CBS, charging that Mac
ical interface are invalid.

Barbed Star: Xerox sues
Page 89.

Fourteen months late,
Timeplex is ready to ship
net management system;
beta-test users say it was

Ashton-Tate double-
aults, losing exclusive re-
tail distribution rights to

'Trojan horse' hidden in
purported AIDS evaluation
program scrambles hard
Disks in five European coun-

Wang targets IBM base
with imaging interface for
CICS users. Page 89.

Tis the season: As you're
awaiting that Mastercard
purchase authorization,
While you're in the
Small companies caught
at what's available in recre-
ational software. Stories,
page 37.

Spy sting nabs NCR worker
trying to pawn image goods
through the parking lot of Unisys
Corp.'s headquarters here, An-
thony S. Latchoo was arrested
by Federal Bureau of Investiga-
tion agents on charges that he
tried to sell NCR trade secrets to
Unisys. The arrest followed a two-
month sting operation involving
Unisys, the FBI and the U.S. At-
torney's office in Philadelphia.
The FBI, which informed NCR
about the attempted espionage
Dec. 7, praised Unisys and
NCR for their cooperation in the
case.
Latchoo, 28, a product re-
Consultants predicted that
Continued on page 89

The Valley ain't what it used to be
Chip firms climb out in search of newer, greener (and cheaper) pastures

Imagine Palm Springs without the palms or the Windy City with
scarcely a breeze. Then you will get an idea of what is happening in
Silicon Valley.

The recent announcement by
Intel Corp. that it will phase out
what was the world's most
profitable chip-making plant in
San Francisco Bay Area is the
test indication that the famous
semiconductor delicacy will be
in serious danger of no longer producing
the substance that inspired its
renowned nickname.

"Financially speaking, Cali-
ifornia is not the friendliest place
to be for a business," said Mil-
lard Phelps, an analyst at Ham-
brecht & Quist, an investment
firm in San Francisco. "It's very
unfavourable to the way automakers
left Detroit a few years back."

A variety of factors, including
the scarcity of low-cost labor,
high taxes, lengthy permit appli-
cation procedures and the
state's strict environmental
is frowns greet IBM
service fee
Software-assist freebie
now a thing of the past?
Continued on page 16

IBM pulled out a software ser-
ces program last week that left
some users wondering if the firm
was putting a price tag on sup-
port long provided as informal
hand-holding.

Softwarcasst, which consists
of three levels of service for large
537 customers, ends the policy
of bundling basic support in the
software license fee and ushers
in a formal structure of service
options that can be had for vari-
ous monthly charges.

Aimed primarily at large IBM
3090 accounts that can afford to
pay for such services more easi-
l.y, Softwarcasst offers a range of
support. Users can opt for a sim-
ple plan such as electronic access
to the IBM National Service
Division's database on software
problems or the flat-rate pack-
age that can include a full-time
IBM staffer at the customer's site.

It also holds the distinction of
being the first IBM large-system
software service offering that
cares non-IBM software.

"Obviously, it's an unbund-
Continued on page 16

T.C. Russia with lust

GORBY-mania strikes com-
puter vendors:
• CDC receives $32 million
for Cyber CPUs.
• Data General sets up mini-
computer venture.
• PC vendor gains defense
contract.
• U.S. indicators gradual
pace for relaxing export re-
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4 A Trojan horse virus ambushes Europe;... users.
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6 Bruised but not broken: Ashton-Tate takes an uppercut to the SQL Server.
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10 IBM is flirtin’ with disaster recovery with its fledgling Business Recovery Services.
16 An IBM Help desk with plans to support compatibles and Apples may have bitten off more than it can chew.
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DECEMBER 18, 1989

EXECUTIVE BRIEFING

The dreaded word — unbundling — reared its ugly head last week as IBM customers reacted to the vendor’s new software support plan. Although IBM denied that users will pay more than they currently do, the three-tiered Softwarelxcel service plan struck some customers as charges for support that they now receive free as part of IBM software license fees. IBM will support other vendors’ software and Apple microcomputers for the first time. See stories on pages 1 and 16. The firm is also gearing up its disaster-recovery services for a major push into that market next year. Page 10.

A hybrid centralized/decentralized systems development restructuring at CBS may prove to be a model for many IS groups in the 1990s — if their firm is not too geographically dispersed. The broadcast giant is consolidating programmers centrally while placing systems analysts in each of its three main business units. It’s aiming for better synergies and better development productivity with existing resources. Page 1.

The walls come tumbling down in the Eastern Bloc as Control Data, Data General and US West announce export deals to the Soviet Union, pending approval from the Department of Commerce. The Bush administration is also considering easing high-tech export restrictions to Hungary, Poland and other nations in Eastern Europe. See stories page 88.

The IS profession has come a long way in the 1980s, but it has had an often contentious path into the competitive business world. Users and IS professionals need a more cooperative relationship to tap the full potential of information technology in the next decade. Page 53.

High-tech hijinks are revealed as an NCR employee is charged with attempting to sell trade secrets to competitor Unisys for an alleged $200,000 bounty. The suspect reportedly targeted a critical marketing area: imaging. Page 1.

Smaller firms are realizing they must adopt EDI technology as an increasing number of their larger customers establish it as a requirement for doing business. It can be a tricky procedure for companies that have not yet automated and integrated other business functions. Page 6.

On-site this week: That remote computer authorizing your holiday gift card purchase may well be a PC. Tampa, Fla.-based Telecredit has downsized many of its credit authorization processes from a Tandem CPU to 10 286-based PCs. Page 37. Farther south in the Sunshine State, one of Florida’s largest law firms renders a positive verdict on Wang’s Freestyle imaging system. Exchanging briefs and documents electronically saves 150 attorneys at Miami’s Steel Hector & Davis an average of one half hour per day. Page 25. Another professional firm, Chicago-based advertising agency Leo Burnett Co., cops a user excellence award for its 1,200-node Novell local-area network. Page 44.

In eliminating levels of management, corporate restructurings have helped spawn a new breed of IS project manager charged with accomplishing specific objectives — launching a new product, for example. Also known as internal consultants, they must command a broad understanding of business and technology. Page 73.

Today’s imperative of speedy response in corporations has pushed decision-making down to technical specialists. To handle their expanded responsibility, the specialists must know how to analyze market data and trade-offs between cost and quality as well as when to pass a decision that is beyond their expertise. Page 85.

Stroll down memory lane as we wrap up the decade. Page 55.

Educators are trying to make programs for IS executives that are mind-expanding but grounded in the real world, too. Page 49.
SYNCSORT PRESENTS 3 NEW WAYS TO MAKE SHORT WORK OF LONG JOBS.

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Trojan horse sneaks in with AIDS program

BY MICHAEL ALEXANDER

Personal computer users in at least five European countries were tricked last week to rid their hard disk drives of a destructive "Trojan horse" concealed inside a program designed to evaluate a popular anti-virus utility program, Acquired Immune Deficiency Syndrome (AIDS).

Trojan horse was activated randomly after it had been installed on the user's hard disk drive.

"It appears to be the first act of entrepreneurial malice by [an organization] that went all out to bust folks," said David Stang, computer consultant to the National Computer Security Association in Washington, D.C. "It was professionally packaged; they make it from a fancy address in London, and it is obvious that these people spent money on this joke.

"The program instructed users to send money to PC Cyborg Corp. in Panama. The disk was sent to computer users in the UK, France, West Germany, Italy and Sweden, the majority of whom were subscribers to computer magazines and newspapers.

PC Business World, a London-based publication owned by International Data Group, Computerweek's parent company, reported that it had sold a subset of its mailing list containing 7,000 names to a company calling itself Ketema and Associates in London. The apparently fictitious company closed its doors in December, after its operators reportedly fled.

The British Ministry of Defence, which loaded the disk on its network, Australian and New Zealand Bank and the London Stock Exchange were all hit by the Trojan horse, according to PC Business World reports.

Other computer users and organizations that "ported having received the disk included dozens of delegates to an AIDS conference in Sweden, an AIDS charity, hospitals and other medical institutions conducting research into the AIDS virus.

The IBM PC Users Group in London received 50 phone calls in one day from users who had received the disk, said Alan Jay, an editor of the user group's magazine. None of the callers claimed to have lost data, he said.

Members of the group have reverse-engineered the program and concluded that it was "written by an exceedingly competent programmer" and that the AIDS and Trojan horse programs were "quite sophisticated," Jay said.
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Small firms drawn to EDI fire

B Y ALAN J. RYAN C W STAFF

WASHINGTON, D.C. — As the number of large companies moving to electronic data interchange (EDI) continues to climb, smaller companies that want to do business with them are in some instances mandated or strongly encouraged to move to the technology as well.

But as speakers at last week's 21st National EDI Systems Conference & Exhibit said, many smaller companies are hesitant to move to EDI because they are not technically sophisticated; they know little or nothing about EDI, and they feel they have inadequate financial and human resources to devote to the move.

But data these days, customers want invoices sent electronically, smaller companies often feel compelled to compete, and those that are encouraged to move to EDI should seek assistance with the technology as well.

A smaller number of large companies moving to EDI because they are strongly encouraged to move to EDI because they are seeking to augment its distribution channel. "It has become a mandate for them to move to EDI, and they want to do so before the end of the year," said Janice Gessin, manager of information services at Pacific Bell in San Ramon, Calif., one of 150 small firms that Pacific Bell is working with, a safety glasses manufacturer, was shy of tech-

"EDI has to be an equal-opportunity relationship. The big guy can't always dictate the terms. It is a give-and-take situation," said Gary Dalton, director of AT&T EDI in Bridgewater, N.J. The only way for EDI to be truly successful, Dalton said, is just being realistic in ending the relationship.

"EDI officials would say little about the conditions until last week, under the weight of a sharp job announcement from Microsoft Corp. But while shaken, Ashton-Tate is likely to stay off the canvas, thanks in part to the injection of help from an old foe, Lotus Development Corp., prior to the start of the boodlling round.

Ashton-Tate and Microsoft announced that Ashton-Tate would no longer enjoy exclusive retail distribution rights to SQ Server, the database engine. The two companies said that when Ashton-Tate ships a version of the delayed Dbase IV Version 1.1, designed to work with SQL Server — or no later than the second quarter — Ashton-Tate will begin selling SQL Server only in conjunction with DIbase IV or other Ashton-Tate front ends that support SQ Server. Microsoft said that it will seek to augment its distribution channels for the product but announced no new plans.

In addition, Ashton-Tate announced that earlier this month it has sold its entire holdings in Sybase, Inc., the Emerilly, Calif.-based developer of SQL Server, to Lotus, with Sybase assets, approximately $20 million. Ashton-Tate reportedly owned about 5% of Sybase. The sale completed Lotus' plan to purchase 15% of Sybase — originally announced in September. Neither Ashton-Tate nor Lotus would disclose the number of shares involved or the price of the transaction, but based on Sybase market valuations of $100 million to $200 million, the sale was worth between $5 million and $10 million to Ashton-Tate and would be included in fourth-quarter 1989 revenue.

Downward slide

Ashton-Tate posted a net loss of $19.7 million for the third quarter on net revenue of $35.9 million, and sources close to the company said that Ashton-Tate needed the cash in the face of flat revenue. Ashton-Tate's SYbase holdings were less than 5% of its own total assets, and as such, did not have to be written off.

Observers agreed that Ashton-Tate was simply exhibiting a weakness in the SQL Server ring that really began nearly a year ago when DIbase IV Version 1.1 was first delayed.

"The original marketing strategy for DIbase IV Version 1.1 was to create a new version should any custom-

DECEMBER 18, 1989

486 bugs squished; Intel resumes shipping

B Y RICHARD PASTORE C W STAFF

Like prisoners crossing off calender days, personal computer makers have been marking time until bugless Intel Corp. 80486 chips set free their high-end PC designs. The vigil may have finally ended, as corrected 1486 microprocessors have been put into production at Intel and into the hands of PC vendors.

But at least one vendor, NCR Corp., which has opted to take its chances with the buggy chip to beat its rivals to the market. Intel thought the 486 chip was ready to roll in late October, but testers at Compaq Computer Corp. unearthed two floating-point bugs that flubbed certain scientific calculations.

Intel went back to the drawing board and made a fix to one of the chip's "masks." The correction went as planned, and "we began shipping production volumes the week of Nov. 20," an NCR spokeswoman said. "So far, it looks very good.

NCR, betting that the bugs would not rear their heads in business-class systems, decided to ship its PC486/MC in mid-December as planned, with the older version of the chip. The boxes are currently being shipped by Illuminated, a division of Sears, to customers through the Sears Merchandise Group, a division of Sears, Roebuck & Co. Sears will bring the go-ahead to carry the new chip.

offer to replace the chip with the new version should any custom-

ers unearth the bug. "If the problem does occur, we will re- place it free on-site," Langos said. "But the odds of running into it are very, small.

Intel resumed shipping its new chips into the hands of PC vendors.

"We can do a final quick check to see if the bug is still there," Langos said. "But the odds of running into it are very, very small."

"Every time we get a new chip, we go through a back check to make sure the changes they made haven't hurt the reli-

ability," Archuleta said.

One of the new chip passes muster at IBM, the company will restart its 486 upgrade-board assembly line, which has been idle since October.

Intel resumes shipping

by Charles Won Simon

TORRANCE, Calif. — Although long blooded in the database server market, the knives of Asht-

ton-Tate Corp. showed their first hint of buckling last week under the weight of a sharp job announc-

ement from Microsoft Corp. But while shaken, Ashton-Tate is likely to stay off the canvas, thanks in part to the injection of help from an old foe, Lotus Development Corp., prior to the start of the boodling round.

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A NEW YORK STOCK EXCHANGE COMPANY.
IBM scientists said last week that they have squeezed a billion Du Pont recasts Tariff 12 deal corded and read data at 3.5 million byte/sec., IBM said.

Equipment Technologies, Inc.'s IDNX T1 switches as part of IBM works |

Following in the footsteps of General Electric Co., Du Pont Co. last week reduced its 518-person work force by 144.

In the wake of a $13.1 million net loss reported for its first quarter of fiscal 1990 (see story page 69), beleaguered San An-

RISC finds home in printers

Apple Computer, Inc. is losing its RISC processor to its Mark IT and Mark IV laser printers. Halsey, a former IS consul-

Ericsson to resell NET switches

Sweden telecommunication vendor Ericsson Business Com-

Bulk buyers extend Sprint deal

E3S Telecommunications Services subsidiary M&SD Net-

CBS script

from top management to per-

COBOL vs. IBM compatibles

hitachi joins NFS ranks

Hitachi Ltd. last week contracted to license Sun Microsystems, Inc.’s Open Network Computing/Network File System technol-

Datapoint reports loss

In the wake of a $13.1 million net loss reported for its first quarter of fiscal 1990 (see story page 69), beleaguered San An-

IBM works on gigabit density

IBM scientists said last week that they have squeezed a billion bits onto a square inch of disk media using thin film heads that are three to four times closer to the disk than commercial technology allows. However, products incorporating this technology will not be available for several more years. The experiment re-

Du Pont recasts Tariff 12 deal

Following in the footsteps of General Electric Co., Du Pont Co. has become the latest firm to update its Tariff 12 contract. Du Pont last week signed a new, $45 million Tariff 12 contract that superseded the contract it signed with AT&T last year. AT&T retains the majority but not all of Du Pont’s telecommunications business. In September, the chemicals and energy firm signed with MCI Communications Corp. to provide a multivendor electronic mail network based on X.400.

BULK BUYERS EXTEND SPRINT DEAL

E3S Telecommunications Services subsidiary M&SD Net-

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ORACLE 1989
Always a step ahead.
IBM spurs on disaster service

BY JEAN S. BOZMAN
CW STAFF

IBM is speeding up implementation of a fledgling disaster-recovery service, company executives said last week. Although the IBM Business Recovery Services (BRS) is not generally available, seven hot-site data centers are in place, and IBM sales personnel are now writing custom contracts that include the BRS service.

"We're limited availability while we're building our centers up and while we're building our experience levels up," said Joseph Rufin, BRS director at the Tampa center, in an interview last week. The program was first announced in March but probably will not be generally available until early 1990.

Tampa is IBM's largest hot site, with 40,000 square feet of office space and an equal amount of raised floor in its computer area. A second prime recovery site in Franklin Lakes, N.J., is nearly as large.

Next month, two IBM disaster-recovery centers will open in Los Angeles and Chicago, underlining IBM's challenge to two well-established recovery providers, Condisco Disaster Recovery Services, Inc. (CDRS) in Rosemont, Ill., and Sungard Data Systems, Inc. in Wayne, Pa.

Disaster-recovery competitors confirmed last week that IBM is aggressively prospecting for clients. "We have seen a consistent, aggressive sales effort from IBM in the May/June timeframe," said Ray Hripp, president of CDRS.

"I'm glad to see another player in the industry," said Pat Murray, vice-president of MIS at United Stationers, Inc. Murray is planning to tour the Tampa site in January.

The Des Plaines, Ill., stationery supplier used CDRS to recover from a serious disruption to its voice/data network caused by an Illinois Bell phone office fire in 1988. "The customers are going to win because greater competition brings new services and lower costs," Murray said.

Like CDRS and Sungard, IBM will have major data centers outfitted with 1,000 mainframes and other 370 computers in key cities across the U.S. There are five smaller recovery centers at IBM's National Service Division (NSD) sites in Detroit, Philadelphia, Atlanta, Washington, D.C., and Los Angeles to support IBM System/36, 38 and Application System/400 computers.

The primary sites will be linked by a national backbone network to smaller, regional recovery centers, IBM said. The backbone network will be anchored by IBM's Information Network, also located in Tampa.

As recently as mid-October, NSD had been prepared to refer hot-site customers to 22 IBM data centers that had agreed to make some of their mainframes available to disaster-recovery clients, said Joseph Donohue, regional NSD vice-president in San Francisco. But even the Oct. 17 San Francisco earthquake failed to activate any IBM hot sites, Donohue added.

Open systems support

IBM has decided that it must back up users' varied computer systems, no matter what vendor made them. "We're doing the same thing the other competitors do," Rufin said. "We will support any OEM product even if we have to go out and buy it."

Customers will pay a monthly fee based on the size of the systems supported. The fee pays for just 72 hours of testing per year, but additional eight-hour blocks of testing time can be scheduled at a cost of 5% of the monthly fee. Unlike CDRS and Sungard, IBM will not require a "declaration" fee in the event of a disaster condition.

In addition, customers may choose to install any kind of hardware in 5,000-square-foot cold-site "shells" that are available free of charge with the IBM disaster-recovery contract.

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Supports only Focus.

Supports only C.

Ashton-Tate SQL Server's published benchmarks
show it to be slower.
Valley
FROM PAGE 1
Santa Clara facility, spokeswoman Mary Coady said the firm has no plans to eliminate the Santa Clara plant.

Cody also noted that most of the company’s manufacturing is done outside of California and said it was unlikely that it would ever expand the local facilities.

Semiconductor makers have increasingly moved their manufacturing sites to places like Texas, New Mexico, Arizona and Oregon, leaving scattered research and development sites as their remaining Silicon Valley outposts.

“California is not going out of its way to draw high-tech industry anymore,” said Mark Rea.

Analysts said the moves make a lot of economic sense in a generally struggling industry. The Bay Area ranks among the most expensive regions of the country, and high rents can carve into already slim margins. “Present business is way down, and the pinch has to hit somewhere,” said Howard Dicken, editor of the Scottsdale, Ariz.-based “Semiconductor Economics Report” newsletter. “Most of the companies would rather move than adjust.”

Austin, Texas, has particularly become the new darling of the semiconductor business. The area boasts less-expensive housing as well as a large worker pool at the University of Texas. Sematech, the government-sponsored consortium to facilitate tool-making for the domestic semiconductor industry, is located there, as well as Cypress Semiconductor Corp., AMD, Texas Instruments, Inc. and Motorola.

Although Intel will continue to be headquartered in Santa Clara, its facilities fade-out is of particular symbolic significance because it was one of the early semiconductor pioneers in the Valley. But that love affair seems to be over. Last summer, Intel said it would close its Livermore manufacturing facility by the first half of next year and announced plans in October to build a $400 million plant near Dublin, Ireland, that would include chip production.

Although Intel’s Santa Clara plant will be only 10 years old next month, it manufactured 100 mm silicon wafers rather than the 150 mm wafers now being emphasized to yield a greater number of chips, said Intel spokeswoman Karen Nalley.

The plant will instead be converted to a manufacturing support unit, where testing, assembly and research projects are conducted.

Manufacturing will be transferred to facilities in Albuquerque and Rio Rancho, N.M., Nalley said she is optimistic that the plant’s 400 employees could be repositioned within the company as the phaseout occurs in the next 12 to 18 months.

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Service fee
FROM PAGE 1

opportunity for them," said Jack Cooper, president of CSX Technology, the IS division of CSX Corp.

"We haven't evaluated it yet, but my reaction is we'd be a bit stodgy in paying for it. We'd look at it as something that should be provided," Cooper added.

Another user, who requested anonymity, said the concept of Softwarexcel would not fly in his shop, which is already getting what it considers to be good service at no extra cost.

"It sounds just like the way we do business now," the user said. "When we need their resources, they are very forthcoming. But that is the marketing people, not NSD."

However, according to Alan Hu, director of software services at IBM's NSF, the Softwarexcel package will not bring any extra cost to the users. For one thing, the same support that was once rolled into software sales will still be given to users free of charge. The difference is that the old level of support has been renamed Softwarexcel Basic.

IBM would not provide pricing on this, however, claiming it will determine individual prices depending on a customer's needs. But the next level down, called Softwarexcel Extended, has far fewer features than Softwarexcel Custom has, and its prices range from $600 per month to $3,500 a month.

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Helping hand?

Along with Softwarexcel, IBM last week introduced a Help-desk service for microcomputers that could wind up being a bear of a job.

IBM said the End User Support service will support Personal System/2s, Personal Computers, IBM-compatible microcomputers and Apple Computer, Inc. equipment as well as handle queries on the wide variety of software on these systems.

"Individual vendors have trouble keeping a staff that can address all the questions," said Rebecca Segal, an analyst at International Data Corp. in Framingham, Mass. "I question their support ability. I think it'll be very difficult starting up."

According to IBM, pricing per workstation would be $15 per month at a 1,000-workstation account and $20 at a 500-workstation site.

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Prime Computer, Inc.
EDITORIAL

Auld lang syne

Holly, eggnog, mistletoe,
What better time to stop and show
Our thanks for those both far and near,
Who gave to us some yucks this year.

To Cullinet and MSA,
We'll miss them more than we can say.
But how can 'spirit de corps' compare,
With bids of 16 bucks a share?

To IBM whose storage blunder
Almost spawned a diskless wonder.
To program trading's endless runs
At pulverizing pension funds.

To DEC and Wang and, yes sir, Prime,
Who had themselves a dreadful time.
Till IBM put forth its mission:
No layoffs, just more attrition!

To outsourcing, which some do fear,
Because they hold their MIPS so dear.
But few resist when ol' Big Blue,
Says 'Have I got a deal for you.'

To Kodak's salve for IS wails:
Give it all to someone else!
And those who sought to stem their grief
By outsourcing the IS chief.

To Ashton-Tate, where all seemed well,
'Cept for that gosh-darned SQL.
To Gates whose charm and derring-do
Have turned his Windows shades of blue.

To OSF and ATT
Whose antics baffled you and me.
Did OSF lose? No, hey, wait!
We've just begun to arbitrate.

And speaking of the legal crew
How 'bout those guys at Fujitsu?
Code not seen by other men
Is theirs for just a zillion yen!

To virus fiends who had us mugged,
Who told us our PCs were bugged.
But come the 13th, thank the lord,
Our only fear was being bored.

To EISA and the MCA,
That arcane little tete-a-tete
Led us to ask our erstwhile guides,
What good's a bus if no one rides?

To Cray whose woes the Peds did ease,
By stifling universities.
To Tokyo, which heard our hollers,
And buys New York with U.S. dollars.

To 486s, noble chips,
And all their zippy whiz-bang MIPS.
To Intel, Sun and Motorola
To disk drives and the disk controller!

To one and all our flag's unfurled
It's a mad, mad, mad computer world!

NEWS ITEM: Hackers exploit corporate phone networks to conduct illegal business.

LETTERS TO THE EDITOR

The advantages of growing our own pool of technical talent

In response to "Time to open U.S. doors to world's IT talent" [Editorial, Nov. 20], I could hardly imagine a more self-defeating policy than to institutionalize by means of a targeted immigration program the practice of supplementing our growing shortage of technical workers by importing the needed skills from abroad. How long do you think foreign countries would stand for sustained raiding of their talent — assuming, unrealistically, that such skilled workers would continue to flock to our shores?

Immigration of this magnitude is no substitute for a strong and viable educational system to train our own youths. Relying on the importation of foreign computer technology talent is another variation on the principle of robbing Peter to pay Paul.

We are faced with an insufficient, expense-boosted educational system at the elementary, secondary and undergraduate levels. We can continue to mask this problem only until we can no longer attract foreign talent or we become just another haven — not nation. Engineers and scientists don't flock to Malawi, nor are we overwhelming the world with made-in-America PCs. Our deficiencies in education will soon overshadow our ability to attract foreign scientists and fail us in our need to survive the 1990s and beyond.

It will not suffice for our society to now say, "Give us your skilled, your talent to care for our tired and needy." We must assume responsibility for our own survival and needs on both the technical and social planes to compete in a world of tomorrow.

Paul C. Chohores
Neptuneville, N.Y.

After reading Carl Shusterman's article on opening up immigration laws for information specialists, I felt that an alternate viewpoint should be voiced to your readership.

Shusterman's article equates the problem of a technological skilled labor shortage to that of the migrant farm worker shortage in Southern California a few years back.

I recently had the experience of working for a company that resorted to taking on consultants for a very low per diem from a consulting firm that sponsored the relocation of programmers from India.

These programmers were set up with lodging in a local YMCA by the consulting firm and paid a very low wage. By U.S. standards, many professionals in our industry would not want to be treated as common laborers.

From the programmers' perspective, they would have done anything to have an opportunity to work in the U.S. and did not know of the average salary for programmers and the cost of living in the Northeastern part of the country.

Many countries treat programming as a more "blue collar" type of profession, usually requiring enrollment in a trade school instead of obtaining a college degree.

The days of having "coding factories," where programmers code subfunctions of a larger application, not needing any knowledge of the business environment or application they're coding for, have been eliminated by fourth-generation language packages and databases, which have eased the programming drudgery but require specialized skills more complex than just knowing the syntax of a programming language.

I am highly in favor of the new bill that would require a graduate-level degree to obtain a professional visa status. Our nation is in need of the highly specialized computer sciences: artificial intelligence, automatic parallelizing compiler development and so on. These backgrounds are not found in the programmers that have been coding accounts payable systems in Cobol with little secondary education.

This nation should be supporting research in schools to keep the U.S. on the leading edge of software development, not importing cheap labor to bring down the standard of living for the profession.

John Spicijaric
Senior Systems Analyst
Bellerose, N.Y.
The changing role of the CIO

CHARLES CALLAN

At a recent senior management forum for top U.S. companies, 34 of 35 chief information officers initially sounded the refrain "No!" when asked if CIOs should be "business transformation officers." Only one brave soul expressed interest in taking a leadership role in using information technology to redefine critical business processes or drive organizational restructuring.

One of the naysayers explained organizational restructuring. Certainly, the job of the CIO is richer and more important than ever before. The CIO's main purpose is to ensure that technology resources provide maximum value to the mission of the business. Chief executive officers often don't know how to express this in a way that most of those who do believe that's what they pay the CIO to do.

But change is terrifying for most people. So, the more successful CIOs learn how to deal with the psychological impact of technology and its relationship to information systems services. They admitted that their earlier response was more an expression of strong uneasiness with the role than a repudiation of it.

So how are CIOs providing leadership in business transformation? One characteristic of their efforts in three ways: They are building relevant business dialogue.

They are taking night rides on a Trojan horse.

They are building relevant business dialogue. Successful CIOs talk about relevant business impact. They characterize their efforts in three ways:

• They are building relevant business dialogue.

• They are taking night rides on a Trojan horse.

• They are taking night rides on a Trojan horse. The second way CIOs get serious, folks, is the new report. While there have been and continue to be some customer service process. One of my favorite Trojan horses is the new report. While many reports are ignored, it's amazing how powerful some can be in changing behavior. A simple new report detailing key business indicators can add a whole new tone to senior management departments. They know how to seed demand. Often, they start with small efforts — a decision support system for a senior manager or the automation of a time-consuming activity. This enables them to be proactive about identifying opportunities for change. It means understanding not only how business processes can be realigned but also how and which technologies are changing people's workplace relationships. It means changing one's own mind-set.

Finally, CIOs leading transformation efforts have to add an understanding of organizational effectiveness to their knowledge of technology and MBA-like skills in business strategy. This enables them to be proactive about identifying opportunities for change. It means understanding not only how business processes can be realigned but also how and which technologies are changing people's workplace relationships. It means changing one's own mind-set.

One more time: Just say no to 'A Japan that can say no'

CHARLES P. LECHT

There's little doubt that the recent book A Japan That Can Say No by Sony Chairman Akio Morita and Japan House of Representatives member Shintaro Ishihara will be remembered a long time.

Published only in Japanese and translated into English without the consent of the authors, the book has created a storm of controversy because of its criticism of the U.S. In mid-November, Ishihara announced that he planned to lodge an official protest with the U.S. Congress for publishing one of many (40 his count) unauthorized translations and getting Americans all worked up about its contents.

I obtained a copy of one unauthorized translation in Tokyo, and I must say it left me breathless. The book, a brief 74 pages, says the unaspiring, thinks the unthinkable and concludes the inconceivable about the U.S.

Called the "say no" book in Japan, it exhorts Japanese people to say "no" to the apparently unjust demands placed on Japan by the U.S. According to the authors, the Japanese people are disposed to saying "yes" even when they mean "no," or at least not saying "no" even if they think it should be said. This, the authors assert, causes grief in Japan's international relationships and may be at the root of today's growing trade unrest between the U.S. and Japan.

It is not easy to see why the book is provocative to Americans. It says such things as the U.S. has become a techno-colony of Japan, that its relations should be on its own initiative and that the firms most vociferous in their condemnation of Japanese culture are buying the most from it. And it adds that the U.S./Japanese trade balance is American-made and American-controlled.

The first impression one has of the book is that there has to be a lot of resentment toward the U.S. in some Japanese leadership. However, it is not resentment on the part of Morita. Indeed, his intentions in letting his thoughts be published are patently noble and intended to help mend what he perceives as a family squabble.

On the trade issue, Morita says, "... there has been a steady increase of capital goods needed by U.S. manufacturers, such as semiconductors, computer memory devices and computer printers.

Morita points out that Japan is not forcing Americans to buy everything. How could it? Americans want Japanese products in preference to their own because of Japanese creativity and quality. We have only to realize that the transistor, invented in the U.S. by AT&T, made it to the U.S. marketplace only in hearing-aid devices until Sony had the idea of using it in radios. Morita notes that the rejection rate of Japanese-made semiconductors is less than half of those made in U.S. factories. He says that this explains why all the U.S. computer manufacturers have been and continue to be buying up a storm in Japan, shutting down domestic semiconductor and/or shifting their production to the Japanese archipelago despite the high yen.

It is in Ishihara's words that a full measure of under-the-surface, but real, anti-U.S. sentiments is expressed. Ishihara says that it is only the U.S.' thirst for military superiority over the Soviet Union that keeps it allied with Japan. He says that such superiority could not occur without the Japanese semiconductor. He suggests that the U.S. might even recoup Japan if it stopped producing semiconductors for armaments or if Japan decided to treat the Soviet Union equally.

Ishihara's remarks are most disturbing when he offers his proof that the U.S. is fundamentally racist and that this guides its policy in the Orient. For example, he says, "It seems that in their minds [Americans], even the Soviets are more trustworthy than the Japanese. American racial prejudice toward Japan is very fundamental, and we should always keep it in mind when dealing with the Americans."

Ishihara offers the Toshiba radio receiver, which last year fell into the U.S. during the war in Korea as an example of U.S. racial prejudice. As shameful as these may be in U.S. history, one cannot help but feel that he's lumping apples with oranges in mentioning the latter two along with the former. Since he doesn't list such facts as the wanton massacre of Chinese citizens in Manchuria by Japan during WW II and the systematic annihilation of European citizens by Germany and the Soviet Union, one might be led to conclude that he thinks only Japan was the victim of the global madness that prevailed at the time.

In reading the "say no" book, Americans must remember that its authors are but two individuals in the 120 million-plus populace of Japan. Their views do not represent all Japanese thinking by a long shot, and that there is an incredible amount of good will among the Japanese toward the U.S. I'm sure in the balance of bashing between Japan and the U.S., the U.S. is still saying "no," and all say "no" to this kind of stuff.
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An Overnight Merger Isn't Going to Make MSA and McCormack & Dodge Suddenly See Eye to Eye

MSA and McCormack & Dodge are doing a lot of head butting right now. Which of their products do they keep. Which do they abandon. And what do they do with customers who are left waiting on the sidelines for answers.

But you don't have to worry. Integral knows the score. That's why we'll continue to deliver SAA Financial and Human Resource solutions that make sense for your company's future — not offer software that might be phased out soon due to the financial considerations of a merger.

SAA solutions, not mergers, have made us IBM's premiere business partner and the recipient of their Outstanding Achievement Award for exceptional performance.

That's why over the past few years, when we've squared off against MSA or McCormack & Dodge, we've come up the winner 80% of the time. Now, with their merger, our odds just got better.

Call us. See what kind of a game plan we can put together for your company. One thing's for sure. It's going to be a winner.
Going Sequentially smaller

BY ROBERT MORAN CW STAFF

SAN FRANCISCO — Sequent Computer Systems, Inc. will announce a down-sized version of its on-line transaction processing Symmetry Series at next month's Uniform '90 show in Washington, D.C. Sequent President Scott Gibson told Computerworld recently.

The product, to be priced from $30,000 to $100,000, for one-third the price of Sequent's larger S-27 computer — is aimed at multiple-site applications running Sequent's Dynix version of Unix, Gibson said. Sequent's products now range in price from $100,000 to $1 million. When asked to position the new machine, Gibson said it would be a lower-priced entry point for users such as retail chains and hotels.

Those users have traditionally collected sales information from many locations and shipped the data during off-hours over networks to central computers for next-day "snapshot" access. Gibson said that with the new Sequent systems, firms will be able to update databases more frequently.

The point-of-sale terminals now used in most stores cannot communicate effectively with the central-site computers on a real-time basis, Gibson explained. "But the retail chain's buyers, for example, want to know what's selling and what's not selling so management can make business decisions on an immediate basis," he said.

The new hardware will be sold with relational database management software from several vendors, including Oracle Corp., Ingres Corp. and Informix Software, Inc., Gibson said. Applications software that will be packaged with the new systems will feature an X Window System interface and the Motif graphical user interface for Unix machines, he added.

The smaller Intel Corp. 80386-based Sequent systems will be completely binary-compatible with the Symmetry machines, which are built on multiprocessor microchips. However, unlike the older Symmetry systems, the new model can start with a single processor. Gibson claimed that the same magnetic tapes can be loaded on either machine. Sequent's S-27 computer can support up to 10 CPUs, while the S-81 computer can house up to 30 CPUs.

Symmetry was designed by Sequent's first independent business unit, the year-old Subsequent division, which has a staff of 35. Subsequent is headed by Dr. Gaeil Curry, a former Xerox Corp. designer who specializes in user-friendly interfaces, and by Bob van Steenberg, who helped design the NCR Corp. Tower minicomputer, Gibson said.

Traders to get Access' real-time spreadsheet

BY ROBERT MORAN CW STAFF

NATICK, Mass. — Access Technology, Inc. recently announced that its 20/20 spreadsheet will now be able to capture data as it is entered, giving traders in banks and brokerage houses a timely edge over batch-based systems.

According to the company, the software, called the 20/20 Realtime Spreadsheet, eliminates the need to re-key data into a spreadsheet for analysis. Further, several systems integrators for the trading floor — Micrognosis, SPC Software Services, Inc., FT Taphamericos, FD Consulting and A wreak Internatio nal — have developed drivers to the spreadsheet.

According to beta-site user Brian Slater, a vice-president in the global securities and foreign exchange unit of Chemical Bank in New York, the new software, which is connected to SPC's Pricewatch, "gives traders a constantly running model of the complex information used in trades." As a result, he said, Access 20/20 obviates the need to batch update spreadsheets, gives traders on-line information in spreadsheet form and encourages users to use the spreadsheet information more frequently.

Trading monitor

The software monitors trading conditions in designated cells and alerts traders through messages, cell highlighting and user-defined signals to shifting conditions within the market. In addition, the users can set schedules in real-time, at fixed intervals or with every recalculation. Users can also specify how to store present and previous market values — a function that the company said will aid in calculating moving averages and in performing time series analysis.

The 20/20 Realtime Spreadsheet is currently available for VAX computers running under the VMS operating system. The software costs $2,400 for a VAX 2000 and VAXstation 3100. Prices for other VAX/VMS systems are based on the size of the processor and range from $7,800 for a Microvax 2000 to $42,000 for a VAX 8650.

The company said that it will offer 20/20 Realtime Spreadsheet on Unix-based workstations by the second quarter of next year.
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Miami law firm shows its Freestyle

BY MARY FRAN JOHNSON
CR Staff

MIAMI — From her enormous office window overlooking glittering Biscayne Bay, Pat Cash watched the flock of turkey vultures who circle the building every winter afternoon.

"The big joke around here is that they're unemployed lawyers," said the MIS director for Florida's largest law firms.

Since the June installation of 90 sets of Freestyle along with nearly $5 million of Wang hard-ware, Steel Hector & Davis has become a showcase for Wang's imaging products.

Freestyle is an information management and communications system for creating, annotating and sending document images.

Nixdorf pulls in Tandem

BY J. A. SAVAGE
CR Staff

Nixdorf Computer Corp. recently signed up to resell Tandem Computers, Inc.'s as-yet-unnamed fault-tolerant Unix-based computer.

The computer, known internally at Tandem as "S-2," is based on reduced instruction set computing (RISC) architecture from Mips Computer Systems, Inc. It is expected to serve medium- to low-end requirements. A product is expected in the first half of next year, possibly as early as January.

Meanwhile, there were reports recently that AT&T will also sign an OEM deal to buy the S-2.

Nixdorf expects to sell it to those users in its current niche markets, primarily retail, who need fault tolerance.

While Tandem sticks to selling hardware, the company is looking to Nixdorf to provide complete systems to users with Nixdorf's software, according to Richard Bailey, manager of Unix strategic relations for Tandem.

The S-2 fits the emerging fault-tolerant RISC market, whose biggest customers will be telecommunication companies, with government entities and the European market trailing close behind, according to John Jones, an analyst at Montgomery Securities in San Francisco.

If both the Unix computers and Tandem's proprietary operating system computers are integrated for applications, both companies will be involved, but Nixdorf would be the prime sales contractor, Bailey said.

A user-friendly relation

BY JEAN S. BOZMAN
CR Staff

MENLO PARK, Calif. — Informix Software, Inc. jumped on the bandwagon of user-friendly interfaces for relational databases earlier this month. Informix-Quickstep, the company said, will allow end users to extract information from Informix database management systems without having to program in SQL.

Quickstep builds SQL statements based on the user's selection of DBMS data to be queried. It generates code in Informix's fourth-generation language, then translates that code into SQL statements for database queries. Priced from $360 for one user to $2,280 for 32 users, Quickstep will be ready for several major Unix platforms by year's end, the firm said.

The interface could have an impact on the applications-backlog problem at user sites, Informix executives said. According to Susan Nurse, who manages Informix's product marketing, non-DBMS end users can "just fill in the blanks," while programmers can use the product to speed development.

One user who welcomes the user-friendly interface is Jim An-derberg, director of information services for the city of Augusta.

"When I need to send a memo to all the players in a comput-er deal, for example, I just create a cust-o-mer distribution list that includes the vendor, the cabling compa-ny, the lawyers and the administra-tion,

A core group of 30 lawyers now uses the product to speed up deal making. "It speeds up deal making. When I need to send off a memo to all the players in a comput-er deal, for example, I just create a cus-tomer distribution list that includes the vendor, the cabling company, the lawyers and the administra-tion," Martus said. "It speeds up deal making. When I need to send off a memo to all the players in a comput-er deal, for example, I just create a cus-tomer distribution list that includes the vendor, the cabling company, the lawyers and the administra-tion,

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Teradata uses Charles River as middle man in server plan

BY J. A. SAVAGE

LOS ANGELES — Joining a host of companies offering large-scale servers, Teradata Corp. earlier this month announced it will have a product in spring 1990 that will serve as a "middle man" between users and the company's large database machine.

Teradata will sell Charles River Data Systems, Inc. hardware to act as a server and also to act as a client to Teradata's database engine, the DBC/1012.

"The problem for big corporations is being able to control data from the corporate data center to the department and from the department to the corporate data center," said John Jones, an analyst at Montgomery Securities in San Francisco.

The Charles River product, to be called Remote DBC from Teradata, will access the DBC/1012, which can hold 1 terabyte of information. "This way thousands of users can access huge amounts of information, without the high cost of direct lines into the database machine," a Teradata spokeswoman said.

Users send queries into the Remote DBC, and if it cannot answer locally, it will turn query the main database, according to the spokeswoman.

The Remote DBC and the DBC/1012 are based on Intel Corp.'s 80386 processor. Both systems will also be running the Unix operating system, although Teradata's version is proprietary. Teradata claimed any compatibility issues will be resolved before the shipment date. The Remote DBC should cost between $25,000 and $500,000, according to the firm.
The above comparative product data is based on industry newsletters, industry analyst information, vendor price lists, vendor advertising material, and other material available as of November 3, 1989. For a listing of information sources, please write Advertising, MS 95, Data General Corporation, 3400 Computer Drive, Marlboro, MA 01752.
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Runs on IBM PC and MS DOS compatibles. © 1989 Software Publishing Corporation, 1901 Landings Dr., Mountain View, CA 94039-7210.
Maine. Anderberg's department has been user-friendly.

CONTINUED FROM PAGE 25

community of users coming to me, asking how to use it, and the end users can go off and use it themselves."

Two of Informix's competitors also recently introduced user-friendly interfaces. The others are Ingres Corp., Simplied interface for Sun Microsystems, Inc. workstations and Oracle Corp.'s Hypercard-driven interface for Apple Computers, Inc. Macintosh computers. All three interfaces shield end users from SQL statements that are being generated "behind" the user-friendly screen.

The Informix product differs in that it is aimed at the installed base of "dumb" terminals attached to Unix minicomputers running Informix. In its first release, Quickstep's on-screen appearance is monochrome and menu-driven rather than icon-based.

In contrast, the Ingres and Oracle products are designed to be used with intelligent workstations or personal computers, and both products make use of icons and a full graphical user interface display. New versions of Quickstep, now under development, will provide a more graphical look and feel, she indicated.

NCR imaging plan adds to open system landscape

BY ELLIS BOOKER  CW STAFF

DAYTON, Ohio — NCR Corp. vowed this month to follow industry software and hardware standards, including open systems architecture, in a future line of imaging products targeted at financial applications. However, the company stopped short of announcing the specific products that will fill out the imaging line.

Analysts said NCR will go up against Unisys Corp., which recently unveiled its own imaging strategy and also targeted banking as a primary market.

NCR, which already holds patents in character-recognition and document-processing technologies, said its new products will focus on document management, item processing and office information systems. The company said its imaging components will enter testing at a number of major sites in the next few months.

In a statement of direction, NCR pledged support for the evolving CCITT compression and Office Document Architecture standards and said it would offer a wide range of communications options among NCR systems or among those of other vendors. In addition, NCR said it would support the SQL database interface, local network protocols and personal computer-based workstations.

Specific product categories mentioned by NCR include a document management system using an SQL interface and image item processing systems, as well as a point-of-deposit image-capture system.

NEW DEALS

Unisys deposits system in Venezuela

Banco de Venezuela ordered $6 million worth of workstations, software and services from Unisys Corp., recently. The new branch automation system replaces IBM 4740 terminals, Unisys said.

PHH Corp. signed a $2.2 million deal with Bull H. N. Information Systems, Inc. for a DFS/90 mainframe. The company will use the new mainframe with an installed DFS/90, which together will provide a redundant mainframe environment. PHH will use the system to manage its two major subsidiaries: PHH Fleet America, which provides services to businesses automobile fleet companies, and PHH Homeequity, which offers relocation services.

Niadoras Computer Corp. said it beat IBM and NCR Corp. in a bid for a $4.2 million point-of-sale (POS) system to Liberty House, one of Hawaii's fashion retailers. The system will consist of 670 POS terminals in more than 40 store locations.

Convex Computer Corp. won a piece of a multiyear, $97 million contract from the National Aeronautics and Space Administration's Ames Research Center in Moffet Field, Calif. Convex's portion initially calls for a $1.25 million Convex C110 minisupercomputer. The firm's contract will go for three years, with an option to extend it to seven years, and will involve service, training and analysis.

The Florida Institute of Phosphate Research recently selected the SPANS geographic information system from Tydew Technologies Corp. in Arlington, Va., for use in evaluating the impact of phosphate mining and reclamation on Florida surface water and groundwater systems. The institute's four-year, $1.3 million research project will ultimately produce information to help establish regulatory and industry standards for hydrologic analysis of mined lands.

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**Utilities**

Jensen Research Corp. has announced a job control language (JCL) and procedure cross-reference utility for use on IBM MVS, MVS/ESA and MVS/ESA systems. According to the company, Xref Plus offers users a complete overview of the interrelationships of JCL, programs and data sets. The program provides summary reports and does not require authorization, system hooks or any modifications to system code for installation.

A three-year license costs $7,500 and includes maintenance.

**Knowledge Man/2**

What's new, Knowledge Man/2 combines a relational database, SQL Server support, and a fourth-generation programming language with a set of development tools that the other guys can't match. All of these tools are seamlessly integrated, too, so you'll never need to exit one before using another.

The result is a dramatic reduction in development time and costs that can help you eliminate your application backlog and stay ahead of the game—perhaps for the first time.

**Applications packages**

Mc Cormack & Dodge Corp. has announced that its Millennium financial applications and tools will be available to run on Digital Equipment Corp.'s VAX 9000 mainframe machine.

According to the company, the software will be available immediately with the first shipment of DEC's new computer. It includes general ledger and accounts-payable applications, as well as computer-based training and self-study components.

Pricing ranges from $7,600 to $118,000 per application.

Mc Cormack & Dodge Corp.
1225 Worcester Road
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508-653-8200

An activity-based systems management tool for the Digital Equipment Corp. VAX/VMS operating environment is now available from Ergodic Systems.

Oversight Version 4.0 is a project accounting platform designed to support project accounting, chargeback and activity-based system management and administration. According to the vendor, it tracks user tasks, as opposed to user accounts, and the latest release offers identifier management and dynamic UAF linking facilities.

Pricing ranges from $2,500 to $10,000, and the software supports all versions of VMS from V4.4 onward.

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And get a closer look.
Searching for a friendly port

Using more powerful environments creates need for easier portability

BY RICHARD PASTORE

Three months. One year. Two years. These are actual periods programmers have spent rewriting application code to run in new operating environments.

But "a matter of a few hours" is all it took one systems analyst to port a large database application from DOS to Unix. The time discrepancy does not stem from bionic typing fingers or Jolt Cola but rather a database management system (DBMS) with automatic porting capability.

With shops increasingly looking to migrate to more powerful and efficient operating environments, concern for easy portability looms larger. While many DBMS vendors offer packages that are portable or allow data transfer, a small number tout "automatic" application porting, generally with a focus on applications written in C.

Last week, Micromir, Inc. previewed its Vanguard family, which reportedly allows applications written under OS/2 to run automatically without modification under Digital Equipment Corp.'s VMS, Sun Microsystems, Inc.'s SunOS and Apple Computer, Inc.'s Macintosh environment.

The Vanguard products will not make their debut until next summer, but some users are already working with tools from other firms.

With Filepro, a DBMS from The Small Computer Co. in Hawthorne, N.Y., "I can write an application in DOS and stick it in Unix without having to touch it," said Jim Rosenberger, assistant manager of systems administration at Chesapeake & Potomac Telephone Co. in Baltimore.

Only functions common to the various operating systems are automatically portable. Thus, a multitasking operation developed under Unix will not work if the application is ported to DOS. Features that are specific to certain operating systems can be added to the application after it is ported.

The porting process requires operators to link the disparate machines by cable or phone lines. Then, a Filepro transfer utility takes over, porting the specified application code to the new environment. Filepro supports DOS, VMS/Unix systems and SunOS.

An application's look and feel, as well as its functionality, usually survive the porting process unchanged. "It looks and feels identical in each environment, even down to every keystroke," said Filepro user Lee Honeycutt, a systems analyst at North American Van Lines, Inc. in Fort Wayne, Ind.

Kevin McRee, a consulting senior at Andersen Consulting in Dallas, ported an application written in C to Cobol recoding, "All we had to do was take the code to Cobol recoding," Honeycutt said.

McRee agreed that some tweaks were necessary. He had to adjust the screen code to accommodate the different sizes of the DEC and personal computer displays. He also noted that function keys may need reconfiguring.

For many users, the time and cost savings eclipse such minor hitches. "We haven't pinned it down to a dollar figure, but it would be phenomenal compared to Cobol recoding," Honeycutt said.

Reach out and tap someone a phone note

BY RICHARD PASTORE

Although we may sigh or groan that ubiquitous phone-mail voice intercepts our attempts at live communication, this despair is nothing compared with the telephone frustration of speech- and hearing-impaired persons, for whom every syllable can be a tremendous hurdle.

IBM's Personal Computer-based Phonecommunicator, introduced last week, is intended to ease these frustrations. A caller with a Touch-Tone phone can dial a Phonecommunicator user and punch out a message with the phone's keypad. The user at the other end of the line can then read the message on his PC screen and type out a response, which is communicated to the caller by a voice synthesizer.

Besides ordinary telephones, the system can communicate with other telecommunications devices for the deaf.

The $600 package runs on IBM PCs under DOS 3.3 or 4.0. The minimum system memory is 512K bytes.

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- Innovative CICS Debugging Tools!
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- Hung Transactions Resolved in Seconds!

Thousands of CICS programmers have already beaten the system with Micro Focus COBOL/2 Workbench™ and the CICS Option. They're developing full-scale CICS/VSP applications for VSAM, DL/I (with optional D/L/I support), DB2 and IMS environments on their PC Workstations.

Workbench and the CICS Option provide the CICS application programmer with a powerful development environment. A full set of development and testing tools includes an integrated CICS Command Level preprocessor, CICS and 3270 emulation, a source development facility to generate or import BMS macros, PCT and PCT table maintenance, and visual source code debugging using ANIMATOR™, the industry's best COBOL and CICS debugger.

DECEMBER 18, 1989

COMPUTERWORLD 35
The expandability of our 386SX lets you carry a lot of clout.

It used to be that the only way to get 386SX technology with the expandability of 6 internal expansion slots and 5 built-in ports was with a bulky desktop computer.

But that was before we developed the T3200SX. Not only does it carry all this clout, but it carries it in a sleek, 17.0-pound package that easily replaces desktop computers.

So whether you're networking, doing computer aided design, data bases or complex spreadsheet analysis, you can now work just about anywhere there's an AC outlet.

And it's priced lower than you'd expect for a PC with this kind of power and portability.

So now you can harness the power of all the latest 386 applications in an expanded range of working environments.

Namely, anywhere you want.

In Touch with Tomorrow
TOSHIBA

Toshiba America Information Systems, Inc., Computer Systems Division
Deck the drives with software surprises

BY CHRISTOPHER LINDQUIST CW STAFF

Bah, humbug!

Such is the response of many people when confronted with nonproductivity software (read: computer games). From the earliest Tic-Tac-Toe programs to the most advanced flight simulators, however, games have always been a part of our computerized culture.

Whether you are adding to a hidden subdirectory even utilities master Peter Norton could not find or trying to locate that elusive gift for a niece or nephew, here — in a step away from Computerworld's usual business orientation — is a rundown on some of this year's newer software stocking stuffers.

My vote for the most-to-the-point software surprise has to be Broderbund Software, Inc.'s 'If It Moves, Shoot It.' There are no code wheels, no photocopy proof sheets of paper and no encyclopedic documentation. The entire game consists of four disks and a short instruction booklet.

The writers of this game believe in truth in advertising. If you see something moving on the screen, shoot it! There are no innocent bystanders to be wary of, no brain-twisting puzzles to solve.

If It Moves, Shoot It exudes the essence of arcade games, fast action and lots of it. Challenging game play, outstanding graphics and simplicity of design are sure to make this one a favorite with all ages. (MS-DOS, Amiga)

Broderbund 17 Paul Drive San Rafael, Calif. 94903 800-521-6263

On the opposite end of the spectrum is Archipelagos, a part of Broderbund Software's Fanfare entertainment line of products.

Man's destruction of his environment is the premise behind this game. You take on the role of an environmental purifier charged with the task of reclaiming the earth. Use your powers to cleanse and replenish the land. Avoid the necromancers and tor- nado-like air cleaners. Use your wits to help destroy deadly radioactive nodes and obelisks.

Archipelagos is a truly unique and innovative game. The graphics are simply beautiful. The three-dimensional, scrolling view of the islands provides you with a perfect vantage point from which to witness the constant changes occurring around you. Plants grow, land becomes contaminated and sun rises and sets. The world of Archipelagos is constantly in motion.

My only complaint about the game is its code-based copy-protection scheme that will cause premature blindness even for us legitimate users; purchase a magnifying glass if necessary. Your very first trip will be worth the cost. (MS-DOS, Amiga, Atari)

Britannica Software 345 Fourth St. San Francisco, Calif. 94107 415-546-1866

Shareware receives an unfairly small amount of attention considering its many outstanding products. One of the best shareware programs in the entertainment genre is Mah Jongg by Nels Anderson.

Mah Jongg is far from simple. Mah Jongg is a true "minutes to learn, lifetime to master" type of challenge. Be warned: It is hard to stop after only one round. (MS-DOS)

Nels Anderson 92 Bishop Drive Framingham, Mass. 01701 508-875-3168 (BBS)

If card games are more your style, Hoyle's Book of Games from Sierra On-Line, Inc. provides several classic card games, including Gin Rummy, Cribbage, Crazy 8 and Klondike Solitaire. Users can choose from several different opponents, depending on skill level.

Colorful, well-animated graphics and a sense of humor make this a highly enjoyable game that can be played any time. The easy-to-use interface allows it to be loaded and played in minutes. (MS-DOS)

Sierra On-Line P.O. Box 485 Coarsegold, Calif. 93614 209-683-4468

Simplicity, from Maxis Software, provides a dynamic city simulation so realistic that schools use it as an teaching tool, yet the program maintains tremendous playability. The object: Whatever you heart desires. Build the city of your dreams or the slum of your nightmares. One thing is certain, it won't be easy. There are roads to build, police and fire stations to fund, land to zone and natural disasters to recover from.

Play can be as simple or as complex as you like. Speed up the game to keep up with your city's growth rate or pause every month to assess the benefits and deficits of your last month's action.

The code-sheet-based copy-protection can be confusing, but the thrill of seeing Godzilla appear to wreak havoc on your city makes it worthwhile. (MS-DOS, Mac, Amiga)

Maxis Software Suite 113 353 Mountain View Drive Lafayette, Calif. 94549 415-376-6434

If a city seems too small a challenge for you, Mindscape's Balance of Power will stretch your political and diplomatic skills to the limit.

This is definitely not a "drive right in" sort of game, especially at the higher skill levels. There is no "for those who hate manuals" cheat sheet. Once you take the time to read over the documentation, however, you will soon find yourself engrossed in the sheer depth of play this game has to offer.

You choose to become the president of the U.S. or the general secretary of the USSR. Distribute foreign aid. Keep an eye on world events. Do everything you can to raise your country's power. It's often too far, or nuclear confrontation and annihilation will be your only reward.

Copy protection consists of finding words from the documentation. A nice feature is that the game automatically removes almost any chance of providing the wrong word. (MS-DOS, Mac, Amiga, Atari)

Mindscape 3444 Dunede Road Northbrook, IL 60062 312-480-7667

Politics too taxing a subject for your spare moments? Try Jack Nicklaus' Greatest 18 Holes of Major Championship Golf by Accolade. It is a well-wrought golf game to play on any of three courses, including one designed by the Golden Bear himself. A golf club, aim carefully, then test your reflexes trying to send the ball straight down the fairway (or slice it into the woods).

Realistic terrain such as side- hopping hills and elevated greens bring an added dimension. (MS-DOS, Mac, Amiga)

Accolade 550 S. Winchester Blvd. San Jose, Calif. 95128 408-985-1700

December 18, 1989
To address technical issues first, comparing OS/2 with MS-DOS is like comparing the space shuttle with a bi-plane. Just look at OS/2 — multitasking, coprocessing potential, 16M bytes of random-access memory, hundreds of megabytes of disk storage, superior graphics and an icon-based interface.

With its kernel based on SQL, IBM’s Database Manager extends the database capabilities underpinning this environment. A code translator from some other language to SQL will not do because of the role of the access-path-selection optimizer in truly relational systems.

From the technical standpoint, the bottom line is that the OS/2 Database Manager is at least competitive in every criteria for DBMS evaluation, while its strengths herald the advent of new desktop DBMS. The power and sophistication of this “database engine” admirably fulfill the new requirements of the OS/2 environment.

However, establishing market dominance is more a marketing phenomenon than a technical one, and this is where IBM wins in spades. IBM is playing all its strategic cards to ensure that OS/2 adopts OS/2 Extended and its Database Manager as its standard desktop DBMS.

Do you want to purchase Officevision, IBM’s first Systems Application Architecture (SAA) application? You must run OS/2 Extended and its Database Manager on your desktop to get the full power of this product.

Getting into distributed DBMS? Linking PCs to mainframes requires the OS/2 Database Manager if your mainframes run DB2 or SQL/DS. IBM’s plans for distributed databases are structured to provide competitive advantages to “all-blue” accounts.

Impressed by the computer-aided software engineering (CASE) environment IBM unveiled in its AD/Cycle announcement? You’ll have to run the OS/2 Database Manager on your workstations. Cooperative processing forms the basis of IBM’s proposed CASE environment, and this is implemented only on workstations running OS/2 Extended. Even the lesser parts of IBM’s Sept. 19 announcements require the OS/2 Database Manager. CSP 3.3’s Programmable Workstation Feature and ISP/4PD 3.2’s Workstation Platform are two examples.

SAA central to strategy
IBM’s ace in this marketing strategy is SAA. It wants a high degree of compatibility among software products running on different platforms, and the Database Manager provides it with the dominant relational DBMSs (DB2, SQL/DS and SQL/400).

It is not just that products like Officevision and AD/Cycle require interoperative database management systems; it is that the advantages of compatibility require compatible products. This is how IS can reduce learning curves for both technicians and users and gain code portability.

While IBM still claims to sell OS/2 either with or without the Database Manager, most suppliers no longer carry OS/2 Standard Edition. The great majority of IS purchasers opt for the Extended Edition and accept the Database Manager as a bundled DBMS. Do you think many will buy another? Voilà! A desktop DBMS standard is born.

UDS V.32 Modem Technology
Goes to the Head of the Class

Beginning with a very early entry into the V.32 arena, Universal Data Systems has established a clear price/performance edge. Superior design and product performance have been documented by leading trade publications.

Latest to recognize UDS leadership in V.32 performance is PC Week. The publication tested UDS’ new V.3225 against six major competitors. The result: UDS tops the field in weighted average score for five important parameters! PC Week cites the V.3225’s “blazing speed, plus excellent front panel menu and status display” as evidence of the modem’s merit.

In earlier evaluations, PC Magazine honored the original UDS V.32 with an Editors’ Choice Award and referred to V.3255s as, “the last modems you’ll ever buy because they make optimum use of both voice phone lines and the PC’s serial port.”

Besides technical leadership and outstanding performance, every modem in the UDS V.32 family offers unconditional compliance with the full V.32 standard. Learn how the UDS commitment to V.32 can increase your datacomm throughput over dial-up lines: contact Universal Data Systems, 5000 Bradford Drive, Vestavia Hills, AL 35216; Tel: 205/721-8000; Fax 205/721-8926.

Universal Data Systems

NEW DEALS
Kaypro swings largest order

In its largest order ever, Kaypro Corp. recently signed a two-year contract valued at $40 million with Palonet, Inc., an industrial and commercial parts distributor network service. Palonet has agreed to buy up to 40,000 KC-2 Series computers and said it chose Kaypro after evaluating products from Wyse Technologies, Inc., AST Research, Inc., Tandy Computer Corp. and Hyundai.

Separately, Cable Value Network, a Minneapolis-based cable television shopping channel, has awarded Kaypro a multimillion-dollar order for 8,000 MC-10 PCs.

Sun Microsystems, Inc. recently won its largest bank automatic conversion contract to date with the sale of approximately $17.6 million worth of Scalable Processor Architecture-based systems to Banco Popolare di Bergamo, one of Italy’s oldest banks.

Fosdick is an industry analyst in Villa Park, Ill., and author of several books on OS/2.
YOU KNOW, WHEN I ASKED TO BORROW YOUR COMPUTERworld I SORT OF HOPED I'D GET THE WHOLE THING AT ONCE."

YES, I want to receive my own copy of COMPUTERworld each week. I accept your offer of $44.00* per year — a savings of 57% off the single copy price. In addition, I'll receive special bonus sections of COMPUTERworld Integration.

First Name: Last Name: Title: Company: Address: City: State: Zip: Basic Rate: $48 per year

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PCs & Workstations

NEW PRODUCTS

Systems

Northgate Computer Systems, Inc. has expanded its Elegance family of computing systems with the addition of a 33-MHz Intel Corp. 80386 model computer.

The Elegance 386/33 standard configuration offers 1M byte of 32-bit random-access memory and 64K bytes memory cache, as well as a 68M-byte, 28-mac hard disk. A 256K-byte memory option is available. The computer is priced from $4,599.

Northgate Computer
P.O. Box 41000
P.O. Box, Minn. 55441
612-553-0307

Unisys Corp. has announced the introduction of an 80386SX-based, Microsoft Corp. MS-DOS-compatible system. The value configuration includes 1M byte of random-access memory, expandable to 5M bytes on the motherboard. Two ports, a parallel printer port and five expansion slots are listed as standard.

Three configurations are available. The basic system, without floppy or hard disk drive units, is priced at $2,526. The expanded system unit, which includes 1.3M bytes of on-disk compact erasable optical cartridges. Each product is available in external and internal configurations, with pricing starting at $1,049 for the 44Repack and $4,095 for the 600Repack.

Bay Microsystems
Suit 108
210 Columbus Ave.
San Francisco, Calif. 94133
415-563-8392

 NEC’s three-pound Intersect CDR-320/CD-ROM reader

NEC Technologies, Inc. has introduced a full-function, portable CD read-only memory (CD-ROM) reader.

The Intersect CDR-320 weighs three pounds and can be powered by an AC adapter or an optional battery pack. To conserve battery power, the reader automatically drops disk speed after five minutes of nonuse.

According to the manufacturer, interface kits are available for most major personal computer platforms.

The suggested retail price of the CDR-320 is $595. An IBM PC and compatible interface kit is available for $199. The Apple Macintosh interface lists for $99. NEC
1255 Michael Drive
Wood Dale, Ill. 60191
312-860-9500

Paul Mac, the author of Mace Utilities, has announced the release of two new programs.

NEC

Data Recovery

It is scheduled for release in the first quarter of next year. Pricing ranges from $13,999 to $19,999, depending on configuration.

Hewlett-Packard
3000 Hanover St.
Palo Alto, Calif. 94304
800-753-0900

Data storage

Bay Microsystems, Inc. has introduced two removable-cartridge systems for the IBM Personal Computer, Personal System/2 and compatibles.

The 44Repack stores 44M bytes of data onto highly-perform ance Winchester cartridge packs, the vendor said, while the 600Repack stores 600M bytes of data onto compact erasable optical cartridges. Each product is available in external and internal configurations, with pricing starting at $1,049 for the 44Repack and $4,095 for the 600Repack.

Bay Microsystems
Suit 108
210 Columbus Ave.
San Francisco, Calif. 94133
415-563-8392

Utilities

Bloc Publishing Corp. has announced the release of a print-management and spooling utility.

Printrite reportedly will intercept printed output from an application, compress it and then store it on disk until the user is ready to print.

The program can then send the data to a printer whenever the user continues to run another application.

Printrite supports IBM-com patible personal computers and is available for a suggested retail price of $99.95.

Bloc Publishing
Suite 10
800 Southwest 37th Ave.
Coral Gables, Fla. 33134
305-443-0903

The Great Softwestern Company, Inc. has announced Version 3.0 of its Acrobat Autocad display program.

Quick-See 3.0 allows users to view and draw drafts in both 3-D and plan-view perspective. The files can also be changed to PICT format for importation into AppleTalk.

According to the company, Quick-See 3.0 displays drawings without the loading and regeneration time associated with AutoCAD.

Quick-See 3.0 is available for a list price of $125.

The Great Softwestern Company
Suite 103
919 S. Carroll Blvd.
Denton, Texas 76201
817-383-4434

Mitsubishi’s P-75U monochrome video copy processor

Peripherals

Mitsubishi Electric Sales America, Inc. has introduced a monochrome video copy processor designed to perform at a resolution of 162 dot/in. in a 6-by-8-in. format.

The P-75U will reportedly accept signals from four sources, including red-green-blue analog and TTL, and it offers 64-level gray scale prints. Captions can be added to an image using a built-in character generator.

The P-75U costs $2,850.

Mitsubishi
5757 Plaza Drive
P.O. Box 6007
Cypress, Calif. 90630-0007
714-220-2500

Sony Corporation of America has announced a 14-in., high-resolution color monitor that is reportedly compatible with all major display standards.

The Multiscan HG can be used with Apple Computer, Inc. Macintosh PCs, IBM Personal System/2s, Personal Computer ATs and compatibles. The moni tor provides 1,024-by-768 pixel resolution and automatic selection of horizontal scanning frequency ranging from 23 to 50 kHz. It is priced at $1,095.

Sony
9 W. 57th St.
New York, N.Y. 10019
212-416-9427

Tektronix, Inc. has expanded its family of Adobe Systems, Inc. Postscript language-compatible printers with the announcement of two color printers for IBM Macintosh Els, IBM Personal Computers and Apple Computer, Inc. Macintosh machines.

The Phaser CQ for IBM PCs and the Phaser-CQS for Macintosh com puters each offer a table-size output capability of 11 by 17 in. Each ink-jet unit offers a standard 216 dot/in. resolution. The Phaser CQ costs $7,590. The Phaser-CQS, a network offering bundled with an AppleTalk print server, costs $9,995.

Tektronix
P.O. Box 1000 M-S 63-630
Wilsonia, Ore. 97070
800-835-6100

Board-level devices

Headland Technology, Inc. has introduced a high-performance IBM PC/AT video graphics array (VGA) adapter that comes in 256K- and 512K-byte memory configurations.

The 256K-byte version of the Video Seven VGA 10241 reportedly enables users to select two or four on-screen colors from a palette of 262,144 at a resolution of 1,024 by 768 dot/in. interlaced, or to select 16 colors at a resolution of 800 by 600 dot/in.

With the 512K-byte version, users can select 16 on-screen colors at a resolution of 1,024 by 768 dot/in. interlaced, or 256 on-screen colors at 640 by 480 dot/in.

Compatible with major graphics standards, the 256K- and 512K-byte models sell for $397 and $729, respectively.

Headland Technology
46221 Landing Pkwy.
Cupertino, Calif. 95014
415-656-7800

Unix software

Sourceware Information Systems, Inc. has announced the introduction of a full-featured accounting software for Santa Cruz Operation, Inc.’s Xenix System.

Unixware 2.0 Plus UX allows users to operate in a multUSER, multitasking environment using terminals rather than dedicated PCs. Available modules include general ledger, accounts receivable, accounts payable, sales order and purchase order. More modules are due to be released in 1990.

Module prices range from $295 to $495.

Sourceware
20 Sunnyside Ave.
Valleymill, Calif. 95419
949-192-101
415-381-1011

Development tools

A software tool for developing a graphical user interface within an IBM/Microsoft Corp. OS/2 Presentation Manager environment has been announced by Guidance Technologies, Inc., formerly known as Virtual Machine Corp.

The program was developed to reduce interface development time by as much as 90%. It is targeted to address the needs of developers using the OS/2 Presentation Manager and IBM CUDA and System Application programmable interface. Features include interactive graphics creation of screen elements tailored to individual user needs and connections to the application standard languages. It costs $2,995.

Guidance Technologies
600 Wolftech
Pittsburgh, Pa. 15212
412-231-1300

DECEMBER 18, 1989

COMPUTERWORLD
**Software applications packages**

A Microsoft Corp. Windows-based forms processing software package has been announced by Formworx Corp. The FS 2 package was created for forms-intensive corporations, government agencies and midsize businesses. Features include a what-you-see-is-what-you-get display, object-oriented forms design, on-screen fill-in and 500 ready-to-use forms.

The software also offers Ashton-Tate Corp. Dbase-compatible relational database capabilities and customized printer drivers. The package runs under Windows on any IBM Personal Computer or compatible and is priced at $299.

Formworx
Reservoir Place
1601 Trapelo Road
Waltham, Mass. 02154
617-890-4499

Reference Software International has announced a grammar-checking program for Apple Computer, Inc. Macintosh computers. Grammatik Mac reportedly uses artificial intelligence techniques and a rule dictionary to identify writing errors.

The program will proofread files created by Microsoft Corp.'s Word, Wordperfect Corp.'s Wordperfect and other applications. When an error is identified, Grammatik Mac offers advice and allows the user to correct the error immediately. Grammatik Mac has a suggested retail price of $99.

Reference Software
Suite 123
330 Townsend
San Francisco, Calif. 94107
415-541-0222

A computer-aided design package created especially for the Microsoft Corp. Windows environment has been unveiled by Foresight Resources Corp.

Dubbed Drafix Windows CAD, the program features a modified Windows menu bar with options that change depending on the operations selected, the vendor said. Multiple interactive viewpoints, a library with more than 400 predrawn symbols and several dimensioning functions are also provided.

The software's programming language reportedly provides a C-style control flow, and database can be exported directly to Microsoft Excel worksheets. It is priced at $695.

Foresight Resources
10725 Ambassador Drive
Kansas City, Mo. 64153
816-891-1040

MECA Ventures, Inc. has announced a joint venture with Legal Knowledge Systems to produce the 1989 tax year release of the Andrew Tobias' Taxcut software package.

Taxcut reportedly allows the user to prepare and print out 40 complete Internal Revenue Service-approved forms and schedules. The company also states that Taxcut contains a help facility that uses pull-down menus, dialogue boxes and artificial intelligence to assist the user.

The package costs $79.95.

MECA
355 Riverside Ave.
Westport, Conn. 06880
203-226-2400

Warrington Financial Systems, Inc. has announced the most recent release of its asset and liability management system. Running on IBM Personal Computers and compatible systems, Basis Version 8.0 provides integrated forecasting, modeling and asset and liability management for large financial institutions. According to the company, the latest release calculates amortization schedules based on user-defined inputs and automatically adjusts amortization amounts to reflect prepayments. A single-copy license fee ranges from $8,000 to $25,000, depending on user requirements, and site licensing is available.

Warrington Financial Systems
101 Main St.
Cambridge, Mass. 02142
617-499-2000

A mechanical software system that incorporates geometric tolerancing and controls, associative dimensioning and productivity enhancements has been announced by Versacad Corp.

Versacad/Mechanical was designed to improve the mechanical part design and automated manufacturing process. It runs in conjunction with the Versa cad/386 and Versacad/Macintosh Edition computer-aided design packages; the two editions are priced at $295 and $195, respectively. Both versions support ANSI, DIN and ISO standards.

Versacad
2124 Main St.
Huntington Beach, Calif. 92648
714-960-7720

Diagsoft, Inc. has revised its Qaplus quality assurance diagnostic software package in order to provide support for the AT&T Unix platform.

Release 4.1 is a self-booting program designed to pinpoint system problems, according to the vendor. Features include on-line help, pull-down menus and mouse support facilities. The software runs on the IBM Personal Computer, Personal System/2 and compatible systems.

The package costs $134.95.

Diagsoft
6001 Butler Lane
Scotts Valley, Calif. 95066
408-438-8247

In the US, Certus and Certus LAN are available from your dealer through Ingram Micro-D, Konell, and Software Resources; in Canada, through JB Marketing.
Northern cloudy on hybrid manager

BY ELISABETH HORWITT
CW STAFF

Last May, Northern announced Meridian Network Control System (NCS), which it said would provide users with integrated management across private networks of both Northern Telecom and other vendors' equipment, as well as carrier services based on Northern Telecom's Meridian line of central office switches.

However, the first release of NCS, which began shipping last October, only manages Northern Telecom DMS 250, SL-100 switches, SS-1 switches, and PBX systems and several other brands of PBX via a third-party box. Northern has promised that it will provide Open Systems Interconnect (OSI) support as a way to integrate NCS with other vendors' customer that signed up for 35 IPX nodes last month. “But as soon as you packetize information, you have the ability to segment and route it.”

Covia, a Rosemont, Ill.-based travel-related reservation network owned by seven airlines, links 10,000 locations in North America off of a T1 backbone. The company is replacing its 22 tandem T1 multiplexers with the IPX nodes; it has cut over 14 IPX nodes to date and anticipates that all 35 IPXs will be installed by the end of 1990.

Another new Stratacom customer, First Options of Chicago, last week contracted for three IPX nodes and anticipates savings of $30,000 to $40,000 per month through reduction of circuits. Deidre English, a telecommunications analyst at First Options, predicted that circuit-switching will one day be phased out in favor of fast-packet technology.

However, Steven A. Taylor, president of Distributed Networking Associates, a consulting firm in Greensboro, N.C., said that the efficiencies of fast-packet technology depend on the kind of information that needs to be collected and voice, data, video and image.

“With circuit-switched technology, you always have a certain frame of information that needs to be collected and processed electronically, whereas with packet technology you can process it at the point of origin and then reassemble it where you need it.”

Continued on page 47

Fast-packets’ economies find their user niche

BY JOANNE M. WEXLER
CW STAFF

The efficiency of “fast-packet” T1 multiplexers, which blend the dynamic bandwidth allocation found on statistical multiplexers with the ability to packetize and quickly route data, voice, video and image, offers significant economies to certain cost-conscious companies. However, industry analysts caution that the devices do not necessarily outperform traditional circuit-switching multiplexers — which require users to dedicate channels to voice or data — in every application.

Stratacom, Inc., the Campbell, Calif., maker of the Integrated Packet Exchange (IPX) family of T1 Fastpacket Bandwidth Management Systems, recently inked contracts with two customers who anticipate improved cost/performance by being able to reduce the number of circuits required for integrating Covia's Teffilan looks for price/performance gain

switched electronically through time-division multiplexing,” explained Mark Teffilan, vice-president and chief information officer at Covia, a Stratacom

Continued on page 47

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Burnett touts advertising’s star LAN

ON SITE

BY ELLIS BOOKER

CHICAGO — A star among advertising agencies, Leo Burnett U.S.A. also boasts one of the most sophisticated local-area networks in the country.

In October, this U.S. arm of the Leo Burnett Co., which expects to bill $3.2 billion this year, won the single-site user Excellence Award from the Enterprise Networking Institute for its Star Reachers Network, a 1,200-node Novell, Inc.-based LAN.

But success in office automation did not come easily. An earlier attempt failed. "They tried to put in an office automation system that basically was an electronic mail-based system," said Tim F. Thompson, Leo Burnett’s vice-president of management information systems. The company experimented with linking departmental secretaries over an E-mail network using a handful of personal computers.

That network augmented 150 to 200 IBM 3270 terminals used by administrative staff and linked to an IBM 4381 mainframe at Leo Burnett’s old headquarters.

From his new office overlooking the Chicago River, Thompson, who came to Leo Burnett from Arthur Young Co., said that the 1985 E-mail network failed to offer the functionality users needed. "It became obvious that we needed to put the power of a computer on the desks of our professionals," he said.

Leo Burnett moved to the new headquarters over Memorial Day, a four-day whirlwind of activity that involved connecting 1,200 PCs, turning on a Rolm Tums is a registered trademark of Beecham Products USA, Division of Beecham.

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3206 Lanvale Avenue
Richmond, VA 23230

DECEMBER 18, 1989
Nynex, Prodigy ink ‘If you scratch my back, I’ll scratch yours’ deal

BY ALAN J. RYAN
CW STAFF

NEW YORK — Nynex Corp. has become the first of the regional phone companies to strike up an agreement with Prodigy Services Co., agreeing to support the delivery of Prodigy to homes throughout its territory.

Analysts said the deal could bring increased telephone network traffic to Nynex while allowing Prodigy to cut costs associated with its original plan of building and maintaining its own computer networks. Prodigy, a joint venture of IBM and Sears, Roebuck & Co., is an interactive personal service that allows users with personal computers to receive news, weather and financial and sports information.

In addition, users can also send mail, shop, make travel arrangements and buy and sell stocks through the service, which costs $9.95 per month plus a start-up fee.

Nynex's Computer Services division will construct and own Prodigy local computer sites in selected Northeastern markets. It will then install and operate mini-computers at each local site and will provide network design consultation and network management to support Prodigy users.

With the way Nynex is regulated in the state of New York, said Joanne C. Smith, chief executive officer of Prodigy Services Co., said the agreement means that the Prodigy service will be able to reach many cities sooner than might have been the case otherwise.

earn from its alliance with Prodigy would essentially be funneled back to the rate payers: “They need a change in regulations in order for this to be beneficial,” Right now, she said, Nynex does not even earn its allowed rate of return in New York.

Theodore C. Papes Jr., president and chief executive officer of Prodigy Services Co., said the agreement means that the Prodigy service will be able to reach many cities sooner than might have been the case otherwise.

Northern

CONTINUED FROM PAGE 41

own Integrated Network Management Systems.

Release 2 of NCS, which is scheduled for shipment next June or July, will add a third-party performance management system, Sugarbroad said. The system will also allow users to plot network trends and data on charts, a feature not included in the first release, Sugarbroad said.

Release 3 will support OSI/Network Management Forum specifications as a means to interface with other OSI-compatible systems, such as AT&T’s Accu-master Integrator, Digital Equipment Corp.’s Enterprise Management Architecture and the management systems of local exchange carriers, Sugarbroad said. Release 3 will also provide “automatic full correlation” of alarms across various pieces of the network, he added.

Northern Telecom also plans to provide a direct connection to IBM’s Netview but has not yet decided whether to base it on IBM’s LU6.2 protocol or on the OSI Common Management Interface Protocol, Sugarbroad said.

Regional storage of frequently requested information at the local sites will help to keep Prodigy cost-efficient, according to Nynex.

From the standpoint of Sears and IBM, the move is a good one, said Casey Dworkin, general manager at Personal Technology Research in Waltham, Mass. Both, he said, “are under pressure in terms of their base businesses; both have spent millions in developing this videotex service.” For Nynex, Dworkin added, it is an opportunity to get into the information services industry without violating government-imposed antitrust laws.

In five or 10 years, the alliance may pay off for Nynex, Dworkin added. The company has set the stage strategically for more alliances by working with Prodigy.

“Any regional holding company should be looking at gateway services,” Dworkin said.

However, not every phone company is interested. Ameritech, based in Chicago, declined participation with Prodigy. Dworkin said it is likely that other regional operating companies will form alliances with Prodigy but that some may still be skeptical.

“If you think Prodigy has an appeal to the customers you can reach, it is a good service to offer a gateway to. But you have to look at the investment you have to make in serving that base,” Dworkin said.

Although Prodigy has shown some promising results in regional usage, he said, it still has yet to be proven on a national scale.
_NETWORKING_

**Fritz**

**FROM PAGE 41**

ISDN services to appear.

During the transition, there is hope for IS managers who need ISDN-like service. A voice-over-data technology called Central Office Local Area Network (COLAN) provides many futuristic ISDN features with today's technology.

Like ISDN, COLAN provides simultaneous voice service and data connectivity for both synchronous and asynchronous applications. COLAN's data rate is limited to 19.2K bit/sec. and provides only a single data channel, but for many applications that is adequate. COLAN does not use digital technology. Data is converted to an analog signal and frequency multiplexed over the voice signal. On the receiving end, the data is demultiplexed out. Thus, both voice and data services exist over a single telephone line. Since there is no special wiring required, COLAN can be accommodated over standard telephone twisted-pair wiring. From the customer's point of view, the device that makes COLAN happen is called a voice data multiplexer (VDM). The VDM is about the size of an external modem and plugs into the COLAN line coming from the central office.

COLAN's central office data switch allows the voice user, COLAN is completely transparent. At first glance, it may appear that COLAN has little value in a concentrated computer environment. After all, extensive voice service isn't of great value in most machine rooms. However, some shops have made good use of the voice service provided by COLAN. While the VDM's data port is dedicated to synchronous connectivity to the mainframe, creative IS managers have used the voice port for modem dial-in access for their asynchronous users. In a sense, that provides two data ports without the need for an added telephone line. Typical uses for COLAN include connectivity to remote cluster controllers. Remote controllers can usually be located up to a few miles from the host site. Another application for COLAN is for PC-to-PC dial-up access. The central office LAN becomes just that — a hub for interconnecting PCs on an impromptu basis. While COLAN doesn't offer all the features of Token-Ring or Ethernet, it can provide good transfer rates and longer distance PC-to-PC connection. Actually, COLAN should have been labeled "CO-MAN," because it provides metropolitan-area network access for users.

COLAN technology is stable and fairly easy to maintain. There is also the added luxury of having the telephone company, not the end user, responsible for maintaining the network. While it cannot provide the comprehensive voice and data services of ISDN, COLAN does offer important connectivity features — and generally at a lower cost than ISDN or dedicated digital access lines. More importantly, it is available now for users who cannot afford to wait for the future arrival of ISDN.

Fritz is a data communications analyst at West Virginia University in Morgantown, W. Va.

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**MULTITECH SYSTEMS**

DECEMBER 18, 1989
**Data Switch targets time-critical applications**

BY JOANIE M. WEXLER CW STAFF

SHELTEN, Conn. — Businesses demanding near-100% mainframe availability and large-scale switching capabilities are looking to Data Switch Corp. for channel and mainframe CPU partitioning features.

Data Switch, headquartered in Bedford, Mass., has announced the Model 1800, which the company says is the first "fault-tolerant" switch for IBM and compatible computer channels. Data centers with multiple CPUs, large peripheral configurations and mainframe CPU partitioning features are candidates for the larger Model 1800, which supports up to 48 channels and 96 control unit ports, compared with the 2400’s support of 24 CPU channels and 96 control unit ports. The 1800, however, does not include the redundant logic of the 2400.

Dual-matrix redundancy within the 2400 sends two sets of signals to their destinations via two different I/O paths to protect against the possible failure of one path. In addition, in the event of a CPU or control unit failure, the switch will rotate to the failed device off-line and bring a backup unit on-line.

CPU partitioning features, such as IBM’s Processor Resources/Systems Manager (PR/SM) and Amdahl Corp.’s Multiple Domain Facility, “break up” the mainframe CPUs into multiple processors. Each processor requires a separate data connection, contributing to the need for the added switching capacity provided by the 1800.

One industry analyst, however, said the need for channel switches in general may be shrinking because of the redundancy now being built into front-end processors.

“Many people use a channel switch primarily to guard against a failure of a front end,” noted David Passmore, a partner in the network strategies consulting practice at Ernst & Young in Fairfax, Va. “But now many front ends, such as the IBM 3745, are being designed with dual processors that can back each other up.”

Passmore added that although channel switches are still options for mainframe backup, the routing functions in host-resident Virtual Telecommunications Access Method (VTAM) and Network Control Program (NCP) in front-end processors could alternatively be used to reroute traffic to a backup mainframe. Users, he explained, could channel-attach all devices to one another separately, and VTAM and NCP could logically reroute traffic in the case of a channel failure.

Passmore acknowledged, however, that there is a cost trade-off in using this method, because users would need fewer channel connections if they used a channel switch.

**Fast-packet CONTINUED FROM PAGE 41**

nature of the traffic. “If you have bursty traffic, fast-packet is more efficient,” he explained. “If you have continuous traffic, fast-packet is actually less efficient, because it takes more overhead to allocate the bandwidth dynamically than to dedicate the channels.”

Tim Zecherlie, principal and vice-president of technology at Vertical Systems Group, Inc., a telecommunications consulting firm in Boston, concurred. “Fast-packet has an advantage for regular voice or nondeterministic data traffic,” he said, adding that if users are transmitting facial or modern video traffic over a voice circuit or are running videoconferencing, fast-packet efficiencies are lost.

“This is because users must dedicate the bandwidth for those calls as they would in any other network,” he explained.

**Covia a good candidate**

A reservation system such as Covia’s is probably a good candidate for fast-packet technology, “because those sessions tend to be very short and bursty,” Taylor said. A reservation system such as Covia’s is using the IPX nodes to supplant a significant number of automatic ring-down private-line circuits. He described his company as voice-intensive and said fast-packet “lets us adjust bandwidth to our needs.”

**QRAM: 8088, 8086, 80286 PCs. Use of high memory is only with EMS 4.0 and EEMS. Both are also extended memory managers, compatible with XMS.**
Local-area networking software

Digital Products, Inc. has released Version 2 of its Netcom- mander sub-local-area network product. The latest version enables a stand-alone printer to send a graphics file at approximately 12,000 char./sec., the firm said. The product connects as many as 32 personal computers within a departmental work group. Its functions include printer management, peripheral sharing and file sharing and transfer.

Version 2 is offered in 10-, 16- and 20-port configurations, with prices ranging from $1,895 to $9,895.

Digital Products
108 Water St.
Watertown, Mass. 02172
617-924-1680

A printer-sharing package that allows users to share laser printers, plotters or other devices, is now available from Integrated Marketing Corporation.

The Data Manager DM-60 model permits as many as five computers to simultaneously share a stand-alone printer over RJ-12 telephone wiring. An internal 256K-byte spooler/buffer, expandable to one megabyte, is included. The product is priced under $500.

Integrated Marketing
155 N. Dunsmore Ave.
Sunnyvale, Calif. 94086
800-537-5999

IMRS has announced a local-area network-based software program designed to function as an information system for executive managers.

Called IMRS Ontrack, the product works with IMRS MicroTrend management and real-time network system to provide high-level corporate users to monitor financial and structural reporting changes. The software utilizes the Microsoft Corp. Window's user interface and costs $35,000 for up to five computers at a single headquarters site. IMRS Ontrack runs on Intel Corp. 80286- and 80386-based machines equipped with IBM's Enhanced Graphics Adapter or Video Graphics Array displays.

IMRS
1600 Summer St.
Stamford, Conn. 06905
203-333-6500

Information management software for local-area networks is now available from Advanced Concepts, Inc.

Dubbed Office Minder, the product reportedly features electronic mail, telephone messaging, scheduling, project management, resource management, electronic Rolodex and reminder alarm functions. Full-featured text editing and ASCII export and import capabilities are also included. The product costs $595 per server for an unlimited number of users.

Advanced Concepts
4129 N. Port Washington Milwaukee, Wis. 53212
414-963-0999

Local-area networking hardware

Hayes Microcomputer Products, Inc. has announced two hardware products: one designated for Micro Channel Architecture (MCA) technology, the other for the Personal Computer XT/AT or Extended Industry Standard Architecture (EISA) bus computers.

Both were developed to provide a cost-effective coprocessor function for the personal computer system, the company said, and both support dual serial ports, each operating from 300 bit/sec. to 38.4K bit/sec. Scheduled for shipment in second-quarter 1990, the Hayes ESP for MCA and the Hayes ESP for IBM PC XT/AT and EISA will have estimated retail prices of $349 and $299, respectively.

Hayes
705 Westchase Drive
Narrows, Ga. 30092
404-441-1617

CBIS, Inc. has unveiled Network EZ, a combination hardware and software system designed to create a network targeted specifically for entry-level systems. Also scheduled for delivery this month, the product supports as many as six users and is said to be IBM PC compatible. It provides disk- and printer-sharing capabilities between workstations and does not require a dedicated server, according to the vendor. Two versions are available: The I/O version, developed for networked personal computers, costs $420; a faster, more powerful version is priced at $600.

CBIS
Suite 170, Building 100
5675 Peachtree Industrial Blvd.
Norcross, Ga. 30092
404-446-1332

Rad Data Communications Ltd. has announced the TREC, or Token-Ring Extender, designed to connect a single remote workstation to a Token-Ring local-area network.

The extender operates in pairs and utilizes an extenderto-extend serial communications link capable of transmitting data at rates up to 128K bit/sec., the vendor said.

It is available as a 19.2K bit/sec. model with an RS-232 interface for $1,100 and in a V.35 interface version for $1,300.

Rad Data
151 W. Passaic St.
Rockelle Park, N.J. 07662
201-587-8822

Data Technology, a division of Quep Corp., has added an IBM Personal Computer AT-compatible small computer systems interface (SCSI) host adapter to its existing product line. 

The CTC380 can support as many as seven SCSI devices and four AT, ANSI, IBM Personal System/2 or dual-speed floppy disk drives with 360K-, 720K-, 1.2M- or 1.44M-byte media, the company said.

The board supports both 3½- and 5¼-in. floppy disk drives and sells for $220.

Data Technology
500 Yosemite Drive
Milpitas, Calif. 95035
408-626-7700

Links

JYACC, Inc. has introduced Jerro, a terminal emulator product aimed at transaction-oriented applications in the AT&T Unix System V environment.

The product incorporates a file-utility utility that offers ASCII, Xmodem, Kermit and Kermit Server protocols, the company said. Features include direct and modem dialing, file transfer with error checking and initialization of script files. A proprietary protocol, called Jran, is also in the package. The package comes with Digital Equipment Corp. VT100, VT220 and TTY emulation modes and is priced at $125 plus one single-copy license. Quantity discounts are available.

JYACC
116 John St.
New York, N.Y. 10038
212-267-7722

Network Software Associates, Inc. has announced an enhanced version of its AdaptSN A 3270 emulation-software package.

The product runs on IBM Personal Computers, Personal System/2s and compatibles, the vendor said, and was designed to allow PCs to communicate with an IBM Systems Network Architecture complex. Features include four-color printing and full-screen display for IBM 3278/9/9 Model 3, 4 and 5 terminal emulations. The package is scheduled for delivery in March 1990, the software costs $245.

NSA
39 Argonaut
Laguna Hills, Calif. 92656
714-768-4013

An integrated computer facsimile- and voice-response system has been announced by Brook Trout Technology, Inc.

The Flashfax reportedly retrieves and transmits stored documents via facsimile in response to user requests entered via a Touch-Tone phone. It can store as many as 500 pages of text, graphics and images in any combination and is priced at $5,995.

The product is shipped with an Intel Corp. 80286 microprocessor, proprietary voice and facsimile cards, a 1,200 bit/sec. modem and a 20M-byte hard disk. Application software is included.

Brook Trout Technology
110 Cedar St.
Welland, Ont., Canada
1-416-573-6900

Gateway, bridges, routers

Netcon, Inc. has announced an Ethernet-to-Fiber Distributed Data Interface (FDDI) backbone transparent learning bridge that implements the proposed IEEE 802.1 standard.

Designated the EBBB-1, the product is also offered with a spanning tree algorithm option, beginning at $22,000.

The company has also announced its Multibus II family of products, including an FDDI media controller, backplane, central services module and development systems.

Netcon
Suite 170
1291 S.W. Freeway
Stafford, Texas 77477
713-240-5929

Electronic mail

An electronic mail gateway product designed to connect the Digital Equipment Corp. Mail- gateway System to the NMS network, Inc. Netware Message Handling Service (MHS) has been announced by Joiner Associates, Inc.

Jmail-MHS is a DEC VAX-based, software-only product that permits personal computer or Apple Computer, Inc. Macintosh users to transfer E-mail to the DEC environment. The product licenses at $9,000 per system, and software support with maintenance updates is available for $1,500. Deliveries are scheduled for January.

Joiner Associates
P.O. Box 5441
Madisonville, Mass. 01850
800-238-6637

Network management

General Datacomm, Inc. has added three products to its Netcon Management System to provide diagnostic testing, monitoring, restoration and report generation functions in critical analog and digital networks.

The NMS 19202A, the NMS 500C/UXR and NMS 500D/UXR interface with the company's Netcon Network Management System to provide diagnostic testing, monitoring, restoration and report generation functions in critical analog and digital networks.

The NMS 19202A is an advanced version of its AdaptSN A 3270 emulation-software package. The product runs on IBM Personal Computers, Personal System/2s and compatibles, the vendor said, and was designed to allow PCs to communicate with an IBM Systems Network Architecture complex. Features include four-color printing and full-screen display for IBM 3278/9/9 Model 3, 4 and 5 terminal emulations. The product is priced at $6,685. The NMS 500C/UXR and NMS 500D/UXR are Extended Range DSU/CSU combinations designed for dense, digital networks, the company said, and are priced at $1,250 and $1,695, respectively.

General Datacomm
1579 Straits Turnpike
Middlebury, Conn. 06762
203-574-1118

COMPUTERWORLD
DECEMBER 18, 1989
Expanding IS minds with education

DECEMBER 18, 1989

Some swear by on-the-job training, but getting off the job has its learning rewards

BY ALICE BREDDIN

Despite academics' best efforts to bring a real-world orientation to education programs for information systems executives, some experts contend that the best education comes on the job.

Managers, consultants and headhunters say IS executives need to learn about the business they are in and gain the respect of other managers, and that the best way to do so is to spend time with the people in their company.

However, continuing education programs for executives can have a real benefit in facilitating that on-the-job learning process. "Courses should be a catalyst for learning. We want to provide mind-expanding programs rather than training," says Walter Popper, a vice-president at Index Group, Inc., a Cambridge, Mass., consulting firm whose Index Institute conducts one-week sessions on topics in business and technology management.

If people just learn within their own organization, they only learn what people in the company know, says Alan White, associate dean of executive education at MIT. Educators at business schools, professional associations and consulting firms say they are aiming to broaden perspectives rather than teach specific --- to pique a participant's interest or provide him with a new outlook to apply to his company's activities.

Skip Tolette, a partner at the New York executive recruiting firm Schmitt Bishop Tolette, is a proponent of learning on the job but acknowledges limits to the approach. "The problem is that you can get buried in the mediocrity of your own company," Tolette says.

Among the innovative steps educators are taking both to broaden their programs and make them more realistic are the following:

- Offering recurring business school programs for a single company's employees or, in a few cases, its customers.
- Exposing participants to colleagues from other nations and incorporating foreign travel into programs.
- Bringing together IS executives and general managers so they can better understand one another's concerns.
- Departing from traditional lectures by fostering interaction among participants, sometimes through role playing.

Each year, the University of Pennsylvania's Wharton School runs several programs for a single company's executives, including one overseas client. The programs typically cover general management, perhaps with a module on information technology.

Occasionally, companies also hire Wharton to run programs for their customers. AT&T's Data Systems Group just arranged for the school to run 10 sessions on strategic information management over the next three years for the IS executives to whom the group sells.

"It's not cheap" to arrange a single-company program, says Robert Mettelstiedt, director of Wharton's Strategic Information Management Program, so the bulk of advanced management programs are the more conventional open-enrollment type, which account for perhaps 80% of the total. At Wharton, open-enrollment courses include the five-week Continued on page 52

Golden State shines light on PC literacy

BY J. A. SAVAGE

California, the land of sun, palm trees and a personal computer in every garage, or at least in every den. But California is in the bottom half of the 50 states where computer literacy is concerned.

Some progress, however, may be on the way. On Jan. 1, the Educational Technology Act of 1989 is slated to take effect, providing $13.7 million to help high-technology education in the state. Currently, there are about 25 students for each computer available in the state's 7,000 public schools.

The state's image, like the technological promise of Silicon Valley, is glossy, but California schoolchildren cannot respond to a DOS prompt any better than those in states more aligned with soybean farms than silicon, according to statistics provided by Pacific Bell.

Now, for the price of one large mainframe, educators are hoping to provide the state's 4.6 million students with some exposure to computers. This is the state's second round of funding. The effort has been promoted by the California Business Roundtable in the interest of a more educated work force and a group of businesses, including computer vendors such as Tandy Corp., that could benefit from school purchases.

A spokesman for Pacific Bell estimated that businesses spent $3 billion last year alone providing basic educational training for employees. "We would like to be able to hire people who have the skills already," he said.

Even with the state program, computers will not simply find their way into the classroom, however. Schools must take the initiative and apply for the money to buy hardware and software. "When you talk about 7,000 schools, it takes an awful lot of equipment," said Ira Barkman, program consultant for the state Department of Education's Office of Educational Technology.
You wouldn't outfit a powerful car with wagon wheels. Why saddle your fractional T-1 facilities with anything but an AT&T Paradyne multiplexer? AT&T Paradyne has the equipment that can get you maximum performance from your fractional T-1 network.

The fact is you can't buy a more efficient multiplexer for fractional T-1 than one of our ACCULINK™ IX Series. They're specifically designed to support fractional T-1, so you don't get stuck with added interfaces. Or the network management overhead and control problems that come with them. Not to mention the additional costs.

And no matter what your hybrid networking needs are, we can fill it. Because with ACCULINK, you get support for both private networks and lambda
Without the right equipment, you can't make the most of fractional T-1 either.
Expanding FROM PAGE 49

Advanced Management Program and a one-week offering called The Effective Executive. There are also one-week programs on more narrow topics such as Implementing Strategy and Managing Organizational Change.

Program participants include Grinner, general manager for residence/carrier services at Illinois Bell, favored the way that the Advanced Management Program stressed the future rather than case histories.

The program weighed the impact of unification and political changes on communications and information systems and conveyed business principles such as the importance of getting market information to a customer such as the importance of customer services systems at Pacific Bell in San Ramon, Calif., says MIT's Programs for Senior Executives can fill in gaps in one's exposure to business. "Not everyone gets the opportunity to work in marketing, manufacturing or R&D -- the customer contact parts of the business," she says. That is particularly valuable for IS managers, who do not often get close to the customer.

Educational programs run by business and professional associations also stress the corporate environment. One area in which IS executives will be expected to strongly apply business survey is in marketing their technology, whether to people within their company or outside it, according to George Newman, senior research associate for the Conference Board's Management Information Program. "IS executives need to know how to commercialize products to keep people from going out side," Newman says. "They need to know how to explain charges and how to spend time with users.

The need for IS executives to interact with managers of user departments is a major concern in itself, and some educational programs bring members of the two groups together. For example, at the Partnership Conference put on by the Life Office Management Association (LOMA), an Atlanta-based insurance industry group, general business and technical managers tell IS managers how to communicate their needs to nontechnical managers.

Programs that bring together IS and general business managers also aim to expand the users' awareness of what technology can do for them. The idea is that the insight will make the users more receptive to proposals from IS managers and enhance their ability to communicate their technology needs.

Elsewhere, consultants and professional associations are enrolling executive groups to learn from one another's experiences rather than from a lecturer. "A executive who has a false start implementing a technology can explain what they did. This way they don't have to reinvent the wheel," says Ann Purr, LOMA's manager of information systems and processing.

Taking the interactive approach further, some consultants are finding IS executives increasingly receptive to role playing and other activities associated with personal growth as publicity about them has made them more acceptable.

Role playing and related methods are often intended to develop interpersonal skills used in motivating, counseling and coaching subordinates, managing conflicts, running meetings and understanding nonverbal communication.

In teaching a manager how to deal with a subordinate who is not performing well, for example, a participant would play the subordinate and a role-playing encounter between the two might be videotaped. "As we play back the video, people can yell 'Stop,' and we freeze the frame and talk about it," says Madeline Weis, a director of the Society for Information Management and president of Weiss Associates, Inc., a Bethesda, Md., consulting firm.

There is one other thing upwardly mobile IS executives should keep in mind: the need to stay current with technology. Tollete says they should do so even as they come across as businesspeople rather than technicians. He often asks candidates about technological topics such as Systems Application Architecture and Enterprise Systems Architecture. "When they say I don't know what you mean, I don't think they're staying current, and I get real turned off," Tollete says.

Bredin is a free-lance writer based in New York.

Course catalogs

Information for education programs described in the article can be obtained from the following sources:

Aresty Institute of Executive Education
200 Steisberg Conference Center
The Wham, Cambridge, Mass. 02139
212-889-4560

Index Institute
Index Group, Inc.
Five Cambridge Center
Cambridge, Mass. 02142
617-492-1500

Life Office Management Association
5770 Powers Ferry Road
Atlanta, Ga. 30327
404-951-1770

The Conference Board, Inc.
P.O. Box 4026
Church Street Station
New York, N.Y. 10261
212-759-0900

Weiss Associates, Inc.
5711 Best Bench Road
Bethesda, Md. 20816
301-221-9062

Guide's Parkes

Guide members elect education president

BY ELISS BOOKER

CHICAGO -- Guide International Corp. has an education president in Benjamin G. Parke, who was elected to a two-year term last month by the national IBM users group. "The thing we want to focus on in the next two years is offering a first-class educational program from both a management and a technical standpoint," Parke said, who is responsible for planning at Burlington Industries, Inc., in Greensboro, N.C. Parke was previously Guide's vice-president of planning and finance.

Although a hot topic for Guide's 2,850 member companies is application development and computer-aided software engineering (CASE) in light of IBM's AD/Cycle announcement earlier this year, "we intend to cover everything an IBM shop needs," Parke said.

The beefed-up technical program at the group's three annual conferences will include a special session devoted to OS/2 at Guide's March 11-16 meeting in San Francisco.

Parke's agenda also includes consolidating four of the group's nine topic divisions. Beginning in March, the Management and Administration division will be combined with the Processing and Management division and the Data and Productivity Management division will be merged with the Development Methodology and Products division.

The consolidation will be completed by the group's July meeting, Parke said.

In addition, the group will try to improve its internal use of information systems, according to Parke.

When asked about closer ties with the two other major IBM users groups -- Share and Common -- Parke noted that close relations are maintained among the three groups but "we have no plans to merge ... I don't see that occurring on the horizon."

Parke said that Guide will continue its participation in the 3-year-old International Users Group Council (IUGC). Share and Common are also members of IUGC.

Parke was elected Nov. 8 at Guide 75 in Los Angeles. Gary S. Ganne, Guide's president for the past two years, will remain on the board as immediate past president. Elected along with Parke were the following people: Vice-President of Administration Fred Schweizer, Con Edison, New York; Vice-President of Committees Jim Keithly, Halliburton Co., Duncan, Okla.; Vice-President of Finance and Planning Harry Hartman, Procet & Gamble, Cincinnati; and Vice-President of Divisions Don Langstrom, McGraw-Plough, Memphis, Tenn.

DECEMBER 18, 1989
TAKING CHARGE

Clinton Wilder

IS has come a long way, baby

I was pondering how best to summarize the evolution of information systems management in the 1980s for a decade-ending column when the phone rang.

"Good afternoon, Mr. Wilder. I'm calling from the XYZ [not the real name] public relations agency, and I wondered if I could take a few minutes of your time?"

It was Friday afternoon after deadline, so I reluctantly agreed. I took a break from my lofty thoughts on the changing mission of IS as we enter the '90s and prepared myself for a pitch about some digi-

"My client is the data center at [a Fortune 150 firm], and I wondered if you'd be interested in a story on some of the innovations they have achieved to help their firm's business strategy?"

"Now let me get this straight. You say that you represent the data center, not a vendor whose products they use."

"That's right."

"And this is an internal department, not selling IS services outside in the marketplace."

"Right. Would you be interested in how they've helped other functions within the company, like manufacturing and sales, improve their business processes?"

Yes, I would. And thank you for the column idea — because this conversation would not have occurred in 1979. IS, as the well-worn saying goes, has come a long way, baby.

Let's think back for a minute to that time, when Jimmy Carter was in the White House, hostages held in Iran, and rampant talk of a U.S. boycott of the upcoming Summer Olympics in Moscow. Automated teller machines were a relative novelty, and no one had ever heard of frequent flyer programs, let alone chief information officers.

Ten years and 1½ stock market crashes later, the IS profession has changed from a high-stability, low-profile support function to one of the most exciting, challenging and frightening places to be in business today. A place where one progressive company has seen fit to aggressively market its own success within IS to the outside media. A place where 88% of the CEOs and senior executives surveyed by Computerworld earlier this year agreed that IS "will significantly change the way my company does business in the 1990s."

Like any dramatic change, this transformation was not painless. The simultaneous upheavals in information technology (the PC revolution) and business globalization, buyouts, new competitive factors created unprecedented tension as the world demanded that IS and business professionals work as true partners.

It's rough out there, and the eye-popping turnover rates for top IS executives are only the beginning. At a recent Index Group seminar, University of Minnesota IS professor Jim Wetherbe flashed the phrase "Efficiency vs. Effectiveness" on the screen and asked the audience which word they would more closely associate with the term "computer."

The answer, according to one jesting yet perceptive attendee, was "yes." "Yes, the computer has come to represent contention. That should be no surprise. It is a huge financial investment, and it stores and distributes the lifeblood of any company that hopes to compete in the 1990s: information.

Where that information will reside, who will control it and what form it will take fuels the great debates of our professional lives. Centralization vs. decentralization. Outsourcing vs. in-house. Mainframe vs. PC. "Yes," is everywhere.

But that goes with the territory of increased corporate stature. The good old glass house was a peaceful place to be. Excitement came when IBM rolled out a new version of a database or operating system. IS specialists didn't need to understand the business world, and line managers didn't need to understand information technology, so nobody fought.

Oh, there was grumbling when applications came out late and over-budget, but the users had to understand that development was more complicated than they could fathom. Now those users are deploying fourth-generation languages to design their own applications for accessing Oracle databases from their laptops.

And most important, will users and IS professionals truly be working together to tap the vast potential of information as a competitive resource?

I don't know. But at midnight 13 days from now when the decade comes to an end, drink a toast to how interesting it is going to be to find out.

Wilder is Computerworld's senior editor, management.

DECEMBER 18, 1989

How Telebit modems made some fast friends in the LAN industry

Thanks to Telebit dial-up modems, out-of-building LAN communications have really picked up speed.

And Telebit has picked up a lot of new friends. Friends like the nation's largest general contractor. Using Telebit modems and Banyan's VINES, it transmits payroll information from 35 remote offices to corporate headquarters. In half the time. And has eliminated the cost of leased lines.

Then, there's a national developer of communications software that uses Telebit modems and Novell's NetWare AnyWare. Throughput between its New York headquarters and remote offices in accounting, E-mail and order entry data has increased fourfold.

Plus a LAN VAR that uses Telebit modems and 3Com's 3+Mail. Its E-mail connections are 5 times faster than before. And its phone and special delivery bills are lower.

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YOU KNOW, WHEN I ASKED TO BORROW YOUR COMPUTERWORLD I SORT OF HOPED I'D GET THE WHOLE THING AT ONCE.
The 1980s: A retrospective

A breakthrough decade draws to a close

BY GLENN RIFKIN

IN DEPTH

DECEMBER 18, 1989


In our world, the world of information technology, it was simple, yet stunning . . . a coming of age.

And there were other images: Bill Gates, Mitch Kapor, Charlie Chaplin on skates selling PCs, Ken Olsen, Adam Osborne, Japan and the trade war, MS-DOS, A5400, OFS, OSI, SAA, alphabet soup, John Akers, Steven Jobs and John Sculley together, Jobs and Sculley apart, Macs, VAX, virus attacks, LANs, WANs, relational plans, Compaq, Unix — and the glass walls came tumbling down.

When it comes to technology, there is an indelible mark on the 1980s. This was the bridge decade. The personal computer left the hobbyist's workshop and forged its way onto the desks of corporate America. Time magazine gave its "Man of the Year" cover to the computer.

Suddenly, we woke up and accepted that computers are part and parcel of our daily routine. Computers are everywhere. Telephones and automobiles. It is not a matter of owning one (although nearly 40 million people do); it is a matter of contact on all levels.

Even the most hard-bitten Luddite finds himself at an ATM now and again or, at the very least, receives the junk mail that spews from computer databases.

For the computer makers, it was a turbulent and rewarding decade. IBM dropped the shackles of antitrust and became a $60 billion mammoth, moving past Exxon as the most profitable corporation. Big Blue entered the decade as the industry's most powerful force and exits in the same position. But it was a time of cataclysm for the giant, which was forced to dance to a new tune, with many of its market segments shaken and in some cases snatched away.

The '80s began as the decade of the minicomputer and ends with the min's death knell being sounded, perhaps prematurely. The land of optimism shifted from East to West, from Route 128 to the Silicon Valley. The Japanese presence spread relentlessly, from semiconductors to personal computers.

E-mail was just a concept in 1980; today, you are lost without it.

Computing power exploded through the price/performance ceilings. A MIPS that was worth $1 million in 1980 can be had for under $1,000 today. Before we even figure out what to do with Intel 286 PCs, we have 386- and 486-based options. Vendors that built empires on proprietary systems are seeing their walls come tumbling down as IS got mad as hell and decided to take it anymore.

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Companies that were content with automating the back room and its attendant services now demand to be networked: End users have staked their claim and want access to data immediately. CEOs have spent the money and now want some payback. DPs are now IS professionals, and woe if they don't understand the technology.

As the last lights of 1989 blink out, few will dwell on the decade past. This is a time for looking forward, for predictions, for seeking visions. What will the 1990s bring? How will we prepare for the coming millennium? Why does it seem as if there are more questions than answers . . . always?

We would be remiss if we did not reflect back on the 1980s, at least for a short time. It was a decade of lessons, and history can teach us no other.
1980

JANUARY

* A Computerworld study finds that DP personnel feel overworked and underpaid.

* January 17th marks the 11th anniversary of the filing of the IBM antitrust case by the U.S. Department of Justice. The trial enters its 663rd day, generating nearly 100,000 pages of transcript. The 26th witness, IBM executive John F. Akers, takes the stand.

* John Mauchly, a Univac consultant and co-inventor of the Eniac, the world's first all-electronic digital computer, dies at age 72.

MAY

* Data General Corp. brings out the Eclipse MV/8000, the company's first venture into the 32-bit computer field.

JUNE

* The technical committee on OSI joins ANSI and puts forth its seven-layer reference model, which will affect every computer vendor.

AUGUST

* Gene Amdahl cuts remaining ties with Amdahl Corp. and begins a new venture aimed at challenging IBM. The new firm is called Trilogy. Amdahl plans to rely on a unique semiconductor technology called wafer scale integration.

* IBM approaches William Gates, the 24-year-old head of Microsoft Corp., and asks him about developing a PC operating system.

SEPTEMBER

* The U.S. installed base of small computers is 478,000, according to International Data Corp. Of that number, 107,000 are small-business computers and 371,000 are desktop machines.

* Amsat (The American Satellite Co.) unveils the first satellite network providing all-digital transmission.

* Honeywell, Inc. is found guilty of fraud, the result of misrepresenting a computer system in order to meet its yearly sales quota. The firm is forced to pay $1.1 million to Robert Weinstein, former president of Triangle Underwriters, Inc. The prosecution successfully argued that Weinstein's company was forced out of business in late 1974 as a result of an untested and inoperable Honeywell system purchased 4 years earlier.

* W. Michael Blumenthal becomes chief executive officer of Burroughs Corp.

OCTOBER

* Digital Equipment Corp., Intel Corp. and Xerox Corp. announce specifications for jointly developed Ethernet protocol.

1981

JANUARY

* Blumenthal is named chairman of the board at Burroughs.

* Intel Corp., highflier in the IBM 370 lease and used equipment market, files for bankruptcy after IBM's announcement of the 4300 series. Intel had written cancellation clauses into its leases, and its insurer, Lloyd's of London, lost heavily when users terminated the leases prematurely. Intel's liability is approximately $100 million.

FEBRUARY

* Greyhound Corp. v. IBM — one of the longest-running antitrust suits against IBM (began in 1969) — is settled out of court with IBM to pay $17.7 million in legal costs to Greyhound.

MARCH

* U.S. Defense Secretary Casper Weinberger urges the government to drop its suit against AT&T because, he maintains, forcing the company to divest its Bell operating companies would weaken national security.

APRIL

* Adam Osborne's Osborne Computer introduces the Osborne 1, the first portable computer. The company will sell more than 100,000 by 1984.

JUNE

* U.S. v. IBM rests after 12 years.

DECEMBER

* Computers enable NBC to be the first network to announce Ronald Reagan's presidential victory at 8:15 p.m. EST.
AUGUST

* The IBM Personal Computer is unveiled. The machine is priced from $1,565 to $2,100 and offers 16K to 256K bytes of memory. The machine has virtually no applications available but thousands of software programs will soon appear.

* IBM gives its SNA users X.25 and X.21 gateways to public data networks.

SEPTEMBER

* U.S. District Judge Harold Greene refuses to discuss the bulk of the government's charges against AT&T with the press and indicates that the Justice Department has proven AT&T guilty of violating the Sherman Antitrust Act.

NOVEMBER

* In Tokyo, the Japanese government and eight major electronic and computer makers kick off the "fifth-generation project"; a 10-year, multimillion-dollar effort to develop an artificial intelligence machine.

DECEMBER

* U.S. Navy Captain Grace Murray Hopper, computer industry pioneer, turns 75.

JANUARY

* AT&T agrees to give up 22 Bell operating companies after the Justice Department spends eight years and several million dollars prosecuting the phone company. The goal is to create competitive communications rates. Divestiture is scheduled for January 1984 and stipulates that AT&T cannot offer any electronic information services for at least seven years.

FEBRUARY

* Compaq Computer Corp. is founded by Rod Canion, Bill Murto and Jim Harris.

APRIL

* Mitchell Kapor, a former teacher of transcendental meditation, along with Ben Rosen founded Lotus Development Corp. in Cambridge, Mass., with $1 million in venture capital and eight employees.

MAY

* DEC unveils its own line of PCs — the Rainbow 100, Decmate II and Professional Series — amid great hoopla. Unable to choose one machine to sell, DEC sends all three to the market and will eventually lose close to $1 billion on the foray.

* According to a study by the New Jersey Institute of Technology, 20% of 500 scientific network users are found to be suffering "Network Addiction" — they can't get enough of E-mail.

JUNE

* American Bell, Inc. is formed and named by AT&T.

JULY

* The Travelers Insurance Co. becomes one of the first major corporations to commit to PCs rather than CRT terminals.

AUGUST

* Robots are predicted to displace 15% of workers by 1990. A new study by the Congressional Budget Office forecasts that 15% of current U.S. manufacturing workers could lose their jobs by the end of the decade because of electronic technology.

* The computer replaces the abacus to handle the Chinese census, which used to count more than one billion people.

* Warrants are issued for nine Hitachi employees recently indicted for conspiring to steal IBM trade secrets and transport them to Japan — part of 22-member ring.

OCTOBER

* The White House announces an ambitious long-term plan to fundamentally change the structure of the federal government. A prominent feature of the "Reform 88 Project" is governmentwide compatibility of all administrative computer and communications systems.

* Honeywell announces new top-of-the-line processor, the DPS 88, designed to compete with IBM's 3083 Models J and K.

NOVEMBER

* Compag introduces a portable processor compatible with IBM's PC. The design for the machine was sketched out on a restaurant placemat, which is still kept in a safe at the Houston-based company.

DECEMBER

* Microsoft Corp. licenses MS-DOS to 50 microcomputer companies in the first 16 months of its availability.

1983

JANUARY

* Apple announces innovative Lisa system, a 16-bit micro priced at $10,000 and aimed at the business market. Lisa is a flop but paves the way for the Macintosh.

* Lotus Development Corp.'s 1-2-3 ships. Sale of copies reach $53 million in the first year.

DECEMBER 18, 1989

COMPUTERWORLD
IN DEPTH: THE '80s IN REVIEW

Compaq ships its first computer in January and ends the year at $111.2 million, the greatest first-year sales in the history of U.S. business.

OPM Leasing Services, Inc. Cofounders Myron Goodman and Mordecai Weissman are found guilty of obtaining $200 million in cash between 1978 and 1981 with altered or completely phony leases, mostly from Rockwell International. Principals are sentenced to 12 and 10 years in prison, respectively.

February

John Akers moves from senior vice-president to president of IBM.

The number of computers in the U.S. exceeds 10 million.

April

John R. Opel becomes chairman of the board of IBM, replacing Frank T. Carey.

May

Steven Jobs, chairman of Apple, rents Disneyland during the National Computer Conference in Anaheim, Calif., and invites a few thousand of his closest friends to have a free night at the amusement park.

June

In a move that rocks the information processing industry, H. Ross Perot agrees to sell Electronic Data Systems to Roger Smith and General Motors for $2.5 billion. The synergy between GM and EDS is not immediately evident, and soon Perot begins to openly criticize Smith and his operation. Eventually, GM will pay Perot $750 million to give up his role as EDS chairman and leave GM alone.

IBM unveils its relational database offering for its MVS/ESA and MVS/370 environments: DB2 is born and will eventually reshape the independent database market.

Recently elected Senator Frank Lautenberg (D-N.J.) makes his maiden speech to a nearly empty Senate chamber. Lautenberg, former chairman of ADP, says, "The capacity to use and work with computers is becoming essential — almost as essential as being able to read and write clearly."

IBM is shipping 35,000 of its PCs per month and cannot keep up with demand for the machines.

July


DEC President Ken Olsen is the subject of an extortion attempt of $1.25 million by a former Green Beret, who is caught and jailed.

August

DEC buys into Gene Amdahl’s Trilogy with a $26 million investment. This infusion of cash swells the amount its founders have raised to about $260 million. The company has yet to produce anything for sale.

October

MCI Mail from MCI Communications Corp. is unveiled.

IBM takes wraps off biggest mainframe yet, a new version of the 3084.

November

IBM’s ill-fated home computer, the PC Jr., debuts.

Eagle Computer President Dennis Barnhart dies in an automobile accident, the same day the company makes its first public stock offering.

1984

January

Divestiture of AT&T is official. Seven regional Bell operating companies are free to do business. Ma Bell, as we know her, is dead.

Franklin Computer Corp settles a BIOS copyright dispute with Apple by paying $2.5 million. Franklin, which manufactured Apple II clones, is forced into Chapter 11.

Robots debut as prison guards. Denning Mobile Robotics, Inc. announces it will provide mobile robots to Southern Steeke Co. in San Antonio, which in turn will sell the devices to prisons to be used as guard devices. Pioneer robocops do not replace guards but will perform such tasks as patrolling cells at night.

Apple introduces the Macintosh. The computer draws rave reviews for its graphics and ease of use but criticism for its small 9-inch screen and 128K-byte memory limit.

April

AT&T enters computer industry with Unix-based, 32-bit processors called the 3B line, which includes a multisser micro and five superminis.

Wang Laboratories, Inc. introduces its largest processor to date, the VS300, which has three times the internal performance of the former top-of-the-line VS100.

President Reagan gives the U.S. Department of Defense power to review computer exports to 12 non-Communist countries widely suspected of being shipment points to the Eastern Bloc.
IN DEPTH: THE '80s IN REVIEW

- Total number of computer magazines published in U.S. grows to 450.
- $50 million worth of computer equipment will be used at the Summer Olympics in Los Angeles.
- IBM turns out a prototype of its 1M-bit dynamic RAM chip — the first of that size made by an American company.
- Charles Esley Jr. is named chairman of the board at NCR.

MAY

- Cobol's 25th anniversary. Developed in 1959 as a stopgap language, it has become the most widely used programming language in the business world.
- Ashton-Tate Corp. unwraps Dbase III relational DBMS product for microcomputers. Dbase II is the world's most widely installed microcomputer DBMS.

JULY

- The U.S. House of Representatives takes less than 45 minutes to OK a computer crime bill that makes unauthorized access of computers used by the federal government or in interstate or foreign commerce a felony.

AUGUST

- IBM unveils high-end PC AT, built around the Intel 80286 chip.
- The Tandy 1000 PC becomes the No. 1 selling IBM PC compatible in its first year.

SEPTEMBER

- After a year-long legal battle, Visicorp agrees to pay Software Arts $500,000 and relinquish all trade and marketing rights to Visicalc.

OCTOBER

- Statement of direction for IBM's Token-Ring LAN is announced.
- IBM purchases Remm Corp., its first acquisition in 22 years.

DECEMBER

- NCR Corp. celebrates its 100th birthday.

1985

FEBRUARY

- John Akers becomes IBM CEO and president.
- Bankamerica inaugurates $5 billion overhaul of IS under the direction of Max Hopper, the newly named executive vice-president for systems engineering.
- IBM's Sierra, known as the 3090, is presented to the public. Model 200 offers roughly the same performance as the 3084 but takes up 50% less floor space; the Model 400, not expected until 1987, is said to offer about twice the performance of the 3084.
- Aldus Corp. introduces PageMaker for the Macintosh and kicks off the desktop publishing era.

MARCH

- National Advanced Systems announces two mainframes called the AS/400 series to compete with IBM's Sierra series.

APRIL

- Japan's Prime Minister Yasuhiro Nakasone pledges to open his country's domestic markets to foreign imports.
- Lotus acquires Software Arts, Inc., along with the Visicalc package.

MAY

- Apple announces it will stop production of the Lisa. Only 60,000 machines will be sold in two years.
- AT&T names James E. Olson president and chief operating officer.
- William Lowe is named head of Entry Systems Division, replacing the transferred Philip Estridge. Tragically, Estridge dies in an Aug. 2, 1985 plane crash at the Dallas/Fort Worth Airport.

JUNE

- MCI wins $38 million from AT&T in antitrust suit, to be tripled under federal antitrust law to $113 million. MCI Chairman and CEO Bill McGowan is undecided about whether to appeal the award, although he says the amount is insufficient to compensate for damages that MCI has suffered.
- Difficulties for the minicomputer industry begin to crop up. Wang has first quarterly loss in 12 years and lays off 1,600.
- Sperry Corp. and Burroughs announce merger negotiations.
- Lotus announces termination of Visicalc, the first popular electronic spreadsheet.
- DG has first loss in its 16-year history, lays off 1,300.
- Cray Research, Inc. announces the Cray-2, a $17.6 million, Unix-based supercomputer.
- Texas Instruments President and CEO J. Fred Bucy resigns after 32 years and is replaced by Executive Vice-President Jerry R. Junkins.

AUGUST

- Acknowledging that he is never going to become chairman of family-owned Wang, John F. Cunningham leaves the Wang presidency to become chairman of Computer Consoles, Inc.
- AT&T, in the largest consolidation since divestiture, cuts 24,000 workers from the Information Systems Group.
- IBM and Microsoft sign pact to jointly develop future operating systems and systems software products.
- IBM announces it has officially begun volume shipping of its 3090 Model 200 mainframes. The first user is Texaco.
- Displaying the shortsightedness that will haunt many longtime vendors, Wang introduces a non-IBM-compatible PC called the Advanced Professional Computer, built around Intel's 80286 chip.

SEPTEMBER

- AT&T and Sun announce that they will work together on a convergence of Unix System V and University of California's Berkeley 4.2 version, the beginning of a controversial alliance.
June 1986

John R. Opol will turn over the IBM chairmanship to President and CEO John F. Akers on June 1, giving the top three positions at IBM to one man for the first time since Frank Cary held those spots in 1973. Akers will preside over perhaps IBM's most difficult period as a major corporate entity as the huge company must reorganize and cut back heavily because of heavy industry pressure and repeated slumps.

OCTOBER

- Intel announces that it is getting out of the dynamic RAM market because of losses and intense competition from Japan.
- Intel unveils the 80386 chip. Although mass production is not expected until late 1986 or early '87, vendors are expected to begin development of a new generation of computer hardware.
- IBM's Token-Ring debuts.

NOVEMBER

- As the computer industry slump continues, Control Data Corp. reports a third-quarter loss of more than $255.6 million.
- Max Hopper leaves Bankamericard American Airlines, less than 10 months after he was named executive vice-president of the airline's Systems Engineering Group. American Airlines made him an offer impossible to resist, he says. Reports indicate that Hopper's TPF conversion at Bankamerica cost nearly $200 million and fell far short of the bank's expectations. He returns to American Airlines as senior vice-president of information systems.
- Microsoft finally begins shipping Excel for the Mac and says it will be available for MS-DOS machines sometime in 1986.

1986

JANUARY

- IBM unveils its first RISC system — the 22-bit RT workstation.
- After spending approximately 10 years and $1 billion trying to make NET 1000 portable, AT&T pulls the plug on the value-added packet-switched network.
- John Sculley is named chairman of Apple and extends an invitation to Steve Jobs to return to the company someday.

FEBRUARY

- Microsoft files for initial public stock offering. About 24.7 million shares will be outstanding after the offering, giving the company a market value of between $395 million and $470 million. Bill Gates will retain 44.9% ownership, about 11.1 million shares, and will eventually be worth more than $1 billion by age 31.
- Osborne Computer Corp., the pioneer of portable computing that sought protection from creditors in August 1984, defaults on its reorganization plan, and a bankruptcy court orders the firm's capital equipment and inventory to be liquidated.

MARCH

- HP launches its long-awaited RISC offerings, called the Spectrum Series 930 and 950.

APRIL

- Compaq makes the Fortune 500 in its fourth year of existence.

JUNE

- Blumenthal announces that the merger between Burroughs and Sperry is finalized; the new company will be called Unisys Corp.

1987

MAY

- Hewlett-Packard Co.'s co-founder, Vice-Chairman William R. Hewlett (r), retires from the board. Hewlett, 73, founded the minicomputer and scientific instruments firm in 1939 with partner David Packard and has served on the board since HP was incorporated in 1947.
- Interest in IBM's 3090 wanes since June, while the older 3080 processor line grew in popularity during the six months leading up to the restructuring of the 3090 family.

FEBRUARY

* Steve Jobs leaves his beloved Apple after a cataclysmic confrontation with John Sculley, amid charges that he raided the company of five key people with whom he planned to start an educational computer firm. He later will found Next, Inc.

* Jim Manzi, president and CEO of Lotus, takes post of chairman after founder Mitchell Kapor resigns.

* Wang slashes work force; 1,600 jobs are cut, mainly through voluntary layoffs.

AUGUST

- Rear Adm. Grace Murray Hopper, co-developer of Cobol and the woman responsible for standardizing computer languages and procedures throughout the U.S., is forced to retire by the Navy.

SEPTEMBER

- Honeywell cuts 4,000 jobs but denies speculation that the company will be sold.

DECEMBER

- H. Ross Perot agrees to leave the General Motors board and functional leadership of EDS for $750 million but gives GM honchos until Dec. 15 to think it through, just in case they change their minds.
- Computerworld publishes its 1,000th issue.
- Plans are announced for the merger of Honeywell's Information Systems division with Compagnie des Machines Bull and NEC Corp.
IN DEPTH: THE '80s IN REVIEW

MARCH

- Apple introduces its long-awaited Macintosh SE and Macintosh Il.

- Oliver North's shredders miss dozens of electronic mail messages from the National Security Council's IBM Professional Office System. The dispatches, sent on Profs, prove crucial to the president's Tower Commission investigation of the White House scandal over aid to Iran.

- IBM introduces its Systems Application Architecture.

APRIL

- IBM introduces Personal System/2 and discontinues nearly all PC XT and AT models. The company, along with Microsoft, also announces OS/2, to be available next year.

- Lotus celebrates its fifth anniversary by signing a 10-year joint marketing and development agreement with IBM. The agreement will put Lotus spreadsheets on IBM mainframes and lead to a series of future applications jointly developed and marketed by the two companies. Little is ever said again about the agreement.

- The National Computer Conference convenes for the last time. The show peaks in attendance in 1983 with 97,000 and falls to 15,000 in 1987.

- DEC's Rainbow, introduced 5 years ago this month, is killed in favor of DEC's Vaxmate, a more powerful IBM PC AT-compatible system designed with VAX connectivity in mind. The Vaxmate is also a flop.

JUNE

- Charles Wang's CA makes its biggest purchase ever by acquiring systems software rival Uccel Corp. for $800 million.

- A recent survey finds that top information systems students are shunning IS positions. The industry slump, coupled with a list of diverse and unsettling factors, is resulting in declining interest in IS as a career and creating a growing crisis in IS education.

SEPTEMBER

- DEC, riding the crest of a remarkable two-year surge, holds its Decworld exhibition in Boston, drawing 50,000 visitors and the QZ to the DEC-only show. DEC stock is trading near $200 per share, and the company can't hire enough workers to keep up with demand for its products.

- Federal arbitrators grant Fujitsu Ltd. unprecedented access to IBM systems software source code in an extraordinary resolution of the five-year struggle over rights to the IBM code.

- Lotus founder Mitchell Kapor forms a new microcomputer software company that plans to develop what will be a new class of personal productivity applications. The company is called On Technology.

NOVEMBER

- IBM claims to have shipped one million Personal System/2s.

DECEMBER

- An irate member of Congress takes to "Toshiba bashing"—literally standing outside the Capitol with sledgehammers and slamming away at Toshiba radios. Toshiba was found to have violated U.S. trade sanctions by selling advanced technology to the Soviets.

- Compaq reaches $1.2 billion in sales in its fifth year.

1988

JANUARY

- New York Stock Exchange imposes — for one week, at least — restrictions on program trading on any day the Dow Jones industrial average moves 75 or more points.

- AT&T will acquire 20% of Sun stock over the next 3 years and is given a seat on its board.

- Apple and DEC announce a joint agreement to work on developing workstation and connectivity products for Macs and the VAX.

FEBRUARY

- IBM, after two years of dropping profits, initiates a massive reorganization and moves key product design, manufacturing and marketing to 5 independent business units.

- Prime succeeds in CompuServe takeover. Computervision will become the CAD/CAM division of Prime.

- IBM announces MVS/ESA, a high-end mainframe operating system that supports vastly greater amounts of memory than its XA predecessor.

MARCH

- Apple charges HP with violating its copyrighted user interface. The Cupertino, Calif., firm files a law suit that claims that Microsoft's Windows Version 2.03 and HP's New Wave products infringe on its copyrighted interface. Bill Gates responds that the 1985 license agreement invalidates the Apple suit.

- AT&T Chairman and CEO James Olson, who has been on the job for 18 months, takes a leave of absence to remove a malignant tumor.

- The Open Software Foundation is created by IBM, DEC and HP in an angry response to the AT&T-Sun alliance on Unix.

APRIL

- Olson dies of cancer. Robert E. Allen is appointed chairman and CEO by the AT&T board.

JUNE

- One day after the expiration of his noncompete agreement with GM, H. Ross Perot announces the formation of Perot Systems Corp., a private firm that will seek federal government computer services contracts.

- The Open Software Foundation is created by IBM, DEC and HP in an angry response to the AT&T-Sun alliance on Unix.

- In a massive publicity event, IBM unveils the AS/400 (code-named Silverlake), a merger of its System/36 and 38 lines into a unified architecture.
October 1988

Steve Jobs introduces his company, Next, Inc., and its PC, called the Next workstation. The sleek workstation incorporates immense power with leading-edge ease of use and breakthrough optical-disk storage for such a machine. The computer is initially targeted for only the academic community, making many industry observers wonder how Jobs will succeed. A short time later, Jobs signs an agreement with Businessland, Inc. and changes his mind about selling to business.

Sematech consortium picks Austin, Texas, as its home and chooses Robert Noyce to head the effort.

A consortium of PC companies lead by Compaq introduces a counterstandard to IBM’s PS/2.

OCTOBER

Joe Henson resigns as CEO of Prime.

Robert Morris Jr., 23, is arrested at Cornell University for allegedly unleashing a major virus that crippled thousands of computers linked to the Internet network. In only two days, the virus spread through 6,000 computers, widely cloning itself and causing machines to fill their memories to a point at which they could not function.

Honeywell Bull, Inc. announces that it will streamline its U.S. work force by 1,500, or about 16%.

National Advanced Systems is sold in entirety to a joint venture between Hitachi Ltd. and EDS.

Exxon Valdez oil spill. Exxon uses PCs to set up databases for mapping oil spill and tracking loss of animal life.

This month marks the silver anniversary of IBM’s 360 architecture, a revolutionary design that changed the way businesses used computers.

SAA arrives with the announcement of Officevision, an attempt to provide protocols and interfaces to tie together IBM’s corporate systems and make a seamless environment in office automation, according to IBM.

Prime fights a takeover attempt by MAI Basic Four, Inc. Prime Chairman David Dunn challenges MAI Chairman Bennett LeBow to make good his vaunted $20 per share — $970 million — offer by June 2. One day before deadline, MAI amends offer to cover only outstanding shares, about 75% of Prime’s total.

HP announces takeover of Apollo Computer, Inc.

Sun posts its first quarterly loss since going public in 1986 because of botched cutover from HP mini to an IBM-compatible mainframe complex, delaying thousands of orders.

Jack Kuehler, former vice-chairman of IBM, is named president while Akers continues as chairman and CEO.

Venture-capital pioneer J. H. Whitney saves Prime from a hostile takeover attempt by MAI by entering into a friendly takeover deal with the troubled mini maker.

Winds of financial trouble emerge at Wang as An Wang, 69, undergoes cancer surgery.

1989

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JULY

Winds of financial trouble emerge at Wang as An Wang, 69, undergoes cancer surgery.
A couple of weeks ago, the Dal-recognition in Japan of its rights patent. That's hanging out to dry waiting for roactive.
yep, you guessed it —— not ret-ther, because the decision by that it is never going to see, ei-29 years' worth of royalties two years after the IC first saw know for certain that Steve Jobs,hower, Sen. John F. Kennedy the light of day. I don't imagine that President Dwight D. Eisen-

Jumbo AT&T jettisons jobs

BY ELISABETH HORIZIT

NEW YORK — Continuing to implement the corporate streaming strategy it announced approximately a year ago, AT&T recently said that it would be eliminating 8,500 jobs next year, primarily in the long-distance Network Services Division.

The cuts will follow an overall staff reduction that is likely to total 22,000 to 23,000 for this year, according to AT&T spokesman Burke Stinson. At an analysts' meeting here, AT&T spokesmen said that the company planned to make the following cuts:

- 6,000 jobs from its Network Services Group.
- 1,400 jobs from Material Management Services, which takes care of functions such as inventory and warehousing.
- 700 technicians from the Business Communications Systems unit, which sells private branch exchange (PBX) systems.
- 463 technicians from General Business Systems, which handles small-business communications products such as key systems.

The cuts should help AT&T regain some of the competitive cost advantage it has been gradually losing to major competitors MCI Communications Corp., and U.S. Sprint Communications Co., according to Greg Sawers, a telecommunications analyst at Sanford C. Bernstein. The Wall Street investment firm has been recommending AT&T stock and is unlikely to change that recommendation based on the latest announcements, which simply restate what AT&T "has been saying all along, couched in more dramatic terms," he added.

"The lion's share of the Network Service cuts" stem from AT&T's accelerated migration from analog to digital networking equipment, Stinson said. The implementation of more sophisticated digital networking frequently means that "one person at a computer terminal can do the job that several people did in other days," allowing AT&T to effectively use fewer people to manage and operate its long-distance network, he added.

"I'd be a fool to deny that the accelerated pace of our technol-ogy enhancement has been im-


talks good old English, not SQL

BYJEAN S. BOZMAN ONFDP

BERKELEY, Calif. — What if you could sit down at your per-

sonal computer keyboard and ask your relational database for information in your own words? The ability to pose questions in standard English rather than standard SQL is the premise behind 5-year-old Natural Language, Inc. (NLI) and its flagship software offering.

"This product can clearly ad-

dress a huge market of end us-

ers," Chief Executive Officer Tania Amochaev said. "Now that there is a lot of data tucked away in large relational data-

bases, the question is how to get it out. We want to let people communicate with computers the way they communicate with each other."

But NLI, which began selling its interface to end users in 1988, has fewer than 100 sales to its credit. It is living on a $7.3 million second round of financ-

ing raised by Brent-Ard Associates in Los Angeles, Norwest Ven-
ture Capital Management, Inc. in Minneapo-

lis and EG&G Venture Partners of Mountain View, Calif., in March. Initial financing was about $3 million.

A recent management change brought Amochaev, who was an executive at Conserv Corp., a manufacturing software house in Minneapolis, to the firm. Amochaev and her company of 55 staffers intend to sell Natu-

ral Language as a companion product to major relational DBMSs, including those made by Oracle Corp., Ingres Corp., Informix Corp. and Sybase, Inc. Those four RDBMS vendors are actively co-marketing the Natural Language interface with their products, Amochaev said. To broaden Natural Language's ap-

peal, company designers plan to extend the interface to IBM's DB2 relational database sometime in 1990, said Amo-

chaev.

NLI's interface works by translating — and, if necessary, cor-

recting — an English-

language query so that it can be transformed into SQL statements for DBMS access. "Most SQL tools ad-

dress the needs of people who are relatively sophisti-

cated in their computer use," said Marketing Vice-Presi-

dent Paul Ricci. "Our


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Your printers are here
Your typewriters are here
And your secretaries are here

Your company is ready for the IBM Personal Typing System/2.

With the IBM Personal Typing System/2 you can pull it all together. Because the IBM Personal Typing System/2 is actually several machines in one that lets you shift applications at the touch of a key. It's the complete secretarial workstation.

It's an advanced word processor that includes an easy-to-use word processing package—or allows you to run the word processing software of your choice. It's a self-correcting typewriter and superior letter-quality printer. And it's also a PC with either an 8086 or an 80286 microprocessor. It includes up to 4Mb of memory and can accommodate a 20Mb or 30Mb fixed disk drive, depending on the model you choose.

The IBM Personal Typing System/2 can also give you communications capability—to IBM host systems including the AS/400—® to a variety of workstations such as IBM Personal System/2s,® or it can operate over a switched network.

In addition, the Personal Typing Solution Upgrade is available to add Personal Typing System function and flexibility to an installed IBM PS/2.®

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To arrange for a demonstration, call 1 800 IBM-7257 ext. 153, or your IBM Authorized Typewriter Dealer.

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That dominance was forged largely with the integrated circuit. Japan achieved leadership in the semiconduc-
tor market in the early 1980s; they have be-
come a behemoth in the areas of com-
puters, manufacturing systems, robotics, computer electronics and scores of oth-
er industries on the strength of the IC.
Now the world's largest producer of ICs and semiconductors, Japanese businesses
in that market will account for nearly 40%
of the worldwide IC market this year,
according to a Paine Webber re-
port.
All the while, and while using the
benefits of that technology to the hilt, Ja-
pun and Taiwan and won the same
defame in acknowledging that TI, as the in-
ventor of the IC, had a right to share in
the windfall it triggered. Deliberate?
That's hard to say, but an apparently
cess of more than four times the normal
length cannot help but raise a few eye-
brows.
When you have a ball game in your
rival's stadium, you can expect booing and
the occasional cup of beer flung from the
stands, but at least you get to play on the
same field. Not in this instance, howev-
er, and it is hard not to note the irony of
TI's taking a $55 million writedown —
between earnings this year because the
recent drops in random-access memory chip
prices. However, not all is lost; in fact, much
may yet be gained for Texas Instruments.
The cash infusion will OVER the re-
sequence next decade-plus certainly is not going to
help it and may in fact be worse now.
than it would have been a decade ago, when TI was riding high as both a chip
maker and a producer of such electronic
newspapers as calculators and watches.

COMPUTER INDUSTRY

St. John
CONTINUED FROM PAGE 63

anxiously awaiting his fifth in October, could
not have imagined what it would do for
You get the point. The average time
it takes to handle such an application, ac-
cording to industry analysts, is five to
seven years. That is a 22-year delay; in
those 22 years, Japan completed its rise
from the wreckage of World War II and postwar U.S. dominance of the world's
business and political affairs to forge a he-
egemony in business that has lately kept
America unconfused and uncertain of what
to do next.

Taiwanese investors getting Wyse in
international expansion effort
BY JAMES DAILY
One of the longest swim songs in the Sili-
con Valley ended mercifully last week
when US. Technology, Inc. announced
it would be bought by a powerful group of
Taiwanese investors for $156.7 million or
$10 a share.
The long-anticipated buyout of the ail-
ing firm is believed to be the first Tai-
wanese takeover of a publicly traded U.S.
company and represents the increasing
importance to the computer business.
"It's time for Taiwanese businesses to
go international," said Nelson Chang,
chairman of the Channel International
Corp. investor group, at a midday news
conference in San Francisco.
As recently as two years ago, Wyse
was a high-flying success story and
ranked as one of the leading producers of
computer terminals. But when the San
Jose, Calif.-based firm entered the per-
national computer business, it pulled a finan-
cial muscle strain from which it never
recovered. A delayed introduction of a
PC based on the Intel Corp. 80386 chip
cost dramatic price slashing quickly
swapped profits and propelled the firm into
a prolonged dance of death.
In the quarter ended Sept. 29, Wyse
lost $3.6 million on sales of $119 million.
The firm also posted a net loss for the fis-
sal of $452.3 million.

The cash infusion it will receive OVER the re-
novation in the Taiwan industry will also assume $112 mil-
be made until a complete review of the sit-
when they were trying to get a leading-
tion problems spelled nothing but trouble

December 18, 1989

COMPUTERWORLD

DOS, OS, or CICS Fragmentation?
BIM gets it out of your system.

BIM presents a line of proven programs that
maximize your system's capabilities, saving you
time, labor and expense. BIM products help
get the most out of your system

BIM-VIO — DOS/VS/MS Virtual Disk Drive. Moves the Standard Label Area
directly into memory and allows for other heavily used
applications to move into memory as well.

BIM-PACK — Automatically compresses selected VMS File
transparent to applications and end users under DOS.

BIM-WINDOW — Multiple terminal sessions concurrently.

BIM-EDIT/DOS — The most powerful, flexible full screen editor available for
DOS/OS. Available under MS-DOS.

BIM-EVENTS — All of the features of our popular DOS editor
and does not require the overhead of TSO. Can be accessed
directly from VTAM or from CICS or other terminal subsystems.

BIMSPOOL — Prints output in POWER/VSE spooling queue on local or
remote 3736 terminal printers. (3736 Terminal 1 Million Dollar Award 1982.

BIMSPLOIR — Laser printer support for BIMSPPOOL.

BIMSPON — On-Line to Batch Print Spooling. Prints data passed from
CICS application programs into the POWER spooling queue.

BIMSLIP — May be used separately or with BIMSPPOOL to
print parts of an existing job to terminal printers at separate sites.

BIM-DAQ — POWER Dynamic Queueing performance enhancement.
Eliminates 80% of the I/O to heavily used POWER queue.

BIM-PADS — Automatically alters or deletes DOS POWER
spooled job entries on your behalf.

BIM-OIDS — Comprehensive problem analysis and display
of operational CICS system. OIDS/TRAK is an optional historical
reporting feature to be used with BIM-OIDS to generate reports
relating to system usage. DOS and OS.

BIM-BUFF — Significantly increases the performance of VMS
under DOS by dynamically managing VMS buffers.

BIMTEXT — Word processing, document composition system.
Create formatted documents from free-form input. DOS and OS.

BIMSPIM — Spooler for ETAM and/or other terminal subsystems.
Partitions without special hardware or additional ports.

BIMSPRPS — CICS 3670 data compression system. Reduces response time
for remote terminals. DOS and OS.

BIM-FRAPS — CICS BMS on-line map generator
and maintenance. DOS and OS.

BIM-ECHO — Copies one CRT's output to another or
printer for problem determination and demonstration. DOS and OS.

BIM-PRTS — Compresses CRT image output.
Copy to terminal printers or spool queue for system printer. DOS and OS.

BIM-RLE — On-Line display of library directories and entries, VMS Catalog
directories, etc., etc.

BIM-SMPLS — Multiple Remote System Console function
for CICS. Display-only or full interactive, interactive with
SMPERT.

BIMMONTR — DOS/VS System Status, Performance Measurement, and
POWER spooling status.

BIMSUBMT — On-Line Job Submit and Submission facility.

BIM programs are cost-efficient, some less than $500, average $2500. You can save
even more with our group package pricing. Programs are permanent,
annual, or monthly licenses, and shipped on a 30-day free trial basis. Product
information is available on our ongoing permnet, annual,
or monthly licenses, and shipped on a 30-day free trial basis. Product
delivery is also available at our annual, or monthly licenses, and shipped on a 30-day free trial basis. Product
delivery is also available at our annual, or monthly licenses, and shipped on a 30-day free trial basis. Product
WE MADE OUR NAME AS THE SMART CHOICE IN MAINFRAMES AND STORAGE SYSTEMS.
As National Advanced Systems we've been long-known for the best reliability and service in high-performance industry-standard mainframes and storage systems.

But now we've become Hitachi Data Systems, and our parent company is Hitachi Limited, a world leader in the design and manufacture of mainframes and storage systems and one of the largest electronics companies in the world.

In short, we're a worldwide supplier of exceptional systems and impeccable service — one you'll never outgrow.

As a result, the market has suddenly gained a supplier that can provide performance, reliability and service supported by a 79-year-old industry leader with $48 billion in revenues and $3 billion in R&D.

And now finally, you don't have to choose between smart and safe.

Hitachi Data Systems, 750 Central Expressway, P.O. Box 54996, Santa Clara, CA 95054-0996. Tel. (408) 970-1000.
Language CONTINUED FROM PAGE 63

product interprets the English question you ask and applies the query in context of what you've told it about your application.

Its benefits are immediate, Ricci said in a prepared statement: "The Natural Language interface reduces SQL programming, cuts training costs, gives end users immediate access to time-critical information and is easy to integrate with exist-

good at doing," Manferdelli said. "And that task of refining the meaning is something that machines are typically bad at doing."

Industry analysts, however, are concerned that the company — which has not yet gone public — may face stiff competition from a number of interfaces that use icons and mice or graphics to access data. In addition, several companies, including AI Corp., Intelligent Business Systems and Syntanet Corp., have entered the market with character-based interfaces.

At least in the abstract, the market could accommodate the disparate approaches to easier user access, said David Bayer, an analyst at Montgomery Securities in San Francisco: "SQL is not easy to learn, so there is a need for user-friendly interfaces." Mouse-driven methods of selecting data may prove strong competitors for keyboard methods, he said, adding: "The graphical user interface is a very powerful simplifying phenomenon."

NLI software runs on a variety of Unix computers, including those made by Digital Equipment Corp., Hewlett-Packard Co. and Sun Microsystems, Inc., as well as IBM's RT workstations running AIX and Personal System/2s running AIX and Xenix.

The Natural Language interface is priced at $10,000 to $60,000, depending on the hardware platform. However, customers are required to buy a development system copy that ranges in price from $40,000 to $100,000, since the interface must be tuned to the end user's target DBMS applications. The product's underlying language processor is tuned for each RDBMS it supports, making a connection between the user's meaning and the location of the data required.

ACS buys OBS for national reach

DALLAS — Affiliated Computer Systems, Inc. (ACS), the $130 million data services company, acquired San Francisco-based OBS Companies, Inc. (OBS), a $25 million computer services and software organization, ACS said earlier this month.

The acquisition will allow ACS to expand into a national data services company, according to OBS President Jeffery Stein. "We will have data centers in the Midwest and in Southern California by the second quarter of 1990," he said. The centers will handle electronic funds transfer for banks — and support information systems functions and telecommunications for client firms, among other services.

ACS, which manages IS functions for companies like Southland Corp., will now gain access to OBS' 55,000-sq.-ft. data center in Santa Clara, Calif.

OBS will be operated as a wholly owned subsidiary of ACS/Commercial Services, which is another ACS subsidiary.

The OBS organization will continue to be run under the direction of Stein, who originally founded OBS in 1969. JEAN S. BOZMAN

From simple single-user set-ups, to power-hungry applications like DTP and CAD/CAM, on up to the most sophisticated multi-user systems and local area networks.

Wyse systems make for smart solutions. Because all Wyse components are designed for full compatibility and ease of connectivity with each other.
BY JAMES DALY 

AUSTIN, Texas — Apple Computer, Inc. has announced that it will join a pair of major artificial intelligence investigative efforts under way at the Microelectronics and Computer Technology Corp. (MCC) research consortium.

Under terms of the agreement, scientists from Apple will join MCC's Advanced Computing Technology (ACT) program, where they will work with delegates from six other firms in designing computers that process information in a manner that more closely approximates the way humans think, reason and communicate.

With this move, Apple becomes one of the first firms to participate in MCC on a per-project basis. The consortium announced in August that it would unbundle ACT research projects, thus allowing companies to participate in development areas that fit their individual needs. Formerly, full membership in MCC — which can cost more than $3 million — was required to participate in any group.

MCC is a cooperative equipped with ideals that are simple but high: to define and initiate major research efforts in the microelectronics and computer fields. The ACT program allows firms to pare down frequently overbearing research and development costs while reaping the benefits of advanced technology research. Each member pays between $150,000 and $600,000 to participate and is given royalty-free rights to tools created and information garnered in the development process, said MCC spokesman Steve Maysonave.

Apple will also work with Digital Equipment Corp., Bellcore, Control Data Corp., Eastman Kodak Co., Harris Corp. and NCR Corp. on MCC's Large Common Sense Knowledge-Base Construction and Knowledge-Based Natural Language projects.

IN BRIEF —

All hands off DEC

No particular reason to fear, said a spokesperson for Digital Equipment Corp., is too savvy to ignore the outside chance that a hungry, aspiring acquirer may prowl around its battered stock. DEC put a poison pill — a shareholder-rights plan aimed at deterring unsolicited takeover attempts — into place a week ago.

No ifs, ands or puts

As part of its ongoing reorganization, Wang Laboratories, Inc. is in the market for a new finance head to replace Senior Vice-President, Treasurer and Chief Financial Officer Eugene Bullis, who will be leaving in the early days of the new year. Anyone wed to country club living need not apply; Wang last week sold its nine-hole, 120-sce golf club in Groton, Mass., to that town for $3 million.

Does this make him a data general?

Vienna, Va.-based Quantum Computer Services, Inc., a provider of electronic services to personal computer users, recently elected Alexander M. Haig Jr. to its board of directors. Haig, who served in high offices under Presidents Reagan and Nixon, now heads a Washington, D.C.-based corporate consulting firm specializing in marketing and acquisition strategy.

Convex who?

The title has eluded Alliant on its native soil, but Littleton, Mass.-based Alliant Computer Systems Corp. is the front-runner when it comes to minisupercomputer sales in Japan, according to the Japan Electronic Industry Development Association. An early study of the nascent Japanese minisupercomputer market pegged Alliant as holding a 32% share, placing it in the lead with recently merged Star-dent Computer, Inc. taking second and U.S. market leader Convex Computer Corp. placing third.

Datapoint counterpoint

Communications products vendor Datapoint Corp. fingered customer uncertainty surrounding the recent attempt by a shareholder to unseat Chairman Asher Edelman and his board of directors as a major factor behind the $13.1 million net loss reported for the firm's first quarter, ended Oct. 28. In addition to the loss, reported on revenue of $60.2 million, Datapoint announced the hiring of Kidder, Peabody & Co. to help aid in evaluating "a range of strategic alternatives to maximize shareholder value" — including a possible sale of the firm.
Did you know that one of the most valuable enhancements to any disaster recovery plan is automatic and free of charge? It is, if you use AT&T 800 Service.

**Introducing the AT&T 800 Assurance Policy.**

If your 800 calls can't get through, whether it's because of problems with your telephone equipment, your local telephone line or the AT&T Network, AT&T will provide alternate service until regular service can be restored. You'll be up and running within 60 minutes of notifying the AT&T service hotline. Guaranteed.

In one hour or less, AT&T will route 800 calls to another working telephone line either in your office or any other location you request. Or calls can be routed to a customized recorded announcement on in the AT&T Network. Whichever option you select for your business, the AT&T 800 Assurance Policy is automatic, free of charge... and exclusively from AT&T.

In addition to the AT&T 800 Assurance Policy, AT&T continues to provide all basic 800 customers with the fastest call set-up time and the fewest blocked calls of any network. The result? More calls. More often. In short, more business for your business.

AT&T: Offering the most reliable, highest perform
will your hanging?

...the AT&T 800 service in the industry's most competitive prices. And we'll offer something even more: a guarantee to provide the solutions you need when you need them most.

Reliability. Another AT&T advantage.

Call before December 31, 1989 and take advantage of our extended free installation offer for AT&T 800 Services. For details about this offer or the AT&T 800 Assurance Policy, call your AT&T Account Executive or 1-800-222-0400.
TRW has combined its massive homeowner database with direct mail marketing for small businesses. The secret of its success is a 1392 printing system from Kodak.

TRW's Real Estate Market Information group in Colton, California, is offering a new personalized direct mail marketing service for local businesses. Using TRW's powerful new homeowner data and a Kodak Ektaprint 1392 printing system, they're doing things that "just wouldn't have been possible a few years ago," according to marketing services manager Rodger Cosgrove. "We can deliver a product which is professional and cost-effective, yet highly personalized. We can give the local business person more bang for the buck."

TRW combines text and graphics on the system's "WYSIWYG" screen, and prints at up to 92 impressions per minute on the 1392 printer. "It gives blacker text images, better definition and crisper line edges," says Cosgrove, "and in direct mail, that's important." For a complete package of information, call 1 800 255-3434, Ext. 551. In Canada, call 1 800 465-6325.

TRW CREDITS COMPATIBLE PRINTERS BY KODAK

The new vision of Kodak
Cuts spawn internal consulting

Corporate restructurings reinforce the need for flexible IS professionals

BY GARY B. FIEBERT and JANET TWEED

DECEMBER 18, 1989

Cuts have undergone restructuring in recent years, eliminating hundreds and in some cases thousands of middle-management positions. These positions are not motivated solely by cost considerations. The philosophy of participatory management has emerged, prompting companies to cut the distance between top management and workers to bring about more accountability, increase productivity and, ultimately, greater profits.

One upshot of such developments is that some IS professionals are being replaced by a new breed of manager. These new managers are as knowledgeable as their IS counterparts, if not more so, and are assisting in implementing specific objectives — launching a new product or service — and with identifying and mobilizing the resources required to get the job done. When they accomplish the task, they move on to another one.

The result is development of a function called internal consulting. "Our area is staffed with many solo practitioners who can deal with all aspects of a problem in order to accomplish the job," says Vita Cassese, director of Pharmaceutical Systems at Pfizer, Inc. The structures of IS organizations need to be flattened to get things accomplished, she says.

Jim O'Malley, director of MIS for the Port Authority of New York and New Jersey, says IS organizations entail fewer direct reporting lines connecting one position to another. IS people have been freed to move throughout the organization, listen and sell services to the people who can benefit from them.

As corporations have cut IS organizations, they have borne their share of the downsizing; they must also meet more stringent productivity standards.

At the same time, IS units must help trace practitioners who can deal with all aspects of a problem, including graphics, database, statistics, nuclear, VAX/VMS, and FORTRAN. A degree in computer science is preferred with three years of programming experience. SAS, DV-DRAW, GKS, DECNET, or MACRO is desirable. Applications from qualified males, females, and candidates with disabilities are welcome.

THE SEARCH FIRM, INC.
(415) 777-3900 FAX 777-8632

With fewer layers of management, there are fewer promotions and opportunities for higher salary scales have not caught up with less complex work, fewer promotions and slower raises.

Managers who survive a restructurings, acquiring new responsibilities and gaining more direct access to the top can be challenging, even exhilarating, at least in the short run. But the pressures on employees, who must maintain productivity and manage time, are still there. More people are trying to compensate for such developments. With its management consulting firm Coopers & Lybrand. For managers who survive a restructurings, acquiring new responsibilities and gaining more direct access to the top can be challenging, even exhilarating, at least in the short run. But the pressures on employees, who must maintain productivity and manage time, are still there. More people are trying to compensate for such developments. With its management consultants, they can handle a variety of technologies. IS professionals, especially those whose training was focused on technical skills, are not prepared to confront the new demands. Companies are looking for managers who have the breadth to understand marketing, sales and customer service. Other developments reinforce the trend. The integration of personal computers forces IS professionals to work on the new money center bank says there are many more six-figure incomes in technology development than there were in the past.

The strategy to tighten middle management seems to have paid off; judging by the results to date, companies can survive with fewer people managing them. However, some companies restructure without an organizational plan; cuts are made and organizations are not established. Managers should investigate whether these new ad hoc structures are optimal, or even viable, over the longer term.

Fiebert is president and Tweed is chairman of Gilcrest Twed Associates, Inc., a management consulting and executive search firm in New York.

DECEMBER 18, 1989

COMPUTERWORLD
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You choose the newspapers. Depending on who you're looking for, you can select the combination of five newspapers that best suits your needs - Computerworld, InfoWorld, Network World, Digital News, and Federal Computer Week Editions.

You choose the region. If you wish to recruit within a specific area, you can advertise in the regional editions of the newspapers you choose - East, West, or Midwest. Of course, national buys of individual newspapers or various combinations are also available when you need to extend your reach.

You don't pay for readers you don't want. Gone are the days when you have to worry about paying for waste circulation. The Computer Careers Network puts you in touch with qualified computer professionals - and only those qualified computer professionals you need to reach.

To put the new Computer Careers Network to work for you - regionally or nationally - call the sales office nearest you. Or contact John Corrigan, Classified Advertising Director, at 508-879-0700.

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BOSTON: 375 Cochituate Road, Box 9171, Framingham, MA 01701-9171, Nancy Percival, Regional Manager; 508-879-0700; Andrew Rowe, Account Executive, 800-354-6747.

NEW YORK: Paramus Plaza I, 140 Route 17 North, Paramus, NJ 07652; Warren Kolber, Regional Manager, 201-967-1350; Jay Novack, Account Executive 800-354-6747.

WASHINGTON, D.C.: 8304 Professional Hill Drive, Fairfax, VA 22031; Katie Kress, Regional Manager, 703-573-4115; Pauline Smith, Account Executive 800-354-6747.

CHICAGO: 10400 West Higgins Road, Suite 300, Rosemont, IL 60018; Patricia Powers, Regional Manager, 512-827-4453; Ellen Casey, Account Executive 800-354-6747.

LOS ANGELES: 18004 Sky Park Circle, Suite 100, Irvine, CA 92714; Barbara Murphy, Regional Manager, 714-250-0164; Chris Glenn, Account Executive, 800-543-6747.

SAN FRANCISCO: 18008 Sky Park Circle, Suite 145, Irvine, CA 92714; Barbara Murphy, Regional Manager, 714-250-0164; Chris Glenn, Account Executive, 800-543-6747.
You can recruit the right people in the right places with right price!

It's the IDG Communications Computer Careers Network, and it lets you run the most targeted and cost-effective program possible.

Its many options help you recruit qualified computer and communications professionals regionally or nationally - with combinations of up to five leading newspapers. And all together, the Computer Careers Network delivers your message directly to the qualified computer and communications professionals in your area of interest. It lets you run the most targeted and cost-effective program to your specific needs. You can “buy as many as five newspapers with add-on options. That way you can recruit from the combination of computer and communications professionals that's best for you.

Target your ad placement. You can place your advertising exactly where you want. If you wish to reach a specific area, you can advertise in the regional editions of the newspapers you choose - East, West, or Midwest. Or you can extend your reach by running in two regions - or even national. Plus - you still can take advantage of standby rates for individual newspapers.

Reach qualified professionals cost efficiently. Gone are the days when you have to worry about paying for waste circulation. The Computer Careers Network lets you recruit qualified computer and communications professionals through newspapers that will deliver your message to qualified computer and communications professionals - and only those qualified professionals you need to reach.

Weekly, National, Regional, It Works.
Succeeding with Technology. That's the charter of Anatec, a fast-growing international software services and technology company in Birmingham, Michigan. According to President and CEO Al Schornberg, the company's future lies in its ability to provide a full range of advanced technology services — everything from systems integration to software development to consulting through project management — to the MIS departments of Fortune 500 corporations and government organizations.

"Anatec's goal is to offer clients complete solutions with proven yet cost-effective technology. To accomplish this, we rely on our most important asset — our talented staff of experts. And with a growing network of offices and field reps in six U.S. cities, as well as London and Frankfurt, we're always looking to fill specific positions, from systems managers to junior programmers. In fact, we hired 45 consultants the first half of this year alone.

"To find the most qualified candidates, Anatec employs a five-step recruitment process with quality-control checkpoints along the way. So we know our number-one vehicle in terms of results is Computerworld.

"There's never been a time when we've run an ad in Computerworld — and not hired a qualified professional. That's because Computerworld is the most widely read trade publication among systems professionals. In the back of my mind I'm always thinking that 99 percent of the country's systems professionals will see our ad. I can't ask for any better reach than that.

"Results is why Anatec is running a consistent recruitment advertising program in Computerworld. And as we expand, we'll look to increase our frequency to meet our growing need for qualified professionals."

Computerworld. We're helping serious employers and qualified information systems, communications, and PC professionals get together in the computer community. Every week. Just ask Al Schornberg. For all the facts on how Computerworld can put you in touch with qualified personnel, call your local Computerworld Recruitment Advertising Sales Representative today.
Now you can recruit the best qualified computer and communications professionals regionally, nationally and weekly.

How?
With IDG Communications new Computer Careers Network. Choose from the Network's five computer-related publications. With IDG Communications new Computer Careers Network professionals you need to reach -- professionals that read Computerworld, News, and Federal Computer Week.

Then, target your audience by region.

Or blanket the entire nation.

For more information about Computer Careers Network's regional, national and weekly recruiting service call 1-800-343-6474.

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New York, N.Y. 10014

DECEMBER 18, 1989

COMPUTERWORLD
It's easy to place your recruitment ad in Computerworld!

All the information you need is right here. Just call Lisa McGrath at 800-343-6474 (in MA, 508-879-0700). Or, if you want, you can send us the form below via mail or to our FAX machine. You can reach our FAX at ext. 759 or 740 at either of the above numbers.

The following information will help you determine the size ad you'd like to run and when you'd like to run it.

CLOSING DATES: To reserve space, you need to call us by 5PM (all continental U.S. time zones), 6 days prior to the Monday issue date. We need your ad materials (camera-ready mechanical or copy for pub-set ad) by 5PM, 5 days prior to the weekly issue.

AD COPY: We'll typeset your ad at no extra charge. You can give us copy via phone, U.S. mail, or FAX. To typeset an ad for you, we need clean, typewritten copy. Figure about 30 words to the column inch, not including headlines. (There are seven columns on each page.)

LOGOS AND SPECIAL ARTWORK: Any logos or special artwork should be enclosed with your ad copy. For best reproduction, please send us either a stat of your logo or a clean sample on white bond paper.

COLUMN WIDTHS AND MINIMUM DEPTHS: Your ad can be one of seven different widths. There is a minimum depth requirement for each width. You can also run larger ads in half-inch increments. The chart below can serve as a reference.

<table>
<thead>
<tr>
<th>NUMBER OF COLUMNS</th>
<th>WIDTH</th>
<th>MINIMUM DEPTH</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1-1/4&quot;</td>
<td>2&quot;</td>
</tr>
<tr>
<td>2</td>
<td>2-9/16&quot;</td>
<td>2&quot;</td>
</tr>
<tr>
<td>3</td>
<td>4-1/16&quot;</td>
<td>3&quot;</td>
</tr>
<tr>
<td>4</td>
<td>5-9/16&quot;</td>
<td>4&quot;</td>
</tr>
<tr>
<td>5</td>
<td>6-15/16&quot;</td>
<td>5&quot;</td>
</tr>
<tr>
<td>6</td>
<td>8-3/8&quot;</td>
<td>6&quot;</td>
</tr>
<tr>
<td>7</td>
<td>9-3/4&quot;</td>
<td>7&quot;</td>
</tr>
</tbody>
</table>

RATES: Your rate will depend on the size of your ad and whether you choose to run regionally or nationally. The national rate is $14.85 per line or $189.00 per column inch. The minimum ad size is two column inches (1-1/4" wide by 2" deep) and costs $415.80 if run nationally. A sample of this size appears below. You can run larger ads in half-inch increments at $103.95 per half inch. Box numbers are available and cost $25 per insertion ($50 if foreign).

SAMPLE AD SIZES AND PRICES: To assist you in planning your recruitment advertising, the following shows common ad sizes and their respective costs.

<table>
<thead>
<tr>
<th>Ad Size</th>
<th>One Region (East/West)</th>
<th>Two Regions (East/West)</th>
<th>National Edition</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 column x 2&quot;</td>
<td>$502.40</td>
<td>$579.00</td>
<td>$415.80</td>
</tr>
<tr>
<td>2 column x 2&quot;</td>
<td>$764.60</td>
<td>$851.60</td>
<td></td>
</tr>
<tr>
<td>3 column x 3&quot;</td>
<td>$1,360.80</td>
<td>$1,477.00</td>
<td></td>
</tr>
<tr>
<td>4 column x 4&quot;</td>
<td>$2,024.00</td>
<td>$2,158.00</td>
<td></td>
</tr>
<tr>
<td>5 column x 5&quot;</td>
<td>$2,929.00</td>
<td>$3,158.00</td>
<td></td>
</tr>
<tr>
<td>6 column x 6&quot;</td>
<td>$3,944.00</td>
<td>$4,278.00</td>
<td></td>
</tr>
<tr>
<td>7 column x 7&quot;</td>
<td>$5,292.00</td>
<td>$5,615.00</td>
<td></td>
</tr>
</tbody>
</table>

PAYMENT: If you're a first-time advertiser or if you haven't established an account with us, we need your payment in advance (or with your ad) or a purchase order number. Once you have established an account with us, we'll bill you for any ads you run as long as your payment record is good.

“We’ll be running a regular recruitment advertising schedule in Computerworld to get the results we need.”

— Steven Tully
President
Brannon & Tully, Inc.

custom software development company in Norcross, GA, Brannon & Tully, Inc. provides contract programming/consulting services to a diverse client base of Fortune 500 companies, utilities, and communications companies. President Steven Tully knows that building a staff of experienced professionals is key to the company’s ongoing success in developing solutions-based software for specific applications.

“Because our recruitment advertising plays a vital role in finding the seasoned professionals Brannon & Tully needs, we have to expect one thing. Results. That’s why Computerworld is the only trade publication we use for recruitment advertising.

Of the over 50 professionals we hired in the past 18 months, over one-third came from Computerworld’s pool of qualified readers. At our present growth rate, we’re expecting to double our size in the next 18 months. That means we’ll be looking to augment our staff with more and more industry, applications, software, and programming experts to meet the growing demand for greater project diversification.

“With Computerworld, we know our ads get read by a very large audience of seasoned IS professionals. Because these professionals are not industry or hardware specific, we get a larger base of qualified professionals to choose from. We also get national reach. In fact, within the last six months alone, we recruited two candidates who moved all the way from California to the Atlanta area.

“In other words, recruitment advertising in Computerworld draws bigger numbers.

Computerworld. We’re helping serious employers and qualified information systems, communications, and PC professionals get together in the computer community. Every week.

Just ask Steven Tully. For all the facts on how Computerworld can put you in touch with qualified personnel, call your local Computerworld Recruitment Advertising Representative today.

The weekly newspaper of record for computer professionals.

DECEMBER 18, 1989

COMPUTERWORLD
A cost-benefit balancing act

To measure a system's potential, weigh all cost and qualitative concerns

BY MICHAEL ERSCHLOE  SPECIAL TO CW

To get the most out of a cost-benefit analysis for a new information system, you need to balance numerical data on costs with qualitative considerations. The reason is that a system that appears to be inexpensive will not necessarily remain so in the future. If, for example, a computer manufacturer goes out of business or discontinues a platform, you will eventually bear the cost of converting programs and databases.

Calculating the initial cost of a system is relatively simple once you have a framework with which to collect data and make projections. However, it is important to weigh both initial expenses and costs that will come up during the system's life cycle.

There are a number of key cost elements to consider. They include equipment, maintenance, facilities, operating systems, communications, applications, personnel, and conversions. Vendors can provide you with information on prices for equipment, operating systems, maintenance, and software. However, if you have not done business with a particular vendor before, you will want to talk to other customers about the reliability of information you can obtain from it. References to customers provided by vendors can be helpful if the customers are using their systems in settings similar to your environment.

Getting real-life information directly from other users can be difficult if they consider your company a competitor.

You need to look elsewhere for objective data regarding personnel and other areas. Information on comparative operating expenses for computer systems is available from a number of major consulting and specialized publishing firms. The data includes benchmark tests as well as analyses of personnel requirements. Be advised, however, that it can be expensive. You can pay hundreds, if not thousands, of dollars for data reliable enough to use in a thorough cost-benefit analysis.

Finally, your own IS staff can be an excellent source of intelligence. If your people have good networks of peers — perhaps developed through professional organizations or other affiliations — they may be able to get opinions and information about the experiences of other companies for the price of a dinner. A more difficult piece of data to construct is the estimated cost of getting out of your current system. This estimate can be particularly important now with the demise of proprietary operating systems appearing to be close at hand.

Once your numerical data is collected and your cost estimates are constructed, you need to pursue qualitative considerations. Formulating a sound qualitative analysis can be more difficult than collecting and analyzing numbers, given the role of such human factors as organization structure, decision-making processes and politics.

Some of the specific considerations are obvious but very often ignored. These issues include compatibility, networking capabilities and limitations, portability or availability of applications and conformance with the corporate IS structure. One of the most frequently ignored factors is retraining IS staff members and end users on the attributes and functionality of new systems. If an alternative system does not meet your criteria in these areas, you may ultimately find that the cost of keeping it, and of getting rid of it, will increase. For example, one system may appear less expensive than another, but if it requires conversion of applications, it might ultimately cost more.

Enticing friction

You are bound to run into complex political issues in acquiring a system as end-user departments make more of the decisions. Vendors often entice end users with systems that appear to have a low impact on their budgets. This practice can create considerable friction, however, given the end-user department’s goal for reducing costs and showing greater profit and the IS group’s mission to maintain the integrity of systems throughout the firm.

This friction is often aggravated by the immediacy of the end-user department’s needs.

Meanwhile, the ability of the IS group to guide the users can be undermined by a lack of funds to conduct a cost-benefit analysis. If your company lacks a strategic direction for computing, all the players are further handicapped. If you can conduct a well-balanced cost-benefit analysis, your company can save thousands of dollars in both acquiring and disposing of systems. These savings can easily outweigh the cost of conducting the analysis.

Another benefit of the cost-benefit analysis is increasing rationality and structure to the decision-making process. If you are using these techniques for the first time in a politically turbulent setting, be warned that not all of the people you deal with will welcome rationality. I find this particularly true of empire builders and egoists.

ERSCHLOE is executive editor at Computer Economics, Inc. in Carlsbad, Calif.

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The BoCoEx index on used computers

Closing prices report for the week ending December 8, 1989

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<td>Apple IIGS dual floppy</td>
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Pushing down decision-making

Organizational flattening calls for upgrading the skills of IS specialists

BY STEVE DEVAUX and SHIRLEY MILGROM

Last year in the Harvard Business Review, management guru Peter Drucker described a new type of organization emerging in the U.S., one with drastically fewer levels of management and specialists who direct their own work through organized feedback from colleagues, customers and headquarters.

Why is this development unfolding now? Because the new imperative is speed—the speed with which a new product or system can be developed, manufactured and brought to market. Decisions can no longer be escalated through the corporate hierarchy and passed back down for implementation.

What are the implications for training? The most important one is that responsibility will increasingly rest on the shoulders of the frontline specialists who will make important and difficult decisions supported by constant access to an up-to-date "information base." These specialists will need to know how to analyze market data and cost trade-offs, when to resist "creeping elegance" and when to pass on a decision that is beyond their expertise.

The specialist charged with developing one part of a large product is expected to meet quality specifications while staying on budget and on schedule. But what if he sees a way of finishing ahead of schedule by overhauling 1%? Today, he would probably select a prudent course of action by staying with the original plan or passing his suggestion to a superior and waiting for a decision, which may come too late.

Access to market data is not a sufficient solution to this problem. Decision-making specialists must be trained to analyze the data and foresee the possible consequences of decisions throughout the company. They must know they can justify the added expense to senior management and conduct this analysis, justification and reporting quickly.

The development of prototypes is always threatened by the desire to make a product as wonderful as possible. This syndrome of creeping elegance is even more perilous when the product is mass-produced: $10 in a prototype can turn into $100 in manufacturing.

Should a specialist always resist the temptation to improve specifications? Absolutely not. Small improvement could add tremendously to the success of the product. What is the answer? The frontline specialist who first thinks of the enhancement must understand what effect his brainchild is going to have on the final product. He needs to have the data to make an informed decision, know how to interpret it and how to pass information about the changes on to the other parts of the company.

If the specialist is given more authority, he must also know where that authority ends. What if a task goes 10% over budget or falls 10% behind schedule? Is that when management steps in? Or is it when changes in the marketplace require either moving up a deadline or scrapping the whole project?

However it is defined, it is important for management to build an "escalation index" that helps specialists decide whether to act on their own or involve management's involvement in a decision. It must be fixed, known and accessible to both management and specialists.

Once specialists have been empowered to make decisions, what project specifications and schedules, they will need an understanding of project management to play out various scenarios. When an escalation index is established, they need to provide upper management with concise and informative status reports. Moreover, they need to do all of this without losing their status as specialists. Their analysis, decision-making and reporting must be quick and efficient.

These requirements lead to a short but weighty list of subjects the specialist charged with the development of prototypes and assertiveness in making and escalating decisions.

The training investment will not necessarily be cheap, but its rewards can be significant.

Derrivan is a training services manager and Milgrom is a manager of educational services and administration at Project Software Development, Inc. in Cambridge, Mass.
**NEWS**

**STOCK TRADING INDEX**

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**Computer Trading Summary**

**Communications**

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- **Saban**: N
- **New York Telephone Co**: 108
- **Hyatt Corp**: 86
- **Level 3 Communications Group**: 35
- **Scientific Atlantic Inc**: 25
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**Computer Systems**

- **Apple Computer Inc**: 45
- **Compaq Computer Corp**: 108
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- **IBM**: 68
- **Hewlett-Packard Co**: 46
- **Intel Corp**: 53
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**Software & DP Services**

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**Semiconductors**

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- **Siemens & Sylvania**: 3
- **Siemens**: 15
- **Space Technology**: 13
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- **Tandy Corp**: 34

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**Humbug!**

**Apple watchers shaken to core as experts downgrade outlook**

Finding half a worm. That's the only thing worse than finding a worm in your apple, and investors in Apple Computer, Inc. had reason to squirm last week as they found themselves wondering just what they'd bitten into. Analysts, spooked by sluggish sales of Apple's low-end entries (see story page 88), lowered their expectations for the firm twice. Then Apple itself got into the act, announcing that first-quarter earnings would be lower than expected. Apple closed Thursday at 34%, off 6% points.

Analysts also lowered earnings expectations for Compaq Computer Corp, which finished at 78%, down 7% points. Microsoft Corp. was taken off the "buy" list of at least one analyst, and its shares dropped 63/4 points to close at 78. Hewlett-Packard Co. fell 2 points to finish at 44 2/8.

Two firms that appear to have a head start on the Bush administration's easing of technology transfer to Soviet Bloc countries (see story page 88) saw their stock edge upward. Data General Corp. announced plans to market DG systems inside the Soviet Union and closed at 18, up % of a point. Control Data Corp. received a mainframe order from the Soviets worth $32 million, CDC inched up % of a point to close at 18.

JOSEPH J. FATTON
U.S. vendors feel need for relaxing restrictions

BY MITCH BETTS

WASHINGTON, D.C. — The Bush administration is considering a gradual relaxation of U.S. restrictions on exports of computer and networking equipment to Hungary, Poland and other emerging democracies in Eastern Europe, according to U.S. Commerce Secretary Robert A. Mosbacher.

But the Commerce Department proposal, which must be approved by the State Department and the Pentagon, would not apply to the Soviet Union any time soon. "We have a lot of steps with the Soviets before we get to that point," Mosbacher said in a television interview.

Under existing regulations, the U.S. allows the export of desktop microcomputers with processing power equivalent to an IBM Personal Computer AT for all destinations, including the Soviet Bloc. That decontrolled action, announced six months ago, covered desktop micros using the Intel Corp. 80286 chip and Commerce Secretary Robert A. Mosbacher.

The Soviet Institute of Power Engineering’s Adamo (left) and CDC’s Ousley

The contract, Ousley said, "calls for end-user safeguards and governement-to-government assurances that the computers will be dedicated exclusively to safety analysis of civilian nuclear reactors." According to a spokesman, CDC is optimistic its export license will be approved by next spring.

Meanwhile, Data General Corp. Chairman Edson de Castro was in Moscow last week to celebrate the signing of a joint venture with Austria-based industrial automation and contracting firm Voest Alpine Industrieanlagenbau GmbH and NPO Parma, a Soviet state-owned development firm. The partners have established Perekat, to be based in the Soviet city of Perm, to market industrial automation systems on DG platforms inside the Soviet Union. The joint venture talks among DG and Voest Alpine, which has done business in the Soviet Union since 1949, began two years ago.

"Becoming the first major American computer company to enter into a joint venture with a Soviet company fits well with Data General’s tradition," de Castro said, adding that the joint venture was his firm’s first European office in 1970 and last year made 50% of its sales overseas.

In October, after receiving U.S. government approvals, DG shipped one of its low-end minicomputers, the MV-2000, to the Soviet software firm and is now helping it port its applications for Soviet-made computers to the DG platform.

DG recently requested approval from the Pentagon to adapt its new microprocessor, the MV7800, and expects this export license to be approved early next year, a company spokesman said.

Earlier this month, U.S. West International said it planned a $500 million optical-fiber link among Japan, the Soviet Union and Europe.

Work on the fiber line, which is expected to begin in the first half of 1990 and take three to five years, calls for traversing the Soviet Union, creating the longest fiber-optic line in the world and completing the global fiber network, U.S. West said. Participants in the project include U.S. West, the Soviet Ministry of Posts and Telecommunications in Moscow and national telecommunications firms in Japan, Italy, the UK, Australia, West Germany and Denmark and West Germany.

Large-scale computer exports to the Soviet Union were not uncommon in the 1970s. However, shipments ended after the Soviet invasion of Afghanistan in 1979. In May, however, the East Granby, Conn.-based US West Communications Corp. said it needed to a "case-by-case" policy following the Soviet withdrawal from Afghanistan.

First in the USSR

Dwarfed in size by the U.S.-based technology giants rushing to stake an early claim to doing business with the Soviet Union, Innovation International, Inc. — a Boston-based computer company with current sales in the $4 million ballpark — could be the first to put the VAR in "Tovarich."

According to Innovation Chairman Frank G. Wright, his company is the first — and thus far the only — to receive clearance from the U.S. Department of Defense to export computer parts for final assembly in the Soviet Union.

The joint venture between Innovation — which scouts deals and alliances worldwide while its wholly owned Cleveland, Wis.-based subsidiary manufactures microcomputers and personal computer peripherals — and the Soviet Ministry for the Radio Industry (Radiocom) has not come easily, Wright said.

Traditionally, he said, the Pentagon has been willing to approve export licenses for technology headed to Soviet Bloc countries only for fully assembled computer parts. However, the agency has been lobbied by many companies and lobbyists since 1979, in part because of the U.S.-Soviet trade relations in the wake of the recent Bush-Gorbachev Malta summit.

The Innovation/Radioexport deal still has to be cleared by the Department of Commerce: But Wright voiced confidence that the clearance would be forthcoming. The venture, he said, could yield up to $1 million worth of IBM-compatible PCs and more than $1 billion for his firm over the next several years.

NELL MARGOLIS

U.S. vendors feel need for relaxing restrictions

BY MITCH BETTS

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**Wang shapes self in CICS image**

**BY MARYFRAN JOHNSON CW STAFF**

LOWELL, Mass. — Wang Laboratories, Inc. stepped forward last week with its own document imaging system for IBM mainframes, promising a less costly, more flexible system than the computer giant's own imaging products.

Wang's Open/Image-CICS is a set of software tools that integrate document imaging functions with IBM's CICS data processing applications. The $4,000 software package will be available in February.

Wang officials acknowledged that customers who lack the necessary Wang hardware would have to spend at least $200,000 to get the imaging system up and running.

However, installation of IBM's Image/Plus software for mainframe or departmental systems is as low as $200,000 to $15 million, including the host system.

"In the IBM world, it's an expensive alternative to put all that software in a mainframe environment," said Mike Howard, an analyst at FirstGroup, Inc., a market research firm in Stamford, Conn.

Also, IBM's Image/Plus products are not generally available, said Scott McCready, an analyst at International Data Corp. in Lexington, Mass. He said fewer than two dozen customer sites are now using Image/Plus, which puts Wang in the stronger position of reaching the market first with products more oriented to office needs.

The imaging software provides an application programming interface that allows programmers to integrate functions such as scanning, displaying, printing and sending images with IBM mainframe applications.

An auto insurance company, for example, could use Open/Image-CICS to give users concurrent access to a mainframe-based corporate database or to support and base imaging documents such as letters, accident forms and police reports.

The software resides on the mainframe, which controls the imaging service itself. A Wang MVS/mainframe computer acts as the image server, a kind of connecting link between the mainframe and the personal computer or workstation.

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<td>Better document control</td>
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<td>Reduced use of paper</td>
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Medium-size companies and individual departments in large corporations are likely places for Wang to secure a foothold in imaging. McCready said, "The real battle for Wang will be against IBM's Image/Plus for the Application System/400 midrange machine, McCready said. "I think Image/Plus can be competitive on price, but it is software and third-party support that will be most important."

There are at least 800 businesses nationwide with both IBM mainframes and Wang mainframes installed, according to Wang's Open/Image-CICS literature.

**Xerox suit aims to put Apple claims in trash can**

**BY RICHARD PASTORE CW STAFF**

Apple Computer, Inc., which has been waging a lengthy copyright frontal assault last week suffered a flank attack. Xerox Corp. filed a copyright misappropriation suit against Apple that observers said could knock the wind out of Apple's own copyright claims against Microsoft Corp. and Hewlett-Packard Co.

In a U.S. District Court filing, Xerox charged Apple with uncopyrighted graphical user interface software.

The company is seeking $1.50 million in damages and invalidation of Apple copyrights.

The suit claims that Apple's Lisa and Macintosh computer software systems, introduced in 1983 and 1984 respectively, incorporate "substantial portions of Star," an interface developed in 1981 by the Xerox Palo Alto Research Center. The suit states that "Apple was never licensed to use the Star program or look and feel." (See story page 1)

Apple denied the charge and intends to fight it in court.

The first case involved a copyright claim by Lotus Development Corp. that its Star interface software was incorporated in Apple's Lisa and Macintosh computer software systems.

That is an appropriate contention for Apple to make," Goldberg said. "This is a common question in a copyright controversy — the uncopyrightable idea vs. the copyrightable expression." Apple's suit has yet to be settled in court.

The fact that Xerox waited seven years to challenge copyright protection on its Star interface software casts doubt on the success of the claim, observers agreed.

But a Xerox spokesman said the company can now "stay ahead of other vendors in providing its imaging customers with facsimile, industry-standard electronic mail and optical character reading capabilities. Those additional services, all sold separately, can be integrated into the imaging system from the VS server. They are not currently available for IBM's imaging system.

An IBM spokeswoman said she had not seen the Wang press release on Open/Image-CICS and could not comment on the product claims.

CICS is a widely used, general-purpose mainframe tool for system providing terminal communications, data management and task control for on-line applications in the IBM environment.

**Sting FROM PAGE 1**

NCR since 1985, allegedly stole NCR document-imaging systems as well as underlying technological specifications and accompanying marketing plans, from NCR's headquarters in Dayton, Ohio. Latchoo had lasted two weeks pending further investigations, according to NCR.

Latchoo asked for a $200,000 payment for the information, according to an FBI agent who testified before U.S. Magistrate William F. Hall Jr. in Philadelphia.

The arrest came only days after Latchoo issued a statement of direction about its imaging strategy (see story page 31). The FBI said that NCR claimed it stood to lose around $100 million had Latchoo's information fallen into Unisys' hands.

In a statement, Unisys said Latchoo contacted one of its employees and represented himself as a market researcher with information about a competitor's imaging systems. According to Unisys and the FBI, the Unisys employee suspected this was proprietary information regarding NCR's products and immediately told his manager, who in turn alerted the U.S. Attorney's office in Philadelphia.

An FBI affidavit identified the Unisys employee as Barry N. Latchoo, director of Unisys' document-imaging systems and stated that Latchoo made the initial contact on Oct. 16. Prior to the arrest, Latchoo andJurie had several more phone conversations and arranged the Monday meeting at Unisys' corporate offices in Blue Bell. The meeting was videotaped by the FBI.

If convicted, Latchoo faces a maximum 10-year jail sentence and a $10,000 fine. At a hearing in Philadelphia last Thursday, Latchoo was released after relatives paid 10% of a $100,000 bail.

A Canadian citizen, Latchoo will be limited to travel in New Jersey and Pennsylvania until a federal grand jury can hear the case within the next 30 days, the FBI said.

A second count, wire fraud, was added to the interstate transportation of stolen property charges against Latchoo, the FBI said.

Latchoo's attorney said that his client intends to plead innocent.

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**TRENDS**

### Data General

**Cost of ownership**

Figures represent the cost of ownership over a five-year period.

<table>
<thead>
<tr>
<th>Cost per user</th>
<th>Percent of system cost</th>
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<tbody>
<tr>
<td><strong>4 users, MV/1000DC</strong></td>
<td><strong>4 users, MV/1000DC</strong></td>
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<td>$22,122</td>
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<td>$20,712</td>
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<td><strong>32 users, MV/2500DC</strong></td>
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**Significant price cuts from Data General in 1989 have made cost-per-user figures more attractive.**

**Source:** The Media Link Inc.

### INSIDE LINES

**Sears a VAX reseller?**

DEC's VAX may be the flagship line of systems on which to run the All-In-1 office software package, but for VAX Applications, Inc. in Solon, Ohio, VAX is the "All-In-One Crew," and it's available at Blue Branders. VAX the vac was introduced in Europe in 1977, the same year DEC unveiled its VAX computers.

"It's just not conceivable for a consumer to mistake a VAX vacuum cleaner for a VAX computer," said Betsy Umstead, marketing manager at VAX Applications. Yeah, but can DEC's version suck out a clogged sink drain?

**Is there a hole in this theory?**

The Royal Bank of Canada was recently informed by IBM that the bank's latest 3380 K disk drive glitches stemmed from the drive's inner bearing, not the outer bearing that had been the focus of past industrywide woes. IBM recommended warming up the area around the drive — the inner bearing apparently doesn't function very well with too much cool air — by removing additional floor tiles near the equipment to let in more warm air. The additional tiles had been put near drives in the first place at IBM's recommendation to keep the warmer air away from the drive.

**Full disclosure**

Officials at Security Pacific, a major bank holding company, apparently weren't thrilled when Jerry Appleby, the outspoken vice-president of telecommunications services at Security Pacific Automation Co., testified before the U.S. House Subcommittee on Telecommunications and Finance earlier this year as spokesman for the user group Tele-Communications Association. The execs worried that "if I messed up, I might tick off a key congressman for them on a finance issue" that could be worth billions of dollars, Appleby commented in a speech last week.

**Moderately parallel**

High-performance workstation vendor Alliant Computer Systems Corp. will supposedly launch a moderately parallel 32-CPU system based on the Intel 1860 chip later this month.

**A switch in time saves...**

Merrill Lynch is about to unload its two 5 ESS telecommunications switches. DuWayne Peterson, the company's executive vice-president of operations/systems and telecommunications, refused to comment on the buyer, but he said that the switches were not being used anywhere near capacity. The huge AT&T office switches were on the hit list even before the firm opted to use MCI as its carrier.

**If it's out there, it's in here...**

Companies that need the aid of a consultant to help them implement electronic data interchange (EDI) may think twice before letting their fingers do the walking through the "consulting" listings in the Yellow Pages. An attendee at an EDI conference recently said his Fortune 500 company is offering assistance to its trading partners, but, he said, "We wind up training their consultants!"

**Long-distance handshake**

Modem Controls is said to be set to introduce an MHS version of its Personal Electronic-mail System next month for Novell local-area networks that will reportedly enable communications over wide-area networks.

IBM's problems have some people within the industry speculating that John Akers' five years at the helm will come to an end in late 1990. One former Blue says the climax will come if IBM's "targeted attrition" starts going after programmers; he noted that IBM is already closing down satellite labs in Silicon Valley and pulling them back into Santa Teresa, which surely won't sit well with the more creative types who chafe under centralized direction. We'll be back in our next issue on this and counting on you to watch for the white smoke to rise over Armonk. Call in sightings to News Editor Pete Bartolik at 800-343-6474.
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