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“Pure-Play e-Business Development”

Spotlight Report

May 2000

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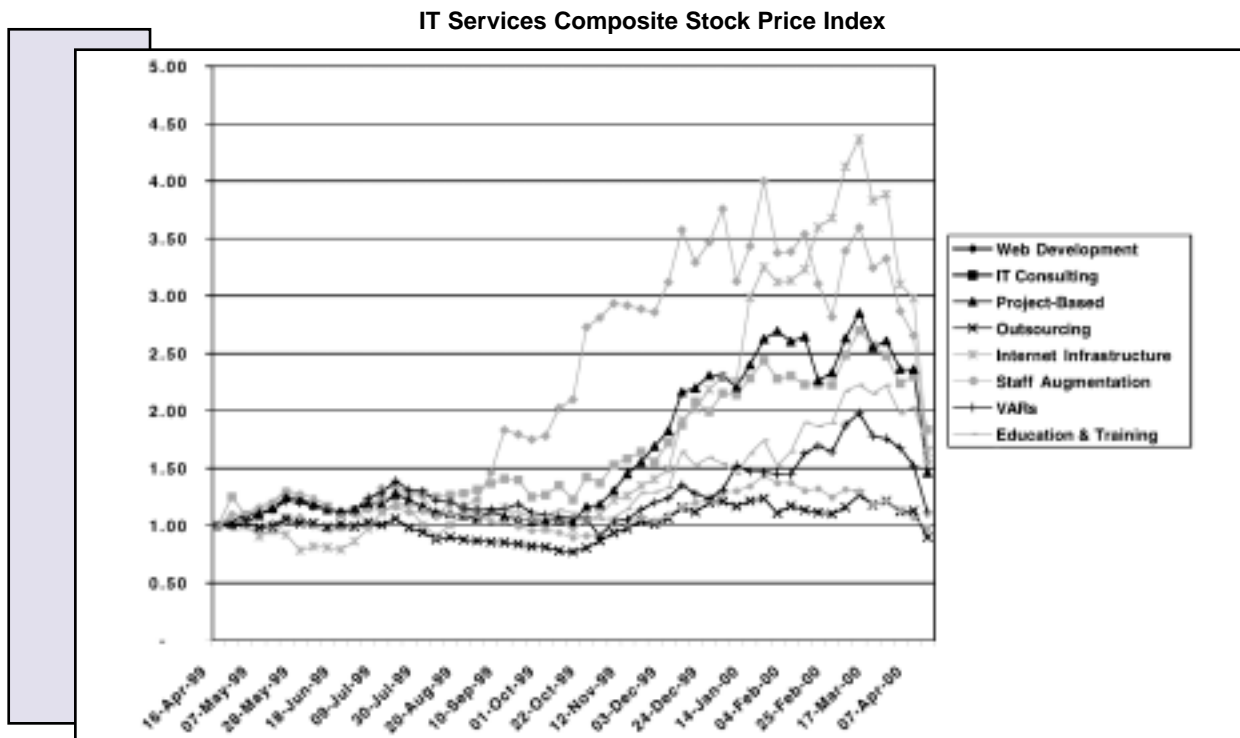
This Spotlight Report is Cherry Tree & Co.’s second quarterly research report for 2000 and our first in-depth analysis of the e-business development sector. This report is part of a regular series of research reports that are prepared and published by Cherry Tree & Co. Please see our Web site at www.cherrytreeco.com for additional research regarding Extended Enterprise Applications, Application Service Providers (ASPs), Professional Consulting, and Project-Based Service Providers.

Although we have examined the entire Project-Based sector of the IT Services industry in previous research, in this report we have chosen to focus our analysis on the sub-segment dedicated to the pure-play Web Development firms. This segment of the Project-Based sector has attracted a tremendous amount of interest in recent months, especially in terms of merger and acquisition activity, a large number of high-profile initial public offerings, and remarkable public market valuations. We believe that as all IT services companies converge on the e-business opportunity, owners of privately held IT services firms will need to understand the business models that are being utilized by the pure-play e-business developers in order to plot successful strategies for their own companies.

This report will analyze the evolving business models that we have observed within the Web Development sector. In addition to defining and sizing the e-business services market, we will explore the various service offerings provided by firms in this space, examine the distinguishing strategies that have emerged, and contrast the performance of the Web Development companies with their more traditional Project-Based counterparts. *Consistent with our previous research, we will also include potential strategies that private IT services firms may consider as means to take advantage of the opportunities presented by the strong demand for Internet-related services.*

Stock Market Performance

As a component of our quarterly research, Cherry Tree & Co. provides a brief review of the previous twelve months’ stock market performance for all the different IT services sectors that we follow.¹ Internet-centric stocks remain the top performers, with the Web Development firms and Internet Infrastructure Providers trading above other segments. These stocks have also proven to be the most volatile and have suffered significant pullbacks in recent weeks, due to NASDAQ volatility induced by the fallout surrounding the Microsoft antitrust case and concerns of a technology stock “bubble.”



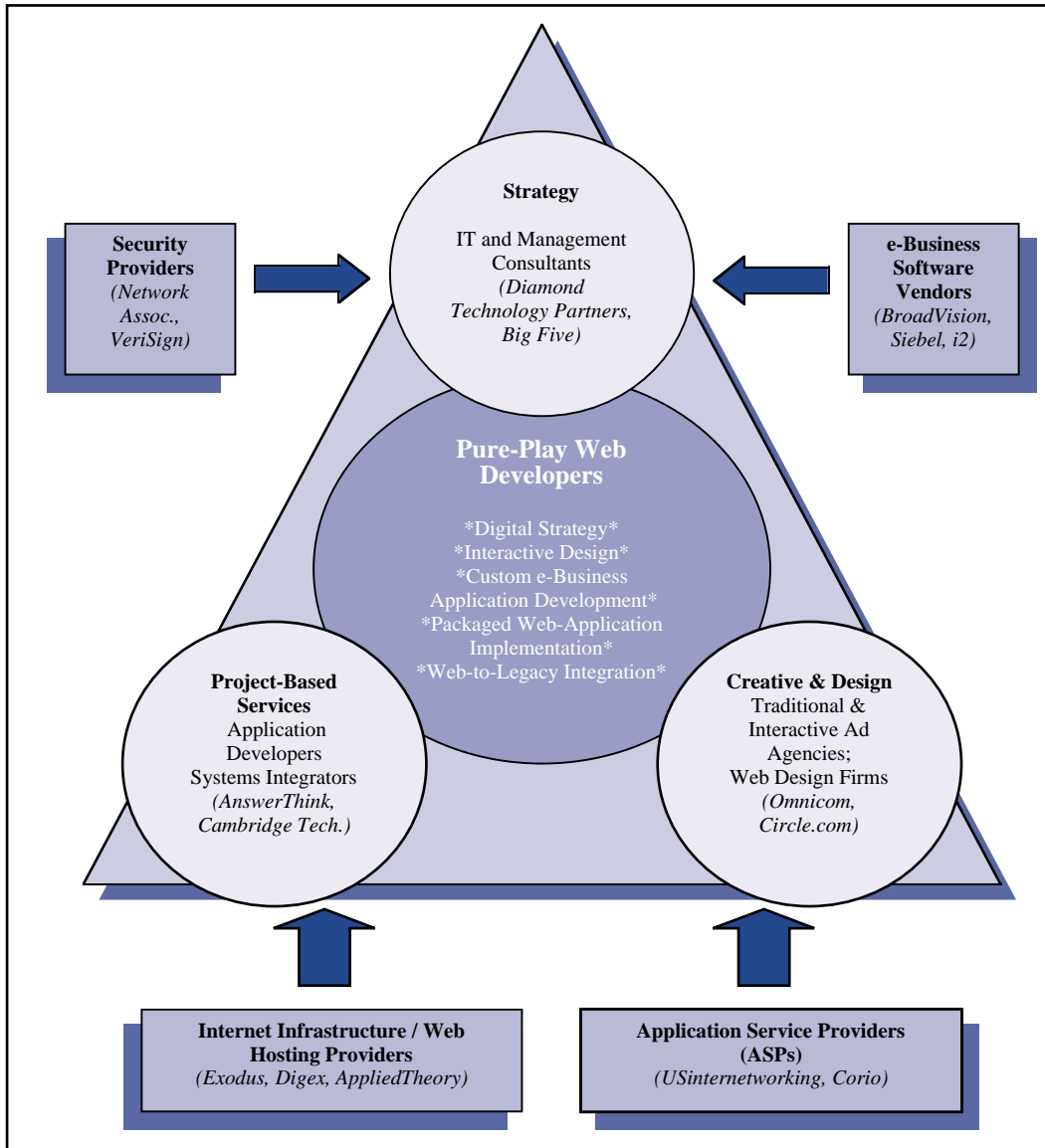
Source: Cherry Tree & Co.

¹A listing of the Cherry Tree & Co. IT Services Universe and Sector Definitions are provided in the appendices to this report.

The e-Business Development Competitive Landscape

It now appears that most IT services firms are moving towards calling themselves e-business companies. We thought it would be interesting to investigate whether this is reality or just marketing hype. Therefore, before we delve into our analysis of Web development business models, we will first provide some context concerning the environment in which these firms compete. In addition to competing with other pure-plays, the Web Developers face challenges from a variety of services, software, and infrastructure companies. **Figure 1** depicts the convergence of these competitors on the Web Development space.

Figure 1.
e-Business Development Competitive Convergence Diagram



Source: Cherry Tree & Co.

Competition From Other Services Companies:

Within the framework illustrated in Figure 1, we distinguish between three general categories of services firms competing with the Web Developers:

- **Strategy:** As clients' Internet strategies become increasingly intertwined with their overall business model, traditional consulting firms have begun to move into the e-business space and reinvent themselves as "digital strategists." This includes IT consulting firms, such as *Diamond Technology Partners* and *American Management Systems*, as well as the global management consultants such as the Big Five, *Booz-Allen & Hamilton*, and *McKinsey & Co.*
- **Creative & Design:** Many multimedia marketing and design shops have added interactive marketing expertise to their services as a means of transitioning to the Web development space. In addition, a number of traditional advertising firms, such as *Ogilvy & Mather* and *Grey Advertising*, have incorporated Web site design and development into their broader multimedia and communications offering, often by forming a subsidiary specializing in interactive marketing.
- **Project-Based Services:** All of the project-based firms with a heritage in application development and systems integration are trying to leverage these established skills into the e-business space. These capabilities include designing and developing front-end transactional and customer relationship management (CRM) systems and facilitating back-end connectivity with core ERP and supply chain systems. These firms are aggressively adding Internet-related skills through acquisitions, recruitment of Internet professionals, and organic skills development.

Competition From Software and Platform Infrastructure Companies:

In addition to firms providing the core services listed above, Web Development firms compete with companies that provide the software and platform infrastructure components that are required to create a fully integrated e-business system. We have classified the companies that supply these components as "Software & Infrastructure Providers," some of which currently offer Web-related services and some of which we anticipate will do so in the near future. We have identified the following categories within the Software & Infrastructure Provider segment:

- **e-Business Software Vendors** provide a variety of Web-based software applications that enable distributed computing environments. Included in this category are Internet software and development tool vendors such as *BroadVision* and *Rational Software*, extended enterprise application vendors such as *Siebel* and *i2 Technologies*, and Enterprise Application Integration software vendors such as *TIBCO* and *New Era of Networks (NEON)*. All of these firms have their own internal consultants that aggressively bid on e-business projects involving their clients.
- **Security Providers** offer firewalls, encryption products, digital certificates, Public Key Infrastructure (PKI) technology, and other related solutions to provide the secure internetworked environment that is a prerequisite for large-scale e-business systems. As security measures have expanded to include increasingly complex technologies, such as high-level extranets and Virtual Private Networks (VPNs), the e-business and networking expertise offered by security providers has increased accordingly.
- **Internet Infrastructure Providers and Application Service Providers (ASPs)** provide the server platforms that host a client's Internet presence and their Web-based applications. These firms have been the most aggressive in terms of building a Web services component to complement their core infrastructure offering. This trend was most recently demonstrated by *PSINet's* pending acquisition of *Metamor Worldwide*, through which PSINet also gained a controlling interest in Metamor's e-business subsidiary, *Xpedior*.

The key idea to keep in mind as we move through our analysis is that everybody is converging on the e-business opportunity. Although the pure-play e-business services firms are receiving a great deal of attention, most of the IT services universe will be moving into their space. As competition heats up in the e-business sector it will be interesting to monitor the continued success of the business models being utilized by the current group of pure-plays.

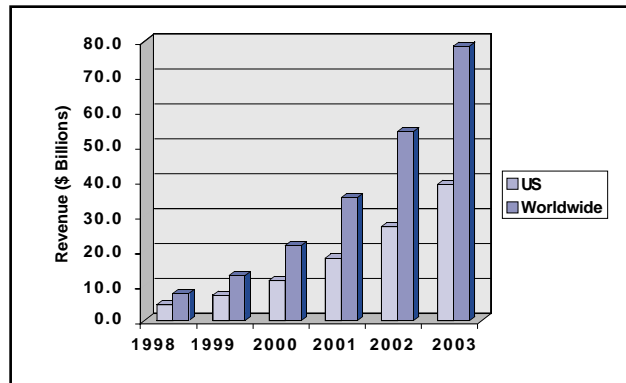
e-Business Development Overview

During the latter half of 1999 and continuing through the initial months of 2000, IT services firms with a variety of traditional project-based competencies began to reposition themselves as “e-business solutions providers” and “Internet professional services firms.” Although a number of these firms have indeed broadened their service offerings to include Internet-related capabilities, there remains a separate class of services provider that is distinguished from these migrating firms by their pure focus on Web-based solutions. *We define these pure-play e-business solutions providers as those firms focused solely on providing strategic, creative and design, and development and integration services related to a client’s Internet presence.*

e-Business Development Sector Growth Projections

IDC’s definition of Internet services includes the consulting, design, systems integration, support, management, and outsourcing services associated with the development, deployment, and management of Internet sites. According to IDC projections, worldwide demand for Internet services will reach \$78.6 billion in 2003, up from \$7.8 billion in 1998. The U.S. alone is projected to account for \$39 billion of Internet services spending in 2003

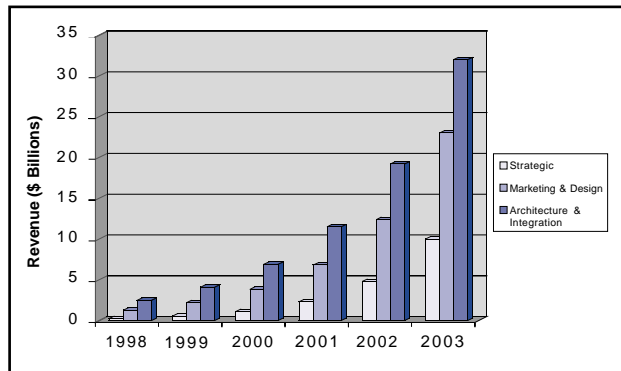
Figure 2.
e-Business Services Growth Projections



Source: IDC

Forrester Research predicts even more robust growth in the U.S., with total e-business services spending reaching \$65 billion by 2003. As **Figure 3** indicates, the bulk of this spending will be related to technical architecture services, a market Forrester expects to reach \$32 billion by 2003. Strategic consulting spending is projected to grow to \$10 billion and marketing and design spending is forecasted to expand to \$23 billion.

Figure 3.
e-Business Services Comparative Growth Projections

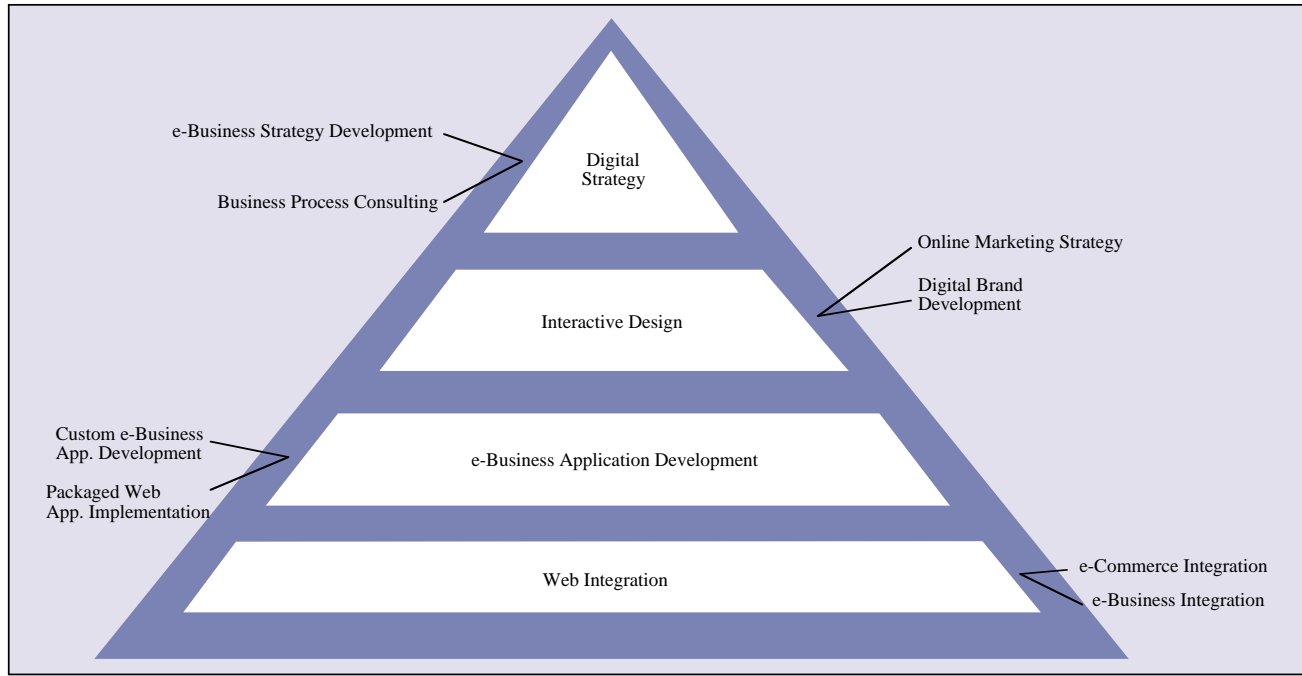


Source: Forrester Research

e-Business Development Services Segmentation

We have segmented Web-based services into four categories: *Digital Strategy*, *Interactive Design*, *e-Business Application Development*, and *Web Integration*. **Figure 4** illustrates these divisions and the major areas of functionality within each.

Figure 4.
e-Business Development Services Segmentation



Source: Cherry Tree & Co.

We should note that not every firm in the Web Development category has established practices in each of these areas; a number of firms have chosen to specialize in either front-end design skills or back-end integration capabilities. While we will contrast the relative merits of the end-to-end e-business developer model with the more niche-oriented players later in our discussion, we will first explore each of the Web-based service categories depicted in Figure 4 in-depth.

1. Digital Strategy

Digital strategy is primarily concerned with developing an enterprise's competitive plan for conducting business on the Internet and implementing this plan in a means consistent with the enterprise's overall strategic vision. Digital strategy has become an increasingly vital component of Web development; IDC has gone so far as to call strategic Internet consulting the "crown jewel" of e-business services and predicts that long-term leadership in this market will be heavily influenced by relative capabilities in business consulting and strategy. The Internet, by providing an abundance of easily accessible product information, contributes to a business environment in which consumers have a great deal of insight into the manufacturing costs of various products. This cost-transparent environment tends to erode customer loyalty and represents a significant threat to an enterprise's sales models and customer relationships. For this reason, it is imperative that corporations counter this trend by implementing an Internet strategy that strengthens their brands and sales processes rather than allowing them to be undermined.

In our analysis of Internet consulting, we distinguish between corporate level strategic consulting, which is oriented to achieving a sustainable competitive advantage, and operational level consulting, which is focused on improving business processes. Based on this distinction, we have segmented digital strategy consulting into the following categories:

- **e-Business Strategy Development:** This component of digital strategy is concerned with formulating a plan to utilize the Internet in creating a unique and sustainable competitive advantage for the enterprise. In developing their e-business strategy, enterprises seek to leverage Web-based technologies in ways their competitors are unable to effectively mimic. As a part of this process, enterprises and their Internet consultants conduct analyses of market trends and the online competitive landscape and make decisions regarding the organization of the e-business initiative.

- Business Process Consulting:** The Internet provides a platform that facilitates a much more extensive automation of business processes than was previously possible. Since the migration to a global, online business environment has significant implications for back-end fulfillment processes, changes in the supply chain and other business processes may be required to meet the demands of Internet-based commerce. Business process consulting, in this context, is concerned with migrating many of an enterprise’s business practices and systems that were internal, proprietary, and often manual into an automated, online environment. This level of consulting is focused less on creating long-term competitive advantage than on the continuous improvement of an enterprise’s operational effectiveness, and is primarily aimed at cost reduction rather than revenue generation.

Figure 5 depicts the different forms that digital strategy may take depending on whether an enterprise is operating within a business-to-consumer (B2C) or business-to-business (B2B) environment.

Figure 5.
Digital Strategy Segmentation

	e-Business Strategy Development	Business Process Consulting
Business Purpose	Gain Sustainable Competitive Advantage	Streamline Operations and Reduce Costs
Business-to-Consumer	1. Gain Unique Access to Customers 2. Internet Branding 3. Generate, Collect, & Analyze Customer Information & Statistics 4. Improve Customer Relationships	1. Enhance Customer Service Quality by Automating Sales, Support, & Service Functions 2. Gain Operational Efficiencies by Eliminating or Bypassing Distributors or Wholesalers
Business-to-Business	1. Develop Production Advantage by Enabling Just-in-Time Production Capability 2. Develop Customer Service Advantage and Enhance Responsiveness by Providing Shared Information Access Across Intranets & Extranets	1. Access Comprehensive Inventory & Materials Management Information 2. Reduce Procurement & Distribution Costs by Automating Supply Chains

Source: Cherry Tree & Co.

2. Interactive Design

Interactive design services center upon the development and implementation of a client’s Web-based marketing activities. At its core, this branch of Internet services is concerned with the design and development of robust corporate Web sites that enhance an enterprise’s ability to extend its brand and to target, acquire, and retain the most profitable customers. Demand for interactive marketing services is expected to accelerate as the Internet continues to shift market power in favor of individual consumers and causes customer acquisition and retention to become increasingly competitive.

Interactive design encompasses two primary components: *Online Marketing Strategy* and *Digital Brand Development*. It should be noted that most Web-based service providers have yet to develop significant business-to-business marketing services, as years of EDI-based interactions have already established a base of B2B customers. For this reason our discussion below focuses on interactive services primarily in a business-to-consumer context.

- Online Marketing Strategy:** An online marketing strategy is primarily concerned with the formulation of an effective, Internet-centric plan that is consistent with an enterprise’s branding efforts via traditional media. This stage of interactive design involves the development of an integrated marketing plan encompassing the overall marketing vision, market research, traditional and interactive media planning, and campaign success criteria.

An additional value-added service often included within this category is the use of business intelligence tools to analyze the effectiveness of online marketing efforts. This analysis, enabled by Internet-based marketing automation technology, enables enterprises to track customer interactions from promotion to transaction to post-close behavior. It also involves analysis of site traffic, banner ad response rates, and other metrics enabling enterprises to gain a clearer picture of the return on their online marketing investment.

- Digital Brand Development:** At the heart of interactive services is the design and development of the enterprise’s Web site. This element of front-end development requires that the company’s brand identity is woven into the graphics, content, and streaming multimedia with which site visitors will interact. Some specific types of services that are included in this category include layout and screen-flow design, customer life cycle management, graphical user interface (GUI) design, and Web site content management.

A rapidly expanding segment of digital brand management services is the use of personalization technologies to provide Web content that is customized for a specific end-user. Certain CRM and data mining applications have the ability to track, catalog, and analyze visitors' online behavior based upon the "digital footprints" generated by Web browsers. This data provides enterprises with detailed customer profiles and other useful marketing information, which may then be used to better target prospective online customers.

3. e-Business Applications Development

Developers of e-business applications specialize in the design, development, and implementation of Internet-based software applications. These applications may be custom-built or part of an off-the-shelf package. We have segmented the competencies included in this sector into two categories: *Custom e-Business Application Development* and *Packaged Web Application Implementation*.

- **Custom e-Business Application Development:** This category of e-business architecture involves the development of client-specific Internet applications and systems. Custom application development requires the use of either proprietary software modules built in-house by the Web development firm or Internet development tools provided by vendors such as *Rational Software* and *NetObjects*. These tools provide component-based development, object-oriented modeling, and related functionality.
- **Packaged Web Application Implementation:** Also included in the construction of e-business architectures are services related to the implementation of packaged Internet software, such as *BroadVision's* One-to-One Business Commerce suite and *OpenMarket's* Transact product. Like customized applications, Internet software packages provide sales and marketing, procurement, and customer service and support functionality. Demand for these applications has been extremely strong—IDC forecasts that spending on these products will increase at a compounded annual growth rate of 97% . As licensing revenues continue to expand at this rate, demand for implementation services provided by Web solutions firms should increase significantly.

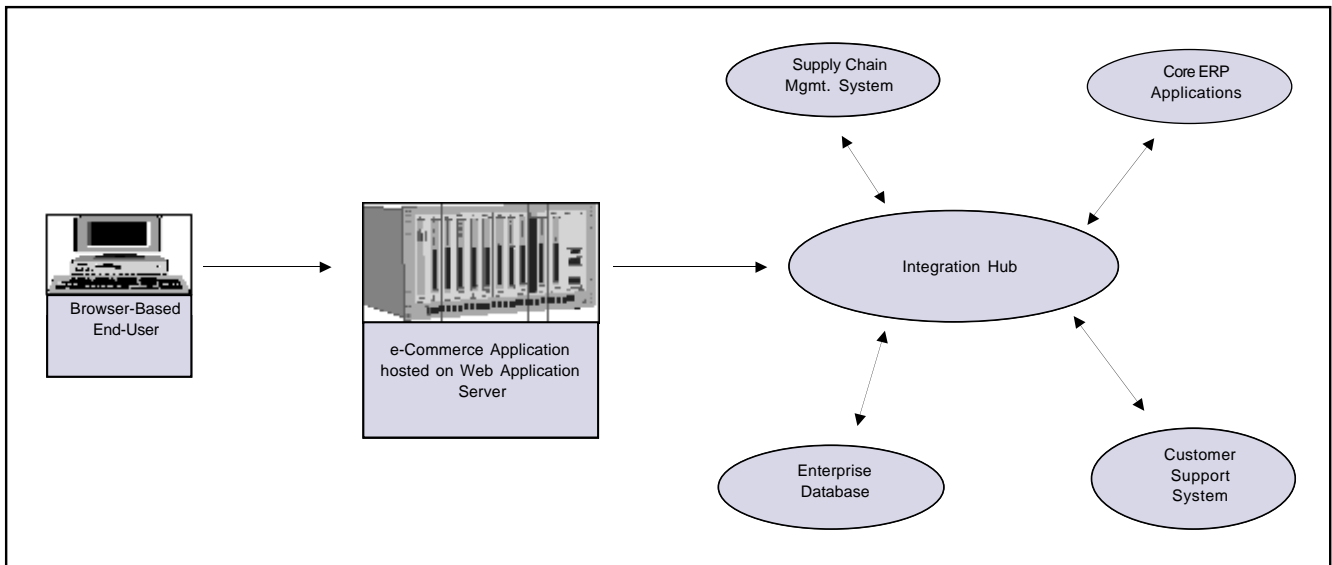
4. Web Integration

This branch of e-business services involves the integration of an enterprise's Internet-based applications and systems with mainframe- and client/server-based legacy systems. Because the majority of mainframe- and client/server-based enterprise applications currently in use were not designed to inter-operate with Internet-based systems or browser-based end-user clients, Web integration services have been in extremely high demand. As Internet projects become more complex and involve mission-critical systems, demand for integration services ensuring connectivity between Internet-based and traditional systems will continue to increase.

This integration may be accomplished on a point-to-point basis utilizing Application Program Interfaces (API's) or on a business process level through the use of enterprise application integration (EAI) technologies such as businessware. In the context of Web-to-legacy integration, EAI is emerging as the preferred methodology due to its ability to connect disparate applications and systems both within and across enterprises. We have segmented Web integration services into two categories: *e-Commerce Integration* and *e-Business Integration*.

- **e-Commerce Integration:** This sub-segment of the Web integration category is primarily concerned with the integration of B2C e-commerce applications with internal ERP applications and other legacy systems. Using integration tools such as middleware, businessware, and Web application servers, Internet solutions firms are able to facilitate the interoperability of Web and legacy applications as necessary to execute financial transactions with consumers.

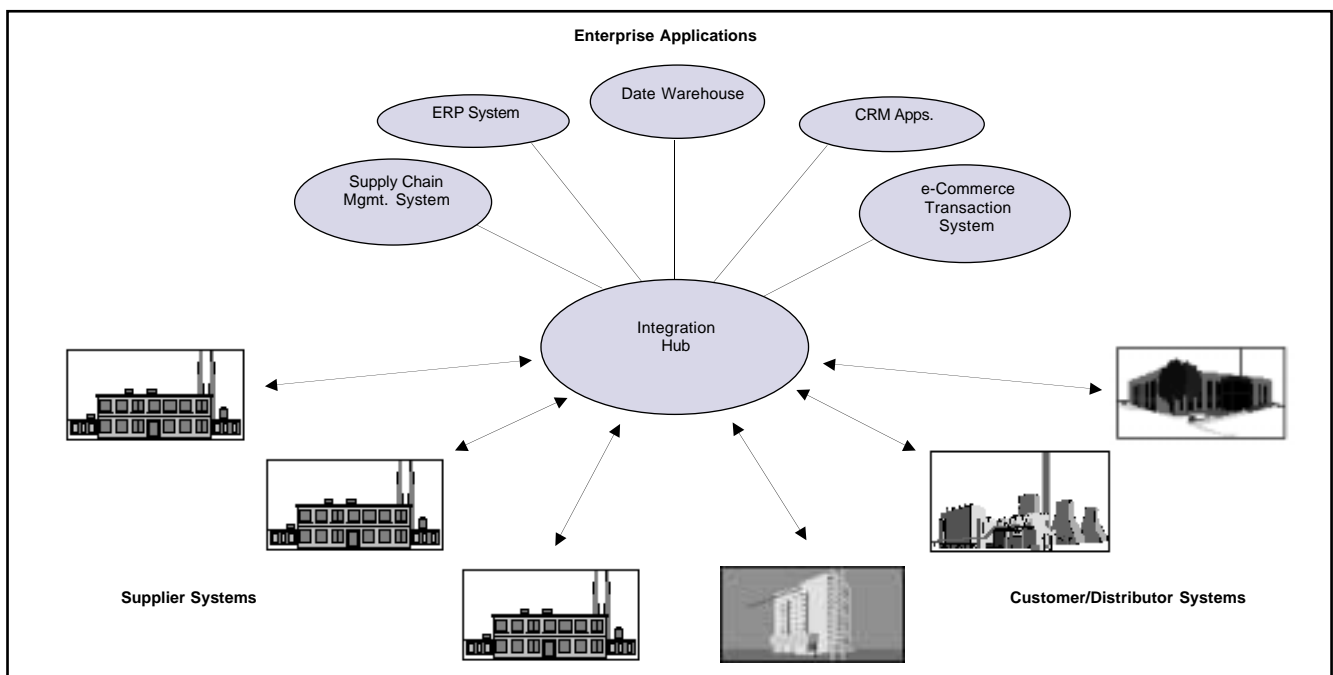
Figure 6.
e-Commerce Integration



Source: Cherry Tree & Co.

- e-Business Integration:** Focused on business-to-business connectivity, perhaps the largest integration challenge facing enterprises, e-business integration involves establishing interconnectivity between an enterprise's Internet and legacy systems and those of its customers, suppliers, and distributors. Leveraging many of the tools mentioned above, e-business integration firms connect supply chain management, distribution management, and inventory management systems and facilitate improved communication among business partners. As a further point of distinction, B2B integration, on a relative basis, more frequently involves the sharing of data and content between business partners that may not be directly related to a financial transaction.

Figure 7.
e-Business Integration

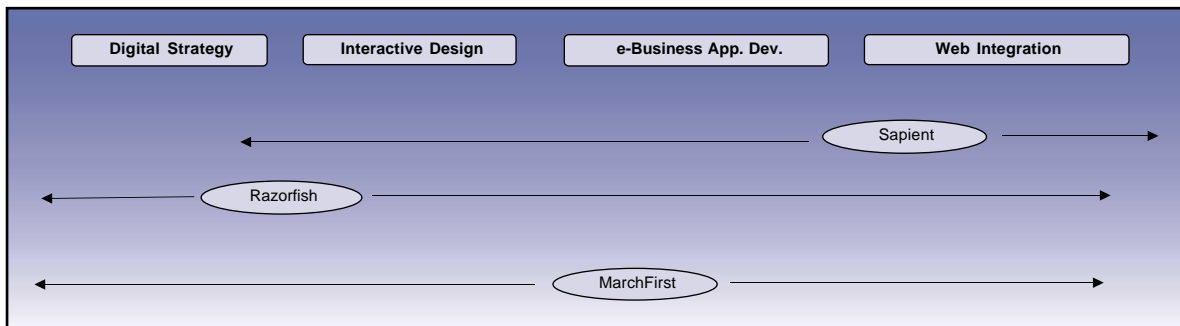


Source: Cherry Tree & Co.

Competing Business Models: The End-to-End Provider vs. The Specialist

As the categories of Internet-based services described above have emerged, e-business solutions firms have generally taken one of two approaches in the development of their services offerings. Many have chosen to specialize in either front-end or back-end skill sets, often leveraging heritage expertise in strategy and design or in application development and integration. However, a number of Web developers have used organic development or acquisitions to position themselves as end-to-end Internet solutions providers offering a full range of strategic, design, and technical services. **Figure 8** depicts several firms that have utilized selective, strategic acquisitions to expand their capabilities across the spectrum of e-business services.

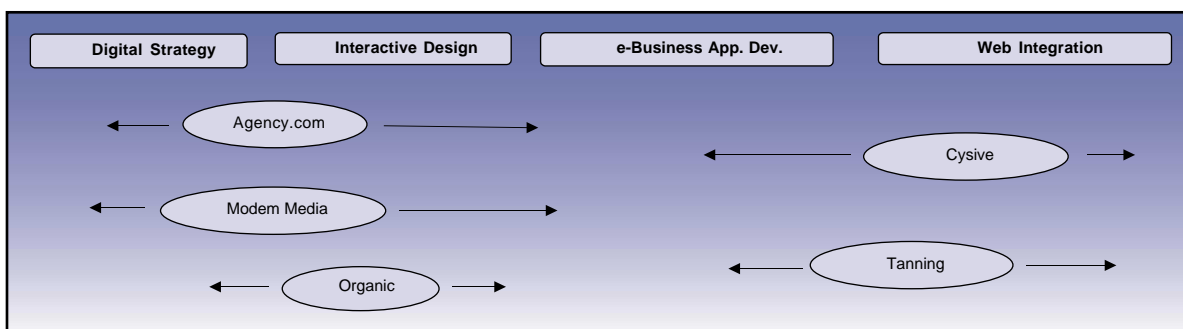
Figure 8.
End-to-End e-Solutions Providers



Source: Cherry Tree & Co.

A number of e-business services firms are positioned as specialists with deep expertise in either strategy/design or in back-end integration. Several of these firms are depicted in **Figure 9**. Within this group, *Tanning Technology* and *Cysive* have established themselves as specialists focused on Web integration and technical architecture, while *Modem Media*, *Agency.com*, and *Organic* are positioned primarily as interactive design firms. However, the pervasiveness of the end-to-end model is apparent in this group of firms as well, as Agency.com and Modem Media are in the process of repositioning themselves as full service providers.

Figure 9.
Niche e-Solutions Providers



Source: Cherry Tree & Co.

The majority of the public Web Development firms are evolving into end-to-end providers, some through a combination of internal skills development and small-scale acquisitions and some through pure organic growth. While the end-to-end strategy appears to be the business model of choice for the majority of the firms in this sector, there are compelling arguments to be made on both sides. In the following section we will explore these two schools of thought.

Competitive Analysis

Industry experts are currently undecided as to which model has the strongest long-term prospects. In this section we examine the advantages and disadvantages associated with each business model.

Advantages of the Specialist Model:

- Proponents of the specialist model argue that their approach enables the development of deep technological and process expertise within a given subset of Web-based services. According to this position, focused expertise is preferable to a broader offering, because the e-business opportunity is so huge that it is unrealistic to expect that any one company can be all things to all customers.
- This specialization in turn enables the firm to position itself as a “best-of-breed” provider within its domain and leverage its established expertise. This positioning generates increased visibility in the market and establishes a market niche that is defensible against larger generalists.

Disadvantages of the Specialist Model:

- One disadvantage associated with this approach is the necessity of partnering with another solutions provider to deliver the services that fall outside the specialist’s range. For example, an interactive design specialist engaged by an enterprise to construct a complete e-business system would need to partner with another services firm to supply certain technical architecture skills, just as a Web integration provider would require outside assistance with e-commerce design and strategy formulation. As a result, the solutions providers capture a lower proportion of the client’s IT budget and may lose customer mindshare.
- Potential for falling margins is a threat, with multiple external service providers (ESP’s) opening up the possibility that once the entire IT services universe completes its convergence on the e-business opportunity, it may be difficult for niche-players to price their services competitively with the end-to-end players.
- The so-called “Hollywood studio” style of assembling multiple specialist firms on a per-project basis may be compelling, provided that the client is assured that they are receiving best-of-breed solutions. *However, many enterprises may be unwilling to face the additional complexity of managing relationships with several external service providers and may prefer a "one-stop shop" approach.*

Advantages of the End-to-End Model:

- In contrast to the specialist model, proponents of the end-to-end service provider model contend that competitive advantage is best derived from presenting their customers with a seamless experience and increased time-to-market. This approach also provides the ESP with a greater degree of control over the engagement, and enables the solutions firm to leverage the engagement into an ongoing relationship.
- By providing the client with a broad service offering and complete e-business development capabilities, full service providers are able to capture a larger percentage of an enterprise’s IT budget and establish a more favorable long-term pricing environment.

**Figure 10.
Specialization vs. End-to-End e-Solutions**

	Value Proposition	Advantages	Disadvantages
Specialist Services Provider	Best of Breed, "Hollywood Studio Model"	Deep Expertise Defensible Market Niche Increased Industry Visibility	Capture Lower % of IT Spending Risk Being Passed Over in Favor of "One-Stop Shop"
End-to-End Services Provider	Complete e-Business Development Offering	Seamless Customer Experience Capture Larger % of IT Spending More Rapid Time-to-Market	Difficult to Establish Required Skill Sets More Intense Competition w/ Big Five & Other Global Consulting Firms

Source: Cherry Tree & Co

Disadvantages of the End-to-End Model:

- The main disadvantage of this model stems from the challenges associated with developing diverse competencies across the spectrum of e-business services. It may be overly optimistic to operate under the assumption that companies with less than \$100 million in revenues can be proficient in every facet of Web-based services, especially in light of the continuing shortage of high-end IT professionals.
- A second disadvantage stems from the fact that many of the global consulting firms, such as *Andersen Consulting* and *IBM Global Services*, are aggressively positioning themselves as end-to-end Internet solutions providers, and may present a greater threat to undifferentiated Web development generalists than to niche-oriented specialists.

Despite its possible disadvantages, the end-to-end e-solutions model seems to be gaining the most momentum in the market. Many of the Internet pure-plays that have gone public within the last twelve months, such as *Scient* and *Viant*, are branding themselves as providers of strategic, design, and integration services and are relying primarily on organic growth in building these offerings. Other firms, such as *Razorfish* and *Sapient*, have used selective acquisitions to broaden their solutions offerings. While there will in all likelihood be a shake-out in the near future between the end-to-end and niche player business models, up to this point demand for Web-based services has been such that both approaches have met with considerable success.

Financial Analysis

Though the lines between pure-play Web Developers and high-end Project-Based firms attempting to reinvent themselves as e-business solutions providers can at times be blurred, clear differences in financial and operational metrics between pure e-business firms and traditional services companies are readily observable. **Figure 8** provides an illustration of the disparity between these two groups.

Figure 11.
Comparative Financial and Operational Metrics

	Year-Over-Year Revenue Growth	Average Hourly Bill Rate	Average Revenue per Billable	Utilization Rate	TTM Gross Margin	TTM SG&A Expense	TTM EBITDA Margin
Pure-Play Web Developers	152.4%	\$157	\$229,725	68.6%	48.3%	44.8%	8.0%
Traditional Project-Based Firms	24.8%	\$105	\$145,244	70.7%	37.9%	27.0%	13.6%

Source: Cherry Tree & Co

Top Line Growth

Although application developers and systems integrators have experienced respectable year-over-year revenue growth rates, averaging nearly 25%, the exploding demand for Internet services has propelled revenue growth in the Web Development sector to an average level of 152.4%. It is difficult to overstate the level of demand that these firms are currently enjoying—*Scient*, for example, reportedly turned away over 100 potential engagements during its fiscal third quarter. This demand has enabled the Web solutions firms to bill their consultants out at rates significantly higher than those charged by other Project-Based firms.

Bottom Line Profitability

The Web Developers' higher billing rates have translated into increased average annualized revenue per consultant and have contributed to this sector's strong gross margins, which average over 48% compared to just under 38% for other Project-Based firms. However, most of the Web firms have yet to translate these metrics into sustainable bottom line results due to their high levels of spending on marketing and infrastructure growth. ***With an average SG&A expense of 44.8% of revenue, these firms are clearly prioritizing growth over profitability and are continuing to invest heavily in branding, expansion, and corporate infrastructure.*** In addition, stock compensation charges for many of the Internet firms that have recently gone public are substantial and contribute to the low average EBITDA margin in this sector.

Growing Into Business Models

Although the marketing and infrastructure expenses for the pure-plays seem somewhat overblown based upon the size of these firms, there is growing evidence, at least at the gross margin level, that these firms are starting to grow into their business models. **Figure 12** depicts quarter-over-quarter gross margin improvement for a few selected Web Development firms during 1999. In general, these companies have been fairly consistent in improving margins on a quarterly basis, although *Razorfish* experienced a slight dip during the second quarter and the sector as a whole suffered a dip during the third quarter, at the height of Y2K-related slowdowns. Nonetheless, the sector recovered nicely and the trends discussed throughout this report will likely continue to drive gross margin improvement for these firms in the short term.

Figure 12.
Sequential Gross Margin Improvement

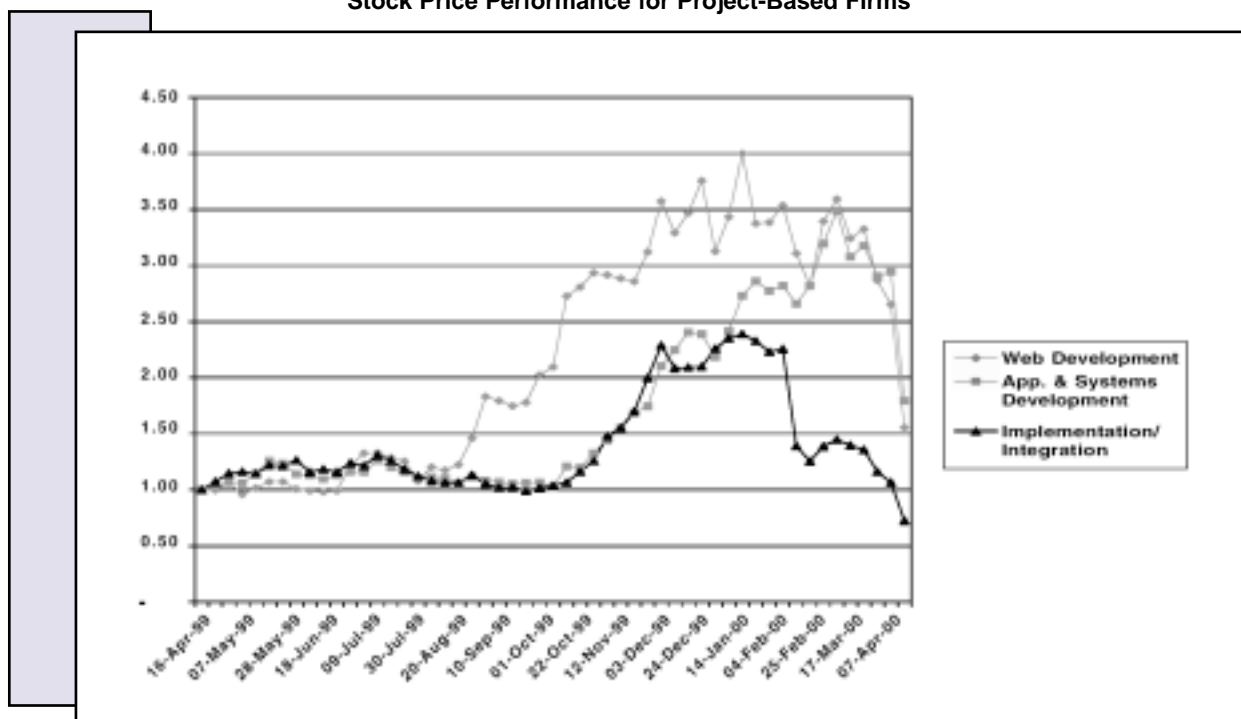
	Q1 99	Q2 99	Q3 99	Q4 99	FY 99
Cysive	61.9%	63.5%	64.4%	66.3%	64.8%
Proxicom	41.4%	45.1%	48.7%	50.0%	47.3%
Razorfish	51.8%	51.0%	52.6%	53.4%	52.3%
Viant	43.0%	49.1%	55.3%	57.8%	53.6%
Sub-Group Average	49.5%	52.2%	55.3%	56.9%	54.5%
Entire Web Sector Average	45.6%	49.3%	47.2%	50.0%	48.3%
Entire Web Sector Median	43.0%	48.6%	45.3%	48.0%	48.5%

Source: Company Reports and Cherry Tree & Co.

Comparative Valuations

Stock market performance has been volatile during the first quarter, as market concerns regarding overvalued technology stocks have caused a great deal of uncertainty in the Project-Based sector in general and among Web Development stocks in particular. It remains to be seen whether these stocks can maintain their performance in light of the NASDAQ's recent (and unprecedented) volatility. While the pure-play Web Development firms outperformed the other two Project-Based segments throughout much of the last twelve months, the recent decline in technology stocks has weakened the Web Development sector to a much greater degree.

Figure 13.
Stock Price Performance for Project-Based Firms



Source: Cherry Tree & Co.

Valuation comparisons between e-business pure-plays and traditional project-based firms are complicated by the fact that most Web developers and many integration firms were not profitable during 1999. While this lack of profitability makes traditional valuation comparisons difficult, the market's level of receptivity towards e-business development firms should be apparent based upon the market capitalization/revenue multiples and five-year earnings forecasts displayed in **Figure 14**.

Figure 14.
Project-Based Valuation Metrics as of 4/14/00

	P/E	Market Cap. / Revenue	Market Cap. / EBITDA	5 Yr. EPS Growth	P/E:Growth Rate
Web Development	N/A	9.5	N/A	48.1%	N/A
App. & Systems Development	74.4	2.5	28.9	30.3%	2.4
Implementation/Integration	N/A	0.9	N/A	24.5%	N/A

Source: Cherry Tree & Co

Emerging Areas

In addition to the strategic, design, and technical services referenced in previous sections of this report, we have identified several other emerging solution areas that fall within the realm of e-business services. As the Internet continues to converge with other business mediums to become the dominant communication and transaction platform, these areas may well represent the next generation of Web-related solutions.

Business Intelligence Tools & Portals: As the growth of the Internet as a viable business platform fuels the dissemination of information within and among enterprises, demand for browser-based information access tools capable of interacting with both Internet- and legacy-based applications is likely to increase dramatically. These technologies include online analytical processing (OLAP) applications, a form of querying software that is often bundled with predictive modeling applications to analyze customer behavior.

Another area that is gaining a great deal of industry attention concerns enterprise portals, which provide a single point of entry into the corporate information that is collected and queried by analytical applications and data mining tools. Enterprise portals may be segmented into three distinct types:

1. *Enterprise Application Portals* provide access to enterprise applications' functional capabilities, as well as the data collected and stored by these applications. Many of the major enterprise software vendors, such as *SAP*, *Oracle*, and *Siebel* are currently in the process of developing application portals or are already offering them.
2. *Enterprise Information Portals* integrate and provide access to data compiled from a variety of internal and external sources, such as data warehouses and external information feeds.
3. *Enterprise Expertise Portals* are focused on providing knowledge management functionality by tracking employee interactions with an enterprise's internal knowledge base.

The emerging technical challenges facing Internet solutions providers extend beyond core Web site development services and involve the integration of portals and other information access tools with e-business systems and legacy-based data warehouses. In addition, IDC predicts that the three types of enterprise portals listed above will converge and result in a "higher order" enterprise portal requiring integration at the business process level. The challenges inherent in ensuring seamless connectivity between these information access tools and disparate data sources should drive strong demand for Web solutions firms with expertise in Internet integration services.

Wireless Data Access: Another emerging area within the spectrum of Internet-based solutions is the Web-enablement of mobile/wireless devices to facilitate Internet access via mobile phones, personal digital assistants, and similar devices. Growth in this sector is being driven by a number of factors: the dramatic increase in data-enabled digital devices (to a projected level of 1 billion users by 2002), increases in wireless bandwidth, and the development of the Wireless Application Protocol (WAP) as a network-independent standard. The emergence of WAP is a particularly significant event, as it will unify the wireless market and enable Internet access across devices, networks, and operating systems. WAP uses a derivation of XML, called Wireless Markup Language (WML), in developing customized applications for mobile devices, enabling enterprises to offer highly personalized data access, publish-and-subscribe messaging, and mobile commerce applications.

Among the public Web Development companies, **Razorfish** has been an early mover in the wireless space. In April 1999 the firm announced the formation of a mobile and wireless unit to explore technologies and services related to the WAP standard, and in September announced the establishment of a Mobile Solutions Laboratory at its Helsinki office. Other e-business solutions firms have recently started moving into the mobile/wireless space. **Proxicom** has established strategic alliances with **Ericsson** and **Aether Systems**, a wireless data application service provider, to develop mobile e-business solutions, while **Agency.com** recently launched a 40-consultant mobile business and consulting practice area to explore wireless application development opportunities.

B2B Digital Marketplaces: A third noteworthy development within the Internet solutions space is the emergence of business-to-business online trading communities, or “digital marketplaces.” These networks serve as hubs aggregating multiple buyers and sellers into exchanges focused on specific industries (vertical marketplaces) or on specific goods and services (horizontal marketplaces). **Figure 15** lists several examples of these communities.

Figure 15.
Vertical & Horizontal Digital Marketplaces

Vertical Sites:	Industry
MetalSite PlasticsNet NeoForma	Steel Plastics Healthcare
Horizontal Sites:	Product
Staples.com ZoneTrader.com From2.com	Office Supplies Surplus Inventory / Corporate Assets Logistics / Shipping

Source: *Cherry Tree & Co*

Many of the technologies involved in developing and implementing the transaction engines, electronic catalogs, and auction and exchange tools required for these marketplaces are provided by software vendors. However, the need to realign an enterprise’s procurement, fulfillment and logistics systems will often require an Internet integration specialist. In addition, because participation in a digital marketplace may necessitate significant changes to elements of an enterprise’s operational model, these enterprises may require strategic and business process consulting services, as well as other Web-based solutions. Early movers in this space include **US Interactive**, which has formed an alliance with **Commerce One** to provide user interface development services for Commerce One’s digital marketplace offering, as well as **Proxicom**, **Lante**, and **iXL**, which have all established partnerships with **Ariba**.

Significant News & Events

A review of the past four quarters’ news and events within the Web Development sector reveals a strong trend towards non-organic growth fueled by relatively easy access to public and private capital. Firms in this space have made heavy investments in expanding their service offerings and in building up their internal infrastructure, particularly their sales and marketing capabilities.

The Evolution of the End-to-End E-Solutions Provider

As we alluded to in previous sections, the full-service Internet solutions model is currently gaining a great deal of momentum, especially among public Web Development firms. Although many Web firms remain committed to organic growth and have focused on internal skills development, merger and acquisition activity in this sector has demonstrated a clear trend towards the end-to-end model. A number of high-profile transactions have occurred in which front-end design and back-end integration specialists have joined forces in order to more quickly present a unified e-business development offering to the market.

Sapient's acquisition of front-end design specialist *Studio Archetype* in 1998 was one of the first indications of an evolving trend towards a full service Web-based offering. Studio Archetype's front-end interactive marketing and design skills extended Sapient's service offering beyond its heritage in systems integration, and was further capitalized on by Sapient's acquisition of e-business strategy and design firm *Adjacency* in March 1999. The strategic importance of this acquisition was highlighted by the transaction's premium valuation; the acquisition was valued at nearly \$55 million, over 12x Adjacency's trailing revenues.

Acquisition momentum began to pick up in the latter half of 1999 as *USWeb/CKS* and *Razorfish* both announced major acquisitions designed to add breadth to their services offering. In July USWeb/CKS acquired *Mitchell Madison Group*, an e-business consulting firm that added a strategic component to USWeb/CKS's e-commerce design and development practice. Following close upon the heels of this transaction, in August Razorfish announced a merger with back-end systems development and integration specialist *I-Cube* in a deal valued at \$677 million. The acquisition of I-Cube added expertise in technical architectures to compliment Razorfish's core strengths in digital strategy and front-end marketing and e-commerce development.

In December, *Whittman-Hart* and *USWeb/CKS* merged to form the industry's largest e-business solutions provider, combining Whittman-Hart's expertise in business-to-business systems development and integration with USWeb/CKS's e-commerce, marketing, and strategy skills. The new company, renamed *MarchFirst*, fields over 7,000 consultants divided among strategic, creative, and technical services.

Continuing Rush to the Public Capital Markets

The accelerating demand for Web solutions has enabled a large number of pure-play firms to enter the public capital markets and quickly attain premium valuations. Despite the large investments these firms are making in branding and infrastructure, plentiful venture capital funding has sustained them through the initial public offering process. Once these firms have entered the public markets, the investment community has generally been willing to look past brief operating histories and a lack of profitability in favor of technological expertise and strong growth prospects. **Figure 16** illustrates the degree to which the IPO market has favored the 21 pure-play e-business firms that went public during 1999 and the first quarter of 2000.

Figure 16.
1999 & Q1 2000 e-Business IPOs

Company	IPO Date	Offering Price	First Day Opening Price	Price as of 14-Apr	%Change From Offering Price	%Change From First Day Open
Modem Media*	5-Feb-99	\$16.00	\$55.63	\$17.00	112.5%	-38.9%
Proxicom*	20-Apr-99	\$13.00	\$22.94	\$23.23	258.3%	103.0%
Razorfish*	27-Apr-99	\$16.00	\$35.00	\$15.63	95.4%	-10.7%
Scient*	14-May-99	\$20.00	\$38.25	\$39.50	295.0%	106.5%
IXL Enterprises	3-Jun-99	\$12.00	\$15.13	\$19.50	62.5%	28.9%
AppNet Systems	18-Jun-99	\$12.00	\$12.00	\$21.25	77.1%	77.1%
Viant*	18-Jun-99	\$16.00	\$27.75	\$20.81	160.2%	50.0%
Tanning Technology	23-Jul-99	\$15.00	\$18.25	\$22.00	46.7%	20.5%
Braun Consulting	10-Aug-99	\$7.00	\$7.06	\$21.13	201.8%	199.2%
US Interactive	10-Aug-99	\$10.00	\$10.13	\$11.75	17.5%	16.0%
Luminant Worldwide	19-Sep-99	\$18.00	\$27.63	\$9.06	-49.7%	-67.2%
Cysive	15-Oct-99	\$17.00	\$30.75	\$40.50	138.2%	31.7%
Agency.com	8-Dec-99	\$26.00	\$91.00	\$18.19	-30.0%	-80.0%
Xpedior	16-Dec-99	\$19.00	\$28.00	\$16.25	-14.5%	-42.0%
C-bridge Internet Solutions	17-Dec-99	\$16.00	\$40.00	\$29.00	81.3%	-27.5%
Organic	10-Feb-00	\$20.00	\$51.00	\$11.88	-40.6%	-76.7%
Lante	11-Feb-00	\$20.00	\$44.00	\$15.25	-23.8%	-65.3%
Inforte Corp.	18-Feb-00	\$32.00	\$87.00	\$28.00	-12.5%	-67.8%
Digitas	14-Mar-00	\$24.00	\$40.00	\$12.00	-50.0%	-70.0%
Integrated Information Systems, Inc.	17-Mar-00	\$15.00	\$19.00	\$8.75	-41.7%	-53.9%
Etinuum, Inc.	24-Mar-00	\$12.00	\$12.13	\$3.75	-68.8%	-69.1%
Group Average Return To Date:					57.9%	-1.7%
Group Median Return To Date:					46.7%	-27.5%

* Results have been adjusted to reflect stock splits.

Source: *Cherry Tree & Co*

Although the markets have been very receptive to these e-solutions firms over the last year, we believe that IPO activity in this sector will begin to slow over the next several quarters. With over twenty e-business firms currently trading in the public markets and many others preparing for their IPO, the uniqueness of the pure-play model is rapidly dissipating, and the barriers to entry are becoming increasingly strong as the sector's first movers become entrenched. In addition, many of these firms may experience stock price corrections if they are unable to sustain their phenomenal growth rates, achieve an acceptable level of profitability, or differentiate themselves from their competitors.

Opportunities For Privately Held Firms

Although the competitive landscape for e-business services is becoming increasingly crowded, demand for Web-based solutions remains sufficiently robust that private IT services firms have the opportunity to reposition themselves as Internet specialists. We believe that essentially every IT services firm, public and private, will market themselves as "e-business developers" by mid-2000. As a result, private firms need to have clearly articulated marketing campaigns and differentiated service offerings to avoid being lost in all of the e-business buzz and hype. We have identified several different strategies for capturing the Internet services opportunity and have summarized them below.

1. **Partnering with Internet Software and Development Tool Vendors:** One approach is for firms to establish partnerships with software vendors that offer e-commerce and application construction tools, such as those listed in the appendices to this report. Such a partnership could accelerate the development of an e-business offering within your organization by providing both technical training from the vendor's support staff and referrals from their sales force. In addition, certification as a major vendor's services partner may provide enhanced presence in the market and be of value in competing for new engagements.
2. **Leveraging Existing Application Development and Systems Integration Practices:** Firms with expertise in package software implementation and systems integration may find many opportunities to leverage these skill sets on the Internet. As we detailed in our *Extended Enterprise Applications* report earlier this year, a number of companies with which we are familiar have found success in leveraging their ERP implementation skills into such emerging areas as customer relationship management and supply chain management. For those systems integrators with deep expertise in mainframe and client/server architectures, developing capabilities in Web-to-legacy integration and enterprise application integration is a logical extension of their existing practice. The main point is that most traditional project-based practices can be naturally extended to the Internet in some form or fashion. The critical challenge is to position services and skill sets in a way that maximizes the ability of sales people to capture Internet-related opportunities.
3. **Leveraging Vertical Industry and Business Process Expertise:** A third means by which to take advantage of the e-business trend is to develop and leverage business process expertise within a given industry or set of industries. As more and more services firms enter the e-business space, offering pure-play Web services will cease to be a source of competitive differentiation. Therefore, a more strategic approach for a services firm transitioning into the e-business model is to embed vertical expertise within one's Internet solutions offering. This strategy enables the service provider to develop reusable methodologies that are applicable across multiple clients within a given vertical, reducing deployment times for the client and creating a competitive advantage for the services firm.

Although demand for e-business services is expected to be robust across a variety of vertical markets, growth in Internet spending is projected to increase at different rates within different industries. **Figure 17** depicts IDC's forecast for US e-business services growth, segmented by vertical market.

Figure 17.
Projected US e-Business Services Spending by Vertical Market (in \$ thousands)

Industry	1998	1999	2000	2001	2002	2003	1998 - 2003 CAGR
Financial Services	956	1,521	2,427	3,746	5,757	8,232	53.8%
Insurance	190	300	474	743	1,123	1,639	53.8%
Retail	436	666	1,012	1,521	2,179	3,043	47.5%
Communications / Media	566	856	1,311	1,987	2,879	4,018	48.0%
Manufacturing, discrete	729	1,168	1,852	2,989	4,560	7,023	57.3%
Manufacturing, process	246	391	621	976	1,473	2,146	54.2%
Healthcare	125	205	334	519	807	1,170	56.3%
Business Services	353	549	830	1,289	1,883	2,653	49.7%
Transportation	153	246	403	635	968	1,366	54.9%
Wholesale	190	300	472	734	1,103	1,600	53.1%
Utilities	218	345	552	868	1,318	1,990	55.6%
Government	311	505	817	1,271	1,937	2,848	55.7%
Education	74	117	190	300	457	663	54.9%
Construction	32	51	81	125	188	273	53.1%
Other	60	95	127	197	269	351	42.2%
Total	4,642	7,314	11,500	17,899	26,902	39,015	53.1%

Source: IDC

We believe that demonstrated expertise in any of these verticals will be a strong differentiator when faced with competition from other services firms that market themselves solely as Internet generalists.

- Partnering with a Management Consulting Firm:** As we have asserted in previous research, management consulting and IT consulting are converging on a number of levels. Because the transition to e-business may often involve extensive reworking of a client's existing processes and strategies, it may be more effective for private project-based firms with limited resources to maintain their primary focus on the technical aspects of an engagement and coordinate business process reengineering with a strategic partner. Particularly when building vertical and business process expertise, some project-based firms may find it more advantageous to develop the required, industry-specific technical competencies internally and partner with a management consultancy to provide strategic and business process consulting services.
- Exploiting the Middle Market:** Almost without exception, the public Web Development firms describe themselves as "providers of e-business solutions to Fortune 1000 firms and emerging dot.com companies." While this strategy has thus far met with a favorable reception on Wall Street, it has left untapped a large and growing opportunity among potential middle-market clients (defined as enterprises with annualized revenues of \$50 million to \$500 million). As these small-to-medium sized companies leverage the Internet to compete more directly with their larger rivals, they will require the services of e-business consultants with a strong understanding of their unique business requirements.
- Leverage Existing Accounts:** Do not try to reposition your firm solely with new clients. Leverage existing customer relationships so that a growing number of references represent repeat business. The customer's perception is absolutely critical. Although new clients are an important part of the equation, often times private companies fail to fully leverage opportunities with current projects and customers to cross-sell a new service offering.
- Improve Sales Processes:** Almost without exception, the biggest challenge for private firms is creating a leverageable and predictable sales and marketing model. Despite the size of the Internet services opportunity, the current level of competition for Internet services is intense—frequently limiting the upside potential for firms that do not have highly-refined sales and marketing processes and procedures. Many private firms focus most of their attention on technology because this is what comes natural to company management. The complexity of the Internet services sales process, combined with increased competition, obviates the need for private firms to spend much more time building solid sales and marketing infrastructures.

Cherry Tree & Co. — IT Services Research Universe

IT Consulting

<u>Company</u>	<u>Ticker</u>
CACI International	CACI
Diamond Tech. Partners	DTPI
META Group	METG
Superior Consultant Holdings	SUPC
American Management Systems	AMSY
First Consulting Group	FCGI

Outsourcing

<u>Company</u>	<u>Ticker</u>
(1) Application Outsourcing	
IMRglobal	IMRS
Syntel	SYNT
Critical Path	CPHT
FutureLink	FTRL
Interliant	INIT
USinternetworking	USIX
The TriZetto Group*	TZIX

(2) Utilities / Business Process Outsourcing

Automatic Data Processing	AUD
BISYS Group	BSYS
Ceridian	CEN
Equifax	EFX
First Data	FDC
Fiserv	FISV
Sungard Data Systems	SDS

(3) Platform IT Outsourcing

Computer Sciences	CSC
Electronic Data Systems	EDS
Perot Systems	PER
Sykes Enterprises	SYKE
CGI Group	GIB

Internet Infrastructure Providers

<u>Company</u>	<u>Ticker</u>
Digex	DIGX
PSINet	PSIX
Exodus Communications	EXDS
Globix	GBIX
Verio	VRIO
Navisite *	NAVI
Applied Theory	ATHY

Project-Based Service Providers

<u>Company</u>	<u>Ticker</u>
(1) App. & Systems Development	
Complete Business Solutions	CBSI
Affiliated Computer Services	ACS
iGate	IGTE
Tier Technologies	TIER
PSW Technologies	PSWT
Cambridge Technology Partners	CATP
Cognizant Tech. Solutions Corp.	CTSH
Intelligroup	ITIG
Metamor Worldwide	MMWW
Tenfold	TENF
Keane	KEA
CIBER	CBR

(2) Implementation/Integration

AnswerThink	ANSR
BrightStar	BTSR
Computer Task Group	TSK
Renaissance Worldwide	REGI
Technology Solutions	TSCC

(3) Web Development

Sapient	SAPE
March First	MRCH
Proxicom	PXCM
Razorfish	RAZF
AppNet	APNT
Scient	SCNT
iXL Enterprises	IIXL
Viant	VIAN
Modem Media.Poppe Tyson	MMPT
Braun Consulting *	BRNC
C-bridge Internet Solutions*	CBIS
Cysive *	CYSV
Tanning Technology *	TANN
Agency.com *	ACOM
Luminant Worldwide *	LUMT
US Interactive *	USIT
Xpedior *	XPDR
Lante *	LNTE
Organic *	OGNC
Inforte *	INFT

* Indicates companies tracked by Cherry Tree & Co. but not yet included in stock indices due to insufficient trading history.

Staff Augmentation**Company****(1) Pure IT Staffing**

Analysts International
 Cotelligent
 Hall Kinion
 Technisource
 PRT Group
 Alternative Resources
 Metro Information Services

Ticker

ANLY
 CGZ
 HAKI
 TSRC
 PRTG
 ALRC
 MISI

(2) Transitioning Firms

Computer Horizons
 Modis Professional Services

CHRZ
 MPS

(3) General Staffing

Romac International
 StaffMark
 CDI Corp.
 Comforce
 Personnel Group America
 Volt Information Sciences
 RCM Technologies
 Interim Services

KFRC
 STAF
 CDI
 CFS
 PGA
 VOL
 RCMT
 IS

Value Added Resellers**Company**

Microage
 Acxicom Corp
 Alphanet Solutions
 Viasoft Inc.
 Compucom Systems
 Aztec Technology Partners
 Black Box Corp.
 Merisel Inc.
 Inacom

Ticker

MICA
 ACXM
 ALPH
 VIAS
 CMPC
 AZTC
 BBOX
 MSEL
 ICO

Education & Training**Company**

ARIS
 Smart Force
 Wave Technology International
 Computer Learning Centers
 Learning Tree International

Ticker

ARSC
 SMTF
 WAVT
 CLCX
 LTRE

IT Services — Structural Perspective

While it is extremely difficult to place IT Services companies in specific subsectors, Cherry Tree & Co. has developed the following set of working definitions and categorizations for the purpose of analyzing key trends and developments in the industry. We recognize that readers often have their own mental categorizations that may be slightly different than what we are suggesting. Although pure-play examples are hard to find, we have found the following structural perspective to be very useful in depicting critical developments within the IT Services industry:

- ◆ ***Professional Consulting:*** Firms that focus on corporate level business and strategic engagements; further divided into three subsectors:
 - ***IT Consulting.*** Firms that predominantly focus on high level consulting projects that are directed at strategic information technology engagements. Project scope often entails company-wide evaluation of client business needs and essential processes, existing platforms, available technologies, and solutions design. The effort to structure an IT initiative as an integral component of a strategic or business process design oriented endeavor is what separates these companies from their Project-Based service provider counterparts.
 - ***Strategic Management Consulting.*** Firms that provide advice centering upon a client's overall corporate objectives and competitive position. Strategy should be thought of as the creation of a unique and valuable position for an enterprise that affords it a sustainable competitive advantage. Project scope involves such topics as market trend analysis, business and customer mix, marketing efforts, and capital structure.
 - ***Business Process Consulting.*** Firms that provide consulting expertise relative to the maximization of the operational effectiveness at either the functional or business unit level. Operational effectiveness includes practices and processes that allow a company to better utilize its resources to generate the highest level of output at a minimized cost.
- ◆ ***Project-Based Service Providers:*** Client projects within this sector have comparatively well defined tangible deliverables and scope. Contract designs range from a billable hours approach to fixed-price engagements for components and even entire projects. Companies typically focus around some type of vertical industry expertise, either in specific technologies or industry applications.
 - ***Application and Systems Development.*** Companies that specialize in custom software development aimed at serving the specific needs of their clients, typically in proprietary systems settings. Deliverables can include targeted modules or components, upgrades to existing systems, as well as original application development.
 - ***Implementation/Integration.*** Firms that specialize in the deployment of complex enterprise-wide (ERP) software packages. As part of this implementation, these companies integrate the new software by ensuring that diverse hardware, network, and software components work together. Companies may also specialize primarily in integration technologies, interface development, database management, and other enabling technologies that allow disparate systems to share information.
 - ***Web Development.*** Segment of the Project-Based sector exclusively focused on Internet-based services and technologies. Projects may entail front-end interactive marketing, e-business application development and implementation, e-commerce transaction system development, strategic consulting, and/or back-end Web-to-legacy integration.
- ◆ ***Outsourcing:*** Companies providing process automation services and facilities management and operations for clients desiring a variety of technical outsourcing solutions; divided into three subsectors:
 - ***Platform IT Outsourcing.*** Firms offering a range of data center services, including hardware facilities management, onsite and offsite support services, server-vaults and data security, and disaster recovery capabilities. These relationships typically involve the transfer of IT facilities, staff, or hardware.
 - ***Utilities or Business Process Outsourcing.*** Firms focus on economic and efficient outsourcing solutions for complex but repetitive daily business processes. These processes could be as sophisticated as finance and accounting or be more repetitive processes, such as disbursements and payroll. The provider assumes all responsibilities associated with the entire business process or function.

- ***Application Outsourcing.*** Firms manage and maintain software applications, with the provider assuming the responsibilities associated with the application. There are two sub divisions of the AO sector: Application Maintenance Outsourcing providers manage a proprietary or package application from either the client's or the provider's site. The Application Service Provider remotely hosts and delivers a packaged application to the client from an off-site location.
- ♦ ***Staff Augmentation:*** Companies that specialize in providing qualified IT professional staff on a temporary or long-term contract basis to clients in need of specific skill sets and project support for internal systems development projects.
 - ***Pure IT Staff Augmentation.*** Firms that derive the vast majority of their revenues from their core IT staffing business. Company strategies are often defined by geographic concentrations, vertical expertise, or technology focus.
 - ***Transitioning Firms.*** Companies that have traditionally been viewed as being in the IT staffing business but have recently attempted to redirect their growth towards higher value added and higher margin project-based services. For a staffing firm to be classified as Transitioning, revenues from project-based services are generally growing at a significantly higher rate than staffing revenues and/or comprise over 60% of revenues. Various combinations of merger and acquisition, divestiture, and internal growth facilitate this migration.
 - ***General Staffing with IT.*** Firms that provide professionals with a wide array of skills including finance, accounting, etc., which also have an IT staffing division with significant revenues. Several companies in this category are rapidly building IT services divisions, through both internal growth and by acquisition, which may eventually reposition their business mix.
- ♦ ***Education and Training:*** Companies that provide training and help desk consulting for firms that have adopted custom designed or packaged software products. Engagements can include onsite or training center programs following new installations or for skills development and certain technical applications.
- ♦ ***Internet Infrastructure Providers:*** Firms with a background in providing data center hosting services and corporate Internet access that also offer higher value-added services including Web and application hosting and other data solutions.
- ♦ ***Value Added Resellers:*** Solutions-oriented vendors providing integrated hardware and software systems, often including consulting, design, and implementation services. These companies have historically operated under specialty hardware and software distributor arrangements, though trends are towards broader vendor representation and increased consulting services.

Internet Commerce Software

Public Firms								
Company	Ticker	Price as of	Mkt. Cap.	TTM Revenue	TTM Net Income	P/E	P/Rev.	Web Address
		4/20/99						
Ariba	ARBA	\$69.00	16,146.0	92.6	(157.4)	N/A	174.4	www.ariba.com
Art Technology Group	ARTG	\$52.69	3,453.8	32.1	(13.1)	N/A	107.6	www.atg.com
Aspect Development	ASDV	\$56.69	3,277.0	116.2	10.9	300.6	28.2	www.aspectdv.com
BroadVision	BVSN	\$36.56	8,951.1	115.5	18.8	476.1	77.5	www.broadvision.com
Clarus	CLRS	\$32.94	379.6	38.1	(5.4)	N/A	10.0	www.claruscorp.com
CommerceOne	CMRC	\$55.00	8,246.5	33.6	(63.3)	N/A	245.4	www.commerceone.com
Corillian	CORI	\$10.25	N/A	7.7	(10.1)	N/A	N/A	www.corillian.com
eGain Communications	EGAN	\$16.75	481.0	4.6	(34.8)	N/A	104.6	www.egain.com
Elcom International	ELCO	\$7.56	218.4	485.8	(42.5)	N/A	0.4	www.elcominternational.com
Harbinger	HRBC	\$21.19	828.0	155.5	16.6	49.9	5.3	www.harbinger.com
Hewlett-Packard	HWP	\$139.50	139,515.6	43,808.0	3,325.0	42.0	3.2	www.hp.com
Hitachi	HT	\$120.50	40,000.0	N/A	N/A	N/A	N/A	www.hitachi.co.jp
IBM	IBM	\$104.00	191,127.1	67,250.3	6,243.5	30.6	2.8	www.ibm.com
InterWorld	INTW	\$26.31	716.6	40.5	(30.4)	N/A	17.7	www.interworld.com
Microsoft	MSFT	\$78.94	408,662.0	21,855.0	8,746.0	46.7	18.7	www.microsoft.com
Mustang.com	MSTG	\$11.38	67.9	3.7	(0.9)	N/A	18.4	www.mustang.com
Net Perceptions	NETP	\$21.50	473.6	15.1	(12.0)	N/A	31.4	www.netperceptions.com
OpenMarket	OMKT	\$9.00	394.7	92.3	(21.3)	N/A	4.3	www.openmarket.com
Oracle Corp.	ORCL	\$70.81	200,996.3	9,699.1	1,911.8	105.1	20.7	www.oracle.com
Purchasesoft	PURC	\$3.38	47.3	0.4	(4.8)	N/A	118.3	www.purchasesoft.com
QRS, Inc.	QRSI	\$46.50	634.6	124.7	14.9	42.6	5.1	www.qrs.com
Vignette	VIGN	\$52.75	9,423.5	89.2	(42.5)	N/A	105.6	www.vignette.com
						Group Average:	52.8	28.8
						Group Median:	46.7	17.7

Internet Tools Vendors

Public Firms								
Company	Ticker	Price as of 4/20/99	Mkt. Cap.	TTM Revenue	TTM Net Income	P/E	P/Rev.	Web Address
Adobe Systems	ADBE	\$112.63	13,350.5	1,070.8	264.0	50.6	12.5	www.adobe.com
Computer Associates	CA	\$51.75	28,047.1	6,269.0	762.0	36.8	4.5	www.cai.com
Compuware	CPWR	\$11.75	4,228.8	2,148.7	429.4	9.8	2.0	www.compuware.com
Continuus Software	CNSW	\$4.00	38.0	37.3	0.3	126.7	1.0	www.continuus.com
Informix	IFMX	\$11.94	2,472.8	871.5	(11.2)	N/A	28	www.informix.com
ILOG, Inc.	ILOG	\$45.00	648.0	64.5	(1.6)	N/A	10.0	www.ilog.com
Intellicorp	INAI	\$2.50	40.0	24.3	(4.0)	N/A	16	www.intellicorp.com
Inprise	INPR	\$5.50	309.1	274.8	22.7	13.6	1.1	www.inprise.com
Macromedia	MACR	\$59.56	2,829.8	221.5	10.6	267.0	12.8	www.macromedia.com
Mercury Interactive	MERQ	\$72.39	5,727.9	210.5	37.3	153.6	27.2	www.merc-int.com
Microsoft	MSFT	\$78.94	408,662.0	21,855.0	8,746.0	46.7	18.7	www.microsoft.com
Net Objects	NETO	\$12.94	350.5	24.5	(26.0)	N/A	14.3	www.netobjects.com
OMNIS	OMNS	\$8.00	78.9	6.5	0.3	263.0	12.1	www.omnis-software.com
Oracle Corp.	ORCL	\$70.81	200,996.3	9,699.1	1,911.8	105.1	20.7	www.oracle.com
Pervasive Software	PVSW	\$10.94	171.7	66.4	3.7	46.4	2.6	www.pervasive.com
PowerServ	PCRV	\$1.94	26.0	20.7	0.8	32.5	1.3	www.powerserv.com
Progress Software Corp.	PRGS	\$20.13	718.2	291.1	37.0	19.4	2.5	www.progress.com
Rational Software	RATL	\$76.39	6,778.0	516.8	80.5	84.2	13.1	www.rational.com
RogueWave Software	RWAV	\$5.88	61.6	53.2	(0.6)	N/A	1.2	www.roguewave.com
Santa Cruz Operation	SCOC	\$6.94	244.9	224.6	16.6	14.8	1.1	www.sco.com
Segue Software	SEGU	\$8.81	81.9	46.4	(15.9)	N/A	1.8	www.segue.com
SERENA Software	SRNA	\$23.13	885.4	75.4	14.6	60.6	11.7	www.serena.com
StarBase	SBAS	\$5.94	243.4	13.5	(4.6)	N/A	18.0	www.starbase.com
Sybase	SYBS	\$19.50	1,589.8	890.4	63.3	25.1	1.8	www.sybase.com
Symantec	SYMC	\$59.50	3,517.4	708.3	162.6	21.6	5.0	www.symantec.com
UNIFY	UNFY	\$12.06	221.9	36.9	8.5	26.1	6.0	www.unify.com

Group Average: 56.0 4.6
Group Median: 43.7 2.8

Merger & Acquisition Review

2nd Quarter, 1999

- **Agency.com (ACOM)** announced the acquisition of **Digital Vision**, an interactive communications firm based in Chicago. The acquisition expanded Agency.com's presence in the Midwest and extended the firm's front-end development skills.
- **Braun Consulting (BRNC)** acquired **Vertex Partners**, a privately held IT services firm based in Boston. Vertex specializes in Internet-centric strategic consulting and has expertise in the telecommunications and healthcare industries.
- **Proxicom (PXXM)** acquired **the ad hoc group, Inc.**, an interactive marketing and communications agency based in Sausalito, CA. The ad hoc group specializes in creative design, interactive branding, online advertising, and user interface design and has completed engagements with clients such as **Disney, America Online, and Bank of America.**
- **USWeb/CKS (USWB)** announced two transactions this quarter. The first of these was the April acquisition of **Case Consult**, a professional services firm specializing in Internet application design and development. Case Consult has offices in Belgium, Luxembourg, and the Netherlands. USWeb/CKS followed this transaction with the May acquisition of **Modern Business Technology (MBT)**, an IT consulting firm based in Schaumburg, Illinois. MBT provides full-service Internet and e-commerce solutions through a base of 70 consultants.
- **AnswerThink Consulting Group (ANSR)** acquired **Think New Ideas (THNK)**, an online marketing firm headquartered in New York. The \$231 million transaction represents a multiple of 4.5x Think New Ideas' trailing revenues of \$51.2 million.
- **Razorfish (RAZF)** announced the acquisition of New York-based **Electrokinetics**, a technology- and engineering-oriented product development consulting firm.
- **ZEFER** announced the acquisition of two business units from **Renaissance Worldwide (REGI)**. **Neoglyphics Media Corporation** is an e-commerce application developer, while **Customer Management Solutions** develops front-office strategies and solutions, focusing on the synthesis of customer relationship management with overall e-business strategy. As part of the transaction, Renaissance acquired an equity stake in ZEFER.

3rd Quarter, 1999

- **USWeb/CKS (USWB)** entered into an agreement to acquire **Mitchell Madison Group** for approximately \$154 million in stock, plus an additional \$154 million in earn-out incentives. Reporting annual revenues of \$257 million, MMG provides strategic consulting specializing in e-business and supply chain management.
- **AnswerThink (ANSR)** acquired **CFT Consulting**, an e-business specialist focused on the retail industry. AnswerThink paid \$14.8 million in cash and stock for the Florida-based firm.
- **Razorfish (RAZF)** announced several acquisitions this quarter. In a transaction that doubled its size, the firm merged with Massachusetts-based systems developer and integrator **I-Cube (ICUB)**. The stock pooling transaction was valued at \$677 million, 12.6x I-Cube's trailing revenues and over 100x earnings. The acquisition supplemented Razorfish's historical core strengths in digital strategy and front-end design with I-Cube's back-end integration capabilities. Razorfish also acquired **Fuel, Inc.**, a Los Angeles broadcast design firm, and **Tonga, Inc.**, an affiliated commercial production firm.
- **Luminant Worldwide (LUMT)** announced the acquisition of eight companies simultaneous with Luminant's initial public offering. These firms spanned a range of e-business skill sets, from creative to strategy to technical
- **Sapient (SAPE)** announced the signing of a letter of intent to acquire experience-based research firm **E-Lab LLC**, a customer-behavior consultancy serving Fortune 500 companies.
- **Xpedior (XPDR)** announced a definitive agreement to acquire New York e-business developer **Kinderhook Systems, Inc.** Kinderhook provides custom e-business services and solutions for Fortune 500 clients, specializing in business analysis, strategy, and software and infrastructure design and development.
- **Agency.com (ACOM)** announced the acquisition of **Twinspark Interactive People BV**, an interactive design firm based in Amsterdam. The acquisition expanded Agency.com's European presence.

4th Quarter, 1999

- **iXL Enterprises (IIXL)** agreed to acquire CRM services provider **Tessera Enterprise Systems** for \$120 million in stock, approximately 5x Tessera's annualized 1999 revenues. Privately held and headquartered in Massachusetts, Tessera provides CRM systems integration and strategic consulting to financial services and healthcare firms.

- **CIBER (CBR)** announced the acquisition of **Waterstone Consulting**, a Chicago-based e-business firm with strong competencies in CRM and SCM services. The transaction was valued at \$31 million in cash and stock, 2.1x Waterstone's trailing revenues.
- **Razorfish (RAZF)** made two acquisitions this quarter. The first transaction involved **Lee Hunt Associates**, a strategic marketing firm with vertical expertise in the entertainment industry. The second acquisition involved **TSDesign**, a Boston-based Internet strategy and marketing specialist.
- **Agency.com (ACOM)** acquired **i-Traffic**, a direct marketing firm providing relationship marketing and customer acquisition services for Internet-based businesses. The cash and stock transaction was valued at approximately \$15 million.
- **Whittman-Hart (WHIT)** announced a definitive agreement to merge with **USWeb/CKS (USWB)** in a stock-for-stock transaction that created the sector's largest e-business consultancy, **MarchFirst (MRCH)**. The merger, which closed in February, combines Whittman-Hart's back-end integration and SCM competencies with USWeb/CKS's front-end e-commerce and marketing skills. The announcement followed Whittman-Hart's acquisition of **Four Points Digital LLC**, an interactive marketing firm based in Chicago.
- **Modem Media.Poppe Tyson (MMPT)** announced a definitive agreement to acquire **vivid** for \$64 million in cash and stock. Privately held, vivid is an e-commerce development firm specializing in information systems architecture, strategic consulting, and online ventures. Modem Media also announced the acquisition of **MEX Multimedia Experts GmbH**, an interactive agency based in Munich. MEX was acquired for \$5.4 million in cash and stock.
- **Braun Consulting (BRNC)** acquired **Emerging Technologies Consultants Inc.**, an IT services firm specializing in CRM consulting and development services. ETCI is privately held, employs 40 consultants, and serves customers primarily in the telecommunications, financial services, and healthcare industries. The transaction was valued at approximately \$27 million.

1st Quarter, 2000

- **Agency.com (ACOM)** completed its acquisition of French interactive agency **Pictoris Interactive SA** after purchasing a minority interest in the firm in October 1999. The \$21.1 million acquisition further extends Agency.com's European operations, bringing the firm's total number of Paris-based Internet consultants to 65.
- **Leapnet (LEAP)**, an advertising agency migrating to the interactive marketing space, announced a definitive agreement to acquire **SPR Inc. (SPRI)**, an IT outsourcing and project-based services firm. SPR, which generated trailing revenues of \$70 million, provides services related to legacy system upgrades, consulting and integration, and applications management.
- **Xceed (XCED)** announced several acquisitions in its effort to quickly transition into an e-business services provider. The first of these was the acquisition of **Big Theory LLC**, an Internet development and interactive marketing firm. Big Theory, which is privately held and based in Dallas, specializes in Web design and interactive advertising solutions. Xceed followed this transaction with the acquisition of **Sterling Carteret**, a systems integrator, **methodfive**, an e-business strategy and design specialist, and **Pulse Interactive**, a Web marketing firm based in Amsterdam.
- **Xpedior (XPDR)** acquired the assets of **NewTHINK**, a privately held e-business consulting firm. NewTHINK provides strategic planning tools and consulting services and is expected to enhance the strategy component of Xpedior's e-business service offering.
- **US Interactive (USIT)** entered into a definitive agreement to acquire **SoftPlus**, a privately held services firm providing business-to-business technology frameworks and Internet-based CRM solutions. The transaction, which combined cash, stock, and assumption of SoftPlus debt, was valued at \$350 million, over 9x SoftPlus' forecasted revenues of \$38 million.
- **Razorfish (RAZF)** acquired **Qb International Holding AB**, a Swedish IT and strategic consulting firm. The acquisition, valued at approximately \$20.1 million, adds 40 billable professionals to Razorfish's roster.

About Cherry Tree & Co.

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David Teckman, President
Disc Systems

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