

Application Service Provisioning

- Current State and Partnership Strategies

University of Oulu
Department of Information
Processing Science
Päivi Kallio
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Abstract

The European Application Service Provisioning (ASP) market is estimated to grow to USD 8.2 billion in 2003. Application Service Providers are companies that provision software applications over the Internet. The ASP will change traditional software businesses by turning software applications from products to services.

This thesis studied the state of the current software business, ASP and the ability of Finnish software companies to gain partners in the international ASP competition based on the situation in November 2000. The current state of ASP business was examined by researching literature and four Finnish and five American software companies that make use or are going to make use of ASP in the future.

Because the concept of ASP is new, the amount of previous researches concerning ASP is very limited. The commercial ASP studies have mainly dealt with customer satisfaction. The current state of software companies in this research is based on a study made by Forsell and Nukari in 1999 and on an international research of 100 software firms made by Harvard Business School in 1999.

In this research it was found out that Finnish and American ASPs seek value added service and technology partners on the basis of their quality and trustworthiness. The partners co-operate in marketing, support and research. The current ASP market is fast changing, fast growing, immature and uncertain, but the faith in it is very strong. Finnish companies regard finding competent partners difficult because of the still immature market. Technology and security do not prevent the widespread use of ASP, according to the researched companies. The keys to success in the ASP market are co-operation with qualified partners, specializing in existing strengths, and qualitative and secure software products.

Keywords: ASP, partnership, WASP, mobile applications

Foreword

As I was selecting the subject of my Master's thesis, I chose ASP because its actuality interested me and because I wanted to find a topic where I could take advantage of both my studies in economics in Vaasa and of my studies in information processing in Oulu. Now as I have read thousands of pages about ASP and researched several ASP companies I still have great enthusiasm and believe in it as a revolutionizer of software industry.

I would like to thank professor Veikko Seppänen for proposing me this interesting topic and for all the guidance under this process. I also would like to thank Nina Helander for her co-operation, support and good ideas under this process. And special thanks to Anthony Gyursanszky, Leah Kilfoyle, Timo Koistinen, Misa Leiber and Eija Pöytäkivi for taking part in this research.

In Oulu, December 21st, 2000

Päivi Kallio

Table of Contents

Abstract	1
Foreword	2
Figures	5
Tables	6
Abbreviations	7
1. Introduction	8
1.1 Background and topic of the research	8
1.2 Research problem	9
1.3 Scope and focus of the research	10
2. Analysis of the current state of software business	13
2.1 Trends	13
2.2 Partnerships in software businesses	14
2.2.1 Value added partners	15
2.2.2 Supporting partners	15
2.3 SWOT-analysis of the Finnish software industry	15
2.4 Development areas in the Finnish software industry	19
2.4.1 Software products for mobile environments	19
2.4.2 Software products for information security applications	20
2.4.3 Enterprise applications	21
3. Application service provisioning	23
3.1 Application hosting and security	25
3.2 ASP business	27
3.2.1 ASP business model	28
3.2.2 Entering the ASP market	29
3.2.3 A SWOT-analysis of ASP	31
3.2.4 Pricing methods and Service Level Agreement	34
3.3 Wireless ASPs (WASPs)	35

4.	State of ASP in Finnish software companies	38
4.1	Researched companies and their ASP strategies	38
4.1.1	Elbit Corp.	39
4.1.2	QPR Software Plc	39
4.1.3	F-Secure Corp.	41
4.1.4	Sonera Juxto Corp.	41
4.2	ASP partnership in the researched companies	42
4.2.1	Partnership in ISPs and ISVs	43
4.2.1.1	Partnership in Elbit Corp.	43
4.2.1.2	Partnership in QPR Software Plc	43
4.2.1.3	Partnership in F-Secure Corp.	44
4.2.2	Partnership for end-to-end-ASP: Sonera Juxto Corp.	44
4.3	Conclusions	45
5.	Partnership of WASPs	48
5.1	AirFlash Inc.	48
5.2	Astata Corp.	49
5.3	Bitmo Inc.	49
5.4	Software.com Corp.	50
5.5	Wysdom Inc.	51
5.6	Conclusions	52
6.	Summary	53
	References	58
	Appendix I: Glossary of Application Service Provisioning	66
	Appendix II: Questionnaire sent by email to WASPs	71
	Appendix III: Skeleton of the ASP interview	72

Figures

Figure 1: Dynamics fueling the ASP Market	23
Figure 2: Technical structure of ASP	25
Figure 3: ASP Value Chain	27
Figure 4: ASP Business field	28

Tables

Table 1:	SWOT of software technology	16
Table 2:	SWOT of sales and marketing	16
Table 3:	SWOT of finance	17
Table 4:	SWOT of Personnel	18
Table 5:	SWOT of software products for mobile environments	19
Table 6:	SWOT of software products for information security	20
Table 7:	SWOT of enterprise applications	22
Table 8:	Go-to-Market Scenarios	30
Table 9:	SWOT of ASP technology	31
Table 10:	SWOT of ASP sales and marketing	32
Table 11:	SWOT of ASP finance	33
Table 12:	SWOT of ASP Personnel	34
Table 13:	Facts of the researched companies	38
Table 14:	SWOT of ASP according to the researched Finnish companies	46

Abbreviations

ASP	Application Service Provider/Provisioning
CRM	Customer Relationships Management
ERP	Enterprise Resource Planning
EU	European Union
HP	Hewlett Packard
HR	Human Resources
IP	Internet Protocol
ISP	Internet Service Provider
ISV	Independent Software Vendors
IT	Information Technology
Kbps	Kilobits
LAN	Local Area Network
Mbts	Megabits
NSP	Network Service Providers
PC	Personal Computer
PKI	Public Key Infrastructure
SAP	Systems, Applications and Products
SLA	Service Level Agreement
SME	Small and Middle-sized Enterprises
SSL	Secure Sockets Layer
SW	Software
SWOT	Strengths, Weaknesses, Opportunities and Threats
TCO	Total Cost Ownership
UMTS	Universal Mobile Telecommunication System
US(A)	United States
USD	United States Dollar
VARs	Value Added Resellers
VPN	Virtual Private Network(ing)
WAP	Wireless Application Protocol
WASP	Wireless Application Service Provider

1. Introduction

This chapter presents the background, scope, structure and methods of this research and previous researches concerning the subject.

1.1 Background and topic of the research

The software business has experienced great changes in the last 20 years. A huge amount of new firms have entered the business, but only some of them have gained great success - others have gone bankrupt or are struggling to survive. Characteristic of the recent IT business is high speed and US dominance. The turnover of the Information Technology (IT) business is estimated to grow globally by 12.3 % per year in 2000 . In the future, the biggest profits are received in professional IT services the turnover of which is estimated to grow annually by 20%. (Forsell & Nukari 1999, 25-26) Last year the market share of the USA, of the global IT market, was 44 percent compared to Europe's 28 percent (Anon. 2000n).

The growth of the Internet, acceptance of Java, lack of talented IT people and high speed of development are moving the software business towards a new direction where applications are outsourced and used over network (Anon. 2000f, 2-3). The companies that outsource applications are called Application Service Providers (ASPs):

“An Application Service Provider (ASP) is any organization or third-party that provisions software applications over the Internet, typically for a fee. ASPs host and manage the applications from their facilities or from co-location center(s), and coordinate the ongoing support, maintenance and upgrades of the applications. “
(Anon. 1999a)

Wireless ASPs (WASPs) provide ASP services for mobile users and platforms. The European ASP market is estimated to reach its top-level - US\$ 8.2 billion - in 2003 (Anon. 2000u). Surviving in this competition forces also Finnish software companies to plan and evaluate their ASP strategies as soon as possible. This research concentrates on analyzing how they could do it.

The concept of ASP has emerged only recently and therefore scientific researches about the subject do not exist yet. Most pieces of the related work handled in this research are therefore survey type publications.

Walton (2000) has researched whether customers using ASP were satisfied with the ASP applications their organization uses, or not. According to Walton, satisfaction level was greatest for the ASP-based personal/desktop productivity applications and worst for the ASP-based functional and business intelligence applications.

In 1999, IDC researched 1000 IT companies (Torode 2000) and found out that the biggest driver in adopting ASP services in small- and middle-sized companies was the lack of IT-talent. According to IDC, only 40 percent of the IT professionals and 50 percent of the corporate executives knew the term ASP.

A survey conducted by tele.com, CIC Research Inc. and Key3Media Group Inc. (Gerwig 2000) proved that company-users of ASP are pleased with their service, but customers have become more demanding and it takes more to gain and keep customers. According to the survey, 60 percent of today's ASPs will collapse by 2001, but in spite of this all the 656 respondents believed that software can be delivered as services.

This year, Sonera has researched 300 companies to find out what companies respect in ASP service providers. According to Sonera's study, customers find the most important thing to be the provided service to be secure, easy, fast and cheap to implement, and available when needed. (Makkonen 2000)

1.2 Research problem

The basic idea of this thesis is to examine the current state of Finnish software companies and their possibilities to gain partners in the international ASP business. This research seeks answers to the following questions:

1. What is the current state of ASP business?
2. How do the researched Finnish software companies find their future in the ASP business?

3. How do the researched Finnish and American ASP companies find and select their partners?

This research seeks answers to the above questions by examining literature, by interviewing representatives of four Finnish software companies and by examining partnership strategies of four American and one Canadian wireless ASPs (WASPs).

This research first gives an overview of the current situation of ASP and focuses then on the aspects that Finnish companies should take into account when entering the international ASP market.

1.3 Scope and focus of the research

The research concentrates on three potential development areas of Finnish software companies and their possibilities to create and find partners in the ASP business on the basis of the situation in November, 2000. The areas of interest are: software products for mobile applications, for information security and for enterprise solutions. These areas of interest are examined more thoroughly by interviewing four Finnish and analyzing four American companies. Of the researched Finnish companies one provides software for information security, one office and business solutions, and two enterprise solutions. The American companies are WASPs that provide mobile applications.

The interviews of this research were made in small- and middle-sized Finnish software companies. Three of the researched companies already use ASP as a marketing-channel and the fourth one has intention to do so in the near future. The companies were selected on the basis of their involvement with the ASP business. The number of Finnish IT companies participating in the ASP business is still small, which limited the choice of interviewees of this research. The results of this research can be regarded as a guideline, but the ASP market must mature and companies gain more experience before more accurate generalizations about the ASP business can be made.

The question of ASP partnerships was researched mainly by examining five American wireless ASPs that were selected from the directory of aspnews.com.

The partnership strategies and views of the researched companies were examined by using a qualitative research method that is based on a verbal analysis of the research objects. The researched Finnish companies were sent, in advance, a list of questions that they were expected to answer (Appendix III). The questions dealt with the general situation of the companies and their ASP strategies and views. Two of the companies answered the questions in an interview and the other two ones by email. The interviews and replies received by email were analyzed qualitatively afterwards.

The American WASPs were sent questions about their partnership strategies concerning ASP (Appendix II). The received reply and the strategies of other WASPs - that were collected from their websites - were then analyzed.

The second chapter of this thesis deals with trends and partnership in software business and its potential development areas. A reader is provided with three recent studies of software business and its success factors. Two of the studies deal with the SWOT of the Finnish software industry and the third with the success factors of global software companies.

The third chapter presents the reader the basics of ASP. The chapter is mostly based on recently published Internet-articles. The most essential features of ASP, such as pricing, security and effect on markets, are discussed. This chapter also deals with the principles of Wireless ASPs and mobile applications.

The fourth chapter presents four Finnish ASP companies and their strategies and views concerning ASP. The information in this chapter is based on interviews made in two companies located in Oulu, and on replies of a questionnaire sent to two companies located in Helsinki. This chapter gives an overview of the situation of ASP in the researched Finnish companies at the moment.

The fifth chapter reviews four American and one Canadian Wireless ASPs and their partnership strategies based on the information received from their websites and sales personnel. This chapter evaluates how the American companies select their partners and host their applications.

The sixth chapter summarizes the results of the research and discusses how Finnish software companies could compete in the international ASP market. The chapter also proposes some further research topics in this area.

2. Analysis of the current state of software business

First software products specifically meant for the mass-markets were developed in the 1950s. After the '50s, enterprise solutions built by such companies as SAP, Oracle, PeopleSoft and Baan entered the market. In the 1980s, client/server computing transferred the emphasis on open standards and distributed architectures. Mass-producers like Microsoft and Lotus began their era of victory. (Hoch et al. 1999, 262-269) Today changing platforms, new environments and tough competition of skilled workers are a challenge for all the participants of the software markets. Hardware and technology environment affect the direction of the competition and products compete compared to standards and against each other. Because of the tough competition, the life cycle of the software products has become shorter and they are advertised even before any single line of code has been written. (Hoch et al. 1999, 142-147)

This chapter deals with the future trends, partnership and potential development areas of the Finnish software business in the form of SWOT-analysis. The SWOT of software business is analyzed generally as well as in three potential development areas of the Finnish software industry. The analysis of the Finnish software industry is based on the research made by Forsell and Nukari in 1999 and on the analysis of potential development areas in Finnish software industry (Autere et al. 1999). The success factors of global software companies are based on the survey made by the Harvard Business School in 1999.

2.1 Trends

In 2000, the turnover of IT-business in Finland is estimated to grow globally by 12.3 % per year. 67 % of the Finnish software products are horizontal and 33 % are vertical. Vertical products are directed into certain market segments, while horizontal products do not depend on such segments. (Forsell & Nukari 1999, 25-26) According to Forsell and Nukari (1999, 38-39), the Finnish software industry has, at the moment, following trends that affect the ASP industry:

Trends in marketing and sales:

- Globalization and growth of software markets.
- Products become ready sooner.
- The Internet becomes more important.

Trends in technology:

- Computers become more efficient.
- Life cycle of products becomes shorter.
- Applications become more complicated.
- Importance of mobile applications increases.

Trends in finance:

- Importance of capital and start-up financing increases.
- Ownership of software companies is internationalized.

Trends of personnel:

- Lack of talented personnel.
- Increased labor costs.

Lack of personnel, globalization, further development of technology and the increased importance of the Internet will mostly influence the strategic decisions of the Finnish software companies in the future, according to Forsell and Nukari (1999).

2.2 Partnerships in software businesses

The tough international competition and customers' search for one-stop-shopping has laid foundation on the national and global co-operation of companies. To succeed, software companies seek two kinds of partners: value added and supporting partners. The phrase value added refers to the value that a customer experiences to gain when purchasing the company's product. The partnership can add to the value of the provided software product or serve technological or other needs of the company without bringing any direct customer value. This chapter deals with these two forms of partnerships.

2.2.1 Value added partners

Value added partners increase the value that the customer experiences to gain from the use of software. Value added partners of a software company can provide, for example, application development, customization and consulting services for the implementation, change management and business processes of the company. Value added partners often leverage expertise to implement and help to sell applications. To this form of partnership belong, for example, consulting and IT houses and other kinds of service providers. In the ASP business, value-added partners usually capture a recurring monthly payment per customer. (Anon. 2000x, 8-9)

2.2.2 Supporting partners

There are also other partners of software companies that do not directly add value to the company's software products. These partners include, for example, technology partners that provide the required basic technology, and bookkeeping and law firms that take care of some managerial tasks of the company. In electronic commerce, these partners may still have a rather crucial role as providers of bandwidth, network connectivity, security, availability and electronic data transfer. The ASP market requires, for example, partnering with companies that develop and manage data centers and offer application hosting services. (Koistinen 2000, 6; Anon. 2000x, 8-9)

2.3 SWOT-analysis of the Finnish software industry

The following SWOT-analysis is based on the research of Forsell and Nukari (1999, 40-41). It includes those SWOTs that are expected to affect the ability of Finnish companies to make use of ASP. The purpose of the SWOT-analysis is to recognize strengths and weaknesses of software companies and opportunities and threats of the environment. Based on the analysis, possible weaknesses should be removed or turned into strengths, environmental opportunities utilized, and threats minimized. According to Forsell and Nukari, the SWOTs are divided into sales and marketing, technology, finance, and personnel. This section presents the SWOT of general software businesses and functions as an introduction to Chapter 3 that handles the SWOT of the ASP business.

Table 1: SWOT of software technology (modified from Forsell & Nukari 1999,40)

Strengths	Weaknesses
<ul style="list-style-type: none"> • Good infrastructure • Willingness and ability to use the most recent technology 	<ul style="list-style-type: none"> • Not very much national, technological competition
Opportunities	Threats
<ul style="list-style-type: none"> • Networking and demand on mobile applications increase 	<ul style="list-style-type: none"> • Changing standards

Table 1 shows that the biggest weakness with regard to the software technology is the small domestic market. ASP forces software companies to internationalization and therefore the software technology of Finnish companies should be developed into an internationally acceptable level.

Table 2: SWOT of sales and marketing (modified from Forsell & Nukari 1999,40)

Strengths	Weaknesses
<ul style="list-style-type: none"> • Innovative products • Companies have only some core-products • Ability to use the Internet 	<ul style="list-style-type: none"> • Not enough needs to internationalize
Opportunities	Threats
<ul style="list-style-type: none"> • The EU unifies 	<ul style="list-style-type: none"> • Tougher competition • Commercial barriers outside the EU

According to Table 2, Finnish companies should concentrate their resources on the potential development areas and choose some core-products that offer consumers additional value compared to competitors. The tough competition of the mass market forces companies to concentrate on limited market segments, because surviving in the mass market is tough. If the products are exported, they have to be made technically and commercially suitable for international sales (Autere et al. 1999, 15-16, 32,39) At the moment, the Finnish software products are mainly exported to Sweden, Germany and USA, but globalization should open new opportunities also to new market areas.

According to the Harvard research, even weaker products will succeed with effective marketing, and more customers usually mean more money. (Hoch et al. 1999, 124) Successful companies spend huge amounts of money on advertising their brands, tracking customer satisfaction and rejecting unnecessary customer requests although these might temporarily increase the cash flow. (Hoch et al. 1999, 133,174)

Software products have traditionally been distributed through co-operative partners, re-sale-networks and foreign daughter-companies, and as part of other products. Some Finnish software companies have established affiliates to their main-market areas, but many of them still feel that finding the right distribution channels is one of the main difficulties in entering the foreign markets. (Autere et al. 1999, 39) In the future, alliances are crucial for survival in the software business. Effective partners fill companies' gaps in technology, increase penetration, speed the time to market and allow the companies to focus on their key competencies. Especially in application service provisioning, nobody survives alone because very few companies can afford to build the whole ASP chain themselves. Co-operation with partners leads to best results, if the partners are not controlled or owned tightly, and they are involved in the product decisions. (Hoch et al. 1999, 180-181)

Table 3: SWOT of finance (modified from Forsell & Nukari 1999,40)

Strengths	Weaknesses
<ul style="list-style-type: none"> • Contacts with foreign capital-investors and their interest in Finnish high-technology companies 	<ul style="list-style-type: none"> • Negative attitude towards risk-financing
Opportunities	Threats
<ul style="list-style-type: none"> • Foreign capital will be received 	<ul style="list-style-type: none"> • Big companies eat small and innovative ones

Table 3 shows that for start-up companies, finding generous investors is usually problematic, especially since almost half of the IT companies go sooner or later bankrupt. In the USA, private investors finance most new companies but in Finland, the main investor of start-ups has, so far, been the public sector. (Forsell & Nukari 1999, 50-51) . According to the Harvard-research, successful companies use more money at start-up than the less successful ones (Hoch et al. 1999, 39). In order to achieve international success,

Finnish software companies should find more private investors. In the ASP market companies will, on the other hand, need less finance because the use of ERP-applications, for example, becomes much cheaper than earlier. Building their own data centers requires heavy investments from software companies, but it is generally not recommended at least for start-up companies.

Table 4: SWOT of personnel (modified from Forsell & Nukari 1999,40)

Strengths	Weaknesses
<ul style="list-style-type: none"> • Investments in education • Systematic thinking • Good language skills 	<ul style="list-style-type: none"> • Skills of marketing and internationalization not very high • Lack of personnel
Opportunities	Threats
<ul style="list-style-type: none"> • More women into software business 	<ul style="list-style-type: none"> • Talented personnel moves abroad

As Table 4 shows, the lack of talented IT people has led to a lunatic competition of employees in the software business and increased the importance of company culture in attracting the most talented employees. In successful companies people feel themselves valued and the company culture stimulates performance and reflects work values (Hoch et al. 1999, 79-81). Although many developers avoid the use of generally accepted processes in their work, it has turned out that excellent software processes make work more enjoyable and ease any frustration of programmers. In the software services human resources are regarded as most relevant, because skilled people and experienced managers sell the company best (Hoch et al. 1999, 19,43). The lack of IT personnel has fastened the widespread use of ASP, because ASP enables concentrating on core-activities and thus diminishes the need of personnel.

2.4 Development areas in the Finnish software industry

The following analysis of the potential development areas of the Finnish software industry is based on the results of a seminar arranged in 1999 (Autere et al. 1999, 47). According to the attendants of this seminar, Finnish software companies should concentrate mainly on nine areas, where they already have many strengths. Of the nine proposed areas, the two most important ones are handled in this section, viz. software products for mobile environments and information security applications. In addition, this chapter addresses enterprise applications that are traditionally an important area of Finnish software companies.

2.4.1 Software products for mobile environments

The success of Nokia has fastened the development of mobile technologies in Finland. Finnish software companies should take advantage of the gained knowledge to achieve a competitive advantage in the international markets of mobile applications. Table 5 shows the SWOT of software products developed for mobile environments.

Table 5: SWOT of software products for mobile environments (modified from Autere et al. 1999, 48)

Strengths	Weaknesses
<ul style="list-style-type: none"> • Strong technological knowledge of mobile IT-business end encrypting-methods • Knowledge of mobile data equipment and WAP-services • Knowledge of technologies concerning high usability • Globally known Finnish companies already functioning in the business 	<ul style="list-style-type: none"> • No knowledge of standardization and business management & sales • Finnish working environment and paying methods differ from the internationally used ones
Opportunities	Threats
<ul style="list-style-type: none"> • Development in this area is just beginning • Transfer from voice-services to data-services 	<ul style="list-style-type: none"> • Lack of resources • Nokia hires all potential employees • High employment costs • Possibly wrong strategies in inter-

	nationalization
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Table 5 confirms that Nokia's experience provides potential also for other Finnish software companies, but poor knowledge of sales and business management can prevent entering the international ASP market. Finnish companies that produce software for mobile environments have good chances to survive in the ASP market because of their strong technological knowledge, and equally, the mobile ASP business has a great potential in the near future, because the demand on mobile ASP applications will increase remarkably. High employment costs cause problems in this business area as well, but ASP will ease this problem by diminishing the need of IT personnel.

2.4.2 Software products for information security applications

In Finland, there are already some internationally recognized companies that develop software for information security applications. One of the researched companies -F-Secure Corporation- belongs to this group. Table 6 presents the SWOT of Finnish software products for information security applications.

Table 6: SWOT of software products for information security applications (modified from Autere et al. 1999, 50)

Strengths	Weaknesses
<ul style="list-style-type: none"> • Industry in our country is based on a modern vision of network environments • Globally functioning top-companies • Positive attitude towards commercial information security business - unlike in the USA • Good image in Finland • Finnish companies also co-operate with competitors and with universities 	<ul style="list-style-type: none"> • Few top-companies in the business • Small domestic market • Knowledge is split into small companies that compete against each other
Opportunities	Threats
<ul style="list-style-type: none"> • Various needs and solutions 	<ul style="list-style-type: none"> • The companies in the business too nationally focused

<ul style="list-style-type: none"> • End-to-end-solutions with the co-operation of several companies • The market grows enormously fast • A large amount of companies in the business enables the birth of small, very specialized companies • Comparative advantage by increasing security of the products 	<ul style="list-style-type: none"> • Finnish companies find it hard to enter the global projects that are created with big money • Lack of top-companies in the business
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As Table 6 reveals, the biggest problems in the information security area involve the co-operation of the companies. In order to gain international success, this business area should be developed by creating standards, new technologies and component libraries. The companies should co-operate more and combine their products into functional entities. The co-operation of companies is especially crucial in the ASP market, where surviving alone is financially and practically impossible. The Finnish information security applications have good chances to succeed in ASP if the negative attitude towards information security business can be changed in the USA as well.

2.4.3 Enterprise applications

Enterprise applications aid, for example, in the short- and long-term planning, controlling and decision making of different types of organizations. Thus, enterprise applications include software for sales and marketing, manufacturing and production systems, finance and accounting systems, and human resources management. (Laudon & Laudon 1998, 41,43-44) Table 7 concentrates on enterprise applications for finance, accounting and human resources management.

Table 7: SWOT of enterprise applications

Strengths	Weaknesses
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<ul style="list-style-type: none"> • Stable need of applications • Standard-models are suited to all customers • Irrelevance of location and distance • Homogenization of time-zones • Long experience in developing these systems 	<ul style="list-style-type: none"> • The market already highly competed • Lack of talented IT-people • Different accounting standards in different countries
Opportunities	Threats
<ul style="list-style-type: none"> • More sophisticated solutions to certain segments • Tougher selection process of employees 	<ul style="list-style-type: none"> • Information needs change and differs according to the customer • The safety problems concerning personal and secret information

Table 7 shows that enterprise applications for finance, accounting and human resources management suit well for provisioning, because personnels of software companies have to be able to use the applications anywhere and anytime. Different accounting standards may cause problems when entering the international ASP market, but developing the applications based on international standards helps in avoiding this problem.

The conclusion of the SWOT of the Finnish software industry is that Finnish companies have good chances to survive in the international ASP competition if they:

- Increase co-operation
- Find talented IT-personnel to develop and market their applications, and
- Adjust their software products and technology to meet the international standards and quality level.

The software products for mobile environments, information security and enterprise applications suit well for provisioning, and the Finnish software companies should take advantage of their already existing knowledge in these businesses.

3. Application Service Provisioning

The flourishing amount of ASP companies having emerged this year has raised the question, if the hundreds of companies calling themselves ASPs really are ASPs. Some current ASPs offer full-service from end-to-end while others just produce the software applications and partner with third parties providing the network management and hosting services. Regardless of the way the ASP is defined, not taking part in the ASP market in the future may mean losing customer relationships, becoming subcontractor or even being replaced (Hoch et al. 1999, 233). And as Microsoft Office went online in October 2000, ASP really has become one of the hottest issues of the software business today.

Figure 1 illustrates the dynamics that has been fueling the growth of the ASP market.

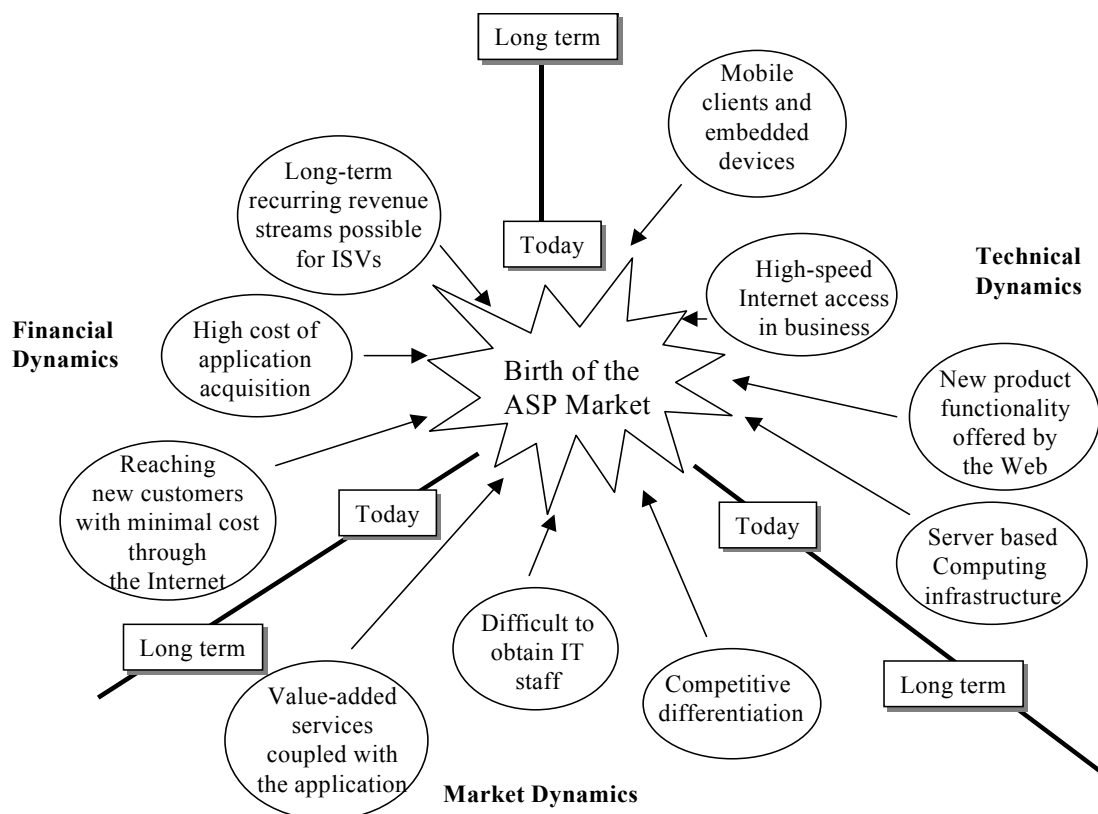


Figure 1: Dynamics fueling the ASP Market (modified from Anon. 2000w, 6).

Figure 1 shows that technological development has enabled the birth of ASP, and the lack of IT-staff and willingness to save costs and receive new customers are fueling it. In practice, ASP may remarkably change the way software industry works. The applications may no longer be physically installed to PCs and other types of computer devices but used via browsers. ASP's main difference compared to the traditional sales of software is its service-character. Services differ from physical commodities in that they are immaterial deeds produced and consumed simultaneously, and the customer takes part in the consumption process at least to some extent (Grönroos 1990, 50). ASP forces the companies to customize their services and to focus on the customer service and network reliability (Yu 2000, 1). The outsourcing of services is always a matter of trust and by earning it, ASPs smoothen their way to success (Glatzer 1999, 3).

The principles of the adaptability of outsourced applications vary, but most people agree that small-to-medium size companies will take advantage of ASPs, while bigger companies will lease applications that complement their existing ERP and other IT systems. "The most potential applications include e-commerce, systems management, data warehousing, knowledge management and CRM and web hosting" (Anon. 1999d). Most demanded will be applications which link a company with its customers or its suppliers' front-office functions. (Anon. 2000f, 5)

The best information sources of ASP industry at the moment are the three non-commercial Internet-portals formed to serve the needs of ASP community. The ASP Island (www.aspisland.com) -owned by Internet.com- provides standard and custom marketing services to the ASP industry and has profiles of more than 800 service providers. The ASPstreet.com (www.aspstreet.com), a business unit of SWsoft Inc., is a collaborative portal and marketplace for the ASPs, ASP enablers and buyers, and it has a directory of over 10.000 different ASPs. ASPnews.com (www.aspnews.com) provides global news and analyses for ASPs and is sponsored by BMC Software.

Many ASP articles published by the above portals regard ASP as the greatest invention of the century, but recently some criticism has also entered the stage. This chapter handles the theoretical background of the application service provisioning, WASPs and the

security and commercial aspects of ASP, based on the situation in October-November 2000. It should be noted that new information and views about ASP emerge into the market on daily basis. Appendix I explains the basic concepts of ASP.

3.1 Application hosting and security

An ASP solution has technically seen three participants: application specialists, ASPs, and network service providers (NSPs). Figure 2 illustrates the basic structure of ASP.

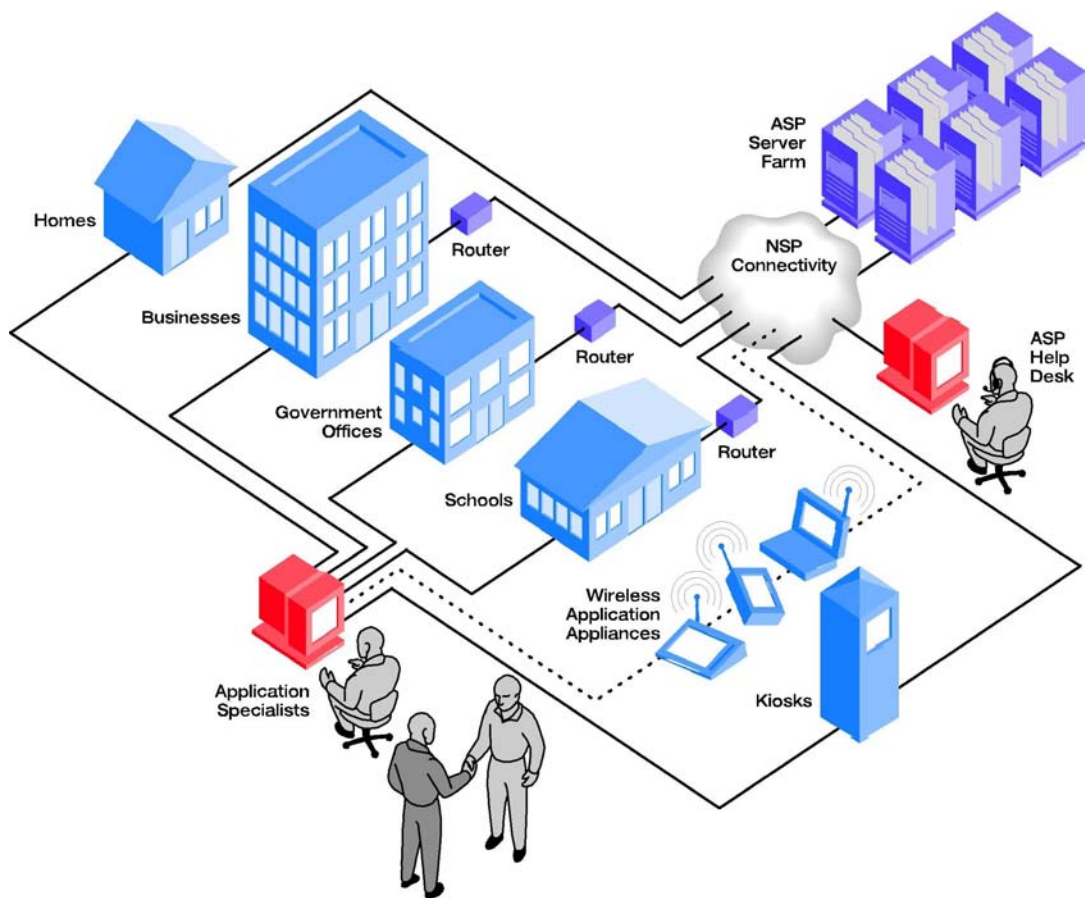


Figure 2: Technical structure of ASP (Anon. 2000x, 10)

Application specialists provide value-added application development, customization and consulting services; the ASPs maintain data-centers, and NSPs provide bandwidth and network connectivity services. The applications developed by applications specialists are used via routers by businesses, schools, homes etc. The ASP server farm functions as storage of the information. The applications can also be used directly through wireless devices like WAPs, laptops etc. Three of the researched Finnish ASPs –Elbit, QPR and

F-Secure- are applications specialists and the fourth one –Sonera Juxto- is ASP and NSP. Because most participants of the ASP business do not have resources to invest large sums in the infrastructure, they rely on hosting providers to deliver the applications. Hosting can be realised in three different ways:

- Co-location hosting
Means that ASP owns the servers, but places them in an infrastructure provider's facility.
- Managed hosting
Means that the hosting provider owns and manages the servers, where application specialist's Web resources are placed.
- Pure application hosting
Means that the infrastructure provider provides the network and data center layers on behalf of the ASPs. (Kauffman 2000)

The outsourcing of applications to external hosting providers raises the question about the security management of network, applications and personnel. Security management includes security policy, security organization and physical, technical and procedural security measures (Anon. 2000p, 15). In ASP, the purpose of security management is to guarantee a certain defined security level and thus ensure continuity and minimize the damage from security breaches (Anon. 2000p, 6).

The possible security threats for an ASP are:

- Changing or deleting data
- Destroying data or programs
- Crashing systems, destroying hardware or facilities
- Holding data hostage
- Entering data incorrectly (Anon. 2000p, 22).

Using the Public Key Infrastructure (PKI), Secure Sockets Layer (SSL) and Virtual Private Networks (VPN) prevents technically possible security breaches. The PKI is a standard for using digital certificates in authentication. The PKI uses three technologies: digital envelopes, signatures and certificates. The SSL generates a unique encryption key for each session. The VPN technology uses a tunneling protocol that enables setting up a private data network over the Public Internet. (Anon. 2000p, 28-30)

Using authentication, encryption, quality bandwidth assurance and internal network audits increases the network security. The service environment should be in a physically safe place and protected with firewalls. The servers should be often virus-checked and the most critical components duplicated. Using intrusion detection services and procedures for intrusions and incidents and the personnel background checks are effective ways to prevent an illegal use of applications. (Lahtinen 2000) The hosting companies can prevent possible application service interruptions by having multiple servers in different locations (Gollobin 2000, 1).

Corio – one of the most well known hosting-companies- guarantees the network security by using firewalls as well as multiple authentication mechanism, intrusion detection system encryption and single sign-on. (Anon. 2000s)

3.2 ASP business

ASP will change the traditional way to perceive value chains. In the traditional value chain -manufacturer-retailer-wholesaler-customer- the participants of the chain only operate with the previous and following link of the chain. In the ASP model, everybody can co-operate with everyone and the value chain consists of value-added and supporting services. Every company can offer various services and thus participate in one or several stages of the value chain. Figure 3 illustrates the different stages of the ASP value chain.

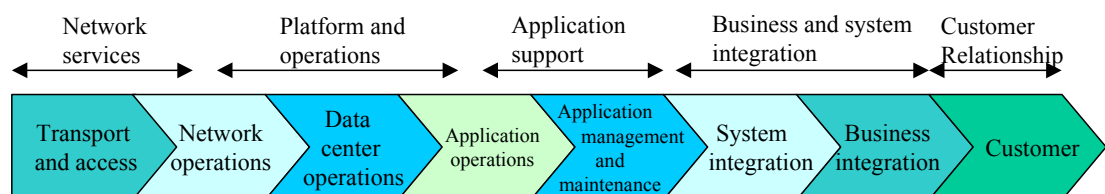


Figure 3: ASP Value Chain (modified from Fitzgerald 2000)

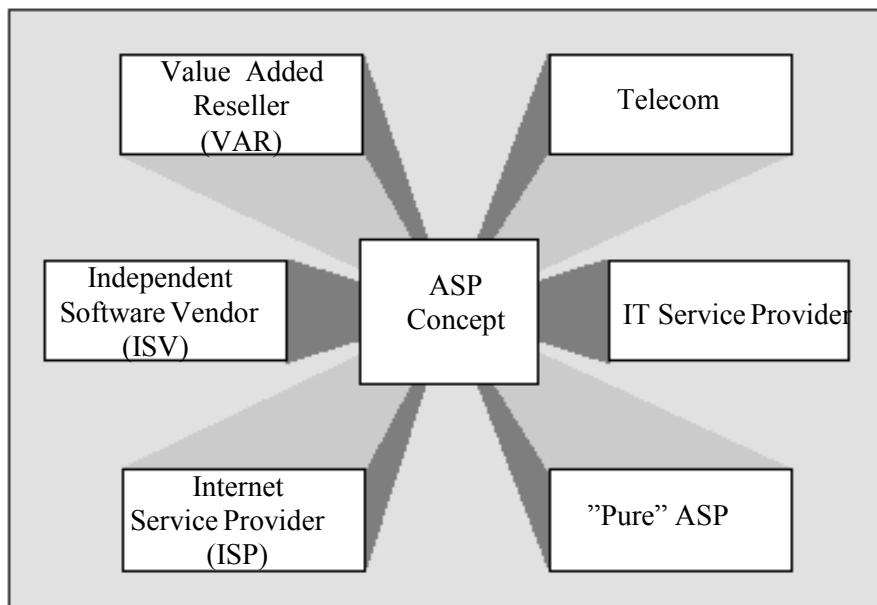
The market dynamics, i.e. competitive differentiation and value-added services coupled with the application have been fueling the birth of ASP value chain –thinking (Figure

1). In the ASP value chain the ASPs and NSPs take care of network services, platform and operations. Application specialists are responsible for application support, business and system integration, and customer relationship (Figure 2).

The following section deals with the commercial aspects of ASP according to the researched literature. The information discussed below is mostly based on recently published Internet-articles.

3.2.1 ASP business model

The huge amount of ASPs calling themselves ASPs are divided in several ways in the literature. According to Cherry Tree & Co. (Anon. 1999b, 5), the ASP business is participated in by six kinds of companies that are presented in Figure 4.



Source: Cherry Tree & Co.

Figure 4: ASP business field (Anon. 1999b, 5).

The participants of the ASP business field in Figure 4 are:

- Independent Software Vendors (ISVs).
An ISV is generally a firm that develops software applications that can be run on various operating system platforms. ISVs are application specialists (Figure 2).
- Telecoms

The telecoms are well positioned in the ASP market, because they can leverage both the needed infrastructures and operational capabilities (Gerlach 2000, 9). The telecoms are companies that provide telecommunications services and operations.

- **IT Service Providers**
IT service providers offer value-added services like customer support.
- **“Pure” ASP**
The “pure” ASPs partner with the ISVs performing the implementation and integration and providing connectivity and support. The “pure” ASPs also act as a complete end-to-end-solution provider for customers. (Anon. 1999b, 3) “Pure” ASPs are NSPs and ASPs in Figure 2.
- **Internet Service Providers (ISPs)**
The ISP provides users and businesses access to the Internet. In Figure 2, ISPs are mainly NSPs.
- **Value Added Resellers (VARs)**
The VAR operates between producers and end-users by performing system integration, consulting and product enhancement. (Anon. 2000f) VARs are application specialists and take care of the ASP help desk (Figure 2).

Most of the firms advertising themselves as ASP are either ISPs or ISVs. Although there are many ways to define the concept ASP, the basic structure behind these definitions is the same. In this thesis ASP means all the companies belonging to the ASP value chain shown in Figure 2.

3.2.2 Entering the ASP market

One of the main problems for an ASP in entering the ASP market is to decide whether to invest in one's own data center or to use a partner-owned center, and whether to sell the products to the customers directly or indirectly.

Generally, it is not recommended to build one's own data center for the following reasons:

- It requires plenty of funding and expertise.
- Experienced engineers and developers can rather focus on developing core-businesses as an ASP host takes care of the hosting issues.
- Re-coding of applications to distributed applications costs money.

- Few companies can support all the capabilities offered by software packages.
- The ASPs can fill the future data storage requirements with less costs.
- As experience about hosting increases, the companies can take advantage of it if they decide to build their own data-center in some years. (Landgrave 2000, 3-4,8)

Table 8 shows the possible marketing strategies that can be used when entering the ASP market:

Table 8: Go-to-Market Scenarios (Anon. 2000w, 15)

	ISV-Owned Data Center	Partner-Owned Data Center
Direct Sales to End Customers	Suitable for ISVs selling enterprise solutions willing to dedicate resources to an ASP data center. The ISV should have an in-house professional services group to perform the integration and pre- and post-sales support. <i>Direct App Hosting</i>	Suitable for ISVs selling applications that require little integration or support and for the ISVs selling enterprise or specialized applications that have an in-house professional services group. Particularly well suited for small developers. <i>Direct ASP Partner</i>
Hybrid: Indirect and Direct Sales	Suitable for ISVs selling enterprise or very sophisticated applications willing to dedicate resources to an ASP data center. Majority of partner sales will come from existing “VAR” or service provider channels. A channel conflict is a major concern in this model. <i>Hybrid App Hosting</i>	Suitable for ISVs selling moderately complex applications. Though some conflicts are inevitable, they can often be managed through affiliate and agency sales programs. <i>Hybrid ASP Partner</i>
Indirect Sales to Customers	Suitable for ISVs selling sophisticated applications and willing to dedicate resources to an ASP data center. This option causes the most minimum amount of direct impact on existing channels. <i>Indirect App Hosting</i>	Suitable for ISVs selling sophisticated applications. Some channel conflicts may arise if the data center owner begins to sell the ISV’s application directly. Also suitable for ISVs that allow ASP partners to sell the ISV’s application under the ASP partner’s brand. <i>Indirect ASP Partner</i>

According to Table 8, selling directly to end customers suits well for selling enterprise solutions or applications that require little integration and support. The combination of

indirect and direct sales (hybrid) is suited best to selling moderately complex or very sophisticated applications. Indirect sale is suitable for ISVs selling sophisticated applications. For most ISVs either a hybrid or indirect sales is optimal.

3.2.3 A SWOT-analysis of ASP

In the following (Tables 9, 10, 11 and 12), the SWOT of ASP is analysed in the same way as in section 2.2. The analysis is based on the information dealing with ASP referred to in the tables.

Table 9: SWOT of ASP technology

Strengths	Weaknesses
<ul style="list-style-type: none"> • Improves security, because the leading ASPs will provide auditing capabilities and ensure a careful tracking of usage (Gerlach 2000, 4) • The bandwidth necessary to ASP has already today reached an affordable price (Anon. 2000w, 6) • The Java technology-based applications can be delivered already now (Anon. 2000d, 6) 	<ul style="list-style-type: none"> • The networks that use the Internet Protocol suffer from reliability problems (Gerlach 2000, 4) • Implementing the ERP systems requires expertise and understanding of the customer's business processes (Slavid 2000,1) • Re-architecting applications to meet the Web-requirements and integrating them with existing programs
Opportunities	Threats
<ul style="list-style-type: none"> • The mobile applications, where devices do not have the required storage (Beale & Lindquist 2000, 3) • Taking advantage of the already existing applications (Anon. 2000w, 15) 	<ul style="list-style-type: none"> • Many ERP-applications do not survive the access of tens of thousands of users simultaneously (Gerlach 2000, 5) • The server-backup in case of failure • The system bus can create a bottleneck when using ASPs (Anon.1999c, 14) • A computer is always as slow as its slowest link (Anon. 1999d)

The technological barriers have until recently prevented the wider use of ASP in companies, but as Table 9 confirms, the network bandwidth has now reached an affordable

price. As IP-networks and system buses will be developed for operational use, there should be no more technological barriers in the way of widespread ASP use. At the moment, the more serious threats to ASP industry cause the security questions that are handled in more details in section 3.1. Comparing Table 9 with Table 1 and Figure 2 shows that re-architecting the applications and transferring the information to external servers causes the biggest problems in ASP at the moment. The participants of the ASP value chain should increase their co-operation to remove the technical problems attached to the ASP data transfer and functionality between different value chain links.

Table 10: SWOT of ASP sales and marketing

Strengths	Weaknesses
<ul style="list-style-type: none"> • A commonly used platform increases the amount of potential partners and customers • The customers will get better service • The telecom operators become less dependent on the commodity market (Anon. 2000e, 2) 	<ul style="list-style-type: none"> • The power users often take advantage of the software's advanced features, but the ASP based products are unlikely to offer them (Beale & Lindquist 2000, 2) • An expensive way to deliver software if a company works in different European countries • Arranging contacts and contracts with different operators is not easy (Koskinen 2000, 55) • The mass-markets are highly competed
Opportunities	Threats
<ul style="list-style-type: none"> • Eliminating distribution channels (Berman 1996, 13) • The departments and offices of larger companies a potential new market (Anon. 2000w, 10) • Getting new SME-customers (Anon. 2000w, 9) • Gaining credibility by partnering with well-known companies • Innovative pricing models • Faster entry to the market without any direct sales forces 	<ul style="list-style-type: none"> • Too expensive for the bigger companies • Partnering with competing ISVs (Gollobin 2000, 2) • Companies find it risky to entrust the corporate data to an entity outside its walls (Schachter 2000, 2) • Some service firms feel that ASP threatens their implementation business (Gerlach 2000, 9) • Capability to move into brands (Hoch et al. 1999, 133).

<ul style="list-style-type: none"> • Provisioning an ERP-application is 30 percent cheaper than buying (Glatzer 1999, 3) • ASP offers advantages to a short-term usage of a certain program 	
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Table 10 confirms that ASP increases the amount of potential customers especially in selling expensive ERP-applications directly to SMEs. The customers have become more demanding and want to buy everything in one place, which leads to partnering with other companies, because only some companies can offer all the services of the ASP chain. The SMEs have an interest to use ASP especially because of its cheapness and faster entry to the market. The mass-markets are nowadays tough competed which leads into specializing in small market segments. As Table 2 showed, the Finnish software companies have already realized the advantage of concentrating on some core-products.

The juridical side of the ASP contracts is still a very open issue. The sharing of responsibility and the offered service level should be made very clear in Service Level Agreements (SLA).

Table 11: SWOT of ASP finance

Strengths	Weaknesses
<ul style="list-style-type: none"> • A recurring income-stream • The customers know their monthly IT-output in advance • Extended life of existing investments 	<ul style="list-style-type: none"> • Mistrust of the ASP business
Opportunities	Threats
<ul style="list-style-type: none"> • The international co-operation in financing • The venture capitalists can track software sales and use (Anon. 2000e, 3) 	<ul style="list-style-type: none"> • Investing may be risky because of many bankrupts

To customers ASP ensures, according to Table 11, a more recurring income-stream compared to the earlier upgrade of licenses in every 18 months. The customers do not

experience unexpected IT expenses, because of fixed monthly fees. Total newcomers may encounter problems in receiving venture capital as investors lack trust in the ASP and general IT business as Table 3 showed.

Table 12: SWOT of ASP Personnel

Strengths	Weaknesses
<ul style="list-style-type: none"> • A web-centric help desk lowers customer-support costs • ASP facilitates information-exchange both within different departments of the ASP (Yu 2000, 4) and with external partners 	<ul style="list-style-type: none"> • Lack of knowledge of ASPs
Opportunities	Threats
<ul style="list-style-type: none"> • Lesser number of expensive personnel needed • Less routine-maintenance 	<ul style="list-style-type: none"> • The ASP experts become too expensive

Table 12 shows that the lack of talented IT personnel (Figure 4) has been one of the main drivers of ASP in small companies, because the current labor costs begin to exceed the level that is affordable for them. By outsourcing the customer support companies save labor costs and can concentrate on their core businesses.

3.2.4 Pricing methods and Service Level Agreements

In the ASP market the methods for licensing applications are subscription, tiered pricing, lease-purchase and traditional perpetual. In the subscription model the customer pays a monthly fee for the rental of the application. In tiered pricing the customer pays on the basis of the actual average use or the level of service (Yu 2000, 4). The higher level of service guarantees higher security, better customer-support, faster implementation of mission-critical applications, and therefore more customers are ready to pay for it. The problem of the usage based pricing is how to measure the use. In lease-purchase the customer has an option to buy the application after the leasing-period at a residual price. (Anon. 2000w, 11) The ASP's several licensing methods threat the traditional

license-based software business model and lead the companies to make money with advertisement incomes and Internet services subscriptions. (Hoch et al. 1999, 234)

The price and service level of ASP use is defined in the Service Level Agreements. According to the definition,

SLA is a “legally binding contract between an ASP and its customer”
(Anon. 2000o).

The SLA outlines the responsibilities of the ASP and defines its obligations in case of a service breakdown or inability to fulfill the contracted quality of service. The SLA describes in detail the services provided by the ASP, its reporting requirements, measures to monitor performance and procedures used in finishing the contract. The availability defines the permitted downtime; for example, a 95 % availability means that the system can be down less than 18 days per year. A network SLA covers the network connection, an application SLA the application performance and a hosting SLA the promised hosting services. It is usual that the customer can choose the level of application performance and support best suited to his needs according to the principle 'the more you pay the more you get'. (Anon. 2000e)

The SLA does not typically cover the actions by third parties, customized components, or quality or reliability of customer networks (Fitzgerald 2000). According to some SLAs, the service provider can change the terms of the delivery without warning and fix the application errors several months (Lahtinen 2000). In order to avoid risks, SLAs should be made by external lawyers rather than by any technical personnel. As the ASP market is still immature, true end-to-end SLAs are very rare and seldom meet the expectations according to Fitzgerald (2000).

3.3 Wireless ASPs (WASPs)

The increasing amount of mobile clients and embedded devices has made the market of wireless devices and applications one of the fastest growing businesses today (Figure 1). The WASPs are application specialists that provide software for wireless application appliances together with the needed infrastructure, if necessary (Figure 2).

The advantages of mobile communication include (Makkonen 2000):

- Independence of use concerning time or place
- Already existing safety solution
- Fast entry to network and its' services
- Personalization of the services.

Within some years the market of mobile applications will be affected by the following changes:

- The third generation and UMTS (Universal Mobile Telecommunication System) mobile phones and networks will enter the market.
- The amount of WAP-phones will exceed 50 million users (Nihtilä 2000, 9).

The WASP-market has emerged just recently, but the fast technological development of the wireless applications gives WASPs great potential to succeed in the future. The offer of the few existing WASPs include CRM-, ERP-, office- and sales-applications for WAP-phones. The WASP-services are usually charged monthly based on the amount of users, but a growing number of pricing methods will appear in the future. (Kantonen 2000)

In the future the mobile service workers will use the wireless information applications to communicate with other service personnel and to access repair manuals, review service records, and check parts inventories using applications delivered via the ASP data center (Anon. 2000x, 15). According to Collins (2000), the credit card will become unnecessary in the wireless transactions, as the phone itself will function as the payment mechanism.

The players of the WASP-field are operators, application and content providers and equipment manufacturers. The application and content providers, that are mainly ISVs and VARs, offer application support, business and system integration and customer relationship (Figure 3). Operators, as telecoms, and equipment manufacturers take care of the network services, platform and operations and provide the needed equipment. In the future the wireless operators are willing to have their own branded data services, but since they do not have the manpower to develop these services alone, they will seek value-added service partners. The wireless carriers have also realized that they have to provide a whole range of services and for doing this they will need 300-400 partners

with various content and distribution models and this leads to outsourcing of services. The wireless operators will acquire WASPs in the future to get tighter control on the development and delivery of data operation services. (Collins 2000)

4. State of ASP in Finnish software companies

The state of the ASP in Finnish software companies was researched by interviewing representatives of two companies –Elbit Corp. and QPR Plc.- that both operate in Oulu, and by sending a questionnaire to two other companies – F-Secure Corp. and Sonera Juxto Corp. - based in Helsinki. Table 13 summarizes some basic facts of the companies.

Table 13: Facts of the researched companies

	Elbit Corp.	QPR Software Plc.	F-Secure Corp.	Sonera Juxto Corp.
Founded in	1982/90	1991	1988	2000
Turnover 1999 (in million FIM)	14.5	53.0	137.5	300.0 (estimated)
Employees	24	100	400	400
Customers in	Finland	20 countries	80 countries	Finland
Product for (Development areas)	HR- management	Business Intelligence	Security Solutions	Office and business solu- tions

In Table 13, the turnover of the companies in FIM was received by using 1 EUR= 5.9 FIM as an average exchange rate. The figures of the F-Secure Corp. are based on their financial statement in 1999 (Anon. 2000m).

The above figures reveal that there is a great potential to make big profits fast in the ASP market as the case of Sonera Juxto proves. Although it has to be noticed that Elbit, QPR and F-Secure are ISVs and ISPs, but Sonera Juxto operates along the whole ASP value chain (Figure 4), apart from operating as an ISV .

4.1 Researched companies and their ASP strategies

In the following, the researched companies and their strategies to compete and find partners in the ASP market are discussed in more details.

4.1.1 Elbit Corp.

Elbit (www.elbit.fi) was founded in 1982 and it has been functioning in its current structure since 1990. The interviewed person –Misa Leiber- is the product manager of one business unit. The purpose of the company's product is to provide a versatile and easy-to-use tool for surveying, developing and monitoring the pool of skills within an organization. The software helps to establish the current level of knowledge as well as the ability to achieve future objectives. The total product is a combination of: software (1/3) and consultancy services (2/3) which are customized according to customer's needs.

Elbit is planning to start making use of ASP. As the potential *target for ASP marketing* the interviewed person sees:

- Recruiting-firms using the Internet in recruiting-process
- Companies that want to outsource their HR-management.

Leiber finds *pricing* of Elbit's ASP product problematic, because their customers use the application quite randomly. At the moment the customers pay licenses according to usage, but the pricing-method of ASP is still open. In legal matters (*SLAs*) Elbit uses external lawyers.

Leiber regards the surviving of the Finnish companies in tough international competition to be a *threat* in ASP. ASP offers, according to Leiber, *opportunities* if the companies succeed in inspiring the consultants and turning knowledge and content into a product. As a *strength*, Leiber considers increased security. He believes that using an external host increases security, because the hosting-providers have thought security aspects more thoroughly. Elbit plans -according to Leiber- to use ASP as a marketing-channel in the future.

4.1.2 QPR Software Plc.

QPR Software Plc. (www.qpr.fi) has offices in five international locations at the moment. The interviewed person – Timo Koistinen- is the company's strategic business

area director. QPR is a leading Business Intelligence solution provider with professionals developing solutions for Business simulations, Activity Based Costing, Process Management, Acquisition Processes and Balanced Scorecard Management systems. The customers of QPR include IT-, industry- and service companies as well as public organisations. QPR will enter the Helsinki stock exchange in the near future to finance its growth.

QPR has offered its products to the ASP customers since January this year. The marketing has been targeted to new –mainly mid-sized- customers and QPR intend to receive such new customers also in the future. For QPR, the main intention to use ASP was to extend potential customer base to SMEs and companies with less IT capabilities and to make implementation faster and easier.

QPR charges its ASP customers as follows:

- A basic fee plus
- A monthly fee based on usage.

At the moment, QPR *hosts* the applications themselves, but they will outsource the hosting in the future as the hosting-market matures. Koistinen regards it important to find a hosting-provider whom the customers trust. According to the experience of Koistinen, the hosting providers offer, at the moment, only the hardware, but not the technical skills and support needed in the installation. Although Koistinen believes in the security of ASP hosting, he would rather not have the servers of the host very far from the office.

QPR has their own lawyer and the company has tried to limit the *legal* responsibilities as much as possible, because there are still too many open questions in the ASP field. Koistinen has strong faith in ASP in spite of its current *weaknesses*: immaturity of hosting and provided applications and open legal and security questions.

Both Leiber and Koistinen have interest to provision external applications, but they find the current applications too immature to provision.

4.1.3 F-Secure Corp.

F-Secure Corp. (www.f-secure.com) provides powerful security solutions to other companies either through resales channels, or via service providers, like ASPs. F-Secure has resellers in 90 countries and it co-operates directly with major infrastructure vendors, such as Nokia, Cisco, Ericsson and HP. F-Secure is a pure ISV. The facts in this chapter are based on a questionnaire filled by Anthony Gyursanszky (2000) – the Vice President and General Manager of the SaaS-business unit.

Since 1999, F-Secure has provided a service delivery platform to ASPs that with this platform offer managed security services to end users that are corporations or consumers. An ASP can offer managed anti-virus, VPN, or distributed firewall services to their end customers. F-Secure's ASP customers *pay*:

- A fixed quarterly fee.

Gyursanszky considers that there are some open *legal* questions in the ASP framework. Due to this fact, F-Secure is quite clearly defining expected responsibilities between the supplier (F-Secure) and the buyer (ASP). F-Secure leaves it up to the ASP to determine the terms and conditions between the ASP and the end user as long as the ASP does not breach the contract between F-Secure and ASP.

Gyursanszky finds as the *strengths* of ASP:

- + Fast delivery channel
- + Economies of scale.

According to Gyursanszky there are still some *weaknesses* in the ASP market:

- The technological immaturity of the ASP infrastructure
- Compatibility of multi-vendor products
- General change resistance of the companies to adopt an ASP model.

4.1.4 Sonera Juxto Corp.

Sonera Juxto Corp. (www.sonera.fi/juxto) was established totally on serving ASP solutions. Sonera Juxto's range of services includes software for individuals and work-

groups, electronic business sites, systems for business and customer management, and various services for external and internal communication. Sonera Juxto also provides infrastructure management services covering workstations, mobile phones and other wireless communications devices, LANs, remote networks, servers, data processing platforms and, partly, customer applications as well. The facts and partnership-strategies of Sonera are based on their website. Sonera Juxto hosts office/personal, collaboration, and eCRM/business applications. (Anon. 2000v)

Sonera Juxto has offered ASP services since this year to networked organizations and growing companies (Anon. 2000u). Sonera Juxto's ASP customers *pay*:

- A monthly fee based on usage.

The biggest *strengths* of ASP are, according to Sonera Juxto:

- + Easy to budget costs and keep them low
- + Lower investment costs, no need to purchase expensive server hardware
- + The applications are easy to use anywhere, any time
- + Flexibility/ scalability (Anon. 2000t).

Sonera's view about the SWOT of ASP is quite the same as presented in section 3.2.3.

4.2 ASP partnership in researched companies

As the Figures 2, 3 and 4 show, different kinds of companies take part in the ASP business, and developing a functional ASP product requires co-operation of all the participants of the ASP field. The co-operation for creating and selling an ASP product is called partnership. The researched companies use various ways to select, and co-operate with, their partners. This chapter handles the partnering-strategies of the researched companies based on their function in the ASP business. The researched ISPs/ISVs - Elbit, QPR and F-Secure- seek partners that would take care of the hosting and increase the value of their products. The end-to-end-ASP Sonera Juxto has concentrated on finding marketing and technology partners.

4.2.1 Partnership in ISPs and ISVs

In this chapter the partnership of Elbit, QPR and F-Secure that operate in the ASP business field as ISPs and ISVs, is discussed.

4.2.1.1 Partnership in Elbit Corp.

At the moment, Elbit co-operates with small consulting companies and big IT- and consulting houses. Elbit partners with small consulting companies according to their competence. Elbit also co-operates with big consulting houses like PA-Consulting. Elbit has so far found its partners based on personal contacts, tips received from other partners, and mass marketing like newspaper advertisements.

Elbit intends to increase the amount of its partners in the future by partnering with:

- Consulting companies to outsource the customer support
- Big Finnish software companies and their foreign daughter-companies to enter the international market.

The consulting companies partnering with Elbit get a provision of the sales. The big consulting houses (like Andersen) do not benefit from the co-operation financially, but by getting a better image as they can offer a wider range of products.

4.2.1.2 Partnership in QPR Software Plc.

QPR co-operates with focused consulting companies at the moment. QPR has so far concentrated on few partners, because they find that small amount is easier to manage. Koistinen thinks that finding competent partners is problematic in Finland, because the whole concept and market is new.

In the future QPR plans to partner with:

- Hosting companies
- VARs that function in certain segments and already have a ready-made customer-base.

4.2.1.3 Partnership in F-Secure Corp.

F-Secure has so far partnered with service providers, but it has in November 2000 announced partnerships with a few service providers who can be considered as ASPs. Such companies include MerkantilData, Sonera, ICL Invia, and Messagelabs.

Good ASP partners from Gyursanszky's point of view are players who:

- Are in key markets
- Are rapidly growing and innovative
- Are financially stable
- Have a solid business plan
- Have a credible decision making procedure
- Require a standard product or almost standard product.

F-Secure co-operates with its partners by offering them:

- SW licenses
- Kick-off program to transfer the knowledge
- Ongoing maintenance and operational support
- Marketing support
- Training
- Documentation.

As the above list shows F-Secure co-operates with its partners extensively by offering them support, training and documentation.

4.2.2 Partnership for end-to-end-ASP: Sonera Juxto Corp.

Sonera Juxto offers other software companies ASP services and –hosting, but does not itself provide software applications. Sonera Juxto has, at the moment, following kind of partners:

- Marketing partners
Serve best their target market and provide the clientele.
- Technology partners
Offer mobility, security and e2e management.
- Sourcing partners
Provide best-of-the-breed application in each product category.

Sonera Juxto co-operates, according to an email received from Eija Pöytäkivi (2000), with its partners regarding activities relevant to the partner type in question. The goal of the co-operation is to create new business, operative models and innovative service concepts for the benefit of all parties involved.

4.3 Conclusions

The main dynamics fuelling the implementation of ASP in the researched companies was reaching new customers and value-added services coupled with the application (Figure 1). Elbit, QPR and F-Secure provide application operations, management, and maintenance. Sonera Juxto offers network services, platform and operations, application management, business and system integration and customer relationship (Figure 3). Elbit, QPR and F-secure are application specialists; Sonera Juxto is NSP and ASP (Figure 2). QPR and F-Secure sell their products globally and Elbit and Sonera Juxto mainly in Finland. Elbit also uses indirect sales; the other companies sell their products mainly directly.

QPR and Sonera Juxto host their applications themselves and Juxto will continue to do that also in the future, but Elbit, QPR and F-Secure would rather rely on external hosting providers. The companies are not interested in investing in data-centers unless they already have the infrastructure. QPR, F-Secure and Sonera Juxto have their own customer support at the moment, but Elbit is going to outsource it to consulting houses or -companies.

All the researched companies have strong faith in ASP and they are very involved in it both financially and strategically. The researched companies find the ASP market still uncertain and immature and consider finding competent and reliable partners as the biggest obstacle in entering the international ASP market. The researched companies seek technology and value-added service partners. The researched ISP/ISVs are focused on finding hosting providers and value-added partners. The end-to-end-ASP -Sonera Juxto- aims on finding value-added partners. The companies co-operate with their partners to increase the sales and to create a unified brand. The researched companies select their

lect their partners on the basis of the partners' competence and range of products. The high quality required from partners forces also the Finnish companies to improve the quality of their products and customers' trust in them to become selected as partners.

The researched companies see ASP as a great marketing- and delivery-channel, but they are careful in making bigger strategic decisions before the market has matured and stabilized. Finding competent partners is, according to them, yet difficult because of the varying quality of the current ASPs. The companies seek partners whom also their customers trust, but the market must mature before functional alliances really find their shape. The example of F-Secure proves that Finnish software companies should consider concentrating on the potential development areas of Finnish software industry that were handled in section 2.3. Table 14 presents the SWOT of ASP according to the researched companies.

Table 14: SWOT of ASP according to the researched Finnish companies

Strengths	Weaknesses
<ul style="list-style-type: none"> • Improved security, flexibility and scalability • Lower investment costs, no need to purchase expensive server hardware • Fast market entry and delivery • Easy to budget costs and keep them low 	<ul style="list-style-type: none"> • Tough international competition • Immatureness of hosting and the ASP infrastructure • Finding competent partners
Opportunities	Threats
<ul style="list-style-type: none"> • Mobile applications • Getting new customers • Better customer service 	<ul style="list-style-type: none"> • Capability to inspire the consultants and turn knowledge into a product • Compatibility of multi-vendor products • Open legal and security questions • General change resistance of the companies to adopt the ASP model

Comparing Table 14 to Tables 9,10,11 and 12 shows that the researched companies see the marketing and financial opportunities of ASP, but do not have proper understanding of its technological aspects yet and therefore the amount of technological SWOTs in Table 14 is small. The main reason for the lack of technological knowledge in the researched companies is their short experience of ASP business. Many of the threats that the researched companies find in ASP will disappear as the market matures and the open legal and security questions will be answered.

5. Partnership of WASPs

This chapter presents four American and one Canadian wireless ASPs more thoroughly and draws conclusions about their partnership-strategies based on their websites and on a questionnaire sent by e-mail. The presented WASPs were selected from the directory of aspnews.com. Although the potential market for WASP services is, according to Pring (2000), even greater than that for ASP services, quite few leading ASPs have shown interest in it. Aspnews.com, aspisland.com and aspstreet.com have together over 10.000 ASPs in their directories, but only the researched five of them are pure WASPs.

There are two ways to enter the WASP-market: either by enabling the access of wireless devices into traditional applications or by bringing new mobile commerce applications to the market. The presented companies: AirFlash.com, Astata, Bitmo, Software.com and Wysdom have used both of these ways to enter the WASP-market.

5.1 AirFlash Inc.

AirFlash Inc. was founded in 1998 and has today over 85 employees in the US and Europe. AirFlash has three sales offices in Europe.

AirFlash is an application specialist/provider that provides application support (Figures 2 and 3). AirFlash provides relevant and accurate location-specific information to the mobile carriers and portals for services such as: yellow pages and directions; local events, movies and attractions; and travel and commuter updates through its patent-pending SmartZone environment. (Anon. 2000b)

AirFlash partners with:

- Cellular network operators
- Technology and hosting providers
- Mobile content services providers.

AirFlash offers operators with packaged services a location-based engine that is combined with the m-Commerce gateway, reporting and content integration tools. AirFlash

also offers its partners technical consultancy and support and co-sales, -marketing and -branding activities. (Anon. 2000a)

5.2 Astata Corp.

Astata Corporation, based in New York, has been developing applications and hosting Internet services since 1997. Astata is an application specialist and ASP that offers platform, operations, application support and business and system integration (Figures 2 and 3).

Astata's product line includes remote personal information management and productivity management software. Astata develops, implements and hosts wireless applications. (Anon. 2000g)

Astata partners with:

- Network service providers (AT&T, NetRail etc.)
- Cellular carriers (Nokia, Microsoft, phone.com etc.)
- Equipment manufacturers (Dell.com, 3Com. Etc.). (Anon. 2000i).

Astata seeks partners that either complement its commercial applications or strengthen the ability to deliver the applications to the marketplace. Astata has joint marketing and development programs with its partners. (Anon. 2000h)

5.3 Bitmo Inc.

Bitmo was established in 1999 in San Francisco and it offers various products and services to create a wireless solution and 2-way messaging and transaction capabilities over wireless and voice interfaces. (Anon. 2000j) Bitmo is an application specialist that offers application support (Figures 2 and 3).

Bitmo partners with companies that provide technology, e-commerce platform and enterprise solutions, or manufacture devices and are committed to Bitmo's vision and support its efforts. Bitmo's partners are either:

- Implementation partners that provide:
 - ✓ Internet infrastructure (Bowstreet) and
 - ✓ eMarketplace solutions (EC Cubed) (Anon. 2000k).

- Technology partners that provide:
 - ✓ Security solutions (Argus Systems Group)
 - ✓ Voice interface software Platforms (Nuance)
 - ✓ Handheld computers (Palm Developers Group).

Bitmo also takes part in several industry associations. (Anon. 2000l)

5.4 Software.com Corp.

Software.com purchased this year @Mobile- a wireless Internet application service provider – which was established in 1993. Software.com has offices in three continents: in the USA, Europe and Asia and it provides consumer and business messaging services and infrastructure. (Anon. 2000q) Software.com is an application specialist and ASP that offers platform, operations and application support (Figures 2 and 3).

Software.com has partner programs for:

- Premium partners and
- Associate partners.

The premium partners like IBM and HP can provide the whole product line, but before that they must achieve the highest level of training and product certification and invest substantially in the Software.com's product sales personnel.

The associate partners can provide sales, systems integration and support specifically to start-up service providers. Software.com also has strategic alliances with companies like Cisco Systems, Oracle, HP, Sun and Compaq. (Anon. 2000r)

5.5 Wysdom Inc.

The Canadian Wysdom has been functioning in its current form since 1999 and has, at the moment, 245 employees in sales offices in the USA, Canada and UK. (Anon. 2000y)

Wysdom provides wireless applications that ensure seamless connectivity between businesses and end-users. These applications include mobile commerce, wireless content delivery and messaging. Wysdom is an application specialist that offers application support (Figures 2 and 3).

Wysdom's partner program allows companies to develop, sell and support products and services based on Wysdom Technology. Wysdom partners with:

- VARs
- Web design firms.
These firms create and implement Internet based presence and commerce solutions for mid- and large-sized corporations.
- Software development firms
These firms create custom applications and are interested in expanding their offerings into the wireless arena. (Anon. 2000z)

According to an email received from Leah Kilfoyle (2000), the partners of Wysdom are selected on the basis of:

- Quality of application and products
- Pricing (if applicable).

The pricing of Wysdom's ASP products is based on:

- Monthly charges and
- Per-usage charges.

Wysdom has outsourced hosting to a third party that hosts Wysdom-based applications.

5.6 Conclusions

As this research proves, the WASP-market is still very young and undeveloped. Four of the researched companies have been functioning in the WASP-business for two years, or less. Three of the researched companies function already both in the US and in Europe, which shows the potentiality of the WASP-market. The researched WASPs mainly concentrate on information delivering products that include messaging services and personal information management and infrastructure. The researched WASPs are application and content providers that co-operate with other participants of the WASP-field: equipment manufacturers and operators (section 3.3). The products of the researched WASPs are charged monthly as in the global market (section 3.3)

The partners of the researched WASPs are mainly technology partners such as network operators, equipment manufacturers and providers of security and various platforms like voice platforms. American WASPs also seek value-added partners. The main idea of co-operation with partners is to earn more money by offering customers total end-to-end solutions. The researched WASPs operate in several stages of the ASP value chain and have huge amount of partners. Also, the American companies rather outsource hosting than host themselves. Only two of the researched companies provide hosting services themselves; the other ones are application specialists.

This research proved that more technical software products like the ones for mobile applications require more partnering with technology providers. Those companies that sell less technical applications prefer to seek value-added rather than technology partners. The success of the researched WASPs proves that the companies can earn significant profits in the global ASP market if they just find the right market segment and specialize in it. In the future, the WASPs will also increase the demand for laptops, WAPs and other technical devices needed in building the system.

6. Summary

The purpose of this research was to analyze the current state of ASP. Examining the literature and the Finnish and American ASP companies proved that the current ASP market is fast changing, fast growing, immature and uncertain. The amount of companies calling themselves ASPs is huge and most of them are actually ISVs of ISPs. Many traditional ISVs sell their applications via the Web, but have not yet had more serious thoughts about ASP. The trust in the ASP market is strong and ASP should be taken as a serious challenger in the next years.

The common goal of the ASP companies is to get new customers and make money. The ASP companies seek hosting-providers and value-added partners that increase their sales and complement their range of software products. Most companies use hybrid or indirect sales as was recommended in section 3.2.2. The partners are selected carefully on the basis of their reputation and the quality of their products. The ASP companies seek partners in whom they and their customers trust. The firms are willing to provision applications themselves as well, but the software provisioned must be reliable and trustworthy. The co-operation is regarded as a key to success in the ASP market and leads to forming alliances and to increased partnerships.

The technology and security questions do not prevent the use of ASP according to the researched companies. It is still a question mark if a network and servers can handle the increasing amount of customers and use. The security questions of outsourcing the applications to external hosting providers are not regarded problematic, but some of the companies have not considered this subject seriously. Most of the researched companies are not interested in providing the hosting-services themselves. The companies do not want to invest in data-centers unless they already have the needed infrastructure as in the case of telecoms. There is a growing need for hosting-providers, but in the ASP market there is a shortage of consulting companies that would offer the technical skills and support needed in the implementation of hosted applications.

Adapting the ASP concept will revolutionize the whole software business, and taking part in it is crucial to survival. The ASP enables a more effective, cheaper and easier

use of both the traditional software and the large ERP-applications. In the new millennium of co-operation and networking, information becomes available to anyone, anywhere and at any time. Some software companies may find the idea of extensive co-operation strange, but surviving in the global ASP business requires a new kind of business thinking.

As the area of this research is very young, it leaves many opportunities for further research topics. Firstly the researched companies could be interviewed again in 1-2 years to find out how the situation has changed after this research. One possibility would be to research the co-operation of Finnish software companies in general. As the ASP market matures it might be interesting to find out what kind of partnership-coalitions have been formed and how. And as a final research topic there could be the basic question of the whole ASP ideology: Has the ASP actually changed the software industry and to what extent?

And finally some consideration about what the Finnish software companies should do to enter the ASP market and succeed in it. The following summarizes what should be taken into account:

1. Incentives to use ASP

Every company considering using ASP should think over its pros and cons (Tables 9,10,11 and 12) and the gained advantages compared to the costs. ASP is used mainly for some of the following reasons:

- The company cannot afford an IT-staff.
- The company wants to concentrate on its core competencies and outsource the IT-management.
- The company grows rapidly and therefore needs flexibility.
- The company finds it hard to get the capital needed for hardware investments.

If a company experiences any of the above problems, using ASP business model may be worth considering.

2. The function in the ASP market and the effect on partnership

When entering the ASP market it is important to understand the company's functional position in the ASP market, because that affects the partnership strategy. If a company only provides the software (= it is an ISV), it needs "pure" ASPs to perform the implementation and provide connectivity and support, ISPs to provide access to the Internet and VARs to perform the system integration and consulting. It is generally recommended to let the partners take care of the hosting, because building a data-center of one's own requires plenty of funding and expertise. The point 4 deals with the partnership strategies in more details.

3. The application hosted

If the application hosted is sophisticated and requires a lot of tailoring, it is wise to use indirect sales when entering the ASP market. Less complicated products can be sold by using direct sales to customers. As this research proved, the provisioned applications are selected on the basis of their quality and security and thus the chances to survive in the ASP business are much better if the products are qualitative and secure, if they complete the range of partners' products and are suited to several platforms. The mass-market is, at the moment, highly competed and it is easier to make profits and find partners with specialized niche products. The Finnish software companies should take advantage of the already strong areas of Finnish industry: mobile phones, wireless industry, and security products.

If the application hosted is specific to some industry, it may be useful to work with an ASP that specializes in that industry. If the application serves a specific enterprise function it is wise to choose an ASP with the appropriate expertise.

4. Partnership strategies

Partnership has a crucial role in the ASP market and therefore selecting partners should be carried out with care. It is important to consider what kinds of partners are needed and how they are found. Partnering with big, well-known companies may be tempting, but it is also expensive, because many appreciated companies require heavy investments in their brand and marketing efforts. The companies should se-

lect partners whom they and their customers can trust and offer them information, support and co-operation activities.

When selecting an ASP, the ASP Industry Consortium recommends evaluating the provider's operational background and strategic partner relationships as well as gaining a firm understanding of the following key service issues:

- Data centers and operations
- Software and hardware
- Service level agreements
- Costs and pricing. (Anon. 2000x, 11-12)

In finding suitable partners, it is useful to take advantage of the current ASP portals that have huge ASP directories. All companies can use these directories to find partners and add their own company information to the directories to become selected as partners.

5. Target market of ASP

Before starting a marketing campaign a company must define for whom and where the products are marketed and evaluate if the market is increasing or decreasing. It is wise to specialize in narrow, specialized market segments or market areas. It is also important to try to diminish the change-resistance of customers by convincing them of ASP and its advantages such as easiness of use, cheapness, scalability, and increased quality.

6. Legal questions and security

The ASP companies should make SLAs carefully by including all the possible situations and excluding everything that is not included. When outsourcing the application to an external hosting provider, the companies should make sure of who is responsible of the possible data breaches. It is also important to find out how the hosting provider has organized security management and the procedures needed.

A good way to get started with the ASP is to test it by outsourcing one non-critical application. By initially outsourcing only one application, a company can learn how to negotiate a SLA and become familiar with the difference between in-house and out-

sourced applications, support and services, and then decide upon the next steps. (Anon. 2000x, 11)

As the SWOT-analysis of ASP showed (section 3.2.3), ASP has a lot of *strength*: it enables getting new customers, flexibility, scalability and fast entry to market without direct sales force. As the *weaknesses* of ASP will be removed and the possible *threats* will be eliminated by the ASP companies also Finnish participants of the ASP game will gain the best advantages of the *opportunities* of ASP as an eliminator of distribution channels.

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Interviews:

Interview with Ms. Misa Leiber, Product Manager, Elbit Corp., on 7th November 2000 in Oulu.

Interview with Mr. Timo Koistinen, Strategic Business Area Director, QPR Software Plc., on 17th November 2000 in Oulu.

Appendix I

Glossary of Application Service Provisioning

(from: Anon. 2000o)

Application Service Provider (ASP)

An ASP deploys, hosts and manages access to a packaged application for multiple parties from a centrally managed facility. The applications are delivered over networks on a subscription basis. This delivery model speeds implementation, minimizes the expenses and risks incurred across the application life cycle, and overcomes the chronic shortage of qualified technical personnel available in-house.

Application Maintenance Outsourcing Provider

These providers manage a proprietary or packaged application from either the customer's or the provider's site.

Availability

The portion of time that a system can be used for productive work, expressed as a percentage.

Bandwidth

The number of bits of information that can move through a communications medium in a given amount of time; the capacity of a telecommunications circuit/network to carry voice, data, and video information. Typically measured in Kbps and Mbps. Bandwidth from public networks is typically available to business and residential end-users in increments from 56Kbps to T-3.

Business-Critical Applications

The vital software needed to run a business, whether custom-written or commercially packaged, such as accounting/finance, ERP, manufacturing, human resources, and sales databases.

Capacity

The ability for a network to provide sufficient transmitting capabilities among its available transmission media, and respond to customer demand for communications transport, especially at peak times.

Client/Device

Hardware that retrieves information from a server.

Clustering

A group of independent systems working together as a single system. Clustering technology allows groups of servers to access a single disk array containing applications and data.

Data warehouse

A database containing copious amounts of information, organized to aid decision-making in an organization. Data warehouses receive batch updates, and are configured for fast online queries to produce succinct summaries of data.

Enterprise Relationship Management (ERM)

Solutions that enable the enterprise to share comprehensive, up-to-date customer, product, competitor and market information; for the end goals of long-term customer satisfaction, increased revenues, and higher profitability.

Enterprise Resource Planning (ERP)

An information system or process integrating all manufacturing and related applications for an entire enterprise. ERP systems permit organizations to manage resources across the enterprise and completely integrate manufacturing systems.

Hosted Outsourcing

Complete outsourcing of a company's information technology applications and associated hardware systems to an ASP.

Internet Service Provider (ISP)

Company that provides access for users and businesses to the Internet.

Independent Software Vendor (ISV)

Generally a firm that develops software applications that are not part of a computer systems manufacturer.

Megabits Per Second (Mbps)

A transmission rate where one megabit equals 1,024 kilobits.

Multi-User

The ability for multiple concurrent users to log on and run applications from a single server.

Network Computer (NC)

A "thin" client hardware device that executes applications locally by downloading them from the network. NCs adhere to a specification jointly developed by Sun, IBM, Oracle, Apple and Netscape. They typically run Java applets within a Java browser, or Java applications within the Java Virtual Machine.

Outsourcing

The transfer of components or large segments of an organization's internal IT infrastructure, staff, processes or applications to an external resource such as an Application Service Provider.

Packaged Software Application

A computer program developed for sale to consumers or businesses, generally designed to appeal to more than a single customer. While some tailoring of the program may be possible, it is not intended to be custom designed for each user or organization.

Performance

A major factor in determining the overall productivity of a system, performance is primarily tied to availability, throughput and response time.

Reseller/VAR

An intermediary between software and hardware producers and end users. Resellers frequently "add value" (thus Value-Added Reseller) by performing consulting, system integration and product enhancement.

Scalability

The ability to expand the number of users or increase the capabilities of a computing solution -users without making major changes to the systems or application software.

Server

The computer on a local area network that often acts as a data and application repository and which controls an application's access to workstations, printers and other parts of the network.

Server-based Computing

A server-based approach to delivering business-critical applications to end-user devices, whereby an application's logic executes on the server and only the user interface is transmitted across a network to the client. Its benefits include single-point management, universal application access, bandwidth-independent performance, and improved security for business applications.

Thin Client

A low-cost computing device that accesses applications and and/or data from a central server over a network. Categories of thin clients include Windows-Based Terminals (WBT, which comprise the largest segment), X-Terminals, and Network Computers (NC).

Total Cost of Ownership (TCO)

A model that helps IT professionals to understand and manage the budgeted (direct) and unbudgeted (indirect) costs incurred for acquiring, maintaining and using an application or a computing system. TCO normally includes training, upgrades, and administration as well as the purchase price. Lowering TCO through single-point control is a key benefit of server-based computing.

User Interface

The part of an application that the end user sees on the screen and works with to operate the application, such as menus, forms and "buttons."

Virtual Private Network (VPN)

A secure, encrypted private Internet connection.

Web Hosting

Placing a consumer's or organization's Web page or Web site on a server that can be accessed via the Internet.

Wide Area Network

Local area networks linked together across a large geographic area.

Appendix II:

Questionnaire sent by email to WASPs

Dear attendee,

I am doing a research about partnership in WASPs for the University of Oulu/ Professor Veikko Seppänen. This research deals especially with the chances of Finnish software companies to find partners when entering the US ASP market. Concerning this research I would be very interested to know your company's view about the following questions:

1. How do you select your ASP partners: according to size, turnover, branch, quality of application or some else criterion?
2. What kind of applications do you host? Do you have any selection-criteria for hosted applications?
3. What kind of hosting-solution do you have?
4. How do you co-operate with your partners: in marketing, finding finance etc.?
5. How do you charge your services (pricing)?
6. Which was your turnover last year?

In case you have any questions about the research, please do not hesitate to contact me or Veikko Seppänen (eMail: veikko.seppanen@oulu.fi). I would be happy to receive answers to the above questions asap. Thank you very much for your help.

Yours sincerely,

Ms Päivi Kallio
(pkallio@rieska.oulu.fi)

Appendix III

Skeleton of the ASP interview

Application Service Providing LUOTTAMUKSELLINEN

Haastattelu:

Nina Helander, Päivi Kallio

Yritys: _____

Pvm: _____

Henkilö: _____

Asema: _____

YLEISET KYSYMYKSET:

Taustaa:

- Koska yritys perustettu, minkä kokoinen, miten kasvanut, omistajat (=rahoitus)?
- Yrityksen bisneksen perusidea?
- Yhteistyökumppanit:
 - keitä, millä alueilla?
- Tuotteet/palvelut ja asiakkaat:
 - mitä? (tuotteiston laajuus, räätälöinnin tarve)
 - kenelle? (asiakaskunnan laajuus, rakenne, b-to-b vai kuluttajamarkkinat)

ASP -LIIKETOIMINTAKYSYMYKSET

Rooli ASP- liiketoiminnassa:

- Tarjoaako yritys tällä hetkellä tai aikooko tulevaisuudessa tarjota ohjelmistoja ASP periaatteella?
 - mitä?
 - kenelle?
 - hinnoittelumalli (SLA:t): käyttöön/palvelutasoon perustuva/kk-maksu?
 - kuinka kauan tarjonnut/ koska aikoo alkaa tarjoamaan?
 - millaisia hyötyjä ollut/uskoo olevan
 - millaisia ongelmia ollut/uskoo olevan?
- Onko yritys itse vuokrannut/ aikooko vuokrata ohjelmistoja?

- millaisia?
- keneltä?
- mitä etuja/ ongelmia?

Yhteistyö ASP -liiketoiminnassa

- Keitä yhteistyökumppaneita? Millä alueilla?
- Miten kumppanit valittu?
- Miten kumppanuutta hoidetaan?

Teknologinen tausta

- Self-hosting vai ulkopuolisen host:in käyttö? (jos ulkopuolinen; kuka, miksi valittu?)
- Tekniset ratkaisut:
 - bandwidth
 - nykyisten ohjelmistojen soveltuvuus
 - turvallisuus
- Ylläpito
 - kuka hoitaa?
 - päivitykset?

Muuta

- Millaisia juridisia kysymyksiä näkee liittyvän ASP:iin?
- Arvio ASP:n tulevaisuudesta?
- Arvio ASP:sta jakelukanavana?
- Arvio ASP:n vaikutuksista omaan liiketoimintaan?
 - toimintatapaan
 - asiakassuhteisiin
 - henkilöstöön
 - kassavirtaan