America Online Inc.: The Portal Era

Edward A. Stohr
Leonard N. Stern School of Business
New York University

Sivakumar Viswanathan
Leonard N. Stern School of Business
New York University

Larry White
Leonard N. Stern School of Business
New York University

August 1999

Working Paper Series
Stern #IS-99-1

Rev: July 1999

America Online Inc.: The Portal Era

"I can buy 20% of you or I can buy all of you. Or I can go into this business myself and bury you."
— Bill Gates to Steve Case on May 11, 1993 (from "aol.com : How Steve Case Beat Bill Gates, Nailed the Netheads, and Made Millions in the War for the Web," Kara Swisher, 1998.)

INTRODUCTION

For America Online Inc., 1998-99 was another tumultuous year. On December 23, 1998, the world's largest commercial online service was inducted into the S&P500 index, a glowing tribute to its size (a market capitalization of over $147 billion (April 7, 1999) - 2.5 times that of General Motors), and position, in an industry that was defining the future. With over 17 million subscribers, AOL's leadership as an online service was largely unchallenged. The nearest rival Internet service provider was nowhere close. Today AOL is one of the strongest brands in cyberspace, with over seven times higher unaided brand awareness than its closest competitors in Internet service.

With the completion of the $10.2 billion acquisition of Netscape Communications Corp. in March 1998, AOL is attempting to redefine the Internet landscape, yet again. According to Business Week, for AOL, the timing couldn't be better. "*The acquisition comes at a time consumers, small businesses and major corporations are grappling with wrenching changes in the way they interact commercially. They are all scrambling to determine the smartest approach to rewiring for the next century, when every facet of business – from procurement, to billing, to human resources, to customer support – will be conducted over the Internet.*"

However in an industry that moves at "Internet-speed" and where size is no guarantee of success, AOL is faced with challenges that come in different shapes and sizes – challenges that constantly threaten its dominant position. Historically, AOL has not only survived such threats but also succeeded in defining and redefining standards in an industry that has defied standards. But for Chairman Steve Case, who has led AOL to this enviable position from its humble beginnings in the mid-80s, this is no time to rest on laurels. He may have won the battle of the online services, but the cyberwars have just begun, and from early reports they look destined to be long and convoluted.

THE ONLINE SERVICES INDUSTRY

The on-line services industry traces its roots back to the introduction of time-sharing computers in the early '70's. Companies such as CompuServe, Tymnet, and General Electric's GEISCO allowed customers with "dumb" terminals to connect via slow (10–30 characters per second) telephone lines to large and expensive mainframe computers. Users could access financial and economic databases and also develop and run their

---

Edward A. Stohr, Sivakumar Viswanathan and Larry White, Leonard N. Stern School of Business, New York University, prepared this case solely to provide material for class discussion. The authors do not intend to illustrate either effective or ineffective handling of a managerial situation. The authors may have disguised certain names and other identifying information to protect confidentiality.

own market research and decision support applications. The companies spread geographically by building computer sites ("Points of Presence" or POPs) in local communities. Customers dialed into their nearest POP to reduce or eliminate telephone access charges.

The personal computer revolution in the '80's provided a more user-friendly interactive environment for access to the timesharing computers and started the era of home computing. The on-line services industry grew rapidly, with companies such as AOL, CompuServe and Prodigy (which started as a partnership between IBM and Sears in 1984) leading the way. Special communications software is required to access these on-line services from a PC. At first, this software was distributed to customers on 3.5 inch diskettes. Nowadays, with the increasing sophistication of the software, distribution is often by CD-ROM[1]. The software also came pre-installed with new PCs. The distribution of free software, often bundled with magazines, has been a major marketing strategy for the on-line services companies. Literally millions of such diskettes and CD-ROMs have been distributed free.

In July 1994, the consumer category of the on-line services industry consisted of about a dozen large general-interest services led by Prodigy Information Service with about 2 million customers, followed by CompuServe with 1.7 million subscribers, AOL with 900,000 customers, and General Electric's Genie with 350,000 members. These companies provided proprietary content such as encyclopedias, and financial data, and member services, such as e-mail and chat rooms. They generated revenues from a number of sources including subscriptions, advertising, and additional charges for premium content.

The advent of the World Wide Web in 1993 started a revolution that is fundamentally changing industry and society (see Appendix for a history of the Internet and the World Wide Web.) A new class of online companies, Internet service providers (ISP's), appeared to provide cheap access to the vast and rapidly growing resources of the Internet. Among other services, ISPs usually support e-mail and allow users to maintain their own homepages. However, they rely on the Internet itself to provide content and other services, such as home banking and electronic commerce. The rapid growth of the Internet and low barriers to entry soon produced a crowded field with thousands of ISPs ranging from mom-and-pop operations that provide local access, to national ISP's such as Netcom, and telecommunications giants such as MCI-Worldcom, AT&T and Bell Atlantic that provide both POPs and transportation on their own networks using standard TCP/IP protocols (see technical Appendix). In addition, search engines such as Yahoo, Lycos and Infoseek, were created to guide users to useful Web content. To add to the competition, Microsoft Corporation started the Microsoft Network (MSN) on-line service in mid-1995, quickly becoming a major player with 800,000 customers by mid-1996.

The explosive growth of the Web in 1994-95 (see Exhibit I) took the traditional on-line services industry by surprise. Online services companies delivered content and programming, using proprietary networks (and proprietary protocols) owned and operated by them. Compared to the WWW, their interfaces and services were stable but unexciting. The Internet was both a threat and an opportunity: a threat because their proprietary networks, content and programming suddenly had a powerful and rapidly growing rival; an opportunity because the growth of the Internet offered opportunities for new markets that were unprecedented in size and scope. Starting in 1995, commercial

[1] If a potential user has access to the Web via browser software (such as Netscape, Internet Explorer, or one the proprietary browsers offered by the ISPs), the sign-up and downloading of the on-line service's client software can be done via the Internet.

on-line services rushed to provide Internet access to their customers. Meanwhile, ISPs and search engines attempted to create user-friendly interfaces and to provide useful content and programming. As a result, the distinction between a "managed" commercial on-line service like AOL and an ISP has blurred.

By mid-1999, the online services companies (primarily AOL, MSN, and Prodigy) were serving approximately 25 million customers (see Exhibit II) and receiving income from subscriptions, advertising and electronic commerce. Their primary offerings could be classified under six main categories: access, communications, content, hosting homepages, and electronic commerce (see Exhibit III for a sample of AOL's offerings). Despite its rapid growth and popularity, the online services industry is still struggling to define its role and to increase the number of services that are truly valuable to users. Exhibit IV provides a schematic view of the information industry showing some of the major companies and their role in the industry's value chain. The online service companies are shown in the transaction services category but they are also content providers.

AMERICA ONLINE INC.: THE EARLY YEARS (1985-1996)

In the early days, the commercial on-line market was largely divided between technical users on CompuServe and business users on Dow Jones News/Retrieval. In 1985, Steve Case and James Kinsey founded Quantum Services Inc. and launched Quantum Link - a useful, affordable, easy-to-access and entertaining on-line service. The objective was to provide on-line services for home users. Riding on its initial alliance with Commodore International Ltd., then the largest home PC company in the US, Quantum soon offered new services that emerged out of alliances with Apple, Tandy, IBM and other companies. In 1989, the various offerings were folded together under the name America Online (AOL). AOL's content partners were paid 10-20 percent of revenues, depending on how long members spent in each content provider's area. In addition, they received a "bounty" for subscriptions that resulted from their marketing efforts on AOL's behalf. AOL's strategy of leveraging the brand names of its content providers to build subscriptions, particularly at a time when content providers and subscribers had difficulty coming together, paid off handsomely.

AOL started offering Internet access in 1995. Within one year, the number of subscribers increased by more than 200 percent, revenue tripled and its stock price quadrupled in value (see Exhibits II, V and VI.) By mid-1996, America Online Inc. was the runaway leader in the on-line services industry with over 5 million subscribers. In part, this success was due to its very successful strategy of building the 'AOL brand' and its reputation for "user friendliness." However, it faced pressure from the rising popularity of the Internet and from Microsoft's Microsoft Network (MSN), which was rapidly gaining market share.

To keep pace with the growth, and as part of its Internet expansion plans, AOL continuously acquired new technology companies and made alliances with other companies (see Exhibits VII and VIII). In February 1994, AOL formed a $100 million joint venture with German media conglomerate Bertelsmann in an attempt to bring the AOL vision to Europe. Shrewd alliances with partners ranging from the American Association of Retired Persons to MTV helped make AOL the most popular and highly rated on-line service.[2]

In June 1995, AOL created a separate business to offer Internet access to computer users by acquiring Global Network Navigator (GNN) - a popular Internet site

[2] AOL received an Editor's Choice award from PC Magazine in 1995.

for web-related information. GNN was rated among the best ISPs - on price, ease of navigation, and technical support. In March 1996, AOL announced deals with Netscape Communications Corp., licensing Netscape's Navigator Web browser for its main service and for GNN - a move that gave AOL's customers the option of choosing Navigator as their default Internet client. AOL's agreement also gave the service a prominent presence on the Netscape Web site and called for cross-promotional efforts.

The success of any on-line system depends crucially on the level of perceived service. How easy is the system to set up and use? How responsive and reliable is the technical support (800 hot lines, on-line support, user-support groups, bulletin boards, built-in help features of the browser, etc.)? AOL achieved popularity in large part because of its friendly interface and easy set-up. Providing Internet access involved a new set of problems and increased the demand for service. In 1995, AOL established an on-line Community Action Team to combat on-line scams, spamming, and inappropriate mail – all problems that are likely to bother users.

It hasn't all been smooth sailing (see Exhibit IX.) Despite its reputation for user friendliness, there were periodic breakdowns in service. Rapid membership growth occasionally overwhelmed AOL's system capacity, resulting in endless busy signals, frozen screens, and e-mail that could take longer to deliver than the US Postal Service. As early as 1994, when AOL had only 600,000 subscribers, it had to deny access to some customers at peak hours to avert system deterioration. The worst blackout occurred on August 7, 1996, when six million subscribers were left without access to its services for 20 hours due to problems encountered when installing new network routing software. Coincidentally, the next day, August 8, AOL announced that it had become the "first billion-dollar interactive-services company."

AOL has suffered from more than just technical problems. Over the years there were several legal suits against the company, charges of "insider training", and several incidents involving poor communications with customers. AOL was also criticized for its accounting practices, particularly for its practice of booking its heavy marketing costs as capital expenses to be amortized over a two-year period. In October 1996, AOL decided that it would report marketing costs as expenses in the quarter in which they were incurred. As a result, the company announced a one-time $385 million charge to write down the outstanding expenses that it had yet to amortize.

Towards the end of 1996, America Online restructured its organization dividing the company into three distinct divisions: AOL Networks (which included the flagship on-line service), AOL Studios (which created content and services to be distributed on the network), and ANS Communications (which built and maintained the network backbone that most AOL customers used.)

Throughout its history, virtually all of AOL's revenues have come from subscriber fees. Subscribers could access all of the information and services available at the site including interactive chat rooms, hobby forums, games, personal business services, etc. AOL was an aggressive competitor focused on increasing market share rather than profits. In fact, AOL had scarcely turned a profit although it reached $1 billion in revenues in fiscal 1996 and had been traded on the NYSE since early 1996.

FALL 1996 : THE FLAT-RATE PRICING DECISION

Prior to January 1995, AOL's base rate subscription was $9.95 per month, which included five hours of connection time, with additional hours being charged at $3.50 per hour. In addition, AOL had extra charges: $2.50 a letter for sending a printed message to users who did not have an electronic mail account, and $2 a page for sending messages

to a facsimile machine. Starting July 1, 1996, AOL offered its customers two different pricing plans: light users could adopt the standard plan of $9.95 per month for 5 hours of access with a charge of $2.95 for each additional hour, while heavy users could pay $19.95 per month for 20 hours of access with a charge of $2.95 for each additional hour.

In the first half of 1996, under severe competitive pressure, other major online service companies, including CompuServe and MSN, and most ISPs such as Netcom and AT&T, introduced a "flat-rate" pricing structure of $19.95 per month for unlimited hours of usage.

In the fall of 1996, AOL's management pondered several issues. How could they make best use of their proprietary content and expertise in interactive services in the face of the burgeoning information content and services available on the Internet? How could they continue to capture market share in the face of the flat-rate "all you can eat" pricing policies of their competition? When could or should they start to make a profit?

AOL decided to meet the competition by switching to a flat-rate pricing policy. The planned date for the switch over to its new flat-rate pricing policy was December 1,1996. At this time, all subscribers were to be automatically moved to the new flat-rate fee of $19.95 per month for unlimited use. Low volume users however, could request a separate payment plan whereby they would pay $4.95 per month for three hours of use, with additional time costing $2.50 per hour. In addition, AOL planned to charge $9.95 per month for access to its proprietary content by users who connected to the AOL site from another ISP. Such users do not use AOL's dial-in facilities but have access to all of AOL's content. In announcing the flat-rate pricing decision Steve Case told reporters that "*AOL had used price before to achieve its objectives and was not afraid to do so again.*"

In an effort to handle the expected surge in usage, the company added 12,000 new modems in November 1996, along with more phone lines and more powerful servers for popular on-line services such as e-mail, chat, WWW publishing, etc. In the last quarter of 1996, 1.2 million new members subscribed to AOL.

On December 1, when the flat-rate price came into effect, the 7 million AOL subscribers overwhelmed the system. Those who were able to obtain a connection on December 1 logged eight million individual sessions, the most ever. On December 2, the company's stock rose $4.625 per share on the NYSE to $39.875.

AOL's decision to switch to a flat-rate fee was not without its critics:

> "America Online has discovered that its officers should not have fallen asleep in those economics courses. They probably failed to hear that decisions are made on the margin."
>
> — *"Attention to the Rules of Commerce Could have Saved AOL a Bundle: Prices Must Prompt Cost-efficient Use", Donald Ratajczak, The Atlanta Journal and Constitution, February 2, 1997.*

In fact, all was not well. In December, AOL subscribers logged 102 million hours on-line - up from 45 million in September. AOL's network could not handle the surge in traffic, and many users had to wait endlessly to connect. And because customers were having so much trouble connecting to the service, they tended to keep the line tied-up - in some cases using special software (such as Keep Alive and Ponger) to hang on to their network connections as they did other work or even slept. The average usage per customer more than doubled, to 32 minutes a day. AOL users in three states filed class-action suits against the company, and other frustrated users who were willing to tolerate other snags seemed to have reached their breaking point. Prodigy reported a substantial increase in its subscriptions in the first two weeks of January 1997. According to a press release, 45 percent of AT&T's customers were AOL dropouts, and an estimated 15 to 20

percent of AOL subscribers had more than one on-line account. Shares of AOL fell 7 percent on January 27 to close at $34-1/4.

Many customers were upset when they were automatically switched to the new plan. On receiving a letter of complaint from 17 state attorneys general, AOL agreed to allow customers to choose their preferred plan and to give retroactive refunds to all customers who asked to switch back to their old plan before April 10,1997. To help contain the problem, AOL suspended its high-profile advertising and marketing campaign for the month of February and added a temporary disclaimer to its ads disclosing the service's access problems. It also vowed to resolve the capacity problems and pledged a $350 million investment to improve its networks. As of January 1997, AOL's system allowed 250,000 of its 7.5 million users to log on at the same time. AOL's announced goal was to be able to support 400,000 simultaneous users by July 1, 1997 (350,000 dial-up users and 50,000 users who log on through another ISP). AOL added 30,000 modems a month through June 1997, bringing the total to 350,000 modems by July. It also added 600 customer-support people to its staff of 4,000.

In the fiscal quarter beginning in December 1996, America Online reported strong growth in revenue to $409 million, but also a sizable loss of $155 million. In addition to a cash squeeze, one of the major problems facing AOL was the sharp jump in its current liabilities, resulting from the change in accounting procedures mentioned earlier, laying off workers, shutting offices, scrapping outdated marketing materials, and credits and refunds to customers. However, according to analysts, the main reason for the fall in its gross profit margins was the adoption of the flat-price policy for unlimited service. An unexpected increase in new subscribers (from 800,000 in the June quarter to 1.2 million in the September quarter of 1996), free-trial time and increased costs of technical support also contributed to increased costs and depressed margins.

AOL: RECENT HISTORY AND CURRENT STATUS

In March 1998, AOL increased its, monthly subscriber fee to $21.95 for unlimited use. Most ISP's continue to charge a flat-rate price of $19.95 per month for unlimited usage, which has become almost an industry standard. However some companies feel that flat-rate pricing is a money-losing proposition as it encourages people to stay on-line much longer than under the pervious metered pricing plans, which charged hourly fees after a minimum monthly threshold of five hours or so. A number of commercial Web sites, such as the Wall Street Journal, have adopted a tiered pricing strategy. Some content is made available free as a "come-on", while other content, particularly where royalties to a third party are involved, is made available only through a membership subscription or on a fee-for-usage basis. A challenge faced by AOL is to decide which, if any, of its premium services or resource-hungry and popular activities such as multi-party games can be priced separately in addition to the basic subscription.

On September 7, 1997, WorldCom Inc., the fourth-largest U.S. long distance telephone company, announced that it was acquiring CompuServe Corp. for nearly $1.2 billion in stock, and selling Compuserve's subscription service to AOL. Under the terms of the three-company deal, WorldCom's Internet Services unit, Uunet Technologies took over CompuServe's high-speed telecommunication lines and Internet gateways and also acquired AOL's Internet telecommunications unit, ANS. In addition to Compuserve's 2.3 million subscribers, AOL received $175 million in cash and gained access to an additional 100,000 modems from Uunet. Following the announcement, shares in WorldCom rose $2.25 to $33.75 and shares in AOL rose $6.125 to $76.0625.

AOL made another significant acquisition in November 1998 when it bought Netscape Corporation in a stock-for-stock transaction valued at $4.2 billion. Under the

terms of the deal, Netscape's brand and Netcenter portal, which has 9 million registered users, were continued. AOL gained a larger audience and access to Netscape's browser and e-commerce technologies. In addition, Marc Andreesen, the developer of the first WWW browser and founder of Netscape, became AOL's first chief technology officer. Simultaneously, AOL announced a strategic alliance with Sun Microsystems to generate revenues across the Netscape and AOL brands. The objective of the alliance is to build end-to-end e-commerce solutions consisting of directory, security, messaging (e-mail) and collaboration servers running application software that performs e-commerce exchange, procurement, selling and billing. The intention of the alliance is to get to the market first with significant e-commerce functionality.

Brands operated by AOL now include AOL.com itself, Compuserve, Netscape, ICQ (instant communications and chat portal) and Digital City (a portal specializing in local content). Other acquisitions made over the years such as GNN, Ubique and WAIS were absorbed into AOL itself.

To accommodate the above changes, AOL recently reorganized itself into four product groups:

- Interactive Services. Includes the AOL, Compuserve and Netscape's Netcenter services and is responsible for the development of broadband access.
- Interactive Product Group. Manages ICQ, Digital Cities and AOL's interest in Direct Marketing Services.
- Netscape Enterprise Group. Manages AOL's side of the Sun-Netscape alliance.
- AOL International. Responsible for the international operations of AOL and Compuserve.

Exhibit X provides some statistics summarizing AOL's current position.

COMPETITION

> "Ask any of AOL's 14 million subscribers why they stick with the service – despite ongoing problems with busy signals, sluggish downloads, and other abrupt disconnects – and you'll probably hear the same answer from all of them: content and chat. Where else can you so quickly and easily commiserate with other harried parents, get the scoop on the hottest Internet stocks, catch up on your magazine reading, or find the latest music tracks? But AOL's reign as king of content is coming under siege. Recognizing the powerful pull of one-click access to news, weather and chat rooms, more and more ISPs are following AOL's lead in hopes of sharing its market success."
>
> – "*Imitating AOL- ISPs Strive for Easy Web Access," PC World, March 1999.*

Internet Service Providers: It costs approximately $2 to $3 per subscriber per month for AOL to provide basic telecommunications services. Given this, the telephone companies, with millions of customers, vast distribution networks, and large financial reserves, would seem to have a natural advantage with regard to Internet service. However, they were rather late into the consumer market: MCI Internet was founded in 1995, AT&T started WorldNet and Sprint Corporation entered the ISP market in 1996. The ISP arena is very dynamic. On the one hand, large national ISPs, long distance phone companies, the regional Bells and cable operators are consolidating to build a global presence (for example, the MCI-WorldCom and AT&T-TCI mergers). And, large regional ISPs such as Rocky Mountain Internet and Cybergate are buying up smaller ISPs in an effort to become national providers. On the other hand, the total number of ISPs has grown from 1,500 in 1996 to more than 6,500 in 1999, with 96% of the US having access to at least four providers. According to estimates by International Data Corporation smaller ISPs have almost doubled their market share to approximately 16%

in two years, while the market shares of Miscrosoft and AOL dropped by 11 points to 56% by the end of 1998, with the Baby Bell's share only 3.5%.

In a recent survey, PC World rated regional and national ISPs on performance, cost, ease of setup, features, support, download times, etc. Exhibit XI presents the findings of the survey. AOL ranked 15th. However, according to Maritz AmeriPoll, of the homes with Internet access, 55% have AOL as their service provider, 12% have phone companies, 8% have independent ISPs, 6% have Microsoft Network, 4% have CompuServe, 3% have Prodigy and 12% don't know!

Under intense competitive pressure, many ISPs have begun to add additional e-commerce services. Experts forecast rapid consolidation as cable and other broadband technologies take hold, squeezing out ISPs that can't provide new types of service or are unable to ally themselves with cable companies.

Portals: Portals are Internet sites that are the initial entry points into the WWW for very large numbers of users. With Netscape's Web site included, AOL's network of sites logged 38 million unique visitors in February 1999, while the next most popular portals, Yahoo and MSN, each totaled approximately 31 million unique visitors (see Exhibit XII). While attracting visitors is important, portals add features such as auctions, chat, free e-mail, games, shopping, and compelling content to entertain and educate visitors and prevent them from straying elsewhere. A "sticky" site keeps visitors occupied for a relatively long period of time and is therefore a good place to advertise. Exhibit XIII lists the sites with high stickiness ratings. According to Andromedia, a company that measures Internet traffic, sites that customize the viewing experience to the individual user have longer visits, higher return rates and higher product purchasing rates. For example, Netscape's "My Netcenter" and Yahoo's "My Yahoo!" let visitors customize the site to obtain a selected choice of news items, stock quotes, and so on, whenever they log on.

"E-wallet" technology is another service that can help retain users and encourage repeat visits (see Appendix.) Sites with a widely accepted e-wallet technology can gather valuable data revealing what sells, what doesn't and who the purchasers are across different sites. Portals prefer a centralized wallet that could be used across different online stores. In November 1998, AOL rolled out its wallet technology –called Quick Checkout, and now has several online merchants participating in it. Yahoo! Shopping, which has hundreds of online retailers, also has an e-wallet technology shared by its retailers. However, individual retailers might be wary of letting portals get in between them and their customers and might prefer to develop their own wallet systems. For example, eToys, a toy retailer, is focusing on its own Express Checkout system, tailored to the company's needs.

Yahoo! is the most popular portal, with 63% of the respondents claiming to use the service, while Excite, with 38% and Infoseek (Go Network) with 32% usage lagged behind. To illustrate the meaning of these figures in another way, Yahoo! recorded an average of 205 million page views per day in the first quarter of 1999, up from 167 million in the last quarter of 98. According to Forrester Research, the top nine portals – Alta Vista, AOL, Excite, Infoseek, Lycos, Microsoft, Netscape, Snap and Yahoo – account for a mere 15% of all Internet traffic. Yet they attract 59% of all advertising revenue on the Internet. Network television, in contrast, attracts 67% of all television viewers and 84% of advertising. Forrester estimates that overall spending by advertisers will rise to $8 billion by 2002 and that the portal share will be worth $2.5 billion, enough for only three or four portals.

ISPs and other online services apart, AOL is likely to face its toughest competition from traditional media giants (cable and TV networks), content providers and retailers who are quickly moving online, and most importantly have the brand name, the technology and deep pockets to compete. Exhibit XIV compares AOL with traditional media companies as of early 1998. Some of these companies are buying stakes in existing Web properties. For example, GE's NBC bought stakes in Snap and iVillage, a specialized Web site for women; Walt Disney Co., parent of ABC, acquired a share in Infoseek; News Corp.'s Fox has an alliance with Yahoo! Inc.; Walt Disney and Infoseek unveiled a site called the Go Network, with Infoseek planning to spend $165m through 2003 promoting Go in an aggressive bid to attract the most Web traffic.

> *"The companies that will win on the Internet are those who have the ability to create content, and no one does that better than we do."*
>
> – Jake Winebaum, President, Buena Vista (Walt Disney's online unit), quoted in Business Week, March 2, 1998.

Internet firms, realizing the value of 'online-communities' have also begun to consolidate. For instance, Yahoo! recently acquired GeoCities, a community site with 3.2 million members (Dec.'98) for $5 billion and Lycos Inc. bought Tripod Inc. for $58 million. Microsoft allied itself with NBC acquired Hotmail, Expedia Travel, CarPoint, HomeAdvisor. It also bought Firefly Network, which has "personalization" technology that uses information from tracking consumers' Web-usage patterns and recommends products.

Niche Players – Hubs: In the 1970's and 80's, shopping malls redefined not only how people shopped but also how they spent their leisure time. In a similar fashion, portals with e-commerce capabilities are beginning to reshape the online experience. Because portals try to be all things to all people, they lack focus, perhaps providing opportunities for specialized niche players or hubs. Hubs provide content, commerce and community tailored to a particular audience. For example, Justballs, started in September 1998, offers only balls - footballs, baseballs, cork balls, wallyballs, etc., and ball-related accessories such as pumps and tees. iVillage is a prominent hub that caters to women on the Web, while E-Toys is a hub specialized in toys, and is a formidable competitor to Toys-R-Us. The kids market offers lucrative opportunities for niche players. By 2000, there will be 19.2 million kids surfing the Net, who will spend over $1.8 billion. AOL is the current leader in this market. Since 1994, the company has offered a Kids-Only area featuring homework help, games, and chat rooms. It gets about 1 million 8- to 12-year old visitors monthly. But competition from sites like Walt Disney's Go Network, Warner Bros., and Nickelodeon is becoming more intense.

According to Jupiter Communications "Niche markets are the only markets to succeed in generating revenue from content. Users will not pay for content which appeals to a mass audience." Niche sites usually provide higher quality as well as greater depth in content. Portal sites may have to adjust in the future – possibly focusing on a particular area or constellation of areas as evidenced by the "special-interest" channels being developed by some portals. In a contradictory trend, some large niche players have sought to leverage their customer-base and widen their product-line. For example, Amazon.com, primarily a book retailer, successfully diversified into selling CDs and videos online, and, more recently, bought a 46% stake in Drugstore.com, an online drugstore, and a 50% stake in Pets.com, a pet-store startup.

DIGITAL CONVERGENCE

"In an increasingly network-centric era, isn't it only natural that the actual network owners should emerge as big time players? Local bandwidth is the key, and AOL and other Internet service providers do not have it. That's not Washington's problem; it's AOL's."
– ComputerWorld, February 8, 1999.

Technologies such as telephone service and television, which traditionally used analog (continuous waveform) transmission are now becoming digital. Advances in compression technologies allow greater throughput and digital data can be manipulated more easily. The most important impact of "the digitalization of everything," however, is that previously separate industries now have increasingly similar technologies and can compete on each other's turf. On an almost daily basis there are announcements of new alliances, mergers and acquisitions. Some of these deals are vertical (same industry segment) aiming for market size and economies of scale. However, a significant proportion involve companies trying to gain a position in an entirely different segment. A number of examples, such as AT&T's purchase of TCI, were mentioned earlier.

The stock market has placed an extraordinarily high valuation on Internet stocks. For example, in January 1998, the market value of Amazon.com was about $20 billion even though it has never earned a profit, while J.C. Penney's market capitalization was $11.5 billion. The disparity in the valuations of Internet versus non-Internet companies makes it easier for Net companies to acquire traditional companies and other Internet companies than for a traditional media company to acquire an Internet company. As a result, in some deals, a significant part of the payment for equity is promotion. NBC's recent equity stake in women's site iVillage was partially paid for with promotion on NBC and CBS acquired its 22 percent stake in SportsLine USA in 1997 primarily in exchange for promotion on its TV network. Traditional media companies also protect themselves from the cost of acquisition by taking a small stake in an Internet firm with an option to increase its ownership over time for a specified price. For example, in June 1998, NBC acquired 19 percent of Snap for $5.9 million, along with an option to increase its ownership to 60 percent over the next three years for an additional $38 million.

Broad-band Internet access - access at speeds 10 to 50 times that of conventional analog modems - is another important impact of digital convergence. AOL has 16 million users using "narrow-band" modems to access its service, but has virtually no broad-band access capability. It's not clear how AOL will move to the high-bandwidth world of the 21st century. The competing broad-band technologies - cable, digital subscriber lines (DSL), and satellite - are explained in the Appendix. According to Forrester Research,16 million homes will have high-speed Internet connections by 2002, and 80% of them will use cable modems while the rest will use DSL.

Cable modems are currently the leading technology for broad-band access with some 300,000 users. AT&T recently acquired Tele-Communications Inc. (TCI), a cable company that holds a 42% stake in At Home, the leader in cable-modem services. TCI and its partners potentially give AT&T access to one-third of American homes, enabling it to provide local telephone and Internet access on a mass scale. AT&T also has an alliance with Time-Warner, which is one of the biggest cable operators with more than 12 million subscribers. About 70% of Time Warner's systems are modernized to carry voice and data traffic. Time-Warner has its own high-speed Internet access – Road Runner, which had over 125,000 subscribers on October 22, 1998. According to an estimate by investment firm Sanford C. Bernstein & Co., in 10 years 36 million homes will get their phone services delivered via cable. As Comcast's CEO Brian L. Roberts

puts it, "We're not just in the cable television industry anymore. We're becoming telecommunications companies."

Digital Subscriber Lines (DSL) offered by local phone companies use existing telephone lines into the house and offer a faster alternative to traditional telephone modems. Local phone companies are in the process of introducing DSL into various regions within their jurisdictions. In January 1999, AOL allied with Bell Atlantic to offer high-speed Internet access using DSL at a total cost of $40 per month (about the same price charged by cable modem services). Dataquest Inc. predicts that DSL modems will outsell cable modems, starting in 2000.

Meanwhile, widespread Internet access via satellite seems just around the corner.

REGULATION

Under current regulations, cable companies can offer their own online services and force customers who want AOL to pay extra for it. The cable industry argues that unnecessary regulations will diminish the willingness of capital markets to finance the construction of new broadband cable networks. In response, AOL is leading a coalition called OpenNet, which advocates regulation to open cable-TV lines to all competitors (similar to the open-market standards imposed on local phone companies.) The coalition includes MCI WorldCom Inc., US West, and Mindspring Enterprises Inc. Entertainment companies have also expressed concern that their programs and movies could get locked out of the broad-brand Internet market.

On-line service providers and ISPs currently do not pay access charges to local phone networks. However, the regional Bells contend that on-line services companies and ISPs should have to pay to connect to their services. They argue that local phone rates are based on the assumption of brief conversations. However, Internet calls tend to last much longer, tying up network switches and requiring the phone companies to upgrade their systems to handle the demand. Computer companies and Internet providers argue that changing the regulations would jeopardize the low monthly rates that have made the Internet accessible to millions of subscribers. The ISPs won a legal victory in August 1998, when an appeals court upheld the FCC's decision to prevent the local phone companies from charging ISPs access fees, similar to those that the local phone companies charge long-distance carriers. However, in February 1999, the FCC ruled that phone calls made to connect to ISPs should be considered long-distance instead of local calls. Although the FCC insists that this ruling would not affect how consumers connect to the Internet or how much they pay, consumer groups argue that this could lead to higher prices for people who access the Internet through services such as AOL.

Finally, a number of states, including New York, have considered new sales and use taxes on the Internet and on-line information services. This is particularly inviting as industry analysts predict that the value of computer-based electronic commerce will be more than $70 billion a year by the end of the decade. But legal and technical issues, such as the location of the transaction, its monitoring, etc., complicate matters.

AOL's BUSINESS MODEL: QUO VADIS?

> "With online price comparisons, automatic grocery shopping and the ability to get whatever we want whenever we want it, 21st century Americans will face a radical reshaping of the consumer culture we have been building since the 1950s."
>
> — *"The Cyberspace Marketplace", Time, July 20, 1998*

Several years ago, AOL moved from a passive publishing model, towards "programming", i.e., to providing interactive chat rooms, hobby forums, games and personal business services, etc. With the sale of ANS, its service provider business, AOL planned to model itself after TV with a group of easy-to-use "channels" each based on subjects of interest such as sports, workplace, families and life styles. Visually, a channel is associated with a button on the screen (see Exhibit XV.) However, the concept is broader – namely, to deliver real time information associated with the subject area of interest. AOL also decided to move from a revenue stream based largely on subscriber fees towards a more balanced model including revenues from advertising, electronic commerce and hosting of web sites.

"AOL Anywhere" is the label for an important component of AOL's current strategy. According to Steve Case, "AOL Anywhere is the idea that people do not want a separate service at different places." This means that AOL plans to extend Internet delivery to television, cable-TV, wireless handheld devices, and other Internet-enabled devices. AOL's new "Instant Messenger" service, which allows users to interchange messages immediately with friends who are currently online, is consistent with the AOL Anywhere strategy.

AOL's advertising and electronic commerce revenues (reported under "Other Income" in their financial statements) grew from $256 million in 1997 to $439 million in the 1998 fiscal year, accounting for approximately 17 % of total revenues. Similar growth is expected in fiscal 1999. AOL's backlog of advertising and commerce revenues currently exceeds $1 billion.

Advertising is an important source of revenue on the Web. According to Jupiter Research, total advertising expenditure on the Web was almost $1 billion in 1998 but is likely to rise to $8 billion (approximately 4% of total advertising expenditures) by the year 2000. As in more traditional media, advertisers pay for exposure – a typical banner ad, costs between $10 - $30 per CPM (1000's of exposures measured)[3] or $100-$150 per thousand click-throughs (visits to the advertiser's site.) There is an interesting duality with regard to advertising: it is common to advertise one's own site both on the Web and in other media in order to increase traffic. This is in turn increases the value to others of advertising on your site. The amounts of money involved can be large – Alta Vista is thought to pay $5 million a year to advertise on Yahoo! According to Yahoo!, its mix of advertisers has changed from 85% computer-related in 1995 to approximately 80% consumer brands in 1997.

According to Forrester Research and Jupiter Communications, Internet sales were about $3.5 billion for the last quarter of 1998 as compared to $1.3 billion in 1997. Total online sales for the whole of 1998 is expected to be around $13 billion. Exhibit XVI lists the top online shopping sites along with the projected online spending by sector for 1999. IDC, a market research firm, predicts that more than one-third of U.S. households will be online in 1999, creating a surge in Internet users to 147 million people. AOL users spent an estimated $1.2 billion with online retailers on its service during the 1998 holiday season - an average of $80 from each of its15 million accounts. In December 1998 alone more than 1 million customers shopped online for the first time on AOL.

While advertising and online sales malls will grow as sources of revenue, the Web has spawned several other innovative marketing models that are intended to create efficient markets for consumers and form new ways of doing business. Typical examples include: online auctions (eBay, OnSale, etc.), name your own price (Priceline.com), get

[3] Average ad rates for TV are $5 to $6 per CPM, and for a top magazine such as Cosmopolitan they are as high as $35 per CPM.

paid for looking at ads (CyberGold), buy at cost for looking at ads (Buy.com), get a free PC for looking at ads (Free-PC), and band together for volume discounts (Accompany). AOL has alliances with Internet auction companies, OnSale and eBay and is developing its own auction site with help from eBay.

While AOL has built its success as a consumer-oriented company, it is currently exploring avenues to attract business customers. The combination of Netscape's enterprise and commerce software with Sun's Java tools, should help AOL build and host corporate web sites (online stores), but it needs to compete with more established hosting services such as IBM and GTE Internetworking.

The volume of users visiting an Internet site is a crucial determinant of the revenue stream that it is likely to generate. Features such as news, weather, chat and games that attract visits can not only increase the number of subscribers but also increase the intrinsic value of other features at the site and the potential for advertising and e-commerce revenue at the same time. AOL's purchase of ICQ Chat, which has attracted 21 million members, obviously increases the scale of AOL's reach to consumers.

To build a business model, AOL's management must therefore consider a number of questions: What is the value of each feature on the site? How can interactive features such as games, music and chat rooms increase revenue? What is the appropriate level of advertising of AOL on foreign sites and in other media? What is the appropriate level of advertising (for others) on AOL's site? What is the appropriate mixture of non-income generating and income generating features, and more importantly, how should these services be priced?

As complex as these decisions are, they must be made in the context of a strategy that will ensure AOL's long term growth: a strategy that can help AOL maintain its preeminent position in the face of rapid technological and social change and the competition of powerful global companies from multiple industries.

Appendix

The Internet and the World Wide Web

Formative Stages

The Internet began in 1972 as Arpanet, an experimental network financed by the U.S. Department of Defense. The Internet uses a communications protocol called TCP/IP (Transport Control Protocol/Internet Protocol). TCP/IP breaks messages from the sending computer into discrete variable-length packets of data before transmitting them independently over the network (via possibly different routes) to the receiving computer. Each packet contains the address of the sender and receiver. Advantages of this approach are its simplicity and reliability. In its original form, the Internet supported remote log-in, file transfer, and e-mail. In the early 1980's the Internet was funded by the National Science Foundation (NSF) and was extended to provide free access for educational institutions. In 1989-90, the Internet was opened for use by corporations and the general public. Since the Internet is based on open standards, it has been relatively easy for developers from all over the world to develop software and communication products that provide a wide array of services.

In 1990, Timothy Berners Lee, a British scientist working at the European Particle Physics laboratory (CERN) in Switzerland, developed HTTP (Hypertext Transfer Protocol) to support the publication of documents consisting of text, audio, and video on the Internet. The documents themselves are written in HTML (Hypertext mark-up language.) The significant advance was that HTML documents residing on computers all over the world could now be linked to each other. The result was called the World Wide Web (WWW).

Building on this structure, Marc Andreesen of the National Center for Supercomputing developed Mosaic, a cross-platform WWW application, in 1993. Mosaic was the "killer-app" that launched what is perhaps the most profound economic and social revolution in history. Mosaic consisted of server software residing on a central computer or workstation and browser software on each client computer. The server software satisfies requests from the clients for HTML documents stored on the server. In 1994, Andreesen and several colleagues started the Netscape Corporation, which develops and distributes Netscape Navigator. For a time, Netscape was the most popular WWW browser with installations on approximately 64% of all computers connected to the Internet. However, in 1998, Netscape was overtaken by Microsoft's Internet Explorer (IE) browser, which comes "bundled" with almost all new Wintel and Macintosh machines. (Naturally, IE connects by default to Microsoft Network (MSN), giving MSN a modest advantage in the race with the other on-line service companies.)

In the year following the introduction of Mosaic, the number of Internet users doubled to over 3 million users. By mid-1999, there were about 70 million Internet users in the US. Recent Internet growth has been fueled by the rapid growth of electronic commerce. Commercial applications include providing company information to prospective investors and product information to customers, business-to-business communications and electronic data interchange (EDI), advertising, and consumer sales.

Technology: Access and Distribution

The Internet is, in reality, a network of thousands of sub-networks and millions of computers located all over the world. To provide convenient local access to the Internet, a whole new industry of Internet Service Providers (ISPs) has arisen over the last few

years. ISPs provide local points of presence (POP's) that allow users to connect to the Internet via local telephone service. When a user dials into his/her local POP, the call must be received by a compatible device. Usually, this is a modem (which translates analog signals to digital and vice versa), but in the future, DSL, cable modems or satellite devices will be more common, particularly for commercial users (see below). Currently, modems can handle up to 56Kbps (thousands of bits per second), but 33.6 and 28.8 Kbps modems are still in use.

The speed of the available modems (or preferably, the support for broadband access) is an important consideration when choosing an ISP. As shown in Exhibit A1, a typical server can handle multiple modems. When a call is received, it is allocated to the next available modem for the duration of the session. The number of users supported per modem is a crucial factor in capacity calculations; the industry average for ISPs is between 15 and 20 users. AOL currently has 800,000 modems supporting up to 750,000 simultaneous users sending 34 million e-mail messages and 290 Instant Message communications daily.[4] The power of the server hardware and software is a second crucial consideration in providing capacity. As shown in Exhibit A1, the computational load is usually divided between a number of servers each performing a specialized function. Because of the enormous computing power needed to connect and store information about millions of users, there is a trend in the industry towards a centralized model of computing. AOL, Amazon.com and other large Internet companies run large "server farms" consisting of dozens of powerful computers. AOL has two such server firms in Richmond, Virginia capable of handling nearly one million users. A third farm costing $520 million is planned.

By the year 2000, it is estimated that there will be 66.6 million households in over 100 countries connected to the Internet. In the U.S., 25 percent of all households have access to the Internet. With the number of people tapping into the Internet doubling every year, congestion is inevitable. This is particularly the case, because the average "net surf" lasts five times as long as the average telephone call, with 10 percent of Internet sessions lasting as long as 6 hours.

In the future, a variety of consumer-electronics devices will be wired to the Net: TVs, digital cameras, cell phones, digital pagers, personal digital assistants, even household appliances. A recent trend is to combine technologies to create new appliances and to combine services to provide new experiences for the user. Microsoft's WebTV, a set-top box, which combines television with Internet access, and Interactive TV, which allows two-way communication and gives users the ability to control their entertainment medium and respond to prompts for information, are two examples. These devices, together with Internet telephony and capacity-hungry multi-media applications, such as Internet radio, music and video conferencing, will place even greater loads on the Internet. To avoid delays many companies are building private Internets ("Extranets") to ensure fast communications with other firms. However, the growth in Internet capacity has been astounding – according to Bill Gates, Chairman and CEO of Microsoft, *"the demand for Internet services will be exceeded only by the growth in its capacity."* Three companies – MCI-WorldCom (Uunet), GTE Internetworking and Sprint - handle the bulk of US Internet traffic (and all of AOL's).

Broad-Band Internet Access

Exhibit A2 shows alternative technologies for connecting homes and businesses to a wide area network such as the Internet. So-called "narrow band" access employs

[4] AOL's 1998 Annual Report

modems that convert digital signals for the computer to the analog signals that carry voice signals on the traditional telephone system, and vice versa. The remaining technologies in Exhibit A2 are alternative ways of achieving broad band access, which enables the transmission of data intensive applications such as TV and live video.

T1 service is a private line leased from a telephone company that costs several thousand dollars per month. T1 is often used by businesses to link geographic sites as well as to connect to the Internet.[5]

Cable modems are up to 50 times faster than traditional telephone modems. Cable networks for delivery of broadband Internet services are expensive to construct. Essentially, a cable network branches like a tree from the cable company's "head end" (central distribution point) through various feeder stations to individual homes. Branches closer to the main distribution point (trunk of tree) serve multiple users and performance can degrade under heavy usage. Cable companies such as Time Warner and At Home have already provided cable modem service in parts of their regions. Cable modems, which currently cost about $40 per month in addition to the normal ISP access fee, are currently the most popular form of broad band access. But, because of the potential billion dollar revenues, the competition from alternative technologies is likely to be intense.

Digital subscriber line technologies (DSL)[6] permit wide band transmission over the twisted pair copper wiring that carries household telephone lines. While transmission rates are nominally lower than for cable modems, DSL will not degrade as more people in the local area connect to the Internet. This is because DSL is a switched technology - a dedicated circuit is maintained between the household and the telephone company's local switch. The local Bell Companies - Bell Atlantic, SBC, and so on - are driving the deployment of DSL.

Satellite communications have been used for commercial voice and data transmission for over 30 years. Today new constellations of satellites costing billions of dollars provide services such as teleconferencing, mobile communications, and direct broadcast of television signals to businesses and homes all over the world. Major projects include Irridium (developed by a consortium led by Motorola) and Teledesic, which is backed by Microsoft among other companies. When it is completed in 2003, Teledesic will provide worldwide connection to the Internet.

Security and Payment Mechanisms

Security was a major concern in the early days of the Internet. Security depends on the development of a number of complex technologies such as a robust data encryption standard, an efficient electronic payments system, and electronic document interchange standards, which would allow companies to exchange purchase orders and forms. These technologies have been developed and deployed very rapidly. Netscape's SSL (Secure Sockets Layer) is currently the most popular mechanism for securing messages such as credit card numbers on the Internet. SSL checks that the connection is reliable, authenticates the client and host machines, and encrypts all subsequent transmissions. Mastercard and Visa International are currently launching a security system designed called SET (Secure Electronic Transaction.) SET authenticates both

[5] T3 lines have a capacity of 45 megabits per second and are used as part of the backbone of the Internet (see Figure A1.)

[6] DSL comes in a number of forms. ADSL (Asymmetric Digital Subscriber Line) is one such form; the name comes from the different speeds at which data is transmitted to and from the home.

the merchant and the customer involved in the transaction and facilitates the credit card approval process.

At most Web sites, shoppers fill an electronic "shopping basket" with goods, then proceed to the online equivalent of a checkout counter where they provide detailed personal information – including their name, address and credit-card number. This tedious process has to be repeated each time they visit a different site. Electronic wallets hold customer information (credit-card numbers, address books, etc.) in a secure form either on the user's hard drive or on the merchant's or financial institution's server. Purchases can then be made by simply by clicking on an image of the purse.

In addition to securing e-commerce transactions, Internet sites must protect the integrity of the data on their sites and guard against attacks by hackers. Firewalls, combinations of hardware and software that are setup between the Internet and the site's computers, are used to prevent unwanted traffic from entering or leaving the site.

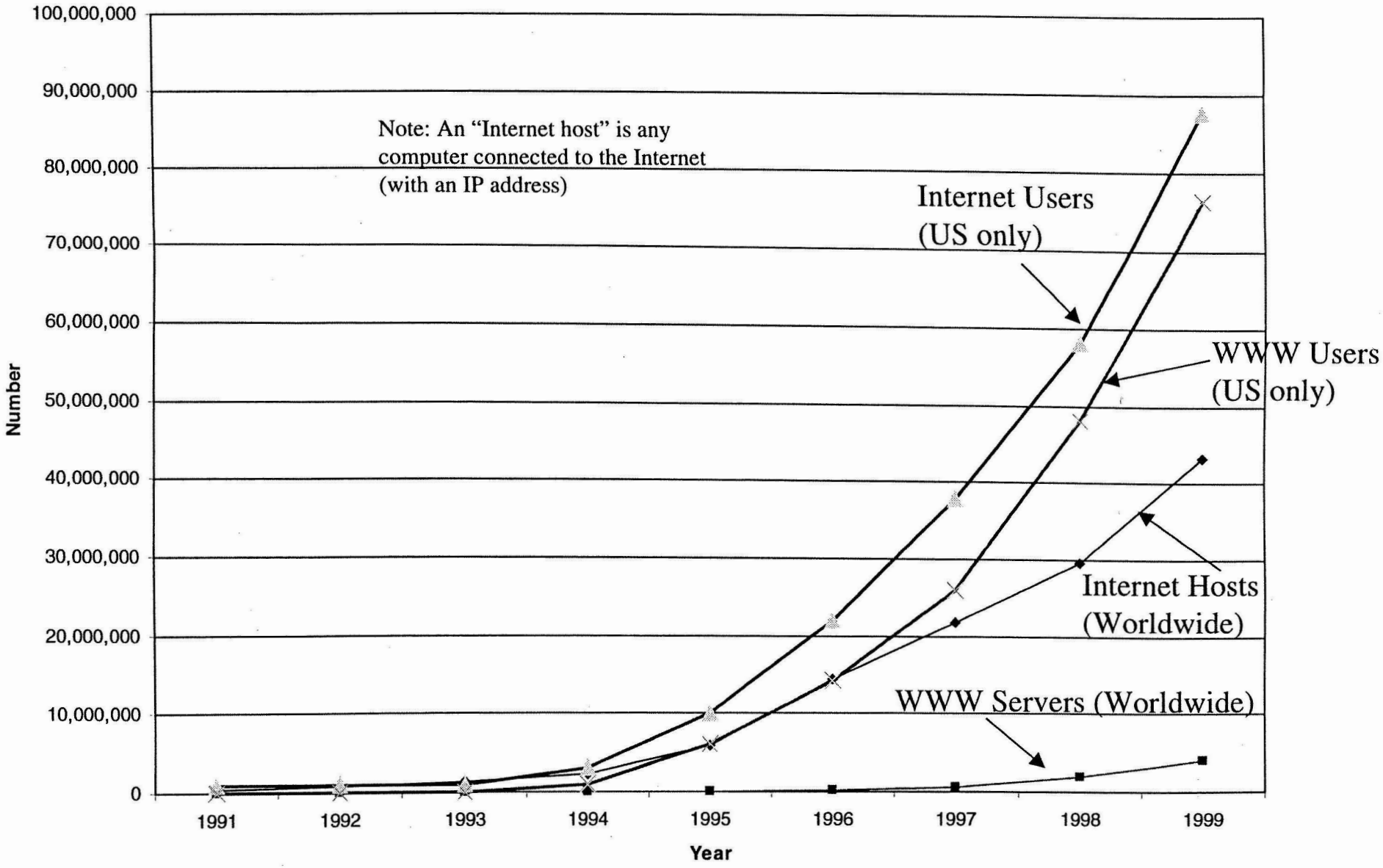
Regulation and Deregulation

Until 1995, the NSF provided some financial support for the Internet and maintained the NSFNet "Backbone" – very high speed communications lines connecting government-sponsored "super computer" centers and major research and educational sites. Since 1995, the Internet has been entirely financed by user fees. The Internet is not really owned by anyone. It is governed by a non-profit organization, the Internet Society (ISOC.) Another non-profit group, the Internet Activities Board (IAB), sets technical policies and standards.

The commercialization of the Internet was widespread and rapid and has fundamentally changed its culture. The traditional culture of the Internet emphasized freedom of expression, bottom-up governance, and a spirit of sharing. The Internet user community still jealously guards these values, and the culture of the web is something to be reckoned with by commercial organizations. For example, "spamming" - the broadcast of unsolicited advertising material - is fiercely resisted.

Although the Internet remains largely unregulated, there has been a debate over whether the FCC should provide a forum for public hearings to establish industry-wide ground rules for the Internet, similar to that which it has provided in telecommunications. Government's efforts to regulate Internet information have been most visible in cases of pornography, gambling, and hate speech. There is no consensus on whether existing jurisdictional rules ought to be extended to cyberspace. Privacy is a hotly debated topic, particularly with the rapid rise in Internet use by non-technical consumers. Bills seeking to prevent on-line service providers and ISPs, such as AOL or Netcom, from selling personal information about their subscribers without written permission, and to require a detailed accounting of the use of computer databases, have periodically been introduced in Congress.

The Telecommunications Act of 1996 deregulated wireless and wired communications in the United States. Effectively, this means that local phone companies can offer one of the services previously offered by long-distance carriers and cable companies. Long distance companies can enter the local phone business or offer cable services and cable companies are permitted to offer long distance telephone service or compete with the local phone service. This law, together with the technical convergence on digital technologies discussed in the text, will increase competition and enable completely new services to be delivered.



Sources:http://www.commerce.net (1999) and Hobbes Internet Timeline (1999)

Exhibit - I : Internet and the WWW - Growth

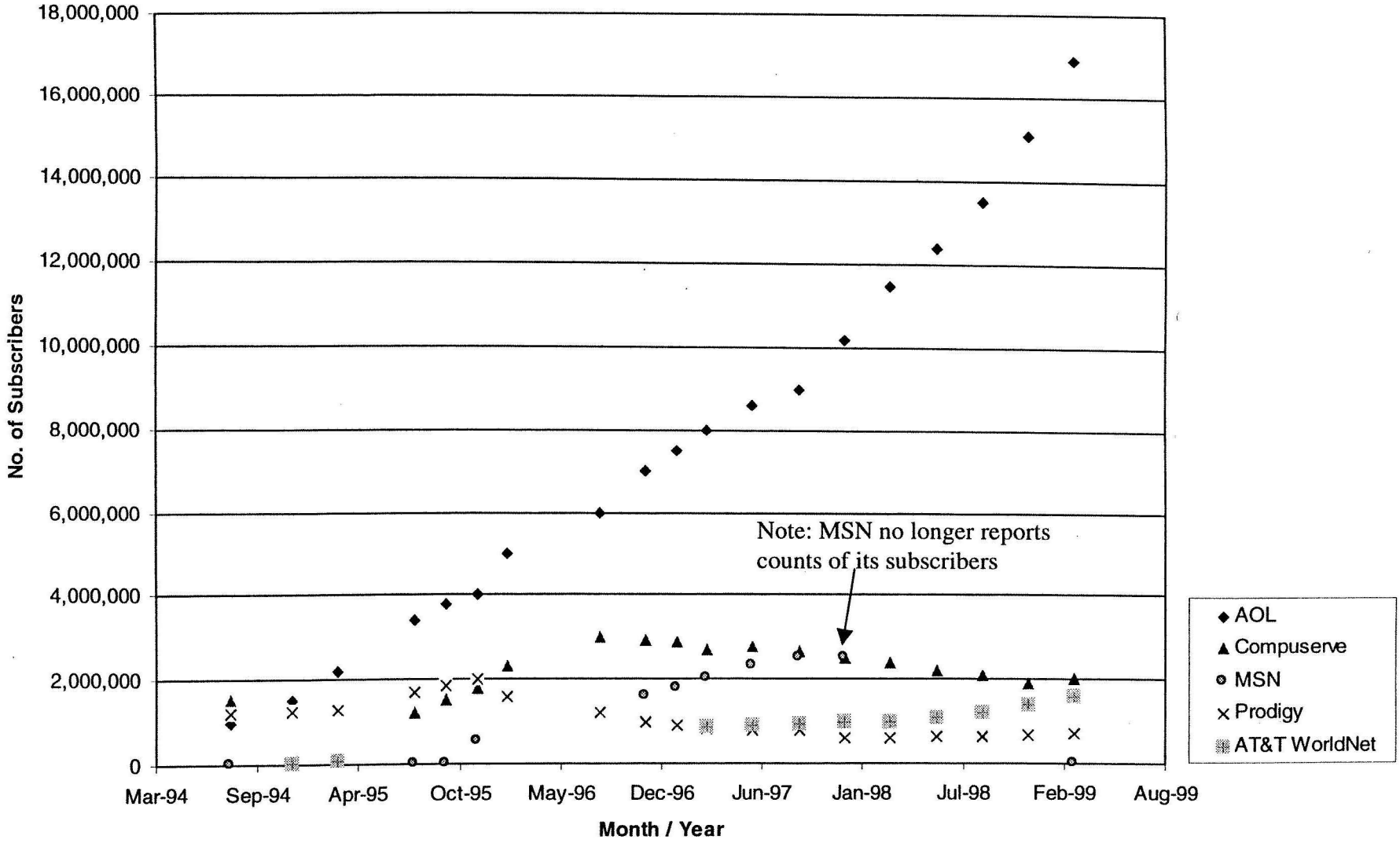


Exhibit II - Growth in Subscriptions to Online Services

Access	**Physical Access**	Access to AOL & Internet.
Communication	**Online Community**	E-mail, Fax, Buddy Lists, Instant Messages Discussion Groups, Interactive Chat Rooms, Bulletin Boards.
Content	**Information**	Live news feeds, Financial data, Sports, Personalized portfolio tracking,. Reference, Magazines and Newspapers.
	Entertainment	Hobby Forums, Multi-player games, MusicSpace, Hollywood Online, MTV, Cooking Club, Environment Club, Comedy Clubs etc.
	Education	Tutoring sessions, Education and reference services incl. Library of Congress, Smithsonian, Consumer reports and Crompton's Encyclopedia.
	Web Hosting	Hosting web sites
E-Commerce	**Travel and Shopping**	Interactive shopping service at AOL Marketplace featuring goods and services from numerous catalogs and retailers, Online auctions.
	Computing	Access to public domain and 'shareware' software programs, Online computer magazines etc.
	Other Services	Search Engines - AOL Netfind, What's Hot, Home Banking, PrivacyGuard etc.

Exhibit III - A Partial List of Features Offered by AOL

TRANSACTION SERVICES

AOL, MSN, Prodigy
CUC International,
Home Shopping Network,
QVC Network,
Netscape, Yahoo, Lycos,
Visa, MasterCard,
Check Free, Cybercash.

CONTENT PROVIDERS

Film Entertainment	Programmers	Music, Games & Education	Publishing	Information
Time Warner	Turner Broadcasting	Electronic Arts	Bertelsmann	Dow Jones
Walt Disney	Viacom	Broderbund	News Corp.	Bloomberg
Paramount	Groupo Televisa	The Learning Co.	Tribune	S & P
Sony		Scholastic	Gannett	Moody's
Matsushita		Sega, Nintendo	Times-Mirror	Census Bureau
			McGraw Hill	Mead Data

TRANSPORTERS

Cable TV Companies	Regional Phone Companies	Long-Distance Phone Companies	Access Providers	Wireless Communications
Time Warner	Bell Atlantic	AT&T	Netcom Online	Qualcomm
Tele-Communications	NYNEX	MCI	Earthlink	Motorola
Cablevision	U.S. West	Sprint	AT&T Worldnet	AT&T/McCaw Cellular
Comcast	GTE		Uunet Tech.	Racotek
				Fleetcall

TECHNOLOGY ENABLERS

Computers	Consumer Electronics	Software	Storage Technology	Semiconductors	Communications
Silicon Graphics	Sega	Oracle	Seagate Tech.	LSI Logic	Broadband Tech.
Sun Microsystems	Nintendo	Sybase	Maxtor	C-Cube, Intel,	AT&T
Hewlett Packard	3DO, Sony	Informix	Optex, EMC	Media Vision	Fujitsu
NCR/AT&T	Apple Comp.	Microsoft		Texas Instruments	NEC

Adapted from Bear, Sterns & Co. Inc. "New Age Media: The Merging of Media Communications, Computing, Consumer Electronics" , 1998.

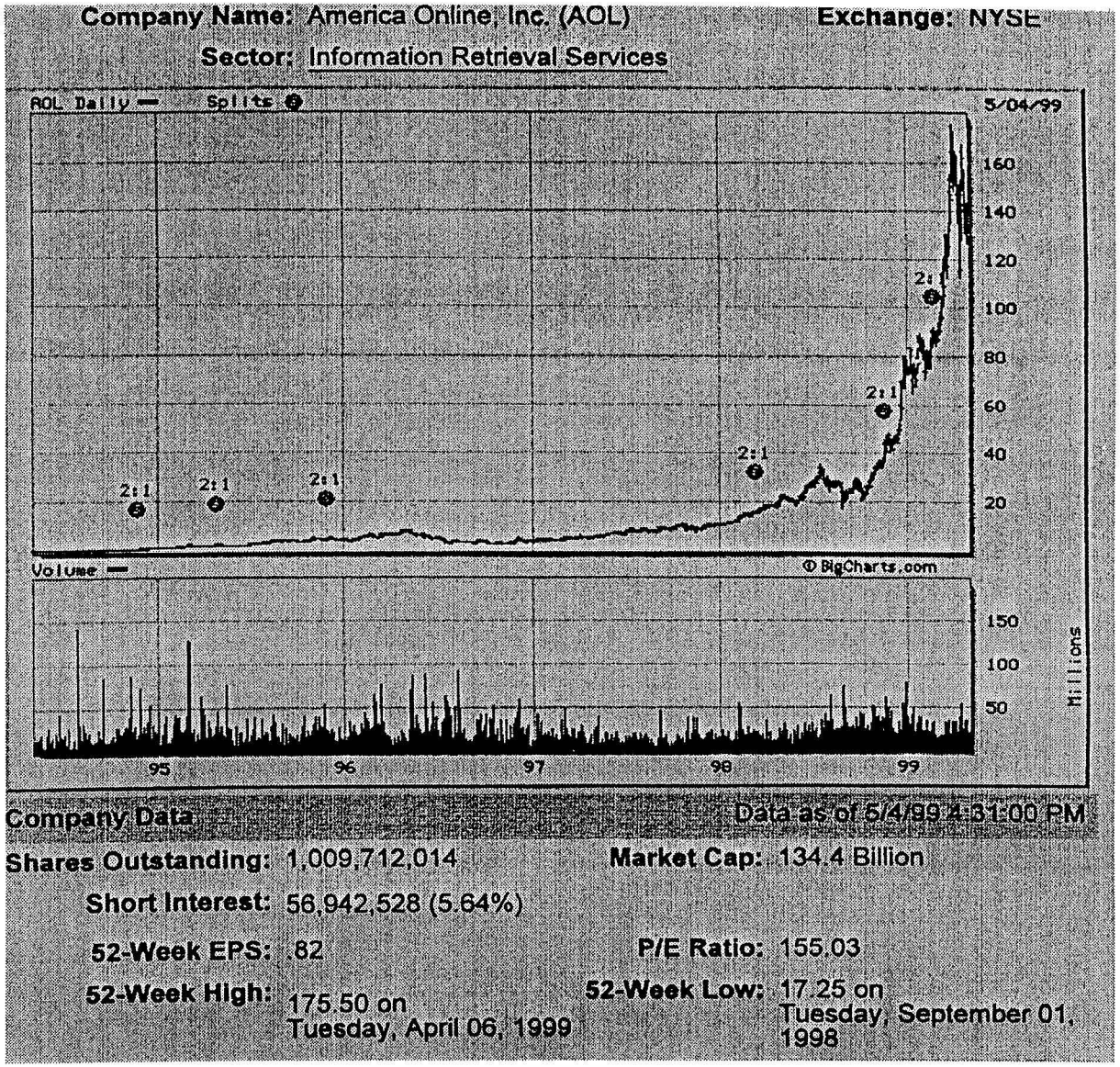
Exhibit IV - Information Industry - Value Chain (Illustrative)

	Year Ended June 30				
	1998	1997	1996	1995	1994
	(Amounts in millions except per share data)				
Statement of Operations Data:					
Online service revenues	$2,161	$1,429	$992	$344	$98
Advertising, commerce, & other revenue	439	256	102	50	17
Total revenues	2,600	1,685	1,094	394	115
Income (loss) from operations	78	(505)	65	(21)	4
Net income (loss)	92	(499)	30	(36)	2
Income (loss) per common share:					
Net income (loss) per share - diluted	$0.35	($2.61)	$0.14	($0.26)	$0.01
Net income (loss) per share - basic	$0.44	($2.61)	$0.18	($0.26)	$0.02
Weighted average shares outstanding:					
Diluted	259	191	215	139	138
Basic	210	191	171	139	114

	As of June 30,				
	1,998	1,997	1,996	1,995	1,994
	(Amounts in Millions)				
Balance Sheet Data:					
Working capital (deficiency)	$36	($230)	($23)	$0	$39
Total assets	2,214	833	959	405	155
Total debt	373	52	23	22	9
Stockholders' equity	598	140	513	217	99

Source: http://www.aol.com/corp/inv/reports/1998/10k2.html

Exhibit V - Selected Consolidated Financial Data



Source: http://www.bigcharts.com/

Exhibit - VI - AOL's Stock Price

Date	Target Firm	Price	Target Business
8/94	Redgate Communications	$34 M	Makers of multimedia CD-ROMs with online links.
11/94	ANS	$35 M	High-speed Internet network
11/94	Navisoft	$6 M	Web site creation software
12/94	Booklink Technologies	$41 M	Web browser and Internet software developer.
1/95	WebCrawler	N/A	Search technology
1/95	Global Network Navigator	$11 M	Web site
5/95	Medior Inc.	$30.9 M	Interactive media developer
5/95	WAIS	$15 M	Web server software
9/95	Ubique	$14.6 M	Software for chat forums
2/96	Johnson-Grace	$59 M	Data compression
8/96	ImagiNation Network	$14.5 M	Games sites
9/97	CompuServe	ANS Com.	Online access service
1/98	Personal Library Software	$15 M	Search technology
5/98	NetChannel	$29 M	Internet-TV technology
6/98	Mirabilis	$287 M	ICQ chat technology
11/98	PersonaLogic		Decision-guide technology.
11/98	Netscape Communications	$4200 M	Internet browser and e-commerce
2/99	MovieFone Inc.	$338 M	Movie listing and ticketing service
4/99	When Inc.	N/A	Internet calendaring and event services.
6/99	Spinner Networks Inc.	N/A	Internet music service.

Exhibit VII - AOL's Acquisitions 1994-1999

Date	Alliance Partner	Alliance Synopsis
2/26/97	Tel-Save Holdings Inc	AOL to get $100m from Tel-Save Holdings Inc. for marketing its long distance service on AOL.
7/7/97	NYNEX	Nynex entered into an agreement with ANS to resell AOL to corporations.
5/19/98	Eastman Kodak Co.	AOL subscribers to get digitized versions of their photos e-mailed to them
7/1/98	E*Trade Group Inc	AOL to get $12.5m a year for prime placement in AOL's brokerage area
7/1/98	Waterhouse Investor Services	AOL to get $12.5m a year for prime placement in AOL's brokerage area
9/28/98	Real Networks Inc.	Real Networks will license its RealPlayer free of charge to AOL
11/23/98	Inktomi Corp	Provide search technology to ICQ
11/25/98	Sun Microsystems	Collaborate to use and sell e-commerce software and Internet terminals
12/21/98	Dell Computer Corp.	2-year agreement to provide AOL's Internet access and software on its PCs
1/6/99	CBS News	Cross-promotion and CBS News to become exclusive supplier of broadcast news on AOL
2/4/99	Banc One Corp's First USA	AOL to get $500 m for a 5-year agreement to market credit cards over the Internet
2/5/99	MCI WorldCom Inc.	CompuServe to provide content to MCI's new online service
2/15/99	Supermarkets Online	AOL & Supermarkets Online signed a deal to offer coupons for leading packaged-goods products.
2/15/99	NBC & ABC	AOL, NBC & ABC to join OpenNet-a coalition to force cable companies to open their networks to Internet competitors
3/12/99	SBC Communications Inc.	SBC to market high-speed online access (DSL) to AOL customers in California, Nevada and Southwest

Exhibit VIII - AOL's Recent Alliances

-- March 1992
AOL, founded in 1985, takes its stock public.

-- February 1994
Computers clogged by an influx of new members, AOL limits how many members can sign on during peak hours.

-- August 1994
Members fret over a new AOL twist: advertisements displayed on the service.

--March 1995
Competition on two new fronts: the Microsoft Network and Internet service providers.

-- September 1995
FBI arrests a dozen users for exchanging child pornography on AOL.

-- June 1996
AOL's president, William Razzouk, departs after four months on the job, after failing to fit in with key executives.

-- August 1996
Blackout! AOL is shut down completely by technical glitches for 19 hours, angering users.

-- December 1996
AOL offers a flat-rate price plan: unlimited time for $19.95 a month. AOL is quickly overwhelmed.

-- January 1997
Besieged by member complaints over busy signals, AOL says it will cut back marketing efforts until can increase its system capacity and offers $40 refunds to members who couldn't get online.

-- May 1998
AOL settles dispute with 44 state attorneys general and agrees to provide members with better warnings about price changes.

-- March 1999
AOL concludes its acquisition the Internet pioneer Netscape, giving AOL the heavily trafficked Netcenter portal site as well browser and a formidable electronic-commerce software.

Source: Wall Street Journal; New York; Mar 19, 1999.

Exhibit IX - America Online's Tough Climb To the Top

Year ended June 30

	1996	1997	1998
Total Revenues ($ millions)	1094	1685	2600
Advertising and Commerce Revenues ($millions)	102	256	439
Online Service Revenues ($millions)	992	1429	2161
Worldwide Members	6,198,000	8,636,000	14,605,000
Average hours per AOL member per month (Q4 average)	6.4	18.5	22.1
Maximum AOL simultaneous users	120,000	384,000	692,000

Source: Company Highlights (http://www.aol.com/corp/inv/reports/1998)

Exhibit X - America Online – Company Highlights

Rank	Intenet Service Provider	Coverage Area	Start-up fee/ Monthly fee	Summary	Trial period (hours/day)	High Speed Access
1	AT&T WorldNet www.att.com	National	None / $21.95	World-class competitor, Slow responses to e-mail requests	Unlimited/30	ISDN/ Cable/ DSL/ T1/ Frame relay / ATM
2	IBM Internet Connection www.ibm.net	National	None / $19.95	Excellent all round, easier to install, monthly fee covers only 100 hours.	30/30	ISDN/ Cable/ DSL/ T1/ Frame relay / ATM
3	MindSpring www.mindspring.com	National	$25 / $19.95	Fast, easy to set-up, backed by on-the-ball support.	Unlimited/30	ISDN/ Cable/ T1
4	Ameritech www.ameritech.net	Midwest	None / $21.95	Nimble performer except for support and ease of installation.	None	ISDN/ DSL/ T1/ Frame relay
5	Concentric www.concentric.net	National	None / $19.95	Good features, plenty of overseas access points.	Unlimited/30	DSL/ T1/ Frame relay
6	EarthLink/Sprint www.earthlink.net	National	None / $19.95	Good support, slow speeds.	None	ISDN/Cable/DSL/ T1/ Frame relay
7	SBC/Pacific Bell Internet Services www.pacbell.net	West	$15 / $22	Hard to set-up, but great performance. Best in the West.	Unlimited/10	ISDN/DSL/T1/ Frame relay / ATM
8	BellSouth www.bellsouth.net	South	$10 / $19.95	Fast Web page downloads.	None	ISDN/ DSL/ T1/ Frame relay/ATM
9	RCN www.rcn.com	Northeast	None / $19.95	Solid all-round service and good high-technology	None	ISDN/Cable/T1/ Frame relay
10	Voyager www.voyager.net	Midwest	$20 / $19.95	Decent showing in all categories.	None	ISDN/Cable/DSL/ T1/ Frame relay
11	Prodigy Internet www.prodigy.com	National	None / $19.95	Sluggish performance and support, good features.	None	None
12	Bell Atlantic Internet Solutions www.bellatlantic.net	Northeast	None / $19.95	Next only to RCN.	None	ISDN/ DSL/ T1/ Frame relay / ATM
13	GST WholeEarth Network www.wenet.net	West	None / $25	Free access to a cool online community (The Well).	None	ISDN/ DSL/ Frame relay / ATM
14	Microsoft Network www.msn.com	National	None / $19.95	Short support hours and toll-only support line.	Unlimited/30	ISDN/ T1
15	America Online www.aol.com	National	None / $21.95	Easy setup, Poor performance and weak support.	100/30	None
16	Rocky Mountain Internet www.rmi.net	Rocky Mountain	$15 / $19.95	Limited support hours but reliable service.	None	ISDN/ DSL/ T1/ Frame relay/ATM
17	CyberGate www.gate.net	South	None / $17.95	Hard to install and slower speeds.	None	ISDN/ T1/ Frame relay/ATM

Source: Adapted from "Good Providers- The Best National and Regional ISPs", PC World, March 1999.

Exhibit XI - Ranking of ISP's in Terms of Quality of Service

Combined At Home and At Work

Measurement Period - February 1999

Rank	Digital Media/Web Properties*	Unique Visitors (000s)	Web Sites	Unique Visitors (000s)
1	AOL Network (incl WWW)	38,144	Yahoo.com	30,674
2	Yahoo Sites	31,075	AOL.com	29,602
3	Microsoft Sites	30,866	MSN.com	20,489
4	Lycos	29,187	Geocities.com	19,604
5	Go Network	21,897	Go.com	19,334
6	GeoCities	19,926	Netscape.com	18,666
7	Netscape	18,666	Excite.com	15,621
8	The Excite Network	18,081	Lycos.com	14,401
9	Time Warner Online	12,715	Microsoft.com	14,283
10	Blue Mountain Arts	12,632	Bluemountainarts.com	12,632
11	Amazon	10,516	Angelfire.com	11,895
12	Xoom Sites	9,730	Tripod.com	11,438
13	AtlaVista Search Sites	9,709	Hotmail.com	11,293
14	Broadcast.com	8,870	Altavista.com	9,709
15	Snap.com (search and services)	8,551	Xoom.com	9,270
16	RealSite Portfolio	8,505	Amazon.com	8,669
17	ZDNet Sites	8,029	Snap.com	8,551
18	Juno	7,171	Real.com	7,890
19	CNET	6,820	Hotbot.com	7,172
20	Ebay	6,547	ZDNet.com	6,918

Source: Media Metrix

* Top 20 Digital Media & Web Properties are based on unduplicated audience reach (unique visitors). "Digital Media and Web Properties" include the largest single brands as well as consolidations of multiple domains that fall under one brand or common ownership.

Exhibit XII - Top 20 Digital Media and Web Sites

Rank	Site	Time Spent per month by average user.
1	AOL (proprietary & Web)	5 hrs 34 mins.
2	Ebay	2 hrs. 3 mins.
3	Gamesville	1 hr. 32 mins.
4	Hotmail	1 hr. 22 mins.
5	Yahoo	58 mins.
6	MoneyCentral	45 mins.
7	Excite	34 mins.
8	ESPN	30 mins.
9	MSN	30 mins.
10	Netscape	25 mins.

Exhibit XIII - Sites with High Stickiness Ratings

Media Brand	Circulation	Monthly Fee	Prime-time Audience	What $500,000 can get an advertiser
AOL	11 million direct subscribers	$21.95	625,000	A year of banner ads on AOL's stock. Page
MTV	73 million cable subscribers	$0.15 to $0.30 *	502,000	More than 100 30-second ads during prime-time.
NBC	Anyone with a TV set.	Zero	10.2 million	A 30-second ad on *Friends* and another on *NewsRadio*
Newsweek	3.1 million weekly readers	$2.43	3.1 million readers	Five full-page ads.
New York Times	1.1 million daily readers	$30.40	1.1 million readers	Six full-page ads and $40,000 in classified ads.

*Portion of subscriber fee paid to MTV by cable operator

Sources: Company Data; Paul Kagan & Associates; Competitive Media Research; Nilesen Media Research, 1998

Exhibit XIV - A Comparison of AOL with Traditional Media

Exhibit XV - AOL "Channel" Screen and "Welcome" Screen (Background)

Top Online Shopping Sites: (1998)

No.	Web Site	Visitors in millions*
1	Bluemountainarts.com	12.32
2	Amazon.com	9.13
3	AOL.com**	8.04
4	Ebay.com	5.49
5	Barnesandnoble.com	4.69
6	Etoys.com	3.85
7	Cnet.com	3.45
8	Egghead.com	2.93
9	CDNow.com	2.69
10	Musicblvd.com	2.69
11	Columbiahouse.com	2.45
12	Classifieds2000.com	2.26
13	Beyond.com	2.17
14	Coolsavings.com	1.89
15	Valupage.com	1.82
16	123Greetings.com	1.75
17	Onsale.com	1.49

*Figures are for December 1998, with repeat visitors tallied once.
** Includes Web and proprietary shopping areas.

Source: "Where Web Shoppers Stop", The New York Times, February 21, 1999.

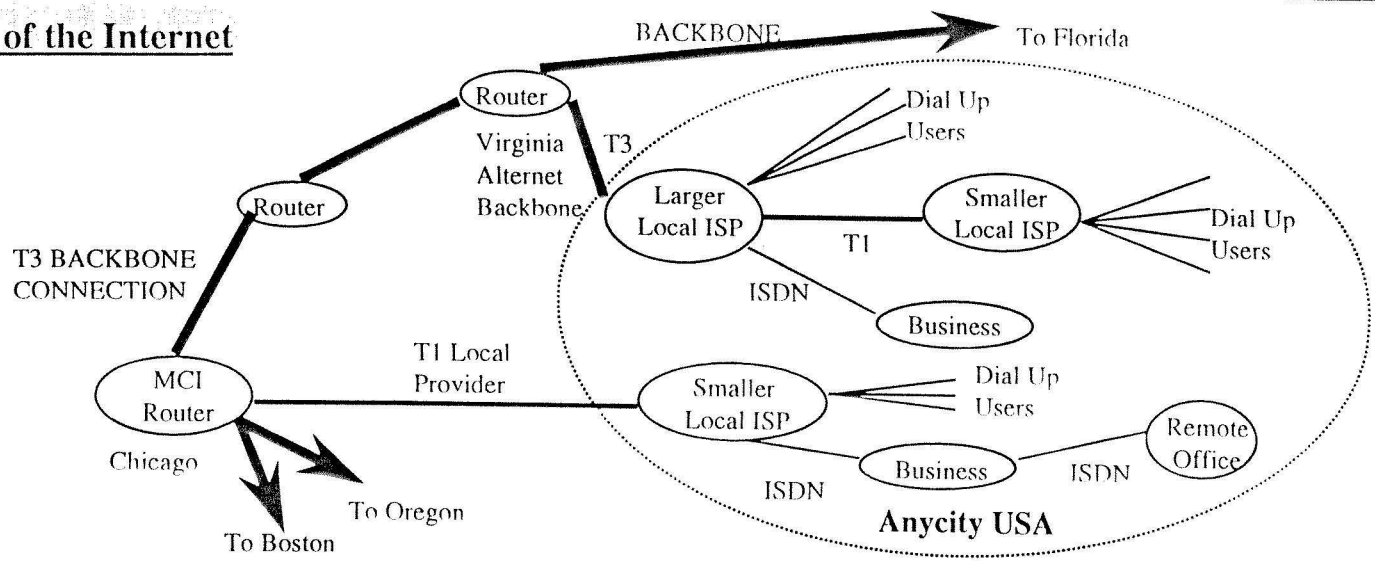
Estimated Online Revenues by Industry in Millions (1998):

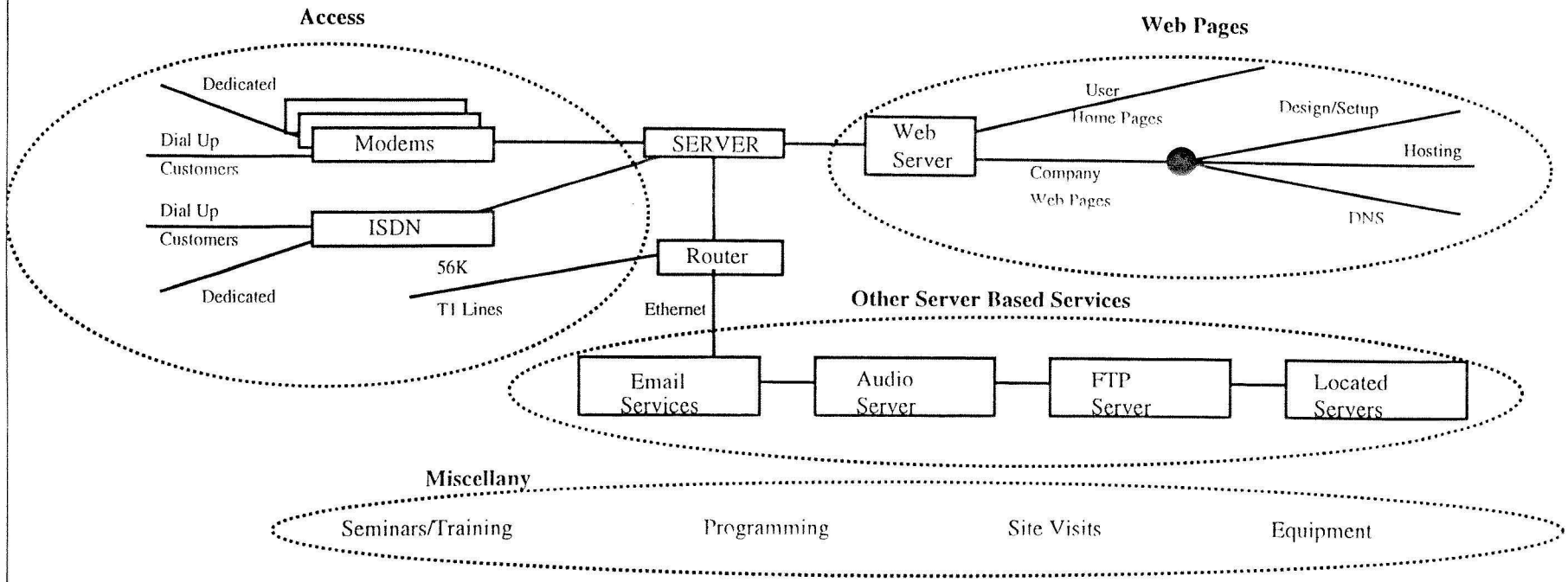
Sector	Revenue (in $ millions)
Travel	$2,091
PC Hardware	$1,816
Groceries	$270
Gifts/Flowers	$219
Books	$216
PC Software	$173
Tickets	$127
Music	$81
Clothing	$71

Source: Jupiter Communications

Exhibit XVI - Online Shopping

A. Schematic of the Internet



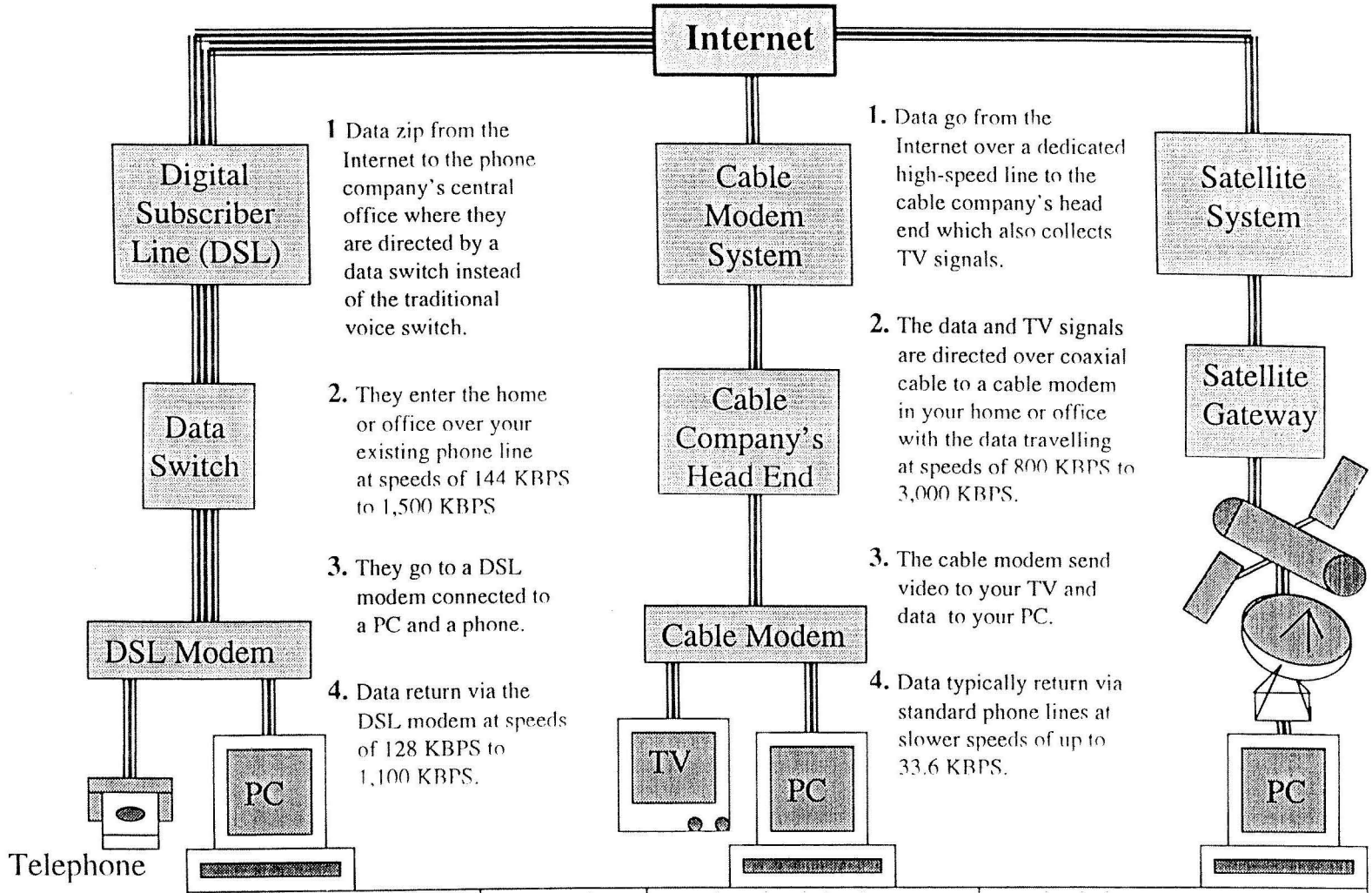


B. ISP Information Architecture / Business Model

Internet Revenue Streams

Exhibit A-1

Source: The Entrepreneurs Guide to Building an Internet Services Company, ISP or Online Business



Service	Cost/Month	Speed to your PC (KBPS)	Speed from your PC (KBPS)
Modems	$20 to $100*	14.4 to 56	14.4 to 56
DSL LITE	$40 to $100	384 to 1,500	384 to 512
DSL	$40 to $200	144 to 1,500	128 to 1,100
CABLE MODEM	$30 to $60	800 to 3,000	33.6
SATELLITE DISHES	$20 to $130	200 to 400	33.6
T-1	$1,200	1,544	1,544

*one-time cost

Source: "Warp Speed Ahead", Business Week, February 16, 1998.

Exhibit A2 - The Information Superhighway: Emerging Technologies