HUAWEI ENTERPRISE ICT SOLUTIONS A BETTER WAY

HUAWEI MSAN Pre-Sales Specialist Training
Contents

1 Market Summary & Positioning
2 Product Highlights
3 Product Comparisons
4 Success Stories
5 Ordering Guide
6 Resources
Share the 1st rank of Broadband Access Market

Global Access Share

- Huawei, 28.0%
- Others, 55.7%
- ZTE, 16.3%
- ALU, 26.8%

Global Access Port Share

- Huawei, 43.2%
- Others, 39.3%
- ZTE, 17.5%
- ALU, 17.2%

Both Global Access Market & Access Port Num, Huawei share the 1st rank from 2013 Q3 to 2014 Q2.

From: Infonetics, 2014 Q2 Report
Integration with All-IP Networks

- With all-IP networking, the structure is more open; the networking topology is simpler; the bandwidth usage is more efficient; the cost is lower; and the expansion capability is more flexible.
- Existing PSTN networks can’t provide convergent services for Internet, television, and voice. But an all-IP network can offer all these services and more.
The development of new customer services requires higher bandwidth. 50 M to 100 M bandwidth and universal access will be necessary in the coming years to deliver these services.

FTTx provides effective solutions for higher bandwidth availability. A MSAN must support all FTTx transmission modes to accommodate customer requirements.
All series indoor/outdoor cabinets offer multiple service ports to meet every customer requirement.
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The UA5000 4-in-1 MSAN platform (PSTN, FTTx, IMS, and NGN) supports multiple network services with easy migration to network upgrades for maximum flexibility and customer value.

The UA5000 is the ONLY MSAN platform to support ISDN over SIP (interoperability tested with Huawei IMS).
Seamless Migration to NGN and IMS

- Compatible with all TDM/NGN/IMS hardware
- Only a software upgrade and configuration update are needed
- SIP/H.248 uplink self-switching is also supported
IMS Interoperability and Service Support

- Basic call
- Emergency call
- Call hold
- Three-way calling
- Conference
- Call transfer
- Call forwarding
- Call waiting
- Malicious Call Trace (MCT)
- Hotline
- Call Identification Display (CID)
- Calling Line Identification Restriction (CLIR)
- Callback on busy
- Do not disturb
- Wake up
- Address Incomplete (ADI)
- Modem/FAX
- Digit collection: pulse/DTMF
- Charging: Polarity reversed/12 KC/16 KC
Higher Density Service Cards Ease PSTN Transformation

- Double board density
- Built-in test function
- Energy-saving design
- Multiple working modes
- Common analog subscriber
- Polarity reversal
- 12 KC 16 KC

- Reduces power consumption by an average of 10%
- Provides port shutdown for ports not provisioned with services
Seamless Evolution to FTTx

- UA5000 product series supports GPON uplinks with models that vary in size and capacity for different scenarios. All models provide multiple FTTx networking options: FTTN/FTTC, even large-scale FTTB.
- All hardware and EMS resources can be reused to protect infrastructure investments for telecom operators.
Outdoor Cabinet Solutions for FTTx Adaptation

<table>
<thead>
<tr>
<th>TYPE</th>
<th>Model</th>
<th>Capacity</th>
<th>Scenario</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard</td>
<td>F01D1000</td>
<td>1344 POTS/960 ADSL2+</td>
<td>FTTC</td>
</tr>
<tr>
<td></td>
<td>F01D500</td>
<td>960 POTS/960 ADSL2+</td>
<td>FTTC/FTTB</td>
</tr>
<tr>
<td></td>
<td>F01D200</td>
<td>384 POTS/384 ADSL2+</td>
<td>FTTC/FTTB</td>
</tr>
<tr>
<td>Simple</td>
<td>F01E400</td>
<td>384 POTS/384 ADSL2+</td>
<td>FTTC/FTTB</td>
</tr>
<tr>
<td></td>
<td>F01E200</td>
<td>192 POTS/192 ADSL2+</td>
<td>FTTB</td>
</tr>
<tr>
<td></td>
<td>F01E100</td>
<td>64 POTS/64 ADSL2+</td>
<td>FTTB</td>
</tr>
</tbody>
</table>
Green Channel for VIP Users

- The Resource Control and VAG functions will perform SLA to assure high-priority service for VIP customers.
- This feature will minimize complaints from high-ARPU customers and ensure their continued satisfaction as well as high-revenue streams to carriers.
The UA5000 supports TDMoETH so that traditional TDM private line services can be transmitted over the Ethernet. During network migration, the customer experience does not deteriorate, ensuring subscribers will not switch to another provider.
New DSL Technology for Business Services

ADSL2+ ANNEX M:
- Provides 3 Mbit/s upstream by upgrading software
- Lowers cost and enables higher speed than G.SHDSL
- Ongoing support for POTS

G.SHDSL.bis:
- Payload data rates range from 192 kbit/s to 5,696 kbit/s symmetrically
- Supports various data transmission frame formats: ATM, TDM, and IP
- EFM enables twisted pairs bonding for up to 4 pairs transmitting 10 Mbit/s at 3.5 Km
The Perfect Video Experience

- Up to 1,024 multicast channels with fast channel preview and channel switching.
- IGMP V3, MVLAN protocols provide multicast gaming, video streaming, and other in-demand content for ISP subscribers; the MSAN supports 32 multicast users per port.
- The enhanced INP technology delivers a clearer video experience to users.
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## Competition Strategy

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<tr>
<th></th>
<th>Alcatel-Lucent</th>
<th>ZTE</th>
<th>Others (Ericsson/Nokia Siemens Networks/Local Vendor)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Solution</strong></td>
<td>- Old MSAN solution is 1540/7318; only for expansion and inventory market</td>
<td>- MSAG5200 followed UA5000 release</td>
<td>- No investment in MSAN</td>
</tr>
<tr>
<td></td>
<td>- Promoting 7302v in new markets</td>
<td>- Untested GPON downlink feature promoted to attract customer attention</td>
<td>- Stopped maintaining PSTN switches; upgrading PSTN switches to NGN by adding VoIP processing modules to existing equipment</td>
</tr>
<tr>
<td></td>
<td>- 7302v supports 72-Line POTS board, attacking low-density HW</td>
<td>- MSG6000 followed MA5600T release</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- 7302v integrates a gateway to support V5</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Competition Region</strong></td>
<td>- AP</td>
<td>- Global competitor</td>
<td>- Europe: ECI</td>
</tr>
<tr>
<td></td>
<td>- Europe</td>
<td>- Main solution is MSAG5200.</td>
<td>- South America E/// /NSN Key mile</td>
</tr>
<tr>
<td></td>
<td>- South America</td>
<td>- Promoting MSG6000 in AP and Europe</td>
<td>- CIS: ISKRATEL / ECI</td>
</tr>
<tr>
<td></td>
<td>- South Africa</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- MENA</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Competitor’s strategy</strong></td>
<td>- 7318 focus is on inventory market</td>
<td>- Aggressive roadmap; plan changes frequently.</td>
<td>- E/// /NSN focusing on their existing PSTN market. Upgrading switches to support VoIP</td>
</tr>
<tr>
<td></td>
<td>- Low price in 7302V</td>
<td>- MSAG5200 competes with UA5000, which cannot support GPON downlink</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Low price</td>
<td></td>
</tr>
<tr>
<td><strong>Huawei strategy</strong></td>
<td>- 1540/7318: poor broadband capabilities</td>
<td>- Huawei is more qualified than ZTE: ZTE has no European big T (telecom) experience</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- 7302V: cannot support traditional NB leased line service ability</td>
<td>- ZTE cannot support 64-Line POTS, 32-Line COMBO, and N2510</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Promote 64-Line POTS in UA5000</td>
<td>- Combine MA5603T to support GPON downlink</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Promote COMBO solution</td>
<td>- MA5600T competes with MSG6000</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>- Promote COMBO + GPON uplink + N2510 + outdoor cabinet combination solution</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Promote MA5600T in new markets</td>
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</table>
Challenges of Turk Telekom

**Outdated Switches**
- 20+ years deployment
- High OPEX
- No spare parts

**High Power Consumption**
- 40 million USD for 16 million POTS users every year

**Office Expansion**
- Low-density card in old switches
- 4/8 lines per card
- No space for expansion in CO local exchange

**Network Evolution**
- NGN + MSAN solution for PSTN
- Inherit legacy services
• MSAN caters to voice services only and supports inherited traditional services (POTS, ISDN BRI, PRI, E1, etc.) while DSLAM accesses broadband services (ADSL2+, VDSL2, G.SHDSL, etc.)
• Uses 64 POTS ports for voice access; DSLD and EDTB boards for ISDN BRI/PRI access
• Huawei developed a custom 3-IN-1 64 POTS interface to meet TT’s NGN transformation requirement
High Port Density and Green Power Savings

- The patented high board density design saves two thirds of the room space allocated to old equipment.
  - A BIG difference: NEW: 3,840 users/rack  OLD: 768/992 users/rack

- Three-in-one POTS card supports POTS/TSS/12 KC/16 KC/polarity – reverse

- Power savings of 50%
  - Consumes 50% less power than the older LE access equipment.
  - Ports not used on a card can be shut down.

HABD Frame in Outdoor Cabinet

- Patented high-density port design
- TSS/12 KC/16 KC/ reverse polarity protection in one card
- Energy-saving solution
Based on network data modeled at the customer site, Huawei calculated that $59.09 million could be saved in the three years following deployment of the MSAN with 64-port POTS boards and network reconstruction; that is, nearly 20 million dollars could be saved each year.

TT was surprised by the result and Huawei advised the customer to perform a power consumption test based on the actual network.
Power Consumption Test in TT’s Lab

- Huawei performed the test in the TT network environment. The result showed that TT could save 65.53 million dollars in the first three years based on the model. The result beats customer's expectation and other vendors' values.

<table>
<thead>
<tr>
<th>Traffic Volume (Unit: W)</th>
<th>Common Power (Unit: W)</th>
<th>Fan Power (Unit: W)</th>
<th>Port Current (Unit: mA)</th>
<th>Voltage (Unit: V)</th>
<th>Subrack Power (Unit: W)</th>
<th>Port Average Power (Unit: W)</th>
<th>Power charges savings (in millions of dollars)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.10</td>
<td>78.508</td>
<td>75.402</td>
<td>25</td>
<td>-53.1</td>
<td>1363.61</td>
<td>0.385953</td>
<td>73.81</td>
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<tr>
<td>0.15</td>
<td>78.508</td>
<td>75.402</td>
<td>25</td>
<td>-53.1</td>
<td>1607.87</td>
<td>0.468229</td>
<td>65.53</td>
</tr>
</tbody>
</table>

Formula:
Power savings = 3*(40,000,000$ - power consumption of MSAN (annual kWh)*2*$0.15)

- The calculation data is based on every station, the test value is based on a special instance, so the test value is better than the theoretical value
- Power savings of 50%, or more — 60 million over 3 years

Max. Subscriber Qty for a cabinet: 3840
Holding Time (sn): 100
Traffic (Erlang): 0.15
Calling Quantity (hour): 20736
MSAN power (kWh) for a hour (EN): 1.798
Consume Energy (yearly Kwh): 677843.8
POWER DEF (According to DEF Formula): 59089940.6

Calculated value
Test value
Summary: Turkish Telekom Benefits from the HUAWEI Solution

- **Power savings of 60 million USD over 3 years**
  - 50% less power consumption than PSTN
  - OPEX savings with centralized management

- **50% space reduction in CO**
  - High-density cards reduce space requirements
  - Supports easy expansion for new services, such as broadband and data communication

- **Advanced service provision capability**
  - Outdoor cabinets make the MSAN node closer to customers for more service options

By Q2 2011, Huawei delivered 4.5 M MSAN ports to Turk Telekom.
Challenge of Quanzhou Telecom

**Low BB Penetration**
- BB Penetration Rate: 3.21% (2008)

**No New Services to Generate Revenue**
- No IPTV service
- A multi-access device is needed for delivering multiple services

**Low Bandwidth**
- <2 Mbit/s: 91%

**Low ARPU Value**
- 9.76 USD/user/month
Quanzhou Deploys IPTV via MSAN

- Three services with different access paths delivered with the same access equipment
- Increased multicast bandwidth and non-blocking multicast, 100% online users
- Adopted single PVC multiple VLAN solution
Achievements of Quanzhou Telecom

- Covered using more than 1.5 M ports, 600 k xDSL of MSAN, 220 k IPTV subscribers
- VDSL2 solution for short distance VIP user access
- Uses COMBO boards to increase BB penetration and gain more revenue

Achievement

- Bandwidth: 90% > 4 Mbit/s
- ARPU up to 13 USD/user/month
- BB Penetration Rate up to 40%

Before 2010

Network Topology

UA5000

IPTV
SIP Phone
Internet
POTS
Soft Phone

PSTN/DDN

IP Core

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<td>Resources</td>
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</tbody>
</table>
What Is UniSTAR SCT

SCT is a Swift, Smart and Simple online configuration and quotation tool, which makes configuration and quotation easier!

Get to know Huawei products right now

Product

Presents the latest Huawei products, updates product data in real time, and helps you select products rapidly. You will learn Huawei products quickly.

Configure products intelligently

Configuration

Smart configuration wizard, automatic configuration verification, and configuration sharing simplify configuration, ensure correct configuration, and help you configure products simply.

Create quotations simply

Quotation

Simple creation of quotations, intelligent discount setting, automatic price verification, and convenient quotation management help you create quotations simply.

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The SCT provides flexible service applications. The following service procedure is a typical application scenario.

- If you are a partner who can place orders directly, place orders to Huawei product managers.
- If you are a partner who cannot place orders directly, place orders to distributors.
- If you are not a certified partner, apply to become a certified partner by referring to [http://enterprise.huawei.com/en/](http://enterprise.huawei.com/en/)
Logging In to SCT

To learn Huawei products, configure products, and create quotations, you need to log in to the SCT first.

Apply for an account

If you do not have a Huawei account, apply one at Huawei Official Website.
If you have a Huawei account, contact the channel manager to apply for the SCT permission.

Log in to the SCT

Access the following website by using your account and password:
http://app.huawei.com/unistar/sct
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</table>
1. What is Huawei’s Pre-sales Channel Documentation?
2. How to Use the Documentation?
3. How to Get Documentation?
4. Where to Find Feedback?

Resource 1: Enterprise Website
http://enterprise.huawei.com/en/

Resource 2: Document Email
enterprise_channel@huawei.com

Resource 3: Channel Documentation User Guide
1. What is Huawei’s Pre-sales Channel Documentation?
2. How to Use the Documentation?
3. How to Get Documentation?
4. Where to Find Feedback?
How to Use Huawei Documentation Resources

Where can I find and give feedback:

- **Web**: http://enterprise.huawei.com/en
- **Email**: enterprise_channel@huawei.com
How to Get Pre-Sales Help

Call Center

enterprise_channel@huawei.com

Call: 00800-33888888

- 24 x 7 pre-sales email and telephone support
- Products and solutions consulting
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<tr>
<th></th>
<th>Abbreviation</th>
<th>Description</th>
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<tr>
<td>1</td>
<td>PON</td>
<td>Passive Optical Network</td>
</tr>
<tr>
<td>2</td>
<td>GPON</td>
<td>Gigabit-capable Passive Optical Networking</td>
</tr>
<tr>
<td>3</td>
<td>FTTH, FTTC, FTTB, FTTDP, FTTW, FTTO</td>
<td>Fiber To The Home, Fiber To The Curb, Fiber To The Building, Fiber To The Distribution-Point, Fiber To The Wireless, Fiber To The Office</td>
</tr>
<tr>
<td>4</td>
<td>EMI</td>
<td>Electro Magnetic Interference</td>
</tr>
<tr>
<td>5</td>
<td>HMS</td>
<td>Hotel Management System</td>
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