

INFO WORLD

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MULTIUSER PROGRAMMABLE
DATABASES

InfoWorld looks at three more powerhouse database products in the second half of a two-part comparison. See Page 45

JANUARY 14, 1991

FOR POWER BUYERS OF PC AND NETWORKING PRODUCTS

VOLUME 13, ISSUE 2

THIS WEEK

Enterprise

THE TIME IS NOW
Enterprise Computing, InfoWorld's new monthly supplement, is designed to help you get the most out of your computing resources in the 1990s. We talk to PC and LAN managers who are guiding their corporations' overall computing policy.

THE NEED FOR POWER
In the year 2020, we may all be on the same network. All we have to do is figure out where we're going to get the bandwidth. See Perspectives, Page 34.

REVIEWS INDEXES
We present our annual reviews indexes, a complete listing of all the hardware and software we reviewed and compared in 1990. See Page 65.

3Com Abandons LAN OS To Focus on Net Hardware

Shift Reduces Users' LAN Manager Confusion

BY JODI MARDESICH
AND PATRICIA J. PANE

3Com Corp.'s sweeping realignment and its decision to focus on "global data networking" will simplify network operating system purchases and result in better products, users said last week.

As expected, 3Com said it would leave the network operating system market in order to focus on its internet-working products. (See "3Com Bails Out of LAN Manager Boat, Turns Product Sales Over to Microsoft," December 24/31, 1990, Page 1.)

"We view the change as a positive move," said Claudio Micor, director of MIS for Inmac Corp., a large 3Com installation based in Santa Clara, California. "They're going to be concentrating on the area [that is] most important to us — the interconnectivity products. 3Com is an excellent provider of the various bridging mechanisms and servers. Microsoft is excellent at software. It's a win-win situation."

"I think it's actually a good move for 3Com because it should let them get the value-

See 3Com, Page 81



Using Beyond Mail rules, mail messages about a topic or from a certain person can generate other messages automatically.

Rule-Based E-Mail Brings Easier Mail Management

Beyond Also Readies Mail Add-In for 1-2-3

BY LOUISE FICKEL

A Cambridge, Massachusetts, start-up company is readying a rule-based electronic mail package that promises to allow users to manage and act on their incoming mail.

Traditional E-mail packages do not provide filtering of the In box. Beyond Mail, from Beyond Inc., allows users to sort E-mail

by category into folders, respond to E-mail, and set up their own applications — such as inventory entry — based on the receipt of information, said Charles J. Digate, president of the company. The package will be announced January 28.

Users can create a customized set of rules that automatically route incoming messages

See E-Mail, Page 81

Hot Products From Macworld

Product:	Appeared In InfoWorld:
• Aldus Freehand 3.0	January 7, Page 8
• Claris Mac Draw Pro	January 7, Page 30
• Deneba Canvas 3.0	January 7, Page 30
• Digital F/X Video F/X	This Issue, Page 28
• Farallon PhoneSet Talk and Card	This Issue, Page 25
• Microsoft Excel	This Issue, Page 8
• Microsoft Mail	This Issue, Page 8
• On Technology Meeting Maker	January 7, Page 30
• Radius Pivot	January 7, Page 8
• Rasterops Clear Vu	This Issue, Page 28
• Sigma Designs Bullet 3040	January 7, Page 8
• Sony Vbox	January 7, Page 8

Apple Edges Toward Mainstream With Networking, VGA Support

BY THE INFOWORLD STAFF

SAN FRANCISCO — Apple kicked off 1991 by reintroducing the Mac LC and positioning it for the consumer, education, and corporate markets.

Apple chairman and CEO

John Sculley touted the LC's new plug-and-play Ethernet, showing the scheme lives up to industrywide standards.

Apple also let slip a little-known feature of the LC. The LC can use a VGA monitor as a less-expensive color add-on, Apple said.

Apple plans to publish the spec for linking VGA monitors to the LC, providing 8- or 16-bit color for the system.

Few Compaq LTE 386/20s In Channel; Market Lead Over IBM, AST Threatened

BY BARBARA DARROW
AND ED SCANNELL

Compaq Computer Corp. last week acknowledged difficulties getting its LTE 386/20 out the door in quantities, threatening its advantage over IBM and



AST, which are expected to deliver similar systems at lower prices this quarter.

Compaq announced last October its machine, the first 20-MHz 80386SX laptop, with initial shipments scheduled to start that month. As of last week, however, dealers and corporate users were still waiting for, or had only started to receive, LTE 386/20 evaluation units with a 60-megabyte drive.

"We have 30 [of the 60-megabyte models] on order. They had better hurry up or they will lose some points to IBM and AST, which will soon have

Novell's Expected MHS Upgrade May Be Incompatible

BY JODI MARDESICH

Differences between two versions of Message Handling Service may become apparent as soon as next month, when Novell is expected to announce a new version of MHS, according to sources close to the company.

Novell's new MHS will include changes to the Standard Message Format (SMF), which may render the transport platform incompatible with Action Technologies' MHS. Novell plans to announce the new release at Networkworld, according to sources.

Novell cannot comment on

See MHS, Page 81

DOCKET
ALARM

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ARRIS EX. 1020



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NEXT WEEK

PRODUCT COMPARISON. We evaluate eight "trim-line" computers — small-footprint, low-cost units — including the Compaq Deskpro 386n.

REVIEWS. Compaq Systempro Model 486-840 computer; and Adobe Illustrator 3.0 drawing software for Macintosh.

PERSPECTIVES. With the days of MIS control waning, corporations are now struggling to prevent "information overload."

AT DEADLINE

DEC Cuts 3,500 Positions To Lower Operating Costs

Facing increased pressure to hone operating costs, Digital Equipment Corp. last week announced plans to lay off about 3,500 employees by midsummer. Until now, DEC has relied on a voluntary retirement plan to pare its work force. The Maynard, Massachusetts, company currently employs about 123,000 people worldwide, down about 2,500 from last year. Analysts have called on the company to cut up to 15,000 workers to stop the flow of red ink. At the end of June 1990, DEC announced the first quarterly loss in its history.

— Barbara Darrow

Sage Upgrades Bricklin Demo II

Last week saw the debut of the first updated version of Dan Bricklin's Demo II since it was acquired by Rockville, Maryland-based Sage Software Inc. Demo II, Version 3.0 let users overlay text on bit-mapped images and adds support for mice, enhanced keyboards, and VGA video. The company also added an auto-save feature, a set of IBM SAA CUA features and templates, and memory swapping that lets Demo II shrink to 7K on execution of external programs. Documentation has also been improved for the program, which produces program prototypes, demonstrations, and tutorials. Demo II 3.0 is available now in a single-user version for \$249. Demo II Professional, which lets developers encrypt files and remove the initial Sage sign-on screen, is \$995.

— Scott Mace

UTS Offers Eureka Solver Trade-Up

Borland International has again pared down its product line to focus on key markets, but another vendor is taking up the slack for users of Borland's discontinued Eureka: The Solver. Universal Technical Systems Inc. of Rockford, Illinois, is offering Eureka user a \$195 trade-up to TK Solver Plus, which costs \$395. TK Solver can support unlimited linear and nonlinear equations, tables, and high-resolution plots, and provides more than 70 built-in functions, unit conversions, and a library of models with sample applications. The product is available for a variety of platforms, including DOS, Macintosh, VAX, and several Unix systems.

Borland still provides technical support for Eureka, but plans no updates and recently stopped manufacturing the product.

— Peggy Watt

Pac Bell Simplifies E-Mail Service

Pacific Bell plans to add Microphone II scripts to its E-mail service — Pacific Bell Connection — to simplify its user interface. The Macintosh and Windows 3.0 scripts will include automatic binary file transfer, X.400 addressing, scheduling, full-screen editing, and in-box, out-box, and message management.

The Mac version will ship next month, with the Windows 3.0 version coming later this year. Current Microphone II 3.0 users can buy the script for \$25, while others can order the script in a version of Microphone II without script editing for \$125. The script and a script-editing version costs \$250.

— Louise Fichel

National Semi's Sporck Resigns

National Semiconductor announced that its president and CEO Charles E. Sporck will resign in May, to be succeeded by Gilbert F. Amelio, president of Rockwell Communication Systems. Amelio will join the chip maker February 4, sharing responsibilities with Sporck during the transitional period. Sporck served as president of the chip maker for 24 years.

— Patricia J. Pane

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TECHNOLOGY

By Jodi Mardesich

Users Turn to SNMP to Fulfill Dreams of Simplicity

Arco Oil and Gas Co. is like many other U.S. corporations — it has a mixture of network systems with a corresponding number of protocols to match, from Appletalk to IPX to DEC-Net and TCP/IP. Arco's network management room is a mass of different network management consoles. "Every time we put in a topology, we have to get another network management station to talk to it," said Ray Chandler, senior network specialist for the Dallas company.

"We're just now getting to the point where we're going to centralize the network management," he said.

Chandler and many corporate users in similar situations are turning to Simple Network Management Protocol (SNMP) in the hope that using a common protocol will simplify their network management.

SNMP was developed in the Internet community, and though today it is used mainly to manage TCP/IP networks, it could be implemented on other protocols, said Marshall T. Rose, chairman of the SNMP working group, which oversees technical development of SNMP and the Internet standard management information base (MIB).

"At Interop, people were managing CD players and toasters [with SNMP]," Rose said. "I know of one defense contractor building a ground missile launch system using SNMP; power companies want to manage power grids with SNMP."

REALLY SIMPLE.

However, SNMP really is simple — for better or for worse. SNMP's counterpart in the Open Standards Interconnection (OSI) world is Common Management Information Protocol (CMIP). Although SNMP is widely used today, many observers believe that CMIP will eventually become the standard network management protocol, mainly because CMIP is more robust than SNMP.

The International Standards Organization (ISO) has defined five components to network management: performance, fault, security, accounting, and configuration. SNMP partially provides for each area except for accounting, which has not been defined well enough in the Internet commu-

nity, Rose said.

"Commercial (SNMP) products handle four of those five," Rose said. "SNMP management could be used for accounting management, but we really don't know what that is yet in the Internet."

SNMP comprises three parts — managers; agents; and MIB, a database of objects on a network that can be managed. A central network management station contains the manager software that polls a network; in other words, the station sends out queries and commands to the devices on the network. Each of these devices has an agent, a software program that resides on the device that stores information about that device, and responds to the management station's requests for information.

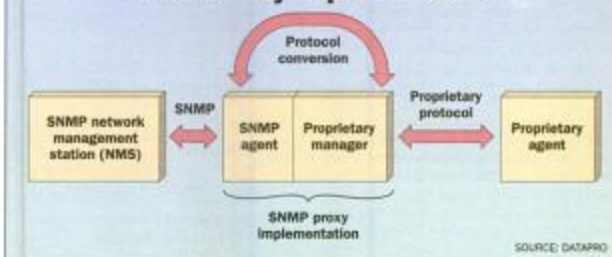
An MIB defines some variables that reside in a managed node. Those variables have such things associated with them as a name or a syntax, Rose said. The variables represent objects such as a routing table or a TCP/IP connection table. "It's up to each person providing an SNMP agent to define that," Rose said. "As you might imagine, if you look at a Cisco router, a Proteon router, and a Wellfleet router, they probably have different ways of presenting it." Rose added that it is up to companies to write a routine into their proprietary data structures.

Today the MIB-I has been standardized by the Internet Activities Board (IAB), and a working group headed by Rose is defining a new improved MIB — the MIB-II. Whereas the MIB-I contains approximately 110 objects, MIB-II will contain approximately 170 objects, Rose said. The objects the MIBs define can be used to manage TCP/IP networks, but SNMP can be used over other protocols such as OSI, depending on the implementation. Novell Inc. is reportedly considering running SNMP over IPX, and Apple is interested in running SNMP over Appletalk, said Robert Wahnoutka, manager of product marketing for Appletalk products at Apple Computer Inc.

Vendors of network devices must write their own agents to be managed by SNMP.

The MIB is manipulated via SNMP to manage the network. The MIB contains standard definitions for objects that can be

SNMP Proxy Implementation



SNMP proxies make it easier for network management system vendors to migrate their proprietary products to work in the SNMP environment.

managed. MIB-I, which is the MIB definition that is in use today, is not very specific about the objects that can be managed. However, there is a provision, called the Enterprise-specific MIB, that allows vendors to develop extensions to the MIB that support features in their products.

'STRONG POTENTIAL'

Mark Ryding, network manager for Evans and Sutherland, in Salt Lake City, said his long-term interest in SNMP depends on the revised MIB-II. "SNMP holds a strong potential," Ryding said. "A lot of it depends on what happens with MIB-II." SNMP was designed for controlling routers, but it doesn't provide for other devices on the network, Ryding said. "Whether it will turn out to be everything I want or not, I don't know."

Because SNMP is so flexible, vendors can write extensions to the standard MIB. However, these extensions can make one vendor's SNMP manager incapable of managing another vendor's products, said Jay Weil, director of marketing at Network General Corp., maker of the Sniffer protocol analyzer.

Every vendor has the ability to modify the MIB and to include its own private parameters. "If network products were sold in white boxes with blue lettering — if they were generic — you would only need a couple of standard MIBs," Rose said. "Vendors pride themselves on being able to differentiate themselves in the market."

If users have routers, bridges, or other devices that they expect to be able to monitor from a management station, they should ask potential SNMP equipment vendors if the products can manage their devices, Weil said. "Users need to make sure the manager understands the various MIBs that will be in his network," he said.

Another thing users need to take into account is network utilization. "How much of the bandwidth is it going to chew up on your network?" Weil asked. SNMP creates about 20 to 30 bytes of overhead for each byte of data that gets sent, he said. "To get one station's statistics when it's got a 100-byte MIB takes approximately 3/100ths of a second. In 1 second, you would only be able to poll 30 stations. If you have more than 30 stations, you can't get real-time statistics about SNMP."

"We've seen networks that had 50 SNMP devices, and the management station was just polling the devices to see if they were there, not to transfer information. Just doing that utilized 1 percent of the network bandwidth," Weil said.

On networks transferring SNMP data, as much as 10 percent of the network was being utilized by SNMP traffic, Weil added.

Of course there are ways of reducing network traffic: one is by polling less often. The traffic generated by SNMP depends on how managers configure their networks, Rose said. "In PSInet, our national network, the SNMP traffic doesn't come anywhere near 10 percent," he said.

At Evans and Sutherland, Ryding manages a network of more than 1,300 nodes. "If it exists, we have it," he said. Primarily, Ryding's network runs DEC-Net and LAT, but there is also TCP/IP, NFS, IPX, and Appletalk.

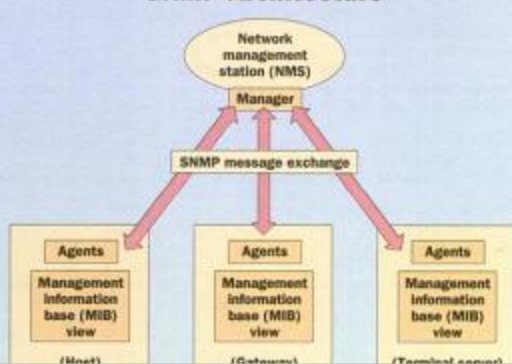
Ryding said his network management station polls every device on the network every 3 minutes. Because of the size of his network, polling more often would be impractical, he said. "Polling every three minutes is good enough. I would like to know instantaneously, but based on the size of my network, it's impractical."

However, Weil believes network managers need real-time data. "In order to feel comfortable, managers want information in real time," Weil said. "They want to know second by second what's happening, how much traffic it's generating."

Another way of reducing SNMP traffic is to use a network monitor, such as Novell's Lantern or Hewlett-Packard's Lanprobe, to watch what is happening on the wire instead of having a management station poll all the devices. The Lantern tracks network utilization, and that information can be picked up by the network management station, said Jeff Turner, product manager for Novell's Lanalyzer products division. "It's a passive device watching everything on the cable."

"When a station goes down and doesn't transmit a package, the network monitor will probe that device to see if it's alive," Turner said. "That's one of the areas where you can overcome the limitations of SNMP — by having a passive device watching the cable."

SNMP Architecture



Continued From Page 59

SNMP

network monitors track information on devices regardless of the protocol.

Although security is considered one of its weak points, there is a security framework in SNMP. Currently there's one method of authentication — called trivial authentication — which is password based. Another security scheme is being standardized by the SNMP working group, and users should expect to see implementations of it in the next six months, according to Rose. The new scheme will include strong cryptographic techniques that will give users protection for data privacy, message integrity, and message authentication.

Another potential problem users should know about is configuration: In some cases, a management station from one vendor cannot configure a managed node from other vendor. "Some users are buying a network management station and expect it to both access information from multiple vendor SNMP agents as well as reconfigure those SNMP agents," Weil said. "You can't." Because the authentication for SNMP is not very well defined, "nobody has implemented it, so nobody's using it as a mechanism for configuring their devices," he said.

Due to the lack of security, some vendors have not implemented the ability to configure other devices on a network. "Some people have decided to wait for the strong authentication to come about before allowing configuration to be done," Rose said. "But not all vendors have done that."

Vendors are encouraged to publish their extensions to the MIB so that other vendors can support them, Rose said. Novell has published their MIB extensions, Turner said, and more than 15 vendors support it. □

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Continued From Page 511

Macs

Appleshare server.

In addition to Apple's own coax, twinax, and token ring cards, the company also offers connectivity via its Mac APPC (Advanced Program-to-Program Communications) software, which acts as a gateway for any kind of Appletalk network. APPC attaches LocalTalk, Ethernet, and Token Ring LANs into SNA via LU 6.2 (logical unit 6.2 — a method of providing peer-to-peer communications in SNA).

There are other connectivity tacks as well. Simware Inc. of Ottawa, for example, offers software to streamline dial-up access from Mac to mainframe. Sim Mac, which automates this process, is useful for traveling sales representatives and others who need to look up account activity, current prices, and their ever-important E-mail via laptop or desktop computers.

A views feature in Sim Mac enables users to mask the bland character-based emulation with a more Mac-like look, although only 1 percent of the users at Bell Atlantic use that capability, according to Dennis Williams.

Other software tools that promise to extend the mainframe access beyond flat, character-based emulation include Masquerade from Connectivite Inc. of Elmsford, New York, and Mitem View from Mitem Inc. of San Jose, California.

Mitem View works in conjunction with scripts a user writes in Hypercard's Hypertalk (or SuperCard's equivalent) to put a true Mac-like front end atop the mainframe sessions. Mitem View can host "Macintosh-ize" Digital and Unix host environments, according to David Nagy, Apple's product line manager for IBM Communications. (This week, Mitem is

announcing Mitem View 2.0, which works with Hypercard 2.0.)

Connectivite's Masquerade, on the other hand, is 3270 specific. Rather than scripting, customers use a tool palette reminiscent of a drawing package. "You essentially get on-line to your 3270 session and, as you navigate through screens onto Profs, go through your mail, pull it off, look at the calendar, and go off-line, it [Masquerade] has been looking at and analyzing the screen," Nagy said. From there on the software, with drawn-on queues from the user, automates those mundane log-on and other 3270 tasks.

Whereas Apple and Digital Equipment Corp. launched a much-publicized codevelopment agreement aimed at linking Macs to VAX/VMS servers, there has been no such effort on the IBM front, a situation that is not likely to change.

Apple officials have outlined a plan for true cooperative, distributed, or collaborative applications.

Apple representatives repeatedly state that the stable of third-party developers and Apple's own efforts make the lack of a codevelopment venture a nonissue to end-users.

"Compared with the Pathworks [Mac and VMS networking] stuff, we're probably not as far along in Appletalk integration," Nagy admitted. "But in file transfer, database access, terminal emulation, and front-end tools, we're at least equal and in some cases even stronger. For example, [because] we support LU 6.2, we have all those functions in place."

With all these third-party solutions around, there are those who say it's just as well if IBM stays out of the Mac linkage market.

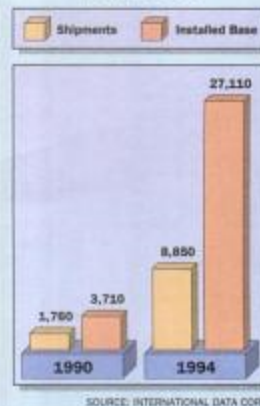
When Georgia Power wanted employees to be able to download small Profs files from the mainframe, the company initiated its own links without IBM's assistance. "We really didn't need their help — we used our own staff and got assistance from Apple and DCA," noted Richard Leibman, staff analyst for the Atlanta-based utility.

Although Mac-mainframe connections are currently used mostly for downloading small Profs files, other potential applications are on the horizon, Leibman said. Budget coordinators using Macs could, for example, tap into the mainframe-based budget system, download what they need, and do their data manipulation at the desktop.

Others say that such high-level integration support is too much to ask of main-line

Growing Demand

Macintosh Gateways:
U.S. Shipments and
Installed Base



Demand for Macintosh gateways to mainframes will increase fivefold by 1994 to shipments of 8,850 units, according to IDC.

Kollmeyer of The Support Group, a Newton, Massachusetts, firm specializing in Macintosh support and training. "They want to sell their own terminals and so have other priorities."

"Most big vendors have a difficult time supporting users in such a high-end fashion," Kollmeyer said. "I think it might be better to let third parties do these kinds of things. After all, there are some real nice third-party products already out there."

"I think there are MIS people out there who want these solutions and are happy to see they exist," Bremner said. "But a lot of them don't really know what Mac connection products are out there or the fact that the Mac pieces available are actually as good as their DOS equivalents."

Apple evangelists pledge that the evolution of more capable Mac-to-mainframe links will continue.

"Four years ago people complained that we didn't have Token Ring cards and couldn't do 3270 emulation. So we gave them 3270 and text screens. Then they wanted them to look like a Mac," Nagy reported.

The next step? Some Apple officials have outlined an ambitious plan for true cooperative, distributed, or collaborative applications wherein the application is nearly as intelligent as the user, because it knows what is wanted and how to get it — whether "it" is in a DB2 database, in Profs, or in some other environment.

Such applications will not be emulation- or connection-based, but truly smart. "You'll have an agent in the application controlled by objects on your screen," said Nagy. "Front-ending is a step, but there's still the essence of log-on, log-off, sessions, that kind of stuff. Your agent knows what