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ABSTRACT

ASP has been a buzzword among enterprise IT area since mid 1990s. Following after the hype cycle of new technologies like others, many market analysts say that ASP technology is now in a plateau of productivity sequence through trough of disillusionment sequence over past 5 years. In the Republic of Korea, MIC (Ministry of Information and Communication) and KT began ASP service called bizmeka® to help companies adopt the newest information technologies on KT's information superhighway since 2000. Like other ASP players in other countries, there were similar obstacles and problems that are difficult to solve. But with the introduction of new concept of service model and architecture, the difficulties of managing business improved. In this paper, we will discuss about how ASP business of Korea started, managed and made evolution of service model and architecture to meet the various demands of enterprises over past 4 years.
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Keywords: ASP, Outsourcing, Enterprise Computing, Web Services

1. OVERVIEW

Today's companies are depending heavily on the newest enterprise software, cutting edge hardware and broadband network to correspond with the rapidly changing market environment. Information technologies that are selected in contemporary corporations give much benefit to them. On the wile, it requires much enterprise resources such as software, hardware and network and operation staff for being beneficial to them. In this point of view, renting an enterprise information technology is much more profitable rather than possessing the whole software, hardware and operation staff considering today's company's situation that must utilize effectively its manpower and money.

Especially in SME (Small Medium Enterprise)'s viewpoint, the needs of renting an enterprise information technology is much bigger than that of a large enterprise. In enterprise information technology market, ASP (Application Service Provider) based service which is capable of constructing enterprise information system rapidly and economically attracted attention of companies from mid 1990's along the boom of the internet. With the advent of ASP business model, ASP sector also won many IT vendors and IT market analysts to its side [2].

Meanwhile, Korea had a different situation compared to other countries with the rapid growth of Internet subscriber over xDSL and cable modem. Most government and public offices and companies have been able to connect to the Internet with low-priced subscription fee and people have come to bear in mind the digital economy and culture gradually. Particularly, to strengthen the domestic and international competitive power of SME in Korea, MIC and KT began an ASP support program. Under the policy of KT's n new business model excavation promotion, bizmeka has been successful in ASP area with the growing revenue and increasing subscriber since 2000, satisfying customer's needs through evolution of service model and architecture of ASP service platform.

2. MARKET TREND & FORECAST

ASP industry received the spotlight by its rational business model with the Internet boom and Dot-com bubble from 1997 to 2000 by the press. But recently, the descent of IT economy and the collapse of Dot-com bubble burst resulted in merge and acquisition between ASP players and retirement of incompetent ASP players. On the while, the expectancy of ASP market settlement is growing bigger with the overcoming of the hype and immaturity of the new technology and ASP market.
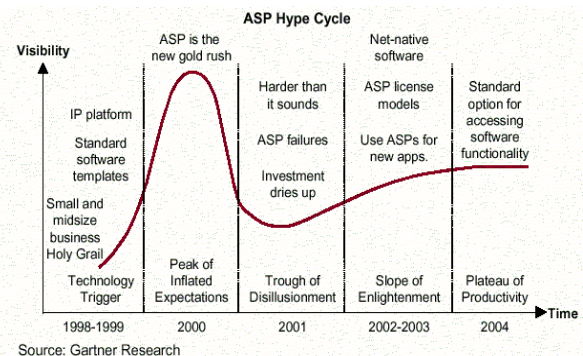

Fig 1. ASP Hype Cycle by Gartner Group

As Figure 1 shows, Gartner expects that ASP technology will be in a plateau of productivity sequence through trough of disillusionment sequence by 2004 following after the hype cycle model of emerging technologies.
IDC also expects that the number of ASP player will drop to 389 on the year 2005 from 800 on the year 2000 with the yearly decreasing rate of 13% by severe competition between ASP players, excessive initial investment cost, uncertain business plan and difficulties

in financing. [7]

IT market analysis firms like IDC, Gartner, Ovum are issuing research reports which are being optimistic about current and future ASP market. IDC predicts that the global ASP market size will be 19.9 billion dollars until 2006. Dividing ASP market by region, as Table 1 shows, U.S will occupy 58% of the whole market by 2006 with the market size of about 11 billion dollars and EU market size will be reached to 6.7 billion dollars by 2006 growing from 306 million dollars on 2001. In that, Asia-Pacific ASP market will be 1.5 billion dollars size, but we may expect more big figures in this area considering recent brilliant economic growth of China even considering IDC's forecast. [8].

Table 1. ASP market forecast by region

(Unit: Million US$)

	2001	2002	2003	2004	2005	2006
U.S.	1,329	2,173	3,494	5,495	8,105	11,667
EU	306	749	1,622	3,036	5,122	6,726
Asia	156	280	441	694	1,071	1,572
Sum	1,791	3,202	5,567	9,225	14,928	19,965

2.1 United States

ASP market in United States showed emergence in 1998 by the companies like Corio and USInternetworking and came into expansion stage during 1999~2000 with many participating ISVs. But the market expansion stage soon stepped into declining stage along with collapse of Dot-com and burst of IT bubble. But from the year 2001, ASP market entered into new era with the M&A between ASP companies and new participant from IT related companies.

There is also continual specialization and subdivision in ASP market after Dot-com crisis. At first, most ASP player thought that price-sensitive SME is their best potential customer for their services. However, there are increasing cases of contract of providing ASP services to a certain company's department partly not to the whole departments. For example, Salesforce provides their Sales Force Automation solutions only to marketing and sales department of America Online, Mitsubishi and Fujitsu

Even new trends and diverse approach method to market, ASP customers in United States are still worrying about problems that are hard to solve like security concern when depositing their valuable data to distant location other than their office and integration problem between ASP application and legacy application and so on. so ASP players are striving to solve these problems by adopting new emerging technologies like EAI (Enterprise Application Integration) or Web Services.

Nowadays, there is an apparent tendency of big IT company's entrance into ASP market. Microsoft has recently announced publication of low-priced CRM software package and participated in ASP business. SAP

and Peoplesoft also have plans to strengthen marketing in SME sector and Oracle has launched new organization for managing new ASP business which rents their solutions on the internet escaping from direct sales over CD. IBM also announced that they are building datacenter infra to prepare for ASP business by packaging their software and solutions into ASP-ready products. [8]

2.2 Japan

In the year 1999 and 2000, ASP business was considered as a good business model with great anticipation. In Japan, but after burst of IT bubble and the collapse of Dot-com companies, Japanese ASP industry also gone into recession period until 2002. But with the explosive growth on broadband internet connection service, ASP industry has been paid attention to again with possibility.

The Japanese ASP market stated with HR, finance, tax management software on the while ASP market in U.S. are ignited by cheap rent of expensive ERP solution. Especially in Japan, ASP gets its attention in public and government sector. Japanese government now drive sharable outsourcing IT infra project by the initiative of 3,300 local provinces. [8]

2.3 EU

IDC predicts that European ASP market will grow 85.6% during 2001~2006 and market size will be 67 billion dollars until 2006. The initial ASP players in European market almost come from United States. Most of the m failed to successfully enter into emerging ASP market. But they are preparing to reenter into new market by new solution, services and technologies.

Most distinguishing project related to European ASP market is "ALTERNATIVE" which driven in public and government sector. The objective of "ALTERNATIVE" project is eventually to strengthen competitive power of SME by allowing selectively choosing their needed solution. [8]

2.4 Summary

We can discover some interesting points by reviewing ASP market trends, status and activities in United States, Japan, and Europe.

Firstly, even big and famous ASP players focus their strength on revenue and profit rather than technological advances by world wide IT economy recession.

Secondly, to win over deepening competition between ASP players, they are trying to seek their own distinguishing services and solutions for customers to discriminate them from other ASP players.

Lastly, multinational companies like Microsoft, IBM,

SAP and Oracle are preparing to enter into ASP market. so existing ASP players are now on the strain for the upcoming competition with well-known package solution vendors.

3. ASP BUSINESS IN KOREA

The Republic Of Korea drives internet boom which is begun from late 1990s and now 30 million users are using the internet and 11 million houses are connected to the internet via xDSL, Cable-Modem or Optic Fibler at the speed of ranging from 2mbps to 100mbps. In addition, most Korean companies utilize corporate homepages for advertisement and customer contact point.

But comparing the rate of IT infra utilization, the utilization rate of households and large corporations are already reached that of advanced countries. On the while, The IT utilization rate of 3 million SMEs which comprises 99% of Korean companies is apparently low because of its high initial construction cost and management cost. So The Government of the Republic of Korea and KT are doing ASP business called bizmeka for SMEs to inspire the IT mind and spreading of the new enterprise information technology based on KT's broadband internet infra and domestic enterprise solution for SMEs from 2001[3].

On the while, the Korean ASP market size is about 100 million dollars in 2002 and will grow 53% annually until 2007. This growth rate is somewhat dependent on Korean economic recovery on domestic sector. Since most solution provided in ASP industry is mainly focused on domestic business not on global business like export and import goods.

It is shown by survey research that over 71% of SMEs in Korea prefers IT system construction by outsourcing, purchasing and ASP not by operating their own staff and develop their own solution. Especially 44% of SMEs chose the outsourcing as the best preferable method of constructing their own IT infra. It can be easily estimated considering SME's weak IT solution development capability and small IT management budget. We can also expect that SME's dependency and preference over ASP and outsourcing model will be heavier as time passes.

3.1 solutions and services of bizmeka

Starting from web based corporate email and groupware services, bizmeka provides currently about 70 kinds of services ranging from general business solutions from a groupware to core enterprise solutions like ERP, SCM and even special sector solution like IP camera surveillance for 51 thousands companies and 110 thousands employees and employers.

Intra-Enterprise solution sector includes ERP, Production SCM, Groupware, Tax and Finance Management, Sales and Stock Management, Mobile SFA, IT Equipment Rent and IT consulting service. Collaboration solution sector includes Merchandising SCM, Electronic Tax Receipt and Social and Medial Insurance EDI (Electronic Document Interchange).On-Line solution sector includes CRM, internet shopping mall builderand homepage hosting. Vertical industry solution includes Auto shop management, Optician's Store management and Catering Management.

3.2 architecture of bizmeka service platform

It is very difficult and complicated work to ensure integration between diverse solutions and manage multiple modern enterprises' information system without hassle. To support it stably, perfect and reliable AAA (Authentication, Authorization, Accounting), billing, order management, customer management is key issue of running that kind of system. KT has been running bizmeka platform to run above functions since November, 2002 after one year's research and development
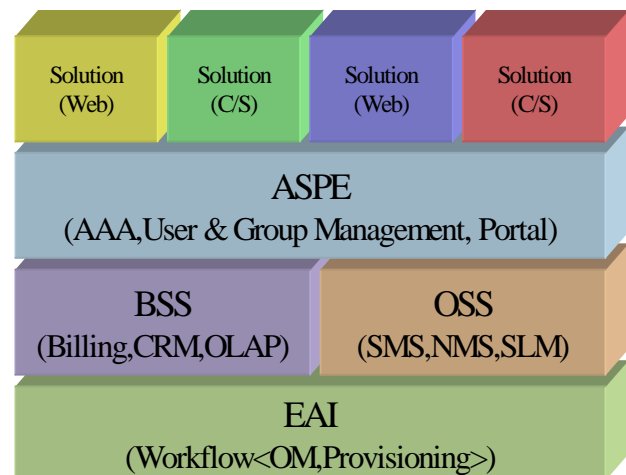

Fig 2. Initial architecture of bizmeka

As Figure 2 shows, ASPE (ASP Enabling) is subsystem that supports AAA of ASP users, organization management and SSO (Single Sign On) over portal. All of them is necessary for using ASP solutions easily and securely. ASPE also has Mobile SMS (Short Message Service), User Community and BBS (Bulletin Board System) which can be used as building blocks of other solutions.

BSS (Business Support System) includes billing management which is crucial for running charged service, ASP user management and OLAP system which gathers and analyze sales related information. Billing system sends a bill to user by sending bill information to existing KT's PSTN (Public Switched Telephone Network) billing system.

OSS (Operation Support System) includes IT resource (Network, Server, Storage, Software) management system to effectively manage massive IT systems. It also

includes SLM (Service Level Management) subsystem which detects failure of services and measures service quality over the network since there are many services and solution based on internet.

EAI system provides reliable message transfer service between servers and message transformation service with orchestration of workflow service. Whole messages are expressed by XML and even heterogeneous systems based on Java or .NET can send and receive messages to each other freely. It also supports reliable, long-running transaction based workflow process like provisioning new services and registering new ASP user after verifying one's credit status.

4. EVOLUTION OF SERVICE MODEL AND ARCHITECTURE

Though bizmeka started with web based solutions on early stage, there was no choice but to accommodate the various demands of companies to meet the customer needs and extend business area. So now bizmeka have general service architecture like EIP (Enterprise Information Portal) and unique and rare kinds of service architecture like VIP (Vertical Industry Portal), MSP (Mobile Service Platform) and APP(Application Publisher Platform). bizmeka also has special kinds of service model such as Remote Hosting and AIP(Application Infrastructure Provider).
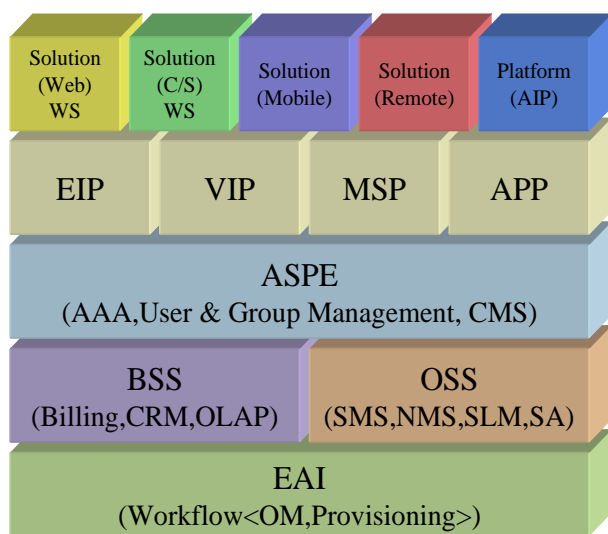

Fig 3. Current architecture of bizmeka

4.1 Portal service platform

EIP is an portal service platform which integrates applications (email, contact list management, bank account management …) together and provides SSO (Single Sign On), privilege management and personalization to give user the simple way of using the solutions and control authentication and authorization of users on one point. EIP platform includes Multiple Enterprise Support, Site Template Engine, Caching Engine, Content Management Engine, Personalization

Engine, AAA Manager and Service Monitor. With the help of EIP platform, users can aggregate many solutions easily after one successful authentication.
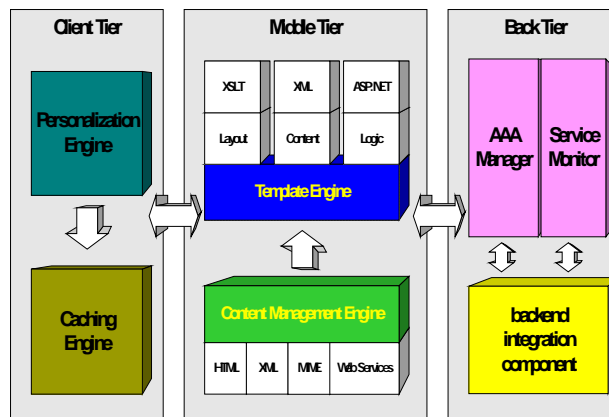

Fig 4. Portal architecture of bizmeka

VIP is designed to help building the vertical industry portal site easily and rapidly. The purpose of EIP is an solution integration but VIP's purpose is to allow building the vertical industry portal in short time using the site template and site management functions in the VIP platform. VIP shares the same portal infrastructure with EIP as shown in Fig. 4. But VIP platform has additional components like site build wizard, handy and easy site management interface and many web interface decorating functions.

4.2 Mobile service platform

MSP is recently added to meet the growing needs of mobile applications and devices like mobile phone, smart phone, PDA and industry specific embedded mobile devices. This platform includes mobile security support system including mobile PKI and data encryption and decryption, contents conversion system supporting HTML, WML, cHTML, WAP and application & data sync system. With the wide acceptance of mobile technologies and devices, the usage of MSP is expected to grow as time goes on.
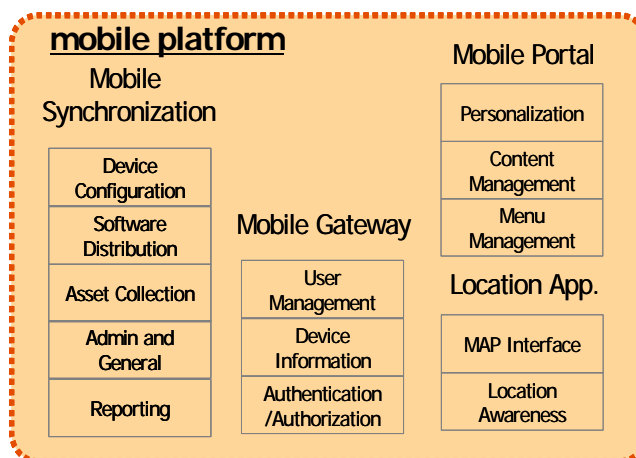

Fig 5. Mobile service platform of bizmeka

4.3 Application publisher platform

APP is a service platform that provides whole or part of platform services through web services to ease the migration of ISV (Independent Solution Vendor)'s solution which already have their customers. In this case, it is really hard to integrate user information and user interface seamlessly to bizmeka. So Application Publisher helps ISVs integrate their solutions to the bizmeka platform loosely and transparently to their existing user.
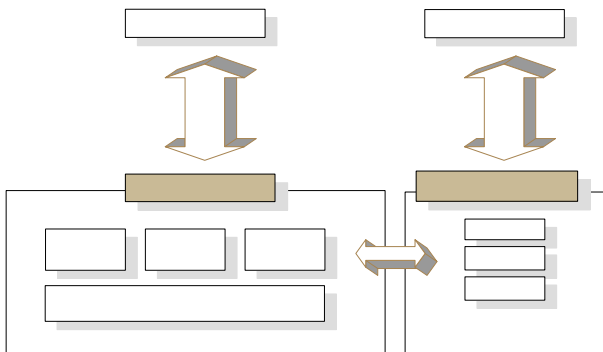
Fig 6.Applcation publisher Platform of bizmeka

4.4 New kinds of service model

Remote Hosting is a kind of remote management service model for solutions like ERP and SCM which is deployed on customer's site. Operation staff of bizmeka always manage and monitoring the remote applications, servers 24/7. Nowadays the concept of Remote Hosting is extending to the remote network management including virus wall appliances.
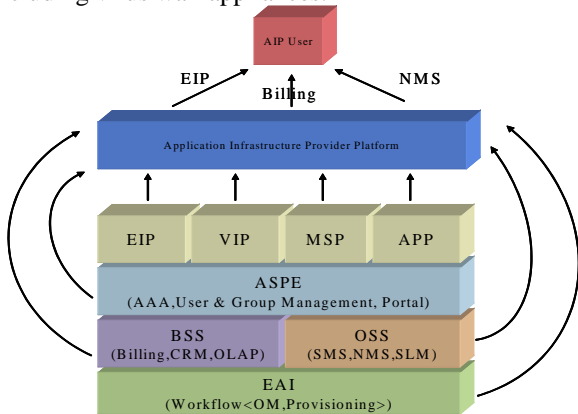
Fig 7. AIP platform usage scenario

AIP is an ASP service platform rent service model that allows independent brand and marketing and admit doing their own ASP business regardless of bizmeka. AIP customers can use the whole platform services or part of them including ASPE (ASP Enabling), BSS (Business Support System), OSS (Operation Support System), EAI (Enterprise Application Integration) subsystem.

5. CONCLUSION

For the past 4 years, bizmeka has been evolved from simple web application hosting provider to today's ASP accepting various demand of customers and developing experimental service model and architecture. But the trend in ASP business is still changing rapidly and bizmeka needs to excavate new service model and its supporting architecture.

KT also strives to solve fundamental problems of ASP business. Like an unreliable service response time due to jittering internet which is inevitable in current best-effort TCP/IP network. But that can be overcome with successful transition to NGN (Next Generation Network) after 2007. Insecure communication problem is solved by KT's VPN (Virtual Private Network) service which can be bundled with any solutions in bizmeka.

But the most hard–to-solve fundamental problem is anxiety and unrest feelings of customers that their valuable data might be drained to public or opponents. But this problem can be solved by reliable cryptography technologies and technological advance over all IT area in near future.

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