

Highly available Oracle DBMS configuration using Bare Metal Server

Overview

When planning to build a cloud-based DBMS system, open source or relatively low license cost DBMS is generally adopted. There are some applications, however, that need to be developed using Oracle DBMS, or sometimes a configuration of Oracle DBMS in the cloud is necessary due to business requirements or customer requests.

When configuring an Oracle DBMS using a virtual machine in the cloud, you need to consider various aspects, such as license and performance.

SDS Cloud enables both high availability (HA) and Real Application Clusters (RAC) by using the multi-attach function of **Bare Metal Server** and **Block Storage**. A single DBMS is also available depending on the service level.

This document describes how to configure a highly available Oracle DBMS based on a physical server by using **Bare Metal Server** and **Block Storage services** of SDS Cloud.

Architecture Diagram

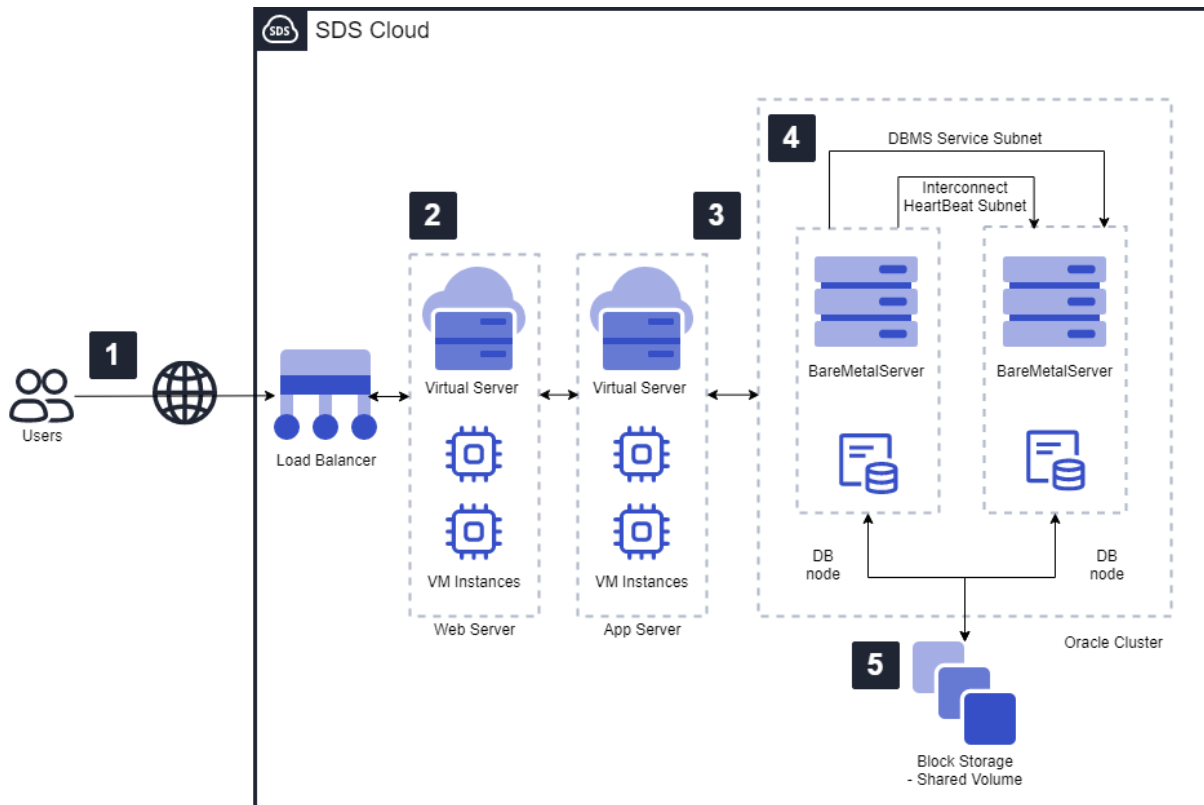


Figure 1. Oracle RAC/HA configuration using bare metal server

You can configure various Oracle DBMS environments based on physical resources by using **Bare Metal Server** and iSCSI volumes, and choose HA or RAC for a highly available environment.

The network can communicate with the network within the **VPC** to which the application belongs through the L2 bridge.

1. Service users access the web system of their choice through the Internet.
2. For 3-tier architecture, the client's requests are distributed with load balancer and are delivered to the web and application servers.
3. Users call DBMS if the application server needs a database query.
4. When configuring a RAC, a public subnet and a subnet for interconnect/heartbeat may be separately configured and used.
5. In the RAC environment, multiple DBMS nodes simultaneously read and store data using shared iSCSI volumes provided by **Block Storage**. In the case of an HA

configuration, the switched node provides regular service through the shared iSCSI volume.

Use Cases

A. Database of accounting system in financial business

When banks migrate their major financial systems to the cloud, they may still want to keep the existing Oracle DBMS intact, considering application reuse, verification and other reasons.

The core banking database that will contain ledger information also needs to be designed to ensure maximum availability and performance even after moving to the cloud.

By using SDS Cloud's **Bare Metal Server**, you can still enjoy a physical server-based environment without having to consider the overhead caused by virtualization.

Through the iSCSI-based multi-attach **Block Storage**, you can configure an Oracle RAC for high availability based on shared volume rather than a redundant configuration based on volume replication.

Pre-requisites

None

Limitations

Oracle DBMS is not provided as a service, and therefore DBMS provisioning and managed services are not available.

After provisioning the physical servers and shared volume, users can configure an Oracle DBMS in the form of active-standby using Oracle RAC or 3rd-party redundancy software.

For database monitoring, users need to configure a monitoring environment such as Oracle EM.

Data backup can be provided by requesting a separate service.

Up to 3 shared-iSCSI volumes can be assigned simultaneously.

Considerations

A. Server and OS

Server hardware is standardized and can be provisioned in units of 8, 16, 72 and 96 cores (32GB-1526GB memory)

It is necessary to check the **Bare Metal Server** catalog to see if the product supports the resource units required for preliminary preparation, such as purchasing a license.

Currently, there is no custom OS images available for **Bare Metal Server**.

You must check the compatibility between the Oracle DBMS version you want to install and the OS version that can be automatically deployed when provisioning **Bare Metal Server**.

B. Storage and network environment

Depending on the type of redundancy, it may be necessary to add small disks such as OCR, Vote, and quorum. The minimum volume to be assigned to Shared Disk is 10 GB.

Considering the IO performance, SSD is recommended as the disk type.

When configured with Oracle RAC, you need multiple IP addresses in addition to the IP addresses assigned by default when provisioning the server. If a static IP address is required in addition to the automatically assigned IP address, a separate service request is required.

C. Additional high availability configuration

The data center network minimizes the latency among SDS Cloud Zones but active-active or active-standby configuration between zones is inefficient in terms of network and cost.

After configuring the Oracle cluster in the zone, it is recommended to configure the standby DBMS for additional standby configuration in the same zone or Disaster Recovery(DR) DBMS in another region using Oracle data guard.

D. Compliance

The Oracle DBMS license used on-premises need to be confirmed for usage on a Bring Your Own License (BYOL) basis in the SDS Cloud.

Related Products

- Bare Metal Server
- Block Storage
- DNS
- VPC