
EI for Small Businesses

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Agenda

- Why Information Integration?
 - Basic Use Cases
 - What is a difference to ESB?
 - 3 databases scenario
 - JBoss Teiid basics
 - overview, installation
 - running, debugging
 - Teiid Designer
 - JBoss Teiid usage
 - joining databases and accessing via JDBC
 - Web services access to the data
 - XML view of data
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Basic Use Cases

Why EII?

- Many Data sources
 - Databases
 - Files
 - Excel Spreadsheets
 - Web Services
 - Other EIS as data sources
 - We would like to be data source agnostic
 - **SELECT * FROM** people-addresses.txt,
people.xls, vacationsWebService.wsdl
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SOA and ESB

- Sounds familiar?
 - Complementary - Data Services
 - Similar goals
 - Focus on Data Sources
 - Deeper support
 - JOINS
 - Query Language transparency (SQL, Web Services, ODATA)
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Basic Use Cases

- Integrate N databases
 - Have a common view on data
 - Perform joins
 - Join tables that reside in databases from different vendors (syntax)
 - query mirrored databases
 - provide role based security on top of the data
 - Integrate Files
 - Integrate Web Services
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3 Databases Scenario

- People database
 - Accounting database
 - Elearning database
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People database

- Just a list of people with name and email
 - ID
 - FIRSTNAME
 - LASTNAME
 - EMAIL
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Accounting Database

- EMPLOYEE table
 - FIRSTN
 - LASTN
 - BIRTH_NUMBER
- SALARY
 - how big monthly salary did the employee have in certain time period

Elearning database

- PUPIL
 - NICK
 - LOGIN (this is an email of the person)
 - RESULTS
 - TEST_NAME
 - PUPIL_FK
 - GRADE test results of the employee
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Joining People and Accounting DB

- We do not have any common key, just names

PEOPLE.FIRSTNAME and EMPLOYEE.FIRST

PEOPLE.LASTNAME and EMPLOYEE.LAST

How to solve this?

- Task: Send an email to anybody with higher pay raise than 20%?
 - One query on Accounting for names
 - Second query on People for emails
 - Consequence
 - Lot of mess, written in Java
 - Cannot use stored procedures
 - Memory management
 - Transaction management!
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JBoss Teiid Basics

JBoss Teiid

- Runs inside JBoss AS
- Powerful tooling
- Open Source & Free



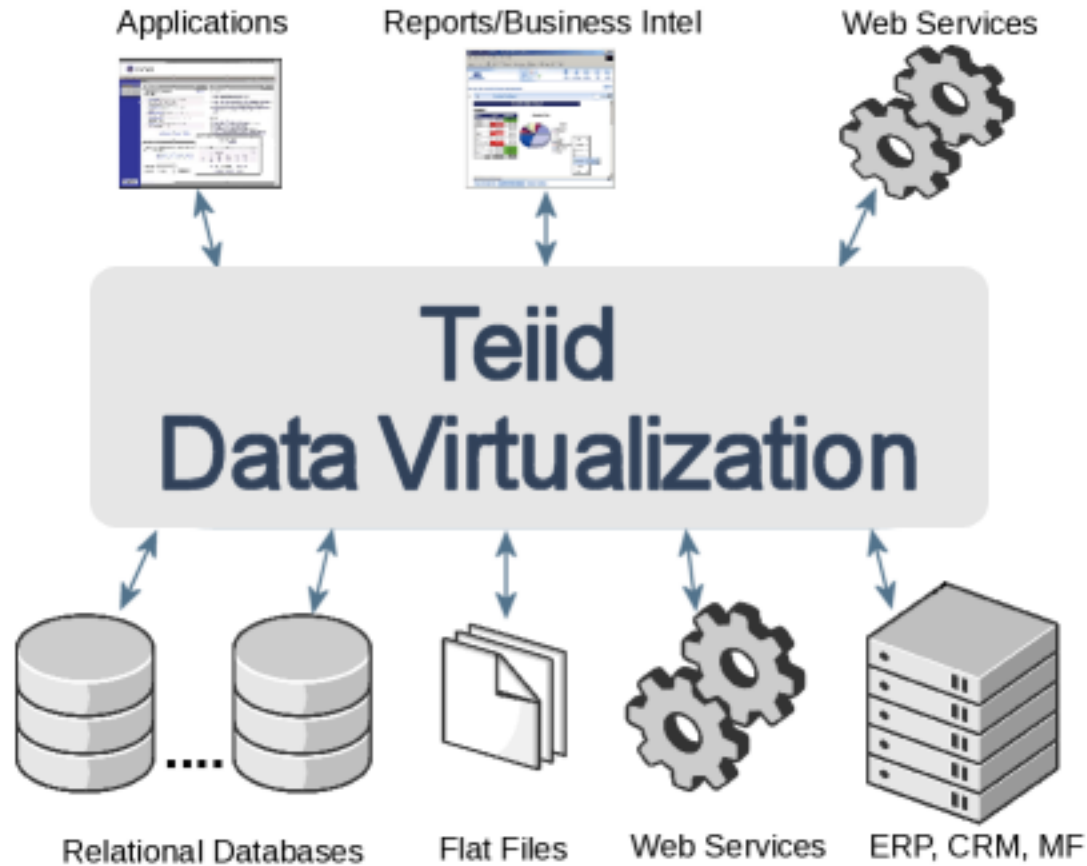


What it is?

T **e** *nterprise* *nf* **i** **i** **d** *ntegration*



Enterprise Information Integration



JBoss AS 7 installation

- Download the ZIP
 - Unpack
 - `jboss-as-7.1.1.Final/bin/add-user.sh`
 - this will add a user for management console
 - Start the server
`bin/standalone.sh -c standalone.xml`
 - Management console: <http://localhost:9990/>
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Teiid Installation

- Download JBoss Teiid and unpack it into AS
 - Run `./standalone.sh -c standalone-teiid.xml`
 - Done.
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Teiid Designer Modeling

- Create Virtual Databases
- Creating data sources (files,databases)
- Deploy VDBs

Teiid designer

The logo for Teiid Designer, featuring the text "Teiid designer" in a blue, sans-serif font. A blue lizard is positioned below the text, with its body and tail curving under the word "designer".



Teiid Designer

- Eclipse Juno
 - Teiid Designer 8.x
 - <http://www.jboss.org/teiid designer>
 - Installation
 - Download the Eclipse Juno
 - Install JBoss Tools (update site)
 - Install Teiid Designer (update site)
 - Switch to Teiid Designer perspective
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Designer basics

- Eclipse is made up of perspectives and views
 - Teiid Designer Perspective
 - Servers
 - Teiid Model Project
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Starting the server from Designer

- Configured for standalone-teiid.xml!
- Start/Stop

Debugging

- JBoss AS and Teiid are Java apps
 - Setup remote debugging!
 - Attach remote debugger from Eclipse
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Connection to the Databases

- We deploy JDBC datasource to the AS
 - Supports any database over JDBC driver
- Database Development Perspective
 - This is independent database development

Databases in JBoss AS

- Database Driver
 - JDBC driver
 - represented by JAR
 - Connection Profile
 - Concrete connection information using JDBC driver
 - Has name
 - May have stored password
 - Connection
 - Can be created using Connection Profile
 - Datasource
 - Object on some JBoss AS that enables developer to create Connections
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JBoss Teiid Usage

What we need

- Create 3 Connection profiles
 - People DB
 - Accounting DB
 - Elearning DB
 - Create 3 datasources on JBoss AS
 - people-ds
 - accounting-ds
 - elearning-ds
 - We will do it using Eclipse, it can be done in many different ways
 - Check the datasource are alive
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Simple Federation

- Goal: create VDB that allows us to query People DB. Deploy it to the JBoss AS.
 - Create Source Models
 - Create VDB
 - Deploy and Query using DB development perspective
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Simple View Layer

- Goal
 - Join People DB to Accounting DB
 - New field "FULLNAME"
 - We need to add Accounting DB source
 - Use Reconciliation Editor
 - Allows to bind the Source to View
 - Allows to change data types
 - Use Criteria Builder
 - Allows to join and filter results
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Joining People and Accounting DB

- We do not have any common key, just names
- Get Email of people who has salary higher than 30 000

PEOPLE.FIRSTNAME and EMPLOYEE.FIRST

PEOPLE.LASTNAME and EMPLOYEE.LAST

Adding elearning database

- We do not have any common key, just login

PEOPLE.EMAIL = PUPIL.LOGIN

- Query: Average Salary of the best students
 - Non trivial to do by hand, requires lots of queries
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Web Service Access

- We can access our data from the view layer through JDBC for now. Our customers want Web Services!
 - Easy to do
 - Create Web service from the tooling
 - Deploy the web service into **any** web container
 - The web container can access VDB datasource remotely :-)
 - Use SOAP UI for testing!
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Adding XML view of Data

- We can give XSD and map our results to this structure
 - Accessible using JDBC!
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Features/Challenges

- Datasource Configuration
- Stable tooling
- Very complex



For Students

- Diploma thesis for K-NET
 - They want an integration platform to build on
 - New technology
 - Interesting application area
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Thank you!

