XML Data Movement Components for Teradata

XML plays a key role in modern B2B e-business and e-reporting solutions. Meta Integration® Works is an ETL (Extract-Transformation-Load) development environment producing and managing XML data movement components for the Active Data Warehouse by Teradata. The toolset is built upon a 3-tier architecture with a web enabled multi-users GUI (Java), and a powerful repository server running on top of Teradata (or any RDBMS). The toolset provides support for metadata import/export (popular design tools and standards like CWM XMI), version management, comparison, integration, mapping, and generation of the C++ code for MP-RAS or any Windows/Unix OS. This presentation will include a demo.

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Teradata a division of NCR

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- ❑ Introduction to the Meta Integration's XML Data Movement Solution.
- ❑ Technology Overview of Meta Integration® Works & Repository Toolset
- ❑ Live Demo of the development environment and the produced XML data movement component on Teradata (on a simple B2B e-business scenario)
- ❑ Conclusions, Q&A

XML Reality Check

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- You've heard it and you've read it, XML solves everything, right! Did you try it?
- XML files contain up to 80% noise (XML tags) vs. only 20% data (according to recent analysis).
- Therefore:
  - XML is not an efficient way to transfer large amounts of data between corporate databases/systems, as required in:
    - Legacy Data Migrations (LDM),
    - Data Extraction Transform & Load (ETL) from the operational systems to the Data Warehouses (DW).
  - XML is sometimes not as efficient as some conventional EDI or RPC mechanisms for Enterprise Application Integration (EAI).
  - Your systems will most likely have to deal with many small XML files (online transactions, reports), rather than a few large XML files (complete database dump or updates).

XML Is Powerful

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- XML can carry complex data structures, especially as the XML modeling evolves from DTD to Schema.
- The XML technology was designed for today's network based architectures: intranet integration, internet browsers, etc.
- Therefore,
  - XML is becoming popular in Internet Application Integration (IAI) with technology like Microsoft SOAP.
  - XML is becoming popular at the back-end of Data Warehouses, that's the Active Data Warehouse by Teradata!
    - To populate Enterprise Information Portals (EIP),
    - To interface with Reporting tools,
    - To generate the personalized data required on alerts and reports to wireless devices like PDA, pagers, and cellular phones.
    - To integrate with Office tools, see the role of XML in Office 2000 or XP.
  - XML can also be used at the front-end of Data Warehouses to acquire live data from e-business systems.

The Active Data Warehouse by Teradata Needs for XML based Data Movements

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E-Business & CRM:

- Online PO
- Electronic Invoices

XML at the heart of the Active Data Warehouse by Teradata:

Inter-Active
- Automated customer interfaces
- Integrated customer channels
- Integrated data analysis

Re-Active
- Manage inventory
- Manage product cycles
- Manage Costs

Pro-Active
- Generate alerts
- Automated marketing campaigns
- Automated replenishment

XML brings critical data to the decision maker:

- Custom reports (web portals)
- Custom alarms (pagers, PDA)

XML adapts to today's network architectures:

- Intranet
- Extranet
- Internet
- VPN
- Wireless

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Meta Integration® Works (MIW) is an ETL Generating XML Data Movement Components

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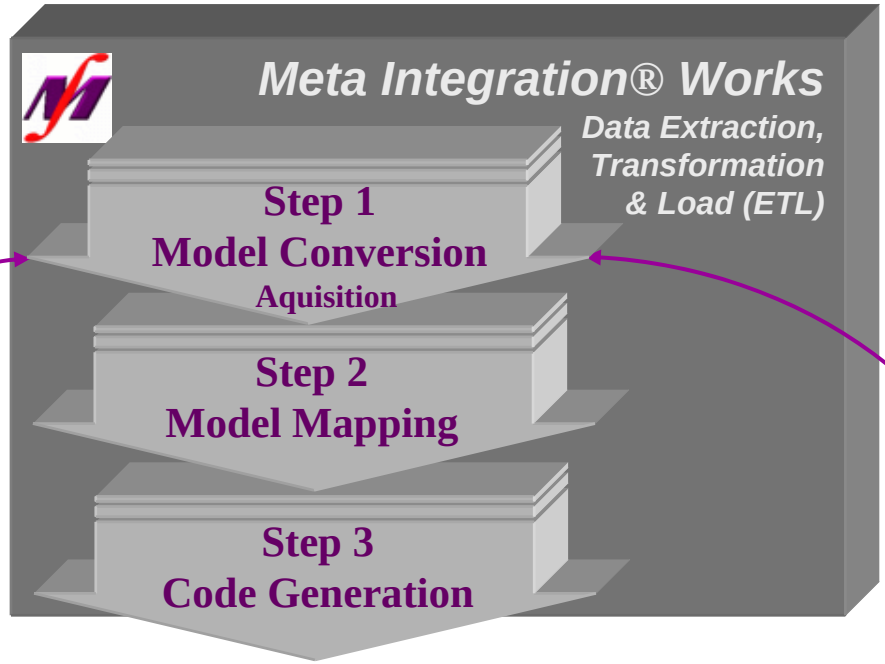
METADATA IMPORT:

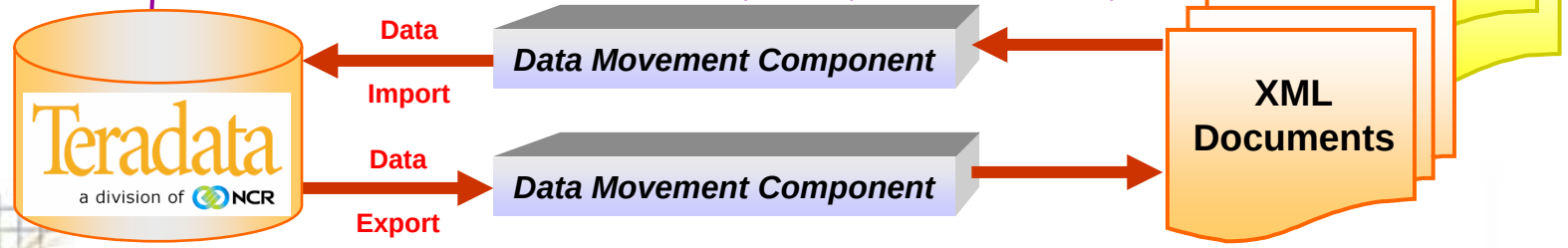
- Physical model (data types, table & column definitions) directly from live Teradata databases via **JDBC,** Complete Logical / Physical models via design tools like **ERwin**,
- Teradata **MDS Repository**



METADATA IMPORT

From XML DTD or Schema

C++ Code Generation and Maintenance of the Data Movement Components (for Windows and Unix)



Introduction to Meta Integration's Data Movement Solutions: What it does…

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- Meta Integration® Works (MIW) integrates well with today's best practices in software development, as it provides a unique component based approach to the Data Extraction, Transformation, & Load (ETL) tool market.
- Indeed, the MIW software development environment generates fast C++ based data movement components that can be easily integrated (plug & play) with any Windows or Unix based business applications.
- Multiple data movement components can be produced for various purposes such as:
  - Legacy Data Migration (LDM),
  - Data Warehousing (DW) & Data Marts (DM),
  - Enterprise Application Integration (EAI),
  - XML based Internet Application Integration (IAI), E-Business, Web Portals.
- The code of the produced data movement components can be reviewed through any Quality Assurance (QA) processes, and does not depend on any middleware (free of any run-time cost at deployment time).

Introduction to Meta Integration's Data Movement Solutions: What it is…

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- MIW is a Metadata Repository driven development environment with support for metadata acquisition, conversion, browsing, comparison, integration, mapping, and sophisticated version & configuration management (with mapping migrations, etc.)
- MIW has been designed to support the perpetual changes in the source and destination data stores. Indeed, one of the key features of MIW is the built-in support for change management facilitating the maintenance and/or generation of new versions of the data movement components as needed
- The MIW development environment has entirely written in Java 2, and is based on a modern 3-tier architecture portable to many platforms.
- Data Connectors are available for most popular databases via ODBC:
  - e.g. Teradata, Oracle, IBM DB2, Microsoft SQL Server,

  as well as for XML data sources:
  - e.g. HL7 for the Health Care, ebXML, etc.

  to service the expanding needs in the fields of:
  - E-Business (B2B or B2C), Internet Application Integration (IAI), Enterprise Information Portals (EIP),
- A Data Connector SDK allows to write native data connectors (e.g. Teradata CLI), or access to data from any business application via its API (e.g. ERP BAPI)

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Meta Integration® Functionalities

A Metadata (Model) Driven Development Environment !

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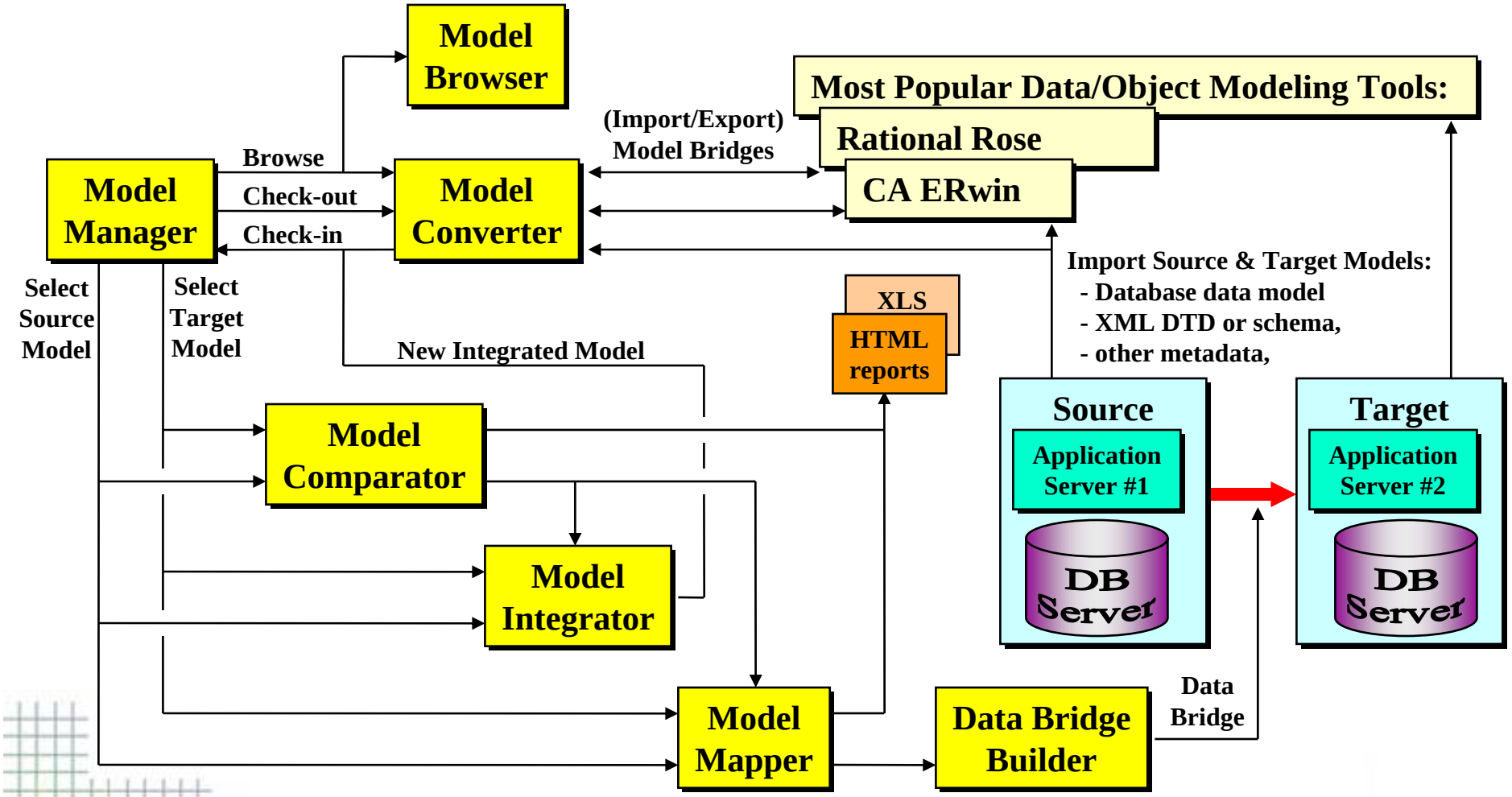

Meta Integration Solutions for Teradata Products

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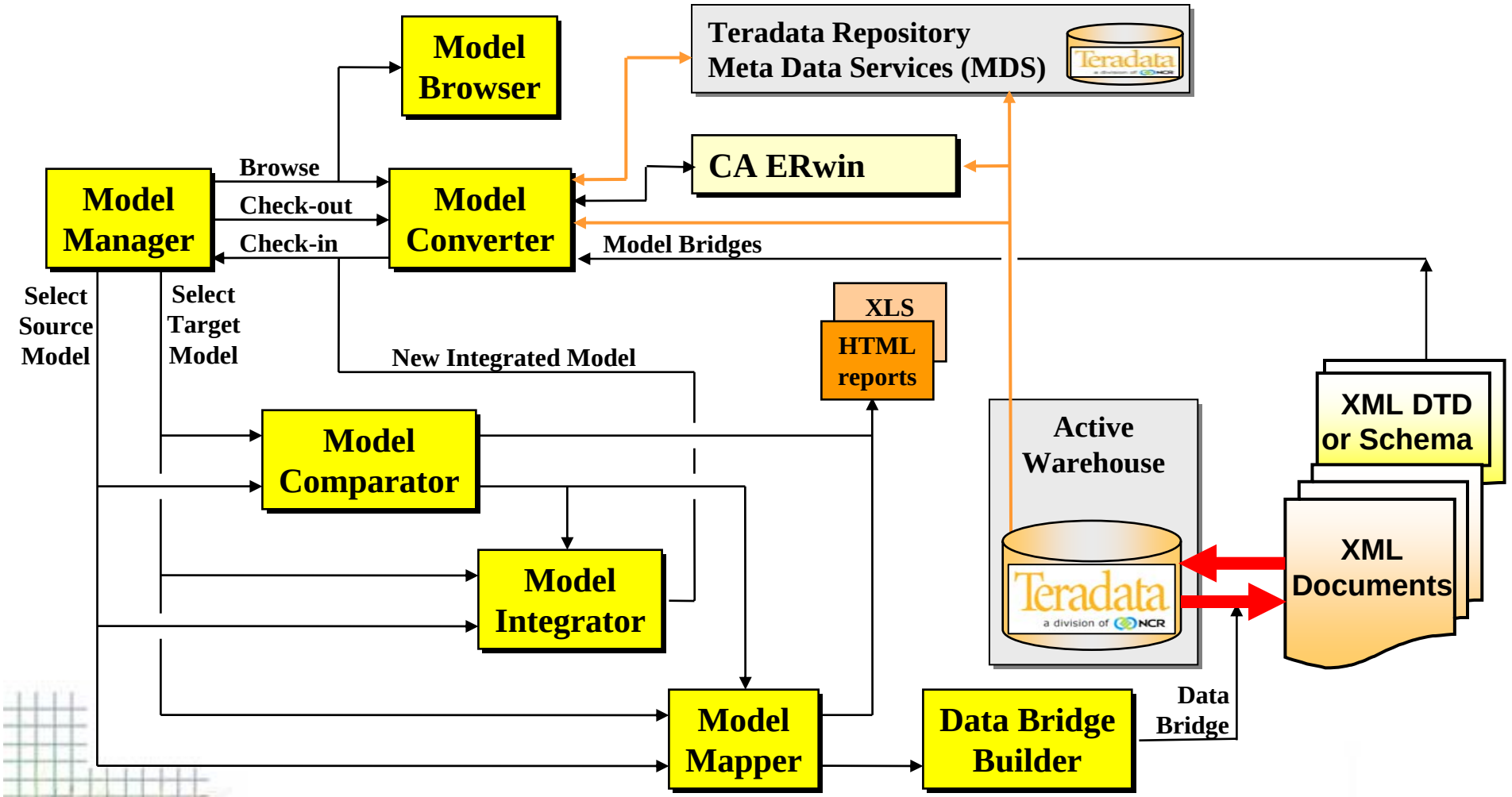

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Meta Integration® Architecture Overview

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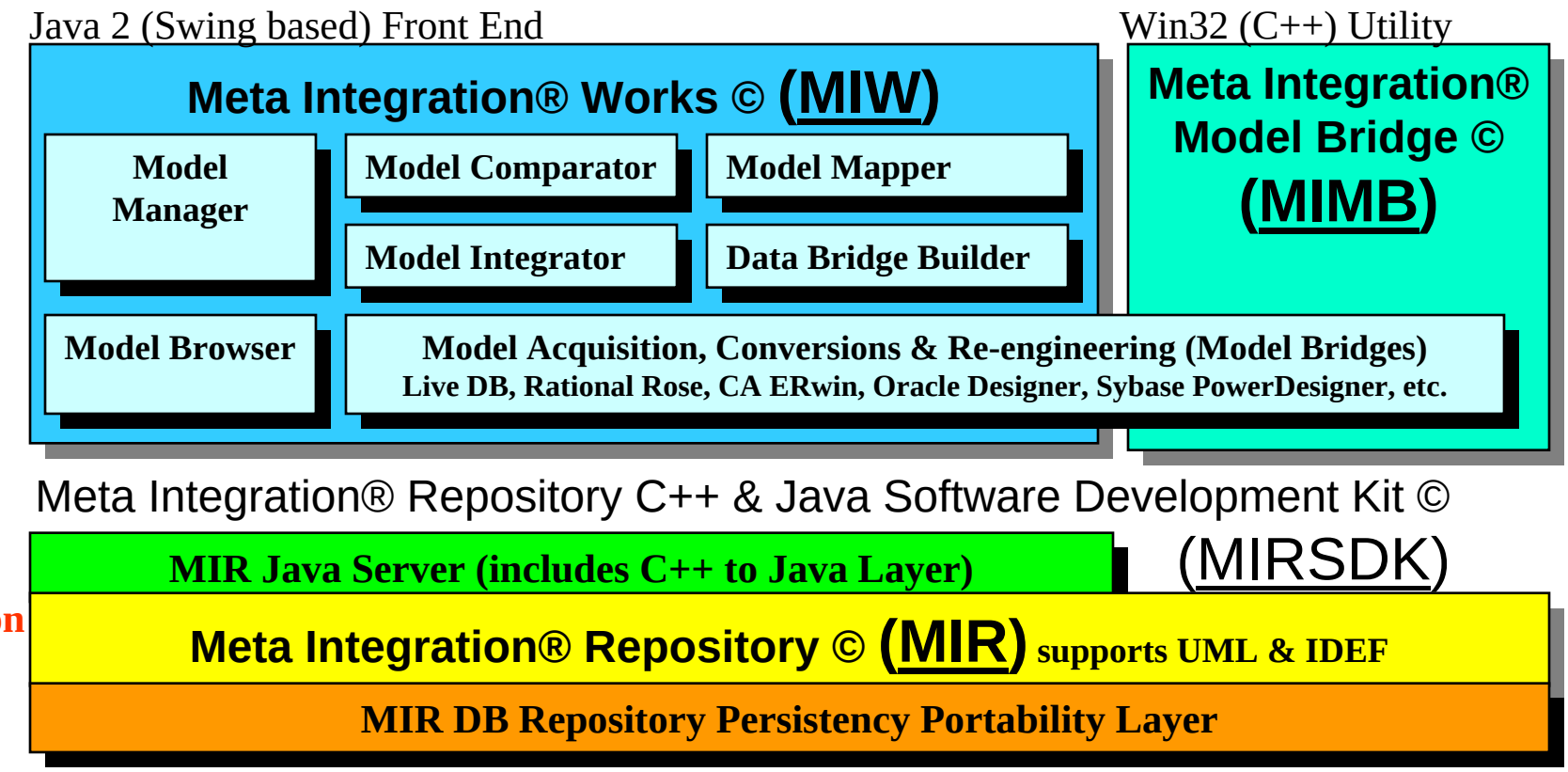

1st Tier: Database Server

RDBMS

Enterprise Editions:
- OS: Sun Solaris 2.5 to 9.0, Microsoft Windows NT, 2K, XP, Linux
- DB: Oracle 7 to 9i, MS SQL Server 6.5 to 2000, or Teradata

Personal Editions: MS Windows 9x to XP, with Access 97, 2000, XP

Possible Architecture Configurations
of the Meta Integration Development Environment

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MIW
Client Java Application downloaded in the Web Browser

Netscape NOW! · Java · Microsoft Internet Explorer (FREE)

No installation Anywhere on the web!

MIW
Client Standalone Installed on Windows

Microsoft Windows — Windows 2000 Professional, Windows NT Workstation 4.0, Windows 98, Windows 95

Desktop on the LAN

MIRW
Standalone Personal Edition for Windows

Microsoft Access 2000

Laptop on the road or at home

Soon Available

MIR
App. Server

Microsoft Windows — Windows 2000 Professional, Windows NT Workstation 4.0, Windows 98, Windows 95

MIR
App. Server

SOLARIS COMPATIBLE

MIR
App. Server

Linux

Microsoft Access 2000 · Microsoft SQL Server 7.0 · Teradata a division of NCR · ORACLE · MySQL

MIR · MIR · MIR · MIR · MIR

Summary of Meta Integration's Teradata Everywhere Solutions

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- Meta Integration® Works (MIW) **as an ETL development environment generating** Teradata / XML data movement components **for Windows and Unix platforms (including MPRAS soon).**

- Meta Integration® Repository (MIR) **persistent metadata storage** on Teradata database**.**

- Meta Integration® Model Bridge (MIMB) **integrating** Teradata Repository known as the Meta Data Services (MDS) **product with most popular design tool vendors like CA ERwin and Rational Rose, as well as most popular standards like (IDEFX, or OMG UML and CWM).**

Meta Integration's Total Solutions:
From Data Movement To Metadata Movement

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- The "Model Converter" functionality of MIW has been bundled as a separate utility called Meta Integration® Model Bridge (MIMB) for:
  - ✓ legacy model migration and,
  - ✓ metadata integration.
- The need for data movement and data integration solutions is driven by the fact that data is everywhere underneath business applications.
  - ➢ The same applies for metadata: metadata is also everywhere underneath the data and object modeling tools, as well as within the repositories of the ETL, DW, and EAI products used for Business Intelligence (BI & KM).
- With over 40 bridges, MIMB is the most complete metadata movement solution on the market:
  - ❑ MIMB supports most popular standards from UML Object Modeling to IDEF1X data modeling, including the new OMG CWM XMI.
  - ❑ MIMB integrates the market leading design tool and repository vendors.
- The model bridges are also available as add-ins or (plug & play) metadata movement components for other repositories & tools like Rational Rose.

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Meta Integration's Meta Data Movement Solutions Supporting Multiple Vendors & Standards

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Live Database Schemas via JDBC/ODBC

Teradata
Oracle
Sybase
Informix
IBM DB2
MS Access
MS SQL Server
etc.

Repositories

Teradata MDS Repository (native API)
Microsoft MDS Repository (XIF or MDC XML standard)

Data Modeling Tools:

Rational Rose Data Modeler
CA All Fusion ERwin Data Modeler
CA Advantage Gen (COOL:gen)
CA (Sterling) COOL:Enterprise (ADW)
CA (Sterling) COOL:BizTeam (GroundWorks)
CA (Sterling) COOL:DBA (Terrain)
Oracle Designer
Sybase PowerDesigner
Popkin System Architect
Select SE
Silverrun RDM
Visible IE:Advantage
Intersolv AppMaster Designer

OMG CWM XMI Standard
Data Warehousing & Business Intelligence Tools:

Adaptive Repository / Unisys UREP
IBM DB2 Warehouse Manager
Oracle Warehouse Builder
Hyperion Analytic
SAS Warehouse Admin.

BI Tools:

Business Objects
Cognos

ETL Tools:

Ascential
Informatica

W3C XML

DTD
Schema

Object Modeling Tools:

Rational Rose C++/Java (MDL)
CA (Platinum) ParadigmPlus (CDF)

OMG UML XMI Standard
Object Modeling Tools:

Rational Rose
IBM VisualAge and WebSphere
TogetherJ
Telelogic Tau (COOL:JexObjectTeam)
SoftTeam Objecteering
ArgoUML

Meta Integration's Meta Data Movement Solutions
The OMG's Common Warehouse Metamodel (CWM)

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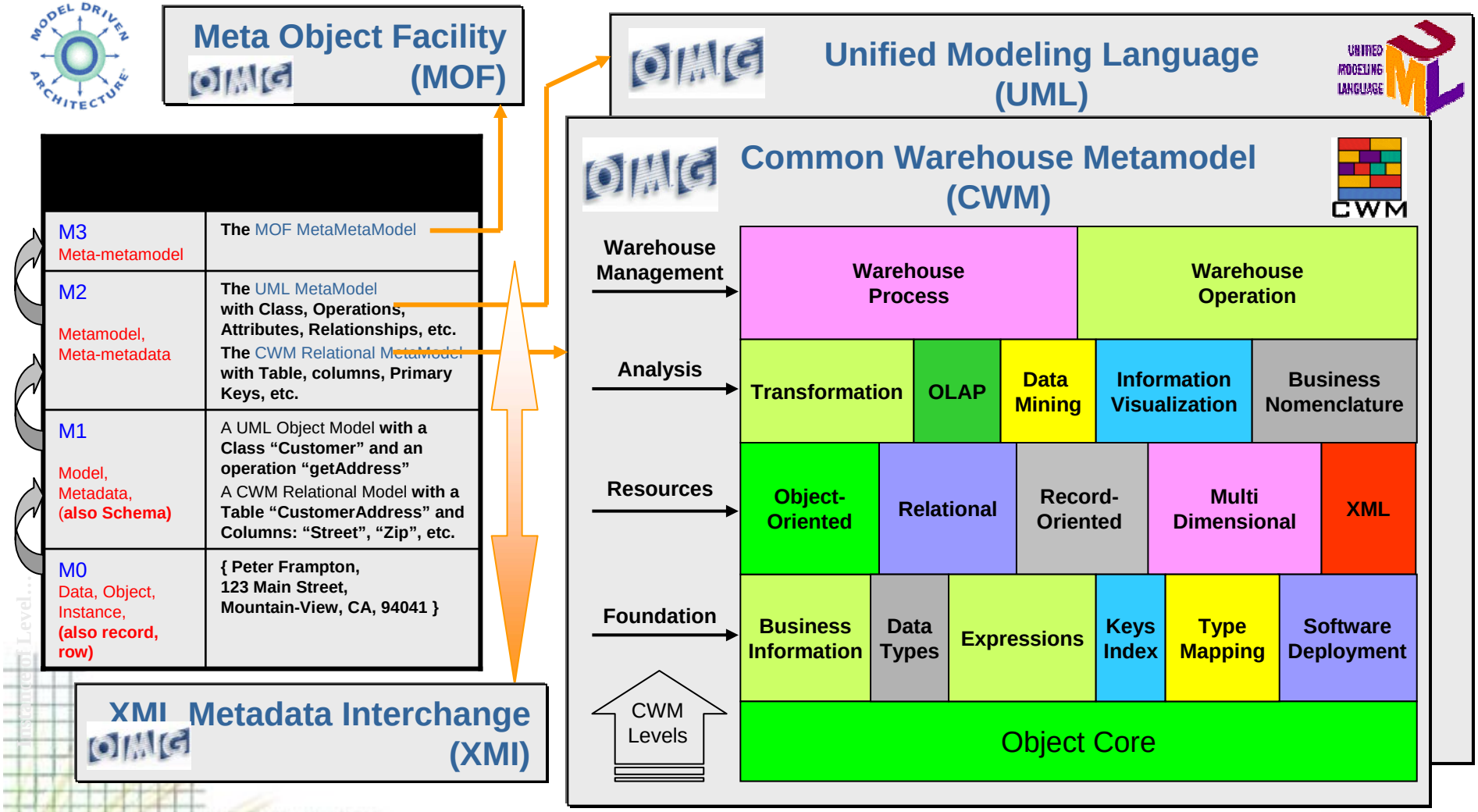

CWM Enablement Showcase
Meta Data Conference / DAMA Symposium
March 4-8 2001 – Hilton Anaheim California

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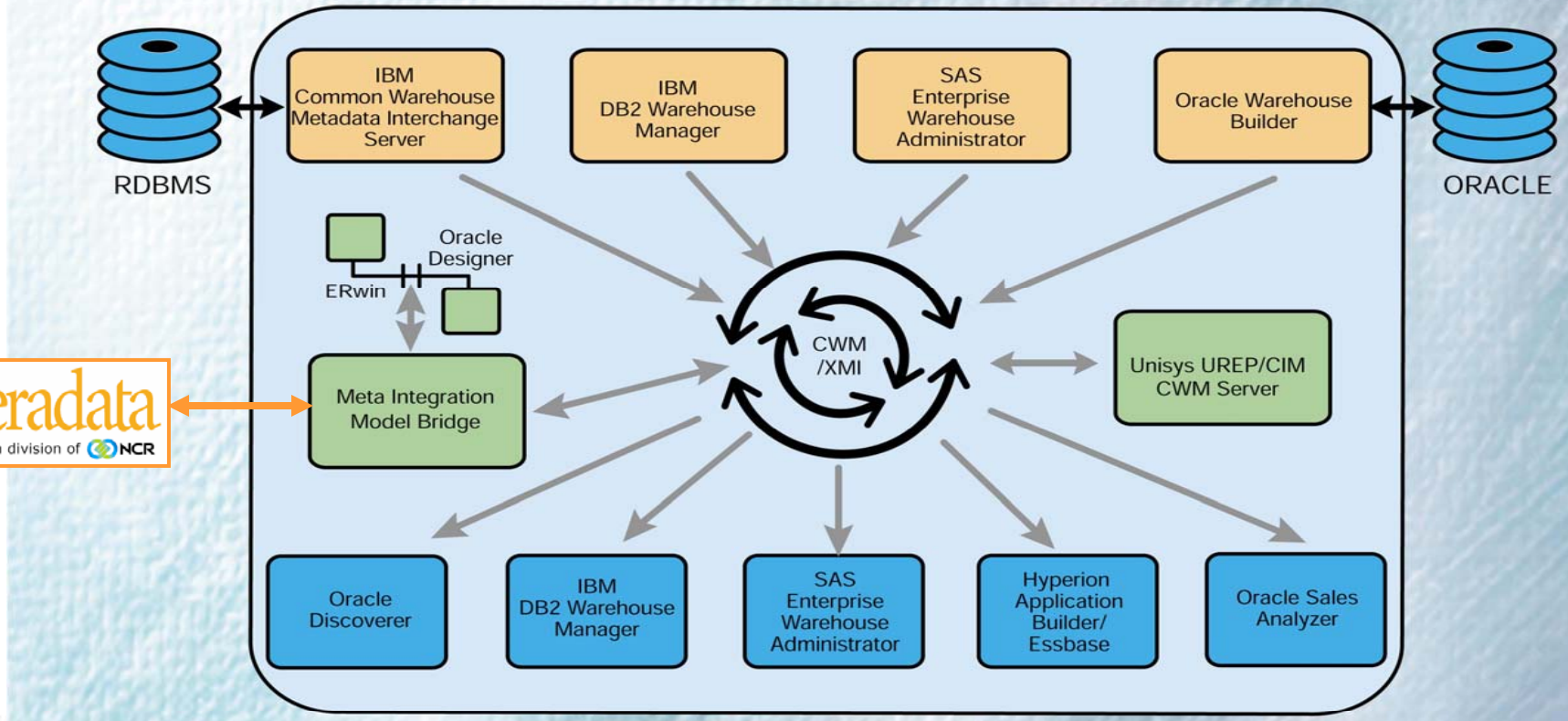
Common Warehouse Metamodel

Enablement Showcase



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CWM Enablement Showcase
Meta Data Conference / DAMA Symposium
April 28 – May 2, 2002 / San Antonio, Texas.

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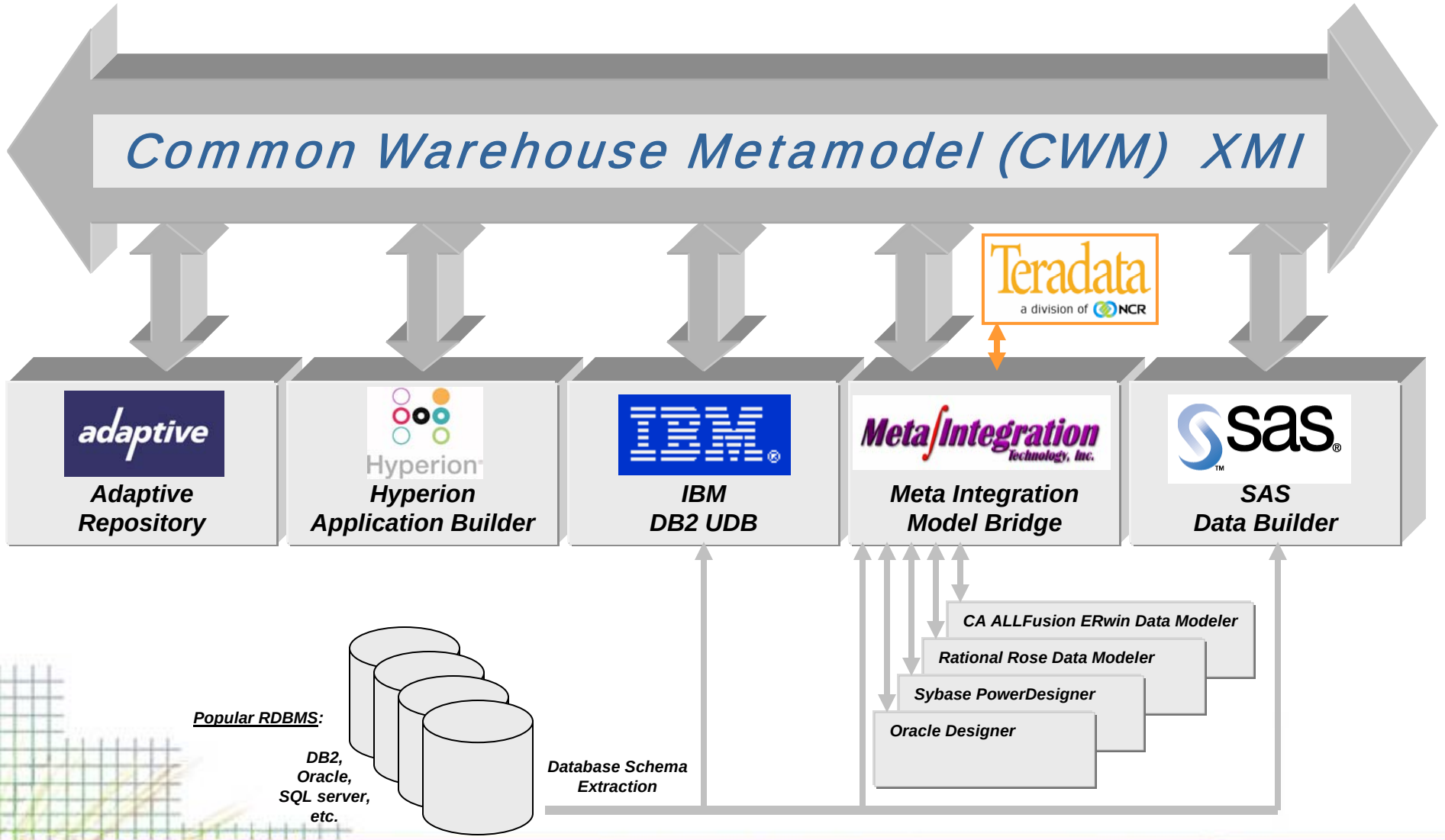

Architecture & Connectivity of the Data Movement Components

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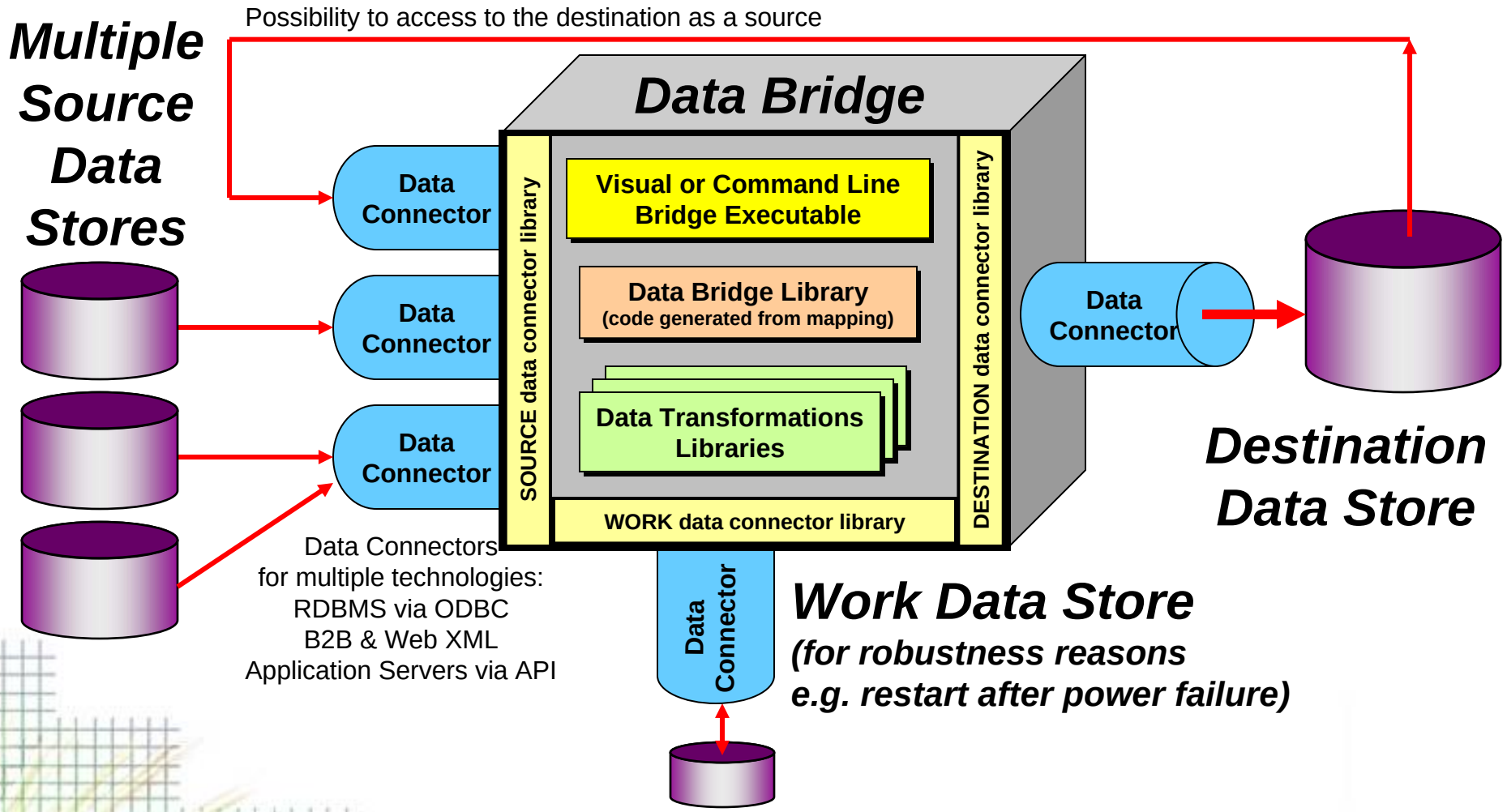

Packaging & Usage of the Generated Data Movement Components

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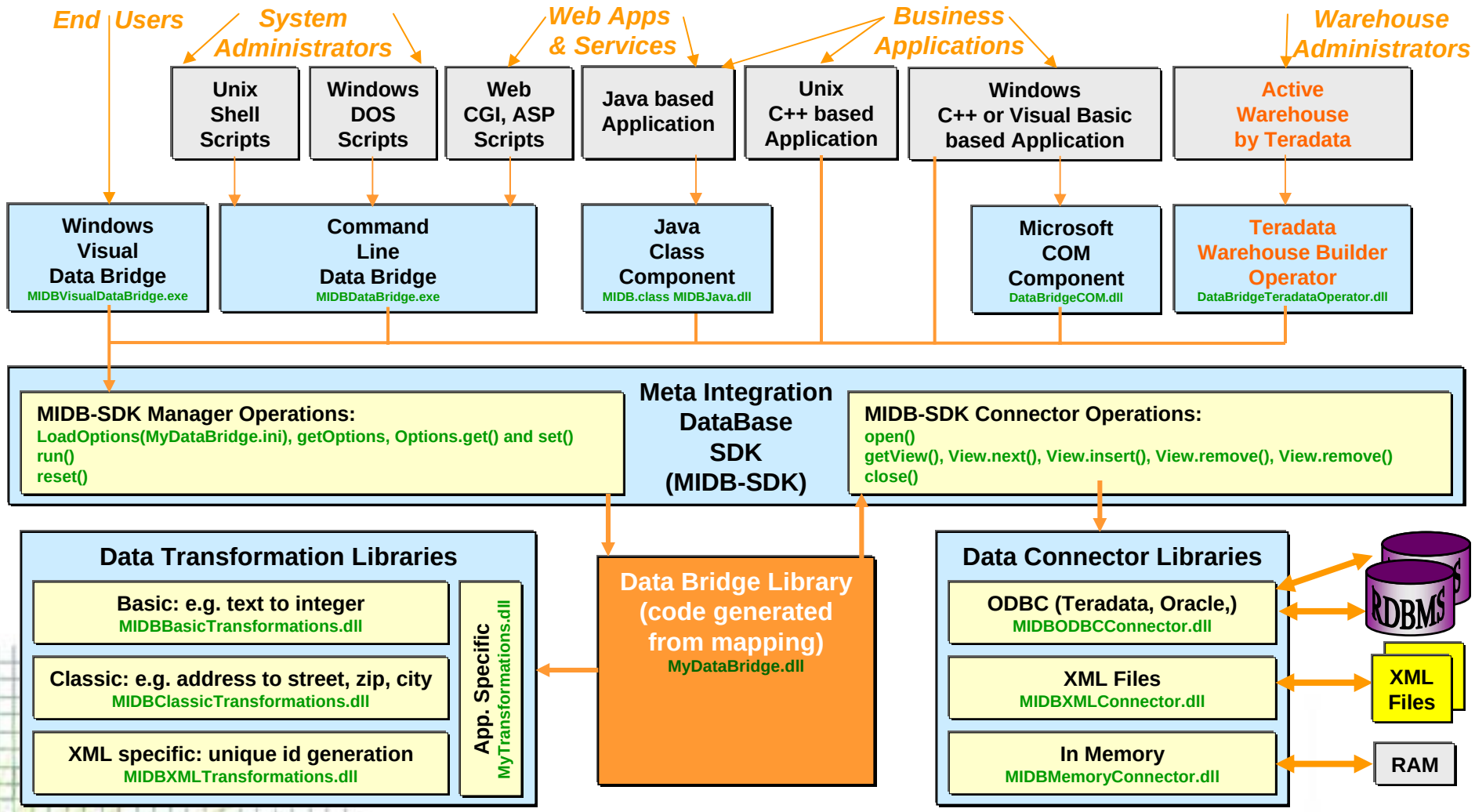

Architecture of Meta Integration's XML Data Connector

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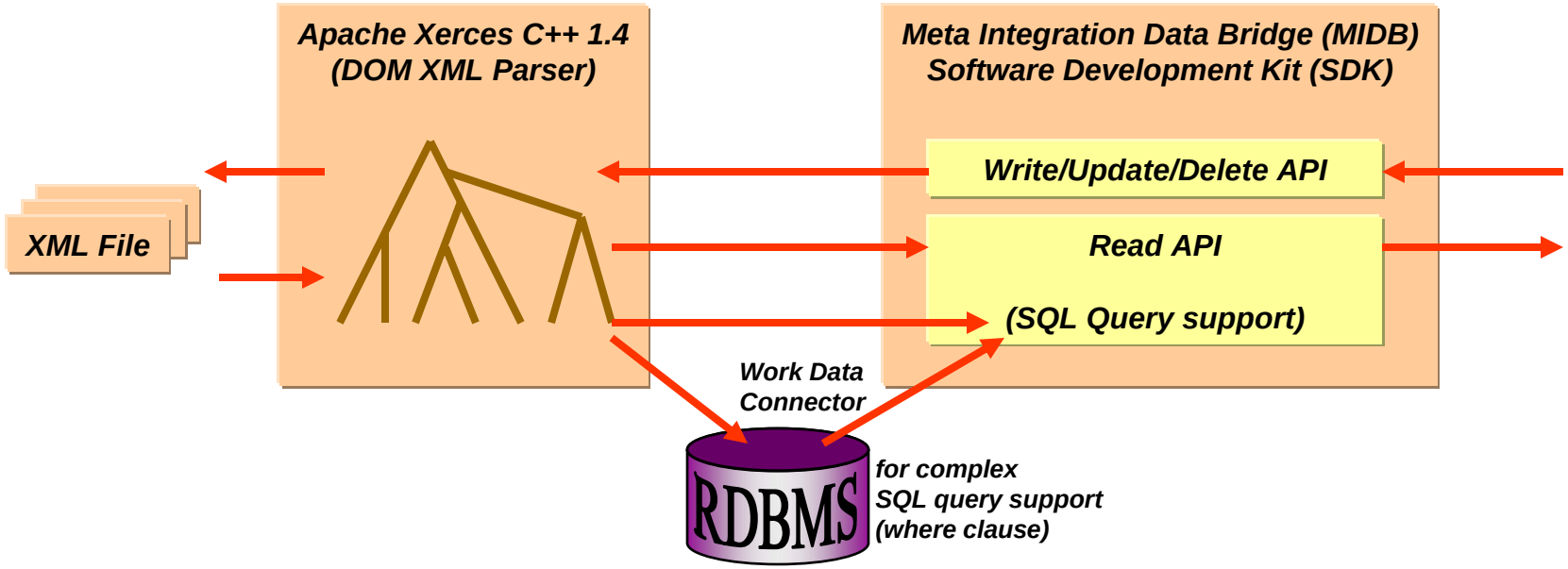

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Conclusions, Q&A…

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- **Meta Integration Total Solutions for Teradata include:**
  - **Meta Integration® Works (MIW)** as an ETL development environment generating **Teradata / XML data movement components** for Windows & Unix platforms (MPRAS).
  - **Meta Integration® Repository (MIR)** persistent **metadata storage on Teradata.**
  - **Meta Integration® Model Bridge (MIMB)** integrating **Teradata Meta Data Services (MDS)** product with most popular tools like ERwin, and standards like OMG UML/CWM.
- **Meta integration provides a "Data Extraction, Transform & Load" (ETL) development environment generating "data movement components":**
  - ✓ Multiple purposes: LDM, DW ETL, EAI, EDI, E-Business, Web Portals, etc.
  - ✓ **Multiple technologies**: RDBMS, XML, API, (Data Connector SDK)
  - ✓ Generates **fast C++ based data movement components** for Windows or Unix.
  - ✓ **No run-time fees** to deploy, no servers to maintain on the operational sites.
  - ✓ Application builders can design, maintain, and generate multi-purpose data movement components to be embedded in their software applications.
  - ✓ Metadata repository driven development environment with support for model acquisition, conversion, browsing, comparison, integration, mapping, and sophisticated version & configuration management focused on supporting change in the enterprise datascape…

Thank you!