



State Government Agency – Secretary of State

Overview

Java is the foundation for virtually every type of networked application and is the global standard for developing and delivering mobile applications, games, Web-based content, and enterprise software. With more than 9 million developers worldwide, Java enables you to efficiently develop and deploy exciting applications and services. With comprehensive tooling, a mature ecosystem, and robust performance, Java delivers applications portability across even the most disparate computing environments.

Oracle WebLogic Server Standard Edition is the world's best application server for building and running enterprise applications and services. It is the cornerstone of Oracle cloud application foundation, the industry's most complete, best-of-breed platform for developing cloud applications. It offers choice in development frameworks and tooling. Comprehensive and accessible management capabilities enable administration of sophisticated systems via a well-designed graphical console and/or automation. All users benefit from Oracle WebLogic Server's reliability and performance, which has been tested over years of enterprise-grade production use in demanding customer environments the world over.

During difficult economic times, state agencies are faced with many challenges. This state government agency has crucial responsibilities including the promotion of commerce by enabling the creation of business, commission of Notaries Public and streamlining access to government services and regulatory requirements. A growing number of corporations are looking to do business with state agencies over the Internet using electronic media.

With over 150,000 businesses in its state, this agency needed a solution that streamlined the electronic process of registering a business with the state for the first time and renewing business information with the state as the business continues to grow and change. A solution that reduced operating costs, minimized paper handling, and simplified processes was essential to modernizing state agency interaction with its customers. Additionally, the sharing of common data between government agencies has been a long-time goal to aid the public in doing business in the state. Leveraging Oracle's WebLogic and Java technologies, Zirous designed and implemented a solution that assists customers with business registration and renewals with the state by supplying them with the appropriate online forms to register a business. The solution met the agency's goal by providing a secure, user-friendly system that allows customers to initially file and renew business information online while minimizing agency and partner agency personnel processing.

Technology

Stack:

Solaris Hardware
HA Configuration
F5 Big IP Load Balancers
Java
WebLogic 11g
Apache Web Server
Oracle Database 11g
Oracle Toplink
Hibernate
Struts



Challenges

Providing a streamlined process for companies and customers to register a new business online posed several challenges to the agency including:

- Replacing slow and personnel intensive paper processes for new business registrations, renewals, and application error correction.
- Providing private and secure access to public business and citizens.
- Sharing information securely with partner agencies and allowing those agencies to complete their portion of the process.
- Integration of the online application with existing legacy applications and databases.
- Development of a system that handles multiple simultaneous transactions.
- Supporting the diverse types of business that must be registered with the state: limited liability companies, business corporations, non-profits, foreign businesses, etc.

Solution Details

Zirous architected, designed, and built a web application using Oracle's WebLogic application server and Java technologies. The system, known as Central Business Registry, leveraged frameworks such as Oracle's Toplink, Hibernate, and Struts to increase developer productivity and application performance. Application data is persisted in an Oracle 11g database. The entire system executes behind load balancers and runs in a high-availability environment. Highlights of the solution include:

SSL Web Services

Because partner agencies play a role in processing a business application, SSL web services were used to share business information in a controlled and secure environment. Web interfaces allow partner agency personnel to send business application information to partner agency back end systems for augmentation. The enhanced information is routed back to the primary agency for continued processing. These web services were built utilizing X.509 public key infrastructure. Additionally, sensitive information such as SSN, FEIN and BIN are encrypted prior to storage and transmission.

Virtual Server and Load Balancing

The agency wanted the Java application to be highly available, redundant, and scalable. Load balancers were introduced that routed web traffic requests to one of the application servers that run in a WebLogic cluster in a threaded environment. The application was written to support the clustered model.

On-the-fly PDF Generation

The agency wanted the business filing process to be as simple and customer friendly as possible. To help support that goal, business application filing regulations, supporting documentation, and the customer's own filing information is dynamically presented to the customer when needed in an immutable and compact PDF format generated using Java code libraries.



Locations:
West Des Moines, IA
Minneapolis, MN
Portland, OR

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Virus Detection

As a part of the filing process, customers are sometimes required to submit documents in electronic format as part of their submission. The application used McAfee virus detection software to check for viruses or other malware that might be uploaded by the customer with their application.

Application Verification

To ensure quick processing and minimize paperwork, error detection and recovery processes are implemented in the Java application. This allows agency and partner agency personnel to check for common errors and generate an automatic email to the customer asking for a correction. Customers can supply missing documentation and enter corrections as part of their application process.

Payment Services

State regulated fees must be collected from applicants. This is done in a secure fashion through a third-party eCommerce service which the application communicates with using SSL web services.

The following graphic depicts a common scenario showing the interactions between a business applicant, the agency, and partner agencies.

