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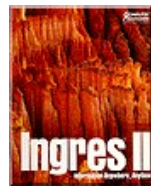
**Methoden, Tools und Tipps bei der Migration
(Integration/Replikation)
heterogener Datenbank-Umgebungen**

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BU-ST PCM**

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Informix
CORPORATION



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DATABASE **11g**

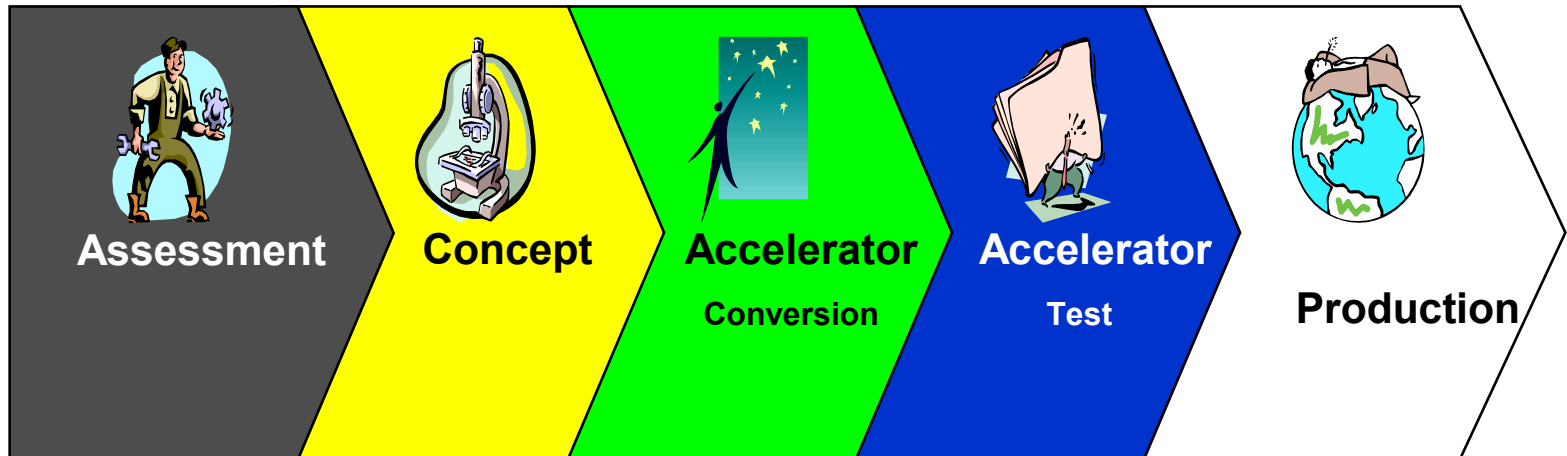


Teradata
a division of  NCR



Migration Methode

Das Phasenmodell



Vorgehen bei der Migration

Analyse der Quelle

- Fragebogen
- Interviews
- Tools

Migration der Schemata

- Manuell
- Tools

Migration der Daten

- Manuell (unload/Load)
- Tools



Tools für die Analyse der Quell DB

Migration Assessment Tool

SQL-Developer

SQL-Developer Data Modeller



Migration Assessment Tool

The screenshot shows the Oracle Migration Assessment Tool 1.6.0 window. The title bar reads "Oracle Migration Assessment Tool 1.6.0". The interface includes the following fields and controls:

- ODBC-Name:** A text input field containing "sample".
- Database:** A dropdown menu currently showing "DB2 UWL V9".
- Username:** A text input field containing "sa".
- Password:** An empty text input field.
- Test Database Connection:** A button located below the connection fields.
- Database Assessment:** A tabbed section containing:
 - Path to Report-File:** A text input field containing "c:\Oracle_DBAssessment.html".
 - List of source-code:** A checkbox that is currently unchecked.
 - A large empty text area with a vertical scrollbar.
- Start Assessment:** A button located at the bottom right of the window.

Sybase
DB2
SQL Server
Informix
(MySql)

Migration der Schemata

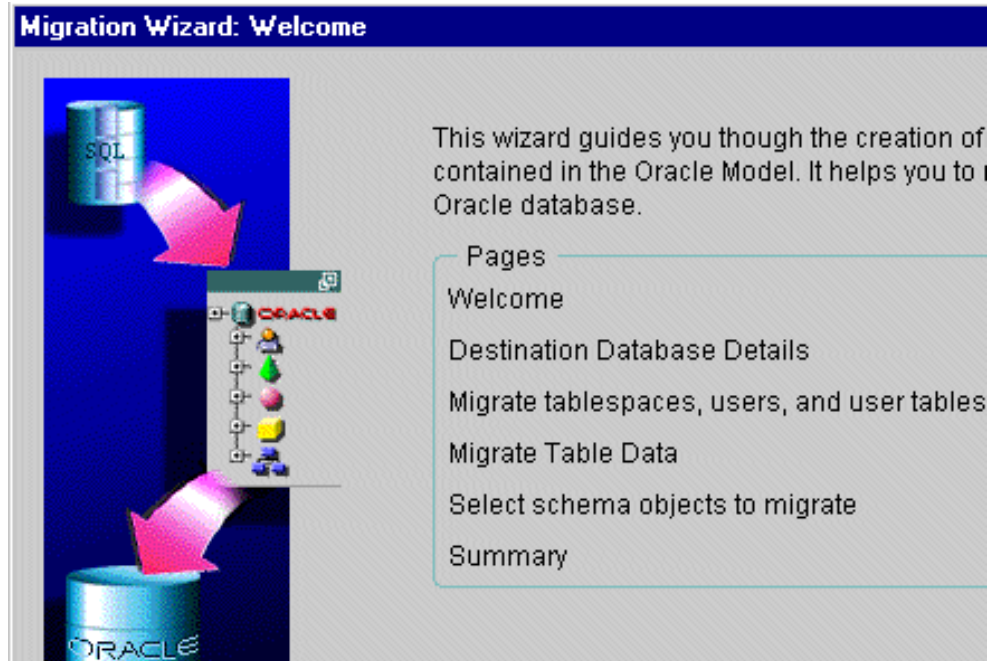
Migration Workbench

SQL-Developer

SQL-Developer Data Modeller



Migration Workbench



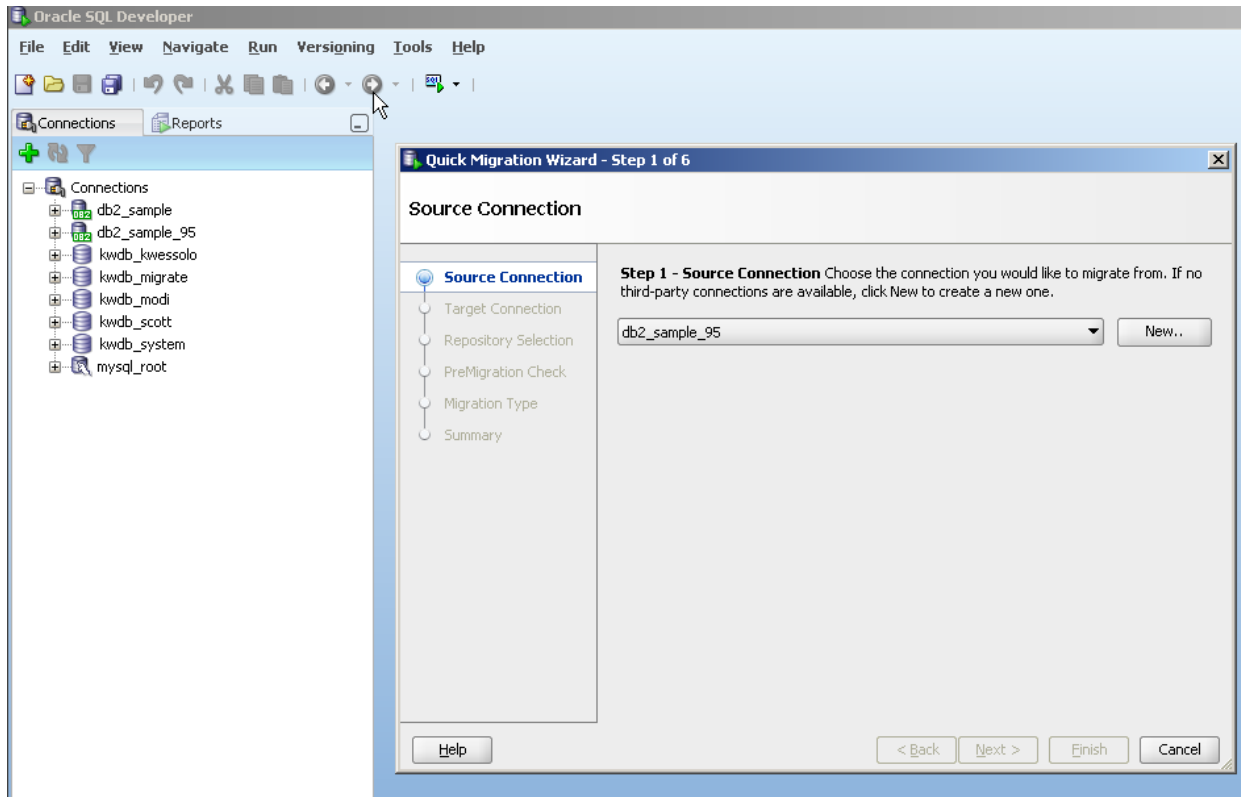
Nur noch für

Informix 7.3, 9.1, 9.2, 9.3, 9.4

IBM DB2/400 V4R3 & V4R5

IBM DB2 UDB V6, V7.1, & V7.2

SQL Developer

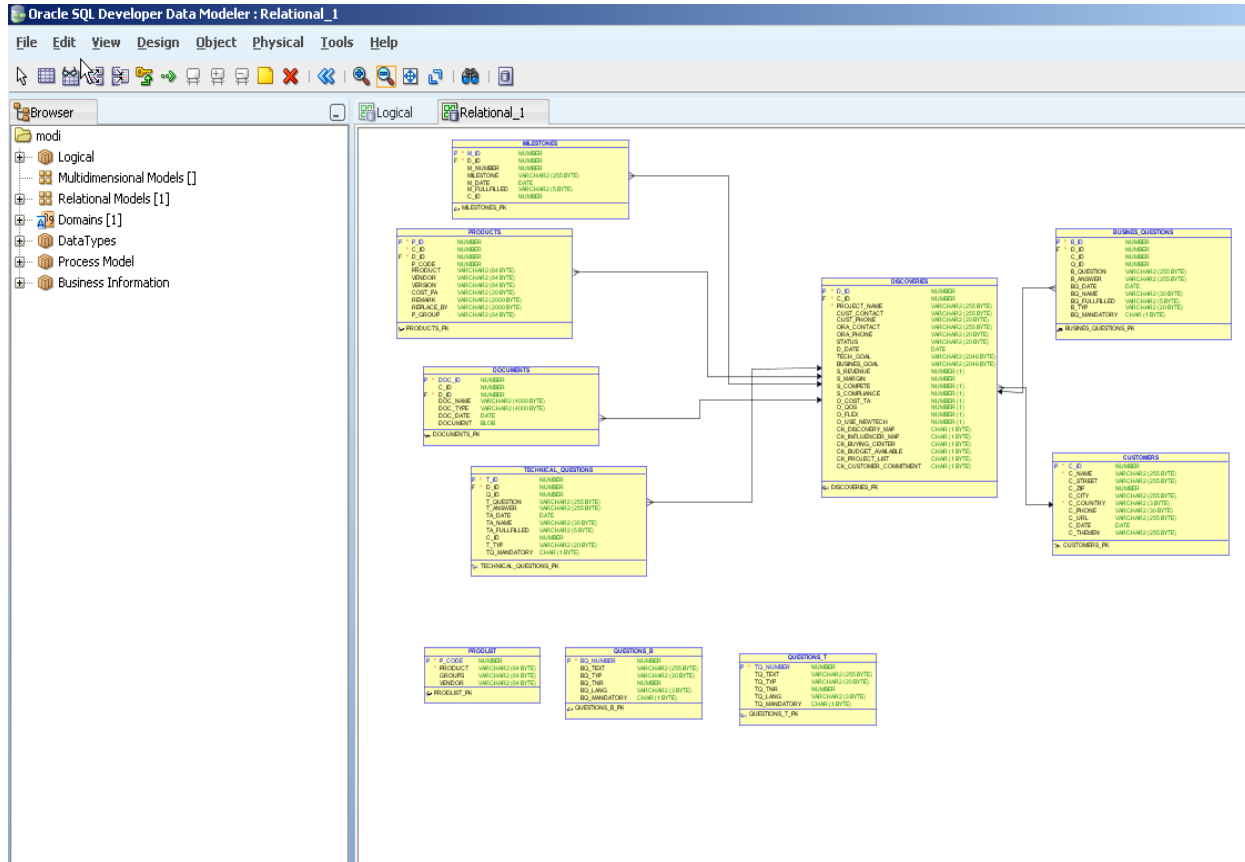


Für:

- **Microsoft Access,**
- **Microsoft SQL Server,**
- **MySQL,**
- **Sybase,**
- **DB2 V8, V9,**
- **Teradata**

- **Informix im nächsten Release,**
- **AS400, zOS tbd.**

SQL Developer - Data Modeller



SQL Developer – Data Modeller

The screenshot displays the Oracle SQL Developer Data Modeler interface. The main window shows a relational model with two tables: **MILESTONES** and **PRODUCTS**. The **MILESTONES** table has columns: M_ID (NUMBER), D_ID (NUMBER), M_NUMBER (NUMBER), MILESTONE (VARCHAR2 (255 BYTE)), M_DATE (DATE), M_FULLFILLED (VARCHAR2 (5 BYTE)), and C_ID (NUMBER). The **PRODUCTS** table has columns: P_ID (NUMBER), D_ID (NUMBER), P_NAME (VARCHAR2 (255 BYTE)), and P_PRICE (NUMBER). A relationship line connects the **MILESTONES** table to the **PRODUCTS** table.

The **DDL File Editor - Oracle Database 11g** window is open, showing the following SQL code:

```
-- Generated by Oracle SQL Developer Data Modeler 1.0
-- at:      2009-10-26 17:42:46
-- site:    Oracle Database 11g
-- type:    Oracle Database 11g

CREATE TABLE BUSINESS_QUESTIONS
(
  B_ID NUMBER NOT NULL ,
  D_ID NUMBER NOT NULL ,
  C_ID NUMBER ,
  Q_ID NUMBER ,
  B_QUESTION VARCHAR2 (255 BYTE) ,
  B_ANSWER VARCHAR2 (255 BYTE) ,
  BQ_DATE DATE ,
  BQ_NAME VARCHAR2 (30 BYTE) ,
  BQ_FULLFILLED VARCHAR2 (5 BYTE) ,
  B_TYP VARCHAR2 (20 BYTE) ,
  BQ_MANDATORY CHAR (1 BYTE)
)
;

ALTER TABLE BUSINESS_QUESTIONS
  ADD CONSTRAINT BUSINESS_QUESTIONS_PK PRIMARY KEY ( B_ID ) ;
```

Migration der Daten

Migration Workbench

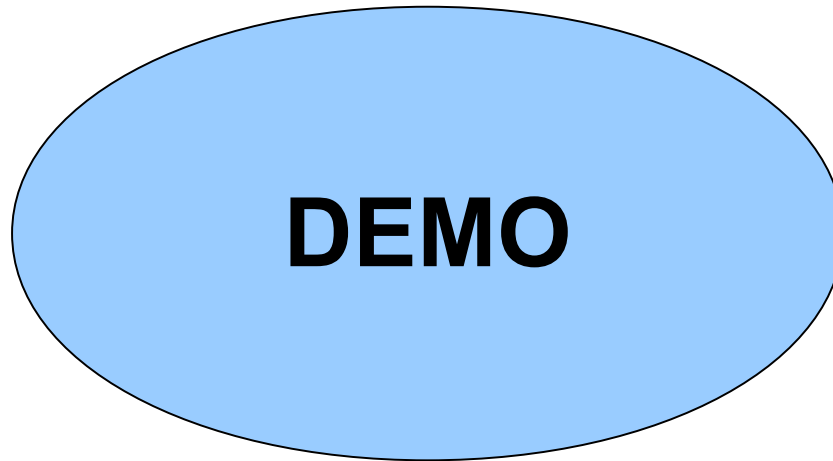
SQL-Developer

Gateways

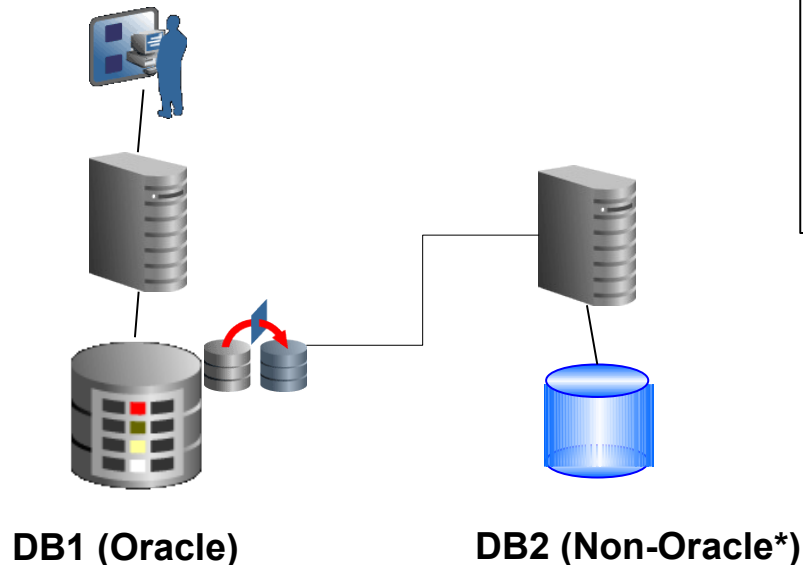
GoldenGate



SQL Developer



Migration und Integration mit Database-Gateways



Joins mit Fremdsystem:

```
select a.name, b.department  
from emp a, dept@db2 b  
where a.deptno = b.deptno;
```

Verteilte Verarbeitung (2PC):

```
Update emp;  
Update employee@db2;  
Commit;
```

Datenmigration

```
1:1 -> Create table employee as select * from employee@db2;
```

```
Mapping -> Insert into emp(a,b,c) values select x,y,z from employee@db2;
```

* DB2, Informix, Sybase, Ingres, MySQL, SQL-Server, Teradata, Adabas, VSAM,

Konfiguration

TNSNAMES.ORA:

```
excel=  
(DESCRIPTION=  
  (ADDRESS=(PROTOCOL=tcp) (HOST=myhost)  
(PORT=1521))  
  (CONNECT_DATA=(SID=excel))  
  (HS=OK)  
)
```

LISTENER.ORA:

```
(SID_DESC =  
  (SID_NAME = excel)  
  (ORACLE_HOME = D:\oracle\o11g)  
  (PROGRAM = dg4odbc)  
)
```

INITEXCEL.ORA:

```
#  
# HS init parameters  
#  
HS_FDS_CONNECT_INFO=Orte
```

```
SQL> create database link  
1 Orte_Excel using 'excel';  
SQL> select * from Orte$@Orte_Excel;  
  
Ortnummer Ort  
-----  
1 Berlin  
2 Braunschweig  
.....
```

ODBC Microsoft Excel Setup

Data Source Name: Orte

Description:

Database

Version: Excel 97-2000

Workbook: D:\...\Produkte\QWB\Demo\Orte.xls

Select Workbook...

Use Current Directory

Options>>

OK Cancel Help

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Oracle Data Integrator (ODI)

The image displays several overlapping screenshots of the Oracle Data Integrator (ODI) Designer interface, illustrating various stages of configuration and data flow.

Top Left Screenshot: Shows the 'Interface: aggregate test' configuration window. The 'Definition' tab is active, displaying the interface name 'aggregate test', optimization context 'Global', and a description 'SUNOPSIS_MEMORY_ENGINE'. The 'Diagram' tab shows a flow from 'SS 0 (-1 - bam server12)' to 'Staging Area (OracleDB)' and then to 'Target (bam server12)'. The 'Controls' tab shows 'SS_0'.

Top Middle Screenshot: Shows the 'Interface: agg testupsert' configuration window. The 'Diagram' tab displays a data flow diagram with three main components: 'SS 0 (-1 - bam server12)' (containing 'SMA'), 'Staging Area (OracleDB)' (containing 'SS_0'), and 'Target (bam server12)' (containing 'Aggregate'). Arrows indicate the data flow from the source to the staging area and then to the target.

Bottom Left Screenshot: Shows the 'Interface: aggregate test' configuration window with the 'Columns' tab selected. It displays a table of columns for the source and target datastores.

| Source | Target Datastore |
|--------|------------------|
| | Aggregate |
| | Ind Name |
| | SubstationID |
| | Count Down |
| | Count Up |
| | Count Task |

Bottom Middle Screenshot: Shows the 'Mapping: Substation' configuration window. The 'Implementation' tab is active, showing the mapping 'SMA.SubstationID'. The 'Execute on' section shows 'Source', 'Staging Area', and 'Target' options. The 'Update' section shows 'Insert', 'Update', and 'ID1' through 'ID5' options. The 'Target Column' section shows 'Name' and 'Key' options.

Bottom Right Screenshot: Shows the 'Target (bam_server12)' configuration window. The 'IKM Selection' dropdown is set to 'IKM SQL to BAM (upsert)'. The 'IKM Description' field contains the following text:

Source must be an RDBMS.
Target is Oracle BAM.
- An interface using this IKM must have its Staging Area set to be the source.
- An update key for the target must be set. Update key columns are passed as the strKeys parameter to deleteRows.
- Rows in the target that match rows in the ResultSet passed in will be deleted. The upsertRows API supports additional conditions like >= and * which are not supported by this IKM.

The screenshots also show the Windows taskbar at the bottom, indicating the system is running on a Windows machine with the Oracle Data Integrator Supervisor service running.

Oracle GoldenGate

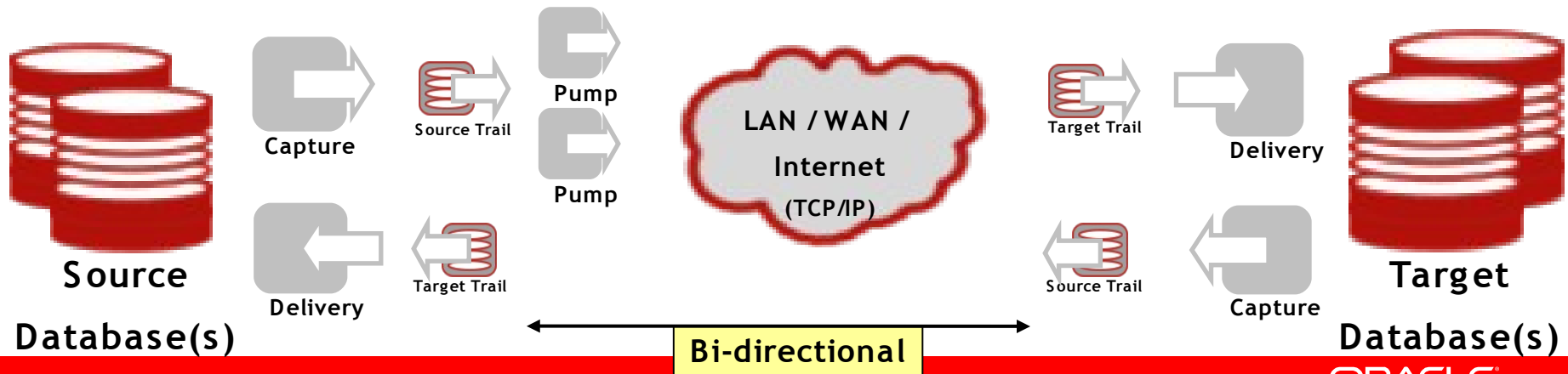
Capture: Transaktionen werden aus den LOG-Files gelesen und ggf. gefiltert

Trail files: Zwischenspeicher zum routen.

Pump: Verteilung zu 1-n Zielsystemen.

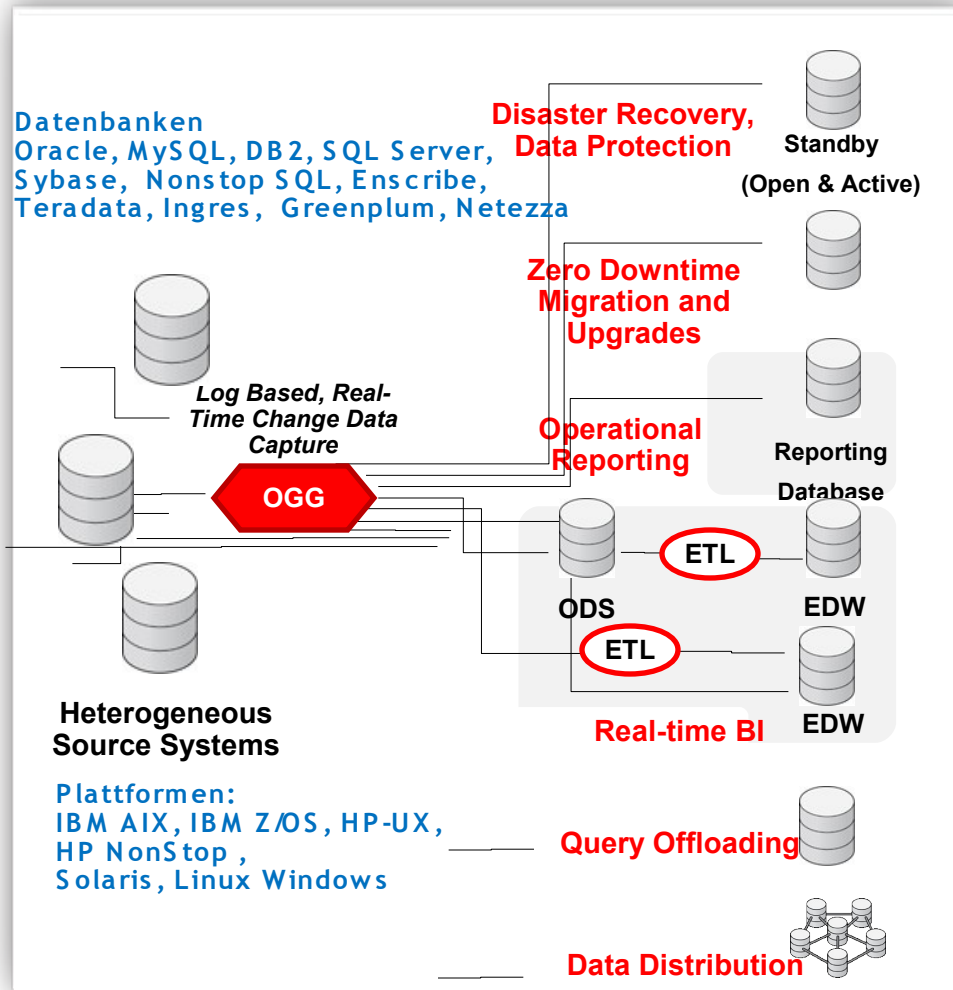
Route: Comprimiert und verschlüsselt bei der Übertragung

Delivery: Einfügen der Transaktionen ggf. Transformation

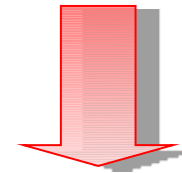


Oracle GoldenGate - Beispiele für den Einsatz

Unternehmensweite Lösung für Real-Time Integration



- **Standardisierte** Technologie für **vielfältige** Einsatzgebiete
- Für Hochverfügbarkeit, **und** Real-time Data Access z.B. für Reporting / BI
- In homogenen **und** heterogenen Systemen



- **Sehr Flexibel**
- **Schnell**
- **Niedrige TCO & hoher ROI**

GoldenGate: Heterogene Plattformen

| Databases | O/S and Platforms |
|--|---|
| <p>Capture:</p> <ul style="list-style-type: none">▪ Oracle▪ DB2▪ Microsoft SQL Server▪ Sybase ASE▪ Teradata▪ Enscribe▪ SQL/MP▪ SQL/MX <p>Delivery:</p> <ul style="list-style-type: none">▪ All listed above, plus:▪ HP Neoview, Netezza, Greenplum, and any ODBC compatible databases▪ ETL products▪ JMS message queues▪ MySQL▪ TimesTen | <p>Windows 2000, 2003, XP</p> <p>Linux</p> <p>Sun Solaris</p> <p>HP NonStop</p> <p>HP-UX</p> <p>HP TRU64</p> <p>HP OpenVMS</p> <p>IBM AIX</p> <p>IBM z/OS</p> |



Q U E S T I O N S
A N S W E R S

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