Special Issue on Value-Added Services

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ZTE MOBILE WiMAX SOLUTION.

OUT OF REACH. BUT NOT OUT OF TOUCH.

As the leading player in the global telecoms industry and one of the 13 WiMAX Forum board members, ZTE is well positioned to address new broadband wireless challenges by offering a range of end-to-end customised WiMAX solutions.

ZTE Corporation has in-depth experience in 2G and 3G wireless networks and can provide broadband mobile WiMAX networks supporting 2.3/2.5/3.5GHz frequencies for large-scale, seamless coverage.

We customise state-of-the-art WiMAX solutions for wireless broadband networking based on many years of wireless experience, a thorough understanding of WiMAX, and extensive expertise gained from integrating our technologies into WiMAX networks, mobile networks, terminals, services and enterprise IT systems.

We also provide flexible applications to operators which allow them to work with different types of organisation to develop new business models or new services such as mobile government and vertical industry and SME applications.

ZTE is the fastest-growing global provider of telecommunications equipment and network solutions.

We deliver innovative, custom-made products and services to customers in more than 100 countries, helping them achieve continued revenue growth, while shaping the future of the world’s communications.

Please visit www.zte.com.cn or contact your local ZTE office to know more.

Welcome!
Driving Profitability with ZTE’s AnyService Solution

As a top value-added business brand, ZTE AnyService has found massive successful applications in the world.

Newspaper Goes Mobile

Mobile phones have become a new form of media, and opens new business avenues for the traditional media.

Making SMS More Personal

SMS has been an immensely popular application; however, refining and maximizing its potential has become a concern for operators.

Empowering Businesses through Corporate Ring Back Tone

The Corporate ring back tone (RBT) service is specifically designed for corporate clients to enhance their image.
ZTE's Coalition Emergency Response System

ZTE’s coalition emergency cooperation system, ZXCERS, containing intellectual property rights, is a complete emergency cooperation system.

ZTE’s Push Mail Solution Brings You Always-on E-mail Access

Push Mail (PM), as a new mobile e-mail solution, allows users to send and receive e-mails on their mobile terminals.

ZTE and Digit Wireless Unveil D-Series Mobile with Patented Fastap keyboard

To maximize the potential of the enormous prepaid market, operators need to shift from the legacy systems to the online charging system.

ZTE is a leading global provider of telecommunications equipment and network solutions. ZTE’s product range is the most complete in the world—covering virtually every sector of the wireline, wireless and handset markets. The company delivers products and services to customers in more than 100 countries.
ZTE Corporation, a leading global provider of telecommunications equipment and network solutions, has won the Rwanda MTN transmission project to build both the Rwandan backbone network and the first metropolitan network in the capital Kigali.

The backbone network project will connect Rwanda’s capital with the Ugandan border, where it will interface with the Uganda MTN network to provide an international fiber optic gateway.

“ZTE’s experience in deploying cost-effective and scaleable solutions was a key factor in winning this contract,” said Han Ling, Executive Manager of ZTE’s optical transmission product. “The deployment of these networks will vastly increase Rwandan transport capacity and its access to the international community and establish the network on a par with neighboring countries.”

ZTE will utilize its ZXMP S330 SDH transmission equipment in building the backbone and metropolitan networks. The ZXMP S330 features powerful multi-service access capability, network equipment protection and seamless scalability for system upgrades to 2.5G.

ZTE to Construct MTN Backbone Network

ZTE Corporation, a leading global provider of telecommunications equipment and network solutions, launched its new-generation IMS-based solution (ZIMS), on April 3 at the Global NGN Summit 2007 held in Beijing, China.

ZIMS is a complete end-to-end solution supporting multi-network convergence with an open structure. Its development has been based on analysis of network development trends and service transformation requirements under new industrial environment faced by operators.

ZIMS covers all the functional modules defined by Third Generation Partnership Project (3GPP), 3GPP2 and TISPAN (The Telecoms & Internet converged Services & Protocols for Advanced Networks). It provides the network equipment for the access layer, the bearer layer, the control layer, the service layer and the user data layer, and supports multiple access types, such as WCDMA, TD-SCDMA, CDMA2000, WLAN, WiMAX, Cable, xDSL and the traditional 2G.

ZTE Launches New Generation Convergence Solution
ZTE Showcases at CTIA Wireless 2007

ZTE Corporation showcased at CTIA Wireless 2007 that was held from March 20th to 22nd in Orange Convention Center of Orlando, Florida, the U.S. In the annual most influential event in North America, ZTE booth has attracted lots of visitors and potential customers with its All-IP CDMA 2000, UMTS/WCDMA and WiMAX equipment and solutions and a variety of fashionable 3G handsets.

ZTE was also a participant for CTIA Wireless 2006. In the past year ZTE achieved several important contracts in North America market including contracts with ClearTalk, Copper Valley and ODJ. Built on the foundation of ZTE’s strong R&D capability and first-rate customers, ZTE USA, the wholly owned subsidiary of ZTE Corporation is emerging as a leader in the U.S. telecommunications industry.

ZTE USA Delivers All-IP CDMA2000 Network Solutions for the USA AWS Bands

ZTE USA, Inc. a subsidiary of ZTE Corporation, a leading global provider of telecommunications equipment and network solutions, announced at CTIA Wireless 2007 the availability of the All-IP CDMA2000 Network Solutions for the Advanced Wireless Services (AWS) frequency band solution for the USA market. The AWS solutions support multiple frequencies for CDMA2000 1X and EV-DO Rev. A networks, enabling carriers to offer subscribers access to all current and next generation voice, data and multimedia applications via a single platform. The platform also enables carriers to rapidly capitalize on their AWS spectrum investments.

Built to be backwards and forwards compatible, ZTE USA’s CDMA AWS platform can be configured for Cellular (800MHz), PCS (1900MHz) and AWS (1700/2100 MHz) frequencies, allowing carriers to offer services and devices that support current and next generation applications.

(ZTE Corporation)
ZTE Corporation, a leading global provider of telecommunications equipment and network solutions, showcased its latest technologies, services and solutions at the Convergence India 2007, International Exhibition and Conference, South Asia’s largest communications and IT event, held from March 20th to 22nd in New Delhi, India.

During the show, ZTE showcased its latest technology achievements including wireless network solutions (GSM/GPRS/WCDMA, CDMA2000 1xEV-DO, WiMAX and GoTa), ZTE F3G Network Solutions (including SS, broadband access, optical transmission, data products, IPTV, digital home, NGN, etc.), and a full range of mobile phones and data cards.

The Indian telecom market has always been one of the most important strategic markets for ZTE. ZTE started its operations in India in 2001 as a total telecommunication equipment provider and within a short span has become an important supplier to almost all the big operators. The infrastructure products range from CDMA, GSM, Optical Transmission, Data Networks, Softswitch, WiMAX, and Value Added Solutions. Terminal products including handsets data card, IFWT have also been sold in the Indian market on a large scale. ZTE has accumulated abundant after sales maintenance experience of infrastructure and has developed a highly efficient after sales team. ZTE has also got a breakthrough in providing capacity and management service to its customers. For terminals, ZTE’s service centers cover most almost all areas in India.

ZTE’s ZXR10 high-end router has successfully passed the multi-protocol label switching (MPLS) interoperability test organized by international telecoms industry organization the MFA Forum in conjunction with the European Advanced Network Testing Center (EANTC) in Berlin. Since the completion of the test, the ZXR10 T128 was showcased at the MPLS World Congress 2007 in Paris, where ZTE set up a network in collaboration with other vendors’ device. ZTE has also successfully demonstrated IPTV services based on its MPLS technology.

“The EANTC’s authority on product quality is renowned throughout the industry because of its thoroughness and stringent test criteria,” said Li Weipu, ZTE’s router product director. “Such recognition is becoming increasingly important in bidding for high-end router projects as competition becomes progressively intense, and to have won such recognition is a strong affirmation of the quality of our products.”

(ZTE Corporation)
HSDPA Hits Milestone

G Americas announced on April 4 a breakthrough in commercial volume with 107 live High Speed Download Packet Access (HSDPA) commercial networks in 55 countries worldwide, and yet another 82 HSDPA networks planned or in deployment. Among those countries deploying HSDPA is Brazil, the largest mobile market in Latin America. The market will be led by the recent announcement of Telemig Celular and Ericsson to construct and deploy the first UMTS network with HSDPA capacity in Brazil.

The momentum of the third generation of GSM’s 3G evolution continues to escalate. In only 16 months since the first launch of HSDPA by Cingular Wireless in December 2005, the number of commercial HSDPA networks has increased worldwide from one to 107.

Orange Goes to Africa

Following the recent acquisition of mobile licenses in Guinea-Bissau and Guinea, France Telecom said that it has further strengthened its presence in Africa by acquiring a mobile and internet license in the Central African Republic. Indeed, France Telecom has just signed an agreement with the Central African State for a mobile and internet license, with the commercial activities of Orange’s new subsidiary in this country scheduled to start up before the end of the year. This new presence in Central Africa represents a further breakthrough for the Orange brand in Africa and internationally.

Nokia Pays Qualcomm

Nokia announced on April 5 that it has paid Qualcomm US$20 million for patent licenses covering the second quarter 2007. Nokia and Qualcomm have had patent license agreements since 1992 and Nokia’s obligations to pay license fees under the old agreements partially expire on April 9, 2007. The payment announced does not extend, and is not related to, the old agreement. Rather, it is based on the licenses that Qualcomm has agreed and provided through the European Telecommunication Standardization Institute (ETSI).

Sony BMG Mobile Content Coming to China Unicom

A company that got its start putting unsigned bands on U.S. cable TV will now bring Sony BMG Music Entertainment properties to cell phone users in China.

Content aggregator Global Music International Inc. (GMI) made a deal with the music conglomerate under which it can provide music videos, ring tones and ring back tones through any Chinese mobile operator, said Jim Fallacaro, founder and chairman of GMI. Initially, the company will make the content available to subscribers of China Unicom which is already offering GMI’s independent music products.

Motorola to Support China Mobile’s Express News

Motorola says it has become the first handset manufacturer in China to support China Mobile’s news content service.

The service, called Express News, is a feature that lets consumers get the news, sports, entertainment, and other information they want directly from their mobile device home screen.
ZTE: Chartering a Course for International Expansion via CDMA

Godfrey Chua  March 2007,  Research firm IDC

Wireless infrastructure is a sizeable and steady market opportunity for equipment vendors across the globe. While the technology mix is indeed dominated by the GSM and wideband code division multiple access (WCDMA) domain, significant demand still exists for code division multiple access (CDMA) systems. For equipment vendor ZTE, internationalization has been an important strategic imperative, and CDMA has proven to be an effective focus and platform for its international expansion. ZTE has deployed over 60 million lines of CDMA network equipment for 106 operators. It has built a strong competency in the technology and a reputation for delivering high-value systems. As the market continues to evolve and the shift toward 3G technologies accelerates, competition for CDMA market share will intensify further. The prospects in the CDMA sector, coupled with the effectiveness of ZTE’s management to innovate and adapt to ever-changing market dynamics, will be the key elements determining the vendor’s ability to maintain growth and continue to expand outside of China.
Among ZTE’s fastest growing segments has been its CDMA portfolio, where activity has also more than doubled in the last five years. Despite a decline in 2004 and 2005, the company rebounded in 2006 and has seen contract values reach a record level of more than US$1 billion. CDMA products account for nearly 45% of domestic and as much as 80% of international wireless infrastructure revenues. Wireless, as a whole, accounts for almost half of ZTE’s total infrastructure related sales. ZTE’s portfolio of CDMA2000 1X systems is anchored on the ZXC10 series, a system that has been deployed for 106 operators around the world, encompassing networks comprised of nearly 1,000 base station controllers (BSC), 300 mobile switching centers (MSC) and 130,000 base stations (BTS). ZTE has also deployed 50 commercial and trial EV-DO networks across the globe.

Case studies

The ability to deliver large-scale networks and innovative technology are two important elements defining an equipment vendor’s competency and competitiveness in the mobile sector. Since it first deployed its CDMA base stations in 2001, ZTE has brought its CDMA products to volume application across the world. ZTE’s CDMA systems have so far been deployed in most of the major regions of the globe, with key operator clients including:

- North America: Cleartalk and CVTC (United States)
- Americas: Telmex (Mexico); Haiti (Haiti)
- Asia/Pacific: China Unicom and China Telecom (China); G-mobile (Mongolia); BSNL and TTSL (India); PTCL and Telecard (Pakistan); Nepal Telecom (Nepal); Indosat (Indonesia); SLT (Sri Lanka)
- Africa/Middle East: Nitel (Nigeria); Eritel (Eritrea); HWL (Ghana); Telecom Egypt (Egypt); Algeria Telecom (Algeria); Maroc Connect (Morocco); Sudatel (Sudan)

Among these networks, ZTE’s deployment for China Unicom and Sri Lanka Telecom demonstrate competencies in delivering a large-scale network and technology innovation. The ability to scale is shown in the infrastructure delivered to China Unicom’s network. Technology and innovation, on the other hand, is demonstrated in the all-IP CDMA network that was deployed for Sri Lanka Telecom.

China Unicom

China Unicom is the second largest mobile operator in China and is the third largest in the world. The firm has over 140 million subscribers and distinguishes itself by operating both a CDMA and a GSM network. At the end of its fiscal year (June 2006), Unicom reported 34.5 million subscribers on its CDMA system. Though the majority of its subscribers are on the GSM network, Unicom reported favorable statistics for CDMA. It noted a CDMA average revenue per user (ARPU) figure that was 36% higher (RMB 68.1 versus RMB 50) than for the GSM network, as well as a churn rate that was 44% lower (1.49% versus 2.69%).

ZTE has gradually become an important partner to China’s second largest mobile operator. It has delivered nearly 12 million lines of capacity and has seen its share of the service provider’s business increase steadily over the last three years. So far, it has delivered 76 MSCs, 203 BSCs and 20,775 BTSs to Unicom, making ZTE the third largest supplier (see Fig. 1). This strengthening relationship is also reflected in contracts specifying replacement of other vendors’ equipment.

Other large networks built by ZTE include systems for China Telecom (nearly 4.9 million lines), BSNL (6.5 million lines), TTSL (2.2 million lines), and Sudatel (2 million lines).

Sri Lanka Telecom

Sri Lanka Telecom (SLT) is the largest telecommunications service
provider in Sri Lanka. Formerly Sri Lanka Telecom Corporation (SLC) and a part of the Ministry of Communication, the industry was liberalized in 1996 and SLT was formed. The company’s services span the range of traditional fixed line, Internet, and mobile services. An important growth driver has been its 100% stake in Mobitel, the leading mobile operator in the country.

SLT was also awarded a license to provide CDMA-based mobile service in the 800 MHz spectrum in 2005. The network serves over 400,000 subscribers today and has a target of increasing subscriber capacity by 150,000 lines each year.

ZTE was awarded the contract to build SLT’s CDMA network. Phase one of network deployment sought to cover as much 90% of the entire country. ZTE’s proposed solution encompassed its all-IP CDMA network architecture. So far, network performance has been strong with first year operations seeing call drop ratios average less than 0.5% while call success ratios netted 98.11% and 97.11% during peak calling hours. A 50 BTS expansion has since been awarded to ZTE.

Comprised of one BSC and one 3G-CN located in each city and several base stations adopted to capacity and coverage requirements (01, M11, S111, S222, S333, and S444), the all-IP solution is notable for its open interfaces and advanced next-generation network (NGN) softswitch technology. The architecture enables numerous applications, including trunking, data, location, streaming media, prepaid, and other such services.

**Future outlook**

Annual investments in mobile infrastructure will experience slow but steady expansion through the end of this decade. From a base of just over US$46 billion in 2006, spending will exceed US$50 billion by 2010. Record-breaking subscriber growth, network optimization, and enhancement initiatives and investments in next-generation mobile systems are the key elements contributing to the steady investment outlook (see Fig. 2).

**Essential guidance**

As ZTE has gained respect in the CDMA space and is now known for more than simply delivering value-based systems, it must work even harder to compete and capitalize on the momentum products such as GOTA and its all-IP network have created. Critical to this will be the effectiveness of ZTE’s management in addressing key areas where further competencies must be developed as well as adapting to ever-changing market dynamics.
ZTE’s handset division plays a key role at ZTE. It generates about 20% of overall revenues, with a gross profit margin of around 17% in the first nine months of 2005. The division comprises 3,000 employees including 1,000 R&D staff. ZTE’s handset manufacturing has the capacity for 18 million units per year. ZTE invests about 9% of its profit into handset R&D.

Although global handset vendors such as Nokia and Motorola dominate the domestic GSM market, ZTE leads the domestic CDMA handset vendors, with a 36% market share in November 2005. ZTE ranked 14th in the domestic GSM market with a market share close to 2%. Nokia, Motorola and SonyEricsson dominate the Chinese GSM market, with a market share of almost 50%. Because Nokia and Motorola manufacture their handsets locally, they are considered domestic vendors.

ZTE recently reached the 10 million unit milestone in CDMA handset international sales. In the Chinese market, Unicom’s CDMA subscriber growth rate has been slowing, which has dragged down sales of CDMA handsets. Because of ZTE’s high exposure to the local CDMA market, the slowdown in CDMA subscriber growth affected its short-term growth in 2005. However, ZTE’s international handset sales have helped create a more balanced revenue stream for its handset business.

Key milestones
- 2000: Developed GSM/GPRS protocol software and passed FTA tests.
- 2005: Launched the first GPRS/WCDMA dual-mode data card. Launched smartphone e3. ZTE PHS handset V260 won the UI design award. First WCDMA handset contract in Europe.
- 2006: International sales of ZTE CDMA handsets reached 10 million units.

Handset portfolio
Started in 1999, ZTE has built a very rich handset portfolio; it has become the only handset vendor in the world with products across GSM, CDMA, WCDMA, CDMA2000, TD-SCDMA and PHS. In the Chinese market, ZTE has a leading position in the CDMA, TD-SCDMA and PHS markets. ZTE has not been marketing its TD-SCDMA handset portfolios aggressively. However, at a recent analyst event held in Barcelona prior to 3GSM, ZTE disclosed its TD-SCDMA...
product portfolio, which includes multi-mode handsets, smartphone devices and TD-SCDMA/HSDPA data cards. ZTE also has a customised handset for multi-mode (for example, GSM/CDMA2000, GSM/CDMA2000 1xEV-DO, PHS/GSM, WCDMA/WiFi, WCDMA+DVBH). ZTE can afford such a rich handset portfolio because it uses a common platform, containing both software and hardware components.

**ZTE’s smartphone system architecture**

ZTE’s handset business unit had a gross profit margin of around 17% in 2005, which is good considering the highly commoditised nature of the handset market. One of the key reasons for such an achievement is ZTE’s common platforms.

Application software and hardware are highly reusable across the handset portfolio. Comms protocol stacks are reusable inside one particular wireless standard such as GSM or CDMA. The core hardware such as baseband processor and RF can also be reused for the same wireless standard. As well as RTOS, ZTE also embraces Linux and Windows Mobile, which is used for dual-mode (GSM/CDMA2000 1X) devices. According to He Shiyou, general manager of ZTE’s handset division, ZTE has most of the core technologies for the manufacture and design of handsets. The only core technology ZTE does not have is the chipset, for which most of the handset vendors rely on Qualcomm and TI.

**Focus on low to mid-tier markets in the international market**

In 2004, ZTE only had commercial contracts in 20 countries; the number of countries had increased to 50 by March 2006. As a result, handset sales reached about US$190 million in 2005, which more than doubled sales revenues of US$70 million in 2004. CDMA handset sales were the main driving force for growth. The strategy to focus on the low to mid-tier market has paid off. ZTE’s CDMA handsets—the C150 (low end) and the C220 (mid-range) are proving very popular in Asian markets. In approximately six months, global shipments of the C150 exceeded 3 million units, including 2.3 million units sold internationally; the India market alone took 2 million units. Interestingly, the C150 is manufactured in China and exported to India. If the C150 is manufactured in India (indeed ZTE has plans to set up manufacturing there), the taxation associated with the handset will be reduced; this will make the C150 even more competitive.

**Positioning in the Chinese and international markets for 3G**

As the leading CDMA handset vendor in the Chinese market, ZTE has developed its D-series CDMA2000 1x EV-DO handsets and MY-series data cards. ZTE currently has about 20% of the market share in Unicom’s CDMA infrastructure, and is the vendor behind Unicom’s WorldWind services (based on Qualcomm’s GSM1x). Its end-to-end ability in the CDMA area will certainly help ZTE to maintain its leading position in the CDMA handset market.

ZTE also has a strong device portfolio for TD-SCDMA, including four handset models and two data cards, with one supporting TD-SCDMA/HSDPA. ZTE is well positioned in the TD-SCDMA handset market if China Telecom adopts TD-SCDMA. One of the dilemmas China Telecom is facing is how to migrate its PHS subscriber base to 3G. ZTE’s ability to provide dual mode (PHS/TD-SCDMA) should help it win China Telecom’s business. In fact, ZTE already has a dual-mode handset that supports GSM/PHS.

ZTE has also made a move into the European WCDMA market. In December 2005, it sold 300,000 F866 handsets to H3G UK, targeting its prepaid customer base. F866 is a clamshell tri-band handset and was the first handset ZTE sold into the European market. ZTE has a broad WCDMA handset portfolio under the F-series, which comprises ten models. The F-series supports multiple technologies including WiFi, DVBH, and a 1.3 mega pixel camera. ZTE also has a HSDPA data card, the MF330. ZTE is well positioned in the local market and international market for WCDMA terminals.

With a relatively robust distribution channel and customer care centres, ZTE will continue to be a strong contender in the domestic market. We believe ZTE will be the leading domestic 3G CDMA and TD-SCDMA handset vendor, and its WCDMA sales will also gain momentum in the domestic market.
As a lot of telecom markets are moving towards saturation, operators have difficulty improving revenue from basic services; and value-added services (VAS) have become a key source for future revenue growth.

ZTE has accumulated 12 years of experience in the field of VAS. Its AnyService VAS suite provides a wide range of applications for GSM, CDMA, PHS, PSTN, NGN and converged networks.

As a top value-added business brand, ZTE’s AnyService has found massive successful applications in the world, covering a gamut of customers including individuals, enterprises and governments.

By the end of 2006, ZTE’s AnyService has empowered more than 300 million subscribers around the world making their life richer and more convenient; it has also allowed more than 60 operators to enjoy the benefits of quick service take-up and quick revenue generation.

To date, ZTE has four research & development (R&D) centers working on AnyService development with 2000 R&D staff. These R&D bases located in China, India, Pakistan and the U.S. provide local presence in different markets that have unique needs and require customized solution in addition to technical support and training. These institutes enable ZTE to be more responsive to customers’ requirements, and to keep pace with the latest development in the VAS industry.
Highlights of ZTE’s Anyservice solution

- A unified platform
  Different VAS products are developed on a unified platform which enables fast time-to-market and reduce R&D and maintenance costs. A special R&D team has been established for the unified platform.

- Features-rich
  ZTE’s VAS solution boasts of a broad range of exciting multimedia features which maximize revenue opportunities.

- Openness
  Standard compliance ensures excellent interoperability with other vendors’ equipment. The solution provides open application programming interfaces (APIs), which allow content providers and service providers to join in the value chain.

- Carrier-grade
  The solution enables a carrier-grade system that offers reliability, availability, and “pay-as-you-grow” expandability.

- Easy-to-operate
  The solution can be used in legacy and future network infrastructures. It is also well designed and easy to use, thus greatly reducing operational expenditures.

- Rich experience
  To date, ZTE’s VAS solution has been widely deployed around the world. With a rich reservoir of experience in customization and localization, ZTE can provide a viable means to scale services in a way which meets customer expectations.

- One-stop solution

ZTE’s Anyservice is a complete solution including application, service control, network access, and terminals, and it uses proprietary software and hardware. Besides, it can provide a full range of value-added services to support operator’s business needs.

Global applications

In China, ZTE has led the way with a number of innovations and milestones, including the world’s largest GSM SMS center, Asia’s largest SMS gateway, China’s largest CDMA SMS center, China’s largest ring tone center, China’s largest local fixed network SMS platform, and the first NGN-based calling center. Its Anyservice has gained the largest market share of China Unicom’s CDMA market; and has established itself as the top brand name in the markets of intelligent public phone, fixed SMS, and CRBT.

Besides the huge success in China, ZTE’s Anyservice solution is widely applied in overseas markets as well. ZTE has collaborated with a number of customers including Thailand’s TOT, the Philippines’ Digitel, Pakistan’s PTCL, India’s BSNL, Brazil’s Brasil Telecom, and etc. Its partner network includes multinational operators such as Norway’s Telenor, France Telecom/Orange, Singapore’s SingTel, Israel’s Minicom, Greece’s OTE, Malaysia’s TM, Canada’s Telus, HK’s Hutchison, and Etisalat based in the UAE.

It is worth mentioning that ZTE’s color ring back tone (CRBT) service, MyRing, was an unpredictable success in India. MyRing, deployed in 4 sites, has now over one million subscribers after upgrading it for four times. ZTE’s Anyservice solution made a significant step into the European market following a cooperative agreement with France Telecom on the intelligent

Different VAS products are developed on a unified platform which enables fast time-to-market and reduce R&D and maintenance costs
ZTE’s VAS products now stand in the leading position in the industry—thanks to its technical and commercial maturity. Its VAS solutions have been implemented in over 50 countries for more than 60 networks.

A full member of standard bodies

As a leader in the global VAS industry, ZTE keeps track of the latest development of VAS standards.

ZTE has obtained full membership in the 3rd Generation Partnership Project (3GPP), 3GPP2, Parlay Joint API Working Group (JWG), CDMA Development Group (CDG), European Telecommunications Standards Institute (ETSI), China Communications Standards Association (CCSA), and etc. ZTE is the primary drafter of the CAMEL and WIN standards for China’s Ministry of Information Industry (MII). ZTE owns 12 Intellectual Property Rights to its VAS products, and more than 20 of its projects were listed in the “National High Tech Research and Development Program (863 Program)”.

When the traditional services can’t be regarded as revenue-generating services in an increasingly competitive market, operators are looking to VAS to retain customers and increase their revenues and margins. With its powerful R&D strength and implementation expertise, ZTE can provide tailored solutions, to allow operators to extract greater value from their networks.

ZTE’s AnyInfo service based on integrated information platform was launched in Yunnan Province by China Telecom in March. Since that, ZTE’s AnyInfo service has been widely deployed in other cities in the country.

ZTE teamed up with China Mobile to develop IMS PC applications in April, including an IM Gateway which offers IM interoperability between China Mobile and Vodafone. Moreover, ZTE was chosen as the sole provider of an IMS total solution by China Mobile.

France Telecom selected ZTE to supply its next generation SCP for providing converged telephony and one-stop billing in the Matrix project in May.

In May, the 2006 VAS Forum Tour began in Greece, and continued to other major cities around the world including Johannesburg, Moscow, Rio de Janeiro and Paris.

ZTE was contracted by India’s state-owned BSNL in August to provide CDMA equipment for supporting 2.5 million lines, as well as VAS solutions such as Prepaid and VPN.

ZTE was selected by China Mobile to provide its MMS and WAP solutions in August. ZTE has a 100 percent share in the MMS gateway.

In September, ZTE’s India R&D center celebrated its first anniversary. The center has successfully supported the Indian and South Asian markets.

SingTel launched the CRBT service using ZTE CRBT system in November.

In December, ZTE was selected to rebuild Telkomsel’s GSM short message service center for diversified and enhanced applications of SMS.

Singapore’s Starhub chose ZTE to provide online charging solution (OCS) in December, and now it has gone into operation.
Value-added service providers, by partnering with news agencies, can provide mobile newspaper service which allows user to read the latest news on a multimedia handset screen wherever they may be. By migrating to mobile networks, mobile newspaper is revolutionizing the traditional media. Mobile phones have become a new form of media, and opens new business avenues for the traditional media.

As mobile phone penetration has risen rapidly, the mobile newspaper has an extremely large number of potential users. It has qualities of timeliness and effectiveness that the traditional newspaper doesn’t have. Moreover, with mobile as the bridge, users can interact with the newspaper by leaving messages.

All in all, the mobile newspaper presents concise contents in unique forms; delivers fast access to information; provides convenient reading; and allows strong interaction.

In China, the possibilities of messaging service through mobile phones have been fully exploited. The Beijing-based newspaper, China Women’s News, in cooperation with China Mobile, started to provide a mobile phone version through MMS on July 18, 2004. In the following year, China Mobile launched “Mobile Paper”, a mobile newspaper service that is available through WAP technology, SMS or MMS. The mobile newspaper has promoted China Mobile’s MMS business. By the end of January 2007, the daily traffic volume of MMS news delivered by China Mobile has surged to 11 million messages.

**Mobile newspaper**

The mobile newspaper provides news services via SMS and MMS or through internet/WAP. For China mobile, the newspaper content is mostly distributed via MMS (Fig. 1). The MMS newspaper will convey information containing audio, and static or animated pictures to readers/subscribers.

This service has several features listed below:

- Individualized

The mobile newspaper has high customization ability. Users can choose from a variety of items, including news, music, movie, life, sports, finance, and etc.

Personalization is the direction set for the news sector. The traditional media has become increasingly reader-centered; however, it can’t serve each individual’s specific needs. As mobile devices are the equipment that users carry almost everywhere, when used as the platform for newspaper content, it can provide individualized and pertinent information to users. The
user can select the kinds of news they are interested in receiving.

The mobile media can provide additional information services such as user requirements analysis, information control, information classification, automatic distribution, and even user feedback.

- Instant distribution

Compared with the printed material, mobile newspaper is easier to be delivered. When the contents are produced, they are available in push options such as SMS or MMS. If a user is out of the service area, and fails to receive the messages, the messages will be temporarily stored for a later retrieval by the user. Users can not only read the messages at their convenience, but also forward messages that contain useful information to their friends.

- Interactive communication

By virtue of the mobile communication network, the mobile newspaper enables interaction between a reader and an editor. One of the important characteristics of the traditional mass media is one-way communication. The feedback from the audience is not instant or direct. Mobile newspaper opens up a new communication platform (e.g., SMS or MMS) which allows the readers to share their feelings and opinions right away.

- Improve operational efficiency

Mobile newspaper carries the contents from news groups, and reproduces them to suit the handsets. It reduces operational costs as it doesn’t involve printing and publishing activities, and allows news publishers to optimize resources, focus on their core business, and develop new revenues, thus creating a win-win situation for both the traditional media and mobile media.

**Operation of mobile newspaper**

**The value chain**

The mobile newspaper has an extended value chain that not only includes network provider and operator but also content making platform provider (SP), content provider (CP), and terminal manufacturer (Fig. 2).

In this value chain, the operators have a core position. They consolidate all the resources, create the environment in which the mobile value-added services can be created, and provide services such as service access, technical support, billing and charge collection, unified customer service, and marketing. The network providers supply all network equipment and service platforms.

The operators must cooperate with appropriate content providers, such as the music entertainment companies, news agencies, to integrate services and contents. To facilitate the content delivery, a content adaptation platform that facilitates content making is needed. The content making platform can be provided by the operators, or by third-party SPs (e.g., ZTE’s mobile newspaper marketing platform, Yahoo!’s mobile portal, and etc.).

ZTE provides a total mobile newspaper service solution including the basic network equipment, terminal, SMSC, MMSC, WAP Gateway, and the mobile newspaper marketing platform—a content adaptation platform.

**Service operation solution**

The operation mode of the mobile newspaper depends on the operator type, the operation stage of a system, and the cultural habits of a market. Generally, it covers the following aspects:

- Building a brand

The mobile newspaper service can be marketed under certain brand names to create brand loyalty (e.g., Vodafone’s “Live!” for receiving live TV news, and China Mobile’s “Mobile Paper”, “M-zone”, and “GoTone”). Most operators have realized the importance of branding, and invest massively in the advertising campaign. Moreover, the operator can brand a specific content type of service to attract more users.

- Cultivating users’ habit

The users usually need some time to get familiar with a new service. The operator must attract the users’ interests and cultivate their habits by all means possible. For example, Jiangsu Mobile provided news on the World Cup 2006 when it was held in Munich; on the other hand, it cooperates with the local radio station to offer bonus-based questions. If the audience correctly answers a bonus
question, he or she will be given a voucher card worth RMB50.

- Individualized service

The mobile newspaper must provide personalized services, targeting segmented customer base. Initially, operators can take some newspaper contents out to the public by themselves. When the service matures, and its service requirements are diversified, the operators will then select the suitable CPs, like local media groups, and provide users with contents of their choices.

For high-end customers such as white-collar workers, stock market news can be provided; for trendy youngsters, the pop music and movie guide can be provided. Moreover, different messages can be sent at different times, reducing the load of the system, and increasing personalization of the mobile newspaper.

- Tariff

The mobile operator can introduce differentiated billing methods based on content type and target groups. The service is available at two options: monthly flat rate or a message rate. The monthly flat rates vary according to the different information types. When the service is started, the operator can offer discounts, for example, one month free discount or the fourth-month for free discount for a three-month subscription.

- Terminals

Terminals hamper the development of the mobile newspaper services. They may hold up the market with such problems as the following: some terminals don’t support MMS and WAP, the mobile newspaper display is limited by the screen and resolution of handsets, and the terminals with powerful functions are too expensive. The operators will need to cooperate with terminal manufacturers in order to reduce the costs of mobile devices, and they would also have to develop the operating systems and browsers on the mobile devices.

**Conclusion**

According to Rupert Murdoch who is regarded as the king of the media, in order to survive in the digital era, the print media will have to incorporate the multimedia technology on to their industry, and offer readers with multiple platforms to access the contents, such as handsets, iPods, and even handheld gaming devices.

The mobile newspaper is a combination of the mobile distribution and the contents of traditional media, and requires lower cost. It breaks down the walls between the newspaper, radio broadcasting, TV, and the Internet, and presents information in a multimedia way, thus driving new growth and value to the newspaper industry.

On the other hand, the mobile newspaper service will play a key role in the development of the MMS market. For China Mobile, the SP-MMS traffic takes up more than 70% of the total MMS traffic; the remaining 30 percent is point-to-point MMS traffic. As operators are trying to move MMS further into the marketplace, mobile newspaper gives them a means to tap the potential of the MMS market. Services of the similar kind like mobile magazine, mobile blog, and mobile encyclopedia can also promote MMS.

Currently, the mobile newspaper is still in its development stage, but it has a bright future as it adds vitality to the newspaper industry and allows mobile operators that don’t own any content to maximize average revenue per user.
Making SMS More Personal

Yao Qin

As mobile communication technologies are maturing and mobile ownership is getting saturated, mobile operators, and even the whole telecom industry, are now focusing on enhancing customer average revenue per user (ARPU) through service innovation which is necessary for the success of the whole industry chain.

As the most popular value-added service, point-to-point short message service (SMS) has entered a mature period after experiencing rapid growth for several consecutive years.

Most of the existing SMS are information services, however, providing some personalized SMS is necessary to offer more communication choices and increase user satisfaction. ZTE addresses these needs with a package of personalized SMS, such as SM Signature, SM Forwarding and SM Firewall—a great antidote to the inconvenience of the conventional standard SMS.

Personalized SMS

The following is an introduction of some typical personalized SM services. They have features such as affecting the flow of service, and high real-time requirements.

SM Firewall

The SM Firewall filters spam short messages based on the rules predefined by the users. It has the following filtering rules:

- Black list and white list: The system will automatically remove all the incoming messages from the black list of numbers and accept messages from the white list.
- Timed filtering: The system will bar short messages during a specified period (the duration cannot exceed 999 minutes).
- Keyword filtering: The system will automatically block short messages that contain a certain keyword set by a user.

The users can edit an SMS predefined by the operator, send it to a platform or log into the operator’s Web site, to query information about the filtered messages at any time.

SM Acknowledgement

The SM Acknowledgment means that the sender will get an immediate SM reply about the message delivery status. The reply can be a greeting or an advertisement message, or it can even be a positive or negative acknowledgment as defined by the
subscribers or operators.

**SM Signature**

Usually, a user can identify the sender of a message if he has the sender's number and name stored in a directory. If the user can’t remember or did not store the number of the sender, he will be unable to identify the sender, especially during holidays when mobile phone users go on SM greeting spree. The SM Signature can avoid such situation as it allows the sender to place a personal signature at the end of an outgoing SM.

**SM Forwarding**

This service allows short messages sent originally to a mobile phone number to be forwarded to another mobile phone number. For example, if user B presets this function and the forwarding number (user C’s number), then when user A sends a short message to user B, user C rather than user B will receive the message.

Users can set conditional and unconditional forwarding. In a conditional forwarding, an SM is forwarded during either of the following situations: when the mobile station is switched off, when it is impossible to establish a connection with a mobile station, or during a preset period of time.

The user can not only choose the mobile number or e-mail address that the SM is to be forwarded, but can also opt to keep a copy of it.

**SM Storage**

Users prefer to store interesting short messages on mobile phones, but are likely to quickly run out of storage space. The SM Storage provides users with large storage space, allowing them to store messages in network storage devices. The storage space is configured and distributed by the operator, and the users can query the information of short messages or download them via the operator’s Web site.

**SM Auto-Reply**

The SM Auto-Reply automatically generates a preset message as response to messages that arrive when the user is on a business trip, at a meeting, or on vacation.

with the SMSC via the extended Short Message Peer to Peer Protocol (SMPP) (Fig.1).

The ASP is used to store the detailed subscription data and information about the registration status of the called users in the whole network.

With ASP, the operator can broaden its SMS options, as well as make it more functional and individualized. It provides a technical basis that gives operators a competitive edge as they can choose to deploy one or several of these services to suit the subscriber’s needs. All the services can be charged at monthly or pay-per-use rates according to the different service types.

Fig. 1  ZTE’s ASP can connect with multiple SMSCs

**ZTE’s personalized SMS solution**

As a leading telecom equipment manufacturer and network solutions supplier, ZTE has developed the Advanced SMS Platform (ASP) that allows operators to offer unique features to end-users.

ZTE’s ASP solution minimizes the change in the Short Messaging Service Center (SMSC). It is interconnected with the SMSC via the extended Short Message Peer to Peer Protocol (SMPP) (Fig.1).

SMS has been an immensely popular application; however, refining and maximizing its potential has become a concern for operators. Leveraging the powerful ASP, ZTE’s personalized SMS solution can help operators increase user satisfaction, boost SMS usage, and generate greater revenue.
Empowering Businesses through Corporate Ring Back Tone

Shao Chunyan

Color ring back tone (CRBT), a personalized mobile music service, has become a popular application that appeal to users such as students, white-collar workers, and trend-setters. As CRBT service has reached a saturation period, operators begin to focus on the enterprise customers, which are a major revenue source for the operators.

The Corporate RBT service is specifically designed for corporate clients to enhance their image. With this service, companies can have their own customized default ring tones to be played back on their employees’ handsets during the business hours. As this service is built on a CRBT platform, the employees can still specify personalized ring back tones for non-business periods.

ZTE’s MyRing system can be adopted by corporate customers. ZTE launched CRBT service under the brand name of MyRing at the end of 2005. To date, ZTE’s MyRing system has been deployed in countries such as China, Singapore, India, Pakistan, and Africa. This feature-rich service provides an easy-to-use interface for end users, and simple management for operators and content providers.

Service features and contents
The business ring back tone has the following features:

- Effective spread: The Corporate RBT service provides a more effective communication tool than the traditional media.
- Well-targeted: The Corporate RBT service is aimed at supporting corporate customers.
- Flexible setting: The Corporate administrator can flexibly set the ring tones as needed.
- Low cost: The service offers a low cost solution for corporate branding.

Operators can offer diverse features to different corporate customers. The corporate RBT service allows corporate customers to preset the ring tone to a corporate song, a corporate slogan, product advertisement, a holiday greeting or a corporate anniversary greeting. It is of the highest priority, and can be directed to specific customers, and can be specified to a certain time of a day.

As to the content facture, the corporate RBT can be proprietary music and content recorded by the company, or a standard ring back tone generated by an operator or a third-party service provider (SP).

The corporate customers will be charged monthly on a per telephone number basis.

Service benefits

With the Corporate RBT service, corporate customers will enjoy the following benefits:

- Integrated voice communication and marketing
- Consolidate and standardize corporate images
- Provide a unique channel for advertising

Corporations by incorporating their ring tones into their employees’ handsets, reinforce their brand images.

Operators’ benefits include:

- Drive the development of CRBT service

For a company availing of the corporate RBT—an extension of CRBT service—all employees must subscribe
to CRBT, which will bring new user growth as well as increase service penetration.

- Generate huge and immediate profits

The Corporate RBT service targets the enterprise segment, a high-end market, providing operators with opportunities to drive revenues up.

- A strong proof of service provisioning capabilities

Operators demonstrate strong service provisioning capabilities when adding the Corporate RBT service to their voice-based value-added services (VAS) portfolio, thus strengthening their competitiveness.

**Highlights of ZTE’s Corporate RBT service**

- Corporation’s exclusive ring tones

  Each Corporation can upload a maximum of 50 dedicated ring tones. The corporate administrator controls the ring back tone load. The corporate ring back tones are designed exclusively for corporate users. Consumer can’t order them from Web pages.

- Flexibility

  The Corporate administrator can designate a specific ring back tone to be played when one of their employees receive a phone call at certain times of the day or on certain dates. The dedicated ring tone to be played within a specific time segment has the highest priority than the subscriber’s personal ring back tone setting.

- Statistical functions

  The Corporate RBT service provides a Web portal (Fig. 1) that handles subscriber-related information query and management, allowing operators and corporate administrators to easily produce statistical reports.

  Administrators can view and manage statistics such as the maximum number of customized ring back tones that can be uploaded, as well as the subscriber’s monthly charge and additional usage charge. They can also look into the settings of a corporation’s ring back tones.

  Operators can query information about the number of subscribers/employees in a certain corporation, as well as the newly-added and cancelled subscribers on a daily basis.

**Conclusion**

Riding on the success of CRBT,
Online Charging System: A Modernized Approach for Charging

As the network is leaning towards convergence and the telecom services are rapidly developing, the operator’s business model gradually shifts from communications-centric to service-centric. The operators, while reaping handsome profits from the ever-increasing cornucopia of offerings, are pressured to come up with a new charging platform that supports various charging modes (e.g., content-based charging and volume-based charging), and provide real-time control of chargeable services.

The traditional offline charging system which only collects charging information after a service is rendered is unable to prevent the huge revenue loss caused by service overdraft. Intelligent Network (IN), which provides online charging capabilities, features poor market adaptability, though it is popular in the telecoms industry.

In the traditional IN-based system, prepaid users can’t enjoy the same service packages and tariff plans as the postpaid users can due to the technical limitations. However, they also demand for the same services that the postpaid users have. As the current charging system falls far short of the new charging requirement, operators need to find a solution that gives them a greater pricing flexibility—which naturally gives birth to the Online Charging System (OCS).

Advantages of OCS

The OCS is to provide unified online charging functions separated from all network elements (NEs) such as service control point (SCP), short message service center (SMSC), and multimedia message service center (MMSC). It has the following advantages:

- **Support the prepaid services development**
  The prepaid services are popular among mobile users as it is a low-risk option. As the online charging system gives prepaid users the access to more services, it will undoubtedly facilitate the development of prepaid services.

- **Enable effective risk mitigation**
  The mobile services run a greater risk for revenue leakage than the fixed ones. With the development of high-value, high-risk, and high-credit-limit services, guaranteeing that operators are paid for the services delivered is critical. The OCS enables real-time traffic monitoring so as to help operators to effectively reduce the possibility of revenue leakage.
- **An effective way to attract customers**
  Since the charging is independent of the service control, it is possible for the prepaid subscribers to enjoy the services that already exist for the postpaid subscribers. The OCS allows prepaid users to have high credit limit and gain access to high-risk but attractive services (e.g., international roaming), helping operators develop their markets.

- **Convergent billing platform, lowering CAPEX and OPEX**
  When new tariff packages or service bundles are launched, it is necessary to upgrade the traditional IN SCP that is integrated with a billing engine. The OCS, as the basis of convergent billing platform, only requires small investment at the initial stage, enabling operators to dramatically reduce the capital expenditure (CAPEX) and operation expenditure (OPEX).

- **Improve customer loyalty**
  The new generation of charging solution is a great marketing tool that can help operators attract customers with its flexible service bundling and pricing capabilities, enhancing customers’ loyalty.

- **Provide opportunities to optimize network structure**
  The IN-based prepaid solution doesn’t have a well-optimized network structure which requires large investments. It also can’t expedite the offering of services and meet the challenges of the market. In addition, it is also defective in terms of stability, for example, in the IN mode, the call will not be connected if the SCP breaks down. The OCS can avoid such a problem by switching to the hot billing mode as they share information such as customer and service profiles.

- **Meet industrial development trend**
  The OCS solution is compliant with the 3GPP standard. It represents the inevitable trend of the telecoms network, making it a necessary choice for operators.

- **Python script**
  With the memory database technology, and the basic operating system that supports the task distribution function and the telecom-level information communication system (ICS), ZTE’s OCS-based convergent billing system can analyze and execute 500,000 command lines per second with the IBM P550 (4x1.65CPU) cluster.

As the traditional IN-based prepaid solution lacks the flexibility to support different business models and payment plans, operators can’t offer prepaid users with the same services that the postpaid users enjoy. To maximize the potential of the enormous prepaid market, operators need to shift from the legacy systems to the online charging system in order to provide enhanced charging capabilities for today’s advanced services, as well as of the future’s.

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### Table 1: A comparison between IN and OCS

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<thead>
<tr>
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<th>IN prepaid</th>
<th>OCS</th>
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<tbody>
<tr>
<td>Real-time support</td>
<td>Support real-time charging</td>
<td>Support real-time charging; Offer credit control</td>
</tr>
<tr>
<td>Charging rates</td>
<td>Inflexible service charging rates; poor support for data services</td>
<td>Flexible charging rates and account handling; powerful statistical analysis capability</td>
</tr>
<tr>
<td>Impact on the core network</td>
<td>Deployment of complex pricing strategies is difficult which sometimes requires the upgrade of the SCP platform</td>
<td>Complicated charging logic can be developed with the Python scripts and executed directly, which will not impact the core network</td>
</tr>
<tr>
<td>Maintenance and deployment Cost</td>
<td>A small modification of the billing system requires complicated implementation and high costs</td>
<td>As the charging control is separated from SCP, the deployment of new services and new charging policies will be very simple</td>
</tr>
<tr>
<td>Support for data services</td>
<td>IN fully supports voice services, but has restricted support for data services</td>
<td>OCS provides online charging for all kinds of data services</td>
</tr>
<tr>
<td>Billing capability</td>
<td>Prepaid subscriber can not enjoy accumulation discounts or bundled promotions</td>
<td>Prepaid subscriber can enjoy service bundle discounts or promotions of combined services</td>
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*Fig. 1 A comparison between IN and OCS*
Overview

Push Mail (PM), as a new mobile e-mail solution, uses the Push technology which allows users to send and receive e-mails on their mobile terminals rather than logging into their accounts to retrieve them.

E-mail has long been the most important applications of Internet access. On each day, there is a huge quantity of e-mails delivered via the Internet. According to the “Statistical Report of the Development of Chinese Internet” released by China Internet Network Information Center (CNNIC) in January 2006, e-mails accounted for 64.7% of all Internet services in 2005. Each netizen has an average of 2.4 e-mail accounts, receives 24.7 e-mails, and sends 12 e-mails weekly (not including spam e-mail).

If e-mail is extended to mobile environments, mobile users will be able to enjoy the same e-mail service as the computer user e-mail service without compromising reliability, safety and functionality. This mobile service, as a new promising service, is rapidly gaining popularity.

In medium and large enterprises, the e-mail system of each company has become the primary tool for corporate communications. However, nearly 23% of employees need to work away from their office. Push Mail, which offers convenient e-mail access, can meet such a need.

Mobile users can read e-mail attachments in general formats or enjoy other e-mail services with intelligent mobile terminals based on Linux, Symbian, Microsoft Mobile, PalmOS, or Nucleus platforms.

Architecture of ZXME PM system

At the network equipment side, the ZXME PM comprises two subsystems: the Push Mail gateway (PMGW), and E-mail Proxy gateway (EPGW). The two subsystems are divided according to their functions and locations.
**PMGW**

The carrier hosts and maintains the PMGW subsystem. The PMGW provides the following functions:

- Manages the corresponding relationship between mobile phones and mailbox accounts
- Manages access for EPGW
- Receives E-mail Notification (EMN) messages from EPGW, converts them to messages receivable by mobile phones, and then sends the messages to the mobile phones
- Supports the Internet Message Access Protocol (IMAP4), Push IMAP (PIMAP), Post Office Protocol-Version 3 (POP3), Simple Mail Transfer Protocol (SMTP), and opens ports to provide access to the user agent
- Provides interfaces and the accounting function for the user’s subscription
- Offers operation and maintenance interfaces
- Provides the performance statistics data for analyzing the system capacity and system loads

**EPGW**

The EPGW subsystem is located in each enterprise, and is managed by the enterprise’s IT administrator. The system configuration should enable simple operations and maintenance.

The EPGW subsystem has the following functions:

- Provides data configuration management, including mailbox number management, e-mail search protocol configuration, and search period management
- Searches through user e-mails in the enterprise mailbox on a periodical basis
- Downloads user e-mails to the local PC and saves them locally
- Sets up HTTP connections with the PMGW subsystem
- Creates EMN and sends notifications to the PMGW subsystem
- Provides operation and maintenance
- Supports the IMAP4, PIMAP, POP3, SMTP and EMN protocols
- Supports dedicated interface protocol to get connected with corporate Lotus Notes

**Total solution for Push Mail**

The ZXME PM system (see Fig. 1) comprises three parts: the wireless terminal software, the PMGW, and the EPGW.

The wireless terminal software, is mainly used for e-mail management, receiving and sending e-mails on intelligent terminals. After an EMN message is received from PMGW, the user agent will be used to establish a Transmission Control Protocol (TCP) connection with PMGW for receiving e-mails from EPGW. It is connected with PMGW via the IMAP4, PIMAP or POP3.

As a network entity in the carrier’s network, the PMGW is mainly used to connect the mobile phone with the e-mail account. Whenever there is a new e-mail notification sent from the EPGW, the PMGW will find the corresponding mobile number according to the information locally stored. It will then send the EMN message to the mobile phone via the Push mode (specifically WAP Push).

The EPGW, located inside each enterprise, provides three interfaces. One is connected with the internal e-mail gateway via IMAP4; it can be a dedicated interface for connection with Lotus Notes. The other two interfaces are used to get connected to the PMGW, among which, one adopts the IMAP4, PIMAP or POP3 protocols for sending or receiving e-mails; the other is based on HTTP and is mainly used to transmit EMN messages. The EPGW is also used to store e-mails. When a UA receives or sends an e-mail, the e-mail is saved in

![Fig. 1 Networking structure of ZXME PM](image)
the EPGW rather than in the PMGW to ensure its security.

The PMGW can be located together with or away from the EPGW. When the ZXME PM system is connected to the enterprise mailbox, the PMGW and EPGW will be located separately (i.e., the PMGW will be located in the carrier’s network, while the EPGW will be in the enterprise). When the ZXME PM system is connected to the Web mailbox, the PMGW and EPGW will be located together, with all functions concentrated on the PMGW.

Highlights of ZXME Push Mail solution

**Good flexibility**: Its unique duplication and inter-process communication technologies allow linear distribution flexibility, enabling carriers to meet predictable network requirements.

**Open and expandable structure**: The ZXME PM module is open, standard-based, which offers scalability and interoperability.

**Centralized configuration and management**: The ZXME PM solution provides a set of feature-rich management tools and services. A Graphical User Interface (GUI)-based configuration model can efficiently manage personalized services across various systems.

**Support for multiple protocols**: The ZXME PM system is independent from terminal protocols, and supports multiple protocols like POP3 and IMAP4.

E-mail is the most popular Internet application, and a powerful tool for communication. Push Mail is also gaining ground as both corporate users and individuals want to have access to this service to stay in closer touch with each other, even when they are on the move.

ZTE’s open and standard-based Push Mail solution can better serve the needs of operators, allowing them to improve users’ experience and increase work efficiency.
Building a unified and efficient emergency cooperation system dealing with disasters or accidents in support of the society’s sustainable development has now become popular in cities. As one of the largest telecom equipment suppliers in China, ZTE has devoted large numbers of talents to the development of the emergency cooperation system since 2003. Its coalition emergency cooperation system, ZXCERS, containing intellectual property rights, is a complete emergency cooperation system that has been widely deployed in many fields.

Components
ZXCERS is configured with four platforms namely, the real-time communication, the integrated data, the decision-making/analyzing, and the collaboration/sharing platforms. It is an integrated system that consists of a core application system for alarm receiving and handling, a central system for integrated monitoring, and a basis system for information security and management assurance.

Four platforms
The real-time communication platform: It consists of the following basic communications information networks: cabled network, wireless network and data network. A powerful and stable communications information platform is the basis of a coalition emergency response system, and these networks shall be used for unified dispatching by the alarm receiving and handling core system.

The integrated data platform: This is a platform for geographical information and integrated command. It is also a data exchange platform that integrates various basic and professional databases of the city coalition emergency response system.

The decision-making/analyzing platform: This platform integrates historical information, and information...
from involved parties; analyzes the current status of the emergency; and provides a reference for the decision-making departments.

The collaboration/sharing platform: As collaboration is needed among the public emergency command center, the city coalition emergency response center, various branch centers, and the related service departments, the efficiency of the collaboration depends on how well the information is spread.

**Multiple systems**

A coalition emergency response system is composed of multiple software and hardware systems including cabled/wireless dispatching system, plan system, decision-making and assessment system, geographical information and integrated command system, mobile command system for onsite emergency response, digital recording system, digital video system, and so on. These systems are all organic parts of a core application system for receiving and handling alarms.

**The logical architecture**

The coalition emergency response system can quickly respond to various emergencies and accidents through unified command and unified action. It involves multiple interrelated application platforms and peripheral systems; and a seamless interconnection between all equipment (software and hardware) must be ensured to make rational use of all emergency resources, and to develop a more extendable system.

Considering the interconnection requirement and service process, the logical architecture of the coalition emergency response system can be divided into the following planes:

- **Support hierarchy**: This layer includes dedicated dispatch systems, digital recording system, GPRS/EDGE or CDMA-based location system, onsite emergency response communications recovery system, power supply system, and etc.

- **Data center hierarchy**: There are varieties of basic information databases on this hierarchy.

- **Integrated service hierarchy**: The intelligent data services provided by the data center hierarchy and data exchange platform, and the basic application integration interfaces provided by the computers and cabled/wireless middleware form the bases of both the communication and information integration system, and the application integration service system.

- **Service application hierarchy**: There are various application systems which are integrated into a core application platform, and are implemented through the communication and message control middleware.

**Features of ZXCERS**

- **Field-approved**
  
  ZXCERS is used to build different categories of emergency systems at different scales in different regions.

- **Advanced technologies**
  
  This product series adopt the most advanced technologies like the latest next generation call center (NGCC) technology.

- **Integrity**
  
  This product series all adopt ZTE’s self-developed communication equipment and software so that they have good inter-working and interconnection capabilities.

- **Modular and expandable design**
  
  The modular design allows customers to add or delete modules to meet different requirements of different cities. Moreover, the customers can rebuild or expand their systems by plugging the modules in or out online.

- **Reliability and stability**
  
  The ZXCERS product series completely adopt the devices that have been operated in some telecom networks for years. The networks of ZXCERS are designed with redundancy, backup, and hot swap to ensure the network reliability ranging from the physical layer to the link layer.

ZXCERS is a reliable system that can provide coordinated emergency response through effective communications; it can also enhance a society’s preparedness in handling disruptions; and thus create a safer society for the public.
ZTE and Digit Wireless Unveil D-Series Mobile with Patented Fastap keyboard

ZTE North America, a subsidiary of ZTE Corporation, and Digit Wireless, Inc., the inventor of Fastap™, a patented keypad design technology announced the global availability of the ZTE D-Series handset featuring Fastap. The ZTE D-Series is the first commercially available ZTE handset to feature Fastap keypad technology, which dramatically simplifies the text input experience. The ZTE D-Series is a fully featured 3G phone that will launch in multiple global markets, including North America, in 2007.

Featuring a sleek, appealing design, the ZTE D-Series offers an array of advanced voice, data and multimedia applications running at extremely fast speeds via CDMA2000 EV-DO. 3G mobile data services offered by the handset include mobile music/video, location-based-services, mobile TV and messaging including e-mail, Instant Messaging, SMS, and MMS.

Over 65 percent of typical handset features and data services require some form of text entry. Using raised letter and lowered number keys in combination with error-prevention software, the Fastap keypad technology, in its alphanumeric implementation, enables ZTE D-Series users to type faster and more accurately than traditional handset keypads allow. This delivers a simplified and streamlined mobile experience, for example allowing users to send more text messages faster, and search the Web easier.

As 3G services continue to proliferate, mobile operators are demanding handsets that are simple to use, but also offer an array of advanced features, in order to increase the use of wireless data services in a 3G environment,” said He Shiyou, senior vice president of ZTE and general manager of ZTE’s handset division. “We are confident that ZTE handsets enabled with Fastap keypad technology will help usher in 3G mobile services to millions of mobile consumers worldwide. We are excited to bring the ZTE D-Series to mobile operators worldwide— including the North American market.”

The ZTE D-Series will feature:

- CDMA 1X-RTT & EV-DO
- Digit Wireless’ Fastap keypad
- Zi’s eZiType Word/Phrase Prediction & Learning Engine
- Multiple Language Support
- MP3, MPEG4 Multimedia Player
- 1.3 Megapixel Camera for video capture and photos
- Sharp & Bright 2.0” TFT Internal LCD & 1” External LCD
- T-Flash Memory
- WAP 2.0
- Java
- Bluetooth
- Data Services capable of 2.4Mbps downlink and uplink of 153.6Kbps
- Polyphonic Ringtones
- Large Volume Phonebook
- gpsOne (Navigation Services)
- Support of Mobile TV
People like more to choose from.
So, ZTE Anyservice helps you offering more.

ZTE Anyservice provides your customers a total solution for value-added services — services they are willing to pay you more for.

On traditional or next generation networks, you can offer information services such as SMS, multimedia message and voice-mail. You can offer data services for 3G, like Java games downloads, WAP and Video Streaming. You can offer profit-boosting services like MyRing personalized ring-tones, calling centre, intelligent public phone, phone cards, e-card selling, e-load and e-pay.

As a leading global provider of fixed line and mobile telecommunications equipment and network solutions, ZTE delivers innovative, custom-made products and services to customers in more than 100 countries, helping them achieve continued revenue growth and shaping the future of the world’s communications.

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