MARKET STRATEGY FOR A SIP BASED WIRELESS SOFTPHONE FOR XTEN

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ABSTRACT

This project analyzes the market for wireless VoIP and video conferencing applications from the perspective of Xten, a softphone developer. Wireless softphones are expected to experience exponential growth and a rapidly changing market structure in the near future as current wireline VoIP softphone providers enter the field. In addition, new players, including current softphone development partners and existing customers such as network operators, may begin to develop their own wireless softphone products in-house.

Based on an analysis of both internal and external circumstances, we believe that the most important strategic issue facing Xten is how to effectively and efficiently distribute new wireless VoIP products. This paper analyzes four strategic alternatives and evaluates each alternative from an efficiency and feasibility perspective. Specific recommendations for distribution tactics, product road-mapping, pricing and licensing models, and risk management are provided in the final chapter.

DEDICATION

We dedicate this paper to our families. To Yan's husband, Ting; Ping's wife, Xiaoyun; and Ping's son, Steven. They have given us great support with their encouragement, time, sharing most of housework, prayer, understanding and patience.

Yan Peng & Ping Zhao

Nov. 2004

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This paper is a great milestone in our MBA program as well as the start for our future careers. Combining what we learned in the MBA program at SFU with our experience and accumulated expertise from our previous careers, we successfully completed this project report. At the same time, we got ourselves and others deeply involved in this project and have jointly faced a lot of challenges since Aug. 2004. We especially would like to acknowledge Dr. Richard Smith, Dr. Jill Shepherd, Ms. Penny Simpson, and Ms. Anne Laird for giving us great support, suggestions, guidance and advice to complete this paper. Last but not least, we appreciate Mr. Mark Bruk who strongly supported us and provided many thoughtful insights.

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1 INTRODUCTION

The wireless softphone market represents a substantial opportunity for Voice over Internet protocol (VoIP) software providers but is not without inherent challenges. One such company is Xten, a Burnaby, BC company with headquarters in California. Xten specializes in Session Initiation Protocol (SIP) VoIP software for end users as well as large companies that use the "wired" Internet. With the move to wireless Internet access, VoIP and video conferencing are seen as attractive new wireless applications that Xten could develop for both its consumer and business customers.

This MBA project studies the wireless VoIP softphone market. To make actionable recommendations for Xten regarding its market strategies for wireless VoIP softphones, we examine both its external business environment and internal strategic capabilities in this project.

1.1 Wireless VoIP Market Overview

There are three major evolutionary trends in the wireless telecom market in the foreseeable future: 1) deployment of third generation (3G) mobile cellular networks, 2) wireless local area networks (e.g., 802.11b or "Wi-Fi"), and 3) other fixed broadband wireless network (e.g. WiMAX) deployments. These three trends jointly open up a potentially huge business opportunity for software companies that develop voice over IP (VoIP) software and soft video phone products that are customized for the wireless environment.

The operators of wireless networks are clearly interested in the idea of VoIP. By the end of Q1 2004, 31 percent of wireless operators either have implemented or were testing VoIP service in their wireless networks, according to Yankee Group (Bowles, 2004).

Leading industry analysts predict that the growth in the number of wireless data subscribers will follow a similar growth curve to that of the number of Internet users. If this is true, the number of wireless data subscribers will maintain a compound annual growth rate (CAGR) of 83 percent over the 2004-2006 forecast period and a slower growth rate of 56 percent CAGR between 2007 and 2011[1]. The number of wireless data subscribers worldwide is predicted to grow from 143.9 million[2] by year-end 2003 to 1.56 billion in 2008. If 15.9 percent of the wireless data subscribers take up VoIP service [3], the number of wireless VoIP subscribers will reach 248 million by year-end 2008. Moreover, people's new life style together with the soaring popularity of mobile devices such as laptops, pocket PCs, PDAs and GPRS/3G mobile phones further bolster the potential market demand for IP-based wireless telephony service. Business travelers and professionals – heavy users of wireline data services -- reply more and more on real-time communication for work. Another supporting trend for mobile data use is the growing use of Mobile ICQ, and mobile interactive gaming among teens and young adults. Figure 1 shows the growth in wireless data services, including wireless VoIP, worldwide.

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[1] According to eTForecasts, from 1990 to 1995, the CAGR of worldwide Internet users was 83% and slower to 56% between 1995 and 2000.

[2] 83% CAGR is used to calculate the figures over the forecast period from 2003 to 2004 and 56% CAGR is applied for the forecasts after 2004, as the wireless data application was roll-out commercially in 1999.

[3] In test market done by Time Warner Cable in Portland, 27% of broadband Internet subscriber use VoIP service. In Canada, wireless and wireline telephone penetration rate reach 58% and 98.6% respectively at present. Assuming 27% wireline data subscribers use VoIP and wireless take-up rate is 58.8% of wireline take-up rate, the penetration rate of wireless VoIP is 15.9% - the rate is arrived by discounting the corresponding wireline figure by 58.8%.

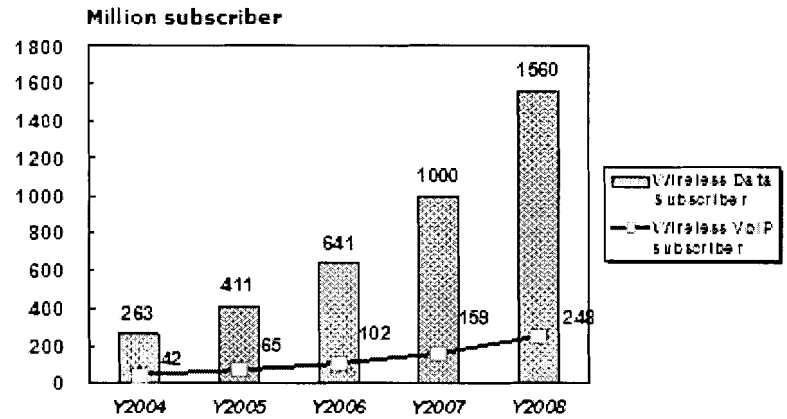

Figure 1 Worldwide Wireless Data and wireless VoIP subscriber Forecast

1.1.1 Market Opportunity

As mentioned above, three notable market segments exist for VoIP software: WiFi, 3G, and WiMAX. Each is described in detail below.

1.1.1.1 Wi-Fi Market Segment

The 802.11b standard for Ethernet wireless local area networking, or "Wi-Fi," enables people to connect to the Internet/Intranet via a laptop or PDA when in proximity of an access point, sometimes called a "hotspot." Several commentators have predicted that Wi-Fi will undergo exponential growth in the coming five years. Insight Research (2003) predicts that Wi-Fi revenue in North America will grow at a CAGR of 57 percent over the 2003-2008 forecast period, reaching over $3.96 billion USD by 2008. European Wi-Fi revenue is expected to grow at 68 percent CAGR over the forecast period, reaching $6.03 USD billion in the same period. The main attraction of VoIP over Wi-Fi is its ability to bypass the networks of incumbent telephony providers. Indeed, VoIP is seen as

an ideal way for new firms to enter into telephony service markets. On average, voice traffic accounts for 20% of the total data traffic. If we assume that voice applications will generate 20 percent of the total Wi-Fi revenue, then the potential market for VoIP service will be $ 792 USD million and $1.21USD billion in 2008 in North America and Europe respectively.

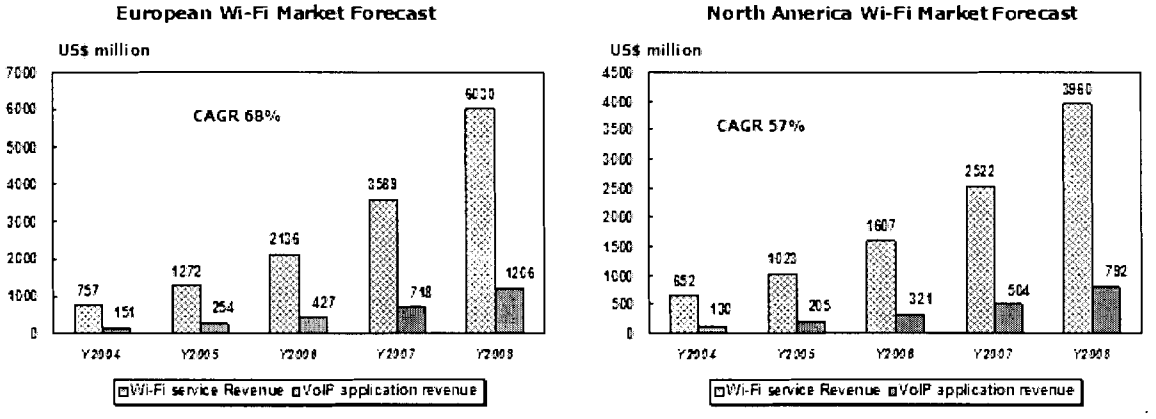

Figure 2 Wi-Fi Market Forecast

1.1.1.2 Mobile Market Segment

High mobility data services are those services that function while the customer is moving through an area served by a number of wireless transmitters. These are typically based on mobile phone technologies, such as "3G" and "2.5G" (e.g., General Packet Radio Service, or GPRS). Third-generation (3G) technologies, which support data rate of up to 384 Kbps in high mobility situations and 14 Mbps in low mobility/indoor use, are predicted to play a critical role of pulling demand for mobile data services in the next decade. According to Strategy Analytics (2003), the number of 3G subscribers

worldwide is forecasted to rise from 148.1 million by year-end 2004 to 655.4 million by year-end 2008, representing a growth rate at a 45 percent CAGR. As well, another high mobility wireless standard, GPRS, which supports data transmission rate up to 115kbps, is also predicted to undergo a non-negligible growth in the coming five years. It is predicted that GPRS subscribers will grow from 453.5 million by the end of 2004 to 589.6 million by year-end 2008[6]. According to Strategy analytics, worldwide cellular service revenue will reach $614.6 USD billion[6]. If we assume that data applications will generate 15 percent of the total cellular service revenue, mobile data service will be worth $92.2 USD billion by 2008 (see figure 5). VoIP service will be worth $18.4 USD billion by 2008, assuming 20% of the total mobile data revenues generated will come from VoIP service. VoIP and video conferencing over mobile data networks are seen as attractive applications for consumers and business customers by offering enhanced features and lowering telecommunication costs at the same time.

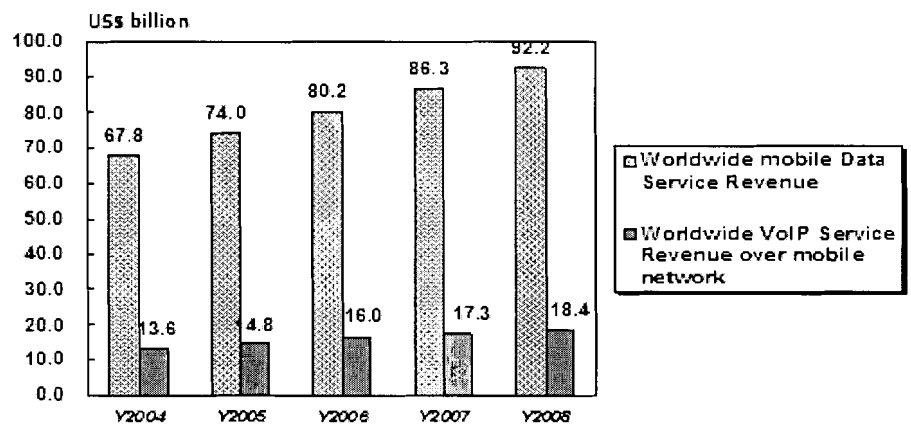

Figure 3 Market Forecast of Worldwide Mobile Data and VoIP over Mobile network

1.1.1.3 WiMAX Market Segment

WiMAX, a broadband wireless access technology, is predicted to be widely used to extend data coverage in metropolitan area networks. WiMAX is still at an early stage from both the market and technology perspectives. Nevertheless, the business opportunity for VoIP software and soft video phone products in the WiMAX market is expected to represent a small but rapidly growing component of the wireless data services due to its advanced feature set, allowing it to support voice, video and emerging integrated multimedia applications simultaneously. WiMAX is expected to contribute significantly to the "last mile" high-speed access problem, as it can greatly expand the range of wireless networks and bring more and more wireless users into this market.

1.1.2 Competitive Environment

The VoIP software industry operates in an intricate environment presenting complex relationships. The players not only include direct SIP based softphone providers such as Xten and Telesym and suppliers of software for proprietary softphones such as Skype and IP blue, but also Mobile Terminal Vendors, Virtual Operators and Platform Providers as well as Network Operators that develop softphone software in-house. The fierce competition from direct and indirect parties together with huge market potential definitely brings challenges as well as opportunities to SIP based softphone providers. Some of the challenges include: how to exploit and lock up strategic partners with equipment/system vendors, solution or feature providers, and service providers including

Virtual Operators and Network Operators, in order to maximize their shipments of VoIP softphones in the distribution channels.

Some of these relationships are described in Figure 4, below.

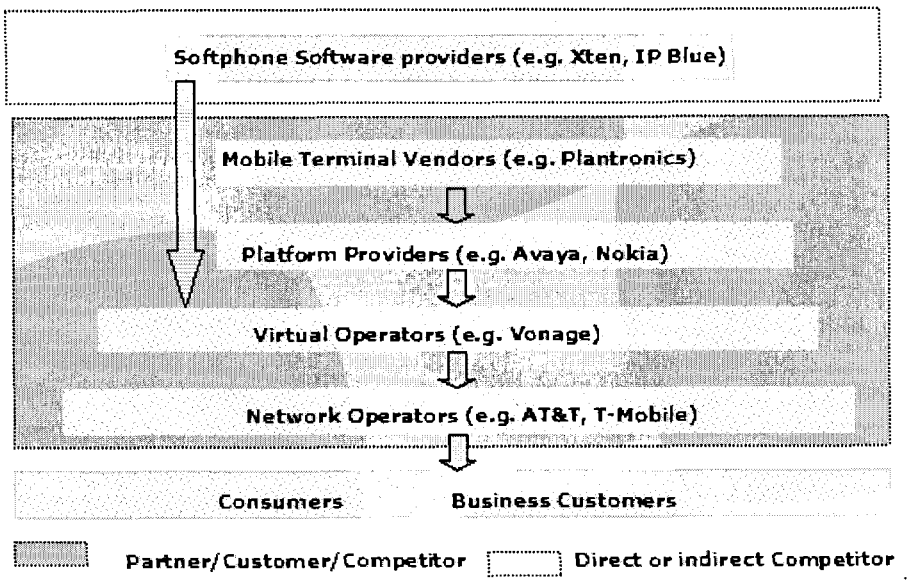

Figure 4 Competition Relationships

1.1.3 Technology Feasibility

From the technical point of view, it would not be a major challenge for a company that has successfully developed SIP softphones in the wireline market to deliver VoIP software for the wireless market. As a matter of fact, both wireless and wireline technologies are concerned with how data packets are transmitted within networks. In the OSI (Open System Interconnection) network table, both wireless and wireline technologies are used to solve the transport problem at the bottom two layers – Data link layer and Physical layer of OSI reference model. Fortunately, SIP or other similar

proprietary protocols, which control IP connections for multimedia sessions, work in the top layer – application layer of seven layers of OSI reference model.

The application layer is the highest level and is responsible for identifying communication entities, determining resource availability and synchronizing communication rather than defining how data is transmitted end to end as the bottom four layers do. The fact that Skype has[4] successfully developed its wireless VoIP products from its wireline products provides the evidence that technology itself is not a major hurdle here. The effort and investment in wireless VoIP software development for the existing wireline VoIP softphone providers is not a barrier.

1.1.4 Conclusion

The opportunities for growth combined with the relatively low technology hurdles mean that the emerging market of wireless VoIP is one of the most interesting and exciting challenges and opportunities for Xten in the years to come. More and more players are gathering and segmenting as softphone software providers, virtual operators, equipment vendors including mobile terminal vendors and platform providers, and network operators. All these are potential customers for Xten. Additionally, the rapid growth of wireless users together with the relative ease of developing and provisioning of wireless VoIP products, services and networks is creating a self-reinforcing model (See figure 5).

[4] Skype offers free telephony over Internet (see detail in 2.3.2).

To align with Xten's strategy of developing a new marketplace for its SIP based softphones, we believe that it is crucial to analyze the wireless VoIP market and make an actionable set of recommendations for a business strategy for Xten that includes suggestions for wireless distribution in the near and medium future term.

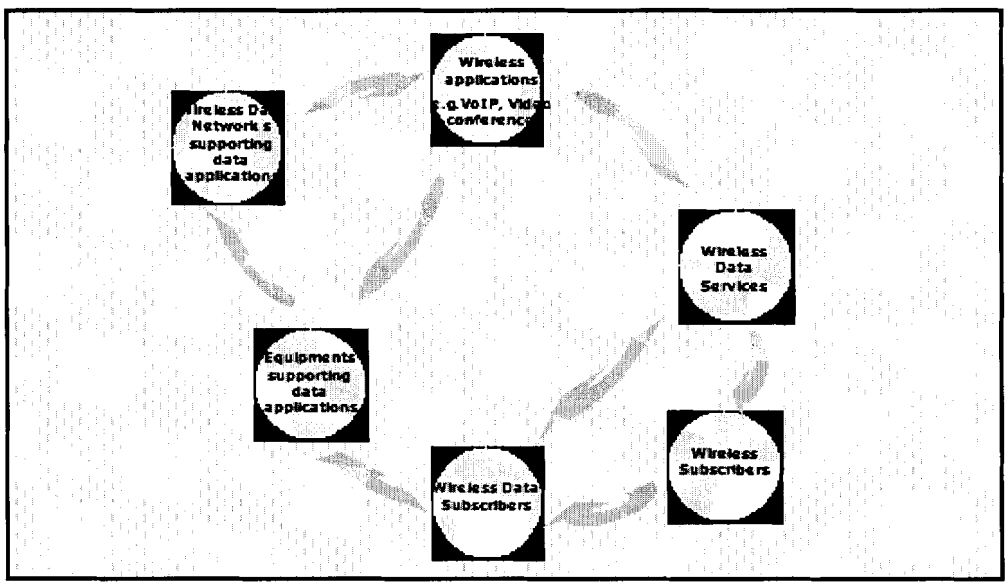

Figure 5 Self-Reinforcing model

1.2 Aim of the Project

Xten's near and medium term target is to greatly expand its market share by entering the wireless VoIP field. The company must create a strategy that is viable even under the assumption that most of current wireline VoIP players are highly likely to enter this field and that many more new players are planning to enter the market as well.

A business development strategy for Xten is created through an external analysis and an internal analysis.

To make the strategy actionable, specific recommendations for distribution tactics, product roadmap, pricing and licensing models, and risk management are made. All of these actions are expected to help Xten successfully maintain its current customers and partners, strategically confront its direct competitors and substitutes, and simultaneously turn some of its indirect competitors that are currently providing softphone products into its partners or customers.

1.3 Scope of the Project

The scope of the project is to conduct market research for SIP based wireless VoIP softphones (including a video conferencing application) used in multiple devices, i.e. handset, laptop, pocket PC, and personal digital assistant (PDA), over a variety of networks, i.e. 3G/GPRS, WiFi, and WiMAX.

The project also identifies representatives from direct customer groups in the wireless VoIP application field and assesses both their needs and their end user needs, to identify the competitors and to conduct an analysis of the competitive products and service, as well as their strategies.

Finally, after conducting an analysis of Xten's current business model, we suggest some near to medium term business development strategies for its target markets, distribution channels, partnerships, and the pricing and licensing model.

1.4 Structure of the Paper

The paper is organized as follows. Chapter 2 is an introduction to the wireless VoIP industry and the market structure for wireless. In the wireless market structure, two market segments – Wi-Fi and 3G/GPRS mobile network are examined more closely and are evaluated from both demand power and supply power perspectives.

Chapter 3 is concerned with the internal environment of Xten, its organizational structure, core competences and business strategies.

Chapter 4 begins with a definition of strategic issues and then describes four strategic alternatives available to the organization. The analysis of each strategic alternative begins with a description of the strategic alternative including business models and pricing arrangements and then makes an evaluation of each strategic alternative by SWOT analysis.

Chapter 5 makes a recommendation on business strategies (including the distribution tactics, pricing and licensing models as well as a product roadmap), and discusses how to manage the risks of implementing the strategy.

2 INDUSTRY BACKGROUND

2.1 Introduction

The opportunity for a wireless VoIP softphone product is potentially tremendous. However, external forces often have a dramatic impact on the effectiveness of strategies that a company adopts. In this chapter, we give an introduction to the wireless data industry and examine two wireless data market segments – the Wi-Fi segment and the 3G/GPRS segment[5]. We look at these segments from both the supply and demand perspectives in order to identify key external influences. We also identify the following key change drivers for the wireless softphone industry: technology evolution, regulatory reform, new business practices and models, and value chain shift. In this chapter, we also discuss related technologies such as softswitch, feature server and security encryption technologies that facilitate secure VoIP softphone and video conferencing service in the wireless data networks. Although there are many technologies involved in wireless VoIP applications, the technologies mentioned above are the key ones for softphone products entering into wireless VoIP market.

[5]Three notable market segments exist for VoIP software: WiFi, 3G, and WiMAX. As WiMAX is still at an early stage from both the market and technology perspectives, the future of WiMAX is highly uncertain. Therefore, in this chapter we only examine the Wi-Fi market segment and the 3G/GPRS segment.

2.2 Wireless Data Industry Background

The rapid growth of wireless technologies that support broadband connections has spurred the wireless data market (i.e. wireless VoIP market). The industry believes that these broadband wireless technologies, including 3G, Wi-Fi and WiMAX will work together as complementary technologies. Additionally, recent tests of roaming among networks with different technologies suggest a trend toward network convergence within the foreseeable future.

The most common standard for local wireless network access, 802.11 (also known by its marketing name, "Wi-Fi") is specified by the Institute for Electronic and Electrical Engineers (IEEE) and operates on unlicensed radio spectrum in the 2.4GHz and 5GHz bands, where manufacturers are free to create technologies for industrial, medical, and scientific (IMS) uses. This standard has been widely used by non-telecom players including enterprises, venue/location owners as well as traditional network operators.

The other major wireless technology examined in this report is so-called "Third Generation" mobile telephony, or "3G." The regulatory situation regarding 3G is relatively straightforward. Regulators in the vast majority of countries worldwide issue 3G licenses through bidding processes. By 2003, over one hundred and twenty 3G licenses had been awarded to operators worldwide.

The soaring popularity of mobile terminals and declining costs on wireless network infrastructures enhance the appeal of wireless applications. The communications industry expects that we will see more users adopt Internet Protocol ("IP") based applications including VoIP and videoconferencing application over

wireless networks, because these packet-switched networks can offer end-users lower cost and increased functionality when compared to traditional "circuit-switched" networks.

2.3 Wi-Fi Market Segment

Wi-Fi has become well established in Internet/Intranet access thanks to its relatively cheap network deployment costs. It has gradually become a mature solution for extending wired Ethernet connections for consumers and business customers. It is anticipated that Wi-Fi service revenue[6] in North America will grow at a CAGR of 57 percent over the 2003-2008 forecast period, reaching over $4.39 billion USD by 2008. European Wi-Fi service revenue is expected to grow at 68 percent CAGR over the forecast period, reaching $6.39 billion USD in the same period.

The adoption of VoIP over Wi-Fi can provide users with more applications at the same time as they are rid of the limitations of wireline (plugged in to the wall or desk) service. In addition, users may pay less for access over Wi-Fi than over cellular systems such as GPRS and will eventually pay less to make a phone call via VoIP than via traditional circuit-switched solutions. Furthermore, with widespread broadband availability, more and more people may adopt video applications while using their wireless softphone. With the ongoing development in the state of the art, eventually there may not be an obvious difference in price for softphones with video functions versus those that are voice only.

[6] The forecasts for Wi-Fi service revenue are arrived by adding the mobile operator Wi-Fi revenue, fixed operator Wi-Fi revenue, Wireless ISP and traditional ISP Wi-Fi revenue.

Basically, any Wi-Fi network can be categorized into either the private or public sector. In the private Wi-Fi network space, more residential users or enterprises are building their own access points to create wireless links, enabling them to share Internet and/or Intranet connections among their users who have mobile terminals such as laptops, PDAs and pocket PCs, many of which now ship with wireless-ready network cards.

In the public Wi-Fi network space, unlike the traditional public telecom service market structure, licensed network operators do not dominate the market. Instead, three types of public Wi-Fi players exist: network operators (i.e. mobile network operators and fixed line operators), Virtual operators/Wireless ISP and venue/location owners. These have sprung into existence and are rapidly entering the public Wi-Fi market, since no license is required to operate a Wi-Fi network and the initial investments and on-going costs are relatively low. Network operators deploy Wi-Fi to increase the service coverage rapidly with a little extra investment thus enhancing their data service offerings and expanding their customer base in new markets. For virtual operators, Wi-Fi gives them an opportunity to deliver services to end-users without sharing revenues with traditional incumbent telecom carriers. Venue/location owners who build public networks in the areas they own become, with VoIP, another form of telecom service provider. Through Wi-Fi, all these groups offer Internet access as an attraction to their existing services as in the case of an airport owner or pursue extra revenues from Internet access as a value added service as in the case of a real estate owner.

2.3.1 Demand Power

Private network Sector

Private Wi-Fi networks are widespread in hospitals, university campuses, entertainment venues (i.e. casinos) and manufacturing plants. In hospitals, the private Wi-Fi network provides staff and patients with wireless access to both local and remote data and applications. The potential users in a hospital could include doctors who use the Wi-Fi network to access files as well as call their colleagues and other experts and who may use the conference feature, including either audio or video to discuss a medical case. Other hospital staff (administration, security, logistic and others) may use the Wi-Fi network to facilitate the control and optimize services. On university campuses private Wi-Fi networks allow people to communicate everywhere. The users could include faculty who could use a Wi-Fi network to communicate with peers, students, and partners to facilitate their teaching and research activities. Another user group on campus would be students, who could use a Wi-Fi network service for attending classes remotely, discussing with tutors and professors, and carrying out teamwork. In the manufacturing field, private Wi-Fi networks make production and management more effective. Managers can use Wi-Fi networks for "walking around" management of operations and production as well as external communications including supply chain management and outsourcing.

Public network Sector

There are more and more public Wi-Fi networks in central business districts, train stations, airports, and high-density residential locations. The users of these include: residents who use it as a substitute or extension to their wire line communications, and

business users (including executives, sales, public relations, and marketing) who use public Wi-Fi networks while traveling.

Customer Needs Assessment

The potential customers for Xten's products include those who can purchase and integrate a wireless soft phone product over Wi-Fi from Xten, and then provide carrier level platforms for their customers. A "carrier level" platform is one that provides a level of service suitable for delivery by a telephone company, which have standards and customer expectations that are typically much higher than the Internet user. Web browsers may shrug off a "page not found" error but telephone users are displeased by poor quality or a dropped voice call. Meeting "carrier grade" standards means performing at a level acceptable to telephone companies and their customers.

Another potential customer segment are those who provide wireless terminal devices and preinstall softphone systems on their products as a selling feature. These terminal devices include personal digital assistants, such as Palm or Pocket PCs. Based on the current Xten business strategy, its products in the wireless area will probably focus on the carrier level. Carrier customers will consider some aspects of the softphone as a requirement to outsource and prioritize those aspects at different levels accordingly. However, it is necessary for us to sort all of those aspects and compare the requirements from different customer segments. The following table attempts to provide this sort of breakdown.

In Table 1, the wireless terminal vendors are the providers of wireless terminal equipment, such as PDAs, Pocket PCs, Handsets, etc. Because they more likely provide

the equipment with the softphone pre-installed, and will not switch softphones frequently, they care very much about the price, features, stability and total solution of the softphone. The virtual operators, especially for some Internet-based telecom value added service providers, can easily switch softphones, so they pay more attention on the compliance and price. Moreover, being based on broadband, they can provide high quality digital service to customers, so they care very much about the audio and video quality. For the platform vendors, especially for the technology total solution providers, the requirement that they less pay attention to, compared to the virtual operators, is the post-sale technical support, because they have abundant support of their own.

Customer need	Wireless terminal vendor	Virtual Operators	Platform vendor
Post-Sale technical support	Low	High	Low
Standard/product compatibility	Medium	High	High
Price Sensitivity	High	High	High
Softphone features	High	Medium	Medium
Software stability	High	Medium	Medium
Software package size	Medium	Low	Low
Voice and/or video quality	Medium	High	High
Turn-key solution	High	Medium	Low

Table 1 Customer Needs by target customer –Wi-Fi

2.3.2 Supply Power

There are over 40 softphone vendors at different levels and scales in the market. Some of them are similar to Xten and others are further away in terms of competitive affinity.

We distinguish between those players that are the direct competitors rather than the indirect ones to Xten in terms of:

a. The product features: whether their features are very similar;
b. The company scale and positioning: Whether their companies are similar size, and whether they all position their products and service at the same segment of market;
c. Target customers: whether they aim at the similar customers as Xten does:
d. Series of products or services: whether they all have the similar product lines and services;
e. The protocols adopted: whether they all adopt the SIP (Session Initiation Protocol) based protocol;
f. Strategies adopted: whether they are adopting similar business strategies as Xten does in their wireline application, and whether the same situation would probably happen in the wireless application;
g. Distribution channels: whether they aim at similar distribution channels as Xten does;
h. Pricing policies: whether their pricing policies are similar to those of Xten;
i. Current or potential partners: whether they compete with the similar partners or not and whether they are establishing the similar partnership as Xten does.

The more characteristics described above that are similar to those of Xten, the closer to Xten the competitors are.

What we are trying to do here is to analyze the condition of both direct competitors and indirect competitors and then to figure out the appropriate strategies for Xten in the future. Only after we have analyzed enough representative competitors can we make sure that we did not miss any critical factors when providing strategy suggestions to Xten.

Hopefully, some indirect competitors will give up developing SIP based softphones in-house instead of outsourcing, and then concentrate on their major business, in which they act more likely as VoIP service providers, digital terminal manufacturers, virtual operators, IP carriers and network providers, etc.

2.3.2.1 Direct Competitors

There are some close competitors to Xten, not only in wireline VoIP, also in the emerging market for Wi-Fi VoIP. Here we discuss some direct competitors: these are representative samples of Xten's direct competitors in the market. Through an analysis of these competitors, we can more fully understand what the competitors produce and distribute as well as how they market and create partnerships. Moreover, this competitor analysis will let us view the market and judge the intensity of competitions.

Sysmaster

Sysmaster (www.sysmaster.com) is a provider of Voice-over-IP and networking solutions for enterprises. Its wireless/PDA softphone is VoiceMaster PDA Softphone. The main features are: allows calls via the Internet; DTMF (dual tone multi frequency) dialling from user's PDA; supports H.323/SIP protocols; speaker volume control; microphone volume control; contact Book; history list of the most recent used phones;

instant balance reporting; includes a timer indicating current calling time; Moreover, the VoiceMaster PDA Softphone allows for building custom GUI (Graphic User Interface) skins as well as placing a custom label (logo). The company's business strategies are: to seek the companies that provide value-added internetworking solutions to become a SysMaster Value-Added Reseller and market leader. Furthermore, SysMaster is willing to partner with VARs with strong experience in the areas of corporate networking.

Tebletmedia

Tebletmedia (www.tabletmedia.com) is a provider of interactive multimedia communication applications for wireless mobile platforms. Its wireless softphone product iFon™ is the first mobile application to integrate SIP based VoIP, videoconferencing and messaging for PDAs, smartphones and embedded mobile devices in the market today. The main features are: one-way or two-way video, full-duplex voice, H.323/SIP protocols supported, video codecs with user-selectable rate control, advanced telephony features (e.g. hook/flash, call hold, attended and blind call transfer, etc.), and customizable skins. As parts of its strategies, iFon™ has been tested for interoperability with VoIP and videoconferencing equipment from several manufacturers, including Tandberg, FVC, Innomedia, Alcatel, NEC, Cisco, Mitel, Jasomi, PingTel, and Ericsson. The company has Cisco, Ericsson, HP and Kelyan Lab as its business partners, and was selected as a partner by both Intel and BT (British Telecom).

TeleSym

TeleSym (www.telesym.com) provides mobile VoIP software for enterprises. Its softphone product is SymPhone. The main features of the product are: familiar dialpad interface, personalized ring tones, caller ID, call transfer, call hold, call logs, group

intercom, speed dial from contact list, direct calling from MS Outlook, seamless (non-stop transition between two mobile coverage areas) roaming without interruption or drops, and Pocket PC 2003 support. It is SIP based product. Its distribution channels are both the resellers in different countries and the service and product solution platform vendors at the enterprise level, such as Dartmouth college wireless application. Its main business strategies are: they focus on the partnership with service and equipment platform vendors, to get the certification and support from them, which can increase the acceptance from market. They make much effort in interoperability of network application environments, for examples, they join the Intel Communication Members to share the benefits from this big community; They cooperate with RSA Security to solve the application of security which is very important for wireless communication; more over, they cooperate with 3COM, as well as network and solution providers, to jointly enter the market with those platform vendors.

Dylogic

Dylogic (www.dylogic.com) provides softphone products at the enterprise and carrier level. Its current softphone with videoconferencing product is Mirial SIP/H.323 Videoconferencing. The main features for that are: H.323 and SIP support, audio/video and audio only calls, natural, full-motion video up to 1.28Mbps @ 30fps, T.120 data collaboration, exclusive Video Sharing mode, call recording and playback, web integration, configuration Wizard Standard, compact and full screen mode, contacts management, remote update, caller identification. The company leverages the reseller as the primary distribution channel. At the same time, some business strategies have been adopted for partnership: Dylogic is seeking partners to help them set up their Internet

Telecommunication business. It also pursues partnership with any company that is interested in creating a strategic alliance in the video/audio over IP telecommunication industry. Moreover, the company does not require any minimum investment and shall refer to partners inquiries received from the Partner territory.

2.3.2.2 Indirect Competitors

In addition, there are some indirect competitors or substitutes for Xten in the market. Some of them compete with Xten indirectly but ultimately share the market . They could not only draw customers away from Xten but also influence future decisions made by Xten's current and potential partners. However, some of the indirect competitors are too huge to be ranked at the same level as Xten and they will more than likely outsource softphone development and change the UI (user interface) rather than make it in-house. Therefore, Xten may consider them as potential partners rather than the indirect competitors if Xten can identify that they are outsourcing softphone products.

Skype

Skype (www.skype.com) is a VoIP softphone service provider that offers consumers free, superior-quality calling worldwide. The main features of its softphone product, Skype, are: making a call, talking, conference call, calling regular phones, file transfer, instant message, search friends. Skype is based on proprietary protocols. It is free to download and use from PC to PC on the Internet and it charges very low rates for calls out to the PSTN (Public Switched Telephone Network). To get the product, you just to their website and download it. The business strategy for Skype is that it provides the

VoIP service globally by itself on its website. It has invested a lot in equipment and administration to support its services globally.

IP Blue

IP Blue (www.ipblue.com) is recognized as the enterprise class (focusing on customers at the enterprise level) provider of softphones available on the market today. Its wireless softphone *VTGO PocketPC* has the following features: make / receive calls, speed dials, transfer, 3-way conferencing, park & pickup, call logs & directories, pocket sized form-factor, built-in 802.11b (IEEE standard of Wi-Fi) support, bluetooth (a mobile communications technology transferring data within several feet) support, end-user flexibility, multiple application support. The product is based on proprietary protocols. It mainly relies on resellers as the distribution channel. The current strategy adopted by the company is to develop technology partners, i.e. For Cisco, IP blue is a member of Cisco's IP Voice Third Party Development Program; For HP, IP blue is a member of HP's iPAQ development program representing VoIP applications for handheld PCs, so that it can get its products certified by them. And, like Skype and many of the others, it has partners who provide USB (short of Universal Serial BUS) phones and devices, which are integrated with their softphone.

Paltalk

Paltalk (www.paltalk.com) provides video and voice conversation services, including videoconferencing, group voice conferencing, voicemail, and file transfers. Its basic product, Palplus6, has the following primary features: IM (instant message), audio/video conference, file sharing, buddy list, communicator window, and groups. Customers can get 6 full motion video windows in groups and the local video

performance is10 frames per second. The company sells its products on its website and through resellers, and then administers the service and bills end users online.

Bloophone

Bloophone (http://test.bloophone.com) offers both the service providers and enterprises a suite of next-generation networking products and network-based applications for VoIP. One of its products is the BlooSoftPhone. The main features of the softphone are: ITU (International Telecommunication Union) standard H.323 version 2.0 compliance, easy dialling graphic user interface (GUI), phone features (dial, redial, hang up URL buttons to check account and information about the service), volume control: speaker & microphone, voice mail, chat, file transfer. Bloophone has established partnerships with many leading companies in the industry to enforce its marketing power; the partnership will maximize the business opportunities for both side companies. It has a partnership with Blue2Net that allows it to get into the wireless local loop program. The corporate management team of Blue2Net has long experience in the wireless and IT industries.

Based on this analysis of direct competitors and indirect competitors, we find that the market for wireless VoIP is home to both intense competition and great opportunities. Many products are similar, more and more competitors are emerging, and several types of strategies are being adopted. One common feature among these competitors is that they all realize the importance of partnerships, either in business or in technology.

2.3.3 Technology Innovations

With the development of new technology in the wireless industry, people have begun to reconsider how they will bring VoIP into wireless communication and thereby free people from the limitations of wireline Internet. In so doing, they hope to make life, study, and business more interesting and easier in remote locations. Some important innovations and standards of technology have acted as the multipliers in this transformation.

a. **Growth of 802.11a/b/g and 802.11 technologies.**

   Wi-Fi is the popular name for 802.11b wireless networking, a local area network that uses high frequency radio signals to transmit and receive data over distance of a few hundred feet. This standard replaces the cables in an Ethernet network (local computer network limited in one building within hundreds of feet distance). The 802.11b (Wi-Fi) technology operates in the 2.4 GHz range offering data speeds up to 11 megabits per second. Those technologies make the broadband technology in Wi-Fi feasible in reality. The "a" and "g" variants of 802.11 provide higher speed and some additional features.

b. **Dual mode mobile cellular and Wi-Fi handset technologies.**

   These will be developed on their own and in other wireless terminal devices such as wireless PDAs. These technologies solve the seamless transfer from two kinds of wireless networks (3G and Wi-Fi), which will make the wireless VoIP communication switch networks automatically. These technologies will make the best use of the resource of wireless

networks and provide users a total solution without losing the connection or having to carry two sets of wireless receiver. Moreover, it will change the traditional wireless telecom business models and dissolve their resistance to wireless VoIP applications.

c. **The coexistence of Bluetooth and Wi-Fi applications**.

This technology makes the wireless application more exhaustively and dramatically. Bluetooth is a wireless technology for short distance (limited in several feet) digital transportation. Without the solution of compatibility of two technologies, there is annoying conflict between these two applications, which lowers the victory of wireless revolution in Internet time. After the perfect solution of compatibility, people really enjoy the pure wireless niche.

All those technology innovations combined with the gradually maturing wireless infrastructure are pushing wireless VoIP application into the mainstream of market. This will bring increased competition and lower the barriers to entry for both start-ups and newcomers.

2.4 Mobile Network Market Segment

Universally, mobile operators are finding that the traditional circuit-switched voice revenues are either static or growing at a slow pace and average revenue per user (ARPU) is actually dropped in most mobile markets around the world. Market forces have driven down the price for mobile voice. Operators in the most mature markets are

facing the very tough situation that subscriber penetration has reached near-saturation at the same time that new competitors are entering the same market. Hence, mobile operators have to offer differentiated value-added services to sustain the revenue growth and profit margins. Supporting mobile data services is an obvious way to go. The mix of circuit-switched voice and data traffic including VoIP is predicted to shift significantly over the next decade.

GPRS (short for General Packet Radio Service) and 3G technologies jointly support a wide range of new mobile data services and open the door for VoIP and the soft videophone market. GPRS is a value added service that allows information to be sent and received across a mobile telephone network. GPRS currently accounts for an important part of mobile data services, although operators may eventually try to migrate high value GPRS data users to 3G networks in order to improve user experience and increase returns on 3G licenses and network investments at the same time. Strategy Analytics (2003) predicted that GPRS subscribers worldwide will reach 630.5 million by year-end 2007 and 589.8 million by year-end 2008. The prediction of GPRS subscriber reduction between 2007 and 2008 is given partially because of the industry forecasters' view on the migration from GPRS to 3G. The number of 3G subscribers worldwide is expected to grow from 148.1 million in 2004 to an estimated 655.4 million in 2008, representing a growth rate at a 45 percent CAGR. Indeed, industry analysts still keep an optimistic view on the growth of 3G, even though the 3G deployments have been delayed. Some leading industry analysts even predict that the number of 3G subscribers will experience a faster growth rate than that of GSM (Global System for Mobile communications) at the same point in its development timeline history, although a conservative view exists at the same

time that 3G will never achieve the penetration rates as the industry predicts, in part because of widespread 802.11 availability and coupled with WiMAX "backhaul".

Nevertheless, it is inevitable that support for VoIP will reduce traditional voice revenue. As a matter of fact, mobile operators today are very cautious of commercial deployment of mobile data services. Approximately one third of mobile operators are in technical trial status for VoIP service and a very limited number of mobile operators have launched commercial VoIP service in some test markets (Bowles, 2004). With the continuously declining price the subscribers are willing to pay, mobile operators have to balance the difficult situation against opportunity costs of supporting VoIP. Fortunately, the industry holds a belief that offering mobile data services, including VoIP, will be sustainable as an option for mobile operators rather than a core product for the foreseeable future. And they might not have much choice. Not offering data services could cause greater customer churn if users begin to demand these services.

2.4.1 Demand Power

The value chain of mobile data services consists of mobile terminal vendors, system integrators, network equipment/platform vendors, application/content providers and mobile operators. For a softphone software provider, all players in the value chain may be the target customers. However, while taking the financial constraints and the industry practices into accounts, the softphone software providers can primarily focus on mobile terminal vendors, network equipment/platform vendors, application/content providers and system integrators. This value chain is illustrated in figure 7.

Figure 6 Value Chain of mobile data service

Customer Needs Assessment

In our research, we focused on examining four primary target customer types. These four types of target customers have similar needs in many ways but there are different options that a softphone software provider is expected to offer, as shown in Table 2:

Customer need	Mobile terminal vendor	System integrator	Application /Content vendor	Network equipment vendor
Post-Sale technical support	Low	Low	High	Low
Standard/product compatibility	High	High	Medium	High
Price Sensitivity	High	medium	medium	Low
Softphone features	Medium	Medium	High	Low
Software stability	High	High	High	Medium
Software package size	High	Low	Low	Low
Voice and/or video quality	High	High	High	Medium
Turn-key solution	High	Low	Low	Low

Table 2 Customer Needs by target customer –Mobile Network

In order to further assess the target customer needs, we also studied the needs of end user groups, which include frequent/long-distance business travelers, professionals, and young people (i.e. big fans of mobile gaming and instant messaging) with high percentage or potential of mobile data service usage. We summarize the likely features for 3G/GPRS IP softphone as follows:

M- Commerce

M-commerce services enable users to access Internet/Extranet to conduct e-business financial transactions (e.g. payment transactions) via a mobile device such as a Personal Digital Assistant (PDA), a cellular phone or a pocket PC. Most industry analysts hold an optimistic view on M-commerce, although two major market hurdles (real-time transaction processing and security) remain before there can be mass adoption of M-Commerce. VoIP and video conferencing can be embedded in to M-commerce applications as enhanced features for selling and customer support and perhaps stimulate the acceptance, popularity, and success of M-commerce.

Mobile Entertainment

Mobile entertainment applications enable access by mobile network users to entertaining content and entertainment related activities via mobile terminal devices. A good example of this is the way in which VoIP and soft video phones embedded in mobile games can improve the user experience by providing virtual face-to-face gaming environments or live chat while playing with others.

IP PBX features

PBX is the short for Private Branch Exchange, a private telephone network used within an entity such as a business or hospital. IP PBX functionality provides mobile

users enhanced features such as caller ID and conferencing to manger their calls via a mobile terminal as if they use a PBX system. This allows a mobile user to build a mobile office at a low cost.

Advanced phonebook service

Advanced phonebook service refers to the ability to organize, browse and navigate contact information, which is synchronized to a server where directories are centrally stored and updated.

Push to talk service

Push to talk service enables a mobile user to initiate voice communication to a contact/group through a single push of a button.

2.4.2 Supply Power

For the same reason as described in section **2.2.2**, we segment the competitors in the market into two sets that are either more likely to be direct competitors or more likely to be an indirect competitor according to the scheme presented in section **2.2.2**.

2.4.2.1 Direct Competitors

Direct competitors are the companies that are more likely to develop SIP based softphone software. In order to demonstrate the current mobile softphone industry focus and momentum, recent accomplishments and commitments of a representative number of softphone player competing in the mobile network field are provided in the following paragraphs.

Witnet

Witnet has recently announced that they will complete the development of a SIP based mobile softphone for windows CE and Linux (a free UNIX operating system). The product, Modaphone, enables PDA users to make phone calls over GPRS and CDMA 1X (short for Code-Division Multiple Access, which is a digital mobile communication technology) networks as well as Wi-Fi networks. The multimedia features supported by the current release of Modaphone include real-time whiteboard drawing, still image sharing and video. The company is planning to enhance its multimedia features to support software-based videophones for PCs and PDAs. Modaphone uses a combination of VoIP technologies and Mobilick for PDAs. Witnet's Modaphone primarily targets the wireless Internet field for PDAs. Witnet has established partnership with HP Japan and South Korea, and LG Telecom to market its products. Additionally, Witnet has introduced a total solution that includes a SIP based Client Toolkit for PDAs and IP Phones and SIP Server Toolkit for high-end Media Gateways, softswitches, and application servers.

2.4.2.2 Indirect Competitors

Indirect competitors are more likely the non-SIP based (e.g. H.323, MGCP: Media Gateway Control Protocol) softphone providers including equipment vendors or service providers that develop softphone software in-house, but whose main revenue streams are not generated by softphone software.

Nokia

Nokia has recently announced that they will deliver a Session Initiation Protocol (SIP) based VoIP service called Push to talk service. The service provides mobile users half-duplex VoIP service over GPRS/GSM networks, making new multimedia applications such as voice chat and group chat messaging possible. Nokia does not market its VoIP software to third parties. Instead, Nokia install its VoIP software in its IP capable mobile phones. Nokia offers software development tools for external application developers, allowing any application developer to download Nokia's tools and start creating services that utilize IP connections. Such an open approach is intended to spur the creation of many new multimedia services for consumers and businesses alike.

2.4.3 Technology Innovation

The evolution of Universal Mobile Telecommunication System (UMTS), also called third generation (3G) technology, makes possible high-speed mobile multimedia services including real-time and near real-time services (i.e. VoIP service). The latest UMTS (release 5) introduces the IP multimedia system (IMS) architecture and high-speed downlink package access (HSDPA) feature. These technologies were designed to improve mobile users' experience with multimedia services and offer mobile operator enhanced spectral efficiency. Additionally, Session Initiation Protocol (SIP) has been adopted by UMTS as a service control protocol, supporting multiple multimedia applications simultaneously. SIP based softphones will see more business opportunities

in the next generation mobile networks compared to softphone products that are not based on SIP.

2.5 External Environment Shift

2.5.1 Competititor Shift

With the changing of the VoIP market from wireline applications only to a combination of both wireline and wireless applications, the balance between demand power and supply power will be broken. Therefore, the current competitive situation will also change. Some new competitors will appear in the market, some direct competitors will disappear or become indirect competitors, and some indirect competitors will become partners.

As more and more competitors emerge, especially direct competitors, Xten has to find out the appropriate strategy to expand its market share as well as create loyal customers as early as possible. It is possible that Xten will see some indirect competitors become its strategic partners because they may give up developing softphone products in-house and instead begin outsourcing the products.

If indirect competitors outsource their softphone products, Xten the opportunity to successfully distribute its product and establish partnerships with those former competitors. The former competitors will focus on their main businesses acting as the VoIP service providers, virtual operators, carriers, network providers, platform vendors, and VoIP application terminal device manufacturers, etc.

2.5.2 Related Technologies Emerging

Some related technologies act as critical roles in the VoIP service market, in which case there are three that we need to pay close attention to: security and encryption, softswitch server, and feature server. These technologies are widely applied and necessary for VoIP service whether it is via a wireline or wireless network.

By analyzing the application of these three technologies, Xten will not only better understand the technology structures of future VoIP services, but it will also find out the cost of entrance to the partnerships, which we will discuss in detail in chapter 4.

We introduce these three technologies here in order to give readers advanced understanding of some of the aspects of the strategies we will suggest for Xten in chapter 4.

a. **Security and Encryption**

In a VoIP application, data security is required everywhere and at different levels. There are many encryption products in the VoIP market, ranging from 8-bit to 124-bit and beyond that protect data in the transport layer from being accessed by unauthorized users. In many fields, such as business and special task applications (e.g. police or emergency workers), data must have adequate security and encryption, including wireless VoIP.

b. **Softswitch Server**

When we say "softswitch," we refer to all new solutions of telephony switching that can solve the problems that traditional local telephone switches cannot solve. Therefore, the softswitch includes all technologies and solutions for the local telephony service plus new enhanced services. Based on the

software, the softswitch can not only lower operational costs, it can also support the data transportation features in the wireless VoIP applications.

c. **Feature Server**

Feature server provides the functionality for call-associated capabilities, such as call waiting, conference calling, and caller ID.

In addition, all products in a VoIP application should be compliant and interoperable with each other. As a result, the products and technologies in this field have to be certified for their technological environment. Universally, the solution provided to the VoIP service providers must be integrated and interoperable internally, and should be easily operated and installed.

2.5.3 Regulatory Reform

Many countries today are gradually reforming regulation to foster competition and innovation in the telecom industry. Regulation reforms in the wireless field typically drive the industry forward by encouraging non-traditional wireless network operators to enter the wireless data service market. In other words, licenses for wireless network operation are not limited to existing wireless network operators. After a long delay, 3G licenses were issued in the last few years in many countries. Worldwide, approximately 120 3G-licenses had been awarded to operators by 2003, allowing operators to use new spectrum (2110 - 2170 MHz) to offer 3G mobile services. Similar to regulatory situation of 3G, companies regardless of whether they are a traditional mobile operator, can bid for WiMAX (IEEE 802.16 standard) licenses, which allow them to operate systems over a

particular range of spectrum. WiMAX is an IEEE standards-based wireless technology that provides high-throughput broadband connections over long distances. WiMAX is predicted to be used in a number of applications in wireless communication, including "last mile" broadband connections, hotspots, and high-speed enterprise connectivity for businesses. However, the frequency WiMAX systems use are not universally available among different regions, and as a result WiMAX is an immature technology and there is not yet a universal standard. The regulators in each individual country define the amounts and locations of spectrum allocation differently. Wi-Fi, however, is specified by most countries on unlicensed 2.4GHz -industrial medical scientific (IMS) frequency.

2.5.4 New Business Models and Practices

New business models and practices emerge in both the Wi-Fi and 3G/GPRS market segments. We discuss them separately in the following sections.

Wi-Fi market segment

In the Wi-Fi market segment, many softphone software providers have begun to partner with the industry's leading companies - either the vendors of network equipment and softswitch/feature servers or the vendors of value added service platforms, in order to jointly deliver comprehensive, integrated solutions to the market.

A softphone software provider earns revenue from several revenue streams. There are two common practices in this area: one is to license the complete software package or software development kit (SDK) to partners; the other is to share service revenue from the Wi-Fi VoIP service providers.

In the Wi-Fi market, the network operators or Wi-Fi service providers not only desire best-of-breed solutions to their business and individual customers; they also require these products and features to be integrated and then form an easily constructed and operational service. Therefore, network equipment vendors, softswitch/feature server vendors, and value added service platform vendors must be certified to work together and complement each other in order to allow the VoIP service providers (i.e. carriers, virtual operators, and private network operators) to achieve their time-to-market requirements and operational efficiencies.

3G/GPRS market segment

In the 3G/GPRS market segment, a new business model adopted by many softphone software providers is that they earn revenue from two main revenue streams – licensing the complete software packages or software development kits (SDKs) to equipment partners and service revenue sharing from Application/Content providers.

Equipment partners, including mobile terminal vendors and network equipment vendors, can share their equipment (e.g. handset, softswitch, feature Server) revenues with Softphone software providers. There is no standard arrangement for revenue sharing between an equipment vendor and a softphone software provider. The ratio of revenue being retained by each side depends on the list price for the equipment bundled.

A softphone software provider can share service revenue with an Application/Content provider based on airtime use. The percentage of the revenues being retained by an Application/Content provider is on a case-by-case basis. However, a rough percentage can be given if using revenue sharing model for mobile data services between a mobile operator and a content provider as a guideline. In the case of voice

only softphone service, a softphone software provider can expect to get 25% of the service revenues an Application/Content provider earns. In the case of soft video phone service (e.g. video conferencing service), a softphone software provider can get about 50%.

2.6 Conclusion

Within the foreseeable future, wireless VoIP applications will begin to occupy a significant piece of the VoIP application market, create new markets, and awaken more and more new customers, either individuals or groups. This means that the VoIP application market will grow very quickly, especially the wireless VoIP application market. As the wireless VoIP infrastructure grows in many metropolitan regions, it is definitely possible that we will see a booming wireless VoIP industry in the next five years. For Xten, taking advantage of this transformation will be crucial.

Wireless VoIP solutions will gradually mature with the provision of 3G, Wi-Fi, and WiMAX networks, and the widespread availability of wireless products, including softswitches and feature servers, mobile terminal devices, and softphone software. Softphone vendors will face fierce competition in the market, not only because more and more players will emerge but there with multiple protocols for softphones (SIP based or non-SIP based softphones) solutions, and also because there are relatively low barriers to entry in this market.

These competitors, the developers and providers of softphone products, are spread throughout various parts of the market because of their different industry backgrounds:

carriers, virtual operators, VoIP service providers, network providers, software producers, platform vendors, and terminal device manufacturers, etc. Based on their different industry backgrounds, the competitors have adopted different strategies to create distribution channels.

For Xten, although this is a great opportunity to establish themselves in the wireless VoIP application marketplace, there are also many challenges. In addition to building on the advantages of its SIP based products and technology interoperability, Xten has to determine how to effectively enter the wireless VoIP market and then expand the market share while not giving up its current wire line market. The strategy should take into consideration not only the external circumstances analyzed here but also the internal situation of Xten. We analyze the internal situation at Xten in the next chapter.

Because the marketplace is becoming more competitive and many players have invested a lot of resources in order to be successful, we have created both an external and an internal analysis in this and the next chapter to consider how and to what extent Xten has to react. We also propose that the key strategic issue for Xten in these circumstances is how to distribute the wireless SIP based softphone products effectively in this new high potential market, where the value chain for wireless VoIP services is gradually becoming overcrowded.

3 INSIDE XTEN

3.1 Introduction

Chapter 2 has outlined the external environment in which Xten is operating. However, a good business strategy not only takes into account the influence of the external environment on a company, but also a company's internal situation. In order to develop a good business strategy that is actionable and which is able to leverage Xten's competencies and resources, in this chapter, we analyze the company's internal situation by examining its organizational structure and competencies. In addition, no new strategies can be operated effectively without considering the current strategies a company adopts. In the mean time, by examining the effectiveness of any particular strategies the company currently uses, we may get an insight into the company's internal strategic capabilities in greater depth. Therefore, in this chapter we also analyze the business strategies Xten currently uses.

3.2 Organizational Structure

Xten is a publicly-listed (OTCBB:XNWK) software company that focuses on the development and marketing of carrier-grade SIP based softphones. As the company is small, Xten management built a simple organizational structure made up of a few levels.

The company is organized into three main functional areas – corporation management, product development, and sales and technical sales support, which are managed by Mark Bruk (CEO), Eric Lagerway (COO & President) and Robin Raymond (CTO) respectively. Currently, besides these three C-level managers, Xten's personnel includes one project manager, three salespeople, one sales support engineer, and fourteen product development engineers. The current organization chart shown in Figure 7 outlines the management responsibilities and reporting system.

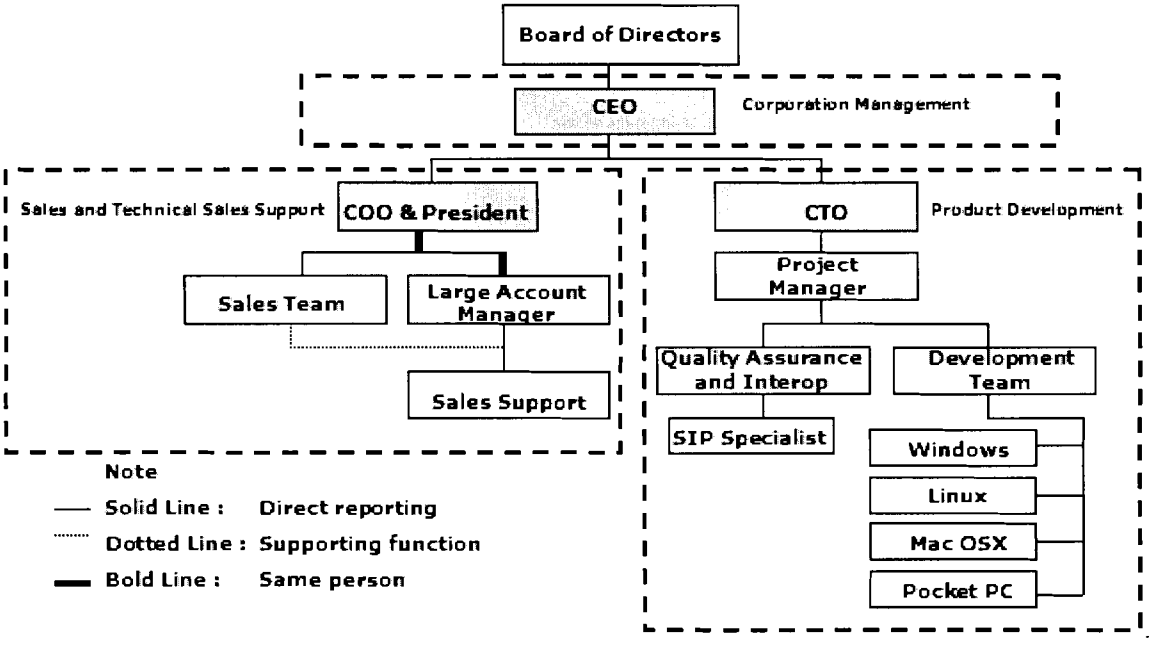

Figure 7 Organization Chart

As the company grows, Xten is planning to increase the personnel count from the current level of 25 to 60 in early 2005. The new hiring will be in line with the company's current growth strategy to develop new markets with existing products. To enter the

wireless market, the company is planning to recruit two more product development engineers dedicated to creating GSM and CDMA-compliant products.

The simple organizational structure works well only up to a certain size, as this type of structure can be very problematic when senior managers are over burdened. Considering Xten's current company size and its planned growth rate, we believe that the company can operate effectively in this structure in the near term.

3.2.1 Day-to-Day Management Team[7]

The management team of Xten is highly experienced and qualified compared to others in the industry. Mark Bruk (CEO) is a co-founder of Xten Network, Inc. He has 20 years of experience in the design, development and marketing of technology in the software industry. Previously, he was the founder and CEO of eduverse.com, a US public company that traded on the CTC-BB. Prior to founding eduverse.com, Mark served as VP of Application and VP of R&D for InMedia. His achievements include leading InMedia to develop the world's first web-based 100% pure HTML slide show player and the world's first 100% pure Java slide show player.

Eric Lagerway (COO & President) is also one of the co-founders of Xten. Eric has 20 years of professional experience including 8 years in the VoIP industry. Prior to join Xten, Eric founded Vocalscape that focuses on VoIP software business. Under Eric's management, Vocalscape received Science Research & Development funds for its VoIP & eCRM technology, specifically $700,000 in private investment capital and $1million

[7] The XTEN leadership team 2004

in public funding. Robin Raymond (CTO) has 12 years of software development experience.

The highly experienced and qualified management team shifts the company's learning curve and reduces costs that associated with learning over time (e.g. R&D costs).

3.2.2 Management Team Gap

The present day-to-day management team, consisting of the three C-level managers, requires professional support for the financial and marketing functions, with emphases on both acquiring sufficient financial resources and increasing company awareness respectively, especially when the company attracts more clients and partners. To move forward, an EVP marketing and CFO are required. The executive VP of marketing will work on the development of the website, technical documents and marketing materials. The CFO will be in charge of financial statements as well as legal issues. The gaps in the management team are currently being addressed through the use of outside consultants. The company is expecting to fill these positions once the cash flow allows the company to do so.

In the near future, Xten may want to consider how to strategically leverage external management forces such as partnerships to realize its market development.

3.2.3 Xten's Culture

The Xten's working environment is characterized by creativity, passion and respect. As a high-tech company, Xten is comprised of a group of young people (age from 20 to 45) with high level education backgrounds. 100% of the employees have either bachelor or higher degrees including one PhD. The basic characteristic of Xten people is self-motivation, as every employee is required not to be limited to work in the pre-defined area or in the area of his or her expertise. Rather, everyone takes multi-function roles to support the business. For a small organization, non-specialized jobs reduce coordination costs, and permit employees to develop diversified skills and thus increase employee satisfaction, although the chance that employees are stretched beyond their abilities increases. However, as the company grows, such a mechanism will not be suitable any longer, since the company may lose economies of scale if roles are overlapped among employees.

Financial and human resource constraints force the company to depend on an informal knowledge sharing system. As a matter of fact, Xten does not provide in-house training to new employees and thus informal learning among co-workers is the major approach to facilitate knowledge and information sharing. Moreover, facing the opportunities in the wireless VoIP application market, these constraints would limit Xten's ability to take an aggressive market strategy.

Xten's simple flat organizational structure facilitates communication well throughout the organizational hierarchy, although decision-making power is relatively concentrated. The company's management philosophy is based on mutual respect. The management maintains an environment that stimulates productivity by encouraging

cross-function communication. The current knowledge sharing system and organizational structure are ideally suited to a small organization in a rapidly changing environment, but can be hurdles as the company grows, because communications across a large organization can be very difficult.

3.2.2 Financial Situation

Xten's operations are primarily financed through the sale of equity securities. As a new small organization, Xten hasn't generated positive cash flows from operation, which has a significant impact on its ability to raise equity capital. The stock price depends on the company's cash flow performance as well as many other factors such as stockholders' confidence towards the company and its technologies. In other words, whether the company will generate sufficient revenue from the existing products in the penetrated markets determines the possibilities of Xten's achieving its planned growth or even its continued operations. Therefore, financial constraints are still the dominant constraints for Xten, which affect its ability to develop and market its wireless softphone products in the wireless field. Developing new products and new markets call for additional expenses and working capital.

3.3 Business Strategy

Xten's current business strategy is described below in separate subheadings. In each area, such as the positioning, distribution cooperation, partnership, and pricing and

licensing model, we analyze and discuss the strategy combined with a description of the company's current situation relative to that strategy. To analyze the strategy can help us better understand why and how Xten adopts such a strategy and what the relationship is between the company's situation and the strategy adopted. There is no strategy independent of a specific scenario, such as strategic capabilities. When we develop a future strategy for Xten, we will frame it according to the structure and situation of the company.

3.3.1 Positioning

To date the company has directed its efforts towards five market segments as its current and near future targets. In these five segments, Xten positions itself to achieve the market growth and expansion as fast as possible. In the analysis that follows, we discuss how Xten presents itself and what kind of partnerships it is creating and why.

Segment 1. Among "Softswitch&Feature Server" Partners

In the IP telephony time, more and more technology, services, solutions, and products are based on Internet applications. There are two kinds of vendors that play large roles in the telecommunication technological market and provide the firm's corner stones for the carriers of IP telephony. These vendors are softswitch vendors and feature server vendors. One of Xten's business strategies is to provide its SIP based softphone products to these vendors, by which Xten can leverage theirs established channels and market, to deliver Xten's products indirectly.

Softswitch, mentioned before, is the generic name to differentiate all new technologies that can provide more advanced solutions in telecommunication market that the traditional local-exchange switch cannot provide. Therefore, when we say "The Softswitch", we are referring to the field where all the service intelligence resides for the delivery of local telephone services. And the "Feature Server" is referring to the feature solutions that work to provide call-associated capabilities.

As talked before, today's integrated communications service providers not only need the best solutions for the market, they also expect all products to be integrated and organized into an easily operational network. From this point, all equipment vendors, system integrators and communication related service providers have to be certified to make sure that they can work together and support each other in order to help these carriers and service providers compete successfully in the market.

Therefore, among these softswitch&feature server partners, Xten is pursuing certifications from their technology partners and provide its product softphone X-Pro that can be integrated or reconstructed into the equipments of the partners. The product X-Pro contains three layers: the top layer is the surface, the middle layer is the abstract modules, and the bottom layer is the SDK, which is Soft Development Kits. At the top layer it is easy for customers to replace the interface of the softphone with any surface they prefer; in the middle layer it is easy for customers to reconfigure the components of the softphone that they want to provide to end users; in the bottom layer, the SDK, it is possible for customers to integrate the softphone software into their own softwasre. Mostly, Xten provides an SDK of X-Pro to its partners, because most of Xten's

customers want to integrate the softphone into their systems, sometimes modifying parts of its functionality. The SDK is the best way for them to do that.

Segment 2. Among "Brand Building" Partners

In order to establish its market brand and gain more awareness from customers, Xten also builds relationships with "Brand Building" partners. The "Brand Building" partners can help Xten distribute its free softphone, X-Lite (the simple version of X-Pro), to the market: when customers visit their websites, they can freely download X-Lite. This helps Xten to achieve recognition in the market.

So far, there are over 500, 000 X-Lite versions have been distributed and activated via this channel.

Segment 3. Among "Broadband Phone Service" Providers

Despite these partnerships Xten also directly delivers its product to end customers as its sophisticated strategy, through the broadband phone service providers. These broadband phone service providers are telecoms, long distance carriers, cable operators, and "virtual operators".

Although this strategy needs more marketing resource and investment, there are long term benefits in direct marketing for Xten, which can increase its market share growth rate greatly and effectively. When Xten is bigger and has a stronger brand, direct marketing may not only bring Xten more profit than possible with a partnership, but it also will reduce the negotiation required to establish and maintain partnerships – a time consuming process.

Segment 4. Among Hardware Manufacturers

Xten's sale force also directs its efforts to the end terminal device (PDAs, desktop PCs, laptop PCs, tablet PCs, and pocket PCs) users by providing them with a copy of X-Pro, which can be coordinated by the broadband phone service providers to provide users a softphone solution.

Also, Xten bundles X-Pro with related VoIP equipments such as IP phones, handsets and Webcams, through the partnership of the manufacturers or service providers.

Segment 5. Among "Web Application" Providers

The last market segment for Xten is web application providers that provide a softphone service via the web. These providers can add the functionality of their service such as the push to talk (the service enables an user to initiate voice communication to the customer service center by clicking on the push to talk icon on the website page), which can be supported by X-Pro. There are many current web application providers in the markets; therefore, this application (push to talk) will improve their service quality and customer satisfaction as well.

3.3.2 Distribution Cooperation Strategy

Xten's distribution strategies include are co-branding, private labeling, and bundling. The specific characteristics of these different scenarios are discussed below. The pricing and the licensing models are in section 3.3.4:

a. Co-brand

For some service providers, such as Vonage, Xten's X-Pro is co-branded with their softphone products, by being marked the X-Pro name, Xten's logo or "powered by Xten" in marketing the products.

In reality, the service providers can replace the face of X-Pro with a new one they desire, because they want a united style of their products.

b. Private

In some cases, especially for the switch and feature server partners, the partners do not want to mark the brand of Xten within their integrated products. Therefore, there will not be any marks of X-Pro or SDK in those products, although Xten has provided either the function or the product of softphone.

It is easy for partners to switch suppliers from Xten to another, which challenges Xten to work out a way of locking in these partners effectively.

c. Bundling

When Xten cooperates with the broadband phone service providers directly, it intends to bundle its X-Pro with their service to the end users. These telecom, long distance carriers, cable operators and "virtual operators" will send the ATAs (Adaptor of IP phone, a kind of equipment), handsets, and the CD of X-Pro to their traditional telephone customers to enable them exchange to the IP users.

3.3.3 Partnership

Xten has dedicated much to creating good relationships with its business partners. The obvious achievements are evident in three kinds of partners, which are "Softswitch&Feature Server" Partners, "Brand Building" Partners, "Broadband Phone Service" Providers. These are discussed in detail below in order to understand how Xten has been effective in creating these partnerships.

"Softswitch&Feature Server" Partners

The current and the potential telephone service providers are Xten's softswitch and feature server partners, and the customers of these partners are located in the Regional Bell Operating Companies, Inter-Exchange Carriers, ISPs (short of Internet Service Providers), Independent Operating Companies, Competitive Local Exchange Carriers, System Integrators and Resellers. To study these partners and their customers as well as technology partners will make us understand deeply the strategy of Xten and relationships around Xten in the market, which can also help us develop the further recommendations in the future. Xten's main partners on this side are discussed as follows:

BroadSoft – www.broadsoft.com

BroadSoft is the main provider in the market of hosted communication platforms. Its series communication applications are integrated into its flagship product BroadWorks, which occupy a big market share in the industry.

BroadSoft's customers include MCI, Telstra, AAPT, ACC Telecom, Broadvoice, CallPlus, and many others. All those customers could be the indirect customers of Xten as well.

In order to get certified by the relevant service and products providers and be interoperable with their systems, BroadSoft has partnered with many relevant leading companies in the industry. Through their partnerships, they cooperate to provide the comprehensive and integrated products and service to the carriers.

Those partners besides Xten are: AudioCodes, CarrierAccess, Cisco Systems, Citel, ipDiaLog, Lucent, Mediatrix, Mintel, Occam, Pintel, Polycom, Sayson, Sentito, Siemens, Vegastream, Verilink, Vpacket, and Zhone. These technology partners not only require Xten to match its products with them, they also provide a network effective (or interactive) influence to the partnership themselves, which can enhance their entire ability of competition in the market.

Sylantro – www.sylantro.com

Sylantro System is the provider of telecommunication application software, which provides the software platform for Hosted PBX and IP Centrex service (short for central office exchange service). By now, more than 20 carriers and new telecom service providers are its primary customers, such as Level 3, Verizon and SBC Communications.

In addition, Sylantro is cooperating with the producers of client and adapter devices to provide the total solution to their customers. On this side, its partners are: Toshiba, Cisco Systems, LG, Polycom, Pintel, Citellink, Swissvoice, and Swire.

Syndeo – www.syndeocorp.com

The primer customer of Syndeo is Comcast, the largest cable operator in U.S., to which Syndeo provide the solution to help it become the next generation VoIP service provider. It is a promising market for Xten constructed by the partnership between Syndeo and Comcast, after the partnership between Syndeo and Xten.

Their flagship product is the VoIP switch. To combine with its products for the VoIP total solution, Syndeo has partnered with a lot of technology companies, either big or small. In order to be compatible with each other, Syndeo leads these partners including Xten to be pre-tested and pre-certified, which helps Xten to solve the requirements of interoperability. Its technology partners besides Xten are: Broadband, Cisco Systems, Oracle, Portal, Motorola, and IP Unity.

VocalData – www.vocaldata.com

Vocal Data's main customers are Telus and ICG communication, to which it provides the advanced Hosted IP telephony applications. Its applications have interoperated with multiple network equipments and protocols to provide the best service solutions to the telephony service providers and customers. By supporting the most popular protocols, such as SIP, SCCP (Signalling Connection Control Part) and MGCP, VocalData can match most of clients' requirements, which will also bring Xten more business opportunity. The partners besides Xten are: Hughes, SUN, Dynamicsoft, Net6, Radvision, and SS8 Networks. All those also have certified Xten to work with.

1. "Brand Building" Partners

As discussed above, in order to build Xten's brand in the market, it has been over one year for Xten to cooperate with some "Brand Building" partners to freely distribute its low level version of X-Pro—X-Lite. Up to now, the number of both free download or bundling and being activated surpasses 500, 000. Moreover, Xten has built its reputation of its fine softphone products among those customers. Here we will introduce those partners to help us understand this strategy well.

Pulver.com – www.freeworlddialup.com

Free World Dialup (FWD) provides the free call over Internet via either telephone or softphone. FWD could be the largest open network service provider for IP Communication focusing on P2P (person to person service). Xten provides free softphone version X-Lite on this website to support FWD business model.

Linspire™ – www.linspire.com

Linspire is a Linux operating system producer. In its Linspire 4.5, the first OS version with free call service for its users, Xten partners with Linspire to provide its X-Lite to the OS users, through this movement, Xten also get the certified from Linspire and its application.

SIPphone.com – www.sipphone.com

SIPphone is the website to provide the softphone service at inexpensive price, in which Xten provides free download of its X-Lite for the wed customers. Through this, Xten is expanding its brand and making more and more people have the comfortable experience in both VoIP calling and Xten's products.

The companies discussed above are either "softswitch/feature server" partners or "brand building" partners. Xten has created these partnerships not only because they are appropriate for Xten, but also because the partnership can bring benefits to both sides. We analyze these partners to give us a better understanding of Xten's strategy in the wireline market. Furthermore, this will help us develop a strategy for Xten in the wireless market.

3.3.4 Pricing and Licensing Model

Xten seeks to provide the right products at the right prices to offer best overall value to customers. There is no price difference among different market segments. The Price per unit varies according to the version and quantities ordered. Xten lists the retail price for direct users including consumers and business users and its wholesale price for its strategic partners.

Consumer and Business User

The basic product X-Lite is offered to consumers or business users free of charge. The "Loss Leader" strategy, whereby word-of-mouth advertising bringing customers in, simply makes them aware of Xten's products and be willing to pay for the software with enhanced features. The premium product X-PRO that provides functionality of a small business phone system on PDAs or PCs is sold at a retail price of $50 for a single end user license.

Strategic Partnering

Xten intends to partner with both equipment vendors such as terminal equipment manufactures or IP PBX vendors and service providers including system integrators, web application providers, network operators or virtual operators. The company has worked through three forms of partnership – Private labeling, Co-Branding and Bundling of X-PRO (see details in **3.2.3**). The price per unit varies based on the form of partnership. In order to compensate the loss on brand awareness, Xten maintains a private labeling price that is 200% of Co-brand price. Xten bases its prices for different partners on the "profit analysis". Xten considered three factors- sales revenue, profit margin and opportunity

cost to jointly determine the charge rate. This approach insures competitive pricing, strong margins and long-term benefits.

For any form of partnership, the pricing scheme is based on the amount of license ordered. Also, the price reflects both the features the product supports, and the technical support level Xten will offer after sales. Xten charges a premium for each additional feature – encrypted voice option or embedded web option. Encrypted voice option ensures that all voice data is encrypted using strong encryption and embedded web option provides a web-based user to place a call through single button push. To generate continuous revenuers from the installed customer base, Xten charges for the upgraded version featuring new multimedia functions as well as the post-sales supports.

To offer strategic partners more flexibility, Xten offers software development kit (SDK) that allows customers to develop their own user interfaces and integrate Xten's products into their own applications. In addition, Xten offers the additional package options that the partner can choose to outsource the user interface modification and/or the logical design modification to Xten. The pricing scheme for customization is based on the time spent in developing the products- $120/hour for the logical design modification and $250/hour for the user interface modification.

The pricing and licensing models Xten currently uses have proven to be successful models - the offerings not only are competitive in the market but also maintain healthy revenue growth and profit margins. Keeping to proven pricing models will be a good choice. However, with more competitors entering the softphone market and the development of technologies, competitors' prices will drop and the company will have to reduce its prices accordingly.

3.4 Organizational Competence

Although Xten is relative both young and small at the present time, there are some significant competences in the company, and most of them have tangled and interacted with each other, increasing Xten's forces of competition and energy for future business development. These competencies are detailed below.

Flat organization

There is no strict hierarchy in the company, and employees work in a big room without walls blocking them. They can talk, argue, discuss, and communicate with each other. They work more likely a team instead of a formal company. Each employee in the company has multiple responsibilities and interacts together to accomplish the goal of company: pushing the sales up. Many engineers work with customers frequently and take the responsibility of the marketing at some extent. All those save the time and cost while enhance both the effectiveness and efficiency.

This flat organization will not be effective for serving the new market (the wireless VoIP market), when the company grows significantly. In general, the more customers Xten acquires in the future, the more employees and functions company will have; the more employees and functions in the company, the more difficult it will be for the management to coordinate with a flat organization.

Experience in the SIP based products development

Xten has tended to focus on its SIP based softphone series products, which can be regarded as the wise investment and strategy because In the future market of VoIP, it is widely accepted that the SIP protocol will the industry standard. The earlier they develop products basing SIP, the more experience and reputation they can accumulate.

Effective decision making system

In Xten, people can directly react to the market and customers very fast and make response very soon. There is no complicated decision making system in the company, the CEO, COO, and CTO communicate effectively and have the first hand information directly from the sales or engineers and the customers. However, this system will not remain when Xten becomes a huge and complex company with many customers and multiple market segments. It will be difficult for C-level managers to make decisions in the company as described above.

SIP co-author

One of the primary partners in Xten is the co-author of SIP, which can give Xten the an in-depth deepest understanding of SIP and its application, and helped Xten develop more advanced and forward looking products.

Good relationship with industry leaders

Xten has established some intimate partnerships with some industry leaders, such as Vonage and Lucent. These relationships bring Xten into a bigger market and get the chance to cooperate with relevant players to provide the total solution to the carriers.

Market oriented company

Xten is the market-oriented company that develops its products primarily by the market pull. Xten produces and modifies the products according to the requirements of specific customers. Moreover, Xten does not invest much in R&D unless customers need new features or modules. This makes Xten concentrate on increasing customer satisfaction and encourage Xten to establish a related more firm relationship with its

partners, even though it is very difficult to lock in the customers for a long time in VoIP field.

All the competencies discussed above give us the impression that there are positive factors that should allow Xten to expand its market into wireless VoIP applications within the near future. The success that Xten has experienced in the wireline VoIP marketplace has brought some insight, and Xten's strategic capabilities are apparent in its current strategy.

3.5 Conclusion

After analyzing Xten's internal situation and current strategies, we have a better understanding of the strengths and limitations of Xten. This chapter has analyzed and compared the competencies of Xten, including its strategic capabilities, to external market forces. As well, we have observed that the strategies Xten adopts in wireline VoIP competition reflect the competencies, resource limitations, and corporate culture of the company. All these will help us consider the market strategies for its business in the wireless VoIP marketplace. Therefore, the analysis in this chapter and in the previous chapter will gradually lead us to some outcomes that will help us develop the appropriate strategic alternatives in the next chapter.

At its present size it is not wise for Xten to rush into the wireless market alone. How, then, can they take the advantage of the potential market? Partners will be the key mechanism for Xten to enter the wireless VoIP market within the near and medium future. By taking advantage of partnerships as they enter the wireless VoIP marketplace, Xten

will be able to leverage their partners' marketing and sales forces. Xten cannot fight on two fronts (wireline and wireless) simultaneously without an effective and feasible strategy. In fact, we would not like to see Xten reduce its efforts in the wireline VoIP market as they enter the wireless VoIP market. On the contrary, we encourage Xten to maintain their current wireline market share while they develop their distribution channels in the wireless VoIP market. Both the wireline and the wireless VoIP markets will bring profits and there is considerable overlap in the resources required to develop its business in both marketplaces.

Moreover, we have noticed the Xten has accumulated many partnerships in the wireline VoIP business. Based on the analysis in chapter 2, that there is not much hurdle for the business transforming from wireline to wireless and most of the VoIP vendors probably enter the wireless VoIP market earlier or later, we believe that it is appropriate to strategically leverage the resources of existing partners in the market to distribute Xten's wireless VoIP products instead of investing much to develop the wireless VoIP market alone. Therefore, it seems more feasible and effective for Xten within the near future to develop its wireless VoIP market by establish appropriate partnerships with some leading roles of the industry. Thus, we will next analyze the strategic alternatives for Xten in more detail.

4 STRATEGIC ALTERNATIVES

4.1 Introduction

The previous two chapters have examined the external and internal environments for Xten. Dynamic external forces, including new broadband wireless technologies, changes in the wireless softphone industry structure and value chains, deregulation in the wireless service sector, and emerging demands of end-user groups have spawned a proliferation of wireless softphone software, forming an intensely competitive market. The company's existing competencies and resources both facilitate and constrain the company's market development efforts in wireless. This chapter begins with a definition of Xten's strategic issues. In order to identify Xten's strategic issues in their internal and external environment, we have done a "strengths, weaknesses, opportunities, and threats" (SWOT) analysis of Xten. Next, we describe four strategic alternatives. However, any alternative has benefits along with risks, and trade-offs are often involved. Therefore, in this chapter we will also give an SWOT analysis for each alternative and rate each alternative from both an efficiency and feasibility perspective.

4.2 Strategic Issues

The affordability of broadband wireless network infrastructures (i.e. Wi-Fi) combined with the increasing shipment of mobile terminal devices has spawned the

proliferation of wireless data applications including VoIP and video conferencing. Additionally, worldwide commercial launches of high speed mobile data networks (i.e. GPRS) have increased considerably in the last five years and 3G is becoming widely available in many countries (Europe, Japan, Hong Kong). As a result, there is much evidence for an optimistic view of the commercial prospects for mobile data applications. The leading industry forecasters believe that wireless VoIP and video conferencing application will enter the mainstream of wireless data applications within 5 years (see conceptual solutions in Figure 8). The industry has seen a trend of moving wireless VoIP and video conferencing application from being an enthusiast's niche product towards a fully-fledged commercial proposition for both business and consumer uses. In short, as the wireless data market grows rapidly, so does the VoIP and video conferencing software industry.

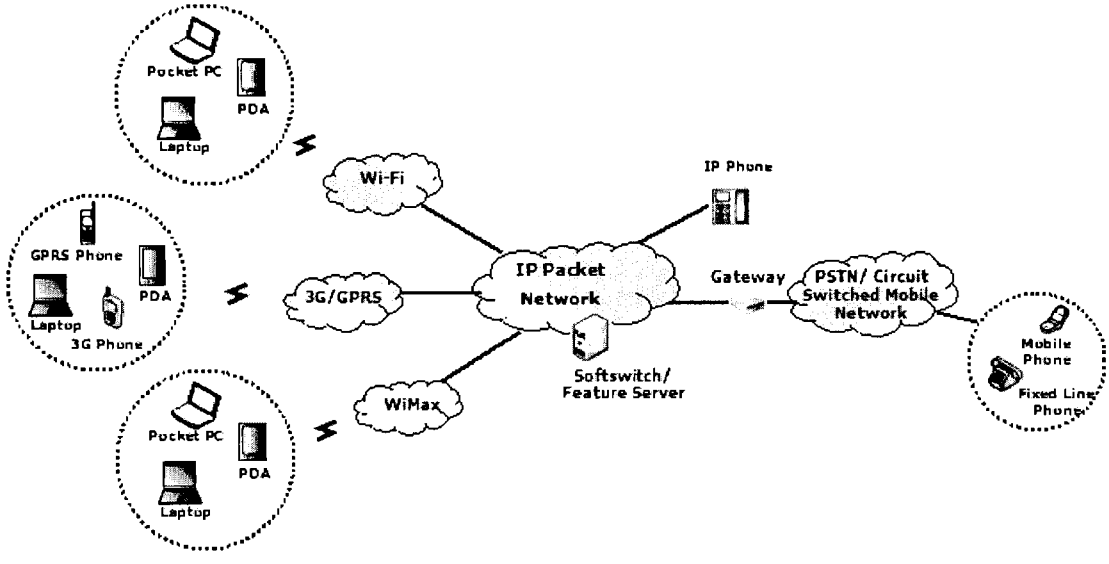

Figure 8 VoIP and Video conferencing solutions over wireless networks

In addition, from a technical point of view a growing number of signaling protocols including SIP, H.323 and MGCP as well as other non-predominant and proprietary protocols exist in the wireless VoIP and video conferencing market. This seems to hint at future growth in wireless VoIP and video conferencing applications. Fortunately, several technical forums have played a role in providing interoperability testing among different VoIP protocols and proven that most VoIP protocols can co-exist. The competition among products based on different protocols will result in new products with more features, further enhancing the appeal of VoIP and video conferencing services and growing the market to a great extent.

The company's competencies (e.g. highly experienced management team, existing good partnerships) facilitate its efforts in market development in the wireless field, although financial and human resources are dominating constraints for Xten to develop new markets and/or new products.

4.2.1 SWOT Analysis

In order to identify key issues that are more likely to have an impact on Xten's growth in the short and medium term, we summarize both the external environment in which Xten operates, and the company's internal strategic capabilities in the form of a SWOT analysis.

4.2.1.1 Strengths

- Xten uses the most popular VoIP standard currently– SIP protocol. The standard compliant offerings insure the company will achieve market acceptance and enjoy network effects.
- Xten is flexible in decision-making and product development thanks to its simple flat structure.
- The well-established partnerships, with virtual operators such as Vonage, application providers, and equipment vendors, form intangible "assets" for Xten.
- Extensive support from partners, including a SIP co-author, strengthen Xten's capability of developing the SIP based software.

4.2.1.2 Weaknesses

- Unlike proprietary protocol based softphone product providers, Xten has no intellectual property to build an entry barrier in terms of technology to competitors.
- Currently available resources do not allow the company to extend its business to the non-softphone software field. In this instance, the company can provide stand-alone softphone software rather than a total solution, which lowers its integrated competence in the competition, compared to the similar companies that have relevant software products as well.
- Financial issues are often the primary issue for a startup company like Xten. Whether or not the company has sufficient operation capital depends on both the company's short and medium term financial performances and the confidence of the public and private investors.

- Being a small company, Xten's just-sufficient human resources constrain the company's ability to develop new markets and new products to a certain extent.

4.2.1.1 Opportunities

- The trend of "one virtual phone number over Internet" opens up a huge business opportunity for VoIP software providers.
- With the evolution of broadband wireless technologies including Wi-Fi, WiMAX and 3G/GPRS, and the wide deployments of broadband wireless networks, VoIP and video conferencing applications have been seen as the most attractive applications in the wireless industry.

4.2.1.4 Threats

- Numerous players are emerging in the market - increased competition coming not only from the providers of SIP based or non-SIP protocols such as H.323, MGCP or other proprietary protocol based softphones, but also from VoIP equipment vendors and service providers, that develop softphones in-house.
- Companies with substantially greater resources (e.g. VoIP platform vendors) are more likely to establish market hurdles to small companies in order to dominate the market.
- Market forces drive the price down and squeeze the margins from the softphone providers. As a result, the company is likely to generate insufficient revenues that should be used to develop new products and maintain their strategic position.

4.2.2 Strategic Issue Definition

The high revenue potential of VoIP and video conferencing software attracts numerous players into different parts of the value chain of wireless VoIP and video conferencing service, forming an intensely competition market. As a result, the overcrowded suppliers drive the price and margins down for a VoIP and video conferencing software provider like Xten. The company's growth in the short and medium term will depend heavily on continued market acceptance of its current software offerings, which in turn requires an adequate sales force. However, financial and human resources constraints are impelling Xten to take on more direct sales. Therefore, the key strategic issue for Xten under this circumstance is how to distribute the wireless SIP based softphone products effectively in this new high potential market where the value chain of wireless VoIP and video conferencing service is becoming overcrowded.

4.3 Analysis of Strategic Alternatives

Considering the financial constraints of Xten, it makes sense to spread the investment in sales forces with other partners where possible. Moreover, the company has made headway rolling out their wireline VoIP and video conferencing software offerings to end users with partners. Undoubtedly, taking advantage of the existing resources and relationships is the most economically efficient. However, when the demand for VoIP and video conferencing software is clear and the VoIP and video conferencing service is proven to be an important cash generator, a VoIP and video conferencing software company will be likely to face the risk that distribution partners will integrate VoIP

software development in-house. Therefore, the second questions is how can Xten establish and lock in the partnerships.

In this section, we discuss the four strategic alternatives we identified after having extensively studied the internal and external forces faced by Xten. Different alternatives may represent different characteristics in terms of feasibility and efficiency in any given period of time. In each strategic alternative analysis, we describe the type of partner from its service offerings and its customer segments. The analysis of each strategic alternative begins with a description of the strategic alternative including business models and pricing arrangements and then makes an evaluation of each strategic alternative by SWOT analysis.

4.3.1 Strategic Alternative 1 – Partner with System Integrators

4.3.1.1 Description of System Integrators

In wireless VoIP, most of the time the service providers are not also the system integrators. They choose the system integrators based on either consideration of the alliance strategy or via public bid activities. The integrators discussed in this chapter refer to those entities that provide total wireless VoIP solutions to the service providers, i.e. carriers, long distance telecommunications, cable operators, "virtual operators", public network providers, private network providers, business wireless VoIP service providers, private VoIP service providers, business or non-business organizations, government functions, and military units.

The system integrators that provide total wireless VoIP solutions will coordinate many technical subsystems, designing the entire system structures, the specific requirements for the whole system, the subsystems, and the interfaces among subsystems, whole system and subsystems, and whole system and customers, from technologically to physically. The system integrators should consider all the wireless access technologies focusing on the VoIP including GPRS, Wi-Fi, WiMAX, 3G, and Bluetooth. Furthermore, the system integrators should accomplish the basic application functions by subcontracting, commissioning, and coordinate all wireless VoIP applications including video, audio, instant message, file transfer, conferencing, and voice mail.

Therefore, the system integrators will be not only be in charge of the technology and application integration, coordination, and project management, they are also in charge of the subsystem integration, system security provision, and system effectiveness and efficiency assurance.

From the discussion above, we consider one of the strategies for Xten to be partnering with a wireless VoIP system integrator. Under the circumstance of its limited resources mentioned above, Xten can take advantage of the capability of system integrators in engineering management, integrating technology environments for total solutions, and customers, channels, and partners that the integrators have developed. This will help Xten penetrate and expand its market more effectively, efficiently, deeply and broadly in the wireless VoIP field within the near future.

How can Xten establish a partnership with a system integrator in this intensely competitive environment? We will look at that challenge in our next section.

4.3.1.2 Customer Segment

The wireless VoIP service providers that pay for system integrators' solutions are the primary customers of the system integrators as well. These customers are mostly composed of carriers, long distance telecommunications companies, cable operators, "virtual operators," public network providers, private network providers, business wireless VoIP service providers, private VoIP service providers, business or non-business organizations, government functions, and military units, as mentioned before. On the other hand, the end users are also the indirect customers of the system integrators as well as the direct clients of the service providers, which are either individual clients or group clients in the wireless VoIP application market. The system integrators should consider all the customers' basic requirements no matter whether they are direct or not, individuals or not.

In order to help us understand these customers more clearly, we categorize them into two segments according to their specific characteristics: one segment is the individual customers; and the other segment is the group customers including business users and non-profit groups.

For individual customers, most of them leverage wireless VoIP services to accomplish some specific task.

For the group customers, most of them leverage the wireless VoIP service to achieve an organizational task or goal. They are either for-profit businesses or non-profit organizations, including:

a. Carriers, virtual operators, long distance telecoms, cable operators, and network providers;

b. Government organizations, public service organizations, military organizations, police organizations, security organizations, education organizations, health care organizations;
c. Banking, travel industry, oil industry, manufacture industry, logistic industry, game industry, casino industry, and sport industry.

One common point for these two segments is the security requirement hidden in wireless VoIP service provision. The system integrators need to be in charge of the security solutions for their customers, no matter whether they are direct or indirect customers. To mention this issue here is to help us understand well how Xten can acquire the opportunities and the paths to partner with the system integrators more effectively and economically in wireless VoIP application market.

4.3.1.3 Partnership Model

We suggest that Xten consider a strategy of forming partnerships with system integrators in the wireless VoIP market. The key to establishing an effective link between Xten and system integrators is creating a feasible and efficient partnership model.

The partnership model we suggest to Xten is to establish a technology partnership with the security and encryption providers in advance, then jointly establish a partnership with system integrators. The reason to focus on security is that security provisions are very important in wireless VoIP applications, for individual customers and group customers, although each has different levels of encryption requirements. In general, customers will not use a wireless VoIP solution without encryption, especially the special

task oriented group customers, who have the strictest requirements for security when they adopt a wireless VoIP solution.

For instance, group customers such as the police, military, and security organizations have the highest and strictest requirements for security in wireless VoIP. This means that the system integrators have to provide the best encryption solution and wrap it tightly into the softphone functionality. Moreover, the banking industry, hospital, casino, and scientific research fields also expect their suppliers to protect the information in their wireless VoIP applications.

Therefore, the basic and crucial task for system integrators is to consider this issue in the security subsystem and solve the interoperability between the encryption tools and the softphone. To get support and certification from security encryption vendors and achieve compliance in advance will help Xten establish good partnerships with system integrators. Only in this way can Xten prove the suitability of its products for all customers, especially for the task oriented group, which is a huge market with relatively high switching costs.

Pricing Model

Basing on this strategy, a revenue sharing pricing model, earning a percentage of the system integrators' revenue is appropriate for Xten. This can protect the company from losing the benefits of partnership by disconnection with the partners' business. Also, it can support both sides in the partnership and encourages them to devote more time to building a tight relationship and therefore more dedication to business development. However, it is a challenge for Xten to ask these kinds of profits when there exists intense competition among softphone vendors.

4.3.1.3 SWOT Analysis

To adopt this strategy, there are some pros and cons that we should pay more attention to. We conduct the following SWOT analysis:

4.3.1.3.1 Strengths

- Xten can take advantage of the competition by establishing a tighter partnership with the system integrators, as customers prefer a turnkey solution that only system integrators can offer.
- Partnering with system integrators can lead Xten to be the mainstream of the market through leveraging the strengths of both the system integrators and the security encryption vendors without huge investment in these technologies by Xten.
- The practice allows Xten to penetrate the high-potential special group markets, in which customer churn is uncommon, when it acquires a certificate from the security vendors.
- Xten's reputation, market awareness, and good brand may be enhanced in terms of security assurance.

4.3.1.3.2 Weaknesses

- Extra investments will be required to recruit more people to develop and maintain partnerships with system integrators, as currently Xten does not have a specific person working on this field.
- It will take significant time and resources to cooperate with the security encryption vendors and pass through the security test.

- It probably involves Xten in the competition among system integrators in terms of the security assurance solutions, which means Xten will lose a chance to partner with some system integrators if it can not get certified from the security vendors appointed by the system integrators in advance.

4.3.1.3.3 Opportunities

- Few softphone vendors are taking this strategy by now, which means the first mover will win more.
- Few group customers such as military, police or security are using the wireless VoIP solution but may use it under the assurance of security encryption.
- Few security encryption vendors partner with softphone vendors in the wireless application now, and it is not attractive for them to certify many softphone vendors because it will distract them from their core business.
- Few system integrators have partnered with the softphone vendors in the wireless VoIP solution with a model like this.

4.3.1.3.4 Threats

- As an easy-to-copy strategy, it is likely that competitors, including new entrants, will copy this strategy.
- Big players find it much easier to partner with system integrators and get certified with the security encryption vendors.
- The delay of the wireless infrastructure construction will postpone the profits expected returning.

4.3.2 Strategic Alternative 2 – Partner with Softswitch /Feature Server Vendors

4.3.2.1 Description of Softswitch /Feature Server Vendors

The second strategy we discuss here is for Xten to establish a partnership with a softswitch/feature server vendor in wireless VoIP that can distribute Xten's wireless softphone products. This strategy is based on the fact that Xten has established a host of broad and strong partnerships with some industry leading softswitch/feature server vendors in the wireline VoIP application already, and most of those vendors are entering the wireless VoIP application market, which means that to keep and strengthen the current relationships as well as to develop some new partnerships with the new powerful vendors will not give Xten much more burden than continuing business development in wireless VoIP market.

The vendors of softswitches market software based telecommunication products with call control functionality. When we say "softswitch" we are referring to all new solutions of telephony switching that can solve the problems that the traditional local switches cannot solve. Therefore, the softswitch includes all technologies and solutions for local telephony service. Based on a software application, the softswitch can not only lower operational cost, it can also support data transport technology in wireless VoIP applications. No matter whether it is wireline or wireless access, one of the core technologies to create VoIP solutions is located in the softswitch. This means that when we plan to deliver Xten softphone products to the wireless VoIP market, we will find that softswitch vendors play the same important role in this market as they have done in the wire line VoIP market.

It is the same story for the feature servers. The vendors of feature servers provide products for the call-associated capabilities, and any features we see at the present time, such as call waiting, and caller ID.

To partner with these vendors, Xten can take the advantage of their established distribution channel and sales force to deliver its products while these vendors market the softswitch/feature server to the service providers, i.e. carriers.

4.3.2.2 Customer Segment

Unlike the system integrators of wireless VoIP applications, the vendors of softswitch/feature servers will be more likely to provide their products to technical solution companies rather than carriers or service providers. The primary reason for this difference is that the vendors of softswitch/feature servers do not provide a total solution of wireless VoIP application as the system integrators do. Therefore, there is a little overlap of customers between the system integrators and the softswitch/feature server vendors.

In general, the customer segments for the softswitch/feature server vendors are located in several fields as follows:

a. The Regional Bell Operating Companies, which will provide wireless VoIP service gradually, according to their declared announcements and business plans;
b. Local-Exchange Carriers, which provide the main parts of VoIP service either via wireline or wireless;
c. Wireless ISPs that offer the wireless Internet service access solution;

d. Wireless Independent Operating Companies, which can be either the mobile carriers or the wireless VoIP operators;
e. Competitive Local Exchange Carriers, who roll out wireless access infrastructure to compete with incumbent local exchange carriers;
f. System Integrators, who we discussed earlier in this chapter;
g. Resellers, who resell wireless network recourses to consumer or business customers for carriers

We list these customers segments because most of the emerging and incumbent wireless Internet telephony solution providers could be customers of the Softswitch/Feature Server providers as Xten's partners. Therefore, those customers are also potential indirect customers for Xten. It may be beneficial if the company could consider how these indirect customers use its products and how they cooperate with the softswitch/feature server vendors when Xten is working out a partnership model with the softswitch/feature server vendors.

4.3.2.3 Partnership Model

Whether or not there can be a successful partnership with the switch/feature server vendors mostly depends on the extent that Xten can solve the issues of interoperability within the vendors' technology environment. Only when Xten gets certified interoperability from each technology partner of the switch/feature server vendors, can they participate in these partnerships successfully and cooperate with the vendors to distribute integrated products and services to the market.

In the wireless VoIP market, being able to provide integrated, easily constructed and operated network solutions, as well as leading edge switch solutions is the benchmark for switch/feature server vendors to enter the market. Therefore, in order to achieve the buyers' needs and operational efficiency, all software/equipments vendors, system integrators, softswitch/feature server vendors, and service providers must make their products compatible each other and construct the most effective and efficient solution for the market. This makes the certification activities even more necessary and significant for the softswitch/feature server as well as for Xten.

Secondly, to partner with these vendors, Xten should provide them its SDK (Software Development Kits), so these vendors can integrate the SDK into their systems and tailor them to the desired format. In general, this partnership model will not involve Xten's brand, logo, or any reference into the final products.

Pricing Model

The pricing model for this partnership is to use the same license model introduced before. In this model the softswitch/feature server vendors only pay the license fee for Xten's softphone (not SDK) when the unit is activated and their customers begin to pay. In fact, for these vendors, the one time cost to pay Xten for a per-user license is a small part of the profit compared to their projected revenues from their customers.

4.3.2.4 SWOT Analysis

To adopt this strategy, there are some pros and cons that we should pay more attention to:

4.3.2.4.1 Strengths

- Xten has established mature partnerships with a host of industry leading vendors of softswitch/feature servers.
- Through those current partners, Xten has credibility with technology partners in the softswitch/feature server fields, an intangible asset for Xten.
- By getting certified for product interoperability, it will be easier for Xten to follow these partners into the wireless VoIP market.

4.3.2.4.2 Weaknesses

- Some certifications need to be renewed in the wireless VoIP application.
- More and more softphone vendors are adopting this strategy, therefore many softphone vendors have announced that their products feature interoperability with a wide range of products/technologies.
- To get certified by many partners consumes a great deal of time and human resources.

4.3.2.4.3 Opportunities

- Most of the current vendors of softswitch/feature servers will walk into the wireless VoIP application field, because there is neither huge investment nor big barriers to entry for them.
- Like wireline VoIP applications, wireless VoIP applications rely on the support of the softswitch/feature server functionalities, which means there is a big market

overlap in the softswitch/feature server between the wireline VoIP application and the wireless VoIP application.

- An increasing number of wireless VoIP service providers have emerged in the marketplace, and more and more traditional telecom systems are being replaced, both indicating a huge market demand for the softswitch/feature server products.

4.3.2.4.4 Threats

- More and more of the larger vendors that produce VoIP associated products, such as the softswitch/feature server companies, may develop softphones in-house. If this happens, these larger vendors will become strong competitors and take market share from Xten rather than partner with Xten.
- Some new vendors of wireless softphone solution have better relationships with the vendors of softswitch/feature servers than Xten does.
- The intellectual property rights of Xten's products could be damaged and the partnership would be more likely to bring out legal claims by third parties in a complicated relationship. This could involve Xten in litigation that results in substantial costs and diversions of resources.

4.3.3 Strategic Alternative 3 – Partner with Wireless VoIP Network Providers

4.3.3.1 Description of Wireless VoIP Network Providers

In this paper, we define Wi-Fi, WiMAX, GPRS and 3G network providers to be wireless VoIP network providers and identify five types of wireless VoIP network

providers. The first four types are public network providers while the last type is a private network provider.

Type 1 - Fixed line operator

Fixed line operators are licensed public fixed line phone service providers with well-established phone networks in geographically diverse territories. Incumbent phone companies, cable operators and long distance carriers are typical fixed line operators. Fixed line operators roll out Wi-Fi and/or WiMAX networks to exploit local loop ownership in areas where third-party local loop owners must be involved to directly offer services to residential users and/or business customers. Undoubtedly, wireless VoIP brings significant threats to the traditional fixed line operators. To defend themselves against intense competition, traditional fixed line operators may enhance their voice service portfolio by adding wireless VoIP and video conferencing, as not doing so may mean increased customer churn in the future.

Type 2 – 3G/GPRS Mobile network operator

3G/GPRS Mobile network operators refer to the licensed companies to offer 3G/GPRS services. 3G/GPRS Mobile network operators are aiming at customers with high percentage or potential of mobile data service usage. Mobile network operators may also deploy Wi-Fi to increase their service coverage rapidly with a little extra investment thus enhancing their data service offerings and expanding customer base in new markets. Similar to the trend observed by those fixed line operators, 3G/GPRS Mobile network operators roll out VoIP and video conferencing services as the basic mobile data service offerings, even though VoIP is likely to be the major reason of voice revenue reduction for the mobile operators.

Type 3 – Virtual operator / Wireless ISP

Virtual operators refer to broadband phone companies that offer flat rate IP telephony service and broadband Internet access service. Wireless ISPs refer to the companies that provide broadband Internet access services through their Wi-Fi based access points. For both virtual operators and wireless ISPs, VoIP and video conferencing applications are two basic service offerings to their consumers and business customers.

Type 4 - Venue or location owner

Venue or location owners build public Wi-Fi networks in the areas they own. Through Wi-Fi, all these groups offer Internet access and/or other IP based services such as VoIP and video conferencing as attractions to their existing services or pursue extra revenues from Internet access and/or other IP based services as value added services. Often they provide free softphone software downloading once a wireless user accesses their Wi-Fi network.

Type 5 – Enterprise

Since initial investments and on-going costs on Wi-Fi networks are often affordable for an enterprise, a number of large enterprises have built their own wireless access points to create broadband links. VoIP and video conferencing over the enterprise Wi-Fi networks enable employees to remain connections around the working space, thus increasing the enterprise's productivity.

4.3.3.2 Customer Segment

Basically, the customers of wireless VoIP network operators can be divided into internal and external customers. Private network operators offer services to internal

customers (e.g. employees). Public service operators target consumers and business customers although the characteristics of customer groups for each type of publish service operators are not exactly the same. Fixed line operators roll out VoIP services primarily to enterprise customers who place long-distance calls frequently. 3G/GPRS mobile network operators target individual consumers with high potential of mobile VoIP and video conferencing service usage (e.g. business travelers). Venue or location owners offer VoIP and video conferencing service to passers-by in order to enhance their service portfolio. Virtual operators and Wireless ISPs primarily target residential and small & medium enterprise customers.

4.3.3.3 Partnership Model

Xten may pursue opportunities to have its products bundled with the operators' service offerings. Such a partnership model is called service bundling model. The partners distribute Xten's products once their customers subscribe to the related services. The partners may distribute a CD containing a co-branded or private labeled version of Xten's software or send a set of user names and password that can be used to authorize the particular customer to download Xten's software via Internet.

However, there can be no assurance that the operators will recommend Xten's products if two or more software developers supply softphone products at the same time. Even if the operator may use one softphone partner at a time, it cannot guarantee that the operator will not switch to other softphone suppliers or integrate this part of value chain in-house. Here the challenge is developing a win-win partnership agreement in order to effectively lock-in the partnership.

Pricing Model

Pricing arrangements vary according to customer type – paying customers or non-paying customers as well as the partner's preference.

Some wireless VoIP network operators such as airport owners provide their customers VoIP and video conferencing service for free. In this instance, it is hard to calculate the exact revenues generated by VoIP and video conferencing service offerings, as these services aim to add attractiveness to existing services. Charging wireless VoIP network providers a negotiated amount per unit becomes a feasible option for Xten. Or wireless VoIP network providers may choose to pay Xten a certain amount of money for unlimited licenses.

Most wireless VoIP network operators position VoIP and video conferencing offerings as basic or value added services in order to sustain or spur revenue growth. Often wireless VoIP network providers bill the customer for VoIP and/or video conferencing service and settle at a later date with Xten. Several revenue sharing options and schemes exists in this scenario, since the operators have options (flat rate or usage based) to charge their customers. Xten will be paid for each unit upon an individual customer subscribing to the Xten software based VoIP or video conferencing service. Or Xten may receive from the operator a commission - a certain percentage of total revenues of Xten software based VoIP or video conferencing service.

4.3.3.4 SWOT Analysis

4.3.3.4.1 Strengths

- Xten can attain a large customer base thanks to synergetic effect, as these operator partners often supply various services (i.e. instant messaging, mobile gaming) and softphone service can be bundled with other services as a service package.
- Xten can increase its brand awareness by emphasizing successful partnerships with reputable operators.

4.3.3.4.2 Weaknesses

- The operator partners may provide options to their end users if two or more suppliers provide softphone products at the same time.
- The operator partners can easily switch to other softphone suppliers, as the operator partners develop their own softphone interface and their customers will not feel any difference if the basic part (e.g. SDK) is changed from one supplier to another.

4.3.3.4.3 Opportunities

- The market forces drive down the price for voice service. VoIP, which supports more voice customers under the same network capacity, has become an attractive solution for operator partners.
- The operator partners today are seeking differentiated services to sustain their revenue growth. Xten's softphone products enabling video communication (e.g. video conferencing) between PC and mobile device such as handset have been seen as a revenue driver for the operator partners.

4.3.3.4.4 Threats

- The operator partner may vertically integrate this part of value chain (softphone development) in-house.
- The operator partner is likely to ask for a turnkey solution that a softphone software provider alone cannot provide.
- The network operators may seek continuous software upgrades and strong post-sales support from the softphone partner, which only companies with great resources such as platform providers can offer.

4.3.4 Strategic Alternative 4 – Partner with Household Appliance Suppliers

4.3.4.1 Household Appliance Market

Household appliance industry has stepped into a mature and saturated stage, consisting of numerous players with different economic scales. In the last couple of years, no revolutionary new products have emerged in the marketplace. Leading players including GE, Electrolux and Whirlpool are concentrating on improving established products by adding "value-add" features to sustain their strategic positions in the market.

With the advent of IPv6 technologies, the industry has seen new opportunities by building IP-associated capabilities into appliances, since IPv6 relieves the issue of overcrowding IP address space by extending IP address from 32bit to 128 bit and thus allows each appliance to get its own public IP address. In addition, Wi-Fi and WiMAX enable ubiquitous broadband service delivery. Therefore, the combination of these

technologies – IPv6 and WiFi/WiMAX realizes the concept of non-PC devices, including household appliances, to be on the network. As a matter of fact, a number of household appliance manufacturers, especially those leading players mentioned above, are involved in an effort to develop IPv6 enabled appliances as well as IP-associated functionality for their products. Currently, the common applications are described as some features including self-repair and information searching and downloading. To be concrete, the IPv6 enabled appliance may have the capacity to search for its own fixes and repair itself according to downloaded instruction via Internet.

VoIP and video functionality are accelerating IP-associated applications in the household appliance industry. They can be seen as effective means of communication between household appliance manufacturers and consumers. For instance, the manufacture may be able to alert the consumer by leaving a voice message if the manufacturer suspects there is something wrong with the particular appliance by continuously checking the appliance's working status from a remote site. In short, VoIP over IPv6 opens up new opportunities for household appliance suppliers by offering consumers enhanced post-sales supports.

4.3.4.2 Partnership Model

Xten may form partnerships with household appliance suppliers to increase its share of the consumer market. Under the terms of partnership agreement, the household appliance supplier integrates Xten's software with its products to give its customers the real-time supporting feature. Such partnership model could place Xten in an excellent

position to win customers with these household appliance suppliers through product bundling model.

Xten alone will not be able to keep up with constantly changing consumer demands. Therefore, it may be good practice that both parties collaborate on the development of user interface and/or logical design of the softphone. However, different types of household appliances may request different softphone features and user interfaces. It is hard to develop a generic softphone release that could address the same type of products made by different household appliance suppliers. In this instance, Xten may lays emphasis on partnerships with leading household appliances in a few product domains (e.g. TV, microwave oven, vacuum cleaner).

In addition, Xten may undertake initiatives for identifying broadband service providers and structuring the joint offering. Through the joint bundling of broadband service, Xten offers the household appliance partners integrated VoIP and video solutions, enabling the partners to offer their customers a complete solution. Such relationships create a complex value chain that will bring challenges to Xten. Xten will risk the loss of brand awareness if it takes a private labeling approach, which is a traditional partnership practice adopted by household appliance suppliers. Hence, structuring the appropriate partnership agreement becomes essential.

Pricing Model

This complex bundling partnership model involving service and product bundling structures multi-way settlements among Xten, the household appliance supplier and the broadband service providers. According to the settlement relationship, we identify three basic pricing arrangement options in this partnership model.

Option 1

Option 1 applies to the scenario in which Xten settles with the household appliance partner only. Xten may charge the household appliance partner a certain amount for each delivered product that has an integrated Xten softphone. Another option is that Xten charges the household appliance partner a certain amount of money for unlimited licenses. In this scenario, the household appliance pays broadband service providers for network access.

Option 2

Option 2 applies when Xten shares revenue with broadband service providers and no settlement is made between Xten and the household appliance partner. This is similar to the service bundling partnership-pricing scheme mentioned in 4.3.3.

Xten receives payments from broadband service providers for each license once the household appliance customer activates a pre-installed Xten software based service. Or Xten may charge the broadband service provider a certain percentage of total revenues generated by Xten software based VoIP or video conferencing service.

Option 3

Option 3 involves settlements among Xten, the household appliance supplier and the broadband service providers. This option maximizes Xten's profits by charging the household appliance partners as well as the broadband service providers. Xten may choose to charge the household appliance partners for each softphone license or negotiate a one-time payment for unlimited licenses – in which case the pricing scheme is similar

to that mentioned in the option 1. Likewise, Xten can use the pricing scheme mentioned in the option 2 to deal with the broadband service providers.

4.3.4.3 SWOT Analysis

4.3.4.3.1 Strengths

- High switching costs reduce the possibility of Xten's household appliance partners changing the relationship.
- Xten can penetrate the mass market quickly through these household appliance partners, who have large customer bases.
- The joint offering with broadband service providers strengthens the relationship between Xten and its broadband service provider partners.

4.3.4.3.2 Weaknesses

- The concept of a non-PC device on the network is a long way in the future. The market potential of softphone in the household appliance industry is uncertain.
- Xten has no established relationship with this type of partner – household appliance suppliers. Identifying the right partners and establishing partnerships with these new partners requires significant investments (i.e. legal fees for development of the partnership agreement, resources invested in enforcing the agreement).
- Xten faces a long learning curve in order to develop software that can address the household appliance market.

- No generic softphone release exists and customization for each type of product of the particular partner may be required.

4.3.4.3.3 Opportunities

- In the saturated and mature household appliance industry, suppliers compete with value-added features. Softphone functionality may bring an edge for household appliance suppliers.
- Wi-Fi and WiMAX technologies enable ubiquitous broadband service delivery, thus increasing the chance that both household appliance suppliers and consumers will accept softphones pre-installed in household appliances.

4.3.4.3.4 Threats

- The household appliance partner is likely to integrate softphone development in-house if the softphone functionality is proven to be a competitive advantage and the outsourcing costs is much higher than in-house development.
- The existing software partners of household appliance suppliers may enter to the softphone market and become strong competitors.
- There is no assurance that softphone functionality will become a common household-appliance feature or the household appliance suppliers will see it as a competitive advantage.

4.4 Conclusion

Under the circumstances discussed above and from the perspective of the near term development for Xten, we have analyzed four alternative strategies for Xten entering the wireless VoIP market. Each strategy reveals a possible opportunity for Xten.

Basing on the SWOT analysis of these four strategies, we can observe and compare the different choice of strategies under the considerations in terms of the extra investment involved, feasibility, efficiency, timing for implementation, the maturity of wireless technologies and business application, the provision of the wireless VoIP infrastructure, influence on its current business, growth rate in the market, profitability, potential benefits for the company competence, current resource leverage, challenge of hurdles, the tightness to the partnership, and the business development opportunity of Xten itself.

In general, all things being equal, we should pay more attention to both the feasibility and efficiency to carefully screen the strategies, in order to make the most reasonable choice for Xten.

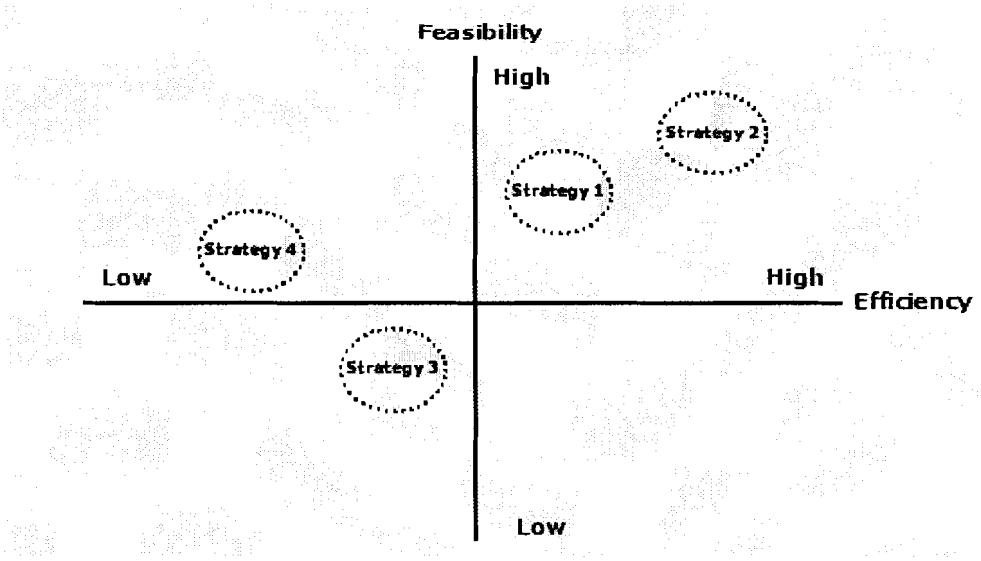

Figure 9 Strategic Alternatives

Strategy 1 (partnership with system integrators) is highly feasible and high in efficiency. Compared to strategy 1, strategy 2 (partnership with softswitch/feature server vendors) is even higher in feasibility and efficiency. We suggest that Xten adopt both strategy 1 and 2 as it enters the wireless VoIP application market while still keeping its current business in the wireline VoIP application market stable.

5 RECOMMENDATIONS

5.1 Strategy Choices

In Chapter 4, we discussed four strategies for Xten to distribute its wireless VoIP products successfully. When considering Xten's immediate strategic choices, we have balanced our analysis and have taken an interactive and comprehensive approach to identifying the most suitable solution.

First, we have limited our range of suggested choices, basing them on Xten's current circumstance with its entire business in full view of our consideration, that includes not only its development activities within the wireless VoIP application market, but also in the wireline VoIP application market. Because the wireline VoIP market is both very big and profitable, we encourage Xten to maintain and expand its business in this space, with an eye to eventually achieving mainstream status. Moreover, it seems impossible for Xten to throw much resource into wireless VoIP business development at the present time, as the market is still at an early adopter and/or innovator stage and has not arrived at the edge of the chasm yet. Therefore, to cross the chasm of the wireless VoIP market and enter the mainstream, a leading company would have to invest a lot to arouse market awareness, which is costly and consequently all but impossible for Xten at

this time. All these considerations form the basis for the suggested strategies that, in our view, are available to Xten at this time.

Secondly, we narrowed the choices under review through the application of two criteria, which include (a) feasibility and (b) efficiency. In terms of the feasibility, we are expecting the strategy not only be rational but also practical. It is unrealistic to pursue a strategy for a specific company without considering the strategy's limitations and capabilities. In short, the more feasible the strategy is, the earlier we could see the success after strategy implementation. Moreover, it is beneficial for Xten to adopt a strategy with high efficiency, which is especially significant in the near future as Xten still lacks enough financial flexibility. Assuming the level of investment remains unchanged, the faster the strategy implementation, the larger market share the company can achieve. With respect to this point, we have balanced the choices not only according to its feasibility, but also with efficiency metrics in mind.

Hopefully, Xten will create a strategic partnership with the partners named in the suggested strategies, and efficiently take the recommended step-by-step actions to maximize the shipments of its products.

5.2 Recommendations

To identify the most suitable solution, we rated each strategy alternative by both the feasibility and efficiency (Figure 10). The first two strategies - partnering with the system integrators and partnering with the softswitch/feature server providers, earn the higher scores. Additionally, we noticed that the first two strategies are interactive and

support each other. This can greatly increase efficiency if we adopt these two strategies simultaneously, and this adoption will qualify the feasibility well for each strategy.

Considering Xten's current situation as well as its wireline VoIP business, we believe distributing Xten's wireless VoIP products will be best accomplished by making use of the partners' marketing resources. This is another reason that encourages us to suggest Xten bundle the first two strategies together.

In the following discussion, we will describe the recommendations in detail, in order to help Xten adjust its timing and take action.

5.2.1 Product Roadmap

In the course of our research on the softphone market, we noticed that a few companies have already launched wireless softphone products supporting various types of mobile terminals. As the competition in the wireless softphone market becomes more intense, softphone providers are forced to differentiate themselves from their competitors. However, for a company like Xten, whose growth relies on short-term sales performance, a good product strategy does not depend on whether a company is able to differentiate product features in the near future. Rather, the company needs to go to market with the right product features or most widely accessed features in the short run, since it often takes a long time for unique features to reach mass-market penetration. In short, we recommend that Xten offer all the softphone features that have already been accepted in the market in the short run and offer the unique features that can give advantages over competitors in the medium and long run.

Based on our research on the products of six mainstream wireless softphone vendors, we can identify nine wireless softphone features with high penetration levels, including four features that are not supported by the current release of X-PRO (See detail in Appendix B). Taking into account Xten's current financial status, human resource constraints and its existing wireless product features, we developed a product roadmap for their wireless softphone that includes these features, illustrated in the following figure.

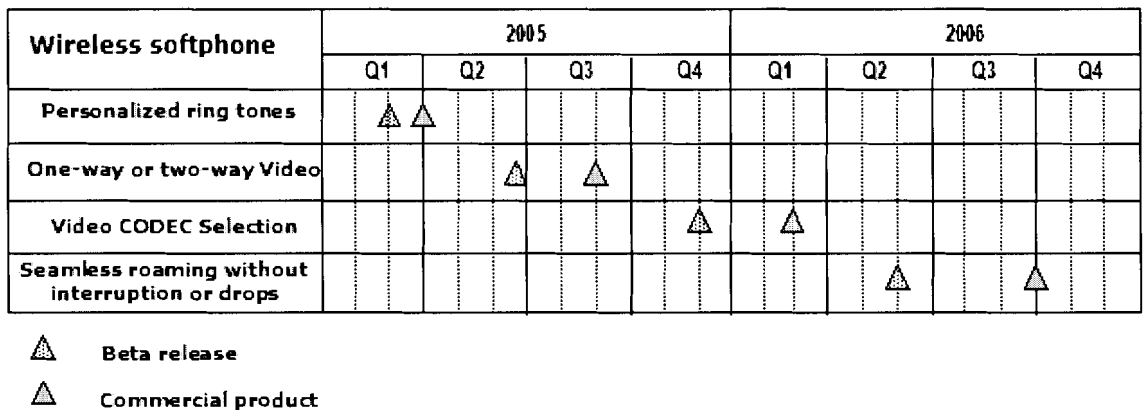

Figure 10 Product Roadmap

5.2.2 Distribution Tactics

In the description of strategies one and two, we suggested that Xten partner with system integrators and softswitch/feature server providers to effectively distribute its wireless VoIP products. We focus here on how to get the potential partners' acceptance and keep the partnership in the future. There are some general solutions in the academic books for companies that seek to create partnerships but we are looking for unique

recommendations customized for Xten instead of some general solutions that anyone knows.

5.2.2.1 Create Interoperability

To successfully distribute Xten's wireless VoIP products to system integrators or softswitch/feature server providers, the most important thing for Xten to do is to create interoperability for its products. In the wireless VoIP working environment, products must be compatible with each other. It could be too late to solve the interoperability problem, if this issue blocks the company's entry.

It is important that Xten deal with interoperability as early as possible. This can provide Xten an ideal platform to enter the market and create partnerships more easily. In order to accomplish this task, Xten should be more positive in their negotiations with potential technology partners and the industry leading providers, i.e. Cisco, Lucent, Nortel, TI, etc, in order to implement interoperable testing and get certified by these partners.

Pursuing interoperability will result in a positive feedback loop for Xten among the wireless VoIP technology vendors. The more compliant a certification Xten gets, the more business partners will accept Xten, and the more technology vendors Xten engages with, the more compliant a certification it gets.

5.2.2.2 Security Provision

In order to more effectively distribute its wireless VoIP products to group customers via system integrators, Xten should partner with security encryption vendors and jointly provide safe system solution products.

As discussed before, many potential customers have very strict requirements for wireless communication, especially for wireless VoIP. The solution to the security issue is to ensure that the softphone provides an encrypted channel for the communicating process. Therefore, a partnership with a security and encryption vendor before partnering with the system integrators will make Xten's products more valuable from a security point of view. Moreover, Xten will have persuasive advantages when negotiating the partnership with the system integrators if it has certification and support from security and encryption vendors.

In order to get official security certification of its products, Xten should partner with security and encryption vendors to apply for the official security test and approval from different authorized organizations. There are some authorized organizations issuing the security permission for the products in different industries, i.e. banking industry, police organization, military organization, etc. After getting permission for an integrated softphone with built-in security solutions, Xten can win partnerships with many leading system integrators.

5.2.2.3 Softphone Compliance

Most of carriers would not like to be locked into a particular softphone vendors by their products. These carriers will switch to any softphone if the product has better

features and can add to customer satisfaction. Hence, carriers are willing to pay extra expense for standards compliance up front if it avoids down the road expenses related to switching.

What can give carriers more confidence that there will not be a issue to switch from one softphone product to another? The solution is the compliance of the softphone, which means the compatibility between any two softphone products. Although it does not help lock up carriers and customers if the product is compliant, Xten has to face the choice of either getting acceptance by carriers when they do have compliance or being refused if they do not have compliant products.

The most urgent task for Xten is to get acceptance by more and more carriers via any channels it can use such as system integrators rather than think about how to lock up the carriers at the present time. Furthermore, the reality is that it is more feasible to lock up partners than it is to lock up the carriers.

Only Xten makes its wireless softphone products complaint with other vendors' wireless softphone products, can its wireless products get more and more acceptance by carriers and Xten successfully lock up its partners in the market. Therefore, it is beneficial for Xten to begin to consider wireless softphone compliance and prove its products to be compliant with more and more softphones.

5.2.2.4 Multiple Protocol-Based Products

As we have analyzed the market and competitors either direct or indirect, there are some different protocol-based wireless VoIP softphone products, primarily based on H.323, SIP, and MGCP. The main reason for those different protocols used in the VoIP

application is the historic transformation of both the communication technology system, from analogue to digital communications, and professional organizations, from the monopoly of ITU (International Telecommunication Union) to the coexisting of ITU and IETF (Internet Engineering Task Force) at present time.

Under this historic background, there are many telecommunication devices produced with different protocols in the wireless VoIP market, such as H.323, SIP, or MGCP based.

All these products with different protocols have segmented the market for wireless VoIP applications into several blocks. In each block, there is the combined technical environment for the unique protocol, and this environment ensures the product's compliance inside as well as keeps the different protocol products outside. Therefore, there are different customer segments separated by the hurdles of protocols, which seriously limits distribution when Xten only adopts one protocol, SIP. Although it appears likely that the SIP based products will gradually become the mainstream in the Internet domain, the other protocol-based products are still occupying parts of the market for the traditional carriers.

In order to effectively expand the market within the near future, Xten has to adopt a multiple protocol-compliant product strategy, as some competitors did, to maximize its shipments and the distribution channels. In fact, it is not entirely a duplicated investment to build multiple protocol-compliant products (some code re-use will be possible, especially in the user interfact). Moreover, the limited extra investment will grow the company's market share even more. Because SIP is a long way from being a monopoly in the wireless VoIP market, it seems unlikely that the traditional carriers would totally

switch their technology to a SIP-based environment within the foreseeable future. Therefore, there are still a lot of services and products with different protocols provided in the wireless VoIP market, especially the H.323 based solution.

5.2.3 Pricing and Licensing Models

In today's softphone industry, there is a marked preference for a mixture of volume-based pricing and pay-per-license pricing. This is a popular pricing model for software products. However, such a pricing mechanism is not robust enough for an early-stage product like wireless softphone to get the market attention and thus impel a softphone provider to achieve a high ROI (Return over Investment) rapidly.

Xten can target the system integrator and softswitch/feature server partners with effective and feasible pricing plans. A big challenge for Xten, with its non-negligible resource constraints, is to create a pricing model that helps capture as much revenue as possible in the short and medium term. A skimming pricing policy may hamper market take-up, while an aggressive pricing plan that enables a mass-market acceptance and drives the product penetration may have a downward effect on future revenue. In this instance, we recommend that Xten place itself in a strong position to increase its customer base in the near future, since the software cost per unit is reduced significantly as users grows. The company may provide to partners the basic version of the product for free at first and charge them a "regular price" later. There are two basic pricing models.

- The company offers the basic version software for free for a certain time period (e.g. one year) and starts to charge for each license ordered after that period. In this model, the price per unit is based on the accumulated volume the particular partner has ordered after the free offering period.
- The company does not charge the partners for the basic version of the software until the installed base of the softphone software bundled with partners' systems is over a certain amount (e.g. 2,000 units). In this model, a different level of discount is applied based on the additional amount ordered.

Both pricing models lead to growing popularity of wireless softphones and drive the product to reach the mainstream phase of the product lifecycle. These two models also maintain a lucrative price and ensure a high return for wireless softphones. In addition, based on our research, we believe the pricing arrangement Xten currently offers is competitive and the company may gradually reduce the price as the market price for softphone declines. To attract partners, Xten may offer special discounts to its system integrator and softswitch/feature server partners.

Moreover, the main revenue stream for a software product often comes from continuous revenue from the existing customer base. Hence, the company may charge partners for enhanced/upgraded version products. Also, additional charges can be involved when a partner's customer requests customized features (e.g. user interface modification) and post-sales support.

5.2.4 Risk Management

5.2.4.1 Stakeholder Management

The major stakeholder groups' attitudes and expectations towards wireless softphones affects Xten's wireless softphone business to a large extent. However, there is no assurance that the major stakeholders[8] in Xten will be generally comfortable with the level of risk entailed in Xten's entering the wireless market. In addition, it is hard to develop a universal approach to manage the expectations of all types of stakeholders with different interests and different levels of power influencing the company's decisions.

Since it is difficult to predict the success or failure of wireless softphones in the market place, a potential discrepancy between the expectation and performance exists, resulting in the possibility of stakeholders' negative attitudes toward new products. To enhance stakeholders' expectations about future products, we recommend that Xten maintain a close relationship with all major stakeholders and deliver the appropriate level of information to the different stakeholder groups. Such practices contribute to a convergence of expectations between Xten and its major stakeholders. By doing so, the major stakeholders are likely to gain increased understanding about the potential for success of wireless softphones. Nevertheless, this does not mean that Xten should lower stakeholders' expectations of wireless softphones. Rather, Xten may emphasize the benefits if the new wireless product achieves a success.

[8] Major stakeholders refer to herein Xten's subsidiaries, affiliates, agents, advisors, directors, employees and other investors

5.2.4.2 Delay of Broadband Wireless Network Deployment

The wireless softphone penetration is strongly linked to the availability of the broadband wireless networks that support IP packet transmission. Hence, the delay of 3G network implementation, the slow uptake of Wi-Fi and GPRS or the delay of commercialization of WiMAX technology will significantly affect the market acceptance of Xten's wireless product offerings. Even worse, the delay of broadband wireless network deployment is out of Xten's control.

We believe that the best way for Xten to manage this type of risk is to minimize the risk. We recommend that Xten form strategic alliances with network platform vendors. The alliances are dedicated to commercializing handover technology that enable mulit-mode (3G/GPRS/Wi-Fi/WiMAX) roaming and thus increase the range of access points. As we mentioned in 5.2.1, seamless roaming is a key feature for Xten's wireless softphone product in the short and medium term.

5.2.4.3 Financing Issues

Developing wireless softphones and establishing strategic wireless softphone partners could cost more than expected. Additionally, Xten's operations are primarily financed through the sale of equity securities. This type of financial recourse, however, is affected by many factors (e.g. industry performance) that are not controlled by Xten. Unlike well-financed companies, Xten has to consider stakeholders' reactions to any new strategy, as their reactions have a significant impact on whether the company will have sufficient capital to carry out the plan. Moreover, Xten may experience variability in sales performance of wireless product offerings because of continuing wireless market

uncertainty and possible actions of competitors, which will affect the company's financial performance to a large extent. The chance of not generating sufficient cash flow to support planned growth is not negligible.

To maintain a sufficient level of operating cash flow, we recommend that Xten maintain its leading position in the wireline market by locking up its existing strategic partners like Vonage and finance its wireless products based on the success of wireline product offerings. At the same time, Xten may turn to outside financing (i.e. trade credit, factoring, mezzanine capital). The external financing may cover activities from research and development to the initiation of sales and thus relieve the company's financial burden to a certain extent.

5.2.4.4 Company Resources Limitation

Xten is struggling somewhat at present, when facing the fierce competition in wireless and even wireline VoIP, because the resources of the company are very limited, not only in the human and finance resource but also in the products line. Without enough sales and development staff, Xten will not feel comfortable launching wireless VoIP business development. Moreover, because the main cost of partnership is the cost of negotiation, the less that Xten owns, the less power it has in the negotiation; the less power Xten has in the negotiation, the more it will cost to be in the partnership. Furthermore, lacking a series of related software products, Xten has to negotiate with many software vendors for the integration and interoperability. All these have been mentioned above and will slow its leading pace in the softphone market within the near future.

Therefore, it would be helpful for Xten to consider some timely recruitment. It is well known that industry experience and accumulated personal relationships are essential in telecom marketing and sales activities, so a high level partnership is more likely to arise from the success of personal sales. The earlier Xten builds a powerful sales force, the earlier it can create more effective distribution channels form the partnership established.

Moreover, more engineers are required for the expansion of the product line and the activities in certification of interoperability as well as security. The know-how of the engineers and the sales people are a bottleneck to Xten's business development; hence, in order to speed up the pace in the wireless VoIP market, it is essential for Xten to recruit enough people to smooth the friction in its transformation and development from a SIP based wireline VoIP softphone vendor to a vendor providing both wireline and wireless VoIP softphone, from a SIP based only softphone producer to the producer of both SIP based and non-SIP based softphones, and from a provider of only softphone products to a provider of both softphone products and videoconferencing products and even a series of related software products.

5.2.4.5 Frequent Switch by Powerful Customers

Because numerous similar products emerge in the wireless market and Xten does not have any intellectual property (IP), it is no surprise to see frequent switches of softphone vendors by powerful customers day after day. Moreover, Xten has no power to prevent competitors from copying its strategies, which will also water down Xten's attractiveness due to unique strategies.

To increase customer satisfaction and then capture more and more loyal customers is the dreams of all softphone vendors. However, it is possible for Xten to make some exclusive agreements with its partners if its partnership models and quality of service (QoS) are attractive enough and its prices are reasonable. When Xten can own some intellectual properties either created in-house or purchased from others, it will have a further advantage.

Xten is systematically engineering its products to be better and better in order to avoid being switched frequently by its primary partners. Only if Xten grows with its powerful partners in the market for a long time can it finally get rid of the nightmare of being switched.

5.2.4.6 Challenges to the Current Management and its Culture

There are plenty of challenges to the current corporate culture from Xten's entering the wireless VoIP market. For instance, Xten will face many complicated tasks to enter the wireless VoIP softphone market according to the strategies suggested in the thesis. These tasks will need to be administered systematically and scientifically, which will challenge the current organization and culture of Xten.

Unlike a start up anymore, the organizational structure and decision process of Xten will have to change with company growth. The company needs to consider changes in management style, operational processes, and corporate culture in order to achieve competitive success. Although the current management system works well, it should be adjusted to match the development of company.

The requirement of both effectiveness and efficiency will force Xten to reorganize its structure and adjust its culture back and forth to the appropriate status so that the new corporate culture can effectively facilitate Xten's business development both in the wireless VoIP application market and in the wireline VoIP application market. Therefore, Xten may want to pay more attention to the transformation of both organizational structure and corporate culture, based on the consideration and analysis above.

APPENDIX A: COMPETITIVE FEATURES COMPETITORS

Company	Product Name	Features
Telesym	SymPhone	Familiar dialpad interface
		Personalized ring tones
		Caller ID
		Call transfer
		Call hold
		Call logs
		Group intercom
		Speed dial from contact list
		Direct calling from MS Outlook
		Seamless roaming without interruption or drops
		Pocket PC 2003 support
SysMaster	VoiceMaster PDA	Allows calls via the Internet
		DTMF dialing from user's PDA
		Supports H.323/SIP
		Speaker volume control
		Microphone volume control
		Contact Book
		History list of the most recent used phones
		Instant balance reporting
		Includes a timer indicating current calling time
		Skinnable interface
Tebletmedia	iFon™	One-way or two-way video
		Full-duplex voice
		ITU-T H.323 rev 4 compliant
		IETF SIP support (RFC3261)
		Audio codecs with user-selectable silence management: G.711 (A-law and u-law). Optional: GSM/FR 6.10, GSM/AMR, G.723.1 (6,400 and 5,333 bps), G.729A and G.722.
		Video codecs with user-selectable rate control: H.261. Optional: H.263 and MPEG-4.
		H.323 gateway and gatekeeper
		SIP messaging (Messenger compliant)
		SIP Proxy with authentication
		Advanced telephony features (e.g. hook/flash, call hold, attended and blind call transfer, etc.)
		Digits: inband DTMF tones and RFC2833
		Line signaling tones (e.g. dialtone, busy, ringing, reorder, etc.)
		Distinctive ringing (SIP only)
		Session Time support (SIP only)
		Tight integration with PocketPC (e.g contacts, sounds, power management, etc.)
		Dynamically optimized for both Intel StrongARM, Xscale® and Xscale® with wireless MMX™
		Customizable skins

VLI	Pocket Gphone	Full duplex voice communication
		Voice Mail (Q4/2003)
		Stores up to 99 contact addresses.
		Send and receive files
		Text chat
		Manual TCP and UDP port settings
		Choice of GSM 6.10 or the industry standard G.711 codec
		Voice mute
		Microphone reception level Control
		Password change
		Direct connections by entering IP address
IP blue	VTGO PocketPC	Shared Line support
		Hold
		Transfer/Cancel Transfer
		Auto Answer
		Call Forwarding
		DTMF Pad tone feedback
		Calling Party Name Display
		Last Party Number Display
		Last Number Redial
		Last 10 Number Redial
		Alternative Rining Tones
		Message Waiting Indication
		Missed Calls Indicator
		Mute Mic
		Mute Speaker
		Speed Call List
		Time Display
		Transfer
		Volume Controls
		Full Duplex
		Dynamic Jitter Buffer

APPENDIX B: LIST OF FEATURES WITH HIGH PENETRATION LEVEL

	Features	Supported by X-PRO
1	Audio codecs with user-selectable silence management: G.711 (A-law and u-law). Optional: GSM/FR 6.10, GSM/AMR, G.723.1 (6,400 and 5,333 bps), G.729A and G.722	Yes
2	One-way or two-way Video	No
3	Video codecs with user-selectable rate control: H.261. Optional: H.263 and MPEG-4.	No
4	Advanced telephony features (e.g. Caller ID, Call Transfer, Call forwarding, Call hold, Call logs, Speed dial from contact list, conferencing, Mute, Auto-Answer, Call Timer)	Yes
5	Seamless roaming without interruption or drops	No
6	Personalized ring tones	No
7	Voice Mail	Yes
8	Direct IP to IP calling	Yes
9	Speaker/Microphone Volume control	Yes

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