

# metaware.

the complete IT modernization solution

## BULL GCOS MIGRATION

### ENVIRONMENTS

- GCOS 8
- GCOS 7
- GCOS 6

### SOLUTION OVERVIEW

- GCOS-based applications switched to Open Standards or Open Source Software Stack
- Simple, 100% Automated, and Tested Migration
- Reliable, highly-available, and scalable Execution Environment
- Proven – 70+ migration projects of all size achieved on-time and on-budget in 10 countries

### BENEFITS

- Reduce Costs in range of 75-86% on the software alone
- Mitigate risks of shrinking pools of resources
- Enable the path to x86 architecture and future private/public cloud initiatives preserving applications logic, behavior and production best practices
- Increase performance by 70-100% percent on both online transactions and batch processing time

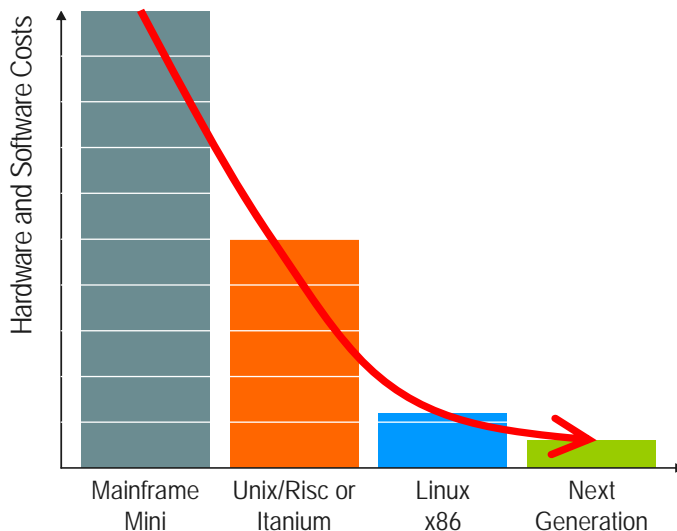
Switch GCOS applications to an inexpensive and mature software architecture to **cut costs by as much as 85%** and **enable long-term viability of your asset**

Bull GCOS-based applications translate into significant IT challenges, such as:

- > High Software Maintenance Costs without the benefit of improvements
- > Lack of scalability and performance
- > Resources shrinkage
- > Bull services and maintenance lock-in

Open-Standards or Open Source Software stacks deliver significant benefits:

- > Software cost savings in range of 75 to 86 percent
- > Flexibility and Openness protecting long-standing investments in the long-run
- > Modernization accelerator: application enhancements, rewrites or replace, on any future-proofed infrastructure such as x86 and Cloud Computing



### GCOS APPS ON ORACLE OR OPEN SOURCE SOFTWARE

Metaware provides a **simplified accelerated path** including:

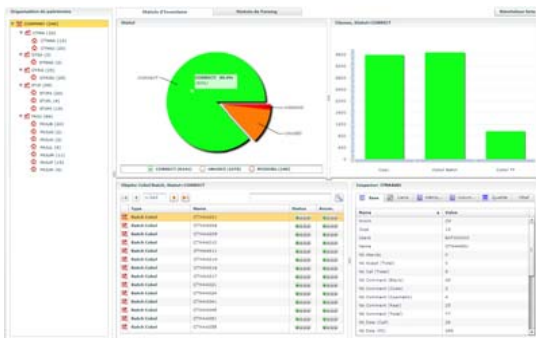
- > **r4g Workbench** – a **100% automated GCOS environment analysis and 1:1 functional equivalence migration** covering the entire lifecycle of the migration, from discovery to deployment and testing
- > **r4g Runtime** – a **reliable Execution Environment** for online and batch processing reproducing the behavior of TDS, TP8, IDSII prerelational database, and the logic and clarity of JCL scripts natively on Oracle or Open-Source Software stack.
- > **A comprehensive knowledge base including processes, expertise and experience** capitalized on 70+ projects delivered across multiple industries and geographies

## GCOS ASSET ANALYSIS

Legacy applications and old platforms very often mean lack of visibility on the programs and their interactions, weak documentation, duplication, and loss of knowledge.

r4g Workbench enables the entire asset to be automatically and thoroughly analyzed. A set of dashboards provides full insights and control over the existing GCOS environment:

- > Used, unused and missing components and their attributes
- > Program Cross-references and dependencies
- > Subset selection enabling phased or big-bang migrations
- > Quality Metrics for further code improvements



## HIGHLY ACCURATE CONVERSIONS

The power of Refine<sup>®</sup> associated with its industrialized set of GCOS-specific conversions produces the highest levels of accuracy and productivity, which are critical success factors for migrating large and complex mainframe environments.

r4g-Workbench specific conversions support:

- > COBOL-74, COBOL-85 and SQL application programs or 4GL generated COBOL such as PACBASE, DELTA, PROTEE, etc.
- > IDS2 database and languages such as UFAS, IDS2, CLIO
- > TDS, TP8, DMIV TP transactions and functions
- > Screens such as FORMS, PREFORMS, SINDIA, etc.
- > JCL and GCL commands
- > System files such as STDS and WCL

Refine<sup>®</sup> accuracy and productivity translates into predictability and productivity for the project as well as risk mitigation for the project to be delivered on time and on budget.

## DATA TRANSFORMATIONS

r4g automatically generates the RDBMS Target components.

- > Converted IDS2 schema into sophisticated relational model
- > RDBMS data access routines used by converted Cobol code
- > Programs for data validation, data download, data conversion, data upload
- > Scripts and utilities required for the database migration

r4g traces extension impacts and address propagation issues between ebcdic character and Unix ascii, including the syntactic and semantic capabilities. In addition, r4g manipulates information for each variable in each Cobol program to figure out why it's expanded (expansion rule) and how it's expanded (expansion quantity).

To solve the potential issues of data definitions inconsistencies (Detailed Cobol Description and Redefines), r4g Workbench provides a data qualification process associated with qualification programs automatically generated. They allow to quickly validate data description and identify data types requiring specific handling for their migration.

FINANCIAL SERVICES BNP Paribas, Banque Populaire, Caisse d'Épargne, Caja de Valores, Crédit Agricole, Crédit Coopératif, Debeka, Euler Hermes, Groupama, ING, La Mondiale, MGEN, MMA, Providentia, Swiss Life, Vauban Humanis, Zwitzerleven • MANUFACTURING AND RETAIL Anjac, Cogema, Cetim, DeMoulas Market Basket, Former, Glaverbel, Brandt, Eastern Electricity, SOGET • SERVICES EDF, INPI, La Poste, Orange Business Services, RATP • GOVERNMENT City of Jackson, CNAM, CNRS, Forsakringskassan (Swedish Social Security), French Department of Internal Affairs, Portland Public School, Shelby County, US Veteran Benefits Administration, UNEDIC (French Employment Agency)

## DEPLOYMENT AND TESTING

Once converted, r4g deploys applications onto the target architecture while also managing the build, installation, and configuration of the target architecture components.

- > Asset Source Configuration Management (before and after transformation)
- > Automated Build of the asset after conversion
- > Automated Data Reload into Files and Database Tables
- > Automated configuration of the run-time components (DBMS, OLTP, etc.)
- > Automated Deployment of built applications onto parallel isolated test execution environment
- > Virtualization
- > Launch/Stop/Restart of Executable
- > Patch Deployment

The converted applications are tested automatically to guarantee the strict 1:1 functional equivalence, performance and behaviors, including comparisons of test results with GCOS baseline.

r4g automated testing features guarantee the right level of test coverage, the successful and rapid execution of the test cases, and the confidence in the end-user unchanged experience.

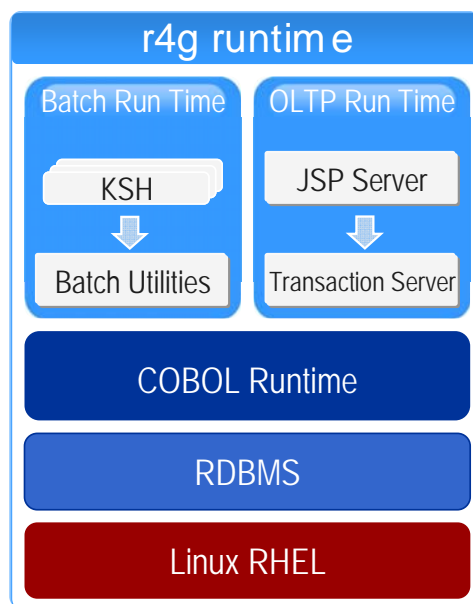
- > Automated capture of test cases for batch jobs and on-line transactions
- > Code Instrumentation to intelligently guarantee coverage and optimize test effort
- > Dynamic validation of data integrity
- > Automated Instantiation of parallel isolated test execution environments
- > Replay of test cases captured on the target environment
- > Automated Release Management and defect tracking

## OPEN EXECUTION ENVIRONMENT

r4g Runtime is designed to simplify the transition to distributed systems and reduce software costs.

It strictly recreates Bull TDS and TP8 transactions services as well as IDS2 behaviors onto modern OLTP architectures.

The KSH scripts resulting from the JCL conversions use a library that reproduces GCOS JCL functions for enhanced clarity.



r4g Runtime is deployed on Oracle or Open-Source software stack to deliver enterprise-class reliability, scalability and availability to run the migrated applications at lower costs. It is optimized to:

- > Ensure the best price/performance ratio
- > Increase performance and response time by 70 to 100%
- > Reduce the batch-processing window by 35 to 60%
- > Guarantee uptime requirement
- > Build a flexible foundation to scale well beyond the GCOS system with native thin client user interface, modern integrated development environment (IDE), SOA perspectives, and future move to x86 architectures as well as private or public clouds.

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## PaaS

Packaged in a Platform as a Service model and available 24x7 at [www.Refine®ondemand.com](http://www.Refine®ondemand.com), r4g delivers a pre-integrated turnkey solution, combined with a shared pool of rare experience, expertise and engineering skills. Metaware's 15-year focus on GCOS migration across geographies and industries ensures the use of less expensive standard developer and project skill sets.

## PROFESSIONAL SERVICES

Complementing PaaS services (customer support and maintenance as part of the subscription), Metaware provides a suite of professional services enabling customers to quickly and fully exploit the power of r4z.

- > **Assessment Study** – to overcome the usual problems of uncertainty and risk of 'guesstimates' and provides an **accurate, reliable and precise estimate of the costs and benefits** of GCOS migrations. Our experts can help calculate the ROI, future TCO, risks, effort and project costs based on data collected from over 180 successful modernization projects.
- > **Training** – Metaware's Training & Education team is committed to **accelerate** the learning curve across the various implementation phases, **transfer** knowledge and **empower** development teams. Customized training programs are also available and may be designed in conjunction with Metaware's team.
- > **Engineering Services** – Metaware's Experts are available for Solution Design, Customizations of the built-in processes, and further Developments so that our solutions adhere to specific requirements (accuracy, productivity, offshoring, etc.).
- > **Implementation Services** – Options are available for customers to rely on Metaware's offshore delivery services for implementing the mass production and mass testing steps of their projects.

## BENEFITS

r4g by Metaware enables predictability with the costs, time commitment and risks associated with migrating from GCOS to Standards-based software architecture running on Unix or Linux.

It reduces the migration effort and the risks by using an integrated toolset and automated workflow. It quickly delivers success and a rapid return on investment, leveraging existing applications in a new environment.

Easy to use, r4g is available over the Web 24x7 and can be deployed by GCOS staff, enabling their expertise to remain focused where it belongs.

**metaware.**  
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