

December 2002

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Recommended Citation

Joy, Neville and McCarthy, Brendan, "ASP: a model for the provision of ERP education" (2002). *ACIS 2002 Proceedings*. 10.
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ASP: a model for the provision of ERP education

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Abstract

Enterprise Resource Planning (ERP) producers are currently embracing new business opportunities arising from the expansion of the Application Service Provision (ASP) market. Many organisations are developing a renewed interest in outsourcing Information Technology infrastructure and the benefits that can be obtained. Nevertheless, companies must ensure they are fully aware of the processes and issues involved in selecting an ASP, as well as the possible consequences that may arise as a result of outsourcing to an ASP. ERP companies, such as SAP, are attempting to develop alternative models of application service provision in an effort to encourage organisations, irrespective of size, the opportunity to reap the benefits of Application Service Provision. A web-enabled ASP model has been extended into education delivery. The model has been successfully used in Australia to deliver ERP applications and curriculum to educational institutions offshore. Such delivery offers significant efficiency advantages to participating institutions in terms of monetary outlays, infrastructure support, staff training and curriculum development.

Keywords

Application Service Provision, Enterprise Resource Planning, Application Hosting, ERP Education

INTRODUCTION

Enterprise Resource Planning (ERP) systems are modular application software that helps businesses increase the productivity of such mission-critical components such as human resources, finance, parts purchasing, inventory control, supply chain, and customer relationship management. ERP systems are enterprise-wide and claim they incorporate best business practices that replaces legacy systems and current business processes. ERP systems are expensive and time-consuming to implement. To overcome these barriers and to explore new markets, ERP software manufacturers are embracing the ability of Application Service Providers (ASPs) to supply their products to industry, particularly into smaller companies. The benefits of ASPs can also be applied to ERP export education once the principles of ASPs are understood and opportunities identified.

WHAT IS AN ASP?

An Application Service Provider is a third party service provider that supplies organisations with a complete solution to their computing needs (Robinson, 2000). Located within a data centre, these solutions usually combine software configuration, rapid product implementation, computing infrastructure and service support, allowing companies to focus resources on core business competencies. Solutions vary from Internet based shared hardware platforms to direct access to an individual server via a dedicated line.

All organisations, from large multinational corporations to small companies can benefit from the services that an ASP can provide (McKie, 1999b). Nevertheless, application hosting is best suited to small to mid-size organisations, as they do not have the resources required to fully implement a wide range of IT infrastructure (Gilbert and Mateyaschuk, 2000). ASPs are in a unique position to offer access to a wide range of software that was previously unobtainable for many organisations. ERP software solutions, such as SAP and Peoplesoft, are excellent examples of software that were previously unavailable to small to middle size consumers, yet are now accessible via an ASP (Grygo, 2000).

Estimates, however, vary on the current and future value of the Application Service Provider market. According to Forrester Research Group, the service of application hosting at the end of 1999 amounted to US\$833 million and is expected to grow to US\$11.3 billion by 2003. Alternatively, Gartner Group estimates the application hosting market to grow to US\$22.7 billion by 2003 (SAP, 2000a). Despite the large disparity between these projected figures, it clearly illustrates that the application hosting market is expected to grow by a factor of at least ten over the next four years.

BENEFITS OF USING AN ASP

Using an Application Service Provider can be beneficial to an organisation in many ways; including software access and implementation, increased economies of scale, more efficient communications and greater retention of skilled staff. This is demonstrated in Figure 1, illustrating a survey conducted by Forrester Research Group (cited in mySAP.com Application Hosting, 2000) examining various corporations' reasons for considering Application Hosting by an ASP.

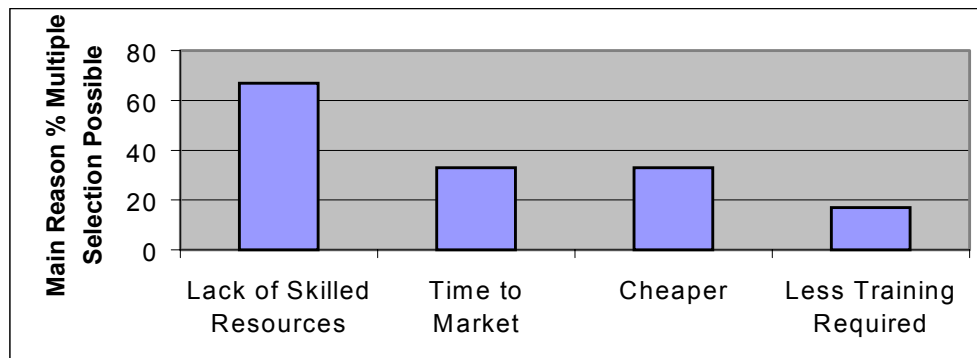


Figure 1: Reasons for Choosing Application Hosting

Access to Current and Sophisticated Software

To be competitive in today's marketplace, businesses must have the ability to access the most recent software releases. A company that implements a software solution to manage stock more effectively may subsequently reduce the cost of producing an individual product. Any competitor that does not implement the same, or an equivalent solution, may be left with higher production costs, resulting in poor market performance. In addition, by using an ASP there is potential for small to middle-sized organisations to access the 'big ticket application suites' usually only available to the largest of organisations (McKie, 1999b). ASPs, therefore, have the potential to effectively level the playing field for all enterprises. This clearly illustrates the necessity to keep abreast of ever changing software solutions in order for corporations to remain competitive in the marketplace.

Product Implementation

Using an ASP to implement software solutions effectively reduces costs relating to hardware purchases, maintenance, upgrades, support and time taken to implement (Robinson, 2000). Depending upon the level of complexity involved, implementation time required to go live can be reduced from months to weeks (Robinson, 2000). As no business process re-engineering is required, companies save time and capital expenditure through accessing an established, pre-configured software solution (McKie, 1999b; Robinson, 2000).

Economies of Scale

Economies of scale are defined as "...the benefits which occur when bigger and bigger production runs enable the achievement of economies in the per unit production cost because of such aspects as being able to bulk buy inputs more cheaply, or obtain a better division of labour..." (Forster and Monger, 1993). Although this definition refers to production, it may also refer to the service industry. ASPs possess the ability to service many companies upon the same hardware platform, thereby reducing the cost per company of that

hardware. As ASPs purchase licences in bulk from software vendors, they have the opportunity to receive a discount on the per licence fee, which, in turn, can then be passed on to the consumer (Howarth, 1999). Increased economies of scale, therefore, result in cheaper software solutions for business.

Internet Based Communications

Changing to Desktop web-based browser software is very appealing to many businesses. Through a browser the user can quickly and efficiently access any internal or external information (SAP, 2000b). A single point of access eliminates the need for multiple log-ons, multiple software residing on individual computers, and reduces staff training required to utilise numerous software packages (SAP, 2000b).

Retention of Skilled Staff

Currently there is a shortage of skilled IT staff within the marketplace. Corporations are finding it increasingly difficult to retain staff, and even more difficult to find replacement staff, should the need arise (Anderson, 2000). Using an ASP transfers staffing concerns in relation to systems maintenance from the business to an external source. ASPs not only provide corporations with hardware and software solutions, but they also possess their own pool of specialised technical staff (Anderson, 2000).

DISADVANTAGES OF USING AN ASP

Despite the obvious benefits gained from using an Application Service Provider, there are also certain drawbacks of which businesses need to be aware, including diminished control, inflexibility and the impact of external influences. This is demonstrated in Figure 2, illustrating a survey conducted by Forrester Research Group (cited in mySAP.com Application Hosting, 2000) examining the reasons for various corporations not considering Application Hosting by an ASP.

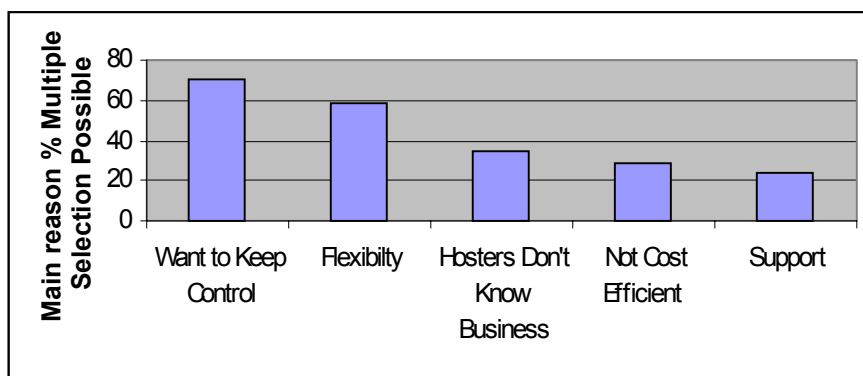


Figure 2: Reasons for Not Choosing Application Hosting

Diminished Control

In today's ever-changing business world corporations have become increasingly reliant upon computerised technology; clearly illustrated by the turmoil that arose from concerns of the possible impact of the millennium date change on computer systems. Enterprises spent many millions of dollars trying to ensure systems were Y2K (year 2000) compliant. Because of this reliance upon IT and the inherent vulnerability it brings, many senior executives are uneasy about giving up total control of essential components of IT infrastructure to external companies (Anderson, 2000). If, for example, a company's ASP were to undergo liquidation, the business itself may be exposed to irreparable damage.

Lack of Flexibility

Having the ability to change and modify solutions to meet ever-changing business requirements may be fully or partially lost if an ASP is used. Application Service Provision models are designed to have many organisations using the same application software on

the same hardware platform. In essence, companies that use an ASP are confined to the limitations of the purchase solution, which may, in turn, restrict business decisions and developmental opportunities (SAP, 2000a).

External Influences (Internet)

Companies switching from a local area network (LAN) to an Internet based network may have to contend with performance factors that are beyond their control. For example, response times may be reduced during periods of Internet congestion. Previously this would not have been a concern as corporations were in control of their own networks, and could react accordingly to specific performance factors (McKie, 1999a).

ASP AS ERP SYSTEM SUPPLIERS

According to Gilbert and Mateyaschuk (2000) the concept of supplying an Enterprise Resource Planning solution via an application service provider is relatively new. There are thousands of companies using ERP software, but only a small percentage are using these solutions via an ASP. Current information indicates that SAP have approximately 39 customers, Oracle 42, and PeopleSoft 70 (Gilbert and Mateyaschuk, 2000). Nevertheless, International Business Machines (IBM) performed a post implementation survey of companies that implemented ERP solutions. The result of this survey indicated that 76 percent of companies were interested in using a third party to manage part or all of their applications (Anderson, 2000).

SMALL TO MIDDLE SIZE COMPANIES AND ERP VENDOR SOFTWARE

As the ERP sales market to large vendors is nearing saturation, ERP vendors are exploring methods to increase their presence in the small to middle size company market. In an attempt to gain access into these largely untapped markets, ERP vendors have had to provide solutions that reduce the cost and resources required for product implementation. SAP India recently announced a new ASP model launch in India designed to attract smaller companies of 50 users or less (Kumar, 2002).

Costs associated with required hardware and software are non-variable, i.e. regardless of any changes to the implementation, the cost of purchasing remains constant. Variability of costs associated with implementation are specifically related to time required. To address these concerns, ERP vendor SAP has responded with the creation of a new model for implementation: mySAP. This paper will now focus on the application hosting component of mySAP, in an attempt to examine one method currently being developed for easier ERP implementation.

Application Service Provision – mySAP

According to SAP, outsourcing via application hosting is a resource effective method of gaining access to the SAP software solution (SAP, 2000c). There are four possible solutions that MySAP application hosting offers.

- Application Service Provision
- Application Hosting
- Application Management
- Hosting of Marketplaces

Application Service Provision

This method combines all aspects of implementation, requiring very little input from the end customer (SAP, 2000d). This solution uses the best practice approach and assumes all similar companies operate the same. The hardware is owned and maintained by the ASP. Therefore, there is no initial capital expense on behalf of the organisation to purchase hardware prior to implementation (SAP, 2000e). Furthermore, hardware sharing between companies is possible, thus effectively reducing cost to the consumer via the economies of scale.

The customer, however, does not own the licence and charges are calculated according to an agreed contract. For example, charges may be calculated according to a per user/ per month arrangement, or according to the number of transactions performed. This minimises initial capital expenditure and is akin to renting as opposed to buying the software.

Software installation employs an “off-the-shelf method” of implementation. A pre-configured solution is supplied by SAP and there are very few opportunities to alter the product to meet business requirements (SAP, 2000d). Subsequently, any organisation utilising pre-configured SAP software may need to alter its business processes to ensure the product is aligned with the organisation. Despite this, the combination of SAP’s extensive experience gained from countless implementations, as well as the support supplied from key industry user groups, usually ensures that pre-configured software will have the ability to support an organisation’s needs (SAP, 2000e).

According to SAP the implementation time taken to go live using this method is drastically reduced to as little as ten days (SAP, 2000a).

Application Hosting

If the pre-configured solution does not meet business requirements, then companies may opt for the application hosting method of implementation, using the ASAP (accelerated SAP) methodology. Similar to Application Service Provision, the hardware is owned and maintained by an external company, with no initial capital outlay required and no on-going maintenance cost for hardware. However, the customer owns the licence and charges are calculated according to a contract.

Application hosting, like Application Service Provision, is also designed to reduce the time taken to complete an installation. According to SAP, implementation time normally takes between two and four months (SAP, 2000a). Hirsh Industries, for example, went live on SAP using application hosting and the entire solution took only 15 weeks (SAP, 2000h).

ASAP methodology eliminates the need to perform business re-engineering processes and, therefore, is faster than the traditional method of implementation. ASAP has been released for approximately four years and has been used in more than 1000 projects worldwide (SAP, 2000g). The Institute of Information Management at the University of St. Gallen, Switzerland surveyed several ASAP projects in the mid-size market. They reported that the feedback received from all ASAP customers was extremely positive (SAP, 2000g).

Application hosting is a ‘one-on-one’ solution that allows the customer limited flexibility to alter the configuration of the product. As similar industries perform a multitude of tasks in the same manner, this provides a good starting point for system design. Using a suitable industry solution, allows an organisation to evaluate solutions employed by other businesses. Any adjustments required can then be designed, tested, and implemented (SAP, 2000f).

Having the ability to modify software to meet business requirements, however, does have a cost. A specialist implementation partner must be selected to examine current business practices and determine the configuration changes required. These changes are then transferred to SAP. Once this is complete, the system is fully tested to ensure the system operates as expected.

SAP is not the only ERP vendor to pursue the use of Application Service Providers to promote their products. Peoplesoft, JD Edwards and Oracle are already using, or in the process of evaluating, ASPs. As the ERP market is very competitive, this is not surprising. No business, no matter how large or profitable, can allow the competition to gain an advantage (Grygo, 2000).

Application Management

Application Management is one solution that is available to enterprises to support and maintain SAP applications by an external service provider, as opposed to in-house system support (SAP, 2000d). The ASP provides the highly trained specialised staff required to support and optimise the ERP installation. This service enables the customer to remain focused on core business competencies, rather than using scarce resources in areas that

provide little or no profitable return. The customer usually owns the software licence although the level of support supplied may vary according to the contract negotiated (SAP, 2000d).

ERP AT VICTORIA UNIVERSITY

Victoria University joined the SAP University Alliance Program in 1998. Since joining the alliance Victoria University has developed a Graduate Certificate, Graduate Diploma and Masters of Business in Enterprise Resource Planning Systems as well as incorporating SAP R/3 into several undergraduate subjects. Currently we have 15 staff teaching more than 20 subjects at both the undergraduate and postgraduate levels to approximately 600 students.

Victoria University offers a broad range of academic programs throughout the Asian region. The international programs involve over 4000 students in countries such as Singapore, Malaysia, Hong Kong, the People's Republic of China, Vietnam, Korea and Thailand. Some of our offshore partners have indicated that they wish to include ERP related subjects in their courses. While there have been indications that the high growth rates in the ERP market of recent years have somewhat dwindled, good growth has been maintained in many Asian markets with the expectation of dramatic growth as these countries come out of the recent economic downturn (Pinaroc, 2000). IDC predicts China will become the world's third largest IT market by 2010. The growth in the Chinese market will result partly from China's recent accession to the World Trade Organisation in 2001 (Silicon.com, 2002a). ERP vendors are now investing in China to take advantage of the expected demand for ERP systems. For example, ERP vendor Peoplesoft launched itself in China in April 2002 stating that it will be its largest market investment this year (Silicon.com, 2002b). According to CCID Consulting, an IT market research firm in China, China's ERP market topped 870 million yuan (US\$105 million) in 2001, representing a 52 per cent increase from 2000 (Baijia, 2002). As a result of this growth there will be significant demands for skilled ERP personnel and ERP education.

SAP has established a University Alliance Program in many Asian countries to assist with provision of appropriately educated consultants to support this increased market. However even though these alliances have been established many of the universities have had difficulties in developing curriculum due to lack of skilled staff and available resources. Increasingly Asian universities are forming partnerships with western universities in an endeavour to broaden their curriculum offerings and add value to their students. Clearly there are advantages to be gained by both parties in setting up a partnership to teach different aspects of ERP systems. The provider is able to derive income to recoup some of the cost of developing curricula and maintaining systems while the receiver obtains the benefits of their students acquiring ERP education without the need to invest in hardware, staff training and curriculum development.

ERP USING AN ASP MODEL

The main obstruction to pursuing delivery of ERP education offshore is the technical issues of how to provide the students access to SAP R/3. Various ideas have been explored including physically transporting the SAP server to the offshore location. The model we have settled on is that of the Application Service Provider.

We have used the ASP model as a basis for developing our teaching of ERP offshore. Many of our offshore partners do not have the time, the money or the commitment by staff to set up and maintain an ERP system and develop curriculum. As we have already gone through this process, we are in a position to outsource our current systems, our expertise and our curriculum.

We have devised a model called Educational Application Service Provider (EASP) based on a standard Enterprise Resource Planning ASP model. This model is illustrated in Figure 3.

Victoria University has developed the EASP model to provide the following services to offshore institutions:

- **Implementation**

Through the use of clients in the SAP R/3 system, the software can be

individually configured to suit the learning objectives of separate offshore institutions.

- Service and Support
- The system can be monitored to ensure performance and ongoing provision of necessary communications links.
- Infrastructure
- Setting up and management of accounts, security, access and help desk support structures as well as access to curriculum materials, forums and functional experts.
- Software.
- Access to SAP R/3, upgrades and new products (CRM, Supply-chain optimisation, e-Commerce).

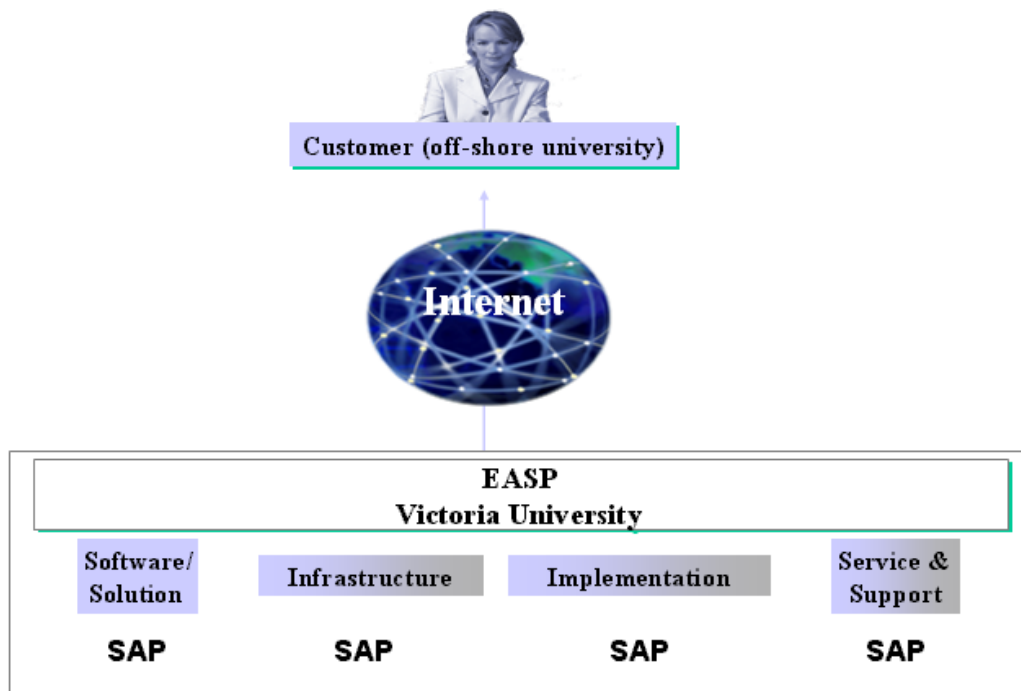


Figure 3: The EASP model

The EASP model facilitates universities to incorporate ERP systems into their curriculum. It overcomes many of the barriers that prevent the successful export of ERP curriculum.

In 2001 we successfully conducted performance testing on the EASP model with one of our offshore partners in Singapore. In March 2002 our model was used for the first time in Singapore when we commenced teaching the Master of Business in ERP Systems at Summershire Business College (refer to Figure 4). As of May 2002 we have delivered two subjects to 35 students, each student having up to two accounts on our SAP server in Melbourne. Students can access our SAP server from a computer laboratory at the Summershire College or from home.

We deliver the course using a standard “burst-mode” approach where the Victoria University lecturers fly to Singapore for 15 hours intensive teaching. This is followed by a further 25 hours of teaching taken in a 3-hour weekly block by a local lecturer.

The EASP model has worked extremely well. Singapore’s strong Internet infrastructure has meant fast access to our SAP server in Melbourne with very few performance problems. In the period June – September 2002 three more subjects will be delivered in Singapore using our EASP model.

ASPs can provide organisations a number of benefits as described earlier in this paper. Some of these benefits can be applied to the EASP model:

- Access to current and sophisticated software

The offshore education partner gains access to market leading ERP software without the need to expend scarce funds on this software and house it using expensive hardware. In addition they benefit by being able to access current versions of the ERP software. For example, Victoria University recently upgraded for SAP R/3 Version 3.1h to version 4.6b, thus our offshore partners are able to gain access to this current release.

- Product Implementation

Our SAP server was set up in 1998. Since that time we have developed a wide range of curriculum resources in the ERP field which are taught across a range of subjects. In an educational sense we have “implemented” ERP into the curriculum. We are able to provide our offshore partners with tested curriculum material that can be used immediately, and through the use of “clients” we can



configure our SAP server to meet the specific application needs of our offshore partners.

The EASP model is able to facilitate the incorporation of ERP systems into curriculum. It provides benefits that help overcome many of the difficulties that education organisations have faced in this area.

Figure 4: Applying the ASP model to Export Education

CONCLUSION

The SAP University Alliance Program has enabled Victoria University to gain access to state of the art enterprise resource planning systems. The impact of introducing SAP R/3 to the university has been considerable. We can share this success with other institutions by expanding our program offshore, allowing the benefits we have gained to flow to these institutions, and, at the same time, recoup some of our initial investment in setting up these expensive systems with their accompanying support structures. The ASP model is a critical factor in the successful implementation of ERP education.

REFERENCES

- Anderson, B. (2000) “Going Live With ERP is Just the Beginning”
http://www.deskeng.com/articles/white_more/white2/pages/ibm/main.htm

- Baijia, L. (2002) "Software sector mulls shake-up", 9/4/2002
<http://www1.chinadaily.com.cn/bw/2002-04-02/64879.html>
- Forster, G., and Monger, R. (1993) Economics Australian Business Perspective, pg.398, Victorian & Education Training Publications, Australia.
- Gilbert, A. and Mateyaschuk, J. (2000) "A Question of Convenience"
<http://www.informationweek.com/774/oracle.com>
- Grygo, E. (2000) "ERP Heavyweights Intensify ASP Competition", Info World, 03/06/2000, Vol 22, Issue 10 pg. 5.
- Howarth, B. (1999) "Outsourcing Technology on Tap"
<http://www.brw.com.au/newsadmin/stories/brw/19991203/4335.htm>
- Kumar, A (2002) "SAP to play ASP Game: eyes small enterprises", 14/05/2002
<http://www.financialexpress.com/>
- McKie, S. (1999a) "Outsourcing With ASP in the Internet Age"
<http://www.business.financemag.com.arch/arch.../article.cfm?issueid=304&articleid=1318>
- McKie, S. (1999b) "Outsourcing With ASP in the Internet Age Part Two"
<http://www.business.financemag.com.arch/arch.../article.cfm?issueid=306&articleid=1322>
- Pinaroc, J. (2000), "ERP Market in Asia still viable", Newsbytes, 18 February 2000.
- Robinson, D. (2000) "ASP As Soon As Possible", People Management 04/13/2000, Vol. 6 Issue 8, pg. 51.
- SAP, (2000a) SAP Hosting Q&A, <http://www.spp.com.saphosting/faq.htm>
- SAP, (2000b) "SAP Demonstrates Open Technologies Driving mySAP.com",
http://www.sap.com/press/08_99/08_99_14.htm
- SAP, (2000c) SAP R/3 Outsourcing, <http://www.sap.com/.service/outsources.com>
- SAP, (2000d) mySAP.com Application Hosting
http://www.sap.com/solutions/application_hosting/application_over.htm
- SAP, (2000e) "Leading The Way",
http://www.sap.com/press/magnews/regular/ma_1098e/s20.htm
- SAP, (2000f) Services Offering, http://www.sap.com/saphosting/services/services_offers.htm
- SAP, (2000g) AcceleratedSAP Cuts the Time and Cost of Implementing SAP Solutions
http://www.sap.com/service/asap_whatism.htm
- SAP, (2000h) "Over 5000 Users in North America Access SAP Solutions Through Application Hosting With mySAP.com",
http://www.sap.com/press/12_99/12_99_07.htm
- Silicon.com, (2002a) "IDC: Happy days are here again, and they're made in China", 4/1/2002
<http://www.silicon.com/bin/bladerunner?30REQEVENT=&REQAUTH=21046&14001REQSUB=REQINT1=50198>
- Silicon.com, (2002b) "Peoplesoft heads for China", 25/3/2002
<http://www.silicon.com/bin/bladerunner?30REQEVENT=&REQAUTH=21046&14001REQSUB=REQINT1=52241>

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