

# 11g Active Data Guard

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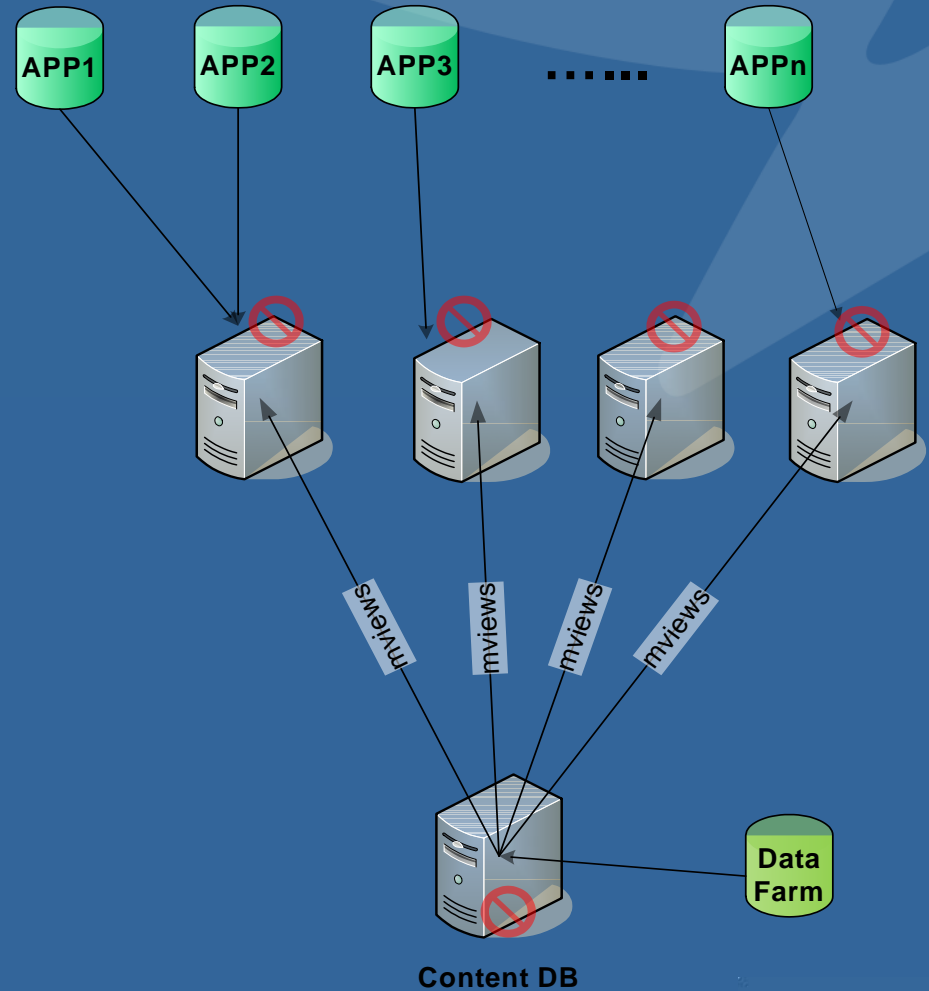
Rolling Stone

real

# Goals

- Consolidate HA and Reporting Data Guard instances
- Off load read-only traffic
- Off load I/O intensive database backups
- Guarantee data and object consistency
- Reduce management of complex mview replication
- Simplify deployment of read-only instances

# Current Architecture

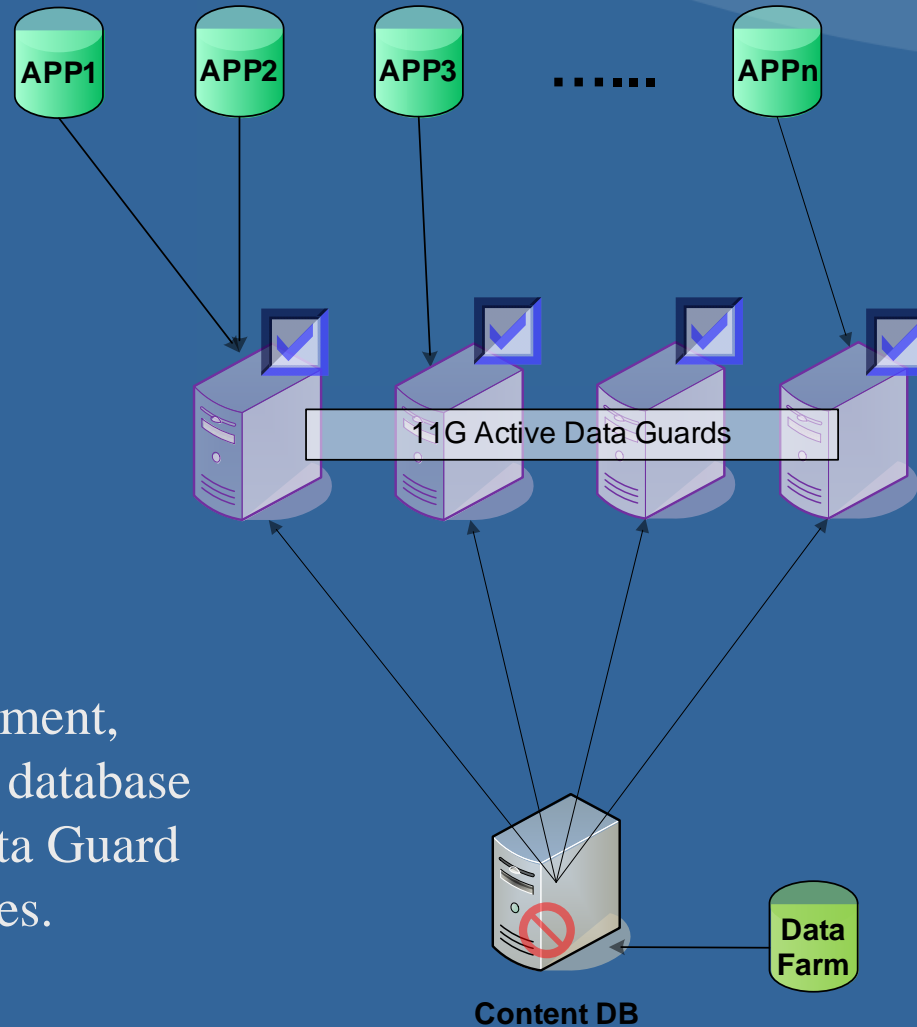


During a code deployment, each database is subject to a lengthy maintenance for DDL and mview refreshes.

# Current Architecture Challenges

- Lengthy and complex deployment for DDL changes
  - ❑ Each Read-only instance needs ddl scripts + mview refreshes
- Publishing stops if a read only database is down
- No guarantees of data and object consistency
  - ❑ Errors can occur, missing indexes, failed mview replication
  - ❑ Harder to manage five database images
- Difficult to deploy new nodes for scaling
  - ❑ Publishing code must be rewritten for each new node

# Future Architecture



During a code deployment,  
we can release to one database  
and rely on active Data Guard  
to replicate the changes.

# Future Architecture Benefits

- Shorter and simpler deployment for DDL changes
  - ❑ Deploy changes to Primary instance only
  - ❑ No need to rebuild mview logs after a lengthy replication stop
- Guaranteed data and object consistency
- Fewer distinct databases to manage
- New nodes can be deployed without publication outages
- Significant reduction of I/O
  - ❑ Backup one instance instead of 4
  - ❑ No mview log maintenance
  - ❑ No complete or fast refreshes

# Active Data Guard Implementation

## Proof of Concept Test

- 1 primary + 5 DGs. Primary in MaxAvailability mode. 4 DGs with SYNC redo transport mode, 1 DG with ASYNC mode. 2 DGs with connect-time failover setup.
- Read only queries worked as expected on active DGs.
- Changes populated from primary to active DG as expected.
- Flashback primary + flashback DG tested. No need to recreate DGs.
- Connect-time failover worked correctly on active DGs. (Wow!)

## Lessons Learned

- No downtime on primary. Manual flashback on needed on DG.
- Weapons you need: spfile, service management, Data Guard Broker, Flashback, Grid Control, RMAN
- Switchover bug (#7032374): `dbms_service.stop_service` does not stop services on standby
- Grid bug (#6379706): Grid does not use RMAN catalog for standby backups
- Export dump (expdp) error: ORA-16000: database open for read-only access

