

Migrate Oracle Forms to the Web

MAKING THE BUSINESS CASE

There are many reasons organizations are currently migrating their Oracle Forms applications to the Web. This white paper will discuss those issues and review the challenges that can occur during a conversion project. As well, it will discuss the options for migrating Oracle Forms, including moving to Forms 10g and migrating to Java.

As Oracle continues to promote their 10g and 11g environments, and to migrate their own applications to Java, many organizations are contemplating utilizing the new Web capabilities that are being provided. While past versions of Oracle Forms have enabled companies to access the Web, 10g is providing the most robust environment thus far.

Some companies have business reasons to migrate immediately to the Java environment. This may be driven by the requirement to use JDBC connectivity between applications presently in use, or because there is a specific business reason within the company that requires an application to run in Java. Therefore, companies are trying to determine whether to stay with Oracle Forms as a development environment or whether they should migrate to Java.

As companies develop modernization strategies for their Oracle Forms environment, the applications' sizes and complexities, retiring Forms developers and lack of documentation are all factors that must be considered. Many companies consider migrating to Java because of its lower development costs, integration capabilities, and if there is a requirement for an open, standards-based environment.

It is important that organizations understand the business reasons to migrate their applications and determine if the effort and dollars spent will justify the costs of the conversion to Java. Understanding the risks of migration and the benefits of Java is imperative to ensure an organization is not spending precious IT dollars on an alternative that does not make business sense.

As companies review the differences between migrating to Java and developing in 10g there are some key components that may assist in the decision:

Migration to Forms 10g is beneficial if:

- The organization has few Java resources and retains a skill set in Forms and PL/SQL development (stability in resource retention)
- The application doesn't require changes to the look and feel
- Forms are character-based (this is due to the learning curve involved in migrating from a client server technology to multi-tiered Java technology)
- Java plug-ins (downloads) are acceptable to users of the application

Migration to Java is beneficial if:

- Java has been selected as the future development environment for the organization
- Lower application development costs is a business imperative (Java development provides much lower development costs)
- Legacy Forms application requires integration with other applications developed in other environments



- Other applications within the organization utilize Java technology
- Application Servers or IDE are already in use within the organization that require independence
- The use of open source technology is beneficial to the organization
- Provision of choices within the client's environment is required (i.e., HTML, DHTML, and browsers)
- The use of SOA is beneficial to the organization
- The organization has determined that proprietary technology is no longer beneficial

THE BENEFITS OF JAVA

Java offers a robust, interactive environment. It is one of the most powerful Object Oriented Programming languages available and one of the most "open" technologies available. Java conforms both to its own standardized (and published) specifications as well as to other industry standards. JDBC database connectivity provides a standardized interface for relational databases that can interface, providing a greater level of database independence and portability. It also provides platform independence allowing an organization to utilize the most efficient and effective hardware available.

WHY IS JAVA SUPERIOR?

Java is currently the only technology that provides a fully interactive GUI interface for the Web. The Java architecture was designed with security in mind and not as an afterthought. This provides a simplified and consistent means of protecting IT assets. Java also provides features that allow programming to become easier and more powerful.

These include multi-threading capabilities:

- Automatic "garbage collection" (for efficient use of memory)
- Standardized error trapping and detection
- Distributed processing capabilities

ORACLE'S STRATEGIC DIRECTION

Oracle's acquisition of Sun Microsystems combines two power houses focused on delivering complete, open and integrated products to customers worldwide. As Oracle is one of the leading providers of Java-based application infrastructure middleware, their long-term application development strategy remains based on the Java platform.

Their goals include:

- Pooling server-side Java virtual machines to reduce the memory footprint of applications that call middle-tier Java
- Reduced application pre-starting
- Performance and scalability on the Web
- Expanding the scope and depth of the Forms management tuning and problem diagnosis facilities within Enterprise Manager
- Extensible client and middle-tier Java integration (Java Importer and Pluggable Java Component Interface)



THE OPTIONS FOR MIGRATION

There are several options available for migration of Oracle Forms or PL/SQL into the new Java environment. Conversions and migrations have been performed over the past 25 years as organizations move from older technology to the newest.

Many lessons have been learned through these conversions. With the options available, an organization can determine the methodology that suits their requirements based on the time available before the migrated application is required to be in production. This review should include their financial restraints as well as their internal capabilities.

The following outlines options for migrating the applications:

Rewrite the Application

There's a subtle reason that programmers always want to throw away code and start over. The reason is that they think the old code is inefficient. And here is the interesting observation: they are probably wrong. The reason that they think the old code has problems is because of a cardinal, fundamental law of programming: "It's harder to read code than to write it". This is why code reuse is so difficult. Programmers tend to write their own functions because it's easier and more fun than figuring out how the old functions work.

In other words, rewriting applications from scratch is the most expensive and time-consuming option. Many organizations believe that rewriting will solve their problems. They choose to rewrite because they need additional functionality, or because they believe it will save them time and money. One of the obstacles with rewriting applications is the enormous amount of testing that has to be performed to ensure business logic is handled properly, users understand the application, and the application is applicable for the business.

Web-enable Forms

This option appears to be simple. Utilize the capabilities of Forms and become Web-enabled. Some sort of migration effort is required to fully take advantage of the capabilities of Oracle's new technology. There are companies who are just not ready to migrate their development to Java. This may be due to resource restraints or knowledge level, or simply because they prefer to continue to develop their applications in Oracle Forms. In this case, utilizing migration services or tools to migrate to 10g or 11g makes sense. This will provide an organization the benefits of the technology as well as prepare them for a future move to Java.

Manual Conversion

This alternative is by far the riskiest. It is not only time consuming, but also shares the negatives that rewriting the application presents. This includes human error issues, lack of resources or skill set, and disruptions to the business operations. In addition, escalating costs usually coincide with manual conversions. Many organizations have started their Forms to Java conversions manually only to determine that the time difference between manual and automatic is significant.



Automatic Conversion

Automatic conversion is one of the best alternatives to migrating applications. With an effective migration tool, the conversion can be performed quickly and effectively with tremendous cost savings. Some conversion tools have been benchmarked to be 90 percent faster than manual migration and 80 percent less expensive. In addition, automatic conversion reduces the risks for the organization. Functionality is maintained and users do not require retraining. There are several options for automatic conversion that enable an organization to move quickly into the new environment. It is important to note, however, that all automatic conversion alternatives are not the same.

There are presently very few automated conversion tools available in the market with most vendors offering a service to perform a Forms to Java conversion. In some cases, these vendors require that the client send their code "offshore" to have the conversion performed. In addition, there are questions that should be asked of the vendor to ensure that the migration is being converted to a true Java or J2EE environment. These include:

- Is my application being converted to truly compliant J2EE code?
- Are we able to purchase the tools, or is this a service offering only?
- Where is my conversion to be performed (on-site or at the client's site)?
- Are we able to discontinue licensing of Oracle Forms and PL/SQL or do I still have to license these products?
- Is the vendor available to assist with any issues and training once we migrate to Java?
- What percentage of conversion is automatic or how much manual work is involved once it is converted?
- Is the J2EE code "clean", i.e., is it easily maintainable once I get into the Java environment?
- Does the converted code have the option to integrate with JDeveloper and utilize the ADF and BC4J environment from Oracle?
- Does the converted code allow you to become IDE and application server independent?

It is important that as a company asks these questions, they actually work with the vendor to provide a "sample" of the converted Java code. An organization should have the option to send in a small sample of an application to see the resulting converted code. This will ensure that the code is easily maintainable and functional as soon as it is migrated. Functionality can be added or changed during an automatic migration, as it can be more closely controlled than with other migration alternatives.

DELIVERING CONVERSION PROJECTS ON TIME AND WITHIN BUDGET

Successful Project Planning

IT projects fail regularly with costs and timelines being difficult to manage. Although companies regularly blame software for the problems incurred with delivery of projects, the real reason they fail is usually due to poor project planning. Due to the economic slowdown, companies are encountering significant problems in obtaining resources and funding for mission critical projects that require delivery in a cost and time efficient manner. In order to meet the challenges of projects, there are specific strategies that can be applied for success.



Migration projects are usually considered a low-cost, effective way to retain legacy investment in application software, while moving to new technology. In contrast to a complete rewrite of an application, the ability to build on software that has been created for many years makes good business sense. Migrating legacy applications is an efficient way to build on business logic that, in many cases, has been created and customized for many years.

There are some specific reasons why migration projects fail. These include the need to get a “quick fix” to an application as well as utilize migration technology that is available. While it can be beneficial to utilize automated migration tools, the tendency is to assume that these tools are “magic bullets” and to miss the overall benefits that can be achieved with migrating legacy applications.

As with any IT Project, in order for a migration project to be successful, it is important to utilize best practices throughout the project. Although companies encountering a conversion project sometimes feel the need to see these projects proceed very quickly, all of the same strategies apply as they do to any project. These following simple steps will ensure that a migration project is efficient, effective and economical.

Simple Steps to Success

- 1. Ensure the availability of proper resources and skills** - Resources should include staff who understand the original application, how it functions and operates, as well as the end user's expectations of the application. Staff who have an understanding of the new environment, have been trained on the differences, and have a good understanding of what the differences will mean to the business are important. End users being available for testing are extremely important to the overall success of the project.
- 2. Get commitment from management** - Ensure that management has endorsed the project and is committed to the overall success. This means their ability to allocate resources as required.
- 3. Project plans and schedules must be created and agreed upon before starting** - Project plans with milestones and schedules should be determined before a project is started. If an outside vendor is providing the services, project payment should be tied to these milestones.
- 4. Utilize Change Control Processes for changes to project scope** - Regardless of the size and scope of a project, utilizing Change Control Processes is critical to the success of any project.
- 5. Become familiar with the features of the new environment** - Understanding the new system requirements as well as the capabilities of the new environment will ensure that staff understands what it is undertaking.
- 6. Determine the correct migration or upgrade path** - This is critical as the path going forward should be determined based on the business drivers of the organization.
- 7. Determine if your organization is able to perform the migration or upgrade or if it should be outsourced.** Resource requirements and capabilities going forward are critical.

- 8. Determine system considerations** - Requirements such as hardware, disk capacity, memory requirements, scalability and other hardware capabilities should be considered.
- 9. Determine software requirements** - This would include new licenses of software, additional software to support the new environment, performance tuning software, and any software that will be required.
- 10. Tuning database parameters** - Ensure that parameters have been set according to new requirements.
- 11. Allow project time for performance tuning** - As hardware and software may be changing, it is critical to perform performance tuning. This will ensure that any additional hardware and software required can be implemented before the migrated application goes into production.
- 12. Develop test plans** - Testing is one of the most critical components of any project. Thorough testing is important to ensure that the application functions in the most efficient manner, users are satisfied with the end results, and the migrated application supports the business processes of the organization.

Testing requirements include:

- Upgrade Testing
 - Functional Testing
 - Integration Testing
 - Performance Testing
 - Volume and Load Stress Testing
 - Specific Pre-Upgrade and Post-Upgrade Tests
- 13. Set up a duplicate environment for initial installation and testing** - This ensures that testing will show the same results in both environments.
 - 14. Create detailed installation instructions so each procedure can be repeated.**
 - 15. Utilize testing and optimization tools** - This will allow the application to function in the most efficient manner possible.
 - 16. Implement backup and recovery plans** - These should be implemented throughout a project so that any work performed is continually protected.

It is sometimes difficult to determine the best solution for migrating applications to new technology. The conversion of applications should not be a painful exercise, but one that provides efficient alternatives to the organization enabling the most cost efficient option. Making the business decision to determine how to move into new environments is not always easy. Weighing the benefits to the business of becoming Web-enabled against the time and effort required for a migration process is an important part of this decision. Keeping costs and risks to a minimum, as well as causing little business interruption will ensure that the organization continues to benefit from the project.

SUMMARY

Many companies have millions of dollars invested in existing applications, with most of these proven systems that run their business for many years. Application software and the associated databases are valuable corporate assets. Companies now want to leverage their current investment in data, products and applications with new applications. It is generally not practical to spend countless dollars replacing existing, functional systems with new technology or a new programming paradigm.

It makes more business sense to implement new technology where the impact will be the greatest (such as in the front-end of the application) and the relative cost will be the most reasonable. The goal is to leverage existing application systems and data while providing new functionality. Thus, any technical decision that maximizes the business impact and minimizes the cost and risk of failure is always a good business decision.

ABOUT CIPHERSOFT

CipherSoft is a migration software and services company with offices in the United States and Canada and partners in over 25 countries. The Company is a wholly-owned subsidiary of Unify Corporation, a global provider of application development, data management and migration solutions. CipherSoft is an endorsed Oracle partner and its automated migration tool Exodus is the only tool of its kind to be validated by Oracle. CipherSoft is a member of the Oracle Modernization Alliance (OMA), the Oracle PartnerNetwork (OPN), and Oracle Technology Network. Visit www.ciphersoftinc.com.

ABOUT UNIFY

Unify® (NASDAQ: UNFY) is a global provider of application development, data management and migration solutions that enable organizations to cost-effectively deliver modern, data-rich applications and databases. The company's software and services modernize and maximize the development, deployment and performance of business-critical applications and data, while providing a measurable return on investment. Unify is headquartered in Roseville, Calif., with offices in London, Munich, Calgary, Paris, and Sydney. Visit www.unify.com or email info@unify.com.

© 2009 Unify Corp. All Rights Reserved. No part of this document may be reproduced without prior written authorization from Unify. CipherSoft is a trademark of CipherSoft Inc. Unify is a registered trademark of Unify Corp. All other company and product names are trademarks or registered trademarks of their respective companies.

CipherSoft Inc. Technology Office

#205 – 279 Midpark Way S.E.
Calgary, AB, Canada T2X 1M2
Toll Free: (866) 424-7437
Phone: (403) 256-5699
Fax: (403) 256-5695
Email: info@ciphersoftinc.com

Unify Corporation

1420 Rocky Ridge Dr., Ste 380
Roseville, CA 95661 U.S.A.
Phone: (916) 218-4700
Fax: (916) 218-4378

