The press is still excited about convergence, electronic commerce, distance education, online democracy and the like, and companies still issue glowing press releases. Over the past decade or two, we have been preparing the foundation for a global information infrastructure, where distance hardly matters, people are online all the time, and information and money travel freely from place to place.

In the US, at least, the majority of people have access to a personal computer, and almost every household has at least one phone line. At the flick of a switch, the world could be connected. Last month, AT&T seemed to flick that switch, with the announcement of free Internet service to any customer who asks for it.

But there is still (some assembly required)

In vendors' labs and marketing conference rooms, the challenge of "assembly" is no longer in fine print. How do we make this all work? How can we produce something that advertisers or consumers will pay for? Can we deliver the service we so blithely promise? Isn't most of our audience would-be advertisers and market analysts hired by competitors? Where is the real audience? From MCI to AOL, from IBM to EFF, net organizations have a tough time reaching beyond their small circle of friends. When they do, they have a tough time supporting the influx of technically naive customers. As we asked in November's Forum invitation: "How can we get these toys to work? Are the parts all there? Everything looks great, but nothing works together."

Now it's March, and we're ready to discuss the aftermath.
Making it work

The age of online and multimedia is upon us. Computers that aren't connected aren't part of the picture. The development platform is not the mainframe or the pc, but the network. Businesses are setting up Web sites; content companies and search services are going public at astronomical P/E ratios; companies are merging and divesting with abandon. But it's not clear that any of these pieces will actually work together, or that they're plugged into a steady power source -- profitability.

Like kids at Christmastime, we face a number of questions before we can get the toys to work. What's a keeper, and what should we give to cousin Fred?

This coming year is a good one to frame the questions; the answers will take longer. It is the year of the Telecommunications Act, which is unleashing a flood of creativity in business strategy among the telecom companies. They in turn will help to provide the platform and the audiences/users for the creativity of the software and content companies who have built their wares for a so-far limited audience.

We are also in the middle of battles to determine who should rule the Net: Can it be managed by a bunch of conflicting national regimes and state tax authorities? Or is it a separate place that deserves its own rules and local governments?

The Forum will highlight some of these questions and foster discussion of the issues among speakers and audience. Many of the keenest minds and most committed players are among the attendees, not just the speakers. We hope you get a chance to spend time with your peers. After all, the conference medium like the Net requires maximum contribution by participants. In the era of love, the Beatles said, the love you take is equal to the love you make. In the era of content, the wisdom you get is equal to the wisdom you contribute.

SUNDAY NIGHT: 24 HOURS IN HALF AN HOUR

The conference opens with a look at the world we’re reaching for: not quite the Christmas described in the brochure, but a day when everything miraculously -- worked. The point of "24 Hours in Cyberspace: Painting on the Walls of the Digital Cave" was to show cyberspace not as a technical achievement, but as part of the human, connected lives of hundreds of people all around the world -- schoolchildren, teachers, doctors, farmers...and yes, even a few politically incorrect white businessmen. It also included Tipper Gore and her husband, who stood by as President Clinton signed the Telecom Act (see page 21). Some thought that "24 Hours," designed to celebrate the Web and show its meaningfulness to people, ended up coinciding awkwardly with a day of shame -- the signing of the Telecommunications Act of 1996 and with it the legitimization of censorship on the Net. Others thought it highlighted the human value of the Web, and showed what would be lost if it were censored and closed.

--------
1 The subtitle "Painting on the walls of the digital cave," says organizer Rick Smolan, "is tongue-in-cheek, indicating that all this is still in a primitive stage."

Release 1.0 17 March 1996
Organized by Rick Smolan, who created the "Day in the Life of" photography books (America, the Soviet Union, California, etc.), the event was a highwire PR stunt sans net both for cyberspace and for the 53 companies who sponsored it -- Kodak, Sun, Adobe, AOL, Netscape and Illustra among others. That made some Net traditionalists uneasy, but the Net belongs to the world, and if some companies want to make money off it by providing value, so much the better.

NetObjects used the event as a giant, potentially embarrassing but ultimately successful beta test for its editorial process-management software; it will launch Release 1.0 of the software at the Forum. Illustra provided the technical underpinnings with its Illustra database and multimedia Data-Blades; Illustra's new parent Informix, which bought the estimated $5-million company for stock currently worth $525 million, now looks brilliant.

Of course, it wasn't all as smooth as it looked. The servers slowed down noticeably on occasion, mostly when a heavy stream of pictures being uploaded from around the world coincided with editors opening others.

And ironically, the strongest fellowship that developed was among the 120 editors and writers who took part in person, and spent nights and days in a single large room in the China Basin Building south of Market in San Francisco, sharing sinful fast food and healthful Odwalla waters.

Rick Smolan: Many days' work

Somehow, I was clearly fated to meet Rick Smolan. One day long ago we were introduced at a party at a Macworld in Boston. Nice guy; stunning photos. A day later I was flying back down to New York City, and the person in the next seat was Rick Smolan. We kept in touch, and last year he presented the award-winning CD-ROM "A Passage to Vietnam" at the PC Forum. A master impresario who always acknowledges his benefactors, he notes that Interval co-published the CD-ROM. Now, for what it's worth, he's the voice on my cell-phone answering machine -- the product of some lengthy experimentation (without documentation) one afternoon in December while he was waiting to speak with Mike Homer at Netscape about sponsoring "24 Hours." You can hear Smolan talk about it all when he unveils the results Sunday night.

Aside from all this, Smolan was earlier a photographer for Time, Life, National Geographic and other publications. He has sold the "Day in the Life" name to Rupert Murdoch; hence the new "24 Hours in the Life" name for the cyberspace effort. His company, Against All Odds Productions, produces books, tv shows, Web sites and other content focused on human behavior. "We do the annual Olympics of photojournalism, using different media each year," says Smolan. This year, the Net made a big difference: "Everything in the past was like producing a movie, and then it's released and it's over; we just see if it's a best-seller. This was more like a stage play, with feedback in real time. Fifty thousand people signed the guest book; others sent comments. It was as if we could hear the audience applauding, hissing or coughing. Eerie!"

-- Esther Dyson
MONDAY: THE NEXT 24 *YEARS*

Christmas is over; 24 Hours was a great demo. But now we’re living with the 1995 year-end forecasts that looked great in PowerPoint and toys that looked great in their packages, but they aren’t delivering on the promises. Since early March tech stocks have been falling and the bills are coming due...

Part of the problem is that these new toys run on a new platform: The Internet. The Internet changes social interaction, business models, corporate structure, technical architectures. The Internet is to the telecom establishment what the PC was to the mainframe. The old guard used to think it’s a toy, but it’s going to change the world and overturn traditional business models.

At this Forum we will analyze the structure and dynamics of the new order. How can we assemble all the pieces strewn about? Can we get the toys to work? What kinds of playthings and playtools will populate the online markets and communities of the future? How will the children’s behavior change as they play with the new toys?

Basically, companies are competing not just to offer different and better products and services, but to design robust, lucrative business models. While execution matters -- the products have to work, the phone support has to be friendly and helpful, the new products must have new features rather than new bugs -- companies have to keep redesigning not just their outside offerings but themselves. In this context, it’s fun to concentrate on Silicon Valley, where these tendencies are already operating, rather than the rest of the economy and the rest of the world, where they are simply the fodder of conferences and books on the future. In Silicon Valley, people do move around quickly from job to job. Failure is hardly stigmatized if you can produce a good version of the experience (or, less cynically, prove that you have acknowledged and learned from it). People identify themselves by their competencies rather than by their employer.

Increasingly, nations and nationality matter less. We now have immigrant companies who come here because they realize this is the most important, open and competitive market. Yes, competition here is tougher, but newcomers have a chance. In particular, this market is more open to women, Russians, Indians -- everyone who has a tough time making it in their own country. And it’s more open to start-ups; just ask anyone from Germany or Japan.

But the corollaries are also true. Your competitors are competing for your people as well as your customers. This year’s business plan and strategy will be obsolete by this time next year. If it’s not, Microsoft will have entered the business. Either way, you should be prepared to move on to something else.

Knowing that all the specifics we may develop are on the verge of obsolescence, we must still consider what business models make sense.

This year we have left extra space in this issue. We encourage you to use it to take notes.
The past year has been a lively one for carriers, online service operators and other infrastructure providers. The recently signed Telecommunications Act and the growth in visibility and importance of the Internet have turned their worlds and assumptions upside-down.

Regulatory barriers that gave companies time to sit back and think are gone. Companies have to scramble to create viable strategies that balance many priorities: Should they defend their home turf or enter new markets? Grow their existing business (say, telephony or cellular service) or expand into new ones (tv)? Partner or go it alone? Five years from now, the battlefield will be littered with casualties.

General perceptions of the so-called Superhighway and what people will do with it have evolved considerably, albeit unevenly. In many cases, plans to install passive set-top boxes that allow household members to purchase goods and movies have given way to tv-top routers that offer better connections to the Internet than most businesses can now get. The wide variety of carriers’ market strategies and the huge cost of deployment will create many anomalies in the market. Some residential customers will get great, inexpensive access long before business customers do. Sunnyvale and Elmira will taste the next century soon, but what about Peoria and Palmdale?

What’s especially remarkable about this moment in history is that almost nothing is sacred -- or, of course, predictable. A quick list of open issues might include:

- which industry will provide your local access (never mind which particular company!);
- which company will send you a bill (and for what, since many services will be given away to lock in other revenue streams);
- whether and on what basis carriers will compensate each other;
- which carriers will survive (and in what kinds of alliances);
- what sorts of offerings will reduce subscriber churn (and increase trial);
- what platforms will content suppliers prefer;
- how much influence Microsoft, Netscape, Sun and the unknown star of 1996 will have on the new infrastructure; and
- how people and objects will be identified (and who will control the allocation of those numbers, addresses or whatever).

It’s all up for grabs. That’s a tough environment for someone who needs to invest a half-billion dollars in equipment to provision a regional network, or many billions for national and international networks.

It gets worse (or better, depending on how you make your livelihood). Recently, over the course of a couple of weeks, AT&T and MCI announced that
they would collaborate on entering the local-access business, AT&T launched WorldNet (which offers residential AT&T subscribers five hours of Internet access a month free for a year or $20 per month for unlimited use) and the rest of the Bell community cried foul: How would they be compensated if households took AT&T up on its offer and kept computers connected to the Internet through their phone lines all the time?2

A few weeks earlier, PacBell announced it wanted to raise ISDN rates, as did US West. Meanwhile, @Home is merrily at work to bring unlimited-use, high-speed Internet access to households for $30 a month. Every dollar that phone rates increase is an incentive for people to switch to an alternative carrier.

Bert Roberts: New markets and strange bedfellows

Esther Dyson got to know Bert Roberts on the NII Advisory Council, where he was one of the more active members. He also had a low tolerance for political maneuvers: He was the one who cooked up the "Where's Larry?" coffee mugs for the Council's farewell party, referring to the perennial absence of member Larry Tisch from CBS, who lobbied hard to get appointed and then never showed up.

Roberts' own company is a fierce political and commercial player, and has successfully built up a business against AT&T. It has also paid a lot of attention to the Internet and has hired Internet luminaries such as Vint Cerf to gain both vision and credibility in the marketplace.

Although MCI was on the point of launching an online venture (iGuide) with its major content partner, Rupert Murdoch's News Corporation, it decided to bolt that arrangement and jump on Microsoft's network instead. Roberts isn't particularly concerned about appearing fickle. (But iGuide lives on, though it is looking for an additional owner, rumored to be Oracle.) He insists that the $2 billion that MCI invested in its joint venture with News Corporation isn't going to waste. The two companies are collaborating not only on content, but also on alternate distribution methods, such as a direct broadcast satellite (DBS) system that will reach homes and businesses in the US and abroad.

MCI is one of the major providers of Internet backbone service; now it's trying to get into the retail end of the business, as well as into local telephone service with...amazingly, AT&T. MCI's greatest strength is its scrappiness in expanding old markets and growing new ones. The company should be able to make the Internet seem mundane and friendly to a far broader market than the current one. Whatever happens, it is likely to expand the customer base of Net users -- and keep prices down.

2 The majority of US phone customers have unmetered local service. The phone companies provision ports on their switches according to statistical calculations based on historic calling patterns. Generally, long-distance carriers pay local-access carriers for connecting phone calls, but don't pay for data traffic, which is considered an "enhanced service." When people lock up those ports all the time, it throws the local carrier's economics for a loop.
On the other hand, notes Roberts, don't expect prices to drop much further. "As the provider of 40 percent of Internet backbone capacity in the US, we have a very good feel for capacity," says Roberts. "With the current growth of users and computers on the Net, it's not really in a position to absorb much traffic from the current voice and data businesses. It'll happen through osmosis, not all at once." MCI sees the Internet as an opportunity, not a threat.

Being smart about local access is crucial; the costs involved can choke any ambitious initiatives. MCI has made a stronger commitment to entering wireline local access (through MCImetro, its local-access division) than the other interexchange carriers, whose bets are on wireless and other options. MCI's investments in local access have increased from $100 million two years ago to $250 million last year and probably double that in 1996. That's not a large amount, in light of the $10 billion that the local-exchange carriers (LECs) spend each year to maintain and upgrade their plant, but it is likely to grow rapidly now that the telecom bill has passed. MCI will also use other technologies to gain access, such as wireless cable.

Teaming up with AT&T in local exchange should help drive down the high costs of local access, but will require careful management. Though they have collaborated frequently in the past -- most recently lobbying for the telecom bill itself -- the two giants must walk together gingerly.

Ray Smith, Bell Atlantic: Who'll eat whose lunch?

Two years ago, Ray Smith was about to combine Bell Atlantic with John Malone's cable giant TCI. Now he's moved Bell Atlantic closer to NYNEX and other regional phone companies through Tele-TV Systems, an interactive-tv joint venture, and is investing aggressively in mobile services. Bell Atlantic has also been busy overseas, with investments in Italy, Mexico, Australia, New Zealand, the Czech and Slovak Republics and more.

But things are quickly heating up at home. Long-distance carriers are at the door. The Internet is stressing local-exchange carriers, with few avenues left for relief. One such avenue is legislation. Years ago, the LECs lost the battle to charge online services for local access. Now they want to try again -- especially in the face of AT&T's WorldNet announcement. Of course, some will enter the Internet market aggressively themselves, as PacBell and Bell Atlantic are doing. Other LECs may be watching them to see how they do before jumping in themselves.

Some regional Bells will band together to compete. The Tele-TV venture is particularly interesting because it links phone companies with nationwide presence: Bell Atlantic, NYNEX and Pacific Telesis. Between them, they cover six of the seven major US media markets and a disproportionately large number of businesses and affluent households. Also, Tele-TV is at work building online services.

On the positive front, it will cost LECs less to enter long distance than it will cost the long-distance carriers to enter local access. Wholesale rates on cross-country trunks are competitive, but it costs a lot to dig trenches and drop lines to thousands of households. The only alternatives for new entrants are leasing access and higher-risk end-run plays, such as wireless links or alliances with the cable tv system operators. Phone/cable alliances make sense again -- witness the US West/Continental Cable deal.
Bell Atlantic’s Smith is optimistic. "The issue for us, given the changes in the rules, is how to capitalize on the pent-up demand for connectivity," he says. "This is a wonderful problem for us: People want to use our networks more and are telling us what they need to do so!" So the company needs to adapt its network so high-usage business customers feel like they're connected full-time at a reasonable price. Bell Atlantic is building a TCP/IP network and expects to announce Internet access in mid-April.

Retaining subscribers is essential. It requires figuring out what service offerings (or combinations of offerings) work best. Smith's advice is to sell the offerings in bundles because that makes subscribers think about the services differently. For example, cable-tv and long-distance phone service aren't particularly "sticky" on their own. But combined offerings can be, such as phone service that includes local access and long distance -- better still if it adds cellular. Another example is bundled long-distance, Internet and cellular service.

Another way to retain subscribers is to make the service a compelling experience. Smith's experience in theater and his study of media history help him evaluate what might work. He longs to find services that can create great shared experiences week after week, the way Jack Benny and Amos and Andy used to, and the way Seinfeld and Friends do now. Paying attention to the whole experience pays off. Bell Atlantic has found that the "take rate" on video-on-demand nearly tripled (from 1.4 movies per month to 3.8) when the experience was improved. And those customers stopped going to Blockbuster for their videos.

Smith is a heavy e-mail user and surfs the Net with a mixture of pleasure and reluctance. "The Internet is a rudimentary form of interactivity. It punishes me, then it gives me what I'm looking for. [Surfing the Net] is like jogging: You dread going out, but when you're done you feel great."

John Petrillo, AT&T: Disaggregate!

AT&T may finally be figuring out how a large communications company will look ten years from now. A year ago, AT&T held a mixed bag of online services,\(^3\) which it was trying to fashion into a product family. All of these initiatives were explorations into the online realm to find ways to balance relatively slow growth in the long-distance telephone market.

AT&T intended to extend some of these services’ features into the network itself, thus blurring the distinction between LANs and WANs. For example, it would take care of managing Notes server hosting or replication, or would offer Novell’s directory technology on its network. Companies would come to AT&T because it offered support and geographic extensions to applications and services they already used -- or so the logic went. This strategy had worked well on the telecom side, where AT&T had made its network more intelligent by adding functionality normally found in customer-premises gear such as automatic call distributors, voicemail, and high-function switches.

\(^3\) EasyLink, PersonaLink (the service platform for General Magic’s technology), ImagiNation Network, AT&T Interchange, AT&T Network Notes and AT&T Network Connect Services. This doesn’t count other network offers such as Worldworx or virtual private networks.
But AT&T's bag of services proved too closed, too mixed and too hard to inte-
tegrate. As the Internet took off, John Petrillo (the executive vp of strategy and new service innovation) and others at AT&T realized that it would change the fundamental forces in the market, and that AT&T needed to take a completely different approach. The key, still, was to identify and scale the right features, but now they had to "push the new energy all the way through." Petrillo and Tom Evslin (the vp of AT&T's WorldNet Service; previously at Microsoft) call this new approach their "disaggregation theory."

"There are all these technologies which by their nature are going to destroy the current model," says Petrillo. If AT&T can disaggregate itself first and drive costs down, it can lead the way to new business models, the logic goes, establishing an early position that is hard to assail. Call it product instead of corporate trivestiture.

There are many ways to get into the new market. The flashy way is the retail WorldNet announcement. Behind the scenes, AT&T is taking advantage of its dominant presence in the booming 800-number market to help those customers get on the Internet. "We're getting tremendous response to our Web hosting service." Petrillo says, "People who were using 800 numbers as their 'front door' are saying, 'Can you help me to establish my front door on the Web and manage my servers?' We're running classes right now to help these guys do that." For every high-margin, proprietary-service customer it forgoes through this change in strategy, AT&T may well pick up a dozen medium- or low-margin Internet-access, Web-hosting and message-management accounts. Scale is essential in offering these services. Small providers may be able to serve particular niches better, but they would be hard-pressed to match AT&T's reach.
MODELS FOR SERVICES

What will make a successful online service? The first answer is that no one particular service is likely to be a mass medium: The model is cable, newsletters, magazines -- not television, USA Today or Time Magazine. That doesn't mean that you can't distribute a mass medium over the net, much as you can broadcast a movie over network tv. What makes the medium distinct will be interactivity, targeting and strong, active editors and moderators.

How does that play out in practice? First, any company that wants to be big on the Net needs to offer multiple services. If you can hit the big-time on the basis of a single service, you should probably be in television, not on the Net. Successful providers will have a variety of services, targeted to a variety of audiences. They will be more like restaurants or real estate magnates with a variety of properties, each with its own community, rules, concierges/stars, style of content, business model and the like.

There's some argument (to put it mildly) over what consumers really want. Do they really want to spend their time chatting over the Net, or would they rather sink back into the couch and watch an enjoyable but not too challenging sitcom or disaster news? If they really like involvement, why aren't they at home composing poetry, writing love letters or painting water colors? Will the Net change the new arrivals, or will the new arrivals change the Net?

And how will it be paid for? It is easy to say "advertising," but the demographics aren't that appealing. More people may be online with AOL on most evenings than are watching CNN, but they're all in different places -- chat rooms, sports, news, any one of hundreds of different services with an "audience" of tens or hundreds each. That's fine from an enlightened perspective, since the involvement of these users is high, but it's hardly an effective way to sell toothpaste.

Perhaps the trick is to think about sponsorship rather than advertising. As America Online founder and ceo Steve Case says, "We aim to offer a mix of advertising and transactions and communication; we're not just shooting 30-second brand ads at them." Consider the opportunity to be pre-sales support, with an extremely narrow audience, rather than as traditional advertising. Brand images are likely to be created by mass media, but actual value-added will be delivered and enhanced over the Net.

Partly, traditionalists think of advertising as something paid for by mass marketers. But teenagers are also a source of advertising revenues. Interactivity means that the little guy is not limited to receiving content; he may also pay for the privilege of posting it -- otherwise known as advertising. The economies of scale as well as the balance of power change in this new medium. Others will simply pay for membership in a community and the privilege of posting or interacting at any time. The dynamics get interesting, of course, when the members feel that they own their community, much as coop members own a building. They may not mind paying fees to the "true" owner, but they may demand the right to set their own rules. (See In loco parentis, page 19.)

It's not an all-or-nothing proposition, but the Net will likely become more an entertainment medium and less a forum for political discussion. However,
those in search of humans’ better natures need not despair. One of the hottest new concepts for Net services and investment is location-oriented services, such as Idealab!’s CitySearch (page 46), boston.com and the AOL city-oriented services (Digital City), following in the tradition of the WELL and ECHO in San Francisco and New York City, respectively. Their members meet fairly frequently in Real Life -- and they are a hard bunch for the service’s putative owners to control.

The customers own the community; who owns the property?

This business is looking interesting from outside as well: Prodigy is looking to restructure; Sears wants to sell its half, and co-owner IBM is waiting to see what happens. Meanwhile, CompuServe is going public; H&R Block has decided to spin the company off, and is currently preparing the prospectus for an initial public offering of 20 percent of the shares. CompuServe CEO Bob Massey, originally scheduled for this panel, declined to appear after his lawyers told him he should avoid all public appearances other than CompuServe’s own investor briefings.

How will CompuServe or Prodigy be valued in the market compared to Netscape or AOL (about $4 billion each)? This is an interesting question to ponder.

Ed Bennett, Prodigy: Entertainment is king

Ed Bennett brings the entertainment point of view par excellence to the online service business. He has worked in an eclectic series of jobs, including a stint as a marketer for Merrill Lynch (handy if you’re trying to find a new investor), Dun & Bradstreet and R.L. Polk (publishing). At Viacom, he started a number of cable television services, including the HA! comedy network. Most recently, in the last five of his 15 years at Viacom, he rescued and built the VH1 music network, a more adult4 counterpart to MTV.

He joined Prodigy last year to provide life support to a service that was losing its way with two owners -- Sears and IBM -- trying to guide it in different directions. Under Bennett, Prodigy became the first of the large commercial online services to offer Internet access, and now he wants it to be the first to create "the next generation of online services on the Net." (That is, if the new owners let him; otherwise, he may be glad to meet with David Beirne.)

So what is the "next generation"? Says Bennett: "It has all the value-added communication features that the old proprietary services used to have, but now they're too closed -- both to other people, and to new Web tools. You need to open it up without looking like a hodge-podge. It needs to be like bringing your sherpa with you, following you around and guiding you."

And how will Prodigy accomplish that? "We’ll have creative and technical people that are skilled at getting to know the customers. The technology will take you only so far. What people want is to know that there’s some-

--------

4 ...adult in the old, "mature" sense, as opposed to the new, "soft-porn" sense. VH1 focuses on people 25-49, rather than MTV’s teens and twenties. Feeling old yet?

Release 1.0 17 March 1996
body home, somebody there. When you check into a big hotel, you want to know what’s going on. But you can’t just rely on the other guests, even if you want to meet some of them. You need a concierge. You don’t want to go alone into your room and pick up the phone and the What’s New Guide." That requires people, not just database profiling and cookies.

"Of course, there are different kinds of customers," Bennett continues. "Some people just come and want the fax machine, to have their business meeting and get out. They want to save time, get utility. Others, especially the young, want to spend time. They have lots of time. They luxuriate in experience. They want to know what’s happening in the basement. They want to meet someone sitting across from them, but in real life it’s hard to approach that person. Online, you can be 'pseudo' and we can help you; it’s more social and less inhibiting. That’s the beauty of online."

Bennett says, "Prodigy’s problems are its opportunities." Under new owners, it should be able to abandon its past without embarrassment.

Steve Case, America Online: A pioneer online

"This new medium will be dominated by a handful of companies," America Online’s Steve Case says flatly. "The biggest services will have the wherewithal to buy small innovative services; they’ll have distribution; they’ll have a brand name covering lots of specific offerings."

Clearly, AOL is one of the contenders. Case sees AOL as "a kinder, gentler TCI; we have significant distribution clout with 5 million customers, compared to their 12 million, but look at our momentum. This industry has focused too much on disaggregation, on technology. Most of history suggests that disaggregation won’t work with consumers. In PC software, the trend has been towards suites, not components. Packaging and simplicity is going to be more necessary, not less. Content isn’t king; context isn’t king; technology isn’t king. The customer is king, and the customer wants everything packaged together into a single convenient service with lots of options. We have that: We have a mix of distribution, content and technology infrastructure; we have the largest footprint."

The proper mix of content, context and community is vague to talk about, he acknowledges, but easy to see. He cites AOL’s Motley Fool, a stock service: "It’s got content, updated frequently, and a community component where people become active participants talking about stocks. And it’s increasingly leading to transaction opportunities, where we get a percentage of the transactions."

Steve Case founded America Online as Quantum Computer Services in 1985. It has gone through a number of changes since then, when it was essentially an OEM service sold by Commodore, Tandy and Apple. The transformations continue; with a series of acquisitions and strategic moves, AOL is turning into a broad set of services available over the Net.

Making a virtue of necessity, the company is also funding a variety of content providers through its Greenhouse program and in other ways. The deal is simple and startling: Its job is to produce the best content (including membership services and communities) it can, and to distribute it as widely as it can -- even if that means over the Net or through CompuServe. In the
long run, Case figures, he’d rather see the content be successful than keep others form sharing it. The share-the-bigger-pie rule is easy to cite, tougher to follow, but AOL is doing so with enthusiasm.

AOL is also in constant discussions with a variety of players about strategic alliances. A total pragmatist, Case is open to almost anything. "We want to figure out how to position AOL as a leader. So we'll look at anything. We're less concerned with the piece parts, and more with unifying them into an experience for the consumer."

Mike Kinsley, Microsoft: Microsoft?!

I met Mike Kinsley long enough ago that it would be nice to say we were both five years old -- but in fact we were in college. Kinsley was a callow youth writing for the Harvard Crimson -- already opinionated and argumentative, and shy about how nice he really was. A theorist about politics, he's a doer in real life, and became editor of Harper's magazine at an amazingly young age. More recently, he was co-host of the television show Crossfire with Pat Buchanan and senior editor of the New Republic, but getting a little tired of it. Meanwhile, he kept hearing and even writing about the new electronic media. Suddenly he decided to check with his old college friend Steve Ballmer to see if Microsoft's statement that it needed editorial people would apply to him. It did; in fact, it was a real catch for Microsoft.

And so without further ado Kinsley joined Microsoft. His first job is to decide what his job should be.

Now he's busy building up a staff and defining his new online magazine. Unlike, say, Steve Case, he doesn't believe the product has to be a chat service; most chat, he believes, is banal and boring. Vis a vis "most chat," we have to agree; the question is whether Kinsley can create a new, more compelling kind of chat. "People underestimate the value of timeliness and ease of distribution," he says. We think he may be overestimating the intelligence of the broad public, but we hope he succeeds in creating a small-audience (by television standards) service that raises the level of political discussion on the Net. But we just don't see the Net as a publishing medium, just as the telephone never caught on as a medium for broadcasting concerts.
WHAT (CORPORATE) CUSTOMERS REALLY WANT

What do corporate customers really want? In general, they aren't that interested in technology; they're in some other business -- banking, or food-processing, or hotel management. They want improved results without changed processes. They don't want to deal with political problems, and they'd rather not admit that their current systems are anything other than perfect.

Vendors may think it's a great idea for companies to get on the Net and share information with customers, but the customers are beginning to realize that means sharing information with competitors, too.

We see the Internet not so much as a traditional advertising medium as a way for companies to provide extra value -- either in interactive marketing or in interactive value after a purchase. As AT&T's John Petrillo notes, it's the next step beyond the 800 number. Want to know how many calories are really in the Big Mac? Call McDonald's. It's like the ATM scenario, says Mike Zisman: "The banks took their customers and made them into de facto employees and charged them for the privilege...and everyone's happy. People would rather go to www.lotus.com and get their questions answered right away than call 800 and wait on line." For what it's worth, the banks didn't actually get rich by putting in ATMs; the incremental profits were competed away. (See Release 1.0, 9-91.)

Companies also see the Internet as a way to share information internally. Take the promise of Lotus Notes; here's another platform to deliver it. But of course the naked Internet doesn't do the trick. Nor does a simple Netscape Navigator. You need to design the data structures, manage the flow of information, develop applications, control access. Indeed, the real money in the Internet, as in Lotus Notes or SAP accounting software, may be in selling consulting services around it.

Ray Lane, Oracle: The customer in context

Ray Lane is well-qualified to talk about what customers want because until recently he sat on the customers' side of the table, as senior vp and creator and leader of the Information Systems group at Booz-Allen. He began his career at EDS and IBM and then spent 12 years at Booz-Allen.

He left to join Oracle as president of the US operation in 1992. His first task was to fix a company that had disappointed both investors and customers. It had a reputation for promising more than it delivered; its best operating platform, people joked, was a slide projector.

Lane effected a dramatic change in the corporate culture, admitting mistakes in order to correct them. We heard him deliver an extraordinarily frank talk to a group of customers in 1993: They knew the company had problems, and they were delighted to hear someone acknowledge them and promise to fix them. Better yet, Lane delivered on the promises. He is now president of worldwide operations at Oracle, in charge of almost everything except R&D.

You could argue that more than anything, customers want the truth. Beyond that, Lane knows, they want technology that works. But there's more to selling and delivering than that. In particular, customers may want the truth from a vendor, but not necessarily about themselves. Adopting new
technology, and especially new systems, may require painful internal
changes. Overall, customers tend to be more conservative than vendors.
Customers want something that works, and works better than what they have;
vendors want to develop new things.

Note that Lane is also responsible for Oracle's Network PC. Although Oracle
founder Larry Ellison presents it as a mystical device that fulfills
people's fantasies, Lane sees it as a practical, cost-effective business
device that companies will use for employees who don't need (shouldn't have)
access to lots of local processing power or data. At a time when multimedia
is hotter in homes than in business and Pentiums are a consumer-market best-
seller, that makes a lot of sense to us.

Bernard Vergnes: A billet-doux for Microdoux

Bernard Vergnes is president of Microsoft Europe, a position he has held
since 1991. He joined the company in 1989 as vice president and founding
general manager of its French subsidiary. Impeccably French, he has care-
fully avoided moving to the US, and he has made Europe look easy. In fact,
Europe has its own challenges, with a multitude of languages, a certain
xenophobia, and a profusion of individual markets with their own problems
and opportunities. Typically, the European operations of US companies are
strongest in the headquarters country, but Vergnes has built Microsoft's
strength continent-wide, including Eastern Europe.

Specifically, Microsoft has done a superb job supporting local developers
and fostering the local software community invisible to most Americans. On
the other hand, Microsoft Network is not that visible in Europe -- nor, for
that matter, is the AOL Bertelsmann joint venture. (CompuServe is most suc-
cessful.) Overall, West Europeans just aren't that interested in the Inter-
net, although for East Europeans it's an exciting link to the rest of the
world. The French have Minitel, and the Germans have fax. Microsoft's big-
gest challenge in the US may be getting kids to learn how to read; in
Europe, it's getting executives to learn how to type.

Vergnes thinks the biggest thing Americans miss about European markets is
the high rate of piracy. "In the world outside the US, people are not as
honest," he says. "Every time I talk to Americans, the number for piracy is
25 to 30 percent: You sell 10 and assume that someone will make three more
copies. We have countries in Europe where 10 are sold and 100 are used, and
90 of those extra copies should be purchased! They're not just demo copies
or for fun, but they are actually put to productive use within a business."

Of course, that's not all countries in Europe, says Vergnes: "The cleanest
market in Europe is Switzerland, with the highest number of pcs per business
and per person, and the highest value of software per pc. The average Swiss
person spends close to two times more than the average German, and four to
five times more than average Italian. Honestly, I don't know what the Swiss

5 It's nice to hear someone say that Americans are known for honesty; the
sense we get here is that the US has lost its moral bearings, employees
steal from companies and executives steal from both shareholders and
workers.

Release 1.0

17 March 1996
do with what they buy....Overall, if piracy were impossible, we'd probably sell two to three times as many units -- although at a lower price."

**Mike Zisman, Lotus/IBM: Long-term strategy**

Mike Zisman wrote his 1977 PhD thesis on groupware for the decision sciences department at Wharton: "Representation, Specification and Automation of Office Processes." He took a job as a professor at MIT's Sloan School, but he soon left (1979) to work with real customers. He founded a start-up called Soft-Switch, dedicated to hooking different e-mail systems together. He has worked for that same company ever since. He sold it to Lotus in 1994, and then found himself an IBM executive last summer. This fall, he became CEO of the whole Lotus operation, with a mandate to spread its memes throughout the IBM Company.

Aside from that, Zisman's big challenge these days is to integrate Lotus Notes with the Internet, and to assure doubters that he can do so. Ironically, Notes has many of the attributes Net-users are just starting to worry about: security, a model for resource-conserving data replication and tools for developing apps (rather than simply publishing information).

"If you talk to large enterprises," says Zisman, "they tell you, 'We used to be so successful, but now this new stuff is mission-critical, too. How do we manage it all? You can talk about the excitement of the Internet, all this stuff, but people expect me to deliver a utility. I don't come in in the morning wondering if my phones are going to work or if there's power in the outlet.' Large companies still spend a vast proportion of their IS budgets on operational control systems. How do you carry that forward and integrate it with the Net? Few large customers have the luxury of a clean sheet of paper." 6

"Second," he continues, "we have to help customers think through what the Internet really means for them. Everyone's facing channel disintermediation in some form or other. I was talking last week with a large book publisher: They have a warehouse full of books, and they're trying to figure out how much they owe to the [reseller] channel. They could just ship direct to each of their customers."

(For more about Lotus' strategy, see page 35.)

---

6 One of our favorite jokes: How could God build the world in only six days? Answer: He had no installed base.
MONDAY AT NOON: 1996 PC FORUM DEBUTANTS

Seven companies (that we know of!) are announcing significant new products or services at the Forum. They will be showing them in the afternoons at company presentations or in the Rumpus Room. We have also allowed them five minutes each to give a sneak preview to the whole Forum audience just before lunch on Monday. You can find a schedule for the presentations and a map of the Rumpus Room in your program and on the ForumWeb.

**Electric Communities** has been at work for many years developing a sophisticated, secure, distributed, high-performance [your adjective here] system for cyberspace. Now it's ready to talk about it (Company Presentation, page 43).

**IdeaLab!** is what happens when a creative soul like Bill Gross (founder of Knowledge Adventure) figures out that he should be hatching ideas rather than editing annual reports (Company Presentation, page 46).

**Micrografx** has solved a vexing problem for people who are frustrated with the bit-mapped graphics so common on the Web. It has created an object-oriented, 2D graphics system that works on the Web (Rumpus Room, page 54).

**NetObjects** got its trial by fire as the front-end to Rick Smolan's 24 Hours in Cyberspace project (see page 2). Now it is officially a product (Company Presentation, page 47).

**NetSpeak** has designed an Internet phone that's full-featured enough for serious business use. The company's WebPhone is easy to use and attractive, too (Company Presentation, page 48).

**Now Software** has done some clever things to make small bits of information that we use and exchange all the time far more convenient and useful. Its contact manager and calendar now feature standards-based calling cards and calendar events (Rumpus Room, page 52).

Last year, **Ubique's** Udi Shapiro showed early prototypes of Virtual Places in the Rumpus Room. Then AOL bought Ubique. Since then, Shapiro has rebuilt the technology and is now stress-testing Virtual Places, a cool multi-user shared online space (Rumpus Room, page 56).
JOHN EVANS, R.E.M.: TEXT THAT TELLS TALES

Welsh-born John Evans transcends his job titles, which include "non-executive chairman of Middlegate" and owner and ceo of R.E.M. Productions. R.E.M.'s basic business is interface design -- but with the understanding that interface is more than just a veneer for impenetrable content. (R.E.M. stands for "rapid eye movement," in honor of Dreamworks.)

For the last couple of years Evans has been working on Middlegate's project Marilyn, an attempt to make life easier for secretaries who handle their bosses' travel and other arrangements. This is one of the harder software challenges around, since it involves huge amounts of common sense and detail, rather than heavy computation or graphics. As of last year, News Corp. spun out Middlegate to a group of owners including Evans, employees and New Enterprise Associates, Hummer Winblad, Accel Partners and Intel. R.E.M. has a contract with Middlegate for Evans' services; R.E.M.'s other customers include Dreamworks and Intel and News Corp. directly.

Evans himself has had a long, variegated career, starting out with Rupert Murdoch in 1976. Before that, he had sailed a boat for seven years after selling an advertising agency he founded in 1961. He spent years on various Murdoch properties before declaring his independence from Murdoch, and seems to have a better relationship with him since.

Unless something happens on the way to the Forum, Evans says, he will pitch some ideas rather than a project or company.

"The biggest mistake designers make is insufficient reference to history," he says. "The future is an extension of history; it's not something you grab out of thin air based on what you think will happen. Even though we think everything is for the first time, it's not.

"Think of the changes the Industrial Revolution brought; among other things, it disenfranchised women. Now the opportunity to become 're-enfranchised' presents itself. So far, the Net has basically been a place for spotty-faced young boys. The sort of women who triumphed were those who were one of the boys. Women can change that."

Moreover, he continues, "It's not going to be all graphics and video. There's a lot of power in words and symbols. [See Release 1.0, 10-90, on virtual reality.] The culture of the Western World was honed by the literate aristocracy and stored on paper. Our culture's not in pictures; it's in text. People bond to magazines more through text than pictures.

"But we have to look at how text could evolve the way speech and song have evolved. I have this notion of elastic type: If it's more fluid, it can contain emotion. It can obviate the need for those hieroglyphs that say 'just kidding.' People could indicate and others could detect accent and dialect. Piano is percussion and defined notes, but you can distinguish Horowitz from Schnabel. Music has crescendos; dialect has crescendo and pitch. We Welsh tend to pitch our sentences up at the end? You could do that with a foot pedal? Having typefaces that are manipulated is no different. In elastic type, the word 'love' could take on any shape.

"I know how to do it," he says. "I just never had a sponsor who would pay for it."

Release 1.0

17 March 1996
TUESDAY, MARCH 19

IN LOCO PARENTIS: SOME DISASSEMBLY REQUIRED???

What about the parents? Who's going to control the Net and set rules for play? Like it or not, the government wants a say.

Silicon Valley is somewhat like the Internet itself: It grew without much external support or explicit purpose, based on an infrastructure that supported local effort. But now the government is starting to take an interest in our affairs: Silicon Valley is too important to leave to its own denizens (and maybe the world could learn something from it). Likewise, the Internet is now too important to leave to its own denizens. Normal people are venturing onto the Internet and children are at risk; what should we do about all this?

The normal libertarian attitude is, Just leave it alone. People on the Net are there at their own risk. That's fine, in theory. But the people on the Net haven't done a very good job of policing themselves -- or of managing a PR spin for the rest of the world.

Now there is a whole Forum's-worth of issues to address: censorship/free speech, encryption, intellectual property -- to say nothing of anonymity/accountability, and some contentions that even libel law is unnecessary (since the aggrieved have the ability to respond which they do not have in traditional limited-spectrum media).

We can't hope to resolve all of these at the Forum (if we did, we should be running for president along with everyone else!). But we can consider the underlying question of from where the Net should be governed, and what possible laws should apply Net-wide.

The first realization is that government per se is a useful thing; the issue is to define the scope of each particular government properly, as well as to decide what can be better handled by the market or private nonprofit efforts. The Net gives greater opportunity to many in society, but what should society do about those whom it leaves behind? If parents should be responsible for their children, what do we do about parents who exercise that responsibility poorly? Who is to determine what "poorly" means?

Another issue is that the Net transcends national boundaries. How can we reconcile our American, personal-responsibility philosophy with China's duty-to-the state/community regime? Are we unduly interfering? Or are we shrinking our responsibility when we leave the Chinese to their own devices? And can the Chinese really cut off the rest of the world if they wish to? Or can they cut off the rest of the world politically and hope to remain part of it economically?

Those who welcome controls over pornography will be less pleased when those same controls apply to other matters. Should prayers on the Net be banned as Christmas trees are in town squares? (Of course not, we would say. But under what principle?)
Jim Barksdale, Netscape: The proper role of government

Last fall, Netscape abandoned its previously neutral (or at least unpublicized) policy with respect to encryption -- and the government's would-be restrictions on it. In the end, CEO Jim Barksdale based the policy not just on his conscience and not on expediency, but on his own employees' vigorous opinions. The whole issue blew up when founder and chairman Jim Clark seemed to make a statement supporting the government's key-escrow policy -- contrary to most of its employees' passionate support for free development, free speech, free code. Within days, the company quickly "clarified" its policy in the other direction and rejected the government's key-escrow proposal and export restrictions.

Overall, the company has been a leader in the social as well as the business sphere. It gets its share of barbs from the true believers of the old days -- people who think it's wrong to make money at all, to charge for software, and so forth. Moreover, its code is not bug-free -- although it developed a politically correct way of dealing with that with its Bugs Bounty program.

The most recent controversy is cookies (cookies.txt) -- files that Netscape creates on a user's hard disk so that Websites can recognize return visitors and treat them with personal attention (or track and monitor their behavior for other less benign purposes). The concept was something everyone knew about "sort-of." Then the Financial Times got hold of it, pointed out that cookies involved access to a user's personal hard disk, and they became controversial, much like the MSN Registration Wizard a few months earlier.

In the end, if you want a Website to be personalized when you visit, or you want to be a member, your system needs to inform the host of who you are, with a set of other details. Microsoft's Wizard told Microsoft; Netscape's cookies tell a host only about each user's previous interactions with that host -- at least in principle.

So which is worse: Having the system keep information about you, or having it store information about you on your own local system? Of course, some people would say that everyone should be totally anonymous all the time, while others want the personal attention of one-to-one marketing. A better alternative than all-or-nothing or any automatic system is voluntary registration, one of the uses for electronic calling cards (see page 51). The golden rule: Let people know what's going on, and let them decide for themselves. (Just don't let the government do it!)

For a personal description of Barksdale, see page 38. For descriptions of co-panelists Mike Kinsley and Bernard Vergnes, see pages 13 and 15, respectively.
The Communications Decency Amendment

The Telecom Act contains a variety of provisions promoting free competition, and one devastating amendment imposing censorship on the Net. Of course, as one legislator told us last summer, it won't really happen. It's unconstitutional -- but being a good guy, he owed it to his constituents and his country to get re-elected, so he couldn't openly oppose the provision just then.

He meant that the provision would never stay in the bill. Now, that same man would probably say the provision won't survive; it's unconstitutional. The Electronic Frontier Foundation will challenge it in the courts, and it will surely go away.

Yes, EFF and others are challenging it in the courts, but will it really go away? Yes, it won't work anyway, because you can't effectively censor the Net. But will the threat linger on and keep people from posting, readers from reading? Will online services restrict content not because it's what their customers want, but because they fear a resurgence of censorship -- or because they can't determine what will get them into trouble and it's safer to avoid controversy?

The Communications Decency Amendment to the Act has established the wrong principle: that the government has the right to make choices about the information its people publish and receive.

This is bad news for publishers, writers and readers -- for all of us -- and not just in the US. Unfortunately, other countries are already doing the same thing, blocking porn and hate speech in Germany, "harmful" (to the government) news in China, personal revelations about public figures in France. Other countries look to the US for guidance.

The problem is that content regulation won't end where it starts. This year it's only indecency. Once the principle gets established, it may go further. Perhaps the FDA will decide there are some untested treatments we shouldn't hear about; we might harm ourselves. Then it might get harder to publish gossip (how do you distinguish that from truth?) about public figures. Perhaps we shouldn't publish polls before elections, because they might skew results. Certain religious content may be prohibited, or minority languages may be banned because their use would be divisive or culturally harmful. Should people be allowed to describe their experiences with illegal drugs? Instead of services selecting content for their particular customer base -- a medical support group, a religious group, a political movement, parents concerned about their children -- all will have to follow the same government rules.

Everywhere, somewhere, someone can make a case that some content is harmful. People should be protected from it. It will warp their minds, making them incapable of choosing wisely in the future.

No, the Net's freedom isn't easy. It requires people to make choices for themselves and for their children, as life does. But if they don't make those choices, and stand up for their right to do so, someone else may do it for them. Today, it may be a benign government. Next year, or decade, it may be a less-benign government. Don't let it happen.

Release 1.0 17 March 1996
NEXT YEAR'S WISH LIST: WHAT CONSUMERS REALLY WANT

There are many aspects of emerging cyberspace that aren't working all that well, including electronic malls, Web advertising and social spaces attached to Websites. There are plenty of reasons why each of these might flop. For one thing, social spaces and commercial activity are still quite separate. Or maybe people are basically couch potatoes and the tv model will eventually dominate, with online interactivity the small-scale exception for niche markets.

Underneath, there's plenty of stress and problems. Systems designed to carry one type of traffic are now being asked to carry others, and to scale to much higher rates of traffic, etc. Between the services and the infrastructure, yet another battle is underway. Microsoft and Netscape have squared off against each other to see which one will dominate the platform of the future (whether they even need to do that is another question). And all around them, the system is decentralizing and disaggregating into new markets, new architectures and new classes of objects.

Part of the problem is history. Each of the devices we use (and the infrastructure and services that deliver it) comes from a completely different heritage. Phones, tv, computers, faxes -- all of them are being driven inexorably toward each other, toward a melding of functions. But this isn't yet reflected in the tools themselves. One of the big opportunities available now to service providers is to offer new levels of integration, which should make the services hard to leave (because the subscribers like them so much, not because they can never get their data out).

What would happen if you could clear your brain for a while and think things through? What if there were few limits on what you could imagine? This panel brings together visionaries from three different corners for such a discussion. None of them is wedded to legacy systems; all of them are breaking new ground already.

Bran Ferren, Walt Disney Imagineering: Tools for magic-making

The line between reality and fantasy blurs more every day. Some people make a career of messing with that boundary. Bran Ferren is one of them. He heads the Creative Technology Group at Walt Disney Imagineering, which is somewhat like being in charge of jet engines in Lockheed's old skunkworks, where many of today's top aircraft were born.

Starting with the audioanimatronics-enabled critters that live in Disney theme parks, Disney Imagineering has consistently delivered accessible, enjoyable experiences in real life and on film. Recently, for example, its virtual reality studio created the Aladdin ride, which (with a little help from some custom Disney spec'ed SGI machines) offers a compelling simulation of flying a magic carpet, including interacting with characters in the space you fly through. Now the group is at work on virtual-world based products for theme parks, home platforms and online services.

From major theme-park attractions to VR gear and things beyond, Ferren's group has more leeway (and budget) than most to explore new technologies. To the imagineers, Web design must feel like drawing with your thumbs tied behind your back. In designing new experiences, Ferren must obey the twin
gods of emotion and scalability. What the group creates has to be emotionally compelling, but it also has to be economically compelling when millions of people use it.

Ferren has won a host of awards and produced a feature film; his time is measured out in thimblefuls. He has turned his frustrations with today's platforms and infrastructure into creative energy directed toward story telling technology and methodology. Specifically, he wants to apply better tools to today's educational system and process.

Will Hearst, @Home: The miracle of clean IP

One of the most promising Internet access startups is @Home, the joint venture between TCI and Kleiner Perkins. @Home is doing what cable companies have been slow to do on their own: It is using the cable system's infrastructure to deliver high-speed Internet access and other services to households. Sunnyvale and Fremont, CA, are @Home's first rollout sites, with service starting there later this year.

Controlling a set of on-ramps and places on the Internet opens many opportunities. A carrier can load the system with broadcast video, which would normally swamp other connected service providers, or offer premium services to its own customers such as high-quality telephony -- all without compromising access to the broader Internet.

@Home's goal is to turn the Internet into a broadband, two-way, intelligent computing platform, as opposed to merely a media distribution platform, which is how many media houses and service providers are looking at it. That's a daunting mission, but Will Hearst, @Home's ceo, thinks it will distinguish real players in the industry from dilettantes. Says Hearst, "The summer of '96 is the deadline for doing all the easy things, like putting up your home page. You're late if you're not there." (Hearst, a director of Sun Microsystems and formerly publisher of the San Francisco Examiner, intends to return to his job as a partner at Kleiner Perkins when the search for a permanent ceo for @Home concludes.)

Hearst and his team have two main objectives. From a technology perspective, they see the world as a giant fast Ethernet, and they want to offer their subscribers access to all the content there is on the Internet. To do that, they are creating a high-performance platform that efficiently moves nothing but IP packets.

But the core of their business proposition is to market an integrated programming and communication service that features interactive broadband experiences. @Home's software offerings will begin with services such as e-mail, calendaring, video reflector sites and so on. But @Home will also bundle appealing content for its subscribers.

In a way, the proprietary online services and the more aggressive Internet service providers (including ones just coming to the market, such as AT&T WorldNet and MSN) are all converging toward a service model that looks very much like AOL's GNN (see page 45). The model offers plain IP access to the full Internet plus custom services and content for subscribers. All the content is developed in Web tools, but some of it is for local subscribers only. Depending on how pricing evolves, people may have monthly accounts on
multiple services such as AOL and Prodigy. In this new model, the carrier continues to push on the underlying technology to offer new features and integrate them with old ones. The key then is to find the new basis for differentiation and customer loyalty.

**Jack Hidary, EarthWeb: Making Java dance**

If you want to know what's happening in the world of Java applets, there's one place you can turn to on the Web: a site called Gamelan (named after a form of Indonesian orchestral performance). On the site you'll find an ever-expanding list of applets under categories such as arts and entertainment, multimedia, and network and communications. These sites include everything from games and Etch-A-Sketches to stock-portfolio analysis programs and multi-user chat.

Gamelan was created by EarthWeb, which Jack Hidary co-founded in 1994 with his brother Murray and a friend of theirs, Nova Spivak. Originally, the company was a talented contract-programming and integration shop for interactive development on the Web. With Java's rise, EarthWeb has turned into one of the hottest new-media development houses. The company now has 35 employees, mostly in New York City. Its programmers are working on some projects that likely presage the component software many people will be using to manage information, media and their own activities. EarthWeb's client list includes the New York Metropolitan Museum of Art, the New York Stock Exchange, Digital Equipment, AT&T and Coopers & Lybrand.

Hidary, who is EarthWeb's president and ceo, spent five years at the National Institutes of Health, where he managed project teams and conducted research on neural networks and brain imaging. These projects also involved the creation of advanced telemedicine systems across the Internet. Before that, he helped create ColumbiaNet, one of the first large university networks to use the Internet. Hidary wants to combine the power of the Internet and tools such as Java to build new markets and change the way people and companies interact. With Gamelan, he has already affected the way the Java community operates.
ALLOWANCES AND PIGGYBANKS: COMMERCE ON THE NET

Electronic commerce means many things to many people (see Release 1.0, 1-95). Hardly a week goes by without someone claiming to have cracked a security scheme, and the victim stating that it has fixed the flaw. It seems that the first wave of "the Web is terrible for commerce" stories has passed. There will be more, but overall, people's ideas of how the Internet will affect commerce have broadened and deepened.

Sure, there are issues of security, authentication and scalability. But even if transactions on the Internet were perfectly secure, what if nobody wanted to do business there? What if the place is too cumbersome and unappealing for people to use for business dealings? We believe that electronic commerce is doing well now and will flourish over time, but it won't take off until more people pay attention to the relationships that underlie transactions. Economic behavior is a by-product of successful social behavior -- not the other way around.

That's why it's interesting to talk about how companies can use the Internet to change the way they serve and market to their customers.

Scott Cook, Intuit: How to get from package to platform

At last year's PC Forum, Scott Cook was waiting for the consummation of Microsoft's acquisition bid, and the Department of Justice was readying more assaults on the deal. The DoJ eventually sank the deal; the near-miss gave Intuit the energy it needed to see its business differently.

Intuit's most significant event in 1995 was the launch of the Quicken Financial Network (QFN), which heralded the end of Intuit's days as a manufacturer of shrink-wrapped boxes and the beginning of its life as a service platform. Of course, it will be a couple of years before that transformation happens, but the signals are clear: The new game is about creating lasting relationships with customers, not just selling them a box of software. More specifically, the game involves developing places where customers can expect to find things of value to them. These can include third-party services such as accounting or loans, upgrade offers, affinity programs and simple answers to their questions.

This is a year of transition for Intuit, a year for building the relationships that will lead to a great networked-services platform. Cook is also trying to use his consulting and Procter & Gamble background to understand what motivates people to use one service rather than another.

Intuit is in a great position to capitalize on individuals' need for and use of financial services. Its large market presence and loyal following make it a natural ally for large companies looking to get a foothold in the new marketplace. Banks and other financial institutions may look at Intuit as a threat, but they would be better advised to see it as a front door, through which they can reestablish long-neglected relationships with households and small businesses.
Dudley Nigg, Wells Fargo: Blazing the trail online

Dudley Nigg has a great approach to the role banks should play online. He also has the support of a technologically savvy bank. Wells Fargo, the ninth largest bank in the US (it will double in size if a pending merger with First Interstate goes through), has been aggressive in moving away from physical delivery of its services. It was the first bank to offer customers access to their account balances and transaction histories on the Internet.

Nigg, an executive vice president at Wells Fargo, has headed its Direct Distribution Group since September 1994. He began his career as a chartered accountant in Rhodesia, later joining Midland Bank, then Crocker Bank, which was acquired by Wells Fargo.

At Wells Fargo, he is focused on two fronts: home banking and electronic commerce. To Nigg, "PC-based banking is a nirvana in which the customer gets the maximum utility and the bank gets the lowest cost." He sees the Internet as the ideal conduit and platform for maintaining customer relationships; Wells Fargo expects to offer fully interactive Internet banking by the end of the year.

Asked about the relationship between software packages such as Intuit’s Quicken and banks’ efforts, Nigg replies that home banking covers many different functions, some of which overlap with Intuit’s business more than others. One example of a service both might offer is bill payment. Some people will be attracted to the detailed reporting and management of packages such as Quicken. Others will want less structured alternatives. Wells Fargo can participate with both groups, just in different ways.

A principal bank asset is the trust of its customers, who, asserts Nigg, don’t mind banks carefully using their information to present attractive offers. They just don’t want that information going to others without the customers’ full consent.

On the electronic commerce front, Wells Fargo wants to be part of evolving groups of companies that facilitate commerce on the Internet, particularly to offer a ubiquitous, secure and guaranteed payment medium. To that end, Wells is partnering with companies to support multiple forms of Net-based payment, from credit cards to direct debit accounts and micropayment systems. The bank is working closely with Mondex, a digital cash initiative in the UK. Nigg also represents Wells Fargo in groups working on open interface definitions and guarantees for electronic commerce.

Lee Stein, First Virtual Holdings: Security is relative

Lee Stein’s life could hardly have changed more in the past two years. Before, he was a lawyer and agent to rock stars and other artists. Now he’s talking every day about credit-card processing, mass marketing and encryption. Of course, there are probably many humorous similarities. Since he presented First Virtual Holdings’ plans at last year’s PC Forum, his company has registered 105,000 customers and over 1300 merchants. It is registering almost 5000 new customers per week for its Internet-based, encryption-free payment system.

Stein’s major focus these days is creating marketing and equity partnerships. Credit-card processor First USA, which tallies $21 billion in trans-
actions annually, is currently an equity partner. Its president, Pamela Patsley, is on First Virtual's board, as is Sybase's Bob Epstein. Stein is in negotiations with other large credit-card issuers and payment processors. His goal is to have companies such as these assign First Virtual PIN codes to their customers automatically. Customers could use their accounts right away; no software to download and install, no registration forms to fill out. The alliances dramatically increase First Virtual's marketing clout.

On the operations front, First Virtual is about to move to the first major upgrade of its server software, which will add features that allow for discounts and hard-goods sales. It will also eliminate the 90-day hold period that First Virtual originally established in order to guard against people who refuse to pay their First Virtual bills. The chargeback rate has been extremely low: .02 percent in the first 16 months of operation.

Recently, First Virtual developed a prototype keyboard sniffer application that could intercept arbitrary character strings, most notably credit-card numbers and system passwords. Since the First Virtual payment system doesn't use encryption, Stein is clearly motivated to show that crypto-based systems are vulnerable. In the end, what this exercise does is reinforce the feeling that safety is relative, and that companies must develop multi-layered safeguards. The software, which is not itself a virus, is implemented as a Windows DLL. Given the increasing number of beta applications that people are loading onto their machines, it would be relatively simple to embed the sniffers in many places. Also, since more companies are getting full-time Internet connections, it will be easier for the sniffers to report back what they've discovered.
LEMONADE FOR SALE: MARKETS ON THE NET

What does "commerce on the Net" mean? In the end, there will be a variety of markets, each with its own audience, product/service range and business models. Although there's lots of excitement about consumer marketing, business to business may be more attractive because of high unit prices.

We believe there's a fundamental contradiction that will confront many people expecting to get rich off Internet commerce: Often, the impact of the Net is to reduce cost rather than increase value. It reduces costs of finding information, comparing offers, finding customers, making transactions, providing support and sometimes even delivering the product (and it takes away the livelihoods of the people and companies who accomplished those tasks the old-fashioned, inefficient way). Yes, a few people get rich by selling things on television, but more get rich producing the things; the channel is often a way to get the money, not to make the money.

In the long run we think much of the value in the Net will come not from selling something, but actually delivering value and reducing cost. Our favorite example is the Federal Express site: It adds value to FedEx's service by delivering information more easily, and it cuts FedEx's costs because it needs fewer customer support people when customers get the information for themselves.

Nonetheless, there are ways to contribute real value by managing and controlling specific markets, providing unique customer-supplier matching services or designing special environments that enhance the experience. This panel offers some examples; there are many more.

The problem with many shopping venues currently is that they're dead; it's as if you were the only person in the store. Are all the sales clerks watching you? Or worse yet, are they ignoring you, comparing their weekends and rating last night's online auditorium event? (As if!)

The answer is to create an exciting shopping experience, whether building an attractive virtual environment where people love to shop and mingle with each other, or by managing auctions as Onsale does. As Onsale's Jerry Kaplan points out, "We're creating a sense of community, but a different kind of community from what most people mean. They can watch other people's bids and offers and get a feel for what the market is, what prices other people are willing to pay." And in fact Onsale does offer the goods more cheaply than just about any other channel.

Other means of adding value are providing a deep market in a small field, where it won't be worth anyone else's while to compete with you -- Narrowline, for example, which specializes in matching content and advertisers on the Web (a natural place to start!), or InsWeb, which specializes in insurance of all kinds.

And finally, there's Electric Classifieds' approach. In its earliest business, Match.Com, the company built its own brand name and market for what amounts to a dating service. Leveraging the technology and assets it developed, the company is now going after more tightly defined markets in partnership with third parties. In many of these, it will be a membership benefit; in others, a more traditional online market such as classifieds.
operating under the brand names of a variety of partners. (The system will be branded differently according to who the user is: Juan sees, say, Monterey Classifieds Online, while Alice sees North New Jersey At Your Fingertips. Each has access to the others' bids and offers, but they use a service provided and branded by some familiar local entity.)

**Jordan Graham, Electric Classifieds: Outsourced markets**

We met Jordan Graham in 1991 when he was working in Europe opening new markets for Sun Microsystems, after a three-year stint building Sun's financial services business from $42 to $240 million. He is now CEO of Electric Classifieds, the less-visible parent of the well-known Match.Com. Beyond Match.Com, where it built its own identity, the company's mission is to operate as a service bureau for third parties who want to offer a value-added classified service to their customers/members, but prefer to outsource the operations to an expert. ECI offers an added benefit by allowing any corporate customer the option to open its market to ECI's other corporate customers; thus the end-users get to interact/transact with others outside their own particular branded information provider. But the end-users use the service only through these third parties; they never see ECI in the background. The brand-owners maintain their identities and exclusivity, but they offer a broader reach to advertisers and buyers than they could get otherwise.

The company was founded in 1994 by Gary Kremen, who has now left for another start-up; Graham's task is to take the company from a single service to a set of complementary services in a variety of markets. The challenge is to navigate the slippery route among a host of competitors/partners, including both the traditional online services and the even more-traditional newspapers, all of whom want to have classified services of their own, as well as anyone else with a customer/member base that would like to foster trade among them or with the customers of other organizations.

ECI has an edge over newspapers because it can potentially make a national (or international) market in any particular product area, especially items such as jobs or real estate (for willing or wanting to move), exotic cars, etc. It has less of an edge in markets that are fundamentally local, such as babysitting offers or (un)used Nordic Track machines. But with ECI's service, the customers can define a desirable geographic reach for themselves and see the data accordingly.

The online services, by contrast, have audiences of millions, widely dispersed. But they don't have access to each other's customers.

ECI also plans to create "deep" markets in certain particular markets, replete with product guides, alliances with membership groups such as the American Automobile Association, etc. Graham's goal is to gain members and offerings from these groups to make each market more attractive.

Aside from aggregation, then, what does ECI bring to the party? For starters, some search and matching technology, along with techniques for presenting a customized interface to any particular customer set (with the partner's brand), user tracking (with appropriate privacy protections, Graham assures us) and all the niceties of one-to-one marketing.

*Release 1.0* 17 March 1996
Of course, the newspapers and online services would prefer to do all this themselves, but the value that they deliver is content and connection with advertisers, not the technical underpinnings or geographical reach. "Those that have pursued the make-your-own strategy -- with a couple of SPARC-servers and one UNIX programmer -- have often come back to us," says Graham. And they have closed memberships whereas ECI can reach almost anyone through the Internet. That, Graham hopes, is why ECI's service bureau approach (rather than competing) makes sense.

The payment model varies and is negotiable, but the general model is that ECI charges a fee based on transaction amount or per unit transaction. Each partner can then charge for those transactions as it sees fit, offering them for free as a membership benefit, or marking them up as the foundation of a transaction-oriented business. There are other ways to charge or options to charge for, such as pay to post, pay to match, or pay to communicate (as in Match.Com).

And there are special options to charge for, such as to appear

>> set off at the top of a list <<

or IN ALL-CAPS or boldface.

The company recently received $7.5 million in a second round of venture financing. Investors include Weiss Peck & Greer, Charter Venture Capital, Canaan Partners, Rosewood Stone (Bruce Katz), Jim Bidzos (RSA), Jeff Weber (a director of Sybase among other things) and Bill Elmore of Foundation Capital. And of course founder Gary Kremen and the employees have a share. There are also two corporate investors: Softbank and an undisclosed company.

Jerry Kaplan, Onsale: Transparent market

Jerry Kaplan is one of our oldest living friends; we met him when he was chief marketing officer (by default) for Teknowledge, in the mid-Eighties. He subsequently joined Lotus to develop Agenda with Mitch Kapor, and eventually left to start GO Corporation, the ill-fated pen computer company.

Although he'd like to pass for a businessman, Kaplan still has an intellectual bent, and so Onsale is no mere online marketplace; it's a Web-based auction house with specific bidding procedures, special contests and prizes. While as a rule we think it may be hard to enrich shopping, Onsale is really a forum for efficient bargaining. Users have to think strategically and can place bids or offers in real-time, competing with other sellers and bidders. Formats include:

- **straight sale**: *First come is first served, at a fixed price.*
- **standard auction**: *At a fixed time, goods are sold to highest bidder.*
- **Dutch auction**: *The highest bidders purchase the available inventory of identical items at the lowest successful bidder's unit price.*
- **buy or bid**: *The price simply varies up and down depending on current demand, for large quantities of similar goods, much as in the stock market.*

And the customers like it. "We keep blowing the roof off every week," says Kaplan. "Right now we're about 2.5 times the revenues rate at which we'd be
profitable, but we're ploughing it all back into promotion, mostly buying online advertising, for example at Infoseek and C|Net."

Onsale's motto is "Steals and deals" -- calculated to attract people who like the thrill and tactical challenges of buying much as others like the thrill and intellectual challenge of gambling. But they are mostly serious dealers buying bulk lots for resale, or individuals searching for the best price in a transparent market. Individuals can see their own and other people's bids and offers reflected immediately, identified by initials, city and state -- enough to make them feel there's a real live person out there, notes Kaplan. There are usually hundreds of different goods available at any one moment, and bidding periods, usually three to seven days, are closing all the time -- giving the market a lively, real-time feel.

Onsale does a lot of business with "end of life" (old stock) and refurbished computer gear. Suppliers include Apple, NEC, Lexmark, Megahertz, Logitech and Canon. Pcs and computer equipment account for about 80 percent of transaction volume, but around 90 percent of dollar volume. Onsale does about half its business by buying the goods itself; it reserves inventories, sells goods and then purchases the amount it has sold. The other half is more traditional agent business, for a commission. In both cases Onsale's gross margin is about 15 percent; in neither case does it take any inventory risk. Customers pay by credit card. The suppliers are established firms rather than individuals. Onsale does not guarantee the merchandise, but it has canceled merchants about whom it received serious complaints.

How does this business keep its strategic edge? Partly by being first, and by providing a steady supply of buyers and sellers. It has also invented number of unique techniques, for which it is getting patents or copyrights or keeping them as trade secrets. The service uses the Netscape commerce server, an Oracle database and (soon) Windows NT.

Kaplan's chief technical officer is Alan Fisher, a former colleague from Teknowledge; both he and Kaplan design the bidding procedures. Among other products, Fisher developed Street Smart, the consumer front-end to the Charles Schwab stock-brokerage service. Victor Hanna, formerly with Tredex, a leading inventory liquidator, is in charge of merchandise acquisition. The company is funded by the founders.

**Tara Lemmey, Narrowline Media: Advertising as a commodity**

Tara Lemmey spent twelve years as an account supervisor and vp for clients such as Xerox, Unisys and Holiday Inn in the traditional advertising world at Young & Rubicam and Goldberg Moser O'Neil. Although their clients included Cisco and Dell, and several of the principals at Goldberg Moser had helped launch the Mac, she left in 1994 to upset tradition from outside when she found she couldn't do so effectively from inside. Lemmey herself has degrees in both computer science and communications from Rutgers.

Her first company was digital://threads, an online company that developed Web sites, published Buzznet and worked on psychographic profiling with SRI and other research firms. But the company "turned out to be more of an incubator/lab than a real company," says Lemmey. Rather than reorient it, she paid off its debts and closed it in November to start Narrowline, a more focused company that matches advertisers to content.

*Release 1.0* 17 March 1996
In her words, "We work with content providers to deconstruct their book on an article-by-article basis. In fact, why have a book anyway, when people read online page by page, not by collection? We took a look at the Net and we decided to treat it like spot radio. For example, Sears runs snow-tire ads every time the weather says snow, anywhere in the country. In our case, we can offer a sponsor a spot every time there's an item about New Orleans jazz, or dogsledding in Peru, or parties with a Mexican theme."

The idea is to match content to sponsor, rather than simply running banners on a home page. The technology to do so is fairly sophisticated: vp of information architecture Eric Theise was formerly a professor of operations research at the Navy Post-Graduate school in Monterey; he's writing Narrowline's constrained optimization models for media analysis (for example between reach and frequency, budgets, timing, etc.).

This also obviates the privacy problem to some extent, notes Lemmey: "We are really trying to remind people that content was not created for the sole purpose of supporting advertising but rather because some folks think a topic is of interest and oh, by the way, some company thinks that the people who like that sort of thing might be interested in its product. You support the group interested in the content rather tracking the individuals."

In the long run, we expect, Narrowline will take on some of the role of an events coordinator: We're hosting a special event; whom can we get to sponsor it? Collecting like-minded sponsors for a particular forum, etc. Indeed, it is currently working with Progressive Networks to find sponsors for RealAudio events.

Whereas Kaplan's service operates with the efficiency of mathematical algorithms and time and price, Narrowline is a "feel" market, where the manager needs to know a marketplace and can construct deals and relationship. What happens when people get together and go off-market? The premise of the business is starting relationships, not maintaining them. But the second premise is that successful customers always want to try new relationships, whereas in Match.Com the match is at least in theory forever. (Indicate length of relationship desired: one evening, one weekend, summer vacation, while my spouse is away, forever.)
Frank Fukuyama is an eminent historian/political scientist, just the right background for someone to think seriously about the Net as a new sovereign territory. Until recently, he was best-known for his book *The End of History and the Last Man* (1992). In it, he argued (to summarize) that history is over; the principles of social democracy and free markets have won. The only issues outstanding are micro: disputes among individual countries and cultures, local developments, faster or slower economic maturation.

Well, call it the exuberance of youth: It's true, but the convulsions of those micro-cultures are hardly minor. History doesn't move quite so smoothly. Now Fukuyama is focusing on micro rather than macro conditions, and has published a new book, *Trust: The Social Virtues and the Creation of Prosperity*. In this new book, he makes the distinction between societies based on trust (US, Japan and Germany), and those that lack it (Italy, France and China). Without trust, he argues (and illustrates), companies have a hard time growing beyond the boundaries of a family. That limits not just their size but their ability to hire professional managers and share wealth and control.

"Companies need to share information," Fukuyama says. "Trust is like a kind of lubricant that permits transactions and information-sharing both outside and inside. Moreover, trust underlies the rules for self-organization. The old Taylorite model of the factory is where central authority lays down the rules, and you either follow them or not. The rules for self-organization are internalized; you have common norms and goals. You don't need to make all those rules explicit and you can interact freely."

Sure, that would be nice to have on the Net. The question is how we can go about creating it. What can serve as a proxy for trust if it doesn't exist in a culture? Will we end up doing commerce only within the equivalent of sponsored markets?

Certainly, there are ways to set up hierarchies or webs of trust. In some countries banks do it; in others, the government does it, with varying degrees of success. To some extent a brand name implies trust.

But on a deeper social basis, what generates trust? Will untrustworthy people and net entities destroy the social conventions that have helped make the economies of the US and Germany so successful? Can you build strong communities under conditions of anonymity and high walls of privacy?

All this has obvious implications for the governments of the various countries -- and for the Internet. Will banks win in the financial transactions market because they have trust? Will shaky governments lose?
WEEDNESDAY, MARCH 20

WORKBENCH IN THE PLAYROOM: WHAT DEVELOPERS REALLY WANT

It's too early to tell whether Sun's Java language and Netscape will take over client/server computing and replace Microsoft's OSes as the key elements of the computer infrastructure. What's clear, though, is that the client software environment is changing completely. Many vendors now offer Web front-ends to their traditional client/server systems. Plug-ins, helper apps and Java are revolutionizing client application development. Vendors are also announcing Internet server architectures, looking to replace the early hodge-podge of daemons and server software modules with more scalable approaches.

Amid this change, many companies are trapped between Microsoft and the Internet. Others have been liberated: Their potential markets have expanded, they can reach their prospective clients more easily and there's more need for their tools. Take, for example, databases and text retrieval, which get more important as connectivity improves. Other markets should also blossom, such as groupware and document management.

Novell and Lotus have equipped corporations with LAN-based software for years. They have also acted as developer platforms. Large communities of ISVs and VARs have built NetWare Loadable Modules and Notes-based applications. Now the platform is changing radically, with talk of a new common-market, super-company WebOS that combines traditional Internet protocols with new inventions from Netscape and Sun.

Bob Frankenberg, Novell: The global, intelligent network

Bob Frankenberg has a clear vision of the future, but he's had to spend most of the last year dealing with the past. Now he's ready to look forward, to a world where the Internet is a logical extension of the LAN. He thinks of it as the smart global network.

To become smart, Frankenberg believes, the Net will need many of the functions that now make LANs manageable, reliable and secure, such as directory services, groupware capabilities and management tools. To become truly global, he believes it will need to extend to more devices. The partnerships that come out of these ideas include AT&T NetWare Connect Services (ANCS) and Novell Embedded Systems Technology (NEST). NEST involves collaborating with many other companies to bring millions of devices such as office equipment and household appliances onto the Net.

Competitive threats to Novell abound, from Microsoft's Windows 95 and NT, which dramatically reduce the need for third-party networking software, to ubiquitous and inexpensive TCP/IP stacks. (In a way, Novell exists because DOS is such a crummy OS and Microsoft was so slow to improve it.)

Over the past year, Frankenberg cut loose the Unix and office-suite businesses. One of Novell's key assets is its huge VAR and reseller channel, which has helped the company penetrate and dominate corporate networks. (In fact, Frankenberg rearranged his schedule so he could be at Novell's annual developer conference, BrainShare, as well as at the PC Forum.) He will need to nurture Novell's community carefully. The startup scene has many
interesting spinouts with Novell people, including OnLive! (Rod MacGregor and Henry Nash; see page 48), Chaco Communications (Dan Greening; see page 56) and USWeb (Sheldon Laube, who first spoke at the PC Forum in 1990 as the cto of Price Waterhouse explaining its enthusiasm for Notes).

**Bill Joy, Sun: Time for a double espresso**

The years that Bill Joy and his crew labored to create what eventually became Java have paid off a thousandfold. Java has captivated the industry and has galvanized Sun's workforce. Sun, which had lost some of its spark and was in danger of being marginalized by Jurassic Park-style graphics from SGI and operating-system advances from Microsoft, is a hot company again. Its eternal mantra, "the network is the computer," now looks self-evident and makes Sun look clairvoyant.

Sun's leaders -- Scott McNealy, Eric Schmidt and Bill Joy -- have divided the company's work among them in ways that seem to suit them well and give Sun a depth matched by few other companies in the technology field.

Joy is a low-key, clear thinker and an eloquent, impassioned speaker. His challenge now (besides finishing his book on Java) is to shepherd Java from being a popular new entry in the market for programming languages to being a distributed application platform that companies are willing to use to build major applications. It's a task of gargantuan complexity; Joy approaches it with great discipline, favoring simplicity at every decision point.

To build the platform of the future, Joy and his team must now continue to think ambitiously, but also adapt Java to the rest of the world. Although Java is designed to work on a wide variety of platforms, its success depends on Netscape's success. It's a horse race: Java and Netscape technology have to move extremely quickly to catch up with Microsoft, which has been working on architectures and services for corporate environments for quite some time. At the same time, Microsoft must extend its systems to work efficiently on the Internet.

Luckily for Sun, the Java developer community is full of the kind of energy not seen since the early days of the Mac and PC software markets (though the recent Windows frenzy comes pretty close). The key now is to use this energy appropriately.

**Mike Zisman, IBM/Lotus: Marrying Notes and the Web**

Lotus is now part of IBM, and the combination seems to have been beneficial to both parties. The changeover catalyzed many things that needed to happen at Lotus and helped both companies focus their Internet efforts -- just in time, too.

Had Notes Version 4 shipped several months later, the delay might have put Lotus in great jeopardy. The much-heralded update to Notes arrived two years after the last major upgrade, by which time Lotus' customers had noticed the Web. In fact, many of them were moving to it quickly. Notes v4 gave Lotus (and IBM) a way to offer its customers Web access alongside Notes' traditional capabilities. It also offers simple Web authoring and hosting capabilities. With the Notes editor, a user can create and publish Web pages directly, which is still difficult to do with other tools.
Notes' principal technical advantage over the Web is the poor state of Internet-based communications technologies such as threaded discussions, bulletin-boards and mailing lists. Microsoft has failed to make Exchange a viable competitor, but others will likely develop compelling alternatives from the simple components available on the Internet.

Lotus' channel advantages are more significant. Combined with IBM, it has corporate account penetration that other companies can only dream of. The Notes VAR community is strong and growing. Mike Zisman, who joined Lotus when it acquired Soft.Switch, is now in charge of Lotus. His challenge is to push Lotus onward to a new concept of Notes as an Internet platform with valuable added features.

But Lotus isn't just Notes, Zisman points out: "From a Lotus perspective, I'm confident we have an absolute dead-on strategy for Notes on the Internet. Now our attention turns to the desktop. How is the desktop going to evolve into a component model, and how can we exploit that? How can we add our Team functionality, for example, into other applications?" He reminds us that we were reluctant to send him this draft by e-mail, because it would be complicated to reconcile his rewrite with our original text. "It's even worse when you send it to 10 people and you get 10 versions back with all their changes. Now suppose you send something out over the Web: Our Team features, Team Review and Team Consolidate, could help manage that."

(For a personal description of Zisman, see page 16.)
A recent study from Cornell University appears to indicate that employee-friendly companies tend to do better in the long run. Of course, the New York Times article goes on to say that maybe the correlation is misleading; it has to do with company size, or venture capital funding, or whatever. But it’s enticing to speculate that it might be true.

Over the years, we have watched companies start and flourish and then disintegrate. The clearest indicator of success seems to be a strong company culture. Strong management matters more than a particular strategy -- or perhaps strong management creates the strong strategy. Overall, the most important thing a board can do is bring in good management and guide it.

What is the most desirable corporate culture? Again, we see Silicon valley leading the way. It's a culture where employees are valued and listened to, where they are encouraged to apply their intelligence.

Most of the companies starting now have very little in the way of fixed assets; they're hoping to build up a customer list, a workforce, a set of strategic alliances. In some cases, they may have contractual relationships with some of the individuals involved, but most of these assets depend only on people -- and their happiness, loyalty, enthusiasm and other intangibles that can't easily be bought.

It's easy to raise a billion dollars; it's much harder to build a billion-dollar company. We suspect that too many times people take the easy way out and hire "proven producers" rather than team members. They go for the quick fix in people just as they go for the quick fix, in, say product pricing or customer service. More than ever, people are something to invest in. As the overall quality of the workforce becomes poorer (and competition for trained, educated people becomes fiercer), companies will have to start investing more in training their own -- a contradiction perhaps in Silicon Valley culture where people move around easily.

How much attention do investors pay to these intangibles? Why do most acquisitions and mergers fail? Are we really approaching a new age where employees are empowered and stockholders share the rewards? Or are stockholders (especially IPO investors) overpaying for businesses that require little capital and much employee "motivation"?

Mary Meeker, Morgan Stanley: The view from Wall Street

Mary Meeker of Morgan Stanley will start out with the Wall Street (Web Street?) perspective: Is fascination with the Internet a new phenomenon, or have we been this way before? What do investors look for? Why do so many tech mergers fail?

Meeker joined Morgan Stanley in 1991 and has led Morgan Stanley's respected research and investment banking effort into exotic new areas such as consumer software and the Internet. She has introduced to the public markets a list of successes including Intuit, Netscape, The Learning Company and Maxis, several of which she first met at the PC Forum. In addition, she has built a solid research franchise ("brand") covering companies such as Microsoft, Adobe, Macromedia, America Online, Broderbund, Electronic Arts, Compaq.
and Dell. She is one of the more lucid analysts of the changing tech mar-
kets, and she's no knee-jerk fan. Aside from her long-term recommendations,
she has recommended timely trading over the past year in stocks such as Ap-
ple, Dell, Electronic Arts and Compaq -- which she had recommended steadily
from 1992 until just last month.

A keen analyst of companies, she can also discern patterns in the investment
business itself. "Just 20 percent of the investors own 80 percent of most
stocks [in high tech]; they're the ones who matter in the long run," she
says. "Those 3-5 percent owners tend to have good instincts and they try to
invest for the long term and spend quality time with company management.
They bet on people and industries, not on last quarter's results. But they
are judged by their short-term performance. Often, in the short term, it's
the small holders, the traders on the periphery, who move the stocks up and
down." Or to quote Benjamin Graham: "In the short run the stock market is a
voting machine; in the long run, it's a weighing machine."

Recently, Meeker produced Morgan Stanley's 350-page tome on the Internet as
an investment vehicle. The report, with an undisclosed number of copies
distributed, is one of the most widely requested reports ever. Having "ad-
vertised" it extensively by giving it away free, Morgan Stanley and Meeker
will be publishing it through HarperCollins this month. (Hope you got a
good royalty deal, Mary!)

**Jim Barksdale: Netscape's secret weapon**

Despite Netscape's reputation as the hottest technology company around, ceo
Jim Barksdale is working hard to make it into something longer-lasting -- a
company of good people capable of weathering bad times and changing business
conditions. The business model may -- will -- change, but the quality of
people executing it will prevail.

Indeed, few people are aware of Netscape's real secret weapon -- Jim Barks-
dale. In a world where everyone glibly says, "Our greatest asset is our
people," the single greatest asset is someone who knows how to manage
people.

Barksdale learned how to do that over 12 years at Federal Express, where he
first ran operations and then became chief operating officer. The challenge
then as now was not just to run operations, but to define a new business and
turn a commodity service into a premium, customized service -- on a mass
basis. That's not so different from what he's doing at Netscape: using as-
sets -- whether airplanes or software -- to leverage people...not the other
way round. In a world where Microsoft can knock off your product's func-
tionality and include it with the OS, pricing and technical superiority are
fleeting assets. Brand names, people and a reputation for the best new
technology are more enduring.

Netscape's business model remains a mystery to most people -- including its
own management, we assume. In fact, it keeps changing. The first phase was
to distribute the product for free -- and to make money by selling that idea
in the stock market. Much to everyone's surprise, the company actually gen-
erated earnings from its products. And it is also building a nice services
business, including advertising, which now amounts to about 12 percent of
revenues.
The company illustrates the new world of intellectual industry, where a company's assets lie in the minds of its employees and its customers. The proprietary edge is not what you own, but what you do.

(For more about Netscape, see also page 20.)

David Beirne, Ramsey/Beirne: Strategic people

David Beirne has the earnest look of someone applying for a job rather than the slick, charming mien of those snakes who try to lure away your best employees for some better offer elsewhere. He started as a marketing assistant for IBM, and got into the search business in 1986. In 1987 he joined what became Ramsey/Beirne, where he is now one of two principals. To the outside world Ramsey/Beirne looks like an overnight success, but it has been working quietly away for years. Although Ramsey/Beirne doesn't really discuss its clients, it has helped a number of Forum attendees find their jobs and probably spoken to many more of them. Among its finds: Jim Barksdale for Netscape, most of the team at Shiva Corporation, Bill Razzouk (another FedEx alumnus) for America Online, Jim Manzi for Industry.net, Bob Herbold for Microsoft and Will Hearst's yet-to-be-announced replacement @ @home.

But, as Beirne notes without prompting, executive search isn't simply finding a candidate; first you have to sit down with the company and figure out what you've got before you can know what you're looking for. (Sounds like wisdom that could also be relevant to Electric Classifieds' Match.Com.) Just as a company's strategy has to depend on its resources as well as its market (and the beliefs of its management), so do its management picks. You have to figure out what animal you want to be, and then you have to figure out what organs you already have, and what blood types to match.

So, although everyone says, "Get me another Barksdale!" that may well not be the answer for every company. On the other hand, what about those rumors about ClonExec that we keep hearing?
The toys still aren’t working; it’s time to call in the experts! They don’t have answers, so let’s try some more questions: Will there be a consumer market? How will people’s behavior be changed by the Net? How will the Net be changed by new users? The behemoths are all buying content companies, sure that this will ensure their futures, while content companies are looking for distribution and access. But is it worth it to own a content company? (Exclusives are no longer bottlenecks that allow an owner to charge a toll; they’re detours that will be bypassed in the long run.) What changes when we think of the net as an ecosystem instead of as a mechanism? And why are we all so smug: Do we face a huge anti-Net backlash?

An assortment of speakers and audience members, including John Doerr, Freeman Dyson, Alex Pachikov and Ann Winblad among others, will discuss these questions and others with the audience. We’d like to know what’s on your minds.

Write your questions here!
Timing is everything. Many of these companies were doing one thing when the Internet began collecting momentum several years ago. Now many are doing another, having re-engineered their products to fit the Internet and built attractive new business models.

Aleph: Necesitas una traduccion?

Aleph’s Global Translation Alliance is a market-making zine without any attitude -- and with global reach. Aleph makes markets for document translation on the Web (that's translation between human languages, not formats, and performed by humans, not machines).

It does this by attracting people who need documents translated and professional translators who need the work. The translators can live anywhere in the world where they can get Internet access.

It works this way: Customers go to Aleph’s Website, where they select origin and destination languages, which takes them to a list of translators with those skills and their resumes, domain expertise and rates. From that list they select a translator. Then customers enter number of words in the document and automatically get a cost estimate. Finally, if they want to submit the document for translation, they fill out the estimate form, then submit it with their document to Aleph via e-mail. Translated documents are sent to the customer’s e-mail account.

Aleph rates translators and translation jobs as "basic" (lets customers know generally what the document says), "advanced" (lets them confidently make business decisions based on the translated content) and "professional" (lets them sell goods and services with the translated document). It also guarantees its customers' confidentiality.

Aleph is named after El Aleph, a short story by Jorge Luis Borges. In it, the protagonist looks into a construct that Borges invents and calls an aleph: "the place where, without any possible confusion, all the places in the world are found, seen from every angle."

The idea for Aleph came to Michael Demetrios, who was then a freelance consultant, programmer and designer, from surfing the Internet (before there was a Web), being able to connect to machines around the world and not knowing what he was looking at. Why not be able to hire someone on the Net to translate a document and e-mail it back when finished? He financed Aleph with friends and funds it from revenues.

Although the fee that Aleph charges translators is less than half a typical agency fee, Aleph is profitable. Most activities are automated, so the operation has extremely low costs. Aleph just gives translators a place to conduct their business. The company’s primary costs are in quality control (both in checking new translators and in following up translation jobs) and marketing. Aleph has only three full-time employees. They manage over 750 translators around the world, including handling accounts receivable and payable for the translators.
Connect: Scaled up for commerce

Connect was founded in 1987 as a network-services company to run branded, proprietary online systems, such as MacNet, the first worldwide online system for Macintosh users, and private services for companies such as Domino's Pizza and Software AG (see Release 1.0, 3-94). The system had bulletin boards, e-mail, chat rooms and other communication features as well as news services and other information sources. Connect's services included user training, service hosting and client support. Working with it was like outsourcing a private AOL.

In 1993, Connect began a major rewrite of its Unix-based core engine to improve performance and flexibility. Connect realized that there would be demand for a next-generation, application-specific online system that capitalized on the opportunity and reach of the Internet. The resulting engine is now the core of a soup-to-nuts corporate system called OneServer, which offers a full-featured platform for large-scale Internet commerce.

OneServer is comprehensive. It includes constructs such as directories, catalogs, promotions, shopping carts and more. It allows companies to customize Web pages for particular participants, track and bill users, place ads, authorize purchases, fulfill orders, track inventory and so on. It offers five levels of security (RSA), a search engine (Fulcrum) and a transaction monitor. The underlying database is Oracle, running on Unix. OneServer is designed to handle many users making continuous, intensive use of the system. It also separates presentation from content, so that product information changes and other updates are easier to do.

Users can connect to OneServer-based services through standard Web browsers or through custom client applications such as Java applets or Visual Basic programs. Recently, Connect demonstrated an interactive configuration manager for home theaters that was written in Java. The system checks component compatibility and recommends missing components.

With all these features in its toolkit, Connect must now convince large corporations to adopt its tools and build major online presences with them. Several companies are already convinced, including PhotoDisc, ARI, Reader's Digest, Entex and FDC. Sales through PhotoDisc's OneServer system now account for a majority of its revenues.

Although tools to facilitate various steps of the Website-development process are hitting the market weekly, most options involve a great deal of custom coding and integration. Large-scale interactive commerce solutions can easily cost $1 million. A comparable OneServer system would cost roughly $300,000.

Connect is privately held, with participation from the Bank of America, Norwest Bank, 21st Century Communications, the Quaestus Investment Group and Volpe, Welty. Gordon Bridge, its new chairman, was formerly in charge of AT&T's online efforts; Tom Kehler, its president and ceo, was formerly the president of IntelliCorp (see Release 1.0, 2-92) and worked at TI before that.

Release 1.0 17 March 1996
Electric Communities: Building an OS for cyberspace

Nobody can accuse the staff of Electric Communities of thinking small. Motivated by their collective experiences elsewhere, they have labored in secrecy since 1993 to create an all-encompassing environment for online life and commerce (see Release 1.0, 7-93 and 7-94).

Doug Crockford, the CEO and co-founder, got to know Randy Farmer and Chip Morningstar at Lucasfilm in the early 1980s, where they developed Habitat, an early multi-user 2D online world originally designed for Commodore 64s and hosted on AOL's precursor, Quantum Communication Services (see Release 1.0, 6-93). The three also crossed paths at other pioneering projects such as Amix, Phil Salin's online marketplace (see Release 1.0, 2-91 and 12-91).

At each company, Crockford, Farmer and Morningstar recognized weaknesses that pointed deeper into the infrastructure than their current employers allowed them to go. They felt that essential elements were missing from the computing and communications environment, such as pervasive and reliable security, real-time communications, integrated financial constructs, scalability and resource negotiation.

They embarked together to create the Cyberspace OS, an ambitious software environment that would use Joule, a complex new object-oriented system from a startup called Agorics. With it, they planned to build multi-user online spaces, secure marketplaces and more.

Recently, Electric Communities hired a pragmatic new president, Larry Samuels, whose approach should get the company to market more quickly than its original plans would have. He helped convince the others that using Joule was dauntingly complex and would likely take too long to finish. At the same time, Sun auspiciously launched Java as an Internet programming language. Electronic Communities dropped Joule and adopted Java, creating its own complementary language called E.

E extends Java's capabilities without compromising its security. (E is not Java, but their programming methods are similar. E classes can call or encapsulate Java code.) E adds features that avoid resource deadlocks and minimize latency in distributed applications and allow secure, fine-grained control over system resources. Every E object has a cryptographic signature and a set of capability requirements, which allows programmers to specify several kinds of "trustedness," independent of where the object is stored or who created it.

With E, the company is building a system that incorporates solutions to the problems they have encountered in their previous projects as well as the weaknesses the founders see in the Internet's architecture. Their system has its own distributed object model, with integral security (ECI's founders argue that one can't add security to systems after the fact; they must be designed in early). The system's key elements are programmable entities called unums that communicate by using Global Cyberspace Protocols (naturally!). Unums are shared among multiple computers across the network, none of which need to know all of an unum's attributes; the unum's identity is held collectively. The system offers much more, including certificates, directories, credentials and contracts.

Release 1.0

17 March 1996
Electric Communities would like to make the Global Cyberspace Protocols (GCP) and their associated elements ubiquitous, which will be the company’s major challenge (beyond finishing the product itself). To build its market, Electric Communities will place all of the specifications it creates into the public domain so that others may adopt them quickly. It will also implement, commercialize and license them, which is where its own revenue streams will come from. By March, ECI will have finished implementations of E on Solaris and Windows NT. A component called Pluribus should be ready by mid-year, and the GCP by year’s end.

The company has venture funding from Helix Investment, Bessemer, techno-thriller author Michael Crichton, Broderbund president Doug Carlston, Larry Samuels, W. H. Sim, CommerceNet founder Harry Saal and Dick Kramlich.

The Electronic Rights Management Group: Facilitating information markets

Last fall, Kelly Frey, the director of business development for the Copyright Clearance Center (CCC), was concerned that companies were grouping in a motley arrangement of organizations and sub-organizations to tackle the issue of intellectual property rights and royalties in cyberspace. Many other companies had noticed this problem, too.

With IBM, Comtex, Netscape, Verity and a dozen other firms, Frey helped create the Electronic Rights Management group (ERM), under the auspices of the Information Industry Association (IIA). Broadly speaking, ERM’s charter is to facilitate the flow of information products, while protecting and remunerating the products’ owners. To do this, ERM will encourage companies to work together to create voluntary, open standards. Education will also be a large part of the group’s charter.

If the group realizes its ambitions, information buyers will be able to shop in one vendor’s marketplace using another’s metering system, then pay for their purchases with a third vendor’s digital cash system kept on a fourth vendor’s smart card. ERM hopes to establish what the minimum set of information each of those applications needs to swap should be.

Here’s another example. Often mailing-list participants quote newspaper articles at length or in their entirety. Sometimes, these posts are followed with other messages that point out that such behavior is a violation of copyright law. The principal problem is that the cost of compliance is much higher than the cost of just posting the article, multiplied by the likelihood of being caught times the cost of being proven guilty. ERM hopes to make it simple and inexpensive to comply.

To make the example more concrete, imagine a "paste special" function that would identify the item about to be pasted as a copywritten newspaper article. During the paste, the software would quickly quiz the person about the use for the quote, then generate both a price and a unique digital signature for the transaction. The pasted article would automatically include proper attribution (perhaps with a URL) and an authenticable digital signature. It sounds more complicated than it would likely be, once people started to use it.

Of course, you might argue that most intellectual property will be offered free in exchange for other benefits....
Farcast: Put a droid to work for you

Farcast takes advantage of e-mail's growing ubiquity. E-mail works across all computer platforms from the oldest, least expensive models to mainframes, souped-up workstations and networked PCs. It's the one application most people have open all day -- if they can. It's also not obtrusive. For many people, e-mail messages are the main information stream.

In 1994, to turn this fact into a business opportunity, Jayson Adams and Scott Love created an e-mail-based information service. They funded it from the sales of desktop software to the NextStep community. Jim Opfer, a peripatetic wireless-systems consultant and retired Air Force officer, was their fourth customer. His advice helped Adams and Love make the service more effective. When they put the company up for sale last November, Opfer found backers (private investors, led by Dixon Doll, formerly of Accel Partners) and bought it.

Farcast has created a subscription Internet service that uses software agents -- Farcast calls them "droids" -- that can not only filter and forward information such as stock quotes and news stories, but also look things up in response to queries. For example, an e-mail message to "library@farcast.com" with the subject line "IBM in hcompany" will search Hoover's Company Profiles and respond via e-mail with the list of articles in the directory. It's like speaking in code to your research assistant.

Subscribers can set up droids that run daily at specified times, fetching all sorts of information. For example, a prototype droid can fetch Web pages, given their URLs. The requesting party then saves the file locally and can view it with a Web browser. One can envision many more kinds of droids, all connected to information services and query engines around the Internet or in proprietary systems.

Farcast offers subscribers 15 droids to program as they wish. The Farcast service costs $10 a month (droids included). The service fee covers unlimited search and retrieval of news stories, which are archived for 30 days. It also includes broadcast feeds from 70 industry segments. News-hounds can set droids to report "anytime," which will send subscribers news stories as they hit the service, rather than at pre-set times each day. Mobile workers can stay in touch if they carry alphanumeric pagers or wireless e-mail units.

GNN: AOL's Internet lab

GNN began its life in 1994 as the Global Network Navigator, a navigation aid for the Web (and on the Web) created by computer-book publisher O'Reilly & Associates. The site offered helpful lists of sites, as well as information about O'Reilly's Unix and Internet books. In 1995, AOL bought GNN to make it the foundation for an integrated Internet service. In October of 1995, GNN was relaunched as AOL's hard-edged Internet sister; the service has attracted 100,000 paid subscribers in its first three months of operation.

GNN is for technology adopters. It offers some risk without too much peril. The GNN service is an ongoing experiment, and Lisa Gansky is its most visible mad scientist. She is willing to try things out, which is why
she says GNN is appropriate "for more aerobic users, those with a higher threshold of pain and a good sense of humor." Her goal for the service is to have a voice — not merely a bad attitude. Says Gansky, "You need to have multiple brands in this market and for each brand a new voice."

In Gansky's view, people online are either on a mission or they're on a ride. People on missions head for Web Crawler, Yahoo and other research tools; people on a ride head for Suck, ParentSoup or the Utne Lens.

Gansky's insight is to take seriously the idea of the Internet as a hybrid medium. It's a programming space (vs. a publishing vehicle) whose participants can be more interactive than in traditional media. So GNN has recruited studio partners such as Yoyodyne Entertainment, Joe Boxer, ivillage and Songline Studios. With them, GNN puts on radio shows and other events. Gansky thinks of these programs or events as containers to manage. Each container has its own mixture of modes and media.

Managing a service such as GNN requires knowing who's using what and adapting the service appropriately. Spending too much time engineering a grand site doesn't work. "A large Website is like a 100-acre park. We discovered after six months that people use the swings a lot. Occasionally they use the bathrooms and the water fountain, too," says Gansky. Her answer is to create lightweight pilot programs and test them quickly in specific markets. Then grow what works. She calls it "define, refine and scale."

IdeaLab!: An inventor in his sandbox

It took 37 years, but Bill Gross finally figured out that his real love is starting companies. In the past year, since his brother Larry was promoted to president and ceo of Knowledge Adventure, Bill has been able to devote his creative energies as chairman to original product development. He has also created an incubator company called IdeaLab! Here are some of the fruits of Gross' early brainstorming.

Knowledge Adventure's Digital Campus is part of a secure online environment for kids, intended to help them learn about collaboration as they play. In the tug-of-war between image richness and smooth motion given limited bandwidth, Gross opted for lovely landscapes that don't update that frequently, along with relatively lifelike avatars that can move and articulate. The result is an attractive, entertaining virtual world within which kids can type, signal and work together.

Knowledge Adventure will make sure that what the kids say isn't CDA-violation material by limiting input. Participants assemble sentences with a "sentence machine" by making selections from menus of words. It's possible to be offensive with the simple words provided, but it's hardly worth the effort. The question is whether kids will take to the interface. Gross' early testing makes him optimistic.

Gross also started City Search, a complete and current guide to a local city or community. It's a Java-based application that helps bring consumers and retail merchants together by offering information while maintaining privacy. It also brings community information together in a single, searchable system. Prototyped for Pasadena, CA (where Gross lives), it provides simple templates with which Web-space salespeople can
create a Web-page advertisement for merchants during a sales call. Think of it as a souped-up Yellow Pages ad. The system also supports many kinds of notification, such as alerts that let individuals know when particular items go on sale. Gross’ next target city is Raleigh-Durham, NC.

One of Gross’ other ideas-in-progress is a 3D information retrieval system that may offer intuitive concept navigation. By interviewing 200 people and asking for focused feedback, Gross and his team determined that there are 18 kinds of associative links that people normally make, such as proximity in space or time, set/member relationships, opposition, and cause and effect. The team has implemented an interface tool that helps a user wander their way through information spaces that have clusters based on those associative links. This technique could be a useful way to navigate the results of all kinds of information searches, including Web pages.

Net Objects: Internet information publishing

Samir Arora, Dave Kleinberg and Clement Mok have been on converging paths for a decade. NetObjects, which they co-founded late last year, brings them together in one company.

Arora spent the last 10 years developing a vision of information structure and navigation. His key interest is in the merging of documents, databases, media and communication into a new model for page-navigational publishing. Arora left Apple and Kleinberg left Macromedia in 1992 to found Rae Technology, a software house that created a PIM called Rae Assist almost as a pretext for its ambitious under-the-hood development efforts of SOLO, the Structure Of Linked Objects. During the next three years, the SOLO engine was refined and used to create a variety of page-based navigation products distributed to over 300,000 users, and a variety of in-house corporate applications for Mac, Windows and the Internet.

At the same time, Clement Mok left his position as creative director at Apple to found Clement Mok designs (CMd), an identity and information design firm, and CMCD, a digital publishing company. He developed and designed the launches of many products, technologies, identities and companies, including the Macintosh, HyperCard, The Republic of Tea and the Microsoft Network’s GUI. One of Mok’s primary interests is in the structural organization of content in complex information systems. His work on navigation and visual structure meshed well with the software engine that Arora had created at Rae. As they formed NetObjects, the Web was heating up and it became clear to them that the tools they would create should focus on Web development.

SOLO is now the core technology of the NetObjects startup. Rick Smolan’s 24 Hours in Cyberspace project (see page 2) was NetObjects’ working premiere; the PC Forum is its official debut.

The first Web-oriented application they developed with SOLO, NetObjects Site Publisher, automated the creation and publishing of the 24 Hours Web site, atop Illustra’s database (which is now part of Informix). Site Publisher offered project members a series of predefined story templates. Editors placed story elements (e.g., text, photographs, sound clips and callout graphics) in the templates and could preview finished Web pages.
NetObjects' founders now have many options. Their biggest headache will be choosing the right position for the company, both in markets and in the food chain. Should they pursue Web publishing, electronic commerce or Web development; should they stay independent or join forces with other firms?

**NetSpeak: Voice is serious business**

It's relatively simple to implement a mediocre voice product over the Internet. Find a public-domain audio compression engine, write some front-end software, choose a method for connecting people who want to talk and you're pretty much finished. It's another matter altogether to create a robust phone that can live on corporate desktops all the time and begin to take the place of conventional phones.

In Boca Raton, FL, a startup called NetSpeak has created WebPhone, a full-featured Internet phone that is aimed at business intranets rather than at ordinary Internet users. As corporate networks move to TCP/IP, they will want to make use of their infrastructure in more ways. WebPhone is the start of a well-integrated telephony function that lives on the desktop all the time.

WebPhone's interface resembles a cellular flip-phone, complete with a multi-function LED display. It offers features one would expect, such as speed-dial buttons. It also offers some surprises, such as voicemail. Users can set WebPhone so it records callers' messages while the system is unattended. It can automatically pick up a calling party's ID (as long as the other person is using WebPhone), which makes returning calls easier. It's also architecturally cleaner than other voice-on-Internet systems. For example, it doesn't require an IRC (Internet Relay Chat) server to connect callers. WebPhone is completely peer-to-peer. Finally, WebPhone has an easy-to-use, full-featured help system. Future versions will offer call forwarding and conferencing.

NetSpeak is negotiating with major carriers to use its technology, as well as with large corporate accounts. The market for such products seems to be opening quickly.

**OnLive!: Rethinking multi-user spaces**

OnLive! went through a major life change less than a year ago (see Release 1.0, 11-95 for details). Rod MacGregor and Henry Nash, who had worked together at Insignia Solutions and Novell, founded the company two years ago as EnterTV to develop an interactive-TV platform. After some development work, MacGregor and Nash quickly realized that ITV wasn't happening. Inspired, they redirected their efforts toward developing live audioconferencing technology to enhance today's text-only online chat rooms.

To use OnLive!'s system, participants run a client application called OnLive Traveler, which lets them choose head-only avatars and then enter 3D spaces, where they can interact with other people with live, multiparty audio. The heads lip-synch, which is a way of letting each participant know which person is talking. All of this can work over common Internet connections, although OnLive! can guarantee really good audio quality only on a private network.
The multiparty audio capability is unusual, since most other audio-over-Internet technologies work between only two parties at a time. OnLive!'s system can scale gracefully from two people to small groups of up to 20. Participants who are more distant in the virtual space sound fainter and eventually become background noise.

When we first wrote about OnLive!, it hadn't shipped beta code yet. Now it has a small group of beta testers (just over 300, including a Texas cafe called the CyberGrill). It is also working with major carriers, services and service providers to launch a dozen reference sites by mid-April. The company's first such space is Virtual Vegas (www.virtualvegas.com), which uses the technology to create themed, audio-enabled chat rooms.

OnLive!'s developers also created an audio chat plug-in module (as an OLE component), which turns multi-party audio into an easy-to-add feature to practically any OLE-compliant Windows application. The company has built a software development kit so that others can create their own uses of its technology. When Netscape recently acquired InSoft and announced the Live Media framework, OnLive! was one of the supporting companies. It also sponsored the VRML 2.0 Moving Worlds proposal.

The company has just under 50 employees, a new CEO named Betsy Pace (from Paramount Interactive) and an imminent second round of financing. The first round raised $20 million from AT&T Ventures, Creative Labs, Kleiner Perkins, Merrill Pickard, Mohr Davidow and New Enterprise Associates.

Saqqara Systems: Take your pick!

Product selection isn't always easy. A buyer's information needs can quickly go beyond the capabilities of a brochure or other simple online publication, yet programming a database to do more is difficult and may not simplify the task. Sherif Danish founded Saqqara Systems because he envisioned it as a way "to satisfy the customers of our customers." His product, Step Search, helps simplify the product-selection process.

Step Search is pretty straightforward. It presents tables with categories and the choices to make in each category. As the user chooses items, Step Search dynamically generates a new HTML table display to fit the remaining options, which it locates by scanning the database quickly to locate the products that fit the selection criteria.

The Saqqara demonstration that helps you choose an IBM laptop is a great example. It presents many important configuration options (e.g., processor type and speed, CD-ROM, screen type, storage capacity, special features). You might click on Pentium processor, which would eliminate all the 486 and PowerPC models (reducing the number of laptop models that would satisfy your criteria to 18). Then select the 1.2 Gb hard disk (now there are five models left). Change your mind? Any options you selected earlier are shown in bold face. Click on them and they "undo," allowing you to take a different path. Need information about the selection criteria? Information icons lead to explanations. It's all quite straightforward.

Saqqara has similar prototype systems for choosing Apple Macintoshes, HP laser printers and power supplies, Sony HandyCams, Xerox paper products and residential real estate in Silicon Valley. Its major commercial success
story so far, however, is AMP Inc., which supplies electrical connectors and other components to manufacturers. Step Search allows customers to find the right connector so they can place an order.

Open Market is one of Saqqara's strategic partners. The two companies are integrating their technologies in order to offer a complete solution for product selection, ordering and payment. Saqqara also plans to team up with hardware vendors to create turnkey systems for their customers.

Think of Step Search as a market-enabling tool, potentially front-ending classified ads (this demo helps show how poorly suited intelligent agents would be; often one is willing to trade one feature for another, or to contemplate alternatives that are quite different from each other). Maybe Danish can create a Step Search application to select venture-capital investments. His company already has one for selecting mutual funds.

Danish provided Saqqara's seed funding himself and is now starting the first round of venture funding. The company now has 12 employees.

Worlds Inc.: Virtual places a la carte

Last year Worlds Inc. showed an early prototype of its 3D multi-user environment in the Rumpus Room. That prototype quickly turned into Worlds Chat, a 3D space station with user-chosen human, animal and imaginary avatars. A few months later, Worlds began testing AlphaWorld, a 3D world with one-size-fits-all 3D avatars and a special twist: AlphaWorld citizens can build things (see Release 1.0, 11-95).

In most virtual environments, participants can move, chat and interact in other ways that are often quite amusing, but they can't leave behind anything that they created. AlphaWorld allows its members to instantiate objects and leave them behind. As a result, the people using AlphaWorld have created a thriving metropolis, complete with gardens and lavish houses.

One of the most compelling projects launched with AlphaWorld is the Starbright Worlds system, for use by chronically ill children in a half-dozen hospitals across the US. The Starbright Foundation is a Steven Spielberg initiative to help these kids connect with each other and hopefully recover more quickly, or at least live more cheerfully.

Worlds has changed its market strategy since last year, too. With a new ceo recruited from Tandem, Don Fowler, Worlds has decided to stop trying to earn its main revenues from its own online services and instead to emphasize licensing its technology to other companies. It will still operate the worlds it has now. In May, as an experiment, Worlds will launch an enhanced version of Worlds Chat that users will have to pay to use.

To get there, Worlds has embraced Java and VRML. Its upcoming release is written completely in Java. A month ago, it did a major overhaul of the AlphaWorld server and added several features to the environment, including Grand Central Station, transporters (to get from place to place quickly) and commercial zones. Participants can now create links from objects in AlphaWorld out to Web pages. Worlds is also in the middle of a new round of financing.

Release 1.0

17 March 1996
THE RUMPUS ROOM

The Rumpus Room has three themes this year: personal data interchange, Web authoring and shared virtual spaces (see Release 1.0, 9-93, 9-95 and 11-95, respectively, for more background information). It's also really two rooms with all the doors between them kept open. Nonetheless, this description of what is in the Rumpus Room will treat it as one continuous space. The physical directions will make sense when you get there.

The digital photo studio is the best place to begin a tour if you want to get your hands dirty by checking out the technology yourself. There, you can take photographs of yourself, your friends, kids or competitors using digital cameras from Kodak, and upload them to a staging area on the Forum Web. You can also digitize printed materials using PaperPort scanners from Visioneer or print any of these items on color printers from Tektronix. Then you have some choices to make.

Head clockwise, and you can use your picture to build a personal electronic calling card, then put the card to work in a variety of ways (don't leave the Forum without one!). Head counter-clockwise, and you can design and publish your own Web pages and create places using tools from Netscape, Microsoft and Paragraph. We will put those creations in a special section of the Forum Web. Where those two themes meet, opposite the photo studio, you'll find the shared virtual spaces from OnLive!, Ubique and Chaco Communications, as well as some cool Java applets from EarthWeb. As before, Rumpus Room guides -- Judi Clark, Emily Davidow and Jerry Michalski -- will help you understand what's going on and find what you need.

Thank you, hardware suppliers to the PC Forum: NEC for laptops and monitors, Compaq for desktop systems, Kodak for digital cameras, Visioneer for scanners and Tektronix for color printers. Plus a special thanks to AOLnet (known as ANS until AOL bought it), which is providing T-1 access to the Internet again this year.

Clockwise: Personal data interchange

Tired of filling out forms at Websites, doing data-entry into your PIMs and writing down people's names, companies and addresses in your Day Runner? Waiting for centralized directories or Caller ID to solve these problems? You need an electronic calling card. In fact, you need many of them. You may not know how much you need them, yet. The goal of this section of the Rumpus Room is to show you why you need them and how you'll use them.

Many companies have special-purpose software identification cards, but only the Versit consortium (formed a year and a half ago by Apple, AT&T, IBM and Siemens/Rolm) and Microsoft have been working on general-purpose cards that will work between many applications and across various media (e.g., infrared links, phone lines, the Internet, directly connected cables and others) and computer systems.

The idea is simple: The card contains your name, company, phone, fax, e-mail and other pointers, as well as a company logo, picture, public key and URL. The URL turns the card into a link to the rest of your identity, any-
where on the Internet. You will probably have several cards, or a card with several variants -- one for strangers, one for friends and one for purchases (which would include your billing and shipping address information). There are many ways that vendors might implement these cards.

Here are some of the things you will be able to do with your electronic calling card in the Rumpus Room:

- Fill out a Web form (or use a client application) and generate a personal card.
- Send that card to someone at another workstation as an e-mail attachment.
- Drop the card into a contact manager, which automatically stores it properly.
- Use the card to autodial (initiate a phone call) from one laptop to another.
- During the laptop-to-laptop call, trade cards with the other party (in principle, you could leave your card in someone’s voicemail, but this feature won’t be finished in time for the Forum).
- Visit a Web page that has a card button; click on it and see the card information displayed.
- Visit a Web page with a form; drop a card on it to fill out the form (to register).
- Drag a card off a Web page and into a PIM.
- Go to a Website that’s being automatically updated by the PIM and see the card info there.
- Drop a card into a guest-book or goldfish-bowl icon on a Web page.

The companies collaborating to make all this happen are IBM (through the Versit alliance), Now Software, Netscape, Fourll and Ring Zero Systems. All of them have implemented the Versit vCard specification. IBM’s team developed code that allows people to generate vCards, both as a small, stand-alone application and through a Web form. The Versit team worked with San Mateo, CA-based Ring Zero, which makes PC-based telephony software, to enable the exchange of vCards over phone lines via digital simultaneous voice and data (DSVD) modems. Card information is searchable, so it will show up in the major search engines. How cards are used (where they are placed, how they are marked) will evolve over time.

Now Software, which makes popular contact-management and calendaring programs, used the vCard spec and Microsoft’s OLE drag-and-drop technology to

---

1 In the Rumpus Room you’ll find Tom Streeter, Frank Dawson and Al Rosen as Versit representatives, as well as consultant Roland Alden, who created the precursor to the vCard while he was at GO Corp.
enhance its software so that vCards could be imported transparently. The company worked with Fourll, a Web-based directory service, to add vCard functionality. You can choose any individual's record in the Fourll system and generate a vCard for that person. Conversely, you can register yourself with the Fourll service by dropping your vCard on its Web page. Imagine having most of the work of filling out forms or registering for stuff done for you!

Don't leave the Forum without creating your own vCard. Or visit Versit's site later and create one. Show your friends. If we all use them it'll remove a lot of friction from our communication environment and free us up to do the things we like to do -- like interact!

Save that date!

Calling-card information isn't the only time-consuming thing we exchange all the time. Another big one is calendar-event information ("Talk to you next Thursday at three? Great! Don't miss the show tomorrow evening at eight."). Now Software has extrapolated Versit's vCard specification to an event-exchange protocol and implemented it. In the Rumpus Room, Now will debut the event-exchange capability by showing how one can create an event in Now's calendar and have it show up automatically on a Web-based calendar page. Visit a Website that contains event information such as a basketball game, then drag a tag representing that event into Now-Up-To-Date's calendar, where it shows up in its proper place. More impressive still is the ability to drag a tag that represents a series of events -- say, a sports team's season schedule -- and have them all drop into their proper places.

Now is working with other companies to put their calendar information on the Web and make it accessible to software that uses Now's calendar-event exchange spec. Imagine schedules for movies, theater performances, sporting events, community meetings and family get-togethers all easily available on public and private Websites. Kerry Kelley, Now's Internet business manager, will be on hand to show how it works, as will Duane Schulz (the ceo) and others from Now Software.

Versit recently published the finished specification for its vCard, which includes technical comments from many vendors, including Microsoft. (This spring, Now Software will publish its event-exchange protocol, which closely emulates the vCard spec.) Versit now has vCard software development kits available, as well as sample Java code for a vCard-capable applet. Microsoft's approach, the Contact Card, relies completely on OLE 2.0 and MAPI (Microsoft's Object Linking and Embedding technology and its Messaging API). This makes it rather powerful -- people can drag-and-drop cards between applications, as well as display cards' property sheets -- but limits their use to systems that run OLE. The Versit and Microsoft specifications use almost identical field definitions; they just implement them differently.

Netscape brought Versit together with a working group in the IETF (Internet Engineering Task Force). As a result, the vCard specification is on its way to being a registered MIME type and part of a larger directory-services specification. MIME compliance means that vCards will easily cross the Internet as e-mail attachments, Web page components and more.
Counter-clockwise: Web authoring

If you head the other direction from the digital photo studio, you can check out some tools that make creating Web pages and online spaces much easier than memorizing HTML tags or hard-coding equations and rendered patterns.

The first stop is Netscape, demonstrating Navigator Gold, which it first released for public beta in February. Gold is a superset of Navigator 2.0, so if you have any intention of authoring Web pages -- and we suspect that over time more and more people will -- it makes sense to get rid of the simple browser and run Gold all the time. (At least, it will when all the code is finished.)

The great idea behind where Netscape is taking Navigator is to re-use simple tools in sophisticated ways. More specifically, Navigator allows users to create Web-formatted documents with simple, WYSIWYG tools, then either send them as e-mail (Navigator's built-in e-mail client detects and renders HTML) or save them on a Website. That Website might be local -- even on a laptop -- or on a departmental or production server that the rest of the world can see, or just a few people with special permission. One could post e-mail messages to a newsgroup, or include links to Web pages.

All documents are thus composed of the same, simple, recursive parts. They can also include any of the fancier elements that Web pages can now include, such as plug-ins, helper apps and Java applets. This is the principle behind the ForumWeb (see below) and reflects the way we hope attendees use it. Feel free to experiment. Tell us what you learn.

Next to Netscape is Micrografx, the graphics software company, which has developed something that the Web has been missing for too long already: an object-graphics format to complement the GIFs and JPEGs that are sometimes so hard to use. Imagine, for example, the plan view of the Rumpus Room that will be part of the ForumWeb. In order to make the various vendor areas click-sensitive, a developer would have to generate mappings from zones on the image to scripts that would then return pointers to other Web pages (so you would go to Micrografx's home page when you clicked on their name, for example). If you didn’t like the arrangement of the vendor areas, you would have to redraw the bitmapped image, then fuss with the click-sensitive zones underneath, etc. It’s a hassle.

With object vector graphics, it’s much simpler. Each object has properties, including a URL to follow to another Web page. Moving and modifying the objects is simple using Micrografx Designer. And the person viewing the graphic might even be able to re-use the graphic. Micrografx is debuting its Quicksilver plug-in here in the Rumpus Room. Darryl Worsham, the product manager, can demonstrate it while ceo Paul Grayson looks on.

Microsoft recently bought Vermeer, a Web-authoring tool company that we profiled last fall (see Release 1.0, 9-95). Vermeer's FrontPage is now the high-profile Web authoring tool in the middle of Microsoft’s Web-authoring suite, which, from the low end to the high, includes Internet Assistant for Word (and Excel and PowerPoint), Microsoft Publisher, FrontPage and Internet Studio (codenamed Blackbird and until recently doing double duty between MSN and Web development).
A year from now, most of these tools will probably be quite different. Microsoft should take this time to rethink and redesign its authoring tool suite (the recent reorganization should help). For now, though, you can create pages in the FrontPage Editor and see how they weave together in the FrontPage Explorer, which allows for tree-top views of Websites. FrontPage makes it easy to have consistent banners and toolbars on a Website. It also includes canned, customizable scripts and wizards to help set them up.

Randy Forgaard, FrontPage's designer, took great advantage of Windows 95 in its design. Microsoft staffers must have been astonished when they saw it. Now they own it.

The final authoring tool is ParaGraph's Virtual Home Space Builder, which allows users to construct 3D spaces. Last year, company president Stepan Pachikov showed this tool in its early stages (see Release 1.0, 2-95). Now, authors can save scenes in ParaGraph's own format or as VRML files. They can add sprites, navigate around, change textures, hang paintings and more, all with intuitive tools and commands.

The Virtual Home Space Builder is Pachikov's brainchild and is part of his ambitious plan to develop virtual environments that can call up any epoch in history, complete with places and artifacts appropriate to the period, as well as persons with whom one might be able to interact. So eventually, one could talk to Plato while touring the Acropolis in its prime, before armies, car exhaust and other corrosive agents got to it -- sort of a software version of Bill and Ted's Excellent Adventure. Pachikov was motivated to build this environment for his son, Alex, whom you can hear at the "final test" session on Wednesday.

Also in this section (although not an authoring tool per se) is EarthWeb, showing some of the Java applets that it and others have created and which are cataloged at the company's Gamelan Website (see page 24). Early Java applets made it hard to take the language seriously. They were simple graphics routines or trivial bouncing objects. Now companies have developed full-fledged applications that make Java a real contender. Check them out here with Jack Hidary, the company's president and ceo.

In between: Shared virtual spaces and more

There's far more to socializing in cyberspace than text-based chat rooms and MUDs (Multi-User Dimensions; text-oriented multi-player environments usually focused on a theme). Many of the systems featured in this part of the Rumpus Room build on chat-room and MUD technology. They add entertaining and useful capabilities that change the nature of participants' interactions. Think of them as features or capabilities you might add to any online experience or document. For example, an ordinary document can easily act as a launch platform for real-time audio discussion groups. (We wrote about OnLive!, Chaco and Ubique last November.)

Multi-user virtual environments come in many flavors, but OnLive!'s 3D virtual spaces have a special accent that makes them special (see page 48). In fact, they're the only online multi-party virtual spaces where you can detect accents, because they offer live audio. The audio is linked to mouth movements on 3D head avatars that participants can customize. It's quite sophisticated. You hear people on your right from the right speaker. As participants get further away, their voices become fainter. Henry Nash, the company's chief technology officer, can explain how it all works.
The sounds coming from the virtual spaces you can visit with Chaco Communications' Pueblo software are MIDI tunes. Chaco lets MUD and MOO system operators (known as wizards in the trade) add HTML and VRML capabilities to their online worlds. The effect drives home the recursive nature of the Internet's core technologies.

The Pueblo client can any number of panes, arranged as the MUD server directs. One pane might contain the text from a traditional MUD session, but enhanced with HTML links, so that the user can click on the word "forest" instead of typing "go forest." Another pane might contain a standard Web page, and a third might be a 3D VRML space. The panes can be linked to each other in interesting ways. Clicking "forest" could not only move the text world, it could load a new VRML space, and so on. Because the Pueblo client is quite flexible, the MUD server can reconfigure it to look like a multi-user Myst game, an online interactive magazine or a conference session.

Chaco is partnering with education, game, publishing and other software companies to bring content to the Pueblo infrastructure. Early adopters of Chaco technology include Virtual Online University (education), Velocity (games) and SenseMedia (publishing). Dan Greening, one of Chaco's founders (and also an erstwhile Novell employee) will be demoing live interactions with Virtual Online University students and faculty during the PC Forum.

Udi Shapiro first showed Virtual Places in prototype form at last year's PC Forum. Since then, AOL bought his company, Ubique, and gave him more resources to create a robust version. He'll show the new release in the Rumpus Room. Virtual Places turns Web pages into stages around and on which participants can visit and chat. They can also take each other on tours of the Web.

The basic interface attaches two windows to your Web browser. On the right is a list of the Virtual Places-enabled participants who are also at the Website you are currently visiting. Below the browser is a chat/control window that allows you to see how many people are at each server with Virtual Places functionality. You can then go to a particular server, invite others present to chat and type away the time. The interface has matured considerably and is quite intuitive. Participants can create their own icon representations and will eventually be able to use audio chat as well.

Most Internet phones offer audio over TCP/IP but few bells and whistles. Some require you to find others by logging into special servers. NetSpeak's WebPhone is direct and powerful -- it's designed for serious users and includes a lengthy list of features such as full-duplex (simultaneous two-way) operation, voicemail, call hold and encryption.

THE FORUM NETWORK

For many years, the Forum has featured a network of PCs with discussion databases as well as e-mail software. Last year, the Forum network included Web browsers and a ForumWeb (the year before it had included only Telnet so that attendees could check their work or private e-mail).

Previously, the discussion databases were in Lotus Notes. This year, we're trying out Netscape's vision (admittedly, we're trying it before it's fully
formed). The discussion databases will be hosted in Internet newsgroups private to the PC Forum. The ForumWeb and the newsgroups will be better linked than before. Because Netscape Navigator 2.0 includes e-mail and news-reader clients, it will be possible to connect elements in intriguing combinations.

A simple example is a tag located next to some text on the ForumWeb that links directly to a relevant discussion thread. A more complex one is a link mentioned in a news posting or an e-mail message. That link might point back to a specific place in the ForumWeb, or to anywhere else on the Internet. Any element is fair game for inclusion in the conversation, as evidence or as an example.

As you design Web pages in the Rumpus Room, feel free to link them to other parts of the ForumWeb. We encourage you to experiment with these tools, use them, and suggest new ways for us to make them useful. If we can, we'll modify the ForumWeb on the fly and report on the changes.

------------------------

COMING SOON

- Networked object graphics.
- Avatars: motion and emotion online.
- The analog world.
- Collaboration tools.
- And much more... (If you know of any good examples of the categories listed above, please let us know.)
PEOPLE & COORDINATES

William R. Hearst III, @Home, (415) 944-7200; fax, (415) 944-8500; whearst@kpcb.com

John C. Petrillo, AT&T, (908) 221-7254; fax, (908) 221-5335; john_c_petrillo@attmail.com

Rick Smolan, Against All Odds Productions, (415) 331-6300; fax, (415) 331-9400; rick519@aol.com

Michael Demetrios, Aleph, (415) 512-1112; fax, (415) 512-1121; michael@aleph.com

Steve Case, America Online, (703) 448-8700/883-1568; fax, (703) 918-1400; stevecase@aol.com

Raymond W. Smith, Bell Atlantic, (703) 974-3880; fax, (703) 974-0812; raymond.w.smith@bell-atl.com

Daniel R. Greening, Chaco Communications, (408) 996-1115; fax, (408) 865-0571; greening@chaco.com

Thomas P. Kehler, Connect Inc., (415) 254-4021; fax, (415) 254-4848; kehler@connectinc.com

Kelly L. Frey, Copyright Clearance Center, (508) 750-8400; fax, (508) 750-4904; kfrey@aol.com

Jack D. Hidary, EarthWeb, (212) 725-6550; fax, (212) 725-6559; jack@earthweb.com

Jordan W. Graham, Electric Classifieds, (415) 284-5300, ext. 333; fax, (415) 284-5315; jgraham@eci.net

Douglas Crockford, Electric Communities, (415) 917-5640; fax, (415) 917-5650; crock@electronic.com

Jim Opfer, Farcast, (415) 520-9999; fax, (415) 327-5603; jim@farcast.com

Lee H. Stein, First Virtual Holdings, (619) 793-2700; fax, (619) 793-2950; lstein@fv.com

Lisa Gansky, GNN, (510) 883-7220; fax, (510) 883-7222; lisag@gnn.com

William T. Gross, Idealab!, (818) 246-9500; fax, (818) 246-9186/0930; bill_gross@adventure.com

Scott D. Cook, Intuit, (415) 944-2721; fax, (415) 329-6999; scott_cook@intuit.com

Michael D. Zisman, Lotus, (617) 693-1663; fax, (617) 225-8005; mzisman@lotus.com

Bert C. Roberts, Jr., MCI Communications, (202) 887-2166; fax, (202) 887-2178; 1090239@mciemail.com

Darryl Worsham, Micrografx, (214) 994-6294; fax, (214) 994-6024; darrylw@micrografx.com

Michael Kinsley, Microsoft, (206) 703-1525; fax, (206) 936-7329; mich-kin@microsoft.com

Bernard Vergnes, Microsoft Europe, 33 (1) 46-35-10-10; fax, 33 (1) 46-35-10-30; bernardv@microsoft.com

Mary Meeker, Morgan Stanley, (212) 761-8042; fax, (212) 761-0472; mmeeker@ms.com

Tara Lemmey, Narrowline, (415) 442-4889; fax, (415) 957-1877; rumorx@narrowline.com

Samir Arora, NetObjects, (415) 562-0285; fax, (415) 562-0288; samir@netobjects.com

Robert Kennedy, Netscape, (407) 997-4001; fax, (407) 997-2401; robertnetspeak.com

James L. Barksdale, Netscape, (415) 528-2700; fax, (415) 528-4126; jmjbarksdale@netscape.com

Robert J. Frankenberg, Novell, (801) 222-4428; fax, (801) 222-4478; bfrank@novell.com
Kerry Kelley, **Now Software**, (503) 274-6338; fax, (503) 274-6368; kelly@nowsoft.com

Betsy Pace, **OnLive! Technologies**, (408) 366-6000; fax, (408) 366-0357; betsy@onlive.com

Henry Nash, **Onlive! Technologies**, (408) 366-6000; fax, (408) 366-0357; henry@onlive.com

Jerry Kaplan, **Onsale**, (415) 428-0600 x205; fax, (415) 428-0163; jkaplan@onsale.com

Raymond J. Lane, **Oracle**, (415) 506-4188; fax, (415) 506-1088; rlane@us.oracle.com

Stepan Pachikov, **ParaGraph International**, (408) 364-7700; fax, (408) 374-5466; pachikov@paragraph.com

Ed Bennett, **Prodigy Services**, (212) 253-7058; fax, (212) 253-7059; bennett@prodigy.com

John B. Evans, **R.E.M. Productions**, (908) 735-7100; fax, (908) 735-2018; johnbevans@msn.com

David M. Beirne, **R.E.M. Productions**, (908) 735-7100; fax, (908) 735-2018; dbeirne@aol.com

Francis Fukuyama, **Rand Corporation**, (202) 296-5000 x5617; fax, (202) 296-7960; fukuyama@wash.rand.org

Sherif Danish, **Saqqara Systems**, (408) 738-4858; fax, (408) 738-8345; sdanish@saqqara.com

William N. Joy, **Sun Microsystems**, (970) 920-7444; fax, (970) 920-7404; bill.joy@sun.com

Ehud Shapiro, **Ubique**, (703) 453-4329; fax, (703) 453-4008; udi@ubique.co.il

Roland H. Alden, **Versit**, (415) 296-9106; fax, (415) 296-9016; ralden@sfgate.com

Frank Dawson, **Versit**, (919) 254-5861; fax, (919) 543-6822; fdawson@vnet.ibm.com

Thomas J. Streeter, **Versit**, (919) 543-0229; fax, (919) 543-6822; streeter@vnet.ibm.com

Bran Ferren, **Walt Disney Imagineering**, (818) 544-3400; fax, (818) 544-7296; ferren@cc.wdi.disney.com

Dudley M. Nigg, **Wells Fargo Bank**, (415) 396-3970; fax, (415) 397-2987; niggd@wellsfargo.com

David P. Gobel, **Worlds Inc.**, (415) 281-1300; fax, (415) 281-4899; daveg@worlds.net

---

**Release 1.0** is published monthly, except for a combined July/August issue, by EDventure Holdings, 104 Fifth Ave., New York, NY 10011-6901; (212) 924-8800; fax, (212) 924-0240. It covers pcs, software, the Internet, computer-telephone integration, online services, groupware, text management, connectivity, messaging, wireless communications, intellectual property law and other unpredictable topics. Editor: Esther Dyson (edyson@edventure.com); publisher: Daphne Kis (daphne@edventure.com); managing editor: Jerry Michalski (spiff@edventure.com); circulation & fulfillment manager: Robyn Sturm (robyn@edventure.com); executive assistant: Christy Snipp (christy@edventure.com); editorial & marketing communications consultant: William M. Kutik (kutik@edventure.com). Copyright 1996, EDventure Holdings Inc. All rights reserved. No material in this publication may be reproduced without written permission; however, we gladly arrange for reprints or bulk purchases. Subscriptions cost $595 per year, $650 overseas.

**Release 1.0**
17 March 1996
Please enter my subscription to Release 1.0 at the rate of $595 per year in the U.S. and Canada. Overseas subscriptions are $650, airmail postage included. Payment must be enclosed. Multiple-copy rates available on request. Satisfaction guaranteed or your money back.

Name ____________________________________________
Title _____________________________________________
Company __________________________________________
Address __________________________________________
City __________________________ State __________ Zip __________
Telephone __________________________

☐ Check enclosed.
☐ Charge my
   ☐ American Express   ☐ MasterCard   ☐ Visa
   Card Number __________________________ Expiration Date __________
   Name on Card __________________________ Signature __________________________

☐ Please send me information on your multiple-copy rate.

Please fill in the information above and send to:

EDVENTURE HOLDINGS INC.
104 FIFTH AVENUE, 20TH FLOOR
NEW YORK, NY 10011

If you have any questions, please call us at 1 (212) 924-8800;
Fax 1 (212) 924-0240; e-mail info@edventure.com.

Daphne Kis
Publisher