



WhiteCap Applications, Inc  
Technical Bulletin

## **Real-time Integration of the IBM DB2 Universal Database Within an Oracle Database Using Periscope**

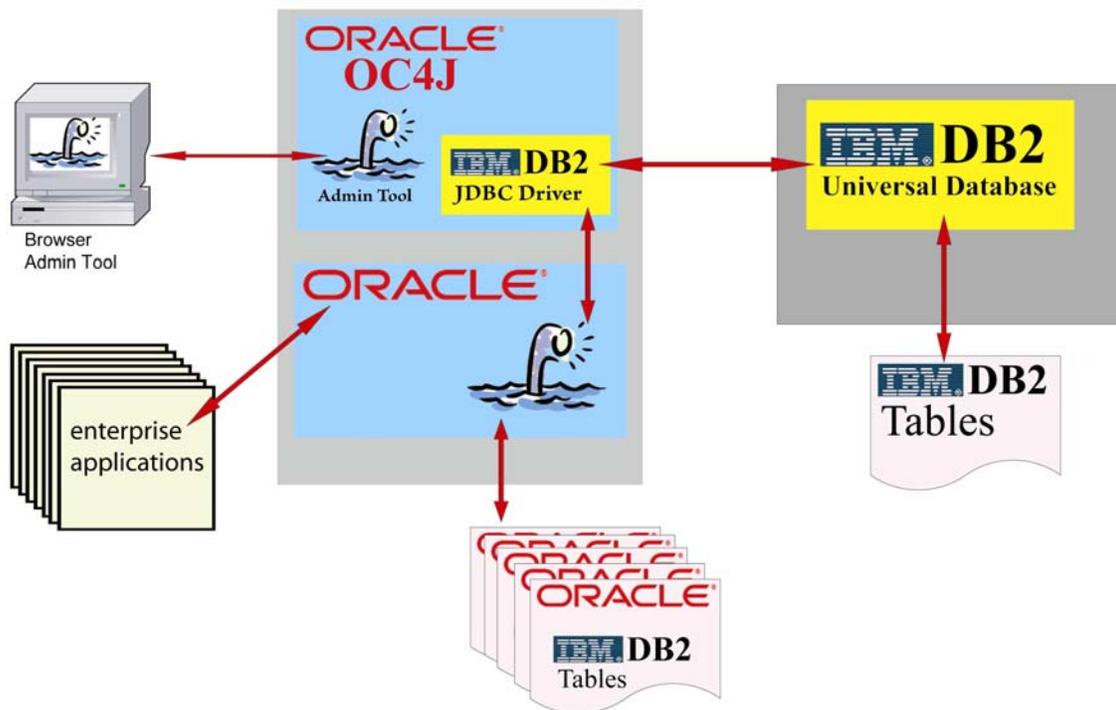
### **Goal**

Real-time seamless access of the IBM DB2 Universal Database from an Oracle database

### **Benefits**

- IBM DB2 tables become another real-time database source within Oracle
- IBM DB2 tables can now be accessed and updated by any application that can connect to the Oracle database
- IBM DB2 data can be “joined” with other business data, and made available through Oracle tables
- IBM DB2 data does not have to be replicated to Oracle, but can be accessed real-time out of the Oracle database.
- IBM DB2 data is transformed into an Oracle view, so that Oracle applications can work with consistent data types.
- Legacy applications can continue to maintain their IBM DB2 data, 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

# IBM DB2 Periscope Component View



**There are three major components to the IBM DB2 Periscope connection:**

- 1. IBM DB2 JDBC driver**
- 2. Periscope Administration**
- 3. Periscope Universal Database Access**

## **IBM DB2 JDBC driver**

Periscope uses the IBM DB2 JDBC driver for database access. The JDBC driver comes as a standard part of the IBM DB2 database and is maintained by IBM. Using this JDBC driver ensures the closest possible match-up between IBM DB2 and Oracle.

The IBM DB2 JDBC driver runs within the Oracle OC4J container as a web service. OC4J must be running to enable real-time access to the DB2 database.

## **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**

There are no data type limitations for IBM DB2 data represented within an Oracle database.

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