ORACLE® HYPERION ENTERPRISE PERFORMANCE MANAGEMENT SYSTEM

HYPERION® SHARED SERVICES

ACTIVE-ACTIVE CLUSTERS FOR RELEASE 11.1.1.2 AND LATER

ORACLE
ENTERPRISE PERFORMANCE MANAGEMENT SYSTEM

CONTENTS IN BRIEF

About Active-Active Clusters for Shared Services

This paper focuses primarily on how to enable Oracle's Hyperion® Shared Services Web application for active-active clustering for high availability.

To make Shared Services highly available, you must use clustering solutions to ensure that none of these components is a single point of failure:

- Web server
- Web application
- Native Directory
- Database

  See "Relational Database Clustering" on page 4.

Note: Use Oracle Internet Directory (OID) for high availability and failover. Use of OpenLDAP as Native Directory is not supported for active-active clustering. You can use several techniques for making OID highly available. See "OID Clustering" on page 4.

Enabling Shared Services for active-active clustering involves this task sequence:

1. Clustering Shared Services OID Native Directory for high availability.

   See "OID Clustering" on page 4.
2. Clustering the relational database. See "Relational Database Clustering" on page 4.
3. Set up a shared disk. See "Shared Disk Setup" on page 3.
4. Installing Shared Services on two nodes. See "Shared Services Installation" on page 4.
5. Configuring the Web server. See "Web Server Configuration" on page 4.
6. Configuring Shared Services. See "Shared Services Configuration" on page 8.

Shared Services in an Active-Active Cluster Deployment

An active-active Shared Services cluster includes these components:

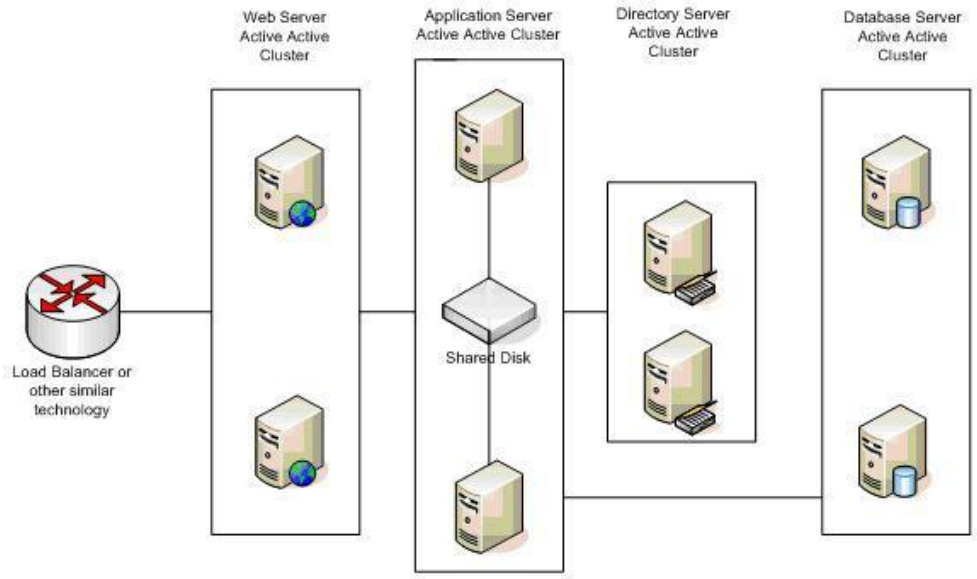
- At least two Web servers.

  Use the Hyperion embedded Web Server.
- At least two instances of Shared Services Web application, on separate machines

  See "Before Installing Shared Services" on page 3 and "Shared Services Installation" on page 4.
- Shared disk to store Oracle Hyperion Enterprise Performance Management System Lifecycle Management artifacts
- Clustered OID as Native Directory
- Clustered relational database

- Optional customer-specific technologies such as load balancers, DNS aliasing, or similar tools for routing the traffic to the Shared Services Web servers and Native Directory

Figure 1 Shared Services Deployed in an Active-Active Cluster



Setting Up Active-Active Clusters for Shared Services

Setting up an active-active cluster for Shared Services involves configuring WebLogic 9.2 or WebSphere application servers, the Shared Services Web application, Oracle's Hyperion Shared Services Registry, and shared disk configuration.

Before Installing Shared Services

These tasks must be completed before you install Shared Services:

- Set up a shared disk. See "Shared Disk Setup" on page 3
- Cluster OID Native Directory. See "OID Clustering" on page 4
- Cluster the database. See "Relational Database Clustering" on page 4

Shared Disk Setup

Set up a fault-tolerant shared disk such as RAID enabled between the two active Shared Services servers.

OID Clustering

You can cluster Shared Services OID Native Directory for high availability. OID is supported as native provider in any active-active mode supported by OID. You can use several techniques for making OID highly available.

References:

- http://www.oracle.com/technology/products/oid/pdf/oid-largescaledirectory-ha-performance.pdf
- http://www.oracle.com/technology/products/oid/pdf/oid_tuning_configuration_quickreference_01.pdf

You can download more information about high availability Oracle Clusterware from http://download.oracle.com/docs/cd/B28359_01/rac.111/b28255.pdf.

Relational Database Clustering

Use the failover capabilities of your RDBMS:

- Oracle Real Application Clusters–See http://www.oracle.com/technology/products/database/clustering/index.html.
- Data Guard—See http://www.oracle.com/technology/deploy/availability/htdocs/DataGuardOverview.html.
- SQL Server (failover clustering, mirroring)—See http://www.microsoft.com/technet/prodtechnol/sql/2005/sqlydba.mspx#EED.
- DB2 (high availability and disaster recovery)—See http://publib.boulder.ibm.com/infocenter/db2luw/v8/index.jsp?topic=/com.ibm.db2.udb.doc/admin/c0007308.htm.

Shared Services Installation

Use Oracle Hyperion Enterprise Performance Management System Installer, Fusion Edition to install Shared Services (including the Web application) on each node of the cluster. Follow the instructions in the *Oracle Hyperion Enterprise Performance Management System Installation and Configuration Guide* and these guidelines:

- Click Finish (not Configure) on the last Oracle Hyperion Enterprise Performance Management System Installer, Fusion Edition screen.
- After each installation, set the Hyperion Foundation OpenLDAP service as manual.

Web Server Configuration

Shared Services in active-active mode should be deployed to at least two nodes of the application server. The application server should be fronted by at least two Web servers. Oracle recommends using the Hyperion embedded Web server, which is based on Apache 2.0, for this configuration.

If you use a different Web server or a load balancer, see the configuration instructions in the documentation for that Web server or load balancer.

Supported application servers for Shared Services clustering are WebLogic 9.2.x and Websphere 6.1.0.17.

- WebLogic 9.2.x— Set the `WebLogicCluster` parameter. See http://e-docs.bea.com/wls/docs92/plugins/apache.html.
- WebSphere—See http://publib.boulder.ibm.com/infocenter/wasinfo/v7r0/index.jsp?topic=/com.ibm.websphere.express.doc/info/exp/ae/tins_manualWebApache20.html.

Configuring Hyperion Embedded Web Server (Apache 2.0) for WebLogic Deployments

Using a text editor, open the `httpd.conf` file in *HYPERION_HOME*`/common/httpServers/Apache/2.0.59/conf` and add the following lines after updates to `ErrorPage`, `WebLogicCluster` entries:

```
LoadModule weblogic_module modules/mod_wl_20.so

<Location /interop/*>
SetHandler weblogic-handler
PathTrim /interop/*
#ErrorPage http://myerrorpage.mydomain.com
</Location>

<IfModule mod_weblogic.c>
WebLogicCluster node1:28080,node2:28080
WLCookieName HUBSESSIONID
MatchExpression *
#ErrorPage http://myerrorpage.mydomain.com
</IfModule>
```

Configuring Hyperion Embedded Web Server (Apache 2.0) for WebSphere Deployments

If you are using a WebSphere ND deployment and the two Shared Services nodes are defined in a cluster within WebSphere, generate a `plugin-cfg.xml` for the Hyperion embedded Web server.

➤ To generate a `plugin-cfg.xml` file:

1. **Start the WAS admin console by running a script in** *HYPERION_HOME*`/deployments/WebSphere/profile/bin` **on the Shared Services server:**
2. **Start the WAS admin console by running a script in** *HYPERION_HOME*`/deployments/WebSphere/profile/bin` **on the Shared Services server:**
   - Windows: `startServer.bat`
   - UNIX: `startServer.sh`

3 Log on to WAS admin console for Shared Services (http://localhost:19060/admin).

4 Add the Hyperion embedded Web server as a Web server by clicking **Servers**, then **Web Servers**, and then **New**.

5 Edit `plugin-cfg.xml` to set the `AcceptAllContent` property in the `Config` element to `true` and make any other required changes.

Sample `plugin-cfg.xml` file content from a Windows-based environment:

```
<?xml version="1.0" encoding="UTF-8"?>
<Config ASDisableNagle="false" AcceptAllContent="true"
AppServerPortPreference="HostHeader" ChunkedResponse="false"
FIPSEnable="false" IISDisableNagle="false" IISPluginPriority="High"
IgnoreDNSFailures="false" RefreshInterval="60" ResponseChunkSize="64"
VHostMatchingCompat="false">

 <Log LogLEvel="Error" Name="C:\Hyperion\common\httpServers\Apache\2.0.
59\logs\http_plugin.log" />
 <Property Name="ESIEnable" Value="true" />
 <Property Name="ESIMaxCacheSize" Value="1024" />
 <Property Name="ESIInvalidationMonitor" Value="false" />
 <RequestMetrics armEnabled="false" loggingEnabled="false"
rmEnabled="false" traceLevel="HOPS">

   <filters enable="false" type="URI">
    <filterValues enable="false" value="/snoop" />
    <filterValues enable="false" value="/hitcount" />
   </filters>

   <filters enable="false" type="SOURCE_IP">
    <filterValues enable="false" value="255.255.255.255" />
    <filterValues enable="false" value="254.254.254.254" />
   </filters>

   <filters enable="false" type="JMS">
    <filterValues enable="false" value="destination=aaa" />
   </filters>

   <filters enable="false" type="WEB_SERVICES">
    <filterValues enable="false" value="destination=aaa" />
   </filters>

 </RequestMetrics>

 <VirtualHostGroup Name="default_host">

   <VirtualHost Name="*:80"/>
   <VirtualHost Name="node2:28080"/>
   <VirtualHost Name="*:28080"/>


</VirtualHostGroup>

        <ServerCluster LoadBalance="Round Robin"
Name="SharedServices9_hyslNode_Cluster">
                <Server CloneID="11111111" LoadBalanceWeight="2"
Name="hyslNode_SharedServices9">
```

```
                <Transport Hostname="node1" Port="28080" Protocol="http"/>
                </Server>
                <Server CloneID="22222222" LoadBalanceWeight="2"
Name="hyslNode_SharedServices91">
                <Transport Hostname="node2" Port="28080" Protocol="http"/>
                </Server>
             <PrimaryServers>
             <Server Name="hyslNode_SharedServices9"/>
             <Server Name="hyslNode_SharedServices91"/>
             </PrimaryServers>
        </ServerCluster>
        <UriGroup
Name="default_host_SharedServices9_hyslNode_Cluster_URIs">
           Uri AffinityCookie="INTEROP" AffinityURLIdentifier="jsessionid"
Name="/interop/*"/>
        </UriGroup>
        <Route ServerCluster="SharedServices9_hyslNode_Cluster"
UriGroup="default_host_SharedServices9_hyslNode_Cluster_URIs"
VirtualHostGroup="default_host"/>

</Config>
```

6 **Using a text editor, manually merge the generated `plugin-cfg.xml` content into the existing file under *HYPERION_HOME*/common/httpServers/Apache/2.0.59/conf.**

7 **Restart the embedded Web server and start the Shared Services nodes.**

If the Shared Services deployment is to two or more stand-alone nodes of WebSphere that are not in a cluster, then perform these steps on each of the WebSphere servers where Shared Services is deployed:

1. Log on to the WAS admin console on both WAS servers by connecting to `http://server:19060/admin`
2. In the administrative console, click **Servers**, then **Application Servers**, then **SharedServices9**, then **Web Container Settings**, and then **Web container**.
3. Under **Additional Properties**, select **Custom Properties**.
4. On the **Custom Properties** page, click **New**.
5. Create a property called `HttpSessionCloneId`, and give it a unique value such as 11111111 (containing at least eight characters and no more than nine).
6. Save the configuration and restart the SharedServices9 server.
7. Manually edit the `plugin-cfg.xml` file in *HYPERION_HOME*/common/httpServers/Apache/2.0.59/conf.
   a. Change the `AcceptAllContent` setting in the `Config` element to `true`.
   b. In the `VirtualHost` section, enter, these lines, using the actual server name instead of *node2*:

      ```
      <VirtualHost Name="node2:28080"/>
      <VirtualHost Name="*:28080"/>
      ```

      where *VirtualHost Name* is the name of the WAS server.

c. Create a new ServerCluster, UriGroup, and Route using the following lines with the server name, port, protocol specific to your environment:

```
<ServerCluster LoadBalance="Round Robin"
Name="SharedServices9_hyslNode_Cluster">
                    <Server CloneID="22222222" LoadBalanceWeight="2"
Name="hyslNode_SharedServices91">
                     <Transport Hostname="node2" Port="28080"
Protocol="http"/>
            </Server>
                    <Server CloneID="11111111" LoadBalanceWeight="2"
Name="hyslNode_SharedServices9">
                     <Transport Hostname="node2" Port="28080"
Protocol="http"/>
            </Server>
            <PrimaryServers>
            <Server Name="hyslNode_SharedServices9"/>
            <Server Name="hyslNode_SharedServices91"/>
            </PrimaryServers>
</ServerCluster>
<UriGroup Name="default_host_SharedServices9_hyslNode_Cluster_URIs">
    <Uri AffinityCookie="INTEROP" AffinityURLIdentifier="jsessionid"
Name="/interop/*"/>
</UriGroup>
<Route ServerCluster="SharedServices9_hyslNode_Cluster"
UriGroup="default_host_SharedServices9_hyslNode_Cluster_URIs"
VirtualHostGroup="default_host"/>>
```

8. Start the WAS server on all the nodes that host Shared Services and the Hyperion embedded Web server.

Shared Services Configuration

Use Oracle's Hyperion Enterprise Performance Management System Configurator to configure Shared Services on both nodes of the cluster. See *Oracle Hyperion Enterprise Performance Management System Installation Start Here* and the *Oracle Hyperion Enterprise Performance Management System Installation and Configuration Guide*. Configure the Shared Services Web application on both nodes to point to the same Oracle Internet Directory.

On the Oracle's Hyperion Enterprise Performance Management System Configurator application server deployment screen, click Advanced Setup and enter *`hsscluster`*`:28080`, where *`hsscluster`* is a DNS entry pointing to the Shared Services Web server cluster.

- Ensure that you can ping *`hsscluster`*.
- If a load balancer is used in front of the Web server cluster, provide the load balancer name.

This step defines the logical name for Shared Services Web application.

Postconfiguration Steps

When the Shared Services setup is complete and configured:

- Deploy and configure your other Oracle Hyperion Enterprise Performance Management System products.
- Modify the migration.properties files on all Shared Services servers to add these two properties:

  `filesystem.artifact.path=`*`SHARED_DISK_DIRECTORY`*

  `report.folder.path=`*`SHARED_DISK_DIRECTORY`*

  The *SHARED_DISK_DIRECTORY* value should be a directory in the shared disk The `migration.properties` files can be found under *`HYPERION_HOME`*`/common/utilities/LCM/conf` and *`HYPERION_HOME`*`/deployments/`*`AppServer`*`/SharedServices9/config`. (One of the files is used by the command line utilities, and the other is used by the Shared Services Web application.) Both files must be updated on all deployed nodes.

  Restart Oracle's Hyperion® Shared Services after making these changes.

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