TOMITRIBE CASE STUDY

INDUSTRY
CAD/CAM/CAE/PLM software

COMPANY
Dassult Systèmes

LOCATION
Vélizy-Villacoublay, France

TECHNOLOGY PARTNER
Tomitribe

OPEN SOURSE SOFTWARE
Apache TomEE and Java EE

DASSAULT SYSTEMES

MIGRATING TO APACHE TOMEE & JAVA EE: A SUCCESS STORY

Dassault Systèmes long-term Cloud strategy connects over 190,000 enterprise customers, 10 million on premise users and 100 million online users, on a powerfully unique software platform.

> " OPEN SOURCE PRODUCTS LIKE APACHE TOMEE ARE KEY TO MAKING MIGRATION TO A STANDARDS BASED JAVA EE TECHNOLOGY A NATURAL CHOICE FOR MEETING OUR CUSTOMERS NEEDS WHILE SAVING US ON DEVELOPMENT TIME AND RESOURCES."

MICHAEL FINOCCHIARO

TECHNICAL ARCHITECT DIRECTOR
DASSAULT SYSTÉMES
"THE 3DEXPERIENCE COMPANY"

KEY CHALLENGES

- Migrating multiple commercial application server platforms.

- Achieving acceptance and conversions internally and with new & existing customer base.

- Unifying two code base to new Cloud-based architecture.

- Overcoming license and compatibility issues.

COMPANY

Dassault Systèmes, "The **3D**EXPERIENCE Company", is a European software company that develops Product Lifecycle Management (PLM), 3D Design and 3D Digital Mock-up solutions for global customers. It's a business experience platform available on premise and in the public or private Cloud. Now serving over 12 industries in over 140 countries, Dassault Systèmes provides businesses and people with virtual universes to imagine sustainable innovations.

CHALLENGE

A new generation of Computer-Aided Design (CAD) software called CATIA brough Dassault Systèmes to world 25 years ago. It was originally developed using simple Servlets and JSPs and grew to millions of lines of code for hundreds of individual native and web applications. CATIA was originally deployed using WebLogic, before it was Java EE Standardized, and later expanded to WebSphere. As the customer base grew, so did the diversity of demands as seen overtime in testing and developer resource costs.

The platform became too cumbersome, painful and hard to maintain. Compabilitiy issues made it difficult to scale and support. Problems with the containers were regularly blamed on the platform instead of the application server vendor. This lead to a huge increase of testing costs along with growing development and licensing costs. It quickly became clear these cumalative costs were not sustainable for growth. The platform needed to be easier to support and scale to face new market demands.

Dassault Systèmes' solution is to unify the two code-based and seek the benefits of the Cloud while reducing internal resource development and operations costs. Cloud SaaS deployment offers the right mix of service flexibility and leverages many modern technologies for scaling.

The Dassault Systèmes R&D team was tasked with unifying a platform that will be available to both the Public and Private Cloud, on-premise and mobile devices. It has to work across 4 different datacenters with redundant servers and high availability for cloud scaling. To be cost competitive, the system also has to be Open Source, Java EE standards based and a technology customers IT and internal development teams are familiar and comfortable with. This new system must allow for easy migration, reduced internal resource demands and easy to maintain all the while attract adoption from new and existing customers.

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SOLUTION

Tomcat is the most widely used application server with an outstanding developer community. It's easy for development using the standard tools available. The nature of being Open Source gives it considerable advantages to the development teams. Open Source allows them to learn, debug and contribute to technology improvement in a quick and efficient way. However Tomcat lacks Java EE support, which is an important drawback. This means that third party libraries must be included to support it; resulting in unnecessary overhead.

This is where TomEE presents tremendous value. TomEE provides a Web Profile certified stack of Java EE Technologies right out of the box with everything needed to be productive, while maintaining the added benefits and familiarity of Tomcat. It makes it easier to transition between the different software lifecycles, Development, QA and Support. The maturity of the underlying implementations provides enough confidence to adopt TomEE and make it a central piece of the future development strategy for Dassault Systèmes.
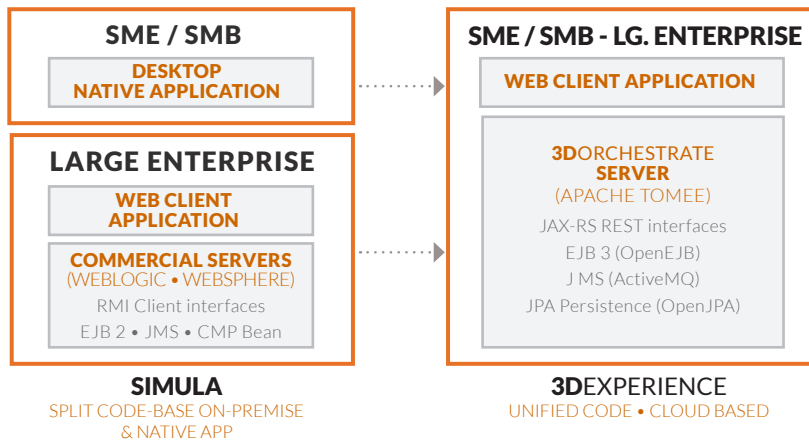
BENEFITS OF ADOPTION

• Cloud-enabled solution for SME / SMB to Enterprise customers

• Available on-premise, Public & Private Cloud, and mobile.

• Unified portfolio solution that's scalable.

• Consolidated R&D team skill sets.

• Modernized tool set.

• Faster install and setup time.

• Ease of use with Tomcat and the power of Java EE.

• Lowered TCO for both Dassault Systèmes and customers.

• Reduced development and testing costs.

SME / SMB
DESKTOP NATIVE APPLICATION

LARGE ENTERPRISE
WEB CLIENT APPLICATION
COMMERCIAL SERVERS (WEBLOGIC • WEBSPHERE)
RMI Client interfaces
EJB 2 • JMS • CMP Bean

SIMULA
SPLIT CODE-BASE ON-PREMISE & NATIVE APP

SME / SMB - LG. ENTERPRISE
WEB CLIENT APPLICATION

3DORCHESTRATE SERVER (APACHE TOMEE)
JAX-RS REST interfaces
EJB 3 (OpenEJB)
J MS (ActiveMQ)
JPA Persistence (OpenJPA)

3DEXPERIENCE
UNIFIED CODE • CLOUD BASED

Figure 1. Finocchiaro, Michael. (2015).
Migration from split code-base (On-Premise & Native App) to Cloud-enabled solution. [PPT slides].

BENEFITS

Dassault Systèmes is a significant Cloud provider in the PLM and 3D software arena, and TomEE is taking a major role in the company strategy. Development and licensing costs were reduced dramatically. By adopting TomEE, Dassault Systèmes' deployment and operation procedures were simplified and tool sets were updated to a more modern approach to deal with Cloud specifics.

The platform is now available as a SaaS, with high availability and scalability, serving thousands of users around the world. Dassault Systèmes has improved its customer experience and satisfaction by closing the gap between services offered and demanded.

LOOKING AHEAD

TomEE has enabled Dassault Systèmes to leverage other technologies beyond the limits of Servlets and JSPs. In fact, these pieces are being migrated to HTML5 and CSS3. Other technologies including JAX-RS, JAX-WS, JMS and JMX, are now being adopted, while JSF, CDI, EJB, JPA and JavaMail are being introduced, and JAAS and JTA are being explored. This will further expand the Cloud-based platform capabilities and improve Dassault Systemes' customer experience.

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