Oracle Site Guard
Automate Business Continuity

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High Availability Product Management
Program Agenda

- Challenges of Business Continuity
- Business Continuity Automation with Oracle Site Guard
- Features of Site Guard
- Oracle Site Guard Use Cases
- Benefits
Typical application’s infrastructure contains
- 2 Web servers, 2 App servers for WebLogic, 2 Node RAC DB, Shared storage NAS/SAN
  - 4 servers in App tier for IDM, 4 servers for LDAP
Disaster Recovery (DR) requirements add to the complexity
- Two or more data centers to manage and coordinate
  - Doubles the number of servers and instances
- Data Guard and Storage replication add to number of moving parts
- Vendor dependent storage replication procedures
Business Continuity

Challenges

- Application data needs to be replicated to DR site
  - Database (using Data Guard)
  - Binaries/Configuration/Data for DB and App (using ZFS or other storage replication technologies)
- Different startup/shutdown procedures for each tier
- Infra stack dependencies and ordering required during role transitions
- Data center typically has multiple independent failover/switchover units
- Complete application failover involves failover of both Data Guard and file system storage replication

Solution: An automated framework that makes DR operations simple, reliable, testable, repeatable
Oracle Site Guard

- Provides end-to-end Disaster Recovery automation
  - Orchestrates coordinated failover of Oracle Fusion Middleware & Oracle Databases
  - Extensible to integrate with 3rd party infrastructure components
- Achieves graceful site level role transitions
  - Reduce the possibility of human errors during Disaster Recovery coordination
  - Streamline the end to end recovery during planned & unplanned events
DR Automation with Oracle Site Guard

- Automates switchover/failover between sites
  - Integrates with Data Guard and storage replication
  - Available as EM Cloud Control Plug-in
    - Shipped as part of FMW Plug-in 12.1.0.5
    - Licensed with WLS Management and Database Lifecycle Management packs
- Validated with:
  - Oracle Fusion Middleware
  - Oracle Databases
  - Oracle Fusion Application deployments
- Extensible to integrate with 3rd party components (IBM WebSphere, SAP etc.)
Oracle Site Guard
Business Continuity Automation for Engineered Systems

- Automates DR operations between sites
  - Pre-integrated with the ZFSSA, Oracle FMW for Oracle Exalogic Elastic Cloud Machine
  - Pre-integrated with Oracle Data Guard for Oracle Exadata Database Machine
Oracle Site Guard

Key Features

- Simplified management for site level disaster recovery workflow
  - Planned switchover & failover
  - Role transition triggered by administrators

- Implemented as EM deployment procedures
  - GUI & CLI (Scriptable as needed)
  - Monitoring and error handling through EM console

- Integrates with Data Guard Broker for Oracle databases
  - Storage replication supported as well

- Integrates with storage replication for file system artifacts
  - Oracle binaries/configuration/data
  - Applications binary/configuration/data
Oracle Site Guard

Key Features

- Out-of-the-box support for ZFS Storage Appliance
  - Well defined call outs to integrate with 3rd party storage replication
- Mechanism to integrate with other DR operations
  - Load balancer configuration, Initiate DNS push, etc
- Supports all end-to-end DR scenarios supported by Oracle
  - Can be used for topologies with both DB & Middle Tier or Middle Tier alone
- Runs operations in parallel where possible
- Offers comprehensive logging and restartable operations
- Scales as site grows in terms of number of nodes/instances
Oracle Site Guard

Use Cases

- **Stop a site**
  - Stop all tiers (Web, App, DB, Storage) of a given application
  - Maintain stack component dependency order

- **Start a site**
  - Start all tiers (Web, App, DB, Storage) of a given application
  - Maintain stack component dependency order

- **Switchover to DR site**
  - Perform planned site-level switchover operation

- **Failover to DR site**
  - Perform site-level failover to DR
Oracle Site Guard
Use Cases

- Failover a group of databases in parallel
  - Create a “system” for all databases and failover at that level
- Failover a group of Mid-tier servers in parallel
  - Create a “system” for all Mid-tier and failover at that level
- Failover a given Application Hierarchy
  - Create a “system” for a given entire application
- Failover a given pod from a pool of pods
  - Model each pod as a “system” and failover at the pod level
Benefits

- Develop DR procedure once and repeat many times
  - Makes DR operations simple, reliable and testable
- Minimize MTTR
  - Reduce human errors during failovers (execution and coordination)
- Increased confidence
  - No need to rely on failover checklists
  - DR procedures planned and tested
Oracle Maximum Availability Architecture

**Production Site**
- RAC
  - Scalability
  - Server HA
- Flashback
  - Human error correction

**Active Replica**
- Active Data Guard
  - Data Protection, DR
  - Query Offload
- GoldenGate
  - Active-active
  - Heterogeneous

**Edition-based Redefinition, Online Redefinition, Data Guard, GoldenGate**
- Minimal downtime maintenance, upgrades, migrations

Enterprise Manager Cloud Control
- *Oracle Site Guard*

Application Continuity
- Application HA

Global Data Services
- Service Failover / Load Balancing

RAC

Application HA

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Resources

▪ Documentation:
  – http://docs.oracle.com/cd/E24628_01/em.121/e27046/site_guard.htm

▪ Viewlet: Automate Disaster Recovery with Oracle Site Guard

▪ White Paper: Automating DR using Oracle Site Guard for Oracle Exalogic/Exadata
Q&A
Hardware and Software
Engineered to Work Together