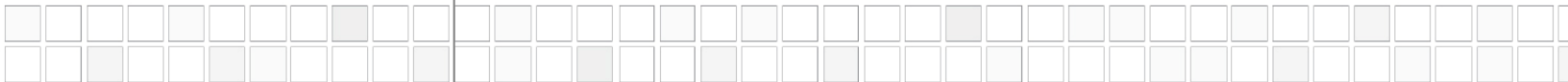




CORBA BUSINESS VALUE





EXECUTIVE SUMMARY

CORBA makes software work together, regardless of where it is located, what it is running on, or what language it's written in. As one of the earliest distributed computing standards, it supports mission-critical applications in traditionally conservative and demanding IT environments, including banking, insurance, utilities, manufacturing, and government. CORBA is the underlying technology of some of the earliest and largest service-oriented architecture (SOA) environments.

Progress' Orbix is by far the market leading implementation of the CORBA standard. Orbix goes beyond the implementation of the CORBA standard to provide enterprise-class features that reside at the core of thousands of distributed systems around the world. Orbix routinely handles integration and scalability problems in the most complex and largest systems.


Between the extremes of everyday commercial data processing and real-time control applications, Orbix operates across the entire spectrum of computing tasks, from billing systems and multimedia news delivery to airport runway illumination and aircraft radio control. Most of the world's telephone systems, as well as the truly mission-critical systems operated by the world's biggest banks, are built on Orbix.

Orbix provides all of its capabilities through modern, open, and entirely standards-based technologies. Orbix continues to excel at meeting the needs of integration development teams that need to integrate CORBA with other technologies, while meeting the most demanding scalability, reliability, and performance requirements of today's distributed systems.

Orbix is mature and proven technology, and has created the robust and resilient infrastructure to support mission-critical applications at Global 2000 companies such as AT&T, Lufthansa, Siemens, Credit Suisse, Nokia, Raytheon and many more. Orbix is backed by world-class professional services to ensure that every project is a success.

INTRODUCTION

CORBA is a mature technology standard that supports some of the most demanding and critical computer systems in the world—telecommunications networks, military systems, financial systems, and manufacturing systems in a variety of industries. IONA Technologies (now part of Progress Software) was founded to develop CORBA and distributed computing technology, and Progress remains the world's leading CORBA vendor. CORBA is now used primarily for low-level integration in IT shops that have significant investment in CORBA applications, and Progress' CORBA implementation additionally provides a development environment and system management.



The success of the CORBA standard has resulted in CORBA products that offer a wide variety of development and integration options. Progress' Orbix continues to deliver the greatest business value in today's software market.

CORBA: A SUCCESS STORY

CORBA represents the triumph of standards-based computing. In 1991, CORBA was introduced as a specification for architecting and implementing distributed software systems. At the time, it was not clear that CORBA would appeal to anyone outside of the academic object-oriented community. Today, CORBA is mainstream technology in traditionally conservative IT environments, including banking, insurance, utilities, manufacturing and government—environments with stringent requirements where only proven and reliable solutions are acceptable.

CORBA is also deployed in extremely demanding environments, such as aerospace, computer animation, astronomy, weather simulations, and military control applications. For example, CORBA is integrally involved in controlling the Hubble space telescope. It performs real-time control functions in fighter aircraft, controls remote robot manipulators for dangerous industrial environments, helps to create special effects movie animations, and even handles communications for nuclear missile control systems.

Between the extremes of everyday commercial data processing and hard real-time control applications, CORBA operates across the entire spectrum of computing tasks, from billing systems and multi-media news delivery to airport runway illumination and aircraft radio control.

Today, lower cost application integration is a critical concern not just to CIOs, but also to CEOs and CFOs. And CORBA is still the technology of choice for certain integration problems, because CORBA makes software work together regardless of where it is located, what it's running on, and what it's written in.

Because CORBA is an open and vendor-neutral distributed computing platform, even its early implementations from different vendors routinely interoperated with each other. Today, virtually any CORBA implementation from any vendor will interoperate seamlessly with any other.

CORBA applications are portable. Porting a C++ CORBA application written for a modern ORB (one based on the Portable Object Adapter, or POA) across ORBs from several vendors is extremely simple, and largely a matter of recompiling the code (the differences found among different UNIX or Linux implementations are usually far more troublesome to deal with than the parts of the application that deal with CORBA). In fact, the same source code can be compiled on any compliant implementation without change, and porting is often as simple as modifying the build environment. And for CORBA applications written in Java, the byte code, as well as the source code is portable.



Other measures of CORBA's success include:

- > **Broad platform support** - CORBA runs on a vast number of hardware platforms, including PCs, mainframes, handheld PDAs and, embedded systems.
- > **Broad operating system support** - CORBA is available for virtually every operating system in existence.
- > **Broad language support** - CORBA has standardized mappings for C, C++, Java, COBOL, Smalltalk, Ada, PL/1, Lisp, Python and IDLscript. In addition, mappings are provided independently for languages such as Perl, Objective-C, Oberon, Eiffel, Modula 3, Scheme, and Tcl.
- > **Broad protocol support** - With IIOP over TCP/IP, CORBA provides a standardized and proven interoperability protocol. In addition, CORBA vendors support a number of other transports, such as ATM, Frame Relay, and other protocols, such as SS7, DCE, ONC, and others. CORBA and J2EE communicate easily due to the common underlying IIOP protocol.
- > **Vendor-neutrality** - CORBA is available from a large number of vendors, and several Open Source implementations are available as well. CORBA is highly extensible and open to integration with any number of legacy systems, thanks to its very wide platform and programming language support.
- > **Ubiquity** - CORBA has even made its way into subsequent technologies. For example, J2EE's architecture relies on CORBA to work: Application servers rely on CORBA's IIOP for RMI invocations, and require the Object Reference Template specification. The Java Transaction Service is intimately tied in with CORBA's Object Transaction Service (OTS). In fact, a CORBA ORB ships as part of every copy of the JDK.

CORBA's many implementations seamlessly interoperate across network, language, CPU, and operating system boundaries with worldwide acceptance and market penetration.

Finally, CORBA continues to embrace new technologies as they arise. Examples include the existing CORBA-COM and XML/Value specifications, as well as the CORBA-SOAP interoperability specification that is currently in progress, and a proposed C# IDL language mapping.

PROGRESS' CORBA PRODUCTS AND CUSTOMERS

By any measure, Progress is the world's leading CORBA vendor, with the industry's broadest and deepest CORBA product set. Progress' CORBA ORBs run on everything from embedded tiny devices to the world's largest mainframes. Progress supports CORBA on more hardware and operating platforms than anyone in the industry.



The overwhelming majority of companies that have built products based on CORBA have used Progress products. Most of the world's telephone systems as well as the mission-critical systems operated by the world's biggest banks are built on our products. Boeing, the world's largest aerospace manufacturer and the largest US exporter, has standardized on Progress' CORBA as the infrastructure for an enormous, integrated, 70,000-user manufacturing system.

Progress' CORBA Products

Progress has a CORBA product and associated support offerings for every customer situation:

Orbix 6


Orbix is the world's most deployed CORBA product. It provides organizations with enterprise-class features that operate at the core of thousands of distributed systems around the world. Orbix is designed for development teams that need to integrate CORBA with other integration and development technologies, while meeting the most demanding scalability, reliability, and performance requirements.

Today's Orbix includes a CORBA 2.6 ORB, and such CORBA services as Events, Naming, Notification, Trader, Telecom Logging, and the Object Transaction Service. It provides a wide range of load balancing and failover strategies, supports transactions and transactional operations, and provides centralized server configuration and management facilities. Through its IIOP support, Orbix is fully interoperable with Progress' other CORBA products, as well as with variety of other vendors' CORBA implementations, and with any J2EE 1.3-compliant (or later) application server.

Orbix is among the fastest CORBA implementations on the market today, with an optimized IIOP protocol stack that can utilize over 99% of network bandwidth under extreme loads. Countless time-critical applications rely on Progress' product every day, from high performance real-time trading applications to network management and straight through processing systems.

Orbix is also the most enterprise-ready CORBA infrastructure on the market. In addition to core security and transaction services, it offers advanced clustering, server replication, fault tolerance and load balancing features, all of which can be exploited by any component operating on the Orbix platform.

The CORBA specification does not address load balancing or high availability, and most ORBs do not come close to matching Orbix's features in these areas. Competing products suffer from fatal, single points of failure that can cripple production systems. And in addition to providing a highly available ORB, Orbix supports the clustering of core ORB services, which ensures continuous service availability.



Finally, Orbix provides a fully instrumented management, logging, configuration and deployment infrastructure that is designed to lower operational expense and substantially reduce the total cost of application service provision.

Orbix Mainframe

Orbix Mainframe is a unique CORBA product that creates open standards-based interfaces to COBOL and PL/I functions that can then be accessed via CORBA calls. Mainframe programmers, using their experience and knowledge of the business and the technology, define these interfaces to the application business logic. The interfaces are neutral with respect to programming language, and are often used to access CICS and IMS transactions as well as other mainframe applications. Progress' Orbix Mainframe produces real ROI by streamlining operations and making it easier to discern and manage the most critical business functions—those implemented in transactional environments of CICS and IMS. In short, Orbix Mainframe provides business value by preserving the huge investments in mainframe applications, and allowing those application functions to be reused and repurposed.

Orbacus

Orbacus is a fully CORBA-compliant ORB that is distributed as source code. Its smaller footprint makes it more easily embedded in ISV products. Orbacus is an ORB for CORBA enthusiasts who enjoy the ability that source code access to help diagnose potential problems in their application or underlying infrastructure.

Orbacus is available in C++ and Java language versions. It is directly supported by the Orbacus engineering team, which includes some of the most highly regarded CORBA talent in the world. End-user organizations and ISVs alike have deployed Orbacus in a variety of applications in the financial, telecommunications, manufacturing and healthcare industries.

Orbix 3


Orbix 3 is Progress' mature, highly scalable implementation of the CORBA 2.1 standard. Orbix 3 is for Orbix customers with deployed applications that conform to earlier versions of CORBA. Orbix 3 is the right product for organizations that need to extend support for older-generation CORBA applications, while paving the way for migration of the applications to today's CORBA.

CORBA Product Support

With more customers and more systems in production than any other CORBA vendor, Progress is able to offer the highest quality CORBA support in the industry.

CORBA Consulting

Very few competing CORBA products are accompanied by knowledgeable product consulting. Progress' Professional Services organization combines deep knowledge of CORBA, J2EE, and Web Services with wide domain expertise in the financial services, telecommunications, manufacturing, government, and retail industries.



Progress' consultants show strategic decision makers, IT professionals, and software developers how to architect, design and develop even the most complex e-Business systems. Progress' consultants are equally skilled in leveraging open standards and Orbix best practices. Thousands of customers around the world have benefited from Progress' Professional Services. Whether they've received mentoring, architecture reviews or basic knowledge transfer, with the help of Progress' Professional Services these customers have dramatically lowered the risks associated with implementing complex business applications.

CORBA Engineering—Inside and Outside Progress

Progress employs the world's most accomplished CORBA engineers and has the largest CORBA development organization in the industry. Many of our engineers have worked on multiple ORBs during their careers. A number of them enjoy industry-wide prominence and have published numerous academic and industry articles as well as books about CORBA development.

Ultimately Orbix has become the market-leading ORB simply because it has won the hearts and minds of developers everywhere. Over the years, the product has become extremely efficient, robust, and standards compliant.


More developers today have used Orbix than any other ORB. This creates a larger pool of experience on which development organizations can draw, which lowers recruiting and training costs. And the Orbix code generation tools and dynamic Web services integration make those developers highly productive.

Progress' CORBA Customers

Progress' CORBA customer list reads like a Who's Who of Global IT. CORBA has always been attractive to IT organizations in industries that need large, resilient systems to handle enormous peak volumes of data and service requests, while guaranteeing a high level of availability. CORBA gives these organizations scalable, service-oriented solutions that can connect legacy and proprietary systems to a variety of new, state-of-the-art servers, databases, and packaged applications. These systems require all the management and maintenance capabilities of a flexible, reusable and open architecture, which the service-based nature of CORBA provides.

Telecommunications

Whenever anyone makes a telephone call, anywhere in the world, chances are that Progress technology underlies the systems that make it happen. More than 80% of the telecommunications companies represented in the Fortune 500 rely on Progress' integration technology to connect and support network management, configuration, security, operations, performance, fault management, and administration functions. Progress is the integration technology that the world's largest telecommunications companies turn to when building systems that simply cannot be permitted to fail.



Today more than 170 telecommunications companies around the world, including AT&T, Avaya, Bell Canada, Bellsouth, Ericsson, Jiangsu Telecom, Lucent, Motorola, Nortel, NTT DoCoMo, Nokia, Shanghai Telecom, Sprint, SBC, MCI, Worldcom, Telstra, Verizon, Telefonica and WindSPA rely on Progress to connect thousands of disparate systems.

Financial Services

Financial services companies constitute the most transaction intensive industry in the world. For this reason, nearly 70% of the financial organizations listed in the Fortune Magazine Global 100 rely on Progress' technology. Financial services companies are driven by the bottom-line, and when they need to build systems that can provide the scalability, transactional integrity, and performance demanded by today's banking, capital markets and insurance industries, they continue to turn to Progress.


More than 350 financial service companies around the world rely on Progress to integrate and streamline systems for rapid and efficient transaction processing, including: ABN AMRO, Allianz, Basler Insurance, BNP Paribas, Britannia, Chicago Stock Exchange, Chicago Board Options Exchange, Credit Suisse, Deutsche Bank, Goldman Sachs, Freddie Mac, Macquarie Bank, Merrill Lynch, Morgan Stanley, National Quotation Bureau, Orion, Postgirot Bank AB, Royal Bank of Scotland, Standards Chartered Bank, Swiss Bank, Systor, Tradepoint, UBS, Unicable, Winterthur Insurance, and Zurich Insurance.

Progress has made similarly impressive inroads in aerospace, government, high-tech manufacturing, and several other industries. Progress' CORBA products are in the hands of literally tens of thousands of developers in nearly 5,000 corporate IT organizations and ISVs. According to the industry analyst IDC, Progress owns roughly 65% of the total installed base of CORBA worldwide. The company's next largest competitor has less than half of Progress' market share. Progress clearly is the overwhelming leader among CORBA vendors, and for good reason.

INTEGRATING CORBA APPLICATIONS WITH PROGRESS' ARTIX

Many enterprises rely on CORBA for the highest levels of service availability, transactional integrity and security for their mission-critical applications. They are also working towards a common IT infrastructure to facilitate system reuse and increase business agility.

For most organizations, rip-and-replace is not an option and custom integration code is too expensive. To implement demanding line-of-business objectives, architects need a solution that easily extends existing CORBA applications to work with other enterprise systems.



Artix delivers on these goals. Artix is an extensible Enterprise Service Bus (ESB) that meets the integration needs of large, complex enterprise environments, and is unique for its:

- > Extensibility – Artix service-enables CORBA applications to interoperate with other enterprise systems without requiring changes to existing systems or infrastructure components
- > Platform Support - Artix successfully leverages Progress' experience to deliver an ESB with the broadest support for enterprise technology, from mainframes to mobile devices\
- > Enterprise Qualities of Service (QoS) – Artix seamlessly integrates enterprise security models and enhances existing CORBA systems with value-added QoS services without hand coding

Artix is mature and proven technology, and has created the robust and resilient infrastructure to support mission-critical applications at companies such as BellSouth, Raymond James & Associates, Marconi, and DHL (Deutsche Post).

Artix provides seamless connectivity between CORBA applications and a wide range of development environments:

Web services - Artix exposes CORBA application functions as Web services so investments in CORBA based-systems can be extended to provide service to entirely new classes of clients.

J2EE - Progress' strategic partnership with the JBoss Group enables Progress to provide expert integration of CORBA and J2EE implementations, along with enterprise-class support and services, to the largest J2EE user community in the world. With Artix, CORBA applications integrate easily with J2EE-compliant environments including BEA WebLogic and IBM WebSphere. EJBs and CORBA objects can participate in the same two-phase commit distributed transactions, can propagate principals' security contexts, and are managed by a unified, JMX-based management service.

.NET - Artix provides a native .NET to CORBA Connector, which brings enterprise CORBA scalability to .NET and allows clients written in VB, C#, J#, and managed C++ to access CORBA and J2EE Servers. Clients can use the security, transaction, load balancing and fault tolerance features available to a normal CORBA client. No additional hardware or software resources required for this high-performance solution, which is completely non-intrusive to existing CORBA systems. Best of all, .NET developers don't need to know anything about CORBA to use this feature.



CONCLUSION

CORBA is mainstream information technology, even in traditionally conservative IT environments such as banking, insurance, utilities, manufacturing, and government—environments with stringent requirements where only proven and reliable solutions are acceptable. Progress' Orbix is the market leader in these environments, and for good reason.

The application of Orbix and Orbacus technology has changed over the last decade. First used for the pure implementation of distributed systems, they now provide mechanisms for integration with virtually all other IT technologies. The breadth of Orbix's integration capabilities is based on the fact that it runs on virtually all hardware platforms and operating systems, and supports every major programming language in use today.

Today, in addition to being the foundation for large-scale, high-performance and ultra-reliable systems, CORBA provides the integration glue that allows an enterprise to re-use and repurpose existing IT assets, and thus protects the huge software investments corporations have already made.



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