

3D Graphics Data Transformation

Client

A leading aerospace manufacturing company

Business Area

Manufacturing

Technology Set

- Java, OSGi, Web Services, SFTP
- Dassault Systemes ENOVIA, CATIA
- Universal 3D (U3D)
- PDF, Adobe LiveCycle ES
- Right Hemisphere DeepServer
- Microsoft SQL Server 2005

User Profile

300+ company employees and external suppliers

Geography

Worldwide, 24/7 availability

Services Provided

Full cycle: Business analysis, Development, QA/Testing, Maintenance with production support

Team Size

- 12 people
- Collaborative distributed environment (Seattle, Moscow, Omsk)

Duration

? years

Summary

Complex, proprietary, 3D graphics data format is transformed into an open format that enables universal data exchange and archive capabilities.

Business Challenge

The customer, a leading aerospace company, used Dassault Systemes' CATIA, which is the leading platform for computer-aided design and manufacturing, in the lifecycle management for the majority of the product line. CATIA's data format is proprietary, thus inhibiting external data exchange.

The business need was the lossless transformation of complex data in a proprietary format for integration with the company's external systems and for output into an open format for archival and data recovery.

Luxoft Delivered Solution

Luxoft organized the project with the following phases:

- Requirements gathering and design
- Development
- Testing and user acceptance

The architecture framework and solution protocols were finalized in the requirements gathering and design phase, with decisions that support open and universal technologies:

- An OSGi framework would provide an open platform for the Java programming language to give the customer a flexible, cross-platform solution.
- Web services frameworks that use Adobe LiveCycle for document output and content services, Deep Server for 3D media production, and context generation for source data structuring to give the customer the benefits of straightforward integration and reusable code resulting in incremental cost savings.
- Secure transfers of archival media to remote data storages use SFTP for the flexibility of encrypted data transfers that work in any environment.
- SQL Server was selected as the relational database for simple integration with Deep Server, which is built upon SQL Server, providing universal access to all product media.

- The 3D graphics data transformation into the Universal 3D (U3D) compressed file format facilitates data exchange via a universal standard that is natively supported in Adobe PDF format.

Design and development was conducted iteratively with comprehensive unit testing that maintained the integrity of the data transformation as functionality was added. Each iteration of the data transformation consisted of:

- Extract source data
 - Prepare and download CATIA data packages
 - Perform initial data analysis and validation
- Data transformation
 - Source data context generation with in-depth analysis and validation of the structure
 - Initiate data transformation via Deep Server
 - Validate data transformation
- External data exchange
 - Interface to Adobe LiveCycle enabling additional measurements and cross-sectioning features
 - Upload data to remote storage via SFTP
 - Validate successful completion of the data exchange

Upon completion of iterative design and development, end-to-end testing of the entire solution ensured data integrity, performance level-of-service goals, and system stability. User acceptance testing was conducted in a pre-production environment giving the customer a real-world view of the transformation results.

Client Benefits

Luxoft designed the architecture using universal frameworks and open protocols to give the customer a flexible and sustainable solution for the exchange and archive of critical product data that facilitates scalability and reduces the cost of maintenance.

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.