SharePlex for Oracle
How to replicate databases

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Highlights

- Overview: reasons for migration

- Traditional data migration methods

- Drawbacks

- Data migrations using log-based replication

- Benefits

- Q&A

Reasons for migrations

- OS migrations/change hardware vendor
  - Moving to new servers (e.g. IBM Power7 to Linux)
  - RAC or virtualized environments

- Oracle database migrations
  - Expired support on older versions cost prohibitive
  - Need new features/functionality in newer versions

- Application migrations
  - Upgrading the application to a newer version
 - May coincide with a hardware and or database upgrade
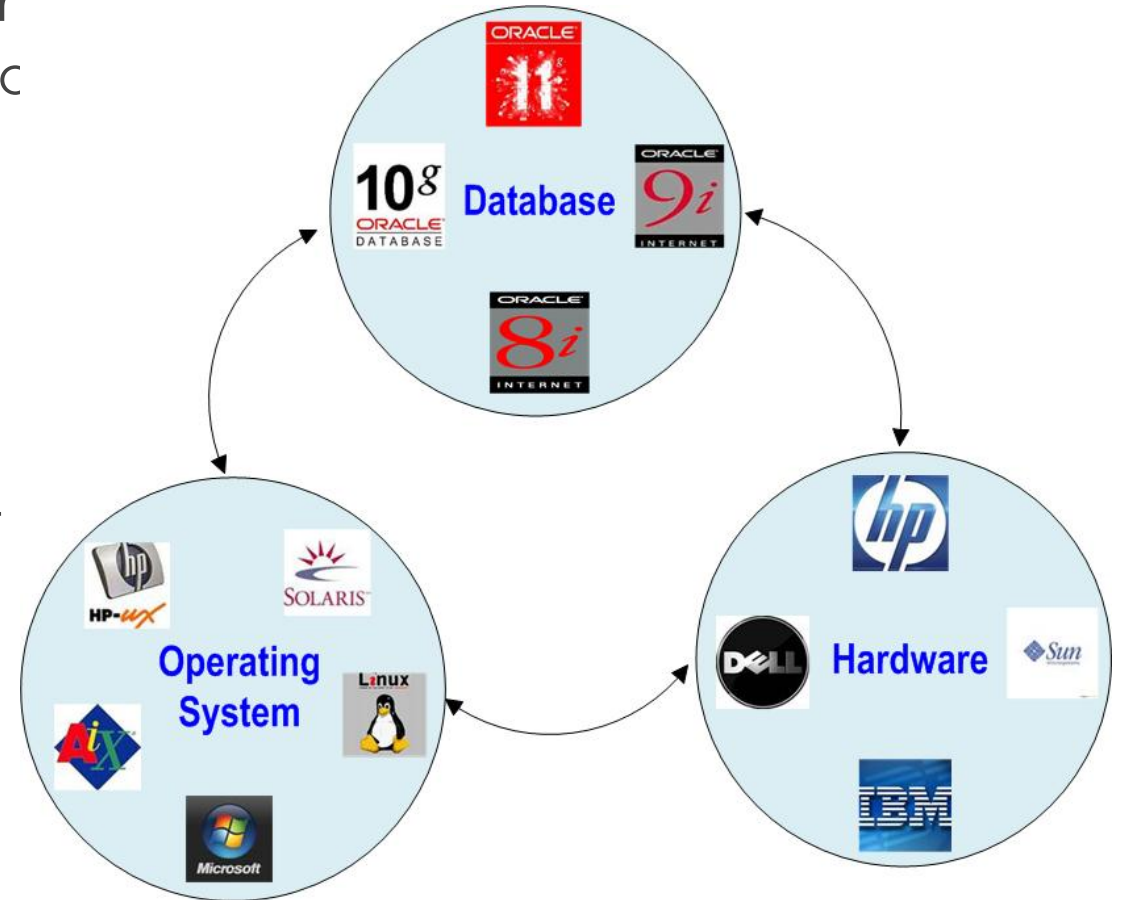
Traditional Oracle migration methods

- Export / Import or Data Pump
  - Pro: simple, cross platform regardless of DB version
  - Con: requires downtime, slow, regression = restore backup

- Database upgrade wizard
  - Pro: no extra hardware/resources required
  - Con: in place, downtime required, downgrade scripts unreliable

- Cold copy
  - Pro: Simple, fast
  - Con: requires downtime, restricted to same platform, regression = restore backup

- Manual scripts, transportable tablespaces
  - Con: DBA requires expert knowledge of application, requires downtime, regression = restore backup

- Online backup (Mirror/RMAN/Dataguard)
  - Pro: online, from 10g 11 cross platform
  - Con: restricted to same platform unless migrating from 10g (downtime required to upgrade DB), regression = restore backup

Drawback of traditional migrations

- Downtime components
  - **Length of downtime** for data movement and upgrade
  - **Test & verify** occurs during downtime

  - ➢ Risk Factors
    - Time constraint to finish
    - Complex, error prone process
    - Hardware reliability
    - Post upgrade database performance issues
    - No ability to test production load
    - Limited regression strategy

Export/
Import

Test
&
Verify
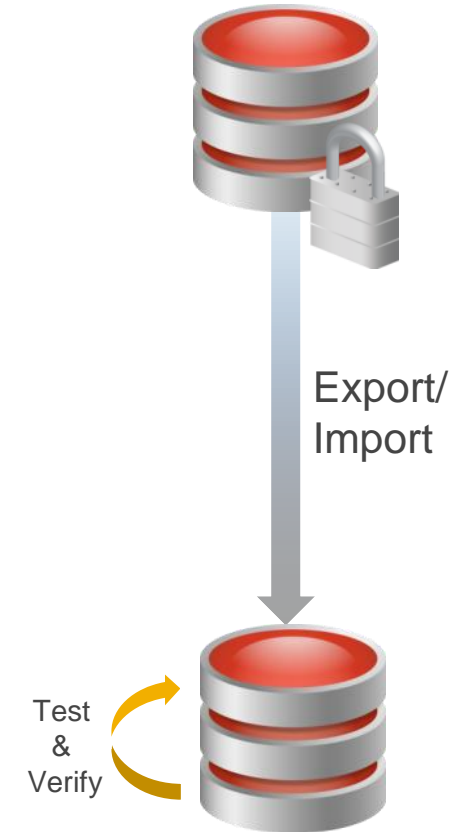
High speed, streaming replication

- Selectively replicate & manipulate only the necessary data
  - Any combination: table, row, column or the entire database

- Target remains live & accessible

- Very high performance and easy administration

- Works in heterogeneous environments
  - Any combination of Oracle 9i to Oracle 11g on Sun Solaris, HP-UX, IBM AIX, Windows 2003/2008 & Linux Redhat & SUSE, Exadata, Standard Edition, Enterprise Edition.

- Failback capability

Target B

Source A
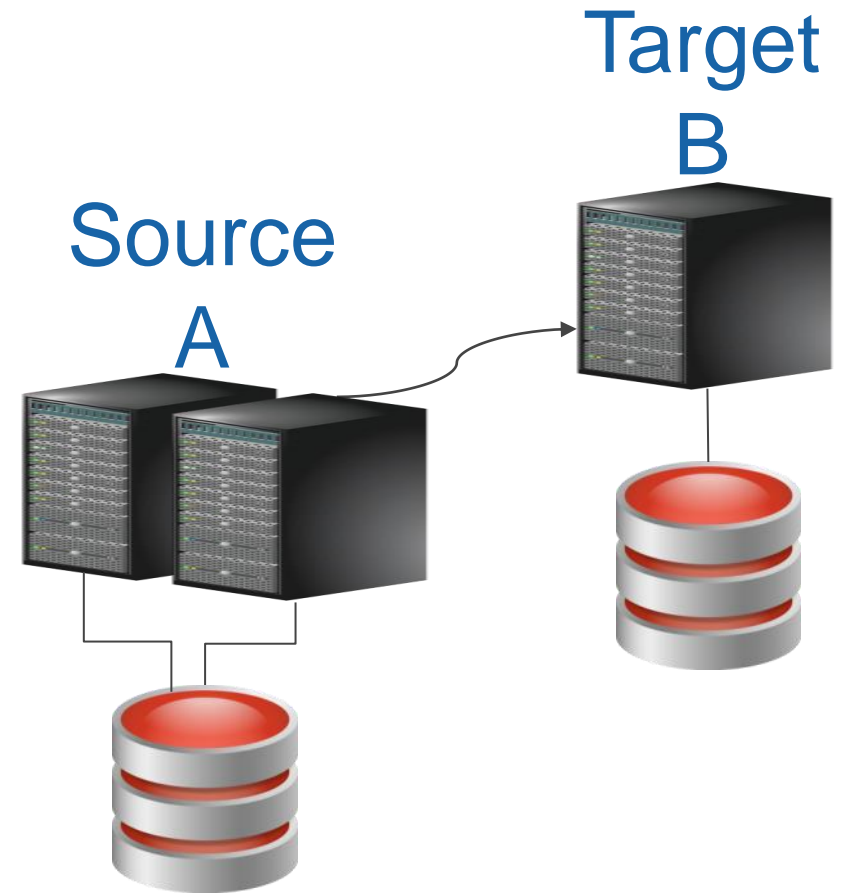
Replicate from A to B with very few limitations

DELL

ZeroIMPACT migrations, patches and upgrades

8i/9i/10g   10g/11g

Migrations, Patches & Upgrades
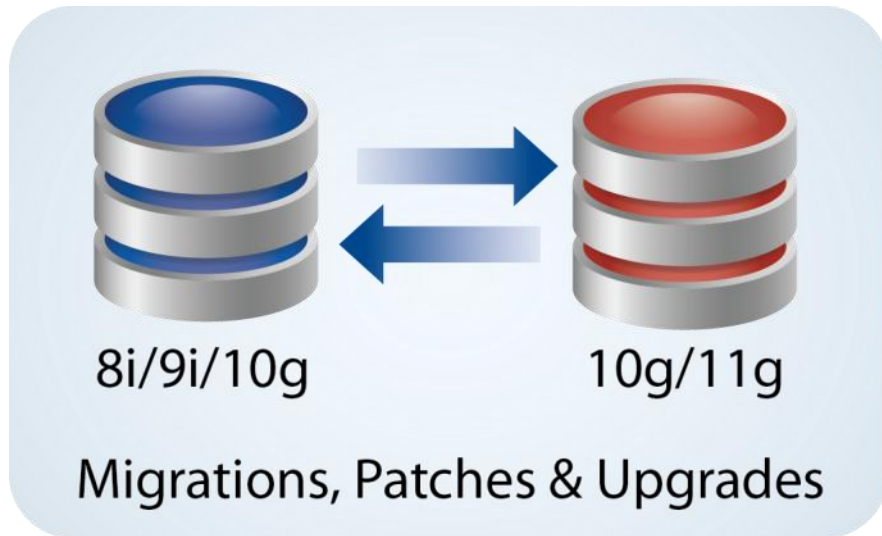
- Migration of application version, database version, hardware platform or sometimes all three.

- Decrease downtime by switching users to the replica system while the migration is being performed on production.

- Eliminate risk providing a failback if the changes have undesired effect. Supports multiple dry-runs.

- Reduce costs and mistakes by performing the changes during working hours.
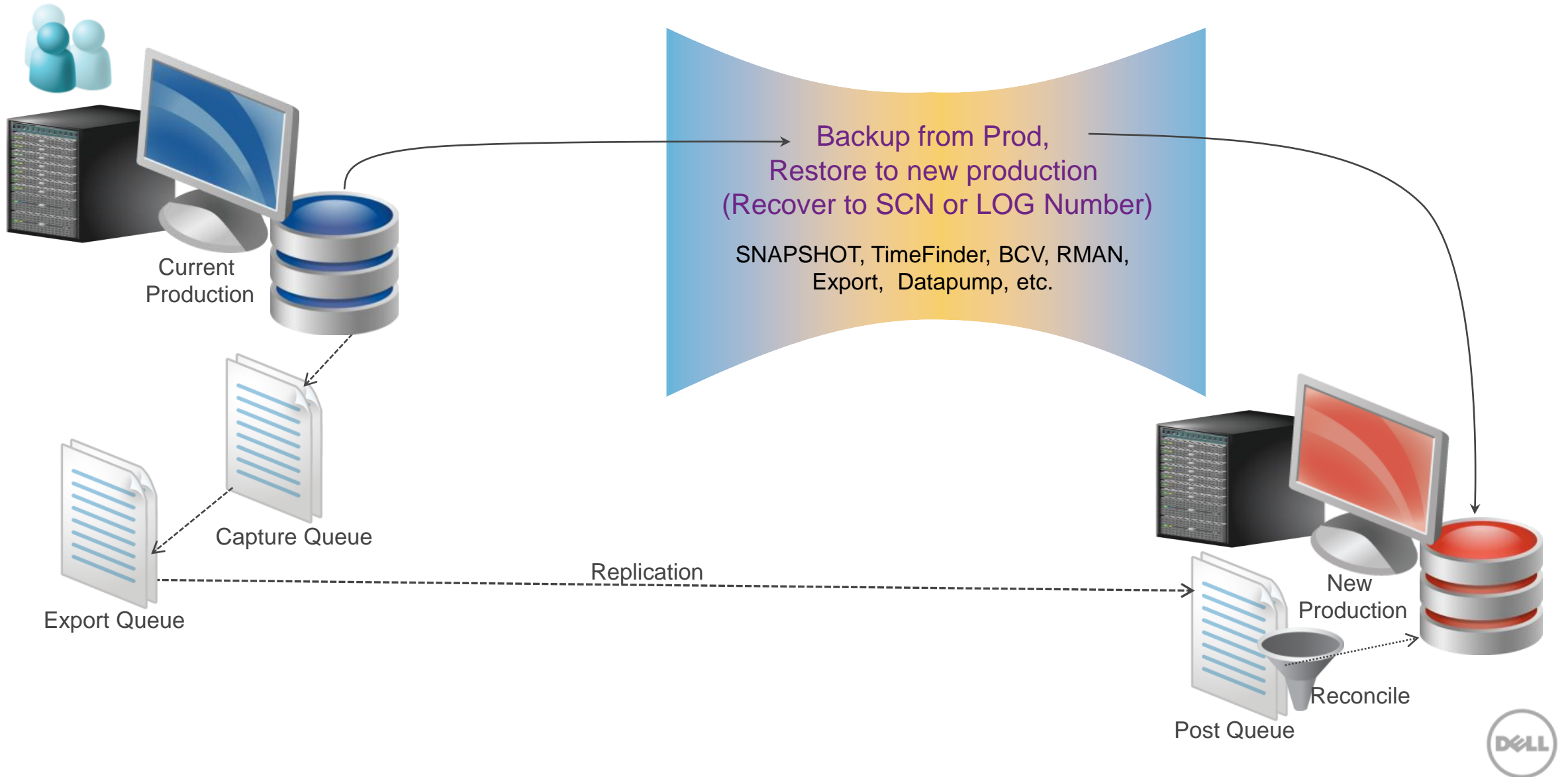
Oracle database migrations

- With **traditional migrations**, extensive downtime is required:
- Export/import data
- High risk with in-place upgrades
- Increase costs for failures
- Can not test new functionality
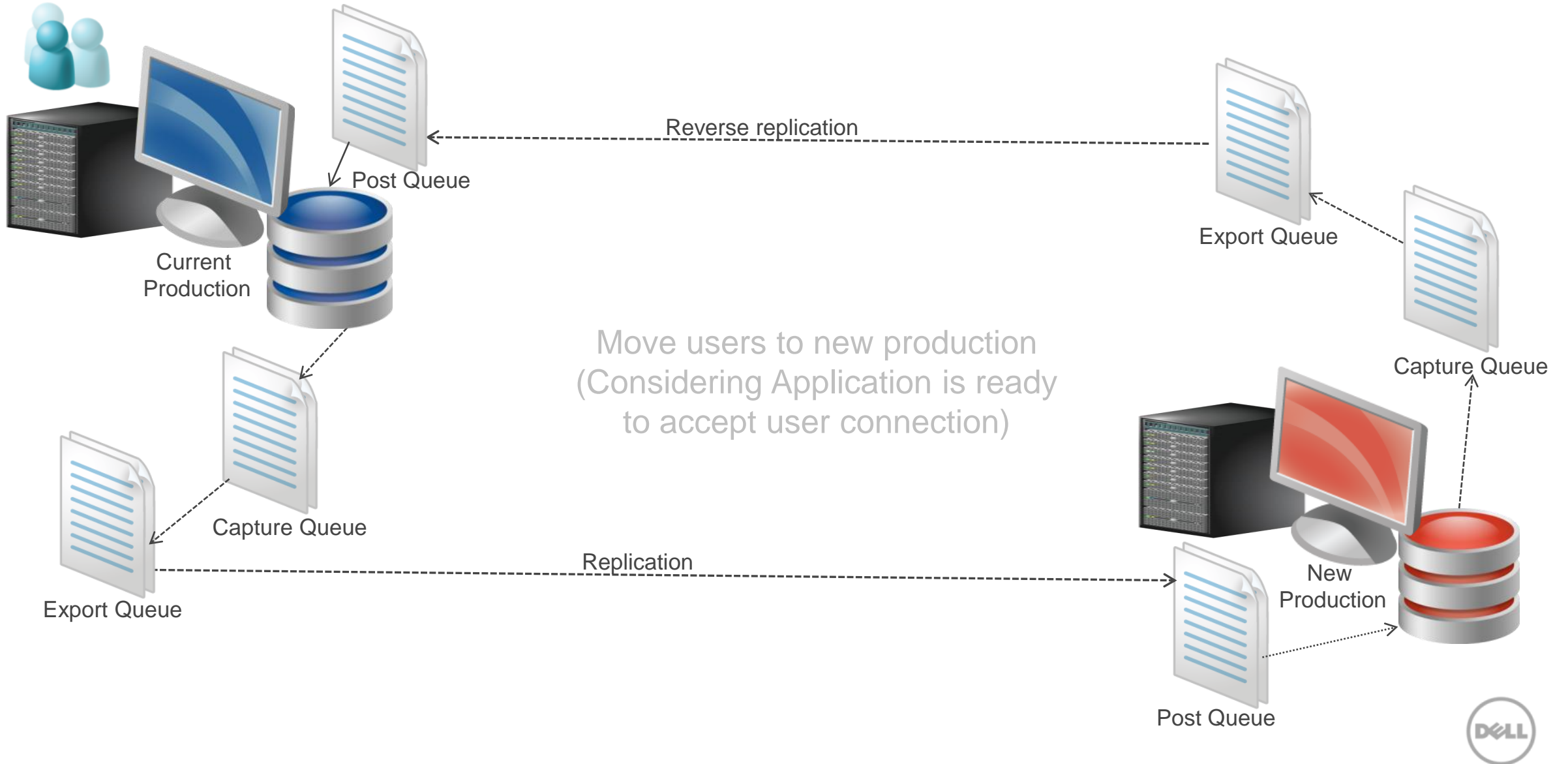
Replication

Oracle 11g

Oracle 9i
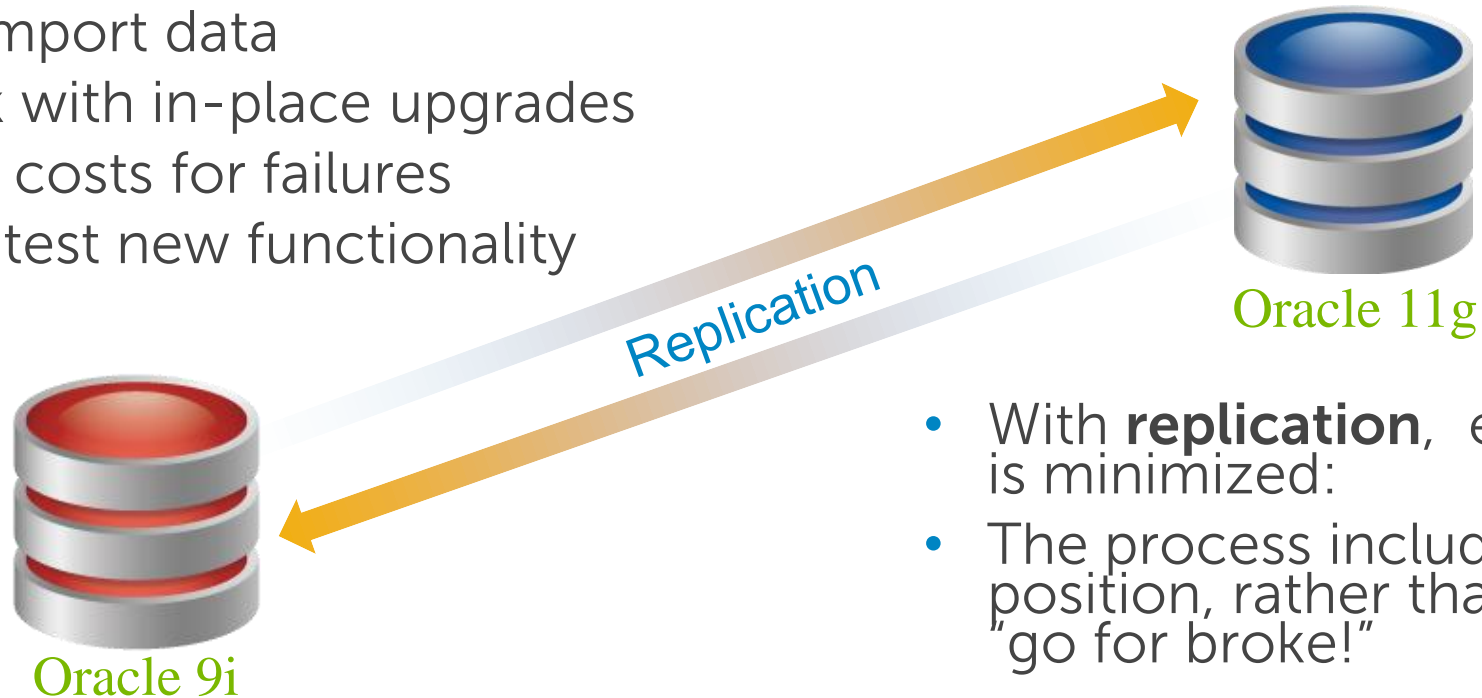
- With **replication**, end user downtime is minimized:
- The process includes a failback position, rather than forcing you to "go for broke!"
- The process allows you to take the time required to be careful, and to be successful.

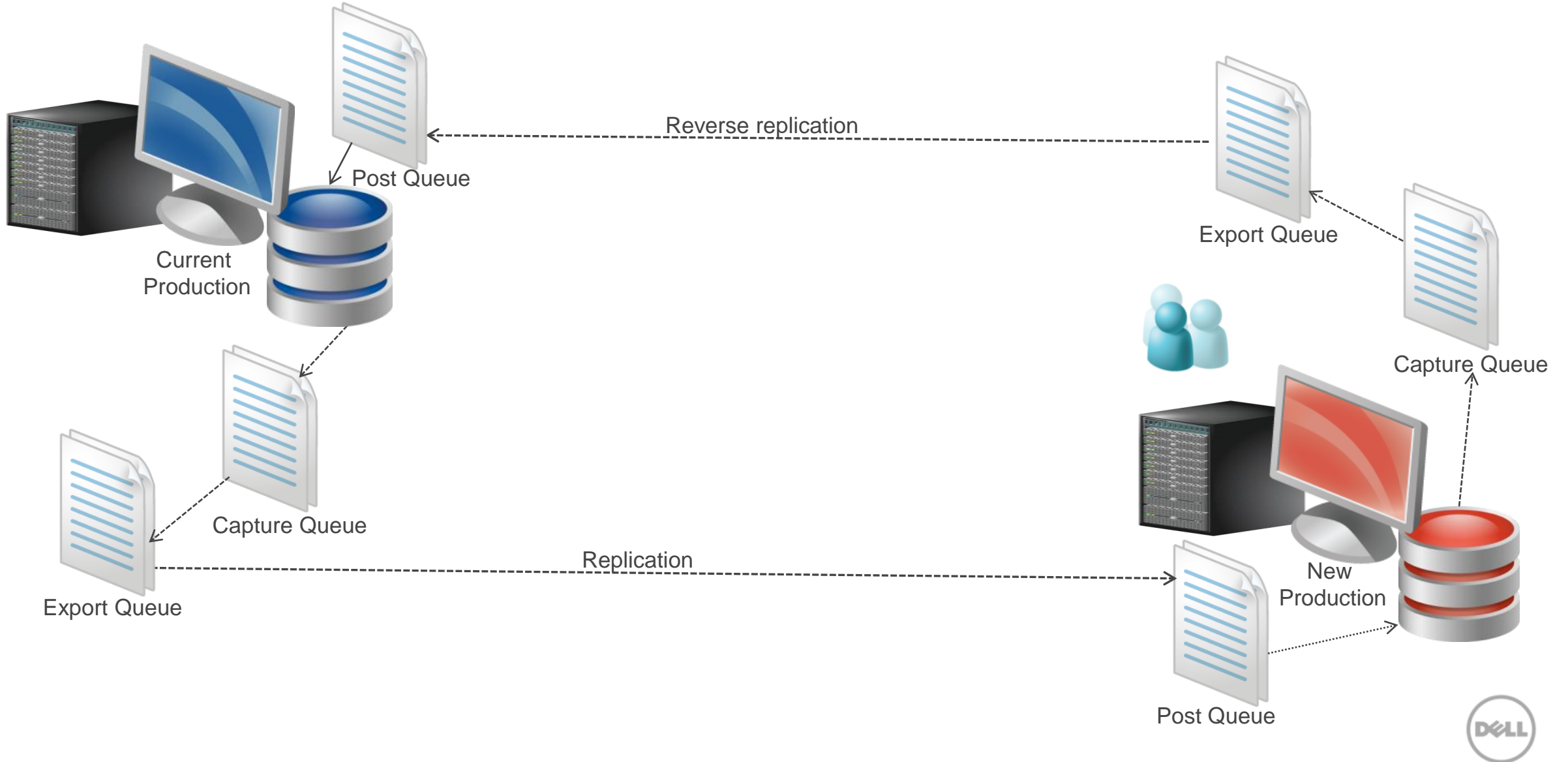# Migration steps

Backup from Prod,
Restore to new production
(Recover to SCN or LOG Number)

SNAPSHOT, TimeFinder, BCV, RMAN,
Export, Datapump, etc.

Current Production

Capture Queue

Export Queue

Replication

Post Queue

Reconcile

New Production

Migration steps

Reverse replication

Post Queue

Current
Production

Export Queue

Capture Queue

Move users to new production
(Considering Application is ready
to accept user connection)

Capture Queue

Export Queue

Replication

New
Production

Post Queue

DELL

Migration steps – reverse replication (for failback)

Current Production

Post Queue

Reverse replication

Export Queue

Capture Queue

Capture Queue

New Production

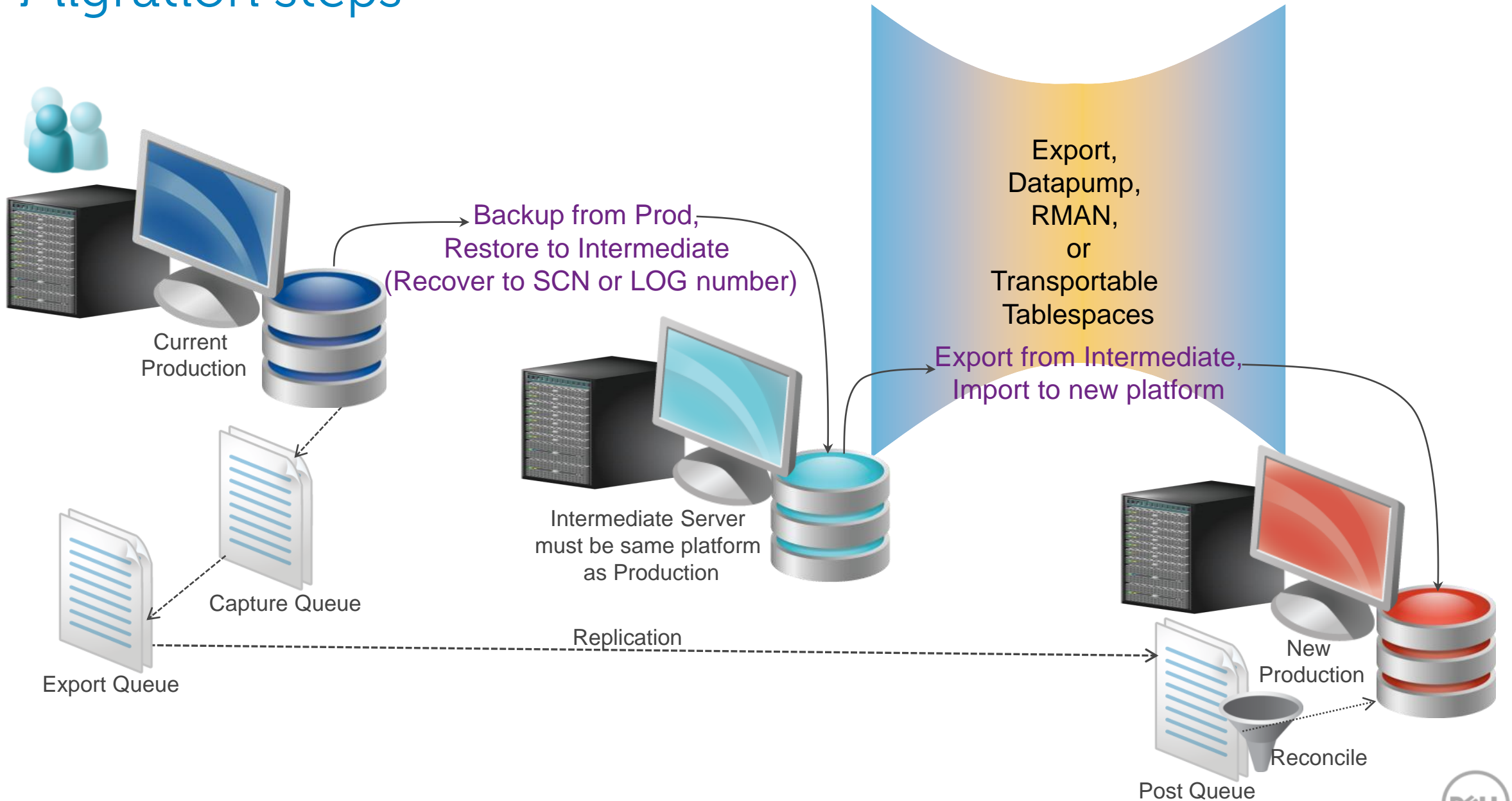Export Queue

Replication

Post Queue

Hardware migrations

- With **traditional methods**, extensive downtime is required:
- Export/Import data
- Rebuild the database
- Verify the migration

Replication

Export/Import

Online backup

AIX
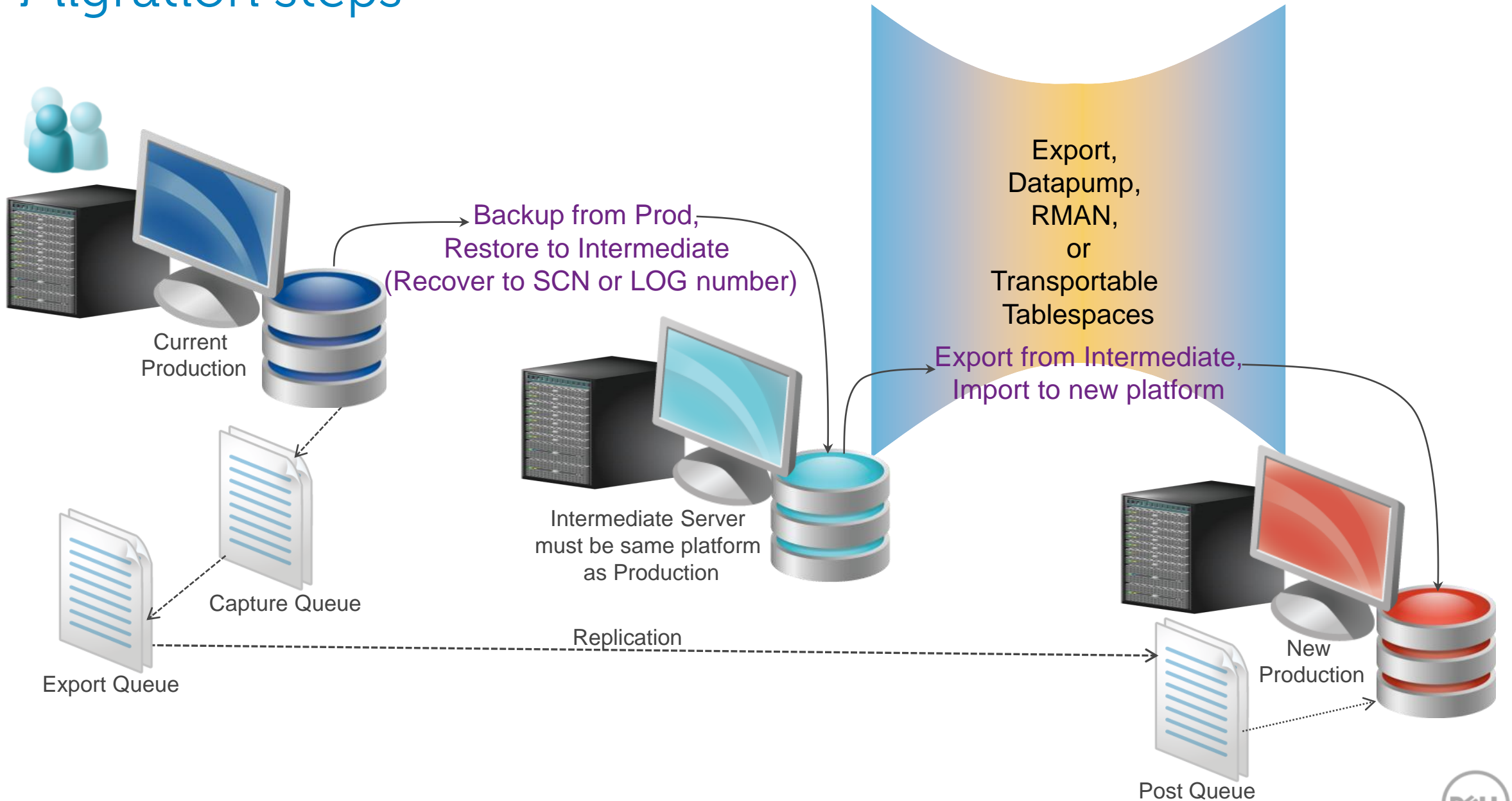Oracle 11g

Solaris
Oracle 9i

Staging DB
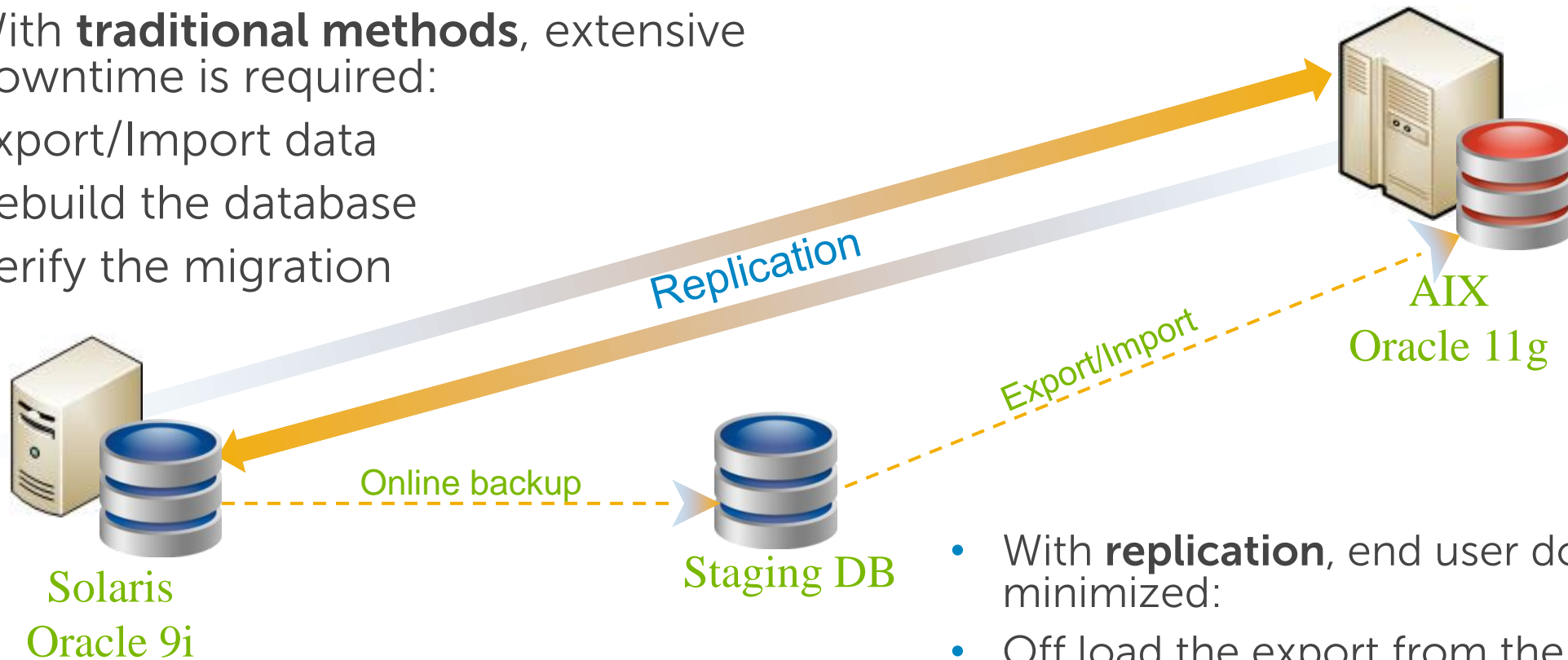
- With **replication**, end user downtime is minimized:
- Off load the export from the production database
- Optimize database, test new features
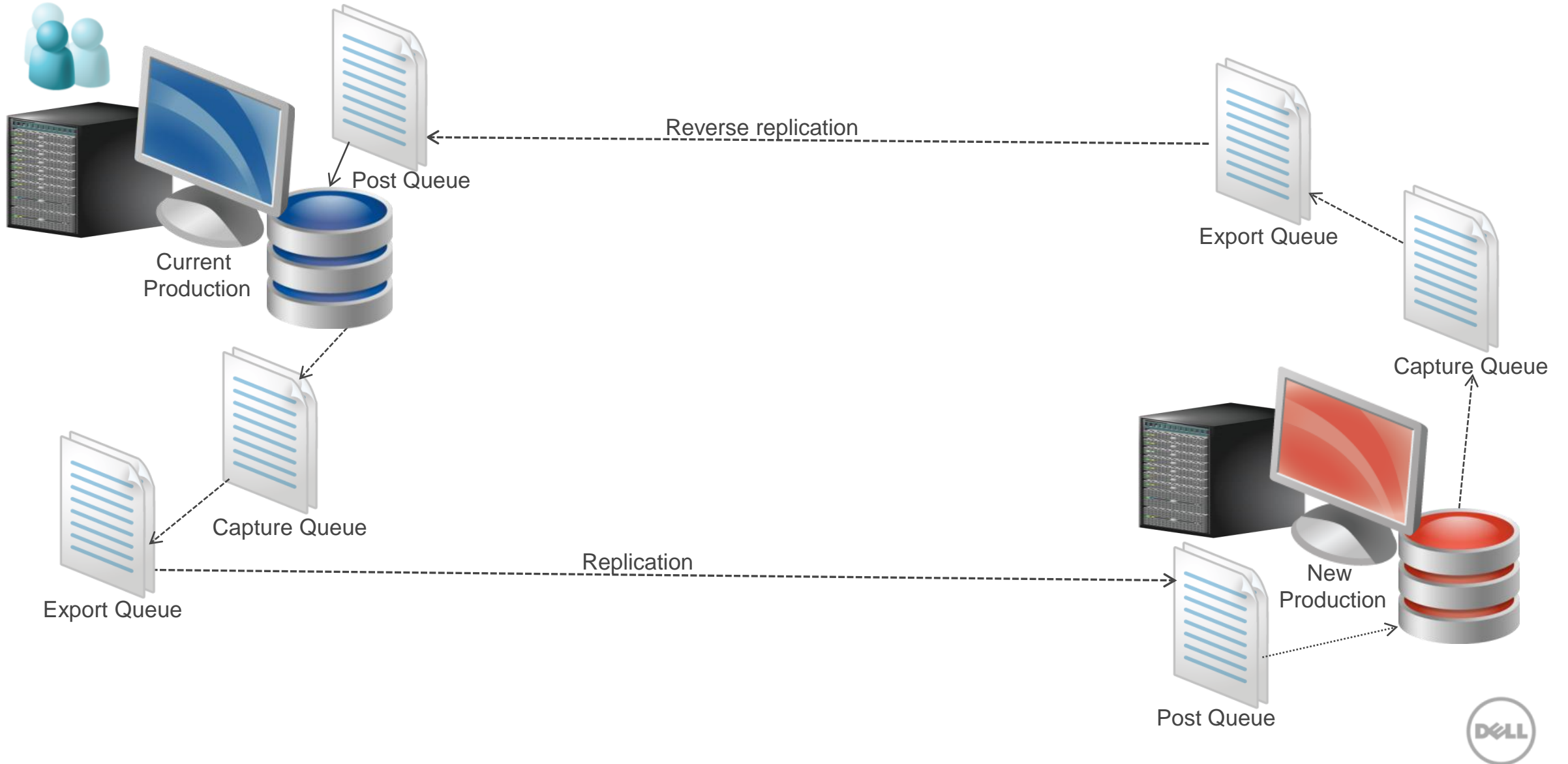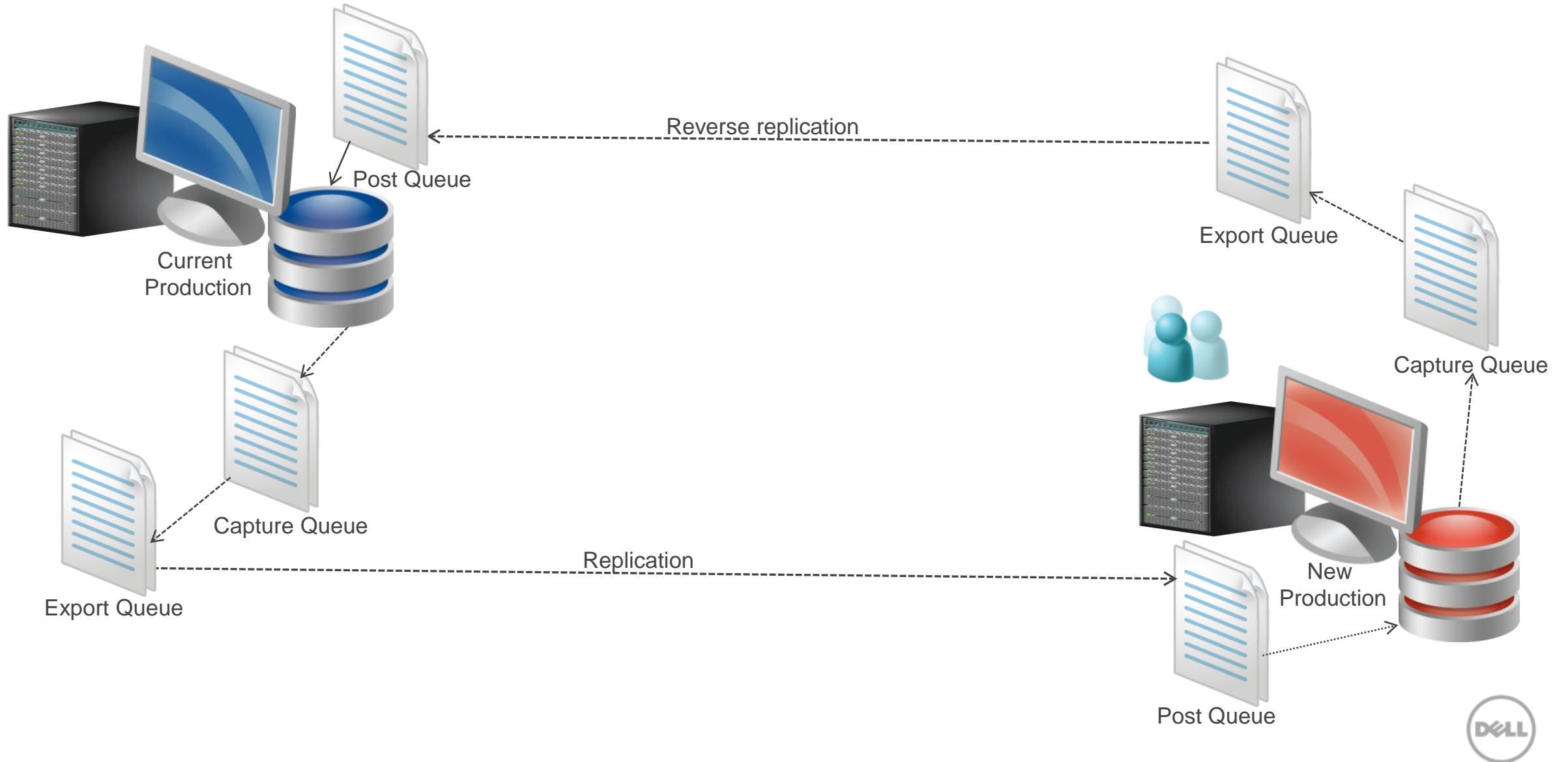- Ability to repeat migration with no extra downtime

DELL

Migration steps

Backup from Prod, Restore to Intermediate (Recover to SCN or LOG number)

Export, Datapump, RMAN, or Transportable Tablespaces

Export from Intermediate, Import to new platform

Current Production

Intermediate Server must be same platform as Production

New Production

Capture Queue

Export Queue

Replication

Post Queue

Reconcile

Migration steps

Backup from Prod,
Restore to Intermediate
(Recover to SCN or LOG number)

Export,
Datapump,
RMAN,
or
Transportable
Tablespaces

Export from Intermediate,
Import to new platform

Current
Production

Intermediate Server
must be same platform
as Production

New
Production

Capture Queue

Export Queue

Replication

Post Queue

DELL

Migration steps

Reverse replication

Post Queue

Export Queue

Current Production

Capture Queue

Capture Queue

New Production

Export Queue

Replication

Post Queue

DELL

Migration steps – reverse replication (for failback)

Post Queue

Reverse replication

Export Queue

Current Production

Capture Queue

Capture Queue

Export Queue

Replication

New Production

Post Queue

SharePlex® for Oracle overview

SharePlex® for Oracle is a "*High Availability Solution*" for Oracle databases that is affordable, simple to use & manage.

- IDC 2010 Worldwide Database Replication Market Share:
  - Oracle 25% (includes GG, ADG, DG, Streams, Standby)
  - Quest = SharePlex for Oracle 19.1%

Key Functionality:

- SharePlex comes packaged with all the tools needed to manage & maintain your replication environment
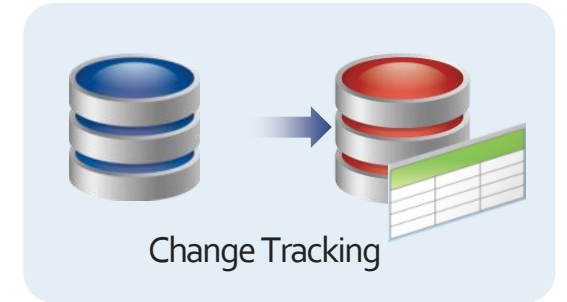 - Compare/Repair
  - Sync Utility
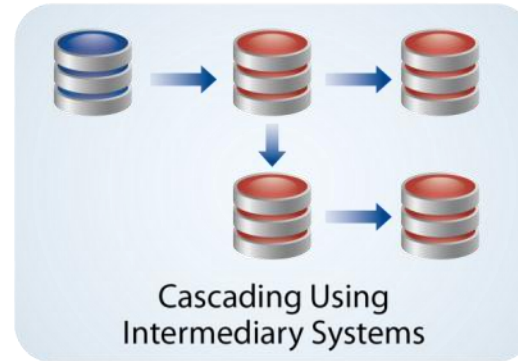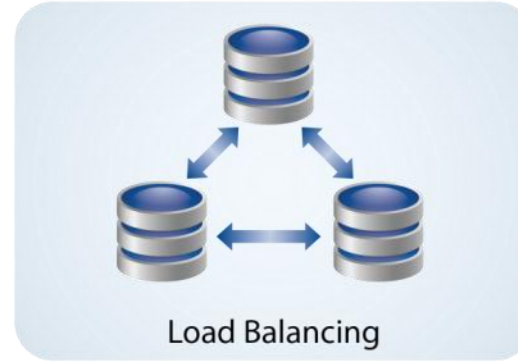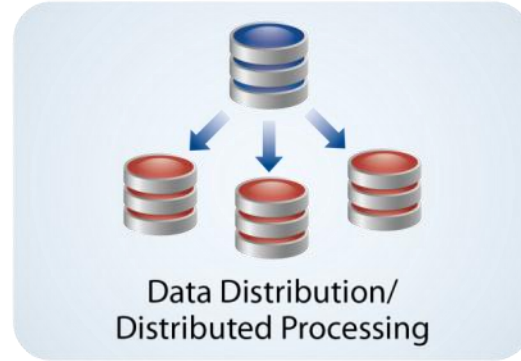 - SharePlex Manager GUI

Worldwide Database Replication Revenue Market Share 2010

Other 42.3%
Quest 19.1%
Oracle 25.0%
IBM, 13.6%
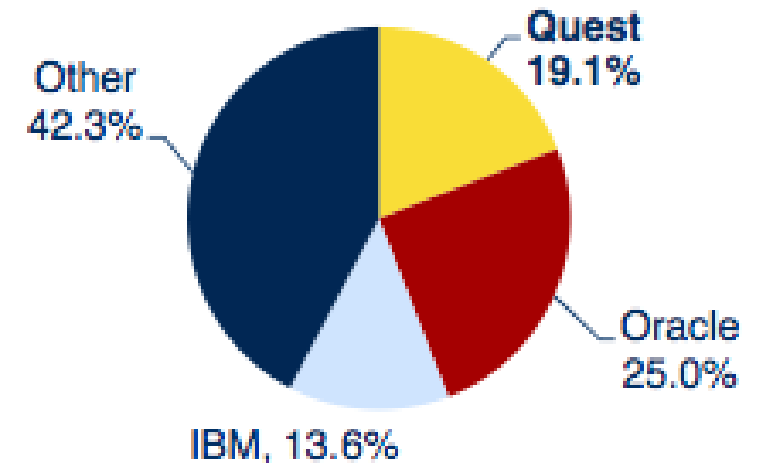
Market = $171 Million

SharePlex® ZeroIMPACT Use Case Scenarios
Local, remote or in-the-cloud

Operational Reporting, Archiving or Data Warehousing

High Availability/ Disaster Recovery

8i/9i/10g   10g/11g

Migrations, Patches & Upgrades

Data Distribution/ Distributed Processing

Centralized Reporting (Consolidation)

Load Balancing

Cascading Using Intermediary Systems

Change Tracking

Q&A

Thank you.