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Raiffeisen International Bank: Using Oracle Consulting to Achieve Rapid Migration of ETL Processes to Better Support Data Warehousing

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DataStage-to-ODI Converter

Jeff Pollock, **Oracle Senior Director Fusion Middleware**

Alfred Smolnik, **Raiffeisen Information Management Competence Center**

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September 21–25, 2008, Moscone Center, San Francisco

Agenda

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- Who is Raiffeisen International?
- **G**roup **D**ata **W**are**H**ouse project
- Why was ORACLE® Data Integrator selected?
- DataStage*-to-ODI converter approach and architecture
- Savings & Benefits
- Questions & Answers

*) IBM WebSphere „DataStage“® Server Edition is a product and trademark of IBM®.

Pioneer and Powerhouse in CEE

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The Leading Pure Play CEE Banking Group

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Leadership

- Unique network covering **17 CEE markets**
- Strong and well known brand "Raiffeisen"

Growth

- **10-year CAGR** in total assets of approximately **40%**
- 2003-2007 CAGR in consolidated **profit** of **47%**

Profitability

- Pre-tax **ROE 25.5%** (1. HY 2008)
- **Cost/income ratio** improved from 64.7% in 2003 to **54.8%** in 1. HY 2008

Business Strategy

- Clear **focus** on **middle market** and **retail**
- Growth drivers Southeastern Europe and CIS

CAGR* Compound Annual Growth Rate

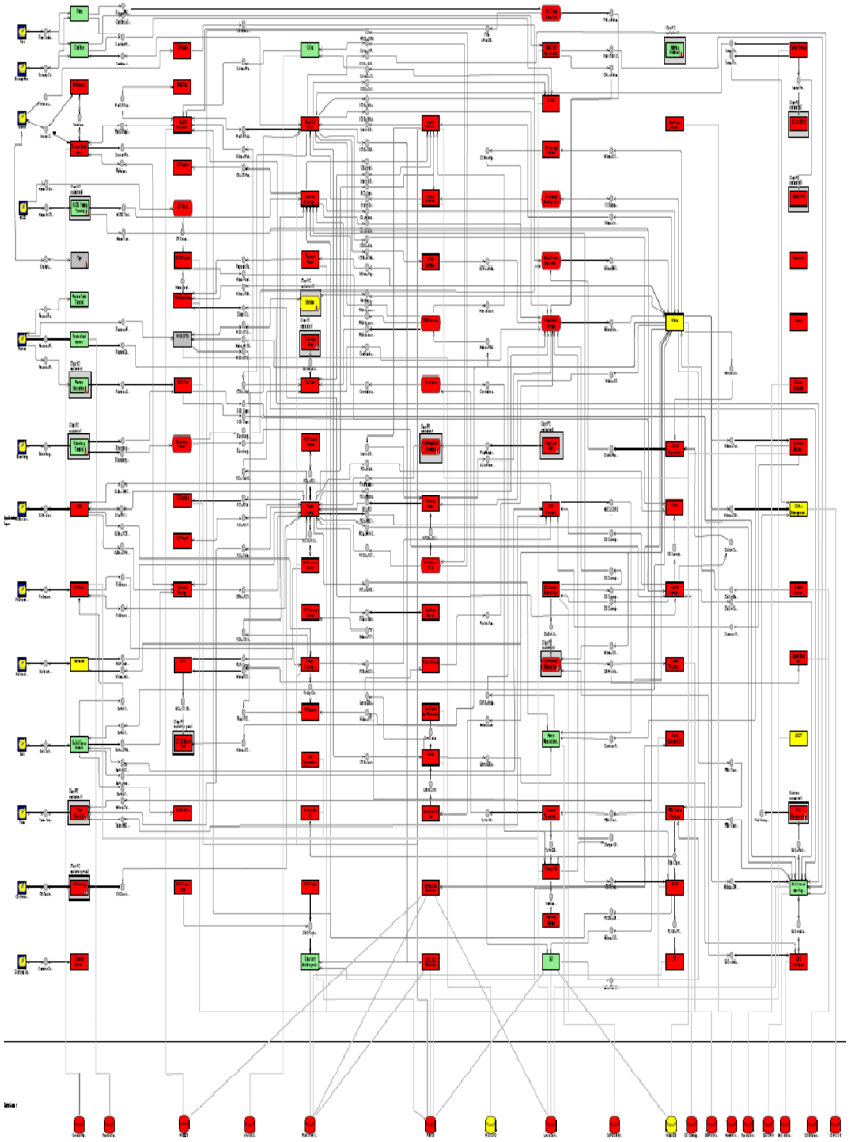
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Why is a Data Warehouse necessary ?

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- From **Business** point of view:
  - **Legal requirements** for **data consolidation** in the head office (Basel II, Investor reporting)
  - Capital Market reporting to investors and stakeholders
  - **Single-source of truth** for business information
- From **IT** point of view:
  - Grown and locally operated IT infrastructure and applications -> **highly diversified**!
  - No common Core Banking Systems
  - Lack of high bandwidth, low cost WAN in some countries
  - Data standardization; Central development
- **Benefits:**
  - **One standardized data model** over the whole RZB Group
  - **Reduction** of **development costs** through central development
  - **Reduced time to market** for **new Group applications** through central interface development

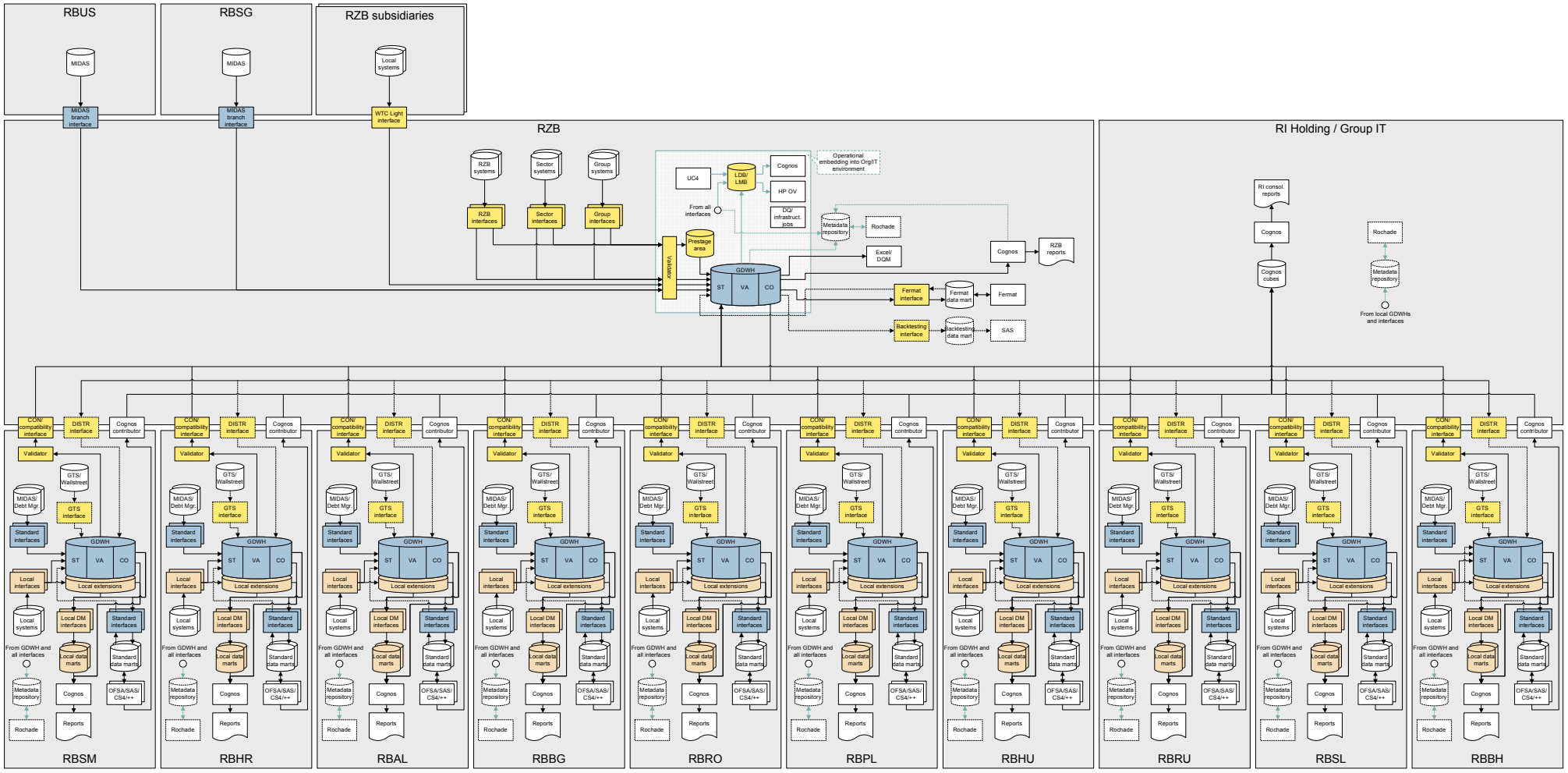
GDWH architecture – Geographic overview

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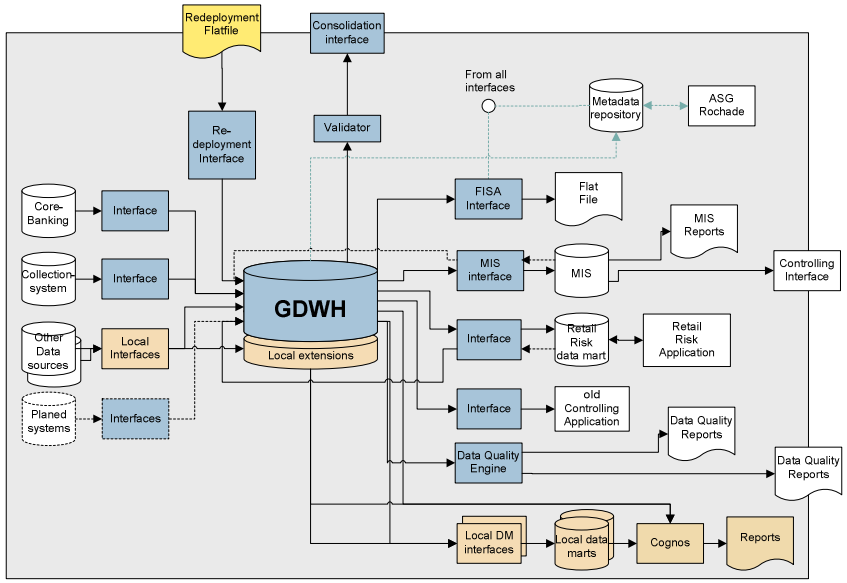
GDWH architecture – total overview

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GDWH architecture - Scope

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Blue: Central developments
White, brown: Local systems/developments

- **Wholesale bank model** approach covering
  - Risk Management (Retail, Corporate, Treasury)
  - Financial Control, Management Information
  - Accounting
  - Financial Sanctions
  - Basel II compliant for standard and IRB approach
- **Data Model** Version 3.0:
  - around 7,000 business attributes (6,000 technical attributes)
  - 120 entities
- **Central** development:
  - 10 standard interfaces,
  - approx. **2,000 ETL** jobs
- **Local** development:
  - > 300 interfaces,
  - approx. **14,000 ETL** jobs

GDWH 3.0: Project setup and status

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Project setup:

- 2 internal and around 18 outsourced developers delivering around 4,000 mandays of development work
- One permanent Oracle ODI consultant is part of the development team
- One senior Oracle ODI consultant working on the ODI converter and mentoring the development team
- Replacement of DataStage with ODI for Staging to Core
- Delivery of 10 standard interfaces based on ODI

Project status:

- Redesign of data flow finished
- 92 % of ELT jobs for Staging-to-Core are generated
- Improvements of ODI converter ongoing
- First performance test show significant performance increase

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Why did we change the ETL tool?

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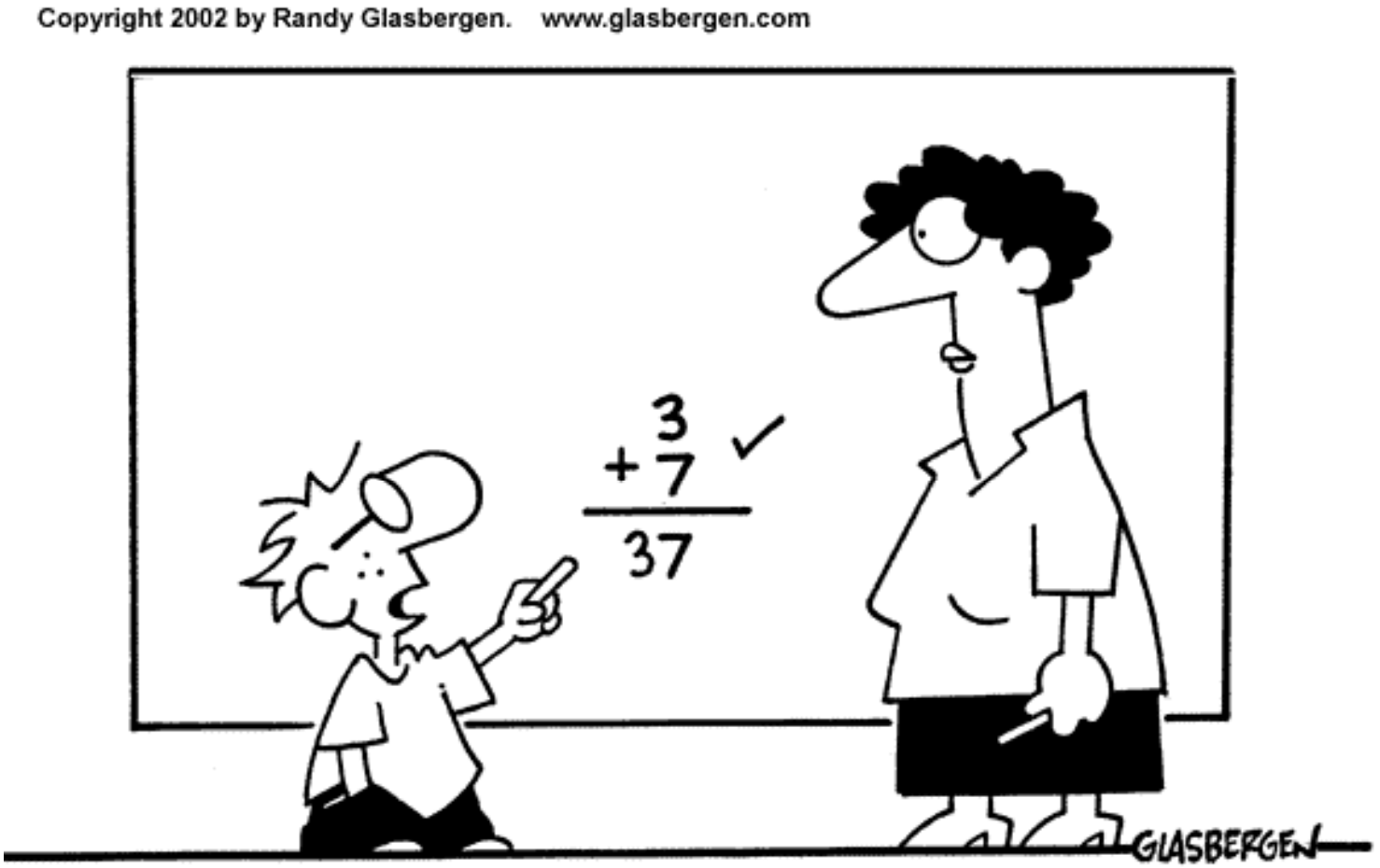
Initial situation:

- IBM WebSphere DataStage Server Edition was standard ETL tool for RZB Group used for GDWH ETL processing and Data Integration
- **High development efforts** due to complex ETL job development
- Target **performance** T-1 **not achievable** (i.e. GDWH ready at begin of business next day with data from prev. day) for **large Network Banks**
- **Short term performance improvement** through tuning measures, but in the long-term (with business volumes increasing) the potential for tuning is exhausted
- **Horizontal scaling** (adding low cost hardware) is **not supported** by DataStage Server Edition

-> **Proof-of-Concept** was initiated where **Oracle Data Integrator** was the **winner!**

Doing things different!

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"In the corporate world they pay you big bucks for thinking outside of the box!"

Declarative Job Design

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Conventional: Specify ETL Data Flow

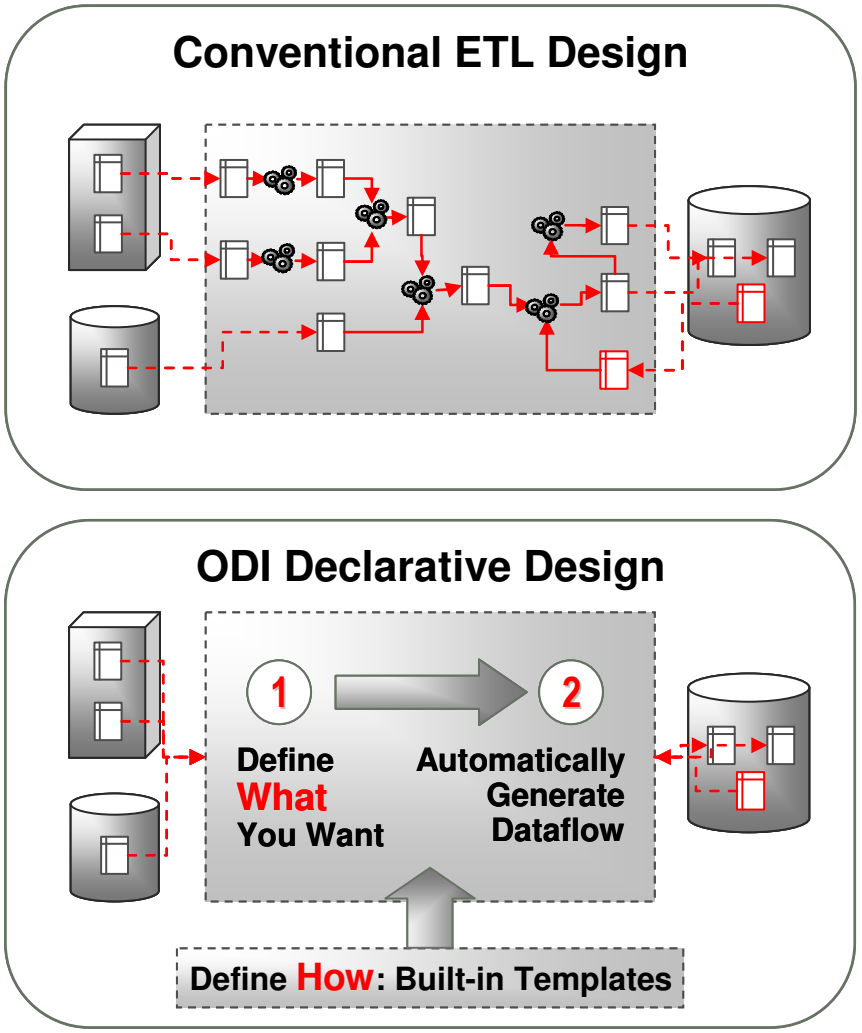
- Developer must define every step of complex ETL flow logic
- Conv. approach requires specialized ETL skills
- Significant development & maintenance cost

Oracle: Declarative Set-based Design

- Abstracts modeling to high level design
- Simplifies the number of steps
- Automatically generates the data flow whatever the sources and target DB
- Easy to handle customizations

Benefits:

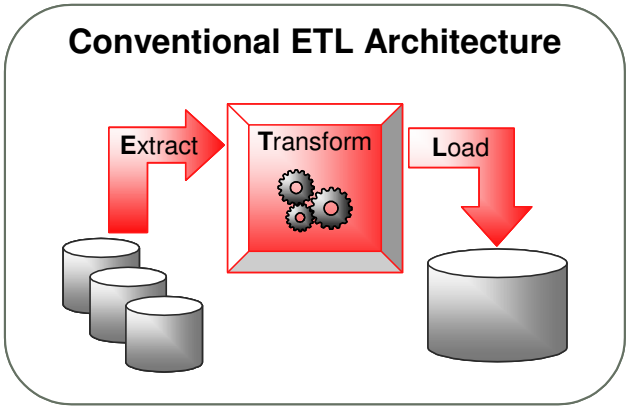
- Significantly reduce the learning curve
- Shorter implementation times
- Streamline access to non-IT pros



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ETL vs. ELT architecture

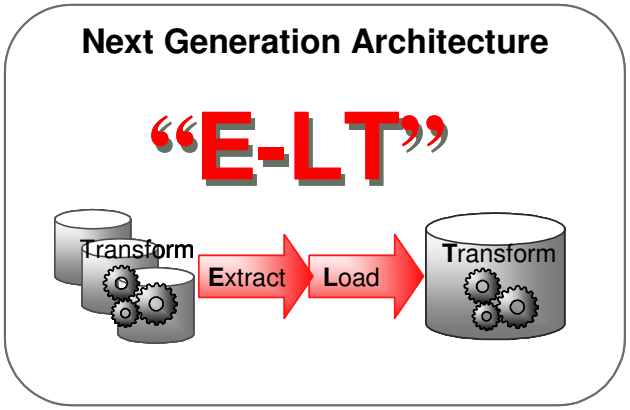
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→ *Proprietary Engine*
→ *Proprietary Language*

Transform in separate ETL Server

- ✓ Poor Performance
- ✓ High Costs



→ *Leverage RDBMS*
→ *Native SQL*

Transform in Existing RDBMS

- ✓ High Performance
- ✓ Easier to Manage & Lower Cost

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Why Oracle Data Integrator?

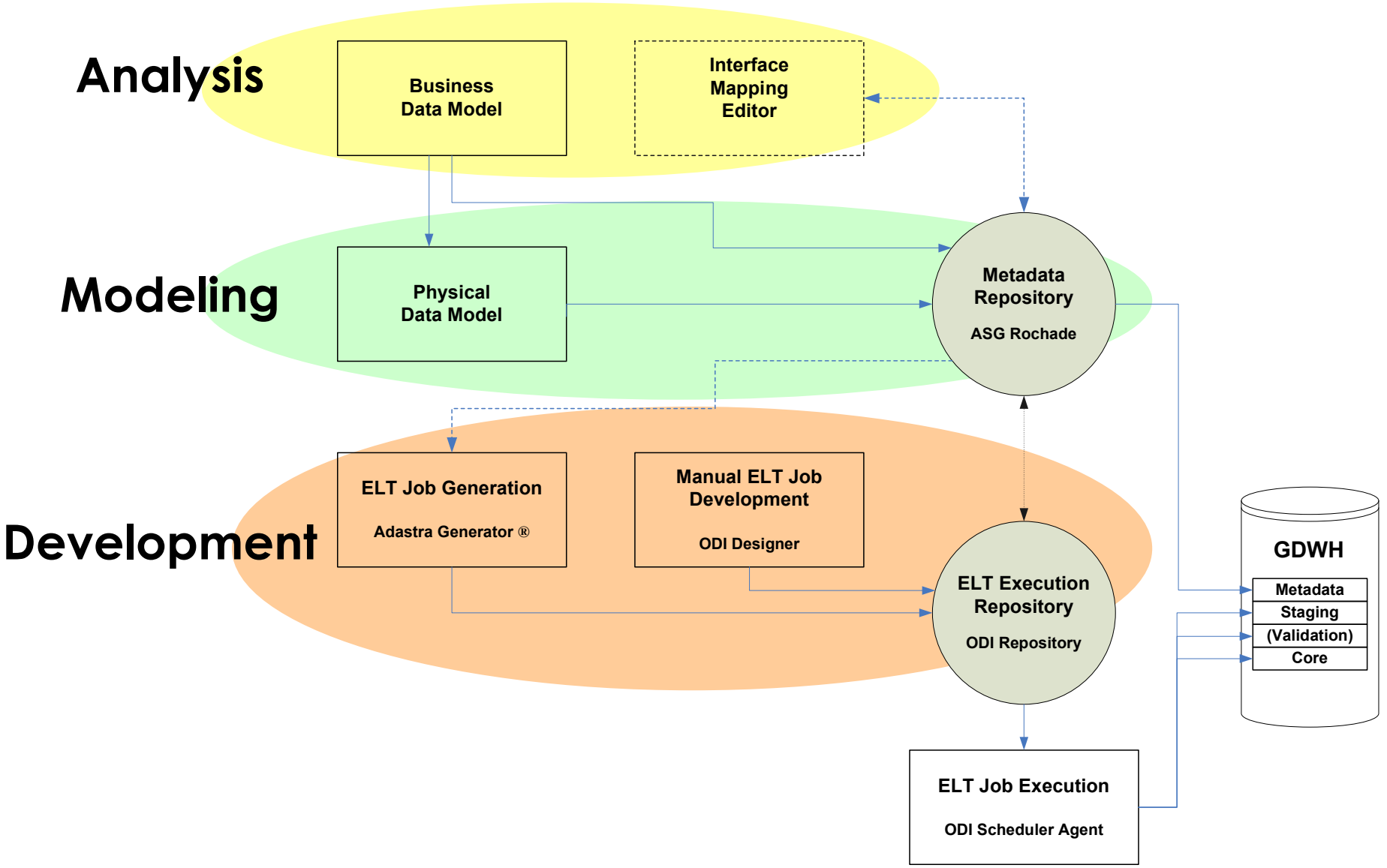
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- **ODI** delivered **best performance** in the Proof-of-Concept (POC)
- **Converter tool** from DataStage-to-ODI developed by Oracle
- t-1 loading (GDWH loaded next day at beginning of business) for all Network Banks expected achievable
- **Vertical** and **horizontal scalability** proven in the POC
- **Flexibility** to fit into customers architecture
- Tool is **based on database** technologies

  -> Oracle skills and resources widely available internally and externally
- Unlimited Enterprise License Agreement for RZB Group for 4 years

New GDWH Development Architecture

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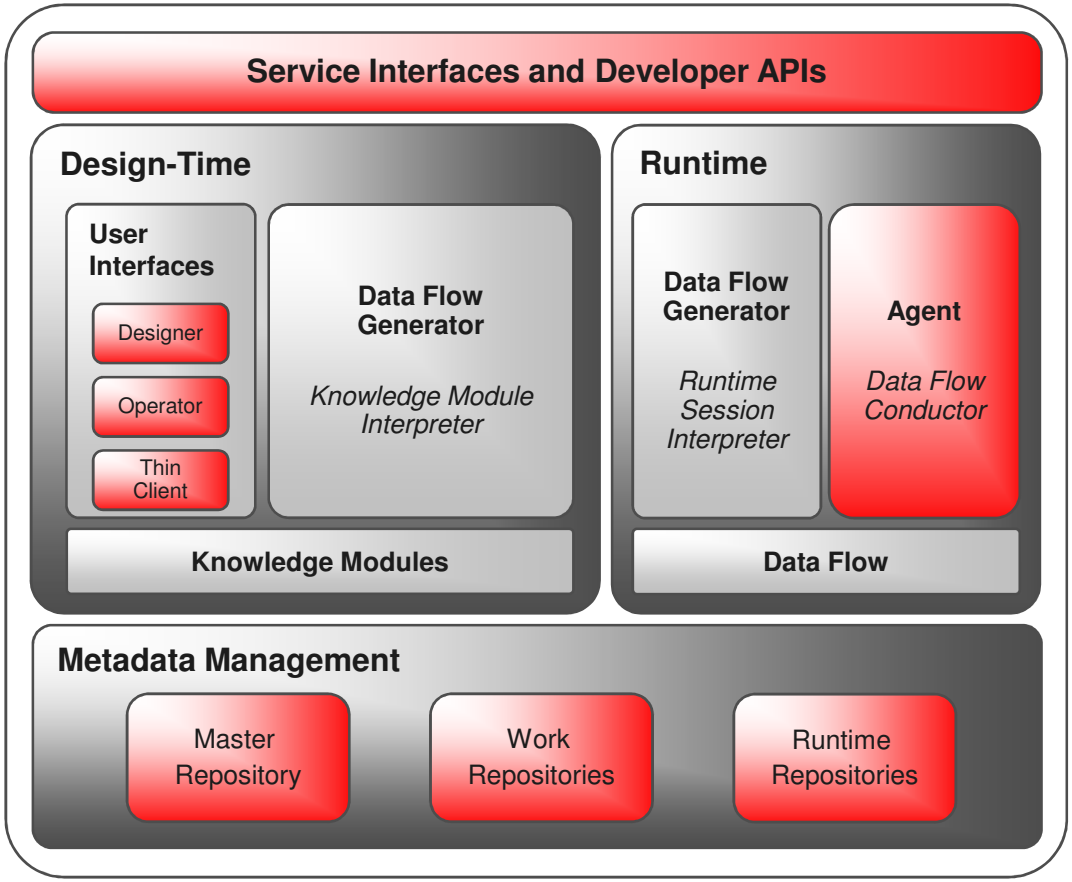
Converter approach and architecture

Salvatore Alastra
Consulting Technical Manager
Data Integration - EMEA BI & DW

The following is intended to outline our general product direction. It is intended for information purposes only, and may not be incorporated into any contract. It is not a commitment to deliver any material, code, or functionality, and should not be relied upon in making purchasing decisions.

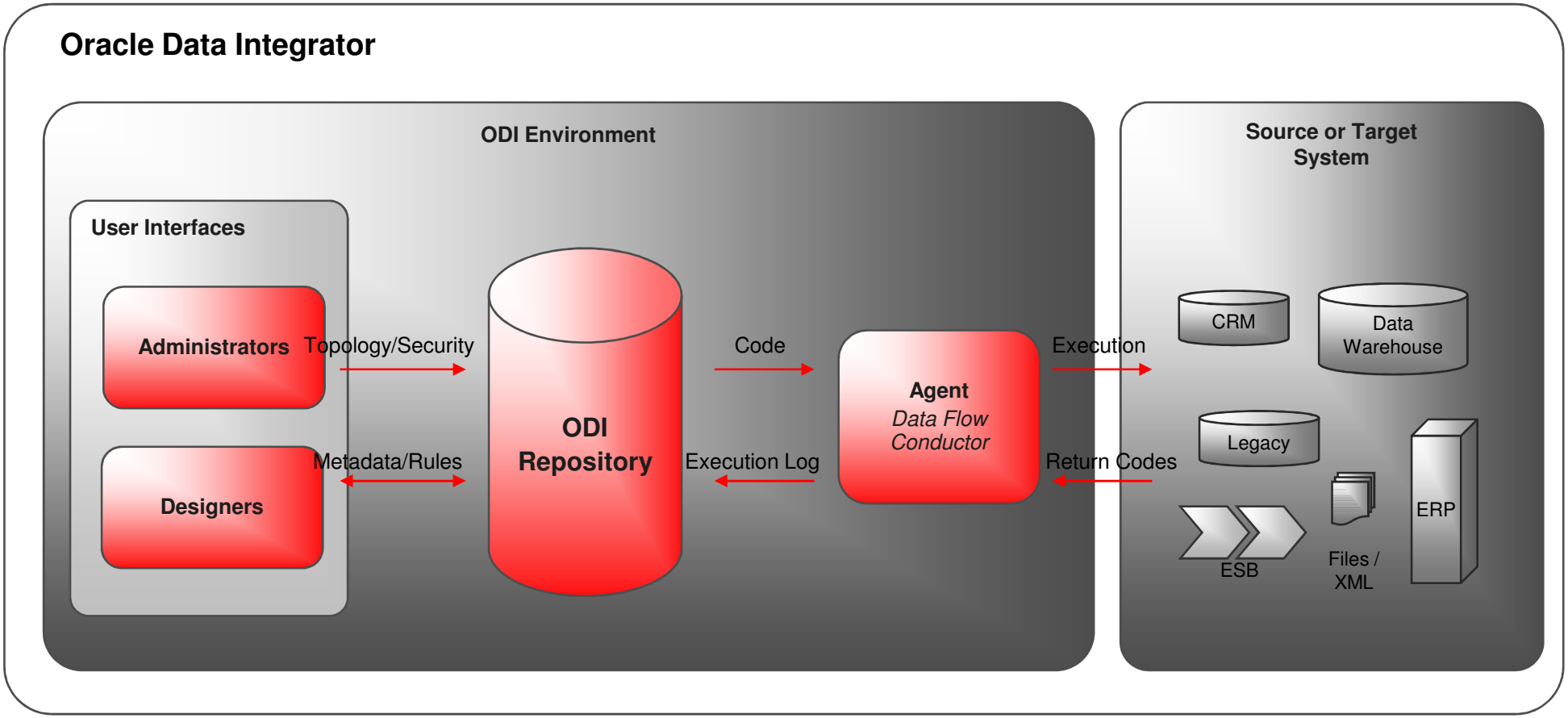
The development, release, and timing of any features or functionality described for Oracle's products remains at the sole discretion of Oracle.

ODI Architecture: Conceptual View

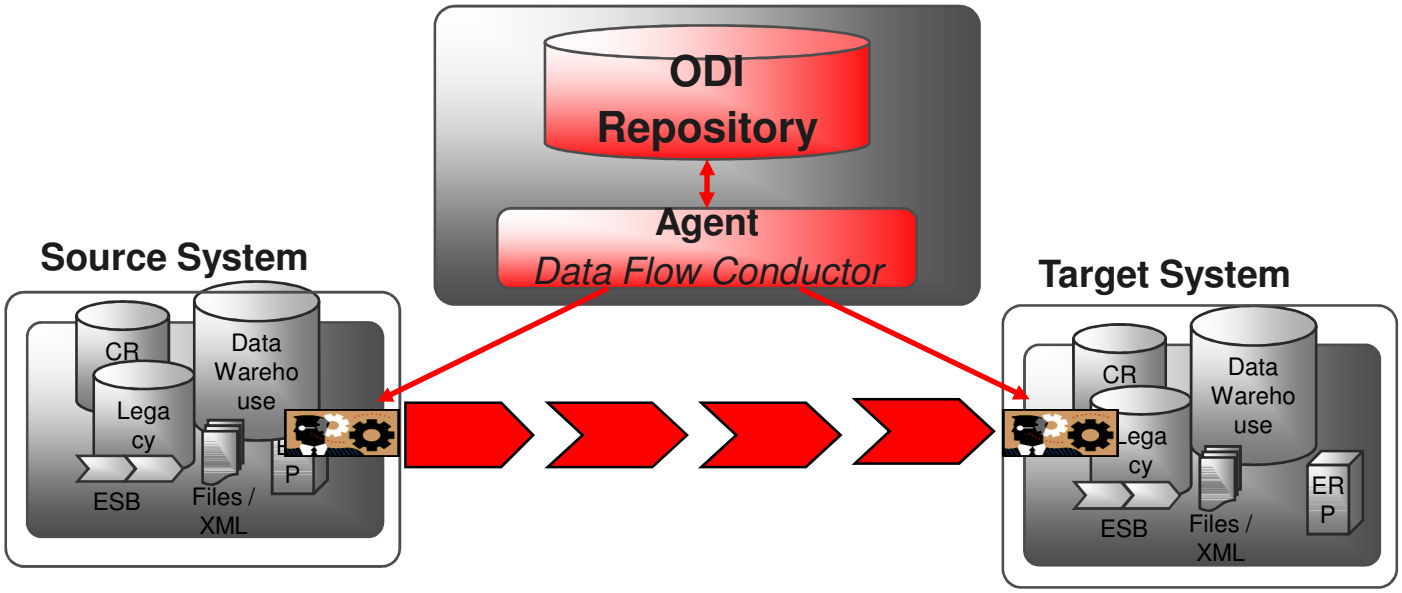


- **Java design-time environment**
  - Runs on any platform
  - Thin client for browsing Metadata
- **Java runtime environment**
  - Runs on any platform
  - Orchestrates the execution of data flows
- **Metadata repository**
  - Pluggable on many RDBMS
  - Ready for deployment
  - Modular and extensible metadata

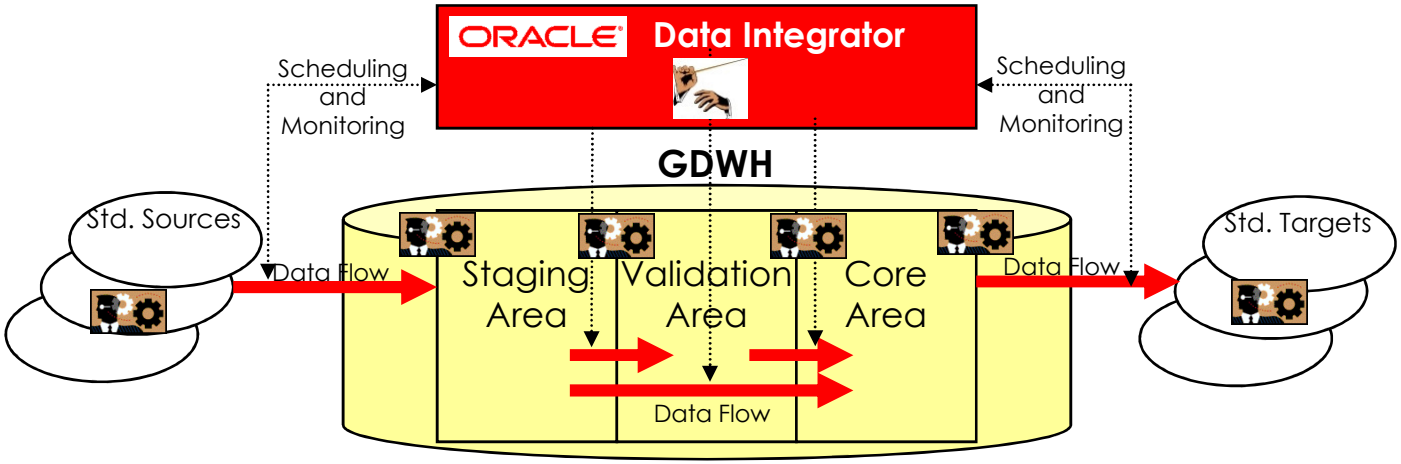
ODI Architecture: Component View



ODI Architecture: Execution flow



at Raiffeisen:



Rationale for a Datastage converter

- **What is IBM Datastage?**
  - Datastage is an Engine Based ETL solution

- **Datastage limitations for RI GDWH project**
  - High TCO (requires dedicated HW to run and specific staff skills)
  - Very limited ELT capabilities (Manual Coding)
  - “Black Box” ETL engine (Performance bottleneck)
  - Restricted Scalability
  - Difficult to maintain

- **Why build the Conversion Utility?**
  - Large legacy Datastage jobs to be migrated (16.000 at RI)
  - Many other customers have similar needs
  - De-skill and accelerate the migration of existing ETL developments to the new ODI architecture.
  - Reduce the time and costs of running data integration tools in parallel

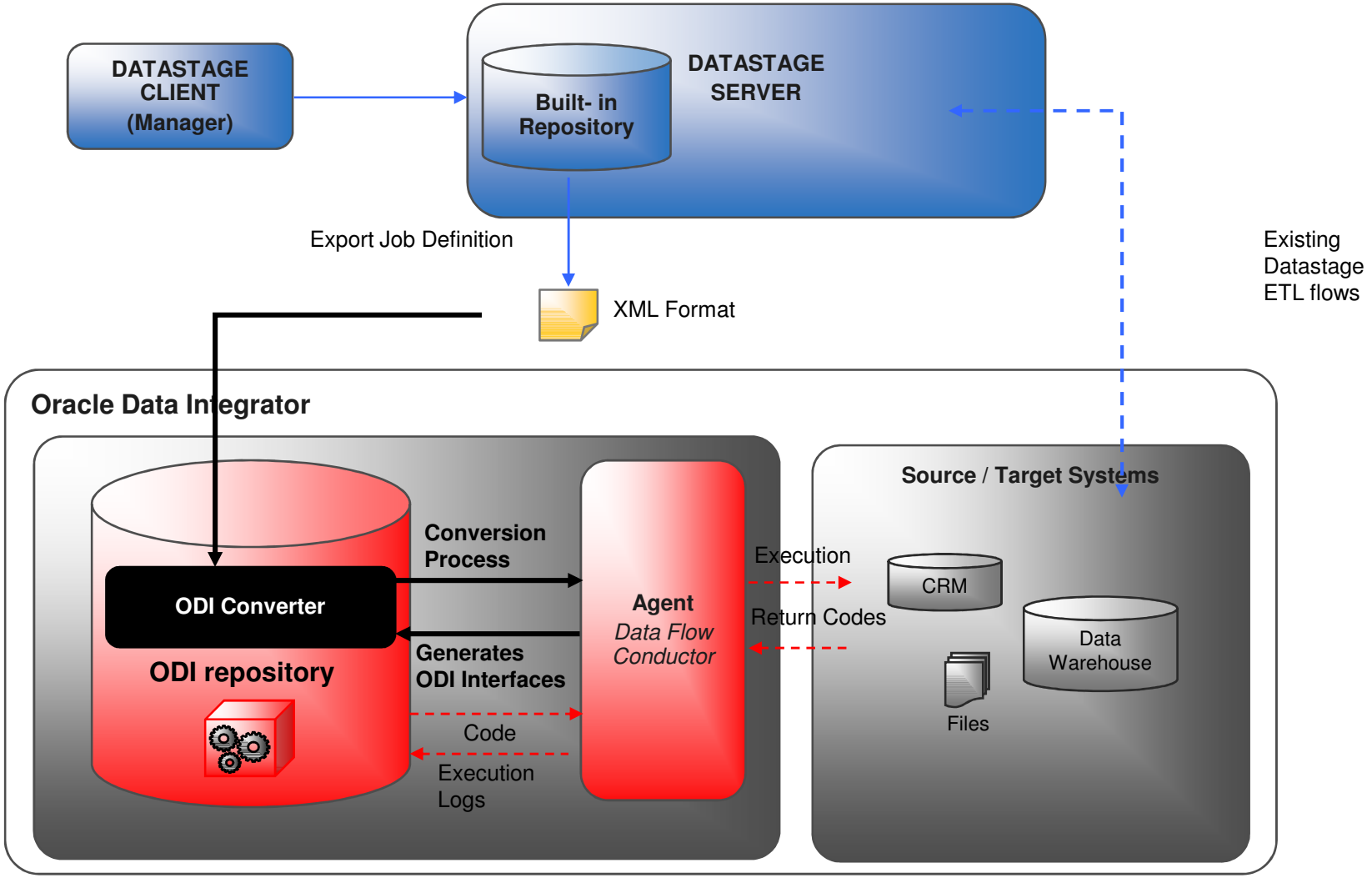
OCS “Datastage-to-ODI Converter”

- **Scope of the converter**
  - Extracts dataflow definitions from Datastage and converts them (as much as possible) into ODI Interfaces
  - Presents an overview of Datastage ETL implementation inside ODI (using Metadata Navigator)
  - Provides base development for migrating ETL flows from Datastage to ODI (does not provide out-of-the-box run able interfaces)

- **Datastage Objects Supported**
  - Oracle Database Input / Output stages
  - Sequential File Input / Output stages
  - Hash File Input / Output / Lookups and Transformer Stages
  - Datastage variables

- **Conversion Accuracy / Limitations**
  - Source Target Mappings, Join / lookups clauses are converted ‘as is’ and may need review (DS Basic expression, SQL like statements)
  - Source / Target Metadata is Simulated (no real link to databases or files)

“Datastage-to-ODI Converter” Architecture



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Savings & Benefits

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- Significantly **reduces manual effort** for **migration** of 14.000 ETL jobs due to DataStage-to-ODI Converter!
- Future-proof technology to **scale** with **increasing data volumes** due to massive business growth!
- **Increased performance** because of ELT technology!
- Template based ELT development approach to **reduce development** and **maintenance efforts/costs**!
- Unlimited Enterprise License Agreement
- **Reduced training efforts** because of reduced learning curve

Questions?

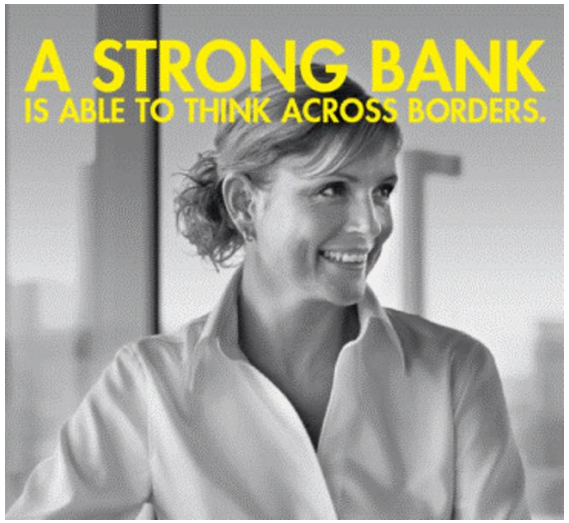
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Contact

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Thank you very much for your attention!



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