

Web Services Will Be Successful Using an “Outsource on Our Servers and Charge” Model

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1. Introduction

In the current marketplace, companies are looking to cut costs in order to meet their earnings estimates on Wall Street. Some companies are looking at offshoring and outsourcing as ways to reduce their cost structure. Web services providers can take advantage of this trend. The old model for web services providers to bill companies was “deploy and charge.” The providers would build and develop the web services for their clients and charge them for the services. By switching to an “outsource on our servers and charge” model, web services can be utilized by both small companies that lack the infrastructure to set up their own web services and by large companies that are looking to save money by utilizing the infrastructure of the web services provider.

This paper explores why an outsourcing model for web services would be successful. Section 2 details how the current financial environment influences companies’ decisions and how this can promote web services. Counterclaims against the successfulness of this strategy are analyzed and rebutted in section 3. The argument to change the way that web services are billed to an “outsource on our servers and charge” model is discussed in section 4. Conclusions are presented in section 5.

2. Current Financial Environment

As companies struggle to meet Wall Street estimates, they continue to look for ways to cut costs. Since there is increasing pricing competition in many industries, companies need to lower their cost structure in order to continue to be profitable. Layoffs, project cancellations, and

outsourcing are only a few of the ways that companies are presently using to reduce their bottom-line costs.

Layoffs are occurring in large numbers in many companies. By reducing the number of employees, companies are able to save on the cost of salaries and benefits. Unfortunately, this approach leads to higher unemployment and has an adverse effect on employee morale, productivity, and the job market. In general, there has been a steep decline in the number of information technology jobs available. The practice of layoffs is not a good long-term solution for companies that are looking to grow or for the economy in general.

A second cost-cutting approach is project cancellations. By canceling projects, the costs that would have been associated with these projects are avoided. Often, work that needs to be done is being postponed or not completed. This provides only a temporary solution to the economic difficulties faced by companies for work which ultimately needs to be completed.

A third cost-cutting approach is outsourcing. By outsourcing, a company is able to have tasks, such as application development or website creation, completed at a lower cost. Workers in countries such as India, Brazil, and China are paid less than one-sixth of what US employees are paid. According to “Study: Outsourcing tech jobs strengthens economy” appearing on CNN’s website on March 30, 2004, an employee in India receives approximately ten thousand US dollars versus an average of sixty thousand US dollars that a comparable American employee would receive. Financially, the concept of outsourcing development work is a sound solution for companies to save money.

Web services, however, have the potential to be a better solution for companies to get the tasks they need completed and to get it done for less money. Since client companies would utilize the web services already developed and maintained by the provider companies, the need

to have an internal development team for the services could be eliminated. Therefore, the significant costs associated with developing and maintaining the programs would be eliminated. There are already several companies in the marketplace that host applications successfully employing an “outsource on our servers and charge” model, for example, Datastream, Corio, Digex, Savvis, BlueStar Solutions, Exigen Group, and USinternetworking.

3. Counterclaims

There are several arguments that people can make against the likely success of web services utilizing an “outsource on our servers and charge” model. Specifically, these include concerns about the security of web services and concerns about service reliability.

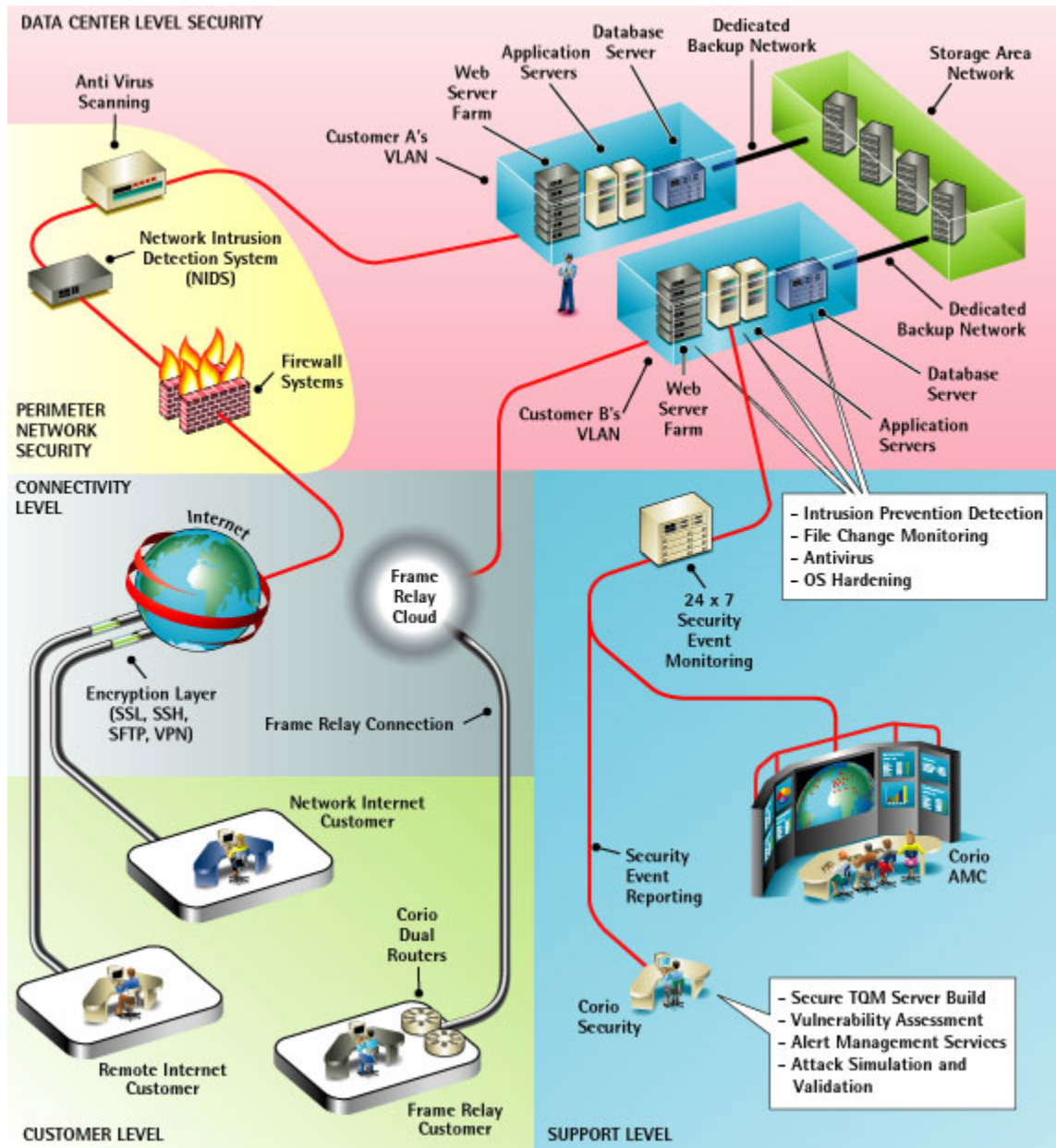
3.1 Security Concerns

Security of information assets is very important since client companies can lose competitive advantages should proprietary information fall into the hands of a competitor. In order to prevent that from happening, web service companies take great care to protect the customer’s information and have developed various protection schemes to ensure that the data is secured (e.g., firewalls, encryption, dedicated machines, etc.). Many web service companies have opted for third party certification of their security environments to provide confidence for their clients. Here are a few examples of how web services companies are addressing security concerns.

According to Datastream’s website, the company manages security through the use of “professional firewall systems, periodic testing, intrusion detection logs, emergency response procedures, auditing, and physical security.”

(http://www.datastream.net/services/hosting_service.asp)

Corio, Inc.'s website claims that Corio teamed with the leading security providers and introduced a multi-layered approach for security. The three main components of Corio's security model consist of a unified security framework to deliver the technologies and services, security processes to insure quality for the secure reference builds and the continuous monitoring of reporting metrics, and the conducting of ongoing security awareness programs to elevate the importance of security to users. Corio is SAS 70 Compliant. Price Waterhouse Coopers validated that Corio's controls for servers, networks, and financial applications were suitably designed and complied with. The following figure shows how Corio protects client's information assets using firewalls, intrusion detection systems, and encryption.



(<http://www.corio.com/spd.cfm?spi=Security>)

Security is also of paramount importance to Digex. Digex maintains a Security Systems Operation (SSO) organization to monitor, evaluate, and react to potential threats. According to the Digex website, the SSO is responsible for tracking network traffic, monitoring external security postings, forwarding security warnings to the customers, detecting hostile actions and acting appropriately, conducting internal audits, and managing and supporting client firewalls to

ensure that all patches and upgrades are deployed. Digex has received a Type I and II SAS 70 and TruSecure certifications. SmartSecurity consists of providing physical security, network security, server security, and SmartUpdate to notify Digex customers of any security threats.

Savvis Communications Corporation is another web services company which stresses security. According to the Savvis website, Savvis breaks security into three main components: physical security, network security, and data protection. Surveillance cameras, security guards, proof of identity requirements for guests, and biometric access controllers are some of the ways that Savvis provides physical security at its data center. In order to protect network security, Savvis uses Nortel Networks Shasta 5000 Broadband Service Nodes and provides advanced firewall capabilities. In order to protect its customers' data, Savvis puts each of its customers on their own Ethernet segment to prevent the sniffing of other company's traffic.

Blue Star Solutions also emphasizes security for its web services. BlueStar's website states that its hosted solution is accessible via a secure, dedicated WAN connection. For the messaging applications, the customers have the choice to share the environment with other clients or to have their own dedicated messaging environment.

Other companies include the Exigen Group, a web services provider that utilizes role-based security which builds on the client's existing security policies. According to its website, Exigen bases its security services on open, industry security standards. The standards utilize PKI, SSL, S/MIME, MD5, LDAP, JAAS, and GSS. Exigen also utilizes plug-ins to interact with the client's existing security systems.

USinternetworking is another web services provider that has responded to its customers' security concerns. In its May 1, 2002 press release, USinternetworking announced that it was the first Application Service Provider to guarantee application security as part of its enhanced

service level agreements. The written guarantee provides strong financial penalties on the provider if client data or applications are exploited by known vulnerabilities. According to the May 1, 2002 USi press release, USi's "Total Security Architecture" includes the following:

- Intrusion detection services, user authentication services, vulnerability patch management services, virus protection services, data cryptography, forensic services, and life-cycle risk management services
- Protection against all known vulnerabilities across the OS, Web, Application and Database layer
- 3rd Party Security certifications and validations , including ISO 9001, SysTrust Cyber Process, SAS70 - Levels 1 and 2, and Microsoft XSP Gold Certification
- Tailoring of security architecture and policies to meet individual client needs (http://www.usi.net/about_usi/news_events/press_release.asp?ID=307)

USinternetworking realized how important security was to its clients and provided its customers with some peace of mind.

From these examples, it is very clear that web service companies take security very seriously. Therefore, the claim that web services using an “outsource on our servers and charge” model will not be successful due to security concerns is unfounded.

3.2 Reliability Concerns

The second counterclaim is that web services will not be successful due to service reliability concerns. Companies rely on their mission critical systems to be up and running since downtime can potentially cost companies a significant amount in lost revenue and sales. A major concern is that since client companies would not have control over the infrastructure in a hosted model, they would not risk outsourcing their applications to web services companies. This concern is unfounded since the web services companies take extreme care to ensure that their systems are accessible at all times utilizing redundant hardware, proprietary architectures, and disaster

recovery procedures. Here are a few examples of how web services companies are ensuring the reliability of their services.

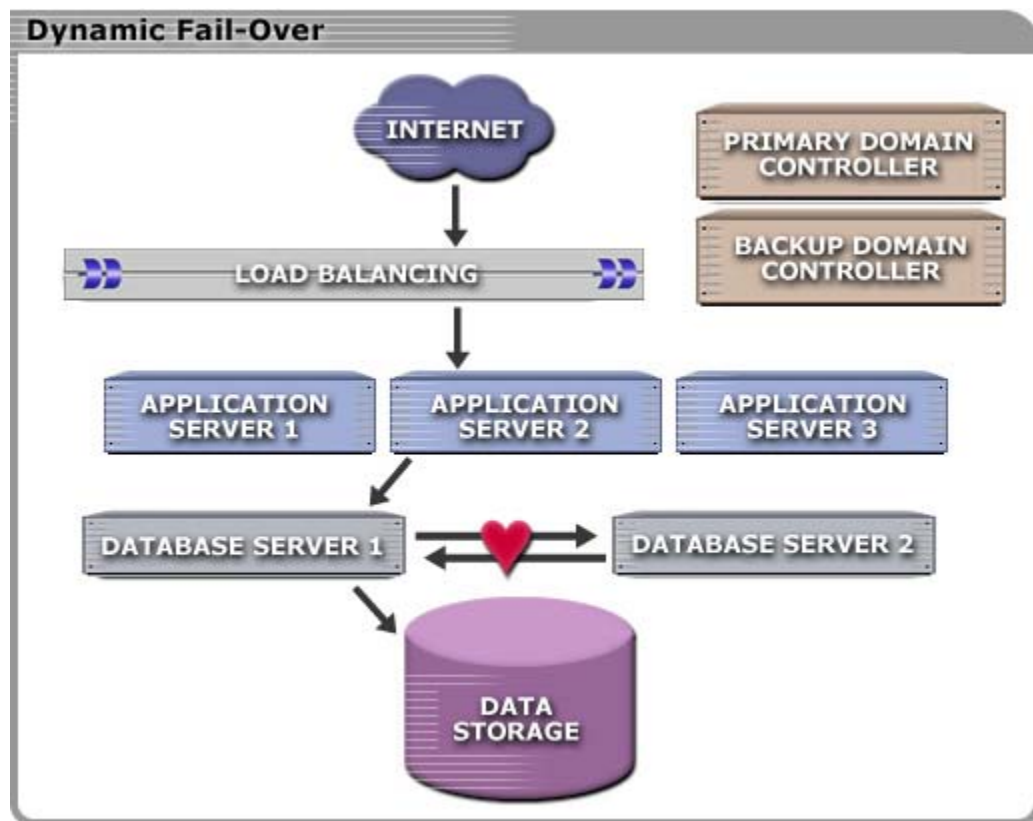
Datastream's asset management system has many users worldwide that need access to their asset information. The company uses clustered servers and equipment that are set up to be fully redundant. This is done to ensure that the customers' systems will be available for the clients when they need them.

According to Corio's webpage, the company wants to achieve a "no-compromise standard" for service reliability. It assures that Corio's customers will receive a pre-determined amount of server level application uptime. This ensures that the customers' mission critical applications will be available. Corio provides end-to-end application management utilizing its application management center, process automation utilizing its operations support system, and proprietary architectures and standard operating procedures. The application management center performs end-to-end monitoring twenty-four hours a day to ensure that the promised availability times are delivered. Corio also works to proactively find and fix problems before they are noticed by the customers. Corio utilizes process automation for the repetitive tasks performed while managing the applications. This reduces the potential for human error while at the same time improving the response time for the requests. In addition, Corio claims that they combined world-class technology and best-in-class procedures to create its architectures and standard operating procedures.

Digex is another company which realizes the importance of service reliability. Its website states that the company ensures that there are no single points of failure, and it guarantees it with a promised Service Level Agreement. It utilizes dynamic fail-over, standby databases, and enterprise fail-over to ensure that its customers' applications are not interrupted. These services

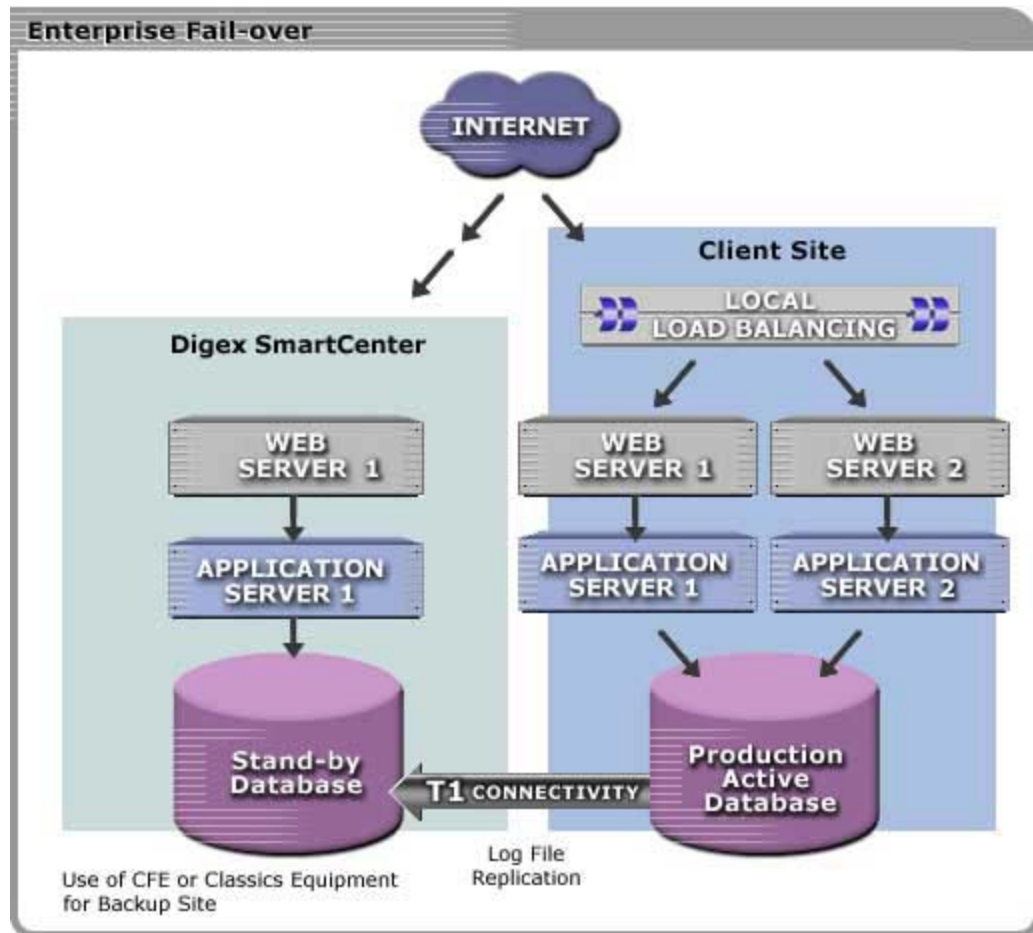
assure that traffic spikes and hardware failures will not result in downtime which could lead to lost revenue.

If there were a failure in the primary system, Dynamic Fail-Over would take over sixty seconds after it was detected. A live database is constantly available to serve as the backup in the event that the primary system goes down. The way that the fail-over works is described in the following figure taken from the Digex website.



(<http://www.digex.com/services/highAvailability/dynamicFailover.asp>)

Digex also provides the ability to utilize standby databases. These databases are at a completely separate location to ensure that the user can maintain continuous service if one of the data centers goes down. To protect the integrity of the data during the replication between the



(<http://www.digex.com/services/highAvailability/enterpriseFailover.asp>)

Digex's customers are in good hands when it comes to the reliability of their applications.

According to the Savvis website, the company provides the industry's strongest reliability and performance guarantees. The clients are entitled to receive credits if the network is not performing as agreed to or if connectivity is lost for just one minute. Savvis guarantees 100% hosting environment availability for colocation customers. They achieve this availability by providing N+1 redundancy which is supported through the use of Uninterruptible Power Supplies (UPS), back-up power generators, and air handling and cooling systems. Savvis' Hosted Area Network (HAN) is fully redundant and scalable. In addition, Savvis' PrivateNAP architecture provides network reliability so that the hosting environment connectivity to the

Internet is guaranteed to be 100% available for its customers. Fully managed sites are guaranteed to be available 99.9% of the time due to the constant monitoring of the customers' systems.

On USinternetworking's web page, the company states that its Continuity Services ensure that its systems will be available in the event of a failure or disaster. The services listed include: providing robust redundancy, applying data retention policies, utilizing storage technologies, performing secure backups, and maintaining disaster recovery solutions that meet client timeframes for recovery.

Based on the technology that is available today, lack of reliability of the web services should not be a concern that would prevent customers from utilizing web services. The companies mentioned above have met the service reliability needs of their customers to ensure that their applications are available. The high levels of service guaranteed by web services providers discredit the argument that service reliability concerns would prevent companies from using web services.

4. “Outsource on our Servers and Charge” Model

Web services companies have the potential to be very successful. Companies, such as Microsoft and Sun, are investing large sums of money and resources to develop web services. The .NET platform is Microsoft's web service initiative, and Microsoft is striving to make its applications seamlessly interact with each other over the web. The potential for web services utilizing the “outsource on our servers and charge” model to be successful is apparent in both large and small companies.

4.1 Applicability to Large Companies

Large companies typically have several disparate systems to handle finances, human resources, manufacturing, and marketing which were implemented at different times, by different people, utilizing different technologies. A major problem arises when there is a need to share information across the systems. In order to solve this problem, companies invest large sums of money to integrate these systems. This accomplishes the goal of avoiding the labor-intensive and error-prone task of rekeying data into multiple systems, but successful system integration is very time consuming and expensive.

By developing web services to access the system components that are to be shared or utilizing a web services company that hosts the web services, all of the different applications would be able to interact with each other. Instead of constructing direct links between the systems which might be made obsolete when versions change, this approach provides companies with a solution that lasts. Furthermore, since most of the enterprise wide applications require upgrades every few years to remain covered under support agreements, it is very costly to maintain individual interfaces. Currently, internal development teams are employed by companies for each interface between two systems. By creating a web service, only a single development team would be required for the web services. Alternatively, the company can utilize a web service that is hosted on a web services provider's infrastructure. Outsourcing to a web service company could result in the client minimizing infrastructure overhead and reducing the staff needed to support development and maintenance.

4.2 Applicability to Small Companies

Web services can also provide a solution for smaller companies that do not have the finances required to set up their own IT infrastructure. Web servers, databases, software, security, and support staff are only some of the expenses that are associated with setting up an infrastructure. According to “Quality Improvement and Information Technology Infrastructure Costs in Software Product Development: A Longitudinal Analysis” by Donald Harter and Sandra Slaughter, the average amount of money spent for infrastructure and infrastructure services accounted for more than fifty-eight percent of the total IT investments of twenty-seven firms studied by Weill and Broadbent (Harter 1). Therefore, it is reasonable to expect that smaller companies which have less capital to spend on IT investments would receive a significant benefit from utilizing outsourced web services hosted on the web services provider’s servers. This approach allows the companies to spend more of their money on actually obtaining the necessary services.

4.3 Successfulness of Web Services Providers

There are many web services companies in the marketplace that host applications. Datastream is one of those companies. The company hosts its asset management product Datastream 7i on its servers. Client companies can either set up the system in their own infrastructure or they can utilize Datastream’s servers to host the application. According to Datastream’s website, the company markets its hosted product as having the lowest total cost of ownership for the client company in the market. This is due to the fact that the technical and administrative burdens are eliminated since the system is administered and maintained at Datastream’s site. Not only is the software served from the site, but support questions are

answered by Datastream personnel as well. This avoids the costs associated with requiring helpdesk support for the application by the client company. Another benefit of the hosted solution is that upgrades are instantly available. Unlike other systems that might require infrastructure upgrades in order to apply the upgrade, having a hosted solution allows you to apply the upgrades without worrying about additional infrastructure costs. Datastream is just one example that the “outsource on our servers and charge” model can be successful.

According to the January 11, 2002 announcement on Corio’s website, Sun stamped nine web services provider companies as Level One certified. These companies met the standards related to infrastructure and operational practices, availability, security, and scalability. These companies included: Corio, Digex, Digital Island, eOnline, Exodus Communications, GlobalCenter, Niku, Portera, and USinternetworking.

Similar to Datastream, Corio, Inc. is another company that is attempting to capitalize on the “outsource on our servers and charge” model. According to its webpage, Corio is a leading enterprise application service provider for a broad range of applications and charges a monthly fee to serve enterprise applications. Customers access the applications online using iSRVCE™, and the data is maintained at a Corio data center reducing the infrastructure costs for its customers.

Corio provides applications that can benefit large and small companies. It offers access to PeopleSoft, Siebel, Oracle, SAP, Ariba, and E.piphany.

- PeopleSoft provides human resource, financial, business intelligence, procurement, manufacturing, distribution, and supply chain applications for the end users, and Corio has completed over 430 PeopleSoft projects.

- Siebel provides applications for sales, marketing, and customer service, and Corio has completed more than 30 fixed-bid Siebel projects.
- Oracle provides information management software for its customers, and Corio has completed over 325 projects.
- SAP provides applications for accounting, production and materials management, quality management and plant maintenance, sales and distribution, human resources management, and project management. Corio has completed over 250 SAP R/3 Fortune 1000 projects.
- Ariba is a provider of applications to manage spending, and Corio has two large financial services customers for this product.
- E.piphany provides marketing, sales, and service solutions, and Corio has built over forty E.piphany instances.

Companies such as Visa and Mindspeed are using Corio for their enterprise application needs.

Corio Applications on Demand™ provides a pay-as-you-go model for enterprise applications that offers customers flexibility. In May of 2003, Corio's subscriptions exceeded one hundred fifty thousand subscribed users. According to the Corio Annual Report, its revenues for 2003 were \$68.7 million up from \$56.1 million in 2002. It is obvious that web services utilizing a "outsource on our servers and charge" model can be successful.

Digex has also been successful in the web services business. Digex serves as an enterprise hosting service for 483 clients operating since 1993. According to the Digex website, Forrester Research predicted that the managed hosting services market will expand from about \$6 billion in 2002 to over \$30 billion in 2006. This is very promising news for web services. Digex hosts portals, messaging and collaboration services, enterprise applications (Siebel and Peoplesoft), commerce solutions, and disaster avoidance solutions. Digex's impressive list of customers

include half of the top ten motor vehicle and parts manufacturers, three of the top five beverage manufacturers, six of the top ten food manufacturers, two of the top five toy manufacturers, two of the top five personal care products makers, the top restaurant company, half of the top twelve pharmaceutical companies, two of the top five commercial banks, and six government agencies.

Another profitable web services company is eOnline, now called BlueStar Solutions. According to BlueStar's website, BlueStar specializes in hosting and managing enterprise applications for one hundred ten customers representing more than sixty thousand ERP seats and one hundred thousand messaging users from over eighty countries. The company has three data centers to support its customers' needs. BlueStar delivers services for SAP, JD Edwards, Lawson, Microsoft Exchange, SunONE/iPlanet, and Lotus Notes/Domino. Its customer list includes companies from Akzo Nobel Surface Chemicals LLC to Vital Processing Services. According to its September 3, 2003 press release, BlueStar achieved 99.9% availability for three years in a row. This is yet another successful web services company.

Web services companies are also merging. According to Tiffany Kary's CNET News.com article, Digital Island was purchased for \$340 million by Cable & Wireless in 2001. Digital Island provided content delivery, networking, and hosting services to its customers. After Digital Island was purchased by Cable & Wireless, Savvis Communications purchased Cable & Wireless's American assets in March 2004. According to Savvis' March 8, 2004 press release, the new entity is expected to have annualized revenues of \$700 million by the end of 2004. This shows that the industry is becoming more valuable.

Exodus Communications had a slightly different story. In September 2001, the company filed for bankruptcy protection. In Adam Eisner's May 21, 2002 article "Exodus Communications Returns With Message of Stability," it was noted that most of the assets of Exodus were acquired

by Cable & Wireless for \$850 million in December 2001. Even though Exodus filed for bankruptcy protection, it was able to maintain most of its clients. Part of Exodus' assets included GlobalCenter, a subsidiary of Global Crossing. In Cathleen Moore's article on "GlobalCenter, Novell team for speedy Web services," it was reported that Exodus would acquire GlobalCenter for \$6.5 billion. Along with Digital Island, Exodus Communications ended up being part of Savvis Communications in the 2004 deal with Cable & Wireless.

Niku is also a very successful web services company. This company follows the "deploy and charge" model for web service purchasing. Its main product is Clarity, a recently released web service for IT management. Niku deploys the eight modules of the product to the client in a phased deployment. Over four hundred thousand users utilize Niku's products. Companies, such as 3M and Best Buy, utilize Niku for their IT management and governance solutions. According to Niku Corporation's February 26, 2004 press release, its fourth quarter 2004 total revenue was \$13.3 million. This was a \$1.3 million rise from the fourth quarter of last year.

Portera is another web services company that was bought out. According to the June 10, 2002 ASP news article, Exigen Group acquired Portera. Portera's ServicePort suite helped service organizations to manage their operations through a subscription based set of Web services. Its customer list included Agilent, Lockheed Martin, and Raytheon. Exigen now provides web services, including ServicePort, as well as providing outsourcing services.

Finally, USinternetworking, Inc. provides application hosting, management, and professional services for more than one hundred enterprise clients. Its client list includes Sunoco and Wachovia. USi supports Peoplesoft, Oracle, Siebel, Ariba, and SAP. USi also provides hosting services for companies that do not want to deal with the infrastructure requirements. This

approach delivers cost control and minimizes risk. This is another example of a web services company utilizing the “outsource on our servers and charge” billing model.

These web services companies all appear to be relatively successful and have large customer bases including companies on the Fortune lists. Since the industry is predicted to expand from \$6 billion in 2002 to over \$30 billion in 2006, it follows that the “outsource on our servers and charge” model will continue to be successful.

5. Conclusion

Initially, web services providers followed the “deploy and charge” model to bill companies. The web services providers would build and develop the web services for companies and charge them for the services. This strategy was successfully employed by Niku and its Clarity product. On the other hand, there is a new model being implemented for web services billing. By switching to an “outsource on our servers and charge” model, web services can be utilized by both small companies that lack the infrastructure to set up their own web services and by large companies that are looking to save money by utilizing the infrastructure of the web services provider. Datastream, Corio, Digex, Savvis, BlueStar Solutions, Exigen Group, and USinternetworking are all succeeding in utilizing the “outsource on our servers and charge” model. These companies addressed the customer concerns over security and service reliability to win over their clients. Fundamentally, web services providers satisfied their skeptics through third party certifications of security and financially guaranteed service reliability.

Companies are succeeding in offering billable services over the network, and this was enabled by utilizing web services. As these companies continue to provide safe, reliable service, additional clients should be inclined to cut costs and sign agreements with web services outsourcing companies.

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