

# CASE STUDY: Oracle

## INTEGRATION OF ORACLE GOLDENGATE WITH SAP HANA® PLATFORM

**Client: Oracle Corps.**

### Landscape Components

**Oracle Data Integration or DI:** Oracle Data Integration provides a fully unified solution for building, deploying, and managing real-time data-centric architectures in an SOA, BI, and data warehouse environment. In addition, it combines all the elements of data integration—real-time data movement, transformation, synchronization, data quality, data management, and data services—to ensure that information is timely, accurate, and consistent across complex systems. Oracle GoldenGate is a comprehensive software package for real-time data integration and replication in heterogeneous IT environments. The product set enables high availability solutions, real-time data integration, transactional change data capture, data replication, transformations, and verification between operational and analytical enterprise systems.

**HANA database:** SAP HANA is an in-memory, column-oriented, relational database management system developed and marketed by SAP SE. This makes it possible for applications and analytics to be rethought without information processing latency, and sense-and-response solutions can work on massive quantities of real-time data for immediate answers without building pre-aggregates. SAP HANA is capable of performing complex calculations on big or complex data very fast. This means not waiting to process the calculations after business events and triggers occur, but as they occur, so that decisions can be executed immediately.

**HANA on Cloud (AWS):** This is a production-ready, single-tenant configured SAP HANA database instance. The advantages are lower total cost of ownership, plus faster time-to-value and faster time-to-operational integrity, in-memory computing has become technologically feasible and economically viable, and offers speed, accuracy, and performance advantages. SAP HANA in the Cloud combines cloud computing and in-memory performance advantages.

### Need

Oracle GoldenGate is a high-performance software application for real-time transactional change data capture, transformation, and delivery. Oracle GoldenGate has been used in a wide range of enterprise solutions for both high availability and data integration where both the source and target of the data are relational databases. The Oracle GoldenGate Application Adapters for Java and Flat File, Oracle GoldenGate for BigData extend the capabilities of Oracle GoldenGate to provide mechanisms for real-time integration with various tools other than relational databases i.e. Big Data tools like HBase, Flume, HDFS, Hive, etc...; Extract, Transform, Load (ETL) tools; In-memory Databases; native database loaders; event processing systems; business intelligence (BI); and other non-relational sources and targets. This mechanism is called Custom Java Adapter that shall be built by OGG users to perform the custom job.

Oracle needed to build Custom Java Adapters in this data replication's capability to capitalize the intrinsic advantages of Oracle GoldenGate with SAP HANA, the in-memory database engine from SAP. To endorse their integration capabilities, Oracle needed an experienced SAP partner to certify their Data Replication tool (OGG) connectivity with SAP HANA database.

### Solution

Bristlecone leveraged its unique, Integration and Certification Center (ICC) partnership with SAP to develop, test and certify the replication of Oracle GoldenGate with SAP HANA Database (DB). Bristlecone's cross functional team comprised of experts in SAP HANA, Oracle GoldenGate, Quality Assurance (QA) and SAP BASIS.

The team has created Custom Java Adapter code for Hana replication. OGG Application Adapter delivers the Source Change data to SAP Hana Database using

### Benefits

- Facilitated collaboration between OGG and SAP to bring value to many of their mutual customers
- Helped build trust among OGG end-customers regarding the connectivity of OGG with HANA
- Reduced time for certification, leveraging Bristlecone ICC partnership with SAP
- Streamlined certification process with high predictability of outcome
- Reduced cost of certification with negligible investment from OGG in HANA appliance
- Reduced the time taken by OGG end customers to create connectivity between OGG and SAP HANA
- Provided comprehensive guiding documents to establish connectivity using JDBC configuration

## Environment used for certification

SAP Interface incl. Release:  
HANA-OGG 1.0

HANA Version  
1.00.80.00.391861 HANA  
One Rev 80

SAP Product incl. Release:  
SAP HANA One on AWS  
SP06 Rev 69  
SAP HANA SP07 Rev 81

OGG Version: 12.1.2.1.0

Oracle Database: 11.2.0.3

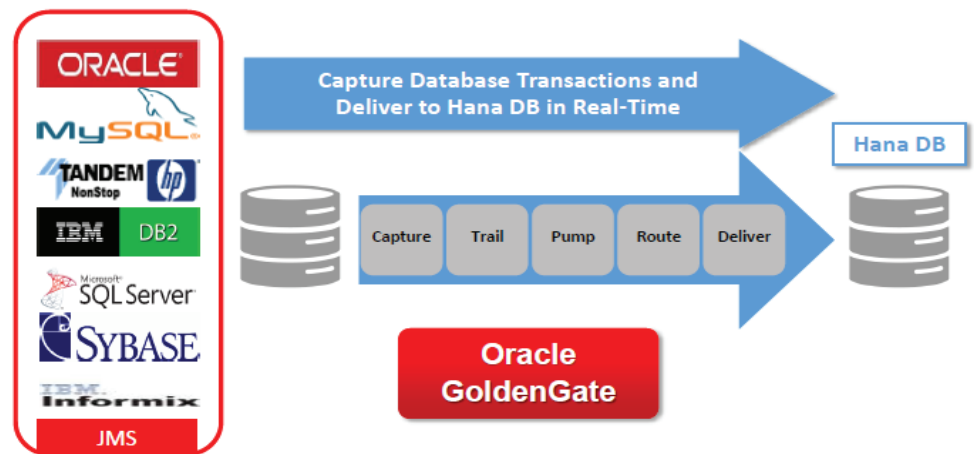
## Solution Highlights

- Solution covers the On-Premise to Cloud use case.
- Solution replicates data onto SAP Hana Cloud Instance.
- Solution expands the OGG capabilities to yet another target.
- Solution expands the OGG capabilities to replicate data into in-memory database space.
- Tested OGG for carrying all supported Data types from OGG Application Adapter.
- Tested CDC scenario by inserting data into Oracle and replicated it in sub-second into SAP Hana Database.
- Tested 5 millions of records from Oracle DB to SAP Hana database on the fly.

this Custom Java Adapter code. According to the different need of environment, this code can be customized. Also team created a test environment comprising of Oracle GoldenGate for Oracle, Oracle GoldenGate for Application Adapter and Oracle, SAP HANA Databases. Oracle GoldenGate for Application Adapter was connected with the in-memory database through JDBC interface. Change Data Capture testing was done from Oracle DB to SAP HANA.

As shown in the below diagram, the source side can be anything supported by OGG. In our test we have used Oracle Database as source system. The capture process will read the change data from Oracle and process it to Trail files. Pump process will distribute this trail data onto target system from where Hana Adapter replicates the changed data onto SAP Hana Database using OGG Application Adapter.

The certification exercise covered Change Data Capture (CDC) with On-Premise to Cloud use case. The one way replication was implemented. Oracle was source and SAP Hana was target database. SAP Hana Instance was on Cloud.



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