INFERENTIAL FOCUS BRIEFING

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THE INTERNET: THE *DE FACTO* 'KILLER APP'

Ever since digital communications became a consumer phenomenon, industry officials have searched for the "killer app," an application so strong that the entire industry would thrive as a result of its appeal to customers. To the industry's chagrin, the Internet – a noncommercial system – has become the de facto *killer app, driving consumer interest in the communications revolution and training would-be users of the "electronic universe" how to "live" in the new environment.*

The Internet fulfills the killer app requirements: generating a strong consumer drive and effectively forcing commercial entities to reshape their thinking to suit the killer app's existence. The Internet as killer app has changed bandwidth requirements from broad to middle range and has altered the rules under which on-line marketing will operate. In the new environment, companies must recognize that the new electronic market will be a "come and go market," meaning that everything needs to be considered temporal. As a result, they need to "get comfortable with surface chaos," experience of which will lead to the thought that "the Internet is necessary but not sufficient." In the end, marketers must understand the customers' utilitization needs to create successful products and services for the Internet and that means recognizing that in this electronic killer app "context drives content."

"Killer App" Mania

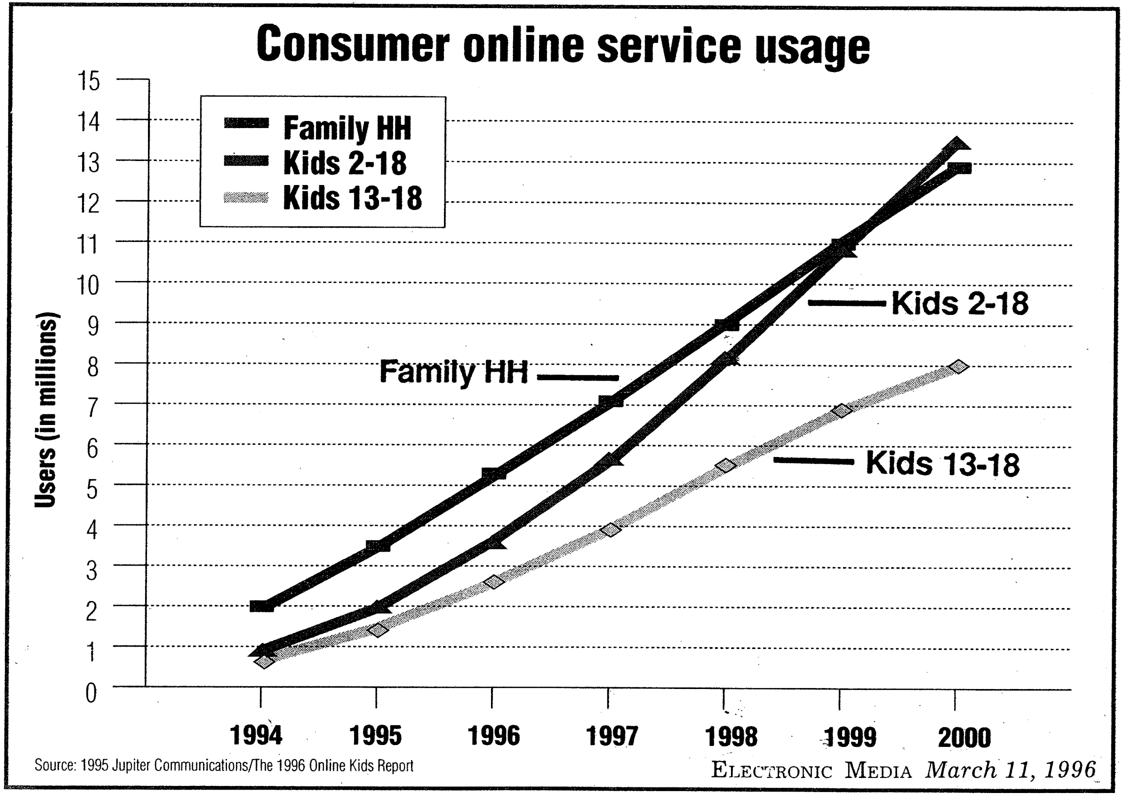
Ever since data compression technology moved the digital communications revolution forward by more than a decade, industry officials have been looking for the single application that would drive demand and create wealth. That is, they were all looking for the "killer app."

At first, everyone agreed that the killer app would be pay-per-view (PPV) or video-on-demand (VOD), but even though some consumers expressed interest in the concept, when opinion polls turned to actual field tests, consumer demand proved to be less than overwhelming. Next came interactive television (ITV), which envisioned every consumer at one end of a joy stick or a mouse, exchanging bomb blasts in computer games or sharing data and discussing documents in real time. Again, when talk turned to tests, users found other things that interested them more.

The most recent killer app has been commercial on-line systems. While they have enjoyed a run of success and will continue to garner interest, their efforts to be all things to all people at steadily rising cost have lost momentum.

Throughout all of this talk, everyone in the industry assumed that the killer app would be a product, a piece of software, a program or some other commercial entity that industry operatives themselves would create. **No one ever imagined**

that the killer app would already exist, would be noncommercial in origin and would operate beyond commercial control. That is to say, no one ever imagined that the Internet would become **the** killer app. But that is what has happened. The Internet has become the *de facto* killer app.



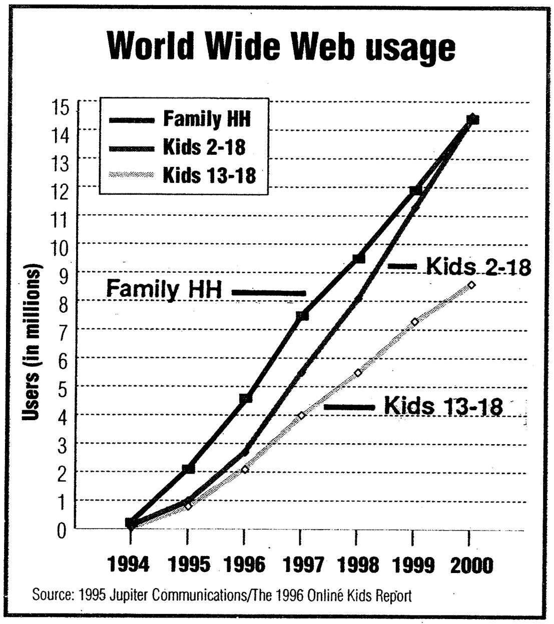
Consumer online service usage

Source: 1995 Jupiter Communications/The 1996 Online Kids Report

ELECTRONIC MEDIA *March 11, 1996*

The System as Application

For those who have sustained the idea that applications must be content – that is, something **on** the system – thinking about the system itself as a killer app may be difficult. As one spokesman for a corporation seeking an Internet strategy explained: "I'd like to find a killer app for the Internet." **The possibility that the Internet or access to the Internet might be the killer app will require companies to shift their perspective from thinking of a single piece of content as a driving force to realizing that the overall system already is the driving force, and it suggests that companies might want to rethink their own strategy from that fundamental starting point.**



World Wide Web usage

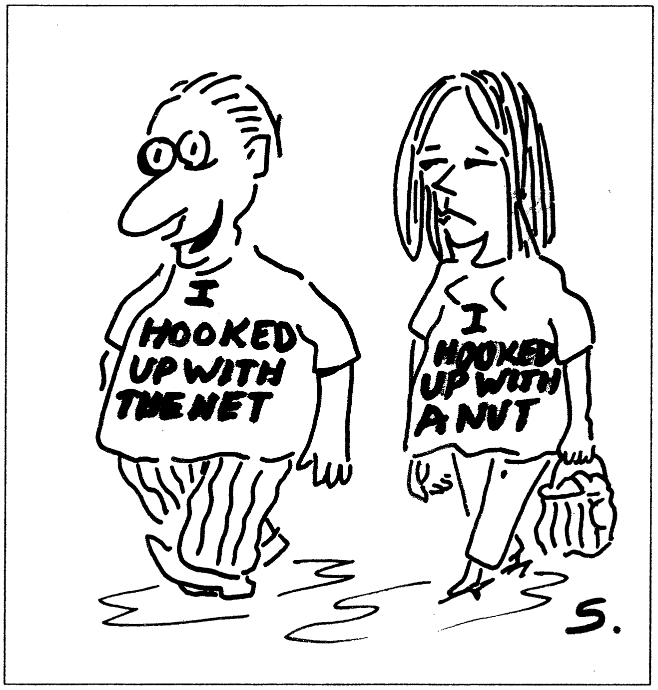
Source: 1995 Jupiter Communications/The 1996 Online Kids Report

One necessary condition for becoming a killer app has always been that demand would focus attention on that application. For the Internet, growth and demand have skyrocketed.

✦ *American Demographics* magazine challenged the conventional wisdom that 20 million people regularly use the Internet, asserting that computer hype had boosted the number beyond belief. The magazine set about doing its own research and discovered that, indeed, the 20 million number was incorrect. It discovered recent surveys that showed the number should have been **24 million users accessing the Internet within the prior 3 months.** Another study revealed that **the number of users was increasing at a rate of 10 percent per month.** (*American Demographics*, 2/96; *Bulletin*, 2/20/96)

✦ The U.S. Department of Education revealed that 50 percent of all schools have access to the Internet. In February, President Bill Clinton announced plans to have the federal government spend **$2 billion to link every classroom in the country to the Internet by the year 2000.** (*New York Times*, 3/7/96)

✦ College students have become so involved with the Internet that Barbara McMullen, director of academic computing at Marist College calls them "Internet vampires" because they emerge from their laboratories at dawn. Columbia University professors have decided to watch their students closely because they forget to eat or rest. The University of Maryland has placed a 40 hour per week limit on student use of the Internet (although students have found ways to circumvent the rule). The problem at the University of Florida is not a few excessive users but general excessive demand among the student population, creating utilization problems for the institution. (*Chronicle of Higher Education*, 3/1/96)



The demand side of the killer app continues to blindside innocent observers. For example, Michael O. Leavitt, governor of Utah, decided to hold a small on-line town meeting with the state's citizens to discuss issues in the open. However, when the governor went to the chat summit, thousands of electronic messages flooded the "meeting hall" in the first two minutes, overloading and then crashing the entire system. (*Governing*, 2/96)

While demand is riding high, interest is becoming institutionalized; that is, institutions are now furthering the ability of more and more people to enter the Internet universe. At California State University at Long Beach, for example, citizens are enrolling in a class that teaches them how to create their own "Web Page," a commercial "location" on the World Wide Web, which is the graphically enhanced side of the Internet. While more and more people are learning how to access this special form of interaction, Network Solutions, which coordinates "addresses" for the Web, acknowledges that it receives 3,000 applications for new addresses each day. (*Christian Science Monitor*, 2/13/96)

Another necessary attribute of the killer app has been its ability to drive business decisions. Its mere market dominance, the reasoning went, would force businesses to come to grips with its existence (thus the word "killer"). Even though the Internet fad has been around for several years, businesses are just starting to make peace with the fact that the Internet is the killer app.

✦ Microsoft released a company-wide reorganization plan intended to focus energy more efficiently on the Internet and related interactive technologies. Internal company memoranda clarified that **a new division would be created to concentrate Microsoft's resources on the Internet** and the next generation of the digital video disk market. (*New York Times*, 2/20/96)

✦ AT&T announced intentions **to drop its Network Notes** service because the explosion in Internet and World Wide Web use simply made the project obsolete. (*Communications Weekly*, 3/4/96)

✦ Philips Media Systems said it would introduce an Internet package for the company's CD-i players. The $150 add-on packages a modem (14.4K), software and a CD-i Internet disk to connect disk content with World Wide Web information. The company will issue new disks quarterly. (*Digital Technology Report*, 3/4/96)

These announcements from giants in the communications industry suggest that the Internet is driving decisions and that even industry leaders must position themselves in relationship to this killer app. It is larger than they are and more capable of directing the market than they once were. From this point forward, no single piece of content will be able to outpower the Internet as the basis for business decisions. Such Internet-driven decisions are surfacing from smaller companies as well.

✦ The Spring Street Brewing Company became the first company to take itself public using the Internet. Next, the company created an electronic bulletin board on the World Wide Web through which stockholders can buy and sell Spring Street stock. (*Investment Dealer's Digest*, 3/4/96)

✦ Barbara Rackes operated three successful women's apparel boutiques in South Carolina, but she recognized that her 20-year-old business needed to change significantly. **She closed her stores and took her retailing onto the Internet**. RackesDirect allows Internet customers to select a basic design pattern, list their sizes and then choose from among 120 different fabric types and colors, every sleeve and hem length, numerous button types and other special-order features. Rackes sends customer selections to a New York sewing shop, which creates the item and sends it directly to the customer. (*Women's Wear Daily*, 2/27/96)

With explosive demand and the power to force corporations to adjust to its presence, the Internet possess the characteristics of the killer app. That means that a complete shift in the way the system is viewed has started to take place. Like the demand placed on computer workers to make the jump in perspective from PC-centric systems to network-centric systems, the change of killer app from content to system requires significant rethinking of relationships across the communications industry. For certain, proprietary network services face difficult times, as do any services that cannot come to grips with a noncommercial entity being the killer app. Without a single piece of content driving the new interactive communications market, market dynamics have changed. The essence of a new commercial universe with the Internet as the killer app is fluidity and change.

Given that the Internet lies beyond commercial control and exists in a nether land of subsidies, free interactions and artificial networks within networks, the commercial side of the demand has necessarily shifted from actually offering the killer app to servicing the killer app. Whereas at one time everyone thought that the industry would generate the killer app to be sent across many markets over some established "backbone" infrastructure, **companies might now need to reposition themselves either to offer access to the Internet as a central piece of their marketing strategy or, more directly, to develop a strategy to reach consumers the killer app attracts.**

Selling Access To, Not Owning the Killer App

While commercial entities pursued the Holy Grail of the killer app, some companies pieced together "on-line networks" that brought to the computer user a panoply of services, resources and, almost incidentally, access to the Internet. America Online (AOL), CompuServe, Prodigy and other services assembled the less-than-killer-apps into a package to allow users to access whatever they wanted when they wanted.

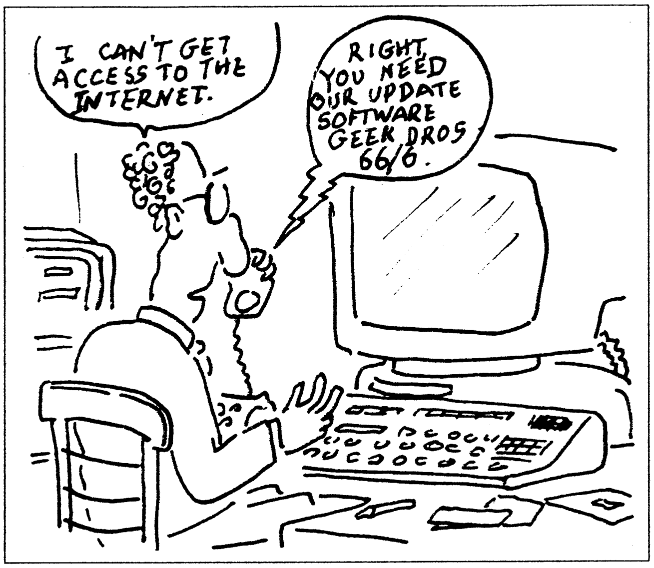
What they wanted was evidently access to the Internet. The 24 million Internet users cited by *American Demographics* exceed by nearly 10 million the number of subscribers to on-line services. This created problems for proprietary network services because they wanted to charge per-minute usage fees for accessing their products, including the Internet. However, as Internet access became the key ingredient for the overall service, other pieces of the proprietary system lost value. That devaluation continues.

✦ AT&T announced that as part of its regular long-distance service, it would offer access to the Internet for $19.95 per month. Unlike AOL and other on-line services, AT&T's flat fee would cover all usage, no matter how much time the user spends on-line. (*International Herald Tribune*, 2/28/96)

As a marketing tactic, AT&T will "give away" five hours of Internet use per month for the first year, and then settle into the $19.95 monthly fee. At present, most companies offering only direct access to the Internet (not on-line services) charge the roughly $20-per-month figure.

As has become the rule for anything related to the Internet, for every commercial enterprise, an alternative arises to confound it.

✦ "Free-nets" create noncommercial community access to the Internet. At present 70 such systems exist within the country, up more than 30 in the past year. Currently, enthusiastic users are piecing together another 115 free-nets in the U.S. and 110 free-nets in other countries. (*Christian Science Monitor*, 2/13/96)



With demand so high, the commercial access business should be thriving, but as the free-net statistics suggest, more and more people are discovering noncommercial ways to access the noncommercial network. As a result, software for accessing the Internet has become a "gift with purchase" in the software industry, coming "free" with Windows 95 and other operations software.

Operating in an Internet-as-Killer-App Environment

The impact of the Internet's killer app status on infrastructure providers has been significant primarily because its bandwidth demands are different. In the world that figured video-on-demand or interactive television as killer apps, broad bandwidth would have been a necessity in order to deliver real-time, full-screen, full-motion images. However, in the new environment that places the Internet with its diminished demands on space at the center, mid-bandwidth technologies will suffice.

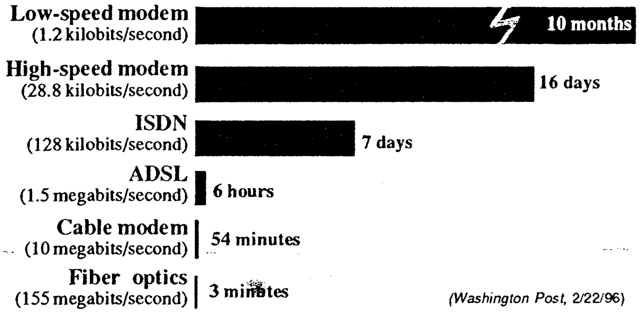
Competing Midband Services

	ISDN	Cable Modems	ADSL
Speed	128 Kbps	4-10 Mbps shared by multiple users; some claim a 20-50 Mbps range	6 Mpbs half duplex; 640 kbps full duplex
Cost	$25 to $45 plus usage	Unknown @Home projects $30/month for Sunnyvale, Calif.	Unknown
Availability	Available now	Trials this year, very limited deployment	Trials this year, very limited deployment
Third Parties	Numerous third parties now depend on ISDN	Numerous manufacturers pursuing cable modems	Mostly chipset manufacturers at this point
Content & programming	Phone companies haven't bundled with info services	A Web channel with tie-ins to other cable programming	Unclear, though some type of video services are probable
Standards	Finalized with many products shipping	Industry standard being formulated at CableLabs	ANSI standard final, with AT&T Paradyne ruling the market with its own system

(*Digital Media*, 2/6/96)

GETTING THE PICTURE

How long it takes to download a non-compressed copy of "Jurassic Park" (three gigabytes):



(*Washington Post*, 2/22/96)

The Internet as killer app changes the deployment requirements for infrastructure providers, but the new market reality has sent some providers into a specialty niche. Because the Internet continues to grow somewhat beyond the reach of commercial enterprise, an entire industry has developed around "intranet" systems: internal, closed communications systems that are embedded within individual companies and use Internet protocols. More important to providers, these systems are commercial. According to the director of Netscape's "Webware" Internet business unit, 70 percent of the company's business is in intranet systems. (*Bulletin*, 2/20/96)

An intranet allows manipulation and distribution of information within a company using familiar commands but without actually placing information on the more public Internet. This commercial analog of the noncommercial killer app has grown enough in its own right to force businesses to redirect some marketing efforts.

✦ Sprint announced the first commercial **"dial-up intranet service," which will allow companies to connect their own dedicated Internet protocol networks**. Called Sprint Intranet Dial Service, the service allows outlying participants to access a company's Wide Area Network (LAN) at about $2 per hour ("toll-free" 800 numbers cost about $7 per hour). The service is available in 50 cities now and will be in 200 cities by midyear. (*Communications Weekly,* 3/4/96)

For companies supplying "access" services, the commercial intranet offers an alternative (and commercial) path to the increasingly competitive area of Internet-driven linkages. However, for those offering services **on** the Internet, dealing with the killer app and not being the killer app will require some rethinking. Our observations so far suggest several clear parameters for the rethinking process.

A Come and Go Market – Given that the killer app is now the system, the content on the killer app will change depending upon the interests and needs of those using the Internet. Brand names will not suffice, and efforts to "control" the market, access or users will falter. Without these traditional marketing tools, marketers will need to...

Get Comfortable With Surface Chaos – Once users access the Internet, they use a browser which brings them to indexers or some other organized search method, which works like an electronic "yellow pages" directory for all content on the system. Ask a search device to look through its index using the key word "biology" and it will return with 400,000 Internet entries. With several hundred thousand commercial entities vying for attention, the new digital commerce may look like chaos on the surface. Becoming a "go to" spot on such a vast system will require more than just offering a service or product on-line. Because of this reality, for marketers...

The Internet Is Necessary But Not Sufficient – Being "on the net" will not bring success. As everywhere else, understanding individual consumers will be crucial, and in the instance of the Internet "chaos," it will become a requirement. Users want or need something, and understanding what that is will make a particular presence on the Net more appealing. As a result, marketers might want to shift their thinking to accept the thought that...

Context Drives Content – The user's needs will drive successful Internet content. Understanding the cultural context in which a user lives must precede any Internet offering. Marketing content because it uses the latest technology is a surefire approach to oblivion. Understanding the customers' utilitization needs will lead to appropriate content, and consumers will eventually find that content, even through the surface chaos.

The Internet is forcing commercial enterprises to deal with its expansive and uncontrollable reality. The Internet as killer app is extending that commercial pressure, even while it removes the potential for some specific service or product (*i.e.,* content) to become the killer app. The search for the killer app could well be over; businesses might want to rethink their relationship to the digital marketplace in light of the fact that the system and not a product is now attracting the consumers.

Implications of the Internet's New Status

Several market concerns that were hanging in the air when talk of the "information superhighway" reached a fever pitch have now become market realities.

Auction Market System – National, state and local governments in Australia will soon use the Commonwealth Electronic Commerce Service, an Internet-based bidding system, for all their 30,000 suppliers. Essentially, every supplier will have its products, services and prices on-line for public sector buyers to see and compare. Selling on a personal level over a comfortable lunch will not carry the day, as harder numbers and stricter controls will become the rule. (*Bulletin*, 2/20/96)

In a similar manner, the wiring of U.S. public schools to the Internet could have purposes well beyond the classroom. All educational buying could find its way to those Internet lines, creating a public auction system much like that underway in Australia. The Internet as killer app makes the transition to an auction-style buying market much easier.

Disintermediation – Potential buyers on the Internet can search for the best car, compare seller prices and even search for the best loan price, all without "talking" to a car dealer or bank officer (the same is in the works for home buyers). Input from those who have a vested interest in the sale is simply pushed to the side, as buyers pass through the entire purchase process without "hearing" what the marketers want them to hear. Only "relevant" information plays a part in the final decision. With consumers having direct access to desired information, manufacturers and sales reps will find themselves scrambling to influence Internet purchases.

Margin Squeeze – With volumes of information – most of it comparative – in the hands (or at the fingertips) of on-line consumers, selling at full price will become more difficult. As mentioned before, Wit Beer took itself public without using a brokerage firm, and proprietary on-line services are losing their margin leverage as nearly 1000 companies have sprung to life to offer direct and unlimited Internet access for a flat fee. Also, E*Trade allows Internet users to search through stock information, select specific stocks and execute a trade, all at roughly half the price of discounter Charles Schwab. The E*Trade service includes Web access at no extra cost. Other companies offer similar investor discounts and efficiencies. (*Investment Dealer's Digest*, 3/11/96)

In steamrolling prices, the Internet situation has created one interesting irony: the latest margin squeeze may be on the telephone companies themselves, those institutions that supply the Internet's "backbone." A joint venture between Intel and Microsoft seeks to offer telephone service over the Internet. Although current phone service providers are fighting this move, such an alternative system's existence would essentially substitute a cheap, bulk service (the Internet) for a premium service (long distance service), a curious but real example of the margin squeeze in the Internet-as-killer-app era. (*Philadelphia Inquirer,* 3/12/96)

Drop In Price of Market Entry – As the RackesDirect clothing example showed, anyone can sell through the Internet, and as more students learn how to create their own Web pages, more and more people will be establishing their own market presence. That means the concept of "shelf space" has changed dramatically, making access to a huge market inexpensive and making anyone with a new product or service an immediate competitor of those who have been in the market – and perhaps have dominated the market – for years.

Territoriality Becomes Irrelevant – On the Internet, "location, location, location" has little if any meaning. Franchised automobile dealers, who once thought they "owned" an area, will have company via the killer app. Universities through distance learning will be able to "steal" students from other state constituencies. Already, the largest amount of tuition money coming to Oxford University (UK) comes from Malaysian students studying "at Oxford" while at home. In this manner, trade over the Internet knows no location limitations and overrides efforts to control access.

These new market realities could cause troubles for industries set to operate in the current physical marketplace. Whereas the "information superhighway" called for these types of perspectives, its seemingly distant horizon made the need to change less urgent. With the Internet as the killer app, however, the time frame has become much shorter.

The Internet has become the killer app for the electronic universe, and industry giants are making their peace with that new reality. France Telecom has rearranged its Minitel system to allow Internet access, AT&T has become "Internet-centric," and Bill Gates has insisted that Microsoft will focus "every" company effort at the Internet. With that many resources recognizing the new reality, forward momentum for the Internet will be substantial.

The noncommercial nature of the Internet could cause enough problems for businesses that intranets (commercial systems) could find use as alternative industry-wide communications systems or even as local, controlled retailing systems. In addition, other commercial systems, like IBM's worldwide backbone system, could find new life. Whatever the final form, the Internet protocols will remain. For the foreseeable future, the Internet itself will remain the system's killer app.