



Moving Mountains

*Move Mountains without Sacrificing Performance:
Bulk Load/Export For Oracle, SQL Server, DB2 and Sybase*

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PROGRESS™

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*Senior Program Manager
July 2009*



DataDirect®
TECHNOLOGIES

Real World Scenario

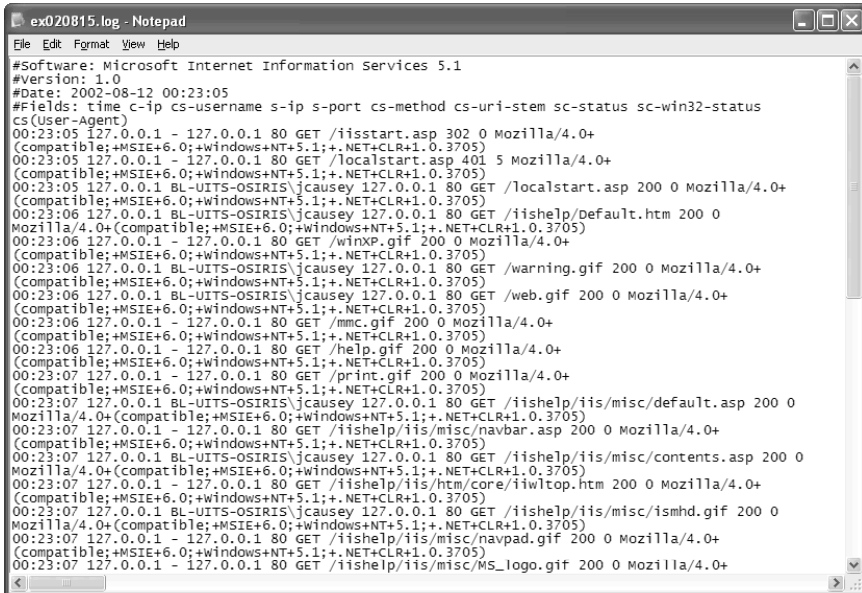
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- Large Financial Company
- Online Trading Application
- Reports to Management in jeopardy

Real World Example

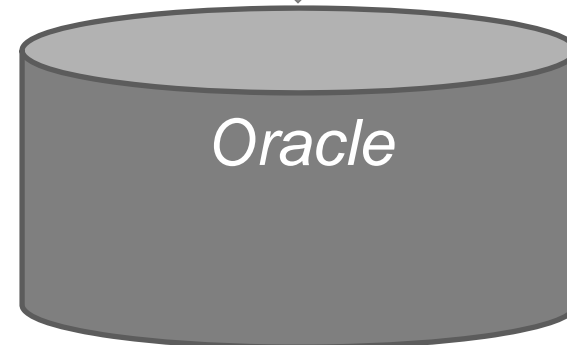
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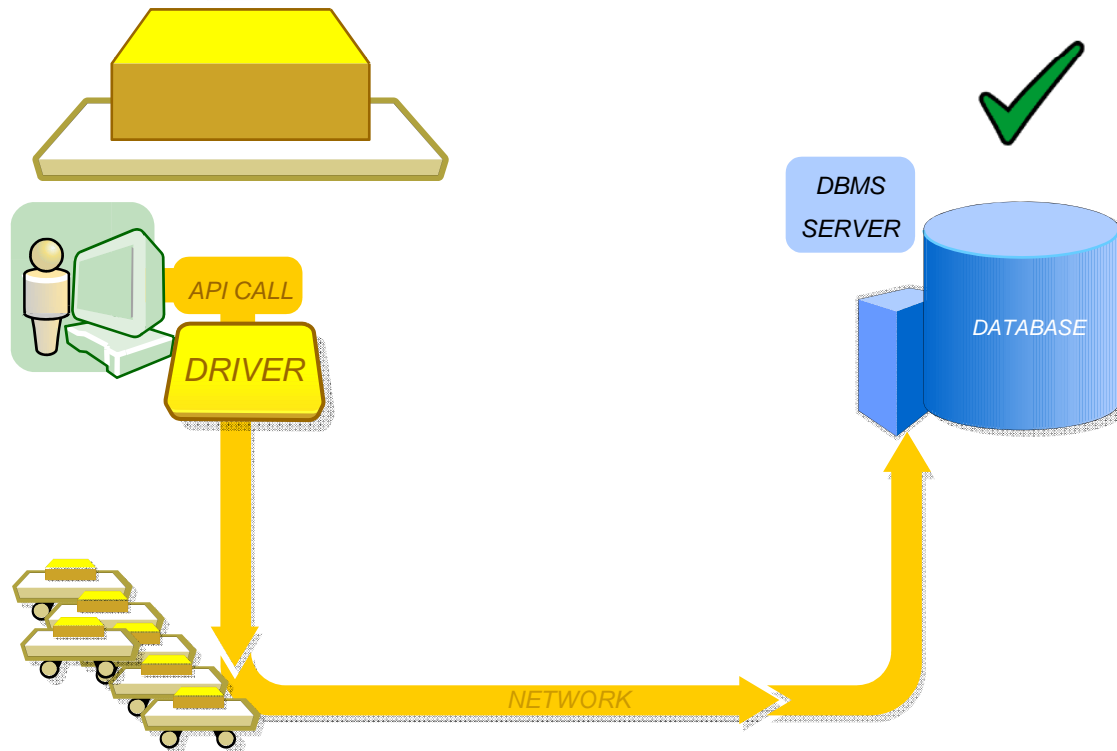
```
ex020815.log - Notepad
File Edit Format View Help
#Software: Microsoft Internet Information Services 5.1
#Version: 1.0
#Date: 2002-08-12 00:23:05
#Fields: time c-ip cs-uri-stem sc-status sc-win32-status
cs(User-Agent)
00:23:05 127.0.0.1 - 127.0.0.1 80 GET /iisstart.asp 302 0 Mozilla/4.0+
(compatible;+MSIE+6.0;+windows+NT+5.1;+.NET+CLR+1.0.3705)
00:23:05 127.0.0.1 - 127.0.0.1 80 GET /localstart.asp 401 5 Mozilla/4.0+
(compatible;+MSIE+6.0;+windows+NT+5.1;+.NET+CLR+1.0.3705)
00:23:05 127.0.0.1 BL-UIITS-OSIRIS\jcausey 127.0.0.1 80 GET /localstart.asp 200 0 Mozilla/4.0+
(compatible;+MSIE+6.0;+windows+NT+5.1;+.NET+CLR+1.0.3705)
00:23:06 127.0.0.1 BL-UIITS-OSIRIS\jcausey 127.0.0.1 80 GET /iishelp/default.htm 200 0
Mozilla/4.0+(compatible;+MSIE+6.0;+windows+NT+5.1;+.NET+CLR+1.0.3705)
00:23:06 127.0.0.1 - 127.0.0.1 80 GET /winxp.gif 200 0 Mozilla/4.0+
(compatible;+MSIE+6.0;+windows+NT+5.1;+.NET+CLR+1.0.3705)
00:23:06 127.0.0.1 BL-UIITS-OSIRIS\jcausey 127.0.0.1 80 GET /warning.gif 200 0 Mozilla/4.0+
(compatible;+MSIE+6.0;+windows+NT+5.1;+.NET+CLR+1.0.3705)
00:23:06 127.0.0.1 BL-UIITS-OSIRIS\jcausey 127.0.0.1 80 GET /web.gif 200 0 Mozilla/4.0+
(compatible;+MSIE+6.0;+windows+NT+5.1;+.NET+CLR+1.0.3705)
00:23:06 127.0.0.1 - 127.0.0.1 80 GET /mmc.gif 200 0 Mozilla/4.0+
(compatible;+MSIE+6.0;+windows+NT+5.1;+.NET+CLR+1.0.3705)
00:23:06 127.0.0.1 - 127.0.0.1 80 GET /help.gif 200 0 Mozilla/4.0+
(compatible;+MSIE+6.0;+windows+NT+5.1;+.NET+CLR+1.0.3705)
00:23:07 127.0.0.1 - 127.0.0.1 80 GET /print.gif 200 0 Mozilla/4.0+
(compatible;+MSIE+6.0;+windows+NT+5.1;+.NET+CLR+1.0.3705)
00:23:07 127.0.0.1 BL-UIITS-OSIRIS\jcausey 127.0.0.1 80 GET /iishelp/iis/misc/default.asp 200 0
Mozilla/4.0+(compatible;+MSIE+6.0;+windows+NT+5.1;+.NET+CLR+1.0.3705)
00:23:07 127.0.0.1 - 127.0.0.1 80 GET /iishelp/iis/misc/navbar.asp 200 0 Mozilla/4.0+
(compatible;+MSIE+6.0;+windows+NT+5.1;+.NET+CLR+1.0.3705)
00:23:07 127.0.0.1 BL-UIITS-OSIRIS\jcausey 127.0.0.1 80 GET /iishelp/iis/misc/contents.asp 200 0
Mozilla/4.0+(compatible;+MSIE+6.0;+windows+NT+5.1;+.NET+CLR+1.0.3705)
00:23:07 127.0.0.1 - 127.0.0.1 80 GET /iishelp/iis/htm/core/iw1top.htm 200 0 Mozilla/4.0+
(compatible;+MSIE+6.0;+windows+NT+5.1;+.NET+CLR+1.0.3705)
00:23:07 127.0.0.1 BL-UIITS-OSIRIS\jcausey 127.0.0.1 80 GET /iishelp/iis/misc/ismhd.gif 200 0
Mozilla/4.0+(compatible;+MSIE+6.0;+windows+NT+5.1;+.NET+CLR+1.0.3705)
00:23:07 127.0.0.1 - 127.0.0.1 80 GET /iishelp/iis/misc/navpad.gif 200 0 Mozilla/4.0+
(compatible;+MSIE+6.0;+windows+NT+5.1;+.NET+CLR+1.0.3705)
00:23:07 127.0.0.1 - 127.0.0.1 80 GET /iishelp/iis/misc/MS_logo.gif 200 0 Mozilla/4.0+
```

```
PreparedStatement pstmt = con.prepareStatement(
    "INSERT INTO ELF_REPORTS VALUES (?,?,?,?,?,?)");
pstmt.setDate(1, date);
pstmt.setTime(2, time);
pstmt.setString(3, ipaddr);
pstmt.setInt(4, port);
pstmt.setString(5, user);
pstmt.setString(6, pageVisited);
pstmt.addBatch();
pstmt.executeBatch();
```

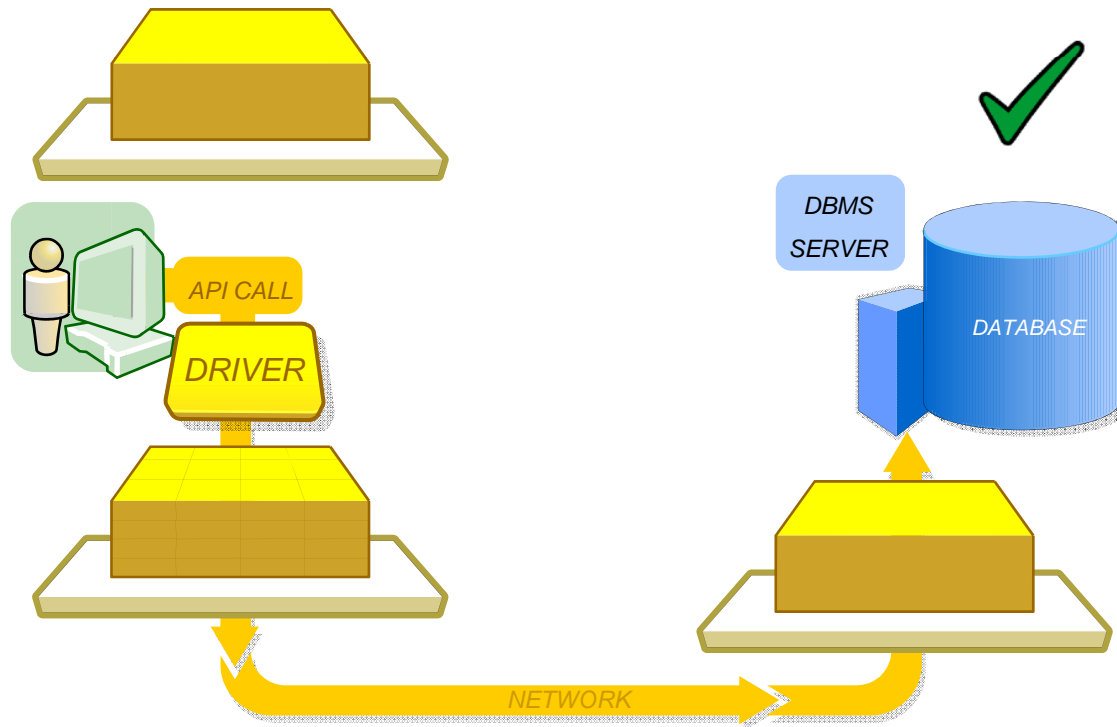
Shreds Data into rows and columns
using standard JDBC Batches.



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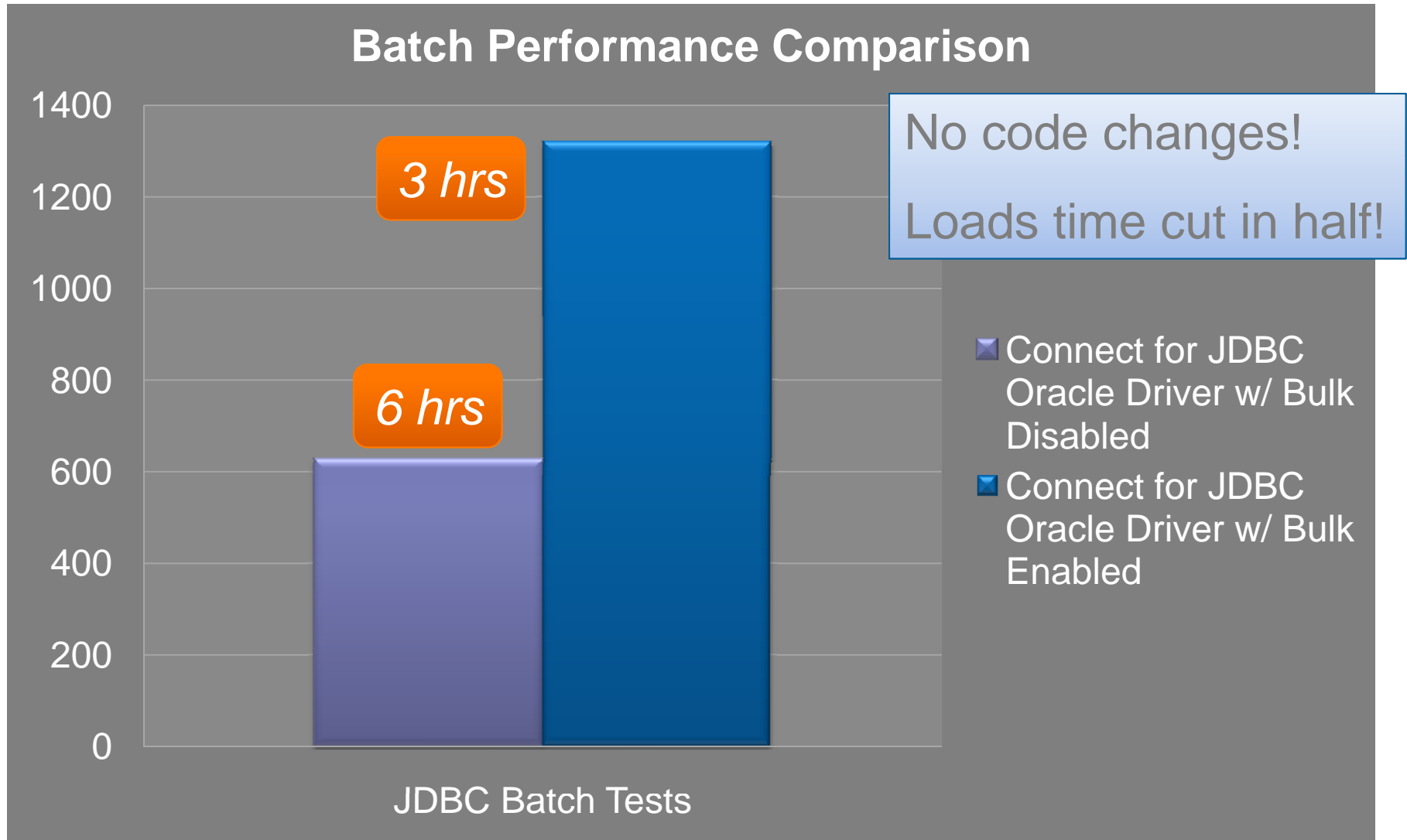


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Performance: Batch versus Bulk

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Success!

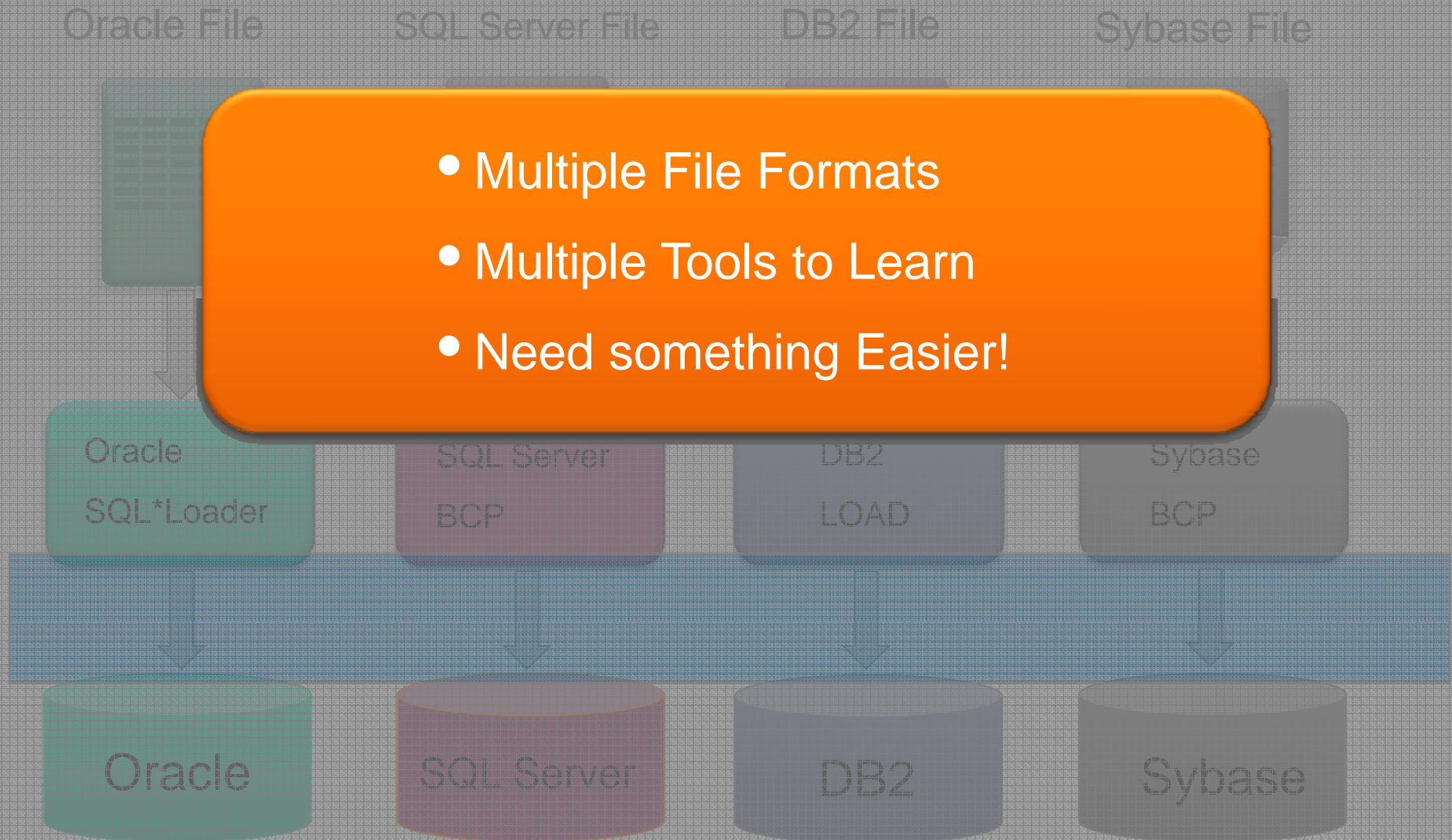
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- Instead of taking 6 hours to run the import, this now only takes 3!
- When compared to competition, they now have 3 extra hours.
- Improved Operational Responsiveness for a competitive advantage!

Traditional Bulk Loading

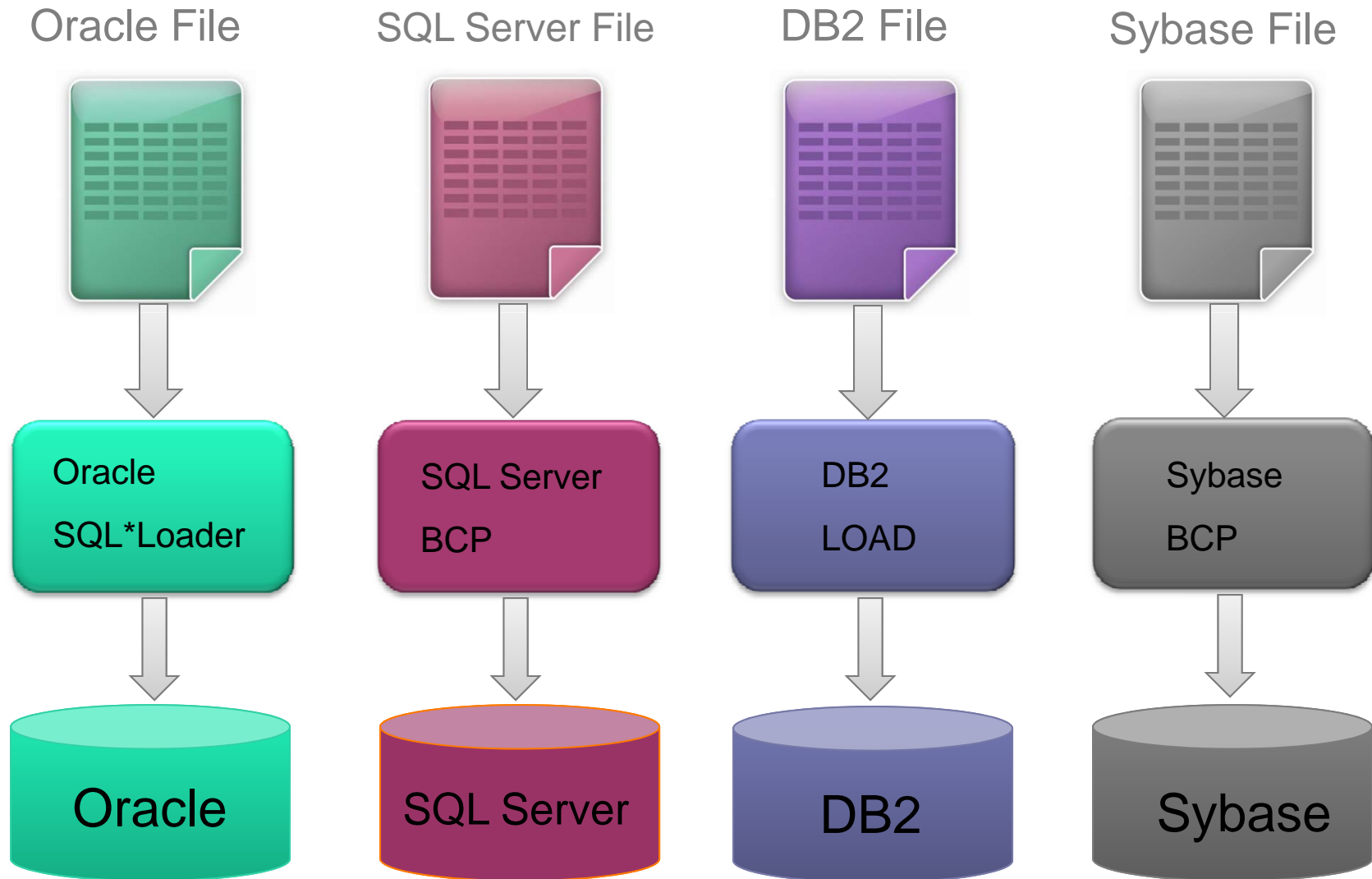
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- Multiple File Formats
- Multiple Tools to Learn
- Need something Easier!



Traditional Bulk Loading

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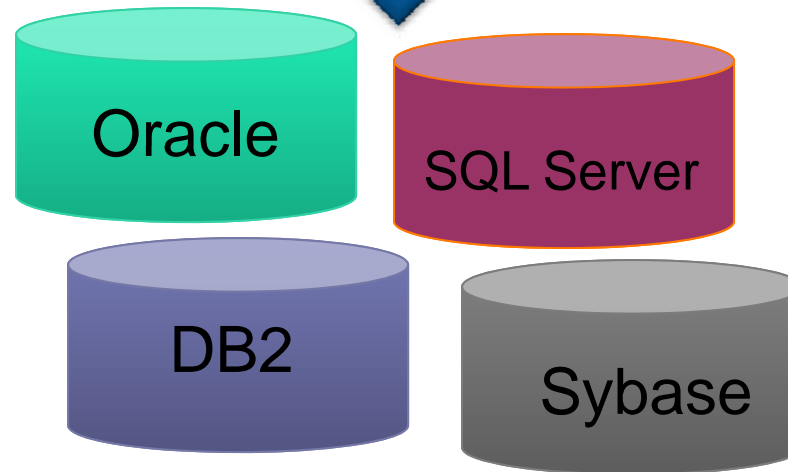
Streamlined Bulk Loading

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Single Bulk Data Format
for all Drivers and
Products.

Completely eliminates
the need for vendor
tools.



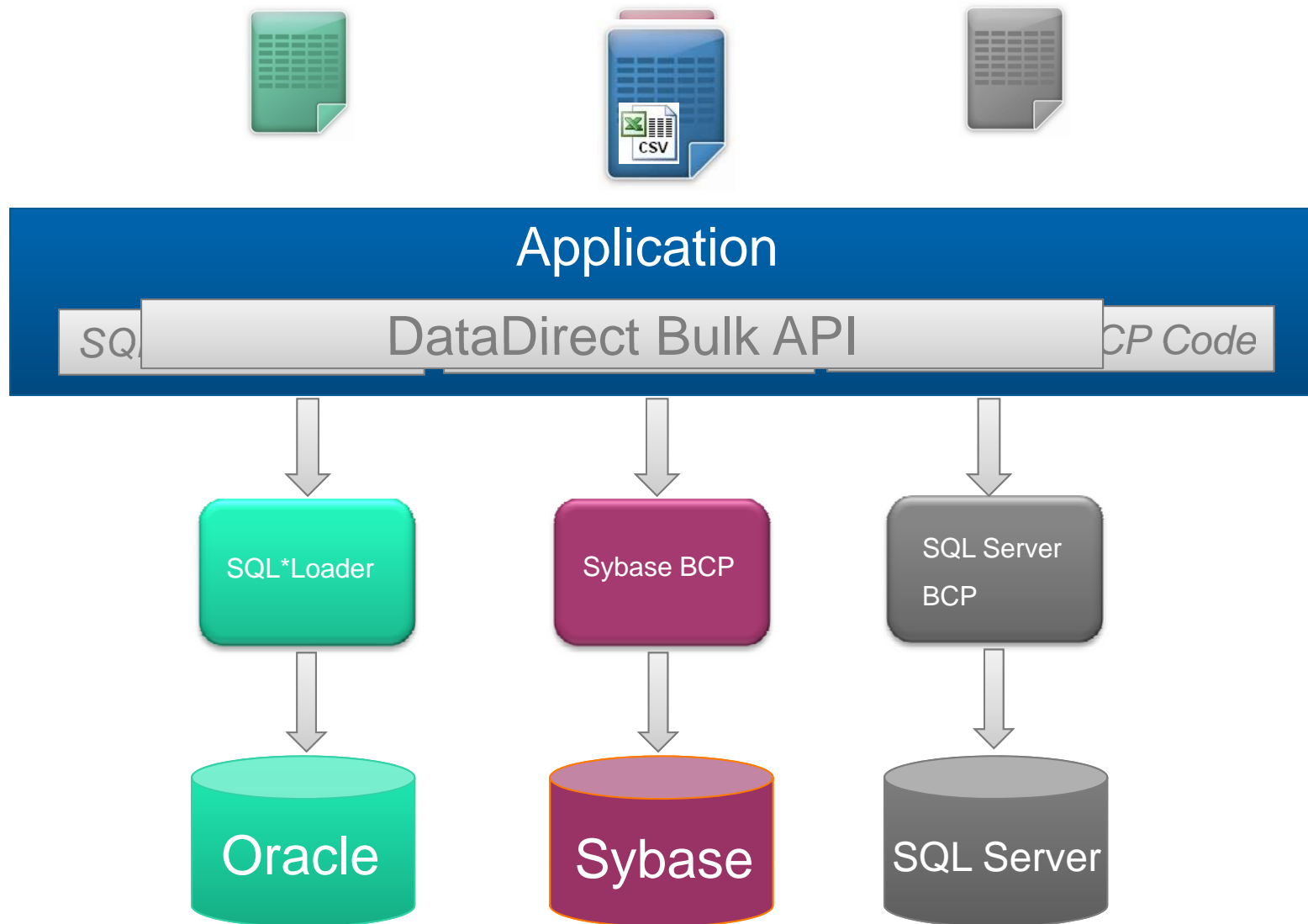
Real World Application Integration Example

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- Customer requirements state that data files must be imported and scrubbed and then loaded into a data warehouse.
- Databases supported by this application are SQL Server, Oracle, and Sybase.
- So, the architect must use 3 different tools in their application, one for each database.

Specific Application Architecture Example

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Bulk Load and Export: 2 Usage Patterns

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*Standard JDBC/ODBC
Mechanism*

*DataDirect
Bulk Load API*

How it works: Standards Based Bulk Load

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DataDirect ODBC

*Parameter Array
Insert:*

1	2	3
4	5	6
7	8	9

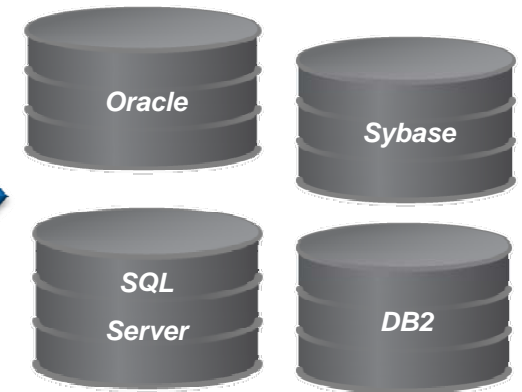
EnableBulkLoad = true

Bulk Protocol

DataDirect JDBC

JDBC Batch:

```
pstmt.addBatch( );  
pstmt.executeBatch( );
```



How it works - Bulk Export

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How it works - Bulk Load from a File

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Load or Export using ODBC Setup Dialog

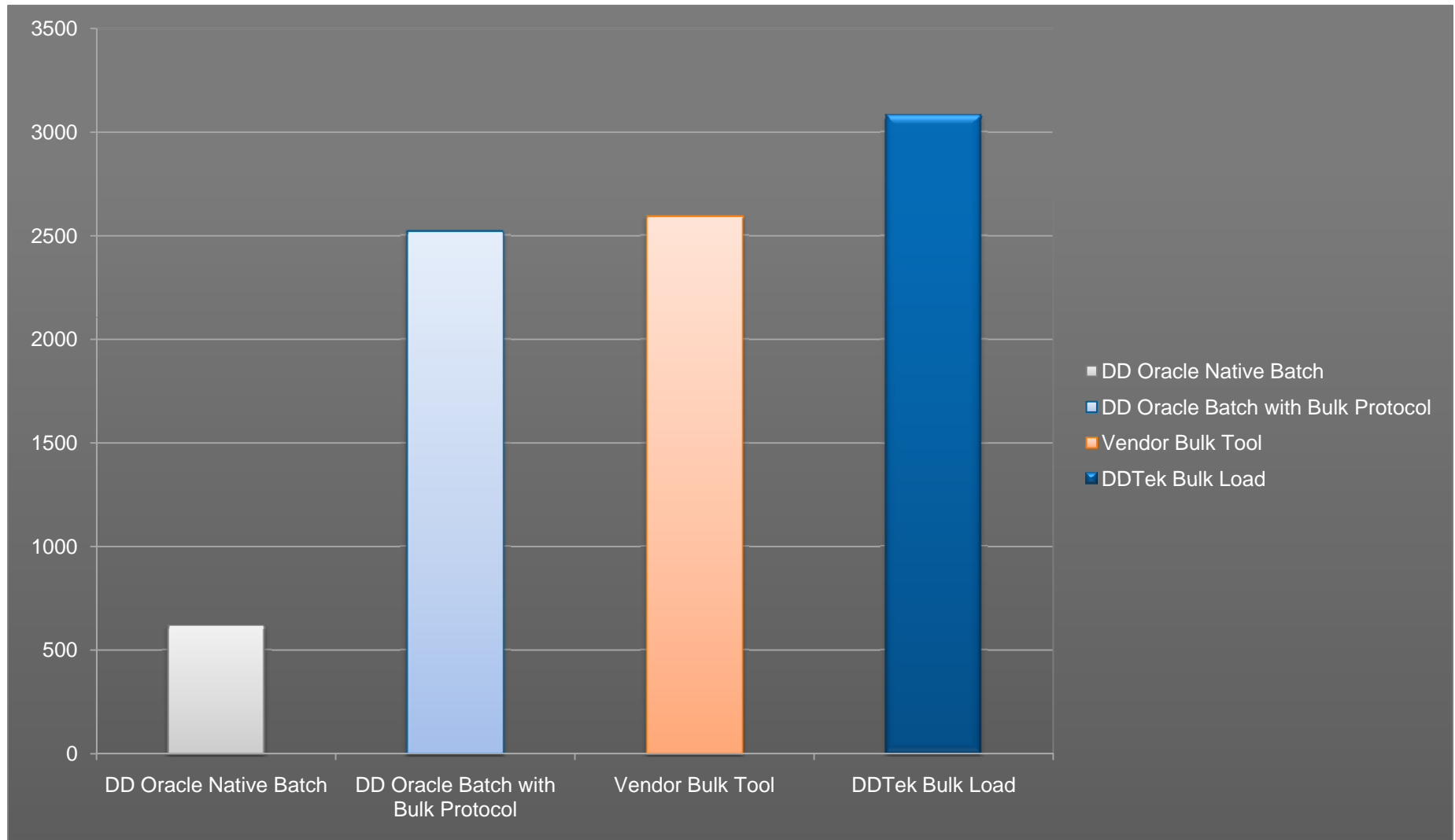
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The screenshot shows the 'ODBC Oracle Wire Protocol Driver Setup' dialog box. It has a blue title bar and a tabbed interface with tabs for 'General', 'Advanced', 'Security', 'Performance', 'Failover', 'Pooling', 'Bulk', and 'About'. The 'Bulk' tab is selected. Inside the dialog, there is a 'Help' button at the top right. Below it, the 'Enable Bulk Load' checkbox is checked. At the bottom, there are input fields for 'Bulk Binary Threshold (KB)' (4096), 'Batch Size' (256), and 'Bulk Character Threshold (KB)' (4096). Below these fields are three buttons: 'Load Table ...', 'Verify ...', and 'Export Table ...'. At the very bottom are 'Test Connect', 'OK', 'Cancel', and 'Apply' buttons.

The screenshot shows the 'ODBC Oracle Wire Protocol Load File Driver Setup' dialog box. It has a blue title bar and a tabbed interface with tabs for 'ODBC Oracle Wire Protocol Export Table Driver Setup' and 'ODBC Oracle Wire Protocol Verify Driver Setup'. The 'ODBC Oracle Wire Protocol Export Table Driver Setup' tab is selected. Inside this tab, there is a 'Table Name' text box, a 'Configuration Filename' text box with a 'Browse' button, and 'Verify' and 'Cancel' buttons. Below this tab is a 'Code Page' dropdown menu set to '2252 - windows-1252', with 'Export Table' and 'Cancel' buttons. At the bottom, there are input fields for 'Error Tolerance' (-1), 'Warning Tolerance' (-1), 'Load Start' (1), 'Load Count' (429496729), and 'Read Buffer Size (KB)' (2048). Below these fields are 'Load Table' and 'Cancel' buttons.

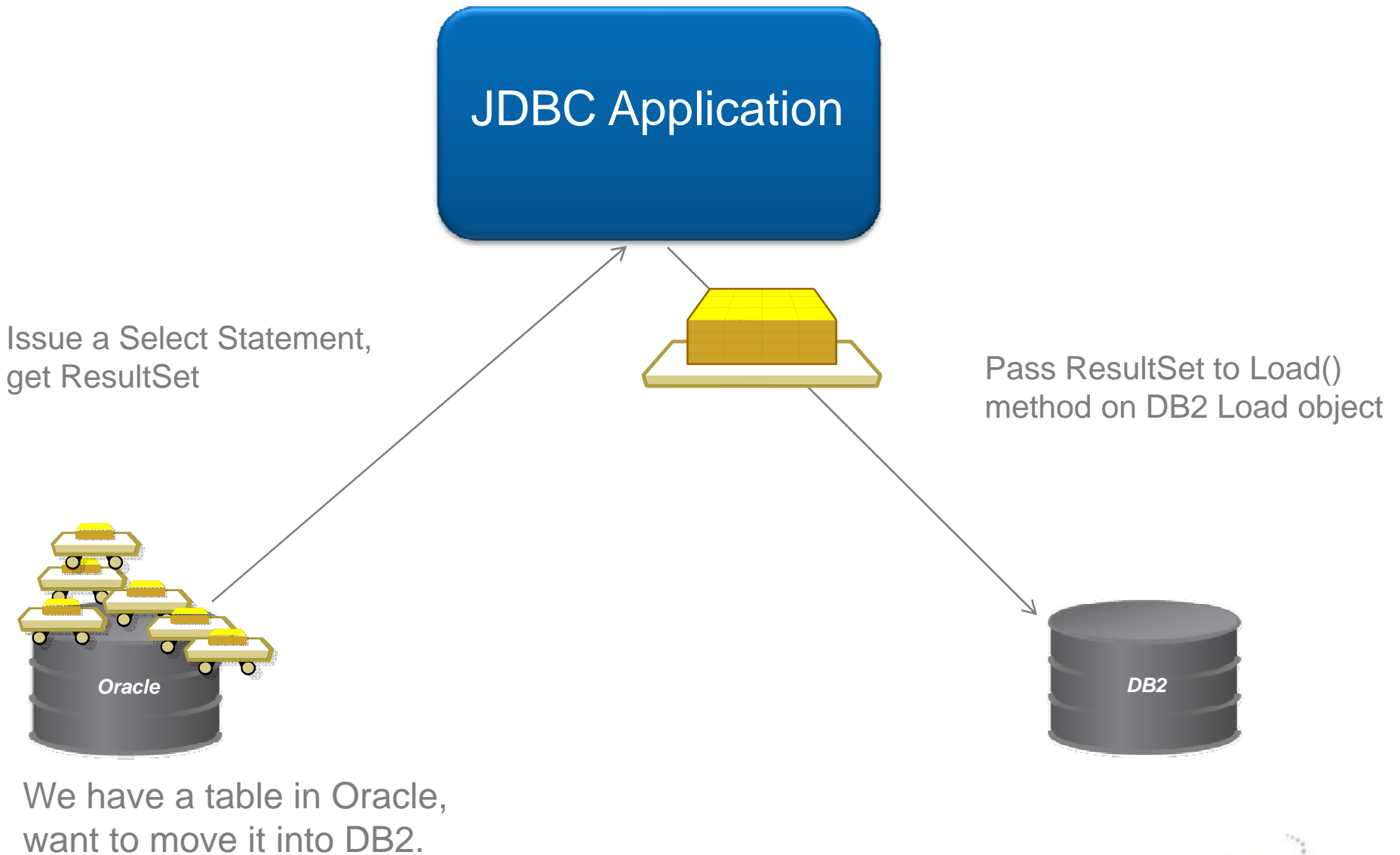
More performance

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Bulk Streaming from one Source to another

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Example: VSAM to Oracle

- Key application stores its data in VSAM, but all the tooling and reporting is done against Oracle. How do we unlock the data and use our existing tools and dashboards to operate on this critical data?
- We can use z/Events to monitor the VSAM file and when something changes trigger the application to do the load! This can be done by fetching the data out of the VSAM file, and then passing that ResultSet object to the load() method on a DDBulkLoad object for an Oracle database.
- Question: How many lines of code would you expect this to be?

Let's take a look.....

Let's take a look at the code

```
Statement stmt = con.createStatement();  
ResultSet rs = stmt.executeQuery("SELECT * FROM J1VGTABLE ORDER BY INTEGERCOL");  
  
Connection con2 = DriverManager.getConnection(ORA_URL);  
com.ddtek.jdbc.extensions.DDBulkLoad bulkLoader =  
com.ddtek.jdbc.extensions.DDBulkLoadFactory.getInstance(con2);  
bulkLoader.load(rs);
```

Let's see some code!

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Move data from one database to another

Move data from VSAM to Oracle

Look at code and tools to use Bulk APIs.

For More Information

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- DataDirect Website: www.datadirect.com
- More Bulk Load Performance Data:
<http://www.datadirect.com/products/odbc/bulk-load-performance/index.ssp>
- Bulk Load in DataDirect ODBC Drivers:
<http://www.datadirect.com/products/odbc/bulk-load/index.ssp>
- Documentation:
http://www.datadirect.com/support/product_info/proddoc_product/index.ssp

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