

ORACLE Enterprise Manager Cloud Control 12c

12c

Login

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Enterprise Manager Key Features

- ▼ **Complete, Integrated, Application-to-Disk IT Management**
Use one product to manage your entire IT infrastructure. Manage applications, middleware, database, OS and virtualization from a single console. Discover

New in this Release

- ▼ **Get organized with Administration Groups**
Perform group-level operations on member targets of hierarchical Admin Groups based on configurable target properties. Use Template Collections to

Did you know...

- Integrated Sun Hardware Management with Ops Center**
Enterprise Manager Ops Center provides a complete management solution for hardware and firmware. While Ops Center is available as a standalone product

Oracle Enterprise Manager 12c/13c - Best Practices in Design and Deployment for High Availability and Disaster Recovery

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JPMorgan

-Modernize your Enterprise Monitoring and Management with OEM

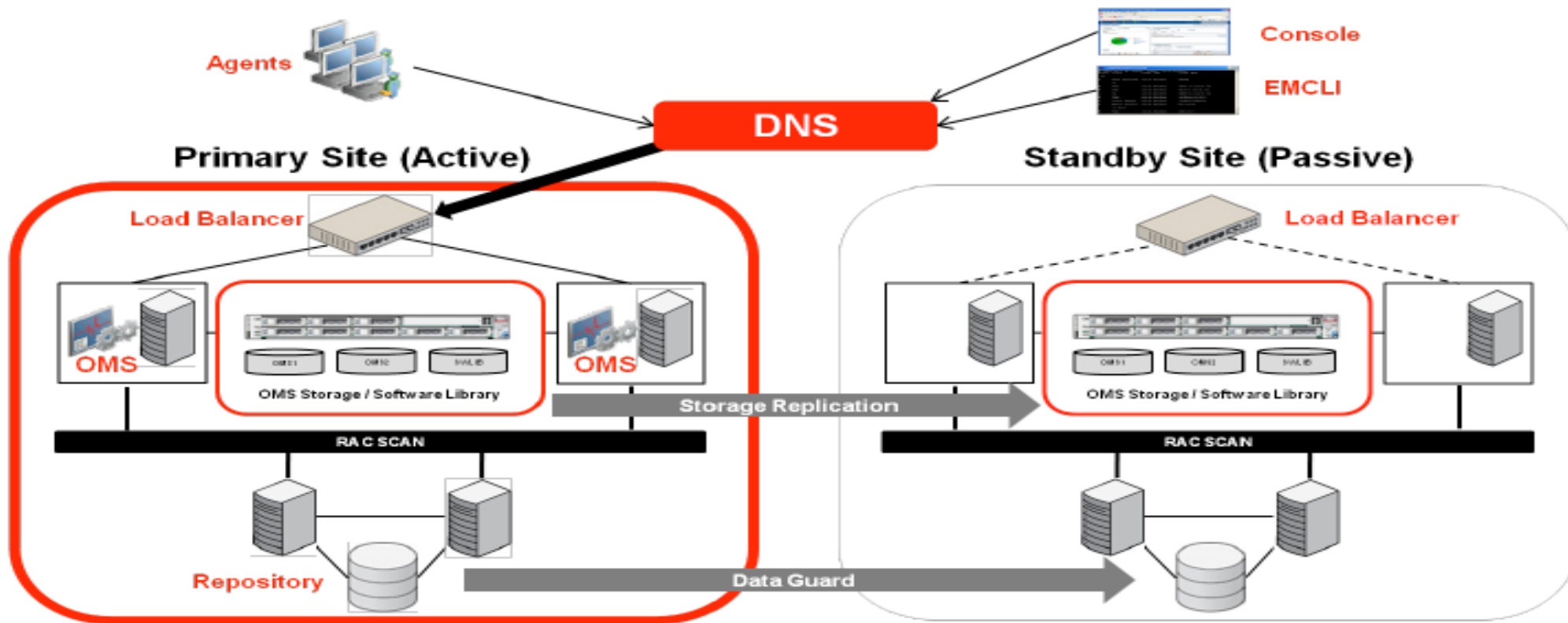


OEM12c/13c – Architecture Levels

ENTERPRISE MANAGER HIGH AVAILABILITY

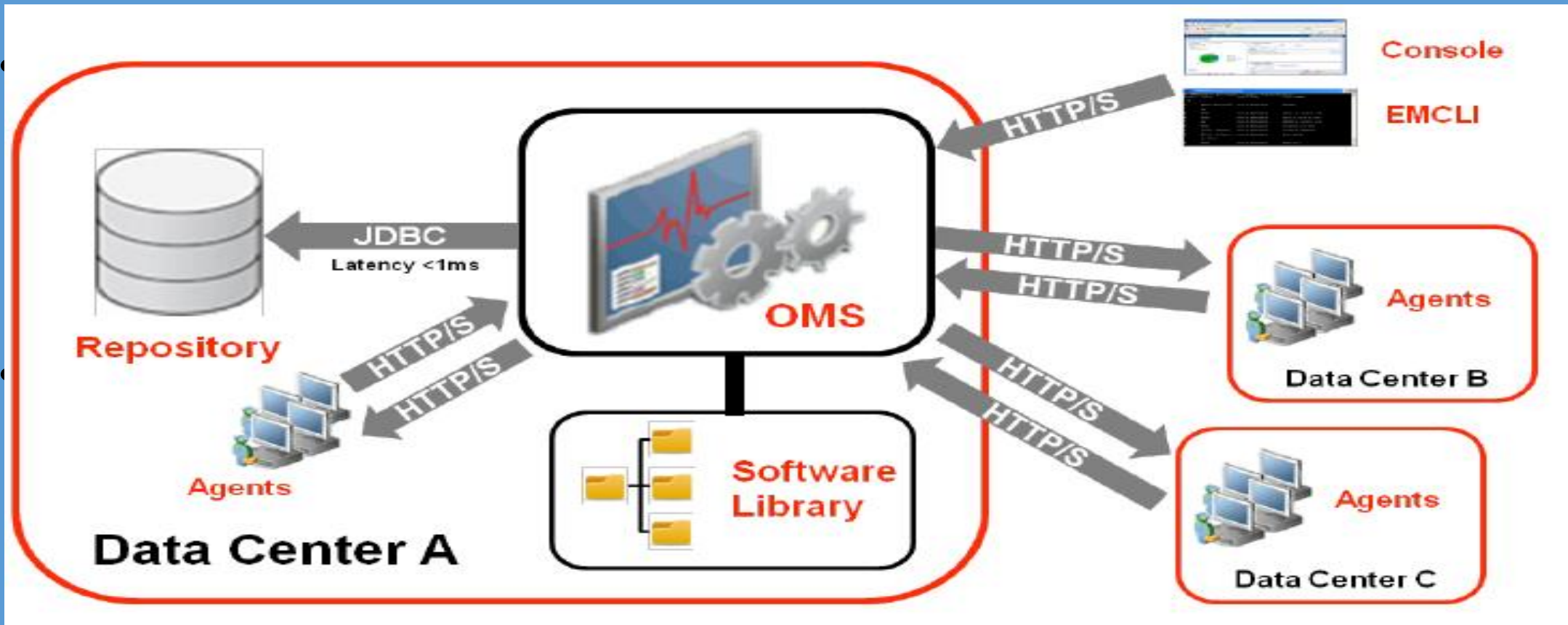
	Description	Number of Nodes (Min/Rec)	Load Balancer Requirements
Level 1	OMS and repository database. Each resides on their own host with no failover.	1/2	None
Level 2	OMS installed on shared storage with a VIP based failover. Database is using Local Data Guard.	2/4	None
Level 3	OMS in Active/Active configuration. The database is using RAC + Local Data Guard	3/5	Local Load Balancer
Level 4	<p>OMS on the primary site in Active/Active Configuration. Repository deployed using Oracle RAC.</p> <p>Duplicate hardware deployed at the standby site.</p> <p>DR for OMS and Software Library using Storage Replication between primary and standby sites.</p> <p>Database DR using Oracle Data Guard.</p> <p>Note: Level 4 is a MAA Best Practice, achieving highest availability in the most cost effective, simple architecture.</p>	4/8	<p>Required: Local Load Balancer for each site.</p> <p>Optional: Global Load Balancer</p>

OEM12c/13c – Level 4 Architecture Topology



OEM12c/13c – Secure Traffic

Agent and Console



OEM 12c/13c – Infrastructure Best Practices

- OEM 12c: Database - Oracle 11g R2 (11.2.0.4)
- OEM 13c: Database - Oracle 12c (Preferably R2)
- Scan Listeners / TNS name with Scan Host Name
- Both OMS and OMR Servers – Same OS and version/Patch level
- Identical Configuration for Standby – To achieve DC Resiliency
- Create Primary and Standby Databases before OEM Install

OEM 12c/13c – Infrastructure Best Practices (Contd)

- OMS Software: OMS 12c R5 / OMS 13c
- Pre-Configure Load Balancer as much possible and Add to DNS
- Prepare Virtual Host Name and Verify with nslookup
- Prepare Mount points with Right Sizes
 - OMS Software (SAN)
 - Software Library (Can be NAS)

OEM 12c/13c Configuration Sequence

– Best Practices

- Configure RAC Clusters/OMS Nodes from OS point of view
- Configure/Build Repository Primary Database
- Configure Network and DNS for Servers/SLBs
- Configure First OMS Server on Primary side
- Configure Load Balancers on both Primary/DR
- Configure Second OMS Server on Primary side
- Create Standby database on DR side
- Configure Software Library

OEM 12c/13c Network Aspects

-Best Practices

- Install each OMS using alias hostname (e.g. oms1-v, oms2-v)
- Alias hostname resolves to physical host IPs
- Hostname resolution – DNS preferred compared to /etc/hosts
- Sample /etc/hosts file

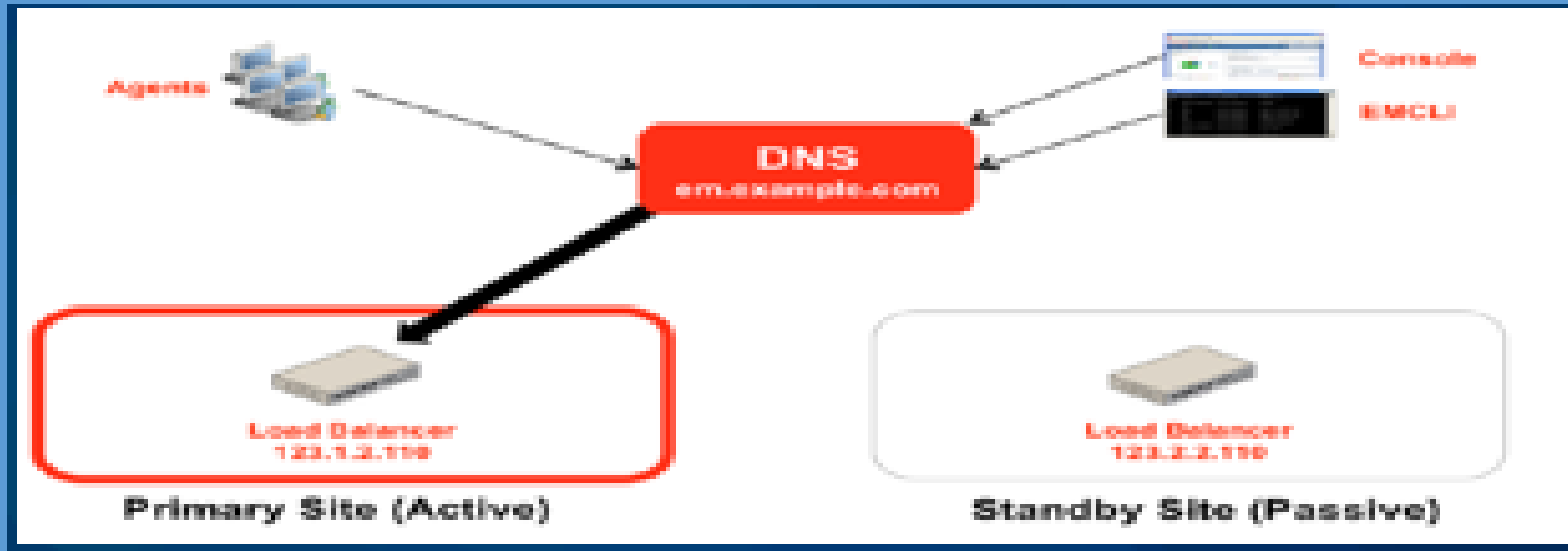
```
127.0.0.1 localhost.localdomain  
129.1.2.111 oms1-p.example.com oms1-p #OMS1  
129.1.2.112 oms2-p.example.com oms2-p #OMS2
```

OEM 12c/13c Virtual Host Name (VHN) -Best Practices

- Create Virtual Host Name in DNS (ex. myoem.mycomp.net)
- VHN hides Load Balancer Host Name (SLB) / IP
- Easier to choose/use generic name for VHN
- No effect on VHN if SLB is replaced
- Additional OMS can be added without changing VHN
- VHN passes Agent and Console traffic to SLB
- VHN adds value in Level 4 architecture – during switchover/switchback

OEM 12c/13c – Load Balancer Configuration

-SLB Configuration with Sample IPs



OEM 12c/13c – Scan Best Practices

- Create Primary Database on RAC
- Ensure to create Scan Connect string
- Make sure Connect string Service is created
- Test Scan Connect string
- Start First OMS installation on Primary side
- When Installer prompts for Scan address, Copy/paste.
- Sample Scan Connect String:

```
{DESCRIPTION =  
(ADDRESS = (PROTOCOL = TCP)(HOST = emrep-cl-scan.example.com)(PORT = 1521))  
(CONNECT_DATA =  
(SERVER = DEDICATED)  
(SERVICE_NAME = emrep)  
))
```

OEM 12c/13c – First OMS Installation

- Choose Default Ports and Ensure Ports are Open

The screenshot shows the 'Port Configuration Details' window in Oracle Enterprise Manager Cloud Control 12c. The window title is 'Oracle Enterprise Manager Cloud Control 12c Installation - Step 10 of 13'. The left sidebar contains a navigation menu with the following items: My Oracle Support Details, Software Updates, Oracle Inventory, Prerequisite Checks, Install Types, Select Plug-ins, WebLogic Server Configuration, Database Connection Details, Repository Configuration Details, Port Configuration Details (selected), Review, Install Progress, and Finish. The main content area features the Oracle logo and the text 'Enterprise Manager Cloud Control 12c'. Below this, there is a paragraph explaining that the configuration requires port allocation and that a table below lists the ports. A button labeled 'Import staticports.ini file...' is positioned above a table. The table has three columns: 'Component Name', 'Recommended Port Range', and 'Port'. The table lists the following components and their configurations:

Component Name	Recommended Port Range	Port
Enterprise Manager Upload Http Port	4889-4898	4889
Enterprise Manager Upload Http SSL Port	1159,4899-4908	4900
Enterprise Manager Central Console Http SSL Port	7799-7809	7799
Node Manager Http SSL Port	7401-7500	7403
Managed Server Http Port	7201-7300	7202
Enterprise Manager Central Console Http Port	7788-7798	7788
Oracle Management Agent Port	3872,1830-1849	3872
Admin Server Http SSL Port	7101-7200	7101
Managed Server Http SSL Port	7301-7400	7301

OEM 12c/13c – Verify First OMS Installation

- Verify First OMS Installation – Security, Ports and SLB configuration

```
$ ./emctl status oms -details
Oracle Enterprise Manager Cloud Control 12c Release 12.1.0.1.0
Copyright (c) 1996, 2011 Oracle Corporation. All rights reserved.
Enter Enterprise Manager Root (SYSMAN) Password :
Console Server Host : oms1.example.com
HTTP Console Port   : 7788
HTTPS Console Port  : 7799
HTTP Upload Port    : 4889
HTTPS Upload Port   : 4900
OMS is not configured with SLB or virtual hostname
Agent Upload is locked.
OMS Console is locked.
Active CA ID: 1
Console URL: https://oms1.example.com:7799/em
Upload URL: https://oms1.example.com:4900/empbs/upload

WLS Domain Information
Domain Name       : GCDomain
Admin Server Host: oms1

Managed Server Information
Managed Server Instance Name: EMGC_OMS1
Managed Server Instance Host: oms1.example.com
```

OEM 12c/13c – Verify Database Connectivity

- Verify Database Connectivity using emctl

```
$ ./emctl config oms -list_repos_details
```

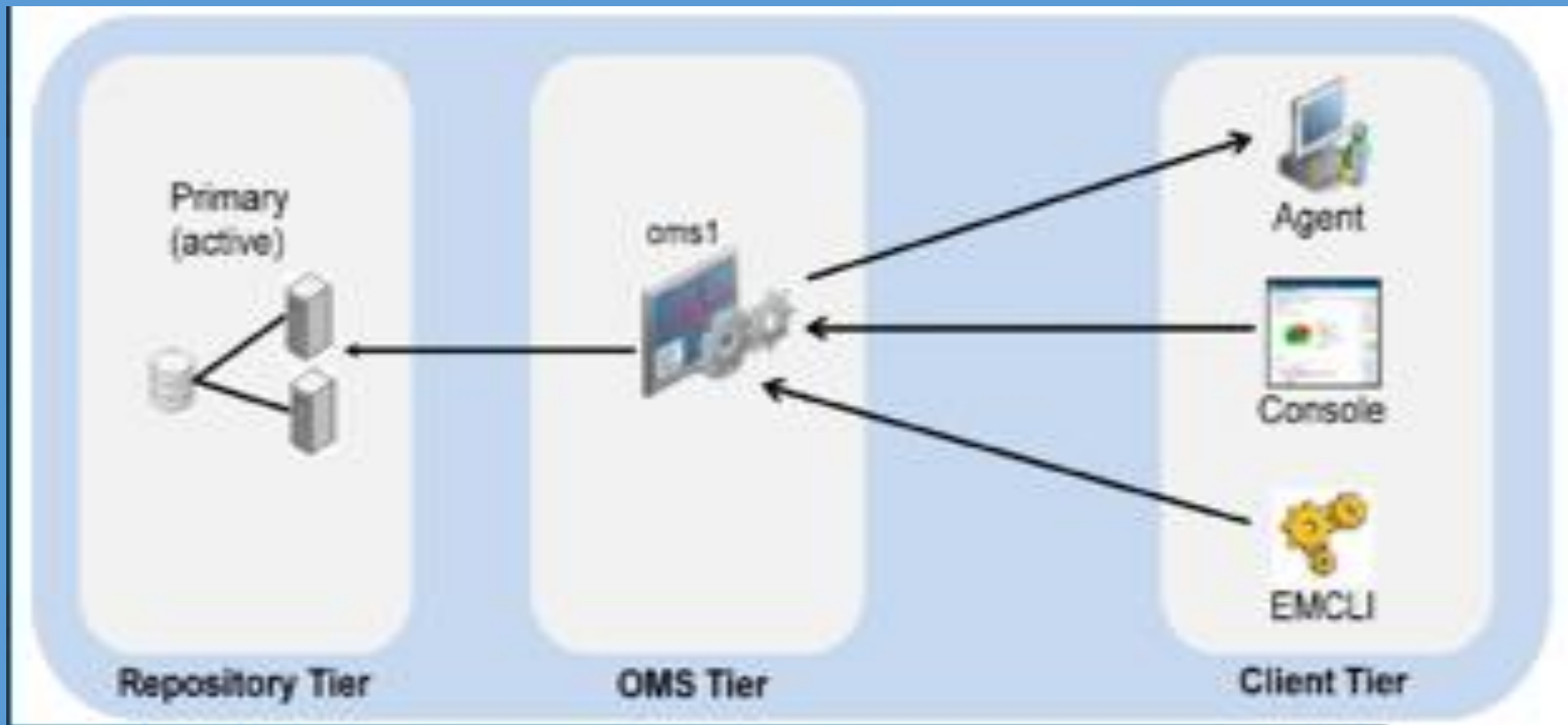
```
Oracle Enterprise Manager Cloud Control 12c Release 12.1.0.1.0
```

```
Copyright (c) 1996, 2011 Oracle Corporation. All rights reserved.
```

```
Repository Connect Descriptor : (DESCRIPTION=(ADDRESS_LIST=(ADDRESS=(PROTOCOL=TCP) (HOST=emrep-cl-  
scan.example.com) (PORT=1521))) (CONNECT_DATA=(SERVICE_NAME=emrep)))
```

```
Repository User : SYSMAN
```


OEM 12c/13c – End of First OMS Installation



OEM 12c/13c – Configure SLB and Re-secure OMS

- Configure SLB after First OMS Installation
- Configure Secure Upload and Secure Console Services
- Re-secure OMS after SLB Configuration

```
emctl secure oms -sysman_pwd <sysman_pwd>  
-reg_pwd <agent_reg_password>  
-host oms.example.com  
-secure_port 4900  
-slb_port 4900  
-slb_console_port 443  
-console  
-lock -lock_console
```

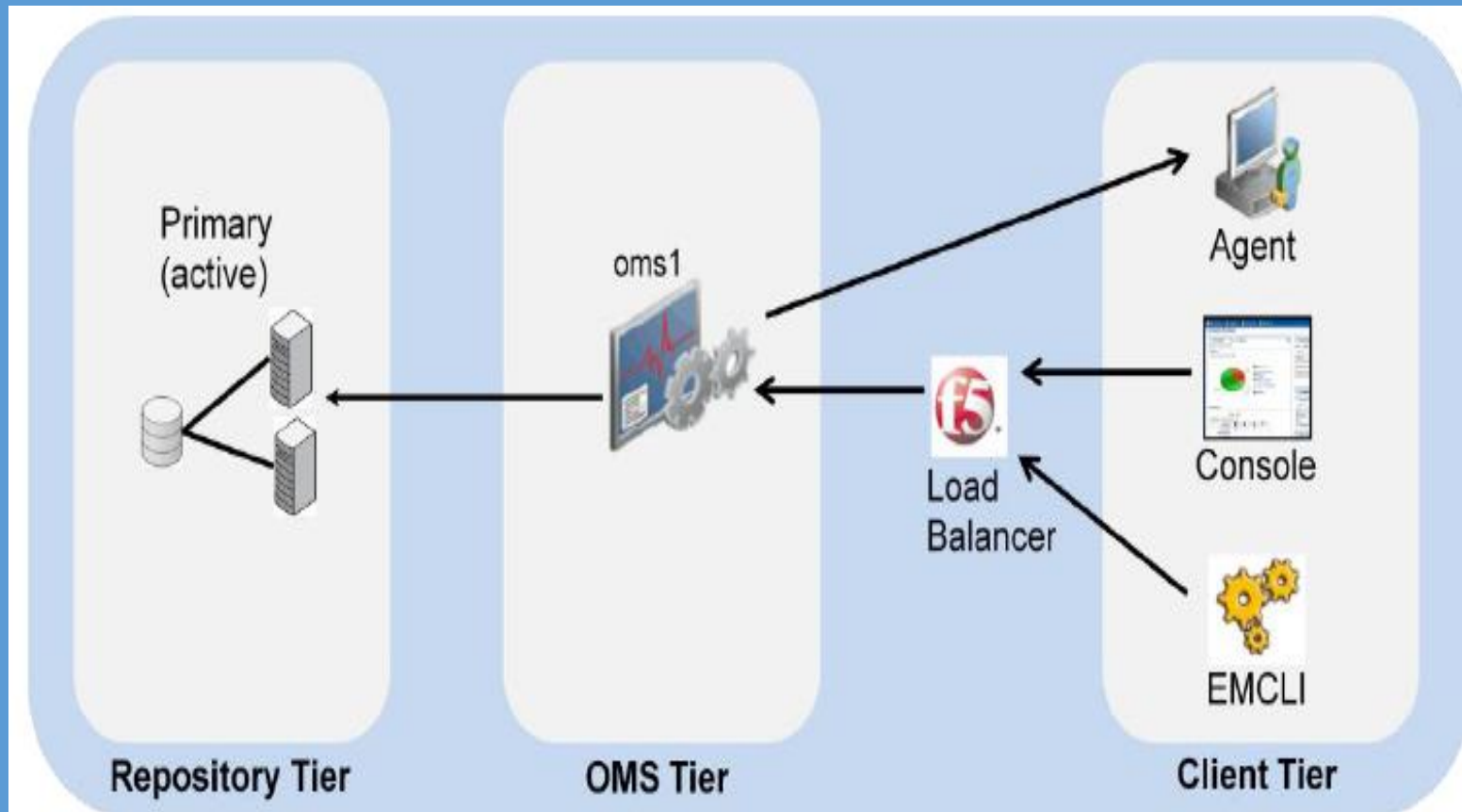
OEM 12c/13c – Verify OMS Configuration with SLB

```
$ ./emctl status oms -details
Oracle Enterprise Manager Cloud Control 12c Release 12.1.0.1.0
Copyright (c) 1996, 2011 Oracle Corporation. All rights reserved.
Enter Enterprise Manager Root (SYSMAN) Password :
Console Server Host : oms1.example.com
HTTP Console Port : 7788
HTTPS Console Port : 7799
HTTP Upload Port : 4889
HTTPS Upload Port : 4900
SLB or virtual hostname: oms.example.com
HTTPS SLB Upload Port : 4900
HTTPS SLB Console Port : 443
Agent Upload is locked.
OMS Console is locked.
Active CA ID: 1
Console URL: https://oms.example.com:443/em
Upload URL: https://oms.example.com:4900/empbs/upload
WLS Domain Information
Domain Name : GCDomain
Admin Server Host: oms1.example.com
Managed Server Information
Managed Server Instance Name: EMGC_OMS1
Managed Server Instance Host: oms1.example.com
```

OEM 12c/13c Verify Agent Configuration with VHN

- Re-secure Agent with VHN (Virtual Host Name)
- `emctl secure agent -emdWalletSrcUrl https://oms.example.com:4900/em`
- Now execute `$AGENT_HOME/emctl status agent`
 - Should point to VHN
- Now the VHN based URL ready for use
 - `https://oms.example.com/em`

OEM 12c/13c – First OMS Topology After SLB Setup



OEM 12c/13c – Configure Software Library

- Configure Software Library from OEM
- Setup | Provisioning and Patching | Software Library

Software Library > Software Library: Administration

The administration console allows for configuring and administering Software Library storage locations.

Upload File Locations

Referenced File Locations

Configure storage locations that can be used for uploading files for Software Library entities.

Storage Type

Configure filesystem locations on OMS Host(s). These locations must be locally accessible by all the OMS instances, typically a mounted/shared optionally configure the common credential to be used by Software Library for reading/writing from/to a location.

Actions ▾ View ▾ [+ Add...](#) [Edit...](#) [✕ Migrate and Remove](#)

Name	Status	Location	Associated Entities	Total Space	Available Space
cc12_SWLib	Active	/cc12_SWLib/	Show	148.202	77.257

OEM 12c/13c – Configure Second OMS Server -Option1

- Enterprise | Provisioning and Patching | Procedure Library
- Select “Add Management Service”

Deployment Procedure Manager

Procedure Library | Procedure Activity | Recycle Bin

Procedures are best practices provided by Oracle for various Provisioning and Patching tasks. Procedures created by Oracle cannot be edited or extended using 'Create Like', so that you can customize the procedure to fit your environment.

Search Text Fields [Advanced Search](#)

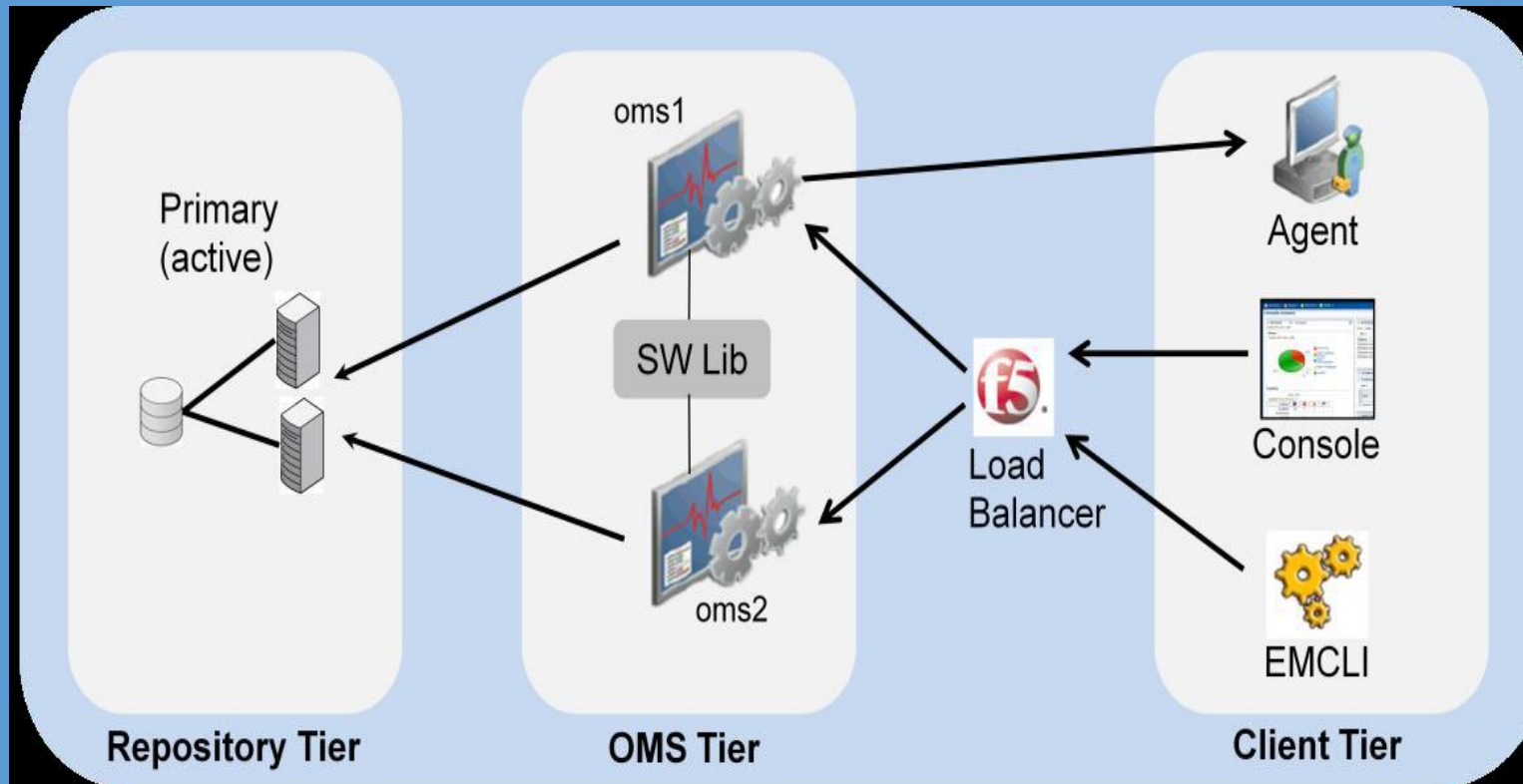
Previous

Select	Procedure ▲	Type	Parent	Version	Last Updated	Description	La M By
<input checked="" type="radio"/>	Add Management Service	Enterprise Manager High Availability Operations	None	1.2	Apr 3, 2012 1:25:28 PM UTC	Procedure to add an additional Management Service to an existing Enterprise Manager system.	Or
						This procedure installs or dones	

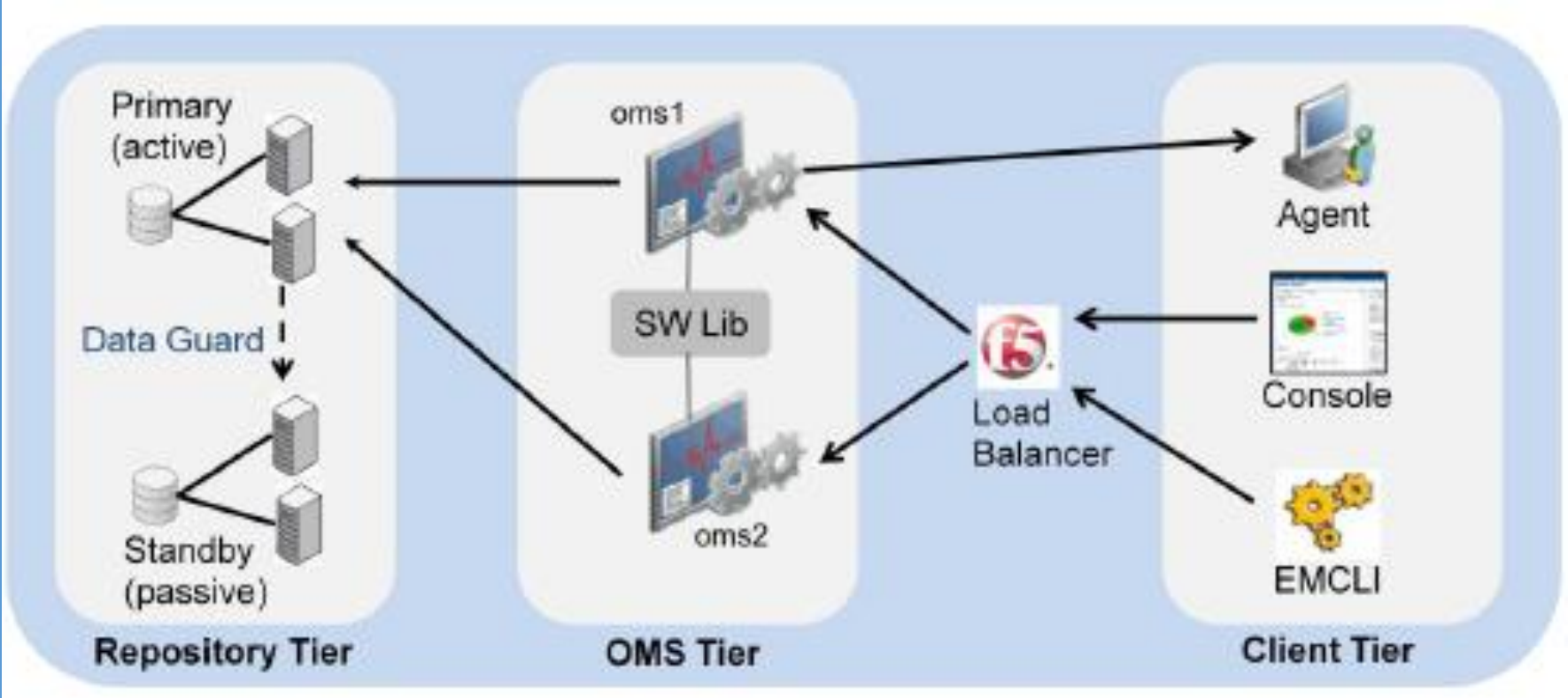
OEM 12c/13c – Configure Second OMS Server -Option2

- Export configuration from OMS1
- Recover configuration on OMS2
- Ensure installed plug-ins available at OMS2
- Bounce OMS2 and ensure it comes up
- Compare OMS2 configuration with OMS1 configuration

OEM 12c/13c – Configuration with Both OMS Services



OEM 12c/13c – Final Level 4 HA/Multi-Site Configuration -With First Site OMS



OEM 12c/13c Configuration Best Practices

– CPU and Memory

- Optimize CPU and Memory
 - Provide sufficient memory for OMS by increasing Java Heap Size (max 4gb)
 - Ensure decent memory and CPU cores for RAC and OMS servers
 - Use OS utilities for checking Server Resource Utilization
- Optimize Repository (repvfy)
 - Execute with Optimize option to set right Configuration values (`repvfy execute optimize`)
 - Repvfy optimizes Worker threads and Repository settings
 - Repvfy tunes Ping grace period
 - Execute repvfy for Performance details with verify/dump options

OEM 12c/13c Configuration Best Practices

– Repository Settings

- Retention time for Error log
 - Set Retention time for MGMT_SYSTEM_ERROR_LOG table to 7 days
 - Disable PL/SQL and Metric tracing to reduce logging
 - Recompile Invalid Sysman objects
 - Check performance data using `repvfy dump task_health`
- Oracle database parameters
 - Set Memory OR SGA max values – Max allowed (to avoid outage)
 - Constantly optimize memory pool values based on advisory

OEM 12c/13c Configuration Best Practices

– Audit Data, WebLogic, Alerts and Notifications

- Maintain Audit Data
 - Archive Audit Data
 - Purge at Regular Intervals
- WebLogic Optimization
 - Set Stuck Thread Flag=False
 - Increase Stuck Thread time-out
- EM Alerts/Notifications
 - Monitor EM components carefully (Separate incident rule)
 - Update Default Thresholds where required (when too many alerts)

Thank you

Any Questions Please?