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IS E-COMMERCE OF IT APPLICATION SERVICES (ASP) ALIVE AND WELL?

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ABSTRACT

Given the great importance of outsourcing to the Information Technology (IT) profession, this paper is devoted to E-Commerce of IT application services between Application Service Providers (ASPs) and customer organizations. Instead of dealing with the more general "Is E-Commerce Dead?" question, we address the question of whether "E-Commerce for IT application services is (and will be) alive and well?" Reviewing the history of the ASP industry, shedding light on the factors inhibiting and driving ASPs, and discussing prospective customer profiles and business models leads to the conclusion that, much like E-Commerce, ASPs are alive but not very well yet.

INTRODUCTION

Against growing doubts about the "new-economy", on one hand, and the continuing development of new programs focusing on E-Commerce in colleges and universities, on the other, this special issue of JITTA addresses the question "Is E-Commerce Dead?" E-Commerce is a general term referring to Over-the-Internet commerce of products and services between two sides such as B2B, B2C, or C2C. Our paper considers a subset of E-Commerce -- B2B E-Commerce of IT application services --

which is manifested when an Application Service Provider (ASP) hosts IT applications and makes them available for rent to customer organizations over the Internet.

Given the great role outsourcing has played in the IT arena, especially the increasing role of ASPs in recent years, as well as the optimism displayed by industry experts regarding the viability of the ASP market during 1998 till mid 2000, it is worthwhile to focus the question on whether "E-Commerce for IT application services is (and will be) alive and well?"

In addressing this question, we have found the academic literature dealing with ASPs still scarce, and therefore relied mainly on our own ASP research (Heart, Pliskin, Shechtman and Reichel, 2001; Heart and Pliskin, 2001) and on industry articles posted on the Internet.

The next three sections are devoted to the ASP industry, with the first one presenting the industry's past and present and the two following sections presenting factors inhibiting and driving ASPs. To gain more insight into future prospects for ASPs, the fifth section of the paper considers potential ASP customers focusing on whether customer organization size small, medium, or large, makes a difference with respect to customer readiness to embrace the ASP concept. The sixth Section considers the vertical and the horizontal ASP business models and the circumstances under which either one, or another model, might be a winner. Finally, the concluding section compares the more general E-Commerce arena to the somewhat "younger" ASP arena, suggesting that much like E-Commerce, ASPs are alive but not very well yet.

THE ASP INDUSTRY: PAST AND PRESENT STATE

The ASP model, pioneered in 1998, is the most recent manifestation of IT outsourcing. Customer organizations of ASPs refrain from investing in server hardware and software upfront, opting instead for a rental contract with an ASP. Users in customer organization of ASPs gain access over the Internet to applications and databases residing on the ASP's servers. Many industry experts have predicted that within a few years, users will not want to install applications locally. Instead, they will access the applications they need, on demand, from online providers who will charge them by the second for the precise value of the specific features and resources they choose to use (ASPnews, 2000).

Since by doing business with ASPs, organizations hope to have IT applications up and running more effectively and to overcome scarcity and high cost of skilled IT personnel, it was widely expected that the ASP concept would be most appealing to smaller

companies. Since small or medium-size enterprises (SMEs) confront limited people and budget resources, as well as constant competitive threats, IT acquisition, implementation, and maintenance present a heavy burden on their budget and operational resources. It has been hoped that ASPs might relieve these burdens, letting SMEs access advanced technologies gradually at affordable prices.

Two main business models exist in the ASP industry, horizontal and vertical ASPs. Horizontal ASPs, similar to horizontal e-markets, cater to a wide variety of organizations. Leading representatives of this business model are Corio, USInternetworking, IBM, and Oracle, recently joined by Microsoft with its Dot Net enterprise. Vertical ASPs cater to one industry, such as hospitality, automotive, chemistry, or energy, offering applications tailored to the specific needs of the industry. Examples of this business model are Silverbyte, for hospitality and Portera, for professional services (See the reference list for web site URLs). Another type of a vertical ASP is a vendor specializing in one type of application, such as GeoNet Services specializing in electronic messaging.

A few hundreds vendors are currently labeling their businesses as ASPs. Among the most prominent are Breakaway Solutions, Corio, USinternetworking (USi), EDS, and Oracle. At Oracle the belief is that

"...in 10 years all business applications will be delivered via the Web as a software service, rather than shipped as a product that customers must implement, manage, and maintain. To that end, the company introduced a suite of hosted accounting applications for small businesses, developed by NetLedger Inc. The service, renamed Oracle Small Business Suite, is available for \$99 a month to companies with fewer than 100 employees" (Informationweek, 2001).

The top five applications most likely to be rented in the near future are communication (e-mail, messaging, groupware), e-commerce (catalogs, transactions, billing), finance and accounting, education and training and customer service/CRM, according to the ASP

Industry Consortium research Committee (Allaboutasp, 2001).

The initial enthusiasm with ASPs among industry experts and analysts, as well as among investors in the stock market, has recently subsided. While Goldman-Sachs estimated the size of the ASP market to reach \$1.5 trillion by 2004 (Goldman-Sachs, 1999), the more modest estimate of IDC and Forrester is for a \$17 billion market by 2003 (Allaboutasp, 2001). Since the last quarter of 2000, given the slow down of the economy worldwide, experts are being more cautious. According to researchers at Giga Consulting, in terms of revenue, the ASP market “represents only a few hundred million dollars, but will grow to be a few billion dollars in the next five years” (Giera, 2000, Page 1).

The case of Pandesic LLC reflects the growing uncertainty with respect to ASP prospects. Pandesic, a joint venture of Intel and SAP, had designed and hosted E-Commerce solutions for SMEs, based on SAP’s order-management and fulfillment system since 1997 (McCabe, 2000). On July 31, 2000, Pandesic announced that it had shut its Web site down and had discontinued taking new customers since its board had determined that it would be unable to turn a profit quickly enough to justify its continued existence.

According to David Lipschultz, (2001) application service providers have been among the most serious casualties of the dotcom collapse. Carrie Lewis (2001), from the Yankee Group, recently advised caution about the growth of the ASP market, and states that the first quarter reports from hosting vendors indicate that 2001 will be a year of revised business plans, market consolidation, and increased partnering. Nearly all outsourcing providers, including application service providers (ASPs) and Internet integrators have reported shortfalls in the first quarter 2001 performance.

The slower than anticipated growth of the ASP industry, on one hand, and the appearance of new ASP vendors and new ASP customers on the market, on the other hand, call for assessment of both inhibiting factors, which may intimidate potential ASP customers, as well as driving factors, which

keep the market alive. Discussion of these factors will later allow us to also assess the wellness of the ASP industry.

THE ASP INDUSTRY: KEY INHIBITING FACTORS

The PMP research (PMP Research, 2001) has listed some inhibiting factors, which can be grouped into three main categories: technological, managerial and operational.

Among the most important technological factors are issues such as connectivity, response time, and security. Connectivity in the sense of the dependability on an external network presents an especially thorny issue for ASP customers. Lipschultz (2001) commented that there could be all the fiber in the world, but the last mile can create lots of problems, latencies and the like, which made outsourcing more tenuous. Response-time concerns arise when ASP customers rely on the Internet for accessing rented applications (Cisco, 1999), especially since broadband is not yet widely, reliably, and economically offered in most countries.

The managerial category consists of factors such as IT managers’ opposition, trust, and reluctance to be locked in long-term contracts. Influential IT managers might oppose application rental, being afraid they might lose their hold in the organization. They also might be reluctant to entrust valuable organizational databases to a vendor doing business with their competitors. Trust is among the most frequently cited inhibiting factors (Dean, 2000) because explicit security-ensuring contracts, needed to overcome such concerns, have yet to be presented. Uncertainty exists regarding the types of contracts that will best assure ASP customers not only with respect to trust but also with respect to acceptable service-level agreement and to elimination of being locked with an unsatisfactory ASP under a long-term contract.

The third group of inhibiting factors are related to operational issues such as customization, range of application offered, and integration. Lipschultz (2001), among others, asserts that customization contradicts the ASP concept of leveraging the same

software across multiple customers. According to Mateyaschuk (1999), however, while larger enterprises might consider this lack of software customization to be a major limitation of the ASP approach, customization may not be an issue for SMEs that are willing to give up certain non-critical functionalities for the perceived benefits of ASP (Lipschultz, 2001). The range of application offering and the level of integration between various applications is another issue of concern, especially when an enterprise uses a combination of owned and leased software. The integration issue is expected to become of even greater concern once an ASP customer begins to rent applications from multiple ASPs.

THE ASP INDUSTRY: KEY DRIVERS

Similarly and also derived from the PMP research investigation (PMP Research, 2001), the key driving factors can also be divided into the same three categories: technological, managerial and operational.

According to Fortune Magazine (2000), the technological category factors driving the ASP industry are connectivity and scalability. As opposed to “connectivity” in the sense of the availability of the network, which is an external factor, here it represents the internal aspect of support and maintenance. ASPs allow their customer organizations 24x7 connectivity to scalable IT infrastructure that is adaptable to present requirements and future growth and enables the agility required in an un-stable competitive market. For instance, renting an integrated application suite from an ASP might ease the transformation into E-Businesses and E-Commerce.

The driving factors that consist the managerial category are speed and focus (Fortune, 2000). Since alignment between organizational business strategy and IT strategy has been recognized as key success factor (Henderson, 1993), partnering with an experienced ASP can help executives achieve the required alignment faster. ASPs such as Corio and USi claim to have organizations operational in four to six weeks on applications known to take twelve to eighteen months to implement in-house. In a shrinking economy and highly competitive markets,

core-business focus is a competitive advantage. ASPs allow customer organizations to focus on processes that enhance productivity, growth, and performance.

Price and flexibility are the main two driving factors consisting the operational category (Fortune, 2000). Under the ASP model, ASP customer organizations transform unpredictable exponentially growing IT expenditures into predictable pre-planned costs. They avoid heavy costs of purchasing and maintaining the infrastructure around the clock as well as hiring skilled costly personnel and pay the monthly ASP fees and the cost of cheap “thin” clients. Easier upgrade cycles, is one other benefit ASP customers cite as an operational relief. Since the application is hosted on the vendor’s servers, upgrades can be executed gradually, incorporating only small enhancements and changes at a time, thus saving the organization the interruption required while upgrading applications in production environments.

POTENTIAL ASP CUSTOMERS

E-Commerce has been perceived to reduce entrance barriers to global markets and, until very recently, analysts have considered SMEs most likely to get involved. According to the Goldman-Sachs B2B research (1999), for instance, “small businesses (average of 15 employees) will be an important driver of B2B economics” (page 28). Less than two years later, the “Economist” in the article “Time to rebuild” (May 19, 2001) argues that the main beneficiaries of E-Commerce so far are the well-established large companies building their own private e-markets (“Covisint” for the automotive industry in the U.S, IBM, etc.). Some of the smaller companies, on the other hand, view electronic markets as a cheaper channel for envelope purchasing.

When the ASP concept is viewed as a subset of E-Commerce, it is not surprising that SMEs have been considered ideal candidates for being ASP customers. Although the exact definition of SMEs varies, there is quite an agreement about the difficulties that SMEs confront: limited people resources, budgets stretched razor thin. a constant barrage of competitive threats (SAP, 2001). Just as, in

the seventies, SMEs were more attracted to service-bureaus than larger enterprises, it seemed likely that SMEs would embrace the ASP concept, especially currently, when IT implementation represents a proportionally larger risk and higher cost for SMEs than for larger enterprises. According to Wainwright (2000), ASPs can reduce cost of ownership by somewhere between twenty and fifty percent. Moreover, SMEs would appreciate guaranteed application uptime and performance levels, predictable costs, service expertise, scalability, fast implementation, and data-backup and recovery capabilities.

Surprisingly, a recent Yankee Group survey (Yankee Group, 2001) shows that few SMEs opt to do business with ASPs: less than 5% of the very small businesses with fewer than 19 employees, about 14% of small businesses with 20 to 99 employees, and about 11% at medium businesses with 100 to 499 employees. Most of the case-studies listed in Corio's and USi's web-sites are of mid-market and larger organizations which opted to rent applications due to scarcity of IT expertise and time-to-market of new applications. According to Maselli (2000) there are quite a number of examples of larger organizations that signed contracts with ASPs during 2000, including EFTC Corporation, a \$222 million provider of electronic manufacturing services and Redback Networks Inc., a \$230 million network equipment maker. EFTC contracted Nupremis Inc. to host Oracle 11i applications for 650 users and Redback signed with Qwest Cyber Solutions to host Oracle and Siebel applications for 800 employees.

Given the inhibiting factors listed in an above section, it seems that the ASP model for IT implementation still impose quite high risks. SMEs, being more vulnerable than larger organizations, might be reluctant to venture these risks, and are waiting for ASPs to get stable.

POTENTIAL WINNING ASP MODELS

The two major types of players that have been dominant in E-Commerce are "horizontal" and "vertical" market enablers, creating web sites where buyers and sellers

come together to communicate, share ideas, advertise, bid in auctions, conduct transactions and coordinate inventory and fulfillments (Goldman-Sachs 1999, page 16). Those structured "horizontally" serve more generic economic functions for a wide array of industries while those structured "vertically" serve specific industries (e.g., computing, life science, paper, chemicals and steel). Analysis of the different E-Commerce models reveals that the horizontal ones suffer from slow penetration rates and low number of transactions between members. These markets also face competition imposed by the larger enterprises, themselves creating electronic markets, which are more attractive to their suppliers, customers, and business partners. Vertical markets, on the other hand, fare better according to a recent Deloitte & Touche research that expects 75% of electronic markets in 2002 to be "niche" vertical ones (Dror, 2001).

Considering ASPs as a special case of E-Commerce, it is not surprising that ASPs too operate either as horizontal or vertical models. Horizontal ASPs cater to the common needs of numerous organizations from various industries while vertical ASPs cater to the special needs of one industry. For instance, "Gorilla" horizontal ASPs, such as Corio, USi, Oracle, EDS, offer various applications to numerous industries. Another horizontal example is Microsoft's "Dot Net" business model, offering e-mail and office applications to the more generic market. The horizontal model of these companies, also called a "Master ASP" (Wainwright, 2001a&b), is practiced by the "giants" of the ASP industry, achieving fast growth through mastering economies of scale in operating core applications. Master ASPs might represent a sustainable horizontal ASP model, especially in partnership with integration consulting companies that will tailor the applications to the specific needs of the individual industries and enterprises.

Master ASPs stand a good chance of responding to the key ASP inhibitors. For example, their skilled IT personnel and absolute giant size, along an established relatively large customer base diminish the credibility and trust inhibitors, having clearly

proved stability and ability to deliver. For connectivity guarantees, Master ASPs can partner with ISPs and telecom companies. IBM, for instance, has partnered with AT&T to offer its ASP customers a service-level agreement that covers connectivity. Due to scale economics, these giants can afford the extra complexity and cost needed for encryption in response to customer concern with security issues of having all their business transactions exposed on the Internet.

In analogy to vertical E-Commerce vendors, vertical ASPs are expected to be more appealing to organizations that look at application providers as partners and enablers of their business processes. Vertical ASP vendors target specific industries and/or small market niches, or partnering with business partners to customize application suites for the specific needs of various industries and to offer multiple services based on integrated applications (Heinlein, 2000). Application integration, under such circumstances, will add extra value benefit to the ASP services, and might be a differentiator between “winners” and “losers” (Lipschultz, 2001).

Wainwright (2001a) calls these ASPs “Vertical Service Providers” (VSPs) and considers them as one of the most promising ASP models. Their chances of surviving the current crisis are higher because they are familiar with the needs of organizations conducting business in a certain industry and are thus able to offer an integrated application suite that is well adapted to the business processes of a specific industry.

VSPs stand a good chance of responding to the key ASP inhibitors such as integration and customization. Moreover, VSPs can enhance their offering and act as industrial hubs for further services, such as a professional bulletin board, virtual exchange market, and more. Silverbyte is an Israeli VSP catering to the needs of the hospitality industry. Having started as an independent software vendor, for the last two years Silverbyte has provided application services to Israeli hotels, especially its full hotel management system. More than 60 customers (about 18% of Israeli hotels) are already doing business with this vendor. According to

Silverbyte, its application services and data center are profitable.

Whether horizontal or vertical, a number of issues must be dealt with if the ASP industry is to sustain profitability and growth. The IT industry has already responded to such issues in other IT outsourcing situations and learning from past experience might help avoid repeating the same mistakes that organizations encountered at early days of IT outsourcing, more than a decade ago. For instance, flexible contracts, enhancing perceived reliability and higher levels of trust, seem critical. Lacity and Willcocks (1998), in a thorough investigation of IT sourcing success factors, found that two of the seven best-practice factors that differentiated successful outsourcing projects from less-successful ones, in terms of expected cost savings achieved, were short-term contracts versus long-term ones, and detailed fee-for-service contracts versus other types of contracts.

SUMMARY AND IMPLICATIONS

The application service industry, still young and unstable, is attracting attention from vendors, customers, and analysts. Although the idea of considering applications as a service rather than as an asset is appealing, the recent fall of several ASPs and disappointment of the larger E-Commerce B2B market are disturbing. On the positive side, the following driving factors are noteworthy: ability to adopt fast and at predictable costs state-of-the-art IT technology that is scalable, flexible, and integrated. On the negative side, the following key inhibitors are noteworthy: technological mishaps that are still associated with the Internet, lack of trust and credibility, and opposition from able IT managers.

Analysis of inhibiting and driving factors of the ASP concept imply that two main ASP models are more likely to appeal to potential ASP customers: Large, horizontal ASPs and vertical ASPs. Large horizontal ASPs, or Master ASPs, can best utilize key drivers such as speed of implementation and scalability, while overcoming the credibility and trust inhibitors, thus presenting a promising ASP business model. On the other

hand, vertical ASPs are most appealing to organizations that are looking for an integrative, customized application suite, well adapted to the need of their industry.

In order to become more appealing to organizations, it is important for vendors that consider becoming ASPs to make a smart choice between the horizontal and vertical models. Smaller vendors, for example, including those previously functioning as Independent Software Vendors, might do well to opt for the vertical model based on a vertical application suites, thus being VSPs, and partner with a larger ISP or a Telecom enterprise, to enhance trust, connectivity, and response time. To SMEs, a VSP focusing on a specific industry might be more appealing. It is also important to make smart choices and take into account that it may very well be that medium-sized organizations, rather than the smaller or larger ones, might be more likely to take the risks and reap ASP benefits.

The implications for potential ASP customers cannot yet be finalized, since there is not enough evidence regarding success and failure stories. Nevertheless, organizations might want to study implications from the history of IT outsourcing, trying to derive lessons that will prevent repeating some common mistakes.

More research should further investigate the inhibiting and driving factors which influence a managerial decision considering becoming ASP customers. It might well be that some of these factors may weaken or become stronger due to evolution and changes of concepts, technology and economy. The authors are now involved in such a research, hoping to validate some of the assumptions raised here.

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