

Analysis of Commercial Opportunity of SMS over PSTN

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1 Definition of SMS over PSTN

The application of SMS over PSTN is to realize short message (SM) exchange among the users of PSTN or between the user of PSTN and the user of mobile networks by adding an information terminal (i.e. a telephone with a display screen and character-input function) by using current telephone lines. There are two types of SMS over PSTN: community SM broadcast information service on demand and point-to-point message transfer service: community SM broadcast information service on demand includes news on demand, weather forecast, phone bill information inquiry, advertisement service, stock market quotations inquiry, notification, memorandum and other subscriber-customized information services. Point-to-point SMS includes SMS between users of PSTN, between PSTN and mobile users, as well as between PSTN and Internet users.

The advantages of SMS over PSTN are:

(1) Fixed Terminals

It fits well for public places and relatively stable users, and has price advantage over the computer. It has a larger memory compared with mobile terminals. Users can browse the personal information subscribed quickly on the large display screen.

(2) Low Cost

The data transmission does not occupy the voice-channel, so it saves cost.

(3) Easy to Use

By using menu style interface, the users do not need to learn the complex commands, so it

Abstract:

By comparing the short message service (SMS) over PSTN with SMS over mobile networks, the commercial opportunities of developing SMS over PSTN are analyzed and some personal viewpoints on developing SMS over PSTN in China are brought forward.

is very easy to use.

2 Introduction to SMS over PSTN

As a successful service developed in the mobile data field, SMS accounts for 8 percent to 20 percent of the income of GSM service providers' that makes the global SMS market grow at a constant fast speed.

On the other hand, the new service in mobile field—SMS, has provided new ideas for the PSTN operators. Therefore, the boom of a new service appears in PSTN around the world: SMS over PSTN.

L-mode is a kind of SMS over PSTN created by NTT Corporation in Japan in 2001. It can be said that L-mode is the PSTN version of I-mode in that it connects family users to the Internet by just a normal telephone with liquid crystal display(LCD), and is capable of sending short messages and retrieving information. Users can get the information of weather forecast, shopping and health and etc. at the cost of USD 2.05 per month.

(1) Target Customers

NTT plans to expand Internet users to housewives, children, and elderly people. Its L-mode service is to realize receiving and sending email online or making information in-

quiry through normal telephones.

(2) Functions It Provides

L-mode can provide four kinds of information inquiry service (local information service, home business, living information, culture and entertainment information). It will also provide email service, it can send two kinds of email: "L-mail" which contains 2 000 characters maximums, and "S-mail" which contains 40 characters maximum.

3 Analysis of Commercial Opportunities of SMS over PSTN

At present, the development of PSTN itself has been limited and it needs to develop new value-added services. The huge number of subscribers of PSTN is the most valuable resource; On the other hand, the development of mobile communication and the growth of SMS have brought new ideas to people: both the technology and the operation mode can be migrated to PSTN; Furthermore, with the ever-more heavier communication traffic between mobile users and users of PSTN, the point-to-point SMS between mobile networks and PSTN can be realized by deploying SMS over PSTN.

The information service provided by SMS over PSTN is simple to use compared with surfing on The Internet, and has competitive advantage over telephone information service on cost. Currently some information sources (such as ICPs) can also expand users by this way, and all kinds of information sources can be fully utilized.

To realize sending short message over fixed telephone is a technology revolution that will bring commercial opportunities to the telecom operators, terminal manufacturers and information content providers in the fixed telephone network field. It will also bring some new services to the users.

Since the PSTN operators already have a huge number of users, perfect maintenance and billing system, adding a new service function can be considered. The realization of SMS over PSTN does not require much adjustment on the public telephone networks. It only needs some related servers and software for the value-added SMS over PSTN. The operator's update cost is low, but the commercial opportunity is unlimited.

The terminal manufacturers should consider the economic situation of family users and technical support of PSTN operators comprehensively, and design and produce customized terminals which are more suitable for SMS. It will improve the competitive ability of traditional telephone service, and expand a new service field for itself.

For the application and content providers, including traditional industry enterprises and new industry (such as Internet contents providers), by charging the telecom operators with the "short message on demand" service, or by some customized services, they can provide more value-added SMS to higher-level users and new cooperation patterns to enlarge its user group.

Users can get multiform services of SMS over fixed telephone, and they only need to subscribe for this service from corresponding telecom operators, then purchase a telephone which can receive and send short message, or install a display screen which can receive short messages. To most family users, telephone is the most convenient and fastest way to obtain all kinds of information at present.

4 Current Situation of SMS over PSTN in China and Factors That Affect It

4.1 Current Situation of SMS over PSTN

The SMS in mobile market in China did not fully start up until the specifications on short message system service came out in May 1999; the continual growth of the short message market has attracted the attention of China Telecom, a PSTN operator. PSTN operators, terminal equipment manufacturers and ICP eagerly stepped into the new market, and made preparations for the new service.

In May 2001, China Telecom set up a "118" project team, and conducted tests on SMS over PSTN; at the end of October, the industrial standard on SMS over PSTN was published, and nationwide SMS over PSTN was launched in November. Current terminal manufacturers include ZTE, Shanghai Bell and etc. ICPs have not taken noticeable action at present, with the development of the project of "dream net" of China Mobile, the mobile short

message-delivering platform has expanded to desktop PCs and mobile terminals. It can be predicted that the fixed telephone is the next target platform. From the users' side, the "compass network research" of the telecom industry newspaper organized a research which showed 85.38 percent netizens expressed "willingness to accept" SMS over PSTN. The main reason for choosing this service is that SMS adds function to fixed telephone, saves cost and is easy to use.

4.2 Factors Affect SMS over PSTN

Developing SMS over PSTN in China will bring not only new commercial opportunity to PSTN operators and terminal equipment manufacturers, but also new vitality to people's lives. The suppliers of SMS over PSTN will not have problems on the issues of capital and equipment, but whether consumers can accept this service is the key to the expansion of SMS over PSTN at present. Further analysis shows that the location of the target users, the cost of the terminals and the interconnection of the networks are the main factors that can affect the expansion of SMS over PSTN.

(1) Location of Target Users

Careful analysis of the successful development of mobile SMS shows that low cost fits for the capability of the mobile users group, which means, the position of the target users played a key role. By referring to the market position of Japanese L-mode service, two factors should be considered for the potential consumers group of SMS over PSTN. To the urban user group who already have fixed telephone, the telephone replacement cost needs to be considered. For the potential user group in the countryside, the information equipment cost needs to be considered. The target market of SMS over PSTN in China could be individual users, such as housewives and elderly people. It also could be business users, such as the fixed telephone clients in the fields of community management, enterprise internal management, professional clients' management and regional market expansion of enterprises.

(2) Issues of User Terminal Cost

Existing PSTN users' terminal cost equals the depreciation value of current terminal plus the value of the information terminal. Potential

users' terminal cost equals the value of information terminal.

At present there are some domestic manufacturers who can provide telephones with the SM function such as Shanghai Bell. Most of their products are about five hundred Yuan, while the price of normal telephone is about two hundred Yuan. The price difference is large. To use the SMS over PSTN, the terminal users need to pay three hundred more.

(3) Issues of Networks' Interconnection

During the process of transferring SMS, the most important point is to ensure the reliability of the channel, including the interconnection between platforms and ICPs, internal devices of PSTN, PSTN and mobile networks. Technically, there is no problem in bidirectional transferring messages between PSTN and mobile networks. Whether the interworking of SMS over PSTN can be realized depends on the service's development and the competition environment. China Mobile and China Unicom provided the solution of short message's interconnecting on March 1, 2002, which is taking effect on the development of SMS over PSTN to some extent.

5 Expansion Strategies of SMS over PSTN in China

5.1 Community SMS on Demand Is the Key Point

Compared with computers, the point-to-point service over fixed telephone is more difficult to operate, but it is a very good information-receiving terminal. In other words, the community SMS on demand service will be the main SMS source. Based on the result of Internet users' survey that is carried two times a year by China Internet Network Information Center (CINIC), the main activities of netizens when surfing on the Internet are receiving Email and reading news. Since the SMS over PSTN can keep the real-time online status, PSTN users can read their favorite information on the large display screen directly such as headline news, weather forecast or stock information etc., and enterprise users can cooperate with PSTN operators and calling centers directly. They do not need agents such as ICPs, and provide one-stop service with specific customized in-

formation for their user to realize the goal of minimizing service processes and improving efficiency. From this point, group users are the main user group of the SMS over PSTN. To the family users, it can provide special services such as reminding elder persons taking medicine on time and etc.; it can expand service scope of SMS over PSTN.

“One terminal, multi-users”, community SMS on demand can take the advantage of the huge number of PSTN subscribers and information sharing, which mobile SMS cannot provide.

5.2 Terminal is Bottleneck of SMS over PSTN

Though the telephone coverage rate in cities and towns in China has reached 50 percent, the rate in rural area is quite low; In addition, the coverage rate of family computers is less than 5 percent. In this situation, PSTN terminal can act as information access terminal that can make middle and low-income family pass the cost threshold of SMS over PSTN and get the service from the Internet. It is required that the people should have more sense of information consuming, and it is only with such a precondition that the terminal market can be boosted. Otherwise, it is difficult to persuade current and potential PSTN users to pay 300 RMB for information services.

5.3 Merging of PSTN, Mobile Networks and the Internet is the Trend

At present, with the boom of the Internet, the

users' requirements on service have become more complex and personalized. In addition to the diversification development of information channels, the merging of PSTN, mobile networks and the Internet has become the trend.

The adjustment of charging, technology progress and replacement services' competition require the merging of the three networks to bridge the service gap. Users can use the fixed telephone, mobile information application service system, and adopt the intelligent fetching and editing information technology. And through the Internet and mobile telephone they can send short messages to a single or a group of mobile users, therefore the progress of interconnecting PSTN and mobile networks should be accelerated.

To the PSTN users, the traditional fixed telephone networks is no longer limited to voice services, it will also be the multimedia information interaction platform including text, image and so on; To society, SMS over PSTN will transmit information between the Internet, PSTN, mobile telephone networks, and convert the telephone to a brand-new information medium. **ZTE**

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Biography

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scribers and CDMA 2000 1x subscribers are allocated with IP addresses by their home agents. GDSN acts as a foreign agent only. When terminals cross over different networks and need handoff, even if GDSN has changed, but HA does not change, and the IP address of AT does not change, therefore, the communication of AT will not be interrupted by the terminal handoff across networks. **ZTE**

References

- [1] 3GPP2. Wireless IP Network Standard: 3GPP2 P.S0001-A Version 3.0.0 [S]. 2001.
- [2] 3GPP2. Wireless IP Architecture Based on IETF Protocols:

3GPP2 P.P.R0001 [S]. 2000.

- [3] Cao Shumin. Development Trends and Prospects of Mobile Communications [J]. ZHONGXING Telecom Technology, 2001, 7(3):40-42.
- [4] Mario Davoli, Ericsson Australia. WLAN as a Complement to GPRS and 3G Services White Paper [S]. 2002.
- [5] IEEE Std 802.11. Wireless LAN Medium Access Control (MAC) and Physical Layer (PHY) Specifications [S]. 2002.
- [6] IEEE Std 802.11b. Higher Speed Physical Layer Extension in the 2.4 GHz Band[S]. 2002.
- [7] Liu Jianye, Cai Tongjun. Solutions to the Convergence of WLAN and WCDMA [J]. ZHONGXING Telecom Technology, 2002, 8(S0):41-44.

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Biography

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