WHITEPAPER

INGRES

ENABLING INTEROPERABILITY OF ENTERPRISE DATA AND APPLICATIONS USING THE OPEN SOURCE INGRES DATABASE

MEETING ENTERPRISE IT REQUIREMENTS WITH OPEN SOURCE SOFTWARE

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CLOSING THE INTEROPERABILITY GAP

IDC has called open source "the most significant all-encompassing and long-term trend that the software industry has seen since the early 1980s." Strong annual growth of revenue from stand-alone open source software (OSS) is compelling evidence: Worldwide revenue reached $1.8 billion in 2006 and is expected to reach $5.8 billion by 2011 – an impressive compound annual growth rate of more than 26%.[1] Despite strong growth, a number of factors prevent pervasive adoption of OSS today. Chief among these are interoperability issues such as centralized identity management, data integration, portability, and compatibility with other products. However, the introduction of the Ingres Database into the open source arena helps close the interoperability gap and provides enterprise-class data management capabilities to the open source community.

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Corporate IT executives have long strived to simplify IT management by reducing the number of vendors they rely on for software, services, and support. Their objective, of course, is to reduce the overall cost of IT infrastructure management. While some cost reduction is expected due to volume license terms, far greater returns are expected from the perceived integration of a single vendor stack. To capitalize on this trend, proprietary software companies have implemented extensive merger and acquisition strategies that expand their portfolios. In their attempt to establish a single point of accountability, IT managers have bought into these comprehensive software stacks – only to discover the stacks often fail to offer seamless interoperability. In addition, business needs continue to drive the acquisition of solutions from more and varied sources (including so-called rogue applications that creep into organizations through non-IT channels). Increasingly, these sources include OSS solutions.

This paper discusses various aspects of interoperability and how Ingres Corporation is working to extend and improve the interoperability of the Ingres Database to work with other open source offerings as well as proprietary solutions.

[1] IDC, Worldwide Open Source Software Business Models 2007-2011 Forecast: A Preliminary View, Doc #206681, May 2007.

Interoperability Barriers Hinder the Adoption of Open Source

The adoption of open source software increased dramatically in 2007. OSS is broadly adopted in the financial, telecommunications, and public sectors in both the United States and Europe. However, there are significant obstacles that slow adoption, particularly in the area of interoperability. Nearly one-third of respondents surveyed cited incompatibility with existing applications and data as a barrier to OSS adoption.[2] In addition, there is a strong need to integrate OSS solutions with enterprise management and monitoring frameworks.

Other obstacles to adoption are tied to the lifecycle management of OSS. OSS must provide the same levels of backward compatibility as proprietary offerings so customers can take advantage of new technologies without the expense of re-working existing solutions. OSS solutions also must offer the same level of quality, flexibility, and control as proprietary offerings.

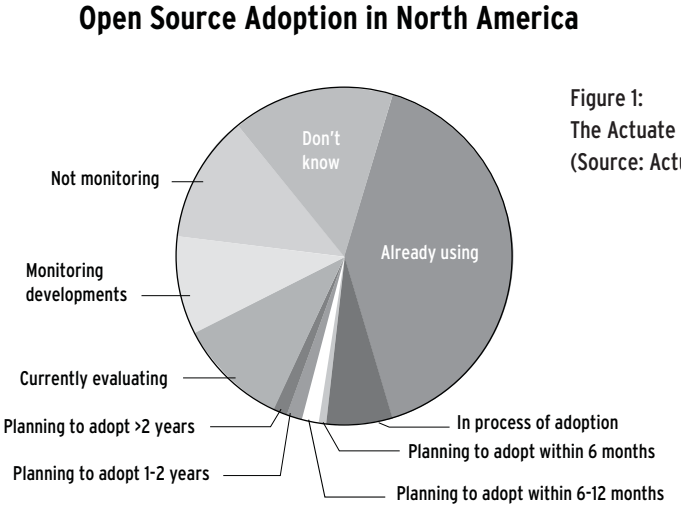

Figure 1:
The Actuate 2007 Open Source Software Survey (Source: Actuate Corp.)

IT teams also demand tools that allow applications to be developed and deployed quickly and easily using the development languages and environments familiar to developers. This means that OSS offerings need to support the gamut of development environments, from legacy to Web 2.0 applications.

Making Open Source Solutions Work Together

Open source vendors recognize the need for stronger interoperability and are committed to working together to improve the way their solutions work together and with other products. The Open Solutions Alliance (OSA) is a group of leading OSS companies dedicated to making enterprise-class open software solutions work together. OSA helps customers put open solutions to work by enabling application integration, certifying quality solutions, and promoting cooperation among open solutions developers.

[2] Actuate Corporation. The Actuate 2007 Open Source Survey, June 2007.

OSA recognizes that the challenges that impede OSS adoption cannot be readily addressed by any one vendor in isolation. Ingres Corporation is proud to have joined other leading OSS vendors – such as Concursive Corp (formerly Centric CRM), Hyperic, JasperSoft, Openbravo, and SpikeSource – in the Open Solutions Alliance.

Ingres is working to improve the interoperability of the Ingres Database with solutions of other alliance members. For more information about OSA, visit http://www.opensolutionsalliance.org.

TAKING A FRESH LOOK AT THE INGRES DATABASE

The Ingres Database is a commercially supported, open-source relational database management system (RDBMS) that has been supporting mission-critical workloads for over thirty years. By helping to eliminate, simplify, and automate the many tasks that are traditionally associated with maintaining an enterprise-class RDBMS, Ingres Database reduces complexity, time, administration, and costs. For example, the software's ease of use along with readily accessible, global open source community support minimizes the need for companies to maintain an arsenal of database administrators (DBAs). In addition to running on a wide variety of popular Linux, UNIX, and Windows platforms, Ingres Database works in varied development and deployment environments for server, desktop, web, and mobile application development.

Typically, Ingres customers report using one-third or less of the staff they would need to manage competitors' products.

Ingres Database is widely used by public sector and commercial enterprises for managing a wide variety of applications including business intelligence (BI) systems, enterprise content management (ECM), enterprise resource planning (ERP), and custom applications. Currently, the company is dramatically expanding its database solution, and improving interoperability with both proprietary software and OSS offerings.

Managing with Minimal Staff

The open source Ingres Database is easy to manage. Since many typical DBA operations are self-managed by the Ingres Database, fewer administration resources are required. Administration activities can also be controlled within an application. Typically, Ingres customers report using one-third or less of the staff they would need to manage competitors' products.

Leveraging Broad Platform Support

The Ingres Database is designed to meet the data server needs of small- to large-size businesses. It can be deployed on Linux, UNIX, or Windows servers of any size, from one processor to hundreds of processors. Ingres Database is an ideal foundation for building enterprisewide solutions – such as high-performing, 24x7, high-volume transaction processing business solutions or web-based solutions. For many commercial and OSS independent software vendors (ISVs) who are building enterprise solutions, such as business intelligence, content management, e-commerce, enterprise resource planning, logistical management, and supply chain management applications, Ingres Database has become the data server backend of choice. Additionally, Ingres offers connectivity, compatibility, and integration with other enterprise data sources, such as Oracle, Sybase, and Microsoft SQL Server.

Ingres Database is available on the most popular open source and proprietary platforms. These include both 64- and 32-bit distributions of Linux, UNIX, and Windows.

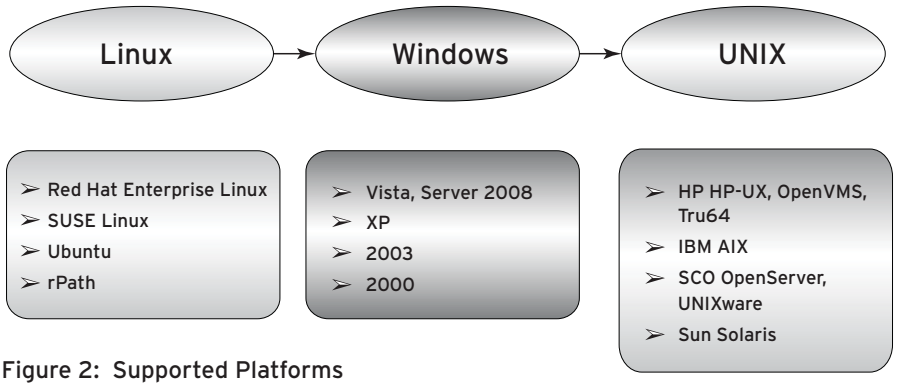

Figure 2: Supported Platforms

Supporting Multiple Application Development Frameworks

Ingres Database software offers a comprehensive solution that lets you leverage existing developer skills to build, integrate, expand, modernize, and deploy software. Ingres provides support for the most popular enterprise development languages, including Java and .NET along with many other languages. With broad support for Web 2.0 development paradigms such as Ruby, PHP, Python, and Perl, as well as support for legacy languages such as C, COBOL, and FORTRAN, Ingres provides a solid base for a wide selection of systems and applications.

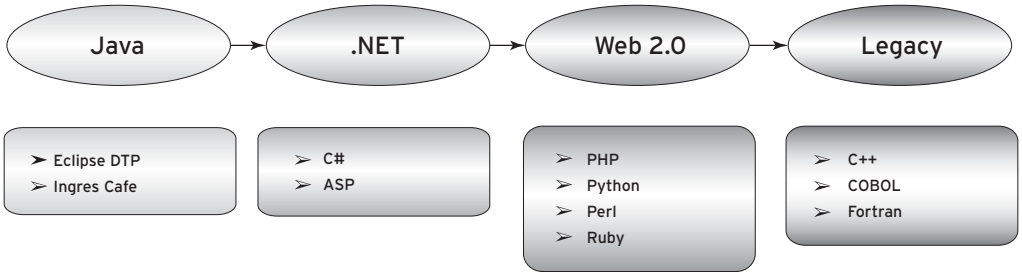

Figure 3: Ingres Database Development Support

Ingres Consolidated Application Foundation for Eclipse (CAFÉ) is an application development and deployment environment that accelerates and simplifies the development of Java applications using the Eclipse framework. Ingres CAFÉ is tightly integrated, eliminating the time-consuming tasks of acquiring, installing, and configuring the many components developers need in a Java application development environment. Ingres CAFÉ delivers a "one-click and

code" solution for development, and brings together leading open source products. The Ingres CAFÉ environment includes:

- Eclipse IDE
- Ingres Database
- Ingres Eclipse Data Tools Plug-in (DTP)
- Apache Tomcat
- Hibernate
- Java Server Faces Libraries

Ingres also facilitates the rapid development of data-centric applications through its comprehensive Ingres OpenROAD integrated development environment (IDE) support. Ingres OpenROAD reduces the total cost of ownership (TCO) for software development infrastructure by allowing application developers to design, prototype, build, and deploy applications on a broad spectrum of client or server platforms.

Integrating Business Intelligence

As the implementation of BI platforms continues to expand, Ingres is committed to reducing the cost, complexity, and time needed to implement BI solutions. By tightly integrating Ingres Database with a number of proprietary and OSS BI suites, BI solutions can be implemented in less time – and with less expense. The Ingres Icebreaker BI Appliance is a new, innovative BI solution that is robust, comprehensive, and cost-effective – ideal for organizations seeking to become more competitive, respond quickly to market demand, and ultimately enrich the bottom line. Conventional BI implementations can be expensive, often with limited returns. For that reason, organizations looking for an alternative solution to costly, traditional approaches can use Ingres Icebreaker BI Appliance to address decision-making challenges.

Powered by JasperSoft, Ingres Icebreaker BI Appliance delivers all of an organization's BI needs – from reporting, analysis, and dashboards to complete data integration with existing systems. It comes with a fully featured BI suite that includes extraction, transformation, and load (ETL) and online analytical processing (OLAP) functionality, along with report design, delivery, and security. Ingres Icebreaker BI Appliance eliminates unnecessary implementation and maintenance costs and gets customers to informed decision-making faster by melding a tailored Linux operating system, the Ingres Database, and the open source JasperSoft Business Intelligence Suite.

Ingres Corporation works closely with business partners and ISVs to further reduce cost and complexity. ISVs such as Wipro, Optwize, and Tata Consultancy Service (TCS) build analytic solutions on the Ingres Icebreaker BI Appliance to provide turnkey solutions in areas such as IT and financial management.

Reducing TCO for Enterprise Content Management

Content management systems create, edit, manage, and publish content. Systems today range from simple, web content systems to complex, enterprise-wide systems that help manage workflow. Complex enterprise content management systems often require components from multiple vendors and can easily exceed $1 million to implement. Open source ECM solutions can dramatically reduce the cost associated with ECM systems. Close integration with other OSS components can help extend the affordability of ECM solutions to new markets.

Ingres is working with open source ECM vendor Alfresco to do just that. The Ingres Icebreaker ECM Appliance delivers document management, collaboration, records management, knowledge management, web content management, and imaging in a software appliance consisting of Linux operating system, the Ingres Database, and Alfresco ECM solution. Software support and system updates are provided by a single source – Ingres Corporation. This single point of contact greatly reduces the total cost of ownership and simplifies implementation and management.

Because the Ingres Database can be managed programmatically, ERP systems built on Ingres can be deployed without requiring on-site database administration. This facility can greatly reduce the total cost of ownership of the solution.

Creating Cost-Effective ERP Systems on Open Source

Enterprise resource planning systems support a variety of business functions that typically include manufacturing, supply chain management, financials, project management, human resources, and customer relationship management. An ERP system based on an OSS allows every department of a business to store and retrieve vital information cost-effectively. Because the Ingres Database can be managed programmatically, ERP systems built on Ingres can be deployed without requiring on-site database administration. This facility can greatly reduce the total cost of ownership of the solution.

A number of vendors around the world support the Ingres Database as a repository for their ERP systems, and many deploy exclusively on Ingres. In addition, Ingres is working with a number of OSS ERP providers to certify Ingres as a repository.

Simplifying Custom System Development

Because Ingres supports open standards such as ANSI SQL, JDBC, and ODBC, developers can easily apply their existing skills to build systems on Ingres. Because Ingres supports such a vast array of development paradigms, including Java and .NET, Ingres is the perfect platform for custom system development.

For Java developers, Ingres CAFÉ is the natural choice for proof of concepts. Developers can download this complete development and deployment environment and begin development with a single click of a mouse. And because the Ingres Database is built for enterprise deployment and scales well, proof of concepts built on Ingres can move into production without modification.

As an enterprise-class RDBMS, Ingres is well suited for the long lifecycles of custom applications. New releases of Ingres are backward compatible, requiring no modification of existing applications when upgrading. Upgrades of the Ingres Database can also be executed in situ, eliminating the costly downtime required to unload and reload the database for upgrades.

CONCLUSION

Ingres simplifies IT management by providing a flexible, enterprise-class RDBMS that integrates easily into existing environments and provides a cost-effective open source support model. The Ingres Database ease of management helps reduce the overall cost of IT infrastructure management. And the open source database company's innovative approach to software appliances provides key business functionality such as business intelligence and enterprise content management that is truly seamless.

The Ingres Database provides the enterprise features and interoperability you need with the open source business model you want. By closing the interoperability gap, Ingres is clearing the way for pervasive adoption of low-cost, easy-to-manage open source software.

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About Ingres Corporation

Ingres Corporation is a leading provider of open source database management software. Built on over 25 years of technology investment, Ingres is a leader in software and service innovation, providing the enterprise with proven reliability combined with the value and flexibility of open source. The company's partnerships with leading open source providers further enhance the Ingres value proposition. Ingres has major development, sales, and support centers throughout the world, supporting thousands of customers in the United States and internationally.

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