

APPLIED INTELLIGENCE

IS Must Move to Powerful Development Techniques



JAMES MARTIN

One of the most urgent needs in the computer field today is the requirement to retrofit information systems (IS). Organizations can no longer wait months to respond to a competitive threat. They must react rapidly to

competitive challenges through increased integration and computerization. In most organizations, IS is still using manually oriented techniques to develop new applications and maintain existing code. With these inefficient techniques, maintenance and enhancement of code may consume up to 80 percent of the resources of an IS department. This cripples the ability of IS to respond to new challenges.

Manually oriented techniques must be replaced by powerful development and maintenance techniques.

These new techniques are based on dramatic improvements in both hardware and software, including the increasing power of PCs and workstations, the rapid growth of end-user computing, the development of integrated CASE (I-CASE) tools capable of generating 100 percent of the code for an application on the desktop; the introduction of new prototyping methodologies such as rapid application development (RAD); and the use of integrated computing architectures such as IBM's Systems Application Architecture (SAA) and Digital's Network Application Support (NAS).

Within a year, leading I-CASE tools will support desktop generation of

code for entire applications in COBOL and C for a variety of target environments. They will be compliant with standards for a graphical user interface and will be nearing compliance with an industry-standard repository. Support will be provided for simultaneous access to specifications by multiple analysts on

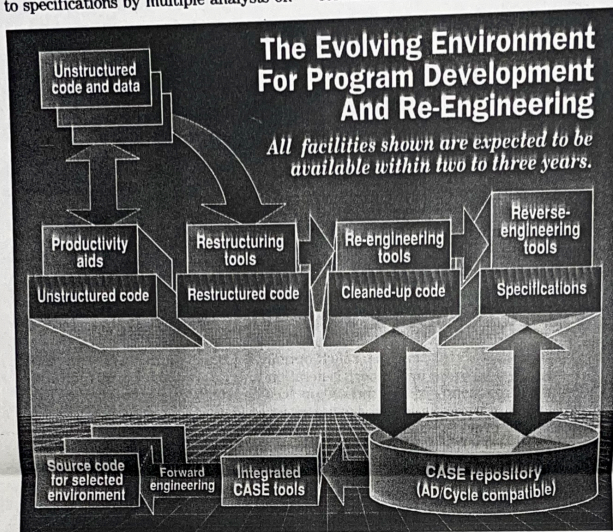
The next step for I-CASE tools is full compliance with industry-standard repositories of design information and with the services provided by integrated computing architectures such as SAA and NAS. Within two years, leading I-CASE tools will be capable of automatic construction of cooperative-processing

Major changes will also occur in the program-maintenance environment. These changes will include the progressive integration of productivity aids, restructuring facilities, re-engineering tools and reverse-engineering systems.

The specific mechanism for integrating these tools is compliance with a common repository, such as AD/Cycle. Once the tools are integrated, it will be possible to use structuring tools to convert unstructured, existing code into equivalent fully structured code; re-engineering tools to analyze the program's data definitions, and structure and populate a repository with design information; and reverse-engineering tools to extract specifications for both data and processes that are independent of the target environment.

Reverse engineering is likely to remain an interactive, user-assisted process. Specifications extracted by the reverse-engineering process are entered into the design repository, where they may be used for design enhancement and reimplementation of the application.

Many of the facilities discussed are available, and all will be available within the next two to three years. An important challenge for management is to use the major improvements in applications-development technology to retrofit IS. Information systems must become a strategic asset of the organization, not a bottleneck.



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a LAN, as well as consolidation of specifications on a high-speed file server.

In addition, I-CASE tools will support the development of real-time applications and applications targeted at the Unix environment. Increased support will be provided for project management functions, configuration control and requirements traceability.

and client/server applications that are fully compliant with SAA and NAS.

As I-CASE tools mature, they will provide a wealth of additional functions, including embedded methodology aids, just-in-time training aids, expert-system support and a powerful icon-driven interface that may replace the use of conventional structured diagrams.

BankAmerica \ OS/2 Development with COBOL

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"We wanted to put the processing out on workstations partly to off-load the mainframe CPU, partly to give very good response time and partly because we needed to hook a currency counter to the PC," Bunday said.

Unlike DOS, OS/2 will allow bank transactions to be conducted while database updates are performed in the background, he noted.

The Automated Cash Vault System, which taps IBM's Extended Edition Database Manager as a database server, is used to count and inventory the torrents of cash flowing in from BankAmerica's largest corporate customers. Tellers run stacks of bills through cash-counting machines attached to PCs, which input the resulting dollar count into an OS/2 Database Manager database.

Previously, this recording process was done by hand, making it difficult to pinpoint the source of errors. "We wanted to

improve throughput and improve tracking so we could locate problems quickly," Bunday said.

The pilot system, which runs on 10 workstations connected to an IBM PS/2 Model 80 server, employs a fault-tolerant data-storage system that distributes data over multiple hard disks.

By 1992, the company plans to deploy the system to 900 workstations dispersed across 22 LANs—one located in each of the bank's California vaults. Once the application is fully implemented, the data will automatically be posted to a centrally located mainframe that houses critical information about customer accounts.

Out of the Mainstream

Instead of opting for the mainstream OS/2 Presentation Manager (PM) interface, BankAmerica chose to build a text-mode interface using Micro Focus' Dialog System. This tool lets developers create boxes, windows and menus through a screen-description language and a screen

painter.

"We were looking for a product to build screens and panels without too much of a learning curve, and we didn't have much experience in PM two years ago [when the project began]," Bunday said. "In Dialog System, you can design a very complex panel in a few minutes."

Also, the screens created during the prototyping phase can be used in the final application, he said.

Although most of the application has been coded in COBOL, the bank was forced to write C programs to handle access to OS/2's Communications Manager and Database Manager, since IBM does not provide COBOL application programming interfaces in this area, Bunday said.

IBM confirmed that COBOL support is limited in OS/2.

"COBOL is not a multitasking system, and C is," said IBM spokeswoman Tracy O'Neill in White Plains, N.Y. "For that reason, there's more support for C than COBOL in OS/2." ■

Alliance \ Alcatel, ExperTelligence Combine Forces

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The earlier Macintosh version was limited because it followed the Mac interface guidelines very strictly, he said.

Spoke is written in C and generates both C and C++ code, said Bernard Vargel, president of Alcatel ISR of Paris. It supports the object-oriented concept of dynamic object classes, which can be created on the fly at any point in program development.

As part of the agreement between the companies, Alcatel will market both Action! and Spoke in Europe, while ExperTelligence gains the right to market Spoke, as well as its Action! program, in the United States. Spoke costs \$10,000 per copy. Action! costs \$3,000 per copy.

ExperTelligence can be contacted at (805) 967-1797. ■