AT&T'S RHAPSODY: BUSINESS ORCHESTRATION

The Macintosh, the computer for the rest of us, carried the seminal message that computers could be easy to use. With the proliferation of applications that followed, Macs have even become useful to use. Macintosh unlocked the power and increased the bandwidth between person and computer. But we have progressed to a new stage, where people want to communicate through, not just with, their computers. The things we want to do now are still difficult: send and handle e-mail, exchange data and commands between applications, manage the flow of work from one person to another, schedule people and resources, share information. Just as the Macintosh seems to be aware of its user and present information meaningfully for individuals, so do we want our networks and servers to be aware of each other and of the groups of individuals using them. The Mac doesn't make us think (much) about operating systems or directories; the new network tools shouldn't make us think about servers, network protocols or access paths.

In short, we need the equivalent of a Mac for interpersonal computing. But a NeXT won't suffice, Steve, nor will a Mac.

Why? One key technical factor behind the Mac’s success was that it controlled its entire environment. The Mac OS owned the box, and application developers more or less adhered to the design rules supported by the Mac design tools and OS, and enforced in part by Apple and in part by the market.

But no single vendor owns the network, the servers, and all the other stuff out there. No one is able to force it to present a single face to the user. Sure, that is what Apple would like to do; the Mac wants to be your interface to the world. With products such as Mitem and CL/1, that’s starting to happen. Other contenders include IBM’s OfficeVision, and the office automation environments of Data General, DEC and others. From an application-as-foundation stance, both Interleaf and Mathematica/Wolfram want to provide environments (see Release 1.0, 90-3), but their installed bases of under 100,000 each limit their commercial reach although they could be influential as examples.

But OfficeVision is more oriented to individual productivity and lacks groupware tools and smart mail, although it benefits from its integration...
with IBM's Systems Application Architecture. Hewlett-Packard's NewWave has more potential with its object orientation but also lacked -- until now -- the group-awareness that AT&T provides. None of these companies owns enough of the real estate, and other firms own the buildings -- the applications -- on the real estate.

This is why AT&T's announcement of Rhapsody is so exciting. Not only has it assembled the requisite technology -- applications and groupware tools -- but it is also uniquely positioned to explain and propound its new vision of "business orchestration." AT&T does not have the computer-community credibility of many smaller companies, but it's well-known (to say the least) in the world at large. In a world moving towards electronic communications, AT&T has unique credibility. From faxes to wide-area e-mail, AT&T has the facilities to make its performance superior and its claims more credible than those of competitors. For all the excitement over "openness," AT&T's expertise in communications counts for far more than its alleged control over UNIX ever could have. Operating systems are old-hat; communications is challenging.

This raises an interesting question: No one took AT&T or UNIX seriously until it teamed up with Sun, a hardware vendor. Courtesy of some careful maneuvering by the company, a general cooling of passions and the simple fact that AT&T's neither AT&T's UNIX nor OSF's Motif have changed the world, that issue has more or less dissipated. Will AT&T now be accused of unholy alliances with application vendors? In fact, we're delighted to see AT&T try to extend the operating system rather than just exploit a standard. AT&T's bigger problem will be selling the idea rather than keeping hold of it. It's only after an owner's efforts to promote a new product pay off and it becomes accepted that third parties thinks it's unfair for someone else to own it. However, AT&T is well aware of this issue, and it is sensibly willing to license almost anything -- to gain revenues, to spread the standard and to keep the peace.

The wired world

Unlike most of the other offerings mentioned above, Rhapsody does control (if not own) a fair amount of the real estate, directly through the configured servers that it will sell, and less directly through the environmental software that goes on the pc clients and encapsulates the data and pc applications that users will deal with directly. That in itself provides ease of installation (the prelude to ease of use): The customer buys a fully configured server from AT&T and slips it in as the back-end or backbone to his existing assemblage of pcs and applications. It still needs a network administrator to install it (you can rent such a person from AT&T), but after that all most people need to know is user names, applications, available peripherals and other tangible things -- not protocols, net addresses and other technical niceties.

AT&T has also managed to assemble what NewWave initially lacked: a critical mass of environment-aware applications to run in its environment -- "standards" such as 1-2-3, Excel, WordPerfect, MS Word for Windows -- as well as AT&T's own STARMail and desktop fax. Extended encapsulation, an extension of the NewWave browser capabilities, allows non-NewWave applications to be drop-and-dragged to NewWave icons for faxing and printing, and to be represented as icons themselves.

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The connected world

Yet groupware is the vision that takes this beyond what everyone and his brother are announcing, with variations on the level of integration and completeness. E-mail and connectivity are key parts of Rhapsody, but application and personal interoperability is what makes it special. The parts aren't just connected physically; they're connected logically. Both people and applications can actually talk to each other.

Most of the groupware underpinnings aren't and shouldn't be visible to end-users, who will continue to deal directly with the data and tasks they're responsible for. Rhapsody may become involved in the content to some extent -- knowing that certain values in certain fields require the attention of certain people, managing the routing of e-mail, and so on. But generally it simply sends the work to people and helps deliver it on down the line to whoever needs it next. Groupware coordinates; it doesn't perform the work. The work content remains mostly the province of individuals -- and of traditional DOS productivity tools. Yet...coordination is much of the work.

As AT&T sees it, business orchestration has two components -- the routine and the ad hoc. The ad hoc is the province of e-mail and one-time projects bringing together teams from different workgroups.

The content is mine; the process is ours

For the routine work, there's the Workflow Automation System, a repackaging and industrial-strengthening of the original UNIX-based groupware tool from Workhorse of Dublin (see Release 1.0, 88-2). WAS has a Workbench for defining workflows, complete with events, decision points, paths and branches. Technically, it is a client-server system: The server operates under UNIX and speaks to DOS/Windows-based clients. The client, a desktop controller, interprets the server's messages and invokes and manages NewWave objects. Those objects are the content, representing the people, applications and individual pieces of data and code and interface objects (e.g. dialogue boxes and menus) required to complete routine tasks. Depending on their type, they can be dragged to printers, inserted in each other, examined to see if they match certain values in which case some action will be performed, and they can request and use user input. Typical tasks include assembling data from databases or files, querying users through mail (it can construct and send mail but not receive it), tracking status and flagging missed deadlines, etc. For example, if the results of the calculation in the "total revenues" cell of Juan's spreadsheet are less than $40,000, insert that value in the "monitor" boilerplate letter and send the letter to Alice.

Infrastructure and vehicles

The point is to make the ad hoc routine, and to provide enough modular activities (the high-level, groupware analogue to subroutines) to perform almost any business function, routine or not. A particular meeting and its agenda may be ad hoc and unique, but the process of setting it up is routine. Rhapsody manages the process. The details may be different each time -- different items go to different people, different results cause different things to happen -- the system itself is relatively fixed. Consider it a network of mass transit -- carrying data for repetitive tasks -- and individual cars -- the even more ad-hoc e-mail traffic that flows along regular routes but with no fixed schedule.

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For the other aspect of groupware (see Release 1.0, 88-6), shared information rather than workflow, Rhapsody offers a database and e-mail, distributed directory services for unplanned communications, but no full-scale information manager such as Lotus Notes (which unfortunately runs only on OS/2 servers for now). There are a number of text databases that run in UNIX, and Informix can hold text and images, but for now there's no powerful text tool, nor what we would call smart e-mail, beyond some hardwired connections between calendars and meeting managers.

Management by browsing around

But e-mail matters. Although theoretically people could send memos, in practice e-mail somehow encourages open communication. Take AT&T computer chief Bob Kavner himself. Once a normal guy who worked for an accounting firm (Coopers & Lybrand), he's now an Important Guy in an important organization. Aides schedule his time; managers prepare reports for him; outsiders call on him and present proposals to him. But it's hard for him to find out what's really going on in AT&T's Data Systems Group, the $2-billion company he runs. "How could I break down the cleansing process that makes the world look so beautiful by the time it gets up to me?" he wanted to know. The answer was e-mail. Much to his surprise, and delight for several reasons, e-mail has changed his life. Lower-level employees send him messages, without the social upheaval they would cause if they went over their bosses' heads to talk to Mr. Kavner. Frequently he forwards the mail to someone more directly concerned, but he's in the loop. (Of course, there may be managers who are unhappy with the truth, but if this technology flushes them out, so much the better -- for business as a whole, at least.)

Jazz and minuets

The press is making much of AT&T's supposed abandonment of UNIX in favor of DOS and OS/2, but that's stretching the point. AT&T is less emotionally vested in the success of UNIX than it once was; it has already been through the fire on that one. It has been selling DOS machines all along -- originally ones from Olivetti and now its own and Intel's, a total base of more than 500,000 DOS units. AT&T is not endorsing DOS or OS/2 so much as exploiting the world's installed base of user tools and applications. Rhapsody should be one of the first large-scale systems to show the value of client-server architecture -- and to make visible the point that this is a fine way to have different operating systems where each is most appropriate.

The purpose of Rhapsody is not to provide new instruments, but to add a conductor to turn a ragtag group of jazz players into an ensemble.

THIS ISSUE IS EARLY!

This issue is your (our!) third in a little more than a month. The purpose is to give us the freedom to spend five of the next six weeks in Europe, in part to scout people for the East-West High-Tech Forum next October (see page 16), in part just to find the sort of new technology we enjoy uncovering in the US. Your next issue of Release 1.0 will arrive back on schedule, in late May.

-- Esther Dyson
DATA IS DANDY

Software vendor with "technical vision": Gee, I've got great products! How many features can I add by the next release? What platforms can I port to?

Marketing maven: Marketing is expensive and shouldn't be wasted on unpromising prospects.

Innocent mail reader: Mail about things I don't want is junk; other mail could be valuable information.

Lotus: As the spreadsheet market gets more saturated and more competitive, maybe we should sell unique information as well as the tools to handle it.

Lotus's new MarketPlace offering -- business and consumer prospect lists on CD-ROM -- makes sense from three out of four perspectives. From our perspective, the company understands the business end-user better than anyone around. It has long been criticized for its lack of technical vision, but that's not the company's goal. In this project, it's using its technical talent to carry out a business vision, free from the add-a-platform thinking and slipshod execution that marred its last Mac product, Jazz/Galaxy.

That business vision is the sale of commercial information as the razor blades to the software razor, whether it's a high-ticket, small-market offering like One Source, or a low-ticket, large-market one like the new MarketPlace service. Note that these are services, with the customer buying as needs develop and as the information changes. Customer relationships are a key factor in this scheme, both between Lotus and its customers, and between them and their customers. As we have noted in a number of contexts lately, targeted marketing and customer databases will be key factors in the Nineties. (See Release 1.0, 90-2.)

A match made in marketing

The Lotus product is an excellent use of CD-ROM for just what it's good for -- delivering huge amounts of data. And it's an excellent use of the Mac and HyperCard for what they are good for -- making huge amounts of data intelligible and accessible. (A PC version is likely but not announced.) For now, Lotus is keeping its formats proprietary because it regards the sale of data as the foundation of the business, but that's subject to change.

MarketPlace addresses the huge market of smaller businesses who don't have the resources to collect and manage huge databases of prospects -- or to market to people unlikely to buy. Lotus starts with a one-size-fits-all disc and lets customers control and pay for only the data they want. The metering process is as uncumbersome (to use a cumbersome word) as possible: You get 5000 "outputs" (records) with your initial $695 purchase of MarketPlace (a Mac installation disk and a CD-ROM with data, software and documentation); with a phone call you can order a password to get increments of 5000 outputs for $400, or subscribe to updates for $50 a quarter.

The total master list of data incorporates 7.5 million business establishments and 120 million people in 80 million households, provided to Lotus under contract by Trinet (business) and Equifax (consumer). You pay only for the subset you download according to specified criteria -- income, life-

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style, ZIP code, etc. Once you've downloaded a data set and thereby ticked the meter, it's yours. You can produce mailing labels or prospect lists with the MarketPlace tools, or you can transfer the data set into your own database. You can mail from it to your heart's content (which is not usually the case with lists, which are generally rented per-use), merge-purge it with your own data or lists from other sources (phone listings, say), or perform other database tasks. You might have a golf magazine subscriber list, say, and want to mail only to people on both that list and the MarketPlace list of Young Accumulators.

Discretion is the better part of market valor

This is great stuff, yet it's definitely a poor man's version of what the marketing giants such as American Express or Lands' End use, based on more targeted magazine subscription and other lists from brokers, and huge databases of their own customers. For starters, it's not the original data, but categorized and cleaned up -- no phone numbers for households. For example, you know someone is in the "Mainstream Singles" category description, but you don't know what put them there. Do they buy a lot of dirty movies, or a lot of computer equipment? In part it's a convenience; MarketPlace/Equifax does the digesting for you. Equifax itself doesn't have much individual data, and assigns people to categories based on statistical sampling. It does have a considerable amount of credit and financial data on individuals, but its use is heavily regulated by the Fair Credit Reporting Act; it's not something you'd want to sell on a disc at retail. Lotus already has plans to avoid selling MarketPlace to alleged bucket shops. (For businesses, MarketPlace/Trinet does provide phone numbers, along with key officer, line of business, revenues, employment and other data.)

We had the feeling we were looking at data in a glass case; it comes out sanitized. The basic reason is concern for privacy -- or for public concern for breach of privacy. If you want to find someone by name to check out their demographic characteristics, you're being naughty. The software doesn't support such queries. But don't stop there. With persistence, you can probably get some of what you want. First, you can get any subset of the data you want -- the 5244 affluent households in Palo Alto, say. But all you get in answer to your query is a list of names and addresses -- no phones, also for privacy reasons. Now you could go through and ask for each subset individually -- Mainstream Singles, Sustaining Singles, Accumulated Wealth, etc. -- until you see the person you're curious about. With a little bit of smarts, you could set the system to do this automatically, importing each data set into a database tagged by the query that generated it. But if you're a real snoop, there are probably better (and still legal) ways to get the data you want. Lotus just doesn't want to be part of that.

This is only a first pass at what has the makings of a huge business; the technology is extendible. Lotus is understandably shy of attracting the attention of people concerned with privacy issues. Its refusal to provide personal phone numbers is commendable, if impractical in the long run. We suspect Lotus is eager to supply as much information as the market wants, but it's not going to go out on a limb until that's clear.

And overall we are delighted. Maybe we'll get less mail that we don't want, and the people who do send us mail will save so much money by targeting their marketing efforts that they will lower their prices.
FREE SOFTWARE/PAID SUPPORT

Intellectual property is a confusing issue. While we firmly believe in the right of broad copyright/patent protection, call us pro-choice: We also believe that its use is a matter of individual discretion, and the best business strategy frequently is to give it away. Indeed, sometimes we think the whole issue of protecting software is irrelevant; the item in short supply is knowledge of what software to use, how to install it and how to represent business problems. In the long run, however, much of even this knowledge will be represented as software (and easily, with increasingly automated ways of converting high-level knowledge into code). So the protection issue won't go away; we'll be arguing about the copyrightability of business processes and software content and evaluations instead of look & feel. The purpose is not just to promote the development of software, but also its marketing, distribution and use. (See Release 1.0, 89-8.)

The following is not an attempt to resolve these issues, but a little story about some "unbundling" of product and ancillary values which implicitly argues that intellectual property is irrelevant. Call it an experiment.

Perhaps the strongest proponents of free -- not just "open" -- software are to be found at the Free Software Foundation. The Foundation, founded by the legendary RMS (né Richard M. Stallman) in 1985, is revered among programmers for its GNU Emacs text editor, C compiler and debugger and other tools. They are mostly the product of RMS, with help from a lot of friends, since everyone has access to the source code.

RMS, who lives at the MIT AI Lab but hasn't been on the payroll since 1984, fervently believes that all software should be free -- both free of all but delivery and service charges, and liberated in the sense that source code is available so that others can fix or enhance it. This is at the extreme end of a not totally linear "spectrum" with these salient points along it:

- free. Anyone may copy the code and redistribute it. Its freeness must be preserved: No one may charge for the code itself, at least according to the Free Software Foundation license, although they may charge for delivery, service and support. Source code must be available, and derivative works are encouraged.

- open. The specs of a standard (interface, language, whatever) can be copied, but the owner may charge for the specific implementation, and the code itself may not be copied. (Things will get sticky here with the advent of automatic reverse-engineering.)

- public. You can talk to the interface of the original, but you can't replace it. For example, you could be a front-end to a back-end, but you couldn't copy the back-end.

- semi-open. A semi-standard is freely available for copying or reimplementation with the payment of royalties.

- proprietary. No one may reimplement "it," let alone copy it outright. There's usually disagreement as to how much "it" covers -- look & feel, structure, sequence and organization, interfaces, commands/language, or just the code itself.

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The issues of financial and source code freedom are separate but linked. Free software can be a moral issue, but proponents of free software also generally feel that free software and the right to create derivative works are the way to better software. You need the source code if you want to improve on the original. In the technical market served by the Foundation, that makes particular sense; most of the users are eminently capable of building the software themselves, although it's more efficient to reuse and improve the excellent work done by RMS and crew. The Foundation's GNU software includes the Emacs text editor; gdb, a debugger; gcc, a compiler; Bash, a shell; and many other utilities. Many major vendors ship GNU Emacs with their machines, and Motorola, Data General, Berkeley and NeXT ship the Foundation's gdb and gcc as their primary debugger and compiler.

Enforceable freedom

In fact, the only thing the Free Software Foundation won't let you modify is its license agreement, which specifies that anything that reuses that free software must also be free. What precisely that means has been controversial, and is why some people who really like the GNU G++ library and bison parser-generator don't use them. Most software tools produce code that is separate from the original, but object-oriented tools and parser-generators such as bison and yacc produce output that contains large chunks of the original code -- i.e. derivative works. But the Free Software Foundation board is on the verge of deciding that proprietary software can call a free library without either party to this peer-to-peer, cooperative processing transaction becoming contaminated, as long as source code and full "free" rights come with the library. The library stays free and can be copied; the proprietary code can be charged for.

It's ironic how complex intellectual property is, even when it's free. How far and how strictly can the creator control what is done with his creation? What happens when the free and the proprietary get scrambled? Even when software is free, you have to license its use to ensure its freedom.

Copyleft: Freedom for the rich in knowledge

So, the customers love the free software, and many of them love the ability to improve on it. They share their enhancements, fix bugs, and everything's great. But the market is centered on people willing to do all this, people who like to wallow in source code. What happens when you get to a less sophisticated market? How do users find the good stuff without advertising and sales efforts? How do they know what to do with it? The rest of the world wants documentation, fast service, prompt support, law and order...all the things you get when you pay for them.

This all sounded like an opportunity to three fond Emacs users, who have just banded together to form Cygnus Support (cyGNUs, get it?) to provide support to needy GNU software users. So far they have two customers, at NASA Ames and Sun Microsystems, at $100,000 a year each. That's the basic price per site, on the basis of about 100 users; prices are negotiable. (Cygnus is also in negotiations with Citicorp and General Electric.)

Co-founder Gumby Wallace, 26, who helped build and maintain MACLISP and the original Emacs, is straightforwardly eager to make money -- but only in return for a valuable service. He's also a true believer in the practical
value of free software. "We chose to provide the best software available for UNIX, and add the one thing it lacks -- full support," he says. With Cygnus support, no one need choose inferior software simply because it is "commercial" software, says Wallace. Cygnus adds commercial touches such as QA, bug-tracking, installation and documentation.

The other founders are Michael Tiemann, 26, and John Gilmore, 35. Tiemann has written a lot of free software, including a portable instruction scheduler which improved GNU C's performance by 30 percent on the SPARC. Gilmore was the fifth employee at Sun Microsystems (after Joy, Bechtolsheim, Khosla and McNealy). He is an expert on microprocessor architecture and the sort of close-to-the-hardware issues involved in porting operating systems.

An example? Or an anomaly?

So now we come to the interesting questions. Is the combination of the Free Software Foundation and Cygnus a model of how the world could be? Or is it non-representative? If no one owns the software, who will go out and market it and foster its use? Perhaps people who get paid for doing so directly -- rather than through the sale of software. That would help avoid conflicts of interest: The consultant would recommend the best software, rather than that which he owns. But of course he will actually recommend the software he knows best and is best able to support, enhance, etc.

Traditional thinking -- to which we subscribe -- holds that the software will attract that infrastructure if it gets intellectual property protection; otherwise it will languish unknown because no one has an interest in promoting that particular piece of work.1 How unbundled can you get? Will people build software without rewards? What's the impact of object-oriented programming on all this, and cooperative applications? Standards?

Could the software industry become one of support and product selection assistance, where the software itself is free? Already, you can buy most management books for a nominal fee (akin to the $150 charge you pay the Free Software Foundation for sending its tapes, with a turnaround time measured in weeks, or $1000 to Cygnus for its Federal Express service), but you may pay thousands of dollars a day for a consultant to implement the same advice or even just deliver it to you in a form tailored to your business. See Software Hygiene, page 11. (In the context of hypertext publishing, the links would be protected, while the underlying text chunks would be free.)

Pay for effort, not for results

Programmers, after all, may be motivated to do the best work they can, and to keep on improving the software, for sheer intellectual satisfaction. The best way to encourage them to do so is to make software and source code -- both the original and the improvements -- freely available. On the other

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1 When you look at a complex business arrangement like the one for Home Lawyer on page 14, among Hyatt, OverDrive, MECA and Egghead, surely it is only the notion of interests in property that can be defined, created, marketed and sold that makes the wheels of commerce turn. (This product is an especially commendable example, since it reduces the need for lawyers.)
hand, technical writers, support specialists, the people who fill orders are less likely to be so motivated. They need jobs that pay just like everyone else. But their efforts are necessary to get people to use the software -- and so it certainly makes sense to pay them. And programmers get paid for programming, even by the Free Software Foundation, with seven staff programmers; they just don't get paid directly for the software they write.

Pro-choice

This all makes sense, but we can't help thinking that allowing software to be protected on the margin will result in more software being built, and more people working to spread its benefits. Property rights in software, as in other goods, will provide incentives for owners and their representatives to exploit intellectual property to the fullest. RMS counters that proprietary software reaches only a limited market, whereas we see that the owners' interest in selling a lot of it counters the restrictions imposed by copyright. Owners take the trouble to publicize the stuff, explain its benefits, even support it for "free" -- or at least absorb the costs in their license fees. Better we should have a competitive market in support, says RMS. We will anyway as vendors unbundle.

The reaction to free software is interesting. There's this notion of contamination that hangs in the air -- both because it's free and an implicit insult to people who charge for their software, and because of its assumed association with virus-ridden software of uncertain provenance. In fact, the GNU products are strictly controlled to ensure their freedom, and a side benefit of the availability of source code is that it's easier to detect viruses. So those of you who counted on the absence of intellectual property protection to reduce bureaucracy, think again. The definition and preservation of the integrity of intellectual property requires the precise definition of that property. That definition is no more overhead than skin is overhead because it merely contains the body's "working" organs.

On the other hand, there's also an interesting reaction to copyright/patents on the part of the software liberators. They fear that protection will freeze the world, covering everything so that no one may write anything because someone else already owns it. We think that misses a number of far-reaching distinctions between original and derivative works, and the possibility of writing something new. If a particular piece of work is so good that everyone wants to use it, that's great. If the owner doesn't license it, we would count on the market to come up with a reasonable substitute. (Yet to simplify things, we'd prefer to see a shorter period of protection.)

In the end, why not let people who want to give software away do so, and let the others protect theirs as they will? The only rule is that you can't give something away and then change your mind midstream and start charging people or suing them. Nor can you start giving away for free something that people have started reselling under license from you. Most of these issues can be covered in well-constructed contracts -- as long as it's guaranteed that creators can control or assign the rights to control their creations.

Although we don't agree with all the premises of the Free Software Foundation, we're delighted it exists. For starters, it takes all approaches to make a market. And if the Foundation's approach consistently produces superior software, it will win. That's what happens in a free market.

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SOFTWARE HYGIENE: HARD-WORKING EXPERTS

Perhaps the biggest drag on productivity is not people's ignorance of what
to do, but their inability to get a round tuit -- as the old joke has it.
Software such as the products described below can have the beneficial effect
of nudging people to do what they know they should be doing anyway. They
are expert systems not because they use rule-driven technology, but because
they take the place of the expert who tells you to do what you already know
you should be doing. But these systems are not mere advice programs or tra-
ditional expert systems that tell you what to do. They don't bother you
with the details; they do the work for you.

These notable recent examples are Catalyst, for production process design;
PR/Works, for PR people; and Home Lawyer, for just folks. Interestingly,
two of the three run on Macs. All are designed for people who are too
swamped to learn how to use a computer -- but who could benefit from com-
puter applications.

In each case, the underlying technology is beside the point. PR/Works is
built on a Mac with Blyth Software's Omnis. Catalyst, also on a Mac, con-
tains some pretty dense (but known-in-the-community) math but is otherwise
more of a now-you-do-this, now-you-do-that, step-by-step prompter to do the
analyses you know you should be doing. And PC-based Home Lawyer contains
clever document-assembly technology from OverDrive Systems, but its main
value is the carefully prepared content the engine assembles.

Catalyst/RPE: Computer-aided process design

Computers have done wonders for product design. Engineers use CAD/CAM and
other programs for everything from laying out circuit boards to designing
aircraft and dresses. Down in the factory, numerically-controlled machine
tools and computer-driven equipment automate much of the production process.

But frequently the production process itself goes untuned and unrefined. As
long as the product comes out at the far end, everyone is satisfied. But
that leaves a lot of room for costly leeway in the middle -- processes that
could easily be fine-tuned to produce higher-quality products and reduce
scrap and rework by reducing variability. (Process-oriented products in
customers' hands could benefit from the same tuning beforehand.) This is
not a one-time effort, since the quality of the raw materials or the equip-
ment used may change, ambient temperatures or other environmental factors
may have an impact on the process, or product specs themselves may change.

Picking up the slack and entering a market now served by expensive consul-
tants and a few diligent engineers in-house is Catalyst/RPE, for Robust Pro-
cess Engineering. A Mac-based package, it leads process manufacturing engi-
neers through the fine-tuning exercise. It helps them to identify key vari-
ables that could affect productivity and run experiments until they can
determine optimum process settings. The software costs $15,000 to $100,000
per site per year -- or less than your average consultant and usually less
than the initial savings it generates, says CEO Dick Wolfson.

Obviously, the engineer has to know enough to pick the right factors -- tem-
perature, say, or viscosity of a liquid. The software's role is to prompt
him to do test runs and to analyze the results appropriately, but it does

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the math. It helps the user design appropriate tests to measure the impact of the chosen factors, analyzes the results, and suggests optimum values. The math and algorithms underneath, although they are complex, are known to specialists and are not proprietary. They are just the kind of thing that most people don’t get around to doing. They might just try to change the temperature or kick the machine rather than vary all the factors and see which ones actually have an impact -- and what kind of impact.

All the user has to do is determine the important factors, run the experiments specified and collect the data. (See illustrations below.) And of course he has to adjust the process in response to the system’s results.

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PR/Works: Supporting the creative types

PR/Works was developed on the Mac by PR guy Gary Berlind. He has done the boring part of the work -- setting up separate database files for publications, calendars, press contacts, phone calls, clients, things to do, and actions taken. Using a relational database, of course, you can look at any of these for each of the others: What do I have going for this client? With that publication? For next week? Who requires follow-up? Does anyone plan a story on this topic? When you make a call, you're probably selecting from a list of calls you have to make, and it will dial for you automatically and log the call. Otherwise, if you type in a name, the system checks for it in your files and either logs the call or asks if you want to add the name to the database. Elementary, but how easy is it for you to find out the last time you called someone? (It even has a feature that allows you to differentiate time zones, so you can time your calls accordingly.)

PR/Works can load name, address and salutation into Letter Writer Plus from Power Up!, included with the package. In addition there's automatic phone-dialing, standard reports on information such as activities for each client, mailing labels, boilerplate letters, unlimited-length notes, and so forth. The package can import media contact information from NewsFaces and the Western Media Directory, among other sources of pre-digested data (cf. Lotus MarketPlace, above). The presence of the data makes PR/Works more valuable, and vice versa.

PR/Works is "value-priced" -- $1295 for the entire package, considerably more than the competition (below). Hiring someone to do the programming for you would not likely yield as finished or elegant a system; it took Berlind two years almost full-time to develop, with a pared-down client load. So far Berlind has sold seven copies since December; he hasn't given up the PR business yet. A PC version, also Omnis-based, will be out later this year. This is one PR guy's embedded expertise -- but it's also an embedded assistant, who will do all the record-keeping and tracking for you if you can learn to do just one thing: Don't write on scraps of paper; keep your computer on all the time and type it in.2

The Right Brain

To make our point clearer, consider a seemingly similar product: NewsTrack, developed and sold by The Right Brain (to help the left brain with the details, natch). It doesn't fit our model of the working expert as well as PR/Works. Both perform similar functions, but PR/Works focuses on helping the practitioner keep track of himself and work prospectively (with media

2 By contrast, we saw an embodied-expertise system last week that was basically an advisor rather than an assistant. You got very little benefit from typing things in because the system simply fed them back to you, rather than manipulating them as a database can. "It's good for you!" the developer insisted, but it didn't do enough real work to make anyone want to buy it.

Incidentally, reuse of work as well as performance of work will be a key factor in favor of laptops once they get properly integrated (as clients or peripherals, not as compatible replacements) with desktop systems: The data you type in on the road gains value because you can reuse it.

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calendars and the like), while NewsTrack is more oriented towards generating reports for clients on such items as column inches generated. PR/Works is a personal productivity tool, whereas NewsTrack is more of an agency sell, with its very name focused on its ability to track and evaluate results. It's more focused on monitoring performance, whereas PR/Works helps you do the work that produces the performance.

"We're output-oriented; we can generate reports and mailing labels and boilerplate cover letters," says founder-developer John Nelson, also a former PR guy. The Right Brain is built around a database -- Double Helix for the Mac version, Clarion for the IBM version. The Right Brain has garnered about 200 customers, of which 150 are on the Mac, and 50 on the PC version which started shipping six weeks ago. Interestingly, Nelson notes, "PR firms are our weaker segment, because you can't bill it out to the client." His product is used in larger firms and in-house, where buyers can use the billing module for cost-accounting or inter-division billing. The company has just launched a version with 2200 computer-industry media names from MediaMap preloaded, in a joint venture with MediaMap.

Home Lawyer: Legal expert in a box

Professionals, of course, aren't the only people who have trouble getting a round tuit. Taxes are one thing; the government makes taxpayers get around to it. Some of them buy software to help get through the agony, but it isn't the software that makes them do their taxes.

Yet people generally aren't suckers for efficiency; the long-awaited boom in home banking still hasn't arrived. We suspect it's due to the combination of modems, cryptic interfaces and general unpleasant associations.

There's one more big chance -- legal services. As lawyers know, much legal work is just boilerplate with the right names, dates and assets in the right places. Most law firms by now produce most of their work on high-end document processors that can generate wills, powers of attorney, residential leases, demands for money owed and other useful but routine documents at the stroke of a few keys. Hyatt Legal Services, which opened a chain of fast-law stores in 1977, is now offering the equivalent of microwave legal services that you can cook up in the privacy of your own home. The kinds of problems it handles aren't the kind lawyers generally handle anyway; they're the province of paralegals and document-assembly systems.

Home Lawyer not only contains the expertise; it also does almost all of the work. It's a low-end, priced-to-sell version of some fairly sophisticated document-generation capability, akin to The Work Engine (see Release 1.0, 88-7), a high-end document-generation tool sold to legal customers. Home Lawyer is sold by MECA Ventures; the system was developed by OverDrive Systems with content and visibility from Joel Hyatt and Hyatt Legal Services, and marketing and packaging input from Egghead. All four share the proceeds from the sale of this intellectual property.

You could call it a marriage made in heaven, as MECA president Dan Schley does, or you could call it one where the bride was already pregnant and the groom was willing. Schley had been looking for a legal product to complete the MECA line-up of middle-class hygiene -- finance, tax and law -- supplementing Andy Tobias' Managing Your Money and Dan Caine's Tax Cut (originally

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Ask Dan About Your Taxes; see "Expert evader," Release 1.0, 88-1). Meanwhile, OverDrive Systems, a vendor of document-assembly tools for WordPerfect and MS Word, was consulting on a high-end document-assembly system that Hyatt was building in-house. OverDrive ceo Potash had talked to Hyatt about publishing a legal-document tool, but both parties realized they needed a partner with software publishing expertise. In walked Schley's brother-in-law, who has a business relationship with an OverDrive board member. Schley and Potash got together at Comdex...just another Las Vegas wedding.

The package leads you through a series of questions related to the document concerned -- a will, a power of attorney, a formal letter of complaint -- and generates a neatly formatted, legally correct document for you to date and sign. It comes out looking good (you can preview it on the screen), but you can also transfer it as an ASCII file to the word-processor of your choice. You can stop midway to review your answers (or step outside for an argument if you're drawing up a touchy document). If you want, you can print out a worksheet of the questions, especially helpful if you have a lot of data to collect. (If you're halfway through when you print out a worksheet, your answers up to that point are included, and only the relevant questions from that point forward are listed.) The answers for each document can be stored and revised when the time comes to update it. But each document is generated independently; unlike, say, the internal Hyatt system, there's no database that stores information about a client for use in a variety of documents.

The user doesn't have to think about document assembly. The software does it all automatically, based on the user's answers to the questions. There's conditional logic: Various fields are used or bypassed or filled in some particular way based on the data in other fields; for example, the number of children listed affects a variety of other items.

The trade-off for ease of use is a lack of flexibility; all the choice you have is what document to produce -- and whether to tell the truth in answering the questions. But that's about as much as most people want in legal matters. The whole point is for it to be automatic. It gives you just enough background and advice to be helpful. Why should you execute this power of attorney? What does it mean if you name Alice as your beneficiary? Are the people you chose as witnesses for your will-signing beneficiaries of the will; they shouldn't be!

But it doesn't cite legal precedents, list statutes -- or charge high fees. The product costs $99 retail through a promotion with Egghead. It properly tells you of circumstances that require a real lawyer. All in all, it makes most of this stuff as routine for plain old laymen as it is for lawyers. Now, whose beneficiary would you like to be?

*****

RIP: Pinpoint Information Systems has closed down its Computer Focus personalized newsletter (see Release 1.0, 89-7). As we said at the time, it had heavy fixed costs because it used people rather than electronic filters to classify and abstract news, and it couldn't attract enough subscribers to cover costs or attract advertisers. Individual Inc. will pick up the subscriber list.

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BUDAPEST I AND PC FORUM XIV: SOME PRELIMINARIES

The next EDventure Holdings conference will be the East-West High-Tech Forum in Budapest, Hungary, next October 21 to 24. We are planning a small, high-level event and have booked only 150 hotel rooms. Please let us know if you are interested, since we do not intend to advertise the event widely.

This Forum will be more business-oriented than the PC Forum, with a focus on market conditions and needs rather than the technology itself -- although we won't ignore technology developments. Specifically, we plan to have native speakers from East Germany, Poland, Hungary, Czechoslovakia, Bulgaria and the Soviet Union, each discussing market and regulatory conditions in his or her country. In addition, executives (government and corporate) from East and West will talk about their experiences conducting East-West business.

While this is no trade fair, we do hope it will result in tangible business among parties attending. There will be a strong focus on actual business conditions rather than market forecasts which are unreliable anyway in this rapidly changing part of the world. What do customers need? What can vendors supply? How can the two sides get together? How can Western vendors convert profits into hard currency -- by importing Eastern technology, setting up Eastern assembly operations for export, engaging in counter-trade?

Our goal is to do for Eastern Europe's high-tech markets what EDventure's PC Forum, now in its fourteenth year, has done for the US personal computer and software industry. In essence, it helped the industry discover and define itself. Its primary audience is the industry itself, from-in-the-trenches people talking about what they're actually doing. The goal is not so much polished speeches from spokesmen explaining the industry, as people introducing themselves and sharing their experiences and contacts -- candidly! The PC Forum has grown to 500 people; we want to keep the EWHT Forum to about 200, so that people get a chance to know one another and do business.

About one-third of the attendees will come from Eastern Europe, one-third from Western Europe, and one-third from the US or Asia. We will have further details in June.

Platforms for Computing -- The Fourteenth Annual PC Forum

We will also hold the Fourteenth Annual PC (Platforms for Computing) Forum next year (1991), March 10 to 13. By popular demand, we will be returning to the Westin La Paloma in Tucson -- although at a slightly warmer time of year! Invitations will be mailed to subscribers next winter.
RESOURCES & PHONE NUMBERS

Carl Pavarini, Scott Perry, AT&T, (201) 898-3700
Dick Wolfson, Catalyst, Inc., (508) 486-9800
Gumby Wallace, Cygnus Support, (415) 322-3811
Gary Berlind, Desktop Innovations, (415) 525-9688
Richard Stallman, Free Software Foundation, (617) 253-8830
Joel Hyatt, Hyatt Legal Services, (216) 694-4400
Dan Schimmel, Lotus, (617) 577-8500
Dan Schley, MECA Ventures, (203) 226-2430
Steve Potash, OverDrive Systems, (216) 292-3425
John Nelson, The Right Brain, (612) 334-5620

COMING SOON

- Online services.
- Eastern Europe distribution deals, including ComputerLand, Microamerica/Softsel and MicroAge activities.
- Network navigation.
- The Douglas brothers -- Hofstadter and Lenat.
- MathSoft and Mathematica.
- Application servers.
- 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, and the Soviet software scene. Editor & publisher: Esther Dyson; associate publisher: Daphne Kis; circulation & fulfillment manager: Lori Mariani; executive secretary: Denise DuBois; editorial consultant and copy chief: William M. Kutik. Copyright 1990, 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.

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April 18-20  Sun Expo Europe '90 - Netherlands Congress Center/The Hague. Sponsored by The Sun Observer Europe. Call Brona Stockton, (512) 331-7761.

April 19  The pen interface and handwriting recognition conference - Santa Clara, CA. Sponsored by GRiD Systems, which wants to establish the category and is inviting other vendors to attend, but there's hardly enough competition to legitimize the market yet. Call Leilani Ribardo, (415) 656-4700.

April 22-24  Million-dollar awards conference & ceremonies - Coronado (San Diego), CA. Sponsored by International Computer Programs. Contact: Nissey Welke, (317) 844-7461.


April 23-26  First international conference on systems integration - Morristown, NJ. Sponsored by ACM and IEEE groups. Keynotes: Arno A. Penzias, AT&T Bell Laboratories, Robert Berland, IBM. Call Peter Ng, (201) 596-3387.


April 25  Massachusetts Computer Software Council's spring membership meeting - Boston. Call Joyce Plotkin at (617) 437-0600.

April 25-27  Conference on office automation systems - Cambridge, MA. Sponsored by ACM and IEEE groups. Call Joan Staunton, (212) 869-7440, or Robert Allen, (201) 829-4315.


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May 2
MCI Communications at the analysts - New York City. Sponsored by NYSSA. Call Carol Morgan, (212) 344-8450.

May 1-3
Amy Wohl's office systems and networks dialogue - Cambridge, MA. "The office is re-inventing itself." With Bill Campbell (Claris), Bill Crow (Hewlett-Packard), Tony Mondello (IBM), John Scull (MacroMind), Alan Hald (MicroAge). Call Karen Krebs-Wellerstein or Florence Wohl at (215) 667-4842.

May 1-3
Second annual conference on innovative applications of artificial intelligence - Washington, DC. Sponsored by the American Association for Artificial Intelligence; chaired by Alain Rappaport of Neuron Data. With presentations on TIS by Phil Hayes and Steven Weinstein, and on Prism, a case-based telex classifier from Cognitive Systems, and others. Call Julia Munde, (415) 328-3123.

May 4-5
Advanced workshop in computer access and use for persons with disabilities - Madison, WI. Sponsored by Trace R&D Center. Contact: Gregg Vanderheiden, (608) 262-6966.

May 6-9

May 7-9

May 7-9
Fortunes outside the 1000 - Chicago. Sponsored by Computer Reseller News and Salomon Bros. With Bobby Orbach, 47th Street Computer; Randy Fields, Mrs. Fields'; Avery More, Compucom; Rick Inatome, Inacomp; Jeff McKeever, MicroAge. Call John Russell, (516) 562-5717.

May 9-11

May 9-11

May 10-11

May 10-12
LANDEX '90 Midwest - St. Charles, IL. Sponsored by LANDA. A focused industry event for LAN resellers, distributors and manufacturers. Call Cindy Froelich, (708) 279-2255.

May 13-16
Vision: perceiving strategy in design - Montreal. Sponsored by The Design Management Institute. For people who agree with Mitch Kapor's Software Design Manifesto. With Raymond
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<td>May 14-16</td>
<td>OpticalStorage90 - San Jose. Sponsored by Disk/Trend and Freeman Associates. &quot;From promising technology to major growth market.&quot; Call Darlene Flamondon, (408) 554-6644.</td>
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<td>May 14-17</td>
<td>*Expert Communication '90 - Austin, TX. Sponsored by Graphic Communications Association and Davis Review. Come wallow in discussions of natural language, hypertext, media and messages. With John Clippinger, Paul Doebler, Mills Davis, Steven Weinstein, Esther Dyson, others. Call Mills Davis, (202) 667-6400, or Patty Hill, (703) 841-8160.</td>
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<td>May 21-22</td>
<td>LAP &amp; PALMTOP '90 - New York City. Sponsored by Laptop Expositions. Call Peter O’Connor at (212) 682-7968.</td>
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<td>May 22-24</td>
<td>*Second annual executive UniForum symposium - Santa Barbara, CA. Sponsored by Patricia Seybold's Office Computing Group with UniForum and X/Open. &quot;The applications development environment of the 1990s: Can Unix set the innovation agenda? Now that the UNIX market is emerging, it needs its own conference without a trade show; this is it. Call Judith Hurwitz, (617) 742-5200 or (800) 826-2424.</td>
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<td>May 28-June 1</td>
<td>Avignon '90 - Avignon, France. Tenth international workshop on expert systems and applications. Sponsored by ARC, ECCAI and JSAI. The major European expert system event. Call Jean-Claude Rault, (331) 47 80 70 00, or fax, 47 80 66 29.</td>
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<td>May 30–June 1</td>
<td><strong>Videotex 90</strong> - Toronto. Sponsored by the Videotex Industry Association. Speakers: Jean Monty, president of Bell Canada; Bill Louden, General Electric; Robert Gehorsam, Prodigy; Hilary Thomas, Minitel USA; John Gale, Information Workstation Group; many others. Call Robert Smith, (301) 495-4955.</td>
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<td>June 3–6</td>
<td><strong>Spring Comdex</strong> - (back in) Atlanta. Sponsored by the Interface Group. Call Elizabeth Moody at (617) 449-6600.</td>
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<td>June 3–6</td>
<td><strong>ADAPSO annual spring conference</strong> - Washington, DC. With an international flavor this year. Call Ellen Kokolakis at (703) 522-5055.</td>
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<td>June 6–12</td>
<td><strong>Computex '90</strong> - Taipei, Taiwan. Sponsored by Taipei Computer Association and The China External Trade Development Council. Call (886 2) 725-111 or fax (886 2) 725-1314.</td>
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<td>June 14–17</td>
<td><strong>International Computer Club inaugural conference</strong> - Moscow. Scheduled to lure people east from the SPA event in Cannes. For information, call Esther Dyson at (212) 758-3434 or Levon Amdilyan in Moscow at 921-09-02.</td>
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<td>June 19–21</td>
<td><strong>PC Expo</strong> - New York City. Targeted at multi-unit buyers of pc products. Sponsored by H.A. Bruno. Contact: Steve Feher, (201) 569-8542 or (800) 444-EXPO.</td>
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<td>June 24–28</td>
<td><strong>Design Automation Conference</strong> - Orlando, FL. Sponsored by IEEE and ACM groups, for vendors and users of design tools. Call P.O. Pistilli, (303) 530-4333.</td>
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<td>July 2–6</td>
<td><strong>ACM symposium on parallel algorithms and architectures</strong> - Crete, Greece. Contact: Tom Leighton, (617) 253-3662.</td>
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<td>July 10–16</td>
<td><strong>PC World Forum</strong> - Moscow. Sponsored by IDG. An exposition, with a software conference. Call Frank Cutitta, (508) 879-0700, or Karin Griffhorn, West Germany at (49) 893 60860.</td>
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<td>July 16–18</td>
<td><strong>Summer computer simulation conference</strong> - Calgary, Alberta, Canada. Sponsored by the Society for Computer Simulation.</td>
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Everything from SDI to biomedical simulations. Contact: William Svrcek, (403) 220-5755, fax (403) 284-4852.


August 6-10 *SIGGRAPH ’90 - Dallas, TX. Sponsored by ACM and IEEE Computer Society’s Technical Committee on Computer Graphics. Call Kathleen Nilles, (312) 644-6610

August 13-17 International parallel processing conference - St. Charles, IL (25 miles from O’Hare). Sponsored by Pennsylvania State University. Contact: David Padua, (217) 33-4223 or Benjamin Wah, (217) 244-7175, or Roger Anderson, (415) 422-8572.

September 5-7 *Breakaway 90 - New Orleans. Sponsored by ABCD. With a panel featuring Mike Shabazian, Mike Pickett, Mike Swavely, moderated by Esther Dyson. Contact Jeff Rosenberg, Computer Emporium, (914) 565-6262.

September 9-12 18th mini/microcomputer industry conference - Boston, MA. Sponsored by Cowen & Co. Contact: Amy Burns, (617) 523-3221

September 10-13 NetWorld ’90 - Dallas. Sponsored by H.A. Bruno. Call Annie Scully or Mark Haviland, (201) 569-8542 or (800) 444-EXPO.


September 25-27 PC Expo - Chicago. Sponsored by H.A. Bruno. Contact: Steve Feher, (201) 569-8542 or (800) 444-EXPO.


October 3-5 Seybold Conference - San Jose. Electronic publishing in all its guises. Call Kevin Howard, (213) 457-5850.


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October 7-10  *CSCW '90 - Los Angeles. Computer-supported cooperative work, with a slight (but lessening) academic flavor. Sponsored by ACM. Call Frank Halasz (back at PARC after a tour at MCC) at (415) 494-4750, or Tora Bikson, (213) 393-0411.


October 18 Massachusetts Computer Software Council's fall membership meeting - Boston. Call Joyce Plotkin at (617) 437-0600.

October 21-24 **EDventure East-West High-Tech Forum - Budapest, Hungary. By popular demand. See page 16. Explore the problems and opportunities of high-tech business in Eastern Europe and meet your peers in a limited-attendance conference focused on contacts, not speeches. Sponsored by EDventure Holdings, with a roster of speakers and attendees from both sides. Call Daphne Kis, (212) 758-3434. By invitation only.


October 31-November 2 UNIX Expo - New York City. Sponsored by National Expositions. Contact: Don Berey, (212) 391-9111.

November 4-7 *ADAPSO management conference - Phoenix. Contact: Ellen Kokolakis at (703) 522-5055.

November 7-9 Software Development Fall '90 - Boston. Sponsored by Miller Freeman. Call Lynne Mariani or Angela Hoyte, (415) 995-2471.


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.

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

Daphne Kis
Associate Publisher

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