8 PCIe slots, one slot for each computing node, are also located at the rear side. Two types of server nodes – XH622 and XH628 – can be installed into the X6800 chassis. XH622 can contain up to two computing accelerators, and XH628 can contain up to 12 disks with up to 296 TB total capacity.

Main Characteristics

	XH622 (HPC node)	XH628 (Storage node)
Processor	Intel Xeon E5-2600 v3	Intel Xeon E5-2600 v3
Memory	16 modules of DDR4 DIMM	16 modules of DDR4 DIMM
Disks	4 * 2.5" SAS/SATA HDD or SSD	•12 *3.5" SATA HDD or 2.5" HDD or SSD with hot-swappable + •2 * 2.5" SATA HDD or SSD optionally
Network and PCIe slots	2 or 4 GE ports or 2 10GE ports Up to 5 PCIe slots	2 or 4 GE ports or 2 10GE ports Up to 5 PCIe slots
GPU	2 Intel Xeon Phi coprocessors or graphic accelerators	

HUAWEI Blade Systems: Chassis E9000

Blade chassis HUAWEI E9000 can be installed into a standard rack and occupies 12U of its height. The chassis includes:
· 16 full-size or 8 half-size horizontal slots for server nodes;
· 4 slots for installing network switches;
· 2 management modules;
· 6 power supply units (2 or 3 kWatt) with efficiency up to 95% under 50% workload can operate symmetrically (half from one source, half from another) or in N+1 mode (5 units are working and 1 unit is reserved);
· 14 cooling modules in 3 groups, each group remains serviceable in case of 1 fan failure;
· TFT display for displaying errors and configurations.

V3 Generation Dual-socket Computing Nodes

CH121 v3

This server is a jack-of-all-trades workhorse for the most diverse tasks. The half-width slot can disperse up to 700 Watt of heat. Full-height DIMM support relieves from the necessity of using expensive low-profile modules. Support of one standard full-height and half-width PCIe card (besides two mezzanine network interface cards) allows to install, for example, graphic accelerators or a USB hub, which commonly used for installing cryptographic USB keys directly on the server. It is announced that the server will also support connection of SSD (2.5" 800 GB Intel P3700 PCIe SSD), via PCIe slot, which will help to considerably increase the performance of the storage.

Besides two main disks, the server supports additional SATA slot devices for installation of SATA DOM. Both types of media can consolidate storages, which can be used for Operating System loading: 2 MicroSD slots and 2 slots in RAID 0 or 1. This capability is also supported by other v3 generation servers.
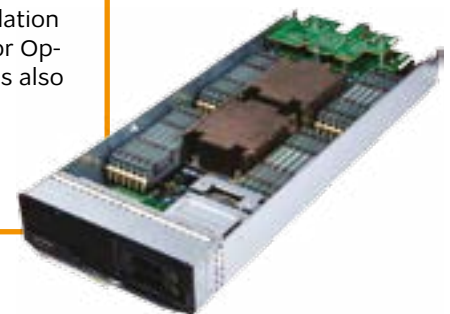
Main Characteristics

Form facto	Dual-socket half-width blade node
Number of processors	1 or 2
Processor	Intel Xeon E5-2600 v3
Memory	24 modules of DDR4 DIMM, up to 1.5 TB in total
Number of disks	· 2 x 2.5" SAS/SATA HDD or SSD, · 2 x PCIe SSD support
RAID	RAID 0 and 1
PCIe slots	· 2 PCIe x16 in mezzanine form factor, · 1 PCIe x8 FHHL*
Operational temperature	5°C-40°C

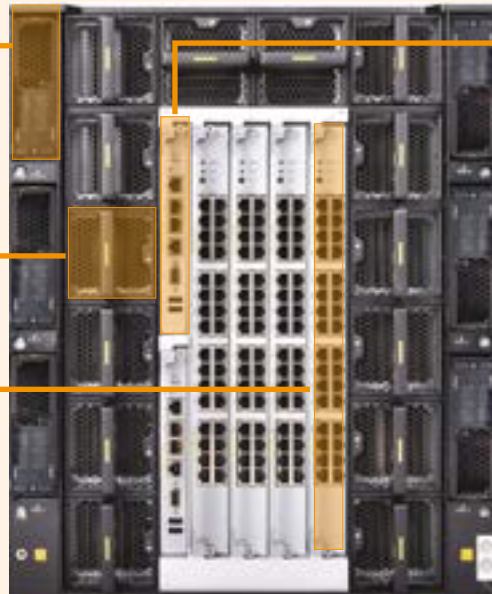* FHHL = full height half length

Power supply
unit

Half-width slot

Cooling
module

Network
switch

Full-width slot

Management modules

MM910 management module provides management of E9000 chassis and servers in it, and implements the functionality that is described in IPMI 2.0: remote launch, shutdown, reboot, monitoring of server hardware and chassis components, for example, power supply units and fans.
The module supports power supply management, including using the method of server power capping. It is possible to divide the servers into chassis by groups and delimit their access rights. The management module (1 or 2 for additional fault-tolerance) is installed into the chassis from the rear side.

CH220 v3

In comparison with half-size CH121, this server has broad expansion and scalability potential: up to 6 standard PCIe cards are supported, which allows to build the following solutions:
· for high-performance computing – by installing NVIDIA Tesla K10/K20/K40;
· for Virtual Desktop Infrastructures and high-performance graphics processing – by installing NVIDIA Grid K1/K2, AMD FirePro W5000 or NVIDIA Quadro K4000;
  for super-fast storage– by installing ES3000 SSD media.
Besides that, unlike the half-width server, some standard PCIe cards that are installed in CH220 can have outlets. The full-size slot provides 1400 Watt heat dispersion and thereby eliminates any possible cooling problems even when using the most high-performance components.

Main Characteristics

Form factor	Dual-socket full-width blade unit
Number of processors	1 or 2
Processor	Intel Xeon E5-2600 v3
Memory	16 modules of DDR4 DIMM, up to 1 TB in total
Number of disks	· 2 x 2.5" SAS/SATA HDD or SSD, · 2 x PCIe SSD support
RAID	RAID 0 and 1
PCIe slots	· 4 PCIe in mezzanine form factor (2 x PCIe x16 + 2 x PCIe x8), · 6 standard PCIe slots (4 x PCIe x8 FHHL and 2 x PCIe x16 FHFL*)
Operational temperature	5°C-40°C

* FHHL = full height half length

CH222 v3

Specialized Dual-socket computing node with increased disk capacity. All disks are located in the draw-out section at the left side, which can contain 15 2.5" SAS or SATA disk drives. LSI RAID-Controller has large cache memory and provides protection from power supply interruptions by using a supercapacitor and flash memory.

Main Characteristics

Form factor	Dual-socket full-width blade unit
Number of processors	1 or 2
Processor	Intel Xeon E5-2600 v3
Memory	24 modules of DDR4 DIMM, up to 1.5 TB in total
Number of disks	15 x 2.5" SAS/SATA HDD or SSD, up to 18 TB in total
RAID	RAID 0, 1, 10, 5, 50, 6, 60, 1 GB cache, supercapacitor
PCIe slots	· 2 PCIe x16 in mezzanine form factor, · 1 PCIe x16 FHHL
Operational temperature	5°C-40°C

CH140 v3

This blade node is designed for building high density computing systems, for which it is important to have a large number of processors. 2 independent half-height servers are installed into the half-width case, and networking cards are installed from the rear side. As a result, one chassis can support 32 Dual-socket nodes with 12-core processors E5-2697 v2 with 2.7 GHz frequency. Regardless of such a high assembly density, the server can be used without any problems in a standard chassis, without any special fans.

Main Characteristics

Form factor	Two Dual-socket servers in half-width node
Number of processors	2 *(1 or 2)
Processor	Intel Xeon E5-2600 or v3 with up to 16 cores
Memory	8 modules of DDR4 DIMM in each server
Number of disks	1 x 2.5" SAS/SATA HDD or SSD in each server
PCIe slots	2 PCIe x8 in mezzanine form factor in each server
Operational temperature	5°C-40°C

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V3 Generation 4-socket Computing Nodes

CH240 v2

An ideal machine for virtualization, big databases and other memory-intensive computational tasks (up to the maximum of 3 TB per server on 48 DIMM).
The implementation of 4-socket server on the basis of Intel Xeon E5 processors (v2 generation), instead of E7 and using DDR3 memory helps to save money, but, however, in future the model production will be discontinued, because in v3 generation Intel Xeon E5 processors no longer support 4-processor configuration.

Main Characteristics

Form factor	4-socket full width blade node
Number of processors	2 or 4
Processor	Intel Xeon E5-4600 or E5-4600 v2
Memory	48 modules of DDR3 DIMM, up to 3 TB in total
Number of disks	8 x 2.5" SAS/SATA HDD or SSD
RAID	512 MB/1 GB RAID cache RAID 0, 1, 10, 5, 50, 6, 60, with 512 MB/1 GB cache
PCIe slots	2 PCIe x16 in mezzanine form factor
Operational temperature	5°C-40°C

CH242 v3

This 4-socket high-performance computing node is based on Intel Xeon E7 processors (with up to 15 cores), although they refer to v2 generation (Xeon E7 processors are updated less frequently than Xeon E5).

Main Characteristics

Form factor	4-socket full width blade node
Number of processors	2 or 4
Processor	Intel Xeon E7-4800 v2, 8 ,10 or 15 cores
Memory	32 modules of DDR3 DIMM
Number of disks	8 or 4 SAS/SATA HDD or SSD
RAID	RAID 0, 1, 10, 5, 50, 6, 60
PCIe slots	· 4 PCIe x16 in mezzanine form factor, · 2 PCIe x16 FHHL, · additionally, in 8-disk server, - 1 PCIe x16 FH ¾L
Operational temperature	5°C-40°C

The server is certified by SAP for building solutions on the basis of SAP HANA platform.

Blade System Networking Infrastructure

Network Switches

It is suggested to use many network switch modules for various protocols for installation into blade server, and 4 switch modules are installed into E9000 chassis. All Ethernet switch modules are manufactured by Huawei, and switches for other protocols can be manufactured by Brocade or QLogic.

GE

CX110
The simplest and the most affordable Ethernet switch module with basic functionality.

*uplink: 12*GE and 4*10GE*
*downlink: 32*GE*

CX111
A more advanced switch module, which, in comparison with CX110, has expanded functionality related to Layer 3 traffic

*uplink: 12*GE and 4*10GE*
*downlink: 32*GE*

10GE / FCoE

CX311
Analogous to CX310, but has a FiberChannel over Ethernet switching component. 8 fully-functional FC ports can be used for data storage system connection.

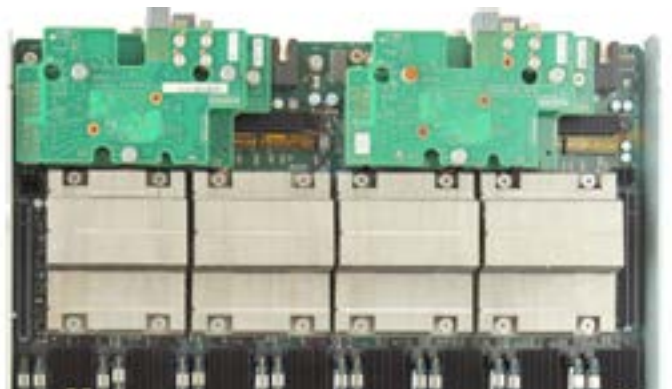*uplink: 16*10GE + 8 *8G FC*
*downlink: 32*10GE*

CX317
Passive module that passes through networking interfaces (SPP+, copper or optic fiber) port-to-port to the external network. It is used for connecting switches of other manufacturers.

*uplink: 32*10GE*
*downlink: 32*10GE*

Mezzanine Network Interface Cards

These are standard PCIe cards that are designed in mezzanine form factor. They are the only cards that are compatible with Huawei blade servers, installation of cards from other vendors to this equipment is not supported. Every card can work with specific switches, it is necessary to check the specification (the configurator is yet unable to check the compatibility of switches and networking interface cards).

GE	8G FC	16G FC	10GE

CX116

Passive module that passes through networking interfaces (RJ-45) port-to-port to the external network. It is used for connecting switches of other manufacturers.

*uplink: 32*GE*
*downlink: 32*GE*

CX110

FiberChannel traffic switch module with 8 Gigabit bandwidth.

*uplink: 8*8G FC*
*downlink: 16*8G FC*

CX220

FiberChannel traffic switch module with 16 Gigabit bandwidth.

*uplink: 8*16G FC*
downlink: 16 16G FC*

CX310

10-gigabit switch module that does not support FCoE traffic transfer. The switch can be connected by iSCSI interface.

*uplink: 16*10GE*
*downlink: 32*10GE*

IB QDR/FDR	40GE	10GE + FC	GE + FC

CX611

InfiniBand switch with single port (with 56 Gbit/sec speed) for each server. The switch module is used in high-performance computing (HPC).

uplink: 18 FDR IB*
*downlink: 16*FDR IB*

CX710

40-gigabit Ethernet switch

uplink: 8 40GE*
*downlink: 16*40GE*

CX911/CX912

Combined 'Dual-deck' switch modules with 10-gigabit Ethernet at the first level and full-fledged FiberChannel at the second level (CX911 is a Qlogic FC switch, CX912 – Brocade).

*uplink: 16*10GE + 8*8GFC*
*downlink: 32*10GE*
*   and 16*8GFC*

CX915

The same as module as CX911/CX912, but with 1-gigabit Ethernet.

*uplink: 16*GE + 8*8GFC*
*downlink: 32*GE*
*   and 16*8GFC*

40-gigabit Switching

40-gigabit Ethernet is quite rapidly replacing the slower types of Ethernet connection in the data processing centers. It should be noted that you do not need to abandon using your 10-gigabit networking equipment when you purchase 40-gigabit Huawei switches. With special cables, the 40 GE port is divided into 4 10 GE ports, which helps to easily connect previously used equipment. For instance, it is possible to build the core network on 40GE switch modules and use 10GE switches to connect equipment.

10GE ports are connected to 10GE ports on the networking adapter or on a lower-level switch.

40GE port is connected to the port on the 40GE switch.

Copper or optic fiber

E9000 Helps to Keep Floods in the Netherlands under Control

Situation

Deltares is a new and independent Dutch institute for applied research in the field of water, soil and the subsurface. It participates in the "Digital Delta" big data project to improve flood control strategies and water resource management in the Netherlands. Information processing requires huge computing capacities. The database in the Dyke Data Service Center alone processes 2PB sensor data per year. The former system failed to solve these tasks, and therefore it was decided to create a new solution.

Solution

As the basis for the new computing infrastructure, Deltares institute decided to choose the servers and data storage systems of Huawei. Huawei deployed the convergent E9000 server, S5600T storage device, and 15 computing nodes for each of two client stations, supporting 60 high-performance virtual machines (VMs). Each VM has a four-core CPU, 64 GB memory, 310 GB storage space. Each E9000 rack supports a maximum of 16.2 TFLOPS computing capability. High-performance storage systems provide the capability of accessing and analyzing the data of other researchers.

Result

High performance of E9000 has helped the client to increase the data processing performance by four times and more, which completely meets the requirements of the institute. New Deltares strategy helps employees to connect to the working system at any time and from any place. Huawei server virtualization technologies allow to easily configure flexible access to data.

Virtual Platform for People's Bank of China

The People's Bank of China controls the national monetary policy and regulates financial institutions, including financial risk prevention and resolution. The Bank was planning to replace the servers due to the reason that the former system became morally obsolete: it was based on Dual-socket physical servers and each of them was maintained by the IT service. The architecture of the data center that was offered by Huawei was based on four-socket RH5885 servers that were consolidated into a single resource pool. All services were deployed on virtual machines with easy migration between them. The solution provides high system performance and reliability and optimizes the workload on resources. RH5885 servers have been chosen due to their great stability and computing speed that was confirmed as a result of comparative testing.

50,000 Huawei Servers Work in Alibaba

Situation

Alibaba Group is the largest e-commerce company in China (with more than 60 million visitors per day on Taobao). Alibaba Group aims to achieve maximum infrastructure performance and reduce the expenditures on hardware and software. The unique tasks of the client included the necessity to provide rapid access to an enormous amount of small files (small image browsing requires more than 90% bandwidth, and the total number of pictures exceeds 30 billion files). Other client requirements to the solution were low power consumption and deployment in the shortest timescale.

Solution

Since 2006, Huawei has delivered Alibaba around 50,000 servers of various types – mostly such rack servers, as RH2285 and RH2288, which are now processing over 1/3 of client business workloads. Since 2013, Alibaba is gradually replacing the middle-class servers and storage devices with new rack equipment, which is mostly based on Huawei servers. Energy-saving Huawei technologies have helped to reduce the power consumption by more than 10%. In order to perform server deployment in the shortest timescale, Huawei pre-configures all equipment at the manufacturing facility.

Result

Stable and high-performance servers delivered by Huawei are providing uninterrupted operation of Alibaba business. The latest equipment modernization has allowed to increase the power efficiency by at least 10% of general expenditures, which comprise dozens of millions of yuan per year.

'Huawei servers have shown great performance and service level, which completely corresponds to Alibaba business requirement. The equipment manufacturer has helped us to successfully solve all the customization tasks. Furthermore, being a great system platform partner, it rendered us high-quality technical support and maintenance'.

Alibaba Technical Support Department

Data Center for a Spanish Hospital Network

4,000 employees work in HM Hospitals hospital network, which includes 6 medical institutions in Madrid. The majority of them is using various information systems in their work. Before the implementation, the IT systems of six hospitals were disparately managed and maintained. This resulted in maintenance cost growth, information security risks, insufficient workload on computing resources and their idleness. The client decided to build a unified data center with virtualization on the basis for VMware platform and migrate all information systems to it. High request intensity, big data volumes and the need in uncompromising reliability stipulated high requirements to performance and data transfer speed.

The cluster that been proposed by Huawei included 13 RH2285 servers and has allowed to achieve considerable results: the operational costs have been reduced by 60%, and the total cost of IT ownership has been decreased by 30%.

Storage Systems: Product Families

Dorado

5300

5600

6900

Real Time Storage (Dorado)

Ultra-fast and ultra-efficient data storage systems on the basis of SSD media with limited capacity (not more than 40 TB).

OceanStor V3

Unified corporate storage
5300/5500 V3 – entry-level systems
5600/5800 V3 – mid-range systems
6800/6900 V3 – high-end systems

Technological Features and Benefits of OceanStor V3

| SAN and NAS access by using the same equipment | Unified equipment operation princi-ples for entry-lev-el, mid-range, and high-end hardware | SSD and HDD disk convergence | Heterogeneous storage | Unified data stor-age and backup system |

On-demand service. Access to blocks (SAN) and files (NAS) via the same type of equipment without additional hardware components.

On-demand disk space. OceanStor data storage systems can be flexibly scaled: their parameters can be decreased and increased at any moment. There are no differences between working with entry-level, mid-range, and high-end hardware both from the technical and marketing point of view.

On-demand performance. Huawei data storage systems can work with both standard and solid state disk drives.

On-demand data protection. The storage system can carry out the backup functions. It protects the system not only from hardware failures, but also from malicious software, errors of users and operators, and also provides compliance to legislation.

On-demand storage resources. Huawei data storage systems can also work with other data storage systems without using additional software modules.

Huawei Storage Logical Structure

Huawei data storage systems include two large logical blocks: hard disk drives, on which the data are stored, as well as controllers that implement various services that can be provided by the stor-age system (software component of the system). RAID 2.0 is the key technology on the hard disk level.

On the service level, the system is divided into two independent components: block services and file services, which exist in parallel and do not depend on each other. Additional hardware is not necessary for their operation.

HUAWEI

9000

BigData Storage

OceanStor 9000 is a file modular system for storing large volumes of information.
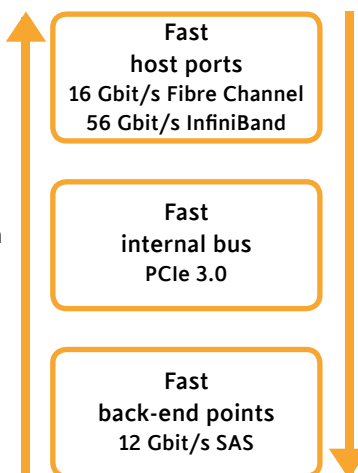
Cold Storage (UDC or cloud storages)

Software and hardware systems for cloud storage.

Bidirectional Highway

Huawei storage systems are based on powerful multi-core Intel Xeon processors and use the fastest protocols. External and internal high-performance ports, the quality and the bandwidth of which can be flexibly adapted to the requirements of the client, allow to receive and display data with maximum speed. The data input and output speed is equal in any direction.
- Internal buses: 16 Gbit/sec Fiber Channel. The top-level models support the capability of connection by 16 Gbit/sec InfiniBand.
- PCI-Express 3.0 is working between the controllers.
- New generation of SAS-3 with 12 Gbit/sec bandwidth is working on back-end ports.

Fast host ports
16 Gbit/s Fibre Channel
56 Gbit/s InfiniBand

Fast internal bus
PCIe 3.0

Fast back-end points
12 Gbit/s SAS

Co-processor Module

A special module that can be inserted into the interface card slot. Includes a built-in processor and memory. Performs the tasks of reducing the workload on deduplication and data compression processes.

SmartIO Module

A networking interface card, which is compatible with the following ports: 16 Gbit/sec Fiber Channel, 10 Gbit/sec TOE or 10 Gbit/sec with FCoE support. The port that will be used depends on the SPP modules that will be installed into the networking interface card. In order to change the port, it is necessary only to replace the SPP module. Huawei multi-controller system cascading is also performed via SmartIO.

RAID 2.0+: the Foundation of OceanStor OS

RAID 2.0+ is a new RAID technology, which is based on block level virtualization concept. The idea of this concept is to abandon working on hard disk level and switch to work on the block level.
Migration to RAID 2.0+ allows to achieve the following benefits:
- Quality of Service;
- Smart Cache;
- tiering;
- block migration;
- combining various types of disks (SSD, SAS, SATA) within the borders of one logical unit number.

File Level and Block Level Technologies

	Block level	File level
Protocols	iSCSI, FC, FCoE	NFC, CIFC, FTP, HTTP
SmartVirtualization. Unified interface for managing all storage systems. Allows to connect data storages of other manufacturers to Huawei systems and maintains the earlier connected services (tiering, RAID DP and others).	+	
SmartTier. Three-level tiering with the possibility of migration between levels. SmartTier is based on two processes (collection of statistics and data transfer), which are performed in parallel and independently from each other. The minimum interval for collection of statistics is 30 minutes.	+	
SmartCache. Allows to record 'hot' data directly on Solid State Disks, and then, as they 'cool down', record them to storage disks.	+	+
SmartMotion. Provides 'horizontal' data transfer, allows to expand the RAID group due to additional blocks on various types of disks. For instance, LUNs of SAS disks can be expanded at the expense of the SSD drives without recreating the entire group.	+	
SmartThin. The technology performs thin resource provisioning and optimizes the memory resources.	+	+
SmartPartition. The technology that allows to allocate cache on-demand (controller memory – ESS memory) and strictly link it to a particular LUN regardless of its size. This exclusive cache distribution helps to adjust and control the performance of various LUNs and processes that are executed on them.	+	+
SmartQoS. SmartQoS helps to create policies that describe the traffic transfer rules (sequence and priorities). This system includes two technologies: prioritizing technology (a priority is assigned to every LUN – from 1 to 3 – and afterwards the read and write queue in the Controller is built on the basis of this rating) and service policy (allocation of resources between various LUNs).	+	+
SmartDedupe и SmartCompression. In the beginning, the data blocks are compressed by a processor on the central motherboard or an additional daughter card, and only after this they are recorded to the hard disk drive. This method allows to avoid system overloading, which is common when using post-processing technologies.	+	+

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	Block level	File level
SmartErase. When the LUN is deleted, its place on the standard hard disk is labeled as empty, but, at the same time, all data that were contained there can still be recovered. SmartErase technology allows to delete information without possibility of its recovery. For this purpose, the empty space is overwritten with random data for several times.	+	
SmartMigration. The technology provides migration of logical unit numbers from one storage system to another one. It also allows to change the RAID type in LUN without work interruption. For this purpose, it necessary only to move the data from the LUN that was created on one RAID type to the LUN from the RAID of another type.	+	
SmartMulti-Tenant. The technology allows to delimit the user access to storage systems and isolate them from each other. For this purpose, the data storage system is virtually divided into several systems of smaller size with personal system administrator, which manages a set of disks, processor resources, ports and servers, assigned to each of them.	+	
SmartQuota. This technology allows to perform file system quoting. The quoting can be assigned either to the local user database or to the Active Directory user database.		+
Data protection technologies		
HyperSnap. Snapshot creation.	+	+
HyperClone. Full copy-based database cloning.	+	
HyperCopy. Allows to store the second copy of data on other hard disk drives or on other data storage system.	+	
HyperReplication. Data replication (synchronous and asynchronous), which can work between two devices, including even devices of different classes.	+	+
HyperLock. Protection of documents from modification. Once the data are written, they can be read by everyone, but no one can rewrite them, including even system administrators. The document protection is disabled only after a pre-set condition is fulfilled – for instance, after some time from the document creation.		+
Storage system management products		
DeviceManager. Firmware that allows to configure data storage systems.	+	+
eSight. Monitoring of data storage systems, servers, networking equipment and other Huawei hardware.	+	+
ReplicationDirector. Allows to perform emergency data recovery.	+	+

OceanStor v3 product family

Entry-level storage systems OceanStor 5300/5500 V3

The systems are designed in the form factor, in which the controller and the hard disk subracks are combined in one case. The controller is located at the rear side, and the hard disk drives are in front.

Main characteristics

	5300 V3	5500 V3 (only differences)
Controller platform (SAN+NAS)	2U + controller	
The number of supported disks	500	750
Maximum number of controller	88	
Cache volume	32 GB/64 GB (planned)	48 GB/96 GB/128 GB (planned)
Maximum number of input/output ports	24	

Power supply units

(1+1), BBU modules and cooling system

Ethernet ports

- 5300 V3: four Gigabit Ethernet ports in each controller
- 5500 V3: four 8-Gigabit Ethernet ports in each controller

SAS Extension ports

Two SAS extension ports in each controller

Interface modules

- Two slots for interface modules, hot-swappable supported.
- Port types: 8 or 16 Gbit/sec Fibre Channel, GE, 10GE TOE, 10GE FCoE and 12 Gbit/sec SAS

In case of network power shutdown, the BBU modules that are built-in into power supply units continue to provide power to the controller and the first four disks, which allows to record data from the controller cache. This helps to save all data and perform normal system shutdown.

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Mid-range Storage Systems OceanStor 5600/5800 V3

The controller board is isolated. The hard disks are located on extension subracks. 5600/5800 data storage systems support up to 1250 disks.

Main characteristics

	5600 V3	5800 V3 (only differences)
Controller platform (SAN+NAS)	3U	
Supported disks quantity	1000	1250
Maximum number of controllers	8	
Cache volume	64 GB/ 128 GB	128 GB/ 256 GB
Maximum number of input/output ports	56	

BBU modules

- 5600 V3: 1+1. 5800 V3: 2+1
- Data protection in case of power supply interruptions

Controllers

- Dual-Controller system.
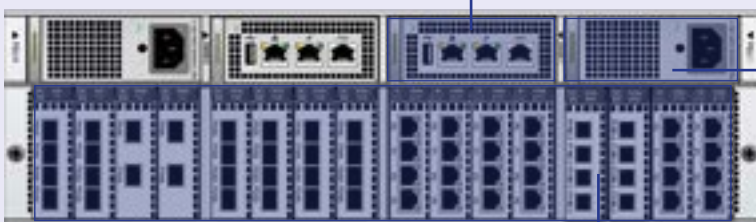
Control modules

- 1+1
- Controller management and their configuration.
- Web interface and command line support.

Interface modules

- 16 slots for interface modules, hot-swappable supported.
- Port types: 8 or 16 Gbit/sec Fibre Channel, GE, 10GE TOE, 10GE FCoE and 12 Gbit/sec SAS.

Power supply units

- 1+1
- Hot-swappable supported.

Hi-end Storage System 6800 V3

6800 V3 is a flagship 4-controller system in 6U rack, which allows to perform further upgrade. Interface card and power supply unit number is Duald.

Main characteristics

	6800 V3
Controller platform (SAN+NAS)	6U
Supported disks	3200
Maximum number of controllers	8
Cache volume	256 GB/512 GB/1 TB
Maximum number of input/output ports	40

BBU modules

- 3+1
- Data protection in case of power supply interruptions.

Controllers

- Configurations with 2 or 4 Controllers (in future, the systems with two controllers can be upgraded to four-controller architecture).
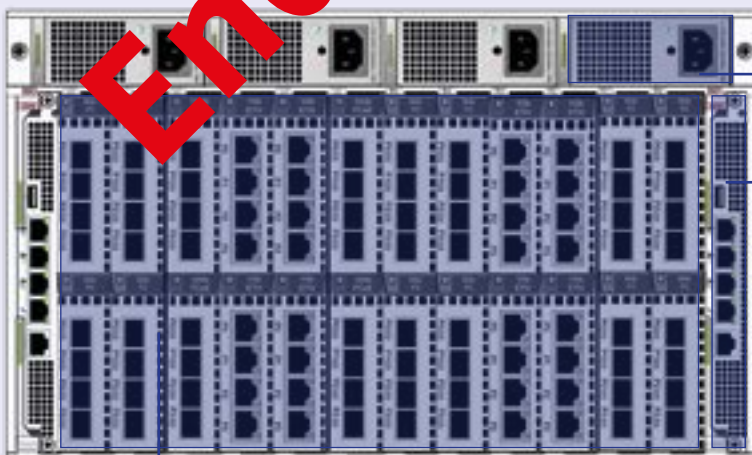
Power supply units

- 1+1
- Hot-swappable supported.

Management modules

- 1+1
- Web interface and command line support.

Interface modules

- In 2-controller configuration: 12 interface modules. In 4-controller configuration: 24 interface modules.
- Hot-swappable supported.
- Port types: 8 or 16 Gbit/sec Fibre Channel, GE, 10GE TOE, 10GE FCoE and 12 Gbit/sec SAS

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Enterprise-class Storage Systems Huawei OceanStor 18500/18800

The solution that allows to satisfy virtually all requirements to data storage arrays in terms of scalability, capacity and fault tolerance. Completely reserved OceanStor 18XXX architecture allows to provide data availability on 99.9999% level.

Main characteristics

	18500	OceanStor 18800/ 18800F*
Supported disk quantity	1584	3216
Maximum number of controllers	2/4/8	2/4/8/16
Cache volume	768 GB	3072 GB
Maximum number of input/ output ports	96	192

* OceanStor 18800F employs a dedicated ultra-fast cache algorithm designed for solid state disks to accelerate data reads and writes. This version supports 2.5" SSD drives.

Extension and High-density Subracks

In order to increase storage system disk capacity, Huawei employs two- and four-unit rack extensions, as well as high-density racks.

Two-unit extension racks can contain 25 2.5" disks. Four-unit extension racks can contain 24 3.5" disks. It is also possible to combine subracks of various types in one system, as the power supply units and the interface modules, through which the connection is performed, are unified. High-density extension racks can contain up to 75 3.5" disks. The disks are loaded vertically. Four power supply units, a fan module and a SAS interface are contained in the rack. High-density extension subracks are incompatible with other types of subracks.

4U rack extension can contain up to 24x3.5" disks

- Disk module
- Fan module
- Extension module
- Power supply units

Huawei Networking Equipment: Product Family

Routers

AR (Access Router)

Multi-purpose routers that can be used in offices of any size. All routers of AR series (which is the third generation of Huawei switches) employ multi-core architecture (in entry-level models – 2 cores, in hi-end – up to 32 cores). In practice, the large number of cores allows to implement parallel processing, which results in almost two-fold performance growth.

AR150

AR2200

Switches

Access points

Various modifications of indoor and outdoor access points that work either in 2.4 GHz range, or in two ranges – 2.4 and 5 GHz; outdoor access points with the capability of antenna connection; access points that support 802.11ac standard.

802.11n

802.11ac

Wireless networking solutions

Compliance to industry standards

All products completely support various industry and local standards, which provides industry-leading compatibility. The best-of-breed performance and rich functionality allow to use Huawei equipment in many various scenarios. The results of functionality equipment testing and integration with equipment of other vendors can be found on independent testing lab websites – Miercom and Tolly.

All networking products are working on unified VRP operating system (Virtual Resource Partitioning), which has 17 years' history. You need to train your network engineers how to work with VRP operating system once, and they will be able to manage all corporate network segments, be it campus networks or data processing centers, routers or Wi-Fi networks.

Benefits for clients

- Investment protection
- TCO reduction
- Compatibility
- Scalability
- Technological independence from one vendor

HUAWEI

NE (Net Engine)

NE40E

High-performance modular switches for large institutional and corporate networks. The product family includes NE05E, 08E, 16E, 20E, 40E.

For campus corporate networks

Sx7 product family, which is designed for campus corporate networks, includes access, core and aggregation level switches. They include modular switches (chassis) and switches with fixed configurations.

Sx7

CloudEngine: switches for data centers

CE5800, CE6800, CE7800, CE12800 series are included into this product family. The first three are Top-of-Rack switches that are designed for direct server connection. CE12800 model is a data center-oriented modular switch for core level and aggregation level.

CE12800

WLAN AC Controllers

Various modifications of controllers designed both as standalone devices and as interface cards for installation into modular switches.

ACU6605

Energy savings and environmental friendliness

SmartEnergy design reduces the power consumption and thermal losses. The cost efficiency of Huawei products is widely recognized in the industry. Energy consumption for even the most standard access level switches is by 30-64% lower than the power consumption of competitor models (the results of comparison can be seen on Miercom independent testing lab website).

Benefits for clients

- Considerable reduction of OPEX due to power consumption.

Unified management system

Huawei eSight manages the entire enterprise network. It is not necessary to switch between various NMS for managing and configuring the equipment from various manufacturers (compatibility with hardware from Cisco, Juniper, HP, Brocade, etc.). Not only networking equipment, but also servers, storage systems and uninterruptive power supply units are supported.

Benefits for clients

- Increased infrastructure operation efficiency
- Reduced cost of deployment, training and maintenance

G3 Access Routers

Huawei offers multi-service AR G3 routers, which are compatible with all types of physical interfaces. They support voice functionality, all types of remote connections, Security and WLAN functions (there are modifications of switches with built-in access points). It also includes interface cards with high port density (a router and a switch are combined in one device).

Third-generation architecture, high performance.
- Due to multi-core processors, the performance of AR G3 is by two times higher than industry average router performance.
- Up to 160 Gbit/sec switching capacity, non-blockable package transfer.
- Twin power supply unit with hot-swappable and carrier-class reliability.

Dual internet connection mode, flexible access.
- Connection via optic fibre and 3G network (2 SIM cards), load balancing and backup.
- All types of physical interfaces: Ethernet, xDSL, E1/T1, PON.
- Wireless access – Wireless 3G/LTE and Wi-Fi, integrated WLAN AC access point (working in wireless controller mode).

All-in-One multi-service platform, convergence and openness.
- Unified smart platform enables TCO reduction.
- OSP (Open Service Platform), on-demand service deployment.
- VRP – a unified, mature and stable operating system.

AR150/200 Routers

Entry-level models of AR G3 routers. They provide around 300-450 thousand package/sec data transfer performance. They include built-in 8*10/100 LAN ports, as well as POE, Voice and 3G.

Main characteristics

AR150	AR200	
		(only differences)
WAN speed with IMIX services	100 Mbit/sec	150 Mbit/sec
Fixed WAN ports	2 x FE/1 x ADSL2+ A/M application, 1 x FE/1 x G.SHDSL8-wire, 1 x FE	2 x FE/1 x ADSL2+ A/M application, 1 x FE
Fixed Ethernet ports	4 x FE (with and without POE support)	8 x FE (with and without POE support)
Fixed 3G voice ports	4 x FXS, 1 x FXO*	
3G	WCDMA HSPA+7**	
Auxiliary serial port/console port	1	
Memory size and flash memory	512 MB	

* in some models of AR150 series, the voice ports are unavailable
** only in AR151GHSPA+7 model

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AR1200 Series Routers

The functionality of AR1200 models is coded by the last letter of their title: V – voice functionality with built-in DSP modules and FXS and FXO ports; W – a model with built-in access point; VW – combines V and W functionality; F – updated 1220 router with Duald performance.

Main characteristics

	AR1200 / AR1200V	AR1200W	AR1200VW	AR1220F	AR1220E / AR1220EV	AR1220EVW
WAN speed with services (NAT+ACL+QoS)	200 Mbit/sec				400 Mbit/sec	
Commutation fabric	8 Gbit/sec					
SIC slots	2					
Built-in WAN interfaces	2GE			2 x GE Combo		
Built-in LAN interfaces	8FE			8FE	8GE	
DSP slots	0/1	0	0*	0	0	0
Built-in Wi-Fi AP	-	802.11 b/g/n		-		802.11 b/g/n
Memory	512 MB				1 GB	
Flash memory	256 MB					
USB 2.0	2					

All routers support hot line card swap and 3G USB modems.

* 32 calls are supported by default.

AR2200 Series Routers

AR2200 routers combine the functions of routing, switching, 3G, voice transmission and security services. AR2200 use a multi-core central processor unit and are built on a non-blocking switching architecture.

Main characteristics

	AR-2201-48FE/ AR-2202-48FE	AR2204	AR2220	AR2220E	AR2240
WAN speed with services (NAT+ACL+QoS)	200 Mbit/sec		400 Mbit/sec	800 Mbit/sec	600-1800 Mbit/sec
Commutation fabric	-	10 Gbit/sec	32 Gbit/sec	32 Gbit/sec	80 Gbit/sec
SIC slots	0	4	4	4	4
WSIC slots	0	0	2/4	2/4	2/4
XSIC slots	0	0	0/2	0/2	2/4
DSP slots	-	2	1	2	3
Memory	51 MB	1 GB	2 GB	2 GB	2 GB
Flash memory	512 MB	512 MB	16 MB	2/4 GB	16 MB
USB 2.0	1	2	2	2	2

Huawei AR3260 Router

AR3260 is a hi-end model. Two management modules that work in Active/Standby mode can be installed into it for additional fault tolerance. One of the modules is always active, and the other one is synchronized with it in real time mode. In case the first module goes offline, the second module will start operating in master mode after 30 milliseconds without service interruption.

Main characteristics

	AR3260
WAN speed with services (NAT+ACL+QoS)	600 Mbit/sec (SRU40), 1800 Mbit/sec (SRU80),) 4.5 Gbit/sec (SRU200), 5.5 Gbit/sec (SRU400
Commutation fabric	160 Gbit/sec
SIC slots	4
WSIC slots	2
XSIC slots	4
SRU interfaces	3GE (2 combo)/4*GE Combo+2*10GE
DSP slots	0/3
Memory	2 GB/8 GB
Flash memory	2 GB/4 GB
USB 2.0	2

AR530 Industrial Switching Routers

In terms of performance, the routers of this model are analogous to three-digit models AR150/200. AR530 routers are designed to be used on industrial facilities, electrical substations of power companies, working in video surveillance systems on remote objects, as well as for use in M2M solutions.

Licensing

When you purchase the equipment, you receive a basic license, which satisfies up to 90% of standard client use cases. The additional licenses are needed only in specific situations.
There are the following types of additional licenses:
- Value-Added Data,
- Value-Added Voice,
- Value-Added Security.

Main characteristics

Multi-service switches/ routers that support various types of connections (FE, GE. RS485, ZigBee, DI).
Dust and water resistant case, compliance to IP51 standard.
Fanless design and extended operational temperature range: from -40°C to +70°C.
Compliance to IEC61850-3/IEEE1613.
Designed for work in zones with strong electromagnetic intrusion.
Connection via optic fibers and 3G network, workload reservation and balancing are supported.
Support of ring topologies and SEP fast convergence technology.

Net Engine Core-Level Network Routers

Modular routers for large institutional and large corporate networks. Series: NE05E, 08E, 16E, 20E, 40E.

Huawei NE20E Unified Router

An all-round middle-range routing platform that can be used on access level and aggregation level in campus corporate networks. NE20E routers support continuous routing and extended variety of services with QoS function-ality: Layer 2 VPN, Layer 3 VPN, multi-address VPN; and complete support of IPv6 protocol.

Main characteristics

Compact chassis design and the capability of reliable work at a temperature from -40°C to 65°C and humidity up to 95%.

NP Huawei chipset supports a broad spectrum of network-ing services: NAT, IPsec and GRE, VS, IP/MPLS network design with IP Hard-Pipe support.

Support of 1:N virtualization and fault-tolerant to simplify network management and reduce its cost, channel service-ability checking technology.
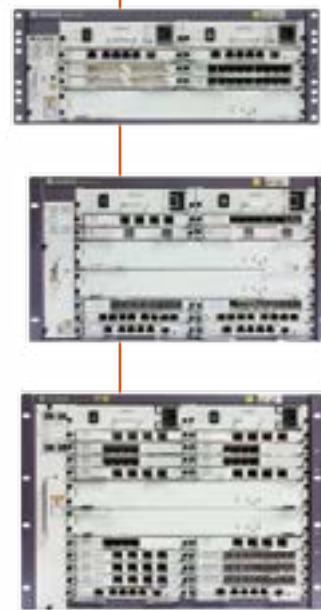
Huawei NE40E Universal Service Router

Flexible and high-performance routers designed for building Internet Data Centers (IDC), multi-level enterprise networks and use as edge switch routers between campus networks.

Main characteristics

High-capacity cards have 480 Gbit/sec performance and 1 Tbit/sec linear speed; virtualization and SDN.

The cards are designed to provide reliability and all-round service management support, including L2 and L3 VPN, multi-address VPN, MPLS TE, QoS, GRE, IPsec NetStream and complete virtualization.

IP Hard-Pipe technology allows to strictly link channels to services and users, and, at the same time, allows to provide guaranteed quality-of-service and more flexible available bandwidth management.

Switches

Huawei switches as available in two product lines with different functionality: switches for campus corporate networks (Sx700) and switches for data processing centers (CloudEngine).

Campus Network Switches

This product line includes switches that are designed for enterprise-level corporate networks. Their functionality can be used in campus networks at core, aggregation and access levels.

S1700/S1720 series includes access level switches without management and stacking capabilities. All operations are performed via web interface. All devices in other series are managed switches.

S2700/S2750 are switches with 100 Mbit/sec access ports. S2700 series includes Layer 2 switches (OSI model).

S3700 series includes Layer 3 switches with routing functionality.

S5700/S5710/S5720 are the most popular switch series. These are fully-functional gigabit switches, which can be both Layer 2 switches and Layer 3 switche (OSI model)s. In terms of functionality, there are the four product subgroups (LI, SI, EI and HI):
▪ LI – Layer 2 switches;
▪ SI – static routing and Routing Information Protocol;
▪ EI – fully-functional Layer 3 switches with dynamic routing;
▪ HI – Layer 3 switches that support MPLS and OAM/BFD on hardware level.

S6700 – Layer 3 switches with 10 GE ports.

S7700 – high-performance modular Layer 3 switches. They are designed to be used as aggregation level or core level switches, and they allow to build fault-tolerant network configurations. Their switching capacity is up to 2 Tbit/sec.

S9700 – terabit modular core network switches, which provide high-capacity and high-density 10 GE and 40 GE interface boards. Their switching capacity is up to 3.84 Tbit/sec.

S12700 – the so-called Agile switch — is a switch for software-defined networks (SDN). These switches can work both in traditional networks with Layer 2 and Layer 3 switching, as well as in next generation networks, i.e. software-defined networks. Their switching capacity is from 12 to 37 Tbit/sec, and each slot has 640 Gbit/sec bandwidth, which provides completely non-blocking switching.

Switches for Data Processing Centers (CloudEngine)

Huawei company manufactures four series of switches for data processing centers CE 5800, CE 6800, CE 7800 and CE 12800.

CE 5800 series — Top-of-Rack switches with 1GE access ports. 10GE or 40GE external ports.

CE 6800 series — Top-of-Rack access or aggregation level switches with 10GE ports. 40GE external ports.

CE 7800 series — Top-of-Rack aggregation level switches with 40GE ports.
CE5800/6800/7850 series switches support SVF (Super Virtual Fabric) virtualization technologies, stacking up to 16 devices using the iStack technology, have local switching and FCoE support. They allow to build convergent infrastructure by unifying LAN and SAN networks due to support of 2/4/8 Gbit/sec and Ethernet 1/10/40 Gbit/sec FC ports. These switches support VxLAN and TRILL technologies, which helps to carry out data center application tasks and consolidate data centers.

CE12800/CE12800 series includes modular switches for data center cores. These series include four models with 4, 8, 12 and 16 interface boards. It is possible to use high-density and ultra-high-density interface boards. The devices have 64 Tbit/sec switching capacity for each chassis, wherein one switch supports 192 100 GE ports, 384 40 GE ports or 1536 10 GE ports.
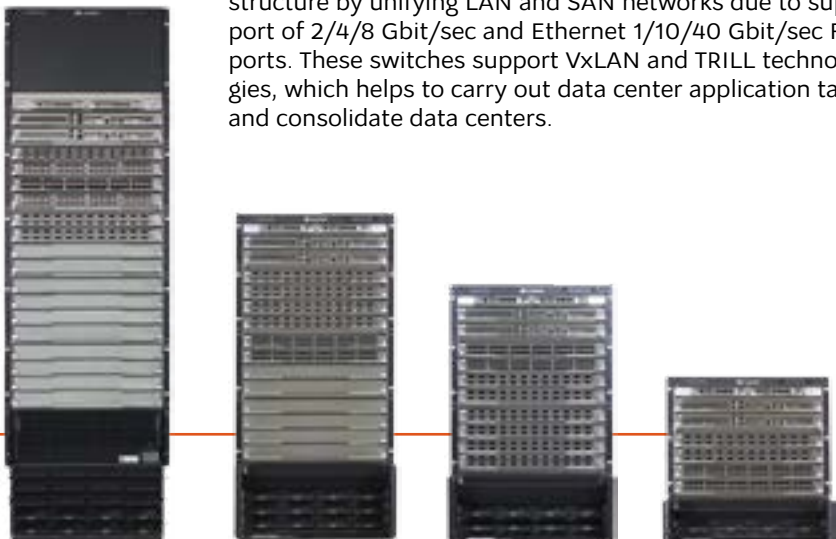
Wireless Networking Solutions

Huawei solution portfolio for building wireless networks includes: indoor access points of various modifications, which work either in one frequency range − 2.4 GHz, or in two − 2.4 GHz and 5 GHz; outdoor access points, to which the antennae can be connected. Another separate product family includes various modifications of controllers: both in the form of standalone devices and interface boards that can be installed into modular switches.

Built-in spectrum analyzer. The access point determines vacant or least loaded channels independently or via a controller. After this, it dynamically selects the operating channel. The access points support roaming – the clients are not lost when they move from one access point to another one, or from one channel to another.

Radiation pattern generation functionality, package output power control, and prioritizing between 2.4 and 5 GHz.

The capabilities of hostile access point and interference source detection.

Huawei offers a special software solution for BYOD, which helps to identify the terminal type, perform user authentication and assign him to a particular group. For example, when the user is at home, he or she can use only corporate e-mail with his login and password, and in the office he or she can also access CRM and other systems with the same credentials; it is possible to create guest groups, temporary passwords, etc.

Unified NMS. Huawei offers eSight modular system for wireless network management. An additional WLAN management plug-in, which allows to display access points on maps, determine their coverage zones and show the sources of interference, as well as hostile access points, can be installed into this system.

802.11n Access Points

This is the third generation of Huawei company WLAN products. 802.11n Huawei access points provide the capability of multi-service data transfer for implementation of high-density deployment scenarios in various conditions – for example, in classes, offices, hotels, and other premises. Huawei 802.11n access points can be divided to controller-managed points (Fit AP) and independent points (Fat AP).

802.11ac Series Access Points

802.11ac series access points use a dual band architecture, which supports 2.4 GHz and 5 GHz frequency bands. Due to the reason that they have reverse compatibility with 802.11a/b/g/n standards, 802.11ac access points can use existing networks for easy migration to 11ac connectivity. In comparison with traditional 802.11n access points, the next-generation access points not only provide improved performance in 2.4 GHz bandwidth, but also show very high performance in 5 GHz bandwidth.

Wireless Access Controllers

Third-generation Huawei wireless access controllers provide all-round support of WLAN networks, and, thanks to Fit AP + AC architecture, allow to considerably simplify the wireless network configuration, maintenance and management. Huawei proposes three types of controllers that are designed for various markets:

- ACU2: wireless access controller module for large enterprises;
- AC6605: standalone wireless access controller module for medium-size and large enterprises;
- AC6005: standalone wireless access controller module for small and medium enterprises.

ACU2 – controller for large enterprises

Supports up to 2048 access points and up to 32000 terminals.
Bandwidth – up to 40 Gbit/sec.
Is used for S7700, S9700 and S12700 Huawei switch series
A maximum of 11 ACU2 controllers can be installed into the modular switch.

AC6605 — controller for medium and large enterprises

Supports up to 1024 access points and up to 10000 terminals.
Has 24 GE ports + 2 10GE ports (providing PoE+power supply for all 24 ports), switching capacity – 10 Gbit/sec, consolidates a controller and an access switch, supports wired and wireless access.
Can be installed in a telecommunication cabinet or as a standalone device.
A switch with an ENP networking processor (S5720HI, S7700, S9700, S12700) can be also used as a wireless controller. This functionality is called Native AC and it does not require installation of an additional component – a hardware wireless controller.

Huawei 802.11ac access points	AP5030DN/AP5130DN	AP7030DE
Supported specifications	2.4 GHz: 802.11b/g/n	5 GHz: 802.11a/n/ac
MIMO: number of spatial streams	3x3:3	
Bandwidth	450 Mbit/sec (2,4 GHz) + 1,3 Gbit/sec (5 GHz)	600 Mbit/sec (2,4 GHz) + 1,3 Gbit/sec (5 GHz)
Number of SSID that are supported by each radio interface	16	
Uplink ports	2 x 10/100/ 1000 BASE-T Ethernet	
Power supply	12V direct current PoE: 802.3af/at	12V direct current PoE: 802.3at
5030DN antenna: built-in dual band antennae	5130DN: external dual band antennae	12 embedded dual band smart antennae
Maximum transmission power	2,4 GHz: 20 dB/mW each radio interface	20 dB/mW for each radio interface
IP protection level	IP41	

The Shuangliu Airport Develops a Communication Network Oriented for the Future

Situation

The Shuangliu International Airport in the city of Chengdu is the fourth busiest airport in China handling more than 29 million passengers per year. When the new T2 terminal under construction, the designers placed a set of requirements to the communication network infrastructure: it had to be open, easily managed and reliable, capable to handle growing workloads within the period of at least 5 years from the date of construction, compatible with other networks and systems on the basis of open protocols.

Solution

After performing a meticulous study of the client requirements, Huawei proposed a project that provides a scalable communication network architecture on the basis of S9312 LAN switches with a 256 Gbit/sec bandwidth. The use of open standards in Huawei solutions has provided seamless integration of the Terminal 2 new communication network infrastructure with the already existing networking infrastructure of the Terminal 1. eSight software allows to manage both networks from one point.
The communication network solution using flexible IT architecture and unified management system is tailored to the client requirements, its functioning is previewed for the period not less than 5 years, it enables end-to-end communication with the existing communication networks as well as seamless management and technical support.

Result

The networking solution built by Huawei uses flexible IT architecture and unified management system. It is tailored to meet the client requirements, its capacities are more than sufficient for the period of the next 5 years. It enables end-to-end communications with the existing communication networks and simplifies infrastructure management and technical support. After the network solution implementation in Terminal T2, the Shuangliu Airport has become one of the best airports in China in the field of network technologies.

Huawei Becomes the Network Service Provider for Sochi 2014

The organizers of the 2014 Winter Olympic Games in Sochi needed a comprehensive multi-service information network with great reliability and high technical figures. Another requirement of the client was the system compatibility with devices of such companies, as Cisco, Juniper.
Huawei implemented a networking solution that included 8 sets of CX600 routers functioning as the core level network connecting all the campuses and branch networks in Sochi, with a bandwidth capacity of 200 Gbit/sec per each slot. 65 sets of S9300 switches have been deployed as core level and aggregation level switches that connect campuses and affiliates to the main network and enable high reliability of the basic network. More than 400 S57/37/27 switches have been deployed in the campuses and affiliates — it was an efficient and affordable GE/FE network (PoE and non-PoE) solution. This universal integrated network solution has become a reliable platform for the information network in Sochi. Reliable equipment with high performance enables uninterrupted service provisioning in any situation.

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Integrated Huawei Communications Enable Saudi Aramco Transformation

Situation

Saudi Aramco Oil Company is the world's largest oil company having branches in 149 countries, with a total of 56, 000 employees and 130,000 telephone users. Its already-in-place Time-Division-Multiplexing (TDM) communication network had a complex structure and was very expensive in maintenance.

In order to upgrade the existing communication network, a decision was taken to add the existing TDM network devices and services to IP/MPLS infrastructure. The project capacity of the new communication network included 126,000 unified communication users (70,000 IP phones, 6000 mobile terminals, 20,000 PC clients, 2,000 contact center agents and 30,000 analog phones).

Solution

Having performed a meticulous study of the client requirements, Huawei has proposed a solution for upgrading the communication network. The new architecture included a core level network and user access gateways. Networking services have been integrated into the network core based entirely on IP infrastructure. It has allowed to reduce the volume of transmitted traffic, simplify the system maintenance and enabled the development of new innovative applications. The former TDM system has been integrated with the new communication network and it does no longer require any additional operating costs.

Result

Saudi Aramco Oil Company employees use the new communication network and the Huawei eSpace UC unified communication solution for fully-functional communications from anywhere and with any devices. The communication capabilities have been considerably extended; they include instant messaging, voice calls, and video conferencing.

The new system enables unified network, user, service and billing management from a single network entry-point. As a result of the project, the networking infrastructure maintenance costs have been reduced by 30%.

In the following years Saudi Aramco Oil Company plans to extend the IP/MPLS Huawei communication network and to migrate 30,000 remaining analog phones to it.

Russian Railways Relies on Huawei in the Data Transmission Field

Russian Railways is the largest railway network in the world in terms of length; it has 85,000 kilometers of routes, 43,100 of which have electric power supply. The existing communication network systems and devices became obsolete and needed modernization.

Huawei company has supplied around 400 NE40E routers and 4000 access routers for the Russian Railways information network. Furthermore, Huawei has delivered eSight software for the communication network monitoring system.

The integrated management system for the Russian Railways communication network reduces the client's operating costs. The diversity of device combinations lowers the client's capital expenditures and increases the flexibility of new service deployment.

Solutions for Data Processing Centers

Huawei company has been developing and providing solutions for data processing centers since 2002, and by 2013 more than 400 data centers all over the world has been constructed and was running on the basis of Huawei equipment.

IDS2000 – Huawei Modular Data Centers

Wires and cables

The module is equipped with power distribution system and all necessary cables and wires. Plugs into different compartments are located on the top.

Uninterrupted power supply

Power supply can achieve up to 30 kWt per rack, and uninterrupted power supply units with required redundancy level provide not less than 15 minutes of work in case of external power supply shutdown.

Ceiling and doors

They provide hot aisle or cold aisle containment, the ceiling is opened automatically for fire suppression when the fire alarm is triggered.

Racks

Up to 42 standard 19-inch server racks are included into one module, each rack can sustain up to 1200 kilograms.

Management

NetEco management system helps to perform centralized management of the entire data center engineering infrastructure, optimize its work and prevent incidents.

Cooling

Isolated hot aisles or cold aisles are formed to provide efficient cooling, air circulation is provided by inter-row or room air conditioners.

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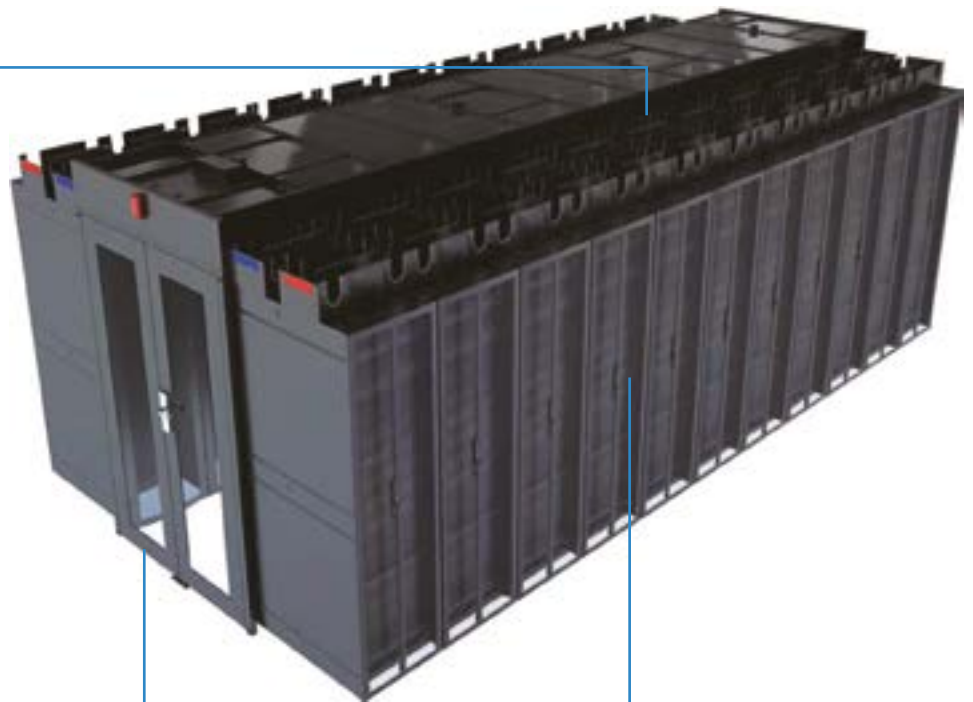
Monitoring and management	NetEco Datacenter Infrastructure Management – monitoring and management system		
Applications	**DESKTOP CLOUD E-GOV CLOUD**	**E-HEALTH CLOUD E-LEANING CLOUD**	
OS	**Virtualization Management**	**Automation Distribution**	
IT platform	**Servers**	**Data storage systems**	**Network**
Engineering infrastructure	**IDS 1000 (all-in-one container data centers) IDS 2000 (modules)**		

Modular solutions allow to deploy the necessary infrastructure in new data centers in the shortest timescale or create a data center even in unprepared premises, such as a warehouses. A ready-to-use modular architecture includes all components of fully-functional data processing centers: server racks, inter-row conditioners, modular uninterrupted power supply units, power distribution, fire suppression, structured cable systems and other systems. Depending on the client requirements, the modules can be prepared in advance in accordance with the TIER I – TIER IV requirements.

The modules are manufactured with one row and two rows, they have complete insulation or insulation of hot or cold aisles. There are many variations of configurations with various number of cabinets and maximum power. The minimum ceiling height for assembly is 2.6 meters. Maximum workload is up to 21 kWt per cabinet, it is possible to flexibly increase the computing capacity.

Dual-row

Single-row
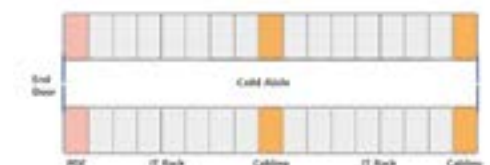
Huawei IDS1000 Container Data Centers

Clients use this solution in cases, when there are no premises available for equipment installation, data center construction is impossible or too expensive, or if it is necessary to deploy the data center in the shortest timescale.

IDS1000-A

An all-in-one container data center – it is a standard shipping container with hardware racks, uninterrupted power supply units, conditioners and cable systems installed in it. In order to start using it, you need just to transport it to your site and connect it. A large 40-feet container can include from 8 to 10 cabinets, and a small 20-feet container can have 4-5 cabinets. It is also possible to develop customized, non-standard solutions.

For small data centers

An autonomous solution: uninterrupted power supply units, conditioners and server racks are assembled in one container.

IDS1000-AS
20-feet container

IDS1000-AM
40-feet container

8 racks
360U
48 kWt

4 racks
180U
24 kWt

IDS1000-C

For data centers with higher capacity, Huawei offers cluster container solutions. Separate containers are used for computing equipment and for uninterrupted power supply units, chiller room is also installed separately. Huawei can assemble an infrastructural solution that meets the unique requirements of any client from a necessary number of containers.

For medium and large data centers

A cluster-based solution: it is possible to flexibly combine computing, cooling and power supply containers.

18 racks in an IT container
45U per rack
3-15 kWt power supply per rack
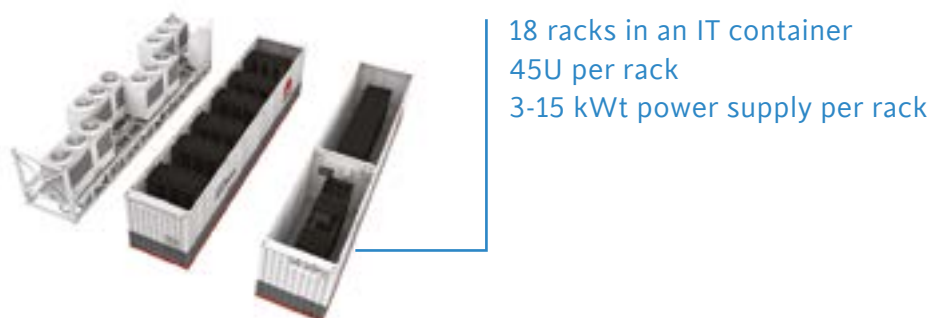
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Basic Products

Uninterrupted Power Supply Units

Huawei power supply units provide high efficiency in a broad range of workloads, their efficiency reaches 96% under 40% workload and 95% under 20% workload. Huawei uninterrupted power supply units were one of the first to receive Energy Star certificate.

**UPS2000-G
(1-20 kVA)**

**UPS5000-E
(40-420 kVA)**

**UPS5000-A
(30-800 kVA)**

Precision Conditioners

Huawei Netcool air conditioners provide efficient cooling, high power efficiency and reliability, and they can easily adapt to various conditions. Their technical support and maintenance is very simple, and they can be consolidated into a single network for monitoring and management.

**In-row
air conditioners (25-35 kWatt)**

**Standalone
air conditioners (50-150 kWatt)**

**NetCool
5000-C**

**NetCool
5000-A**

**NetCool
8000-A**

**NetCool
8000-A**

Container Data Center for Venezuela CANTV

Venezuela CANTV is the largest and one of the first telephone companies in Venezuela with 15 million mobile and stationary phone subscribers and 1 million internet users. It needed to create a reserve RDTS (remote disaster tolerant system) site in the shortest possible timescale with minimum budget in conditions of unstable power supply. Construction of conventional data center failed to meet this set of requirements.
The container-based solution proposed by Huawei has allowed to build a new data processing center from the scratch in 6 months, which is by 5 months faster than even the most optimistic assessments of conventional data processing center construction terms. The client has received a comprehensive disaster-resilient solution with high economic efficiency. It is planned that it will reduce OPEX by 40% in the next 5 years.

Spartak Stadium, Moscow

A comprehensive solution that has been developed by Huawei for the Spartak Stadi-um(Otkritie Arena) provides the operation of high-density Wi-Fi network, telephony systems, access control and monitoring, video surveillance, as well as implementation of Digital Signage and personalized supporter experience management.
The campus network of the Spartak Stadium comprises almost 8 thousand ports and is built on the basis of Huawei equipment. Servers, data storage systems and uninterrupted power supply units are installed in two data processing centers, and a turngate manage-ment system was created.

Life Belarus Telecom Carrier Chooses Modular Data Center Architecture

The client needed a flexible solution that can adapt to the growing business require-ments – a modular structure that allows to host racks with various power load (4, 6, 8, 10 kWatt) with power usage effectiveness (PUE) not higher than 1.8. Huawei proposed a solution with a flexible modular structure with in-row conditioners, Cold Aisle Containment (CAC) system (cold water-based cooling system with free cooling functionality. The solution is flexible and can be easily adjusted to growing business requirements, it has 1.57 PUE and low OPEX.

London Tube

On all underground facilities, the most challenging requirements are placed on the unin-terrupted power supply sources. The former system had been used for more than 8 years, and state-of-the-art technologies allow to create a power supply system with monitoring and centralized management tools, which is considerably more efficient in terms of opera-tional expenditures.
The project implemented by Huawei has allowed to provide number facilities, both minor and major, with uninterrupted power supply. They are consolidated in a unified manage-ment network and maintained by one operator. The new uninterrupted power supply equipment occupies by 2 times less place than the previous one, and all power consum-ers, including signalization, emergency alert and automated systems, are connected to it.
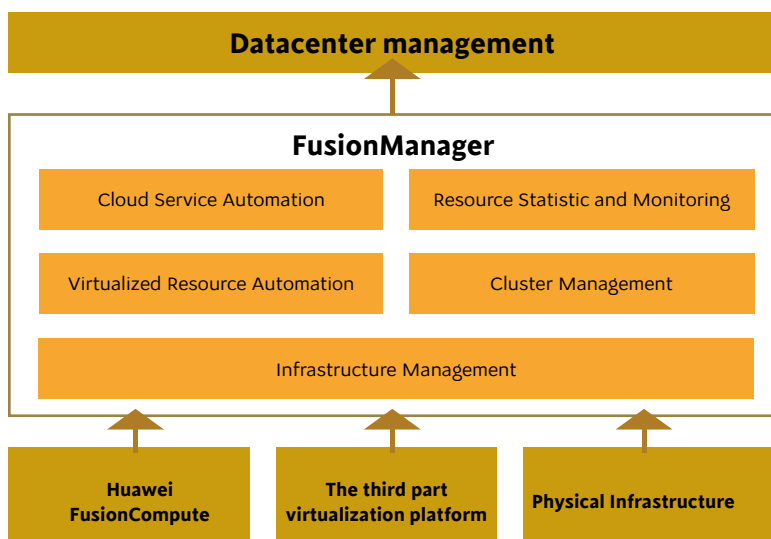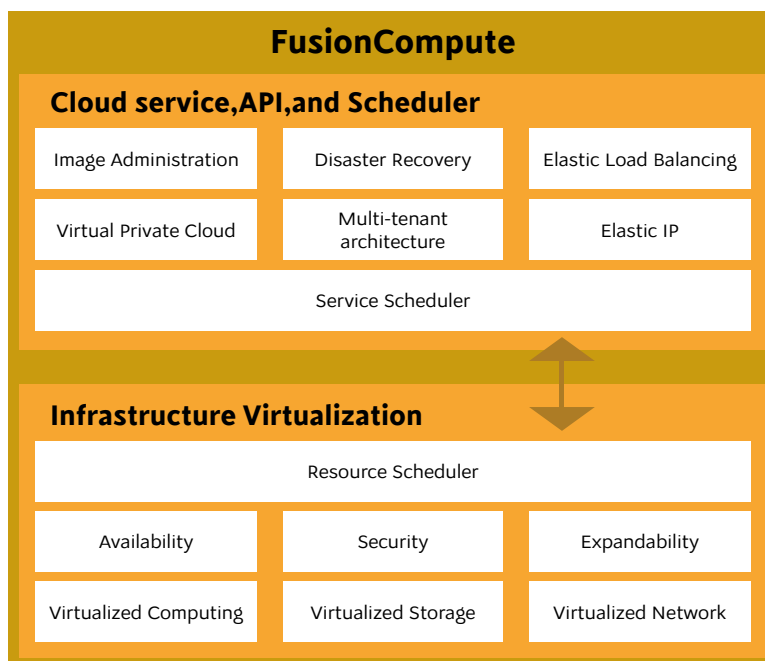
Huawei FusionSphere:
Cloud Platform with Advanced Functionality

The Huawei FusionSphere software helps enterprises and carriers integrate physical and virtual resources in data centers, optimize service platforms, construct public and private clouds, improve IT infrastructure value, and provide better customer services.

FusionCompute, FusionCompute, the virtualization engine:

FusionCompute virtualizes servers, storage, and network resources and integrates them as an elastic IT resource pool. FusionCompute hides the differences between the underlying hardware from services and implements automatic virtual resource scheduling and management. FusionCompute supports VxLAN networking and storage QoS control and also provides a variety of cloud infrastructure services and open O&M APIs, thereby improving IT resource utilization efficiency, and accelerating service provisioning.

FusionCompute

Cloud service,API,and Scheduler

Image Administration	Disaster Recovery	Elastic Load Balancing
Virtual Private Cloud	Multi-tenant architecture	Elastic IP
Service Scheduler		

Infrastructure Virtualization

Resource Scheduler		
Availability	Security	Expandability
Virtualized Computing	Virtualized Storage	Virtualized Network

Datacenter management

FusionManager

Cloud Service Automation	Resource Statistic and Monitoring
Virtualized Resource Automation	Cluster Management
Infrastructure Management	

Huawei FusionCompute	The third part virtualization platform	Physical Infrastructure

FusionManager, the cloud management node:

FusionManager enables customers to manage virtualized resources in a unified way with functions such as service catalogs, automatic resource provisioning, and automatic service deployment. FusionManager can manage third-party virtualization platforms such as vSphere and XenServer, allows customers to schedule and manage virtualized resources using one interface, improving O&M efficiency. FusionManager also ensures system security and reliability, helping carriers and enterprises implement secure, and low-power cloud data centers.

Performance Specifications

Maximum number of hosts supported by a Virtualization Resource Management (VRM) node	256
Maximum number of sites in a VRM domain	16
Maximum number of host clusters supported by a VRM node	32
Maximum number of hosts supported by a host cluster	128 (for LUN storages) 32 (for Storage Virtualization)
Maximum number of VMs in one host cluster	3000
Maximum number of administrators by the system	300
Maximum number of physical servers supported by the system	4096
Maximum number of VMs supported by the system	80000
One physical server	
Maximum number of CPU logical cores	160
Maximum RAM volume	2 TB
Maximum number of VMs	512
VM (Virtual Machine) capacity	
Maximum number of VMs supported by a VRM node	5000
Maximum number of VMs supported by a host	512
Storage capacity	
Maximum number of volumes supported by a VRM node	20000
Maximum number of disks supported by distributed storage	2000
VM snapshot capacity	
Maximum number of snapshots supported by the system	48000
VM(Virtual Machine) specifications	
Maximum number of vCPUs supported by a VM	64
Maximum number of virtual network interface cards (NICs) supported by a VM	12
Maximum number of disks supported by a VM	11
MMaximum memory volume supported by a VM	1 TB
MMaximum disk capacity supported by a VM	64 TB

FusionSphere Licensing

Huawei charges for FusionSphere services only by the number of CPUs on existing servers, counting no other in-use physical resources. Customers can try FusionSphere services in advance by taking advantage of the Huawei FusionSphere Foundation license for a 90-day free trial period. You can download it from Huawei Enterprise website – enterprise.huawei.com. Within this period, customers can purchase a license to activate the product into the full commercial version. FusionSphere provides three types of commercial licenses: FusionSphere Standard, Advanced and Platinum. These licenses differ in the available functionality and prices.

Note: a Virtualization Resource Management (VRM) node in the Huawei FusionSphere platform manages resources in host clusters and logical clusters

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Sinotrans: Cloud Computing Improves IT Value for Business

With headquarters in Guangzhou, Sinotrans is the largest provider of integrated logistics services in China. The company used the Huawei FusionCloud DataCenter Virtualization Solution to migrate more than 40 production service systems and 200 physical servers to the Huawei virtualization platform. These resources included services that Sinotrans already had running on the VMware virtualization platform. All of Sinotrans' resources can now be scheduled and managed in a unified way.

Huawei FusionSphere includes a disaster recovery scheme that has two active-active recovery centers and one backup center, significantly improving the reliability of data and applications. FusionSphere has helped Sinotrans improve its resource utilization efficiency from 20% to 70%. Additionally, FusionSphere dramatically reduced service rollout time from several months to three weeks or even less.

Fujian Administration for Industry and Commerce: Huawei Cloud Computing and Government Affairs Virtualization

The Administration for Industry and Commerce of Fujian is the provincial agency responsible for market supervision and management. The administration has 511 branch offices throughout the province. Huawei helped the administration build a cloud data center that includes two local disaster recovery centers in Fuzhou city and an inter-city backup center in Sanming city.

Based on FusionSphere, Huawei deployed virtual desktops and separated the administration's external and internal networks on the service platform. With resource virtualization and unified resource scheduling, the solution greatly improves the administration's efficiency. Compared with the budget for service platform construction without virtualization, this project reduces by 30% of the construction cost for the Fujian Administration for Industry and Commerce.
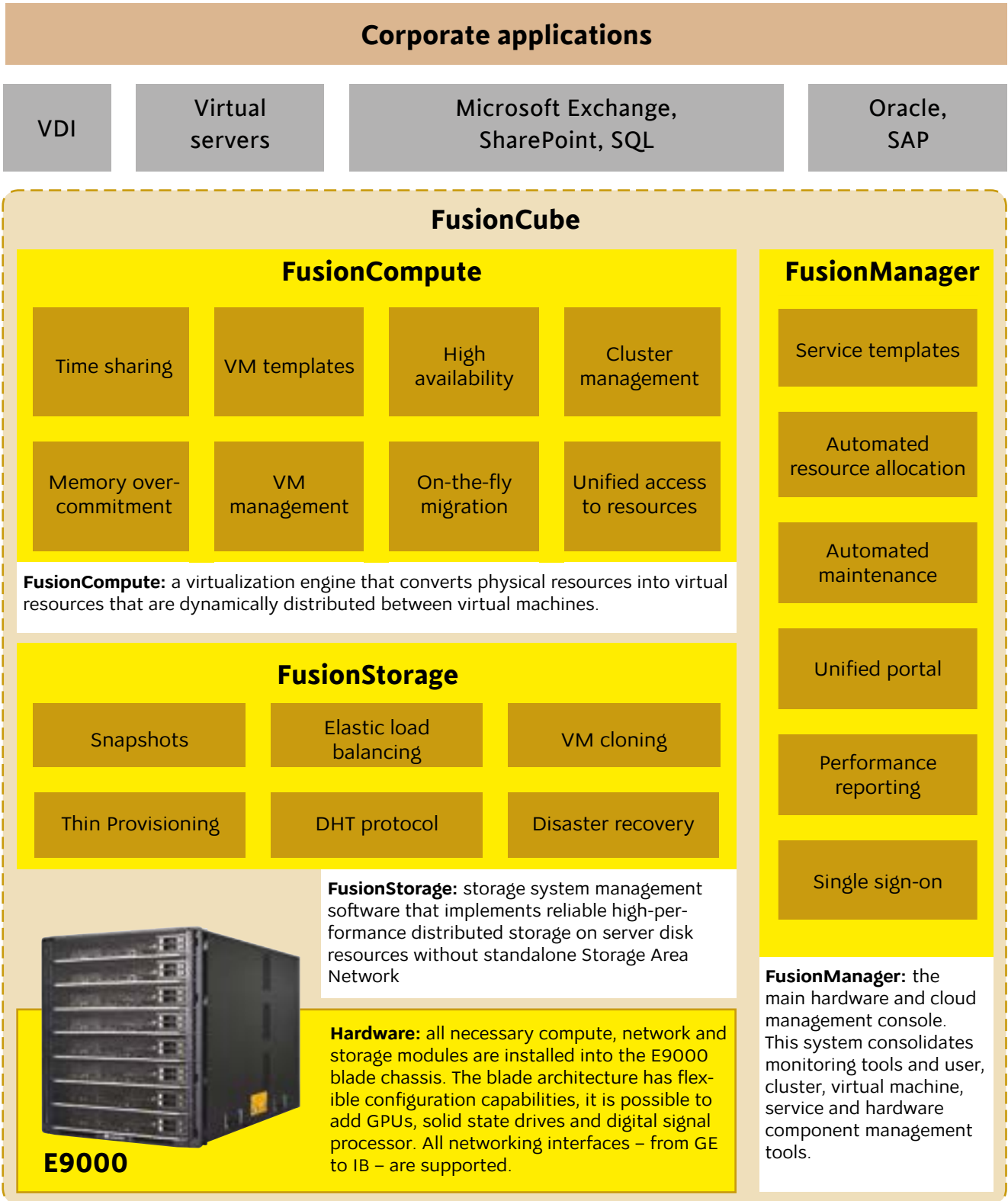
Sichuan Telecom: Huawei Helps Carrier to Transform to ICT Service Provider

Telecommunication services have gone global with cloud computing, intelligent pipes, and mobile Internet, requiring more telecom companies to focus on information and communication technology (ICT) services for enterprises. In 2011, Sichuan Telecom launched the Cloud Sea project to develop its ICT services. This project uses Huawei FusionSphere, which integrates all existing infrastructure as one cloud computing resource pool, thereby enabling Sichuan Telecom to provide cloud desktops to internal employees, integrate the service platform, and provide Virtual Private Server (VPS) services to external customers.

This project helped Sichuan Telecom increase its server utilization efficiency from 15% to 85%, and shorten service rollout time by 80%. All resources can be shared and managed in a unified way, while reducing power consumption significantly.

Huawei FusionCube
Converged Infrastructure

Corporate applications			
VDI	Virtual servers	Microsoft Exchange, SharePoint, SQL	Oracle, SAP

FusionCube

FusionCompute

Time sharing	VM templates	High availability	Cluster management
Memory over-commitment	VM management	On-the-fly migration	Unified access to resources

FusionCompute: a virtualization engine that converts physical resources into virtual resources that are dynamically distributed between virtual machines.

FusionStorage

Snapshots	Elastic load balancing	VM cloning
Thin Provisioning	DHT protocol	Disaster recovery

FusionStorage: storage system management software that implements reliable high-performance distributed storage on server disk resources without standalone Storage Area Network

E9000

Hardware: all necessary compute, network and storage modules are installed into the E9000 blade chassis. The blade architecture has flexible configuration capabilities, it is possible to add GPUs, solid state drives and digital signal processor. All networking interfaces – from GE to IB – are supported.

FusionManager

Service templates
Automated resource allocation
Automated maintenance
Unified portal
Performance reporting
Single sign-on

FusionManager: the main hardware and cloud management console. This system consolidates monitoring tools and user, cluster, virtual machine, service and hardware component management tools.

HUAWEI

Huawei FusionCube is a genuinely convergent solution that consolidated servers, data storage systems and networking infrastructure with software virtualization platform and cloud infrastructure management tools.

In order to install FusionCube, you need only to connect a few cables and turn on the power supply. Physical and virtual resources, servers and network switches, virtual machines, data storages and even your applications – all of the above can be easily managed from a unified console.

The equipment can be combined in any configuration, which allows to adapt the system to any type of workload.

FusionCube Utilization Scenarios

Convergent virtualized infrastructure. The Huawei FusionCube system has all necessary hardware and software components for this scenario.

Desktop infrastructure in the cloud. VDI software is run on FusionCube. It implements the workplace provisioning service.

Business application operation. Such applications, as Microsoft Exchange and SharePoint, can be deployed to provide reliable services to corporate clients.

Database management and big data. Database management systems that run on FusionCube platform show ultra-high performance. The system is certified for use with SAP HANA big data processing platform.

Accelerated Storage Engine

The cluster scale-out storage engine provides storage virtualization of three-tier (Memory-SSD-DAS) storage and eliminates the vulnerable RAID controller while providing high availability and scalability.

The data is striped and stored across all (hundreds or thousands of) disks in FusionCube, increasing both the utilization of the disks' storage and I/O performance for different applications. The storage engine delivers 3X-5X higher peak time IOPS to applications with same number of disks, improving performance by from 100% to 300%. Utilizing advanced features such as thin provisioning do not reduce overall system performance. On-demand scale-out cluster architecture enables you to handle new virtualization requrement without re-planning or re-designing your solution architecture.

FusionCube is a certified solution for

SAP HANA

Operational expenses can be reduced by

30% thanks to unified management, automation and one-click deployment.

The synergetic effect is achieved thanks to dense integration of software and hardware.

Input/output operation performance becomes by

3-5 times higher.

Networking infrastructure performance is increased by

3 times.

Videoconferencing Solutions

Management

Management server SMC

Remote control by tablet

Switching

Switching server SC

Recording and broadcasting server RSE

Access

TEX0 terminals

Telepresence

People often wander what is the fundamental difference between videoconferencing systems and software solutions, such as Skype, and why the former ones are better. Indeed, Skype allows to make videocalls. But videoconferencing systems are vastly superior to cloud solution in such categories, as reliability, guarantee of successful communication, confidentiality, and image and sound quality.

Huawei company manufactures all categories of equipment for building all-inclusive videoconferencing infrastructure without using any third-party vendor solutions. Furthermore, Huawei has the most novel product family on the market (currently available equipment was released in 2013 and later on), which is built on state-of-the-art codecs and protocols and takes into account the current market requirements. They include deployment and operation simplicity, high integration capabilities, excellent sound and image quality even in unprepared premises. Videoconferencing systems are widely used mostly in large geographically distributed governmental organizations and country-scale companies. Videoconferences are legally valid means of communication and can be used in legal proceedings.

HUAWEI
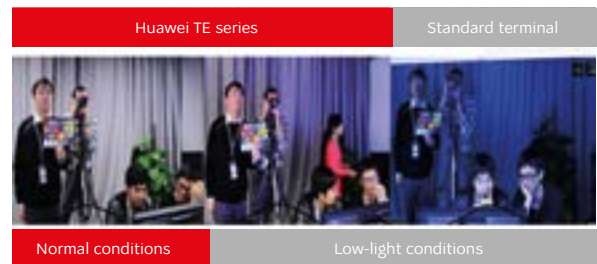
Although Huawei equipment can be used to build a videoconferencing system of any scale from the scratch and launch it all its components at once, it is also possible to extend the capabilities in step-by-step mode.

1. Any terminal such as TE30 and above allows to conduct videoconferences with up to 4 participants. 2-4 terminals are sufficient for fully-functional videoconferencing! TE40 and TE50 allow to engage up to 6 participants, and TE60 – up to 9.

2. For conferences with more than 8 participants it is necessary to add the MCU Videoconferencing server. Its capacities can also be augmented in step-by-step mode.

3. If you need communications beyond the scope of your company via public domain networks or connection of software clients via Internet, you can add a Switch Center server (SC) and a management server (SMC).

MCU

Videoconferencing server

Software clients

Technologies for High-quality Image

Reliability

The clients that want to conduct important top-level meetings with their videoconferencing system need uninterrupted operation guarantees. In order to provide additional protection against failures of particular components it is possible to duplicate the system on all levels.

Adaptive color rendering

The majority of videoconferencing sessions takes place in unprepared premises without any special lighting. Smart noise attenuation, 3D auto color matching (3D-ACM) and other VME (video motion enhancement) technologies allow to produce an image with the highest quality even in such conditions.

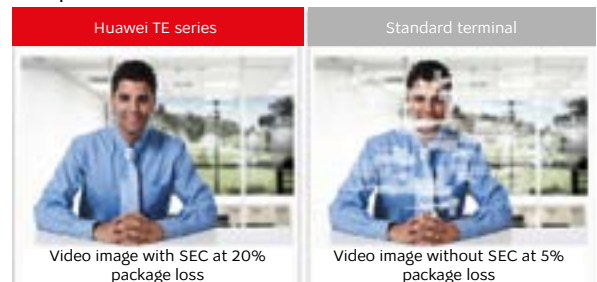| Huawei TE series	Standard terminal
Normal conditions	Low-light conditions

HD at minimal bandwidth: Huawei VME

The next generation of Huawei VME proprietary technologies and + H.264 employ all the latest codecs and optimize the resolution in the activity area and area of interest. The terminal recognizes human faces and movement areas and improves image only on these sections. This allows to decrease the traffic and the required bandwidth by 50%.

Activity area
Facial selection area
Static area
HD optimization

Video image without VME   Video image with VME

Error correction – guarantee of communication quality

Super Error Concealment (SEC) technology + H. 264 SVC guarantees the quality of audio and video even when working via networks with unguaranteed quality of service. Up to 20% package loss can be compensated.

Huawei TE series	Standard terminal
Video image with SEC at 20% package loss	Video image without SEC at 5% package loss

Access Equipment: Terminals

Huawei TE30

Small and medium rooms

3-in-one
1080p 60 fps
both directions

Video interfaces:
2 in | 2 out

Huawei TE40

Small and medium rooms

1080p 60 fps
both directions
Two images

Video interfaces:
3 in | 3 out

Huawei TE50

Large rooms

1080p 60 fps
both directions
Two images

Video interfaces:
5 in | 5 out

Huawei TE60

Large halls

1080p 60 fps
both directions
Three images

Video interfaces:
8 in | 6 out

HUAWEI TE30: Terminal in a Camera Case

This is the most widely used Huawei HD terminal, it has all-in-one form factor and combines camera, microphones and logical schemes with video codec in one device. Huawei TE30 has a bracket for simple assembly on the wall or on the TV set. It can be connected by Wi-Fi to microphones, networks and other terminals.

The solution is delivered in two models: 720p with up to 384 kbit/sec
and 1080p with up to 512 kbit/sec.

The terminal can work as a conferencing server with 4 or less participants and up to 720p resolution.

HUAWEI TE40/50/60: Advanced Functionality

These terminals surpass TE30 in terms of performance and number of video interfaces. They have all functions of TE30, as well as a number of new features and capabilities.

Video transmission	1080p 60 fps both directions.
Sound processing	AAC-LD compression is supported, Acoustic Echo Cancellation (AEC) and Acoustic Noise Suppression (ANS) filters allow to receive Hi-Fi quality sound.
Several cameras	The terminal can transmit images from two (TE 40 and TE 50) or three cameras in one video stream that are composed in accordance with client's preferences.

HUAWEI

TP3206: Panoramic Telepresence

This is the first comprehensive panoramic telepresence solution in the world. From the architectural point of view, this is a powerful terminal (TE80 model, which is not supplied in standalone form) in package with a panoramic screen, which is composed of three 55" monitors with thin frames, three data monitors, unique triple camera, microphones and a remote control in the form of tablet with 10-inch screen. This specialized videoconferencing terminal was developed in the form of comprehensive engineering solution not long ago, and, therefore, this specialized videoconferencing terminal uses the newest equipment, state-of-the-art codecs and current protocols. In the new terminal, three cameras are directed into the mirror of a special shape, which optically combines three images into one with high precision – it is not necessary to configure and adjust the position of each of them.

- The first panoramic telepresence solution in the world: 5.5 mm gap;
- Adjustment to communication channels:
- 1.3 Mbit/sec - 720p;
- 3 Mbit/sec - 1080p;
- Up to 10% loss protection, with a maximum of 20%;
- 1,700 Watt power consumption;
- Area: 24 sq. m., up to 10 persons;
- Sensor-based management by 10" panel.

RoomPresence RP100 and RP200

This is a ready-to-use terminal solution, which includes one (RP100) or two (RP200) 46" or 55" monitors, cameras, microphones and racks for its assembly. End users do not need to know how and where to install the monitors and how to assemble the camera. Minimum time is required to assemble the solution, and the assembled system can be easily transported from room to room.

1080p 30 frames per second, 720p 60 frames per second
Two 720p videostreams with 30 frames per second
Hi-Fi sound
Controllable videocamera
Microphone panel with 360-degree sound capture

Software clients

Software clients provide full-fledged participation in videoconferences from computers, tablets, and smart phones on various platforms. Even tablets can be used to broadcast speaker's video and presentations in videoconferences. The only limitations are imposed by the inherent hardware problems – low-performance processor or low-resolution camera. The software terminals work only on SIP (hardware terminals can work both on SIP and on H.323).

Video and IP phones

Video phones, for example, eSpace 8900, can fully participate in videoconferencing sessions. Audio phones can also connect to conferences, of course, without video. In the Multipoint Control Unit (MCU), each HD client connection license provides the capability to additionally connect another audio participant.

Switching

Multi Connection Unit Conference Servers

The task of the connection unit is to receive video and audio streams from all conference participants, compose an image from them that is broadcasted into the conference and send the produced stream to registered participants, thereby creating a virtual conference room.

VP9630

Solution for medium-sized organizations.

All-in-one monoblock without scaling capabilities.

VP9650

It is possible to perform scaling by new module installation.

VP9660

Maximum scalability potential.

For country-wide organizations.

24 1080p, 96 SD ports

72 1080p, 288 SD ports

168 1080p, 672 SD ports

Switch Center Switching Server

The Switch Center switching server can register terminals and translate telephone numbers into IP addresses. It also allows to separate networks with various security levels, for instance, Internet and Intranet. It can either pass audio and video traffic through, or redirect it it to another network with up to 300 megabit per second performance.

Recording and Streaming Server: RSE6500

From the network environment point of view, the recording server operates as a terminal, which can receive and transfer sound and image, but has no screen and no camera. The server supports recording with up to 1080 p resolution and 60 frames per second for sessions in point-to-point and multi-point view, conference streaming and video on-demand service. The server integrates with third-party systems via streaming interfaces and API. It can store up to 4000 hours (at 512 Kilobit/sec) and can be extended by connection of data storage systems.

HUAWEI

Management

SMC: Management Server

SMC 2.0 is a standard management system, which includes conference planning, and statistic collection subsystems, as well as GK (gatekeeper) and SIP (Session Initiation Protocol) servers. The management server can manage the conferences, the terminals and the conferencing servers, and allows to collect statistics related to communication sessions.

Integrated Terminal and Conference Management Console

The management software is installed on a tablet with 10-inch (or larger) display and is connected to the equipment by Wi-Fi. The programme allows to manage terminals (enable, disable, give word to participants) and conferences (change the video resolution and the way how the image is composed).

Terminal management

Image format selection

Conference management

File list
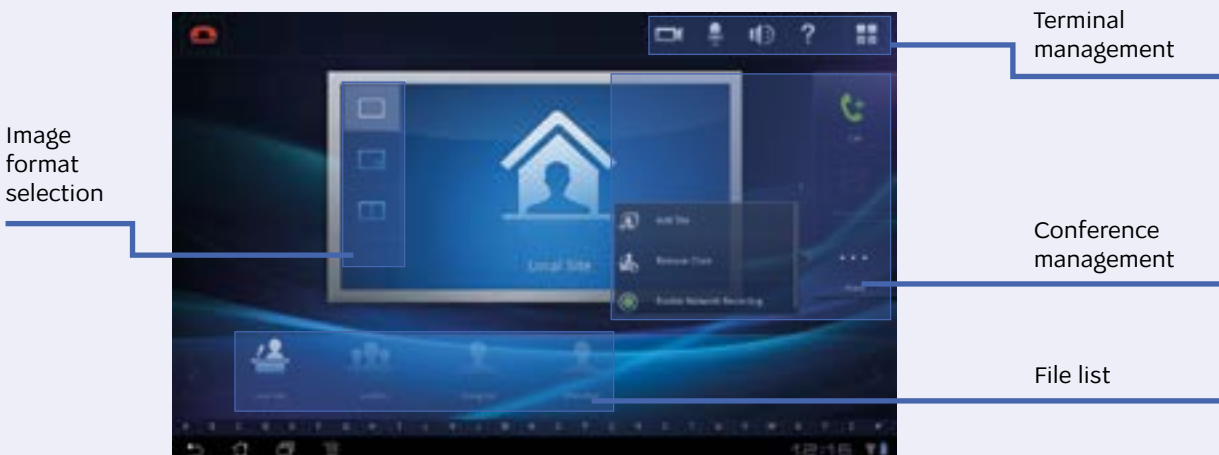
Videoconferencing System for Russian Railways

Russian Railways include 17 railroads which serve citizens in 10 time zones. The system had to provide the capability of administration in self-service mode in various geographical branches. At the same time, it should provide a centralized structure for interaction of all users with each other. It was necessary to increase the quality of service, system fault tolerance and reduce the operational expenditures.

The new videoconferencing system based on Huawei equipment with Full HD quality has provided the client with:
- a unified resource capacity and geographic redundancy between 17 branch offices;
- a unified service management platform, level-based user right distribution;
- network monitoring visualization.

The implementation of unified management subsystem has allowed to increase the management efficiency. All users have received equally high quality of service. Management and redundancy automation has allowed to increase the system fault tolerance and reduce the operational expenditures. High system availability is provided due to self-service tools.

IP Telephony and Unified Communications

Business services **IM** **Presence** **Contact book**

Switching

Telephone exchanges with various switching capacity serve as the core of the telephone network and unified communications. The client devices can include telephones, videophones and software clients for various platforms. The exchanges are connected to public switched telephone network and switch the outbound calls. The exchanges can also be cascaded in order to achieve necessary switching capacity.

Access

eSpace U1911
SIP users **100**

eSpace U1960
SIP users **1000**

eSpace IAD104H
phones **4**

IAD voice gateways

Huawei eSpace Integrated Access Devices (IAD) can be used to connect analog phones into the IP telephony network. The connected analog phones is recognized as an IP phone by the telephone exchange. It allows to continue using obsolete equipment without an analog telephone network.

IP phones

eSpace 7910

AAC-LD broadband audio codec. The audio coding algorithm with high compression level and low quality losses which provides sound quality that is comparable to CD.

Phones with touch screen. The corporate address book, unified communication functionality and settings are available from the screen.

Unified interface. User interface is similar for all phone and software client models.

Local conferences. It is possible to organize local conferences between phones without station participation.

Unified management from the eSight software. Phone, switch, gateway and other equipment management.

Compatibility. Compatible with equipment of other vendors (some functions might be unavailable).

eSpace 7910 and 7950 IP telephones

Two models are released – basic 7910 and executive-class 7950 IP telephone. eSpace 7950 is a new model with extended functionality, which is developed specially for working in unified communication environment.
- Color LCD screen (5-inch touch screen in 7950);
- 2 GE ports;
- AAC-LD broadband audio codec;
- Local conferences for up to 6 participants;
- Interface for Bluetooth handset connection.

eSpace 7903X Expansion Module

The 7903X expansion module is an attachable panel with screen and buttons, to which users can assign various functions, for instance, making calls to specific subscribers. Up to 3 such modules can be connected to eSpace 7950 phone.

HUAWEI

| Meetings | UC management | CDR statistics | BMU server |

eSpace U1981
SIP users **1000**

eSpace U1980
SIP users **1000**

eSpace IAD132E
phones **32**
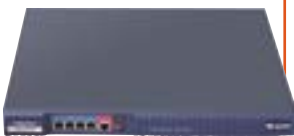
eSpace IAD196
phones **96**

eSpace IAD1224
phones **224**

eSpace 7950
with 7903x expansion panel

eSpace 8950 video telephone
This device combines telephony and unified communications and can fully participate in video conferences. eSpace 8950 is equipped with HD camera, high-quality speakers, microphone and large touch screen.

Software clients
Software client allows to make phone calls, stream video and use the unified communication functionality (IM, presence, voice mail, etc.), as well as to organize multi-media conferences with screen demonstration, joint drawings, etc. Clients are available for Windows, tablets and smart phones.

Video Surveillance Solutions

Solutions

Applicable solutions that provide building, road and territorial security.

Safe city   **Traffic surveillance**

VCM platform

Video Content Management: analysis of big data related to video surveillance and retrieving practical insights from it.

Broad spectrum of video content intellectual analysis scenarios.

VCN platform

Bullet cameras

Bullet cameras   Dome cameras   PTZ cameras

Safe City Solution

Comprehensive incident management system

Prevention	Control	Management	Investigation
▪ Video surveillance ▪ Smart warnings	▪ Быстрое реагирование ▪ Командная диспетчеризация	▪ Интеллектуальное предупреждение ▪ Комплексная обработка	▪ Comprehensive handling ▪ Investigation efficiency
▪ 100% online patrol ▪ 360° - comprehensive coverage ▪ Smart incident prevention	▪ Interdepartamental cooperation ▪ Real-time situation analysis ▪ Prompt response	▪ Centralized management ▪ Transition from management to service ▪ Supervision improvement – popularization of self-regulation	▪ Smart investigation on the basis of video surveillance data ▪ Panoramic vision and incident modeling ▪ Precise results

HUAWEI

Campus security

Emergency management

Video Cloud Node: video surveillance camera image processing center and data storage platform

VCN500 / VCN500
up to 32 channels

VCN3000
up to 256 channels

Saint Petersburg Becomes a Safe City with Huawei Solutions

Before the project, Saint Petersburg had no centralized approach to video surveillance data management: the city had disparate local systems that had not been connected neither by a common storage, nor by a management system. Withing the framework of migration to unified video surveillance system with video analysis applications, it was necessary to organize a unified shared data storage.

Huawei Video Cloud Storage, which is now being implemented, will provide enough disk space for storing data from 12.000 cameras. In the first stage, they are going to install OceanStor 9000 storage system that can store up to 2 PB and expanded up to 15 PB. The 6*2: 1 encoding algorithm selected by the client has provided optimal combination of efficient disk space utilization and high reliability.

Unified resource pool offers enough disk space for storing data from municipal video surveillance systems and provides high resource utilization level, enabling implementation of video content analysis solutions. The solution scalability potential will help to smoothly reduce storage capacity in the future.

Extending the Videoconferencing System of the Pension Fund of the Russian Federation

Situation

The videoconferencing system solution that had been implemented in the mid-2000-ies enabled prompt management and information delivery from the Central Office of the Pension Fund of the Russian Federation to the directorates in the federal districts, and, finally, to 90 regional offices. The system ,which was technically cumbersome and inefficient, failed to comply with the current requirements to videoconferencing communication services from the administrative point of view.New tasks have emerged, in particular those of employees' training and citizens consulting. To solve the latest task in several regions, it was necessary to develop facilities that provide mobile network access.

Solution

One of the main benefits of Huawei videoconferencing systems is providing high quality video communications in channels with high percentage of losses. The company takes active participation in development of standards, which enables high-quality integration with the solutions of other manufacturers.
A decision was adopted to add a videoconferencing communications server and personal terminals enabling full HD quality to the existing system and to provide for their interaction with the currently used components.

Results

Several hundreds of Huawei codecs have been already deployed in the videoconferencing communication network of the Pension Fund of Russia. The basic product is VP90xx codec with resolution up to 1080p and 30 fps, built in MCU functionality and capability to work in 3G networks. Extended capacity has allowed to satisfy the increased demand for services and, as a result, to reduce business travel expenses. The compatibility with the existing system, easy deployment and maintenance enable reduction of operating expenses. The Huawei management system allows organizing videoconferences "with a single click", thus minimizing the necessity of system administrator involvement.

# Videoconferencing System for the State ATM Corporation of Russia

The developed videoconferencing system had to satisfy the demands of the Central Office and of regional affiliates in high quality, state-of-the-art communication service. In the course of the project, implementation of a system that includes a management subsystem videoconferencing server and a recording server has been performed. Compact integrated terminals have been deployed in affiliates, and two TE40 terminals have been installed in the central office. The terminals have been integrated into the central videoconferencing studio management system.
As a result, the organization has received a new efficient video communication system compliant with the highest standards. The time required to make operational decisions has been reduced, and inefficient time losses have been eliminated.

Configurator

Huawei Configurator, which can be accessed even with the guest login (the price for guest visitors is not shown) allows to plan the equipment configuration with precision and adequacy – from one server to equipment for an entire data center. The configurator allows to add any hardware, network equipment or any other equipment to the specification, to select any options available in any devices, and to take into account all the unique features with a comprehensive level of detalization.

http://app.huawei.com/unistar/sct
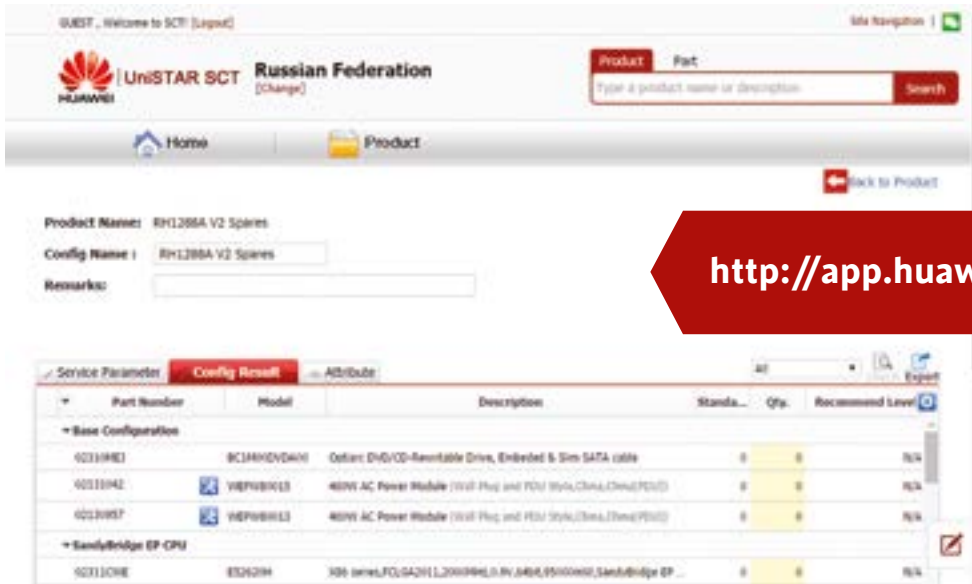
The issues of compatibility and working capacity are fully taken into consideration. For example, the configurator will not allow to make an error and to order a power supply unit which is insufficient to maintain a server with powerful processor or graphic accelerators. As a result of the configurator work you get the order specification with a precise and detailed description, including all the components' part numbers, their weight, and energy consumption.

Show Room in Moscow
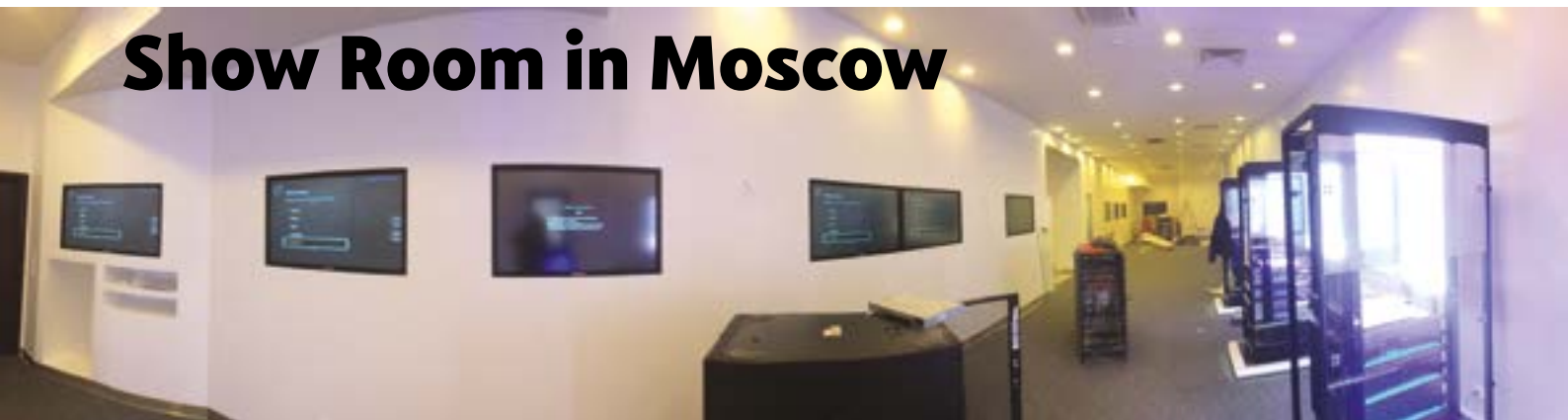
In the Huawei company show room at Greenwood Business center (Moscow Ring Road (MKAD), 42nd km) a permanent exposition is deployed where Huawei IT equipment and solutions are presented: a convergent FusionCube server, a platform for creating a public cloud and for self-service provisioning –Cloud Service Broker (CSB); a solution for distributed cloud data processing center DC2, a disaster-proof Huawei Active-Active solution, OceanStor data storage systems, UDS distributed data storage system and other solutions.

Contact Softline to visit the show room and to have a look at Huawei solutions!

Trainings

At Huawei Training Center

In-depth training courses dedicated to working with main Huawei products, implementation, configuration, operation, maintenance, and use in typical scenarios. The courses are not oriented at international certification exams. Customized programs are available.

Career advancement and certification

Authorized training partners provide training following the standard programs oriented at certification for HCNA, HCNP, and HCIE programs. Examinations for certification are carried out by Prometric.

Trainings for partners

Certification for specialists in promotion of Huawei solutions: Solution specialist, Presale specialist, Sale specialist.

Technical Support

In most cases, Huawei equipment is shipped to a partner or a distributor in Hong Kong or Singapore and then delivered to the end consumer. The guarantee is included in the cost of equipment and becomes valid not later than in three months after the equipment shipment. The period of guarantee validity depends on the type of equipment:
- Networking equipment – usually 1 year;
- IT equipment – usually 3 years.

The guarantee includes:

Technical support hotline working in round-the-clock mode in Russian and in English – accepting orders for replacement of unserviceable components.
Access to the technical portal with database, forums, file downloads.
Replacement of unserviceable components.
- For networking equipment – after receiving of the faulty component from the client
- For IT equipment – without waiting for the faulty component to be received.
If the client needs a broader spectrum of technical support services, an on-premise visit by a specialist or technical support prolongation for the post-guarantee period, additional technical support packages can be acquired.

Hi-Care	Hi-Care Onsite	Co-Care
Technical support performed by Huawei company or by its certified partners on behalf of Huawei. Basic, Standard, Enhanced and Premier levels differ by the speed of providing spare parts for replacement.	Technical support services with on-premise visit by specialists to replace the unserviceable equipment or its components.	Joint proposal of Huawei and its partner. The partner can add his own services to Huawei technical support programs. Co-Care programs are performed in the name of Huawei by its partners, such as Softline. Pricing, services range and SLA are defined by the partner.

The fastest delivery of spare parts – 4 hours – Premier level (available in 29 cities of Russia).

The Hi-Care technical support services are rendered in accordance with a Service Contract with Huawei Technical Company LLC with payment in advance.