Application Development for the Web
Designer/2000, Developer/2000, and Project Sedona

The World Wide Web

There is tremendous excitement in today's information industry about the World Wide Web (WWW, or the Web). Hundreds of start-up companies are being created, and major industry players are being judged by how quickly they adjust their strategies to meet the challenge of supporting this important new technology. Advertisements for consumer products in magazines and even television routinely sport Web addresses, and virtually every leading organization in government and private industry has established a presence on the Web.

Never before has such a computer-oriented technology captured the hearts and minds of the industry and the general public. Is this all hype, or is the Web a major milestone in the history of computing and information sharing?

The value of the Web

With all the hype about the Web, it would be hard for the reality to live up to the promise. And yet, it would appear that the reality is already exceeding the hype. Today's Web is an advertising medium, a marketplace, a treasure trove of information, and a place where those of like minds can gather to exchange ideas. The Web provides easy access to a broad range of information on virtually every topic in human experience, and numerous searching engines exist to "crawl" the Web seeking out information on any subject.

Where do all these services and information sources exist? They aren't located in physical buildings or libraries – they are hosted on computers connected over a vast, worldwide network. This network, and the standards for communicating between them is often called the "Internet."

The Web also can be used within an enterprise, with some degree of security, to provide information useful to all employees, ranging from insurance information to order entry systems. The usage of Web technology within an enterprise is often called the "Intranet."

The Web is a convergence of host-based systems, client/server and distributed computing – today the Web most closely resembles mainframe computing with centralized management of processing and content, but it is evolving into a distributed computing medium with the potential to eliminate many of the management difficulties of client/server or distributed computing systems.

The Web is not proprietary; it is a free and open system with contributions from many vendors, availability on virtually every operating system and user interface, and even emerging access to communication appliances such as the upcoming Network Computer, smart phones, pagers, and fax machines.

The cost of the Web

A wise man once said that there was no such thing as a free lunch, and while the Web may be many things and have the potential to evolve into much more, it is not free. Today's Web is a melange of the truly valuable and the truly trivial. Today's Web ignores many of today's popular computing standards, and takes little or no advantage of client-side processing power or host-based databases. The network bandwidth appetite of the Web is voracious. Security on the Web is limited. The sheer volume of information on the Web often makes it difficult to locate an item of interest. Management tools for the

Web are evolving, but limited in functionality. Web development is a mixture of computer science, commercial graphic design, and the art of human/computer interface design, but Web development tools are years behind their client/server cousins. In fact, no vendor (other than Oracle) today offers customers a single development environment that will support the need to deploy client/server and Web-based versions of applications into the same environment.

Yet with all these issues, the Web is immensely popular, for the benefits far outweigh the costs in the minds of Web "surfers." With such popularity, the commercial success of the Web is guaranteed, and vendors are scrambling to apply the lessons learned in the computing, advertising, retail, and communications industries to Web technologies. The Web will change the world perhaps more profoundly than did the personal computer – the PC enabled us all to expand our creativity, memory, and logic, but the Web will add to that the ability to share those benefits easily with others, creating a worldwide collaborative environment.

The jargon of the Web

No new technology, whether it is automobiles or computers, can be born today without its own vocabulary, and the Web is no exception. It is impossible to find an article today about the Web which doesn't include terms like Java, HTTP, URL, Internet, Intranet, browser, HTML, VRML, and many more. This jargon is, fortunately, easily learned. A glossary of Web-related terms is included below for reference.

The Oracle WebSystem

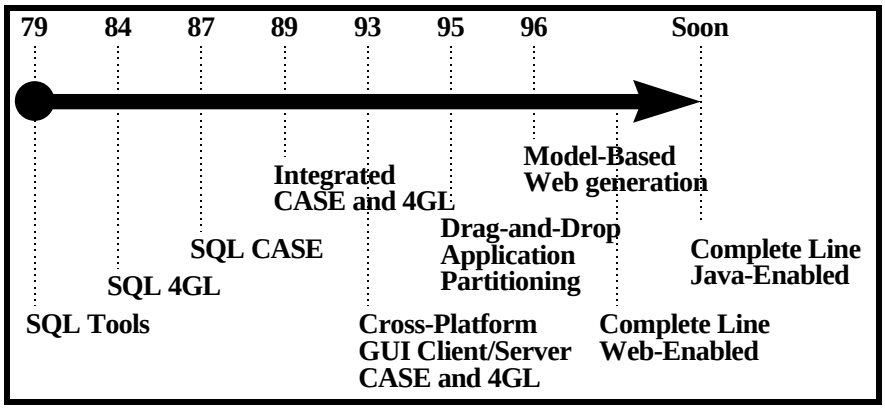
Oracle has been a leader on the Web since its early days. Oracle was the first information technology company to establish a major Web site dedicated to providing important information to our customers. Oracle was also the first company to offer many of its products for trial usage over the Web – customers could simply access the Oracle Web site (http://www.oracle.com/) and download trial versions of our products for risk-free evaluation.

Many of Oracle's products today benefit from Oracle's early experience on the Web. Our products have been, or are currently being, adapted to the Web. In particular, the Oracle WebSystem was developed and is available today specifically to deliver the combined benefits of the scaleable Oracle Universal Database and the Web in an effective, efficient, and easy-to-use package.

The Oracle WebSystem is a comprehensive Web development, management, and deployment solution. It includes a Web server integrated with the Oracle Universal Database, a powerful programmable browser, and supporting management tools at a very reasonable cost. This product embodies the knowledge Oracle gained, and continues to gain every day, from long-term involvement in the Web, and makes it possible for customers to take advantage of this experience without having to climb the Web learning curve we already climbed for you.

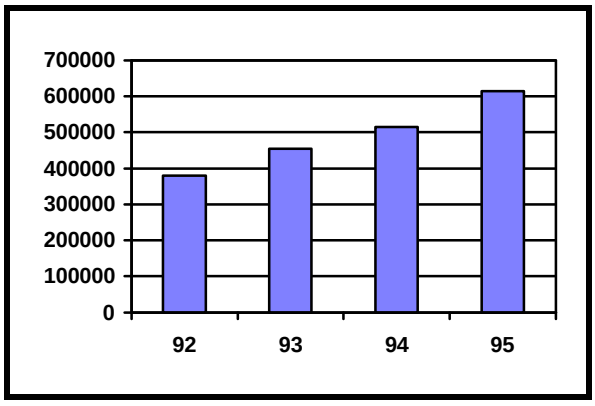
Oracle's commitment to tools

While Oracle has been involved with the Web since the inception of the Web, Oracle has been involved with databases and development tools since the inception of Oracle. Oracle shipped its first commercial database product and associated development tools in 1979, and its first high-level development toolset (also known as a fourth generation language or 4GL) in 1984. Oracle has been in the forefront of every major technology advance in application development including 4GLs, integrated CASE tools, code generation, cross-platform portability, client/server, graphical user interfaces, database independence, support for all national languages, repository-based tools, and object orientation.



Oracle has a long history of "firsts" in application development tools

Oracle has taken an approach unique in the industry, delivering leading edge development tools with state-of-the-art technology and upward compatibility, enabling our customers to incrementally adopt new technologies with minimal additional training and programming. As a result, Oracle's customer base has been very loyal, and has grown rapidly to become by far the largest in the industry.



The community of Oracle Tools developers has been growing rapidly each year

With new Web enabling technology, Oracle is once again leading the application development tools market. Oracle's current tools, including Designer/2000 and Developer/2000, will be Web-enabled, bringing forward existing customer investments to this new technology. This summer, Oracle will Web-enable its entire line of client/server development tools, offering users an evolutionary path to Web support. Soon after, Oracle will add Java-enablement, allowing users to take full advantage of all computing resources with the state-of-the-art development productivity and scalability for which Oracle's tools are well known, as well as the easy administration advantages of the Web.

Oracle's Development Tools

Oracle offers a number of choices for application developers, but Oracle's main investment is focused on the tools most of its customers use -- Designer/2000 and Developer/2000. Together these tools offer second generation client/server advantages to application developers. Designer/2000 and Developer/2000 offer an easy-to-learn and -use, productive, powerful, and open environment for building scaleable applications across a broad spectrum of requirements.

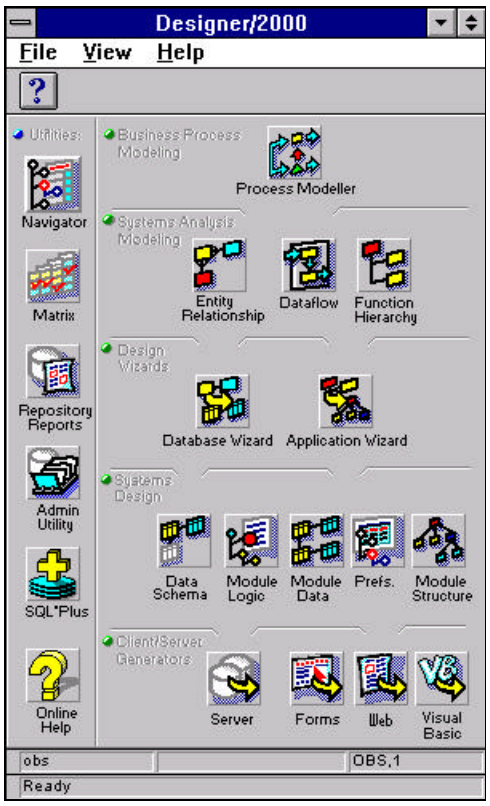
Oracle is hard at work on a new generation of Designer/2000 and Developer/2000, with over 200 engineers working on building these two products. With an installed base of over 600,000 developers

using these products today and over 100,000 new developers added in just the past year, the market has spoken loudly on the value of these products.

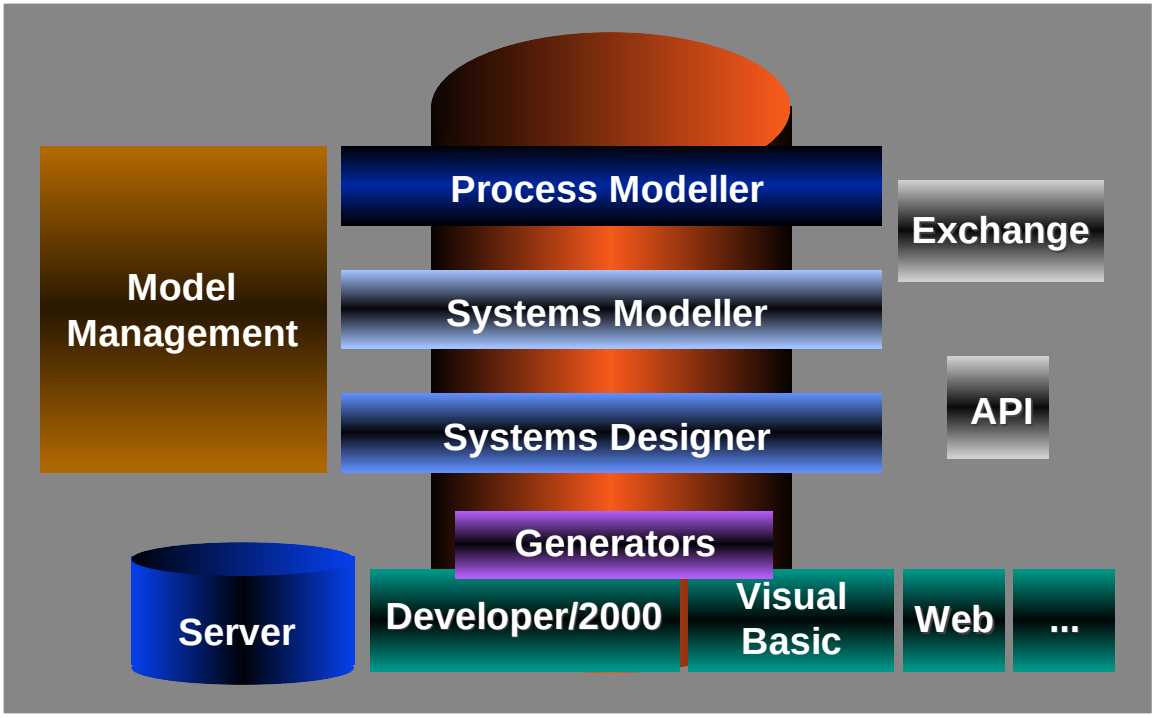
Oracle is also looking at new development technologies, introducing new low-end client/server and Web development tools in the past year known as Power Objects and Power Browser. At the high end for mission critical development, Oracle is working on Project Sedona, a research and development project designed to yield improvements to Designer/2000, Developer/2000, and other tools from Oracle and other vendors. Project Sedona will also result in additional development tools designed for the world of objects, the Web, distributed computing, and internetworked systems.

Designer/2000

Designer/2000 is a tool that helps enterprises avoid "hitting the wall" – a wall many projects encounter when trying to scale applications to large development teams, complex requirements, and enterprise-class performance. Through integrated business process reengineering (BPR), analysis, and design diagrammers based on a multi-team repository, system designers can plan complex systems more effectively than with un-integrated tools. With model management, system generation, and system reverse engineering, teams can then implement these plans with high levels of performance, quality, reusability, productivity, and maintainability. No other modeling tool offers the comprehensive development process support and automation provided with Designer/2000.

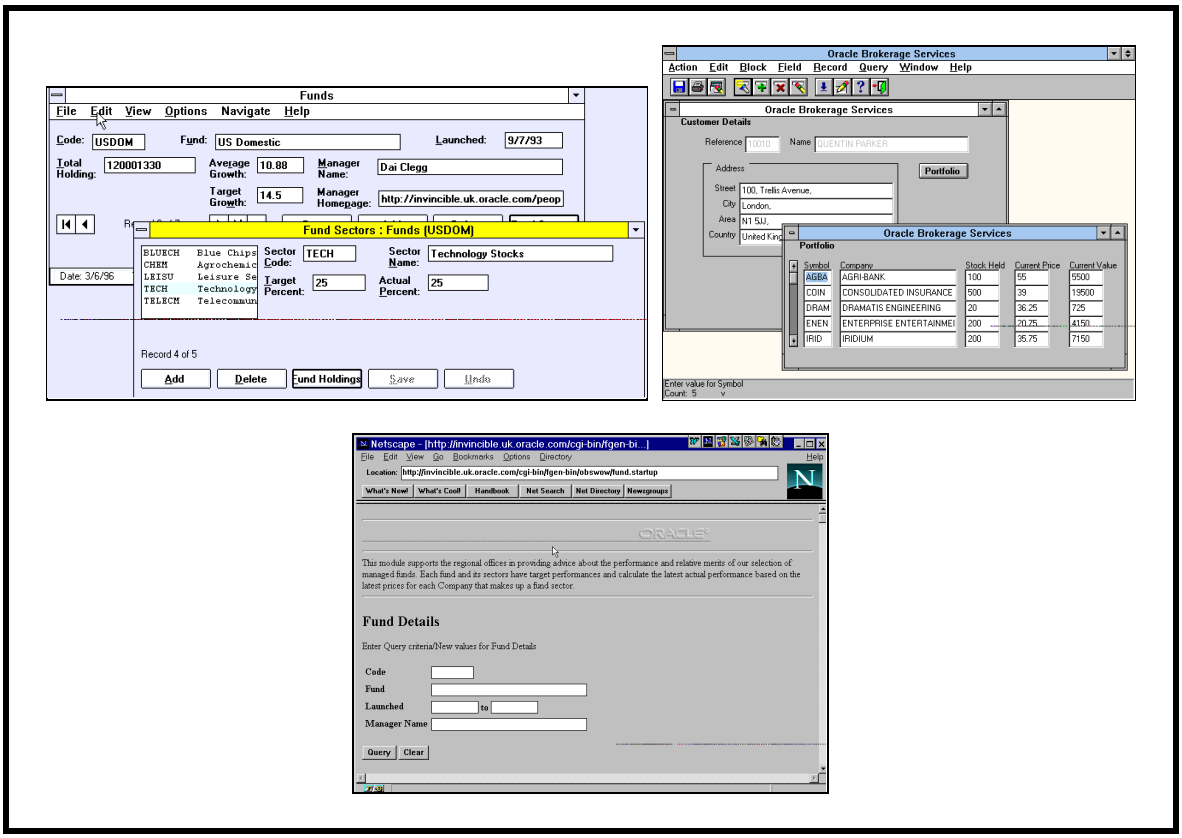


Designer/2000 offers comprehensive development process support, from business process reengineering to system generation and reverse engineering



Designer/2000 offers a flexible product architecture to protect customers as new technologies arise and as systems grow in complexity

Automated system generation and reverse engineering support in Designer/2000 includes database structure (schema) generation with Oracle7. Designer/2000 Release 2 will add several additional supported databases, including Microsoft SQL Server, Sybase, Informix, Rdb and others. Application generation support currently includes full generation of Developer/2000 and Visual Basic applications as well as Web data access applications. In Release 2, Designer/2000 will be enhanced to support the generation of C++ object classes, Oracle Power Objects applications, and fully functional Web applications. Release 2 will add full OLTP support to applications generated from Designer/2000 for the Web, including both HTML and Java clients. A single system model will support a wide variety of implementation databases and tools, promising the greatest flexibility for deployment today, as well as ensuring that systems can be generated easily for any other new technology that arises.

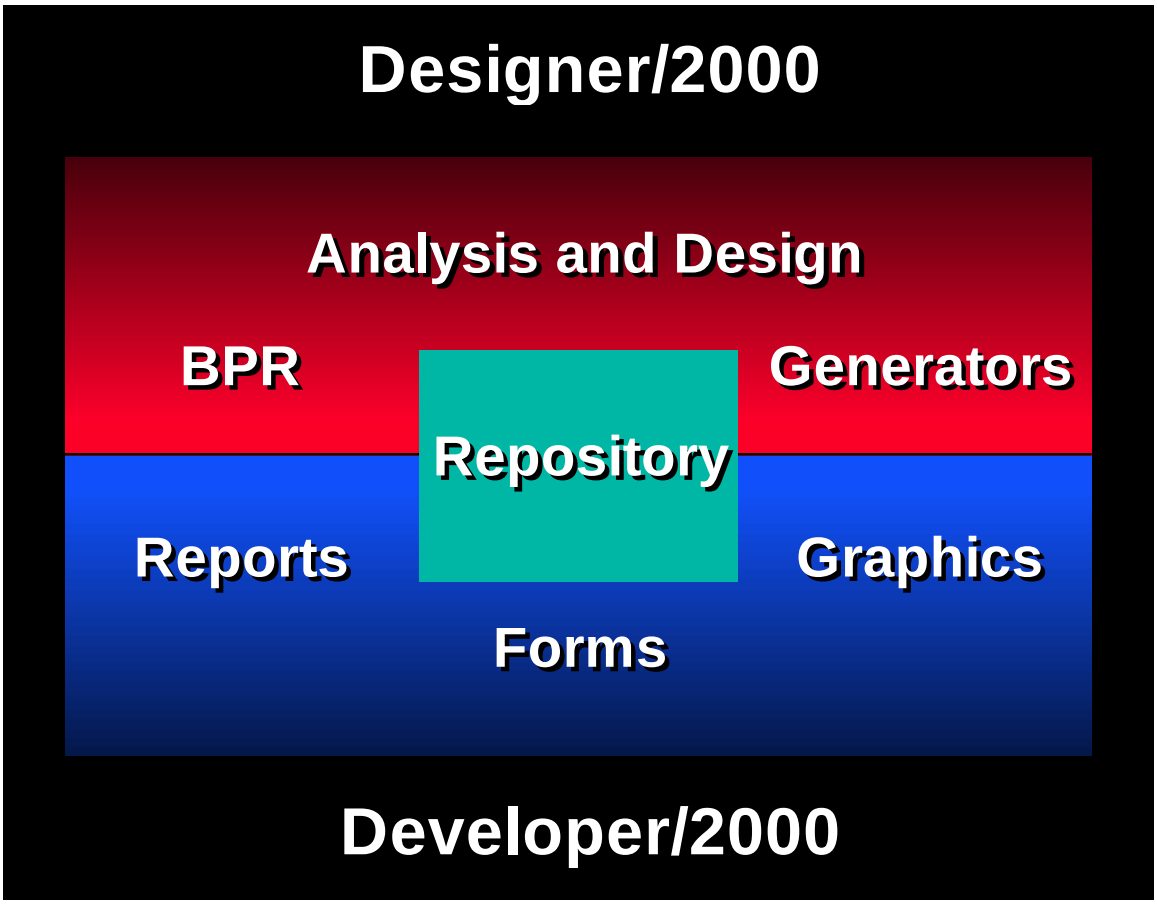


Designer/2000 can generate Visual Basic, Developer/2000, and Web applications

Developer/2000

Developer/2000 is the most scaleable and productive development tool available today, due in no small measure to its early adoption of a second generation client/server approach to development, its inherent portability, and its tight integration with Designer/2000.

Unlike other development tools, Developer/2000 is designed not just for Windows 3.1, but to exploit the widest possible variety of customer platforms, including Windows 3.1, Windows 95, Windows NT, Macintosh, Motif, and character mode. With its seamless portability across these platforms, it will come as no surprise that Developer/2000 will easily take customers from yesterday's host-based environments, to today's client/server networks, to the internetworked Web of the future.



Designer/2000 and Developer/2000 share a common repository, promoting reuse, team support, and productivity

Developer/2000 functionality includes the development and deployment of forms, reports, charts, diagrams, and other user interface elements. Built into Developer/2000 is the capability of developing an application for host-based, client/server, or distributed application partitioning environments. This summer, Developer/2000 will be enhanced to support the inclusion of Web-based content in client/server applications. In addition, Developer/2000 will soon support the creation of high-fidelity Web-based reports, charts, and diagrams. In Release 2 Developer/2000 will, like Designer/2000, support the creation of complete Web applications from the same application descriptions used to build applications for client/server or host-based environments. Developer/2000 Release 2 applications will support Web URL and groupware items, an included Web browser, PDF reporting, HTML and Java browsers, and VRML display technologies.

Release	Web Support	Availability
Developer/2000 Release 1.3	• Web page (URL) inclusion in client/server applications • Embedded Web browser • High-fidelity Web charts, diagrams, and reports, including outline, drill-down, and data-aware "image maps" for charts • Web-client access to report server	Summer '96 for Windows 95
Developer/2000 Release 2	• Enhanced report server • Web groupware support • Java-based client with applets supporting client-side validation, calculations, and third-party applets • VRML charting	Soon

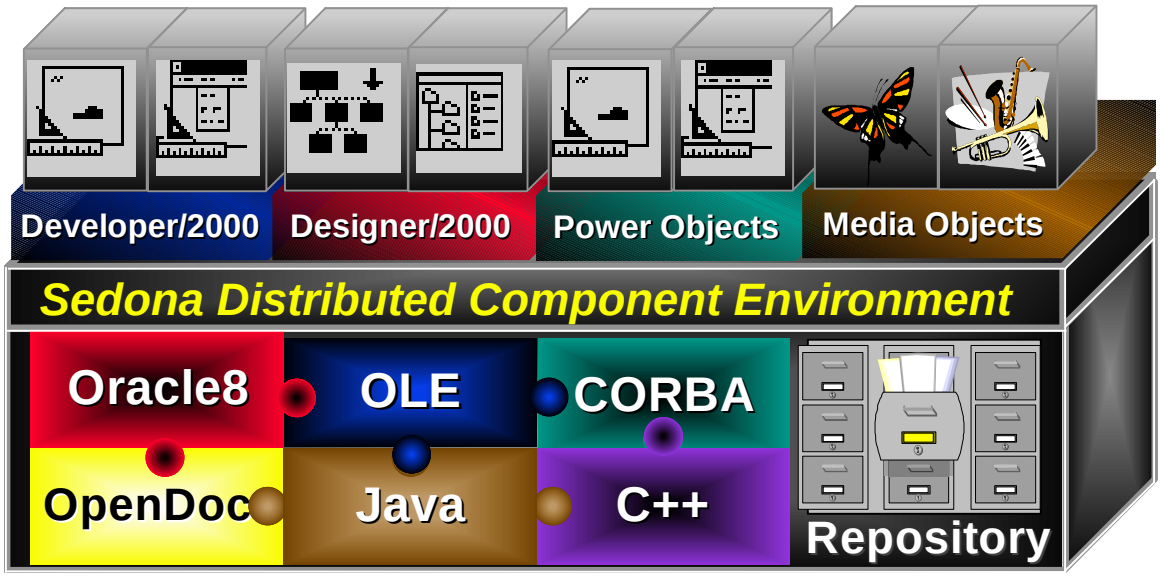
Project Sedona

Project Sedona began with some of Oracle's top object and development technology gurus over a year ago. The goal of the project was to deliver object technologies that could be used throughout Oracle's server, middleware, tools, groupware, and application products, as well as to develop new products leveraging these technologies.

The project is already a resounding success. With the shipment of Oracle Enterprise Manager, a system management product, the first fruits of this product are now shipping. Oracle Enterprise Manager uses a unique, patent pending, drag-and-dock user interface which is highly intuitive and efficient for portraying large amounts of information even on very small GUI screens.

Sedona will deliver major components of Oracle's next generation object technology, including a repository, distributed object manager and middleware, component factories for Java and other object environments, and component assembly frameworks. In releases after 2.0 of Designer/2000, Developer/2000, and Power Objects, Oracle's development tools will take advantage of all these object technologies to fully leverage the power of Oracle8 and objects. Third-party tools will also be able to take advantage of these technologies, and Oracle is aggressively seeking partners for this ground-breaking technology.

One of the products under the Sedona umbrella is a Java development environment, currently code-named Javalin. Javalin is a component factory which will support the development of scaleable, database-enabled Java applets. Javalin applets will integrate with Java-enabled Developer/2000 and Designer/2000-generated applications for maximum team productivity and reusability.



Designer/2000, Developer/2000, and Power Objects will be enhanced by the Sedona repository, object manager, component factory, and other Sedona tools

Summary

Oracle's long term investments in its own application development technology will once again enable customers to maximize their investment in Oracle databases and new client technologies. By investing in portable, model-based and declarative, and multi-tier technologies for its tools, Oracle is able to deliver both client/server and Web-enabled development tools for the Oracle Universal Server.

Today, Oracle is shipping tools including Power Browser and Designer/2000 which support the productive development of Web-based applications. This summer, Developer/2000 and Power Objects will be enhanced to support the Web. Soon after, Oracle's line of application development tools will be enhanced to support more Web features as well as Java clients.

With this rapid support for emerging technologies, Oracle is proving its commitment to remaining the number one enterprise tools vendor, as well as reaffirming its commitment to Oracle users.

Glossary

Term	Meaning
ActiveX	A proprietary Microsoft extension to allow OLE components to be downloaded over the Web. ActiveX runs only on Microsoft Windows platforms. Unlike Java (see below) applications, ActiveX components are very large, and are not efficiently loaded over a network.
Browser	An application consisting of a window to display Web pages. Also known as a Web browser. Browsers essentially replace Windows or other user interfaces with a consistent UI across all platforms. Well-designed Web applications should be able to run inside of browsers on any platform, including Windows 3.1, Windows 95, Windows NT, Macintosh, Motif, and the Network Computer. Browsers can be embedded in client/server applications to tie together database information and Web pages. Browsers can also server as a window in which other applications (see "plug-in," below) can be contained.
CGI	Common Gateway Interface. CGI is an extension mechanism to allow Web servers (see below) to run scripts or programs to dynamically construct Web pages. Without CGI or equivalent functionality, Web servers can provide access only to static documents; with CGI, Web servers can create Web pages on demand, for example to give customers the ability in real time to see the status of their order in a database.
Electronic Commerce	Buying or selling goods or services electronically, usually over the Internet.
Extranet	The "Extranet" is a connection between enterprise or workgroup networks and public networks, enabling customers or other users outside your private network to access applications or data inside a company or government agency.
Firewall	A security mechanism protecting a private network from unauthorized external access. Firewalls are meant to keep unwanted visitors away from your applications and data.
Helper Application	An application known to the browser, which can be invoked when necessary in a separate window outside the browser. Helper applications are not as sophisticated in their Web support as "plug-ins" (see below). Helper applications can enable users to view or edit data downloaded from the Web even if the browser does not understand the data type. For example, Microsoft's Office application suite is not capable of running as a plug-in in standard browsers, but your enterprise may want to distribute Word documents or Excel spreadsheets. You can register Word or Excel with your browser as a helper application, so that when you download a document of those types, your browser will invoke Word or Excel to view or edit the document.
Home Page	A Web page (see below) which is the logical entry point into a Web site (see below). For example, the Oracle Web site currently contains hundreds of Web pages all organized under a single home page in a tree structure.
HTML	HyperText Markup Language. HTML provides the formatting information which enables Web pages to have a certain layout on your screen. HTML is a "lowest common denominator" layout system, unlike PostScript, but it is more easily portable to a wide range of screen sizes and color capabilities.
HTTP	HyperText Transport Protocol. HTTP is the networking protocol that transports HTML documents from a Web server to a Web browser. When you enter a URL (see below) as a location in your Web browser, typically it has a format like "http://www.oracle.com/products/tools" which tells your browser to expect to communicate with the server using this protocol.

Internet	The Internet is a global entity consisting of servers and network links. Each server communicates with others over the network links, and every server can be contacted (assuming no network links are down) by any client on the Internet (assuming the client is granted access or the server is a public server). Each server has an address, much like a telephone number, denoted by a URL (see below). There is only one Internet, owned by no one company, government, or individual.
Intranet	An Intranet is a corporate or government entity using the same technology as is used by the Internet. Intranets are, unlike the Internet, private to a single enterprise. Currently, there are tens or hundreds of thousands of Intranets worldwide.
Java	An object-oriented programming language developed by Sun Microsystems. Originally developed for interactive television and later adapted to the Web, Java is a very popular language because it supports applications that can be downloaded on demand rather than installed by every user. This benefit bears th price of currently very poor performance, but this performance is expected to improve. Java applications are typically broken up into "applets," or objects, which can each be downloaded independently when necessary. Java application can run on any platform.
Plug-In	An application which can run inside of a browser. Plug-ins are generally not cross-platform, unlike Java applications. The appeal of plug-ins are that they are a relatively easy way to access many programs from within a browser, giving users a consistent look-and-feel for Web applications.
URL	Uniform Resource Locator. URLs serve as the address of any page of content on the Web, just as telephone numbers serve as the address of any phone on a telephone network. URLs typically have a form like "http://www.oracle.com/".
VRML	Virtual Reality Markup Language. VRML is very much like HTML, but is designed for virtual reality or three-dimensional interfaces.
Web Page	A document on the Web. Web browsers are like word processors. They display documents consisting of a single logical page on a scrolling screen window. These documents are called Web pages.
Web Server	A computer containing Web pages, accessible by users running a Web browser.
Web Site	A logical grouping of Web pages under a home page.
WWW	World Wide Web. Also known as "the Web." The Web is an open system, owned by no company, government, or individual. The Web consists of a numb of standard formats, such as HTML, supported by many vendors. The Web is a system running on the Internet as well as thousands of Intranets.