



Cisco Systems: Web-enablement

Cisco CEO John Chamber's vision of a "New World Network"—where voice calls over the Internet will be free—is as far-reaching as Microsoft Chairman Bill Gates' decade-ago vision of "information at your finger tips, with a computer in every desk and in every home."

Pete Solvik:

The vision is core to our perception of the marketplace. We all carry these cards in our wallets with our goal printed on them: 'Internet experts: the Global Internet Company.'

Founded by two Stanford computer scientists in 1984 and brought public in 1990, Cisco Systems, Inc. now dominates the exploding "Internetworking" market. In 1997—its first year on the *Fortune* 500—Cisco ranked in the top five companies in return on revenues and return on assets. (See **Exhibit 1** for Cisco's financial performance.) Only two other companies, Intel and Microsoft, have matched this feat. On July 17, 1998, just fourteen years after being founded, Cisco's market capitalization passed the significant \$100 billion mark. Less than two years later, on March 27, 2000, Cisco overtook Microsoft as the most valuable business on earth with a market cap of \$531 billion.

Cisco's core technology began with routers. Routers are what make the Internet work. They act as multilingual translators tying the disparate computer networks of the world together on the Internet, in much the same way that telephone networks in different countries pass calls to each other.

Cisco is at the forefront of challenging a world of three independent proprietary networks: the phone networks for voice, the local area and wide area networks for data, and the broadcast networks for video. Digitization is enabling the convergence of the three networks; the Internet, as a global network of networks, makes it possible to transmit voice, data, and video over one network in a more efficient and economical manner than transmitting signals over the three independent and proprietary networks. The Internet and its open standards are creating a new competitive battleground for the entrenched telecommunications (telecom) players, including AT&T, Verizon (GTE & Bell Atlantic), British Telecom, and Deutsche Telecom.

Challengers to the incumbents have spearheaded their attacks through the Internet by offering services such as Internet access, hosting, extranets, e-mail, and search capabilities. Many—

Professor Richard L. Nolan, William Barclay Harding Professor of Management Technology and Research Associates Kelley A. Porter and Christina Akers prepared this case with the assistance of Christina L. Darwall, Executive Director, HBS California Research Center, as the basis for class discussion rather than to illustrate either effective or ineffective handling of an administrative situation. It is a rewritten version of an earlier case, "Cisco Systems, Inc." HBS No. 398-127.

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including UUNet, PSINET, GTE/BBN, and over 5,000 other ISPs (Internet Service Providers)—are competing on price for providing fax, messaging, and EDI (electronic data interchange).¹

All of this activity signals the acceleration of the trend to IP (Internet Protocol)-based networks. This market did not exist three to five years ago. Already, in the United States it is estimated that data network traffic exceeds voice network traffic. More than 75% of all Internet traffic travels over Cisco products. In 2000, more than 275 million people are on the Internet, projected to be more than a billion by 2005.

Lucent Technologies (2001 revenues of \$33,813,000 market cap of \$60,085,900 million) current leader for telecom gear has not stood still since its 1996 spin-off from AT&T. As phone companies shift their traffic from overstretched networks, which were designed to carry voice versus the 0s and 1s of computers, Lucent has been remaking itself to transition with its customers.

IP-based networks have cost advantages over traditional phone networks. In addition, the new IP-based technology providers such as Cisco are better equipped to address performance and security issues due to their constant influx of venture capital and talent. Many of the IP-based technology companies benefit from being located in Silicon Valley where there is an incredible spirit of innovation in both technology and management. Juniper Networks directly competes with Cisco by providing next generation Internet backbone routers that are specifically designed for service providers. Juniper Networks floated their IPO on June 25, 1999, and with revenues of about \$100 million had a market value of \$2.1 billion. Currently, Juniper has revenues of \$673.5 million and a market cap of \$31,974 billion.²

But neither Cisco nor Lucent have the products they need to ensure a big win, nor do any of the other network companies including Northern Telecom (Nortel), Bay Networks (now a part of Nortel), or 3Com.³ All of the network companies are racing to develop a new hybrid product with the speed and efficiency of a router and the precision of a telephone switch—a switched router or a routing switch.

The Top Management Team at Cisco

The two founders of Cisco were long on innovation acumen. Don Valentine, Partner of Sequoia Capital and Vice Chairman of the Board of Cisco⁴ was the initial venture capitalist who invested in Cisco; believing that Cisco would be a success, he took a chance when other venture capitalists were more cautious. One way in which Valentine protected his initial \$2.5 million investment was by reserving the right to bring in professional management when he deemed it appropriate.

In 1988, Valentine hired John Morgridge as CEO. Morgridge, an experienced executive in the computer industry who had worked at Grid Systems, Stratus Computers, and Honeywell, immediately began to build a professional management team. This team soon clashed with the

¹ McKinsey 1997 Report on the Computer Industry, pp. 1-55.

² OneSource, February 2001.

³ Nortel acquired Bay Networks in June 1998 for \$9.1 billion in stock. At the time, Nortel had annual revenue of \$15.4 billion, and a market value of \$28 billion compared to Cisco's annual revenue of \$6.4 billion and a market value of \$85 billion.

⁴ Don Valentine was previously the outside executive Chairman of the Board of Cisco. Cisco has maintained its Chairman of the Board as an outside director. Currently, John Morgridge serves as an outside director and Chairman of the Board.

founders, and after Cisco's initial public offering in 1990, both founders sold all of their stock and left the company. Some observers felt that this early exit of the founders provided a receptive environment for laying the groundwork for disciplined management, which in turn let the company capitalize on market opportunities and grow at a phenomenal rate without derailing its focus or losing control.

Morgridge believed that many Silicon Valley firms decentralized too quickly and did not appreciate the proven ability of the functional organization structure to scale without sacrificing control during high levels of growth. Accordingly, Morgridge maintained a centralized functional organization that is still in place today. While Product Marketing and R&D are now decentralized into three "Lines of Business" (Enterprise, Small/Medium Business, and Service Provider), the manufacturing, customer support, finance, human resources, Information Technology (IT) and sales organizations remain centralized. The only responsibility of sales country managers is to sell the three market segment products. They are not responsible for non-sales activities (e.g., accounting, IT, manufacturing, etc.) within a country or geography. There is a belief within Cisco that consistency of strategy, goals, organization, and management provides a huge stable benefit to a fast growing, fast moving company (see **Exhibit 2**).

Cisco's Business Strategy

Morgridge hired John Chambers in 1991 from Wang Laboratories (Chambers had also worked for IBM for six years), and turned over the duties of CEO to Chambers in 1995. Morgridge reflects: "When Chambers took over, Cisco never lost a beat."⁵ Chambers continues to execute a plan that he jointly created with Ed Kozel, chief technical officer, and Morgridge in 1993. The plan consists of four elements:⁶

1. *Assemble a broad product line so Cisco can serve as one-stop shopping for business networks.* **Exhibit 3** shows how information is routed through the Internet; Cisco's revenues and market shares for those products are also stated.
2. *Systematize acquisitions as an efficient business process.* Cisco has made more than 70 acquisitions and key strategic alliances since 1993 to fill out its product line (see **Exhibit 4**).
3. *Set industry wide software standards for networking.* Cisco has issued IOS (Internetwork Operating System) licenses to Alcatel, Ericsson, Northern Telecom, Compaq, Hewlett-Packard (HP), Bay Networks, 3Com, Microsoft, Intel and twelve Japanese companies.
4. *Pick the right strategic partners.* Cisco is working with Microsoft to create an industry standard for security over the network, working with MCI to deliver premium Internet services, and working with HP to develop and sell Internet-based corporate computing systems built with each other's products.

If Chambers can successfully execute on this four-point plan, he believes that Cisco will be the lead architect and provider of technologies for the new Internet-based infrastructure in which voice, data and video will be delivered through one network. Further, Chambers believes that

⁵ Geoff Baum, "Cisco's CEO: John Chambers," *Forbes ASAP*, February 23, 1998, p. 52.

⁶ Brent Schlender, "Computing's Next Superpower," *Fortune*, May 12, 1997, p. 88.

... by providing the end-to-end network plumbing, we can change the way entire companies and industries operate. Only now are businesses beginning to realize how much the network will touch their people and Customers and suppliers, and how much productivity and profitability can improve when they become truly global networked companies.⁷

In the end, Chamber's ultimate focus is on the customer, a fact that is emphasized by his directive to have the words "Dedication to Customer Success" on every Cisco worker's badge.

Building Cisco's IT Infrastructure

When Peter Solvik joined Cisco in January 1993 as their new CIO, Cisco was a \$500 million company, and was running traditional financial, manufacturing, and order entry systems. Solvik, who was fresh from Apple, concluded that he had two key challenges. First, Cisco's Information Technology (IT) department was too traditional in the sense that it was viewed as a cost center that reported through the Finance department, and it was too internally oriented. As a result, the potential contribution of IT to the business was much less than it could be and Solvik believed this had to change. Solvik's second challenge was that the current systems could not scale to support Cisco's growth, nor were they flexible and robust enough to meet management requirements.

To address the first challenge, three changes were made. First, the IT-reporting relationship was changed from Accounting to Customer Advocacy. Second, the IT budget pertaining to the functions were returned to the functions leaving just a small portion left in G&A (General and Administrative) expense. This created a structure where all IT application projects were client funded. Third, the central IT steering committee was disbanded, and replaced with a structure where IT investment decisions on application projects were pushed out to the line organization but still executed by central IT.

To address the second challenge, Solvik proposed to Morgridge a \$15 million Enterprise Resource Planning (ERP) System project to completely replace all Order/Entry, Manufacturing and Financial systems worldwide in an aggressive nine month big bang effort. Solvik remembers well Morgridge's response.

Morgridge looked at my business sponsor and me and said: "Okay, we are going to take this to the Board of Directors, but I want you to know that you are betting your entire careers on this project."

Solvik wryly wonders why, after the downside was clearly stated, he did not ask what the upside would be for him. Morgridge endorsed the project, but he also made it clear that he felt successfully executing the project was going to be no small feat. Thus, Morgridge made the project one of the company's top seven goals and tracked its progress in executive staff meetings, company-wide meetings, and Board meetings. The project was completed successfully and on time and formed the centerpiece of the two-year, \$100 million series of initiatives to replace all IT applications and platforms worldwide. Solvik describes the results:

In a two-year period, we literally replaced every piece of technology in the company. We have a very low-cost/high-value technology architecture. We have no mainframes, no mini computers, and no legacy technology. Everything is current.

⁷ John Chambers as quoted in Brent Schlender, "Computing's Next Superpower," *Fortune*, May 12, 1997, p. 88.

The IT platform architecture is standardized throughout Cisco: 100% UNIX at the server level, 100% Windows NT at the LAN level, 100% Windows Toshiba and HP PCs at the client level, 100% Oracle at the database level, and 100% TCP/IP (Transmission Control Protocol/Internet Protocol) for the worldwide network. Voice-mail, e-mail, meeting schedule software, desktop and server operating systems, and office productivity suites are all standardized. Virtually all business functions utilize single applications packages worldwide. Cisco's architecture is detailed in **Exhibit 5**.

Being standardized to this degree has given the company a high level of flexibility. For example, when Cisco recently reorganized R&D and marketing from multiple business units to three lines of business, they completed all the changes required across all applications in less than 60 days for a cost less than \$1 million. Solvik feels "that without the IP and open systems based IT architecture and standardization, we would never have been able to accomplish such a feat in the short time that we did, and at an incredibly low cost."

Although standardization means flexibility, from a scalability perspective, distributing the company's systems and yet keeping a single system image remains a daunting task. Solvik explained that

... the biggest and most challenging projects we have going on are distributing our centralized core systems. We have very big UNIX servers with huge, huge databases that just don't have the inherent reliability and scalability that the same size DB2 database would have on a mainframe. A tremendous amount of our effort goes into designing our systems to be reliable and scaleable. The whole UNIX platform has a much lower cost than mainframes so we're able to spend that money to have plenty of server capability.

Completion of their IP-based open standards architecture initiative provided the centerpiece of the Cisco IT architecture. It also provided the foundation for the next phase of Solvik's strategy: incorporating the Internet.

Cisco began web development in the early 1990s when they discovered Mosaic, a public domain primitive web browser developed at the University of Illinois. Within six months of the discovery, Cisco had production and transaction web applications for itself and its customers, and a year after that they shifted from the Mosaic browser to the Netscape browser. Solvik recalls that early on "when we purchased our applications, none were web enabled. We had to web enable them all. So we did that with a standard set of tools and a smart group of people."

The initial 3 year investment in the Internet cost about \$100 million. The following table details the key components for the Intranet and Internet applications.

| Intranet | Internet |
|--|--|
| EIS (Executive Information Systems) and DSS (Decision Support Systems) | Extranet supply chain (information transparency) |
| Employee self-service | Customer self-service through web site |
| Communication and distance learning | Net commerce through the web |
| Collaboration and workflow management | Marketing through the web |
| Web-enabled legacy systems | Any place access through the web |

A very high percentage of Cisco customer, partner and supplier interaction with the company is network based, and begins at Cisco's Home Page (see **Exhibit 6**). From the Cisco Connection Online (CCO), the user navigates to the information needed for the interaction work, or "publishes and subscribes"—that is, the user directly contributes information required to do business

with Cisco, or enriches Cisco's intellectual asset base. This allows others (both internally and externally) to do business more efficiently and effectively with Cisco.

Internet and Intranet Applications and Benefits

Cisco has built its business processes on its own global intranet, and Cisco people deployed around the world interact on this intranet to address business issues and customer needs. (See **Exhibit 7** for the "Cisco Employee Connection" home page.) Links to strategic vendors and customers allow Cisco to collaborate more efficiently with those outside the company. The intranet also provides a proving ground for new Cisco technologies and products, ensuring that they are ready for mission-critical applications before they are offered to customers.

Employee Self-Service: Internal applications

The majority of Cisco's internal applications have been web enabled. For example, almost all functions that sales people perform on the computer are done using a web browser. EIS and DSS systems, training (including distance learning), and self-service HR are all web-based.

Cisco Systems' corporate intranet Cisco Employee Connection (CEC) addressed the unique needs of its 40,000+ employees by providing centralized access to information, tools and resources needed to streamline processes, facilitate knowledge exchange and maximize employee productivity.

Cisco has leveraged the web to truly revolutionize existing process and create new, end-to-end capabilities. Because the Web has integrated data and tools from a variety of sources under a unified user interface, Cisco's intranet was truly a key enabler of workforce optimization.

In addition to replacing its own custom designed applications, Cisco is working with its vendors to help them convert the applications that Cisco has purchased for use within the company. By 2000, virtually every application in the company uses a web browser as its only user interface.

Communication and Distance Learning

The network has continued to enhance the ability to communicate with employees and added an important dimension to training. Distance learning modules available to Cisco employees can be activated at the employee's desktop. The use of these distance learning modules—as well as information about their effectiveness—can be easily tracked to determine the extent of use of the various education modules. From tracking information, the quality of the modules can be assessed to ensure high levels of effectiveness as the needs of the organization change.

An arrangement with Yahoo! (the search engine company) makes available a Cisco-tailored version of "My Yahoo!." My Yahoo! is a type of "push" technology application whereby certain information is specified by the user, and agents search the Internet for the information and then "push" it out to the user's desktop. When the user signs onto the Internet, the information is waiting for him/her, tracking everything from breaking news reports about competitors to up-to-the-minute information about worldwide financial markets (see **Exhibit 8**).

Chambers' address at Cisco's Quarterly Meeting can be viewed from employee's desktops in real-time. More than a thousand employees tune in to view the address in real-time and another thousand watch it in a delayed broadcast over the Intranet—using their PC to bring up a video window. This streaming of live video provides another capability that strengthens the Cisco culture by making the company "feel" closer to each of the employees. Solvik believes that the two thousand

who view the address remotely are equal in number to those who see it live. As a result, Chambers doubled the number of employees who view his quarterly address.

Customer Self-service: Electronic Connection with Customers

Cisco management never misses a chance to reinforce that the customer is the focal point of their business. The centerpiece of this strategy is Cisco.com, a comprehensive, web-based, online resource for information and networked applications. With about 590,425 active registered users from around the world, Cisco.com is accessed approximately 3.8 million times each month by registered users (as of January, 2001), making it the primary vehicle for delivering responsive, around-the-clock customer support.⁸ Customers rely on Cisco.com to answer questions, diagnose network problems, and provide solutions and expert assistance worldwide. In fact, over 80% of Cisco's technical support for customers and resellers is delivered electronically, saving Cisco nearly \$506 million annually and improving customer satisfaction.⁹ For its international customers, portions of Cisco.com have been translated into multiple languages with nearly 68 different country pages, plus 17 languages.

Solvik reflected on the importance of the customer at Cisco:

I have 600,000 registered Customers hooked up—those are Customers with a big “C”—compared to 42,617 Cisco employees. In contrast to most internally focused IT organizations in many other companies, my mission does not primarily focus on providing services and systems to meet the needs of the employees of the business. In fact, I refer to my employee users as clients, and not as Customers.

Customers that are using our systems directly express higher satisfaction with us and enjoy a lower cost of doing business with us than those who do not use our systems. And of course, we also lower our cost of doing business.

Seventy percent of the employees in Cisco have a very significant bonus multiplier tied to our annual customer satisfaction survey. The first thing we review at every senior staff meeting is the status of critical accounts. Every night Chambers gets a personal update on the status of every critical account. Any employee can put a Customer on the critical account list as an advocate of the Customer. So if I get a call from someone who knows me or has met me or has my business card, and they say “I’m having a problem with your company,” I will find the relevant sales person and call the account team, to get the issue resolved or I can place the account on the critical account list. If you have an unhappy Customer, they stay on the critical account list until the problem is fixed.

Net Commerce—Shipping product over the Internet

Cisco was an early pioneer in using the Internet for full electronic commerce. They began with simple transactions over five years ago and have had completed configuration and order placement for the company's entire product line. Solvik recounted their experience:

⁸ Note- As of June, there were 15 million hits per month against the Cisco.com web site and this number is growing by 3.6% per month. Seventy percent of these hits are not registered users but individuals visiting the Cisco.com website for general company information. Registered users have a special login that provides them access to specific Cisco information.

⁹ “Ten Minutes with John Chambers,” *NASDAQ: The International Magazine*, Issue 29, January 2001, pg. 18.

We've learned an incredible amount in the 48 months of live e-commerce. We have racked up Internet shipments of product from 0% in July of 1996, to 2% of our revenue in August of 1996, to \$800 million in calendar 1997, and to \$1.5 billion each quarter in 1998—a current run rate of 65% of our total revenue. As of January, 2001, Internet Commerce based revenue represents 92% of our total revenue base, a run-rate of over \$25 Billion annually. Cisco operates one of the biggest electronic commerce sites in the world.

Orders can be placed via the World Wide Web from anywhere in the world. After placing an order customers can use other applications to instantly check the status of pending orders. In addition, well over 90% of Cisco's software upgrades are now delivered via the Internet at a much lower cost and in a shorter time period than in the past when traditional distribution methods were used. For example,

At Sprint it used to take 60 days from the signing of a contract to complete a networking project. Now, thanks partly to the efficiency of ordering Cisco equipment online, it takes 35 to 45 days. Sprint has also been able to cut its order-processing staff from 21 to six, allowing the other 15 employees to work instead on installing networks.¹⁰

Productivity gains of 60% for Cisco and 20% for customers and resellers are being realized through online commerce.¹¹

Cisco's Supply Chain Management Initiative

Beginning in 1992, Cisco outsourced much of its manufacturing to contract manufacturers while still performing final assembly and test. The supply chain functions were jointly performed by Cisco and its contract manufactures, requiring them to exchange information and interact through labor-intensive processes.

As the company began implementing applications to extend to its suppliers and customers, Cisco decided that its core competencies were in design and fulfillment processes rather than physical transformation of product. As a result, Cisco chose to form partnerships with suppliers that performed physical transformation as their core competency. Central to Cisco's philosophy was to remove business barriers that would impede the flow of information within the company and its business partners, further increasing the integration with its constituents and overall power of the supply chain.

Automating Cisco's supply chain involved five initiatives:

1. *Single Enterprise*: Cisco used networked applications to integrate suppliers into its production systems, creating in effect, a "single enterprise". This enabled key suppliers to manage and operate major portions of its supply chain. The electronic links across the single enterprise allow Cisco and these suppliers to respond to customer demand in real-time. Any change in one node of the supply chain is propagated throughout the supply chain almost instantaneously. Other improvements include the elimination of purchase orders and invoice processing (**Exhibit 9**).

¹⁰ Shawn Tully, "How Cisco Mastered the Net," *Fortune*, August 17, 1998, p. 210.

¹¹ Cisco 1997 Annual Report, p. 11.

2. *New Product Introduction (NPI)*: A 1998 Cisco study revealed that as many as four to five iterations of prototype building are required, with each iteration taking, on average, one to two weeks. Two of the biggest drivers of costs and time delays in the prototype phase was the labor intensive process for gathering and disseminating information and the delays caused by manufacturability design issues. In response to this problem, Cisco automated the process for gathering product data information, thereby reducing the amount of time required from as much as one day, to less than 15 minutes. By simulating the manufacturability of the product design prior to release to the factory, Cisco caught roughly 98% of all manufacturability issues upfront, reducing the number of interactions to 2 ½. The use of networked applications in NPI has reduced time to volume by three months and reduced total cost of NPI by \$49 million in 1999.
3. *Autotest*: In 1992 Cisco began to build test cells that performed tests automatically with minimal labor and standardized product tests. Testing processes were made routine and embodied in software test programs that ran the test cells. Once testing had been automated and standardized it was outsourced entirely to the suppliers, allowing quality issues to be detected at the source. However, although testing was outsourced, the intelligence behind the testing was still supplied by Cisco.
4. *Direct Fulfillment*: Until recently orders were shipped to the customer exclusively from Cisco. Therefore, products configured by partners would have to go through two shipping legs: first from the partner to Cisco, and then from Cisco to its customer. Each of these legs took approximately three days. In 1997, the first step in moving toward global direct fulfillment was launched in the United States. The several manufacturing partners who have transitioned completely represent about 60% of Cisco's unit volume.
5. *Dynamic Replenishment*: Prior to supply chain automation, Cisco manufacturers and suppliers lacked real-time demand and supply information, resulting in delays and errors. To compensate, inventory levels and overhead were higher than acceptable. The dynamic replenishment model allows the market demand signal to flow through directly to the contract manufacturers without any distortion or delays. It also allows contract manufacturers to track Cisco's inventory levels in real-time.

As a result of these five initiatives, Cisco has one of the most efficient supply chain models possible (**Exhibit 10, 11**). In 1997 it improved responsiveness while improving profitability by \$275 million. Network-enabled applications have been key to value maximization in Cisco's supply chain. This powerful new model of managing the supply chain is referred to as "the Global Networked Business Model."

EIS (Executive Information Systems) and DSS (Decision Support Systems)

Cisco employees use the web browser as a front end for access to all executive and decision support information in the company. The company's web-based EIS system (Executive Information Systems) is used by all sales managers and executives worldwide—a total of over 2,000 users including the CEO—and provides summary and drill down Bookings, Backlog, Revenue, Not Booked, Forecast and Plan for all products, customers, channels, geographies, and markets.

Sales tracking and reporting is also via the Intranet. If a Cisco sales person would like to track certain product sales in a region on a weekly basis, that sales person merely calls up the browser template and requests the information. After several clicks of the mouse, assuming that the sales person has authority to access the information, the report will be automatically delivered to his/her desktop at the level of detail and for the period of time requested.

Integrating Acquisitions into the IP-based IT Architecture

Acquisitions have been—and will continue to be for the foreseeable future—an important part of Cisco's strategy. Approximately 2/3 of Cisco technology is from internally developed efforts, and 1/3 is from partnerships/acquisitions.¹² In addition, approximately 70% of CEO's from acquired companies remain at Cisco.

Cisco seems to have mastered the acquisition process. There are no hostile takeovers and only companies with "market congruent" visions are considered. Because Cisco wants to be assured of success, only one out of ten acquisitions that Cisco considers is actually executed.

Once an acquisition is consummated, Cisco uses a documented and repeatable process for integration. Generally, the acquired company is acquired for its R&D and developed products that contribute to providing the network customer with an end-to-end solution. The R&D and Product Organizations of each acquired company are grafted onto the product side of the organization, which includes Cisco branding, and product family integration. The manufacturing, sales, and distribution parts of the organization are integrated into Cisco's functional organization. Within Cisco's IT organization, a specific group handles acquisition integration and immediately eliminates non-standard technology, integrating the acquired company into all of Cisco's infrastructures and core applications. Because of Cisco's IP and standards based IT architecture, the company is able to quickly and efficiently add the capacity required to handle the administrative processes of acquired businesses. Most acquisitions can be fully integrated within 60 to 100 days.

Following cooperative initiatives in a six year relationship, in August 1999, Cisco announced that it would purchase 19.9% of a KPMG's global consulting arm for the sum of \$1.05 billion,¹³ which KPMG spun off in February 2000, with an intention of taking the new unit through an IPO (Initial Public Offering). KPMG will own the remaining 80% of the equity.¹⁴

KPMG global consulting plans to use the capital from the deal to build six technology centers that will be staffed with 4,000 of its consultants to deliver internet-based data, voice and video consulting services to Cisco's clients. If a corporate customer wants to transfer business functions like accounting or financial reporting to the web, Cisco will provide the hardware and software systems, and KPMG will provide the software required to set-up the specific application and maintain it. For Cisco, the alliance with KPMG fills a gap to help customers install and maintain its systems, which is particularly important as Cisco sells an increasing share of its systems to telecommunications providers, who are accustomed to more assistance by their equipment suppliers.¹⁵

Cisco has gained a competitive advantage and increased shareholder value by implementing Internet business solutions across all functional areas (including marketing, employee, manufacturing, customer support, and commerce applications). The bottom line impact in FY2000, including increased revenue, gross margin, and reduced expenses, is conservatively calculated at \$1.3 Billion (see **Exhibit 12**). Solvik observed that the benefits of moving to the new architecture could be thought of as either providing the company free IT services or alternatively, as allowing the company to invest \$1 Billion more in R&D than their competitors.

¹² Noel Lindsay, network analyst, Deutsche Morgan Grenfell.

¹³ Of the \$1.05 billion, \$420 million will be invested in the new unit, and the remainder will be paid to the KPMG audit and tax businesses.

¹⁴ *The Wall Street Journal*, August 8, 1999, p. A3. To satisfy the SEC, KPMG has agreed to give up control of the new entity minimizing their equity holding to around 30%. Two Cisco executives will sit on the Board of Directors of the entity.

¹⁵ *The Wall Street Journal*, August 8, 1999, p. A3.

Beyond Cisco

It is clear that Cisco is successful in what it does, and now Chambers and Solvik believe that the principals of work using the Internet at Cisco apply in general business. Recently Solvik commented,

The opportunity for Cisco to continue growing as a company is highly linked with the adoption of Internet-based infrastructures by other companies. We believe that we can continue to pioneer in the development and use of the Internet, and provide leadership to most traditional companies. These companies can find the same benefits that Cisco has enjoyed.

Exhibit 1 Financials and Other Cisco Statistics

| Years Ended | July 29, 2000 | July 31, 1999 | July 25, 1998 | July 26, 1997 | July 28, 1996 | July 30, 1995 |
|---|-------------------------------|------------------|-----------------|-----------------|-----------------|-----------------|
| Net sales | \$18,928,000,000 ^a | \$12,154,000,000 | \$8,458,780,000 | \$6,440,171,000 | \$4,096,007,000 | \$1,978,920,000 |
| Income before provisions for income taxes | \$ 4,343,000,000 ^a | \$ 3,316,000,000 | \$2,302,470,000 | \$1,888,872,000 | \$1,464,830,000 | \$ 679,046,000 |
| Net income (Loss) | \$ 2,668,000,000 ^a | \$ 2,096,000,000 | \$1,350,072,000 | \$1,048,680,000 | \$ 913,324,000 | \$ 421,008,000 |
| Common Equity—Total | \$26,497,000,000 | \$11,678,000,000 | \$7,106,620,000 | \$4,289,620,000 | \$2,819,620,000 | \$1,378,730,000 |
| Total assets | \$32,870,000,000 ^a | \$14,725,000,000 | \$8,916,710,000 | \$5,451,984,000 | \$3,630,232,000 | \$1,757,280,000 |
| Price—Close Fiscal Year | \$61.75 ^b | \$30.81 | \$15.958 | \$8.84 | \$5.75 | \$3.097 |
| Number of employees | 31,140 | 21,000 | 15,000 | 11,000 | 8,782 | 4,086 |
| Net sales per employee | \$607,835 | \$578,762 | \$563,918 | \$585,470 | \$466,490 | \$546,415 |
| Net income per employee | \$85,678 | \$99,809 | \$90,005 | \$95,334 | \$103,999 | \$111,720 |

Source: Compustat, except for

^awww.cisco.com, August 28, 2000.^bwww.bloomberg.com, August 28, 2000.

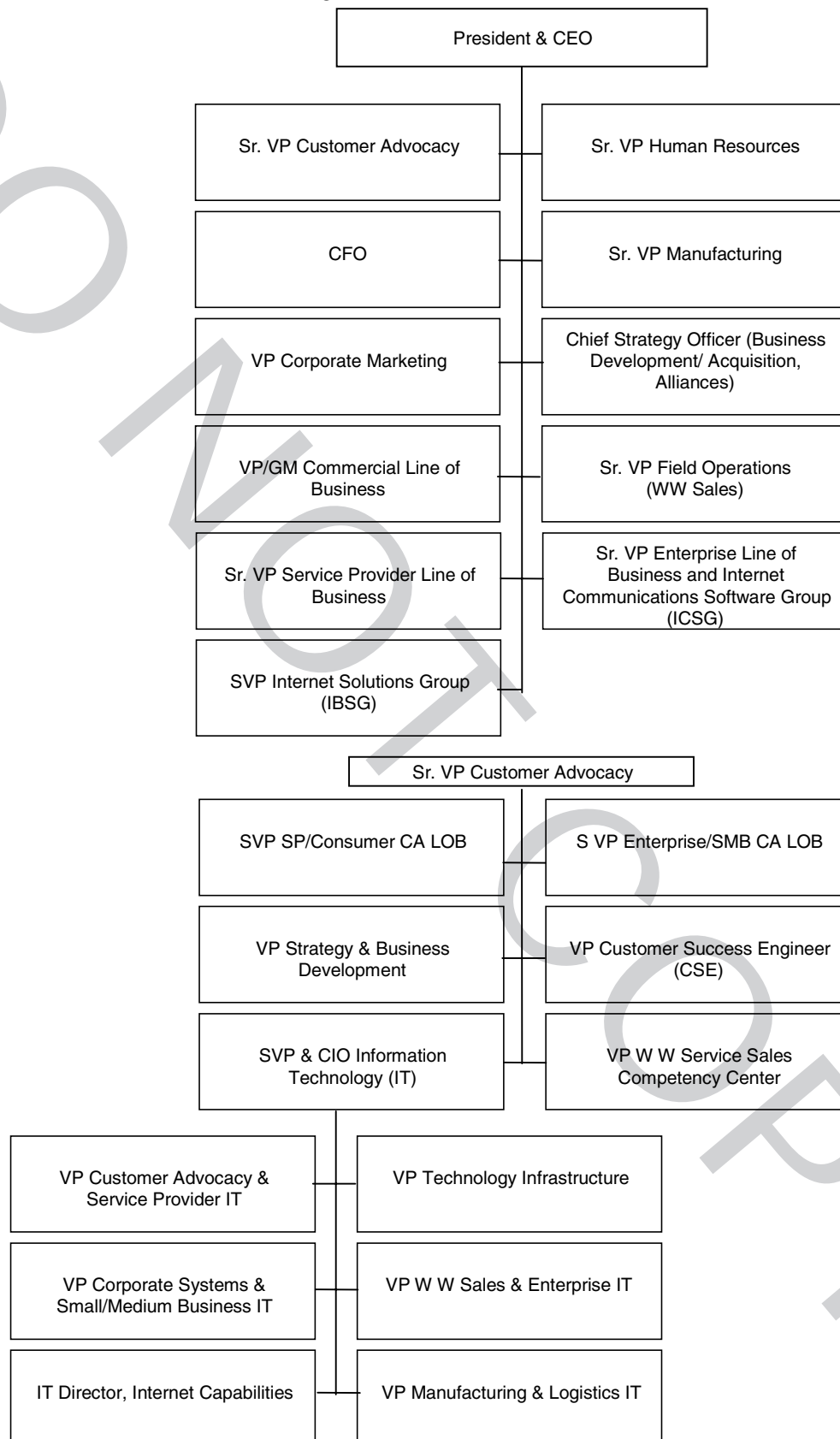
Exhibit 2 Executive Level and CIO Organization Charts

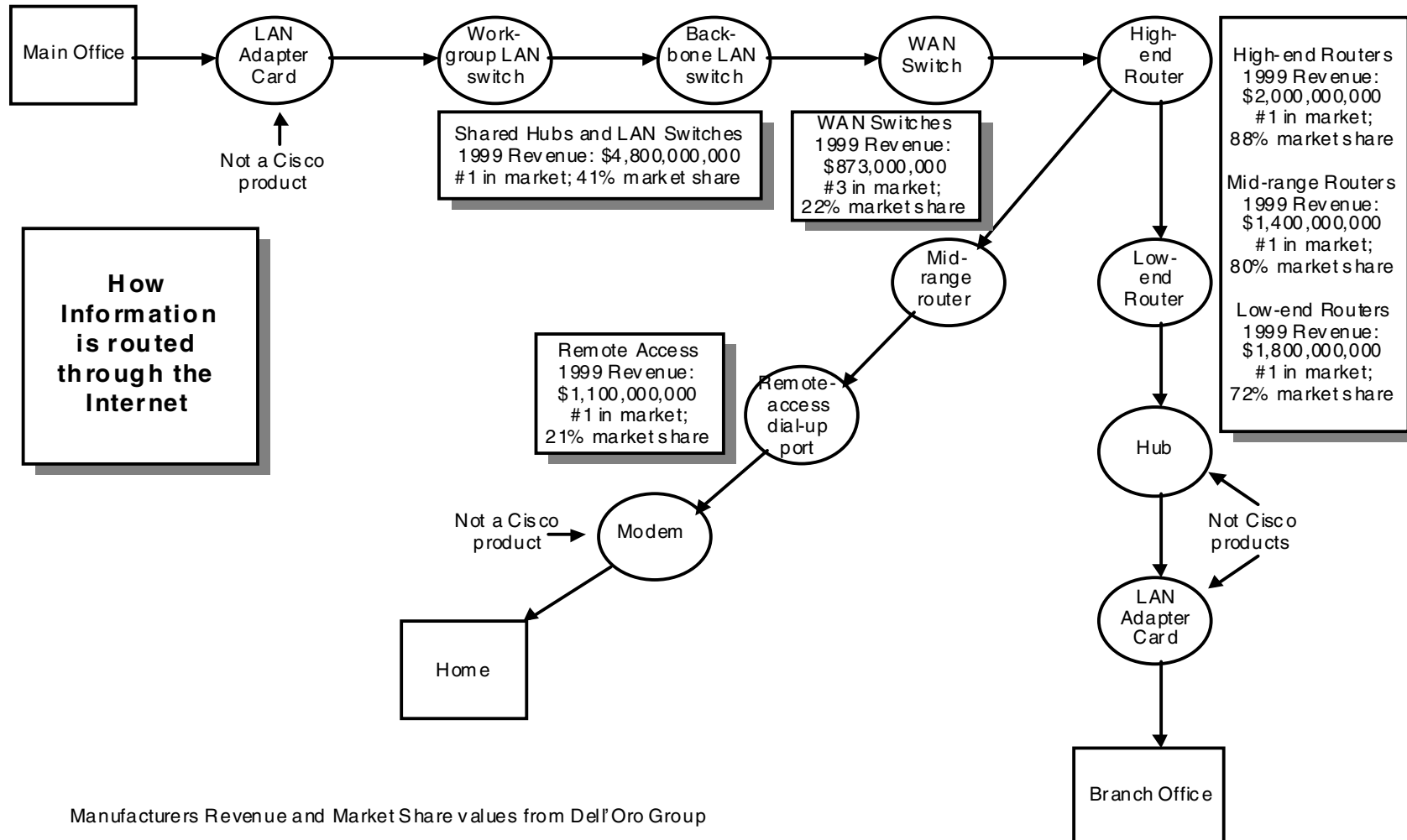
Exhibit 3 How Information Is Routed through the Internet

Exhibit 4 Summary of Acquisitions and Strategic Alliances**Radiata- November 2000**

Chipsets for wireless LANs, Cisco acquired Radiata for \$295 million.

Voida Networks and IPCell Technologies- September 2000

Communications software and software for broadband access networks. Acquired for \$369 million.

PixStream- August 2000

Hardware and software for digital and streaming media. Cisco acquired PixStream for \$369 million.

Ipmobile- August 2000

Software systems for 3G networks. Acquired for \$425 million.

NuSpeed Internet Systems- July 2000

Technology to connect storage area networks and IP networks. Acquired for \$450 million.

Netiverse- July 2000

Content acceleration technology. Acquired by Cisco for \$210 million.

Qeyton Systems- May 2000

Metropolitan DWDM. Cisco acquired Qeyton for \$800 million.

ArrowPoint Communications- May 2000

Content acceleration switches. Acquired for \$5.7 billion.

SightPath, Inc.—March 2000

SightPath developed Internet software used often in video-intensive projects and online training. Cisco acquired SightPath for \$800 million of Cisco stock. SightPath had 76 employees

InfoGear Technology Corp—March 2000

InfoGear manufactured computer peripherals. InfoGear was known for making a telephone with a screen and keyboard for email and Internet use. Cisco acquired InfoGear for \$301 million in Cisco common stock. InfoGear had 74 employees.

JetCell, Inc.—March 2000

JetCell provided wireless telephony services. For \$200 million in Cisco common stock, Cisco acquired the remaining 98% of JetCell interest. JetCell had approximately 46 employees.

Growth Networks, Inc.—February 2000

Growth Networks manufactured Internet switching fabrics. Cisco acquired Growth Networks through a swap-stock transaction totaling \$344 million. Growth Networks had approximately 53 employees.

Compatible Systems Corp—January 2000

Compatible Systems manufactured peripheral equipment. For a final purchase price of \$214.5 million, Cisco acquired all of the outstanding Compatible Systems stock.

Altiga Networks—January 2000

Altiga manufactured inter-networking systems. For \$567 million in Cisco common stock, Cisco acquired all of the outstanding stock of Altiga Networks.

Pirelli-Fibre Optic Operations—December 1999

Italy-based Pirelli-Fibre Optic developed fibre optic networks. Cisco acquired Pirelli-Fibre's assets for \$2.15 billion. Under the terms of the agreement, Cisco also bought 10% stake in Pirelli submarine optical and optical components system divisions for \$100 million. Pirelli-Fibre Optic had approximately 701 employees.

Internet Engineering Group, Inc.—December 1999

Internet Engineering Group, Inc. developed Internet software. For a final purchase price of \$25 million, Cisco acquired all of the Internet Engineering Group's outstanding stock.

V-Bits, Inc.—November 1999

V-Bits manufactured digital video systems used for cable-television service companies. For \$128 million in Cisco common stock, Cisco acquired all of V-Bits warrants, options, and outstanding stock.

Aironet Wireless Communication—November 1999

Aironet developed and manufactured wireless LAN products. Cisco acquired outstanding Aironet common stock in a \$677.962 million swap-stock transaction. Aironet Wireless had approximately 119 employees.

Tasmania Network Systems, Inc.—October 1999

Tasmania developed network-caching software. Under the terms of the acquisition, Cisco bought all of the outstanding stock of Tasmania for \$25 million in Cisco common stock. Tasmania had approximately 16 employees.

Webline Communications—September 1999

Webline developed web software that helped route email over the Internet. For \$325 million in common stock, Cisco acquired all of outstanding Webline stock. Webline had approximately 125 employees.

Cocom AS—September 1999

Denmark-based Cocom provided high-speed Internet solution services. In a swap-stock transaction, Cisco acquired Cocom for \$65.6 million worth of Cisco common shares.

Monterey Networks, Inc.—August 1999

Monterey manufactured optical network platforms. For \$500.963 million (7.3 million of Cisco common shares), Cisco acquired Monterey outstanding stock.

Cerent Corp—August 1999

Cerent developed optical transport products that helped route phone and Internet traffic both on and off fibre-optic lines. The final price of purchase was \$6.863 billion (100 million shares of Cisco common stock). Cerent had approximately 266 employees.

MaxComm Technologies, Inc.—August 1999

MaxComm developed technology that allowed Internet access and multiple telephone lines to be used on one telephone or cable television wire. Under the terms of the acquisition, Cisco exchanged \$143 million worth of common stock for outstanding MaxComm stock. MaxComm had approximately 35 employees.

Calista, Inc.—August 1999

Calista manufactured Internet telecommunications technology that allowed internet-based and business phones to use the same network. For \$55.0 million in Cisco stock, Cisco acquired Calista outstanding shares and options. Calista had approximately 17 employees.

StratumOne Communications, Inc.—June 1999

StratumOne manufactured semiconductors in switches for fiber-optic lines. Cisco acquired StratumOne's outstanding stock for between 6.31 and 7.72 million Cisco shares valuing \$478.2 million. StratumOne had 78 employees.

TransMedia Communications—June 1999

TransMedia manufactured telecommunication equipment that converted phone calls from traditional telephone circuits into digital forms. Cisco acquired TransMedia's outstanding stock for approximately 3.85 million Cisco shares totaling \$447.6 million. TransMedia had approximately 66 employees.

Amteva Technologies, Inc.—April 1999

Amteva manufactured inter-networking systems that allowed emails, faxes and voice mails to be sent to a personal mailbox over the Internet. For \$170 million in cash and common stock, Cisco acquired Amteva outstanding stock and options.

GeoTel Communications Corp—April 1999

GeoTel developed communications/network software, specifically voice call software that routed customers to call centers. Cisco acquired GeoTel in a "stock swap" transaction totaling \$1,910.7 billion. GeoTel revenue was \$44.8 million.

Sentinent Networks, Inc—April 1999

Sentinent made a circuit emulation system gateway and wholesaled automated teller machines (ATM). Acquired through a "stock-swap" transaction, Cisco acquired Sentinent for \$125 million. Fibex Systems was also acquired for a combined value of \$445 million.

Fibex Systems—April 1999

Fibex developed the digital loop carrier. Acquired through a "stock-swap" transaction, Cisco acquired Fibex for \$320 million. Cisco also acquired Sentinent Networks, Inc. Together the transactions amounted to \$445 million.

Pipelinks Inc—December 1999

Pipelinks, Inc (PLI) manufactured the LAN networking system. Under the terms of the acquisition, Cisco bought outstanding PLI stock for \$180 million in PLI common stock.

Selsius Systems, Inc. —October 1998

Selsius was a leading supplier of network PBX systems for high-quality telephony over IP networks. Under the terms of the acquisition, shares of Cisco common stock with an aggregate value of approximately \$145 million were exchanged for all outstanding shares and options of Selsius. Selsius had 51 employees and was founded in 1997 as a wholly-owned subsidiary of Intecom Inc. Intecom was a wholly-owned subsidiary of Lagardere SCA, a French corporation with \$11 billion in revenue in media technology.

Clarity Wireless Corporation—September 1998

Clarity was a leading developer of wireless communication technology for computer networking and Internet service markets. This acquisition provided Cisco with fixed wireless technology, which complemented Cisco's current last mile solutions including dial, xDSL, and cable. Under the terms of the acquisition, shares of Cisco common stock with an aggregate value of approximately \$157 million were exchanged for all outstanding shares and options of Clarity not already owned by Cisco. Clarity had 39 employees and was founded in 1996.

American Internet Corporation—August 1998

AIC was a provider of software solutions for IP address management and Internet access. Under the terms of the acquisition, shares of Cisco common stock with an aggregate value of approximately \$56 million were exchanged for all outstanding shares and options of AIC. AIC had 50 employees and was founded in 1995.

Summa Four Inc.—July 1998

Summa Four Inc. was a maker of digital switching systems. Under the terms of the acquisition, between 1.0 and 1.4 million shares of Cisco common stock were exchanged for all outstanding shares and options of Summa Four. Summa had 210 employees.

CLASS Data Systems—May 1998

Shares of Cisco common stock and cash with an aggregate value of \$50 million were exchanged for all outstanding shares and options of CLASS Data. CLASS Data had 34 employees and was founded in 1996. This represented Cisco's first acquisition of a company in Israel. CLASS Data Systems enhanced the CiscoAssure Policy Networking initiative and enabled Cisco to offer quality of service as an end-to-end network solution.

Precept Software, Inc.—March 1998

Precept was a leading multimedia networking software company. Precept's IP/TV product was a client/server application that sent live or pre-recorded digital video and audio to a large number of users over any IP-based local- or wide-area network. The final price of purchase was approximately \$84 million. Precept had 50 employees.

NetSpeed Inc.—March 1998

NetSpeed was a leader in standards-based DSL technology. Its networking product suite provided high-speed Internet access and data transmission using existing copper phone lines. The final price of purchase was approximately \$236 million. NetSpeed had approximately 140 employees.

WheelGroup Corporation—February 1998

WheelGroup was a leader in intrusion detection and security scanning software products. Its technology delivered a 'radar-like' intrusion detection system that operated with network routers and switches as real-time 'sensors' to identify and respond to unauthorized intrusions and hackers. Their scanning technology identified network security gaps throughout the enterprise and offered solutions for closing them. The final price of purchase was approximately \$124 million. WheelGroup had approximately 75 employees.

LightSpeed International, Inc.—December 1997

LightSpeed's voice signaling technologies enabled Cisco to provide solutions in both the enterprise and service provider markets as voice traffic transitioned from purely circuit switched networks to integrated circuit and packet/cell switched networks. The final price of purchase was \$160 million. LightSpeed had approximately 70 employees.

Dagaz (Integrated Network Corporation)—July 1997

Dagaz xDSL business of Integrated Network Corporation was a broadband networking company providing a suite of products for high-speed information transmission over existing copper phone lines. The final price of purchase was \$126 million (230,000 shares of Cisco common stock). Dagaz had approximately 30 employees.

Ardent Communications Corp.—June 1997

Ardent was a pioneer in designing combined communications support for compressed voice, LAN, data and video traffic across public and private Frame Relay and ATM networks. The final price of purchase was \$156 million. Ardent had approximately 40 employees.

Global Internet Software Group—June 1997

Global Internet Software Group, a wholly owned subsidiary of Global Internet.Com Inc. was a pioneer in the Windows NT network security marketplace. The final price of purchase was \$40 million. Global Internet Software Group had approximately 20 employees.

Skystone Systems Corp.—June 1997

Skystone was an innovator of high-speed Synchronous Optical Networking/Synchronous Digital Hierarchy (SONET/SDH) technology. SONET/SDH was the emerging transport technology used for carrying information in very-high-capacity backbone networks, such as those operated by telecommunications carriers and large Internet Service Providers. The final price of purchase was \$102 million (1 million shares of Cisco common stock). Skystone Systems had approximately 40 employees.

Telescend—March 1997

Telescend specialized in wide area network access products. The financial terms of the transaction were not disclosed.

Netsys Technologies—October 1996

Netsys was a pioneer in network infrastructure management and performance analysis software. Netsys provides standards-based software capable of leveraging the graphical World Wide Web and Internet technology for managing today's hybrid internetworks. The final price of purchase was \$79 million. Netsys had approximately 50 employees.

Granite Systems, Inc.—September 1996

Granite developed standards-based multilayer Gigabit Ethernet switching technologies. The final price of purchase was \$220 million (2.2 million shares of Cisco common stock). Granite Systems had approximately 50 employees.

Nashoba Networks, Inc.—August 1996

Nashoba Networks, Inc. developed Token Ring switching technologies. The final price of purchase was \$100 million (1.6 million shares of Cisco common stock). Nashoba Networks had approximately 40 employees.

Telebit Corp.'s MICA Technologies—July 1996

Telebit Corp. developed Modem ISDN Channel Aggregation (MICA) technologies. The final price of purchase was \$200 million (cash). Telebit had 288 employees on February 1 1995.¹⁶

StrataCom, Inc.—April 1996

StrataCom, Inc. was a leading supplier of Asynchronous Transfer Mode (ATM) and Frame Relay high-speed wide area network (WAN) switching equipment that integrated and transported a wide variety of information, including voice, data and video. The final price of purchase was \$4,666 million (approximately 76.4 million shares of Cisco common stock). StrataCom had approximately 625 employees.¹⁷

TGV Software, Inc.—January 1996

TGV Software, Inc. was a leading supplier of Internet software products for connecting disparate computer systems over local area, enterprise-wide and global computing networks. The final price of purchase was \$138 million (2.4 million shares of Cisco common stock). TGV Software had more than 130 employees.

Network Translation, Inc.—October 1995

¹⁶ S&P DAILY NEWS, May 17, 1995.

¹⁷ Hoover's Company Profile Database—American Public Companies.

Network translation manufactured cost-effective, low maintenance network address translation and enterprise Internet firewall hardware and software. The financial terms of the purchase were not disclosed. Network Translation had 10 employees.

Internet Junction, Inc.—September 1995

Internet Junction developed Internet gateway software connection central and remote office desktop users with the Internet. The final price of purchase was \$5.5 million (81,000 shares of Cisco common stock). Internet Junction had 10 employees.

Grand Junction, Inc.—September 1995

Grand Junction was an inventor and leading supplier of Fast Ethernet (100BaseT) and Ethernet desktop switching products. Their products gave users a range of LAN switching and remote access solutions for small/medium businesses. The final price of purchase was \$400 million (5,000,000 shares of Cisco common stock). Grand Junction had 85 employees.

Combinet, Inc.—August 1995

Combinet supplied ISDN remote-access networking products useful for telecommuting and other networked applications. The final price of purchase was \$132 million (2,000,000 shares of Cisco common stock). Combinet had 100 employees.

Kalpana, Inc.—October 1994

Kalpana manufactured modular and stackable LAN switching products that extended the usability and data capacity of existing Ethernet LANs. The final price of purchase was \$240 million (7,480,114 shares of Cisco common stock). Kalpana had approximately 150 employees.

LightStream Corp.—October 1994

This jointly held company was formed in 1993 by Bolt Beranek and Newman and UB Networks. It offered enterprise ATM switching, workgroup ATM switching, LAN switching and routing. The final price of purchase was \$120 million (cash). The total number of employees included over 60 engineers.

Newport Systems Solutions, Inc.—July 1994

Newport Systems Solutions manufactured software-based routers for remote network sites of small/medium sized networks. The final price of purchase was \$93 million (4,175,824 shares of Cisco common stock). Newport Systems Solutions had 55 employees.

Crescendo Communications—September 1993

Crescendo manufactured high-performance workgroup CDDI and FDDI switching solutions. The final price of purchase was \$95 million (2,000,000 shares of Cisco common stock). Crescendo Communications had approximately 60 employees.

Partial-Acquisitions and Strategic Alliances Made by Cisco

Atlantech Technologies, Ltd—August 1999

Scotland-based Atlantech developed Internet technology. Under the terms of the partial acquisition, Cisco bought 9.5% stake in Atlantech for \$8 million. Atlantech had approximately 110 employees.

KPMG Consulting—August 1999

KPMG Consulting provided management consulting services. Under the terms of a partial acquisition, Cisco acquired 19.9% in stake of KPMG Consulting for \$1.050 billion. KPMG Consulting was a unit of KPMG Peat Marwick LLP. KPMG Consulting had approximately 17,500 employees.

IBM—August 1999

For \$2 billion dollars paid over a period of five years, Cisco acquired parts of IBM's routing and switching intellectual property through a strategic alliance. The Cisco-IBM alliance will help further networking technologies worldwide, as both companies will offer a range of services and solutions.¹⁸

Pentacom Ltd.—June 1999

Israeli-based Pentacom developed Internet software. Under the terms of a partial acquisition, Cisco acquired 11% stake in Pentacom. The financial terms of the transaction were not disclosed.

Portal Software, Inc.—May 1999

Portal developed customer management and billing software. Under the terms of a partial acquisition, Cisco acquired 4% of Portal (3 million shares) for \$39 million. Portal had approximately 412 employees.

Bookham Technology PLC—October 1998

U.K.-based Bookham Technology manufactured integrated circuits used in telecommunications networks. Under the terms of a partial acquisition, Cisco gained an undisclosed stake of Bookham Technology for \$10 million.

Sources: April-November 2000- "Ten Minutes with John Chambers," *NASDAQ: The International Magazine*, Issue 29, January 2001, pg. 19, October 1998-March 2000- Compustat, Dow Jones Interactive, SDC M&A Database.

¹⁸ Cisco Systems, Inc., Public Relations Press Release. August 31, 1999, "Cisco and IBM Announce Technology, Networking and Strategic Services Alliance."

Exhibit 5 Cisco's IT Architecture

Technology Standardization

| | |
|--|-----------------------|
| Common PC platform, O/S, Productivity SW, Email, Browser | |
| Common Applications Packages Worldwide | |
| Database Mgmt System: Oracle | Protocol: TCP/IP |
| Enterprise Servers: Unix | Workgroup Servers: NT |
| Worldwide Network, Voice PBX/Voicemail, Video Standards | |

= Reduced time to market
Reduced costs
Easier data integration

Exhibit 6 Cisco's Home Page

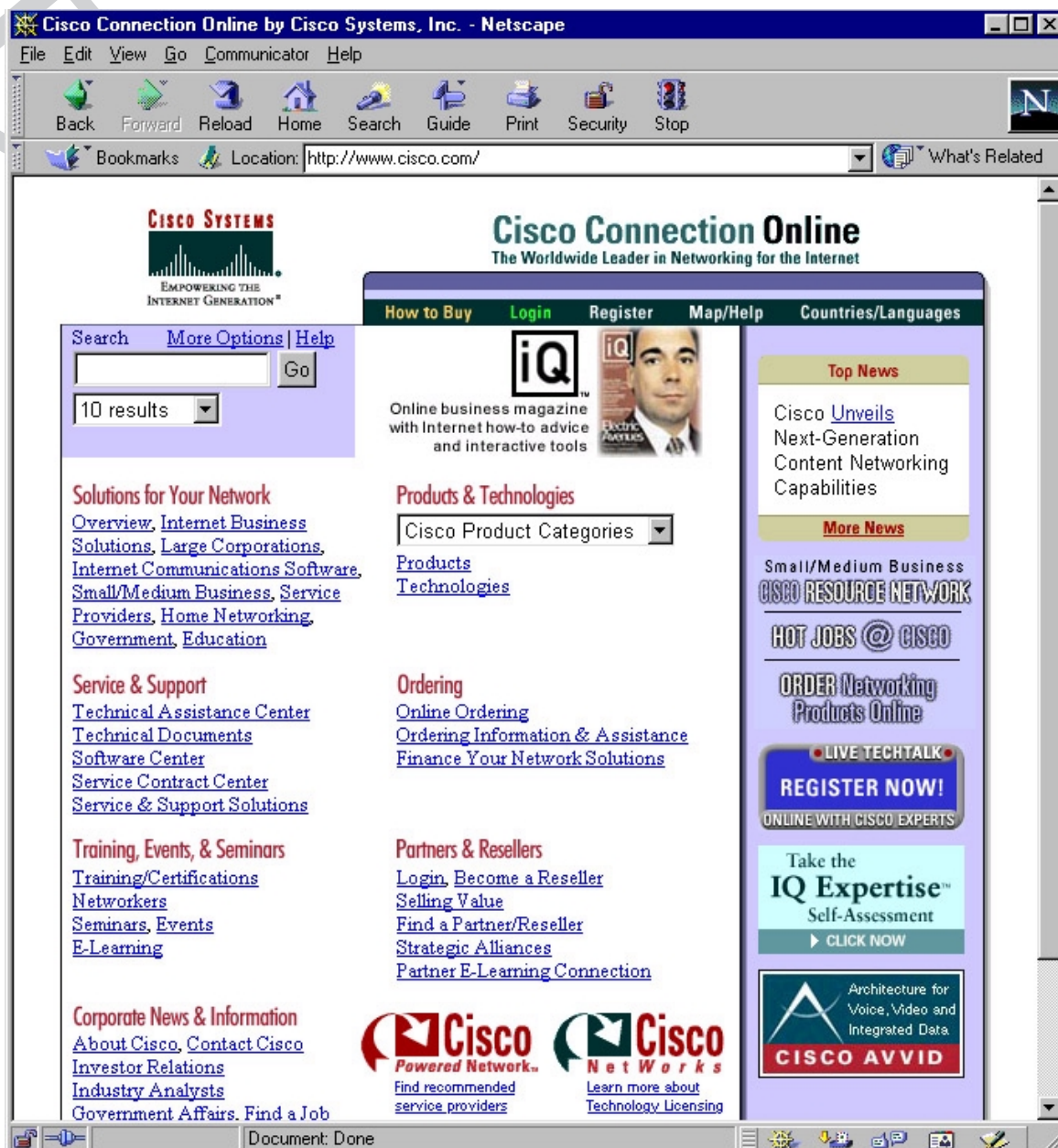


Exhibit 7 Cisco Employee Connection Home Page



Exhibit 8

MyYahoo! at Cisco

Cisco Systems Presents

Customize for your interests! **My YAHOO!**

[Update Page](#) - [Customize Page](#) - [User Settings](#) - [Help](#) - [Sign Out](#)

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Networking Related Stocks [\[move to bottom\]](#) [Search](#) [Options](#)

Portfolios [\[Edit\]](#)

Indices

| | | |
|---------|----------|--------|
| DJIA | 7894.64 | +14.86 |
| NYSE | 483.71 | +0.81 |
| NASDAQ | 1618.24 | +0.15 |
| S&P 500 | 927.85 | +0.27 |
| AMEX | 660.00 | +3.13 |
| * INTC | 93 13/16 | -1 1/4 |
| * KO | 59 | -7/8 |

Competitors

| | | |
|--------|----------|---------|
| * CSCO | 77 13/16 | +9 1/16 |
| * ASND | 42 47/64 | |
| * BAY | 35 13/16 | |
| * COMS | 48 11/16 | |
| * CS | 30 1/16 | |
| * LU | 80 7/16 | +5 1/16 |
| * NT | 101 1/2 | -1/16 |

Technology

| | | |
|--------|----------|--------|
| * HWP | 63 7/8 | +3/4 |
| * INTC | 93 13/16 | -1 1/4 |
| * MSFT | 136 9/16 | -5/8 |
| * NSCP | 41 3/4 | +5/16 |
| * ORCL | 38 1/2 | -3/8 |
| * SUNW | 50 5/8 | -7/16 |

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TODAY

| | | | |
|-----|------------------|---|-------|
| MLB | San Francisco at | 0 | 10:35 |
| | Oakland | 0 | ET |

YESTERDAY
no games for selected

Weather [\[Edit\]](#)

| | | |
|--------------|-----------|--|
| Boston, MA | 57...74 F | |
| London, UK | 60...71 F | |
| Raleigh, NC | 68...87 F | |
| San Jose, CA | 61...84 F | |
| Tokyo | 75...87 F | |

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Announcements

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Headlines - Sep 3 3:20pm

Cisco: Breaking News

- [Cisco Raises Its IP Voice](#)
- [Cisco Completes Acquisition of DAGAZ Technologies](#)
- [Sprint to deploy GSR-Cisco 12000 Router in Internet Backbone](#)
- [INTERVIEW - U.S. Cisco to launch Taiwan laboratory](#)
- [Cisco Systems Invests to Develop Taiwan Information Industry](#)
- [Cisco Introduces Windows-NT Firewall Product](#)
- [Documentum's Product Family Selected by Cisco Systems Inc.](#)
- [Cisco to sell routers, develop new devices in U.S. with cooperation from Cisco Systems Inc.](#)

Cisco: Corporate News Sep 3 8:27am

- [Sept/October Java Training](#)
- [Fidelity Financial Planner](#)
- [Cisco in the News- wk of 8/25](#)
- [Cisco's CCO web site wins ACEY- Outstanding Achievement award from Interactive Services Assoc.](#)
- [Cisco's CCO Web Site ranked in top 100 by PC Magazine](#)
- [Cisco's CCO & CEC Web Sites both ranked in Top 50 by Webmaster Magazine](#)
- [Sept IS Training Schedule on the Web](#)
- [Seats available in classes offered by the HR development team](#)

Cisco: Top Competitor News Sep 2 6:22pm

- [Bay Networks Becomes New ATM LAN Switching Market Share Leader](#)
- [3Com Sees Merger Charge Of Up To \\$375 Million, 800 layoffs expected over the next year](#)
- [Bay's Nautica Sinks Cost Of Personal Routers](#)
- [Cisco Gets \\$40 Million To Loosen Cisco's Hold](#)
- [Cisco Builds A Better DSLw](#)
- [Bay Networks Announces Modular 10/100 Autosense Solution](#)
- [3COM CORPORATION JOINS 'NETSCAPE EVERYWHERE' INITIATIVE](#)
- [3COM CORPORATION JOINS 'NETSCAPE EVERYWHERE' INITIATIVE](#)

Cisco: Hi-Tech News Sep 3 8:47am

- [Netscape and Concentric Networks team on Virtual Office](#)
- [Cylink technology to be used by Microsoft](#)
- [PC Manufacturers' Support For NetPCs Wavers](#)
- [Deutsche Telekom Tests ADSL In Nuremberg](#)
- [Apple buying clone maker Power Computing](#)
- [IP Multicast Gains Support of World's Largest Internet Service Providers](#)
- [Tandem holders approve Compaq merger](#)
- [Netscape to launch I-commerce venture selling third-party software](#)

Breaking News Sep 3 1:54pm

- [French Photographers Deny Blame in Diana Crash](#)
- [Supermarkets Join Backlash Against Tabloids](#)
- [World Media Fought for Diana Crash Pix](#)
- [Jury Finds Arizona Governor Guilty of Fraud](#)
- [NATO Commander Warns Bosnian Serb Hard-Liners](#)
- [Crew of Troubled Mir Praised as Heroes](#)
- [Clinton Vows Fight Over Education Tests](#)
- [Papers Print 'Last Photo' of Diana Alive](#)

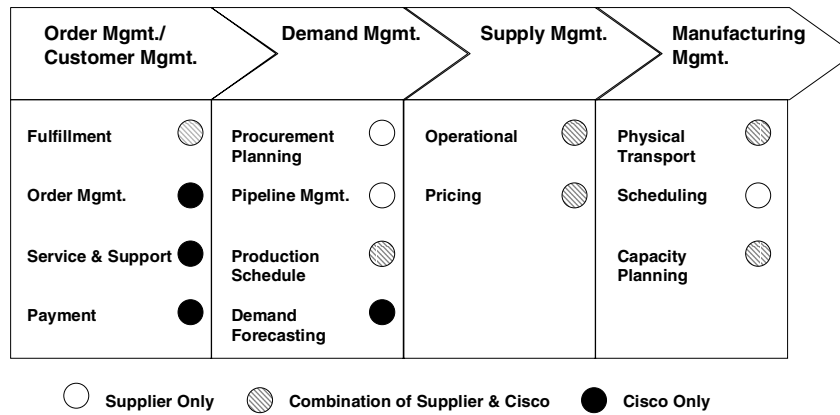
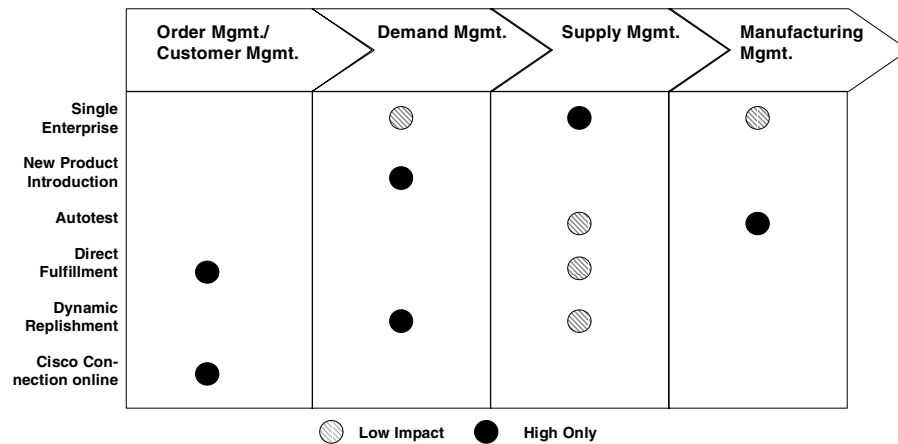
Exhibit 9 Cisco's Single Enterprise Supply Chain Management Framework**Exhibit 10** Initiatives and Supply Chain Impact

Exhibit 11 Reduction in Operating Costs

| Initiative | FY2000 Impact (\$ millions) |
|--------------------------|------------------------------------|
| Single Enterprise | \$170.0 |
| New Product Introduction | \$402.0 |
| Autotest | \$108.0 |
| Direct Fulfillment | \$15.0 |
| CCO Commerce | \$65.0 |
| Total | \$760 million |

Note: Without CCO total. Manufacturing financial impact for FY00 is \$695M and includes \$307 from cost savings and \$388 from faster time to market. (NPI revenue contribution). If you are only including cost savings we should back the \$388 number out of NPI.

Exhibit 12 Financial Impact of Internet Business Solutions (FY '00)

| <u>Internet Business Solutions</u> | <u>Financial Impact</u> |
|---|--------------------------------|
| Supply Chain Management | \$695 million |
| - Cost benefits | \$307 million |
| - Income: Faster time to market | \$388 million |
| Customer Care | \$506 million |
| Workforce Optimization | \$86 million |
| <u>Internet Commerce</u> | <u>\$65 million</u> |
| Total Financial Impact | \$1,352 million |