WHITE PAPER

1PLACE CLOUD MIGRATION & MANAGEMENT SOFTWARE

Whitepaper 2021

Abstract

1PLACE is an Enterprise Cloud Software Suite.

1Place enables large scale cloud migrations, at high speed. It can be used to create a single cloud view and delivers cloud unification across an organisation's private and public cloud estate from one place.

1Place enhances and simplifies Oracle GoldenGate Technology allowing organisations to manage their cloud migrations and data synchronisations much faster, more effectively and at a reduced level of technical expertise, project risk and cost.

The 1PLACE toolset combines GoldenGate with a comprehensive set of enhanced cloud functionality, saving significant time in set up, configuration, troubleshooting, problem location and issue resolution.

Data migrations are measured in hours not days and are 45% Faster than current tools such as Amazon DMS.

The 1PLACE service capabilities includes migration, troubleshooting, issue resolution, cloud monitoring, Management and 24*7 Support.

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1PLACE Migration & Monitoring Console

Introduction

1PLACE is a comprehensive management and monitoring product that compliments Oracle's GoldenGate real-time data replication functionality. 1PLACE improves monitoring and data issue resolution, saving significant time by notifying DBA's where data migration failures have occurred at data line level. This means that DBA's or DevOps Engineers having no GoldenGate experience or have less expertise and technical skills can manage GoldenGate in combination with 1Place.

Organisations can save significantly on their Support budget through a cost-effective licensing model in comparison to GoldenGate monitoring when compared with using the GoldenGate Plug-in with Oracle Enterprise Manager (OEM).

Dependencies

Customers with a GoldenGate and GoldenGate for Big Data licence can Bring Their Own Licence (BYOL) and deploy the 1PLACE Management and Monitoring Console.

Alternatively, 1PLACE in a Box can deliver a turnkey solution for 12 months of migration functionality and monitoring that includes the GoldenGate Licence.

Solution Overview

1PLACE is a comprehensive suite of tools, functions and monitoring technology that reduces the expertise required to operate, manage and support GoldenGate. The 1PLACE Console includes:

- A simplified management console for GoldenGate implementation, for across the complete enterprise.
- GoldenGate process monitoring, administration, management, and troubleshooting capability in a GUI console without using elaborate GoldenGate CLI commands.
- A modern development paradigm using REST API for centralized Cloud monitoring and management.
- A privilege-based secure GUI access to the GoldenGate deployment, thus avoiding any direct server access.
- The central console is designed for remote installs/upgrades/one-off patching with built-in data comparison capability.

Product Functions

The 1PLACE Management console addresses the most crucial aspect of day-to-day GoldenGate management, maintenance, and eases troubleshooting steps that every DBA/GoldenGate Engineer needs to go through. GUI interface provides the one-click capability to configure and manage extract, pump, and replicate complex GoldenGate implementations.

Technical Overview

1PLACE is a cloud native REST API based lightweight GUI tool to Monitor, Manage/Troubleshoot Performance, Data issues,Compare replicated data for GoldenGate deployments on any existing Classic Architecture.
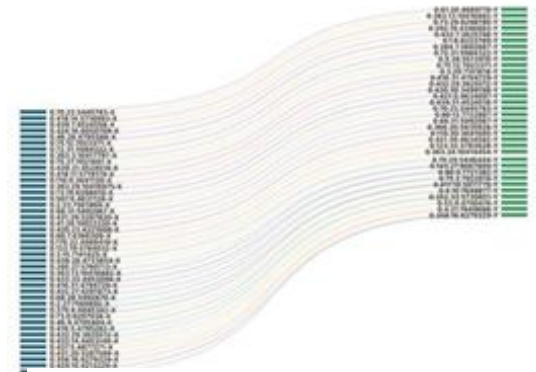
1PLACE Includes:

- A single pane of glass to monitor the overall health of the GoldenGate processes.
- LAG for the individual set of GoldenGate processes in the deployment.
- LAG at Checkpoint for the individual set of GoldenGate processes in the deployment.
- Process memory including (Virtual Memory, Resident Set Size, Unique Set Size) for all the processes.
- Thread wise CPU usage for all the GoldenGate processes.
- Disk I/O utilization in bytes for all the GoldenGate Processes.
- Disk IO Count for all the GoldenGate process

Product Technical Features and Functionality

Some of the Salient features are as described below:

a. Manager: Functionalities as few below
   i. Edit Manager Parameter file / View Report file
   ii. Start/Stop/Refresh/Kill Manage

b. Extract/Pump: Functionalities as few below
   i. Unregister/Register an Integrated extract
   ii. Add/Delete Ext/rmttrail
   iii. View Report File/Checkpoint and Stats
   iv. Start ATCSN/AFTERCSN
   v. Stop/Force stop/Kill
   vi. Option for an auto-upgrade from Classic to Integrated Extract
   vii. Option for the auto downgrade from Integrated to Classic Extract
   viii. Option for ETROLLOVER / Begin Timestamp

Transaction Dependency Mapping

c. Replicat: Functionalities as few below
   i. View Report File/Checkpoint and Stats
   ii. Start / Stop /Alter
   iii. Skip Transaction
   iv. Option for an auto-upgrade from Classic to Integrated Replicate
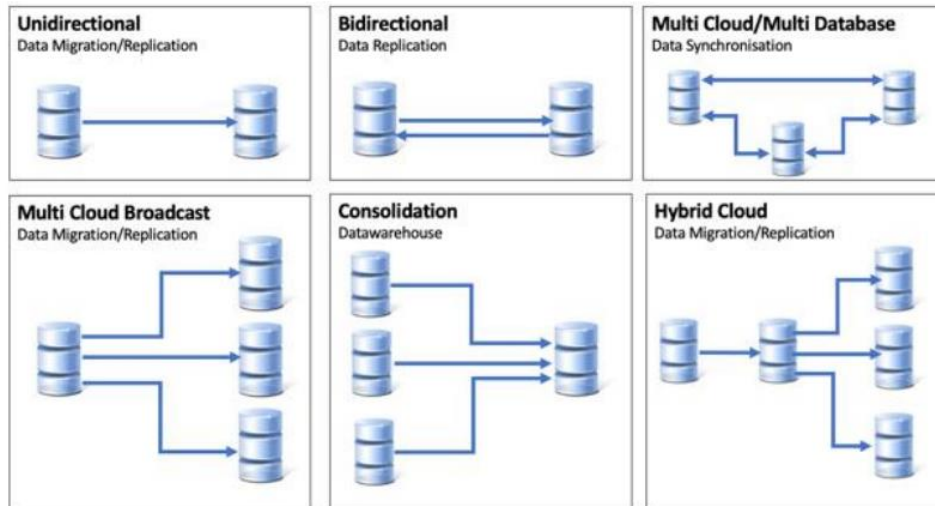   v. Option for ETROLLOVER / Begin Timestamp

Shows Transaction dependency for a single transaction.

Topology and Configurations

1PLACE supports GoldenGate in the following configurations:

Comparison

With No 1PLACE (GoldenGate Only):
- All data copies will have different configurations in different locations.
- All config needs to be done at CLI and may need individual configuration operations.
- There is no effective monitoring of the replications using GG – there is also a limitation and further expense with Oracle Enterprise Manager (OEM) and the GoldenGate Plug in.
- If there are any issues with replications these will take more time to identify the root cause and rectify theproblem.
- All rectification requires a lot of manual effort which will lead to delay in replication catch up – will need atleast ½ day to troubleshoot and fix issue with one replication problem (This can really affect SLA response)
- Need to have GG expertise to manage and administer GG – circa £90,000 plus DBA skills.

With 1PLACE Dashboard and Monitoring:
- All data copies are centralised and managed collectively.
- Can manage Hybrid Cloud and Muticloud GoldenGate Deployments from a single console. This includes GoldenGate provisioning, Guided configuration, Management, Monitoring and Troubleshooting easier.
- All the GoldenGate related database activities can be monitored and managed from 1PLACE.
- Makes iteasier to troubleshoot database related wait events for GoldenGate from the same console.
- Monitor GoldenGate Process OS thread stacks which will help for performance troubleshooting.
- Monitoring is achieved through a single dashboard / console – this is added advantage over OEM.
- Tight Integration with AWS CloudWatch for threshold alerting as it has REST API endpoint monitoring forGoldenGate.
- GoldenGate Security is made easy by renewing GoldenGate encryption keys and managing credential store.

- Management of all replications (distributed GoldenGate Deployments) at one console – this is an added advantaged where OEM does not provision the same and can be very costly to do so.
- If there are any issues with source extracts and target Replicats, all that is required to re-enable the replication is only a one click operation – Issue resolution takes only 10 mins to identify and rectify issues (not hours).
- Can be managed and administered with Junior DBA with limited database knowledge and some training – circa £40,000 plus.

Use Cases and Data Sources / Targets

- Zero Downtime Database migrate/upgrade for on-premise and Cloud GoldenGate deployments.
- Zero Downtime Database Platform Migrations in Cloud.
- Monitor/Manage/Troubleshoot all GoldenGate deployments for both on-premise and cloud deployment.
- Accelerated Trouble Shooting to identify data mapping and integrity issues.
- Lower skill base to operate GoldenGate migrations.
- Migrations are typically measured in hours not days

zero downtime = 0

Enterprises can deploy GoldenGate 1PLACE Management to manage and monitor any of the below deployments.

- GoldenGate for Oracle
- GoldenGate for MySQL
- GoldenGate for SQLServer
- GoldenGate for Sybase
- GoldenGate for Teradata
- GoldenGate for PostgreSQL
- Mongo DB

Security

1PLACE uses Nginx Reverse Proxy and Cipher suite and network access is through https and SSL. As an additional security feature the rest APIs are all HTTPS and passwords are encoded inside the database. 1PLACE will allow to integrate with LDAP to provide centralised authentication and authorisation.

Amazon AWS Bench Marking – 45% Faster in Comparison

The following table outlines a recent benchmark test carried out against the AWS DMS service.

AWS Migration Timings and Data Sizing

Overview details	Table statistics	CloudWatch metrics	Mapping rules	Premigration assessments	Tags

Table statistics (9)
Total rows include loaded source table rows from Inserts, Deletes, Updates, DDLs, and Full load rows.

[C] [Validate again] [Reload table data]

Q Find schema   < 1 > ⚙

	Schema name ▽	Table ▽	Load state ▽	Elapsed load time ▽	Inserts ▽	Deletes ▽	Updates ▽	DDLs ▽	Full load rows ▽	Total rows ▽	Validation state ▽
☐	GSMDBA	GWR_PIC_DATA	Table completed	2 s	0	0	0	0	0	0	Not enabled
☐	GSMDBA	IDENTITY_TEST_TAB	Table completed	7 s	0	0	0	0	0	0	Not enabled
☐	GSMDBA	POS_WION	Table completed	6 s	0	0	0	0	0	0	Not enabled
☐	GSMDBA	TEST	Table completed	6 s	0	0	0	0	0	0	Not enabled
☐	GSMDBA	T_RAW	Table completed	1 s	0	0	0	0	0	0	Not enabled
☐	GSMDBA	GWR_FINANCE_TXN	Table completed	14 m 52 s	0	0	0	0	4,000,000	4,000,000	Not enabled
☐	GSMDBA	GWR_HR_TXN	Table completed	6 m 35 s	0	0	0	0	1,570,950	1,570,950	Not enabled
☐	GSMDBA	GWR_TRANSACTION	Table completed	20 m 14 s	0	0	0	0	6,000,000	6,000,000	Not enabled
☐	GSMDBA	MANJUTEST	Table completed	1 s	0	0	0	0	0	0	Not enabled

Amazon DMS Load Time comparison to 1PLACE

Schema name	Table	Table Rows	Load state	Elapsed load time 1PLACE	Elapsed load time DMS	% Time Saving 1PLACE vs DMS
GSMDBA	GWR_HR_TXN	1.5 mil	Completed	4 mins	6 m 35 s	40%
GSMDBA	GWR_FINANCE_TXN	4 mil	Completed	8 mins	14 m 52 s	46%
GSMDBA	GWR_TRANSACTION	6 mil	Completed	12 mins	20 m 14 s	40%

1PLACE Functionality versus Amazon DMS

Features	DMS	1PLACE	Comments
RAC & ASM	✓	✓	Both 1PLACE and DMS supports RAC databases. However, RAC and ASM is only supported in EC2 not in RDS
Encryption	✓	✓	DMS & 1PLACE supports SSL, TDE to encrypt data at rest.
Data Encryption in flight	✗	✓	1PLACE offers inflight data encryption along with SSL, TDE that provides data at rest. This protects critical data migration over the internet
Compression	✗	✓	DMS only supports compression that been supported by Logminer
Container Databases	✗	✓	1PLACE supports Container Databases which future proofs for Oracle CDBs
Direct Path	✗	✓	Direct path full load option provides performance enhancement in migration. This is supported by 1PLACE but not with DMS
XML, CLOB, BLOB Data Types	✗	✓	DMS doesn't support XML type, CLOB and BLOB data types to migrate, while 1PLACE support these data types
XA Transactions	✗	✓	DMS doesn't support XA transactions. While 1PLACE support XA transaction

GoldenGate Installation versus 1Place Remediation

Referenced Inadequacies of GoldenGate	1PLACE Remediation
"Troubleshooting issues is not always the easiest." *"It should be easier to troubleshoot."*	User Interface and Dashboard visualises the GoldenGate interactions.
"Their support can also be improved."	24*7 Support Provided by ONQU Support
"If we're talking about big data, its interaction with big data sources is poorly documented."	1PLACE is fully documented.
"I would like to see the interface more graphical and easier to use."	1PLACE provides a graphical user Interface.
"The solution is quite costly, and if they could reduce their pricing, it would be more economical to implement."	1PLACE increases the value of GoldenGate and reduces operational costs whilst improving user experience.
"We struggle with memory."	1PLACE helps to configure GoldenGatewith Oracle's best practices and ProcessWise memory utilisation will be minimal at the GoldenGate Cache level.
"It should be easier to integrate this solution with non-Oracle databases, including cloud-based solutions hosted on Azure."	With 1PLACE GoldenGate Administration has become much easier as it is built with Cloud based REST API's which makes it easier to manage from anywhere
"The solution, in general, should be easier to use, with less need to perform workarounds within the system."	1PLACE simplifies user interactions andenables faster problem resolution with the ability to visualise problems in real-time

Summary

The 1PLACE Management and Monitoring Console for GoldenGate is a valuable addition for organisations wanting to extract more value from their GoldenGate investments and who need to reduce the risk and time taken to identify where and when a data process has failed.

With enhanced real-time monitoring the 1PLACE solution significantly reduces the cost of operating GoldenGate and addvalue in key areas such as trouble shooting and management. For further information or to book a demonstration please send an email to hello@1place1cloud.com or visit www.1place1cloud.com