SERIUS AMBITIONS: NOT JUST A YOUNG FACE

Joe Firmage, 21, has a product that might just deliver this year some of what IBM, Apple and Microsoft are promising for years ahead. It's not the complete operating system they're promising, but a development tool that could address the more interesting segment of the market (see Release 1.0, 9-91). The comparisons to a young Bill Gates are inevitable, but Firmage has an existing marketplace to sell into -- and to watch his every misstep. Most important, he has Bill Gates (and IBM and Apple) to compete with.

Last week Firmage's Serius Corporation received $1.5 million in its third round of funding: $700,000 from Novell and $800,000 from Crosspoint and some other venture capitalists. (Earlier investments total $1.9 million, from individuals and from Intermetrics, a government-oriented software and systems house where Dan Fylstra once worked.) Serius is best known for the youth of its founder, 21-year-old Joe Firmage, who was sixteen when he started development of the company's flagship development tool/class library. What PR agent -- or publication -- could resist a hook like that? But a clever hook isn't worth $1.5 million, nor can it garner a 2800-strong customer base and $700,000 in revenues (1991 estimate).

This February, Serius will ship Release 3 of Serius Developer. The basic concept is simple: Build an all-new object-oriented development environment from scratch. It is not an operating system, but in the marketplace it and competing products will occupy the lucrative space held heretofore by operating systems: a cross-OS development platform for application vendors (although the current Serius implementation is Mac-only). Meanwhile, the operating system will take on a new role as an object manager invisible to most commercial developers and systems integrators, who will simply interact with the objects. (Novell is working on the fundamental problem of growing its file/directory/name service into an object manager, and will use Serius Developer as a test case.)

The question is, Should the OS/object manager and the object framework belong to the same vendor, or can the same object framework run across OSes, as Serius implicitly proposes? Apple and IBM are trying to hold on to both with Pink, as NeXT is trying with Next-Step and Microsoft is trying to do retroactively with Windows, OLE and other tools to make its applications more open and its OS more all-encompassing. Despite Microsoft's vigorous protestations of independence between systems and applications, the two areas in fact are getting technically tighter all the time (in general, not just at Microsoft). Is Microsoft's Mail API, for example, an application component or part of the OS/environment? Yes.

PHIL SALIN, IN MEMORIAM
On beyond the naked OS

Serius Developer (and its confusingly named "Programmer" tool for less technical users) rests on top of an operating system and GUI -- in its first implementation, on the Mac. It's a set of customizable, extendable object-oriented applications. Many people in this market offer just a language plus a set of mostly low-level, machine-oriented objects. (Apple's own MacApp is higher-level, but lacks the full-scale applications suite Serius includes.) Serius Developer will include not just a framework and plumbing, but class libraries to do the actual work: a database engine, animation tools, communications, and oh by the way, a multi-dimensional spreadsheet. Finally, there's a scripting language to tie them together -- and leave them open to additions and modifications from third parties. Just as the Mac allowed only one GUI, Serius supports only one reference set of the basic applications. Some people may complain that this limits their freedom, but that's how you become a standard (if you're lucky).

Serius and its ilk raise a fundamental question: Why do we need all these almost-alike databases, spreadsheets, word-processors and other standard-issue productivity tools? While that may seem like heresy from the point of view of the applications developers who sell them all, so once did the notion of having a single GUI (or even just a few). What gave Microsoft or Apple the right to determine "standard" look-and-feels? Nothing but a general move by customers eager to adopt a marketplace standard rather than a confusing breadth of options. Do they have the "right" also to determine our next generation, including standard object-oriented application suites/class libraries? That's not a right, but a business question that depends in part on timing, in part on quality -- and in part on history. The vendor that can offer the leading, truly cross-platform development environment/class library has a chance to overturn history.

Meanwhile, who will be the developers? They will not be, by and large, designers of spreadsheets or database engines, but people using spreadsheets or database engines to build useful, task-specific applications. (Call them systems integrators to be trendy.) If all this leaves you skeptical, just consider current pricing trends for standard applications. Why should people build new ones instead of adding value to the standards?

In effect, Firmage, too young to be daunted and smart enough to crib from others' good work, went off and built his own complete environment -- initially to provide an accounting system for his mother's greeting card business. (She now works as Serius's office manager.) He spent two years on it by himself before starting a small development group of three developers in the spring of 1989. The resulting product was good enough to gather and support a team of 20 people by release 2.2. Now the company is about to announce 3.0, the first release of the real thing, and has plans to launch a Windows version next fall. It shifts the trade-off curve instead of moving along it: It lets you do almost anything in the standard office productivity arena, but it doesn't make you do much redundant work.

Release 1.0 26 December 1991
Seamless integration -- the product of a single mind

What makes Serius Developer special? Being object-oriented is a good start, but it’s not a guarantee of quality by itself. Aside from sheer metrics -- tight code, absence of bugs and so forth -- objects are good abstractions for organizing code; the closer the code matches the way someone might want to use it, the better designed the system is. Thus, aside from functionality, the key to objects is good programming interfaces, just as the key to good user tools and applications is good user interfaces -- not just in the way things look, but in the kind of functions they perform. Are those functions intuitive? Can the user easily express what he wants? Do they match what the program or user is trying to do?

Named ranges in a spreadsheet are a good example of a useful object: explicitly defined, useful both to a user and to another program that might want to extract or enter data. By contrast, cells are lower-level and harder to manipulate -- but they’re what developers came up with first and are now learning to supersede. Likewise, object mismatch underlies the frustrations you get when, for example, you have to identify a graphic object by its location on a page rather than its "real" identity, such as "Juan and Alice in Prague, June 1992." In code-level object-oriented systems, many classes have no real-world analogues. Their only purpose is to support other objects and manage the system, such as the "bartender" garbage-collection agent. On the other hand, building a monolithic, all-singing, all-dancing application is no longer good enough either. You don’t get the flexibility or openness that way.

Another question is how well the objects match each other. Integration isn’t just technical message-passing; it’s how easily and smoothly different objects communicate about common data. It’s everything from how fields are defined to how dates are specified. Of course, a translation program can always convert from anything to anything else, but the trick is to make it easy. There will always be a default in any system, and it’s easiest if the defaults and metaphors match. For example, consider the well-known problems of hooking dBASE up to an SQL engine. It can be done, but it’s ugly.

GoldiLocks and the Three Object-Oriented Bears...

An application  A class library  A Serius subject
-- too big    -- too small and numerous    -- just right

Release 1.0  26 December 1991
For example, says Firmage, in MacApp (as opposed to applications built with it) you usually are talking in terms of hundreds of classes, each with a number of methods, to build a typical application. That's too many to keep track of and learn -- too many to manipulate overall. By contrast, Serius Developer "objects" (or components, as Serius calls them to avoid religious arguments) are offered at a higher level of abstraction, and are less numerous. In a positioning as well as a technology move, Serius has pared them down to (or consolidated them into) a total of about 400 defined, extensible functions (callable like APIs) and 52 components. Moreover, Serius groups the components (and lets users group objects) into collections called subjects. These are somewhat arbitrary groups of related components that work together and look like an application to the end-user, except that they have wires that can hook them together. They can also be graphically wired together with specific functions (not just with one or two, as with many graphical programming tools), and most share data types.

As we noted in May (see Release 1.0, 5-90), we don't need new productivity applications as much as a way for users to program the ones they have -- with a scripting tool. Serius provides both the scriptable components and the scripting tools: a graphical scripter and a "fuzzy" script parser/language. The Serius Developer Interobject scripting facility, ObjecTalk, lets users combine Serius components or their own custom ones, and add simple functionality. (Perhaps the closest analogue is the use of UserLand's Frontier to orchestrate and combine well-crafted applications with AppleEvents; the problem, notes Firmage, is that such applications were generally not designed to work together. Moreover, in such a case you have the several applications running, whereas with Serius you merge just the requisite functions into a single unit.)

The technical implications

All this means little without third-party support and robust cross-platform implementations, which is why the Novell investment is so significant. Serius's challenge now is to build the promised versions for other platforms, and to persuade commercial developers to use its class libraries instead of building their own or waiting for a traditional, safe-choice OS vendor to supply them. UNIX, less crowded with applications than Mac or Windows, might be a promising place to gain critical mass. Although Novell evp Darrell Miller is careful to note that Novell's interest is only that of an investor, not a full-scale endorsement or any kind of exclusive arrangement, he's enthusiastic about the relationship. The two companies will be working together on an unspecified technology project, some of which likely includes Serius's work on Windows and possibly UNIX versions. Novell, of course, owns DR DOS through its acquisition of Digital Research, and has a

1 It's not that those objects don't exist underneath, but that Serius makes them unnecessary to deal with for all but the most interpid developers. A developer can go in and write new source code to subclass and refine or extend the objects provided with the system. The developer version is transparent to programmers, and is written in a variety of standard languages apart from the 10K kernel in assembler. But a less technical user can build real applications just by using and combining the components and modifying parameters.
55 percent interest in Univel, the shrink-wrap UNIX-for-Intel company (with partner UNIX System Labs).

Says Miller: "Our approach to building OSes is a 180-degree turn from before. It used to be that the chip manufacturers did the chip, then the operating system vendors would build a general set of services, matching those to the chip, and then they'd try to get application developers. Now we're starting with the application developers, and asking what they need. We'll build that, and eventually we'll get the chip makers to build for that software."

The major new feature of Novell's next version of NetWare, 3.2, slated for the end of 1992, will be its directory services -- in essence, a smart, installable file system that works across platforms (as long as they're NetWare) to manage all the things that operate over networks (and locally): users, tasks, files, documents, protocols, communication channels and ports, servers and services -- in a word, objects. Also necessary, as noted below, will be the intelligence to monitor use of all these objects in order to compensate the owners of the intellectual property -- an area Novell is addressing in its joint work with Hewlett-Packard and others on various licensing schemes. As long as the objects are explicitly defined, it's fairly easy for an agent to monitor their use and report to a licensing/accounting system.

"Before, all we did was file-sharing and printers. Now the expectations of generic application support are becoming more demanding. If applications consist of components, we should provide at least the services to store them, keep track of them, authenticate who has rights to them, synchronize them, all transparently. We have to do this generically and explicitly, not at a machine level; we can't leave it all up to the developers anymore."

-- Darrell Miller, Novell

Serius will provide a fine test suite of a full object-oriented application framework and applications to test out NetWare's new directory services. Since both companies are based in the Salt Lake City area in Utah (along with Folio, page 16), the whole arrangement makes a lot of practical sense. And, from Novell's point of view, it helps to build the local infrastructure and create some local technical excitement.

The business implications

Assuming that the new version of the system is as robust as Version 2.2, which has 2800 users, lots of people will still argue over the merits of the specific implementation, but the business questions the system raises are more interesting.

Suppose that Serius's scheme all works as advertised. Basically, we believe, it will address the most interesting market of the future -- system builders, not code writers. This is the market IBM and Apple are going after, as are Microsoft, Sun and virtually any other platform vendor with any pretensions. Serius's big advantage is that no one yet perceives it as
a threat -- except perhaps Microsoft, which wisely perceives everything as a threat. "We've been allowed five years of R&D under the covers, plus three years of hands-on feedback from commercial users," says Firmage. Five years is a long time -- long enough to build up more than the famous million-plus lines of code Apple has created so far for Pink. Moreover, Serius's lines have been tested by real-life users.

So far, the company has been underpricing its tools -- a sensible approach to build a customer base. Any applications developed on Serius Developer can be resold freely. The system works as a development environment cum compiler; only the database and the spreadsheet require a license for each user of the resulting applications. (The communications, multimedia and scripting tools are also sold separately, but applications created with them may be resold without further payments to Serius.) In addition to about 2800 users of the earlier developer tool versions, Firmage estimates, there are about 2000 users of Serius-developed applications with paid-for database modules, and another 5000 to 10,000 users of Serius applications without the database engine.

Long run, widespread use of reusable components will require complex intellectual property arrangements. The OS will monitor usage of the identified objects, and developers and platform providers will all get their cuts through some electronic payment scheme. But for now, to establish its product in the market, Serius is basically giving most of it away for free. Third parties who buy it support their products themselves, so Serius incurs little cost in doing so, and is also making a huge investment in its own future. After all, if every customer gets everything for free but buys just the database engine, that's the same as every customer buys a copy of DOS. So what if the other stuff is free, as long as Serius gets a cut from each user?

***

PHIL SALIN AND AMIX

Phil Salin, who wrote the essay on costs and information in our last issue, died earlier this month of complications from liver cancer. This was a personal loss to his wife Gayle Pergamit and many friends; it was also a loss to the world at large, as the works he left behind indicate. The most significant of these is the American Information Exchange, which is starting commercial operations this January in the wake of his death. We extend sympathy to those he left behind, but we'd like to honor his contributions by discussing them for their intrinsic merit...

American Information Exchange, started in 1984, is about to launch its service with the support of its parent Autodesk (see Release 1.0, 7-89). The basic idea is an information exchange, which allows people both to offer and to bid for specific information. The information can be either ready-to-use

Release 1.0

26 December 1991
documents, software or data, or custom information services provided on re-
quest to a customer's spec. Like most markets (listen up, Soviet units!),
the result will be not just better, more efficient distribution of existing
information products, but the creation of a feedback system, whereby more
information is produced and tailored to users' needs.

Buyers and sellers can negotiate over contents, level of detail, prices,
terms and conditions: exclusivity, timing, reuse and other issues. Buyers
can also assess the qualifications of a supplier by inspecting authenticated
references from previous customers or any other information the vendor cares
to supply for free -- including free samples, or the first few pages or a
summary of a more detailed report. (Other sellers might provide a fee-based
evaluation service.)

As the middleman, AMIX keeps order, maintains the market and arbitrates dis-
putes. And of course, it gets about 30 percent on average of the revenues.
However, it makes no prohibitions against private sales, such as additional
business or long-term subscriptions, once buyer and seller establish a rela-
tionship. It is not attempting to gain a monopoly on transactions among its
customers, but simply to earn money for facilitating transactions that might
not otherwise occur.

The point is to make more information more accessible on a semi-random
basis, among buyers and sellers who do not know each other. In short, the
credo is to reduce the transaction costs for information, as described in
Salin's essay in our November issue.

How it works

The service begins this month with several markets: pc industry trends;
technical information on NetWare, MS Windows and desktop publishing and mul-
timedia; and executable software for sale (with license restrictions as
defined by sellers), including full applications and Smalltalk, C, C++ and
Microsoft Windows modules and components. The choice of subjects reflects
the fact that people who want computer-oriented market information are the
most likely both to be online in the first place, and to feel comfortable
with a service such as AMIX's. Each information "market" has a market man-
ger, someone whose job is to find and enroll sellers and buyers, make sure
that the information offered matches the market profile, and handle com-
plaints and problems of market participants. If a market overflows with
information, the market manager decides how to subdivide it, or into which
market to redirect participants.

Would-be buyers pay $50 to join for six months and $5 per month thereafter,
plus $3 to $9 per hour for connect time (including long-distance costs),
billed to a credit card. Buyers get the requisite client software. Sellers
pay to AMIX 40 percent of the first $50 of each transaction down to 10 per-
cent of any amount over $500. They also pay storage fees for posting their
wares or descriptions of them (which discourages them from cluttering the
system with items that are mispriced or inappropriate). The information
purchased will generally be delivered through the system, but it could also
be delivered by mail, Federal Express, or in an agreed-upon consulting ses-
sion by phone or in person. The seller can handle simple sales automatical-
ly; for example, anyone who wants to pay the price can automatically down-
load a given report at a given price.

Release 1.0

26 December 1991
Not just another text filter

Although it does address the problem of information overload, AMIX is not just another automatic text filtering tool that lets you select certain items by category or keywords (although certainly you could program an agent to do so). The system isn’t a database (or even a document server) to be searched; it’s an electronic intermediary between living, conscious people or firms. Juan can leave a message for Alice to negotiate a fee, or if he wishes, he can pick up the telephone. AMIX’s role is to facilitate transactions, not to interpose itself.

Beyond this, two features make all the difference: Each item has a specific price, which may be negotiated; you’re not paying a blanket fee for a bundle of information you want only a portion of. Second, some items don’t yet exist. The seller is offering a capability, and will provide the information or service on request for a fee. Thus AMIX will have an impact not just on who gets the information that is produced, but on what gets produced. And, if you believe in the efficiency of markets, more of precisely the right stuff will get produced, and the low-quality redundant stuff will diminish.

By and large, most of our information purchases are through long-term relationships. It’s as if we had all been saying up to now, "Well, I guess I’ll wear whatever Ann Taylor or Levi brings out this month." Imagine the state of the apparel industry -- and the variety of people’s clothing. Now, in effect, you can pick and choose from all the suppliers, and get someone to custom-make your clothes. In other words, consumer feedback becomes more fine-grained: "This information is interesting; that is not," instead of "Well, this service or periodical has more of what I want than anyone else."

Our own vested interest

Our personal interest in AMIX is threefold: as a user, to find information we need (without rummaging through old PC Weeks, calling up IDC or asking an industry friend); as a vendor, to find a broader market for the information we produce; and as an observer, watching the fruition of the information marketplace of the next decade.

As a vendor, we distribute this newsletter to a subscriber base of approximately 1300. Most of them probably read one or two issues thoroughly, and pass some on to others who might be interested. And of course people make copies -- a practice we acknowledge but do not permit -- either on a regular or irregular basis. At the moment the full text of the newsletter is available -- with several months’ delay -- through Ziff-Davis’s Information Access online service and its Computer Select CD-ROM.

So far, that service has meant little to us; there’s no feedback loop. We receive an annual fee from Ziff-Davis, but it’s related to Ziff’s overall on-line and CD-ROM revenues, with no relationship to how much people read our stuff as opposed to anyone else’s, let alone which particular items they might read. From another angle, however, we know of only two cases where people might have decided not to subscribe because they figured they could get the information electronically (and many more where people don’t subscribe because they get it "from a friend," or an investor, or whatever). In general, however, we assume we get exposure this way that leads people to subscribe. Part of the purpose of a newsletter or any strong editorial
product is not just the information but the selection of the information: "Hey, this is something you should know about, even though you might not be looking for it."

But the audience that wants everything we write is relatively small --- certainly compared to the audience, perhaps ten or even a hundred times larger, that wants one tenth or one hundredth of what we produce. Those people, moreover, are probably willing to pay more than one tenth or one hundredth of our subscription fee of $495 per year for those particular articles. If only they could find us -- or we could find them and sell a subset of what we write. With systems such as AMIX, this will happen.

However, it will be a while before we overcome the closed-market problem: How do we reach the people not on AMIX -- 100 million pc users minus a few hundred or thousand at best in the first few years of AMIX's life? Even assuming that the potential market is much smaller, just the people in the computer business, leaves a lot of the potential market unserved. That's why we need standards such as Wide-Area Information Server (see Release 1.0, 4-91) and broad interconnection of all these systems.

Markets and relationships

From AMIX's point of view, what of the danger that market participants will trade outside the market? (This is an issue for other markets, of course, such as the New York Stock Exchange, which is seeing its business going to third-market brokers and foreign markets.) First, AMIX properly sees its role as facilitating transactions among (relative) strangers and lowering transaction costs for searches, not as a way to tax long-term relationships between sellers and buyers. In the end, the buyer comes to the market to find the information; the seller, who pays the fees to AMIX (although of course it's built into prices) comes to the market to find buyers he can't find directly. Certainly there will be transactions conducted off-market, but that is business that doesn't belong at AMIX anyway. Sellers who habitually abuse the system -- offering items for sale and making side deals will eventually be delisted from the system, since AMIX can monitor activity, and wants only sellers who are active on its system.

The philosophy behind AMIX is that there's enough real need for its services -- facilitating transactions -- that it has no need to intrude on resulting relationships. The real relationship it wants is between itself and its buyers and sellers who come to its market to meet each other without the costs and inflexibilities that come from continuing relationships (such as subsidizing the production of information they don't want).

Thus, AMIX's initial seller base will be not so much the Gartner Groups and IDCs, although they may ultimately use it for incremental revenues, but the free-lancers, specialists and newsletter-writing oddballs who need a better way to find their potential markets. And it will certainly enable some people to leave their day jobs at large research organizations or other kinds of businesses for more fulfilling free-lance work doing only the assignments they want -- or electing to do those of high value to customers because the price is right.

See you on the net!

Release 1.0

26 December 1991
Attempting to promote an information market of a very different kind are Chip Elitzer, president of HomeFax, and co-founder and chief advisor Don Peppers, head of Chiat/Day/Mojo's direct-marketing arm. HomeFax is a service every former Regional Bell Operating Company should be jumping on, now that the government has allowed the RBOCs to offer information services. Likewise, it's something every newspaper in the country should be offering, if only to keep the RBOCs out. In fact, Elitzer has had little luck in raising funding or finding a corporate sponsor to implement his project; the advertising industry and everyone who depends on it are in immediate-problems-only mode right now. The basic idea is extremely simple, but the overall scheme is complex and airtight.

Fax servers, fax response and other fax tools are no longer novel, but HomeFax is different: It's fax as an advertising medium, with the intermediary, HomeFax, selling the recipients to the advertisers much as a newspaper does. However, it's closer to direct mail in the specificity of its targeting; like all new media, it's similar-except...

HomeFax also offers an elegant solution to the problem of data privacy. All without government regulation, it uses the guarantee of privacy -- limits on junk faxes -- as a customer benefit and carefully controls the access to its customers by advertisers. (This requires no government action along the lines we proposed in our June issue -- that the government should assert and enforce each citizen's full rights to disclose, sell or keep private most data about himself and his transactions. Instead, such ownership is guaranteed by contract in the HomeFax model.)

A fax for your attention

In short, the idea is that HomeFax offers its subscribers the use of a "free" fax machine; in return, the subscriber agrees to receive a specified number of pages (two, for now) of targeted advertising each day in a fax mailbox and to fill in a monthly questionnaire about purchase intentions. In any given month, the consumer can decline to fill in the form and pay $10 for continued use of the fax machine and mailbox. HomeFax acts as the middleman, receiving payment from the advertiser for delivering messages to qualified prospects. In the long run, there could also be different payment schemes based on transactions, but those work best with electronic mail and electronic transactions, as in the American Information Exchange, above.

HomeFax makes its money from the advertisers, who are not allowed to know the identities of the subscribers (unless a subscriber explicitly identifies himself to an advertiser). HomeFax knows who they are but won't tell an advertiser without the customer's permission. The HomeFax promise -- "We won't reveal who you are"2 -- protects both the subscribers' privacy and HomeFax's economic interests. The customer is free to buy from the vendor

--------

2 HomeFax was thinking of offering mail-merge as an an option to advertisers; HomeFax would have managed the process without letting advertisers see the names. But that's one of those too-clever ideas that could have backfired. "People would think we were breaking our promise," says Elitzer.
directly through normal channels, send in a coupon with a credit card number and address but no fax box number, or send in a fax coupon or free-form request for further information through HomeFax without revealing his fax box number. HomeFax tells the advertiser how many people responded and forwards their communications and the advertisers' responses, but it keeps the subscribers' names and box numbers secret. Subscribers, however, are free to give out their box numbers to friends and family or even advertisers.

The logistics

To get a critical-mass service started, Elitzer estimates, HomeFax should start with at least 5000 homes -- a capital cost/barrier of about $4 million. Each fax machine costs only about $300, or less in volume, and then there's software, marketing, support and overhead. Much as the phone company used to own your telephone in the good old days, HomeFax will own your fax machine, taking responsibility for keeping it in order.

In a few years, home fax machines are likely to be so prevalent that HomeFax will own only the server and the information, but the basic dynamics of the system -- service subsidized by advertisers -- will be the same. HomeFax's large-scale fax server will receive, store and transmit faxes, including the advertising materials and also consumers' personal messages. It will also contain a database to manage the mailboxes and direct communications correctly, and handle billing and customer records. (The owner of the public fax box doesn't know who receives its messages. Someone who's not a subscriber who calls up a public fax box thus also keeps his identity unknown, because the request is handled by the HomeFax server.)

The consumer benefits from having a fax mailbox (with a PIN), so that his line isn't tied up receiving faxes; he calls up his mailbox to retrieve his faxes at his own convenience. Except for identity-protected responses to advertisers, however, he sends faxes directly to recipients at his own expense from his "free" fax machine. (He can also call his mailbox from the

---

### How HomeFax Public Faxboxes Work

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Dial the LOCAL HOMEXFAX PHONE NUMBER from your fax machine.</td>
</tr>
<tr>
<td>2</td>
<td>A recorded voice prompts you to ENTER YOUR BOX NUMBER AND PIN.</td>
</tr>
<tr>
<td>3</td>
<td>If the PIN is valid for that box, the voice instructs you to PRESS THE &quot;START&quot; KEY on your fax machine at the tone, and hang up the handset.</td>
</tr>
</tbody>
</table>

### TO RECEIVE your faxes, you
call THE LOCAL HOMEFAX MESSAGE PHONE NUMBER from any fax machine (if you're calling from out of town, you're placing a long distance call to reach that HomeFax number).

1. A recorded voice asks you to ENTER YOUR PIN. If the PIN is valid, the voice tells you how many pages of faxes you have in your box.
2. At the tone, you PRESS THE "START" KEY on the fax machine, and hang up the handset. Your faxes are immediately printed out on the fax machine you're calling from on the same phone call that you initiated.
3. If for any reason any of the pages are not successfully faxed--out-of-paper, line error, receiving machine malfunction, or simply because you are calling from a regular phone to see how many pages are in your box--those pages will remain safely in your box until you retrieve them.

---

### How HomeFax Personal Fax Mailboxes Work

<table>
<thead>
<tr>
<th>Step</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Dial the LOCAL HOMEXFAX PHONE NUMBER from your fax machine.</td>
</tr>
<tr>
<td>2</td>
<td>A recorded voice prompts the caller to ENTER YOUR BOX NUMBER.</td>
</tr>
<tr>
<td>3</td>
<td>If the box number entered is valid, the voice instructs the caller to PRESS THE &quot;START&quot; KEY on his fax machine at the tone, and hang up the handset.</td>
</tr>
</tbody>
</table>

### TO SEND an ad or other information, you
call THE LOCAL HOMEXFAX PHONE NUMBER from your fax machine.

1. A recorded voice prompts you to ENTER THE BOX NUMBER of the information he wants to receive.
2. The voice instructs the caller to PRESS THE "START" KEY on his fax machine at the tone, and hang up the handset.

### TO RETRIEVE your ad or other information, a caller
dial the LOCAL HOMEXFAX NUMBER from any fax machine (if he's calling from out of town, he's placing a long distance call to reach that HomeFax number).

1. A recorded voice prompts the caller to ENTER THE BOX NUMBER of the information he wants to receive.
2. The voice gives the caller the option to enter additional box numbers or to begin receiving the faxed material already requested.
3. The voice instructs the caller to PRESS THE "START" KEY on his fax machine at the tone, and hang up the handset.

### TO POST an ad or other information

1. Dial the LOCAL HOMEXFAX PHONE NUMBER from your fax machine.
2. A recorded voice prompts you to ENTER YOUR BOX NUMBER AND PIN.
3. If the PIN is valid for that box, the voice instructs you to PRESS THE "START" KEY on your fax machine at the tone, and hang up the handset.

---

Release 1.0 26 December 1991
road, or from home or office.) People sending him faxes don't get busy lines, and can reach him from any fax machine as long as they know the Home-Fax system number and his personal, unlisted fax box number. HomeFax will impose a limit on free box traffic and charge for it beyond about 1000 pages per month; that will keep HomeFax from having to do so retroactively -- a la Prodigy. (In retrospect, it's clear that at least part of Prodigy's problems arose from a less explicit contract with users and a mingling of advertising and editorial contents. With HomeFax, the distinctions should be clearer -- especially since HomeFax can learn from Prodigy's mistakes.)

Consensual commercial communications

Despite claims from the direct-mail industry that most consumers don't really care about "privacy," Elitzer's focus groups found it to be a major concern among the upscale consumers he hopes to address. Maybe they don't call it "privacy," just the right not to be bothered with junk. But whatever you call it, says Elitzer, most of those surveyed liked the idea of a fax mailbox as a gateway and intermediary between them and would-be advertisers (or other uninvited communications). And most would be happy to make the explicit contract HomeFax offers -- a free, identity-protected fax machine and service in return for a limited amount of screened advertising.

A consumer can even respond to an ad and request further information through HomeFax without revealing his identity. The only time he gives away his identity is when he knowingly fills and returns a form from the advertiser (not HomeFax's forms, which protect his identity), or if he purchases by credit card (at which point the credit card company gets hold of it, too). HomeFax keeps track of all his activity and mediates between him and the advertiser; in a future version, it could even handle billing and fulfillment with guaranteed confidentiality. Of course, then HomeFax would know everything... It would become, in effect, a databank like those we described in our June issue -- except that it would be a private one at the service of a defined group of advertisers. Those are issues for the future.

For now, this is the closest we've seen to a commercial venture that addresses the privacy issues. It's not perfect (it can't be in a world where privacy is unprotected) but it's a good start -- and an excellent model.

The advertiser's role

Why do the advertisers need HomeFax? Can't they just fax their messages direct? HomeFax acts like any other advertising medium (but with a flavor of direct mail), finding and delivering messages to consumers. HomeFax's limits on commercial messages (which in theory could be adjustable by the subscriber in return for a lesser or greater subsidy or even a payment) make
the service more appealing to the consumer, and provide the advertiser with a less cluttered medium and presumably a higher quality of recipient.

The advertiser benefits by getting targeted subscribers. Although the advertiser can't find out an identity until the consumer contacts him, he can specify what kind of customers he wants and (for a price, and to the extent that people who plan to buy three Porsches a year are available) HomeFax will deliver messages to them.

Separately, advertisers can rent public mailboxes from HomeFax (a good tie-in for a newspaper) and publish their fax numbers, either over HomeFax or in any other medium, such as newspaper ads, Yellow Pages, or even restaurant fliers: "Fax GOOD-EAT to download our daily specials and prices! Then fax your order back. 20 percent off before 11.30!" Thus an advertiser can publish a single number in a display or other ad, and deliver a continually changing message through the medium of fax. Just as with other fax services, for example, HomeFax public-box renters can publish a catalogue of numbers, prompting the customer to dial in for the particular information he wants. (This is also a handy service, but it doesn't offer the unique privacy or other features of the HomeFax advertising/private-box service.)

**Slow response**

So why can't HomeFax get funded? It's a model of how future systems will operate. In a sense, that's the problem. The idea is such a natural that everyone fears his advantage will be wiped away by immediate competition. There's little proprietary content to it. And since it's a medium for ads and a user's own communications rather than an editorial product, the assumption is that one guy's HomeFax service would be much like another's.

But that's not necessarily so. For starters, Elitzer is going after newspapers as the most logical target: They're local, they have a subscriber base -- and they have a lot to lose if someone else starts such a service in their territory. For example: "Free! With your paid-up subscription to the Globesville Gazette -- a brand-new fax machine and up to 20 free fax messages per month. All you have to do is agree to receive two sponsor messages a day...."

They are also uniquely positioned to include some editorial in the service: "Now you can receive background information on our editorial coverage -- sports scores, stock tables, maps of trouble spots around the world...." After reading an article on the school board, readers could call HomeFax to download a referendum ballot or an opinion questionnaire; a map of traffic hot spots for the holiday season; or the details of a housing commission meeting. The paper could publish an index of letters to the editor, sparing those of us who are not interested, but allowing virtually anyone to consider himself "published," with his opinions accessible to those readers who care. The New York Times is already generating serious audiotsx revenues with telephone tips on its crossword puzzles; think what it could do with HomeFax. The newspaper's advertisers, of course could also publish their public fax numbers in their ads (also in their ads in competing papers and Yellow Pages, of course).

The newspaper gets the fax revenues, cuts its printing costs (perhaps) and provides additional customer service. What's to prevent a competing paper
from offering the service? In most towns, there is only one paper. But yes, the rub is that HomeFax has little that's protectable other than the benefit of getting there first. But that's a big one. If HomeFax can gain critical mass, other media will have trouble butting in.

Why wait?

Perhaps the problem is that the newspapers feel both embattled now but (perhaps wrongly) secure enough in the long run to wait, and the other potential players don't want to take on the newspapers. That's why we're glad to see that the Bells have been unleashed -- and disappointed to see that they're not doing much about it. Of course, many may be planning services such as HomeFax on their own. We suspect, however, they'll discover there's more to it than technology. Owning phone lines isn't enough.

Elitzer has also talked with RBOCs, especially their directory operations, venture capitalists including telecom specialists, Yellow Pages publishers, fax machine manufacturers and others. "Most of them asked me to come back after I had proved the concept with someone else's money," he says.

The problem of unprotectable intellectual property is something of a red herring. Most good ideas (as opposed to implementations) are unprotectable. Should HomeFax be successful (or even if it's not) there will inevitably be similar services around. Elitzer, however, isn't really asking for money for his idea. He's asking for money to implement it. If the implementation is good, the first one in should make a lot more money back. Consider Federal Express -- one of the companies Elitzer helped to launch as a junior investment banker 15 years ago. Its idea was similarly ambitious and similarly unprotectable, yet the company did extremely well by being the first one in with a clear concept and a meticulous implementation.

The broader implications

Whoever the eventual players, HomeFax and media like it should open up a market for smaller advertisers who aren't in the game now, much as AMIX is doing for information vendors. Elitzer sees HomeFax as a local service (the customer pays for the phone calls to his fax box) that provides a medium for local advertisers though public fax boxes. It will probably start with existing local advertisers such as restaurants, retailers and the like.

But with volume-dependent service -- the advertiser pays depending on how many people call in for a fax -- smaller advertisers such as babysitters, semi-professional photographers, free-lance network techies, moonlighting pastry chefs and the like can join in -- as illustrated on the page across. Lots of people who couldn't afford to advertise will be able to do so.

Altogether, but on a different level from AMIX, HomeFax will offer a more fluid marketplace for occasional, low-cost services and occasional, low-cost suppliers to meet each other, replacing the bulletin board at the local supermarket and amplifying the backyard-fence informal network Juan and Alice use now. The purpose of AMIX is to extend the market for general information country- or even worldwide; the purpose of HomeFax is to introduce a more efficient market locally. (See Release 1.0, 9-91.)
For example, HomeFax could provide low-cost babysitter listings. Each babysitter would have his or her own fax number, from which a prospective customer could download the sitter's own description of his or her services (across). And of course the babysitter could change the listing by sending in a new one as bookings are made. One benefit of fax: You can tell a lot from the handwriting!

Hello. My name is Jill Jones, I'm 15 and a sophomore at Columbia High School in East Greenbush. I am a very experienced babysitter.

I'm available to sit for families within a five-minute drive from the center of town, and I need to be driven home and to my home on Elliot Avenue. My rate is $5.00 an hour for one child, and $6.00 an hour for two (sorry, but I can't do three or more).

My next available times for sitting are:

next Monday, July 8, 5:00pm - 10:30pm
Reserved - Wed., July 10, 3:30pm - 10:30pm
Saturday, July 13, all day until 11pm.
Tues., July 16, 7:30 pm - 10:30 pm
Wed., July 17, 3:30 pm - 10:30 pm

You can call me at 477-1212 or fax me at box 477-1212-1111.

HomeFax and Prodigy: Compare and contrast

HomeFax and Prodigy reflect the two technologies they are implementations of -- fax and electronic mail. Long run, HomeFax should give way to "Home-Mail," a similarly ID-protected, advertiser-sponsored e-mail network. (We hope, however, that it will be one of hundreds of linked networks, each with its own character, rules and members.) But in the short run, HomeFax makes a lot of sense. Prodigy (whatever the company says) requires a certain amount of computer sophistication -- or at least comfort -- to operate. The psychological aspect of HomeFax is very different: The customer is in control. He dials the fax box. He collects the mail, and faxes stuff back at his own pace. There is no blinking cursor, no interactivity that (seems to) require an immediate response, no keyboard. It all feels comfortably low-tech, and you can send handwritten messages. Of course all the benefits of computers are lacking, but many people don't want them yet. Moreover, many of them could be offered by the server: Address lists, electronic transactions based on phone calls or fax forms, and so forth.

Privacy is also easier to guarantee convincingly. When all the information is electronic, it's easier to search than fax images. (Of course, HomeFax knows who's faxing to whom through its service, but it represents itself as the consumer's friend. Any faxing the consumer does to his own friends independently of HomeFax is as private as he wishes.) When the content is image, somehow it's easier to keep the content and the medium separate. Of course, much of this distinction is in the users' minds -- but it's reflected in their willingness to experiment with fax while they may still be leery of computers and e-mail.
MAILBAG: SOLVING THE NEXT UNIVERSAL PROBLEM

Mailbag is one of those products that everyone can imagine but nobody got around to creating. A mail accessory, it's a harbinger of the benefits of modular software. It is a mail user agent extension which doesn't even need to talk to a mail interface, since it plugs into each mail "application." Folio Corporation is uniquely positioned to offer it because Folio merely has to add a hook to its own existing product with an installed base.

In fact, Mailbag solves a problem for Folio as much as it does for the customers. Folio's problem is explaining to potential users (who are already owners of Folio's VIEWS runtime through NetWare) what its product does and demonstrating its usefulness. Technically, VIEWS is a text-retrieval and structuring/hypertext tool. Or, in a new context, you could call it an installable file manager, specialized for text files -- although what it calls an "infobase" currently looks like a single compressed file to DOS. That sounds more like a capability than an application, something that does anything but nothing in particular. But Mailbag, which is a runtime version of Folio with a couple of extra features, is a tool to categorize, store and manage mail. Moreover, it doesn't replace existing mail packages or compete with them; it enhances them.

Instead of operating standalone, Mailbag hooks into the user's own mail package and uses the NetWare HELP utility (based on the VIEWS runtime) which comes free with every copy of Netware from 2.12 (September 1988) on. There are more than 10 million copies of VIEWS now installed (or available to be installed automatically when Mailbag is added to a network). Currently, those copies manage NetWare's help system as an "infobase," for ready access by network administrators or venturesome users. Now, Folio is trying to get closer to a broader, larger range of users with Mailbag, which manages the user's messages in an infobase.

The user's problem is classifying, storing and retrieving e-mail messages with a minimum of effort. Mailbag does that very simply, with a resident program that sits underneath the user's mail package and grabs the messages to be archived (as marked by the user). The user invokes it by pressing "ctrl-A" to automatically categorize, convert, index, compress and store the messages in a Folio infobase. It classifies the messages by the normal fields -- to, from, date, subject -- as well as the basic Folio full-text indexing scheme. Technically, it has nothing to do with mail or transports; it works from the network server and talks to the mail user agent, not to a mail transport service. It just happens that the user agent is a good point to tap into the flow of messages and material to archive. To get at his mail, the user relies on NetWare HELP, or can use a full copy of VIEWS.

Mailbag takes a few minutes' installation by the network administrator; then it can be invoked from within major DOS mail packages including The Coordinator, Da Vinci eMail, Lotus cc:Mail, Microsoft Mail and WordPerfect Office. The product costs $295 for a 25-user license -- hardly a tough price to swallow.

Seeding the market

Folio has already done a good job of getting its product out onto the market with a liberal policy of fostering runtime versions distributed by pub-

Release 1.0

26 December 1991
lishers (see Release 1.0, 89-3, 89-12). There are more than 50 such publishers, including McGraw-Hill, Prentice-Hall, AICPA, FASB (the accounting groups, who have lots of regulations to publish!), Thomson, Mead Data Central, Maxwell Macmillan, Commerce Clearing House Canada, and many more companies for internal or customer use.

MailBag is an attempt to get users more actively involved with the product as they use it to manage their own information. This move would have made less sense a few years ago, when mail was still a rarity. Now, (NetWare) networks are proliferating and those who have had mail for a long time now have a growing number of correspondents and resulting correspondence to manage. MailBag is incremental groupware -- the kind you can adopt by bolting it on to the existing infrastructure. In its basic incarnation, it manages each person's mail separately, allowing each user to manage his own interactions with the group (see Release 1.0, 11-90). Users who purchase Folio VIEWS can categorize their messages more intelligently. With a little more attention by an administrator, VIEWS can also be programmed to manage a group's correspondence, with categories, keywords and forms designed to organize the group's documents as formally as required.
The PC Forum will explore the industry’s new landscape in morning discussions, in afternoon product demos and on the conference Notes network: At the visible top, industry giants are forming unprecedented alliances to build and market new technology. Yet they may be missing the impact that new technology -- wide-area networks, groupware, object-orientation, pen computing -- will have on the structure (not just the products) of the marketplace. Our goal at the Forum is to get all these participants interacting and exploring their new roles.

The PC Forum line-up reflects the pace of change in the industry. We now have two speakers from Lotus, since John Landry has joined the company as technology chief, while Jeff Hawkins has left GRID on a friendly basis to do his own yet-to-be-named pen software start-up. Meanwhile, Bob Epstein will be out of the country and won’t be able to speak (unless we succeed in luring him back). We’re also proud to add Gil Williamson of NCR.

**GENERAL SESSION SPEAKERS**

<table>
<thead>
<tr>
<th>Barry Berkov</th>
<th>CompuServe</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jim Cannavino</td>
<td>IBM</td>
</tr>
<tr>
<td>Michael Dell</td>
<td>Dell Computer</td>
</tr>
<tr>
<td>Kamran Elahian</td>
<td>Momenta</td>
</tr>
<tr>
<td>Doyne Farmer</td>
<td>Prediction Company/Santa Fe Institute</td>
</tr>
<tr>
<td>Bill Gates</td>
<td>Microsoft</td>
</tr>
<tr>
<td>Jeff Hawkins</td>
<td>GRID/new company</td>
</tr>
<tr>
<td>Frank Ingari</td>
<td>Ontos Corporation</td>
</tr>
<tr>
<td>Bill Joy</td>
<td>Sun Microsystems</td>
</tr>
<tr>
<td>Jerry Kaplan</td>
<td>GO Corporation</td>
</tr>
<tr>
<td>John Landry</td>
<td>Lotus Development</td>
</tr>
<tr>
<td>David Liddle</td>
<td>IBM</td>
</tr>
<tr>
<td>Tom Malone</td>
<td>MIT Center for Coordination Science</td>
</tr>
<tr>
<td>Frank Moss</td>
<td>Tivoli Systems</td>
</tr>
<tr>
<td>George Perry</td>
<td>Prodigy Services</td>
</tr>
<tr>
<td>Vern Raburn</td>
<td>Slate Corporation</td>
</tr>
<tr>
<td>June Rokoff</td>
<td>Lotus Development</td>
</tr>
<tr>
<td>Ralph Terkowitz</td>
<td>Washington Post Co.</td>
</tr>
<tr>
<td>Allan Weis</td>
<td>Advanced Network and Services</td>
</tr>
<tr>
<td>Gil Williamson</td>
<td>NCR/AT&amp;T</td>
</tr>
<tr>
<td>Dave Winer</td>
<td>UserLand</td>
</tr>
</tbody>
</table>

We also have an exciting group of company demo/presentations: America Online, American Information Exchange, Client/Server Technologies, Edify, GeoWorks, HomeFax, HyperDesk, Objectivity, Objective Software, Pen Pal, Reach Software, Serius, Servio, SuperScript, Transarc, Trilogy Development, XcelleNet and others to be announced.

*Release 1.0*  
26 December 1991
RESOURCES & PHONE NUMBERS

Chris Peterson, American Information Exchange, (415) 856-1234; fax, (415) 856-4123
Don Peppers, Chiat/Day/Mojo (Perkins/Butler), (212) 886-5927
Curt Allen, Folio Corporation, (801) 375-3700; fax, (801) 374-5753
Chip Elitzer, HomeFax, (212) 693-1513; fax, (212) 693-1514
Darrell Miller, Novell, 1 (408) 747-4314
Joe Firmage, Serius, (801) 272-7788; fax, (801) 277-2440

COMING SOON

- Edify.
- Pen stuff.
- Case-based reasoning.
- Axon.
- LANlord.
- And much more... (If you know of any good examples of the categories listed above, please let us know.)

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

Release 1.0 is published 12 times a year by EDventure Holdings, 375 Park Ave., New York, NY 10152; (212) 758-3434. It covers pcs, software, CASE, groupware, text management, connectivity, artificial intelligence, intellectual property law. A companion publication, Rel-EAST, covers emerging technology markets in Central Europe and the Soviet Union. Editor & publisher: Esther Dyson; associate publisher: Daphne Kis; circulation & fulfillment manager: Robyn Sturm; executive secretary: Denise DuBois; editorial & marketing communications consultant: William M. Kutik. Copyright 1991, 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 $495 per year, $575 overseas.

Release 1.0

26 December 1991
# Release 1.0 Calendar

## Happy New Year!

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>January 22-24</td>
<td>NeXTWORLD Expo - San Francisco. Sponsored by NeXT Computer, NeXTWORLD Magazine and World Expo. Call Emily Brower, (415) 780-3786.</td>
</tr>
<tr>
<td>January 23-24</td>
<td>Fourth annual software support conference - San Francisco. Sponsored by the Institute for International Research. Call Audrey Wu, (212) 826-1260 or (800) 345-8016.</td>
</tr>
<tr>
<td>January 29-31</td>
<td>ComNet '92 - Washington, DC. Communications trade show. Sponsored by World Expo. Call Lynn Fullerton, (508) 879-67000 or (800) 225-4698.</td>
</tr>
<tr>
<td>February 4-6</td>
<td>Technology investment symposium - New York City. Sponsor: Goldman, Sachs &amp; Co. Call Christine Verri, (212) 902-2085.</td>
</tr>
<tr>
<td>February 5-7</td>
<td>Fielded applications of intelligent software technologies '92 - Toulouse-Labege, France. Sponsor: Image International. Call Philippe Rouzet, 33 (61) 390676; fax, 33 (61) 392431.</td>
</tr>
<tr>
<td>February 11-13</td>
<td>*NetWorld 92 - Boston. Sponsor: Bruno Blenheim. Call Annie Scully or Mark Haviland, (800) 829-3976 or (201) 346-1400.</td>
</tr>
</tbody>
</table>

Release 1.0

26 December 1991
<table>
<thead>
<tr>
<th>Date</th>
<th>Event Description</th>
<th>Sponsor/Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>February 23-26</td>
<td>**EDventure Holdings PC (Platforms for Computing) Forum - Tucson, AZ. New alliances and new technology lead to &quot;A New Landscape.&quot; You read the newsletter; come meet the players and try their tools. Call Daphne Kis, (212) 758-3434.</td>
<td></td>
</tr>
<tr>
<td>March 1-7</td>
<td>ACM computer science conference - Kansas City, MO. Sponsored by the Association for Computing Machinery. Call Don Nowak, (212) 869-7440.</td>
<td></td>
</tr>
<tr>
<td>March 2-6</td>
<td>OpCon West - Santa Clara. The west-coast session of Software letter's twice-yearly conference for operations managers. Call Tom Stitt, (617) 924-3944.</td>
<td></td>
</tr>
<tr>
<td>March 4-7</td>
<td>Computers in Libraries - Washington, DC. Sponsored by Meckler. For librarians and information managers. Call Suzanne Li, (203) 226-6967 or (800) 635-5537.</td>
<td></td>
</tr>
<tr>
<td>March 11-18</td>
<td>Hannover Fair CeBIT '92 - Hannover, Germany. Sponsor: Hannover Fairs USA. Everything you're interested in, and a lot more. Call Donna Peterson Hyland, (609) 987-1202.</td>
<td></td>
</tr>
<tr>
<td>March 18-21</td>
<td>*SPA spring symposium - Seattle. Call Karen Johnson, (202) 452-1600.</td>
<td></td>
</tr>
<tr>
<td>March 24-26</td>
<td>DB/EXPO '92 - San Francisco. Sponsored by NDN Enterprises. Call Victoria Lukanchich, (415) 941-8440 or (800) 2DB-EXPO.</td>
<td></td>
</tr>
<tr>
<td>April 6-9</td>
<td>SunWorld Expo - Santa Clara. Sponsored by World Expo Corporation. Call Ron Toran, (508) 879-6700 or (800) 545-EXPO.</td>
<td></td>
</tr>
</tbody>
</table>

Release 1.0 26 December 1991
<table>
<thead>
<tr>
<th>Date</th>
<th>Event Description</th>
<th>Location/Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>April 22-24</td>
<td>*Asilomar microcomputer workshop - Asilomar, CA. By invitation only, featuring some of computerdom's more original minds. Sponsored by IEEE. Call Brian Berg, (408) 741-5010.</td>
<td></td>
</tr>
<tr>
<td>April 28-30</td>
<td>*NetWorld 92 Europe - Frankfurt, Germany. Sponsored by Bruno Blenheim. Call Annie Scully, (201) 346-1400 or (800) 829-3976.</td>
<td></td>
</tr>
<tr>
<td>May 3-6</td>
<td>ITAA (ADAPSO) spring management conference - New Orleans. Call Shirley Price, (703) 284-5355.</td>
<td></td>
</tr>
<tr>
<td>June 1-3</td>
<td>Collaboration '92 - San Francisco. Sponsor: Graphic Communications Association. Call Marion Elledge, (703) 519-8160.</td>
<td></td>
</tr>
<tr>
<td>June 15-18</td>
<td>*International Computer Forum - Moscow. Sponsored by the International Computer Club. Call Levon Amdilyan, 7 (095) 921-0902, or &quot;levon&quot; on MCI mail at 439-1034; or Esther Dyson at (212) 758-3434.</td>
<td></td>
</tr>
<tr>
<td>June 15-19</td>
<td>Artificial Life III - Santa Fe. Sponsored by the Santa Fe Institute. How to grow your own. Call Christopher Langton, (505) 984-8800.</td>
<td></td>
</tr>
<tr>
<td>June 29-July 3</td>
<td>ECOOP '92 - Utrecht, Netherlands. Sponsored by Software Engineering Research Center. Contact: Gert Florijn, 31 (30) 322640; fax, 31 (30) 341249; e-mail, <a href="mailto:ecoop92@serc.nl">ecoop92@serc.nl</a>.</td>
<td></td>
</tr>
<tr>
<td>June 30-July 1</td>
<td>*First international conference &amp; exhibition on advanced service and HelpDesk automation - Strasbourg, France. Sponsored by Applied Workstations and ServiceWare. Contact: Jeff Pepper, (412) 826-1158; Tim Lewis, 44 (0) 306-77331; fax, 44 (0) 306-77696.</td>
<td></td>
</tr>
<tr>
<td>July 14-16</td>
<td>AAAI/IAAI '92 - San Jose. Sponsored by American Association for Artificial Intelligence. Call Mary Livingston, (415) 328-3123.</td>
<td></td>
</tr>
<tr>
<td>August 1-4</td>
<td>*GroupWare '92 - San Jose. Sponsored by Lotus Development and SRI International. Keynote by Jim Manzi.</td>
<td></td>
</tr>
</tbody>
</table>
include Irene Greif, Thomas Malone and Esther Dyson. Call David Coleman, (415) 282-9151 or (800) 247-0262.

**August 13-16**

**International BBS and electronic communications conference** - Denver. Sponsored by IBECC. Call Terry Travis, (303) 426-1847.

**September 7-11**


**September 10-12**

**ETRE** - Vienna, Austria. Sponsored by Dasar. Call Alex Vieux, (415) 321-5544.

**September 17-21**


**September 20-22**


**September 22-24**

**UNIX EXPO** - New York City. Sponsored by Bruno Blenheim. Call Annie Scully, (201) 346-1400 or (800) 829-3976.

**September 23-25**

**Seybold computer publishing conference and exposition** - San Francisco. Sponsored by Seybold Seminars. Call Kevin Howard or Beth Sadler, (213) 457-5850.

**September 30-Oct 3**


**October 11-14**

**Third annual East-West High-Tech Forum** - Prague. Sponsored by EDventure Holdings. Contact: Daphne Kis, 1 (212) 758-3434; fax, 1 (212) 832-1720; e-mail, MCI 443-1400 or CompuServe 75140,761.

**October 13-16**

**NetWorld 92** - Dallas. Sponsored by Bruno Blenheim. Call Annie Scully, (201) 346-1400 or (800) 829-3976.

**October 18-21**


**October 27-29**

**PC EXPO** - Chicago. Sponsored by Bruno Blenheim. Call Annie Scully, (201) 346-1400 or (800) 829-3976.

**November 1-4**


**November 16-20**

**Comdex** - Las Vegas. The biggest US show of all. Possibly featuring a Soviet pavilion this year. Contact: Peter Young at Interface Group, 1 (617) 449-6600; fax, 1 (617) 449-6953.

Please let us know about any other events we should include. -- Denise DuBois

*The asterisks indicate events we plan to attend. Lack of an asterisk is no indication of lack of merit.*

*Release 1.0*

26 December 1991
Please enter my subscription to **Release 1.0** at the rate of $495 per year in the U.S. and Canada. Overseas subscriptions are $575, airmail postage included. Payment must be enclosed. Multiple-copy rate on request. Satisfaction guaranteed or your money back.

Name ________________________________
Title ________________________________
Company ______________________________
Address __________________________________
City __________________ State __ Zip _________
Telephone ______________________________
How did you hear about **Release 1.0**? ________________________________

☐ Payment enclosed.
☐ American Express # _______ - _______ - _______ - _______ Expires _______
Signature ____________________________________________

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

Please fill in the information above and send to:

EDVENTURE HOLDINGS INC.
375 PARK AVENUE, SUITE 2503
NEW YORK, NY 10152

If you have any questions, please call us at (212) 758-3434.

Daphne Kis
Associate Publisher