Oracle Retail High-Availability Case Study Introduction

Release 15.0
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Creating a High Availability Environment for Oracle Retail

Use this case study to create a high availability environment for Oracle Retail Release 15.0.

Executive Summary

Highly available infrastructure has risen in popularity in recent years, as companies strive to match their critical computing environment's availability to near 7x24x365 requirements. Oracle Retail installations are no exception. This case study details how a highly-available Oracle Linux environment was configured to support these Oracle Retail applications:

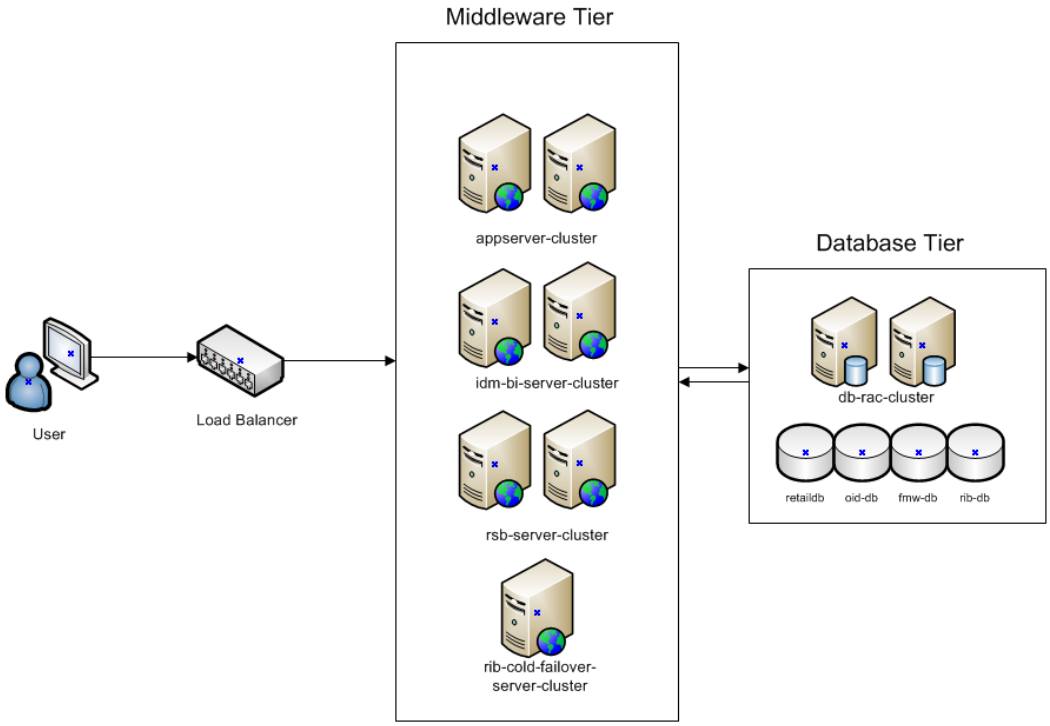
- Oracle Retail Allocation
- Oracle Retail Invoice Matching
- Oracle Retail Merchandising System
- Oracle Retail Price Management
- Oracle Retail Store Inventory Management
- Oracle Retail Warehouse Management System
- Oracle Retail Integration Bus
- Oracle Retail Service Backbone

Architecture Overview

Oracle Retail applications can be deployed in a highly available environment, utilizing Oracle Fusion Middleware Active-Active clustering and Oracle Real Application Cluster (RAC) databases to provide maximum availability and scalability. This configuration allows lower-cost commodity systems to be combined into a single scalable, fault-tolerant environment.

The Oracle Retail Integration Bus supports Oracle RAC databases but only supports Oracle Fusion Middleware Active-Passive cluster architectures. For the purposes of this case-study this product was configured in a stand-alone Fusion Middleware installation.

For this case-study, four Linux servers were configured into a two-system cluster at the Fusion Middleware level and a two-system RAC cluster at the database server level. A fifth server hosted the stand-alone Fusion Middleware. The resultant highly available environment architecture is diagramed below:



There are many options for configuring an Oracle Retail highly available environment and these options can have a significant impact on the way that the environment is configured and built. The intent of this case study is not to provide exhaustive documentation on all possible ways to configure a suitable highly available environment for Oracle Retail, but rather to document a specific configuration that was used for verification purposes. As such, the specific installation steps documented in this case study will only apply in their entirety to the exact hardware and software configuration described here.

The highly available environment used for this case study consists of the following components:

Hardware

The hardware is listed as:

- Five (5) Oracle's Sun 4170 Servers
  - Two (2) quad-core Intel Xeon L5520 processors
  - 72GB RAM
- One (1) Oracle's Sun ZFS Storage 7420
- Two (2) F5 Big-IP 6800 Local Traffic Manager
- Gigabit Ethernet network

Software (All x86-64 Unless Otherwise Noted)

The software is listed:

- Oracle Linux 7
- Oracle Cluster Ready Services 12c (12.1.0.2)
- Oracle Database 12c Enterprise Edition (12.1.0.2)
- Oracle Identity Management 11g Release 1 (11.1.1.9)
- Install Oracle Identity and Access Management Suite 11.1.2.3
- Oracle WebLogic Server (10.3.6 and 12.1.3)
- Oracle WebTier 11g Release 1 (11.1.1.9)
- Oracle Webgate 11g Release 1 (11.1.2.3)
- Oracle Forms (11.1.2.2)

Installation Overview

Setting up an Oracle Retail highly available environment is a complex task involving the configuration of a significant amount of software and hardware components. Due to the interdependencies of the various components, there are restrictions on the order in which things are installed. At a high level, the installation process should follow these steps:

1. Create Oracle Linux environment:
   a. Install Oracle Linux on all systems.
   b. Configure Linux for Oracle products.
   c. Configure system level pre-requisites.
   d. Configure load-balancer.

2. Install Oracle Database RAC environment:
   a. Install Oracle Cluster Ready Services Software
   b. Install and patch Oracle RDBMS Software
   c. Create ASM instances and diskgroups
   d. Create single-instance database for Oracle Retail products
3. Install Fusion Middleware environments:
   a. Install Oracle Identity Management 11g environment:
      i. Create RCU RAC database.
      ii. Install Oracle Weblogic Server 11g Release 1 (10.3.6)
      iii. Install Oracle Identity Management Suite 11.1.1.7 Software
      iv. Install Oracle Identity and Access Management Suite 11.1.2.2 Software
      v. Setup OID Instances
      vi. Setup OAM Instances
      vii. Install Oracle WebTier 11g – Clustered
      viii. Install & Configure Webgate 11g
   b. Install Oracle Fusion Middleware 11g Release 1:
      i. Install Oracle Weblogic Server 11g Release 1 (10.3.6).
      ii. Install Oracle Portal, Forms, Reports and Discoverer 11g Release 1 (11.1.2.2).
      iii. Configure Forms for Single Sign-On.
      iv. Configure Oracle Fusion Middleware 11gR2 for Single Sign-On.
      v. Installation and Configuration of BI Publisher is not in scope of this document. Ensure you have installed and configured it with SSO.

With these steps completed, the environment will be ready for the Oracle Retail installation and configuration.

Due to the length of documentation for the four high-level areas, Oracle Linux, Oracle RDBMS, and Oracle Fusion Middleware, they have each been broken out into separate documents. However, the high-level steps must be completed in the above order (for example, OS Install before RAC environment install, RAC setup before Fusion Middleware installation, and Fusion Middleware installation before SSO configuration).

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