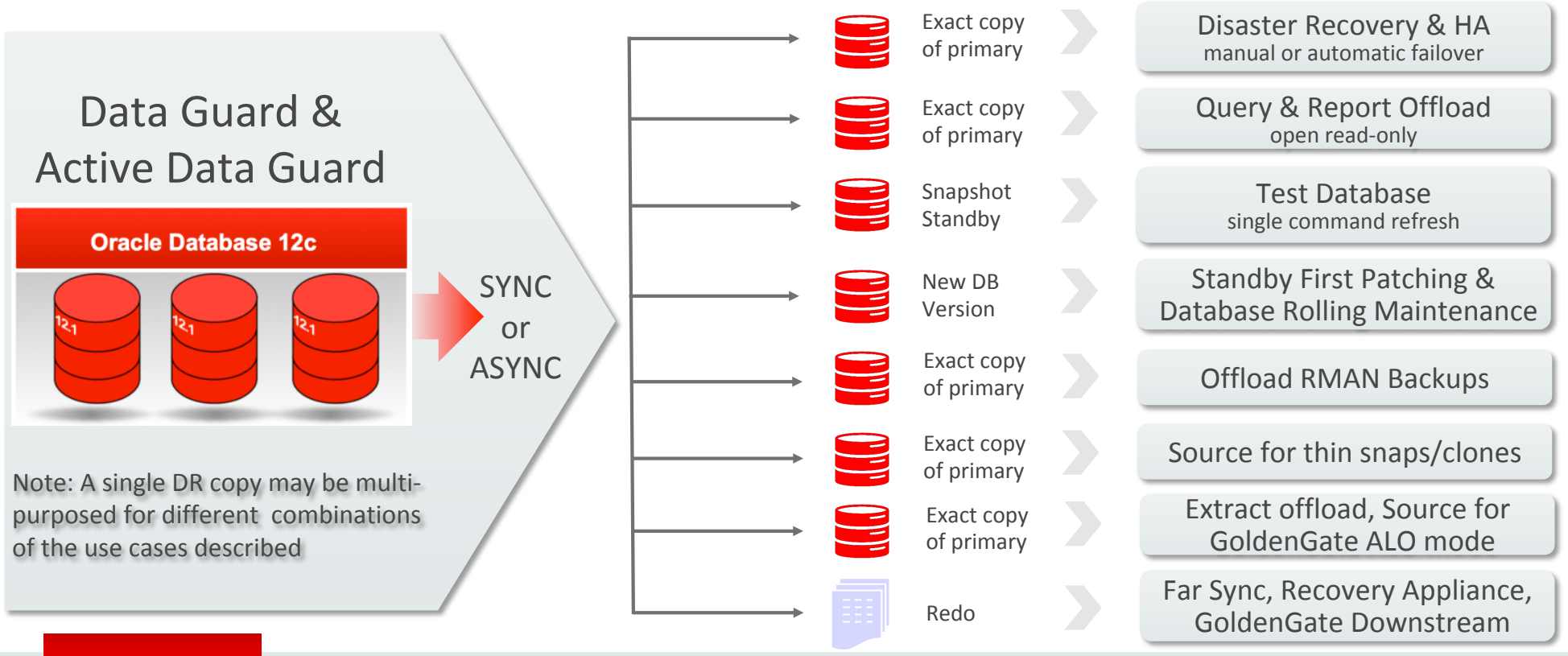

ORACLE®

# Oracle Data Guard Introduction

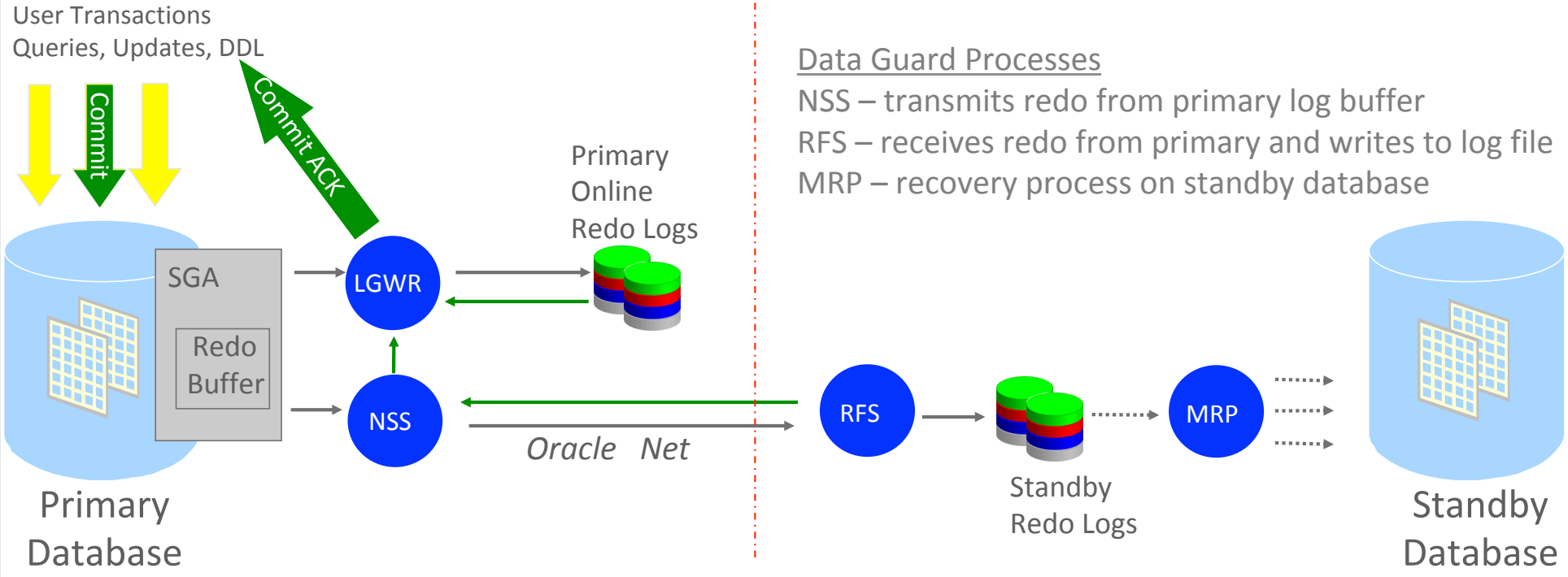
Uwe Kirchhoff
Technical Architect
ACS Global Delivery

# Use Cases: Data Guard and Active Data Guard



# Data Guard Transport for Zero Data Loss

## Data Guard 12c FASTSYNC Process Architecture




Data Guard Processes

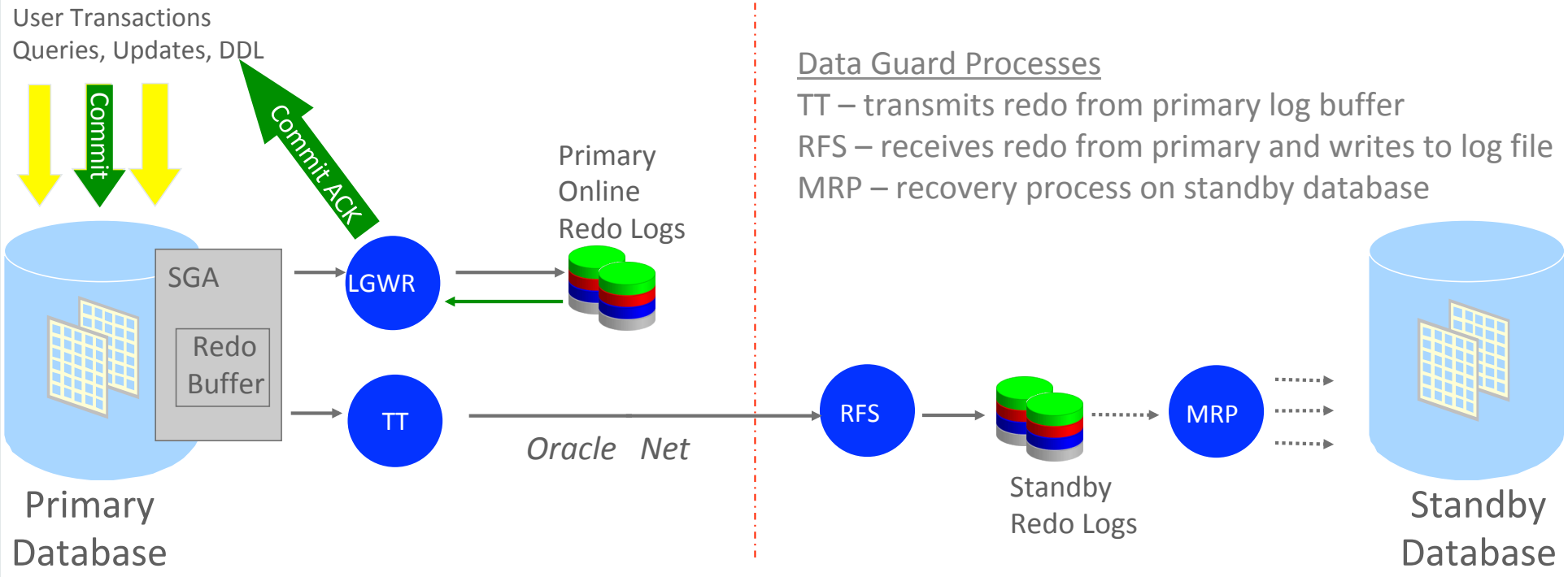
NSS – transmits redo from primary log buffer

RFS – receives redo from primary and writes to log file

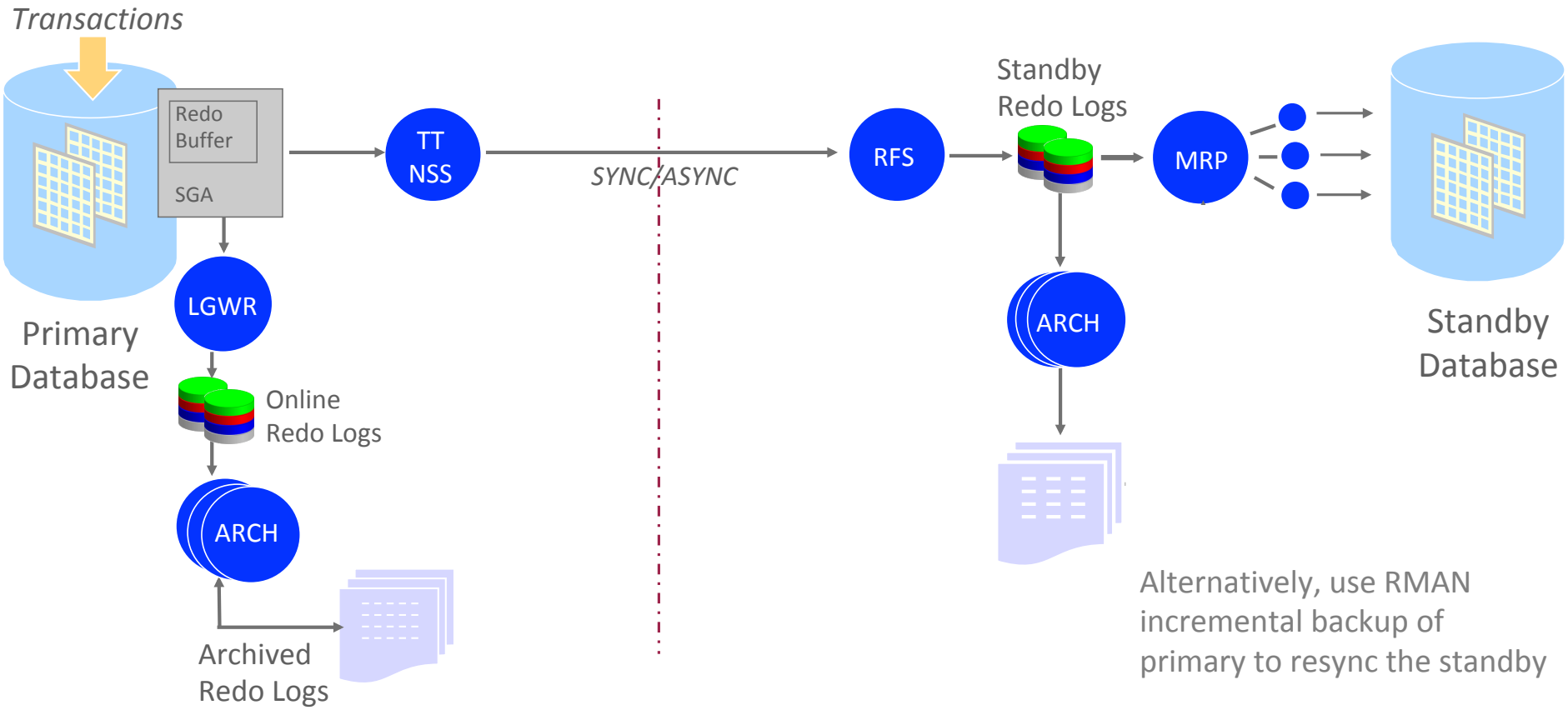
MRP – recovery process on standby database

# Data Guard Transport for Near-Zero Data Loss

## Data Guard 12c ASYNC Process Architecture

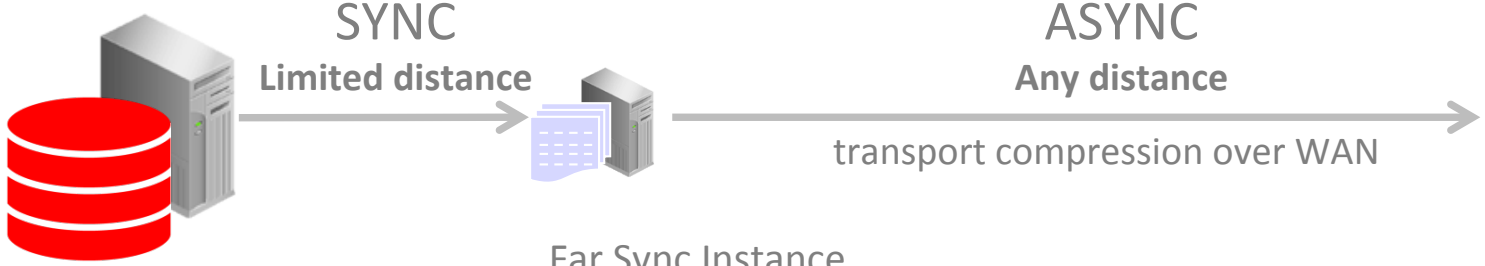


# Data Guard Automatic Resynchronization



# Active Data Guard Far Sync

**Zero Data Loss Protection at Any Distance**




Primary Database
- Production copy

Far Sync Instance
- Oracle control file and log files
- No database files
- No media recovery
- Offload transport compression
- Supports up to thirty remote destinations

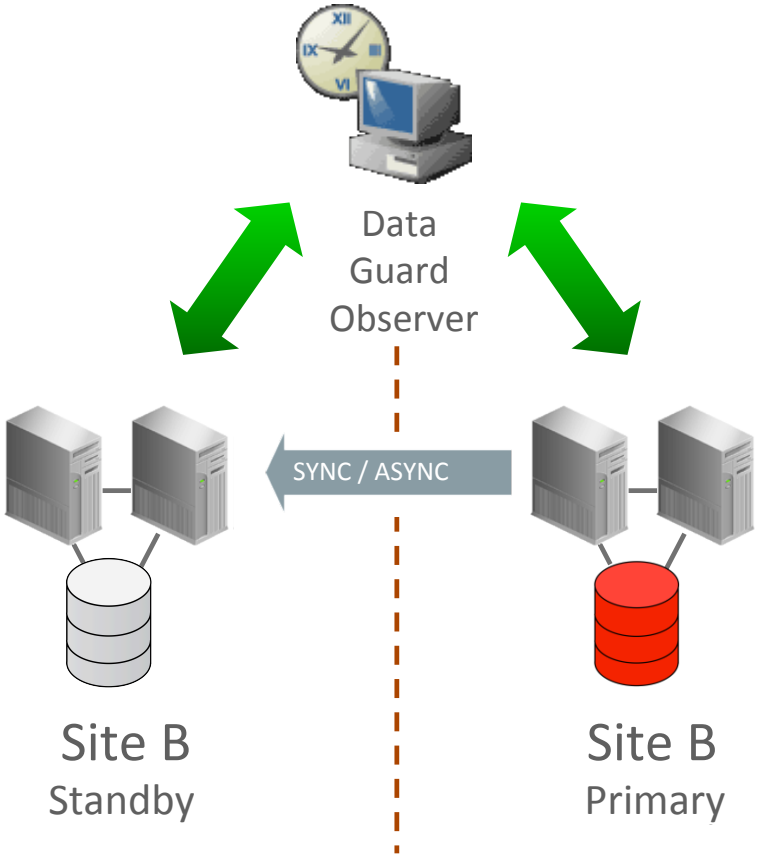
Active Standby Database
- Zero data loss failover target
- DR and reporting instance
- Open read-only
- Continuous Oracle validation
- Manual or automatic failover

# Data Guard Protection Modes

## Balance Data Protection with Performance and Availability

| Mode | Risk of data loss | Transport | If no acknowledgement from standby: |
|---|---|---|---|
| Maximum Protection | Zero Data Loss<br>Double Failure Protection | SYNC | Stall primary until acknowledgement is received from replica |
| Maximum Availability | Zero Data Loss<br>Single Failure Protection | SYNC<br>FASTSYNC<br>Far Sync | Stall primary until acknowledgement is received or timeout threshold period expires – then resume processing |
| Maximum Performance | Potential for Minimal Data Loss | ASYNC | Primary never waits for standby acknowledgement |

# Even Faster, Remove Delay for Human Response




- Data Guard Fast-Start Failover
- Automatic:
  - Failure detection
  - Database failover
  - Client failover using FAN/TAF
  - Automatic reinstatement of failed primary as a new standby database