

ORACLE ENTERPRISE MANAGER 10g: ORACLE MANAGEMENT PACK FOR ORACLE COHERENCE



BENEFITS

- Improve administrator productivity
- Enhance cluster management by managing complete cluster as one target
- Reduce total cost of ownership by using single console to monitor end-to-end system
- Minimize risk by automating provisioning process
- Expedite problem resolution by correlating application and system component metrics with Oracle Coherence cluster metrics
- Simplify cluster monitoring through use of one management node to monitor entire cluster

Oracle Coherence is an in-memory data grid solution that enables organizations to predictably scale mission-critical applications. Effectively managing your Oracle Coherence environment is critical to maximizing application availability and ensuring a high quality of service (QoS). The Oracle Management Pack for Oracle Coherence provides comprehensive tools for discovery, monitoring, reporting, events management, configuration management, lifecycle management, and deployment automation to simplify the management of your entire Oracle Coherence cluster.

Monitor Potential Hotspots in an Oracle Coherence Cluster

A typical Oracle Coherence cluster has a large number of nodes and distributed caches making it difficult for administrators to ensure availability and performance. To help you monitor these complex environments, Oracle Enterprise Manager includes a dashboard view of the entire cluster. Key metrics shown on the dashboard—such as the number of weak nodes, nodes with minimum memory, and the number of departed nodes—quickly illustrate the overall health of the cluster and help you proactively identify potential problems. The dashboard also provides insight into all available services with the Oracle Coherence cluster including status, number of nodes in each service, and storage nodes.

Monitoring the Oracle Coherence cluster with Oracle Enterprise Manager is significantly faster than other monitoring tools because bulk management beans are used for metric collection and other critical tasks such as configuration management.



Figure 1. Oracle Enterprise Manager eases the administration of Oracle Coherence clusters.

Monitor the Health of Oracle Coherence Nodes

Oracle Enterprise Manager helps you monitor the health and performance of all the nodes within a cluster, enabling you to quickly pinpoint weak and top nodes in the cluster. The product provides several side-by-side performance charts for multiple nodes to facilitate the comparison of performance between different nodes. Using various filters—such as machine name and rack name—you can search for specific nodes in a cluster and view their associated performance charts. Oracle Enterprise Manager provides drill down views that show detailed performance metrics for each node and their correlation with other artifacts used by that node. In addition to helping administrators diagnose problems and perform root cause analysis, this also facilitates lifecycle management operations such as stop and reset statistics on individual nodes.

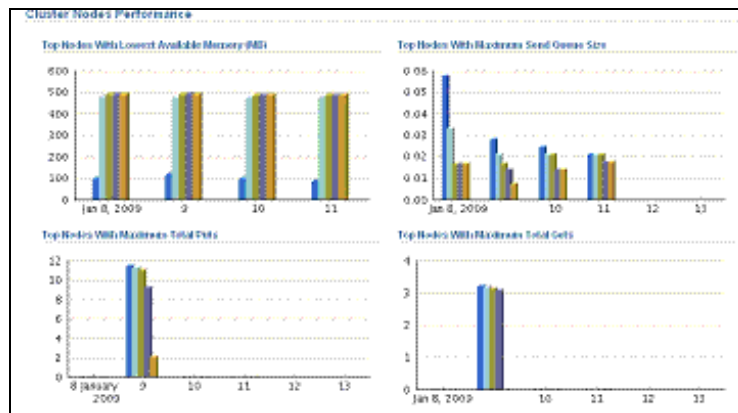


Figure 2. Node-specific dashboards enhance administration and problem resolution.

Monitor All Oracle Coherence Caches and Services

Oracle Enterprise Manager provides you with a rich set of charts and metrics on usage, performance, and throughput for all caches and services defined in a cluster. Using these charts and metrics you can diagnose problems related to a specific application or module. For example, a high number of cache misses indicates the plausible performance bottleneck in an application. Similarly, you can troubleshoot database issues by looking at store reads and store writes of a cache. In the case of services, if an application is using a distributed cache, then monitoring the distributed cache service will provide important metrics related to partitions and request average duration. All of the charts can be navigated by mouse click and support drill down views; for services, the detail pages include availability and correlation with nodes.



Figure 3. View charts for all caches and services within a cluster and drill down to details.

Monitor Connection Managers and Connections

Using Oracle Enterprise Manager, you can monitor performance and load for each connection in a cluster. For Oracle Coherence Release 3.4 and later the monitoring capabilities extend to connection managers. Performance charts for connections and connection managers highlight key metrics such as outgoing messages and bytes backlog to help uncover potential problems. In the drill down view for connections you can see the correlation with a node and a service and, if necessary, close the connection or reset the statistics. In the connection manager drill down view you can find all the connections open on the connection manager along with the universal unique identifiers and correlate metrics with the nodes and services using the connection.

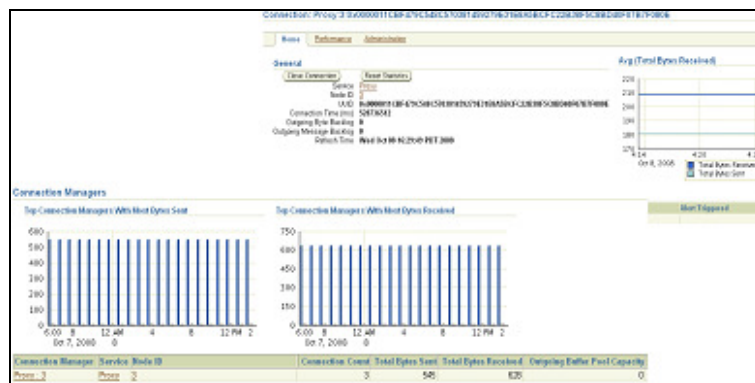


Figure 4. View performance metrics for connections and connection managers.

Notifications, Historical Trends and Dashboards

Oracle Enterprise Manager supports proactive monitoring using thresholds defined for various metrics. If a threshold is exceeded the application issues a context-sensitive alert to key stakeholders using a variety of mechanisms, including email and simple network management protocol trap. Through the rich reporting framework in Oracle Enterprise Manager you can create custom reports for key metrics across both real-time and historical data to facilitate trend analysis and capacity planning.

Oracle Enterprise Manager allows you to monitor system components covering the entire application infrastructure stack and various third party products. This enables you to group related system components together and monitor them collectively as a system. For example, you can create a system comprising an Oracle Coherence cluster, the application server on which it runs, and the underlying persistent database. You can also create a service, define the associated service level agreements, and associate the service with a system. These defined entities would then appear in the system and service dashboard to provide an overview of key metrics and alerts from various components and services to enhance root cause analysis.

Configuration Management

Oracle Enterprise Manager allows users to view and modify the runtime configuration of nodes, services, and caches. Through a single view you can compare performance of two objects, such as nodes, allowing you to tune configuration of a low performing node as compared to a high performing node. You can also make changes to a single node, cache, or service, or across the cluster, but the changes will not be persisted.

The screenshot shows the Oracle Enterprise Manager 'Compare Configuration' view. It compares two nodes, 'Node 1' and 'Node 2'. The configuration parameters are listed in a table with columns for 'Result', 'Attribute Name', and values for both nodes. The 'Compare Performance' section below shows a similar table for performance metrics.

Result	Attribute Name	Node 1	Node 2
	Buffer Pool Size (Pages)	32	32
	Multicast Enabled	True	True
	Unread Pkt	0000	0000
	Traffic Jan Count	0492	0492
	Maximum Memory (M)	511	511
	Unread Address	node11.us.oracle.com/02:07:28:37	node11.us.oracle.com/02:07:28:37
	Multicast Threshold (%)	25	25
	Trace Enabled	True	True
	Site Name	ShowSite	Node1
	Multicast TTL (sec)	4	4

Result	Attribute Name	Node 1	Node 2
	Packets Received Early	0	0
	Packets Sent	619	1369
	Packets Sprayed	104	100
	Total Gets	0	0
	Packet Retain Efficiency	0	0

Figure 5. In one view you can see and modify runtime configuration for cluster objects.

Note: Future releases of Oracle Management Pack for Oracle Coherence are expected to include additional configuration management features such as configuration saving, historical change tracking, and configuration comparison between two Oracle Coherence cluster targets.

Provisioning Support for Coherence Cluster

One of the major challenges you face as an administrator is the process of installing and scaling software. Oracle Enterprise Manager allows you to create a new Oracle Coherence cluster, or extend an existing one, with as many nodes as you want. These changes are automatically discovered by the application, thereby eliminating manual processes and lowering the cost of administration. This automation helps administrators quickly respond to scaling demands in the dynamic environment of data centers.

Conclusion

Oracle Management Pack for Oracle Coherence helps you proactively monitor the performance of your Oracle Coherence cluster, reducing the time needed to identify and diagnose performance problems. Using this solution, you can

- Manage and monitor your entire Oracle Coherence cluster as a single entity using a single management node
- Access real-time and historical details for each of the components in a cluster
- Perform runtime configuration management
- Create and issue context-sensitive alerts and notifications
- Simplify provisioning of a cluster

Contact Us

For more information about Oracle Management Pack for Oracle Coherence, please visit oracle.com/enterprise_manager/index.html or call +1.800.ORACLE1 to speak to an Oracle representative.



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