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IBM Information On Demand Conference 2009

Enabling Oracle Application to DB2 9.7

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Agenda

- SQL Compatibility Supported by DB2 9.7
- Enablement Methodology and Tools
- Real Cases Introduction
- Demo Video

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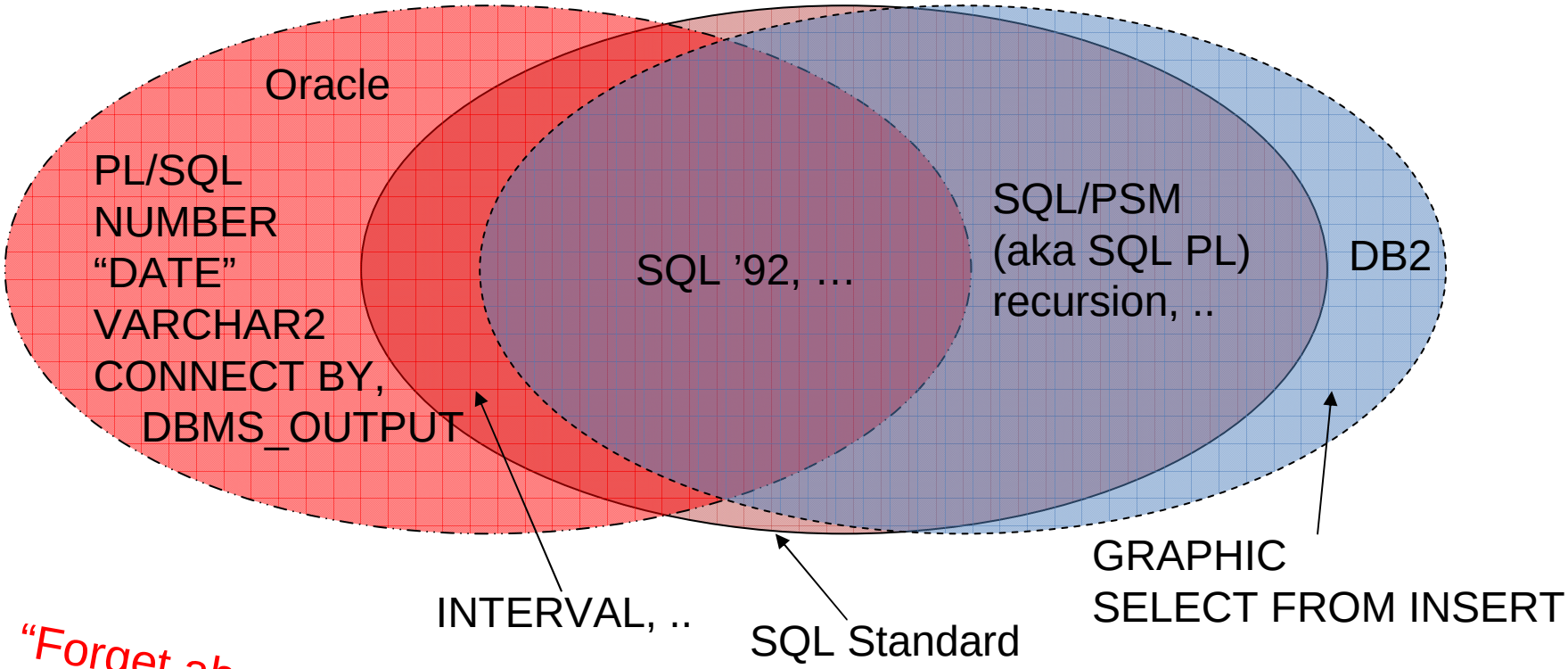
Babylonian Confusion (aka Lock-In)



"Forget about portable code, exploit the DBMS!" (Oracle usenet wisdom)

"IBM is committed to open standards"

Where does this leave YOU?

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DB2 9.7: Use Industry SQL Skills with DB2

- DB2 now supports other vendor's SQL statements, including PL/SQL
- Easy for your developers to use DB2
- Easy for your applications to use DB2

- DB2 supports:
  - SQL PL
  - SQL/PSM
  - PL/SQL
  - Packages
  - Built-in packages
  - JDBC
  - SQL*Plus scripts

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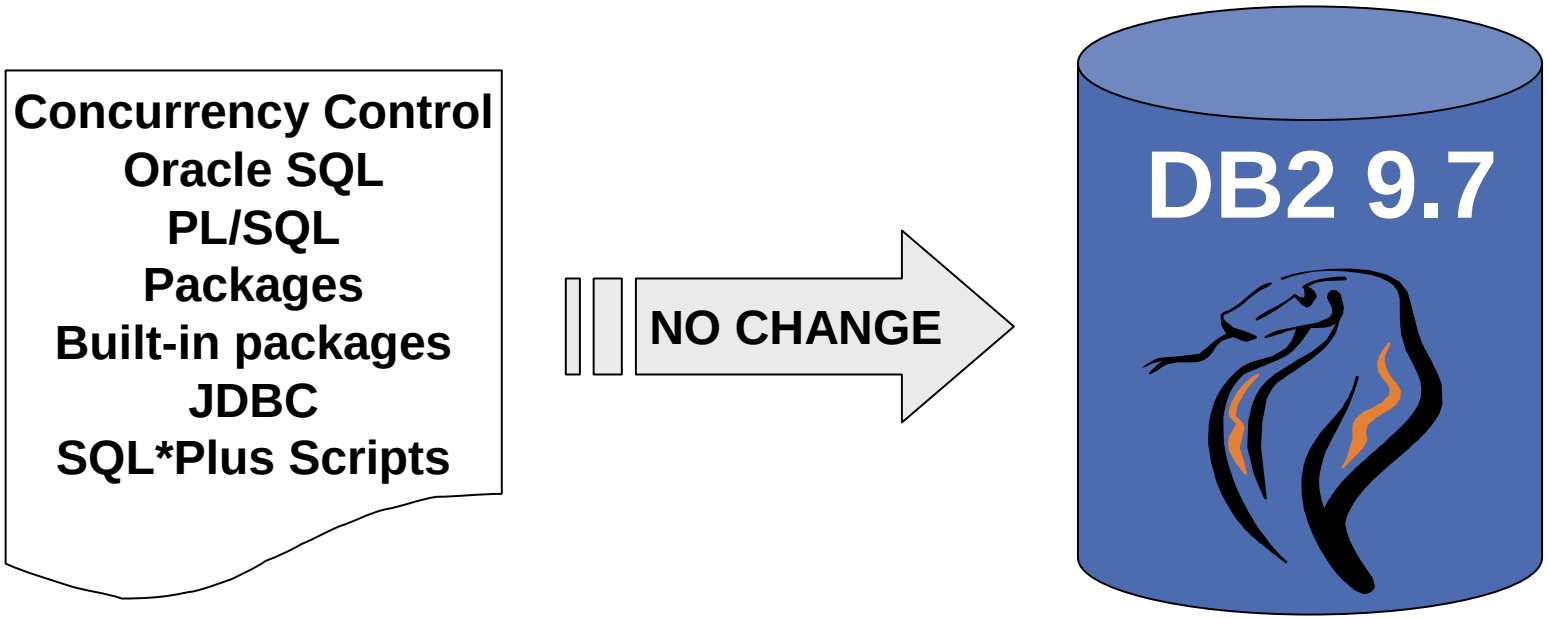
Oracle Application Enablement Made Easy

- **Porting?? I meant ENABLING!!!**
  - **Changes to applications are the exception – not the rule**



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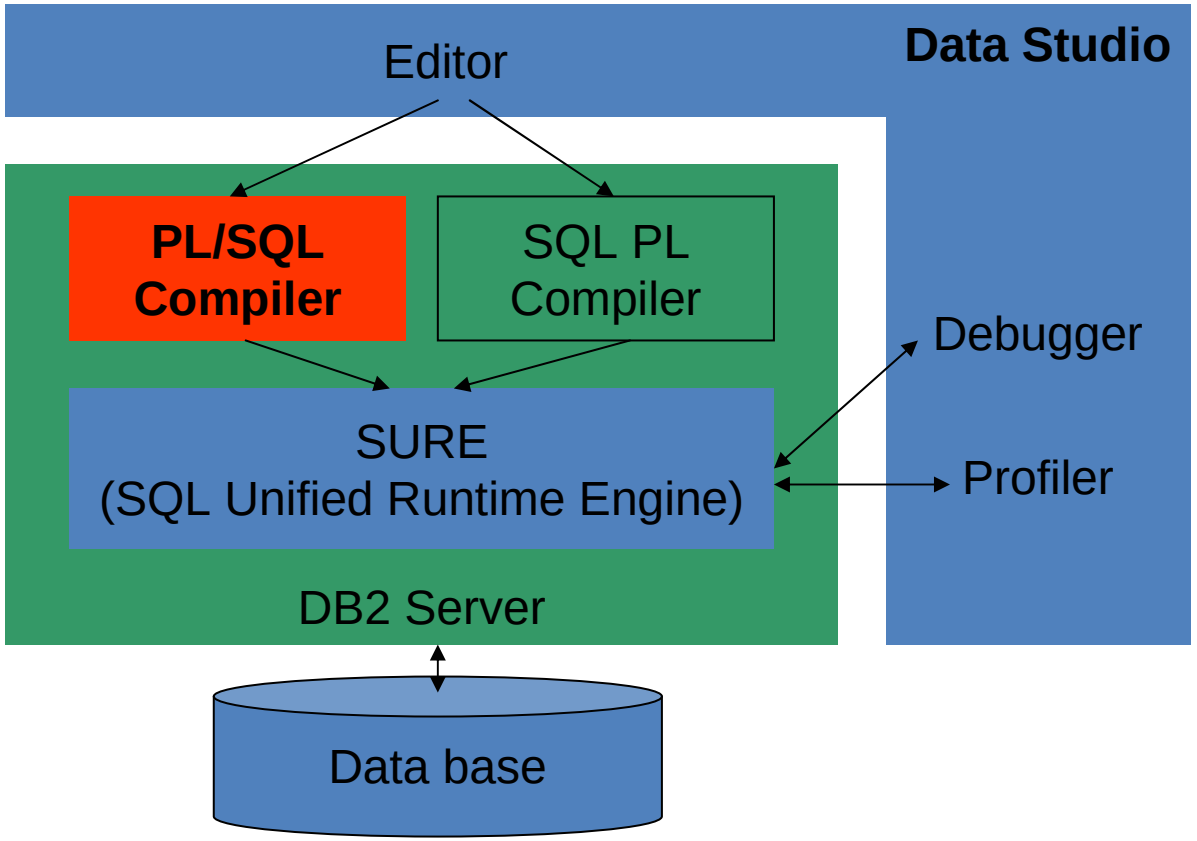
PL/SQL in DB2 9.7

- Built in PL/SQL native compiler
- Source level debugging and profiling



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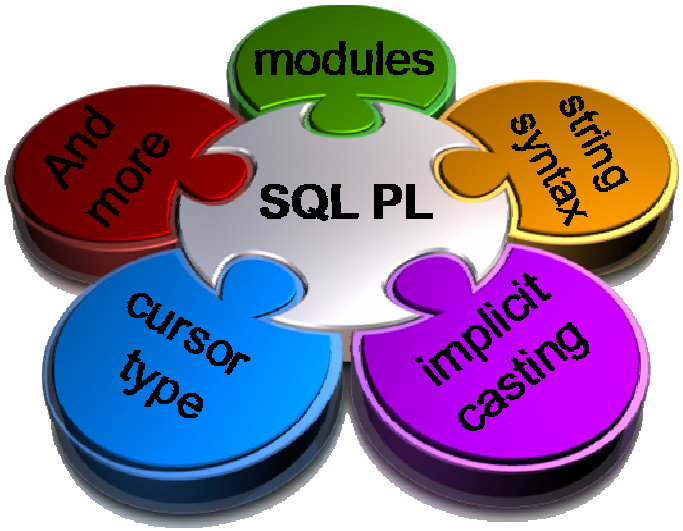
SQL Procedure Language (SQL PL) Enhancements

- Advancements in DB2 PL/SQL
- New SQL, stored procedures and triggers



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Concurrency and DB2 9.7

- Oracle default
  - Statement level snapshot

blocks	Reader	Writer
Reader	No	No
Writer	No	Yes

- DB2 default prior to V9.7
  - Cursor stability

blocks	Reader	Writer
Reader	No	Maybe
Writer	Yes	Yes

Enabling Oracle application to DB2 required significant effort to re-order table access to avoid deadlocks

- DB2 default with V9.7
  - Currently Committed

blocks	Reader	Writer
Reader	No	No
Writer	No	Yes

Concurrency Control in DB2 9.7

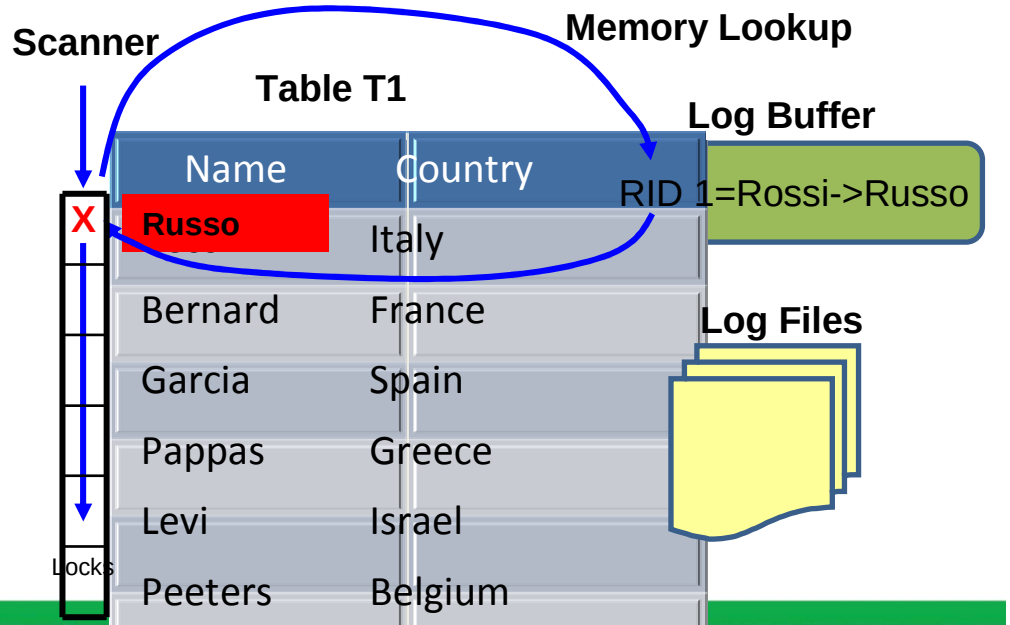
- Reads the currently committed version of a row
  - If uncommitted row-change found use currently committed version
- Log based
  - No management overhead
  - No performance overhead
  - No wasted memory/storage (no undo tablespace)

User 1:

```
update T1 set name = 'Russo'
where country='Italy'
```

User 2:

```
select * from T1
```



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Currently Committed Competitive Advantage

- Only incur added processing when a reader and writer are working on the same row
- No added overhead for a “just in case” collision
  - With Oracle past images are stored in the undo tablespace just in case there is a collision
- DB2 uses existing log infrastructure to retrieve currently committed data in flight
  - Better performance
  - Lower overhead
  - Simplified management

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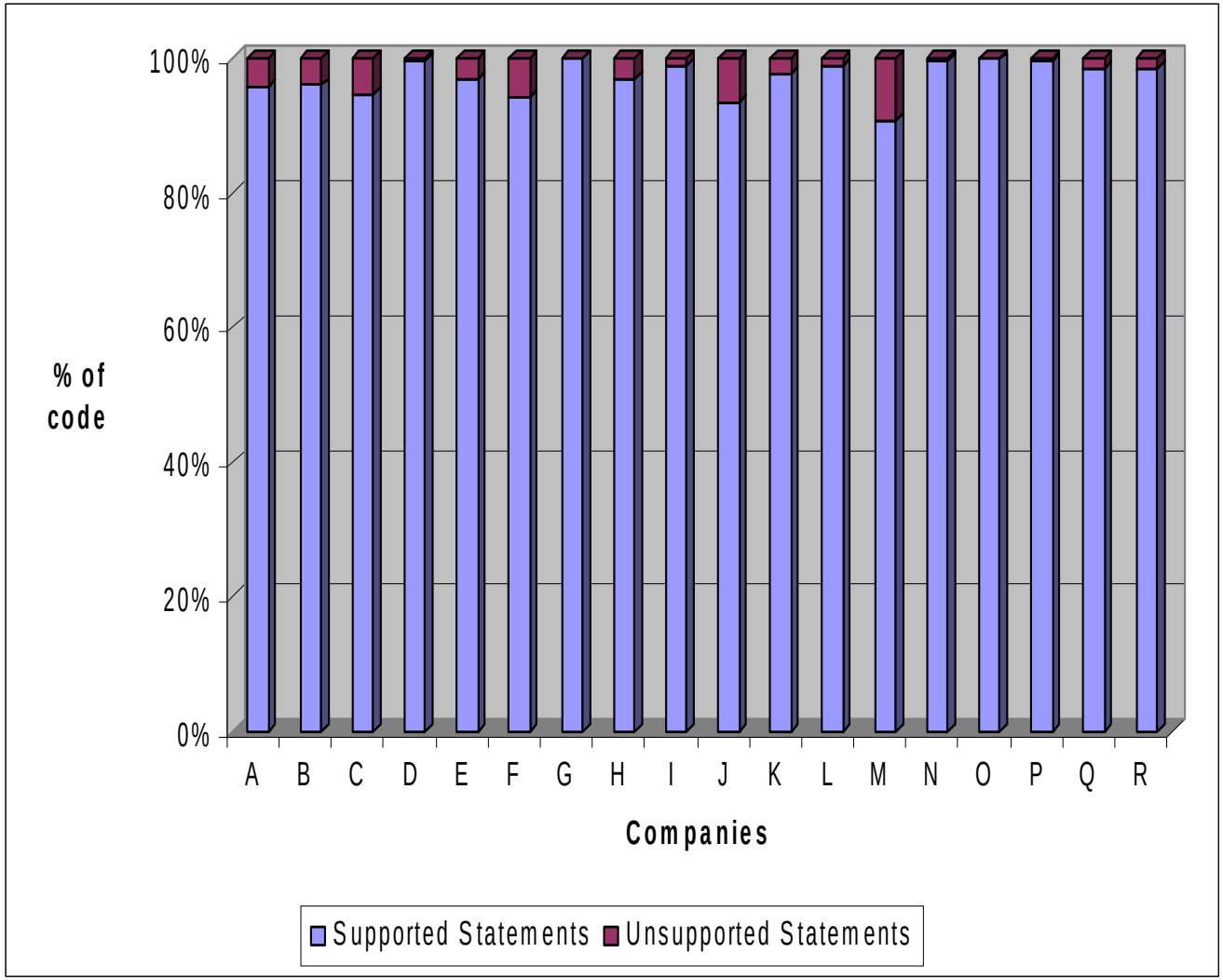
DB2 9.7: % of Supported PL/SQL Statements

- **Variety of participants:**
  - Different industries
  - Different solutions
  - Different app sizes
  - Different countries
- **PL/SQL supported:**
  - > 750,000 lines of code
  - Average: ***98%***



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What ISVs are Saying about SQL Compatibility

PULSEN
Strategisk IT-partner sedan 1964

"There are a number of other features, including ***routines around database administration that we think are going to help a lot.*** *It takes a fair amount of time to keep 20 or so identical environments. We want to try to minimize the amount of time so we're going to use the new routines to help automate tasks.* ***Another feature that we think is really interesting is the e-mail functionality where you can send e-mails directly from a stored procedure.****"*

- John Enevoldson, Developer for Pulsen

openbravo
opening ERP's future!

"To move our application to a previous version of DB2 would have taken an estimated two-year effort. ***We were thrilled to see it took only one week to move it to the new version of DB2.*** *This represents a terrific opportunity to expand our international community of users, partners and developers. We're very excited to partner with IBM to make new deployment options available."*

-Paolo Juvara, CTO of Openbravo

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Migration before DB2 9.7

1. Map schema and data types
2. Move data
3. Translate (semi-automated)
   i. Triggers
   ii. Procedures
   iii. Functions
   iv. Anonymous blocks
4. Translate SQL in application logic (manual)
5. Debugging
6. Tuning (including selective redesign)
7. Parallel production (customer)
8. Cut over (customer)

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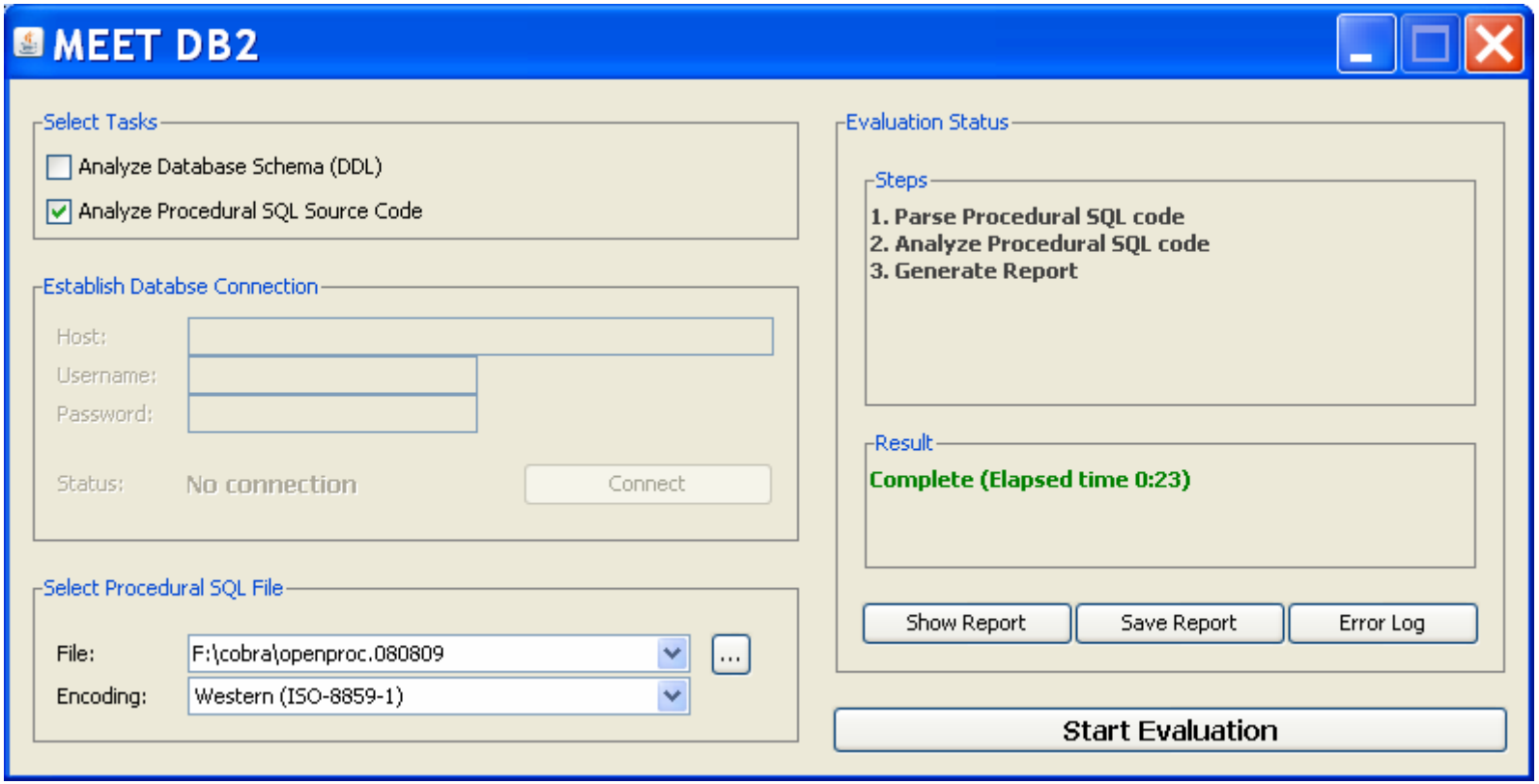
Enablement Methodology in DB2 9.7

1. Create best practice DB2 environment
   - Autonomics
   - Self Tuning
   - Configuration Advisors
2. Map Schema and Data Types - use IBM Extract Tool
   - Treat all application components as if they are one application
   - Extract Tables/Views/Sequences/Indexes Information
   - Move to DB2
3. Move data
   - Move Data/Seed data via Tools such as IBM Extract, Federation Server or other IBM Tools
4. Move PLSQL objects (Packages, Procedures, Functions, Triggers)
   - Extract via IBMExtract or DBMS_METADATA.GET_DDL
   - Execute directly on DB2
   - Make Changes as necessary to address any incompatibility
5. Translate SQL in application logic as necessary by component
6. Debugging
7. Tuning

Migration Enablement Evaluation Tool (MEET DB2)

- **DB2 MEET Utility**
  - This tool is positioned as a marketing tool, providing a quick and reliable evaluation of the migration effort
  - Highlights unsupported features and suggests workarounds



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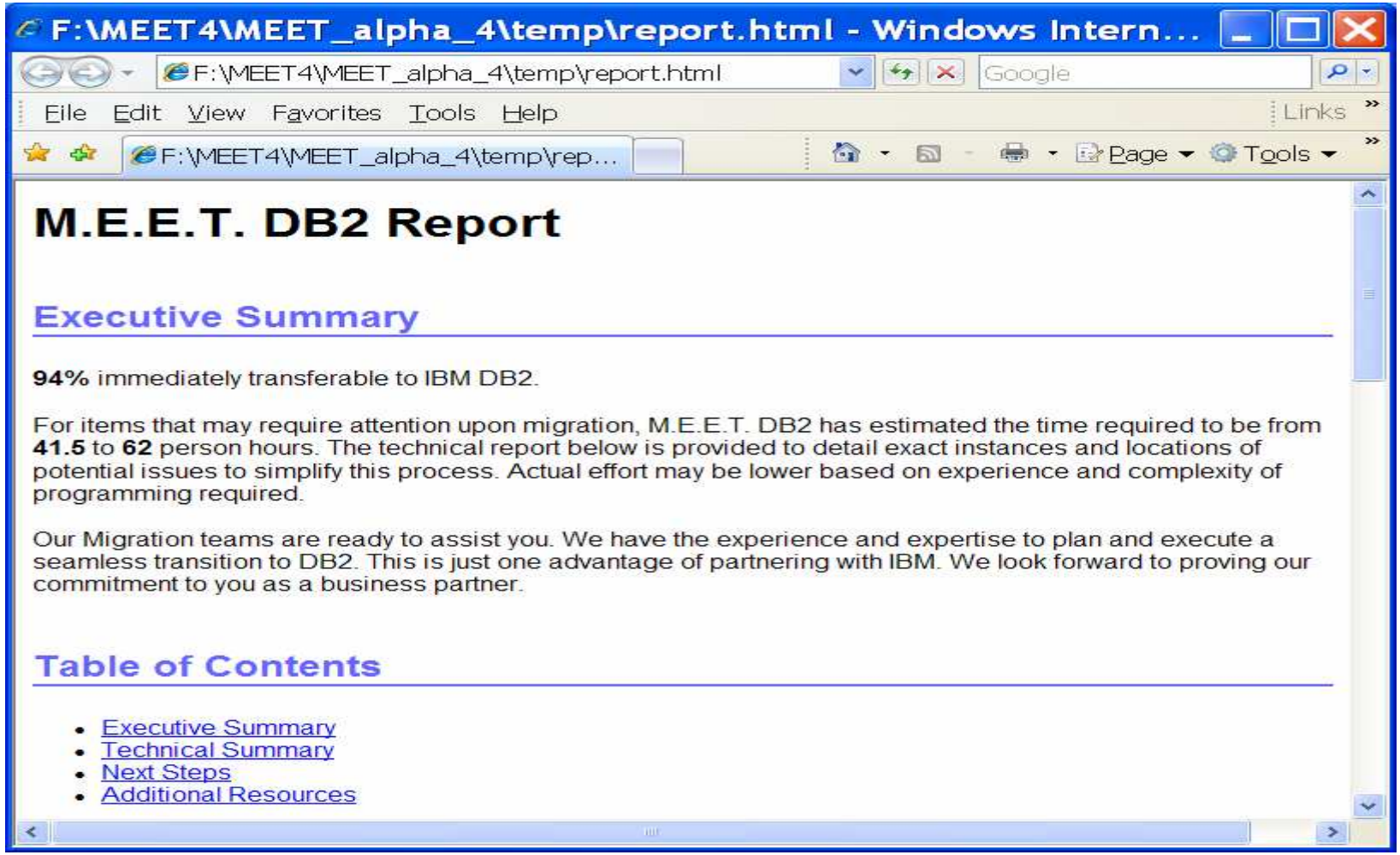
Migration Enablement Evaluation Tool (MEET DB2)



IBMExtract Tool

- **DB2 Migration ToolKit will not be enhanced to support DB2 9.7**
  - ASIS Basis
- **IBMExtract offers additional option schema/data migration from Oracle and other RDBMS to DB2 9.7 until Data Studio is released.**
- **IBMExtract currently migrate following objects:**
  - Table DDLs/Constraints/Indexes
  - High speed and parallel data movement – technique being looked at for integration into Data Studio
  - Sequences/Views/Synonym
- **java -jar IBMExtract.jar**
  - Prompts you for parameters and create IBMExtract.properties file

```
[2009-03-26 22.03.49.327] Configuration file loaded: 'IBMExtract.properties'
[2009-03-26 22.03.49.387] Command File ./geninput.cmd created.
[2009-03-26 22.03.49.387] Command file ./unload.cmd created.
[2009-03-26 22.03.49.387] Command file ./rowcount.cmd created.
```

- **Geninput – chooses the tables**
- **unload.cmd – initiate the movement**

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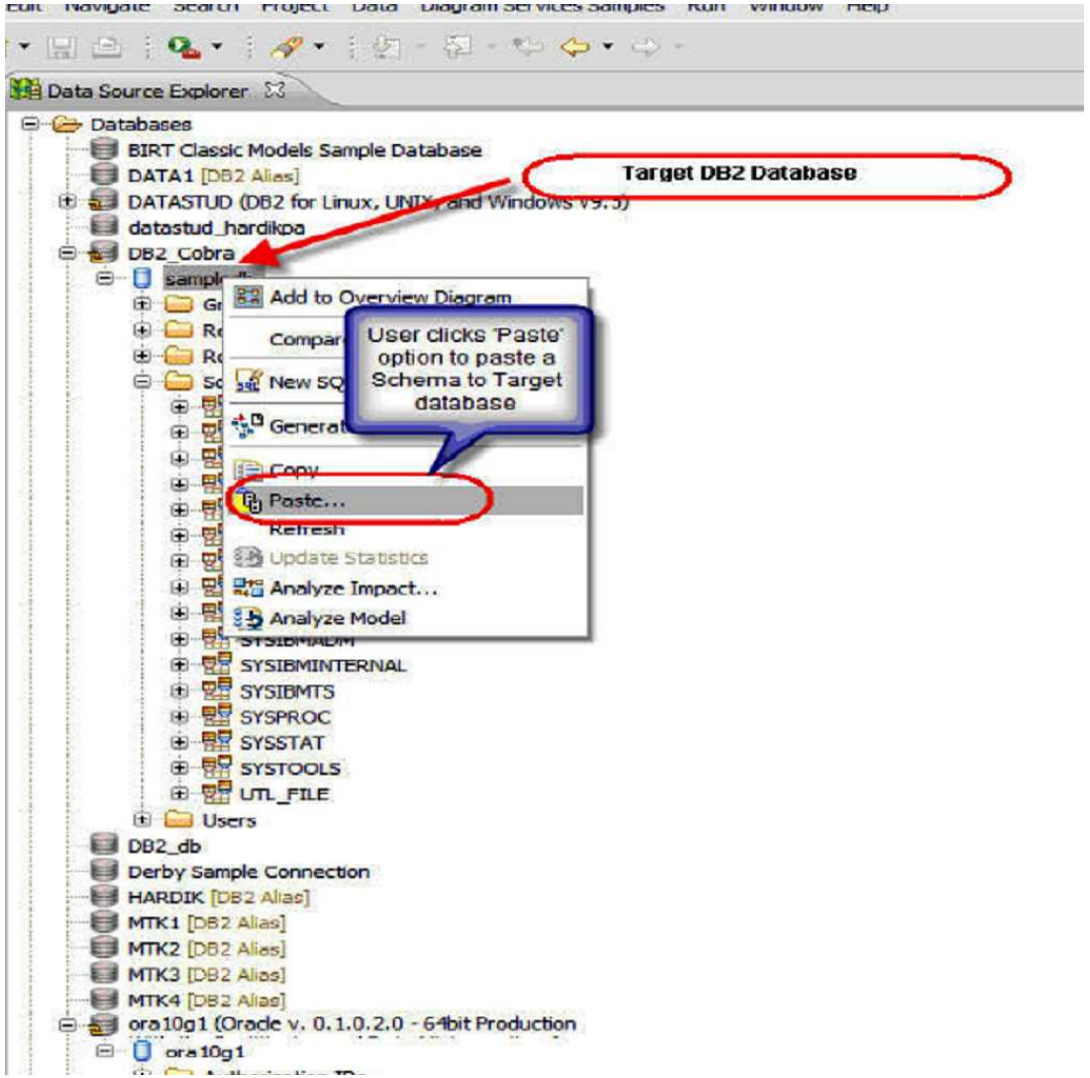
Data Studio Developer

- Easily map schemas and data types from one database to another
- Simple drag-and-drop operation
- Automatically map schemas and data types
- Easy for developers to quickly start using DB2



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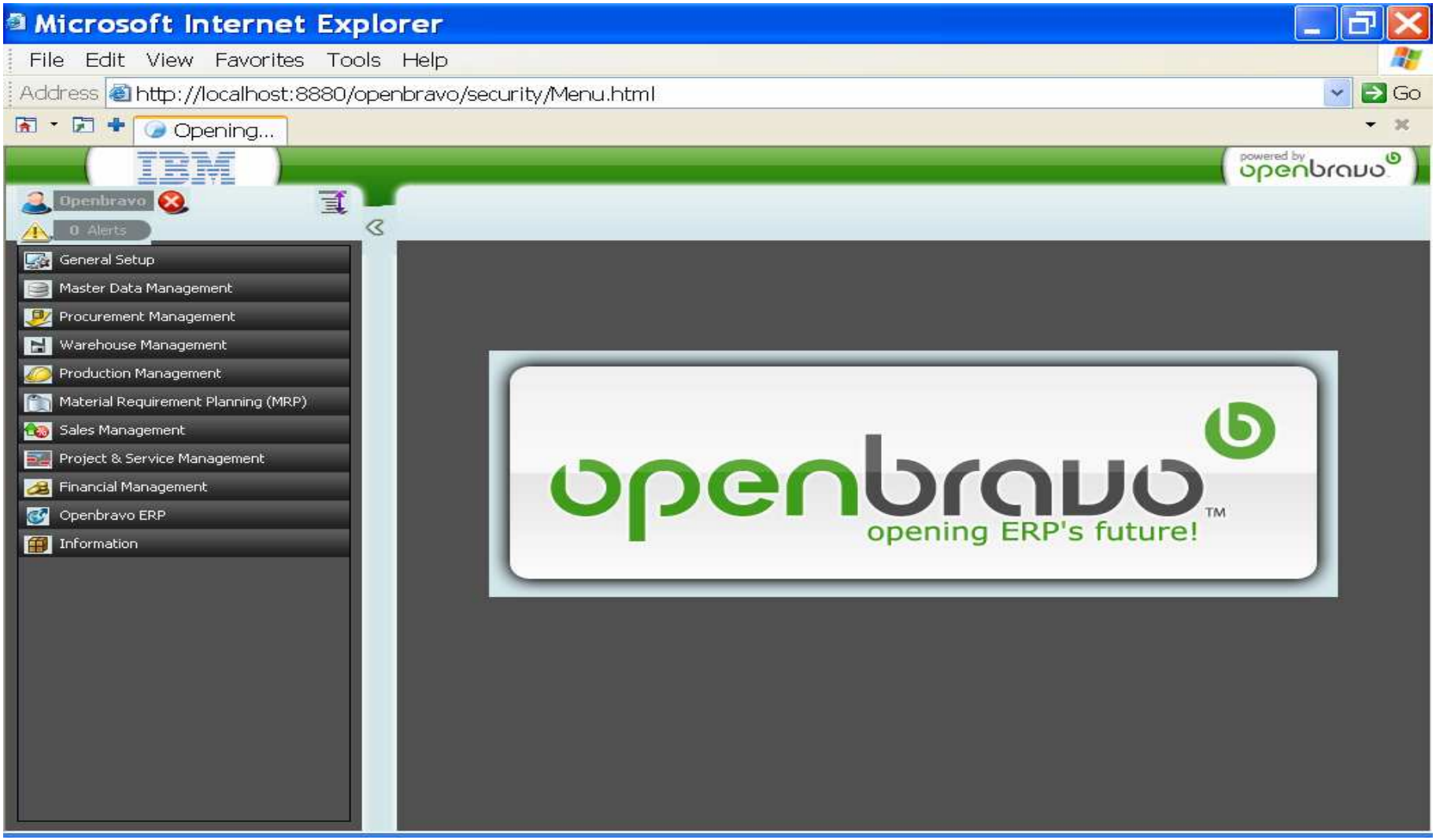
OpenBravo Company Profile



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Openbravo Open Source

- **Out of the box at CB5**
  - Tables 520 Tables → 99% Success
  - Views 60 → 99% Success
  - 153 Triggers → 85% Success
  - 98 Functions → 90% Success
  - 158 Procedures → 90% Success
  - Over 1M lines of Java code

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A Chinese Customer in Healthcare

Healthcare Monitoring and Warning System

- Oracle 10g based
- Oracle Application Server, Tomcat, WebSphere Application Server
- JDBC interface
- Complex software framework
- Medium PLSQL complexity
- Implementation Platform – AIX
- Concurrency – 200 users

The objective is to migrate the core application modules from Oracle to DB2 9.7 to demonstrate porting feasibility, common code base, and performance scalability, paving the way for full port of the application

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Oracle Objects preliminary conversion results

Oracle	→	DB2
Tables - 417	→	417
Sequence - 149	→	149
PL/SQL Procedures - 40	→	35
PL/SQL Functions - 41	→	38
PL/SQL Packages - 6	→	6
Trigger	→	Some changes
Views - 135	→	135
ODBC	→	Native support
JDBC	→	Native support

The result includes some modifications where necessary to make it compatible with DB2.
All changes in the source code are marked, but the success rate including modifications exceed 95%

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Thank You!