



WhiteCap Applications, Inc  
Technical Bulletin

# **Real-time Integration of Disparate Relational Databases Into an Oracle Database Using Periscope & the ODBC Connection**

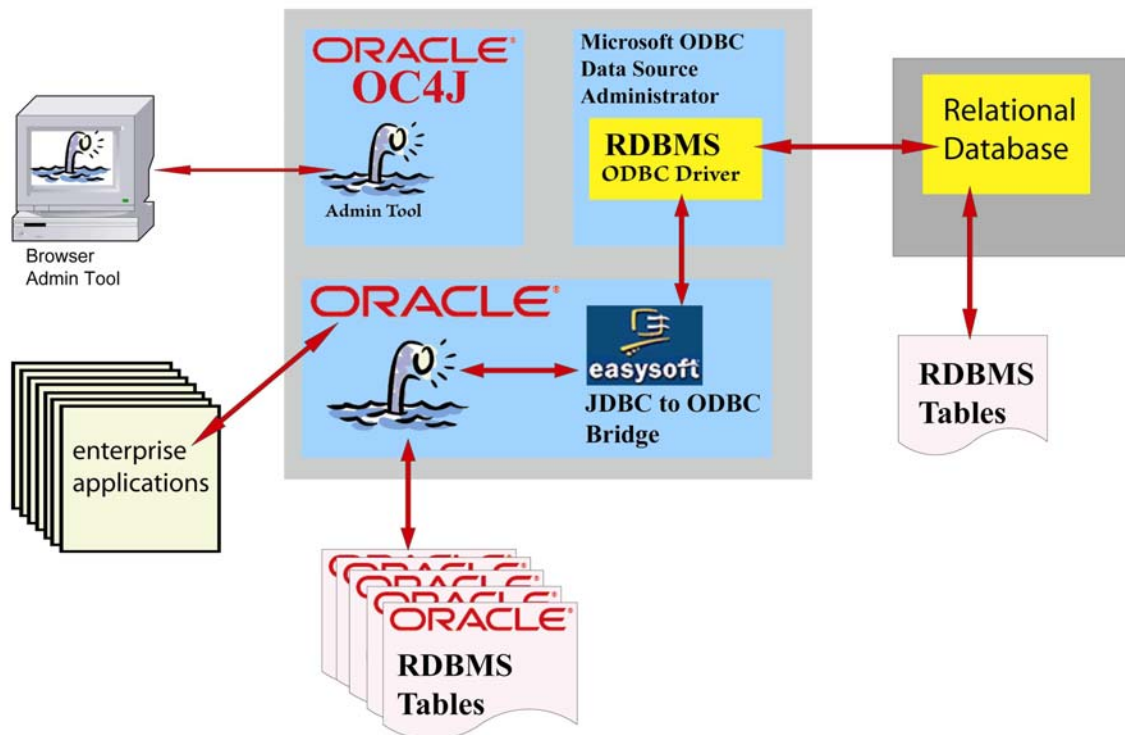
## **Goal**

Real-time seamless access of a Disparate Relational Database from an Oracle database

## **Benefits**

- The Disparate RDBMS becomes another real-time database source within Oracle
- The Disparate RDBMS can now be accessed by any application that can connect to the Oracle database
- The Disparate RDBMS data can be “joined” with other business data, and made available thru Oracle tables
- The Disparate RDBMS data does not have to be replicated to Oracle, but can be accessed real-time out of the Oracle database.
- The Disparate RDBMS data is transformed into an Oracle view, so that Oracle applications can work with consistent data types.
- Business Units can continue to use disparate databases, while enterprise applications have full access from an Oracle standard
- Reports can be generated out of Oracle that contain a real-time snapshot of all data across the enterprise

# Open Database Connection (ODBC) Periscope Component View



**There are four major components to the ODBC Periscope connection:**

- 1. RDBMS ODBC driver**
- 2. Easysoft JDBC to ODBC Bridge**
- 3. Periscope Administration**
- 4. Periscope Universal Database Access**

## **RDBMS ODBC driver**

Periscope uses 3<sup>rd</sup> Party ODBC drivers for generalized RDBMS access. Many RDBMS providers also supply and support ODBC drivers for their respective platforms. When possible, Periscope prefers to use the ODBC drivers supplied by the RDBMS providers. Using these ODBC drivers ensures the closest possible match-up between the RDBMS and Oracle.

ODBC drivers run as a service under the Microsoft ODBC Data Source Administrator. The ODBC driver is loaded within the administrator, which then makes it available for Periscope access.

## **Easysoft JDBC to ODBC Bridge**

Periscope uses the Easysoft JDBC to ODBC Bridge to map real-time JDBC requests to ODBC requests. Easysoft communicates directly with the ODBC driver. The Easysoft driver is loaded directly into the Oracle database and is managed by the Periscope product.

## **Periscope Administration**

The Periscope Administration package runs within the Oracle OC4J container as a web service. Periscope Admin is responsible for the definition of all database connection gateways, and for all Oracle code generation necessary to implement virtual database access to a remote database.

Periscope Admin is active only for system configuration. Once a remote database has been “virtualized”, the Periscope Admin tool is not required to be active and can be terminated.

Configuration of virtual database access requires no programming and typically takes less than a couple of minutes for a table.

## **Periscope Universal Database Access**

Periscope implements Universal Database Access to any disparate data source that a driver has been configured for. Periscope is installed into the Oracle database. Drivers for the disparate data source can be ODBC, JDBC, or of a custom type. JDBC drivers can be loaded directly into Oracle if the JDBC driver JAVA version matches the JVM version within the Oracle database. JDBC drivers can also be loaded into OC4J and accessed from Oracle as a web service. We use this method if the JDBC driver JAVA version does not match the Oracle JVM version.

Once Periscope has been installed into Oracle, we use the Periscope Admin tool to “virtualize” a disparate database into virtual Oracle tables. These Periscope driven tables appear as local Oracle tables, but are actually virtual connections into the disparate database source.

Once a disparate database has been virtualized within Oracle, it can be accessed thru normal Oracle functions with few restrictions.

When an application selects data from the Periscope/Oracle table, Oracle invokes Periscope. Periscope maps the IO request thru the appropriate driver back to the disparate data source to be executed. The result of the IO is returned to Periscope, which then transforms the data back into a normal Oracle view. All Periscope driven data accessed thru Oracle will appear as normal Oracle tables and will be completely transparent to the application.

While Periscope is complex, the actual overhead of Periscope against a virtualized table ranges anywhere from 10ms to 150ms for the actual SQL request. Since database access is typically performed against larger subsets of the database, actual overhead per record retrieved is typically insignificant.

### **Technical Limitations**

As a general case, there will be few database compatibility problems mapping data types into Oracle. There may be Oracle data types that are not supported in the disparate database, so some Oracle data types may not be stored remotely and will have to be mapped to a supported data type.

All database functions (Select, Insert, Update, Delete) should be supported thru the Periscope interface. As a general case, the interface will be completely transparent to the Application.

Each RDBMS ODBC driver is installed and certified by WhiteCap Applications prior to delivery to a client site.

For additional information contact:

**James J. McFadden**  
**WhiteCap Applications, Inc.**  
**(402) 968-3674**  
**Jim.McFadden@WhiteCapApplications.com**