Application Service Provider – A Business Plan

by

Paul Robert Mattson

M.S. Computer and Information Science
University of Minnesota, 1985
B.A. Mathematics
Luther College, Decorah, Iowa 1981
B.A. Computer Science
Luther College, Decorah, Iowa 1981

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Signature of Author: ____________________________

MIT Alfred P. Sloan School of Management
May 19, 2000

Certified by: __________________________________

Henry Birdseye Weil
Senior Lecturer
Thesis Supervisor

Accepted by: __________________________________

David A. Weber
Director, Management of Technology Program
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ABSTRACT

An Application Service Provider (ASP) provides a contracted service, which offers to deploy, host, manage and rent access to popular packaged software applications. Customers, primarily enterprises, are served from centrally managed facilities. Clients access the service through Internet technologies. The ASP is responsible for providing all specific activities and expertise to manage these software applications.

The ASP is a new (or renewed) application delivery model. It represents a new (or renewed) business model. Customers rent access to applications addressing enterprise-wide needs such as accounting or customer relationship management. Installation, maintenance, security, and updating responsibilities lie with the ASP, hence reducing expenses and IT infrastructure for the customer. In return the vendor receives a rent-like payment for its services. These revenues are shared between the software provider and the service provider.

This thesis includes an industry analysis, a market assessment and plans for developing an ASP business. The business plan includes plans for developing the product, marketing, financing and staffing.

Analysis suggests that although the service is likely to be(-come) very attractive to customers, it is also likely to have some commodity attributes. The ongoing challenge to create and sustain profit will be to continue to innovate so as to provide differentiation for the customers the ASP chooses to serve.

Thesis Supervisor: Henry Birdseye Weil
Title: Senior Lecturer
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1. Introduction to Thesis

Background

For nearly twenty years the author has been involved in the design, development and support of major business computing platforms. A particular platform of interest is the IBM AS/400™ server family.

This platform boast a high level of integration (with respect to UNIX based systems) including data base, security, communications, sophisticated work management, clustering, logical partitioning and a full complement of languages, utilities and applications. All of these features are fully integrated in the laboratory and tested prior to shipment to the customer. In many cases the application software is also preloaded and tested in the factory. This integration leads to ease of use and low total cost of ownership.

The AS/400™ is a very scalable and reliable platform offering a single operating system (enabling customer hardware and software asset protection) from entry level servers designed to support small work groups to high-end multiproccessing systems that support thousands of simultaneous users. The system is capable of running multiple simultaneous workloads. The AS/400™ as a single system is a most highly available system and in clustered configurations is comparable to UNIX clusters.

These system features have led to a very successful business with many application providers, distribution channels and many loyal customers.

Description of the Problem

The Internet and a host of related information technology (IT) standards are disrupting computing industry value chains as well as value chains throughout industry in general. (For further discussion see: Appendix: Technology Forces Indicating the ASP Industry: Enablement and Complexity.) The application service provider (ASP) concept may substantially change the nature of the hardware and software computing business. In particular
the customer and the features sets desired may change. Instead of individual businesses, ASPs may become the predominant customers of hardware and software companies. They may have different and/or additional wants and needs. If so, the computing platform providers need to understand those changes. ASPs may substantially alter the nature of the computing industry in general.

The ASP phenomenon represents a disruptive possibility. In many cases companies faced with disruptive technologies have struggled or failed to respond to the changes.\(^1\) ASPs could have a major impact on the computing industry.

Herein lies the motivation for studying this nascent industry.

**Proposition**

The proposition then is to study the nascent ASP industry. To motivate integrative thinking a business model and business plan are developed for such an ASP business.\(^2\) The goal is to outline a comprehensive plan for a sustainable offering. For convenience, the firm will be called Continuous Business Solutions, Inc. (CBSI).

**Hypothesis**

During the course of this study a number of questions and assumptions were considered. They included:

1) Customers find it difficult and/or expensive to create and maintain competitive information technology (IT) solutions for their businesses.


\(^2\) The general outline for the business plan was derived from: Jeffrey A. Timmons, New Venture Creation (Boston: IRWIN McGraw-Hill, 1999) pp. 378-387.
2) Many of the ASP offerings today are incomplete from a customer perspective. Customers want complete IT offerings.

3) Standards render essential but common pieces of IT solutions commodities. Over time these markets, by themselves, become relatively unattractive to be in.

4) Further standardization, and in some cases network effects, will drive customers to desire ongoing changes to their IT support in order to leverage IT for competitive advantage and to enable them to remain efficient and competitive with their peers.

5) The rate of change of IT and high switching costs for customers may create a mutual dependency between ASP firms and their customers in order to satisfy ongoing needs. ASPs may need to develop the technology that will enable “whole product” offerings that effectively deal with the organic and continuous nature of their customers and businesses. ASPs may come to rely on the ongoing revenue streams from their customers. Customers will come to rely on their ASPs’ relationships with them and offerings that enable change without business discontinuity.

6) A full service provider (FSP) that leverages standards and commoditization trends through time (to control costs), is capable of integrating, migrating, customizing and coexisting new IT with in-place IT, and builds and maintains relationships of understanding and trust with customers can leverage them to create a valuable company.

**Brief Overview of Approach**

The approach studies the emerging ASP industry and provides analysis, a market assessment and plans for developing an ASP business. Literature, analyst briefings, company SEC filings, interviews with company executives are investigated to discern best practices, weaknesses and to
fertilize the mind. The business plan includes plans for developing the product, marketing, financing and staffing.\footnote{Paul Mattson, “Thesis Proposal Form,” December 14, 1999.}

2. **Executive Summary**

**Description of the Business**

CBSI is a full service, enterprise IT outsourcing provider engaging customers with strategic IT consulting, application selection, installation, configuration, customization, integration and long term application hosting. CBSI recognizes the organic nature of IT systems and the increase in the rate of change enabled by the Internet and globalization. CBSI will be a leading provider of ASP technology and services that enable business continuity, leverage standards and commodity IT while offering customer specific and unique services that enable their competitive advantage while controlling their IT costs over time.

CBSI will build long term relationships with customers in specific vertical industry segments offering a full complement of competitive, integrated, packaged offerings to which customers can continue to migrate over time.

**Opportunity and Strategy**

The ASP business was $300 million worldwide in 1999 according to IDC.\footnote{David Legard, “ASP Model Powerful Despite Small Size,” *IDG News Service/Singapore Bureau*, 19 April, 2000.} IDC also forecasts that the worldwide spending on ASP services for enterprise applications will reach $2 billion by 2003.\footnote{Clare Gillan, et al., *The ASPs’ Impact on the IT Industry: An IDC-Wide Opinion* (International Data Corporation, Document No. 20323, September 1999), p.2.} This represents a four-year compound growth rate of over 90%. The Yankee Group
estimates the market for packaged application ASP revenue will be $4.7 billion by 2003.\(^6\) Forrester predicts the application rental market will be $11.3 billion in 2003.\(^7\) Other estimates that sweep up messaging and web hosting exceed $20 billion in 2003. All of the estimates suggest the opportunity may be very large. J.C. Bradford and Company suggest that as e-mail and the World Wide Web (WWW) are considered the first two “killer apps” launched by the Internet, ASPs may be the third.\(^8\)

The Internet is driving customers to engage in Internet based markets and supply chains. Internet based commerce (eCommerce) and Internet based customer relationship management (eCRM) applications provide technology to work these problems. The integration of these new applications is complex and many mid-market companies do not have the skills to do this work. CBSI will offer these services. The urgency customers feel will mitigate concerns they have for outsourcing. These applications provide CBSI the opportunity to develop relationships that may lead to other implementation and hosting projects. Although CBSI will engage customers with custom work, it will look to leverage the many to one opportunity centralized hosting offers. CBSI intends to host those applications for which it does project work.

**Target Market**

CBSI will follow in the diffusion footsteps of the Enterprise Resource Planning (ERP) packaged application vendors. That is, there is strong evidence that early ERP adopters will need to both upgrade their ERP versions as well as integrate new eCommerce and eCRM applications with

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\(^{6}\) *ASP Opportunity in the Middle Market: Emergence of Commerce Service Providers,* (Boston: The Yankee Group, Vol. 4, No. 19, October, 1999), p. 2.


them. These changes provide an inflection point for customers to consider outsourcing. CBSI will begin with manufacturing companies providing a full complement of integrated packaged applications from which the customer may select on a piece by piece basis as trust, confidence and relationship build. Over time CBSI will work through additional and related vertical industries including distribution, wholesale, service, and maintenance and repairs.

Furthermore, outside-in pressures for eCommerce and eCRM will drive new customers to the ERP applications to leverage their common data models and integrated processes. A recent article in *Communications of the ACM* said, “ERP is now considered to be the price of entry for running a business, and at least at present, for being connected to other enterprises in a network economy.” This phenomenon will re-energize the ERP implementation business. CBSI will enjoy this demand.

CBSI will reach these customers with a direct, technical sales force with industry domain expertise.

**Competitive Advantage**

CBSI will develop competitive advantage by offering a full service. This is to be contrasted with ASPs that offer only “one size fits all” fixed or templated offerings. Although they may be less expensive the customers indicate they want the solutions to fit their business and therefore customization will be essential to win clients to long term revenue-generated relationships.

Furthermore, CBSI will develop technologies that will enable customers to remain visible on the Internet and operational even during changes to their IT infrastructure. Average costs for

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10 Kuldeep Kumar and Jos Van Hillegersberg, “ERP Experience and Evolution,” *Communications of the ACM*, Vol. 43, No. 4, April 2000, 23.
outages are estimated to cost businesses $80,000/hour.\textsuperscript{11} 99% availability translates into $6.7 million per year. Additionally, customers who have experienced outages have not only lost revenue but have impacted customer satisfaction and have reduced their market capitalization. The Internet amplifies these pressures and will put more focus on continuous operations in the face of change. CBSI will be a technology leader in this area.

\textbf{Economics and Profitability}

CBSI is a profitable venture. Gross margins are expected to be greater than 50% by year four at which point the company becomes profitable. Revenue growth averages greater than 100% per year. The value of the company will be in excess of $1 billion at the end of year five with revenue of $532 million and earnings before interest and after taxes of $126 million. The investment required is $50 million. A substantial portion of the startup capital in years two and three may be available as secured leases for hardware.

\textbf{Team}

The CBSI team includes sales and marketing expertise in ERP and the manufacturing vertical industry, outsourcing services delivery and operating system software development. It is essential to meet the customers where they are with a sensitivity and understanding for their business. These key skills will be complemented with outstanding financial management skills and operations skills to manage the cost effectiveness of CBSI's distributed ASP business and regional sales locations.

\textbf{Offering}

CBSI will offer equity for cash infusions to develop the products, hire the key skills and invest in hardware and software to enable the offerings.

\footnote{\textsuperscript{11} Pat McAnally, \textit{Real-time Data Availability Solutions: Is Your Business Ready?} (Wayne, Pa.: Sungard Planning Solutions, 2000), p. 4.}
<table>
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3. The Industry, Technology, Company, Products and Services

ASP Industry

The confluence of several technologies in conjunction with some economic influences (some of which are a consequence of those same technologies) has disrupted the computing industry. Not the least of these disruptions is the Internet and its related technology standards. This disruption is resetting value chains through the computing industry and in turn throughout industry in general. Many providers in the computing industry and many others in industries historically connected by computing industry value chains are looking at these changes and trying to understand what the future will look like. They are concerned about how their products and services fit when the disruptions re-stabilize. They want to understand where value will be created. Many are imagining new opportunities that the disruption enables. The ASP industry is an outcome of this rationalizing. (For further discussion see: Appendix: Technology Forces Indicating the ASP Industry: Enablement and Complexity.)

The ASP industry has several definitions. This is because it is an emerging space. As an emerging space, it is changing. As a space with promise and potential opportunity many are looking to participate. In February 1998, forty companies were identified by Summit Strategies as ASPs. Today a similar list on webharbor.com is approaching five hundred entries. There are at least five web sites dedicated to tracking and informing the world about the ASP market (ASPnews.com, ASPIsland.com, ASPstreet.com, webharbor.com and ASPindustry.org). At this point there is a common element among the definitions. That is,

ASP are providers of computing resources. These resources are on-line, hosted remotely in some sort of data center (with respect to the consuming customer) and provisioned to customers generally on some model that correlates to usage (e.g. “rented” by seat per month.)

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One industry consultant posits that there are three trends from which ASPs are emerging.\textsuperscript{13} The first is the trend of traditional information technology (IT) outsourcers to offer customers more granular offerings. Rather than only offering to take over entire IT operations for their customers, IT services companies are offering a menu of products and services that customers can choose from. Standards have enabled customers to contract for bits and pieces of their IT solutions. Today these offerings include computing infrastructure, such as networking, computing management services, such as performance management services, infrastructure elements, such as data networks or desktop PC management. As IT service companies offer applications and even business processes they have become a part of the ASP industry.

A second trend is Internet Service Providers (ISPs) moving into application hosting. As the Internet expanded many companies entered to offer connectivity and access to the Internet's Worldwide Web (WWW). The WWW is considered an Internet "killer application." As competition grew they began including e-mail, another of the Internet's killer applications, and web site hosting. Those websites began with static content but soon became dynamic, as customers of ISPs wanted to interact with their customers. As eCommerce through websites emerged there was a need for standard services such as payment processing, billing, and chat services to build communities. eCommerce expansion led to a further need for more robust infrastructure such as performance enhancing caching services (e.g. Akamai provides such services\textsuperscript{14}), payment authorization services and identity services. In a simple way, ISPs that offered e-mail were in the ASP industry. As they offer more complex and comprehensive eCommerce driven applications and services they begin to overlap with offerings from IT service companies that offer electronic commerce application hosting.

The third trend is that Internet based companies are beginning to offer applications to their customers through a model called "portal computing." Sites that began as information oriented sites are looking for ways to enhance the customer experience or to provide functions that


\textsuperscript{14} http://www.akamai.com/
customers need in order to capture their time and attention. This time and attention is key to the portal sites current advertising based business model.

In similar fashion software providers for specialist applications are offering their application as an Internet service. This service is being coupled with related content and information. Many are looking to create communities of mutual interest where the relationships they create and sustain through the portal become the basis for their time and attention. The organizers believe that communities are a power vehicle to generate wealth. Information portals are offering application services. Independent software vendors (ISVs) are providing their applications as a service and offering related information and content.

Each of these trends has been enabled by the same set of disruptive technologies. In each case the providers are coming from different market segments of the computing industry and are finding themselves provisioning on-line computing resources to sets of customers with mutual interests or needs. As these trends continue, the overlap in products and services increases. This contributes to the confusion in ASP definition and to the proliferation of competitors.

Additionally, as the overlap increases, firms realize they are now competing with offerings of products and services from companies they previously would not have considered their competitors. In Porter’s terms there are several new entrants and several new substitutes emerging. (See Appendix: ASP Industry Strategy Analysis.) This may suggest the industry has poor structure. It definitely suggests that the market is in a fermentation stage. The competitors in this industry are struggling to discover the right combination of products and services. They are seeking a dominant design. Industry consortiums for ASPs are hosting meetings and efforts in order to engage in dialogue to standardize offerings.

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Full Service Provider - ASP Value Chain

![Value Chain Diagram]

Figure 1
The diagram above identifies a number of elements in the IT value chain that a full service providing ASP (FSP) needs to consider. At the beginning is the data center where systems are hosted. Networking services connect those systems and the end customers. The computers and operating systems provide the computing resources on which the applications run. The applications themselves need to be installed, configured for the particular customer and deployed. This combination is offered to the customer as a hosted service. Applications seldom operate in isolation. The FSP provides integration and migration services to handle coming from previous implementations and coexisting with remaining application elements. The customers understanding of available technology and applications will be limited. Strategic IT services allow the FSP to engage the customer in his language concerning his business problems and how IT may enable solutions, lower costs or otherwise solve problems for the end customer.

Each participant of this value chain today is looking to leverage their core competency and their business channels as a launch point to expand their access to customers by building relationships with the other participants in the value chain and providing ASP products and services. Each is likely to offer their partner’s piece of the offering discounted in order to acquire the next customer. This will tend to put downward pressure on ASP offerings.

As long as the term ASP has positive connotation with potential customers, what they have to offer makes them an ASP. The range of offerings in both depth and breadth all referred to as ASP products and services contributes to the confusion of the term ASP.
Several telecommunication providers are offering the ability for customers to co-locate their servers with them. Some have gone further and are building data centers to support customers, ISPs, ASPs, and their own ASP offerings. For example AT&T, British Telecom Ltd. and their jointly owned company, Concert, revealed plans to build 44 data centers in 16 countries at a cost of about $2 billion. KPNQwest, the joint venture of Qwest Communications International and Dutch ISP KPN Telecom in a deal with IBM intend to develop 18 new “cybercenters” to develop the European e-business market. Intel Online Services Corp., a subsidiary of Intel has reported it plans to open 10 data centers by year end 2000.\(^{17}\) The telecommunications companies see themselves well positioned to move up the value chain into the ASP business.

The computing platform companies see the ASPs as both a new customer and as a business model to leverage their customer base into value-added services. Some are also building or leasing as anchor tenants major “cyber” data centers. Recall IBM’s relationship with KPNQwest. IBM has agreed to be their “anchor tenant.” Others are developing partnerships with telecommunications providers. Nearly all of the hardware and software platform companies have investments and initiatives in that move them into the ASP space to some degree.

ISVs see the ASP phenomena as both a threat and an opportunity. On one hand on-going standardization could lead to consolidation of software offerings. On the other hand the ASP model allows the ISV to move to a recurring revenue model and an opportunity to lock-in on-going services contracts. Most all leading ISVs either offer their software on a rental basis directly or have partnered with an ASP to feature their application suites.

The system integrators (SIs) and value-added re-marketers (VARs) see the ASP phenomena as an opportunity to integrate backwards down the value-chain, leveraging their industry domain experience and their existing customer relationships. As such, they become ASPs. A further pressure on SIs and VARs is the disintermediation they experience as hardware and software vendors sell their wares over the Internet. It should be noted, however, that the domain skills that the SIs and VARs have are to be highly prized in the ASP industry. Most all of the major

consulting firms have either announced offerings or are partnering with other firms to form offerings. A number of start-up ASPs have purchased small consulting companies in order to acquire application and/or industry domain experience and the customer relationships those firms enjoyed. For further discussion see **Appendix: ASP Example Company – USinternetworking.**

The ISVs who have the software modeling experience for business practices and the SIs that have the industry domain experience and customer relationships are key assets in the construction of a FSP ASP.

Other infrastructure providers may also develop as the ASP industry grows. Examples include call center providers and utility on-line storage companies.

The important lesson to observe is that as standards in both products and services continue to emerge the FSP needs to constantly monitor and adjust its supply chain for the full service offering leveraging quality of service and price reductions in order to maintain competitive. The FSP must also continue to innovate in its offering as competitors will emerge to put pressure on prices ASPs can charge. The FSP should consider outsourcing elements of the full solution to specialists as standards emerge and quality of the total offering can be maintained. These standard offerings represent the portion of the ASP market that will have commodity characteristics and long-term are relatively unattractive to be in. For further discussion see **Appendix: ASP Industry Strategy Analysis.**

Over time one should expect the price of data center real estate to fall and stabilize, the price of bandwidth to fall, the price of servers and operating systems to continue to fall, the price of applications to continue to fall. What is unlikely to fall is the price of the people that can do unique and innovative IT work and the cost of building long-term partnerships and relationships with both suppliers and customers.
The FSP will be a people intensive business that will look to standards and technology and innovation to deliver leverage to increase gross margins. It will leverage relationships, trust and brand to facilitate customer acquisition success and customer retention success. Since switching costs are very high, it is important to be successful building customer relationships early as this industry develops. Key to the business is the lifetime value of acquired customers as they repeated call on the FSP to implement and change their IT systems.

**Business Concept**

Growing businesses have difficulties leveraging IT due to complexity, costs, time required for evaluations, implementations and support. The shortage of capable skills and the growing significance of the role of IT in business competitiveness and efficiency exacerbate these difficulties. The difficulties motivate customers to engage in the consideration of alternatives such as ASPs.

Standards have emerged that have enabled the ASP market. Standards will continue to develop. As these standards develop they will impact the cost structures associated with IT. Elements of IT solutions for which standards emerge will be capable of being easily outsourced. For further discussion see **Appendix: ASP Technology – Hygiene for Competitiveness**.

However, as ASP firms find success outsourcing standard or near-standard offerings competitors will enter. These new entrants will drive prices and margins down over time. In the absence of other factors these offerings will become commodities. Commodities themselves offer little hope of sustainable profitability. ASPs that look only to leverage standards will find profitability elusive over time.

There are mitigating circumstances to this standards-commodity-profitability dilemma. First, only portions of an IT solution at any point in time will be commodity. The very fact that IT frequently contributes to a firm’s competitiveness means that there will generally be unique work that leads to unique IT elements within the total solution. The consulting portion of CBSI will do this work. This work will also yield additional long-term application hosting revenue that
enjoys high switching costs. The understanding CBSI has of the customer and its domain expertise make it likely to win each new project assuming it stays reasonably competitive.

As new patterns of IT emerge that bring success to some firms in a market, enterprising software and services companies will encapsulate those patterns in products and services and make them generally available. Those general offerings become the building blocks of the next competitive round of offerings. Over time those standard offerings will be cheaper to use than the custom offerings. Furthermore there may be network effects as IT offerings that further drive competitiveness among firms in a market are built in terms of a now standard offering. The firms with a unique one-off solution then see what once provided advantage, now as a liability. This dynamic will encourage them to move to the standard, lower cost offerings and look further for competitive advantage. CBSI will provide these migration and upgrade services.

Consider the example of packaged ERP applications that today we take for granted. Prior to the packaged ERP application mid-market companies in the late 1970's and 1980's used minicomputers and in-house skills to develop IT solutions to lower their costs and/or give them competitive advantage. Over time independent software houses identified the patterns and created more general purpose and configurable applications for manufacturing and logistics that many firms could utilize. These applications were quite sophisticated and much less expensive than analogous applications a firm might build only for itself. As packages emerged the rule of thumb developed within the IT industry that it was generally better to buy than to build if the offering met your needs. Over time the unique in-house created software became more expensive to update, maintain and keep competitive with packaged offerings. Many of these firms chose to move to packaged offerings to get on competitive cost curves.

Furthermore, the packaged applications improved with time. Versioning emerged and those on the older versions felt pressure from their firms to move to new versions to pick up functionality in those new versions. The software providers also applied pressure by raising the cost for or dropping support for older versions of their products.
Later yet came versions offering even more functionality and with that they became ever more
general and ever more complex to configure and install. A recent version of SAP has 5000
parameters to configure.\textsuperscript{18} Customers frequently spend three to seven times the license fee for
the software to implement the solutions. Consulting companies emerged to leverage the skills of
those who understood the ERP packages to provide that expertise to licensing customers.

Note with interest the continuous, near organic nature of the IT solutions. As long as firms see
IT as an enabler for both competitive advantage and for cost control they will continue to purse
new IT elements and change and replace many existing elements. These changes occur
piecemeal demanding migration, coexistence and integration services. CBSI will provide these
services. It is the full service offering that will enable CBSI customer acquisition. It presumes
ASPs that offer fixed solutions will not be able to provide a single point of responsibility.

With the advent of Internet supply chains and electronic commerce by customers and the need to
manage relationships with customers and suppliers over the Internet, IT integration is becoming
even more important. As an example consider suppliers to the auto industry. Many of them
have been driven to install ERP applications so that they can integrate and automate their
relationship to the auto assemblers.

Today there are companies looking to build standards for interoperation of businesses so much
can be automated. Extendible Markup Language (XML) technologies are the basis for much of
this. XML interface capabilities will be embedded in future versions of ERP applications.
Customers will be motivated to migrate to these latest ERP offerings lest they be left behind.
These changes will drive version upgrades and further pressure those firms not on near-standard
packages to move towards them. CBSI will provide these services.

In general, firms will be motivated to continuously change to cheaper more enabling standard
offerings in any case where further enhancing their unique solution is not cost effective. It is

\textsuperscript{18} August-Wilhelm Scheer and Frank Habermann, “Making ERP a Success,” \textit{Communications of the ACM,} vol. 43,
no. 4, p. 57.
expected that firms will be continually moving between unique projects that enhance their competitive position and projects that they are compelled to engage it to stay efficient with competitors or enable them to efficiency participate in processes with network effects. One sees no end in sight to the waves of enablement, standardization, migration and coexistence.

Chrysanthsos Dellarocas posits a framework for thinking about trends in IT. His framework suggests that infrastructure, and especially standard infrastructure, are the enablers and catalyst for new applications. With infrastructure those applications may have been possible but either too expensive or too complex. However, new infrastructure allows application developers to reach a little farther; to create something new. Beyond that point, further new applications drive the demand for other infrastructure elements. As those infrastructure elements emerge and are standardized within sufficient sphere of useful application operation, another round of new application possibilities is unleashed. The cycle of influences then repeats.

CBSI intends to position and enable itself to assist customers evolve through all these transition cycles and to do in a manner that reduces the pain associated with such IT changes.

Throughout all their IT change, the key pain to be removed from customers is the pain associated with loss of business continuity. Globalization, change frequency and the Internet have increased the pain associated with being “down.” This is regardless of whether being “down” was planned or unplanned. These ongoing changes to the IT structure need to occur with business continuity in mind.

CBSI endeavors to be a leader in IT change management services with business continuity in mind. It will develop long term relationships with firms beginning where their needs are. The understanding that CBSI develops of its clients increases the likelihood it will be retained for the next round of IT business changes.

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Each successful project moves another application into the application-hosting center where it will continue to operate generating annuity revenue for the firm. Careful cost management of the underlying supply chain, combined with high customer switching costs should lead to stable revenues and reasonable profits.

Thus, business continuity skills, vertical industry skills and strong customer relationships represent a substantial barrier to entry to competitors. Once customers are acquired into an ASP model, on-going service and satisfaction will lead to further business.

For CBSI to stay profitable it needs to continue to reposition itself within the FSP value chain that make up solutions so that it provides itself only those elements that either are essential to ensure customer satisfaction or represent something new and valuable to the customer. Those elements that are standard and offer little differentiation should be outsourced by CBSI as they will become commodities and prices and profitability will fall. In order to ensure best prices CBSI must develop technologies that allow it to make changes to the IT solution on the fly without loss of business continuity.

CBSI will invest in research and development of technology that enable it to be a leader in providing continuity through IT change. These technologies will be anchored in advanced work management techniques that invert traditional thinking about operating system resource management. The center of the approach considers the workload. This workload floats over a sea of processing elements and storage elements. Those processing and storage elements are added and removed from the cluster configuration in order to handle failures, planned outages, and workload spikes as necessary. The pool of resources is utilized across many customers enabling efficient and effective utilization.

Software techniques and architectures will also be developed in conjunction with ISVs so as to support version migrations and transitions with neither loss of transaction data nor visibility on the web to suppliers and customers.
Some of tools and infrastructure elements that CBSI creates may be appropriate to productize. Some elements that can be generalized and “standardized” should be licensed to other ASPs on a usage basis. This represents an additional revenue stream that will both mitigate research and development costs for CBSI as well as set up a further annuity-like revenue stream. Doing this will also support branding efforts for CBSI as the firm that sets the standard for enabling competitive change in continuous business solutions.

The extraordinary investments in IT that have been made in the last few decades have created inertia. This inertia is represented by people and their business processes; modeled and supported by applications and data. The degree to which these systems have been knit together and into the very operational fabric of business in the last decade suggests that any adoption of new IT must be done in a methodical and integrative way. Ill-conceived changes could fundamentally compromise the ability for the business to operate leading to irreparable damage to the firm.

On the other hand, the Internet land grab has thrown firms into a frenzy. The uncertainty the Internet has created has encouraged a rush to be first, fueled by a “winner takes all” thinking process. The globalization of business leads to increased worldwide competition accelerated by the ease with which information flows about the world through the web. Innovation is key to winning this competition and it must be done very quickly to stay in the game. The availability of capital around the world, combined with the Internet frenzy are enabling startups to spontaneously combust onto the business scene carrying no baggage from the past and ready to leverage the melting glue between atoms and bits. Survival depends on speed to adopt new technologies, speed to efficient operation, speed to innovate, speed to ally, speed to change, speed to adapt.

At the intersection of the existing IT inertia and the speed of “the new new thing” lives the possibility for the FSP. CBSI will have outstanding skills, best practices and important continuity technology to leverage to acquire customers whose need for speed exceeds their own IT shop’s ability or capacity.
The key challenge for the ASP market is coming up with a “whole product” that meets customers’ needs that can be offered for a profit. In the end, a firm choosing to outsource some IT element to specialists, is making a strategic decision. Despite the pain IT customers are experiencing they understand that in some ways their IT systems are their business. This is especially true for firms engaging in various forms of e-business. This decision will not be made lightly. Relationships, trust, skills and processes along with a “whole product” offering are essential to CBSI success.

The Company

Continuous Business Solutions, Inc. will be a full service provider of computing solutions for dynamic and growing enterprises. CBSI will target mid-market manufacturing companies. These are companies with $50 to $500 million in annual revenue. CBSI will develop long term partnerships with companies that face obstacles to harnessing the power of the Internet and changes to their businesses and industries. CBSI recognizes that companies will leverage new information technology to increase their competitiveness and to optimize their efficiency in an on-going fashion. CBSI realizes that these implementations need to occur while the business continues to operate. As businesses integrate more tightly with their customers and suppliers around the globe, business continuity becomes more important, more complex and more difficult. CBSI will develop professional services, best practice processes, infrastructure and tools, to support customer’s changes while maintaining business continuity.

Bruce Isaacson and Roy Shapiro, in the introduction to the book *JIT II: Revolution in Buying and Selling*, offer several reasons why customers and suppliers might want to have much more intimate relationships than traditional arms length relationships.\(^\text{20}\) They include:

1) Increased specialization and firm desire to focus on core competencies,
2) Increased global competitiveness,
3) Increased customer expectation,
4) Integrated IT systems beyond the firm and
5) Greater firm awareness of the value of channel coordination.

These issues are at the heart of strategic decisions to outsource mission critical IT systems. Therefore, CBSI will offer JIT II like relationship support for its best customers. CBSI endeavors to build relationships where the customers come to understand that their success is tied to their mutual success. CBSI will be successful if the IT relationship to the customer is near exclusive and profitable. The customer will enjoy the advice and counsel of specialists who have seen many implementations and deployments and can bring speed and quality to their IT projects.

This offering will make available a person from CBSI that can play the role of Chief Technology Officer to work with the customer in his planning and strategy work so that the expertise developed within CBSI can inform customer planning and strategy. This will be targeted to customers doing two million dollars/year or more. These hours will be “on the house” and the intent is to provide better customer understanding and insight leading to better service, which would be expected to lead to ongoing service contracts.

The CBSI approach is to get in the game with a target (vertical) market and create the “whole offering.” This will allow for the experimentation and development of additional technology discovered necessary for the whole offering. The first six months the company will focus on developing a “whole product” in conjunction with initial customers.

ASPs provide advantage when best practices for business processes become standard enough that within a few configuration parameters, an offering can be made to several customers. The value comes from leveraging economies of scale and scope. Value accrues to customers and leverage accrues to the ASP. However, the balance is delicate. Thoughtful dialogue with customers will
be essential to distinguish between the value of standards for some customers’ processes and the cost of gratuitous differences from the investment in functions that provide little value for the firm; and unique IT investments that will bring competitive advantage to the firm.

The line between sufficiently standard and non-standard will continue to move. The key is to move quickly to institutionalize emerging standard operating procedures providing leveragable ways of integrating the new standard business process into firm unique IT. Another key is migrating those that hand crafted an alternative in the past to the standard offerings so they can take advantage of the lowered costs or, in cases where the emerging standards enable inter-firm processes and efficiency, they can enjoy those network effects.

Companies will be disadvantaged whenever a business process emerges as a standard but they are left with an expensive proprietary implementation. Firms will need to migrate to the standard to stay competitive and take advantage of the network effects of the standard. This means that an ASP needs to be very good at migrating firms from proprietary systems to standard systems including impedance matching with customizations and the inertia of the people and business processes in place. The key is helping firms decide between differences that are either historical or gratuitous or those that enable the firm’s competitive advantage.

The business model is some ways can be thought of as continuous consulting with the customer to make them aware of best practices and supporting IT identifying the points at which they ought to acquire or change to standard offerings. The business model allows for technical sales representatives to spend considerable time with qualified customers to build such relationships.

In some sense the CBSI business core competency is really about managing the supply chain design of the collection of IT offerings that deliver the SLA with the customer. Just like the brokerage company there will be a potential to churn the customer to the next new thing. The core competency of the ASP firm is continuous migration with more and more standard parts and pieces to control costs and more and more unique integration to enable competitive advantage.
The proposition begins with optimizing around building trust and confidence. The approach will be to build a brand based on dealing with the customer on his terms. This business will be a customer oriented, customer friendly business. This runs scarce in the entire nascent industry so the opportunity is ripe to build such a brand. The CBSI products will have the following characteristics:

1) **Whole solutions** will be created and offered. CBSI will brand itself as a FSP. This will avoid confusion associated with the term ASP that has come to mean many things to many people and thus has rendered itself worthless. CBSI will create comprehensive offerings within vertical markets. Choices will be offered between several leading applications. The customer will have opportunity for best of breed functionality, integration and cost structures competitive with fixed offerings. Integration and change will be the norm for those elements that matter to the customer (this is to be contrasted with other ASPs that discourage change and rather endeavor to shoehorn customers into templated solutions with no variation one to another.) Elements that are not visible to the customer or do not matter to the customer will be standardized to the degree possible.

2) **Continuous operations** (high availability) will be featured as table stakes. When you deal with CBSI the assumption is made that you cannot afford to be “down.” System architectures and designs will be created that support both high availability, disaster recovery and near continuous operations. Contracts will include supporting the customers move to another ASP vendor if they should so chose.

3) **Transparent operation** will be featured as table stakes. CBSI will make management and monitoring information about the customers IT operations and contracts fully available to customers and at several different levels. Performance reports will be provided that show performance to service level agreements. Performance planning reports will be provided to demonstrate on-going monitoring and readiness. Analysis and recommendations for enhancing or altering the offering will be made.
4) *Deep customer partnerships* will be developed. On-site (customer’s site) staff will be provided as necessary to ensure communication between the customer and the ASP firm are excellent. This will be a key to ongoing customer satisfaction and revenue generation.

5) CBSI offerings will be *value priced* according to the extra value they create for the customer and the level of pain that is removed from the customer as compared to the total cost of in-house developed offerings. CBSI represents a re-engineering of offerings that deliver superior quality, lower up-front capital and lower cost of ownership than if like projects were implemented in-house (if this was even possible). Projects that include the steps from strategy to implementation will be either fixed priced or time and materials based depending on whether the work is well understood or will be exploratory in nature. Application hosting will be priced per user/month in an on-going fashion. Over time, as supporting infrastructure develops usage based pricing may further evolve to a finer granularity, for example, on a transaction basis.\(^{21}\)

**Products and Services**

CBSI will provide to its business customers:

1) IT strategy consulting services.

2) Comprehensive application suites for select vertical industries including industry specific applications integrated as well with “horizontal” applications such as e-mail/collaborative workflow, customer relationship management, HR, and other general business applications. CBSI will begin with the manufacturing vertical industry.

3) Implementation services including configuration, integration, interoperability, migration and customization as well as new applications as customers require them.

\(^{21}\) There is currently debate within the ASP industry about monthly per user pricing or simply transaction based pricing. The adherents for transaction based pricing suggest it is more fair and more accurately models resource usage. Per user per month advocates point out that it is more useful to those interested in predictable costs over time. Actually, pricing needs to consider transaction complexity, transaction uniqueness (vs. standard processing), and transaction resource consumption. Furthermore, as supply chains integrate, many parties may be providing some portion of a "transaction" from a user perspective and provisioning and billing will need to model all the contributions of all the parties. This will remain an ongoing issue for the industry and represents an opportunity to build infrastructure that can be sold to other ASPs.
4) Application hosting services offering up to 99.99% uptime guarantees.
5) Custom applications and tailored packaged applications.

Additionally, CBSI will offer migration services for customers that need to leave a relationship with an existing ASP with minimal loss of continuity. CBSI may develop a "continuity product" somewhat akin to insurance. This product can be offered to competitors' customers. Purchasing this product means that CBSI will reserve access to capacity and skills to migrate that firm in a continuity sensitive fashion to another ASP vendor of their choice. The goal is they would choose to come to CBSI.

CBSI will be willing to take on existing IT servers and application systems as is and migrate them to near-standard pre-integrated packaged applications over time. CBSI will consider hiring some of the existing IT support personnel in order to leverage customer business understanding, provide employees with greater career opportunity and training, especially in standard applications and eCommerce. This will enable acquisition of skills that can be leveraged to other accounts in the same vertical industry.

CBSI will also be developing processes, infrastructure and tools to enable efficient application hosting and continuous operations and will license them on a usage basis to other application service providers.

CBSI will establish development centers regionally. These regional centers will enable providing affordable training and education for customer employees on new application usage.

CBSI will feature suites of applications that are pre-integrated that firms can migrate to with some modest level of choice. These suites will offer speed of implementation and lowest cost. However, customer satisfaction drives the relationship for the long term. Custom work will be welcomed and priced appropriately.
CBSI will develop special systems in the call center to find patterns in problems among similar offerings. By so doing CBSI can work to head off problems in its implementations before they are discovered by the customer. Manifesting this assertive problem avoidance function will help support positive branding efforts with customers.

Another unique opportunity for revenue generation for CBSI is the possibility of infomediation. CBSI will have a unique vantagepoint to see across many companies in the same vertical industry and over time many companies in several vertical industries. From this unique vantage point there may emerge information about processes, best practices, strategies, etc. that other firms would be willing to pay for. This value of information can sometimes be very high. CBSI will want to consider these possibilities following year two when it has a reasonable customer base.

**Entry and growth**

CBSI will begin operations targeting manufacturing. The first step begins with establishing a working definition of a “whole product.” This begins with understanding customer wants and needs. Potential and representative customers will be surveyed to understand the scope of their applications needs and their preferences for best of breed offerings. Surveys of leading software offerings will be done. Together complete offerings can be modeled.

The next step will be to engage the software providers and determine which ones are willing to develop partnerships to host their applications. As the partnerships are arranged the integration activities can proceed.

Concurrently CBSI will need to build its infrastructure including arranging for leasing of data center space, leasing of network access, installing of systems. Billing systems and call centers will be developed.
When an instance of the “whole product” is ready and lab tested a first set of beta customers will be sought out. Customers will be sought out that make good reference customers for the product launch.

There are many angles to pursue in order to grow the business. Although the financial models assume organic growth in consultants and technical sales representatives, another approach would be to purchase existing system integrators that already have consultants, sales representatives as well as customers and expand their offering to the “whole product.” Breakaway Solutions and USinternetworking took this approach.

The mini-computer era enabled companies to build unique applications for their lines of businesses. Although many of these applications where retired in preparation for the year 2000, many still exist. These customers can be sought out and approached with offers to move to standard packaged applications and all the functions and possibilities they represent.

CBSI can utilize user groups for the major ERP vendors to find the customers who have installed their systems. One can search listings of manufacturing companies that are publicly traded. By studying the 10Q SEC forms you will likely find discussions of ERP implementations in the “risks” sections since for so many companies the move to ERP has been difficult and risky.

With hundreds of ASP startup companies and a typical startup business success rate of about 10%, many customers of failed ASPs will find they need immediate help. CBSI can use these business failures in order to secure customers. Other customers may find themselves “held up” or in some way dissatisfied and can purchase the transition insurance product. Exercise of that insurance may provide CBSI new customers as well.

Over time, CBSI may want to look at consolidating with other competitive ASPs in order to increase scale and scope where it makes sense.
As the business matures and begins to cover major U.S. and foreign cities, one could consider a franchising idea to cover more remote regions. One can imagine remote system integrators that need to substantially upgrade their skills and offerings in order to continue to serve the customers with whom they have developed relationships. Franchising may be a way to leverage the CBSI brand, training, processes and application integration work to a broader set of customers. CBSI can consider purchasing these franchises, as they are successful, offering liquidity to franchisees while maintaining the customer relationship and on-going hosting and project revenues.
4. Market Research and Analysis

Customers and Market Segments

CBSI will target the manufacturing industry with comprehensive “whole product” offerings. The anchor point is integrating solutions around core ERP. The figure below captures the “whole product” idea as currently envisioned. Although few customers would be expected to sign-up for the complete offering initially it is expected that the long-term possibility will be attractive to customers. This is to be contrasted with the other extreme of getting each application from a different ASP provider. Such a model leaves substantial coordination of relationships with the customer, no single point of contact and likely difficulties with integration, migration and coexistence. Vertical markets will be targeted because customers desire comprehensive offers over point solutions.\(^\text{22}\)

An immediate issue for manufacturing businesses today is the integration of supply chains over the Internet. Many companies are demanding that their suppliers communicate ordering, invoicing and payment transactions through Internet-enabled applications. Participating in this growing network of businesses requires some level of integration between the business to business transactions and the companies’ transaction processing system. This is creating pressure for companies to modernize their applications to enable that integration via the Internet. If this becomes a “must have” the urgency will make working with CBSI a more attractive option.

CBSI will endeavor to integrate the real economy with the new economy. Many early adopters of packaged ERP applications are one or two versions behind the latest offerings. Many customers consider migrating to the latest versions as difficult, costly and above all a time-

consuming process. These companies represent prime candidates for CBSI products and services.

Figure 2

CBSI targeted customers will be mid-market companies with annual sales from $50 million up to $500 million. This market is targeted because these are the companies that feel the most pain dealing with the on-going waves of IT. Much of their difficulty stems from skill shortages that either lead to high costs or lengthy time to market. A recent study by Forrester revealed that 71% of large and very large firms resist outsourcing because they have already invested in the applications they need, do not believe it is cost-effective, or posses sufficient skills in-house. 65% of these large and very large firms indicated that they will not even consider outsourcing applications in the next three years. However, 60% of small and medium-sized companies

expressed interest in outsourcing applications with minimal customization in the next three years. 24

Additionally, new and emerging Internet-based businesses represent good opportunities to participate in the development of world-class solutions. These solutions set the bar for other company offerings, expose missing infrastructure and tools that CBSI can develop and gives positive branding to CBSI as a leading edge supplier of services.

With the flood of money into the venture capital market and the land grab mentality of investors to Internet companies, these new and emerging Internet-based companies will be quick to sign contracts, motivated by speed and time to market and will have cash to pay their bills. However, many of these companies will fail. Most will not generate the long-term revenues for which the CBSI business model is looking. Investing in relationships like these is risky as most will end as the firms fail to establish a sustainable business model, investors and customers lose faith and revenues do not match expenses with the on-going venture capital life support. CBSI will be very selective in qualifying new and emerging Internet based companies to join the first set of companies with which it engages its relationship building activities.

Many customers plan upgrades and do capital budgeting annually. The sell cycle is therefore long for some projects. Therefore CBSI must not only sell the future to the customer but also get them to buy the application projects they most urgently need. This allows CBSI to demonstrate their capabilities and build trust on continuity and integration. ECommerce and eCRM applications are expected to fit in this category. Forrester anticipates that eCommerce will represent 42% of application hosting revenue in 2003. 25


CBSI will begin in the U.S. and later move to Europe and then Asia. Global companies based in the U.S. will begin CBSI’s move to non-U.S. venues.

A relationship is planned that ties the influence of the venture capital firm (VC) to the launch of the firm. As the firm is launched it will be very important to find customers that fit the strategy who are willing to work with the firm in order to validate its products and processes. It is expected that potential VCs will be qualified by looking at their portfolio of invested companies to find “fit” with the market segments this firm intends to serve. The expectation is that the VC will be able to influence their portfolio customers to engage in dialogue leading to potential contracts. It may, however, be difficult to find VC firms with manufacturing companies in their portfolios.

VCs refer to the relationships they build among their portfolio of invested companies using the Japanese term “kieretsu.” As an example, Gordon Banks, CEO of Breakaway Solutions, Inc. recently reported that for 1999, 9 or 10 of his company’s 125 contracted customers are also members of his investor’s kieretsu.26

CBSI is positioned between large traditional service providers that send unique teams to the customers’ sites as the engagement method (vs. local presence), boutique eCommerce firms that do not have vertical market experience and focus only on the “e” part of the solution and cookie-cutter or point solution ASP firms that offer only partial solutions. CBSI intends to create near-local, long-term, partnerships.

**Market Size and Trends**

International Data Corporation defines Internet services as the consulting, design, systems integration, support, management and outsourcing services associated with the development, deployment and management of Internet sites. IDC expects the worldwide market for these

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services to grow at a five-year compounded annual growth rate of 59% from $7.8 billion in 1998 to $78.5 billion in 2003.\textsuperscript{27} Forrester estimates that the application hosting market will be $11.3 billion in 2003.\textsuperscript{28} Of that $6.6 billion will come from medium-sized companies that jump on customer management and procurement applications. Forrester expects the top three applications to be host, regardless of customer size, to be eCommerce, eCRM and Manufacturing and Logistics. Together these three will generate $8.8 billion in 2003.

**Competition and Competitive Factors**

CBSI will compete first and foremost with companies IT shops such as they are. CBSI’s regional approach will enable it to consider bringing some firm IT specialists into CBSI.

The leaders in the “pure play” ASPs are USInternetworking (USIX) and Breakaway Solutions (BWAY). Internet Research Group reported recently that the USIX has 36% of the ASP market and BWAY has 16% based on number of contracts held. Corio is third with 9% share.\textsuperscript{29}

USIX has chosen to build its own data centers, which had required a great deal of capital. It has organized itself around unique leading application offerings. This organization optimizes point offerings versus integration. It has yet to turn a profit and if it does not do so by the end of this year it will have to raise more money to stay in the game. It is considered a very well managed company and it has developed several relationships with many software providers. USIX is a real competitor. CBSI is different in that CBSI will offer customization more freely, features continuous operations and offers “whole solutions” targeted to the manufacturing vertical.

\textsuperscript{27} This information was reported in: Breakaway Solutions, Inc., 10-K Report, EDGARPlus, March 31, 2000, p. 2.


\textsuperscript{29} David Myron, “And the Winner Is...- Emerging ISVs Gain Golden Status in the ASP Community. Here’s Why ASPs are Partnering With Them,” *VarBusiness*, 6 March, 2000.
BWAY has focused largely on “e” solutions and although it does offer consulting and integration services it also does not offer “whole products.” BWAY may be the more substantial competitor in that they will compete for “e” solutions. CBSI will win the customers attention by knowing the manufacturing business deeply. BWAY is having reasonable success and may move into a positive cash flow position by the end of 2000. This is because they began as a consulting firm that is adding hosting capability and they are not building data centers.

With respect to competition in general CBSI will optimize around customer friendliness, flexibility, quality of service and speed. This is expected to lead to long-term profitable relationships.

CBSI will capture growing share faster than competitors due to its focus on customer needs (e.g. customization, integration, continuity and “whole product”). CBSI will pick up customers from failed ASPs. CBSI will pick up customers who are tired of managing multiple relationship, especially through problems and failures.

**Estimated Market Share and Sales**

If CBSI executes its business plan ($532 million in revenue in year five) and one extrapolates Forrester’s estimates for mid-market application hosting revenues (assume they increase by 50% into 2004 = $9.9 billion) then CBSI will have about 5% market share. If one third of CBSI revenues in 2004 come from manufacturing and logistics applications CBSI will have 10% of that market segment.

**Ongoing Market Evaluation**

CBSI will need to develop effective customer feedback systems to ensure it is developing the offerings that customers truly are willing to outsource. CBSI will also need to carefully monitor standards development to continue to migrate its products and customer base to the least expensive cost structures. CBSI will also need to monitor the availability of data centers to collocate in. It seems that there is an enormous amount of building going on based on
announcements by Qwest, Intel and AT&T, Cable and Wireless and others but if this becomes a limited resource CBSI may have to alter its position on investing in data centers.
5. Economics of the Business

Gross and Operating Margins

CBSI will have gross margins of nearly 44% in year three and beginning in year four gross margins will exceed 50%. Competitive pressures are likely to work those gross margins down over time. A counter force to that competition is that customers will be very “sticky” and the hosted applications will have high switching costs. This will mitigate some of the competitive pressure.

However, new business will be acquired only with competitive pricing and CBSI will need to build brand recognition, long term customer relationships and innovate technically to maintain high gross margins.

In year four CBSI will have operating margins of 16% and in year five the pro forma income statement calls for operating margins exceeding 20%.

Profit Potential and Durability

Profit potential depends on the productivity of the sales representatives, the project consultants, and the scale and scope efficiencies that emerge from the application-hosting environment. Switching costs will remain high for some time to come so acquired customers are likely to stay barring problems with CBSI’s ability to deliver on its service level agreement.

Skill shortages will continue to encourage demand for the foreseeable future and mitigate competitive pricing pressures. However, CBSI will also feel skills pressures as it grows. As a pure IT company it will be able to offer career opportunities that IT shops within non-IT businesses cannot.

On-going customers wants and needs leading to additions, enhancements, upgrades and other changes through time should continue to drive deal flow.
Substantial investments will be made in brand and customer relationships. These should also contribute to the durability of profits.

CBSI will work to have an equity position in the custom and integrated code that the customer utilizes as the result of projects. The knowledge investment in this code will be substantial asset. It is expected that reuse of these assets will contribute to consultant productivity and the ability to move to more profitable fixed pricing contracts for subsequent analogous engagements with other customers.

**Fixed, Variable, and Semi-Variable Costs**

Most of CBSI’s costs are variable or semi-variable as the costs are a function of the number of project engagements and applications hosted. The pro forma income model was built beginning with rational customer acquisition rates and engagement fees. Then the staffing rates for sales and consultants and overhead were established as a function of the business volume.

A key decision for CBSI is *neither to invest in their own data centers nor* to build their own private networks. USinternetworking appears to have spent in excess of $100 million to do this. They believe that owning the facility is key to their quality of service. CBSI does not believe this. Rather, the co-location offerings and telecommunications company networks are expected to provide appropriate quality of service. CBSI will not tie up the capital and will enjoy falling prices as a result of competition for bits to fill the fiber.

**Months to Breakeven/Months to Reach Positive Cash Flow**

CBSI will break even early in year five. The firm will reach positive cash flow sometime in year three and will be profitable for the full year four.
6. Marketing Plan

Overall Marketing Strategy

CBSI will target specific vertical markets. Its core capability will be helping customers integrate new technology into their IT systems in an ongoing fashion and gradually migrate those new pieces into the hosting environment. The core of these systems is the ERP solution. CBSI is targeting those verticals industries for which ERP solutions have been deployed but now those customers need to migrate to newer versions in order to get the next level of function.

CBSI will therefore follow the path of ERP penetration. It will begin with manufacturing and move to other related vertical industries offering “whole products” that mid-market firms can imagine migrating to for much of their IT over time.

However, CBSI will lead with new and additional function to leverage the customer demand. The focus will be on eCRM, eCommerce and integrated supply chain.

The most attractive solution for the customer from a price perspective will be a pre-integrated solution that will cover nearly his entire business computing needs. These integrated offerings will be made by making arrangements with the top two software providers in each application category and then integrating those solutions together. In addition migration capability will be provided. It is not expected that many customers will buy this entire solution initially. Trust must be built first.

In order to build trust CBSI engages the customer where he is. The CBSI customer feels pressure to update his IT in order to stay current with his competitors. The pressure comes from need for functionality in new versions, need for new technology to be integrated into existing systems or need to move from aging unique implementations or outdated solutions to current, standard offerings. The IT is new and complicated. The customer is looking for help determining what to do in order to get results quickly. The customer is nevertheless concerned
about making wise investments that lead to better overall cost positions or competitive advantage.

CBSI will establish a brand at the company level anchored off the concept of **innovation** with **business continuity**. The brand should communicate an image of adding and replacing parts of the vehicle while it continues to drive down the road. The image should be one of jacking up the house, installing all new foundation and infrastructure systems while the family continues to live in the house. The brand will indicate innovation in delivered technology and innovation in delivery approach. The brand will suggest value leadership as well. CBSI will stand for moving/migrating to standards as they emerge in order to improve company cost of IT. The brand will suggest moving to standards that enable participation in IT for which there are meaningful network effects. Initially this will includes changes necessary for integrated supply chain and customer management.

The marketing goal is to generate sales opportunities by increasing awareness among targeted enterprises that CBSI provides essential IT services with full respect for the simultaneous operation of the business. CBSI will use direct mail, targeted e-mail and regional seminars for those persons responsible for IT investments and decision making. CBSI will write and publish white papers describing its successes. Top specialists will be encouraged to participate in communities of expertise giving presentations and participating on consortiums and standards bodies in order to build awareness of firm expertise and capability and to share firm practices and culture as a means of attracting talent.

Substantial funds are modeled in the business plan to support marketing activities such as trade shows, the development of marketing literature, advertising, and consulting fees for targeted market research and analysis.

Alliances and partnerships with key software providers and infrastructure providers will provide brand validation for CBSI.
As CBSI markets tools and infrastructure technology to other service providers contracts will call for co-branding opportunities as appropriate, similar to "Intel Inside."

CBSI will make arrangements with preferred telecommunications vendors, software providers and SI and VAR institutions for referrals for services.

**Pricing**

Projects that are well understood will be based on fixed priced contracts so previous experiences, process, tools and infrastructure can be leveraged to increase consultant productivity. New projects will be taken on based on time and materials. Billing will average $150/hour. The average project is expected to generate approximately $1 million revenue and take approximately 6 months on average. Billing will be based on short-term milestones to minimize working capital as well as to reduce uncertainty in the process of developing long-term relationships with the customer.

Application hosting pricing will be based on a mark-up over costs and then billed monthly per user. CBSI will continually look to drive down the costs for on-going deliver down while maintaining the user pricing established at implementation time. It is expected that there are enough unique elements with each contract to avoid falling into commodity competitive pricing. However if competitors underprice in order to acquire the customers with hopes of making it up over the long haul CBSI profitability will be affected.

Pricing for application hosting for new customers is likely to go down over time as more entrants offer standard services. Customers will be very reluctant to switch due to the deep relationship that will have developed, the intellectual capital of the customers business within the hosting firm and the impacts in business continuity that are likely to occur if the customer moves to another provider.
Sales Tactics

A highly technical, industry experienced direct sales force will be developed. The sales representatives are expected to get to know their customers business. Understanding the customers’ business enables the representative to become part of the consulted group as the customer deals with IT problems and considers new investments. Furthermore, like bees with pollen the sales representatives can propagate best practices from firm to firm generating additional projects and application hosting business.

Service and Warranty Policies

CBSI will offer service level agreements with substantial penalties for non-performance. CBSI will endeavor to develop technology to assist in meeting near continuous operations for customers.

Advertising and Promotion

Alliances will be heavily leveraged in a number of ways. Developing and maintaining relationships that lead to a profitable supply chain will in essence be a core competence of CBSI. CBSI expects the telecommunications companies to generate leads for CBSI services. CBSI and the telecommunication companies will co-brand their respective offerings.

CBSI will have similar relationships with ISVs. Each of the ISVs will generate leads for CBSI and CBSI will feature their applications as “continuously capable.”

For each vertical market CBSI will identify a minimal spanning tree of applications that the customer can imagine as a fully integrated, comprehensive, modern, best practices suite of applications that he can move towards. CBSI expects to license these applications from the vendors with flexible licensing terms that allow payment on a usage basis.

In both the cases of the telecommunications companies and the ISVs a small number of competitors will be engaged. This dual-sourcing will allow CBSI to feature the application without risk of hold up.

The ISV will need CBSI to provide insight and leverage new offerings with lead customers and CBSI will need additional features, support, training and favorable pricing to remain competitive with other ASP firms.

The relationships with the ISVs must be very good in order that both sides can accelerate development of expertise at the boundary to the customer. It is expected that the ISVs will also try to be ASPs but their offerings will only be as comprehensive as the scope of their software offerings and consulting services will not be their core competence. The are not expected to be major competitors but are expected to stay in the ASP game to provide some level of direct customer interaction. They will cater to lead-user customers.

It is expected that customers will begin with one or two applications for which some amount of custom migration, integration and/or coexistence support will be required. Success with these new and additional applications is expected to lead to further usage of CBSI. Exogenous pressures for competitiveness, efficiency and the opportunity to join in on network effects will further drive the customer to leverage more of CBSI’s services.
7. Operations Plan

Operating Cycle

The principle operating cycle includes the sales cycle, the project implementation and the on-going application hosting. The sales cycle will be affected by the size of the projects and customer capital budgeting cycles. This will be especially true for core systems and system upgrades such as ERP. However, the Internet is driving a level of urgency around applications such as eCommerce and eCRM. Breakaway Solutions indicated in a recent analyst briefing that for projects such as the sales cycle is as short as one month.\(^{31}\)

A project’s implementation cycle average is expected to take about six months from the beginning of the IT strategy work with the customer through implementation.

Application hosting is the expected outcome of all projects. That hosting is expected to in interrupted only by another project that changes or updates the hosted application.

Geographical Location

CBSI will leverage network provider co-location facilities for its hosting business. In addition, solution centers will be spread around the country to optimize the locality of consultants to customers and to minimize the moving expenses. If acquisitions are used to acquire consultants, sales representatives and customer relationships their facilities will be leveraged as well.

Facilities and Improvements

All offices and solution centers will be leased. Headquarters offices will also be leased. Solution centers will include general office space and lab space of servers and shared testing environments.

8. Team

Organization and Key Management Personnel

CBSI will utilize the following organizational structure:

**CBSI Organization**

- President, CEO and Director
  - VP of Finance
  - VP Operations
  - VP of Research and Development
  - VP of Sales and Marketing
  - VP of Technical Vitality and Innovation
  - VP of Strategy/Solutions/Applications Hosting

**Figure 3**

1) President, CEO, Director: This person must have the capability to lead the company to $1 billion in revenue and to take the company public. A key role will be working with customers to build long-term trusting and profitable relationships. Another key role will be building relationships with executives of firms that provide key pieces of the CBSI supply chain. These include the telecommunications companies and the ISVs.

2) VP of Finance: This person is critical to helping CBSI manage investments, cash and help in cost control. This person must be capable of taking CBSI public.

3) VP of Operations: With a distributed operation including data centers and sales and solutions offices, this person must play the role of CEO inside the company.

4) VP of Research and Development: CBSI acknowledges that tools and infrastructure will need to be developed to compete on quality of service, high availability and to manifest the
promise of continuous business operations. This person has responsibility for that. Additionally competition will drive the firm's need to innovate. This person will be responsible for headlights into the future of technology that matters to CBSI.

5) VP of Marketing and Sales: This person must build a highly technical direct sales and marketing team as well as a brand the distinguishes CBSI in the marketplace as the premiere FSP if the continuity of your IT matters to the continuity of your business.

6) VP of Strategy/Solutions/Applications Hosting – This person is responsible for the day to day delivery of the strategy and implementation projects and operating the application hosting function in CBSI.

7) VP of Technical Vitality and Innovation: This person is responsible to ensure that the CBSI team remains technically vital with relevant skills. This includes responsibility for industry specific skills as well as "know-how" with new and emerging technology. Close cooperation with the VP of Research and Development and VP of Strategy/Solutions/Applications Hosting will be required. This person will also build a human resources function.

Team Acquisition, Retention, Technical Vitality, Innovation

Competition for talent in the IT space is fierce. This competition combined with scarcity of skills has created a “seller’s market.” In a seller’s market, the seller has more negotiating influence. It is essential that this firm be aware and sensitive to the wants and needs of the employees of this firm in order to be an attractive place to work as well as to be successful retaining important and scare skills.

One of the key difficulties in attracting employees to consulting firms is that there is frequently an expectation for substantial travel. For many firms travel expectations exceed 50%. This firm will look to minimize the travel through a number of practices and expect to yield a number of benefits:
1) Establishing continuity centers in several major cities so those development teams can be near the clients. This will allow teams access to customers without overnight travelling. Customers within the region will allow shorter overnight trips.

2) This practice will also contribute to building trust with customers as their IT systems will be near them and operated by people they know that live in their city. They will be able to “see” their systems and data.

3) Internet based distant interaction tools will be utilized within the company with firm customers once personal relationships have been established to increase the efficiency and frequency of personal interactions.

4) Many small VAR/SI firms are regional in nature. In addition to organic growth CBSI will consider making acquisitions to acquire skills and relationships. With a policy of distributed development teams the firm will be able to acquire companies without the expense, disruption and retention stress of physically moving employees as would be the case of all operations were centralized.

5) Distributed teams will enable customers to have lower broadband communications costs and will also distributed the data centers and support disaster recovery needs.

The goal will be that ½ of the firm consultants will travel only occasionally and ½ will only be expected to travel on average 25% of the time or less.

Breakaway Solutions, Inc. reports that its most recent hiring includes 20% new college hires, 20% from the IT environment and 60% from Internet companies.\(^\text{32}\) As “dot.com” companies work to rationalize their business models it is anticipated that several will run out of cash and go out of business while others will be acquired. An ASP environment provides a more comprehensive career opportunity for people from both IT and Internet companies. A successful, growing ASP is expected to be a competitive place for the best talent to work.

CBSI will grant stock options to key employees including all IT professionals in order to align firm success with employee compensation. A substantial employee option pool will be set aside and options will vest over four-year vesting periods.

Each IT professional will have a personal development plan. This plan captures both career and experience desires and aspirations as well as training and education needs and objectives.

There is recognition of tension between the tactical needs of the firm and the needs of the employees. At a given point in time the firm sees most income from propagating similar solutions among many customers. This is where the efficiency and leverages comes from. However, propagating the same solution over and over may not be as enthusing for the IT consultant teams. There is a tension here. In the long term, however, the professionals’ desire for new and exciting work and the firms long-term skill improvement and retention needs are aligned.

Recognition leads to discussion, ideas, practices and ultimately positive culture to mitigate this tactical tension. One practice leader suggests that the perfect consultant engagement includes implementing a solution where 80% of the solution may be the same as past implementations but with about 20% new content. He reports that too much “new” creates extraordinary stress; especially in fixed priced contracts or on tight schedules. 20% “new” is invigorating and allows much of the learning to occur on the job. Managers sensitive to this can plan, price and schedule projects with this in mind. Personal experience suggests as well that a first implementation teaches one what works and what does not, the second similar implementation gets most decisions right, the third implementation generally is the best work and after that the mind is anxious for something new.

Knowledge management tools can help capture and correlate lessons learned and mistakes made with the individuals in the firm that had those experiences. Knowing whom in the firm has had various experiences or expertise leads to conversations that mitigate project uncertainty.

Rotation of assignments will be a key element of the culture. The management team and the IT professional can also recognize that what has become routine to one person can be new and exciting to the next. Scheduling and on the job teaching, learning and collaboration can enable professionals to move on to new areas while others backfill into existing practices. Rotations between the strategy group, the implementation group and the research and development group will be encouraged. Cusumano and Shelby report that the consensus within Microsoft is that developers should work in a particular technology space for at least two development cycles or about three years before considering moving on. They are referring to technology spaces represented by million lines of code products. The key idea is to find balance between leveraging mastery in product and customer engagements with boredom and burnout.

The biggest risk for the team is missing a wave a technology. The pressure to “bill” is very great in consulting/implementation firms and one can be so preoccupied that they miss building expertise and competence is the very waves of “new technologies” to which the firm was founded to migrate customers. One experienced practice leader described how his successful firm was so busy doing projects with proprietary (at that time) Lotus Notes technology, that his team nearly missed the early impacts of the Internet.

The firm will actively identify “gatekeepers” and informally encourage them with access to time and travel resources to build and maintain relationships into communities of ASP and consulting practice and expertise beyond the firm. This approach will contribute to maintaining access to new technologies and maturation trends.


Billing targets will be limited to 70% with high expectations on know-how learning and based on experimenting and directed play. Pfeffer and Sutton capture well the important difference between being aware of technology and being able to well apply it. They share, "But we now live in a world where knowledge transfer and information exchange are tremendously efficient, and where there are numerous organizations in the business of collecting and transferring best practices. So, there are few and smaller differences in what firms know than in the ability to act on that knowledge."  

This message applies to management and their endeavors to maintain an environment fertile for technical vitality and innovation while remaining profitable. It applies to IT professionals that must balance productivity based on doing what they know how to do today with the intellectual challenge of working and learning through experiments and failures in important technologies new to them in order to fight off the demons of technical obsolescence.

The firm is founded on the idea that customers find it difficult and/or expensive to keep up with the waves of new technologies. These are important because they lead to temporal competitive advantage. Standards-based technology implementations are required by firms to stay competitively efficient. It is essential for the firm’s team members to stay technical vital with minds prepared and fertile to innovate at the boundary between IT technology and business competitiveness. The firm will have a member of its executive team responsible for technology, learning, innovation and mastery to ensure the tension between “billable” hours and long-term viability is balanced for sustainable growth.

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9. Critical Risks and Problems and Assumptions

Execution Risks

The most fundamental risk for the business is that the promise of the ASP market does not materialize. That is, that a broad cross-section of customers does not embrace the idea of outsourced business applications.

A second fundamental risk is that specific firm application and IT environments are unique enough that there turns out to be no real one to many leverage and in cases where it is possible the competition drives prices to marginal cost and hence do not return profits on invested capital. If there is not one to many or one to several leverage than ASPs degenerate into traditional consulting companies that provide unique one to one outsourcing. In such a world scale becomes very important and consolidation would be inevitable.

Failure to execute service level agreements (SLAs) could lead to substantial loss of revenue and damage to CBSI reputation. It will be essential to well handle customer situations that result from mistakes, accidents or other failures to execute satisfactorily. These scenarios are inevitable and CBSI will look to these as an opportunity to demonstrate to customers the lengths to which this firm and its team will go to “make things right” with the customer.

Consulting companies are notorious for their inability to get financial leverage. If we are unable to reuse CBSI software, processes, tools and infrastructure across many customers in a cost-effective we may not be as profitable as the plan suggests.

Another concern is the escrow of software and build procedures for software applications used in solutions that are owned by companies that go out of business. How can an ASP provide a quality of service when the partners it depends on either cannot cooperate or has gone out of
business? Access to the asset is only a piece of the solution. The time required to get intellectual control of someone else’s software is very long and could affect profitability.

Furthermore, a related and major hole in today’s offerings is the inability to leave one ASP and go to another without stopping your business. Offering ease of exit (or enabling competition) may be essential to the development of this ASP industry. Being the ASP that is easiest to leave may reduce the barrier to entry for new customers, increase the level of trust and confidence in the ASP and provide a tool for customer acquisition from other ASPs.
10. Financial Plan

Pro Forma Income Statements

The pro forma income statements are built around a model that has two fundamental components. The first component models projects that begin with IT strategy consulting and end with implementation readiness. These projects will be either fixed cost or time and materials based. The revenue for an average project is modeled as $1 million and takes an average of six months from start to finish. At that point, the project is ready to be hosted. Application hosting is the second revenue component. The average monthly revenue for a hosted application is $25,000 per month. In the first year of a customer outsource relationship the revenue for the first six months is based on project and the second six months based on application hosting (six months times $25,000 per month = $150,000). Subsequent years revenue for that contract is application hosting only (twelve months times $25,000 per month = $300,000).

The model assumes that on average a given customer will do another similar project a year later with a 50% probability. For example if in year one the project was eCommerce, the next year it might be eCRM and the year after that it might be a version upgrade to their ERP application. Thus, the expected value for revenue for new projects and associated application hosting revenue is one half that of the first year that a customer does business with CBSI. The five-year model assumes this sequence holds each subsequent year for each customer. The implication is that revenues based on customer acquisition levels are therefore net and if a customer is lost the revenues will be made up with projects with new customers.

In the figure below you can see the implications of this modeling. A new customer generates $1.15 million in the first year, $0.875 million in the second year and so on. Notice that there is a compounding revenue generating effect based on the 50% chance in each year that customer will do another new project. Previous projects continue to generate application-hosting revenue and new application hosting revenues are generated each new year. Over time the portion of yearly customer revenue contributed from application hosting grows. Herein lies a key assumption for the leverage in what otherwise looks like an IT consulting firm. In year one application hosting
makes up only 13% of revenue with the remainder coming from projects. By year five the application component makes up 29% of revenue.

The revenue generation model applies to each acquired customer in year one. In subsequent years the pattern is the same with the revenue totals shifted one year to the right for each customer acquired in that year.

<table>
<thead>
<tr>
<th>CBSI Customer Revenue Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model Customer</td>
</tr>
<tr>
<td>Strat to Impl for Y1</td>
</tr>
<tr>
<td>App Hosting from Y1 Sales</td>
</tr>
<tr>
<td>Strat to Impl for Y2</td>
</tr>
<tr>
<td>App Hosting from Y2 Sales</td>
</tr>
<tr>
<td>Strat to Impl for Y3</td>
</tr>
<tr>
<td>App Hosting from Y3 Sales</td>
</tr>
<tr>
<td>Strat to Impl for Y4</td>
</tr>
<tr>
<td>App Hosting from Y4 Sales</td>
</tr>
<tr>
<td>Strat to Impl for Y5</td>
</tr>
<tr>
<td>App Hosting from Y5 Sales</td>
</tr>
<tr>
<td>Yearly Rev for Projects</td>
</tr>
<tr>
<td>Yearly Rev for Hosting</td>
</tr>
<tr>
<td>Total Yearly Rev for 1 New Y1 Customer</td>
</tr>
</tbody>
</table>

Figure 4

In the figure below find the assumptions about customer acquisition rates. The model assumes that after spending a good portion of year one readying product offerings and testing that CBSI would be able to attract five customers in year one. Additions to the sales team and appropriate technical staffing would support 25 additional customers in year two for a total of 30 customers. Year three would bring in 75 new customers, year four another 150 and in year five CBSI would acquire another 250 customers for a total of over 500 revenue generating customers based on the revenue model above.
<table>
<thead>
<tr>
<th>Net Customer Acquisition Rates</th>
<th>New Customers</th>
<th>Total Customers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year 1</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Year 2</td>
<td>25</td>
<td>30</td>
</tr>
<tr>
<td>Year 3</td>
<td>75</td>
<td>105</td>
</tr>
<tr>
<td>Year 4</td>
<td>150</td>
<td>255</td>
</tr>
<tr>
<td>Year 5</td>
<td>250</td>
<td>505</td>
</tr>
</tbody>
</table>

**Figure 5**

With these customer acquisition rates and the revenue generation models shown previously the model for the revenue line for CBSI can be constructed. The figure below shows the integration of the above two models to generate the revenue line.

<table>
<thead>
<tr>
<th>CBSI Revenue Model</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
<th>Year 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yearly Rev for All New Y1 Customers</td>
<td>5,750,000</td>
<td>4,375,000</td>
<td>5,125,000</td>
<td>5,875,000</td>
<td>6,625,000</td>
</tr>
<tr>
<td>Yearly Rev for All New Y2 Customers</td>
<td>28,750,000</td>
<td>21,875,000</td>
<td>25,625,000</td>
<td>29,375,000</td>
<td>37,125,000</td>
</tr>
<tr>
<td>Yearly Rev for All New Y3 Customers</td>
<td>66,250,000</td>
<td>51,875,000</td>
<td>65,625,000</td>
<td>78,875,000</td>
<td>92,125,000</td>
</tr>
<tr>
<td>Yearly Rev for All New Y4 Customers</td>
<td></td>
<td></td>
<td>172,500,000</td>
<td>131,250,000</td>
<td>170,125,000</td>
</tr>
<tr>
<td>Yearly Rev for All New Y5 Customers</td>
<td></td>
<td></td>
<td></td>
<td>268,500,000</td>
<td>337,125,000</td>
</tr>
<tr>
<td>Total Rev for All Customers</td>
<td>5,750,000</td>
<td>33,125,000</td>
<td>113,250,000</td>
<td>269,625,000</td>
<td>531,625,000</td>
</tr>
<tr>
<td>Total Rev from Projects</td>
<td>5,000,000</td>
<td>27,500,000</td>
<td>90,000,000</td>
<td>202,500,000</td>
<td>377,500,000</td>
</tr>
<tr>
<td>Total Rev from Application Hosting</td>
<td>750,000</td>
<td>5,625,000</td>
<td>23,250,000</td>
<td>67,125,000</td>
<td>154,125,000</td>
</tr>
<tr>
<td>Percent Rev from Application Hosting</td>
<td>13.0%</td>
<td>17.0%</td>
<td>20.5%</td>
<td>24.9%</td>
<td>29.0%</td>
</tr>
</tbody>
</table>

**Figure 6**

The cost of goods sold line is dominated by the costs associated with the people required to execute the projects and the people associated with the on-going application hosting. This is modeled using a fully burdened rate for a technical consultant of $150,000 per year. The number of consultants required is based on the several assumptions. The first assumption is that the base revenue generation rate per consultant is $225,000 per year. This is based on billing rate of approximately $150 per hour and 70% utilization (no overtime but vacations and absence come out of the 30% unbilled portion). Furthermore, the model assumes an effectiveness learning curve. That is, in the first year the assumption is the consultant is 25% less effective than the base. In the second year effectiveness equals the base and in year three, four and five the consultants ability to generate revenue increases at a compounded 25% rate. This is leverage that accrues from working in a particular vertical industry and doing projects that have similar attributes to previous projects. As the practice develops and tools and processes are created and optimized CBSI expects to be more productive. In these cases where CBSI has experience in
similar projects billing will be fixed price. This is the second productivity assumption based on the market approach for CBSI.

The model assumes that the required number of application-hosting specialists in the data center is 20% the number of consultants required to do the implementation project. The productivity of the application-hosting consultants tracks the productivity gains made by the project consultants.

The model assumes salaries for technical consultants (both project and application hosting) increases on average 5% per year. Recall that a substantial portion of the technical professionals’ motivation and upside compensation is tied to the success of the firm through stock options.

In this base case there is neither revenue accrued nor costs modeled for the research and development required to innovate in tools and infrastructure that can be productized and sold to other ASPs. The simple assumption is that this work needs to come out of the 30% unbilled time. Over time the revenue generated by licensing some of the technology to other ASP firms will pay for the research and development costs. In reality, as projects are defined for productization, additional working capital will likely be required.

The operating expense line is based on three major components. The first is the cost of the direct sales team. The second is the model for overhead within the firm. The third component makes up all other expenses including marketing and brand building expenses.

The sales team model works similar to the consultants. The based productivity for the sales representative is $2 million per year in sales revenue. Given that a project is worth about $1 million this suggests that a sales representative need only close two projects or so per year to make quota. Furthermore the sales representative gets “credit” for application hosting revenue which is modeled as perpetuity. The assumption here is that the sales representatives have close on-going working relationships with the customer. The JIT II implementation must come out of this sales capacity. Like the technical consultants the model includes a learning curve for
productivity. The expected productivity is 25% lower in year one, is par in year two and grows at a 25% compound rate through year five. Sales processes, product quality, trust, confidence and brand development all contribute to the sales productivity model over time. The base fully burdened technical sales representative annual cost is modeled to be $225,000 per year and no inflation factor is assumed.

The second component of the operating expense line is overhead. This includes secretaries, support staff and finance. In year one, two and three the assumption is that there is .3 of these people per consultant or sales representative. In year four and five the model assumes that that team of 150 people can support the company without scaling in proportion of the number of consultants and sales representatives which scale with revenue targets.

The third component of the operating expense line is reserved for all other firm operating expenses including all marketing and brand building expenses. The overall operating expense line is based on a declining percentage of revenue beginning with 70% in year one, 60% in year two, 33% in year three, 25% in year four and a very lean 18% in year five. After the people expenses are covered, this third component represents $2 million in year one. This amount begins putting marketing materials together and to do product management. $12 million is available in year two to further begin marketing activities. In year three $17 is available to continue to build the CBSI brand. In year four and five $38 million and $59 million, respectively are available on-going general expenses.

**Capital Expenditures**

The model for capital expenditures assumes that the average cost of hardware for a given customer is $80,000 per server and two are needed in each scenario. The model assumes the software the customer implements can be licensed for 1.5 times the price of the cost of the servers. Over time there is opportunity to improve on this based on better work management and cluster sharing technology that CBSI intends to develop. The costs of both hardware and software are assumed to go down at a rate that will allow the new applications a customer implements in future years to be covered by the base per customer investment. The hardware
and software are depreciated over three years. CBSI will endeavor to lease equipment as it establishes itself as a going concern to reduce VC-based capital demands and it will drive for software agreements where licensing fees will be paid as revenue is generated. The model assumes that each CBSI employee will have $5,000 capital to invest in desktop hardware and software configurations. CBSI is not financing the customer desktop configurations in this model. As a buffer the model adds $1 million in capital in both year one and year two for additional equipment that may be necessary. Bandwidth is assumed to come out of operating expenses.

![Table: Capital Expenditures](#)

<table>
<thead>
<tr>
<th>Capital Expenditures</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
<th>Year 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Customer Servers/Software</td>
<td>1,400,000</td>
<td>7,000,000</td>
<td>21,000,000</td>
<td>42,000,000</td>
<td>70,000,000</td>
</tr>
<tr>
<td>Development Hardware/Software</td>
<td>609,860</td>
<td>2,189,688</td>
<td>5,753,475</td>
<td>10,394,646</td>
<td>15,561,776</td>
</tr>
<tr>
<td>Startup Servers/Software</td>
<td>1,000,000</td>
<td>1,000,000</td>
<td>1,000,000</td>
<td>1,000,000</td>
<td>1,000,000</td>
</tr>
<tr>
<td>Total Capital Expenditure</td>
<td>3,009,860</td>
<td>10,189,688</td>
<td>28,753,475</td>
<td>52,394,646</td>
<td>85,561,776</td>
</tr>
</tbody>
</table>

**Figure 7**

Taxes are assumed to be 35% of profit. Taxes in year four offset by the tax loss carry forward from the previous three years of operating losses.

![Table: Revenues and Expenses](#)

<table>
<thead>
<tr>
<th></th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
<th>Year 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revenue</td>
<td>5,750,000</td>
<td>33,125,000</td>
<td>113,250,000</td>
<td>269,625,000</td>
<td>531,625,000</td>
</tr>
<tr>
<td>Cost of Goods Sold</td>
<td>5,333,333</td>
<td>23,100,000</td>
<td>63,504,000</td>
<td>120,022,560</td>
<td>187,946,438</td>
</tr>
<tr>
<td>Gross Margin</td>
<td>7.2%</td>
<td>30.3%</td>
<td>43.9%</td>
<td>55.5%</td>
<td>64.6%</td>
</tr>
<tr>
<td>Gross Profit</td>
<td>416,667</td>
<td>10,025,000</td>
<td>49,746,000</td>
<td>149,602,440</td>
<td>343,578,562</td>
</tr>
<tr>
<td>Operating Expenses</td>
<td>5,225,000</td>
<td>19,875,000</td>
<td>37,372,500</td>
<td>67,406,250</td>
<td>95,692,500</td>
</tr>
<tr>
<td>Depreciation</td>
<td>993,264</td>
<td>4,355,860</td>
<td>13,184,507</td>
<td>29,481,477</td>
<td>54,354,267</td>
</tr>
<tr>
<td>Profit Before Interest and Taxes (EBIT)</td>
<td>-5,801,597</td>
<td>-14,205,860</td>
<td>-811,007</td>
<td>52,714,713</td>
<td>193,631,795</td>
</tr>
<tr>
<td>Taxes at 35%</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>-11,163,687</td>
<td>-67,771,128</td>
</tr>
<tr>
<td>Net Income = EBIT (After Taxes)</td>
<td>-5,801,597</td>
<td>-14,205,860</td>
<td>-811,007</td>
<td>41,551,026</td>
<td>125,860,667</td>
</tr>
</tbody>
</table>

**Figure 8**

CBSI is a profitable venture. At a point in year three the firm has positive cash flow and is profitable for full year four. Revenues grow to over $.5 billion with profit of $125 million in year five. The model assumes working capital is well managed and represents 5% of revenues.

**Pro Forma Cash Flow Analysis**

Using discounted cash flows CBSI is a good investment with a positive and substantial net present value. CBSI requires approximately a $50 million investment. Values of consulting companies that do not have the leverage associated with application hosting are sometimes
valued at two to three times revenues. In this case CBSI would be worth $1 to $2 billion dollars in year five. Similar ASP firms, losing money, with $30-$40 million dollars of revenue and approximately 100 clients have market capitalization in excess of $2 billion dollars. In fact, prior to the April 2000 stock market correction, USInternetworking had a market capitalization of nearly $6 billion dollars. CBSI with a $2 billion market capitalization provides a venture capitalist with a 25% share an investment worth ten times the $50 million investment required to launch and build the company.

<table>
<thead>
<tr>
<th>Free Cash Flow to Capital</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
<th>Year 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>EBNAV</td>
<td>-5,801,597</td>
<td>-14,205,860</td>
<td>-811,007</td>
<td>41,551,052</td>
<td>125,860,667</td>
</tr>
<tr>
<td>Plus Depreciation</td>
<td>993,284</td>
<td>4,355,860</td>
<td>13,184,507</td>
<td>29,481,777</td>
<td>54,354,267</td>
</tr>
<tr>
<td>Minus Difference in Working Capital</td>
<td>-287,500</td>
<td>-1,656,250</td>
<td>-5,662,500</td>
<td>-13,481,250</td>
<td>-26,581,250</td>
</tr>
<tr>
<td>Minus Capital Expenditure</td>
<td>-3,009,890</td>
<td>-10,189,688</td>
<td>-26,753,475</td>
<td>-52,394,646</td>
<td>-85,561,778</td>
</tr>
<tr>
<td>Free Cash Flow to Capital</td>
<td>-8,105,723</td>
<td>-21,695,938</td>
<td>-20,042,475</td>
<td>5,156,607</td>
<td>68,071,905</td>
</tr>
</tbody>
</table>

Terminal Value = FCF (last year) / (WACC-g) * (1+g)
WACC=13%, Growth 3%
Present Value
-7,173,206 -16,991,101 -13,890,441 3,162,644 36,946,703

Total Firm Value
PV of Cash Flows Year 1-5 2,054,599
PV of Terminal Value 358,705,855
Total NPV 360,760,453

Figure 9

Cost Control

CBSI will establish an on-going business process to examine the state of standards and standard offerings to evaluate the point at which it would be advantageous (minimize risk) of moving out of providing some services and instead outsourcing them to downstream specialists. For example over time, work management systems are likely to develop that would enable CBSI to not have to own and manage the servers themselves and the operating system maintenance. This is not the case today. Billing/provisioning may develop into a standard capability. If so, CBSI may consider outsourcing it as well if it does not enter the business of selling billing and provisioning products.

CBSI will manage closely resource utilization of bandwidth, servers and software.
Integrated billing systems will be installed to make it easy for consultants to link their time to bills so that the developer, management and customers can well communicate at detailed levels if necessary about billing. This is an element of transparency to customers and trust building.

**Highlights**

CBSI’s success depends on a number of positive compounding results. The base case depicted begins with assumptions about customer revenue generation (compounding with flat pricing) and retention (presumes full lock-in). It continues with assumptions about improved productivity of technical consultants and sales staff (25% compounded). It assumes that overhead can be controlled and after a certain point need not scale with the size of the company (flat in year four and year five). It assumes prices for hardware and software will continue to fall. CBSI also assumes that in the strategic time frame competitive pressures do not alter pricing models substantially.

In a worse case scenario it takes longer for CBSI to take off. Competition drives down prices. More customers are required to generate the revenues and profits are farther off reducing the return on the venture capitalist’s investment.

In a better case scenario, the market really takes off and CBSI is limited only by the number and quality of staffing that it can acquire and integrate into the firm to take on projects in a quality fashion. Sales productivity may be much greater than expected. Customers may flock to the pre-integrated product offerings increasing the ratio of application hosting revenue for which process and cost controls can be applied to hold up profitability.

A consideration for CBSI is when to go public with the venture. The base case does not specify this but if one intends to grow through acquisitions then CBSI should consider going public in perhaps the end of year three when it can show profitability and fantastic profit growth projects. This would allow it to raise capital in the public markets and at the same time its stock becomes a relatively liquid currency that can be used for acquisitions.
11. Proposed Company Offering

Desired Financing

CBSI will offer equity for cash infusions to develop the products, hire the key skills and invest in hardware and software to enable the offerings. An initial round of financing would establish the firm, begin to build the executive team that can lead the company towards $1 billion dollars and would bring on the first technical consultants and marketing people to create the whole product. Later in the first year a second round would be required to fund more people and equipment. These people would engage with real customers in projects leading to application hosting. At the end of year one CBSI would hope to have five customers running applications and would have established a benchmark for project and application hosting products. Scaling and optimizing consume year two. As more customers are acquired CBSI begins to see the patterns emerge that lead to tool creations and process standards and optimizations that contribute to the productivity assumptions. Quality of service remains paramount and brand building begins. Year three, four and five are growth years. Challenges will include scaling of staff, sales, labs, tools and processes to maintain quality, growth while at the same time control costs to establish predicted profitability.

<table>
<thead>
<tr>
<th>Timeframe</th>
<th>Capital Required</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Round (first 6 months)</td>
<td>$3,000,000</td>
</tr>
<tr>
<td>Second Round (second 6 months)</td>
<td>$7,000,000</td>
</tr>
<tr>
<td>Third Round (year 2)</td>
<td>$25,000,000</td>
</tr>
<tr>
<td>Fourth Round (year 3)</td>
<td>$15,000,000</td>
</tr>
<tr>
<td>Total Investment</td>
<td>$50,000,000</td>
</tr>
</tbody>
</table>
Offering

The offering will include four rounds of financing. At each round the valuation of the company is expected to be much greater than the round before. In the end the target would be that 25% to 50% of the company would end up being owned by the venture capitalists, 25% of the company being owned by the employees and 25% to 50% of the firm being owned by the founders of the venture. The split between the financiers and the founders is based on progress to plan and market conditions.

Investor's Return

If CBSI executes to the plan indicated, a 25% share of CBSI should be worth in excess of $500 million. That is ten times the original $50 million dollar investment. This would meet typical venture capital expectations for reward for a new start-up venture.
12. Conclusions

Summary of Findings

The ASP market is just developing. Although the plumbing design seems established, compelling ASP offerings are, in general, not. Experience can be gained by featuring new and incremental applications to the enterprises and together they may build brand and trust in the ASP innovation. Regis McKenna in his forward of Geoffrey Moore’s book, Crossing the Chasm, speaks of “creating relationship” and “whole product solutions.”38 This is good advice to utilize as the ASPs engage is rather exploratory marketing looking for the combination of services and offerings that will move them to take-off.

Furthermore, ASP and ISVs should continue to examine the unmet needs of application integration and what technology can do to ease the pain of business process changes within organizations. Those inhibitors are just beginning to be addressed. If the solutions to those are appropriated the floodgates could open for the innovative firms unleashing the ASP opportunity and generating outstanding profits.

Finally, the industry has not yet addressed the whole model for changing service providers or exit from an ASP relationship back to in-house operations and where responsibility and liabilities accrue when IT failures lead to business damage. The fact that there is a set of artifacts that remain when computing stops that include the applications which model firm unique business processes and data that represents history make ASPs fundamentally different than other utilities. Furthermore, as a utility-like offering, there is no regulatory agency or policies for ASPs.

Critique of the Methods Used

When the thesis project began visits to customers were envisioned. Although this would have been very interesting, it was not necessary because of the enormous amount of information that was on the web. Not only could one access SEC filings for these early but public competitor

companies where they are compelled to disclosure their deepest and most glaring concerns, other sites offered recordings of calls between analysts and firm executives. These calls provided direct access to the executives of existing firms answering questions by financial experts.

In a complementary fashion, one major difficulty in the project was the overwhelming volume of material available and the rate with which the ASP phenomena was unfolding. When the project began there were a few firms to examine. Over the course of the year hundreds of new entrants began offering something that leveraged the ASP model. Each one hoped it had the correct and unique formula for success. The activity surrounding new investments, new partnerships, new models, new applications was breathtaking. It made for an extraordinarily interest topic but confounded the effort to come up with a stable, profitable business model.

**Further Research**

At this point the ASP market is so new, none of the competitors in the market are really competing with one another. That is, at this point they are generally competing with existing in-house IT methods or traditional one to one outsourcing. The demand for new applications and the shortage of skills for implementations is dampening the firm to firm competition. There is some competition in the web hosting space.

However, this is necessarily a temporary phenomenon. Competition will emerge and much is to be learned about how ASP competition will work. What will happen to pricing? What will service agreements look like? What will be the consequences to firms that are not able to fulfill their service level agreements? What is the role of customer applications and integration, migration and coexistence with existing IT in successful ASP models? What impact will new standards have? As competition heats up, what is the model for changing providers without loss of business continuity? Of all the players moving from their traditional position on the IT value chain which will emerge with the strongest ASP hand?

These and many more questions will emerge as the ASP phenomenon plays out. Moving responsibility for IT outside the firm represents a change in responsibility, management, and
accountability. It will be interesting to watch the Internet disruption unfold through traditional enterprise IT.
Technology Forces Indicating the ASP Industry: Enablement and Complexity

Motivation and Customer Needs

Small and medium sized businesses (SMBs) are being affected by a number of on-going and emerging powerful forces concerning their information technology (IT) solutions. Understanding these forces is important because they represent opportunity to develop solutions to deal with these forces. These forces are key to understanding customer needs; the starting point for strategy.

The first force is the influence of the Internet on the firms. The Internet makes it possible for the firm to be visible to potential customers all around the world. Selling ensues. Familiarity with international business leads to new supplier relationships. Between the new customers and new suppliers demand emerges for new applications to support the new and evolving business models. Globalization distributes company personnel around the globe as well. These people need access to the firm IT systems and need new systems to support their work. The Internet and the web provide a ubiquitous client and access medium in support of these global activities.

The changes that the Internet is enabling are coming very quickly. Remaining competitive requires the firm to move very quickly to establish and implement new business models and processes. Time to business is a key measurement in rolling out new applications.

The next force is the need for highly available IT solutions. This globalization brings with it 24 by 365 operation requirements for their IT solutions. 24 by 365 operations require dealing not only with unplanned outages but planned outages as well (for software and hardware maintenance). The state of the art handling of these challenges includes building clusters of redundant server and storage systems, which are generally complex to implement. The Internet exposes to end customers and members of supply chains the businesses' IT systems. This further
drives the continuous availability requirement as customers and partners all over the world, at all times of the day and night, are accessing the firms systems.

Further, customers expose the business's IT systems to *extraordinary* and growing peak to average *workload demands*. Being even temporarily inaccessible, a business may lose a customer forever. Sophisticated work management techniques and IT system architectures can deal with these issues.

The rate and pace of change in software and hardware and operational technologies, solution development technologies and web technologies has driven further specialization of IT professionals leading to unaffordability by SMBs to staff a minimal spanning tree of ever-changing skills in the IT shop. The explosion in its importance to the business (accelerated as well by the Internet and its possibilities) has created an enormous *shortage of capable, affordable IT professionals* in the U.S. and generally about the world. This shortage has made retaining that comprehensively skilled staff difficult and frequently unaffordable.

In common use software domains there is a *convergence of offerings*. Personal productivity applications have converged around a small set of offerings. "Run the business" application sets are converging around a small set of dominating ERP vendors (e.g. SAP, Baan, PeopleSoft, J.D.Edwards, Oracle, Lawson). This is a movement towards fewer operational models (relative to each business with its own handcrafted ERP-like applications suite and its own collections of hardware and software systems).

*New web-based applications* are emerging to deal with *web-based business processes*. These applications will need to integrate with one another. At the same time this is driving further skill specialization. The web has enabled a relatively ubiquitous access medium to servers that do not have to be collocated with the business (but may for locality of reference based performance reasons). Fiber, cable and other broadband access techniques are bringing lower cost and higher speed connectivity options to business.
Building IT infrastructure requires substantial planning, skills and capital outlay; generally up front. A SMB firm needs to deal with telecommunication and networking vendors and equipment. Then it must make decisions about the purchase and installation of hardware and operating systems. Solution software needs to be procured or written. Costs of rollout and ongoing maintenance must be budgeted. *A great deal of capital* may be involved in deploying new IT.

ASP Industry

These forces re-enable another run at the *computing utility* idea where the employees of a business are neither unempowered (PCs on the desk or alternative devices if appropriate) nor hostage to a hardware vendor. A computing utility brings the promise of faster deployment (of the IT pieces; shared best practices speed the human element by reducing the number of trials due to well known errors), more reliable service, more available service and globally enabled service.

Application hosting provided by *application service providers (ASPs)* offers the line of business (LOB) executive the possibility of putting a new application on-line without the need for the IT team in house to add and prioritize it along with all the other things it is struggling to do. An ASP offers applications as a contracted service typically charging the client per user/per month service fee. It is widely reported that there may be considerable savings to be had with ASPs; on the order of 30% to 50% of total ownership costs. The level of service a competitive ASP can provide is also likely to be much, much better than an in-house service. Perhaps the price should be higher than in-house implementations. Prices have not settled but range from about ten dollars per user per month for personal productivity applications to hundreds of dollars per user per month for sophisticated more specialized applications. The emerging idea of free software (e.g. StarOffice from Sun Microsystems) is a wild card for the ASP industry.

The development presents a convergence of software and IT infrastructure towards a net-centric environment. Software is moving from custom-encoded proprietary applications to off-the-shelf
applications developed for net-centric utilization for communication and management of information content. Accordingly, IT infrastructure is moving from current localized client-server model towards a net-centric infrastructure, providing on-demand services. Theses developments reveal a profound change in the IT industry threatening to replace existing ways of doing business for IT vendors.  

How big is this new utility industry? There are varying estimates for the size of the industry depending on how you define an ASP. It is however expected to be very large. Yankee Group includes front office and back office applications, applications hosting, web hosting and e-commerce and predicts that the ASP market will be $14 Billion by 2003. Several estimates (which may be mutually self-referencing) suggest the market for 2001 is between $2 billion and $6 billion.

**ASP Technology – Hygiene for Competitiveness**

There are two ways to think about the performance/effort “S-curve” relationship. First, from a traditional IT perspective and especially from a large company, large IT function perspective, one sees that a dominant design for highly available, Internet technology-based, systems seems to have emerged. However, a second way to think about this is when one thinks about the ASP as a hosting service. Then the innovation is really one of process and/or organizational innovation. It is an incremental change leveraging specialization of skills and efficiency through scope and scale to bring IT systems of this class to small and medium sized enterprises.

Let us test this. What one expects to see at the top of typical product “S-curves” are firms being forced out of business, other firms growing very large and falling overall profits. If one thinks about the displacement of under-capable small and medium sized businesses’ IT shops and their replacement by larger ASPs the pattern holds. Further evidence is that USi has purchased three

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traditional system integrator companies in order to expand the scope of its offerings as well as to continue to improve its economy of scale with respect to its competition.\footnote{USInternetworking, Inc., 424B1 Prospectus, EDGAR Online, Inc., (http://www.FreeEDGAR.com), April 12, 1999.} \footnote{USInternetworking, Inc., 10-Q, EDGAROnline, Inc., (http://www.FreeEDGAR.com), November 15, 1999.} ASP implementations are expected to cost less (at least up front) as well. This represents a lowering of prices. Slow uptake for ASP ERP implementation and heavy competition has led to serious price erosion.\footnote{"ASPs Need Entry Point to Fulfill “Trojan Horse” Strategy," http://www.iniku.com/member/content/magazine/it_magazine/Hurwitz/nov19_99_2.jsp, 12/3/99.} This suggests profit pressures. Sun, considered by many to be the hardware standard bearer for Internet implementations is doing extraordinarily well in this year while IBM bemoans Y2K complications hurting its sales.\footnote{Sager, Ira, “Inside IBM: Internet Business Machines,” Business Week, December 13, 1999, p. E23.} The evidence suggests for the “plumbing” piece of the ASP offering we are approaching the top of the “S-curve.” Process, efficiencies, costs, standards. These are the words of a mature “S-curve” and seem to pervade the ASP data centers.

ASP IT Dominant Design\footnote{James M. Utterback, Mastering the Dynamics of Innovation (Boston: Harvard Business School Press, 1994), pp. 23-55.}

This section captures key architectural and design elements for building highly available and Internet accessible IT systems. One would expect most ASPs to implement systems of this nature to provide the ASP capability. Variations will be based on impedance matching to existing systems. Also, incremental improvements in the design will be driven by process efficiency needs, especially in the area system management.

Client Software and User Interface Management

It is expected that client software and devices are Internet Protocol (IP) connected. This can be through company Local Area Networks (LANs), dial-up connections, television cable-based
LANs, Digital Subscriber Loop (DSL) from the telephone company, or even wireless protocols that ultimately present an IP interface into the network.

An essential piece of the application platform is the Internet browser and associated plug-ins. A Java Virtual Machine (JVM) imbedded in the browser or imbedded in the client operating system platform is generally expected. It provides a “safe” place to run arbitrary software that applications may download into clients (Java Applets) as well as a general purpose programming platform that can run trusted client applications that may access the I/O devices and file systems of the client platform.

With most of the PC based clients running one form of Microsoft Windows or another, many applications have been written to Windows-based application programming interfaces (APIs). These are generally client-based applications or client-server based applications. To make these applications available from central servers to Internet based clients (regardless of Microsoft Windows) terminal servers have been developed. This software intercepts and ships screens to the client returning mouse clicks and keyboard input to the application running on the server. Citrix WinFrame provides this capability, as does the Microsoft Terminal Server.

Applications written to fixed function devices and terminals can also be made to work on the web, generally transparent to the application. They can utilize special middleware that runs on servers, intercepts the screens and translates them to HTML on the fly routing the output to web-based clients. Keyboard and aid-key input is transformed from the web-based client to the form expected by the application. Although the look and feel of the application may be limited this middleware enables existing applications to immediately be accessed over the Internet to any web-based clients.

The management of client systems is one of the most expensive elements of computer systems. Although having a browser-based client that leverages server-based software can mitigate the costs client maintenance is still required. Maintenance or upgrades to the client operating systems, browsers, plug-ins, JVMs may be occasionally required. Generally large installations
have some sort of client function that assists in inventorying and updated other client code. Furthermore, when people using clients have difficulties central help desks need to be able to determine what is going on at the client. There is generally an extraordinary semantic gap between the language of the end-user and the IT expert. Many tools and technologies are needed to isolate problems. Some of the problems end-users experience over time are performance related. Additional tools are utilized to isolate the source of these problems.

Physical Location and Placement

ASPs are housed in data centers not unlike the “glass houses” and IT centers of large companies today (e.g. Class A data centers). These rooms/buildings generally have raised floors to ease power distribution and system cabling. In order to support the high availability requirements the systems generally have battery backup sufficient to allow orderly shutdown in the face of a power failure. To avoid power failures the systems are generally hooked up to uninterruptible power supplies (UPS) that have alternative power sources such as generators. The systems are generally packed in 19” racks, 1.5 meters high. The rooms generally have specially cooling units to keep the densely packed and high performance systems within operating range. Fire control and mitigation systems are also required. Back-up geographic sites are also essential to deal with major facility changes and in the event of natural disasters.

System management is important at this level as well. Monitoring is necessary for all the environmental elements described above with standard operating procedures (SOPs) for decision support and switchover and switchback in the face of maintenance and failure. Furthermore as the ASP grows, capacity monitoring and planning/modeling tools are essential, especially for facilities needs where the lead times are very long (e.g. the construction of new space or the need for upgrade of power transformers).

Network Design Considerations
In the ASP model, performance is a key success factor. This begins with access to very high speed internal LANs, switches and routers within the ASP enterprise. The topologies must support multiple parallel paths for performance and availability. Similarly the ASP networks must have high-speed redundant connections into the Internet. Some carriers allow for side-band communication to negotiate and allocate additional bandwidth on the fly to accommodate increase in traffic flows.

Since clients need to ultimately know a “system” by an IP address, devices exist that transform an incoming IP address to one of a set of computer systems that perform the work on behalf of that single IP address. These devices are essential for both performance and availability. These devices are sometimes referred to as IP-“sprayers.”

Hardware and Architecture Considerations

Designing the right system configuration to deal with both availability and the high peak to average workloads requires sophistication and is a key value ASPs can provide their customers through service level agreements (SLAs). To begin it is essential to run operating systems (e.g. UNIX or OS/400) that can reliably run multiple application workloads on behalf of thousands of users simultaneously. Generally these mature operating systems have monitoring and tuning applications that adjust memory pools and processor allocations and scheduling algorithms based on configuration and workload classes. Some advanced systems with highly developed work management systems (e.g. IBM’s OS/400) have a logical partitioning capability. This allows a large scale Multiprocessing System (MP) to host multiple images of the operating system. This allows for multiple versions of the operating system to be hosted on a single hardware complex (important to migration and coexistence.) It also supports the ability to move processors and memory to a running operating system image and running application dynamically. In this way large increases in important workloads can be handled smoothly by moving resources to higher priority running work opposed to either moving work to otherwise idle systems or taking the system down to reconfigure its physical partitioning scheme (e.g. Solaris).
At the next level of granularity, clusters of systems, each with their own independent operating system image can collaborate on workloads to provide horizontal scalability. Clustered configurations are essential to dealing with high availability for both planned and unplanned outages.

Tools that monitor SLAs and system performance are essential. Other tools are required to isolate problems. Still others are required to plan resource changes and to support capacity planning.

The disk farms in an ASP also need a degree of redundancy. Typically disk arrays have an additional device or two on-line within the enclosure. At least one is used in conjunction with the others to spread and record redundant bits of information in such a way that if any one device fails, requests for data from that device can be regenerated by the redundant information together with the information on the other functioning disks. Although performance may be temporarily adversely affected, it allows the system to keep operating through a failure. Repair/replacement of the failed disk and data recovery can occur concurrently with system operation. A second "extra" disk can allow this to occur, automatically, returning the system to full performance and allowing the hardware repairperson some scheduling freedom. Other systems duplicate each disk in a mirrored fashion. This approach avoids the performance implications while incurring greater hardware costs. These systems are faster on read (can read form the disk that gets to the requested data first) and do not slow down during a failure. Recovery of repaired disks can occur while the disk subsystem is not being utilized by the applications.

On-line, concurrent backup and restore capabilities are essential for both the systems and the persistent data systems (e.g. file system and database systems). Full and incremental backups are the foundation of good, highly available systems and may be needed more for corruption by errant software than for hardware failures.
The ASPs have multiple geographic sites to handle natural disasters. These systems must be in the cluster for high availability SLAs. For less stringent SLAs and lower cost yesterday’s backup tapes may be applied and operations restarted within a few hours.

Application Design

Modern web-based applications need to have a transaction orientation with respect to the end-user and the persistent storage mechanism (database or file system). They should have either have a stateless design with respect to the web client or they must be designed to ensure that client state is duplicated on a mirrored system so that under failure conditions transactions are not lost or partially made. Some applications may need to be altered to run multiple copies on behalf of different end customers on the same operating system image.

Security and User Management

Security is an issue that is important to customers and important to ASPs as well because customer confidence is anticipated to be a key inhibitor to the use of the ASP. Security begins with physical Security of ASP site. Only people who have a need should be allowed to physically interact with the systems and all the associated equipment. Physical systems generally have physical security such as keys to secure access to the control panel of the systems. Furthermore operating systems have security systems that control access as well as audit access and access attempts. Standard operating procedures are essential to separate duties and control access to environments, physical systems and operating system privileges. Profiles must be defined to control access to applications, data as well as to support personalization of applications for customers. Of course, this sophisticated access control needs to be transparent to clients who will require at most a single sign-on to access all that they are entitled to.

System management is again important to assist in the maintenance of user profiles and permissions, to monitor audit reports and demonstrate compliance to SLAs. Viruses and hackers
will do doubt continue to practice there craft and the stakes within a large ASP are more significant and perhaps more attractive to a hacker’s motivations.

**ASP Industry Strategy Analysis**

ASP Service Dominant Design

A second perspective is to think about what might represent a new “S-curve.” If there is truly a new “S-curve” in the ASP scenario it is related to the need to integrate application technologies that are missing in the offering and to integrate the offered applications to one another. It would also be related to the open issue of how to assist customers implement the business process changes and organizational transformations that new applications can support. There is plenty of room for innovation to take place working on these problems.

One sees ASPs offering a broader and deeper set of applications. They are searching for that right combination of offerings that will be attractive enough that customers will sign up for a contract. They are finding that filling in missing pieces is where the early business is. For example, USIX is having most success with its CRM application. Siebel, a leader in Internet based customers care is having great success leveraging the ASP to eliminate IT bottlenecks in potential using firms.

Consider application integration. Here one sees the on-going development of semantically described, published data models at an industry level. The purpose of these models is to provide a *lingua franca* for inter-application communication. Some standards have emerged over the years and others are being developed. For example consider EDI or electronic banking standards. The goal is to be able to have applications inter-firm (motivated by the ubiquity of the Internet) as well as intra-firm applications interoperate. These activities have been going on for

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many years. However, the web has amplified the need. The advent of XML as a tool for capturing metadata and sharing it universally is helping. So is the convergence to a rather small number of key ERP application vendors to which to impedance match. XML based interfaces are becoming pervasive interchange mechanisms. Business logic and associated transactional meaning is the next level to conquer.

Notice the implication of standards here. Although middle sized firms were expected to jump on ASP hosted ERP applications it just has not happened. Perhaps they have more pressing needs. Perhaps the systems they have are working fine today or they feel they have not sufficiently utilized their existing software investments (vintage argument). However, over time their one-off, custom applications that are logically equivalent to standard ERP offerings will require more one-off investment to participate in emerging integration-based capabilities. Either the company will have higher costs tracking the standards or they will fall behind competitively. At some point one can expect them to want to move towards more standard ERP offerings at which point the ASP possibility will again present itself. The establishment of the standards that enabled the web and ASPs will continue up the stack over time allowing applications to be zipped carefully together but this is all custom work at this point.

Another key innovation target is dealing with the people elements. Transforming organizations to adopt new business processes leveraging and utilizing new applications is not solved with ASPs. However, there are interesting observations one can make. USIX has begun offering extensive training packages on behalf of the suite of applications it supports. USIX also recently created a relationship with a software vendor that supports web-based real time instruction.\textsuperscript{47} Application providers are working to make applications simpler. Lawson, for example, customizes the interfaces to users based on their roles eliminated myriad menu choices that are not relevant to that particular end user.\textsuperscript{48}


\textsuperscript{48} \url{http://www.lawson.com/indexf.html}
Innovations continue in pursuit of better integration of applications and ways to enhance and speed up people’s ability to change. We can imagine these problems represent points much lower on another “S-curve.” On these fronts the ASPs see themselves in ferment, confident in their system structures and generally alike with respect to one another, but wrestling and struggling to put together the right service offerings. Here the dominant offering model has not yet emerged. What is offered today is unlike a traditional utility in that the (application) services are in no way standard and interchangeable.

Some early adopters have deployed some services successfully. ASPs are working with early adopters to try to understand their needs and are altering their offerings to meet those needs.

Industry Structure: Porter’s Five Forces

An examination of the ASP industry using Porter’s “Five Forces” model suggests one that will be very competitive and perhaps will not have the attractive structure one may have hoped for going in unless one continues to innovate and create value for the customer. This suggests deep relational customer interaction will be key to diagnose those emerge needs.

Potential Entrants – Importance: HIGH Entrants are coming from several sources. Telecommunications providers are moving up to provide ASP services. ISVs, anxious to ensure their products are available in this market are partnering with ASPs. Other ISVs are choosing to perform the ASP function themselves. Traditional outsourcing companies are entering the ASP market; some as wholesalers and others as retailers of application hosting services. Some new applications are completely transparent where the creator directly offers the end business service such as Larry Ellison’s new accounting service offering, NetLedger. All the technology USIX uses is available to anyone clever enough to raise capital, buy and assemble the systems and offer a service. USIX got into the game for less than $100 million and after burning through about $300 million it seems to be poised for substantial growth. USIX has, however, not yet earned a profit and it not likely to in 2000.

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Rivalry – Importance: HIGH The many entrants are making significant investments in infrastructure and people both for sales and technical operations and they will likely compete rigorously. As they all struggle to secure customers and their assets are underutilized they will not hesitate to offer prices barely over marginal costs if necessary to stay in the game. Perhaps the wisest of the ASPs are leasing their infrastructure near on-demand. They however, will be vulnerable if takeoff occurs and they must get in line for scarce infrastructure while their heavily infrastructure-invested competitors harvest the early majority. If growth in consumption outpaces capacity prices will provide good returns. However, if growth stalls and there is over capacity there could be a race to the bottom by firms desperate to cover operating costs and service debt from infrastructure investments. Wise firms will avoid infrastructure investments not essential to their quality of service.

If this happens, companies such as USIX may need to look to the lessons of Crown, Cork and Seal (CCS) amplifying the dimension of service, responsiveness and willingness to do custom work to differentiate themselves and leverage their deep application serving competencies. CCS was able to earn higher rents for their commodities as a result. This race to the bottom may be inevitable and further merger and acquisition activities may be necessary to get sufficient scale to compete (vs. the acquisitions they are now doing for skills and customer relationships.)

Pressure from Substitutes - Importance: MODERATE Substitutes include in-house IT, fully one to one based traditional outsourcing and other ASP vendors. USIX continues to report that its biggest competitor remains traditional firm IT functions. Once a system is installed and running there are moderate to high exit costs because the act of switching implies going through the same decision and planning process that led them to the prior ASP decision in the first place. Any transition will likely include some amount of downtime to transition operations to a new site. Operations skill transfer is also an issue.
Power of Buyers: - Importance: LOW  Very early buyers have had some negotiating power to offset risks of an untested offering.\textsuperscript{50} Buyers are very fragmented and there are potentially many options. There are however, few ASPs that offer a completely overlapping set of applications so finding a comprehensive alternative may be difficult. Over time convergence of ASPs will lead to more that offer all the functions a customer needs and so although they remain fragmented choice increases buyer power modestly. Switching costs will tend to lock-in buyers.

Power of Suppliers: - Importance: LOW-MODERATE  The suppliers to an ASP all have fierce competitors from telecommunications and networking infrastructure through hardware and operating system platforms through middleware and application providers. Suppliers of software are in general weak because they want their software available to end customers regardless with which ASP a customer will contract. The strongest suppliers are the large, established brands who today are in a powerful position as ASPs work to assemble comprehensive offerings.

ASP – Appropriability/Complementary Assets

For many small and medium sized firms the ASP’s highly available systems represents a great product. However, the technology described in \textbf{Appendix: ASP Technology – Hygiene for Competitiveness} is available to anyone clever enough to raise capital, buy and assemble the systems and offer a service. There must be some innovations in areas we have previously described (e.g. integration, people learning systems, and system management) that will allow some differentiation.

The next issue is complementary assets. A brand that means trust and confidence will be essential to build and maintain. It will be important to demonstrate capability and trustworthiness and execution excellence. Strong sales teams with deep customer relationships suggest that rolling up VAR firms and SI firms may be in order to not only secure expertise but to secure in-place customer relationships. Herculean efforts and great deeds on behalf of

\textsuperscript{50} USInternetworking, Prospectus, April 12, 1999.
customers would be useful. Overhearing, "No one was ever fired by contracting with CBSI..." might indicate a goal state for ASP branding.

In the spirit of Moore’s book, the CEO at USIX is working to "create the market." He speaks about how credible his competitor Corio is; quickly following up with what he considers his firms differentiating capabilities.\textsuperscript{51} Lawson is considered an ISV with more "consumable" ERP software. USIX now offers Lawson ERP packages in addition to PeopleSoft for the same function category. In complementary fashion both Corio and USIX host PeopleSoft. USIX has organized around ERP (moving slower) and Internet applications (those for whom the need is a consequence of the Internet) which is moving much faster. USIX provides for a contract that will let customers run their proprietary applications in the USIX data center with the thought that over time the customer will move to a standard.

\textbf{ASP Example Company - USInternetworking}

USIX implements, operates and supports software applications that can be accessed and used over the Internet. Flat monthly fees for the application service generate revenue. To deliver its services, USIX has built a network of four data centers. Headquarters is in Annapolis, Maryland. There are also data centers in California, Amsterdam and Tokyo. The data centers, network and system configurations promise world-class response time, reliability, availability and security. USIX takes full responsibility for providing these services; freeing customers from the need to own and manage related computer systems, networks and software.

\textit{Product Offerings:} USIX offers several products and services. The key service is called Internet Managed Application Provider (iMAP) solutions. These are software solutions that deliver an integrated, end-to-end solution. The solution includes connectivity to the application over the Internet, data center operations, computing and storage facilities, the solution application, implementation services and post-installation support.


An interesting observation is that only a short time ago USIX would speak of being the “exclusive” provider of a particular ISVs application or how they had chosen a particular ISV application as their category offering, say, for sales automation. More recently USIX appears to have shifted and is now making multiple offerings for a particular application category. A USIX sales representative commented that USIX looks to strike a balance between the scope of offerings and the complexity that accrues from an extensive application portfolio. Application integration complexity increases as the number of individual offerings increase. USIX has a clear vision to be a leader in the emerging ASP industry but has demonstrated flexibility in business and functional strategies as it engages and learns.

Another important service is called AppHost. AppHost is an offering for ISVs. With this offering the ISV can sell their application to customers with hosting service included. This is useful in closing sales where the purchasing firm’s IT capability is insufficient otherwise. This expands the market for ISVs. A significant relationship has been established with Progress Software. Progress provides application development support products for ISVs. They have application generation tools (4GL). A recent press announcement claimed they are a leading ASP user with 10,000 seats running under ASP USIX. Recently USIX announced it is participating in a pilot to deliver Microsoft Office Online. The proposed offering makes

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52 Private conversation with Steve Walters, USinternetworking.

Microsoft Office 2000 available as a service.\textsuperscript{54} Alignment with such substantial brand names is strengthening the credibility of USIX.

Web hosting is another key product. This offering caters to companies who want to outsource their Internet site. Despite the fact that USIX wants to rent software applications, many of its new customers are of this nature. They in turn offer services enabled by their sites. Other revenue generating services including consulting, custom development and training. USIX will also host applications that customers have developed so they are relieved from data center operations.

\textit{History.}\textsuperscript{55} USIX began operation in January 1998. It began by building its global network of data centers, allying with particular software providers and investing to develop unique product features. USIX acquired International Information Technology (IIT) in September 1998. This company specialized in systems integration consulting around PeopleSoft implementations for human resource management, accounting and financial systems. The company was acquired with 35 technical and sales personnel who USIX was able to largely retain. It began its iMAP service in September 1998. USIX acquired Advanced Communication Resources, Inc. (ACR) in October 1998. ACR brought with it 45 skills employees with expertise in Oracle systems integration. These employees were also successfully retained with incentives and options. Early revenues were based on the existing cash flows of the acquired businesses. On October 8, 1999 the Company purchased the assets of Conklin & Conklin, Inc. Conklin & Conklin, Inc. was a comprehensive provider of Lawson financial and human resources system implementation services and a certified reseller of Lawson software licenses.

This scenario is very similar to the successful merger and acquisition years of Beatice. A potential industry structure change is enabling some new leverage. Existing firms have customer

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relationships and the acquiring firm can bring capital and professional management. These acquisitions seem very reasonable. The acquired companies were small with modest incomes. USIX structured the purchases of at least the first two companies with substantial set-asides contingent on successful sale and employee retention goals. Employees should see great possibilities for financial and career growth as their skills look to be leveraged in the ASP model.

USIX secured two rounds of venture capital funding prior to a successful IPO in April 1999. This IPO raised $133 million. In November, USIX issued debt of $121 million. Business Wire reported, “The company stated that it intends to use the net proceeds of the offering for continued expansion and enhancement of its network and facilities, to increase marketing efforts, to invest in licenses, for research and product development in order to add new applications it its iMAP offerings, to fund debt service, to acquire complementary products or to fund working capital requirements and other general corporate purposes.” In February 2000 it raised another $119 million through the sale of common stock.

Organization and Staffing: USIX has over 1000 people and continues to grow. Currently press releases show enhancing the breadth and depth of the management team with very experienced professionals is a focus. The iMAP portion of the company seems to be organized around application family offerings allowing USIX to be aligned naturally with key software providers.

Financials: USIX has not yet generated profit and its operating costs exceed its revenues. It has been very successful at raising operating investment however the April 2000 tech-stock correction has substantially lowered USIX’s market capitalization and raising further money may become more difficult. In 1999 USIX did about $100 million in revenue and they now have over 100 customer contracts. Additionally they are now generating over 50% of their income from the monthly on-going contracts (compared to consulting revenues); a sign the ASP business model is beginning to take hold. The stock is very volatile. The IPO was at $21, the stock

soared to $40, fell to $18, and went to over $100 (split-adjusted) and in the last few weeks has hovered around $20. In October 1999 the IPO lockout period ended and one can begin to see some insider trading activity but no run for the door. USIX may be close to positive cash flow by year-end 2000 but a more conservative position would be to not look for profits until 2001. Several analysts are tracking USIX and many suggest it as a volatile but good buy.

USInternetworking Strategy Summary

USIX is looking to develop two unique competencies. The first is to offer a single point of responsibility to the customer. Therefore it chooses to have its own infrastructure (networks and data centers). The second is to build within its team deep application specific expertise.

USIX has started with building the key network and data center assets. They are licensing select software from providers. Acquisition of consulting and integration companies with the expertise to sell and implement the ASP model provides the foundation of expertise. They are hiring their centurions to run the various product offerings and position themselves for high growth. The opportunities they can offer to IT professionals should make their offers attractive as they continue to staff.

USIX is anxious to gain more customer contracts and seems to have broadened their search. Many of the recent announcements look like infrastructure outsourcing and ISP hosting but the quality of the companies USIX is winning over are very impressive.
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