Case Study

Product migration - PowerBuilder to J2EE migration

THE CUSTOMER
An international Intellectual Property (IP) Case Management Software provider with a wide base of clients, ranging from large law firms and corporations to smaller firms and individual practices. The customer’s IP solution delivers measurable results and allows IP professionals to control costs, improve profitability and increase productivity.

THEIR NEED
Migration of their client-server case management product (written in Power builder over a span of almost 10 years) to a web-based J2EE product in order to provide better usability, access to global data and to garner a higher market share for their product by making use of technology advancements.

OUR DEED
Aspire successfully migrated the product from Powerbuilder to J2EE at a 30% faster rate than the existing development rate of building Powerbuilder components. The Aspire team also ensured that the performance of the migrated product was better than the original Power builder version.

TOOLS & TECHNOLOGIES USED
Eclipse 3.2 IDE, Power Builder IDE, Enterprise Architect, CodePro

IP Case Management Software
The customer’s IP Case Management Software was created by IP professionals for IP professionals and handles all case matters within an IP organization, including litigation. The flexible software is an enterprise wide solution that provides point-and-click access to case data and automatic tracking of relevant IP, i.e., laws/regulations, standard forms, time and cost registration, invoicing, document management including mail merge activities and batch processing.

This IP case-management software is data-driven and designed to handle unique Work Flow processes for all IP cases. The product was used extensively inside IP organizations as well as by traveling professionals and external users. Hence, the customer wanted to offer the case-management software as both a client-server and web based product – or as a combination of both.

Migration approach
Aspire adopted the following approach towards the Powerbuilder to J2EE migration after understanding the customer’s needs:

Key benefits to the customer:
The migration approach of the case-management software to J2EE resulted in a high level of modularization of the product, which in turn resulted in easy maintenance. For example, there was a 50% reduction in the time taken to change a common feature across all sub-modules...
Understanding the current system was taken up from both the functionality and development perspectives. Based on the training provided by the customer and the user guide available, Aspire expanded the functionality understanding and verified the existing functionalities in the product.

System study from the development perspective was taken up in order to capture existing business logic. Following were the objectives of analyzing the product:

- Identification of sub-modules to be migrated
- Identification of other subsystems from where services of one or more functionality to be migrated is used
- Identification of the functions in the existing systems that is common across sub modules (Duplicate implementations)
- Methods/functions of the subsystem that need to be implemented or not to be implemented based on the existing/new business rules.
- Status of the callers of the services of the functionalities of the sub systems i.e. whether the callers are active in the present context or not
- Detailed documentation of the existing business logic.
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**Migration Planning**

Migration planning work was carried out in the following sequence and each of these phases helped in preparing the migration schedule.

**Input**
- Existing source code
- Use case document
- User guide
- Updated functionality clarification document

**Output**
- Identified sub modules
- List of service requesters from other modules/sub modules
- Identified list of common across all sub modules
- Activity diagram to capture business rules

**Best practices**

Revisiting Risk plan (during start up, execution and closure of each phase) and making amendments to reflect the current risk factors and mitigation plan...

**Migration Execution**

Based on the product code analysis, as well as the priorities set by the customer, Aspire came up with the strategy of iterative migration combined with data layer migration. Since each sub system of the product had several sub modules, each of which were not tightly integrated with the other and since they were data driven, migrating the data layer was critical.
The migration was carried out based on the migration strategy arrived at.

For each of the modules taken up, the above migration execution strategy was implemented. Each layer migration had designing, implementation and unit level testing in-built before verification of the migrated layer functionality against the existing product. This approach was decided on because of the advantages of verification as and when the migration happened.

Due to the above approach impact of the risks identified were dramatically reduced and eventually some of the risks were no longer found to be potential risks.

**Best practices**

The following were some of the best practices adopted for the migration:

- Module-wise migration with layered approach
- Capturing business rules as business flow diagrams
- Writing test cases upon arriving at the design
- Verification and validation after each of the milestone achieved against the existing product.
- Revisiting Risk plan (during start up, execution and closure of each phase) and making amendments to reflect the current risk factors and mitigation plan.

**Key Benefits to the customer**

The migration approach of the case-management software to J2EE resulted in a high level of modularization of the product, which in turn resulted in easy maintenance. For example, there was a 50% reduction in the time taken to change a common feature across all sub-modules.

The Aspire team’s productivity was also higher compared to the customer’s previous
productivity levels by approximately 30% and hence, enabled the customer to go-to-market with the web-based J2EE product version quickly.

The migrated web-based IP case-management software was available for users inside an IP organization as well as on-the-move professionals and external users.

ABOUT ASPIRE SYSTEMS

Aspire Systems is an Outsourced Product Development firm committed to helping our customers build software products better and faster. We work with some of the world’s most innovative Independent Software Vendors and software-enabled businesses, ranging from start-ups to established industry leaders, transforming the way software is built.

Aspire provides complete product lifecycle services, ranging from new product development and product advancement to product migration, re-engineering, sustenance and support. Our product development teams are spread between our Global Innovation Center in Chennai, India and offices in the United States.

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