Intelligent Workload Management across Database Replicas

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One DB, One client
One DB, Many Clients
Replicated DBs, Many clients
Load balanced, Manually
Load balanced, Automatically
What do we use?

Manual Load Balancing
Can we do better?
Why GDS?

Availability

Scalability

Performance

Manageability
## Key features

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
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<tbody>
<tr>
<td>Work Load Management</td>
<td>Centralized Framework</td>
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<tr>
<td>Work Load Routing</td>
<td>Region based</td>
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<td></td>
<td>Replication lag based</td>
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<tr>
<td>Failover</td>
<td>Inter database service failover</td>
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<td>Role Based Global Service</td>
<td>Takes care of role transition via Data Guard</td>
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<td>Load Balancing</td>
<td>Run-time</td>
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</table>
How GDS works??
Services

Representation

Grouping

Routing

to optimal instance

to handle unexpected failovers
How GDS works??

- Implements the Oracle Database service model
- GDSCTL
- Any combination of
  - Oracle Data Guard (Physical Replication)
  - Oracle Golden Gate (Logical Replication)
  - or any other database replication technology
What is GDS made of??
GDS Pool

GDS Region

Global Service Manager

GDS Catalog

Oracle Notification Servers
The process

Client → Give me service! → GSM → Most optimal instance → Instances → Service

Catalog

Intelligent Workload Management, Ritika Nevatia
Use Cases

• Load Balancing for Replicated Databases
• Service Failover for Replicated Databases
• Region Affinity in Oracle GoldenGate Multi-Master
• Load Balancing in Oracle GoldenGate Multi-Master
• Balancing Oracle Active Data Guard and Oracle GoldenGate Reader Farms
Load Balancing in Replicas

- Load metrics
- Region affinity
- Network latency
- Load balancing goals
Service failovers in Replicas
Thank You