Zero Downtime Migrations & High Availability for your Oracle databases

Ales Zeman

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Agenda

- Definitions
- Case study - Migration
- Case study - High Availability
- How does SharePlex work?

What kinds or replication are there?

- Physical replication
  - Physically identical databases (e.g. Oracle DataGuard)
  - Good for Standby Systems but very inflexible
- Logical replication
  - Independent databases with synchronized data
  - Very flexible but more complex
- SharePlex is about **asynchronous logical** replication.

Use Case - Migration

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How many DBAs does it take to change a light bulb?

None. It’s a hardware issue.

Automotive Group – Migration FBM Database

- Vehicle Description Module
  - Ten year old database
  - Contains all vehicle data
    - From the conveyor belt to the junkyard
  - Used worldwide around the clock
    - 5000 car dealers and garages
    - 4000 employees

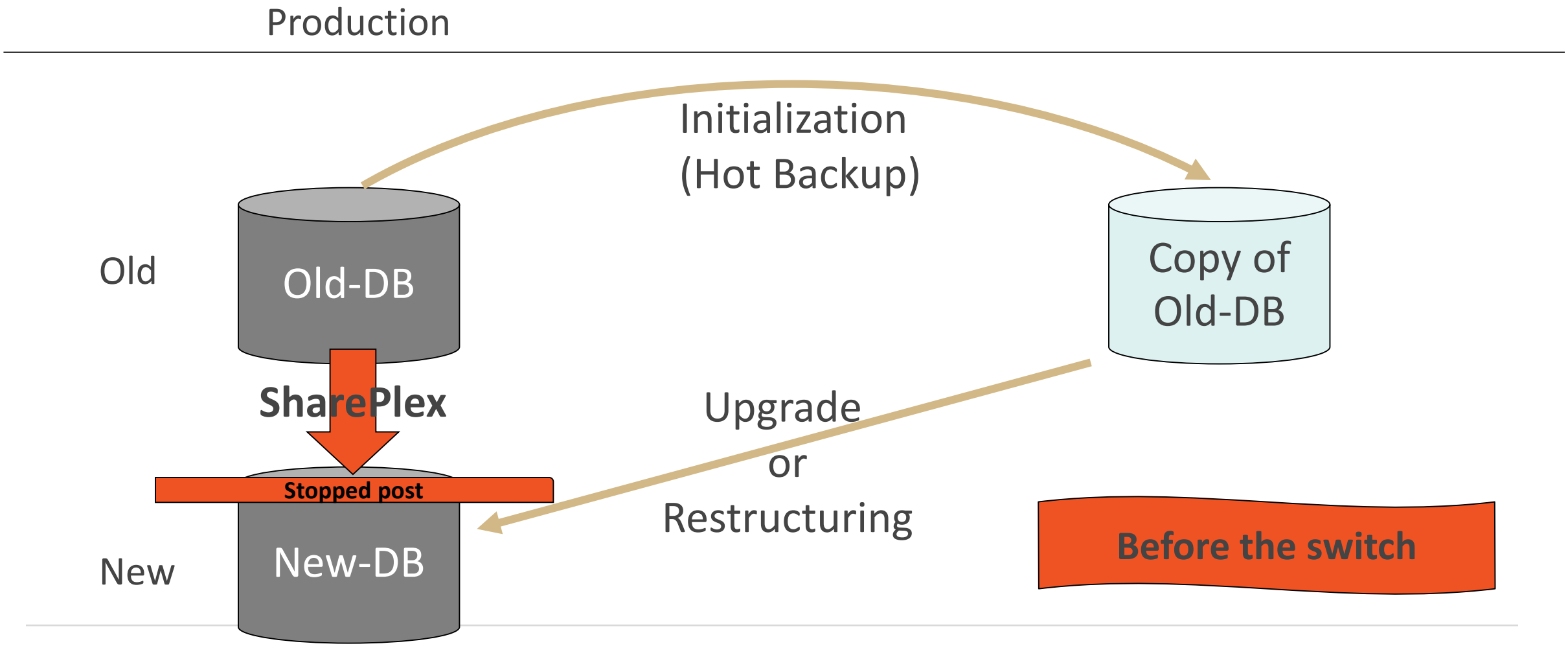
- Challenges
  - System reached its capacity limits
    - Migration was inevitable (out of Oracle support)
  - Database size: 12 TB
    - Duration optimized conventional exp/imp: 5 days

Automotive Group – Migration FBM Database

- Solution SharePlex
  - Database size does not have impact on downtime
    - Downtime only during application switch
  - Done by Herrmann & Lenz Services GmbH
    - Certified Quest Software Partner

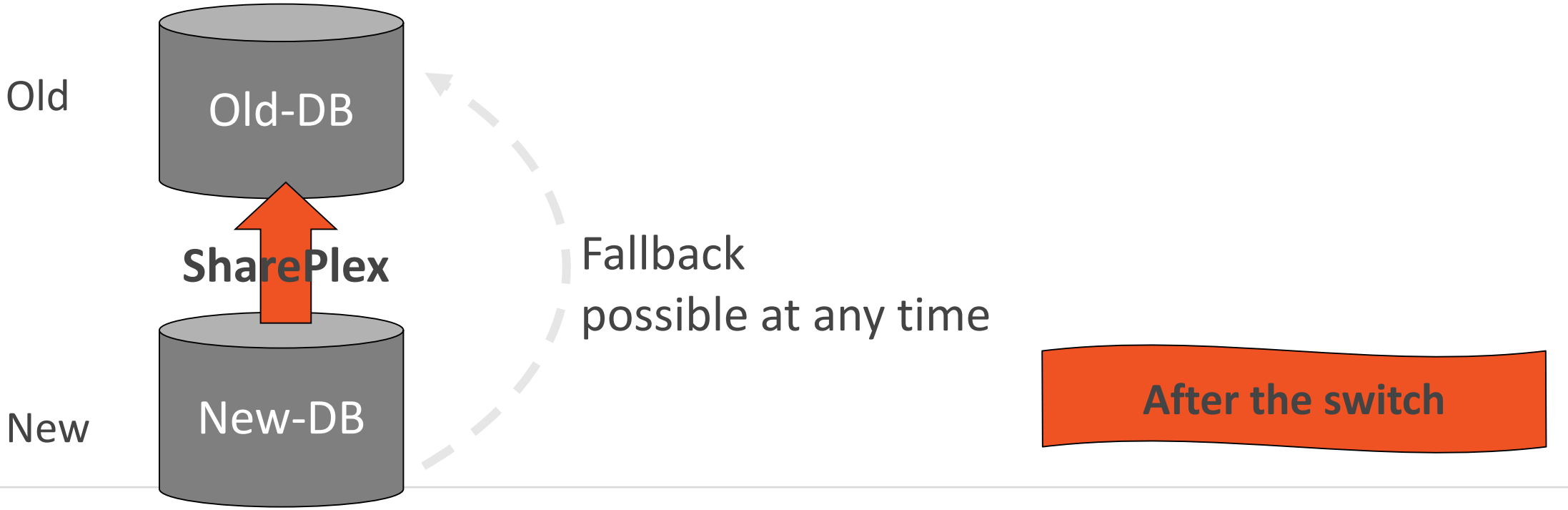
- Advantages
  - Minimal downtime for the application
    - Four hours window
  - Fallback possible at any time
    - Without big downtime or data loss
  - New, faster hardware
  - Change to Unicode character set during migration.

Process: Migration without risk

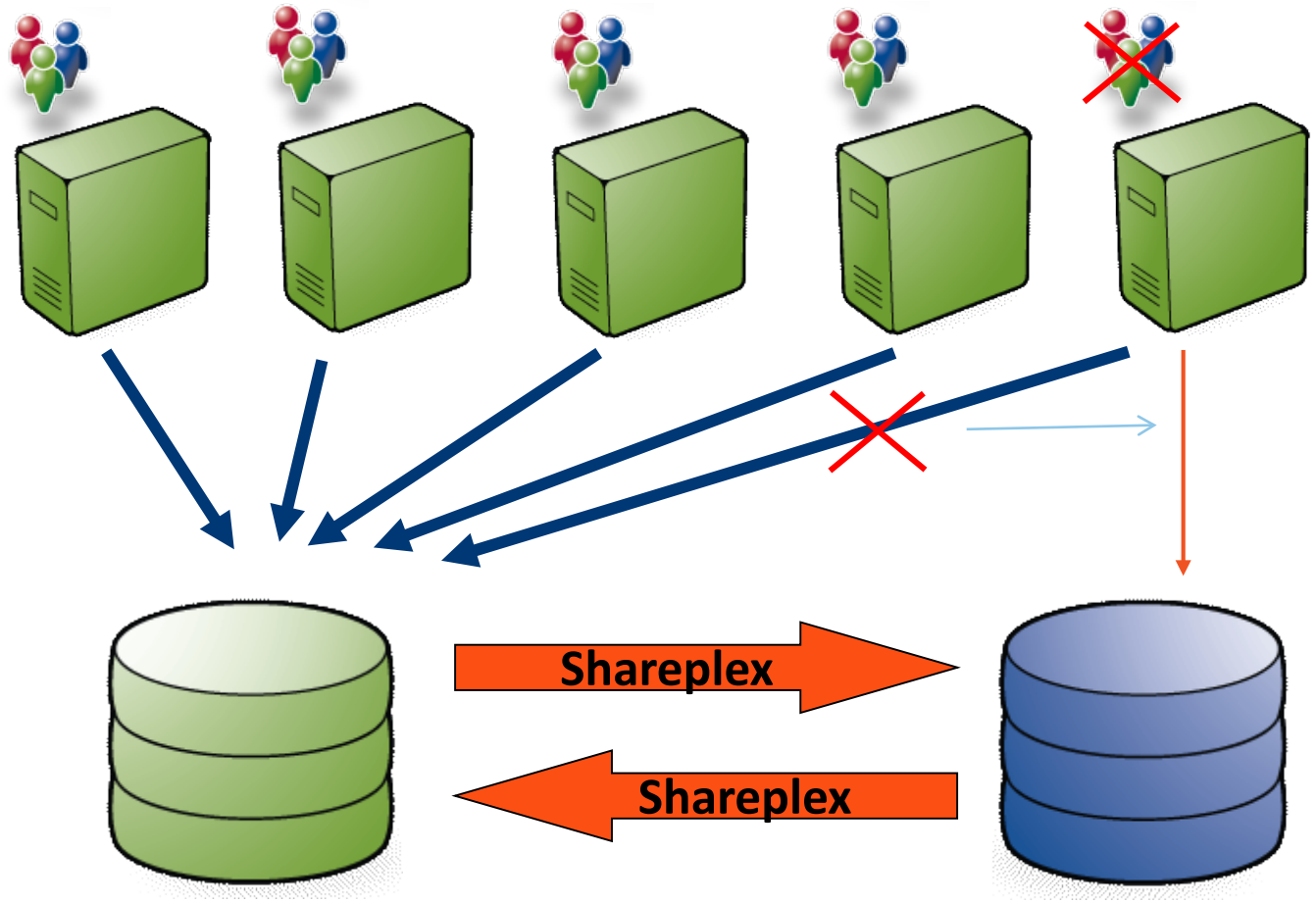


Process: Migration without risk

Production



Zero Downtime Migration Setup



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Migration from on Premises to AWS RDS

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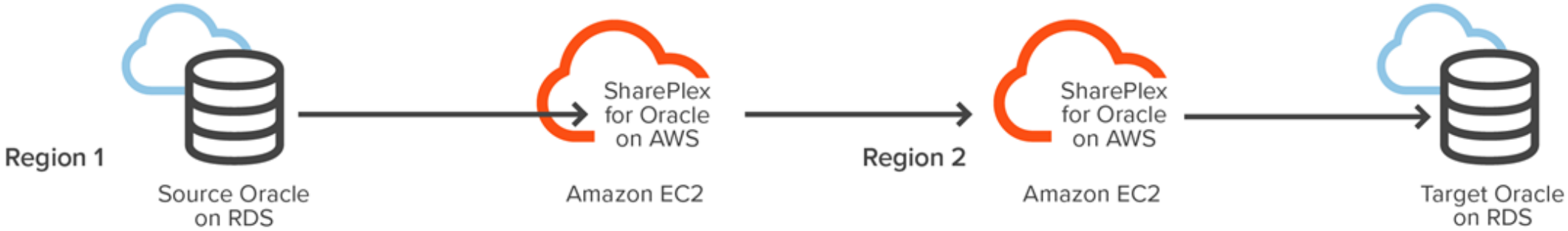
Source Oracle On-Premises → Target Oracle on RDS

Source Oracle On-Premises → Target Oracle on RDS

Source Oracle on EC2 → Target Oracle on RDS

Source RDS Oracle Instance → Target RDS Oracle Instance

Source Oracle on RDS (Region 1) → Target Oracle on RDS (Region 2)



Use Case - High Availability

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How many certified Oracle DBAs does it take to change a light bulb?

No one knows. This wasn't on the test.

Financial Services – Global Billing

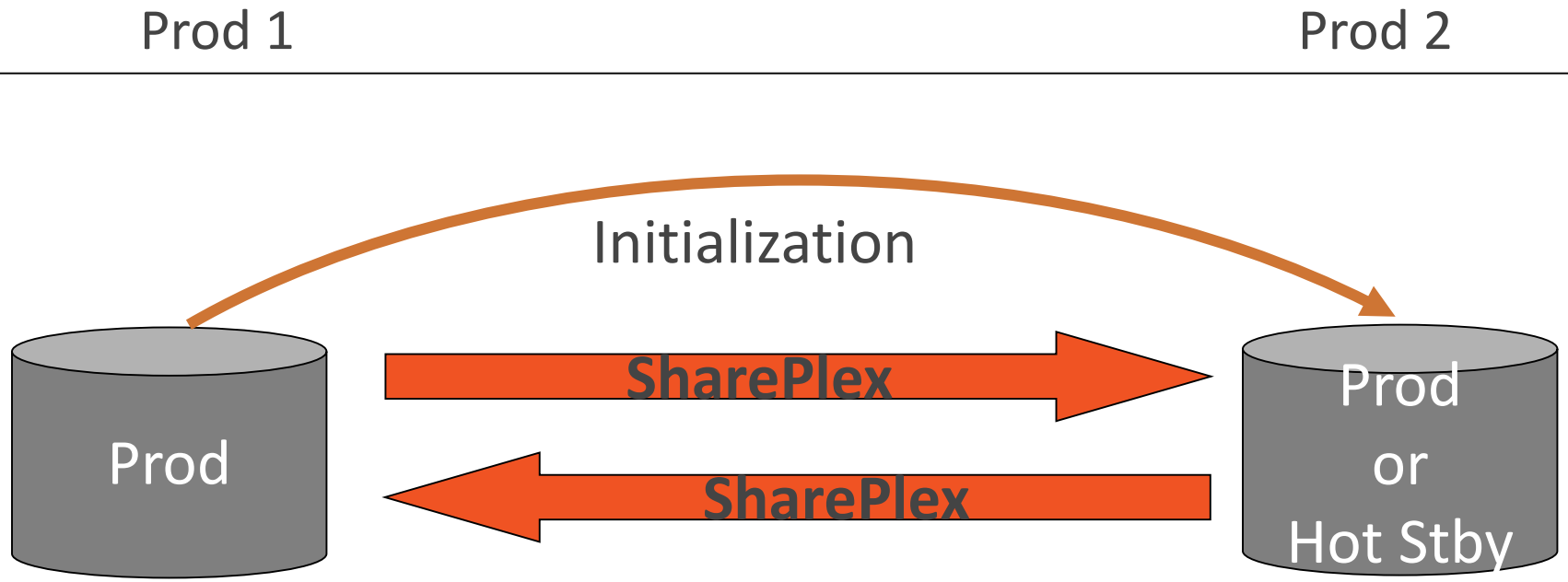
- Global billing application
  - Complex billing system for Online Advertisement
    - High available layout
    - Redundant datacenters in Munich and Gütersloh
  - Worldwide 24/7 usage
    - Ad-hoc Reports available during production time
- Challenges
  - Tough SLAs for availability
  - Huge transaction load
  - Very intrusive billing reports at the end of each month
  - Multi-master – conflicts may occur

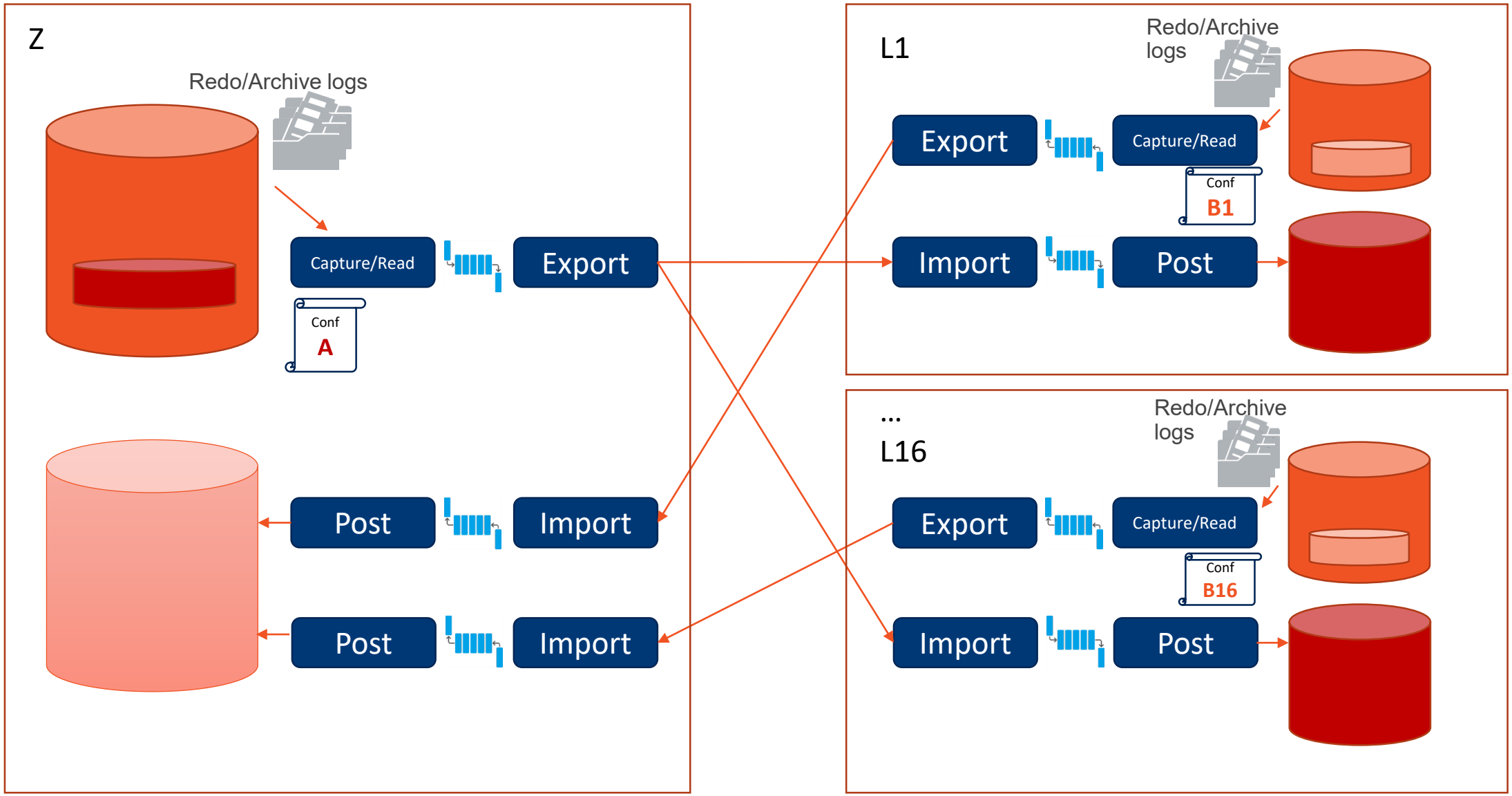
Financial Services – Global Billing

- Solution SharePlex
  - Replication between the sites
    - Additional high availability with dataguard on the sites
  - Automatic conflict resolution routines
  - Done by customer DBAs
    - Trained and certified in SharePlex

- Advantages
  - 3 second latency SLA between Munich and Gütersloh
  - Low bandwidth overhead
  - Dedicated reporting database – no load on production + additional indexes for reporting
  - Switch between datacenters possible anytime

High availability and load balancing

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Redo/Archive logs
Capture/Read
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Capture/Read
Conf
B1
Import
Post
...
L16
Redo/Archive logs
Export
Capture/Read
Conf
B16
Import
Post

How does SharePlex work?

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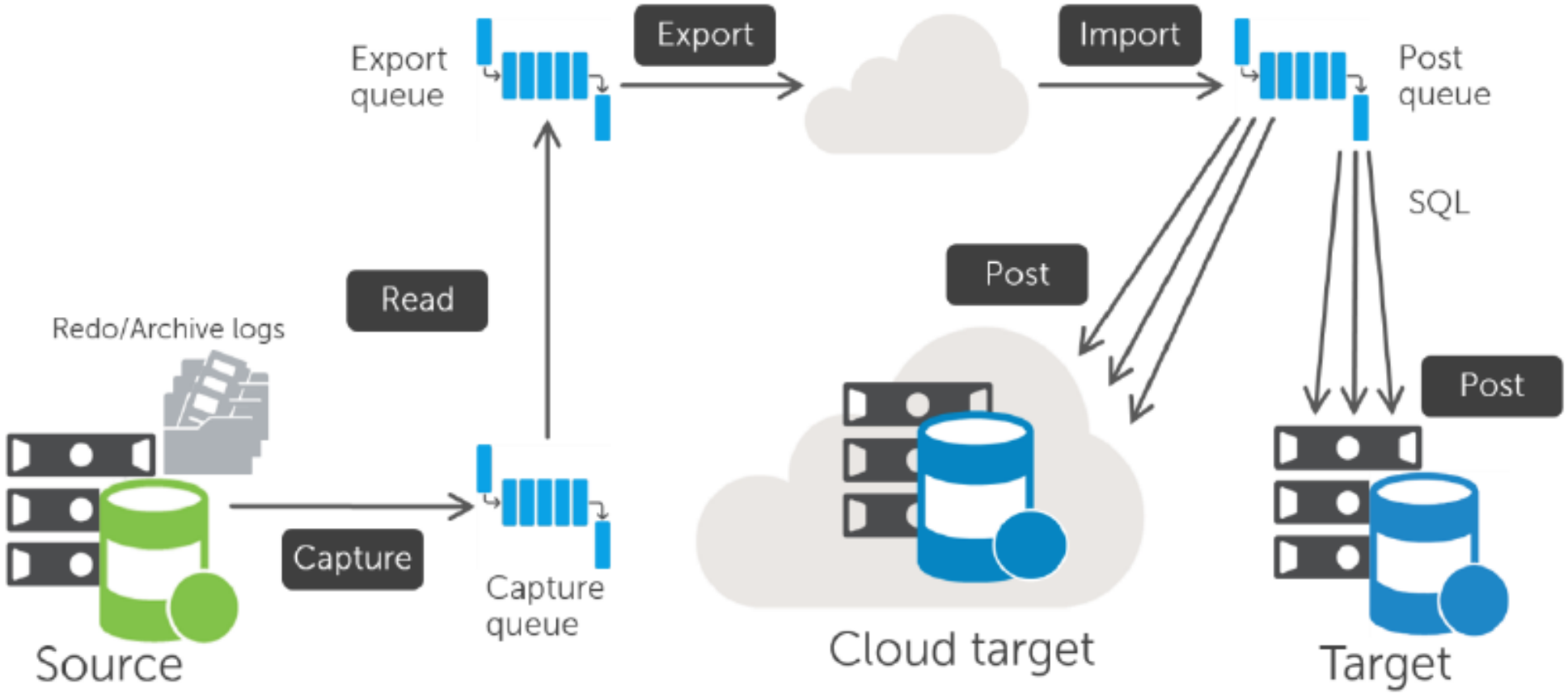
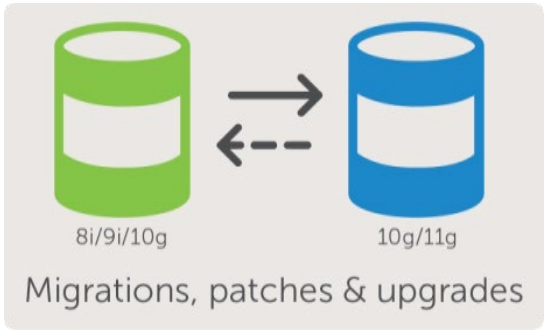
How many
Oracle Support Engineers
does it take to
change a light bulb?

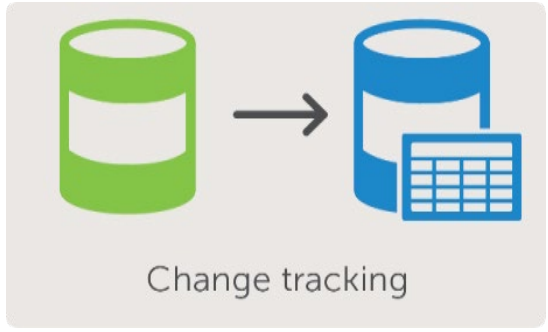
The Knowledge Base
says it's not an issue
with the bulb. Simply
re-boot the power plant and
the light
will work fine.

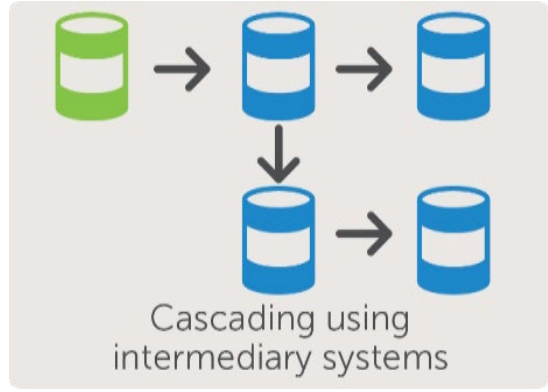
How does SharePlex work?

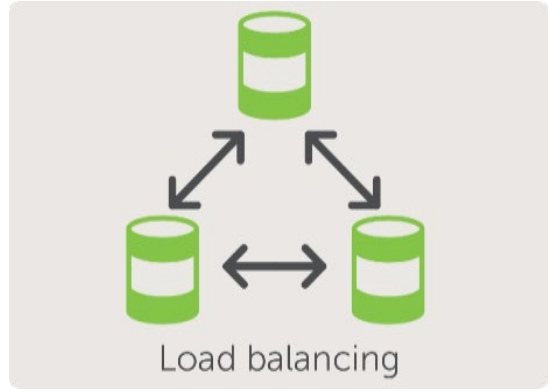


What can you do with SharePlex?









What Questions do you have?

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