

ADMINISTER AND MONITOR YOUR PORTAL WITH ORACLE ENTERPRISE MANAGER

Mick Andrew, Oracle Corporation

EXECUTIVE OVERVIEW

Today's enterprises are gaining competitive advantage and realizing increased productivity by deploying enterprise portals within their IT infrastructures. Enterprise portals are specifically designed to be the single source of interaction with corporate information and the focal point for conducting day-to-day business. Oracle Application Server 10g (9.0.4) includes a complete and integrated solution for building, deploying, and maintaining a world-class enterprise portal.

Oracle Application Server Portal 10g (9.0.4) combines a rich, declarative environment for creating a portal Web interface, publishing and managing information, accessing dynamic data, and customizing the portal experience along with an extensible framework for any Web-based technology, including J2EE-based application access and Web Services. Using OracleAS Portal, e-businesses have the power to connect employees, partners, and suppliers with the information they need as well as the flexibility to create views tailored to each community.

In the Oracle Application Server, monitoring and administration tasks are performed via Oracle Enterprise Manager. Although these tasks can be applied to all OracleAS components, each component makes use of the Oracle Enterprise Manager services and interface to a different extent. In this paper I will detail how to best take advantage of the management features of Oracle Enterprise Manager for administering and monitoring OracleAS Portal.

ORACLE APPLICATION SERVER & ORACLE ENTERPRISE MANAGER

Oracle Application Server Portal 10g (9.0.4) utilizes two related management interfaces that, when used together, provide a complete set of efficient tools to reduce the cost and complexity of managing your enterprise:

- Oracle Enterprise Manager 10g Application Server Control (Oracle Application Server Control). Installed with every instance of the Oracle Application Server (OracleAS), the Application Server Control immediately provides you with the management tools you need to monitor and administer a single OracleAS instance.
- Oracle Enterprise Manager 10g Grid Control. The Oracle Enterprise Manager Grid Control provides a wider view of your network so you can manage multiple OracleAS instances. In addition, the Grid Control provides a robust feature set designed to help you manage all aspects of your enterprise, including your Oracle databases, hosts, listeners, and other components. (**Note:** The Grid Control is installed separately using an Oracle Enterprise Manager installation CD-ROM that is planned to be released at the same time as the Oracle Database 10g)

For Oracle Application Server Portal 10g (9.0.4) the Grid Control can be used for monitoring multiple instances from the one console whereas you must drill-down to the corresponding Application Server Control to perform configuration tasks.

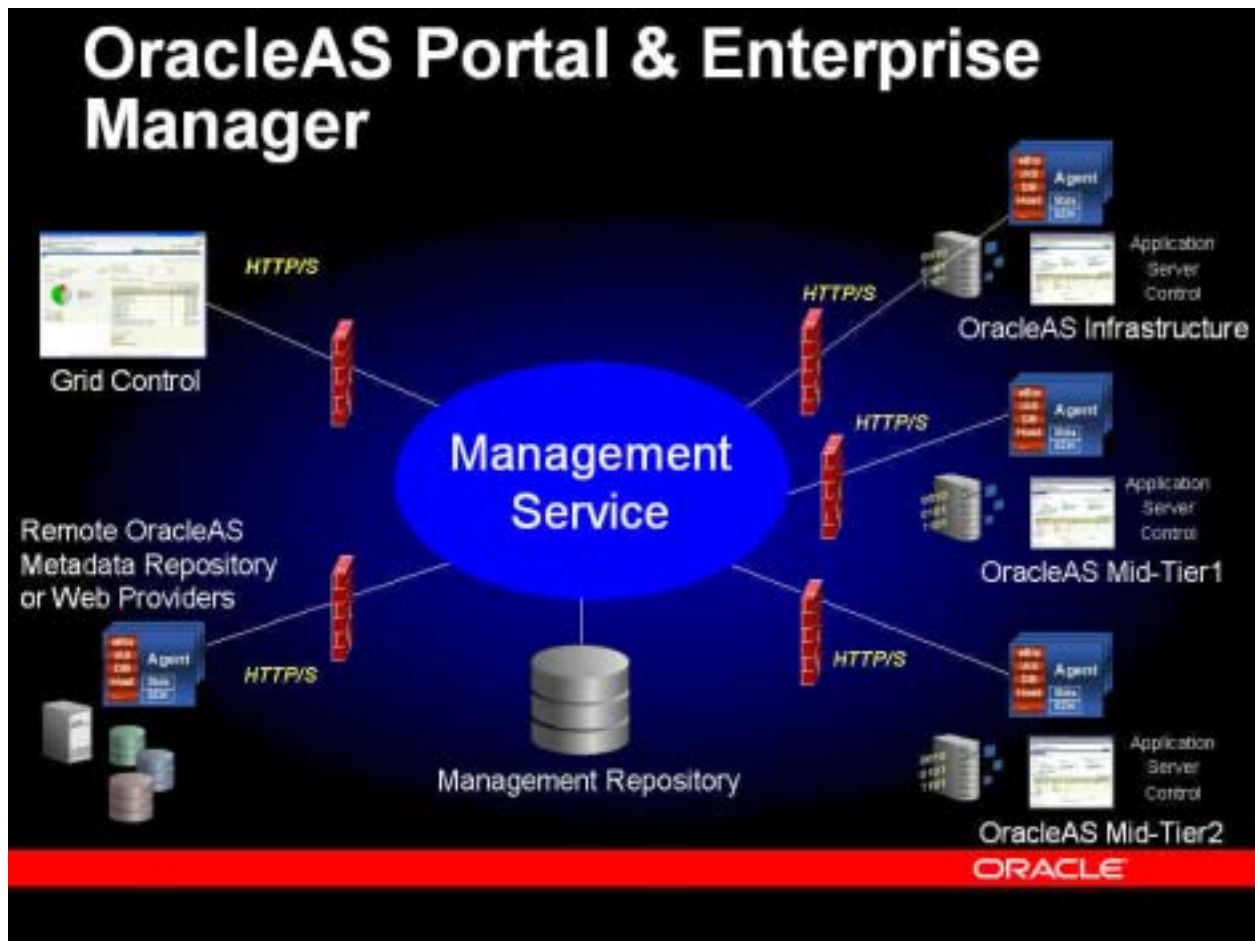


Figure 1. Oracle Application Server Portal & Oracle Enterprise Manager

ORACLEAS PORTAL & THE ORACLE ENTERPRISE MANAGER 10g APPLICATION SERVER CONTROL

Each OracleAS Portal oracle home contains its own Application Server Control installation. You can use the Application Server Control to manage your OracleAS Portal mid-tier in three fundamental ways:

- Real Time Monitoring
- Administration
- Detailed Log File Diagnostics

REAL TIME MONITORING

In addition to containing its own Application Server Control installation, each OracleAS Portal oracle home also contains its own Oracle Management Agent installation. Starting the Application Server Control for a given Oracle Home also starts the associated Management Agent as the Application Server Control relies on the Management Agent for its supply of real time metrics.

In the case of the Portal Target Page the Application Server Control provides a rich display of metrics. To see this information, click Portal:<portal DAD name> in the list of system components. The default schema name is *portal*. (Alternatively you can access this page directly from within OracleAS Portal. First click the Administer tab on the Portal Builder page, click the Portal sub-tab and then click Portal Service Monitoring.)

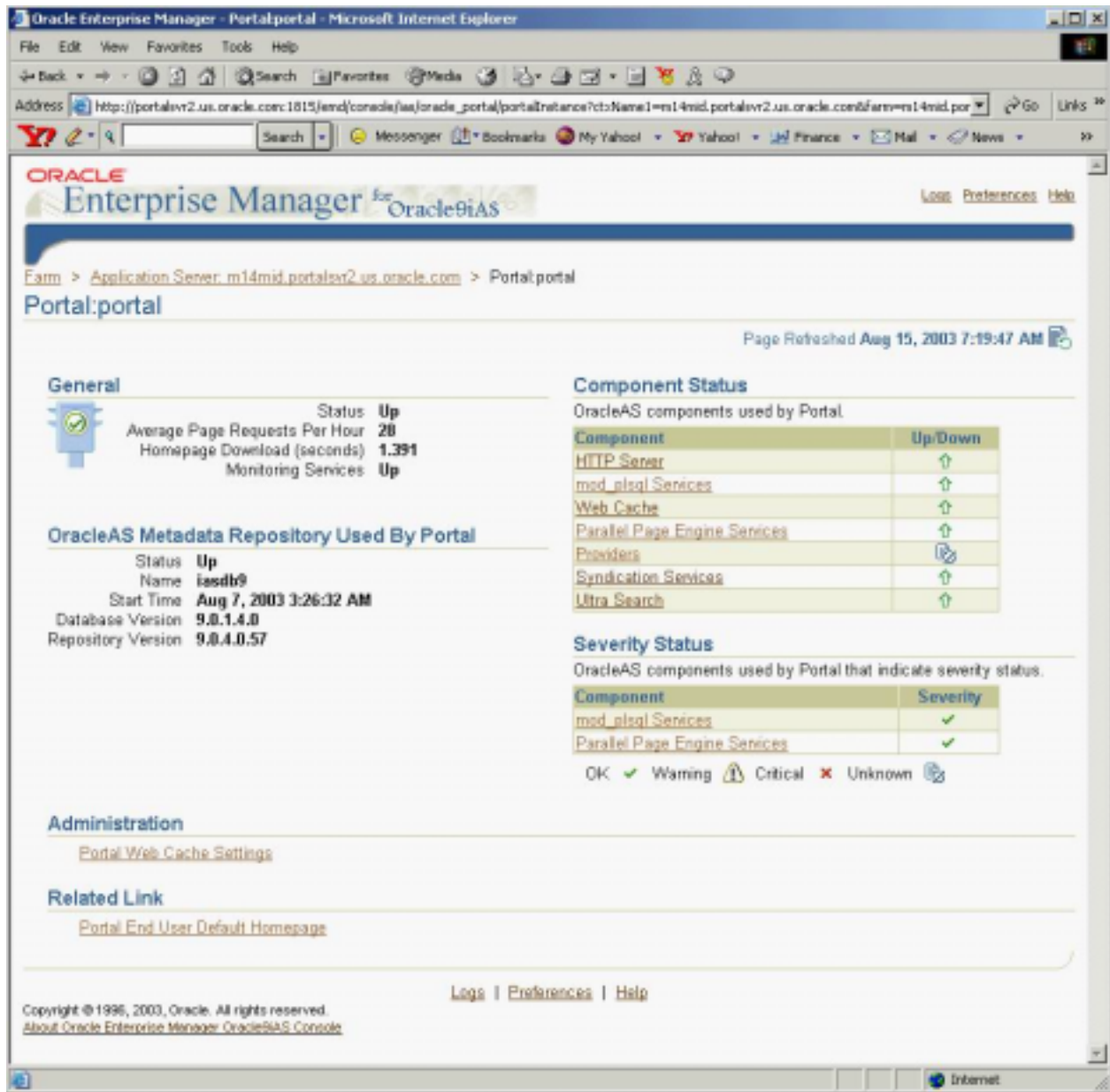


Figure 2. Oracle Application Server Control main Portal page

This is the first place to go to check the health of your Portal installation. From this page you can see the overall status of the Portal midtier itself, data on how the midtier is using the OracleAS Metadata Repository, and status of all other OracleAS Components that the Portal is dependent upon. For information on how to troubleshoot your portal, see chapter 13 "Troubleshooting OracleAS Portal" in the OracleAS Portal Configuration Guide.

ADMINISTRATION

The page depicted in Figure 2 also allows you to easily access several administration tasks, including:

- Creating, Editing and Deleting DADs via the DAD wizard (by drilling through to the DAD wizard from the [mod_plsql Services](#) link)
- Changing the Portal Web Cache Settings that this Portal midtier uses
- Editing the OC4J_Portal Web.xml configuration file (by drilling through to the OC4J_Portal Target Page from the [Parallel Page Engine Services](#) link)

In addition you can perform the following tasks from the Application Server page:

- Reassociating an OracleAS Portal midtier with a new Identity Management Server (SSO & OID)
- Reassociating an OracleAS Portal mid-tier installation with a new, different, or relocated OracleAS Metadata Repository

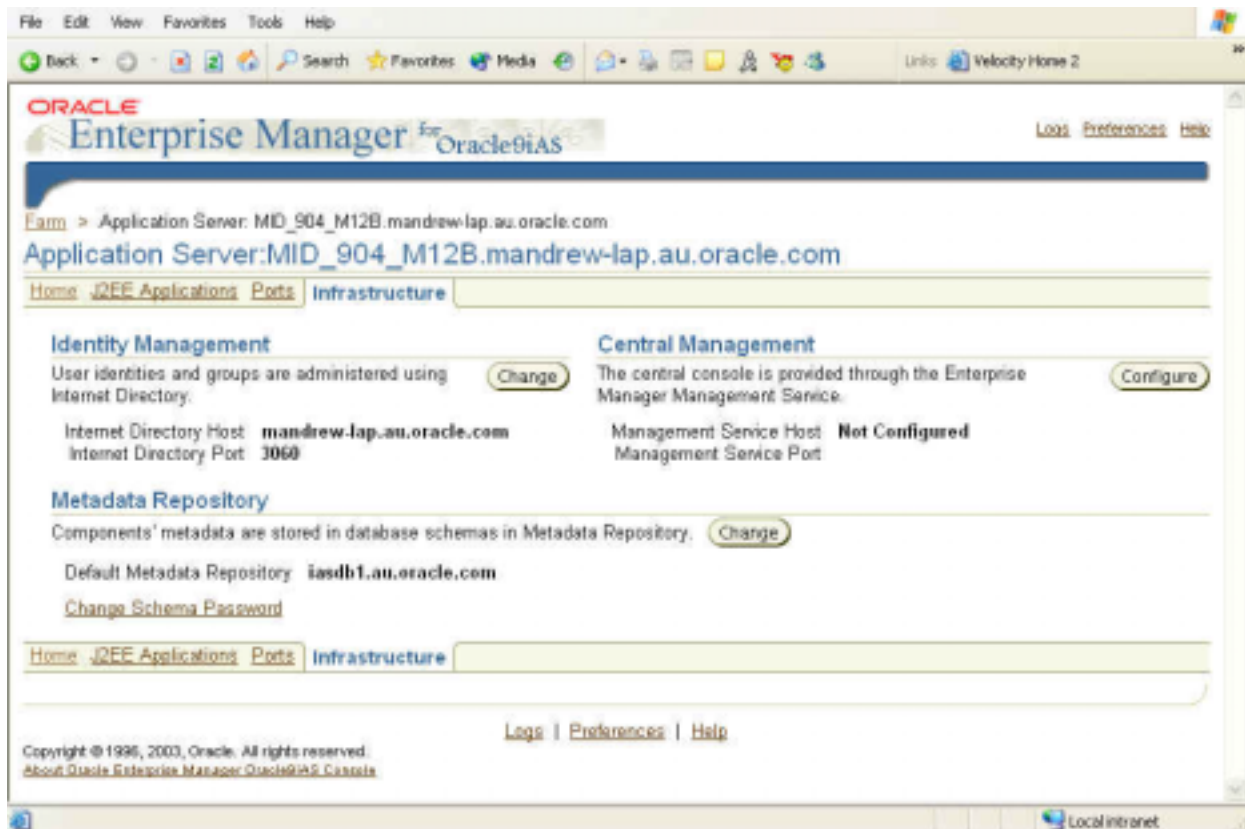


Figure 3. Oracle Application Server Control page showing re-association page

DIAGNOSTIC LOG FILE CORRELATION VIA THE ORACLE ENTERPRISE MANAGER 10g APPLICATION SERVER CONTROL LOG VIEWER

One important step in troubleshooting an OracleAS Portal installation is examining the log files of the various OracleAS components that OracleAS Portal uses. You can do this from the Application Server Control UI by clicking the Logs link in the top right hand corner of every page.

Because OracleAS Portal can satisfy a large number of requests simultaneously, tracing a single request through the various OracleAS Portal components can be difficult, as information relating to these requests is intermingled.

OracleAS Portal makes use of an Execution Context Identifier (ECID), a unique number that is assigned to a request and attached to information recorded for that request. As a request is passed from one component to another, the ECID is incremented to form a sequence. This means that an individual request can be tracked through any number of components by following this ECID sequence.

An ECID is generated by the first OracleAS component to receive a request without an ECID. Figure 4 shows the process through which a request with an ECID (represented by a solid arrow) is incremented as it moves through the system.

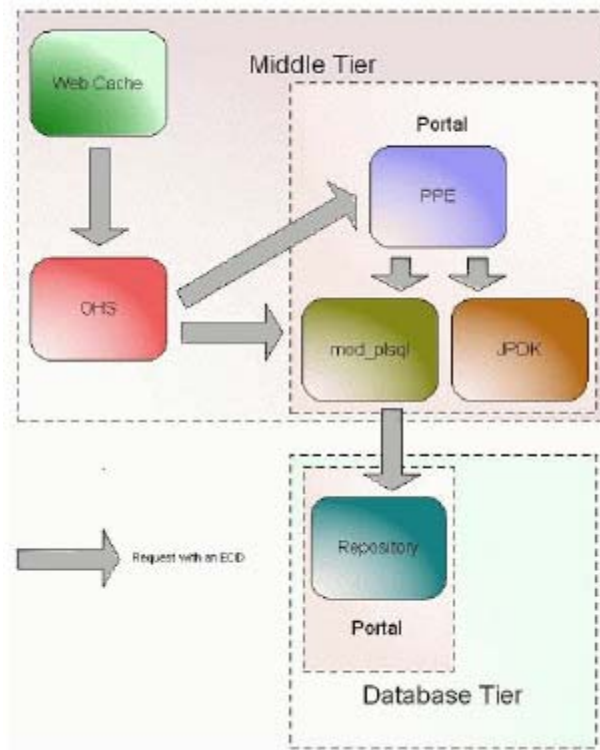


Figure 4. Oracle Application Server Portal ECID generation and flow

The Application Server Control Log Viewer allows the Administrator to visually correlate a number of log file entries together, based on the ECID, to expose the request flow from one component to another.

ORACLEAS PORTAL & THE ORACLE ENTERPRISE MANAGER GRID CONTROL

The Oracle Enterprise Manager Grid Control is installed into its own, separate oracle home from the OracleAS Portal oracle home it is managing. In the majority of cases the Grid Control is actually installed on a completely separate node to your OracleAS installation. The Oracle Enterprise Manager Grid Control installation consists of the Management Agent, Management Service and Management Repository.

- The Oracle Management Agent is a process that is deployed on each monitored host, and is responsible for monitoring all targets on the host, for communicating that information to the middle-tier Management Service, and for managing and maintaining the host and the products installed on the host. Each OracleAS installation has one Oracle Management Agent pre-installed with every Oracle Home.
- The Oracle Management Service is a web application deployed on an instance of Oracle Application Server 10gJ2EE and Web Cache. It renders the user interface for the Grid Control, works with all Management Agents in processing monitoring and job information, and uses the Management Repository as its data store.
- The Oracle Management Repository consists of two or more tablespaces in an Oracle database that contains all the information available about administrators, targets, and applications that are managed within Enterprise Manager.

The Management Service uploads the monitoring data it received from the Management Agent to the Management Repository. The Management Repository then organizes the data so that the data can be retrieved by the Management Service and displayed on the Grid Control. Because data is stored in the Management Repository, it can be shared between any number of administrators accessing the Grid Control.

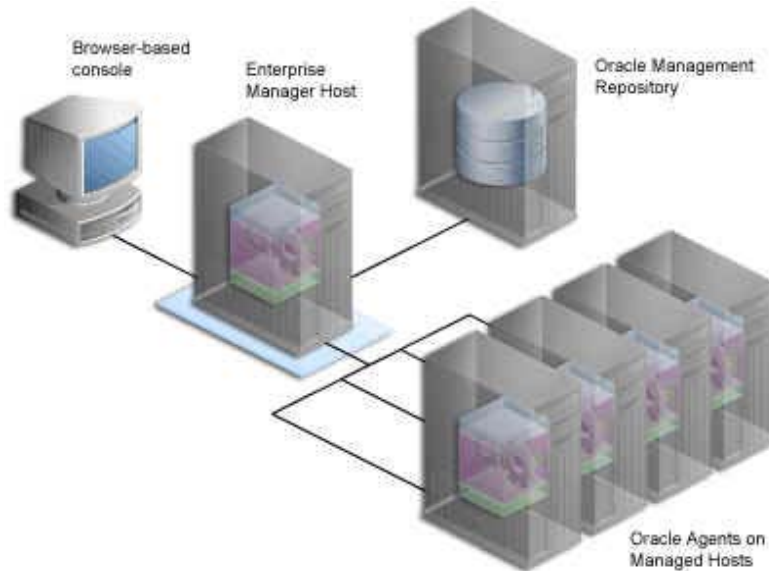


Figure 5. Oracle Enterprise Manager Grid Control architecture

The Grid Control is used for managing OracleAS Portal in two primary ways:

- Displaying historical metric and performance information
- Configuring alert thresholds and proactive notification mechanisms

HISTORICAL METRIC REPORTS

Whereas the Application Server Control displays real time metrics, the Grid Control shows metrics that have been *collected* over a period of time. The range of OracleAS Portal metrics that are to be collected are configured (by default) at install time.

You can use these collected metrics to monitor historical trends. For any of the collected metrics you can graph their performance over a period of time of up to 31 days. In addition you can also graph this same metric side by side with the same metric from a different OracleAS Portal installation that is also being monitored.

The Oracle Enterprise Manager team also plans to make these collected metrics available as a set of Management Portlets that you can deploy into your portal instance when creating KPI (Key Performance Indicator) pages for your Portal installations. Look for these portlets soon on OTN.

THRESHOLDS AND AUTOMATIC NOTIFICATIONS

In the Grid Control, you can define and adjust the thresholds for OracleAS Portal metrics. Thresholds are boundary values against which monitored metric values are compared. You can specify a warning threshold such that, when a monitored metric value crosses that threshold, a warning alert is generated. Alerts can notify you of impending problems that you can address in a timely manner. Alerts specific to OracleAS Portal can be viewed from the Portal Target page in the Grid Control.

Editing metric thresholds is useful because you can add or change the thresholds to fit the monitoring needs of your organization. When defining a threshold, you should choose a value that avoids too many unnecessary alerts.

Once you have tailored your thresholds to your organization you can set up notification alerts to execute when certain metrics exceed the pre-set thresholds.

To set up a notification in the Grid Control you first establish at least one Notification Method for either an Outgoing Mail Server, a Script (OS Command or PL/SQL) or an SNMP Trap. Once you have a Notification Method defined then you can link it to a Notification Rule through which you can choose the targets and conditions for which you want to receive notifications in the Grid Control.

APPLICATION MODELING

In the Grid Control, you can create a Web Application to perform application performance monitoring against OracleAS Portal sites by monitoring end-user response times or the performance of representative transactions. Using this feature, multiple sites can be monitored separately on their own page even when they all belong to the same OracleAS Portal installation. For example portalcenter.oracle.com, portalcatalog.oracle.com and portalstudio.oracle.com are part of the same OracleAS Portal installation, even though they are accessed via different home pages.

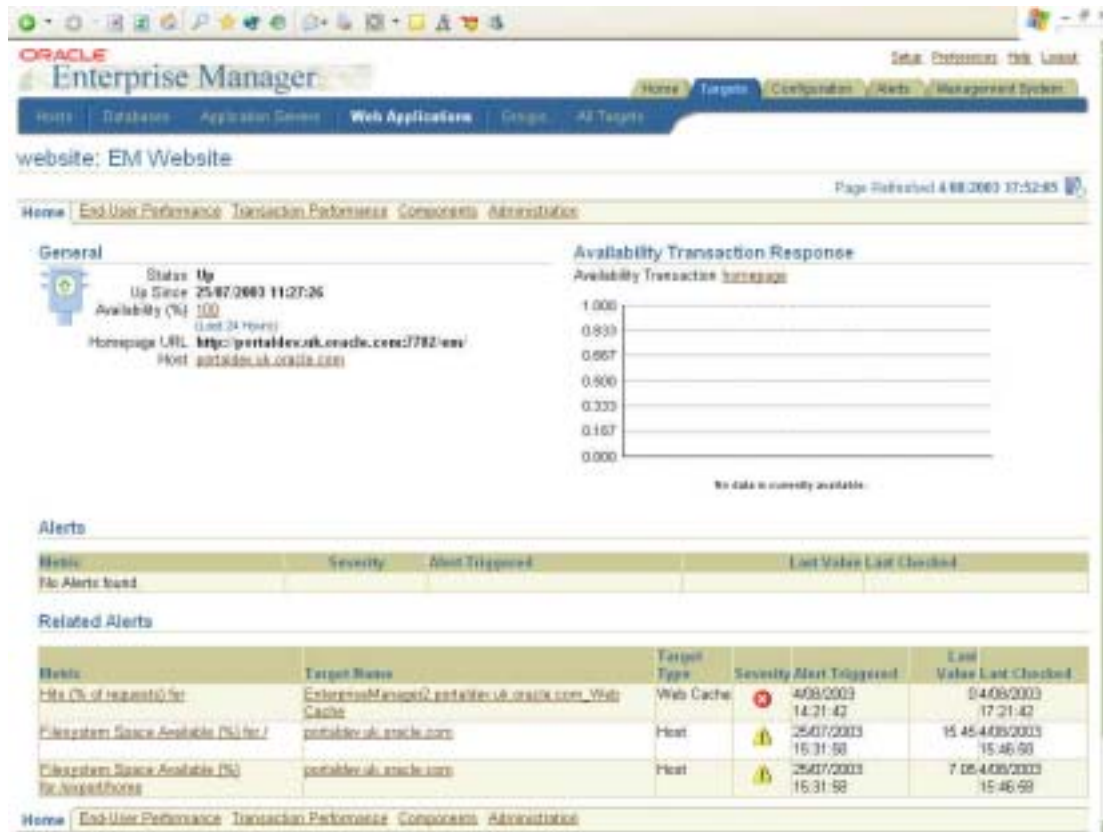


Figure 6. Oracle Enterprise Manager Grid Control page showing Web Applications

Two main types of monitoring are performed on the Web Applications page:

- End-User Response Time monitoring - All URLs based on the application homepage (specified in the Web Application properties) are monitored. URLs of particular importance can be identified in a URL Watchlist.
- Representative Transaction monitoring - Recorded application activity (transactions) is played back at regular intervals through client robots (Beacons). The availability of the application is defined as the availability of a selected subset of representative transactions, replayed through selected Beacons.

CONCLUSION

The combination of Oracle Application Server Portal 10g(9.0.4) and Oracle Enterprise manager provides a powerful yet easy to use environment for managing and monitoring your Portal deployments. Application Server Control provides Administrators with an out of the box environment to view real time metrics and log file information for powerful troubleshooting. In addition the Grid Control provides Administrators with a flexible architecture for examining historical trends in metrics information as well as the ability to configure notifications for proactive management.