



## ASPrecise AMICOS

*Business Transformed: ASPrecise leverages Imfinity's end to end product outsourcing capabilities to build the world's first .NET MRO product*

*"Imfinity's commitment to in-depth, up-front understanding of the requirements in a specialized domain like MRO proved to be invaluable to ASPrecise. In addition, a single-minded focus on quality and flexibility in work methods makes Imfinity a reliable long term partner for ASPrecise."*

- **Chris Krishnaswamy, CEO**

ASPrecise Pte Ltd

## Customer Introduction

ASPrecise Pte Ltd is an IT solutions provider for the Maintenance, Repair and Overhaul (MRO) segment of the aviation, transportation, energy and power industries. Its major clients include Singapore Airlines, British Airways, Lufthansa, SAS, Rolls Royce, Bombardier, Hainan Airlines and Shenzhen Airlines.

## Business Situation

ASPrecise was operating on a legacy AMICOS system that was equipped with the modules for its functions in Inventory, Planning, Engineering, and Dispatch. In response to the developing market, a flexible and scalable application was needed, which could facilitate the rapid development of critical functionalities related to Workflow and Short Term Scheduling.

ASPrecise turned to Imfinity for their product design, migration and development needs.

## The Challenge

A complete re-engineering of the existing MRO product would have taken at least 12 man-years. Imfinity's challenges were multi fold:

1. Migration strategy to cut down effort from 12 to 2 man years, with a time to market of 8 months.
2. Migration plan to balance the re-usability of existing application components and their re-engineering.
3. Re-architecting the existing monolithic product to a 3-tier architecture
4. From one single code base in Prolifics (a C++ based development platform for Windows), a whole new architecture had to be built. Extraction of the presentation, business processes and data access interfacing had to be performed in the most optimal way, with minimal re-engineering.

## Imfinity's Solution

**Phase 1 - Preparation:** 3 main activities

- Re-engineering: Documenting new requirements, developing frameworks for the UI and modules that needed to be rebuilt from scratch.
- Architecture design: With a migration roadmap for pure .NET code in future.
- Automation: Identify and automate the extraction of information base from the legacy application (to speed up development using code generation)

## Case Profile

**AMICOS (Aircraft Maintenance Inventory Control Operations System) for ASPrecise Pte Ltd**

**Duration::** 26 man months

**Environment::** Windows 2003 Server System with Oracle 9i database, Visual Studio .NET 2003

**Technology used::** Service Oriented Architecture with XML Web services, .NET interoperability with Java and COM, Interactive and rich windows forms client

**Services::** Product Architecture, Migration, Development & Training

**Results::** Cut down development time by a third, using innovative UI, data and business logic migration techniques

## Phase 2 - Migration Increment 1

- The UI (windows forms) was fully generated with .NET CodeDOM techniques using the information about each widget that was exported to XML from the original application.
- The business logic layer was encapsulated into COM objects and .NET-COM interoperability techniques were used to expose these COM objects as web service methods, thus making them accessible to the presentation layer.
- Auto-generation of data access components

The above solution cut down time-to-market by a third.

## Phase 3 - Re-engineering

- UI Layer: Advanced user controls and the validation framework were built to support specific requirements of the application.
- Business Layer: Changes, enhancements as required were made.

**Phase 4 - Integration and User Acceptance:** Code generation approach helped with presenting user interfaces to the customer and gain user validation. This allowed Imfinity to squeeze in the integration and user acceptance into a single phase.

**Phase 5 - Refinement:** This phase was included to make the application future-safe - The architecture and the migration plan had been devised to ensure that various modules in the application can safely be plugged out and re-engineered with minimal impact to the presentation and the data access layer. This phase continues in the form of user customization and enhancements to the system.

## Intellectual Property Created

- User controls: Advanced user controls for windows forms, Advanced data grids – multi band, Hierarchical grids for master-detail view. Card layout views. Modifications to tab controls to support “float”, “cut” options.
- Caching Block: Generic cache for storing datasets which improved performance. Concurrency issues were handled by message passing.
- Code generators: CodeDOM based code generator for generating Windows Forms; generators for data access layers and stored procedures; business objects generator using proprietary input schema

## Solution Highlights and value adds

- **IP Creation:** Advanced user controls, code generators and caching blocks.
- **Cut down development time to a third:** Using innovative UI, data and business logic migration techniques
- **UI Migration:** Extraction of UI info to XML and reconstruction in .NET for over 900 screens
- **Data Layer portability:** Proprietary schema devised to migrate data layer info and code generation
- **Presentation layer extensibility:** can be changed from windows to web/mobile
- **Globalization ready product :** supports English, Chinese due to built in multi lingual support.

# imfinity

*Transforming businesses*

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