



## Modernizing Gen Applications using Automation

### Session 20

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## Abstract

- Learn about new cost effective solutions that can reduce the time and effort of upgrading your existing CA Gen applications. CA partner Jumar, will present new automation software solutions that will dramatically change the way you maintain and enhance your Gen systems.
- Perhaps you would like to automatically transition your valuable business rules into reusable Web Services, Component or Service-based Assets. Maybe your customer is asking for a new Web User Interface, or you need to reengineer your client server application from a "fat" to a "thin" client model.
- The configurable and fully automated features of Project Phoenix software will be demonstrated to illustrate the unique productivity opportunities now available to support your rejuvenation efforts.



## The Rejuvenation Challenge

- Transition to new technologies and systems (J2EE and .NET)
- Reuse of existing business rules and code in new environments
- Enterprise application integration - new and old systems need to work effectively together

How can we exploit Gen's multi-platform capabilities to achieve these objectives and make the best use of current systems with limited budgets?



## Re-architecting Legacy Systems is not easy

- Difficult to get sponsorship as business benefit not immediate
- Time consuming, high cost and consumes staff
- Competes with business enhancement plans
- Risky – changing what works well
- Complexity depends on nature of the legacy apps
  - Standards
  - Diversity of templates and different approaches
    - Block Mode – presentation logic and business rules are mixed together
    - GUI fat Client – Business rules split between client and server leading to poor scalability
    - GUI thin Client – A better starting position but still Gen specific validation, exit states.



## Example:

### 3270 or GUI → Web UI Challenge

- Split presentation and business logic layers
- Create server
  - Include data access
  - Remove UI logic such as MAKE / SET statements, and UI objects such as OCX
  - Remove platform specific functions, EABs
  - Flow and message Exit States
- Create client
  - Remove data access
  - Replace OCX / ActiveX controls, functions
  - Add UI objects e.g. HTML controls
  - Replace Dot notation
  - Replace MAKE / SET statements



## Example:

### Traditional → CBD

- Split Specification from Implementation
- Specification
  - Create specification types
  - Create public operations
  - Create translators
  - Create mappers
  - Break cross-component relationships
- Implementation
  - Substitute Specification for Implementation



## Disincentives

### Manual re-factoring and rejuvenation of legacy systems

- Is time consuming and resource intensive
- Is costly
- Can be high risk
- Requires a lot of manual effort
- Requires a large number of resources
- May provide little additional business functionality
- Is difficult to get sponsorship from business to complete



## The Solution - Project Phoenix Automation

- Phoenix software specifically designed to automate the model update tasks that would otherwise have to be done manually
- Different flavours of re-factoring available
- High % automation
- High quality – repeatable
- Configurable and Maintainable
- Replaces costly coding and reduces unit test effort
- Reduces elapsed time of transition projects
- Viable business proposition
- Achieving rejuvenation benefits is now within reach



## What is Project Phoenix Not?

- A software product that you can buy off the shelf and run out of the box
- A simple service offering
- A methodology

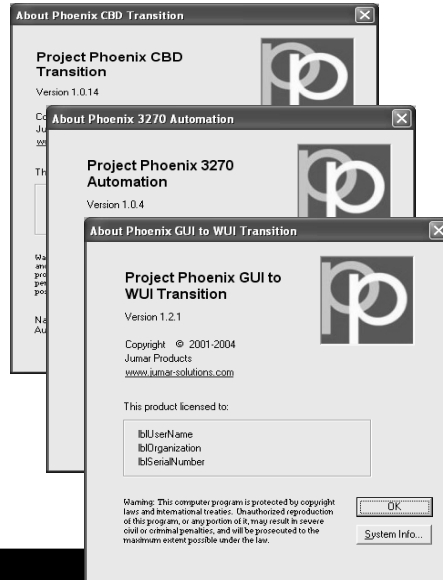


## What is Project Phoenix?

- A collection of software tools and services focused on the upgrade and re-platforming of existing Gen applications to provide new Gen-based solutions
- Configurable automation is the key, in particular advanced analysis, editing and restructure of Gen models to meet modernisation requirements in a particular customer environment
- Delivers full automation, a dramatic reduction in time to market and significant cost and effort reductions
- A totally new approach to re-factoring of current Gen systems



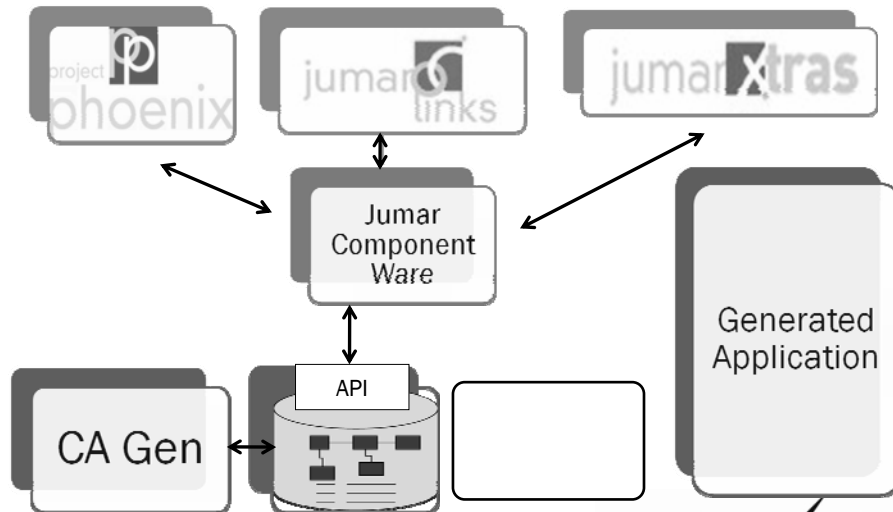
## Phoenix Toolbox



- Model Analysis
- 3270 Transition
- CBD Transition
- GUI to WUI Transition
- Fat Client Re-engineering
- QA Compliance
- EJB Wrapper
- Action Block Promotion
- Test Harness Generator

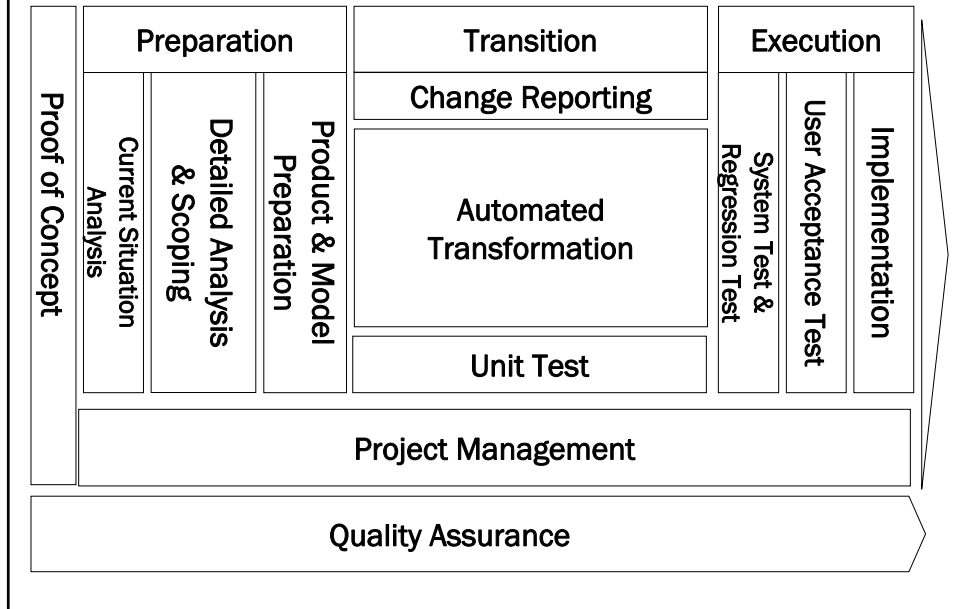
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## Direct Model Manipulation



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# Project Phoenix Framework



## Preparation

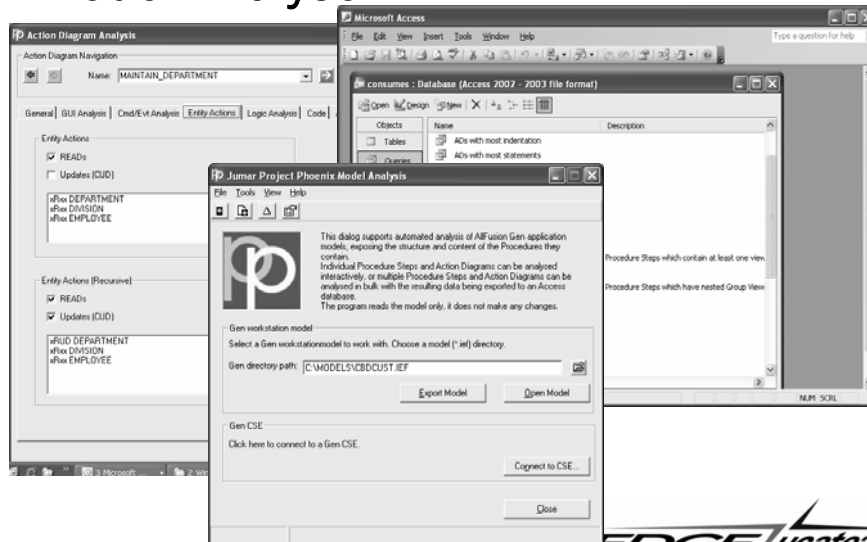
- **Effective analysis of current Gen systems is essential to**
  - Understand size and complexity of transitioning required
  - Identify standardisation (or otherwise) of the applications, templates, object naming etc.
  - Identify site specific traits or requirements that require automation to be configured
- **Phoenix Model Analysis software**
  - Reports on Gen objects and structures and identifies patterns and problem areas
  - Works across multiple Gen models
  - Provides full management information for scoping, estimating and costing

## Model Analyser

- Investigates the content of all or part of a model or collection of associated models
- Helps to assess:
  - Particular transition issues
  - complexity
  - projected work effort
  - the level of automation achievable
- Gives insight into the as-is situation in a quick but detailed manner
- Works on local models (DAT files) or Encyclopaedia

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## Model Analyser





## Model Analysis

- **Summary**

- Detailed analysis of Procedure Steps and Action Blocks
- Scoping of the analysis by selecting which ABs are included
- Interactive browsing of single Pstep/AB
- Detailed analysis of whole model stored in Access Database for querying and further analysis
- Cross model dependencies can be identified
- Metrics for estimating the transition time. Can be customised to own standards.
- Integration with QA tool so that results can be included in the analysis

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## Automated Transition

- **Architecture Transformation**

- Block Mode 3270 or Client-Server automated re-engineering to expose legacy business functionality as EJBs or Web Services under J2EE or .NET
- Automated restructuring of fat client architectures to server centric architectures

- **User Interface Transformation**

- Automated conversion of 3270 screen designs & GUIs to WUI
- Automated application of new/changed UI standards

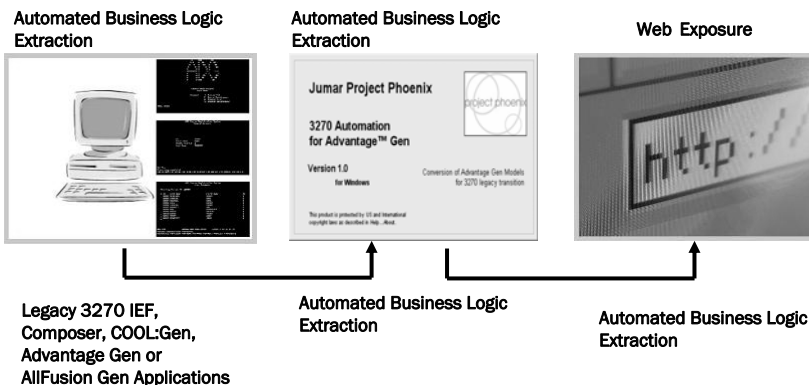
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## Automated Transition

- **Componentisation**
  - Automated conversion of traditional Gen models to componentised (optionally CS/3.1 compliant) solutions
- **Technology Transitioning**
  - Re-platforming Gen systems dealing with platform specific issues automatically



## Architecture Transformation Example: 3270 to Service-Oriented Architecture



## Architecture Transformation

- Tool supported analysis of 'as is' applications
- Rule-based Gen model manipulation
- Separation of client and server logic (3270 Transition Tool)
- Creation of new server procedures from monolithic 3270 procedures (3270 Transition Tool) or Fat Client C/S (Fat Client Re-engineering Tool)
- Wrapping of existing business logic Action Blocks into procedure steps for immediate exposure of functionality in new environment (Action Block Promotion tool)



## Automation Output

### New Servers Packaged for Deployment

A screenshot of a software window titled "ICDD1011\_EMPLOYEE\_DETAIL\_T - Action Diagram". The window displays a code editor with the following content:

```
ICDD1011_EMPLOYEE_DETAIL_T
IMPORTS: ...
EXPORTS: ...
LOCALS: ...
ENTITY ACTIONS: ...

NOTE Jumar Phoenix #004: MOVE Import to Export statement NOT removed - still required [2004-06-23 14:44]
MOVE import department TO export department
NOTE Jumar Phoenix #004: Deleted MOVE Import to Export statement [2004-06-23 14:44]
MOVE import division TO export division
NOTE Jumar Phoenix #004: MOVE Import to Export statement NOT removed - still required [2004-06-23 14:44]
MOVE import employee TO export employee
EXIT STATE IS all_ok

CASE OF COMMAND
CASE menu
NOTE Jumar Phoenix #005: Deleted unwanted Command statement [2004-06-23 14:44]
EXITSTATE IS transfer_to_menu
CASE return
NOTE Jumar Phoenix #005: Deleted unwanted Command statement [2004-06-23 14:44]
EXITSTATE IS return_to_employee_list
CASE process
READ required employee
WHERE DESIRED required employee number IS EQUAL TO import employee number
WHEN successful
MOVE required employee TO export employee
READ existing department
```

User Interface-related logic and views have been removed to leave slimmed down transaction servers.



## User Interface Transformation

- Tool based analysis of current environment
- Service based UI creation (e.g. test harness, default web interface)
- **3270 Transition & GUI to WUI Transition Tools**
  - Tailored Mapping Rules
  - Tailored UI Standards Definition
  - Replacement of Unsupported Features
  - Logic to support interface also changed where necessary
- **Bulk Creation (Model, Business System, Selective Procedure steps)**

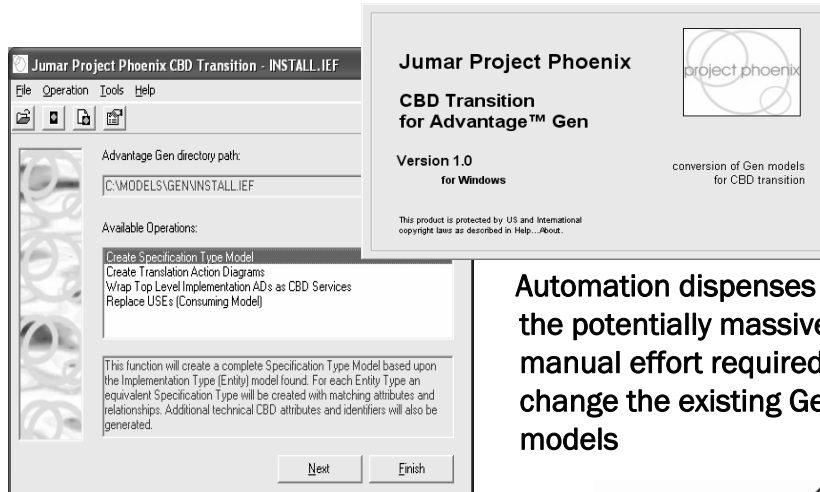


## Componentisation

- Tool based analysis of 'as is' application
- Rule-based Gen model manipulation
- **Performs the activities required to componentise Gen models**
  - Model Analysis and Architecture Analysis tools for Component Architecture
  - Generation of specification type model from implementation (entity) model
  - Generation of translation and mapper action diagrams (Specification  $\Leftrightarrow$  Implementation)
  - Wrapping of Action Diagrams as CBD services
  - Replacement of calls (USEs) in consuming models
  - RI and Data Transition
- **Automation applied across multiple models (offered & consumed)**



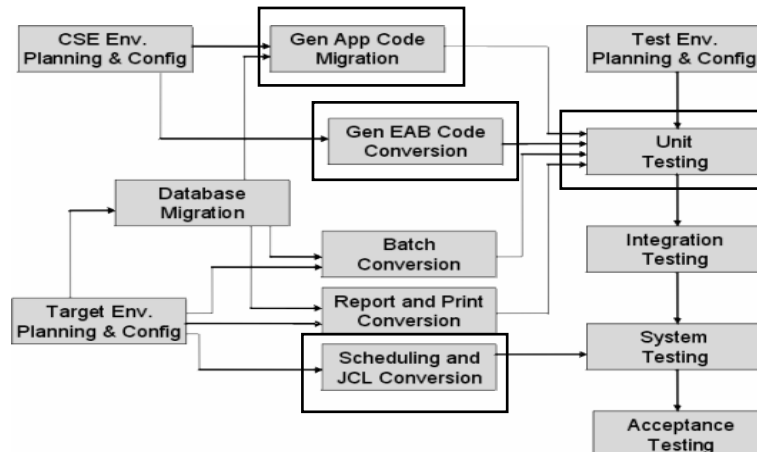
# CBD Transition Automation



Automation dispenses with the potentially massive manual effort required to change the existing Gen models

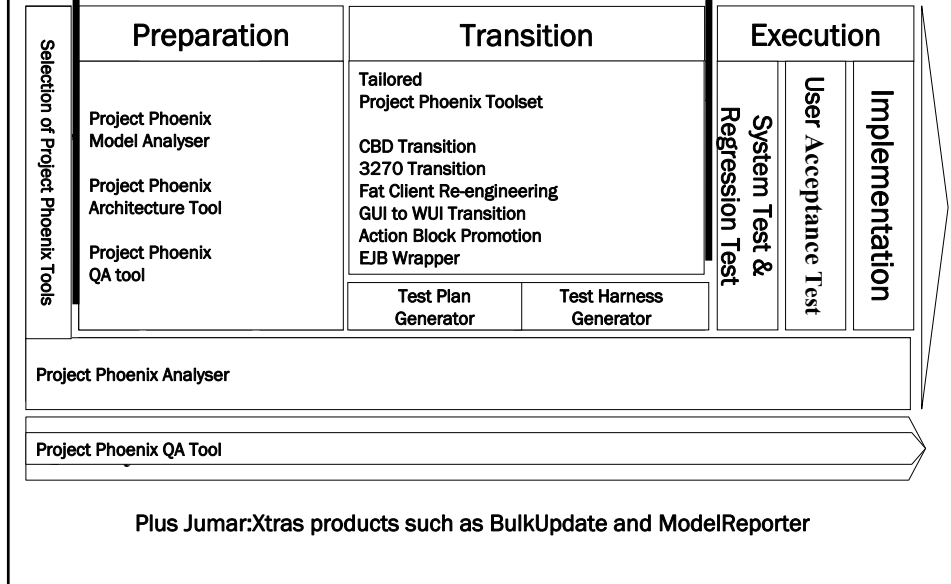
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# Technology Transitioning



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## Tool Applicability



## Summary

- **Project Phoenix is a unique combination of consultancy and flexible automation tools that enable**
  - Reuse of existing business rules and code
  - Exposure of previously hidden code
  - Cost and time effective re-architecting
- **In-house re-architecting with Gen becomes a favourable alternative to**
  - Offshore option or purchase of packages
  - Development and maintenance of current systems
- **Allows newer Gen capabilities to be fully exploited with minimum effort**

## Further Information

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