SIS Datenverarbeitung GmbH, Austria

Successful migration of ERP-System with
650,000 Lines of Code from VB6 to .NET

Client Challenge

An Austrian manufacturing company with worldwide market presence relies on a highly optimized, in-house developed ERP-system based on Microsoft Basic Version 6 (VB6), consisting of 33 applications, covering almost all business processes.

Since April 2008 applications developed with the VB6 Integrated Development Environment (IDE) are no longer supported by Microsoft. In addition the, the VB6.0 runtime will not be guaranteed after 2011. Therefore the following options were considered:

- Re-write the system manually in Visual Basic .NET.
- Migrate the systems to .NET and improve the quality through refactoring.
- Find a package to replace the systems and undertake the required systems integration.

The results of an extensive technical and commercial evaluation by **SIS Datenverarbeitung GmbH** showed a .NET migration to be the superior choice for the following reasons:

- Protection of extensive investment in highly optimized systems
- Functional equivalence (1:1) of migrated applications
- Short timeframe: full port within 12 months or less
- Reduced risks and costs of migration vs. other options.

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The chosen approach

To facilitate a migration automated to the greatest possible extent SIS conducted an inventory of the existing code-base, identifying critical and "difficult" functions.

During the software evaluation phase SIS run a 25K prototype through all the conversion programs. **It took 2.5 hours to get a compilable and runnable VB.NET project with VB Migration Partner, and 13 hours with its closest competitor.** The reduced effort, the ability to use pragmas and support for the convert-test-fix were the main reasons for choosing Code Architects' software.

After successful migration of the prototype the actual migration was performed as follows:

- Assurance of functional equivalence through detailed inventory of existing functions
- Detailed migration-plan: tasks, restrictions, risk-analysis
- Validation of tools, processes, results and cost
- Migration infrastructure with multiple code-path: reference-, development-, test- and production-system
- Configuration Management tool to track status of code
- Extensive checklists for manual optimization during migration
- Knowledge-base for future maintenance-guidelines
- 5-step quality assurance:
    - 100%-code-Review, checks and refactoring of migrated code
    - Unit-tests
    - Function- and performance-tests
    - Integration and trial-runs
    - Performance profiling to validate performance after migration

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Benefits

The selected conversion software allowed to successfully migrate 650,000 lines of code within 6 months with a total effort of 18 man-months, excluding code review and refactoring. Another set of 300,000 lines of code will be migrated within three months.

Since the core applications of the ERP-System are mission critical to the client´s operation, highest priority was assigned to achieve functional equivalence of the migrated systems: all functional changes were avoided to ensure that the old and new systems function identically.

VB Migration Partner's support library ensured that all VB-related methods and controls work identically in the converted VB.NET application, whereas its code generation engine prevented subtle behavioral differences from being accidentally introduced.

Changes to "look and feel" and data-structures were also avoided to **minimize education and training of users** (approximately 350).

Improved performance and software-quality was achieved through extensive refactoring.

Quote from the customer

VB Migration Partner from Code Architects delivered fewer compilation and runtime errors than all its competitors. Its migration pragmas and the convert-test-fix methodology proved to be powerful and flexible enough to handle a large VB6 application (650K lines of code) with ease, the documentation is excellent, and Code Architects' tech support has always been very responsive.

Dr. Otto J. Wiegele, CEO, SIS Datenverarbeitung GmbH