DCE Rolls into Production

The Distributed Computing Environment finds growing acceptance in enterprise solutions.

The Distributed Computing Environment (DCE) developed by the Open Software Foundation (OSF) is moving from being a developing technology into solutions. DCE is based on services and application programming interfaces (APIs) that are portable across platforms. Currently, DCE provides remote procedure call, directory, time, security and threads services.

Input, a market research firm based in Mountain View, CA, estimates in a 1995 report that the dollar value of the DCE market will grow from $50 million at the end of 1994 to more than $1.6 billion by the end of 1999. Part of this growth will come from the expanded presence of DCE on desktop machines. DCE is supported by most major systems vendors, and Microsoft has implemented the DCE remote procedure call (RPC) specifications in its MS-RPC software. The Open Group intends to make sure that DCE meets the needs of the end-user community while it moves the DCE technology and specifications into new areas.

The recently available DCE release 1.2.1 enhances the DCE technology in several key areas: ease of programming (support for C++); integration with other computing environments (coexistence with ONC—a distributed computing solution from SunSoft—and Novell NetWare); an improved distributed file system; and administration enhancements. These changes to DCE are geared to easing the task of deploying DCE-based applications throughout enterprises.

An important addition to DCE will be an implementation of the X/Open Federated Naming (XFN) specification. Naming services enable users to access network entities such as files, peripherals, databases or other users transparently within local or global networks. The naming service "binds" or maps user-understandable names to these entities and removes from the user the burden of having to remember and specify the entity's location each time the user seeks access to it.

XFN will provide a single, unifying API for developers to access naming services, and it will provide for the integration of current industry-accepted naming services. These services include DCE, ONC+, NetWare Directory Service, X.500 and the Internet Domain Name Service. In this way, XFN will enhance application portability across platforms. It will also serve as the basis for uniting namespaces across an enterprise. New applications and services can be written to exploit a growing enterprise computing market, including interenterprise applications that use the Internet. The XFN technology development will be managed by The Open Group, with SunSoft as the prime developer of the first XFN implementation (based on the federated naming technology in the Solaris 2.5 operating system).

DCE and the Web

Also well under way at The Open Group are multiple projects integrating DCE technology with the World Wide Web. As a ubiquitous interface for distributed applications, Web servers and browsers show enormous potential. But before that potential can be tapped for worry-free enterprise computing, several issues must be addressed. The foremost of these is security. DCE Web projects will integrate DCE technology with commercial Web servers and browsers to provide the capabilities of DCE absent in Web products (such as encryption, authentication, authorization, and secure remote procedure calls for security, as well as naming to enable location independence for Web resources) as a basis for Web technology within the enterprise. DCE-Web technology will deliver fine-grained access control to Web documents not attainable with today's Web security solutions. (Snapshots of the DCE-Web code under development are available from the OSF Web server at http://www.osf.org/www/dceweb/DWdist.html.)

Several other projects have been proposed which will extend further the use

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of DCE. These proposals include a kit that allows Web forms to serve as a user interface to DCE-based applications; DCE/Java integration; a DCE cell exerciser; DCE SNMP; multiple cryptographic algorithm support; messaging and queueing services; and a DCE-based event manager. In the case of messaging and queueing, for example, the DCE project is aimed at providing a set of standard, vendor-neutral application services. Currently, each vendor's messaging environment supplies its own proprietary services. Incorporating messaging and queueing within the DCE environment will give enterprises the means to create standardized messaging systems.

DCE continues to evolve and expand its role as the technological glue binding the distributed enterprise computing environment into a cohesive whole. According to Joe Maloney, director of product marketing at OSF, "The importance of DCE can be gauged by its growing adoption throughout the industry." For example, IBM has committed to support DCE security, time and directory services in its DSOM product, and Microsoft has made the DCE RPC specification the basis for communication within its object model—COM/OLE. **IT**

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