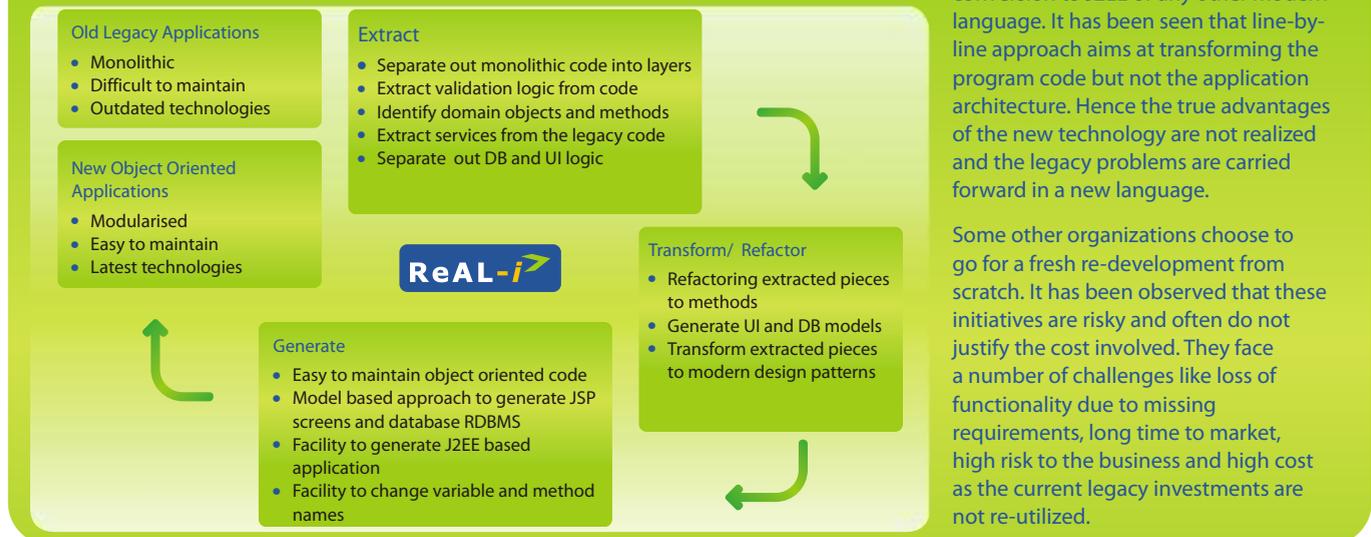# Re-Architecting Legacy iSeries Applications

Re-Architecting of applications from legacy environment to modern, open environment is a challenging problem for many organizations. There could be various drivers to modernize the applications namely

- Need for flexible and scalable architecture to keep pace with changing business requirements
- To reduce the time to market and improve responsiveness
- To lower Total Cost of Ownership

- To enable easy integration with applications on heterogeneous platforms
- To support multiple channels e.g. web, wireless devices etc.
- To reduce dependency on scarce legacy skills

What drives your business today?
An innovative re-architecting strategy taking you through the fast lane

Old Legacy Applications
- Monolithic
- Difficult to maintain
- Outdated technologies

New Object Oriented Applications
- Modularised
- Easy to maintain
- Latest technologies

ReAL-i

Generate
- Easy to maintain object oriented code
- Model based approach to generate JSP screens and database RDBMS
- Facility to generate J2EE based application
- Facility to change variable and method names

Extract
- Separate out monolithic code into layers
- Extract validation logic from code
- Identify domain objects and methods
- Extract services from the legacy code
- Separate out DB and UI logic

Transform/ Refactor
- Refactoring extracted pieces to methods
- Generate UI and DB models
- Transform extracted pieces to modern design patterns

Many organizations go for tool-based solutions that perform line-by-line conversion to J2EE or any other modern language. It has been seen that line-by-line approach aims at transforming the program code but not the application architecture. Hence the true advantages of the new technology are not realized and the legacy problems are carried forward in a new language.

Some other organizations choose to go for a fresh re-development from scratch. It has been observed that these initiatives are risky and often do not justify the cost involved. They face a number of challenges like loss of functionality due to missing requirements, long time to market, high risk to the business and high cost as the current legacy investments are not re-utilized.

TCS has an innovative legacy re-architecting solution, ReAL-i, that transforms legacy application to Object-Oriented J2EE application.

Three ReAL-i steps from legacy to Object-Oriented application : Extraction --> Transformation --> Generation

Extraction Reverse engineering of source application to mine out architectural components (business validations, service workflows, domain objects, persistent layer, user interface) along with their interaction.

Transformation Refactoring of extracted pieces to conform to modern design patterns through optimization and refinement of extraction output.

Generation Generation of code (depending on choice of programming language and framework) and other runtime components from extracted and transformed architectural and design components.

ReAL-i currently supports automated transformation of legacy RPG applications to J2EE environment. The tool set provides a low risk re-architecting solution at a reduced cost by leveraging the legacy investments.
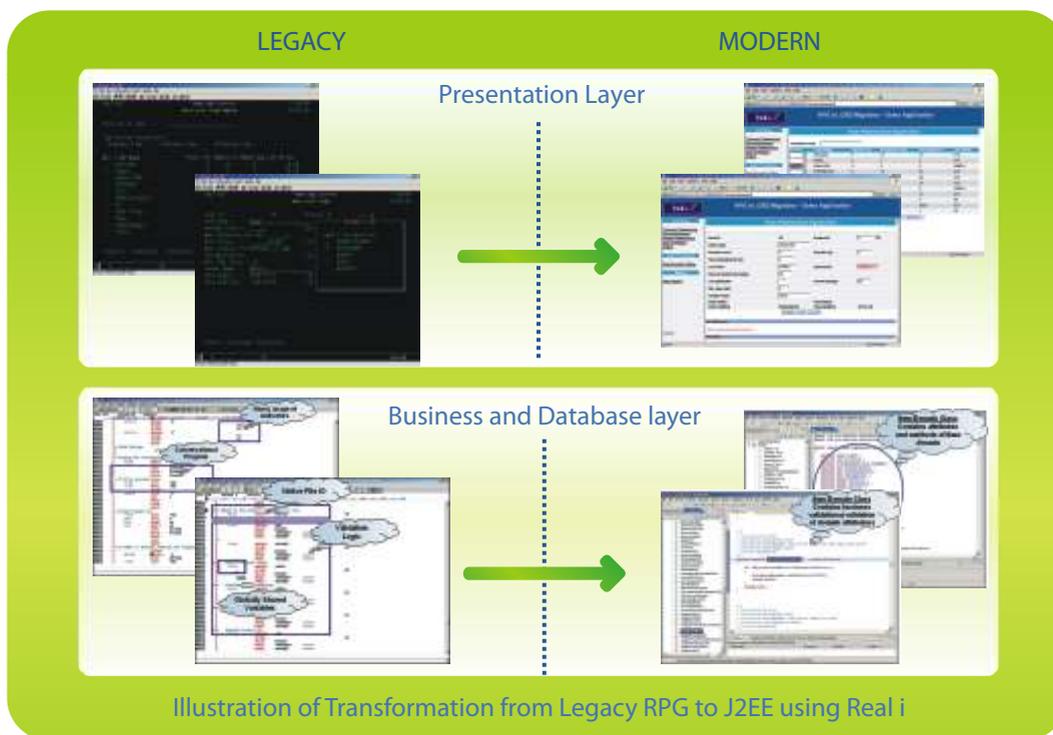
ReAL-i

Key Features

- Better User Interface rendered through JSF
- Conversational to Request Response Architecture
- Externalized Flow of Services
- Layered Architecture with clear separation of Presentation, Business and Database Logic
- Embedded Native File I/O to SQL/ORM Frameworks
- Increased Reusability – Core Business Logic and validations are encapsulated in Domain Classes

- Facilitates Model Driven Development – UI and Persistent Models are obtained as intermediate artifacts for which code can be generated
- Provides Functional Traceability between the Legacy and the New Application
- Enable Effective Reuse of existing business logic

Real-*i* way of re-architecting legacy applications is certainly the way forward for the organizations looking for a Modern Application with the following benefits:

- Low Risk, Optimal Cost Solution
- Flexible and Scalable Architecture
- Low Total Cost of Ownership
- Enhanced Application Life
- Faster time to market and improved Business Responsiveness
- Ease of maintenance with readily available skills in the market

LEGACY   MODERN

Presentation Layer

Business and Database layer

Illustration of Transformation from Legacy RPG to J2EE using Real i

About Tata Consultancy Services (TCS)

Tata Consultancy Services Limited is an IT services, business solutions and outsourcing organization that delivers real results to global businesses, ensuring a level of certainty no other firm can match. TCS offers a consulting-led, integrated portfolio of IT and IT-enabled services delivered through its unique Global Network Delivery Model™, recognized as the benchmark of excellence in software development.

A part of the Tata Group, India's largest industrial conglomerate, TCS has over 89,000 of the world's best trained IT consultants in 47 countries. The company generated consolidated revenues of US $4.3 billion for fiscal year ended 31 March 2007 and is listed on the National Stock Exchange and Bombay Stock Exchange in India. For more information, visit us at www.tcs.com

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