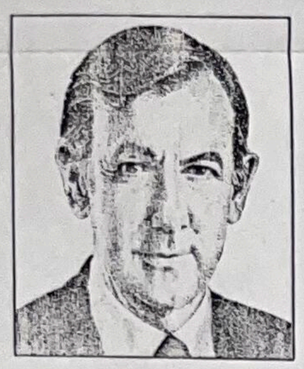
APPLIED INTELLIGENCE

IBM Repository Will Be Critical to Development in the '90s



JAMES MARTIN

This is the first of a series of articles on the recently announced IBM Repository, a pivotal component of IBM's applications-development strategy for the '90s.

Last week, IBM announced its long-awaited commitment to a standard repository of design information for applications development. The Repository is an integral component of IBM's applications-development framework for the 1990s, called Application Development (AD)/Cycle.

This framework will provide a standard applications-development environment that complies with IBM's Systems Application Architecture (SAA). The Repository incorporated within AD/Cycle will eventually have a major effect on computer-aided software engineering (CASE) vendors, software vendors and information-systems organizations. It will also have a critical impact on applications development in the 1990s. Unfortunately, the IBM Repository is far from complete.

AD/Cycle supports a common set of user-interaction services, programming languages, database services and communication services defined by SAA. Both the AD/Cycle tools and the applications developed with the tools will conform to SAA. Within SAA, applications development is supported through direct interaction with the services provided by the Common Programming Interface (CPI) or through the higher-level AD/Cycle development environment.

As shown in the figure, the AD/Cycle environment consists of the following components:

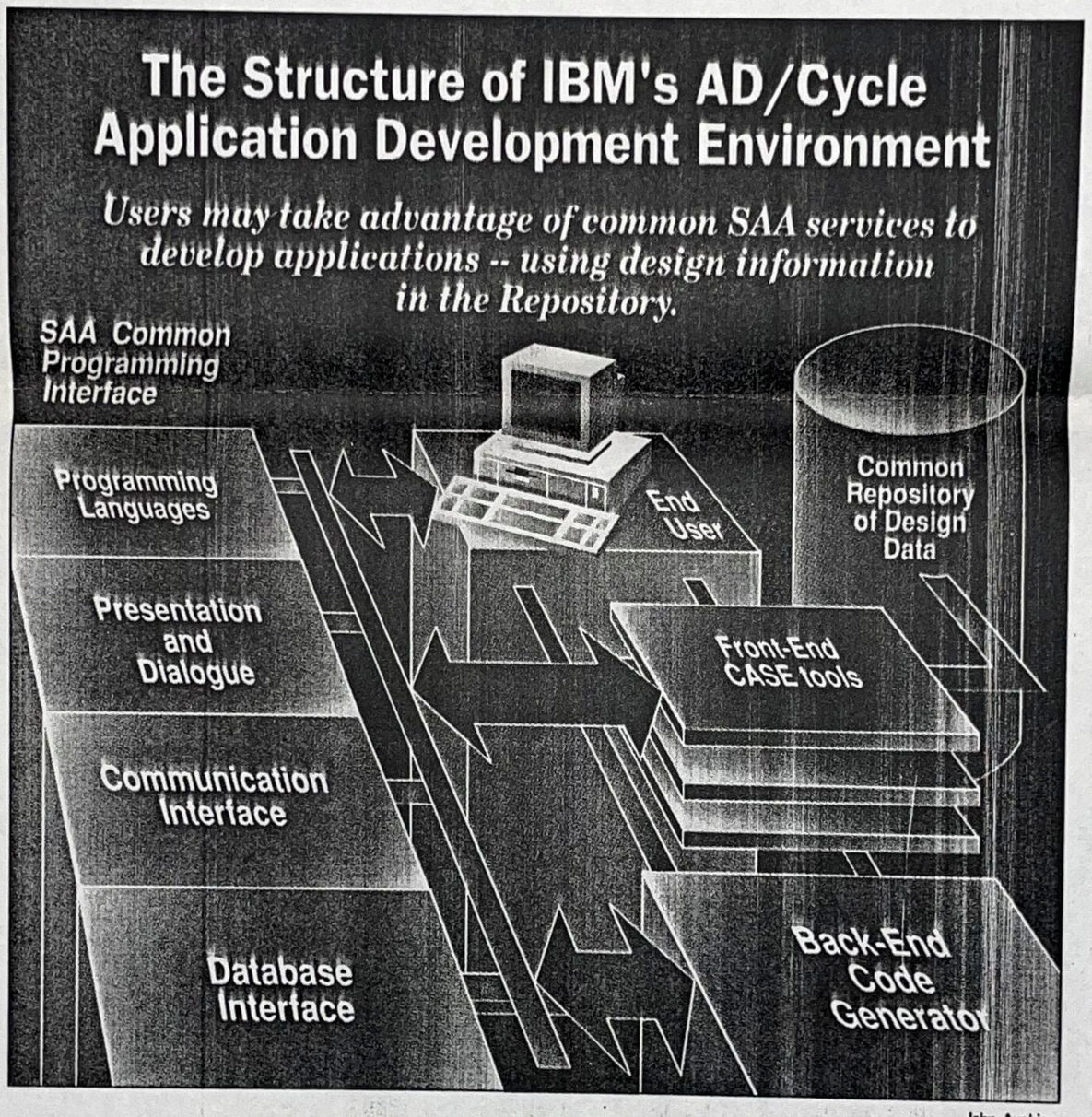
- A user interface that complies with the standards defined by the Common User Access (CUA) component of SAA. All software products that conform to CUA standards will have a common "look and feel."
- Applications-development tools, such as CASE products, that are typically supplied by third-party vendors.

AD/Cycle provides an open framework that enables tools from multiple vendors to be used within a common applications-development environment.

- A common repository used to store design specifications in a standard format. Tools that obey this standard format can share design information.
- An applications generator that extracts design specifications from the Repository and automatically generates application code. IBM's applications generator for SAA is the Cross System Product (CSP), which is integrated with AD/Cycle.
- CPI services defined by SAA. These include presentation and dialogue services, programming-language services, database-access services via a common SQL interface, communications services and other types of support services.

Users are demanding products that support an open software environment. Corporations want the ability to mix and match compatible software products from different vendors. For example, some users might want to select a variety of front-end CASE tools, code generators, documentation generators and project-management facilities, all of which are fully integrated with a common repository of design information. The user might want to operate within a software environment in which compatible tools from different vendors can be plugged into a standard applications-development environment.

AD/Cycle is designed to support an open software-development environment in which the best ideas and products from multiple vendors can be incorporated within a common framework. However, surveys of installations that are currently achieving very high speeds of applications development indicate that the best results are obtained from highly integrated families of products that include front-end CASE workstations, an integral code generator and a methodology optimized for high-speed development. A high degree of integration among products may be more important than the ability to select multiple non-integrated products within an open software environment.



John Avakian

IBM has designed AD/Cycle to support an open software-development environment where the best ideas and products from multiple vendors can be put into a common framework.

In the push to develop applications, a repository of design information is pivotally important. Such a repository is used to store information about the enterprise, data models, process models, reusable code and reusable designs.

The CASE repository is an integral part of the CASE environment. It is used to store design specifications, which are then used to drive the code-generation process.

Reuse of data models and process models from different tools will work only if the design information in the repository conforms to an industry standard.

A similar situation arises in communications networking, in which all communicating devices must obey a common set of connection standards. In the world of networking, there are formal standards set by organizations such as the International Standards Organization, as well as de facto proprietary standards such as IBM's Systems Network Architecture and Digital Equipment Corp.'s DECnet.

In the world of the repository, standards committees have not yet created or seriously addressed the types of facilities that are implemented in the encyclopedias of high-end CASE tools. The ANSI Information Resource Dictionary System standard covers only a fraction of the information that is specified by existing high-end CASE tools.

The CASE repository is really the heart of CASE.

It is IBM's view that if the AD/Cycle Repository can be created and made a de facto standard, then many different vendors can offer ingenious products that use the common repository.

Agreeing on the Design

An important problem arises, however, because there are currently more than 200 CASE vendors, each with a different way of representing the diagrams used in the modeling and design of systems. Is it feasible for all vendors to agree on one meta-data model for design information?

IBM is encouraging vendors to agree on a common meta-data model for the information stored in the Repository.

A common model would allow design specifications to be shared among multiple products.

IBM has announced its version of the meta-data model in the form of the common repository. To comply with this model, vendors must modify their repositories to use the definitions embodied in the IBM Repository.

Currently, CASE vendors are creating entity-relationship diagrams and other diagram types that are incompatible. If this trend continues, it may cause major damage to the computer industry.

The burden is on vendors to recognize the strategic importance of complying with a repository standard, even if it means changing the way they represent information.

By conforming to a common design repository, vendors will have access to better technology such as object-oriented and relational techniques, as well as the ability to share design information with a growing number of compliant products.

Next week, I will discuss vendor compliance with the Repository standards defined by AD/Cycle. ■

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