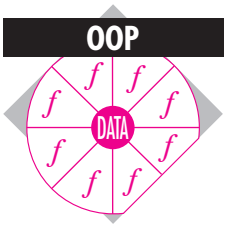

Taligent Update

By Richard Hoffman

This article updates information in the August and November 1993 issues of AIXpert.

In March 1992, Apple and IBM created Taligent, a company dedicated to developing a comprehensive object-oriented operating system. Since then, much has changed. Priorities have been revised, a new partner invested, and IBM began work on its first offerings based on the new technology.

Operating Systems, Layers, and Components

Taligent's original goal was to deliver a new operating system in the mid-1990s. This system was to be object-oriented at all levels, "right down to the interrupts." The architects originally believed that the dramatic improvements they were seeking—reducing development cycles by a factor of 10 or more and creating a plug-and-play interface at all levels—could be obtained only in a system designed from the start with objects in mind.

But, at IBM, programmers were convinced that it would be possible to create a "mapping layer" between existing operating systems and new components (as shown in Figure 1). This layer would allow Taligent technology to appear on AIX, OS/2, and other platforms. Developers could take advantage of most of Taligent's frameworks without committing to a new operating system. The layered approach also enables users to run Taligent applications along with applications they run on today's operating systems.

Thus, Taligent acquired a new goal: to produce an application environment that would offer the same benefits as the originally envisioned system but which would run on existing systems.

Since existing operating systems have their own procedures, the layered approach does not meet Taligent's goal of a system that is extensible at all levels. Therefore, Taligent intends to provide a native operating system based on its technology and the IBM microkernel, shown in Figure 2. For now, the priority is to develop layers that allow Taligent investors to quickly integrate the technology into their own product lines. Taligent may also decide to release some components as separate products.

Taligent has already delivered the initial toolkit of its application frameworks to investors and to a small group of independent software vendors and corporate developers. The Taligent product suite is still on track for commercial release in the mid-1990s.

Meanwhile, IBM has already released early code for its version of the Taligent frameworks on OS/2 to selected customers and vendors. Full-scale beta programs for Taligent frameworks are planned later this year on both OS/2 and AIX.

A New Investor

In January 1994, Hewlett-Packard® (HP) agreed to purchase a 15% stake in Taligent, with Apple and IBM each owning 42.5%.

HP will license and use Taligent's object-oriented products and technologies on its HP/UX operating system. Taligent will license key open systems technologies from HP. HP also received a seat on Taligent's board of directors and gained the same early access to Taligent's products and technology already enjoyed by IBM and Apple.

"We're making this investment because integrating Taligent's comprehensive object-oriented frameworks with HP's products and technology will strengthen our leadership in distributed-object computing," said Gary Eichhorn, general manager of HP's Workstation Systems Group.

From the beginning, Taligent's charter was to enlist additional investors and licensees of its products and technology. "IBM and Apple formed Taligent in 1992 with the goal of making it the *de*

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facto industry standard in object-oriented technology," said James A. Cannavino, IBM senior vice president, Strategy and Development. "This announcement adds support from another very important industry computing platform and clearly positions Taligent as a leader in object technology."

Commitment to Standards

Along with the HP announcement, Taligent announced plans to use industry-standard processes to make its programming interface broadly available and to develop products that comply with key industry standards for interoperability and distributed computing.

To ensure the broad acceptance of the Taligent application frameworks, Taligent will submit its interface specification to X/Open for adoption through X/Open's Fast Track process. After the Application Programming Interfaces (APIs) are adopted, X/Open will establish a testing-based certification program to make the APIs available to third parties.

Once adopted, X/Open will publish the approved Taligent APIs, distribute conformance tests, and provide certification and branding of conforming implementations. Through its Open Systems Requirements Process, X/Open will provide a forum for customer requirements and manage the consistency and compatibility of extensions to the interface specification.

Taligent also announced its support of the Object Management Group's Common Object Request Broker Architecture (CORBA) distributed computing standard. Taligent is licensing HP's CORBA implementation, called HP Distributed Object Management Facility (DOMF), and its underlying Distributed Computing Environment (DCE) technology. DOMF and DCE/9000 are HP's technologies designed to allow users to share information and resources across a network. Incorporating these technologies into Taligent's products will allow developers to write distributed computing applications and take advantage of CORBA services on any compliant system.

Taligent intends to take advantage of the agreement between HP and IBM to integrate the HP DOMF with IBM's System Object Model (SOM) and its extensions for distribution. These technologies will allow a common messaging mechanism for sending and receiving objects. Taligent intends to support the merged HP/IBM technology and the CORBA 2.0 initiative to ensure that Taligent-based applications can interoperate easily across multiplatform networks.

Taligent and Existing Platforms

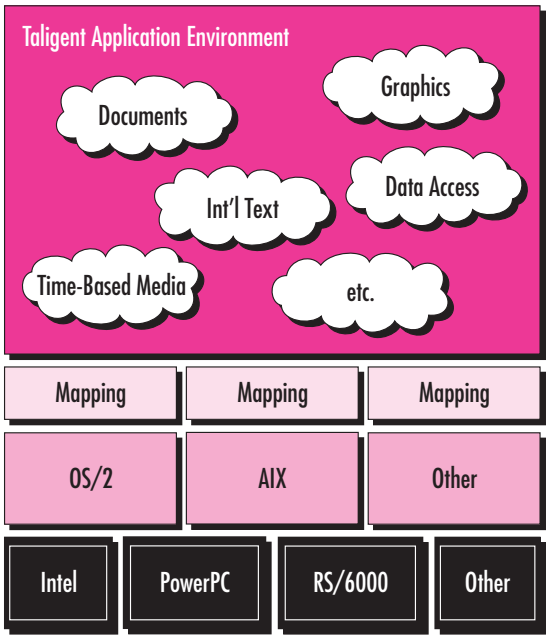

Figure 1. Taligent and existing platforms

The commitment to industry standards can also be seen in Taligent's determination to use only ANSI-standard C++, and its pervasive use of Unicode as a basis for text.

The Taligent Operating System

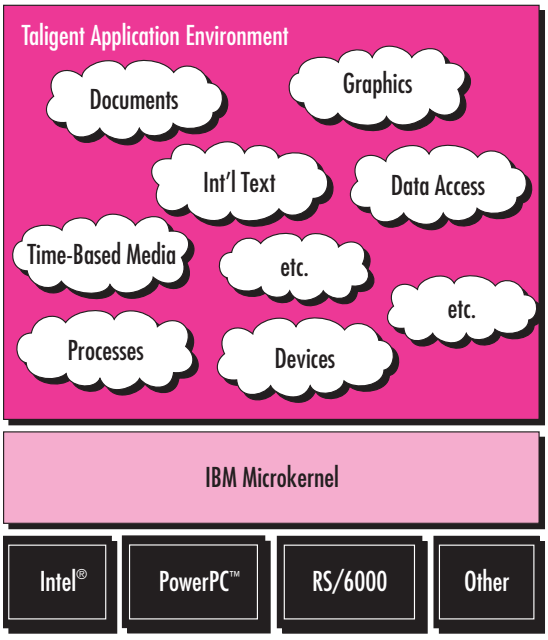

Figure 2. The Taligent operating system

Taligent Demonstration

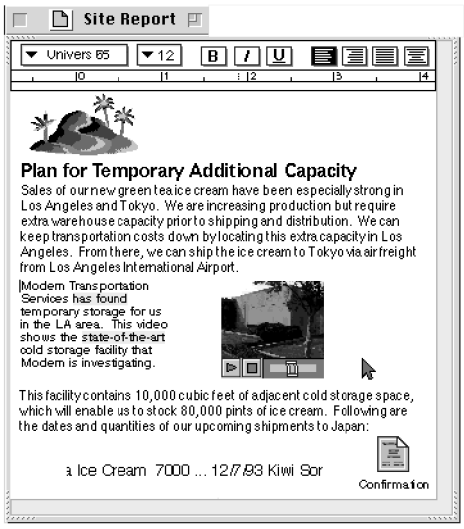

Figure 3. Ice cream memo

Taligent Demonstration

Figure 4. Tool palettes

An Early Peek

Taligent has displayed parts of its system in a series of recent demonstrations. The system continues to evolve, but this description of the PC Expo version should provide a good idea of what the demonstration conveys.

The demonstrations show features of the Taligent system, such as its task-centered interface, its pervasive use of international text, state-of-the-art graphics, and multimedia. The demonstrations also show how seamlessly Taligent applications work with each other, even when they have not been designed to do so.

The demonstration consists of 32 separate applications, written by four Taligent engineers during a four-week period. The scenario of an ice cream company renting storage space gives Taligent the opportunity to explore areas such as inter- and intra-office communications, telephony, collaboration, and multimedia.

The 32 applications do not form a suite, but were designed and written independently without specific knowledge of the other applications. The smallest required a dozen lines of code; the largest (a program with complex graphics and networking requirements) required 1,200 lines.

In the demonstration, the sales representative receives electronic mail from the ice cream vendor. The mail contains a "business card"—a Taligent object that represents data about an individual. The sales rep drops the business card on a sheet of stationery to perform a database lookup. He then drops the card on a phone icon to call the vendor. The rep and the vendor can collaboratively use a space management application to schedule space in the rep's warehouse.

Figure 3 shows a memo written by the vendor to describe the final arrangement to his manager. It includes several live objects: a video describing the site; a ticker tape giving constant updates on ice cream sales; and a copy of the sales confirmation obtained from the space scheduling program. One of the more impressive moments in the demo occurs when we see the video and the ticker tape in independent motion. Such seamless integration between applications is rare, even when the applications have been designed to work together.

Another interesting feature of the Taligent interface is the use of generic tools. Highlighting in Figure 3 was done using the highlighting tool shown in Figure 4. But the highlighting tool was not written specifically for the document application; it works with any text in any document. Taligent's vice president of technology, Mike Potel, compares this to using pens (tools) and paper (documents) in the real world. "You wouldn't buy a pen that would work only with one kind of paper. You expect any of your pens to work with any piece of paper," says Potel.

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