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Abstract
The much-heralded provision of Enterprise Resource Planning (ERP) and Customer Relationship Management (CRM) applications via hosting houses has been deemed to have failed. Many investigations have taken place, most of which have analysed the failure from the customer perspective, trying to understand why the end user did not endorse the Application Service Provision (ASP) model. As the end user stands to gain substantial benefits from the ASP model these studies are perhaps not focusing on the correct component of the value chain. This paper critically examines the ASP value chain and identifies the winners and risk takers within it. A flaw in the supply of ASP is highlighted and a conceptual model for ASP adoption proposed.

Keywords
ASP, Outsourcing, ERP, CRM.

Introduction

International Data Corporation (IDC) introduced the term "application service provider" or ASP in 1999 (International Data Corporation, 1999). An ASP offers or “rents” business application software over a network as an outsourced service’ CPA Journal (Mar 2002). The ASP model was much heralded as the 'next best thing in IT'. The IDC Reported “Worldwide ASP forecast and analysis, 2001-2005” ASP revenues will grow at an annual compound rate of 89% from $986m in 2000 to almost $24 billion in 2005.

However, just two years later it is proposed that the ASP market for large scale ERP or CRM has failed. Sullivan (2002) states that first generation ASP has failed to reach sufficient market momentum and identifies that the ASP model that is being more recently proposed is the Web-Services model. Web services are software components that can be accessed over public networks using generally available protocols (Roberts et al, 2002). The Web Service market is very different to that of the original proposed large scale hosting of ERP and CRM applications.

There is obviously a substantial problem with the ASP model. The majority of research investigating the lack of penetration has studied the End User of the application to try to identify the markets under performance. They generally focus on technological issues, security of data, cost, ROI or fit with management ethos (Glaser 2002,Liebmann 2001,Tripoli 2001,Lavery 2001, Rosso 2001,Peterson 2002). Liebmann (2001) suggests that the problem with the first-wave ASP offerings was that they typically focused on core corporate applications.

More pertinently Currie (2001) conducted a survey of 250 potential SME customers, 70% claimed they had not even heard of the term ASP. This analysis focuses on the value chain of the ERP and CRM ASP market place and identifies the potential winners and the risk takers within the value chain. The paper is divided into three parts. The paper firstly discusses the background of application Outsourcing, secondly the value chain of traditional ERP and CRM application sales is described and thirdly the model of the ERP and CRM delivery to SMEs via ASP is discussed. A number of problems with the ASP model are identified. The paper concludes with a model for adoption of ERP and CRM applications via ASP.

Application Outsourcing

Outsourcing of IT is not a new phenomenon and can be traced back 30 years to the service bureaus. Traditionally, IT outsourcing has been primarily driven by the economic benefits that it brought to the organisation (Diedelman, 2000). 'The first wave of IT outsourcing tended to be the domain of the large company, with few affordable services to the SME. ASPs will be a one-to-many model, where an application will be offered to numerous customers across different sites. This is different from traditional outsourcing, which was characterised by a one-to-one approach' (Currie, 2001).

A number of pricing models have been proposed by ASPs; per transaction, on usage time, etc. In the main they are related to volume of activity. The overriding factor for an organisation is that this changes a fixed to variable cost. The benefits include no up-front investment, predictable monthly costs and an immediate ROI, with savings of 30 to 40 percent (O'Connor, 2002). ASP applications are generally more rapidly and cost-effectively deployed and maintained than internal applications because the software is pre-installed on the ASP platform, with the ASP staff trained in both its initiation and ongoing use (Zimmerman Jr, 2002).

A major difference of ASP to traditional outsourcing is that it is expected that ASP will primarily be an activity of the SME rather than the 'Large' business sector. Renting applications as opposed to purchasing expensive shrink-wrapped or packaged software is fast becoming an attractive proposition for SMEs (Vellottie, 2001). The characteristics of an SME to adopt an ASP are professional relationships between business and ICT managers within the 'user' organisation, mature service level management practices as well as SME maturity (Peterson 2002).

The Sterling Commerce (2002) identifies that due to e-business the chasm that exists between internal IT requirements and skilled IT staff is widening. 'For companies with a lack of IT expertise or increased scrutiny of capital expenditures for IT, e-business applications outsourcing through an application service provider is an attractive option to consider.' (O'Connor 2002). One of the main reasons for this is that ASP enables SMEs to integrate Internet-based business processes that would be too expensive and too sophisticated to implement and manage in-house (Lavery 2001).

The obvious benefits to the End User of applications led the Aberdeen Group in 2000 to predict a $70 billion market for ASP by 2005, with 72% attributed to SME sector.

ERP and CRM application Value Chain

The traditional (non-ASP) Value Chain of ERP and CRM applications generally contains three participants. The Software Author, who is the originator of the application, the Software Reseller, the company that provides the product to the End User, and the End User, the company who utilises the application.

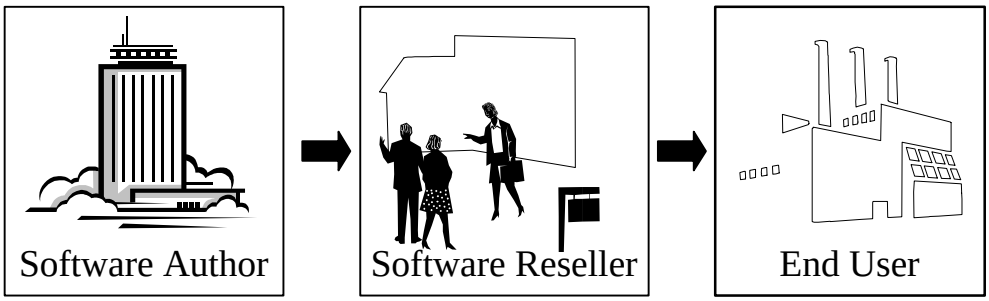

Figure 1. Participants of application value chain

Software Authors

The Software Author market is becoming increasingly global. The last three years has seen a number of acquisitions, mergers and insolvencies with the market increasingly becoming an oligopoly. The market is very profitable for the successful competitors. Both the ERP and CRM markets have a dominant organisation that has a significantly higher market share than any other contender. The key players in the ERP and CRM markets are SAP and Siebel respectively. Both markets also have a number of strong Software Authors that have a global presence.

Generally Software Authors do not capitalise their product development and therefore have to maintain sales to sustain cost of product enhancements and annual profitability. This is aided greatly by an annual fee for maintenance or upgrade that is paid by the End User. The fee varies from Author to Author but is generally 15% to 25% of the application value.

In 2002 SAP obtained 51% of annual product revenue from maintenance contracts. This significantly buffers the Software Author from the affects of market down turns. A major focus for Software Authors is, therefore, to maintain the relationship with the End User for as long as possible. Traditionally, the End User fully depreciates the ERP or CRM investment and sometime after that considers the next application investment. A successful ASP scenario is very attractive, as the End User is likely to maintain the relationship with the Software Author in the long-term.

The global Software Author Navision achieved Revenue per Employee (ROE) of approximately Au$370,000 in 2001/2002. This high ROE is due to the Software Author not requiring a large number of staff for the core activity of software development and channel management.

Microsoft's acquisition of Navision Software in 2001 for a reported US$1.2bn was a very forceful move into the ERP Software Author market in a time of market decline. A great deal of this initiative can be attributed to the ASP potential of the Axapta ERP and CRM software. Geoff Raikes of Microsoft stated in 2000, 18 months prior to acquiring Navision, that Axapta would be the only ERP system that Microsoft endorsed for ASP. Another major factor was the significant revenue stream that can be maintained from the estimated 35,000 installations of Navision Software. Navision showed a gross profit of 84% and net profit before amortisation of goodwill of 21% in the Fiscal 2001/2002. This result was accomplished in what was the worst year for ERP sales in almost a decade. This performance contrasts heavily with the Software Reseller environment in the same period.

Software Reseller

The Software Resellers are a fundamental aspect of the value chain; they apply the technology to organisations. The Software Resellers have extremely high requirements of knowledge of both the applications they sell and the business processes that the applications support.

The reseller is generally coerced by the Author to identify and focus on niche markets, particularly in the SME market place. The segmentation may be by geographic regions, but frequently for ERP applications they are by industry sector. The industry sectors may be broad, manufacturing, warehousing, project services, etc. or narrower; capital goods manufacturer, make to order, plastics extrusion, etc. Much of the niche marketing and lead generation costs are the responsibility of the Reseller, with the branding and broad marketing the responsibility of the Author.

The large Software Authors, SAP, JDEdwards, Oracle for example will sell directly to End Users but this activity is almost wholly restricted to corporate customers. This creates a fundamental that penetration of the SME market is dependent on the Reseller sales initiatives.

The Reseller lacks power within the value chain and is being squeezed by both the End User and the Author. The boom days of the late 1990s are over, there is now much more capacity than demand. This is compounded by the End User being very knowledgeable about IT procurement process. They are often negotiating with two Resellers, who may both be proposing the same application. Increasingly this results in very robust fixed price contracts, that have low predicted profit for the Software Reseller and with the profit generally being substantially eroded by the time a project is implemented.

The Author's power is derived from the large number of resellers that it has and the resellers' dependency upon the Author. It can, therefore, impose increases in application and maintenance costs at will. Software Authors have increased cost of maintenance over the last few years by as much as 100%, one global Software Author increased maintenance from 11% to 25% over a 4 year period.

This creates a very difficult situation for the Reseller as the market will only sustain a certain percentage of the initial cost of the software. The maximum is approximately 30%, with 25% being the norm. In addition to the maintenance agreement the reseller

has to provide product support, usually in the form of a help desk. This is also charged on an annual basis. The imposed increase in maintenance costs has forced Resellers to heavily discount or provide the support activity free of charge to maintain sales. Conversely it is often the post sales support that maintains the relationship with the customer. The Reseller therefore has to operate increasingly efficiently to maintain profitability.

The Statement of Financial Position (or balance sheet) is traditionally very weak for Resellers. Project activity may be capitalised but otherwise these companies have relatively low asset value. This obviously means that in times of high level of activity ,Return on Capital is extremely good. However, they generally have substantial payroll costs due to the level of expertise that is required to deploy the ERP and CRM solutions.

The applications themselves are becoming increasingly complex and diverse in terms of functionality and technology, requiring staff to be constantly reskilled and technical specialists employed. In times of low activity the specialists reduce utilisation of personnel considerably. In contrast to the Navision revenue per employee of $370,000 mentioned earlier the largest reseller of Navision software achieved just Au$170k per employee. This organisation had to maintain substantial infrastructure in 27 locations around the world. In 2001 the largest reseller of Navision software made a loss of approximately Au$30m whilst 2001/2002 Navision made a profit of Au$48m.

End User

The End User can been seen as the 'Prey' that has become the 'Predator'. The desperation of the Reseller is an opportunity for the End User. For the Small and Medium size enterprises with low complexity there are many 'off the shelf' applications that are commodity priced, Mind Your Own Business (MYOB) for example, whilst the large organisations have generally invested in highly functional ERP applications that have a sustainable upgrade path. These organisations have a number of Software Resellers to choose from to provide support and consultancy services. This competitiveness in the Reseller environment significantly reduces on-going costs for the large End Users. An application specialist may cost as little as 30% of what he or she would have three years ago.

The SME with complex business processes has to maintain IT applications in-line with that business complexity. The SME has to maintain this IT complexity without the Economies of Scale or sales activity of the large Corporate. This can manifest itself in disproportionate costs of application, IT personnel, hardware and security to the revenue of the organisation.

The SME management, who probably do not believe that IT is a core competence, have to spend a considerable amount of time planning and managing the IT expenditure. (Turby 2002), proposes that business owners who spend time outside core competency work could be falling short of their potential and should streamline day-to-day business processes but grow their information systems via ASP. These complex SMEs are the organisations that were predicted to become ASP clients.

Figure 2 shows the value chain and the key activities of the Software Author (SA) and Software Reseller (SR).

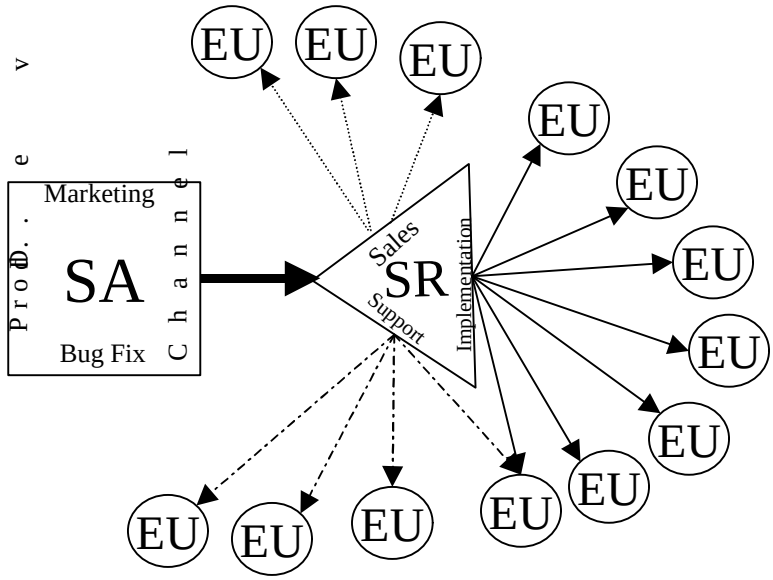

Figure 2 Key components of the application sales value chain

The Software Author maintains the product by increasing the number and depth of functionality of application modules. The Author also creates service releases or bug fixes to overcome major problems with a previous release. Marketing consists of branding and product information. SAP and Seibel both have very strong marketing and it is that more than perhaps anything that has created their dominant position. The only other major activity with regard to sales generation is channel management; the recruitment and management of Software Resellers.

The Software Reseller is responsible for lead generation and sales activity. The major activity is the implementation of the application in the form of project services. The other customer focusing activity is that of post implementation support of the installed application at the End User site. The type of arrow indicates the level of revenue generated at each stage of the relationship with the End user. There is little revenue in the sales activity other than perhaps some chargeable identification of the End User needs. The major revenue activity is the implementation of the application. The post sales area does generate some revenue of which the Software Author takes an increasing percentage.

ERP and CRM ASP Value Chain

Some of the large Software Authors have ASP facilities but these are restricted in geographic spread and market awareness. ASPs are generally polarised in industry sectors and/or geographic locations. It could be argued that ASP does not need to be regional but that is almost certainly not the case. It may be that an SME in East Australia would enter into an agreement for ASP delivery from West Australia, but it would almost certainly not enter into one with a provider in the USA.

Entry into the ERP and CRM market is dependent upon in-depth knowledge of the application and business processes they support. It is therefore impractical for hosting houses to establish an ASP for ERP and CRM without the help of a practiced reseller. The ASP provision to the SME market is, therefore, predominantly the responsibility of the Software Reseller and the Reseller must demonstrate geographic presence, application knowledge and expertise in the clients business.

Gehling (2002) developed the conceptual model for an ASP shown in figure 3. The model shows the functions of Internet Service Provision (ISP), hardware and technical support and Independent Software Vendor (Software Author) as being outside of the immediate control of the Application Service provider. It is also possible for the ASP to provide the ISP service. McCarthy (2001) classifies the two scenarios of providing the ISP or not as independent ASPs and dependent ASPs respectively. Neither of these is ideal for the ASP of ERP and CRM.

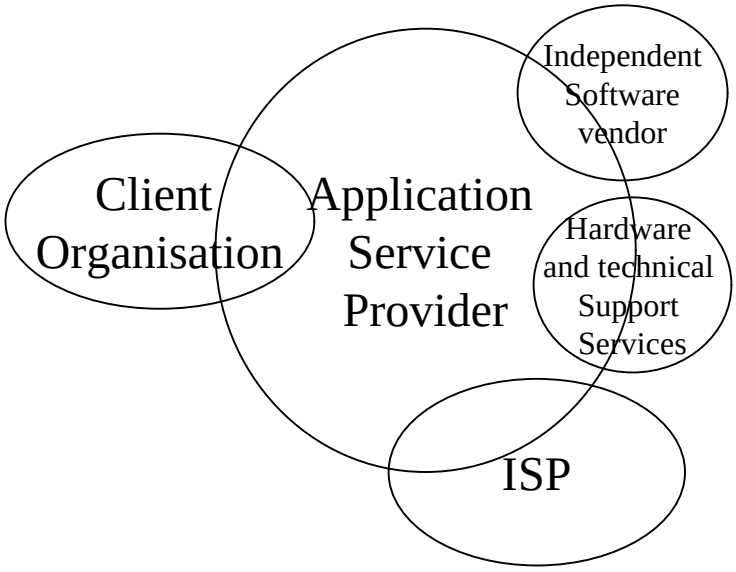

Figure 3. Conceptual model for an ASP

Utilising an external ISP would mean that the revenue from the services would be eroded through the cost of the ISP supplier. The ISP may vary cost without the opportunity to pass increases on to the End user. Also, a Service Level Agreement (SLA) with a customer would have to be in-line with that of the ISP provider; restricting market flexibility or significantly increasing risk of non-compliance. Vellotti (2001) proclaims that an ASP failing to deliver to an SLA should be subjected to stiff penalties.

The cost for an ASP to set up the infrastructure to attract customers is prohibitive. The facilities as a minimum would have to include servers, firewalls, resilient networks and disaster recovery plans. This creates a no win situation for the ASP, either the infrastructure is established and the necessary skills are recruited prior to the first customer being implemented or deals are made with third parties that have inherent risks of non-conformance. The precarious nature of the ASP model led Zimmerman (2002) to identify the relationship of the ASP with the ISP as a risk area to the End User and suggests that a due diligence is performed on the ISP, other service providers to the ASP and even the funding of the ASP.

The transition to an ASP for a Software Reseller also has a major implication on cash flow. The hardware that is generally the requirement of the End User has to be purchased, the application has to be bought under the ASP agreement from the Author and the implementation services have to be absorbed prior to any income being generated from the End user. It would be possible to capitalise these activities and commensurate funding arranged.

Swift (2001) suggests that ASPs must establish low rentals based on the one-to-many business models. The difficult time for Software Reseller providing ASP is the 'take-up' stage where the ASP has more cost than is recoverable from the End Users.

Rosso (2001) identified that ASPs provide regular updates, backups, server hardware, infrastructure and IT support. This means that the Software Reseller providing ASP has unquantifiable costs for hardware and implementation of application upgrades. Applications releases or upgrades that are provided under the maintenance agreement usually require relatively up-to-date hardware. The burden of ongoing hardware procurement that is usually the End Users' responsibility would become that of the Reseller. The Reseller would have to renew hardware as and when the application requirements dictated. This obviously leaves the Software Reseller open to unquantifiable potential costs.

Under the terms of the application maintenance licence the End User is issued with the latest release of the software. However, the implementation of that release is not part of the contract. This activity is generally costed on a release-by-release basis and paid for by the End user. The End user decides on the urgency of the upgrade by identifying the advantage of the additional functionality vis-à-vis the cost of implementation. The upgrade costs can be substantial; particularly technology upgrades (rewrites in new generations of software code or e-business initiatives). The Reseller would, under the terms of the ASP, have to provide these upgrades as part of the service, again creating potential open-ended costs.

The market conditions are also very different. (Lavery 2001) suggests that a major benefit of the ASP model to the End User is the accountability of the ASP to deliver quality services and that inefficient providers can no longer hide behind business partners and shoddy technical support. The ASP is subjected to far stricter conditions of quality than the IT department ever was and the penalties for not meeting the standards are easier to implement (Tyler, 2001).

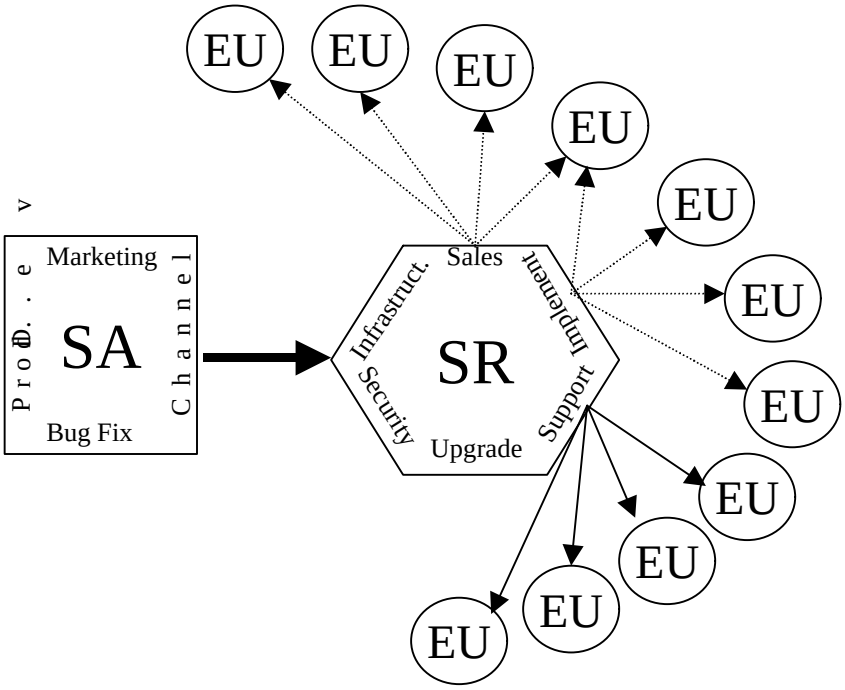

Figure 4. Existing ASP value chain for ERP and CRM

Figure 4 shows the key activities of the Software Author (SA) and Software Reseller (SR) for the ASP value chain. The Software Resellers activity has increased substantially from that of the application sales model. The ASP reseller now provides infrastructure, security and upgrade services. Revenue is realised much later in the activity cycle and only after the application is fully implemented and deemed to be working by the customer. The revenue from an implementation may not be commensurate to that of the traditional sales method for a number of years.

In the long-term the successful Software Reseller could benefit enormously from the ASP model. The company would capitalise its deployment of software and much of the services. This would mean that the company could be valued on its net worth and not its profitability in the last Fiscal. This in turn would make it less vulnerable to market changes. However, the delay in revenue, the debt implications, the cash flow difficulties, the downturn in the ERP market, the risk of rapid obsolescence of hardware and open ended services for upgrades preclude Software Resellers from providing ASP. Currie's (2001) observation that 70% of SMEs do not know what ASP are could be directly attributed to the Software Reseller not promoting the ASP model as they do not, or can not, endorse it.

Conclusion

The ASP market of ERP and CRM software can only succeed if providers establish robust ASP environment and market it successfully to SMEs. The existing model of Software Authors expounding the benefits of ASP and waiting for Resellers to gamble on both the success and the future direction of the application is not practical.

It is perhaps possible for the Software Author to provide an ASP environment and the implementation services. However, this is probably not practical or attractive to the

author due to the increase in headcount and business knowledge that this would require. The value chain, therefore, needs to be revised with benefit and risk, as well as control and responsibility better aligned amongst the protagonists. Figure 5 identifies what might be a practical solution to the ASP value chain dilemma.

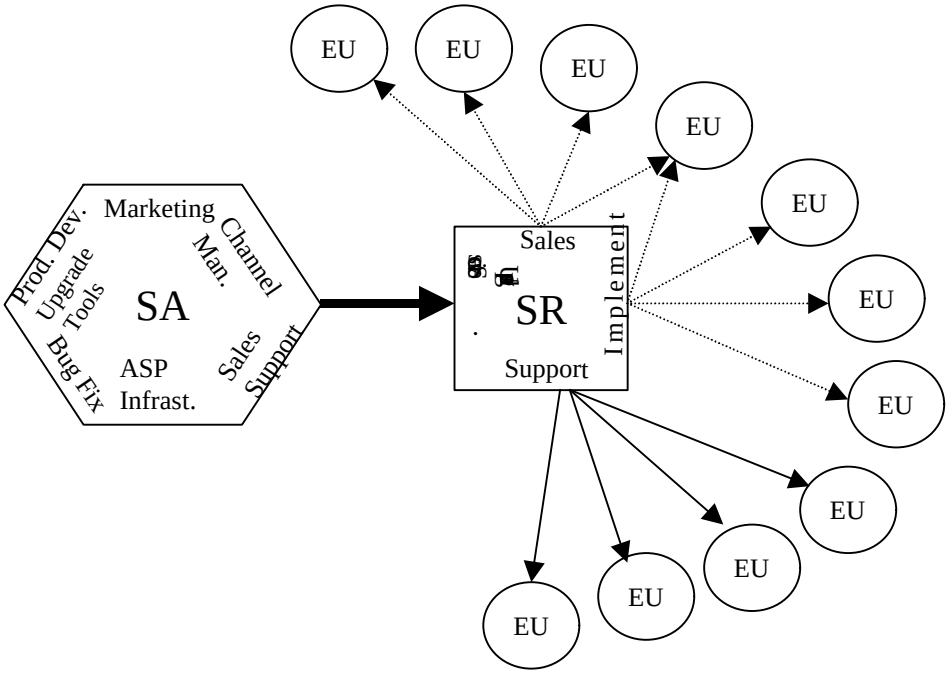

Figure 5. Conceptual model for ASP adoption

The Software Author (SA) and Software Reseller (SR) core activities have been revised. The Software Author would be responsible for establishing ASP centres in key geographic regions that provide infrastructure for Resellers to utilise for End Users' sales. The Author is in a much stronger position than the Reseller to convince an End User of the long-term viability of the ASP enterprise and, therefore, should support sales initiatives.

The Software Author is able to reduce one of the inherent risks of ASP, the obsolescence of hardware, by planning the future hardware requirement of the application with the knowledge of the impact on the ASP infrastructure. The model seeks to reduce the risk of open-ended upgrade services by the Software Author creating upgrade tools as part of the product development. Whilst these tools exist to some extent today they are not sufficient to properly size an upgrade. The tools should allow an upgrade to be conducted within a predefined length of time that is acceptable to the Reseller.

The Reseller business model has four of the components of the existing ASP value chain model but with significantly reduced risk. The important foci would be cash flow funding for implementations until a critical mass of customers existed and the ability to deliver and maintain an acceptable level of service to be paid on an ongoing basis. These are reasonable business management issues of funding and performance in line with what is expected of this type of organisation.

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