

## Technical Document Management System

### Client

A leading aerospace manufacturing company

### Business Area

Engineering Document Management

### Technology Set

- J2EE, HTTP/HTTPS, Web services
- IBM WebSphere Application Server, Apache Tomcat
- Digital Repository: IBM DB2 with datalinks
- PDF processing: Adobe LiveCycle ES, Pegasus, PDFlib
- OS: IBM AIX, Sun Solaris

### User Profile

- 150,000 company employees, suppliers, partners and customers

### Geography

- Worldwide, 24/7 availability

### Project Profile

- Over 23 million documents
- 6 terabytes of information

### Team Profile

- 35-50 people
- Collaborative distributed environment (Seattle, Moscow, Dubna, Omsk)

### Duration

- Ongoing in maintenance phase

### Summary

An outdated, internally developed, document management system is re-engineered to increase capacity and improve performance, security and sustainability.

### Business Challenge

In the early 1990s, the company developed a document management system (DMS) in-house to manage its aerospace engineering documentation. By 2003, the company had over 23 million documents accessed by 150 thousand employees, business partners, suppliers and contractors around the world. The system was unable to support the increasing number of users and the growth in data volume. Its maintenance became too expensive.

Four primary business challenges needed to be resolved during the re-engineering of the company's technical document management system:

#### 1. Improve performance

Performance became a major issue in the existing DMS system. The new system must meet the demand of over 150 thousand users worldwide with short response times and high availability.

#### 2. Plan for future capacity requirements

The unique requirements for engineering documentation in the aerospace industry require a lead strategy for capacity planning. Long-term archival of highly detailed drawings and 3D models for each aircraft by tail number, as well as other documentation such as service manuals and parts catalogs, must be achieved while maintaining system performance and lossless data compression.

#### 3. Improve security

The highly sensitive nature of aerospace engineering documentation combined with a large and diverse user base presents a complex challenge to ensure security against unauthorized viewing or modification. The system's security policy must be flexible enough to

accommodate complex permission sets for a large number of users and provide a federated user identity to other systems.

#### **4. Increase sustainability**

Rapid technological advances in manufacturing, regulatory changes and globalization continually produce new business requirements in the aerospace industry that affect the management of information. The system must have a high level of sustainability in response to changes in the business model.

## **Luxoft Delivered Solution**

Working closely with the company engineering teams, Luxoft delivered a powerful and flexible solution to replace the outdated document management system. The new system has a robust distributed, clustered architecture to enhance sustainability; complex Digital Rights Management (DRM) functionality; and significantly improved back-end services for enhanced collaboration, document management and business process automation. Value-added features in the new system include:

### **1. High-capacity digital document repository**

- Based on IBM DB2 technology, the repository stores over 6 terabytes of files and metadata with robust recovery capabilities and transaction consistency
- Clustered technologies for vastly improved performance and scalability
- IBM HACMP technology for high availability and response times

### **2. Digital Rights Management (DRM) and entitlements**

- Adobe LiveCycle usage rights management to protect sensitive documents
- Password protection management
- Dynamic generation, signature, and encryption of engineering PDF documents
- Automated validation of digital signatures in PDF documents
- Real-time loading and application of entitlements
- Integration with external entitlements management systems

### **3. Enhanced document management**

- Dynamic analysis of document structure and contents information
- Document usage tracking and statistics
- Real-time document content modification
- Lightweight engineering graphics (PDF U3D data)
- Local printing and batch print centers
- Automated reports generation (billing, entitlements, etc.)
- Enhanced processing of PDF v1.6 and higher

### **4. Distributed workflows**

- Thin client architecture
- User interface provided via a web browser
- Easily configurable, flexible and portable data access layer

- Automated data feeds from external data providers
- Web services integration with third-party systems

## **Client Benefits**

Luxoft successfully developed the new document management system in 18 months, deploying it in several stages beginning in 2004. The system effectively and efficiently resolved all of the business challenges achieving the following benefits for the company:

- Substantially reduced operational and future development costs
- Improved scalability, portability, productivity, manageability, and security
- Expanded capacity to support new business requirements and host new products
- Currently supports over 150,000 users worldwide
- Handles over 6 terabytes of information (over 23 million documents)
- 24x7 worldwide availability
- Stores complex drawings with different structures and attributes
- Seamlessly integrates with corporate authorization systems
- Provides additional protection to sensitive data
- Tracks document usage
- Increased user satisfaction

## **Would you like to learn more?**

Please let us know if you are interested in any additional details or have questions regarding solution above and our expertise in the field.

Please contact us through [aerospace@luxoft.com](mailto:aerospace@luxoft.com)