Exadata High Availability Solutions

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Agenda

1. Symantec Authentication Division Overview
2. Why Engineered Systems? Exadata
3. Our Architecture
4. DB High Availability Solutions
5. Exadata Patching

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Symantec Authentication Division Overview

- Formerly VeriSign
- Acquired by Symantec in August, 2010
- #1 in SSL Certificates issued
  - VeriSign, Thawte and GeoTrust brands
- Strong Authentication for network, web and mobile devices
- Two Factor Authentication
- Public Key Infrastructure (PKI) services
- User Authentication for the government
Symantec Sets the Highest CA Policies

Leader in SSL Certificates Issued
1 Million web servers worldwide
1 Million SSL Certificates Issued

Pioneer in SSL technologies
1 Million web servers worldwide
1 Million SSL Certificates Issued

Worldwide 1 Million web servers worldwide
1 Million SSL Certificates Issued

1st Public CA 1st Public CA 1st Public CA 1st Public CA
1st Public CA 1st Public CA 1st Public CA 1st Public CA

100% validation services uptime since 2004
100% validation services uptime since 2004

CA data centers 14 global data centers
13 global CA data centers 14 global data centers

Global Intelligence Network Global Intelligence Network/STAR
Global Intelligence Network Global Intelligence Network/STAR

5 billion online OCSP lookups/day 4.5 billion online OCSP lookups/day
5 billion online OCSP lookups/day 4.5 billion online OCSP lookups/day

<1 second response for OCSP queries <1 second response for OCSP queries

<1 second response for OCSP queries

*OSCP: online certificate status protocol
Why Engineered Systems?

• Integrated Stack
  – Pre-packaged solution with hardware, OS, Clustering and database components
  – Integrated and Optimized by Oracle
  – Faster time to deploy

• One vendor for support
  – For OS, Clusterware, InfiniBand, Storage and Database support
  – Will save us time and effort in complex performance/outage issues
Symantec Strong Authentication Solutions now powered by Oracle Exadata & Oracle Active Data Guard
Symantec Strong Authentication Solution: Database Architecture

**West Coast Data Center**
- QA/Dev
- 46 Test/Dev databases
- 5 production databases – size range from 25GB to 600GB
- 22 standby databases for Remote DR
- Remote DR 4 Node RAC

**West**
- Active Data Guard *
- 7 production databases – size range from 50GB to 2.5TB
- 15 standby databases for Local DR
- 2 standby databases for Remote DR

**East Coast Data Center**
- Prod DB 4 Node RAC
- Local DR 4 Node RAC
- Remote DR 4 Node RAC
- 15 production databases – size range from 25GB to 500GB
- 7 standby databases for Local DR
- 3 standby databases for Remote DR

**East 1**
- Prod DB 4 Node RAC
- Local DR 4 Node RAC

**East 2**
- Prod DB 4 Node RAC
- 15 production databases – size range from 25GB to 500GB
- 7 standby databases for Local DR
- 3 standby databases for Remote DR

* Active Data Guard utilized for real-time Authentication Reporting Applications

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Database High Availability Solutions
Failover and Switchover

Cluster1
Node1

Cluster2
Node1

Cluster1
Node2

Cluster2
Node2

Client Node

Client Node

Normal Connections

Node Failover

Primary db

Standby db

Active Data Guard

Cluster Switchover

Node Failover
Exadata Patching

- Quarterly patching
- Adhere to Audit and Compliance requirements
- Dev -> QA -> DR -> Prod
- At least a week gap between each of them
- Completely online and transparent to end users
Exadata Patching – Cell Servers

- Each half rack has 7 cell servers
- Reboot ILOM to confirm console access
- Patch cell servers, which comprises of the following:
  - Take it offline
  - Confirm the grid disk status is offline
  - Patch cell server
  - Put it back online
- Completely transparent to databases and end users
- ASM resynch occurs transparently, no ASM rebalancing
Exadata Patching – Database Servers

• Each half rack has 4 db servers

• Patching steps
  – Take db server out of rotation
  – Patch it
  – Put db servers back in rotation
  – Patch the remaining db servers the same way

• Completely transparent to end users
Thank you!