Replication Service Evolution

Outline

- WWHWW

What we would like to change?

- Streams => GoldenGate12c
  - Conditions data between online-offline
  - Conditions data between offline-T1s
  - …

- DataGuard services stay unchanged

Why to change now?

- LS1 is a good occasion to introduce changes

- Streams are in maintenance mode
  - still supported
  - no enhancements and no new database features will be adopted

- Lets follow new trends and Oracle recommendations

- Expertise in GoldenGate opens new possibilities
  - zero-downtime migrations/upgrades
  - enables data integration with other non-Oracle database

Are our workloads ready for GoldenGate?

- (Native) DDL replication (>=11.2.0.4) ✓
  - Table creation, granting of user privileges
- Data filtering on schema and table name level ✓
- Remote configuration and management of replication processes ✓
- Proactive and reactive monitoring ✓
  - (See Lorena's and Maciej presentation tomorrow)
- DDL handler at target database
  - Not really needed for conditions data
  - Will be available at the end of this year

Are we ready for GoldenGate

- Functional test ✓
- Performance test ✓
- Long distance tests (with T1s) ✓
- Long term stability tests ✓
- Tests with production data (ATLASCond) ✓
- Optimize networking parameters ⚠ WORK IN PROGRESS
- Long term test with production data ⚠ WORK IN PROGRESS
  - Local and long distance

How?

- Central GoldenGate installation
  - All GoldenGate software installed on a two-node cluster
    - Processes operate on databases remotely
  - All binaries & configuration stored on NAS volumes
  - All monitoring agents installed on the cluster
  - Cluster in master-slave configuration
    - With automatic failover

Central GoldenGate installation
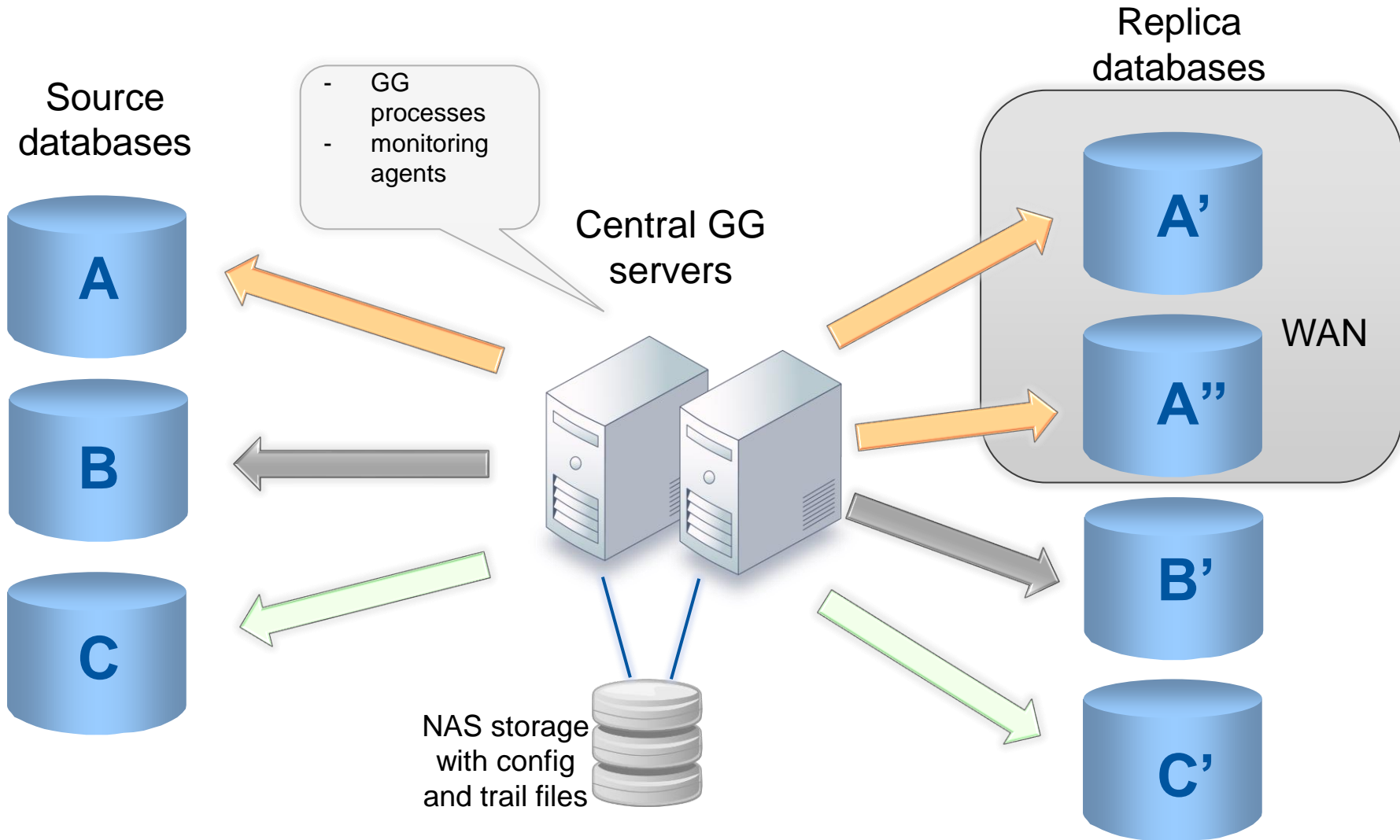
Central GoldenGate installation

- Easier deployment and management
  - Everything in one place => easy hardware migration
  - Installation of GG software on each db server is not needed
  - Additional integration with RAC is not need (except central service)
  - No need of running datapump process (from GG stack)
  - Single trail files (local) copy =>less storage needed

- Improved security
  - No need of additional port opening on replica sites

- Simplified deployment of GG monitoring
  - enables using of Oracle EM plugin to monitor entire environment

- Better performance over WAN (T0->T1s) measured

How on the D-Day?

- 0) Configure GoldenGate processes
- 1) Start GoldenGate extraction processes
- 2) Stop Streams processes
- 3) Start GoldenGate replicat process
- *) Keep Streams configuration switched off

- Impact: less than 1 hour of downtime

Who does what?

- Experiment
    - Gives a green light
    - Support the testing (if possible)
- T0
    - Central installation of GG cluster
    - Central installation of monitoring
    - Deploy of initial configuration
    - Long term: administration of online-offline replication
    - Long term: co-administration of online-T1s replication
- T1s
    - Continue long distance tests
    - Upgrade to 11.2.0.4 (almost done)
    - Re-instantiation of data (if needed)
    - Update firewall port configuration
    - Register on GG monitoring tool
    - Long term: co-administer of offline-T1s replication

When to change? (proposal)

1. Long term tests with production data (T0->T1s)   June

2. ATONR & ATLR compatibility update   max: 1st week of July

3. GoldenGate for online-offline (condDB)   week of 21st of July

4. GoldenGate for offline-T1s   1st week of September

THANK YOU!