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ZTE 9/2010 TECHNOLOGIES

Wireless E-Frame: See and Share

Winning Out in a New Round of Market Competition

An Interview with Huang Liqing, President of ZTE's Wireline Product R&D Institute

ZTE Announces 2010 Interim Results

Revenue reaches USD 4.524 billion European and US revenue increases by 45%

ZTE Corporation ("ZTE" or the "Group") announced on August 19, 2010 that the Group operating revenue increased by 10.89% year-onyear to USD4.524 billion. Revenue contribution from the European and US markets amounted to 18% of total revenue for the first time. The year-onyear revenue contribution from these two markets increased by 45%.

The net profit grew by 12.02% to USD129.143 million in the six months ended June 30, 2010 based on Hong Kong financial reporting standards. Basic earnings per share amounted to USD0.047.

ZTE's international revenue rose 19.58% year-on-year to USD2.246 billion, accounting for 49.65% of its total operating revenue.

In the first half of 2010, ZTE supported 3G network construction projects of some carriers and assisted with the replacement, coverage extension and improvements of relevant networks. This helped to consolidate the company's market share in China's 3G network construction amid a slowdown of investment in 3G networks.

The Group leveraged its customization capability and cost advantage to participate in carrier tenders for products such as transmission networks, wireline access and terminals. Encouraging tender results were achieved, ensuring stable growth in the Group's domestic business revenue.

While revenue from Asia declined due to an incident relating to the safety inspection of communications equipment in India, the Group still reported year-on-year growth in international revenue. The Group worked closely with global carriers such as France Telecom, Telkom SA, Telefonica of Spain and America Movil.

By product, the Group registered year-on-year revenue growth of 1.08% for carrier networks, 39.71% for terminal products and 17.99% for telecommunication software systems, services and other products.

In wireless products, the Group optimized its position in the highend markets of Europe and the United States by consistently meeting customer needs in terms of cost reduction, low carbon emission and environmental issues. The Group also enhanced its standing due to its experience dealing with multi-national carriers and advanced SDR product solutions.

Meanwhile, the company remains committed to key customers in the Asia-Pacific region, Africa and Latin America, which all provide an increasing share of revenue in wireless products.

ZTE's GSM/UMTS/LTE products were deployed by the leading local

European carriers, including KPN, Telenor and Optimus. ZTE and Telefonica deployed the first WiMAX network in Spain. The company has also deployed seven LTE commercial networks and nearly 50 trial networks globally. Building on its success in the China 3G market, ZTE's wireless delivery capability received recognition from leading carriers in Europe and the US.

In wireline products, the Group maintained its advantageous position in access network and transmission network products. With regards to access networks, the wireline access products, represented by xPON, continued to lead the market. The large-scale, network-wide commercial application of the FTTx solutions was achieved in major cities.

In relation to transmission products, ZTE's PTN, wave division and data communications products made headway in the industry and have been well received by leading global carriers. In the first quarter of 2010, ZTE's revenue from optic network products ranked third in the world. Its high-end cluster router T8000 was also launched globally.

During the first half of 2010, the Group achieved rapid growth in the sale of its terminal products, reporting 39.71% year-on-year growth in revenue.

ZTE TECHNOLOGIES

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ZTE Profile

ZTE is a leading global provider of telecommunications equipment and network solutions. It has the widest and most complete product range in the world—covering virtually every sector of the wireline, wireless, service and terminals markets. The company delivers innovative, custom-made products and services to over 500 operators in more than 140 countries, helping them achieve continued revenue growth and shape the future of the world's communications.

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Winning Out in a New Round of Market Competition

An Interview with Huang Liqing, President of ZTE's Wireline Product R&D Institute

By Fang Li



Huang Liqing is the President of ZTE's Wireline Product R&D Institute. Since joining ZTE in 1994, he has worked as ZXSM Project Manager, General Manager of Transmission Products, Deputy General Manager of Comprehensive Products Division, and President of Comprehensive Products R&D Institute.

ri-network convergence involving telecom, radio and TV, and Internet networks has attracted industry attention in China, and the need for Fiber-to-the-home (FTTH) has grown considerably. Faced with a new round of market competition, telecom and cable TV operators are actively seeking to enhance access bandwidth. Optical access technology is entering a rapidgrowth period, and bearer networks are undergoing great change to accommodate the upsurge in data traffic. Huang Liqing, President of ZTE's Wireline Product R&D Institute was recently interviewed by ZTE journalist Fang Li. Huang expressed confidence that with 25 years experience in the wireline sector, ZTE can outperform the competition.

Journalist: What is the development trend of future wireline networks? How will ZTE innovate with its technologies to meet future trends?

Huang: Future wireline networks are clearly moving towards broadband IP access, flat architecture, and intelligent, optimized operation and management. Network devices will also evolve so that they can operate on an integrated platform.

Service expansion has driven the rapid growth of network processing capacity and bearer bandwidth. Operators in China, Europe, and the United States all plan to offer 50-100Mbps bandwidth to home users and Terabit bandwidth to Metropolitan Area Networks (MANs) within the next five to ten years. Broadband networks require much higher processing capacity at the core and interfaces.

We have prepared ourselves to provide 100G WDM equipment, and have now started pre-research into equipment supporting 100G (or greater) interfaces. Our 100G WDM equipment has differentiated advantages in terms of integration, power consumption, and transmission distance. These can be attributed to our continuous investment in product R&D. We have invested considerable resources into 100G chips and software, and have cooperated with universities and high-end electronic manufacturers. We keep abreast of the most advanced developments in 100G data and transmission equipment.

Capitalizing on our leading position

in the DSL access market, we have also succeeded in PON access. In large-scale EPON deployments across China, ZTE has led the market with its strong technical strength and highquality products. We have also been researching and pushing forward NG-PON technology. In September 2008, we launched world's first 10G EPON prototype; and in May 2009, the world's first symmetric 10G EPON prototype. ZTE worked with operators to conduct a 10G EPON test in July 2009, and launched the world's first 10G EPON commercial trial in September. Research has also been conducted into 10G GPON and we are keeping close track of the latest developments in this field. We are the industry leader in the NG-PON field.

Flat network architecture will inevitably lead to equipment convergence, and planning is underway for a universal architecture which can accommodate different equipment. By designing a unified platform, it may be possible to converge our existing data, transmission, and access equipment. This will bring many benefits to operators. It could speed up the timeto-market for new services, ZTE series products could be maintained with the same spare boards and parts, and new equipment combinations could be quickly assembled using additional interfaces. A unified platform would also significantly improve ZTE's R&D efficiency and shorten the product development cycle. In designing a universal platform, we will draw upon 25 years of technology accumulation in the wireline sector.

Cooperation with operators and universities is also vital, and we have proposed differentiated solutions. For clock and time synchronization for packet-switched transmission, we took the lead by using IEEE 1588 V2 protocol and Ethernet in PTN products to substitute GPS time synchronization. In substitution tests conducted by China Mobile, this



solution achieved outstanding results, and other manufacturers have taken note. We are now undertaking further research, and continue to lead the industry in this area.

J: The widespread commercialization of 3G networks has brought about an upsurge in data traffic. What requirements does this place on future transport network?

Huang: In the initial stages of 2G and 3G development, Multi-Service Transport Platform (MSTP) provided good support. But as 3G are more widely deployed, problems such as low data transfer efficiency, rigid transmission pipe, low bandwidth utilization, and inflexible channel configuration occur. Operators therefore seek a new transport network that can carry data services in a more flexible and cost-effective way. Packet Transport Network (PTN) has been proposed as the transport technology of the future. The transition from

MSTP to PTN is actually an evolution from IP interface to IP core—from circuit-switched core to packetswitched core—which creates higher data transfer efficiency.

Over the past two years, PTN technologies and standards have evolved and matured. ZTE has cooperated closely with domestic and overseas operators in PTN equipment R&D. China Mobile has focused on PTN since April 2007. It began laboratory tests in September 2007, and launched the first PTN equipment tender in November 2009. Now, the PTN network deployed by China Mobile is the largest in the world. We have worked with China Mobile on PTN deployment, and this has involved identifying demands and defining standards. ZTE is a member of more than 70 international standards organizations and forums, and has submitted more than 100 proposals in the area of PTN. This has profoundly influenced the industry. Having benefited from its performance in PTN, ZTE is ranked third in the global optical networking industry according to Ovum's latest report "Market Share: 1Q10 Optical Networks, Global and Regional".

J: Tri-network convergence will push operators to speed up broadband connection. What modes have they used for their FTTx rollout, and how will they evolve in the future?

Huang: Chinese operators currently adopt three modes for broadband access: FTTH, FTTB, and FTTC. Of these, FTTB is the mainstream option. EPON has been deployed on a large scale throughout China, reaching a capacity of 60 million lines, while GPON has been deployed on a small scale. Neither EPON nor GPON can meet future broadband requirements. Therefore, both telecom and cable TV operators have devised longterm bandwidth plans, aimed at delivering 50-100Mbps bandwidth



to each home user. If this eventuates, Gigabit bandwidth will be required for buildings, and Terabit bandwidth for MAN areas. To satisfy bandwidth requirements, upgrading xPON to 10G PON, EPON to 10G EPON, and GPON to 10G GPON will be necessary.

10G EPON standards were released in September 2009, almost one year earlier than 10G GPON standards. Symmetric bandwidth in the uplink and downlink has been defined for 10G EPON, and asymmetric bandwidth has been defined for 10G GPON. The evolution from EPON to 10G EPON represents enhanced network capability. EPON and 10G EPON terminals can share the same PON port, and terminals can be upgraded according to bandwidth needs. However, evolution from GPON to 10G GPON is a different process because GPON and 10G GPON terminals cannot share the same PON port. The 10G EPON industry chain has matured over the past two years so that 10G EPON has advantages over 10G GPON in terms of network deployment and standard maturity.

J: What progress has ZTE made in 10G PON?

Huang: ZTE launched the world's first symmetric 10G EPON prototype in May 2009, and has since taken a leading position in the 10G EPON field. As a leading PON equipment vendor, ZTE has long been engaged in studying 10G xPON standards. We have participated in national and international conferences and put forward many important proposals. In 2009, we hosted the IEEE 10G EPON conference. Dr. Marek Hajduczenia of ZTE has been an editor for IEEE 10G EPON, chief editor for IEEE Service Interoperability in EPON (SIEPON),

and editor for physical layers of ITU-T NG-PON, contributing greatly to standardization work on 10G EPON.

In April 2010, we joined several 10G EPON chip manufacturers including PMC-Sierra, Broadcom, and Opulan to conduct interoperability tests. The results show that our 10G EPON equipment has matured. So far, we have conducted 10G EPON commercial trials in more than 20 provinces across China.

ZTE has also continued its investment into GPON and 10G GPON. We have submitted around 50 10G GPON proposals to FSAN and ITU-T, and have participated in the drafting of ITU-T G987.2 standards for 10G GPON. In December 2009, we helped Telecom Italia in its commercial deployment of FTTB using GPON+VDSL2.

J: Finally, would you talk about the efforts ZTE have made in environmental protection and energy conservation?

Huang: Today's operators are increasingly attuned to energy conservation and emissions reduction. ZTE shares this concern. Environmental protection is at the forefront of our thinking in product design, manufacturing, application, and recovery.

Our energy saving and emission reduction strategies are focused on network, technology, equipment, and operation. We attach great importance to developing flat, converged, and smoothly evolved networks that limit energy consumption of DSL, LAN, PON, POTS and WiFi technologies, and that adopt energy-saving modes in chip, board, and equipment. We have been developing power technologies for telecom products for the past 20 years, and we own core technologies in this area. ZTE is proud to be the leading provider of cost-effective power solutions. We supply system power, core power, and electromechanical management with power efficiency exceeding 96% and modular power efficiency exceeding 95%.

We provide core chip design that integrates different functions into one chip. This minimizes equipment size and reduces power consumption. In chip manufacturing, we adopt sophisticated techniques to reduce radiation. Through intelligent management, chips or ports not in use are set to "idle", which reduces energy consumption by around 50%. Smallsized equipment does not need air cooling. And for equipment that does require air cooling, smart fan control technology is used. Lowering fan speed can save energy by 20%. Our equipment recovery rate exceeds 80% and board recovery rate is up to 50%.

ZTE has the widest and most complete product range in the industry. This allows us to quickly and thoroughly implement our energy saving and emission reduction strategies. We have made great inroads into energy conservation and environmental protection. In 2008, our broadband access product ZXDSL 9806 received "Best Green Innovation" award at the SOFNET forum in London. In 2009, our ZXDSL 9806H passed the China Environmental Labeling (Type II) certification. This certification involved an energy efficiency evaluation, harmful substance inspection, and product recovery and disassembly analysis. It was the first time a telecom product had been granted such certification.

ZTE TECHNOLOGIES

Wireless E-Frence See and Share

By Hu Wenwen

In today's interconnected world, people choose to study, work, or travel away from home. It is therefore not uncommon for parents and children to live in different locations, and the need for distant communication among family members has grown. Parents want to know how their children are getting along with their work or studies abroad; grandparents living in their hometown and perhaps without computer knowledge look forward to hearing from their grandchildren; and family members keep each other up to date by sharing holiday pictures.

The Wireless E-Frame has been developed in response to these needs. As with traditional digital frames, the Wireless E-Frame is a small electronic product that displays pictures and information through an LCD screen. It uses an embedded wireless electronic communication module to receive pictures or MMS messages from a mobile phone or a web portal at any time. These can be browsed through and played automatically. You might be sightseeing in Paris, taking in the impressive Eiffel Tower. You snap a

66 ZTE's Wireless E-Frame enriches message services, increases MMS traffic flow, and generates more revenue for operators. "

picture on your mobile phone and send it to your grandmother thousands of miles away with a thoughtful message attached (see Figure 1).

ZTE's Wireless E-Frame Solution

ZTE's Wireless E-Frame is an endto-end solution that allows anyone to send pictures from a camera phone or digital camera to the Wireless E-Frame. It enriches message services, increases MMS traffic flow, and generates more revenue for operators.

Friendly use experience

The Wireless E-Frame supports two use modes: sending MMS via mobile phone (see Figure 2) or via web portal (see Figure 3). Pictures can be taken with a mobile phone and then sent to a Wireless E-Frame via MMS. The pictures can be shared in real time with family and friends. Although phone cameras are convenient, the picture resolution is often limited. To enhance user experience, the Wireless E-Frame also supports sending high-resolution pictures via a web portal. Pictures can be taken with a digital camera and uploaded to a dedicated web portal. After some touchups, they can then be sent to the Wireless E-Frame terminal.

Versatile and fashionable E-Frames

As well as having traditional digital frame functions, ZTE's Wireless E-Frame can receive and display multimedia messages. It has a USB port for accessing data on a hard disk, and a SIM card slot for receiving pictures through wireless networks. It supports Wi-Fi Internet access, has a large 7-12 inch LCD screen, and supports a variety of picture display styles including auto play, replay, full screen, split screen, and additional picture frames. Audio and video play



Figure 1. An application case of Wireless E-Frame.



Figure 2. Sending MMS messages via mobile phone.



Figure 3. Sending MMS messages via web portal.

(repeat mode, file copy, delete) are also supported and background music can be set. The Wireless E-Frame is GPRS enabled for receiving and displaying multimedia messages, and has calendar, clock, weather forecast, and FM broadcasting functions.

Wireless E-Frames can be customized to meet user needs and preferences. They are not only realtime picture communication tools but also fashionable pieces of home décor (see Figure 4).

Easy-to-use web portal

ZTE's Wireless E-Frame provides a web portal for end users. Photos taken with a digital camera can be uploaded to the portal—where text can be inserted, editing can be done, or audio and video content can be added to create personalized content. The final message can then be sent to the Wireless E-Frame. The web portal makes it possible for users to share high-resolution photos through wireless networks, and create customized content.

Featured functions

To enhance user experience, ZTE's Wireless E-Frame also delivers featured services. It supports partial and resumable downloading so that large-sized photos transmitted from the web portal are delivered completely in a low-rate GPRS network. Moreover, it has a "click and send" plug-in on the web page. After installing the plug-in package, users simply right-click their favorite pictures, audios, or videos and send them to the E-Frame when browsing a web page.

Potential in the Infotainment Era

Wireless E-Frame provides better visual experience than mobile



Figure 4. Custom-made Wireless E-Frames.



Figure 5. A variety of services being carried.

phones, and will be attractive to families. It may also be adopted by newspapers, greeting card companies, audio magazines, movie distributors, or advertisers as a new way of delivering content (see Figure 5). The infotainment potential of the Wireless E-Frame is certainly promising.

In modern society, people are on the move. China's floating population reached a record 211 million people in 2009, accounting for over 11.27% of the country's total population. Its college students exceeded 20 million in 2009 (among which 6.1 million were graduates), and outbound travelers totaled 47 million. The potential user base for Wireless E-Frame is very large and diverse. Wireless E-Frame not only enhances photo communication for families, but also helps operators retain users, provide numerous information services, raise ARPU, and generate sustainable income streams.

MRBIE Better Ringtone Experience, Stronger Visual Impact

By Shao Chunyan

Focus

S pecial Color Ring Back Tones (CRBTs) for families and friends have become a fashionable way of personalizing mobile phones and conveying feeling. CRBT subscribers can choose a unique ringback sound for each caller. A love ballad may be suitable for a partner, a funny sound clip for a friend, or a traditional tune may be chosen to mark a festival day. CRBT is designed to liven up the line as a caller waits for connection.

Bottlenecks in CRBT Development

CRBT was first introduced by South Korea's SK Telecom in March 2002, and has since gained widespread popularity. It satisfies a need for style and individuality in mobile communications. As a valueadded service without any terminal constraints, CRBT is straightforward to use and can be spread rapidly.

In recent years, the CRBT business has grown unevenly across global markets. According to Ovum, penetration of CRBT in 2009 was 45% in China and India, but only 5% in Latin America, as illustrated in Figure 1. CRBT has developed strongly in the Asia-Pacific regionespecially in China where operators have bundled it into service packages or enterprise advertisements—and it has become their main business. However, this has not been the case in Europe and America because of differences in tariffs, user cultivation methods, and more importantly, in culture. The French, for example, see that mobile phones are used primarily for answering calls and thus CRBT is of little value.

CRBT services have already matured and are widely recognized by users. Yet demands are changing and more innovative services are continually expected. With the explosion of the wireless market segment and the emergence of 3G networks, providers are seeking to develop new services and features that capitalize on the multimedia capabilities of these maturing technologies.

MRBT: An Inevitable Trend

A mobile user survey conducted by MTrend in 2009 found that 70.3% of users were interested in seeing video clips or pictures while waiting for call connection, and 15.2% were greatly interested (see Figure 2). The results suggest that service providers should be looking to provide a richer multimedia experience.

Responding to this interest,





Multimedia Ring Back Tone (MRBT) has been introduced, which expands CBRT with ringback videos and pictures. Bland ringback tones of the past have been replaced, and users can now experience enriched telephone calls with attention-grabbing multimedia clips.

MRBT Scenarios

MRBT differs from CRBT, and can be applied in the following scenarios:

Scenario 1: Visualized audio call

When a call is made to a recipient with video support, the MRBT system can send a preset video clip to the recipient. Regardless of whether the caller makes a video call or not, the recipient can see the preset video clip. This cultivates a familiarity with video communication and increases video traffic.

Scenario 2: Video call avatar

During a video call, the recipient can play a preset video by pressing the DTMF key and replace the live video of the camera. This helps to protect privacy.

Scenario 3: Video call completion

If a video call is made but the recipient does not support video communication due to a terminal or network problem, the call can proceed uninterrupted even though the system is attempting to send through a preset video clip. This also helps cultivate familiarity with video communication and increases video traffic.

ZTE'S MRBT Solution

ZTE's MRBT solution allows subscribers to personalize the look and feel of their communications with sound, pictures, animations, flash, and video clips. MRBT can be provided in both the circuit switched (CS)



Figure 2. Mobile user survey by MTrend.

domain of 3G WCDMA networks and the packet switched (PS) domain of NGN/IMS networks. Either the caller or the recipient can subscribe to the service. While the phone is dialing for a connection, unique multimedia content is played to the caller.

MRBT supports three call scenarios, and ZTE has applied for patents at home and abroad for its MRBT solution in scenario 1. It has also categorized MRBT services according to user segmentation:

- Individual users: This service targets individuals who set their preferred video clips through SMS, IVR, and the Web.
- Family users: This service targets family members, friends, relatives, or classmates who are set as a family group in order to enjoy the same or similar video clips. One group member is chosen to manage video content and to manage other members.
- Corporate users: This service targets corporate groups. Employees are designated as group members, some of whom are chosen to manage

group members, to set the ringback play time, to monitor corporate video clips, and to collate usage statistics.

Advertisers: This service targets enterprises and manufacturers who make advertising video clips to be shown to public upon approval. If individual users subscribe to such advertising, they may receive benefits such as discount coupons. ZTE's MRBT also supports advertising for shop sales campaigns.

Conclusion

With the promotion of 3G applications and the growing popularity of smart phones, mobile phones are no longer merely tools for answering calls, sending messages, or updating ring tones—they are a multimedia infotainment platform integrating information, entertainment, mobile e-commerce, and mobile payment functions. With further 3G rollout, MRBT is sure to offer a more colorful ringtone experience and stronger visual impact.

Building a VAS Dream

By Chen Lan

obile value-added services (VAS) have developed rapidly in recent years, and with fast market penetration, have brought huge economic benefits to Chinese operators. A new mobile information service industry has come into being, comprising infrastructure telecom operators, service providers (SPs), content providers (CPs), and a variety of application providers (APs). A primary concern of operators is to further strengthen and expand their VAS businesses.

Unified Service Platform

With the rapid growth of ICT and the Internet, demand for integrated, multimedia, and personalized mobile VAS has grown significantly. As a result, enhanced service capability has become the objective in research and application of new network technologies. The key to achieving this objective is service convergence or a mobile VAS platform. Deploying services rapidly to meet market demands has therefore become a core competitive strategy, and service development a key part of network operation. As service development increases in line with terminal, network, and software evolution, an urgent need arises for an open and converged service environment based on existing service development and provisioning systems of Internet and telecom networks. A new service environment geared for the future will provide next generation tools for simple and easy service development so that APs, SPs, and CPs—as well as clients and subscribers—can co-operate in the rapid creation of new services.

Open Deployment Environment

Operators urgently need a "service hatchery" that can constantly roll out new services. Modules could simply be expanded on a Unified Open Environment (UOE) without the need for a new platform. This facilitates interoperability between application platforms, and helps operators reduce TCO and hasten the deployment of services to end users.

China Mobile has a clear track record in VAS operation. Initially, China Mobile knew little about operating VAS nor the services that would be profitable. A large number of SPs were introduced to deploy a variety of services; but inevitably, China Mobile became a mere "pipe" provider. Profit-motivations at this stage meant that many SPs engaged in behavior that was counterproductive to China Mobile. To remedy this problem, China Mobile set up a series of management platforms to regulate SP behavior in the second stage. Although SPs were required to deploy their VAS on a unified platform, fraudulent behavior involving consumption of services by SPs themselves could not be completely avoided. To build a healthy industrial chain, China Mobile started to weaken the role of SPs, and in the third stage, gradually turned them into CPs. The operator would provide certain high revenue services with strong user loyalty on their own. A self-operated service platform was therefore necessary for successful VAS operation. By integrating an operator's internal resources with social resources, and adopting unified policy and user interface, a self-operated service platform can offers feature-rich and personalized value-added services.

Responding to these needs, ZTE has launched a self-operated service

platform that helps operators establish a unified, open, and orderly VAS system.

Self-Operated Service Platform

Functional modules

A self-operated service platform consists of UOE and Unified Management Platform (UMP). UOE is responsible for openness and adapting different capabilities, and provides a stable application-managed environment. Its downstream network elements are engines for the various capabilities. UMP is responsible for man-machine interaction, maintenance of management data, and service authentication and rating.

Service access

The service access system calls in various service capabilities to be registered. The platform divides these registered capabilities into two categories: capability requests initiated by the system to the outside, and capability requests the system receives from the outside. The former also called atomic services (such as sending SMS/MMS, and checking weather forecast), and the latter uplink service (such as SMS/MMS uplink requests). These capabilities can be registered, upgraded, or cancelled, which makes the system scalable and flexible.

Service development environment

UOE provides three tools for users and service developers: a programmable development tool for people with programming ability; a graphic wizard development tool for people with no programming ability but good VAS business and computer literacy; and a web-based service development tool for people who have no technical background but are familiar with VAS business.

Service execution environment



Figure 1. Self-operated service platform architecture.

Services are created in the development environment and deployed in the service execution environment. The execution environment is a safe, reliable, stable, and high-performance container that provides engine, management, and basic functions.

Service test environment

Service test environment includes network and terminal simulation. One network simulation environment supports multiple simulated terminals, and all Integrated Service Access Gateway (ISAG) services can be simulated on the terminals.

Service management

Service management involves service lifecycle and status management as well as service simulation and monitoring.

Value chain

A self-operated service platform that supports fast service development and deployment gives wings to new service ideas and helps operators increase profit. Through a unified and open environment, all network capabilities can be converged and opened. UMP can be used to manage these capabilities and to support interaction with external IT systems. A self-operated platform has the following advantages:

- Multiple service support;
- Fast service deployment;
- Controllable service testing;
- Fast service access.

With a self-operated platform, network resources can be converged. Service discovery, verification, execution, and billing can also be converged, and this gives VAS its core competitive advantage. Content provided by CPs is launched and deployed in UOE, authenticated and charged by UMP, and finally used by subscribers. The operator becomes a bridge connecting CPs and subscribers, and a stable revenue stream can be created. A self-operated service platform helps an operator build a VAS dream factory. ZTE TECHNOLOGIES

Opportunities in 3D IPTV

By Tan Hao

ovies such as Avatar may not be 3D biggest drawcard, but they are certainly attractive. Avatar vividly depicts the "Hallelujah" mountain and some epic battle scenes using the latest IMAX 3D

technology. Audiences are immersed in a tidal wave of 3D audio and video.

At the 2010 International Consumer Electronic Show, leading TV manufacturers Sony, Samsung, Panasonic, and Toshiba rushed to display their new 3D TV products, and Chinese manufacturers Changhong and Skyworth followed suit. Currently, 20% of larger LCD TV sets support 3D; and in the future, more and more families will acquire 3D HD TV sets.

During the recent FIFA World Cup, professional 3D cameras were used to shoot more than 25 matches, which



were freely broadcast on satellites around the globe. On-field and off-field passions were displayed with vivid and unprecedented clarity.

Against this background, ZTE—a leader in IPTV—is closely monitoring the development of the 3D TV market. A goal of ZTE's IPTV business development has been to introduce 3D into IPTV by upgrading original IPTV platform devices.

3D audio and video technology dates back to the 1950s. It was mainly applied in movie theaters rather than family homes due to limitations in TV technology. A family-oriented 3D solution based on dual projectors emerged when portable overhead projectors became available; but even still, this failed to impact the household market because of cost and immature technology.

With the continuous development of LCD, many foreign and domestic manufacturers have released new TV sets that support 3D broadcasting. 3D blu-ray stereoscopic players and 3D auxiliary equipment such as active shutter time-resolved glasses have also been released. It is no exaggeration to say that terminal equipment available today is up to the task of bringing 3D audio and video into millions of households.

In this context, major TV operators have already released 3D HD channels. British Sky Broadcasting, for example, employs the latest stereo video cameras for shooting 3D images, which are broadcasted to the world after being processed on the frontend. Many movie and TV producers are also promoting 3D movies and TV programs vigorously. Even the gaming industry is weighing in on the trend. The 3D TV industrial chain is maturing gradually, and related technology is in steady development. However, 3D technology is still new to the IPTV field, and this is precisely the kind of opportunity that will allow ZTE to demonstrate its leadership.

During the development of 3D, several film source formats and realization methods have come to the fore. At present, most film sources are red-ray/blu-ray, which realizes 3D effects by using ordinary players and display devices aided by a pair of inexpensive viewing glasses. It is so easy to realize 3D effects on IPTV that the existing devices have no problems achieving it. However, color and brightness are less vivid when 3D is produced this way.

Another film source is represented by the left and right format. Left and right eye images recorded by a video camera are combined into one image (see Figure 1), and one of the sound



Figure 1. Display principle of the left and right format.



tracks from the two images is adopted. The resolution using this film source is double the ordinary one. For example, combining two images with 640×480 resolutions can achieve a resolution of 1280×480 . This is a mainstream technique in radio and TV. Football match broadcasts as mentioned above, use this method. Two images with the 960×1080 resolutions can be combined into one full HD image with a resolution of 1920×1080 .

In order to realize this, an image synthesizer and algorithm is necessary to synthesize the dual streams collected by the 3D video camera into a single long stream. The synthesized stream is then sent to an encoder. Existing encoders and set-top boxes do not need to be upgraded, but the highest possible resolution is 1920× 1080 due to the limitations of existing devices and software. The effective image resolution is therefore 960× 1080, which is insufficient for full HD. After decoding by the set-top box, images are sent to the 3D TV set, which displays the images one by one after separating out the left and right images. With a high refresh rate

over 120Hz and active shutter timeresolved glasses, the viewer's left and right eyes can see the left and right images respectively, which creates a 3D display effect.

ZTE accomplished the first stage of its project by adding an image synthesizer to the original IPTV platform, and by providing left and right film formatting resources to realize 3D video on demand. 3D IPTV audio and video was introduced to family 3D TV sets through ZTE's ZXV10 HD set-top box.

At the end of last year, the Bluray Disc Association (BDA) formally announced that they had formulated Blu-ray 3D[™] standards, and released the specifications. These 3D standards were completed in collaboration with Hollywood movie studios, and consumer electronics and computer producers. With the blu-ray disc the most powerful HD family entertainment platform—the 3D experience will become commonlplace in family homes.

Blu-ray 3D[™] standards adopt 3D video coding based on Multiview Video Coding (MVC). This represents a development from AVC video coding based on ITU H.264 standard presently supported by all blu-ray disc players. Compared with 2D content, data increases by half due to MPEG4-MVC technology adopted by Blu-ray 3DTM standards. Data associated with left and right eye images is compressed, and backward compatibility with 1080p high resolution of existing 2D blu-ray players is enabled.

ZTE plans to support MVC coding in the next stage. By upgrading and renewing its headend encoder, MVC stream output will be realized and HD IPTV set-top boxes will be released to support MVC stream decoding. After decoding, the stream will be transmitted through HDMI to 3D TV sets for display. In a competitive IPTV market, satisfying ever-changing customer demands is key for market development. As far as operators are concerned, creating new functions and features is important for competitive differentiation and of great help in retaining customer loyalty.

At present, left and right format technology is comparatively mature. 3D solutions based on this technology were first released by ZTE, who have since led in 3D IPTV audio and video applications. ZTE continues to dominate the high-end IPTV market; meanwhile, competitors are hastening their research and development of MVC technology due to vigorous promotion by BDA. Yet it will take some time to release these commercial products. Looking to the future, MVC will be the developmental trend that ZTE must closely follow. When MVC is applied on a large scale, ZTE can release corresponding products, dominate the market, and stay ahead in the IPTV field.

ZTE TECHNOLOGIES

Third Eye



The Prospects for CDMA and the Rise of ZTE

August 2010, by Godfrey Chua, from market research firm IDC



This IDC update provides a summary examination of developments and prospects for the CDMA market. It takes into particular consideration recent IDC conversations with CDMA service providers carried out between late June and July 2010. This effort also includes attending a CDMA Development Group (CDG) presentation as well as participating in a CDMA operator conference.

Situation Overview

CDMA technology has faced many challenges. Most recently, reduced spending in the key CDMA market of the United States has noticeably shrunk the overall infrastructure opportunity. Top CDMA operators Verizon Wireless and Sprint certainly maintain sizable budgets for expanding and maintaining their existing networks. However, a large portion of their capital expenditures have shifted to nextgeneration technologies such as LTE and WiMAX. Coupled with technology shifts by a number of CDMA operators in regions such as Asia/Pacific and



Latin America, the overall global market for CDMA infrastructure has indeed been on a decline.

To further examine the prospects for CDMA infrastructure, IDC held a series of conversations with a variety of CDMA operators and proponents from around the world. The variety of and global viewpoint of these conversations were critical to ensuring that they provide a thorough picture of the prospects for CDMA. One of the more notable themes to arise was that, while the market as a whole has seen an overall decline in recent years, the pace and actual experience have varied. Pockets of opportunities persist for CDMA. Markets such as China. India, and a number of other countries (particularly in emerging markets) offer dynamic-and in some cases even modestly expanding-opportunities. Overall, some of the key themes that arose from the conversations with

CDMA operators and proponents revealed the following:

CDMA is alive and well

CDMA remains a sizable market with a vibrant community of operators successfully delivering innovative mobile voice and data services in all parts of the world. According to the CDG, the roster of operators now numbers some 310 commercial entities, of which there are 114 EV-DO Rev.0 and 94 EV-DO Rev.A networks. There were in sum 522 million CDMA subscribers at the end of 2009 (specifically, 518 million CDMA2000 and 142 million CDMA2000 1xEV-DO subscribers). In fact, there are now two commercial EV-DO Rev.B networks (Indonesia and Pakistan). CDMA has not evolved to be the dominant wireless infrastructure technology out therebut it certainly continues to have its place in the portfolio of wireless technologies that are delivering important connectivity services to consumers across the globe.

• EV-DO Rev.B sees a second lease on life, courtesy of China Telecom

In relatively modest efforts, Rev.B networks have been launched by PT Smart Telecom and Pakistan Telecommunications. This is notable because since the time Verizon Wireless chose to move to LTE, much of the momentum behind Rev.B had slowed and in many respects the technology had been written off. However, through the persistence of the CDG and key technology vendors and the support of several operators, Rev.B is seeing some renewed momentum. Particularly noteworthy is the support offered by China Telecom. China Telecom is trialing Rev.B in three cities and shows a clear openness to its potential commercial deployment. For the most



part, the decision to move forward with Rev.B will be predicated on how subscribers' data consumption behavior evolves on its network over the next 12–24 months. With aspirations to become the largest CDMA operator in the world by the end of 2010 (which in IDC's view is likely to happen), China Telecom offers the kind of economies of scale that would bring an important critical mass to the Rev.B ecosystem.

The traditional (developed market) CDMA markets are waning, but opportunities remain in key emerging markets

To be sure, the U.S. market, which has long served as the foundation of the CDMA infrastructure opportunity, is still a significant market for CDMA infrastructure. Operators are still spending on their existing CDMA networks—expanding and maintaining them to meet ever-changing customer demands—and they will continue to do so for a long while. However, these networks are also maturing, and operators are transforming spending toward next-generation technologies. It is therefore of no surprise that the majority of CDMA-related expansion and subscriber growth resides in a region such as Asia/Pacific. As is the case in China, India, and other emerging countries, relatively low mobile penetration levels leave room for further growth.

Future Outlook

IDC anticipates CDMA will remain a sizable and important opportunity. It will certainly continue to play an important role in delivering mobile voice and data services to consumers and enterprises across the globe. In IDC's view, the following three key themes will define the CDMA market ahead:

The CDMA market will continue to decline, but the opportunity will persist for the long term

There is no denying that, as a whole, the CDMA infrastructure market will continue to decline. This trend will persist as the world coalesces toward the 3GPP road map of LTE. The path toward this transformation will however be long and complex. Networks cannot be transformed overnight. It has taken until 2010 for overall 3GPP 3G spending to surpass 2G spending-a point of transformation that is as much as five years behind what many had predicted when 3G was first introduced at the beginning of this decade. The lesson there was that network transformation is time consuming and requires careful planning and anticipation of changing customer needs. Thus, for CDMA, it will not be disappearing overnight. Numerous operators IDC conversed with over the past several weeks expressed continued strong support for it. There is certainly the expectation that they will continue to spend on the technology as they maintain and expand existing networks—with the only caveat being that capital expenditure budgets will be bifurcated by an eventual shift toward next generation technologies such as LTE. The proportion LTE spending takes will naturally increase, especially during the second half of this decade as momentum for the technology builds in emerging markets.

Opportunities will be created in the CDMA to LTE transformation, while Rev.B provides a modest but notable upside

The potential with CDMA operators is defined by the sum of the CDMA infrastructure opportunity and the requirements arising out of the network transformations that will eventually be taking place. Ultimately, the customer target is the over 300 commercial operators involved in CDMA and selling them the necessary equipment and services to enhance existing operations-and then building upon that relationship to better position oneself for the next-generation build cycle. The CDMA opportunity naturally extends to LTE transformation. Rev.B will also present good opportunities, as evidenced by the nearly 15 operators planning to deploy it in the near term. Many more operators are likely to look into the technology, especially if a carrier such as China Telecom commits to it. While Rev.B will not create nearly the kind of opportunity the LTE transformation process will, it will be sizable nonetheless. Thus, for equipment vendors heavily invested in CDMA, it will be essential to hold on to customers via a strong CDMA value proposition to be effectively positioned as the key partner for the network transformations ahead.

Amid market transformations, vendor positions shift and ZTE rises

The CDMA vendor community is transforming as a result of the inherent stresses faced by the segment. Alcatel-Lucent, the longtime leader, maintains overall leadership in terms of revenue derived from the segment and is particularly strong in North America. Other traditional players such as Nortel and Motorola have faced many challenges and now have been acquired or are in the midst of being acquired by their larger 3GPP counterparts (Ericsson acquired Nortel's CDMA assets, while Nokia Siemens is in the midst of acquiring Motorola's networks division). Amid the intensifying competitive pressures, it is Shenzhen based telecom equipment vendor ZTE that is thriving. Over the past five years, ZTE CDMA base station shipments have increased from a modest 9,100 in 2005 to (according to ZTE) a record level in excess of 115,000 in 2009. IDC's review of 2009 activity confirms that this ranks ZTE as the market leader-in terms of both unit shipments and installed base of BTS (see Table 1).

The company has been pursuing CDMA opportunities throughout the world, and a particularly aggressive go-to-market approach in emerging markets has yielded ZTE strong dividends. ZTE has certainly benefited from the robust CDMA market in China. However, it is the attention placed in other parts of Asia and Africa that has allowed ZTE to further expand its volume of activity. ZTE has, for example, taken CDMA leadership positions in India and Indonesia, two of the more robust country markets today.

Table 1. CDMA: BTS shipments and BTS installed base by vendor, 2009 and 1Q10

	Estimated BTS Shipments (2009)(000)	Estimated BTS Installed Base (1Q10)(000)	Share of BTS Installed Base (1Q10)(%)
Alcatel-Lucent	105	235	28.50
Huawei	90	180	21.80
Motorcta(NSN)	15	60	7.30
Nortel(Ericsson)	16	85	10.30
ZTE	115	250	30.30

Source: IDC, 2010

As CDMA service providers have noted to IDC, ZTE is one of the most, if not the most, cost-competitive suppliers (this is especially true in emerging markets and also self-evident from the sheer volume of ZTE's base station shipments). IDC's observations of wireless infrastructure pricing patterns around the world reveal especially aggressive discounting of base station equipment in the past 18 months (in addition to increasingly creative financing strategies). Greenfield builds, especially those offering high volumes, see unprecedentedly low pricing. It is clear that there is a strategic imperative within ZTE to build market share in the near term. Customers also note the strong commitment to their local markets, a key attribute they look for when procuring equipment. ZTE's strength in CDMA also does not stop at pricing and commitment. The company is increasingly known for its innovations and efforts to push the technology forward. ZTE was the first in the world to deploy a commercial EV-DO Rev.B network, providing equipment to Smart Telecom, which commercially launched Rev.B-based service in Bali, Indonesia, on January 10, 2010. ZTE also has a total of four trial and commercial EV-DO Rev.B engagements, making the company the most active and early leader. Further innovations and another first include trial deployment of dual-mode CDMA and LTE transformational base stations. While the Rev.B and transformational deployment is modest, it nonetheless allows for early experience in what will be an important competency for any CDMA supplier—deploying unified network elements capable of managing different generations of technologies.

ZTE TECHNOLOGIES

Bloomberg

China's ZTE Makes U.S. Expansion with "Salute" Phone for Verizon Wireless

August 20, 2010 by Olga Kharif Source: Bloomberg



TE, China's second-biggest maker of telephone equipment, is expanding in the U.S. with an agreement to sell a handset through Verizon Wireless.

Executives unveiled the phone, the Salute, yesterday in ZTE's first handset agreement with a top-three U.S. wireless carrier. Verizon Wireless is the largest mobile-services provider in the U.S., with more than 92 million subscribers.

"It's a very good start," Jeff Ji, executive vice president for ZTE's U.S. unit, said in an interview. "We are actively working with all tier-one operators in the U.S."

ZTE is in talks with T-Mobile USA Inc. and Sprint Nextel Corp. as the U.S. becomes the focus of ZTE's handset efforts, Ji said. The Shenzhen, southern China-based company, which got more than 80% of its revenue last year from Asia and Africa, said it spent more than \$1.5 billion in 2009 investing in hardware and software in the U.S.

Operating revenue for the six months ended June 30 increased 11%

66 ZTE plans to introduce a smartphone in the U.S. in 2011, the same year it will offer broadband devices such as data cards for 4G wireless networks based on technology called long-term evolution. "

to 30.7 billion yuan (\$4.52 billion), the company said yesterday in a statement. Sales from Europe and the U.S. accounted for 18% of total revenue and grew 45% from a year earlier, according to unaudited financial statements.

Handset Business

ZTE's handset business increased the fastest, rising 40%, while its infrastructure business gained 1% and its telecom software services and software business advanced 18%, the company said. Net income jumped 12% to 877.5 million yuan, or 0.31 yuan a share, from 783.4 million yuan, or 0.29 yuan, a year earlier, based on Hong Kong financial reporting standards.

ZTE mainly sells equipment for telecommunications networks and gear to more than 500 carriers in at least 160 countries. In the first quarter, it ranked as the seventh-largest maker of handsets worldwide by shipments, according to iSuppli Corp., an El Segundo, California-based marketresearch firm.

"The U.S. market is definitely ZTE's most important and strategic market," said Ji, who helped expand ZTE in Europe before moving to the U.S. last year.

The company has since 2009 hired executives who worked at Microsoft Corp., T-Mobile and Nokia Oyj, the world's largest maker of mobile phones. ZTE, which employs 70,000 people globally, said it plans to create more than 2,000 U.S. jobs in the next several years.

Sales Effort

"We have continued to recruit in sales and marketing and logistics," Ji said.

With seven U.S. offices and a research-and-development center in Austin, Texas, the company began trying to sell phones to U.S. carriers in the past three years, Ji said. MetroPCS Communications Inc., the U.S. payas-you-go mobile-phone company, has had four ZTE handsets since 2008. I Wireless, a service provider affiliated with T-Mobile, started selling one a year ago, and Verizon Wireless last year offered ZTE's mobile broadband USB modem.

The new phone is designed for families and basic business users, according to ZTE documents. The socalled slider phone has a 1.3-megapixel camera, a 2.4-inch display and a Web browser, and allows for text, picture and voice messaging. It will sell for \$20 after a \$50 mail-in rebate and with a two-year contract.

Catching HTC

ZTE plans to introduce a smartphone in the U.S. in 2011, the same year it will offer broadband devices such as data cards for 4G wireless networks based on technology called long-term evolution, Ji said. The company has a portfolio of smartphones based on Google Inc.'s Android software and Microsoft's Windows Mobile system that can feature touch screens or BlackBerry-like looks.

Total research-and-development expenditures jumped 45% in 2009 while sales grew 36%, according to data compiled by Bloomberg. Tina Teng, a senior analyst at iSuppli, said ZTE has a long way to go before it can replicate the rise of Taiwan handset maker HTC Corp., which raised its profile in North America with phones based on Google's Android.

Verizon Wireless is co-owned by New York-based Verizon Communications Inc. and the U.K.'s Vodafone Group Plc. Dallas-based AT&T is the secondlargest U.S. wireless carrier, followed by Overland Park, Kansas-based Sprint.

ZTE TECHNOLOGIES

Driving Rapid Growth of Tri-Network Convergence with xPON+EOC Solution

By Xue Qikang and Lin Kai

Because telecom, radio and TV, and Internet networks exist separately in China, in January 2010, the State Council passed a general proposal for tri-network convergence. Tri-network convergence is a broad concept which does not imply the physical convergence of telecom, Cable TV (CATV), and Internet networks, but rather the convergence of high-level service applications. In technical terms, the three networks must adopt universal IP protocols and be interoperable at the network layer.

To provide converged multimedia voice, data, and image services, network operators are attempting to undergo technical transformation as they compete and cooperate with each other. Triple Screen Delivery delivery of multimedia content to mobile phone, PC, satellite or digital television—is the simplest application of tri-network convergence. People can make phone calls, watch videos, or access high-speed Internet via mobile phone, TV, or PC.

Service-Driven Growth

VoIP is a basic service requirement

of tri-network convergence, and a large number of radio and TV subscribers greatly increase VoIP revenue. IPTV is a video service that will also grow rapidly after tri-network convergence because all users can enjoy it. With the rapid development of 3G wireless communication technologies, mobile TV services have been gradually accepted. IPTV based on tri-network convergence has become the focus of attention in the mobile video field.

Apart from broadcast TV, multicast Video On Demand (VOD) is watched by many people. The large number of mobile users with VOD is a potential source of profit for operators. In their daily lives, people seek information, entertainment, and education through their mobile phones, and hope to enjoy high definition video on the home TV screen. These services improve user loyalty and drive the growth of trinetwork convergence.

World's First Carrier-Class EoC Equipment

ZTE places great importance on tri-network convergence, and has invested heavily in the xPON+EoC solution. Early in 2008, the company launched its Ethernet over Coax (EoC) products in compliance with ITU G.9954. In 2009, research began into EoC based on IEEE P1901 standards, and this passed the xPON+EoC test conducted by China Mobile. In 2010, ZTE developed the industry's first carrier-class EoC equipment. ZTE, China's largest xPON equipment vendor, is sparing no effort to help operators build an integrated, carrierclass xPON+EoC solution that is operable, manageable, and profitable.

xPON+EoC Solution

CATV operators own video brands, and have largest base of CATV users (including more than 160 million in China). Telecom operators have abundant Internet resources, mature service operation and management platforms, and well-established brands in the telecom sector. Telecom and CATV operators are therefore in a win-win situation; resources can be shared and the advantages of each can be complementary in the joint development of the family broadband market.

With the trend towards optical access, Hybrid Fiber-Coax (HFC)

networks bring fiber even closer to end users and each optical node covers fewer users. CATV broadband access networks are restructured on existing HFC network structures. As illustrated in Figure 1, an Optical Line Terminal (OLT) is placed in the data center. Coax Bandwidth Access Terminals (CBATs)-which integrate Optical Network Unit (ONU) and Cable Line Terminal (CLT) functions (ONU+CLT)—are placed in residential CATV stations or corridors, and Coax Network Units (CNUs) are placed in homes as modems for data decomposition and combination. Deployment of xPON+EoC is divided into service introduction stage and service maturity stage.



Figure 1. xPON+EoC network architecture.

Service introduction stage

In the service introduction stage, operators are concerned about lowering construction costs and rapid service provision. With these in mind, ZTE provides the most costefficient solution in the initial stage of deployment because it does not radically alter the original network.

OLT can be deployed at the data center, and CBAT (or ONU+CLT) in residential CATV stations. One ONU is connected to one or more CLTs via a UTP Category 5 cable (within 100 meters). The usual distance between CBAT and end users is about one kilometer. CNUs can be placed on users' desks, so that changes to the network are minimized. Low penetration in the initial stage of service fulfillment means that equipment capacity need not exceed 64 lines. To attract more users, a widearea coverage mode is adopted in the network

The above solution has the advantages of low construction cost,

fast service deployment, and minimal change to the original network. VoIP services are offered, and users are given 5-10MB bandwidth capacity. It also provides Internet access (1-4MB bandwidth), and supports digital TV.

Service maturity stage

As the network develops, EoC access is gradually accepted by users, and service demands increase rapidly within a short period of time. It therefore becomes necessary to change the original network. The number of users at each CBAT must be decreased because in the maturity stage, the bandwidth allocated to each user increases significantly from 1-4MB to 10-30MB. Since the output bandwidth of CBAT is fixed, to increase the bandwidth for each user, the number of users is reduced from 64 to 10-40. The distance between CBAT and end users is about 300 meters. Because of the higher penetration rate at this stage, higher bandwidth services such

as broadband Internet access and high definition digital TV (10-30MB) are offered. Operators can restrict bandwidth according to the user's service subscriptions.

Since xPON+EoC makes few changes to the HFC network, CATV operators can effectively reduce CAPEX and OPEX. This solution is in line with the IP development trend and is applicable to tri-network convergence in China.

ZTE-the largest vendor of xPON equipment worldwide-has launched a range of integrated EoC equipment for HFC network reconstruction. This equipment has been highly recognized in the industry for its interoperability with xPON and unified network management. It has been widely applied by domestic and international CATV operators including Thailand True, China Telecom, China Mobile, China Unicom, and Hanzhou China Digital TV.

ZTE TECHNOLOGIES

Case Study

Turk Telekom on the Road to Fixed Network Transformation

By Zhang Wenchao

Disadvantages of the Traditional Network

Established in 1847, Turk Telekom is the largest integrated operator in Turkey, the fifth largest fixed network operator in Europe, and the thirteenth largest fixed network operator in the world. It owns 95% of Turkey's fixed network resources including copper, fiber, and PSTN access points, and provides fixed-line, transmission, and data network services. In the third quarter of 2009, Turk Telekom had around 17 million PSTN users and over 12 million GSM users.

As Turk Telekom's networks have developed, the disadvantages of traditional PSTN—such as aging, large size, high power consumption, and lack of new value-added services—have become apparent. Many employees are required for day-to-day operation and maintenance, and this increases operating expenditure (OPEX). With these issues in mind, Turk Telekom carefully began planning the transformation of its networks from TDM to IP. This transformation would occur in 7 stages over 4 years.

The Most Challenging Transformation Program in the Industry

Evolution and development of an entire network is important in an operator's overall strategy. Partners are required to have cutting-edge technology, reliable delivery, rich experience, and comprehensive strength. Turk Telekom's fixed network transformation program is characterized by its large-scale and complex architecture. It has become the largest program of its kind in Europe with 31 physical sites and over 17.5 million lines.

In September 2007, bidding for the project was opened, and would involve two-years of strict testing and selection. ZTE and seven other device manufacturers participated in the bidding. After careful evaluation, Turk Telekom concluded that ZTE's advanced and mature all-IP core network program was wholly satisfactory for the task of evolving their networks. ZTE is an ideal partner to shoulder such responsibility. The company provides total next-generation network (NGN) solutions including IMS core network, service platform, MSAN, and high-capacity trunking gateways, as shown in Figure 1.

Total NGN Solutions Playing a Role

Drawing on its extensive experience, ZTE devised tailor-made solutions for Turk Telekom's new network. Twenty sets of core control devices are designed to cover the whole of the country, and several sets of media gateways and signaling gateways are designed to connect with the existing network. ZTE's NetNumen UNMS is used for unified network management.

These solutions will allow Turk Telekom to kick-start its all-IP transformation. The new network will feature the following:



Figure 1. Architecture of Turk Telekom's fixed network transformation.

- A completely new and flattened NGN architecture: This will greatly reduce Turk Telekom's OPEX and CAPEX.
- Smooth evolution: The new network inherits all existing PSTN services, but also supports richer integrated multimedia broadband services such as Voice over

Broadband (VoBB), Voice Call Continuity (VCC), Converged One Number, Converged Centex, Unified Message Service (UMS), Multimedia Messaging Service (MMS), Multimedia Ring Back Tone (MRBT), and Number Portability (NP). This will help Turk Telekom lead the local market.

Sailing Smoothly into a New Ocean of Business Transformation

ZTE's all-IP architecture, large capacity products, and total NGN solutions are designed to fully implement large-scale network transformation. ZTE's fixed network transformation program with enhanced functions can work with traditional terminals such as POTS, V5, ISDN BRI/PRI, and H.323. Original services are inherited and improvements made so that users have a consistent service experience. Seamless connection with existing network OSS/BSS is also supported. ZTE's extensive global experience in network transformation and IP implementation is vital to the success of the project. Turk Telekom is thus positioned for a comprehensive business transformation, rapidly responding to user demands for new telecommunications services, and consolidating its leading market position by providing rich, integrated multimedia broadband services.

ZTE Wins Fixed Network Transformation Contract with Turk Telekom

July 5, 2010 Source: totaltele.com

ZTE has been selected by Turk Telekom, the fifth largest fixed network operator in Europe, as the sole supplier of core network equipment and services for a nationwide all-IP network transformation project.

The total capacity of the network will be 17.5 million lines with more than 31 sites, making it the world' s largest ever fixed network replacement contract. ZTE will deliver a comprehensive next generation solution including an IMS core network, a comprehensive service platform, MSAN and large-capacity trunking gateways. The network will enable Turk Telekom to launch experience-rich converged services including VoBB, VCC, Converged One Number, Converge Centrex, UMS, MMS, MRBT and NP.

"ZTE's cutting-edge next generation all-IP core network solution fully meets Turk Telekom's requirements of migrating its legacy PSTN to a converged multi-service network which will enable the operator to rapidly complete its business transformation and maintain the leading position in the local market," said Mr. Xu Ziyang, President of Core Network Product, ZTE Corporation.

ZTE Helps UCell Launch 4G Network in Uzbekistan

9 August 2010, Shenzhen, China — ZTE is announcing that a 4G (LTE) network constructed for Uzbekistan mobile operator UCell (trademark of FE COSCOM LLC)—a subsidiary of TeliaSonera telecommunications group and one of the pioneers deploying the LTE network within the Commonwealth of Independent States area—has been successfully deployed with ZTE's prominent SDR technology and Uni-RAN solution. The network is able to achieve a downloading peak rate of up to 100Mbps.

With ZTE's industry leading SDR solution, UCell will be able to provide superior 4G services for its subscribers.

During the test in the nation's capital Tashkent, ZTE and UCell demonstrated high-speed Internet access, streaming video, file uploads and downloads, Internet browsing and VoIP services by using ZTE's LTE equipment.

"We are proud that Uzbekistan has become one of the few countries in the world utilizing the 4G network. As a part of TeliaSonera, a company with over a hundred years of experience in telecommunications, we are committed to delivering state-of-the art technologies and an excellent wireless data experience to our customers," commented UCell Chief Executive Officer Oguz Memiguven.

ZTE Tops the Global CDMA Market with a 30% Market Share

18 August 2010, Shenzhen, China — ZTE has been ranked as the leading vendor of CDMA BTS by IDC.

IDC's 2010 Global CDMA Market and Prospects research note said that by Q1 2010, ZTE had shipped an accumulated total of over 250,000 base stations, allowing the Chinese company to claim the No. 1 spot in the CDMA market with a global share of 30.3%.

As one of a few companies in the world that still makes large-scale inputs into CDMA technology, ZTE understands the importance of the CDMA market. ZTE is the first vendor in the industry to launch the CDMA/ LTE dual mode system which will be able to achieve a smooth upgrading of future networks before evolving into a commercial LTE system.

ZTE has also steadily enhanced overall competitiveness of its CDMA products. It has consolidated its lead in the key emerging markets of China, Indonesia and India, and made breakthroughs in North America. In the Chinese market in 2010, ZTE has undertaken over 80% of the work to migrate Nortel and Motorola CDMA equipment. Following this seamless transition, network performance has been greatly improved. ZTE has therefore won recognition from China Telecom for its outstanding engineering control, execution and delivery abilities in the migration process.

ZTE and Iberbanda Deploy Spain's First WiMAX 802.16e Network for Residential and Enterprise Market

4 August 2010, Shenzhen, China — ZTE announced today the deployment of Spain's first WiMAX 802.16e network with Iberbanda, a Spanish broadband telecommunications operator.

The deployment was executed in the Spanish regions of Galicia on the north-west coast of the country and neighboring Asturias. The initiative will provide highspeed broadband access services.

The deal follows an existing agreement signed between ZTE and Iberbanda in December 2009 to supply 500 WiMAX base stations for two years to provide high-speed broadband services to the rural parts of Spain.

ZTE has built the largest 2.3G WiMAX commercial network in Southeast Asia with 170,000 subscribers.

As of June 2010, ZTE has successfully rolled out 59 WiMAX networks in 41 countries. ZTE's equipment has been supplied to high-end markets such as the USA, Japan and Europe. In 2009, ZTE was ranked among the top three WiMAX vendors worldwide in terms of new network deployment by Frost & Sullivan.

ZTE and VIVO Strengthen Partnership with the Announcement of Two New Exclusive Mobile Phones

The X850 with Android platform and the X990 with Windows Life application

16 August 2010, São Paulo, Brazil — ZTE and VIVO, the largest mobile operator in Brazil, announced a partnership to launch two new mobile phones in the Brazilian market.

The two new phones are the ZTE X850—ZTE's first Android handset in Brazil—and the ZTE X990, which customers can find at VIVO's stores at a special sale price of R\$299,00 in a pre-paic plan.

The ZTE X990 comes with a 2.0 megapixel camera, FM radio and MP3 player. It supports Java applications and also has a video and audio recorder. For the first 30 days, subscribers will be able to send 100 complimentary SMS texts and access Windows Life at no cost.



ZTE X990

With its sophisticated design, the new phone aims to give customers fast and easy access to MSN messenger.

ZTE's first mobile phone with Google's Android platform in Brazil, the ZTE X850, is a display-touch phone with fast 3G internet access that carries Google services such as Google Search, Gmail, Youtube, Google Maps, Google Talk, Google Calendar and e android Market. The X850 also has GPS, a 3.2MP camera and an e-mail system.

"The profile of these new mobiles is aligned with our strategy to provide the best solutions in order to keep our customers connected," said Hilton Mendes, Director of Terminal Development at VIVO.

Telenor Hungary Commissions ZTE to Build Hungary's First LTE-Ready Network

Unified GSM/UMTS/LTE network to be deployed in Hungary

23 August 2010, Shenzhen — ZTE today announced a contract with Telenor Hungary, a subsidiary of one of the world's largest telecommunications operators, Telenor Group, to build a GSM/UMTS/LTE network in Hungary. ZTE will provide the company with radio and core infrastructure over the next five years, including its industry leading End-to-End and Uni-RAN solutions.

"As part of our vision of a Digital Hungary, we predict a growing need for simple-to-use, value-for-money mobile communications services across Hungary, especially mobile broadband and we now see that the time has come to switch to the next gear and take the lead in providing even faster and even more reliable services to our customers," said Anders Jensen, CEO of Telenor Hungary.

ZTE will switch, expand and operate the GSM/UMTS/LTE network and deploy over 6,000 base stations, including LTE

eNodeBs throughout the country. With its SDR-based solution, ZTE will help Telenor Hungary achieve a unified 2G/3G/LTE core network, supporting multi-mode and multi-band wireless services. This technology eliminates the need for further infrastructure upgrades, providing the operator with the flexibility to roll-out new services and a smooth evolution path to LTE.

"This agreement with Telenor Hungary marks another major breakthrough in the European market for ZTE's Uni-RAN technology and further cements our partnership with Telenor. With ZTE's unified network, Telenor Hungary will have the flexibility to upgrade its network as new services are rolled-out, preparing it for the imminent 4G era," said Kenneth Fredriksen, GM of ZTE's Telenor Business Unit.

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