Hitachi Unified Compute Platform Select for Oracle Database with Hitachi Unified Storage VM and Hitachi Accelerated Flash using N+1 Cold Standby and Oracle Real Application Clusters Certification

Lab Validation Report

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Lab Validation Report

This lab validation report shows how the configuration of Hitachi Unified Compute Platform Select for Oracle Database with the Oracle Real Application Clusters option provides a high availability and local recovery for an Oracle infrastructure. The environment uses Hitachi Compute Blade Server's N+1 Cold Standby feature with Hitachi Compute Systems Manager.

Hitachi Compute Systems Manager provides centralized enterprise infrastructure management. Use it to monitor, manage, and configure Hitachi server hardware, physical hosts, and virtual hosts.

Compute Systems Manager has a Web-based interface. The agentless architecture allows taking advantage of all available computing resources. Compute Systems Manager can manage and monitor up to 10,000 physical or virtual servers.

Fully integrated within Hitachi Command Suite, you have seamless management of server and storage resources with one simple interface using Compute Systems Manager.

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**Note** — Testing of this configuration was in a lab environment. Many things affect production environments beyond prediction or duplication in a lab environment. Follow the recommended practice of conducting proof-of-concept testing for acceptable results in a non-production, isolated test environment that otherwise matches your production environment before your production implementation of this solution.
Test Environment Configuration

This is the configuration of the test environment.

- **Storage configuration**
  - **Hitachi Unified Storage VM** — Created one Hitachi Dynamic Provisioning pool consisting of four RAID-10 (2D+2D) groups
    - Total size was 11.95 TB

- **SAN configuration**
  - **Brocade 6510 SAN Switch** — Two Fibre Channel SAN switches were used. Eight zones, from each switch module, were created

- **Network configuration**
  - One dual port 1 Gb/sec on-board NIC and one quad port 1 Gb/sec Ethernet NIC (Mezzanine Slot 0) on each server blade were connected to four internal 1/10 Gb/sec Ethernet switches in the Hitachi Compute Blade 2000 chassis. Two VLANs were used:
    - One public VLAN for client connections to the Oracle Real Application Cluster Database
    - One private VLAN for inter-node communication among the nodes in the Oracle Real Application Cluster

- **Server configuration**
  - **GVAX57A2** — Three server blades were used from the Hitachi Compute Blade 2000 chassis.
    - Two server blades, each hosted one Oracle database server
    - The Oracle database server included a single logical database instance
    - One server blade hosted an N+1 Cold Standby server
- **Chassis configuration**
  - **Hitachi Compute Blade 2000** — One Hitachi Compute Blade 2000 chassis was used
    - Firmware Version A0350

- **Application configuration**
  - **Oracle Linux** — Oracle Linux was used running the Unbreakable Enterprise Kernel
    - Version 6U1
  - **Oracle Real Applications Cluster Database 11g Release 2** — A two node Oracle Real Applications Cluster Database was created. Each node included a single logical database instance
  - **Hitachi Compute Systems Manager** — One N+1 Cold Standby group was created
    - **Active Blade** — Two server blades, each hosted one Oracle database server
    - **Standby Blade** — One server blade hosted an N+1 Cold Standby server
### Test Cases and Results

Table 1 lists all test cases.

#### Table 1. Test Cases

<table>
<thead>
<tr>
<th>Test</th>
<th>Results (Pass/ Fail)</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Build N+1 Cold Standby server using Hitachi Compute Systems Manager</td>
<td>Pass</td>
<td>No errors found during or after software installation.</td>
</tr>
<tr>
<td>Fail over to the N+1 Cold Standby server caused by the abrupt failure of one of the database servers in a two node Oracle RAC database</td>
<td>Pass</td>
<td>No errors found.</td>
</tr>
<tr>
<td>Fail back from the N+1 Cold Standby server to the database server, that is operationally resumed after taking corrective actions, in a two node Oracle RAC database</td>
<td>Pass</td>
<td>No errors found.</td>
</tr>
</tbody>
</table>
Conclusion

Performing and managing N+M Cold Standby is relatively easy from the Hitachi Compute Systems Manager side once everything is configured correctly on the Hitachi Compute Blade side. Many steps are involved in setting up the hardware to support this feature. The majority of the steps involve preparing the Hitachi Compute Blade hardware and setting up SAN booting. This is the core setup that is critical for a successful implementation. It is a good idea to verify what hardware is supported and its corresponding firmware levels before starting the setup.
For More Information

Hitachi Data Systems Global Services offers experienced storage consultants, proven methodologies and a comprehensive services portfolio to assist you in implementing Hitachi products and solutions in your environment. For more information, see the Hitachi Data Systems Global Services website.

Live and recorded product demonstrations are available for many Hitachi products. To schedule a live demonstration, contact a sales representative. To view a recorded demonstration, see the Hitachi Data Systems Corporate Resources website. Click the Product Demos tab for a list of available recorded demonstrations.

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