

Oracle

Enterprise Manager : 10g Grid Control

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IT Challenges

Which of the below is a problem today?

Not a Problem	1	2	3	4	5	Big Problem
---------------	---	---	---	---	---	-------------

- | | | | | | |
|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| ✓ Under utilized hardware | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| ✓ Resizing, replacing or adding new servers | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| ✓ Many applications running on many databases | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| ✓ System downtime | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| ✓ System response time | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

IT Challenges

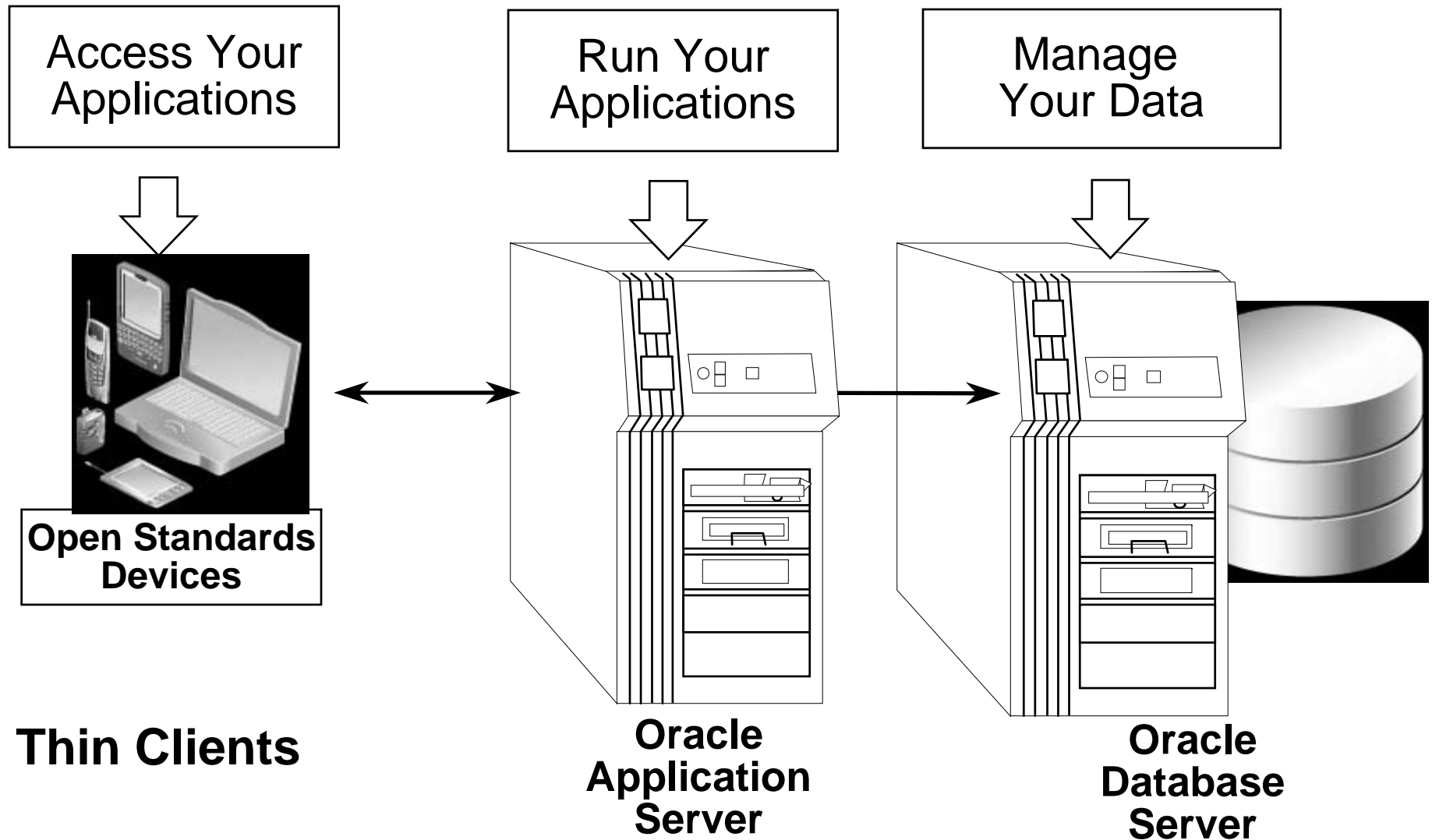
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Not a Problem	1	2	3	4	5	Big Problem
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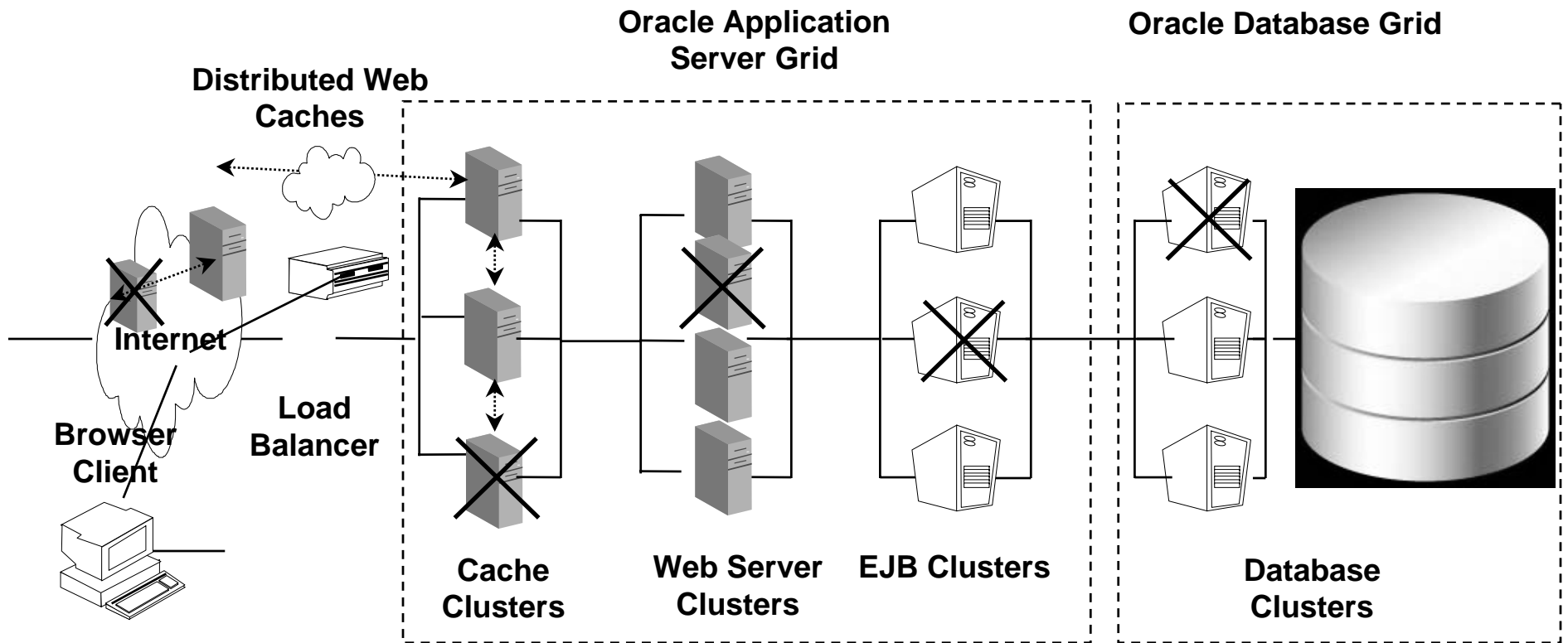
- | | | | | | |
|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| ✓ Under utilized hardware | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
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| ✓ System downtime | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| ✓ System response time | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

How does your company address growing IT infrastructure needs?

This way, with big irons?



Or, this way?



The Grid Vision

- Have minimal number of **LARGE** Databases
- Use Grid Computing
 - Clustering ++
 - Low Cost Components
 - Higher Quality of Service
- Have Business Intelligence (BI) next to Operational Data
 - Less number of moving parts
 - Faster processing
 - Faster Business Intelligence
- Use Web Applications
 - Browser based access
 - Management of the applications in the data center. No Client/server

Oracle 10g

for

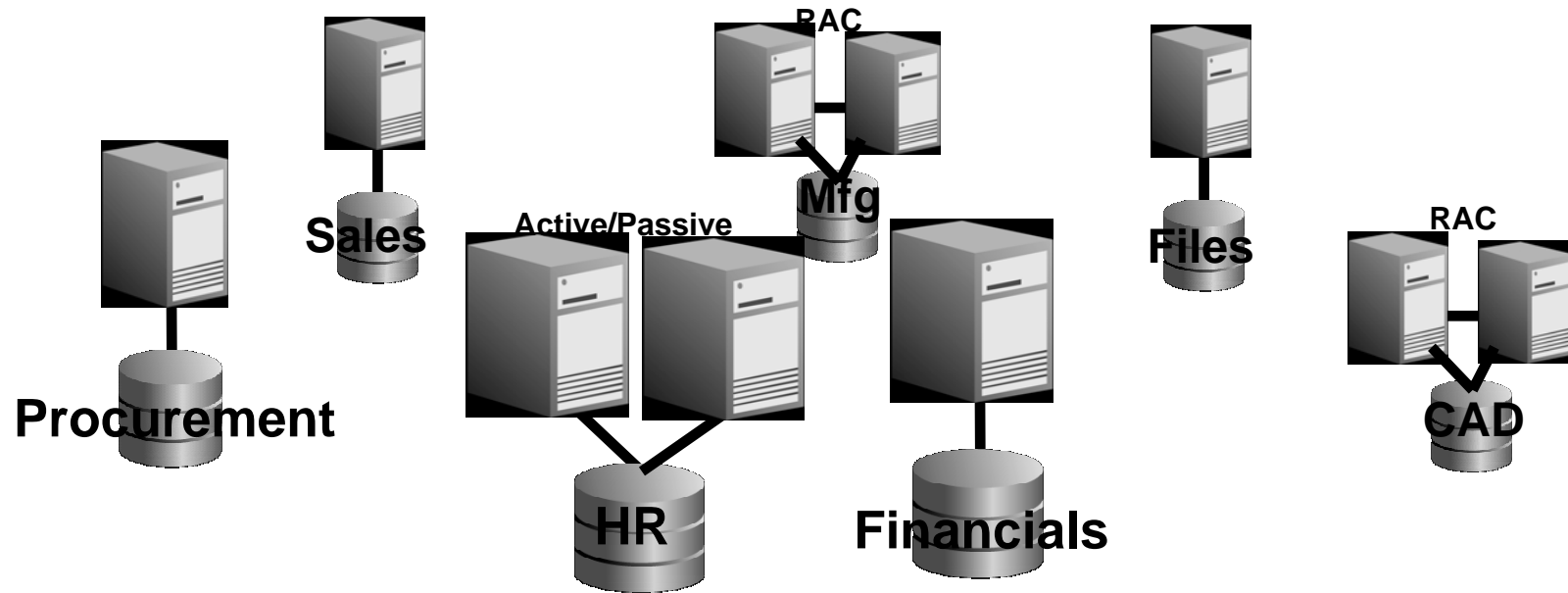
Enterprise Grid Computing

Grid Computing

- Grid computing treats computing as a utility.
 - Consumers don't care where computing occurs.
 - Producers ensure computational power is:
 - Available
 - Reliable
 - Reasonably priced

IT Problems/Challenges

Islands of Computation



“IT infrastructure is massively underutilized”

- IDC

“Companies can save 20% or more through consolidation”

- Giga Research

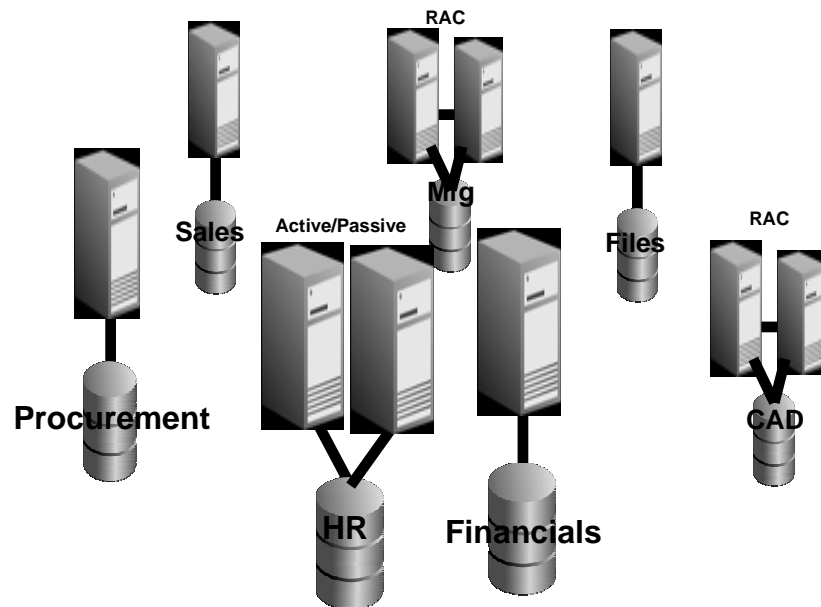
“75% of costs come from staffing & maintenance.”

- Business Week

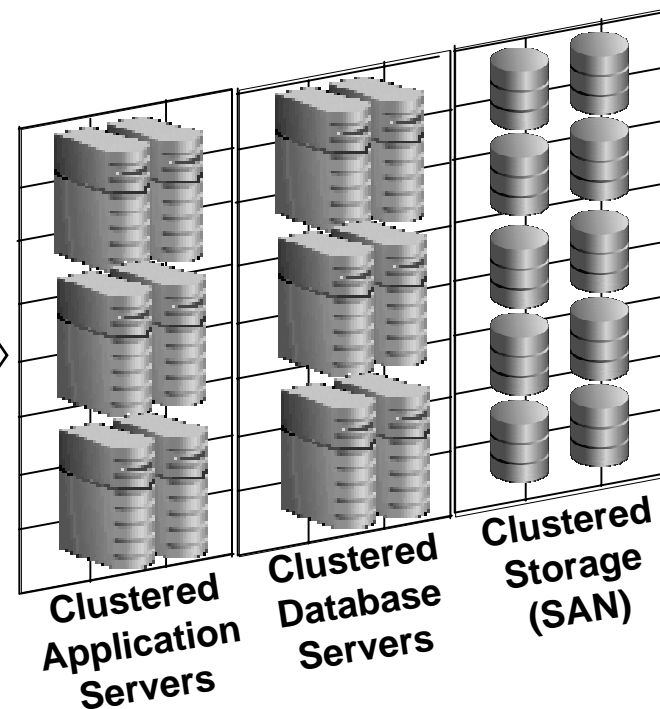
Grid Computing Improves Infrastructure Utilization

Grid computing is the coordinated use of a large number of servers and storage acting as one computer.

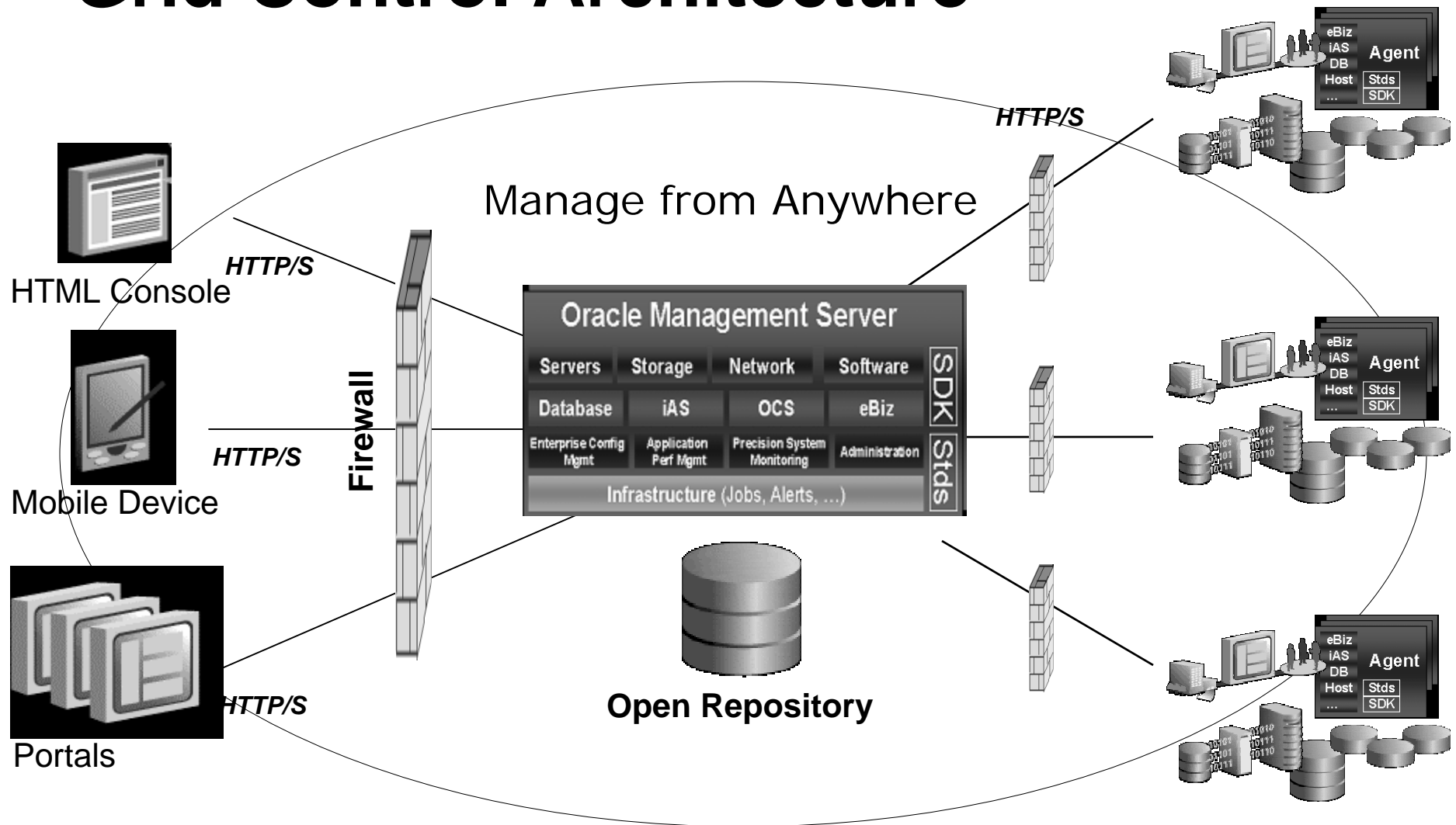
**Low utilization
with high cost to scale**



**High utilization
with low cost to scale**

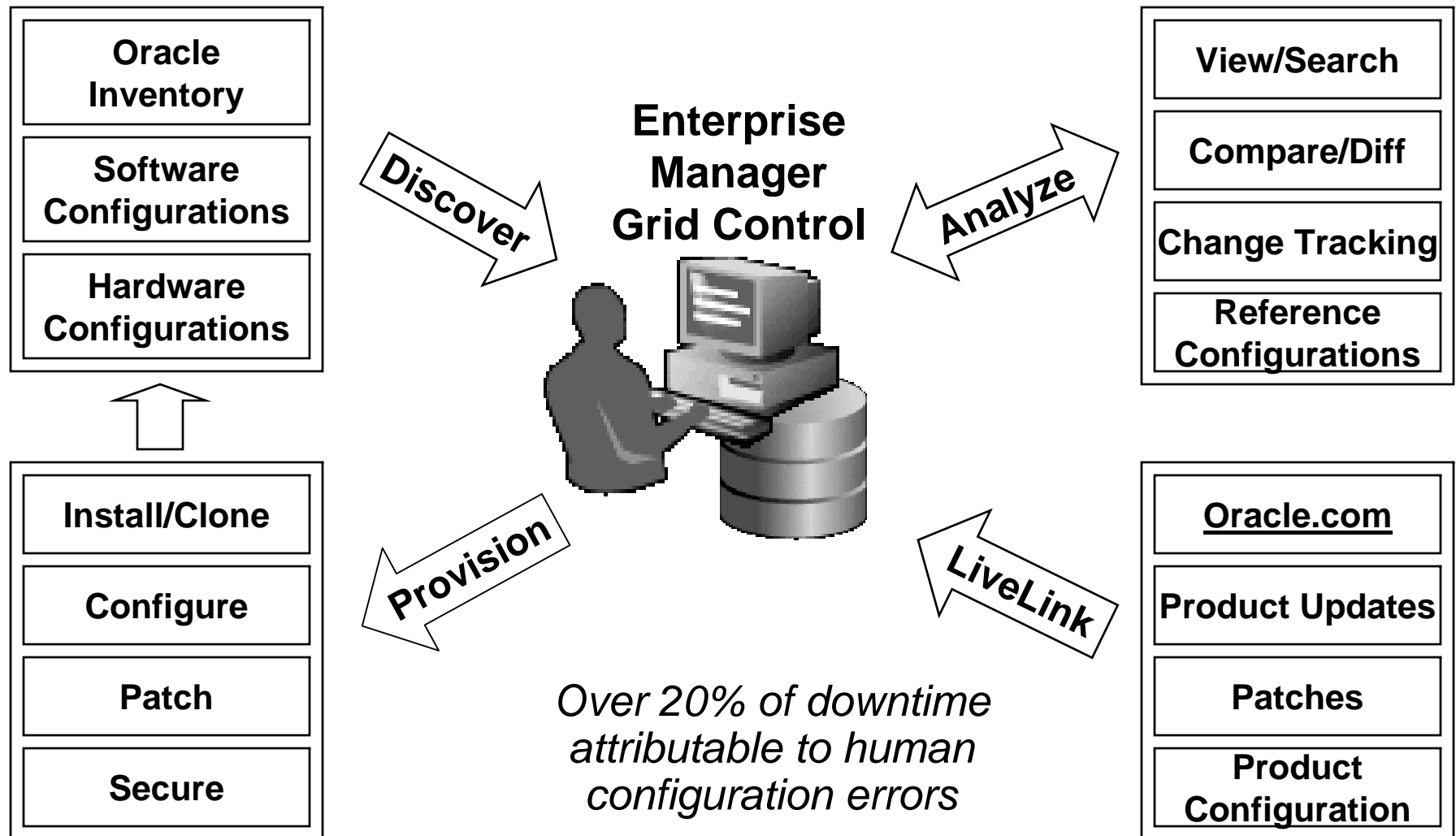


Enterprise Manager 10g: Grid Control Architecture



Automated Provisioning

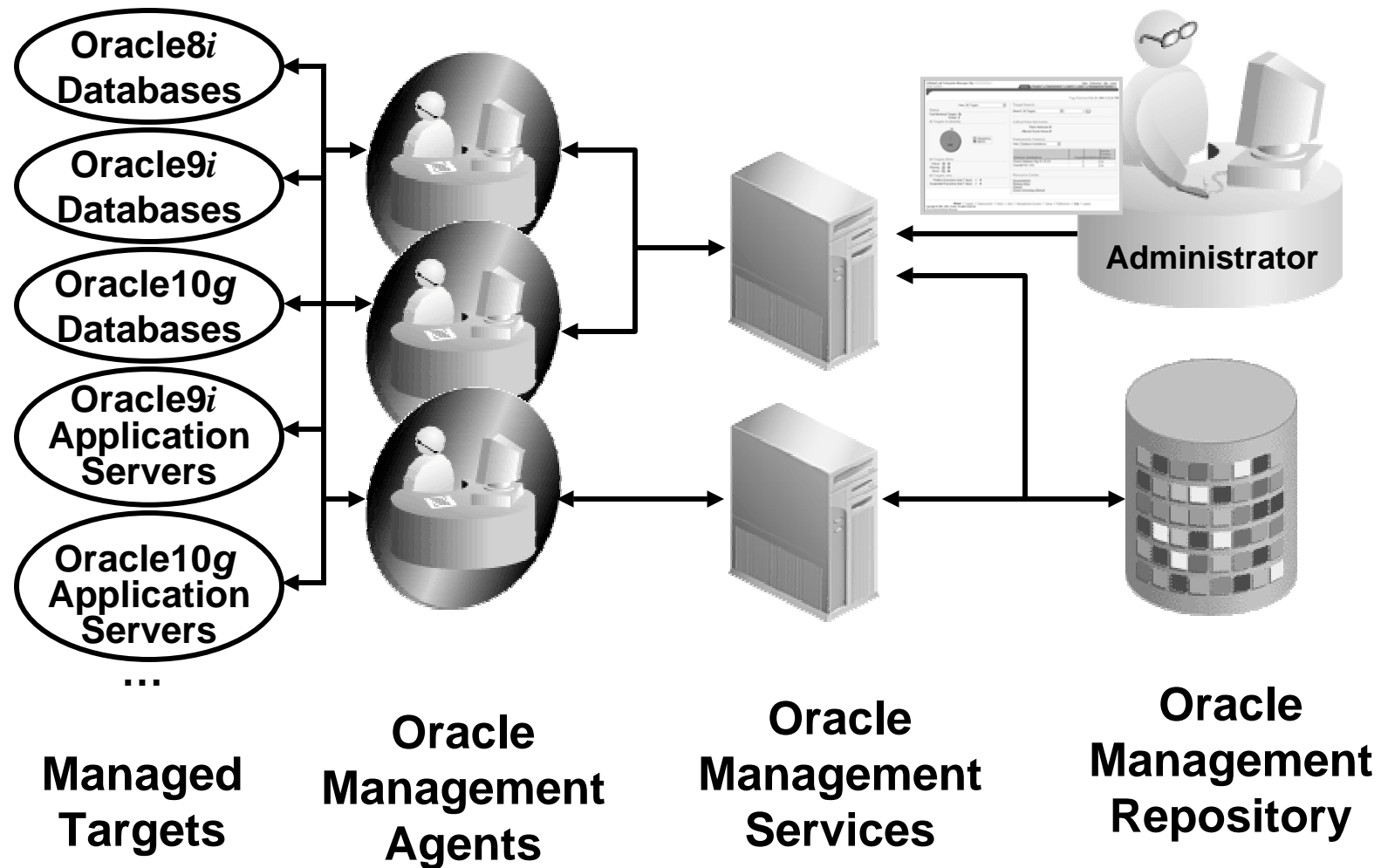
Scale Out to More Systems and Minimal Incremental Cost



Oracle Enterprise Manager 10g: Grid Control

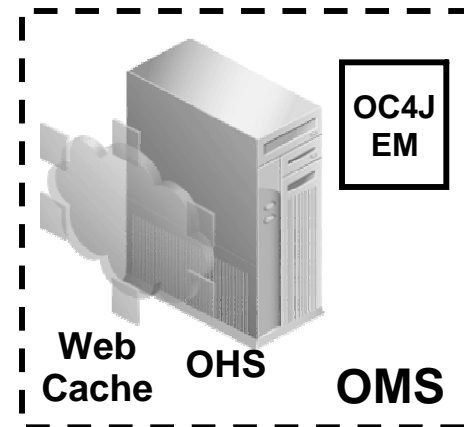
- Oracle Enterprise Manager 10g Grid Control provides the framework for monitoring and administering the grid, including the following:
 - A comprehensive overview of the grid's status
 - A single point of monitoring for *all* associated targets
 - Alerts with drill-down capability to identify trouble spots
 - ASLM to enable holistic management of application performance

Grid Control Components



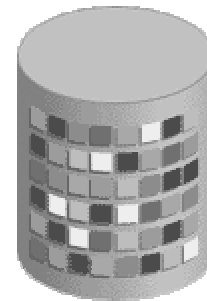
Management Service (OMS)

- An Oracle Management Service (OMS) is:
 - A J2EE Web application
 - Deployed to Oracle Application Server 10g J2EE and Web Cache edition
- The OMS may be installed:
 - When the OMR is created
 - As a stand-alone service



Management Repository (OMR)

- An Oracle Management Repository (OMR) is:
 - A set of schema objects in an Oracle9i Database
 - Required prior to installing the Oracle Management Service
- The OMR may be installed:
 - In an existing database
 - In a new database



Management Agent (OMA)

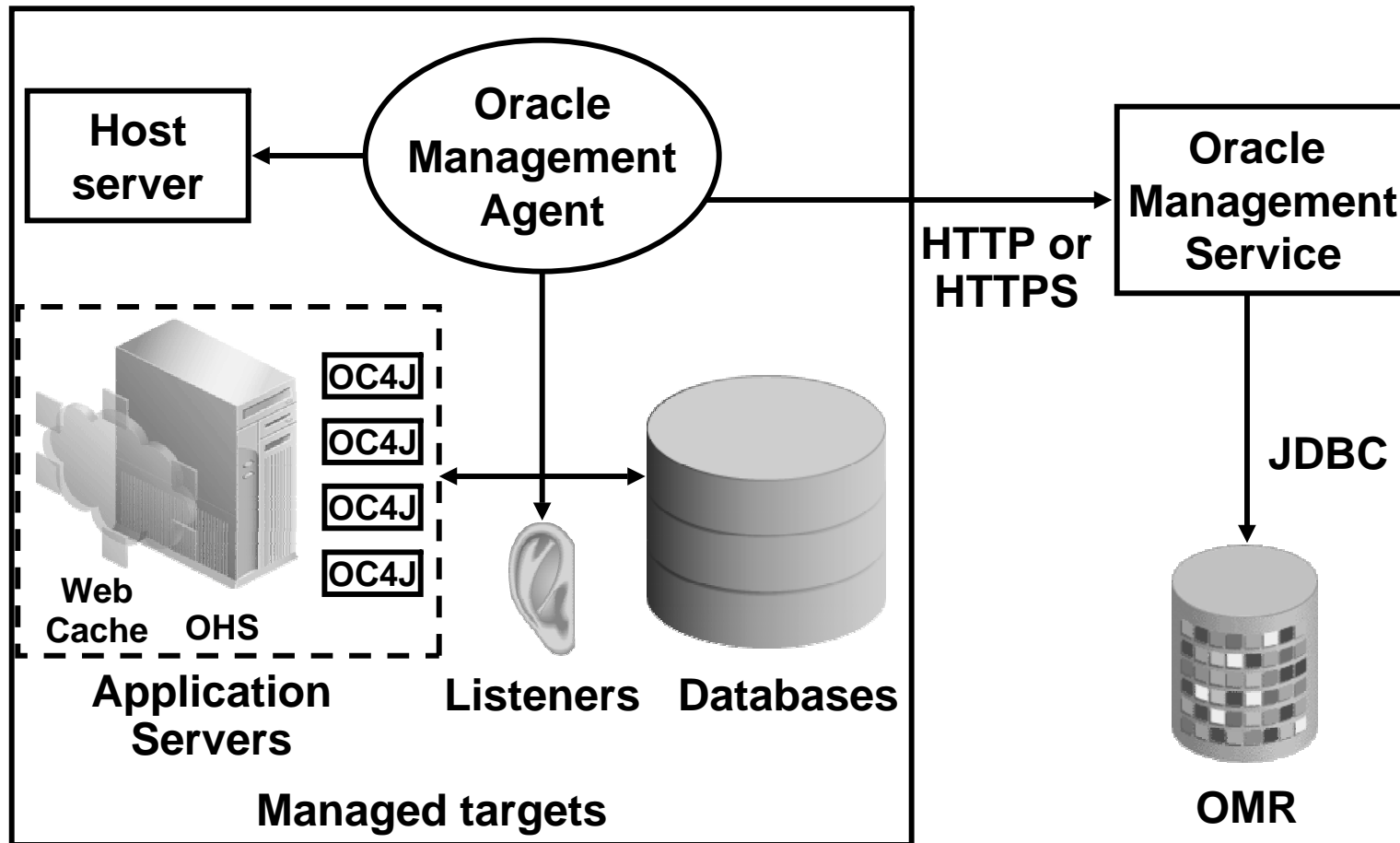
- The Oracle Management Agent (OMA):
 - Must be installed on every managed server
 - Connects to one OMS
- The OMA may be installed:
 - When the OMR is created
 - When a stand-alone OMS is created
 - As a stand-alone service



Managed Targets

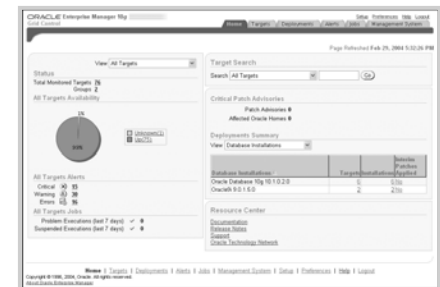
- Managed targets may include:
 - Oracle Databases
 - Oracle Database Listeners
 - Oracle Application Servers
 - Oracle Applications
 - Oracle Collaboration Suite
 - Most operating systems that are certified to run Oracle products
 - Third-party products and applications

Management Agent (OMA)



Accessing the Grid Control Console

- The Grid Control console may be accessed by any supported browser:
 - Netscape Navigator 4.78, 4.79, 7.01, 7.1.0
 - Mozilla 1.3.1
 - Microsoft Internet Explorer 5.5 (SP1) or 6.0 (SP2)
 - Microsoft Pocket Internet Explorer 2.0 (for HTTP) or 3.0 (for HTTPS)
 - `http://<oms hostname>.<domain>:<port>/em`
 - `http://omsserver.mycompany.com:7777/em`



Grid Control Console: Home

ORACLE Enterprise Manager 10g
Grid Control

Home Targets Deployments Alerts Jobs Management System

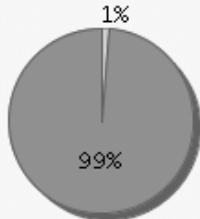
Page Refreshed Mar 3, 2004 11:24:05 AM

View All Targets

Status

Total Monitored Targets **76**
Groups **2**

All Targets Availability



1%
99%

Unknown(1)
Up(75)

All Targets Alerts

Critical **15**
Warning **35**
Errors **16**

All Targets Jobs

Problem Executions (last 7 days) **0**
Suspended Executions (last 7 days) **0**

Target Search

Search All Targets

Critical Patch Advisories

Patch Advisories **0**
Affected Oracle Homes **0**

Deployments Summary


View Database Installations

Database Installations	Targets	Installations	Interim Patches Applied
Oracle Database 10g 10.1.0.2.0	6	6	No
Oracle9i 9.0.1.5.0	2	2	No

Resource Center

[Documentation](#)
[Release Notes](#)
[Support](#)
[Oracle Technology Network](#)


Grid Control Console: Targets

ORACLE Enterprise Manager 10g  [Setup](#) [Preferences](#) [Help](#) [Logout](#)









Grid Control [Home](#) **[Targets](#)** [Deployments](#) [Alerts](#) [Jobs](#) [Management System](#)


[Hosts](#) [Databases](#) [Application Servers](#) [Web Applications](#) [Groups](#) [All Targets](#) [group1](#) [group2](#)

Databases

Page Refreshed Mar 3, 2004 11:27:04 AM 

Search [Go](#) [Add](#) [Remove](#) [Configure](#)

Select	Name ▲	Type	Availability	Alerts	Policy Violations	Sessions: CPU	Sessions: I/O	Sessions: Other	Instance CPU (%)
<input checked="" type="radio"/>	dnr5p4	Database: Physical Standby		7 0	0				
<input type="radio"/>	eddnr5p1.us.oracle.com	Database		1 0	21	0	0	0	0
<input type="radio"/>	emrep.us.oracle.com	Database		0 0	4	.03	0	0	2.87
<input type="radio"/>	iasdb.us.oracle.com	Database		3 0	0	.01	0	0	.5
<input type="radio"/>	orcl.oracle.com	Database: Primary		4 0	4	.02	0	0	2
<input type="radio"/>	orcl_EDDNR5P0.us.oracle.com	Database		4 1	0	0	0	0	0
<input type="radio"/>	orcl_eddnr5p7.us.oracle.com	Database		2 0	0	0	0	0	0
<input type="radio"/>	orcldg2	Database: Logical Standby		7 1	4	0	0	1.65	0

 **TIP** For an explanation of the icons and symbols used in this page, see the [Icon Key](#).

Viewing a List of Hosts in Your Grid

- From the Hosts target page you can quickly check the status of all host servers in your grid.

ORACLE Enterprise Manager 10g Grid Control

Home Targets Deployments Alerts Jobs Management System

Hosts Databases Application Servers Web Applications Groups All Targets

Hosts

Page Refreshed Mar 18, 2004 1:04:26 PM

Search

Select	Name	Availability	Alerts	Policy Violations	CPU Util %	Mem Util %	Total IO/sec
<input checked="" type="radio"/>	eddr5a1.us.oracle.com		1	39	38.3 ✓	99.3 (A)	91.59
<input type="radio"/>	eddr5a1.us.oracle.com		2	64	10.15 ✓	96.31 ✓	5.31
<input type="radio"/>	eddr5a0.us.oracle.com		0	17	1.79 ✓	94.71 ✓	7.88
<input type="radio"/>	eddr5a1.us.oracle.com		0	20	15.43 ✓	93.99 ✓	6.7
<input type="radio"/>	eddr5a10.us.oracle.com		2	29	15.49 ✓	99.4 (A)	11.01
<input type="radio"/>	eddr5a11.us.oracle.com		0	27	10.76 ✓	93.96 ✓	12.02
<input type="radio"/>	eddr5a12.us.oracle.com		0	19	3.69 ✓	98.12 ✓	13.3
<input type="radio"/>	eddr5a2.us.oracle.com		0	12	1.22 ✓	95.7 ✓	5.49
<input type="radio"/>	eddr5a3.us.oracle.com		1	11	.97 ✓	91.07 ✓	2.09
<input type="radio"/>	eddr5a4.us.oracle.com		2	12	1.59 ✓	91.19 ✓	4.39
<input type="radio"/>	eddr5a5.us.oracle.com			25			
<input type="radio"/>	eddr5a6.us.oracle.com		0	28	59.86 ✓	93.72 ✓	4.47
<input type="radio"/>	eddr5a7.us.oracle.com		0	12	.9 ✓	87.09 ✓	6.12
<input type="radio"/>	eddr5a8.us.oracle.com		0	11	.31	83.97	1.31

Host Home Page

- The Host home page allows you to quickly determine the state of the host.

ORACLE Enterprise Manager 10g Grid Control

Home Targets Deployments Alerts Jobs Management System


Hosts Databases Application Servers Web Applications Groups All Targets

Host: eddnr5p6.us.oracle.com

Latest Data Collected From Target: Mar 18, 2004 12:18:27 PM

Home Performance Targets Configuration

General

 Status: **Up**
Boot Time: **37 days**
Time Zone: **MST**
Availability (%): **100**
(Last 24 Hours)
Policy Violations: **28**

Configuration

Operating System: **Red Hat Linux Advanced Server release 2.1AS (Pensacola) 2.4.9-25 (32-bit)**
Hardware Platform: **IBM**
IP Address: **138.2.217.110**
Number of CPUs: **1**
Memory Size (MB): **1000**
Disk Space (GB): **15.04**

Alerts

Metric Name	Severity	Alert Triggered	Value Last Checked
No alerts found			

Job Activity

Jobs scheduled to start no more than 7 days ago

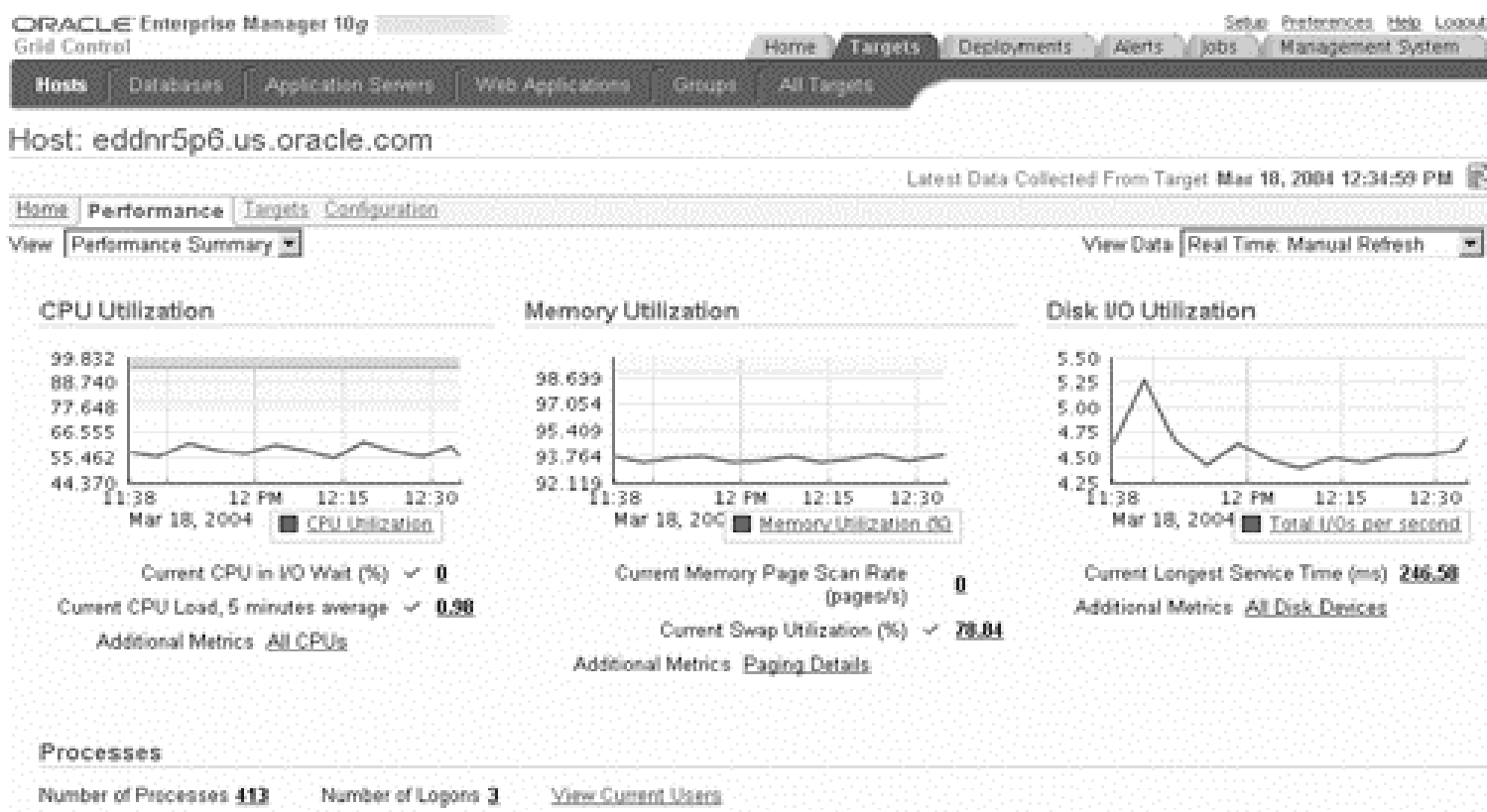
Scheduled Executions: 0	Suspended Executions: ✓ 0
Running Executions: 0	Problem Executions: ✗ 1

Related Links

[Alert History](#) [All Metrics](#) [Blackouts](#)

Viewing Performance Information

- The Host Performance page shows you how the host is using its available resources.



Comparing Metrics of Multiple Database Targets

- The Database Targets page makes it easy to compare resource usage of different databases.

ORACLE Enterprise Manager 10g Setup Preferences Help Logout
Grid Control Home Targets Deployments Alerts Jobs Management System

Targets Databases Application Servers Web Applications Groups All Targets

Databases

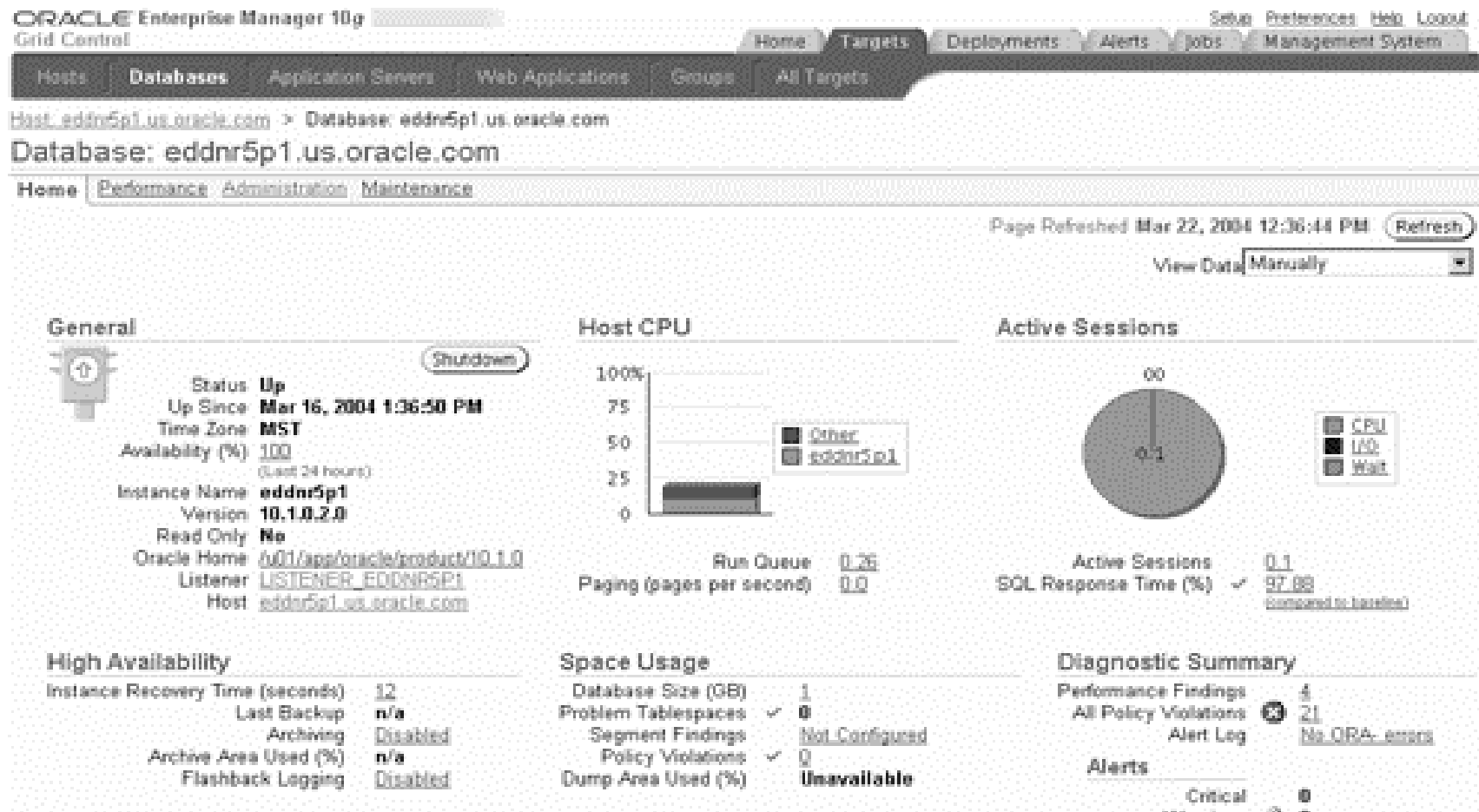
Search Page Refreshed: Mar 22, 2004 12:36:36 PM

Select	Name	Type	Availability	Alerts	Policy Violations	Sessions: CPU	Sessions: I/O	Sessions: Other	Instance CPU (%)
<input checked="" type="radio"/>	dn5p1	Database: Physical Standby		4 0	0				
<input type="radio"/>	eddn5p1.us.oracle.com	Database		2 0	21	.06	0	0	6
<input type="radio"/>	emexp.us.oracle.com	Database		4 0	4	.02	0	0	1.97
<input type="radio"/>	usdb.edcn1p1.us.oracle.com	Database		0 0	277	0	0	0	.08
<input type="radio"/>	usdb.us.oracle.com	Database		5 0	0	.01	0	0	.53
<input type="radio"/>	orcl.oracle.com	Database: Primary		6 3	4	.01	0	0	1
<input type="radio"/>	orcl_EDDNR5P0.us.oracle.com	Database		3 1	0	0	0	0	0
<input type="radio"/>	orcl_eddn5p7.us.oracle.com	Database		3 0	0	0	0	0	0
<input type="radio"/>	orclq2	Database: Logical Standby		12 18	4	0	0	0	0
<input type="radio"/>	stordb.us.oracle.com	Database		2 0	59	.01	0	0	.52

TIP For an explanation of the icons and symbols used in this page, see the [Icon Key](#).

Database Home Page

- The Database Home page presents an overview of database status and resource consumption.



Grid Control Console: Deployments

ORACLE® Enterprise Manager 10g
Grid Control

Setup Preferences Help Logout

Home Targets **Deployments** Alerts Jobs Management System

Deployments

Critical Patch Advisories

Patch Advisories **0**

Affected Oracle Homes **0**

Deployments Summary

View Database Installations ▼

Database Installations ▲	Targets	Installations	Interim Patches Applied
Oracle Database 10g 10.1.0.2.0	6	6	No
Oracle9i 9.0.1.5.0	2	2	No

Overview

Enterprise Manager maintains detailed information about hosts and their operating systems, as well as software installations. The Deployments Summary table provides a high level view of this information, as well as allowing you to explore the details by selecting the individual components. This information is also available on the Configuration page for a host. Using the Deployments tools, you can:

- Perform searches on the detailed information.
- Compare the detailed information of hosts and databases.
- Search Oracle MetaLink for patches, and subsequently manage their deployment.
- Clone a database or Oracle home to an alternative location.
- Manage the configuration collection process.

Grid Control Console: Alerts

ORACLE Enterprise Manager 10g Grid Control

Setup Preferences Help Logout

Home Targets Deployments **Alerts** Jobs Management System

Targets Down Critical **Warning** Errors Blacked Out Unknown Availability

Warning Alerts

Your managed targets listed below have metric severities that are in Warning status. Page Refreshed Mar 3, 2004 11:29:55 AM

Search All Targets

Select All | Select None 1-25 of 34

Select	Target	Type	Open Since	Message
<input type="checkbox"/>	dnr5p4	Database	Mar 2, 2004 11:14:33 PM	81% of archive area /u01/app/oracle/product/10.1.0/oradata/orclg3/arc/ is used.
<input type="checkbox"/>	dnr5p4	Database	Mar 2, 2004 11:14:33 PM	81% of archive area /u01/app/oracle/product/10.1.0/oradata/orclg3/arc/dgarc/ is used.
<input type="checkbox"/>	dnr5p4	Database	Feb 26, 2004 9:35:47 AM	ORA-error stack (00600[kspgsp2]) logged in /u01/app/oracle/admin/orclg3/bdump/alert_orcl...
<input type="checkbox"/>	dnr5p4	Database	Feb 26, 2004 9:17:48 AM	ORA-error stack (00600[kspgsp2]) logged in /u01/app/oracle/admin/orclg3/bdump/alert_orcl...
<input type="checkbox"/>	dnr5p4	Database	Feb 26, 2004 8:56:16 AM	ORA-error stack (00600[kspgsp2]) logged in /u01/app/oracle/admin/orclg3/bdump/alert_orcl...
<input type="checkbox"/>	dnr5p4	Database	Feb 26, 2004 8:54:12 AM	The database status is MOUNTED.
<input type="checkbox"/>	dnr5p4	Database	Feb 26, 2004 8:47:18 AM	User SYS logged on from EDDNR5P4.
<input type="checkbox"/>	eddnr5p0.us.oracle.com	Host	Feb 18, 2004 1:47:58 PM	Filesystem / has only 19% available space
<input type="checkbox"/>	eddnr5p1.us.oracle.com	Database	Feb 28, 2004 8:37:24 AM	Metrics "Database Time Spent Waiting (%)" is at 100 for event class "Other"
<input type="checkbox"/>	eddnr5p10.us.oracle.com	Host	Mar 3, 2004 10:35:52 AM	Swap Utilization is 85.19%

Grid Control Console: Jobs

ORACLE Enterprise Manager 10g
Grid Control

Setup Preferences Help Logout

Home Targets Deployments Alerts **Jobs** Management System

Activity Library

Job Activity

Page Refreshed Mar 3, 2004 11:33:37 AM

Search

Name

Owner

Status

Scheduled Start

Show jobs scheduled to start at the above time or afterwards

Job Type

Target Type

Target Name

☐ Show jobs to which I have not been granted view access
Can only be checked if exactly one target is selected. The jobs will be listed, but their results cannot be viewed.

Results

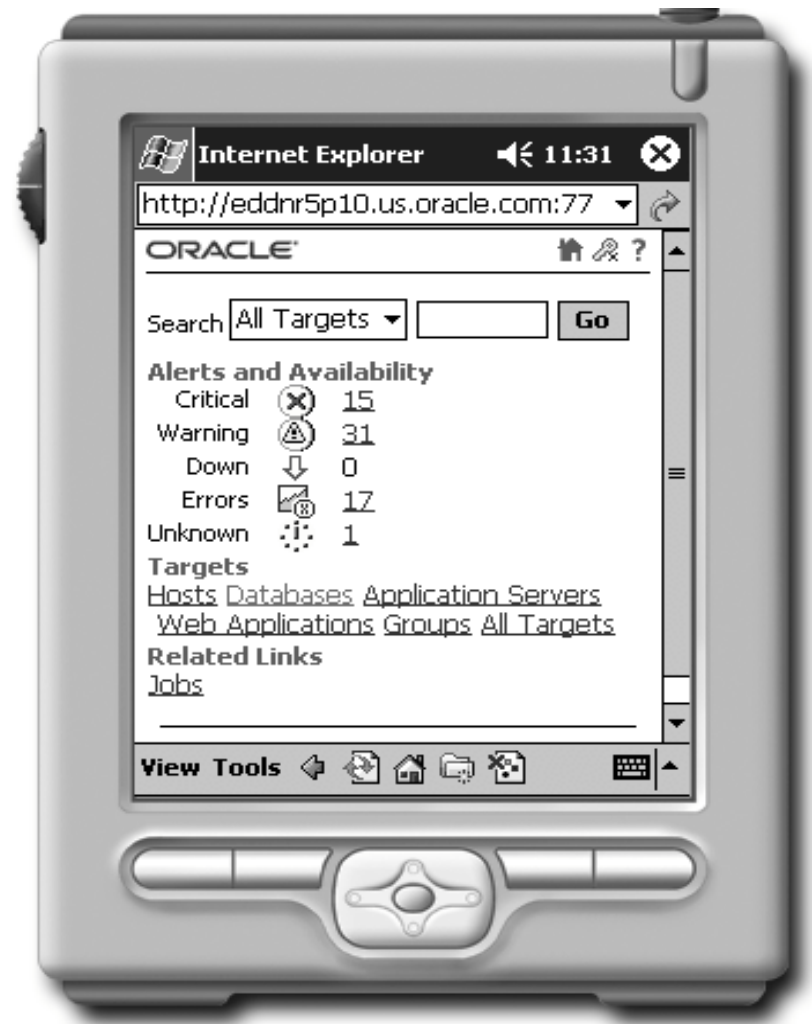
View

Create Job CloneHome

Select	Name	Status (Executions)	Scheduled	Targets	Target Type	Owner	Job Type
<input checked="" type="radio"/>	REORGANIZE_ORCL.Oracle.com_25	1 Succeeded	Feb 27, 2004 6:50:03 AM GMT-07:00	orcl.oracle.com	Database	SYSMAN	Reorganize
<input type="radio"/>	BACKUP_ORCL.Oracle.com_000024	1 Succeeded	Feb 26, 2004 2:32:35 PM GMT-07:00	orcl.oracle.com	Database	SYSMAN	Backup
<input type="radio"/>	DATAGUARDCREATESTANDBY21	1 Succeeded	Feb 26, 2004 8:28:46 AM GMT-07:00	2	Host	SYSMAN	Data Guard Create Standby

EM2Go

- Access Grid Control's EM2Go with any wireless device using Microsoft Pocket Internet Explorer:
 - Requires no special configuration
 - Includes the most critical functionality of Grid Control

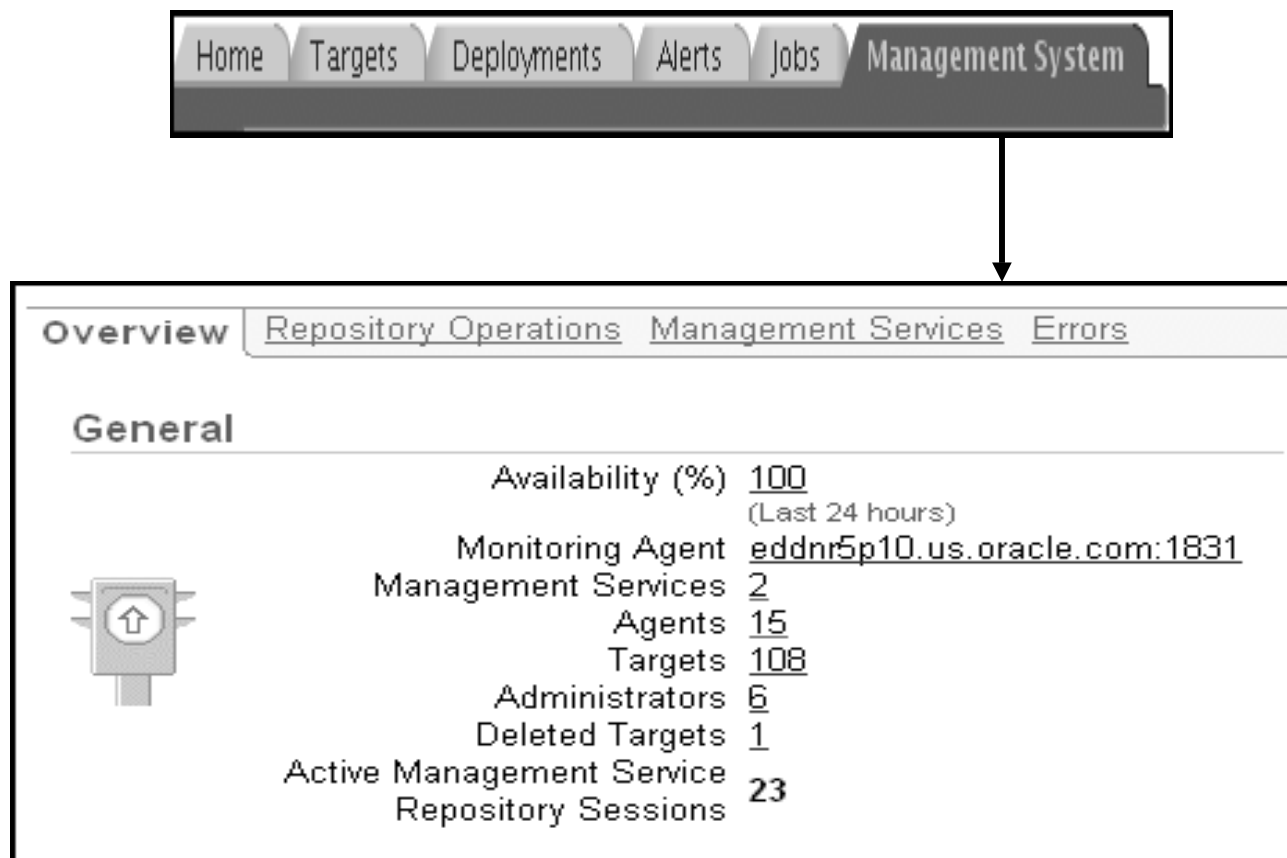


Monitoring Grid Control

- Grid Control must be functioning efficiently to effectively monitor targets. When monitoring the Grid Control framework, you should:
 - Examine management repository operations
 - Ensure that management services are functioning properly
 - Check management agent performance

Management System: Overview

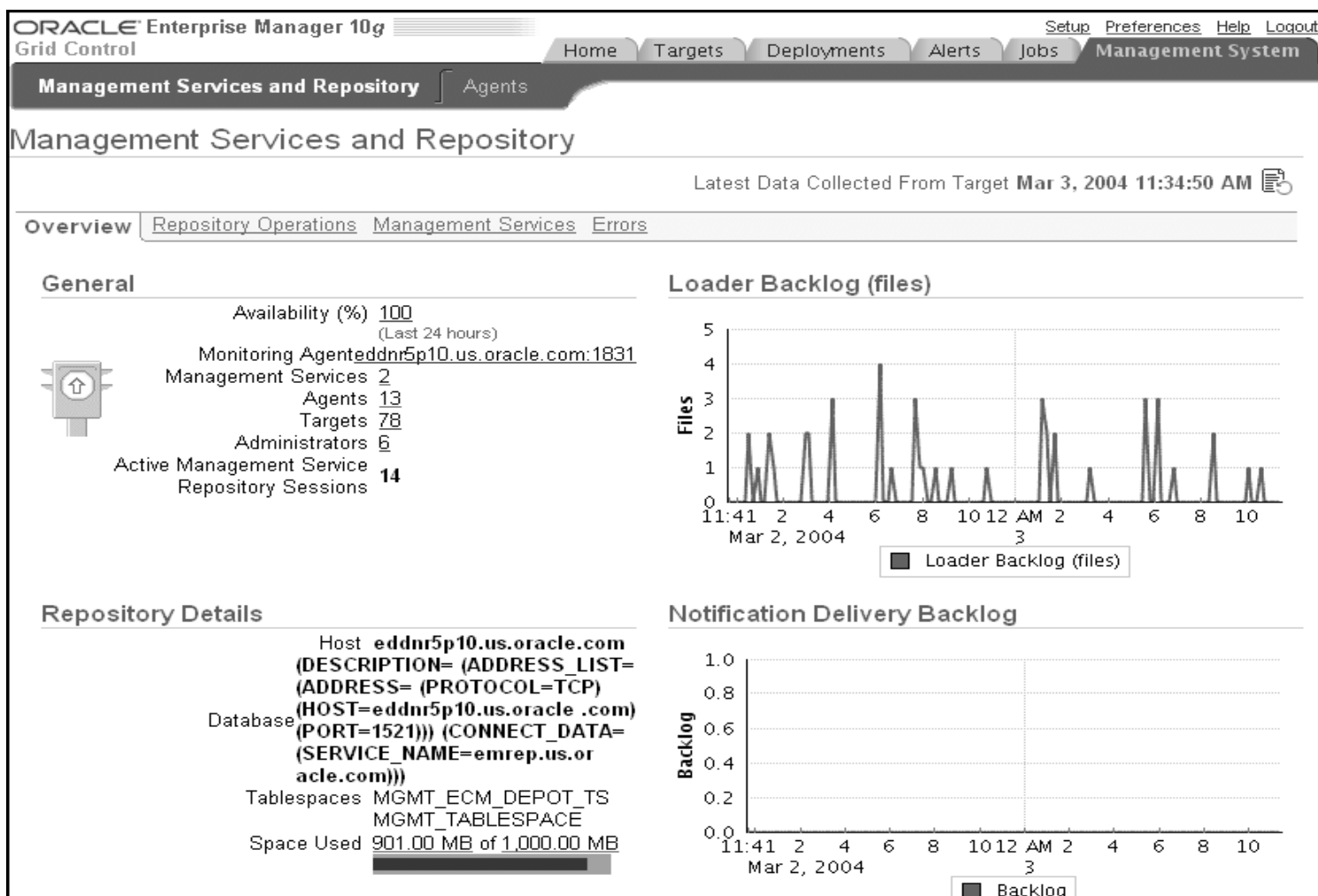
- Select the Management System tab for an overview of the Grid Control framework.



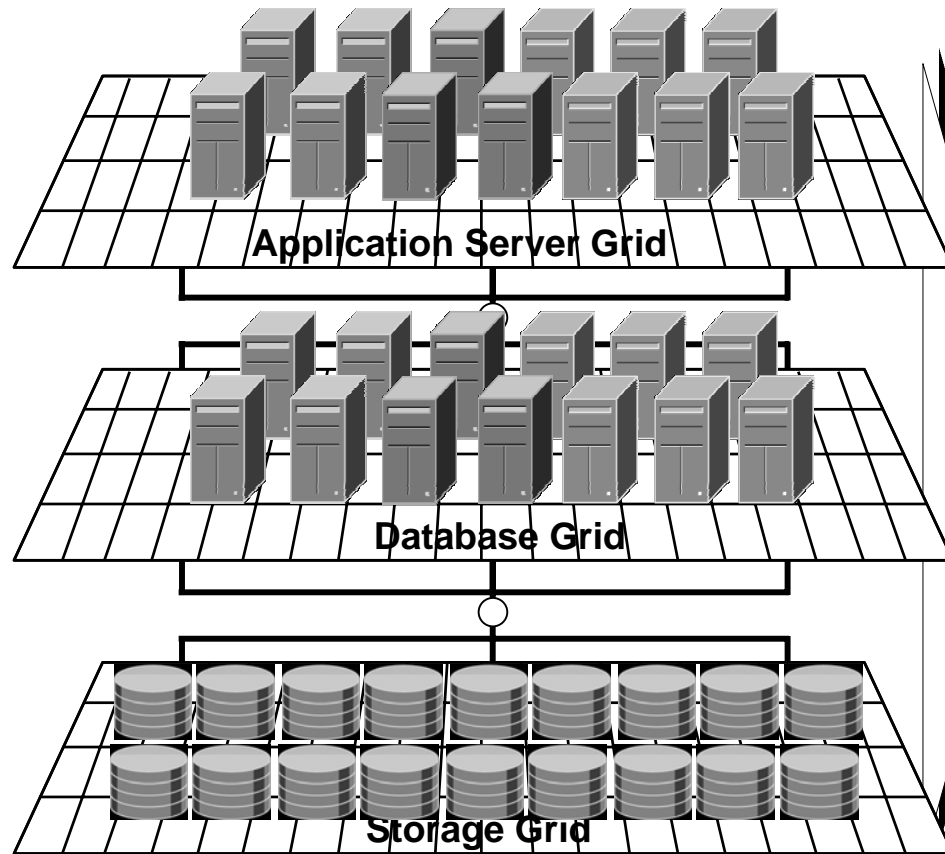
The screenshot shows the Oracle Management System (OMS) interface. At the top, a navigation bar contains tabs for Home, Targets, Deployments, Alerts, Jobs, and Management System. The Management System tab is selected. Below this, a sub-navigation bar shows Overview, Repository Operations, Management Services, and Errors. The Overview tab is active, displaying a 'General' section. On the left is a status icon of a square with an upward arrow. To its right, a list of system metrics is shown with their values and, where applicable, a link to more details.

Availability (%)	100
	(Last 24 hours)
Monitoring Agent	eddnr5p10.us.oracle.com:1831
Management Services	2
Agents	15
Targets	108
Administrators	6
Deleted Targets	1
Active Management Service	23
Repository Sessions	

Grid Control Console: Management System

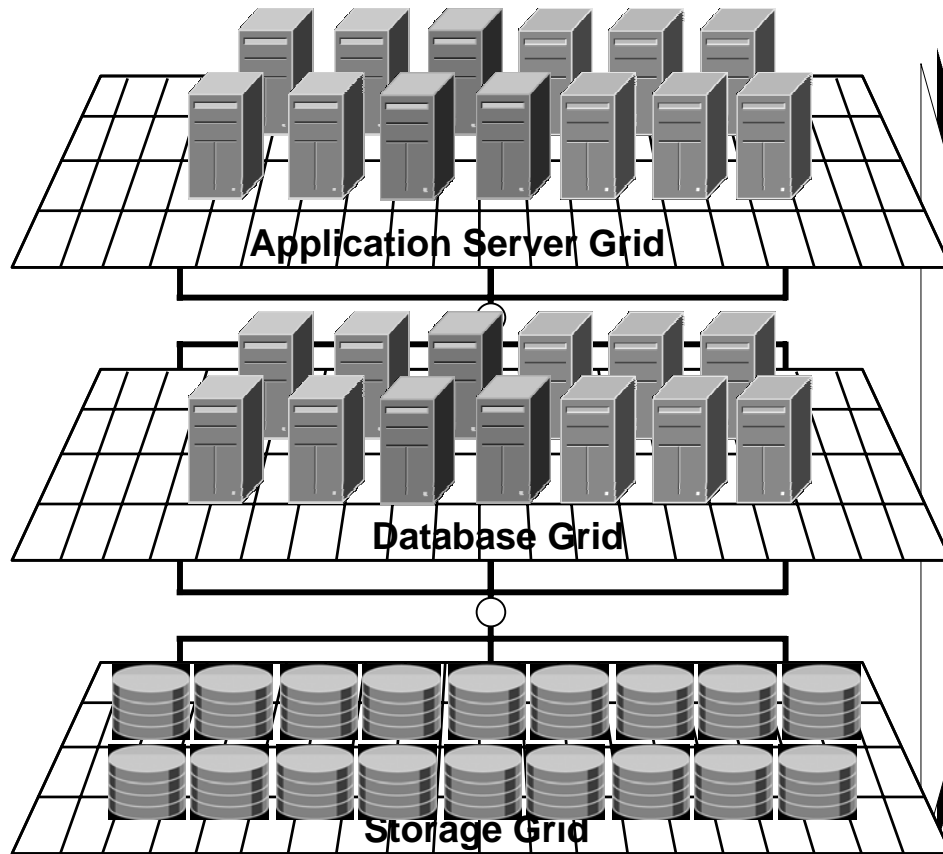


Grid Computing



- **Highest quality of service**
- **Lowest Cost**
- **Easiest to Manage**

Grid Computing



Application Server Grid

- Optimal resource utilization
- J2EE and Web Cache Clustering

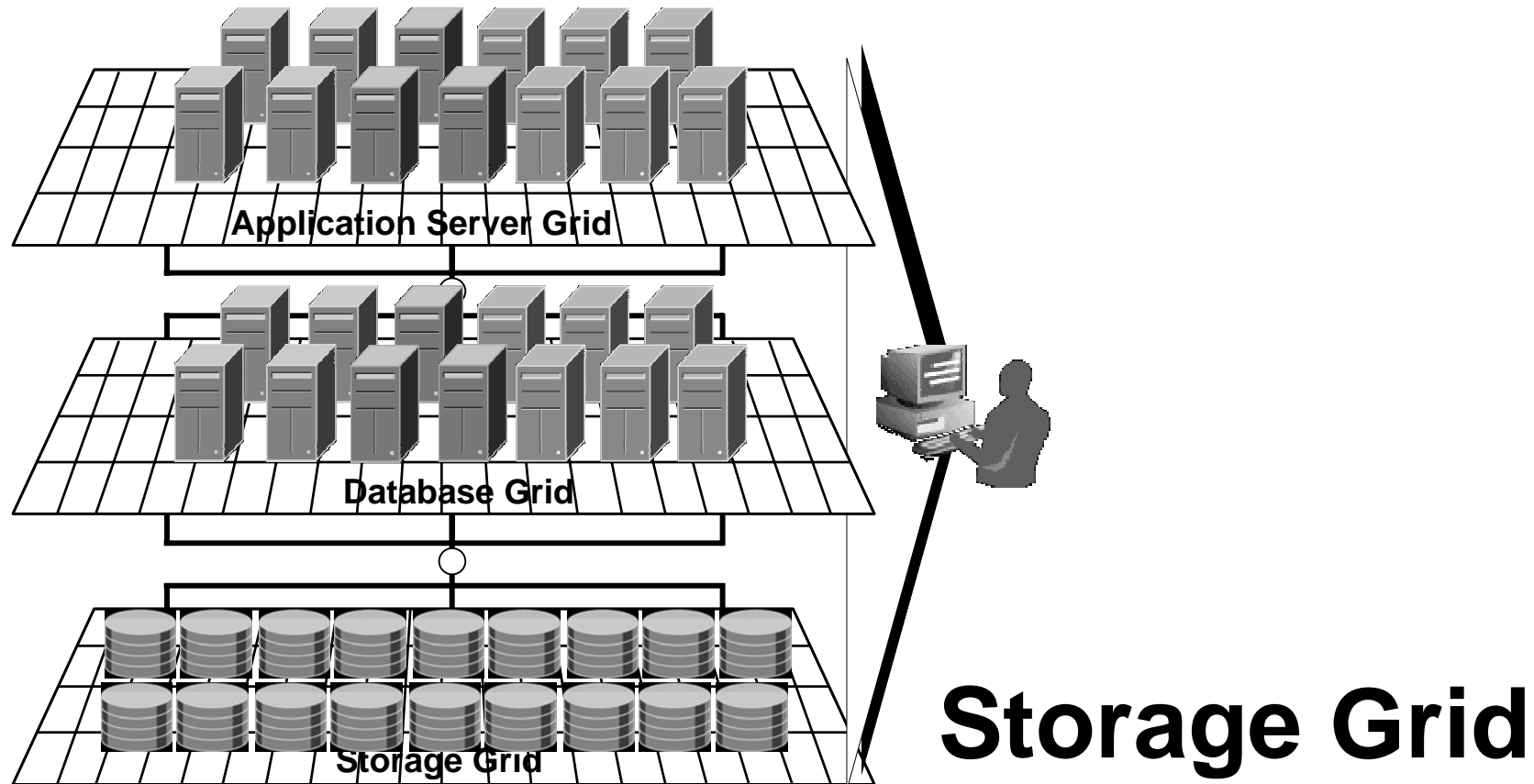
Database Grid

- 10g RAC
- Self Management
- Optimal resource utilization
- Integrated Clusterware

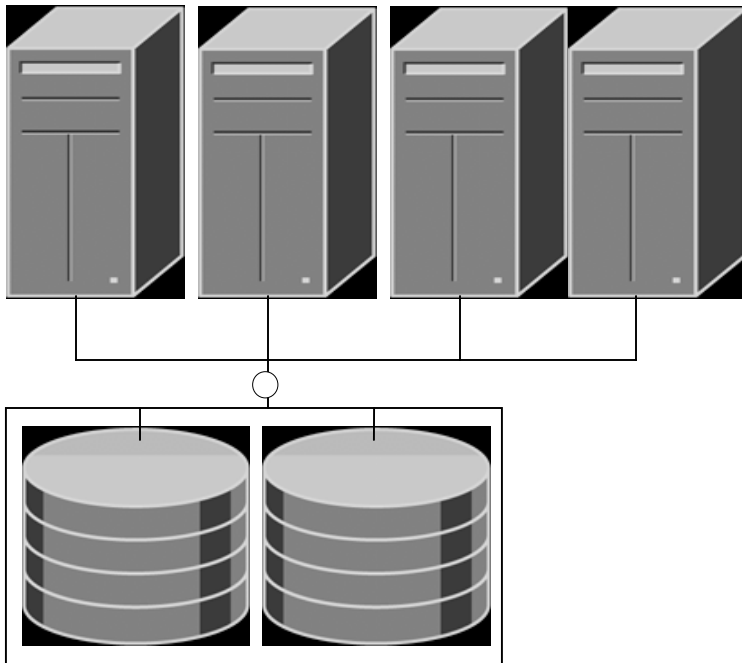
Storage Grid

- ASM
- Transportable Tablespaces
- Data Pump
- Gateways

Grid Computing



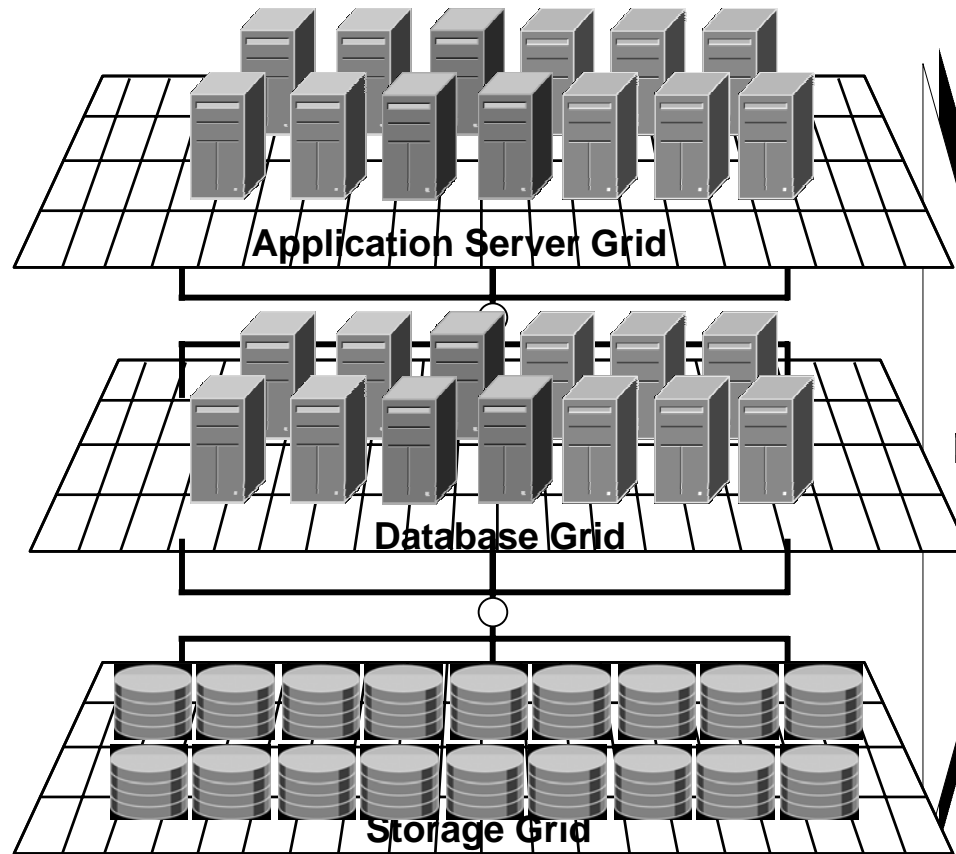
Automatic Storage Management (ASM)



**Automatic Storage
Management**

- **Eliminates need for conventional file system and volume manager**
- **Capacity on demand**
 - Add/drop disks online
- **Automatic I/O load balancing**
 - Stripes data across disks to balance load
 - Best I/O throughput
- **Automatic mirroring**
- **Easier to manage**

Grid Computing

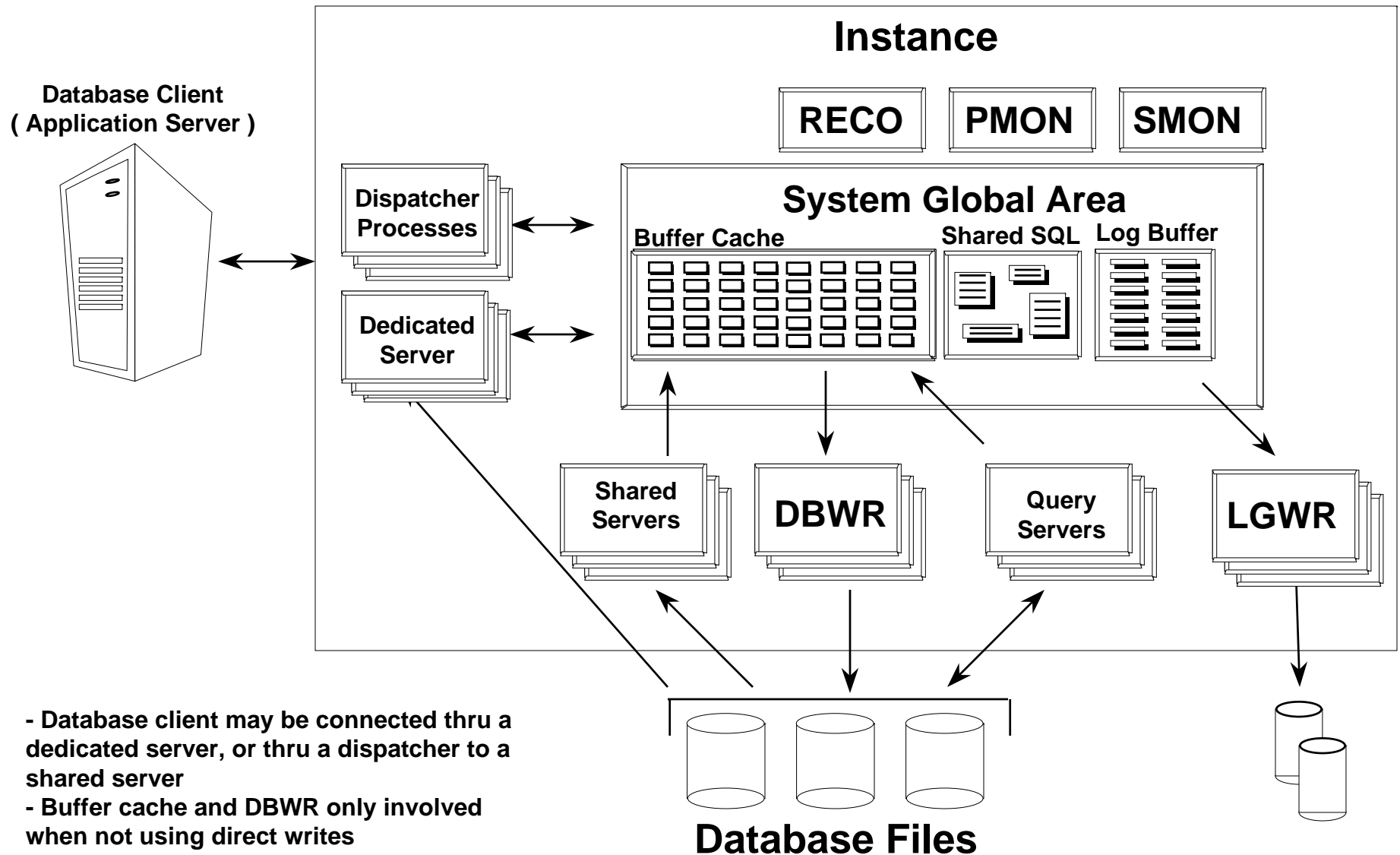


Database Grid

Storage Grid Summary

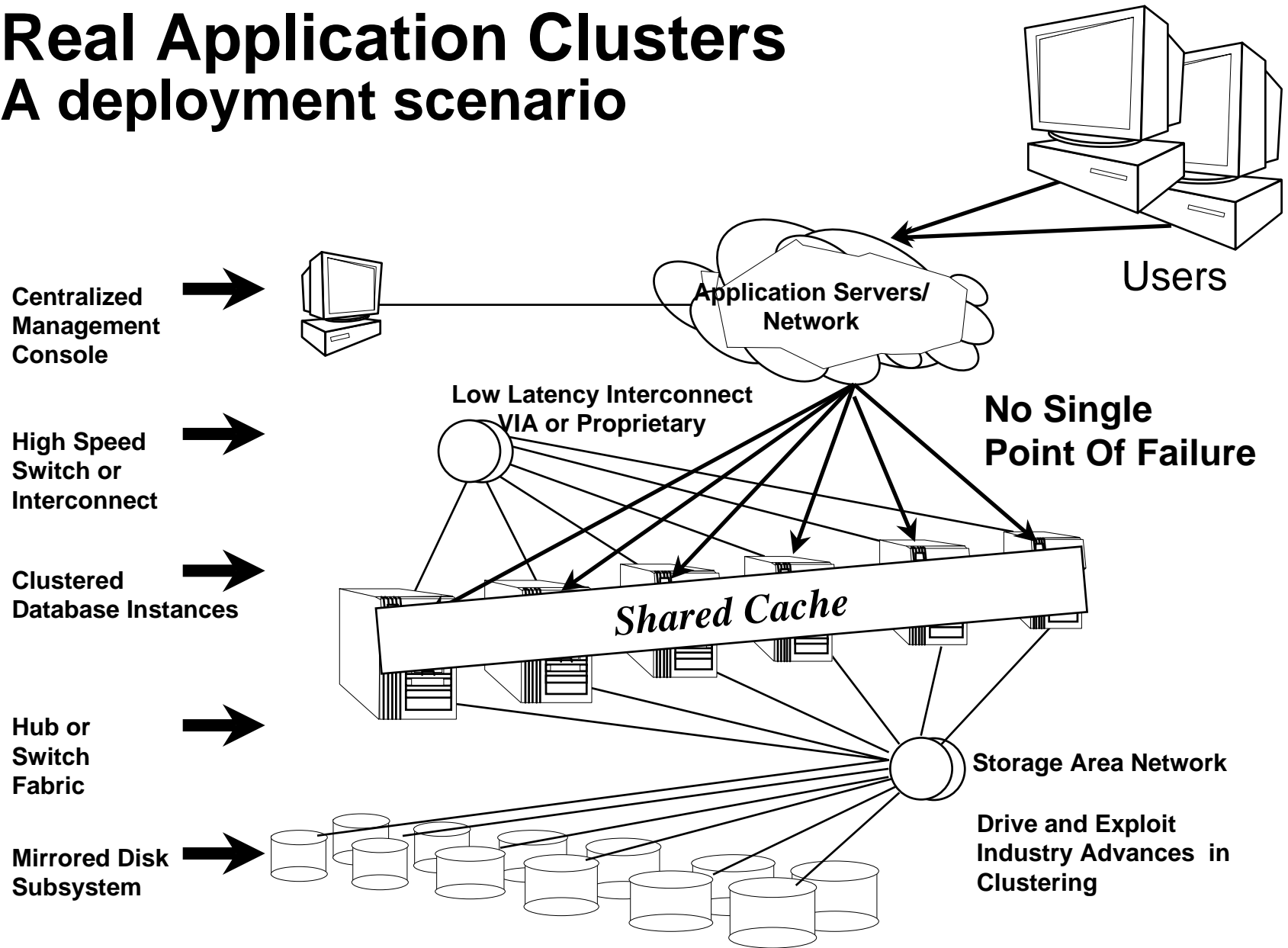
- ASM
- Transportable Tablespaces
- Data Pump
- Gateways

Single Instance Database Architecture

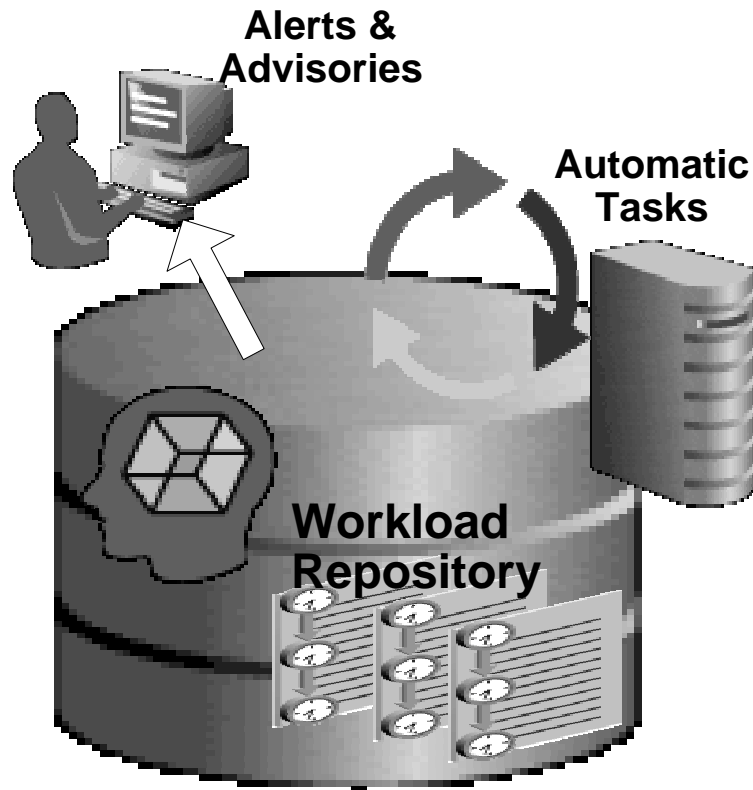


Real Application Clusters

A deployment scenario



Self-Managing Database 10g

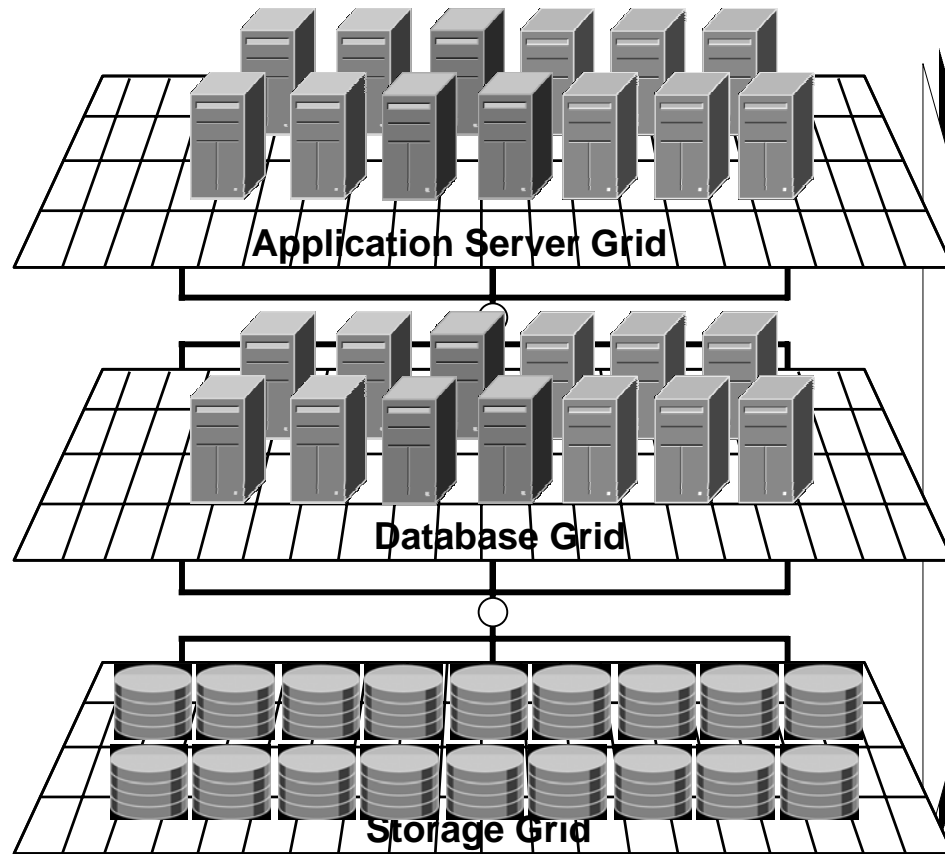


- Automated storage mgmt (ASM)
- Built-in intelligent infrastructure
 - Self-aware performance analysis
 - Proactive server alerts
 - Automatic tasks
- Automatic Database Diagnostic Monitor
- Expert engine in the database
- Automatic SQL tuning
 - Optimize packaged and custom applications

Database Grid Summary

- **Mission Critical Quality of Service on Industry Standard, Low Cost Servers**
- **Lowers Cost**
 - **Optimal utilization IT assets**
 - **Integrated clusterware for RAC**
 - **Fault tolerant**
 - **Capacity on demand**

Grid Computing



Application Grid

Database Grid

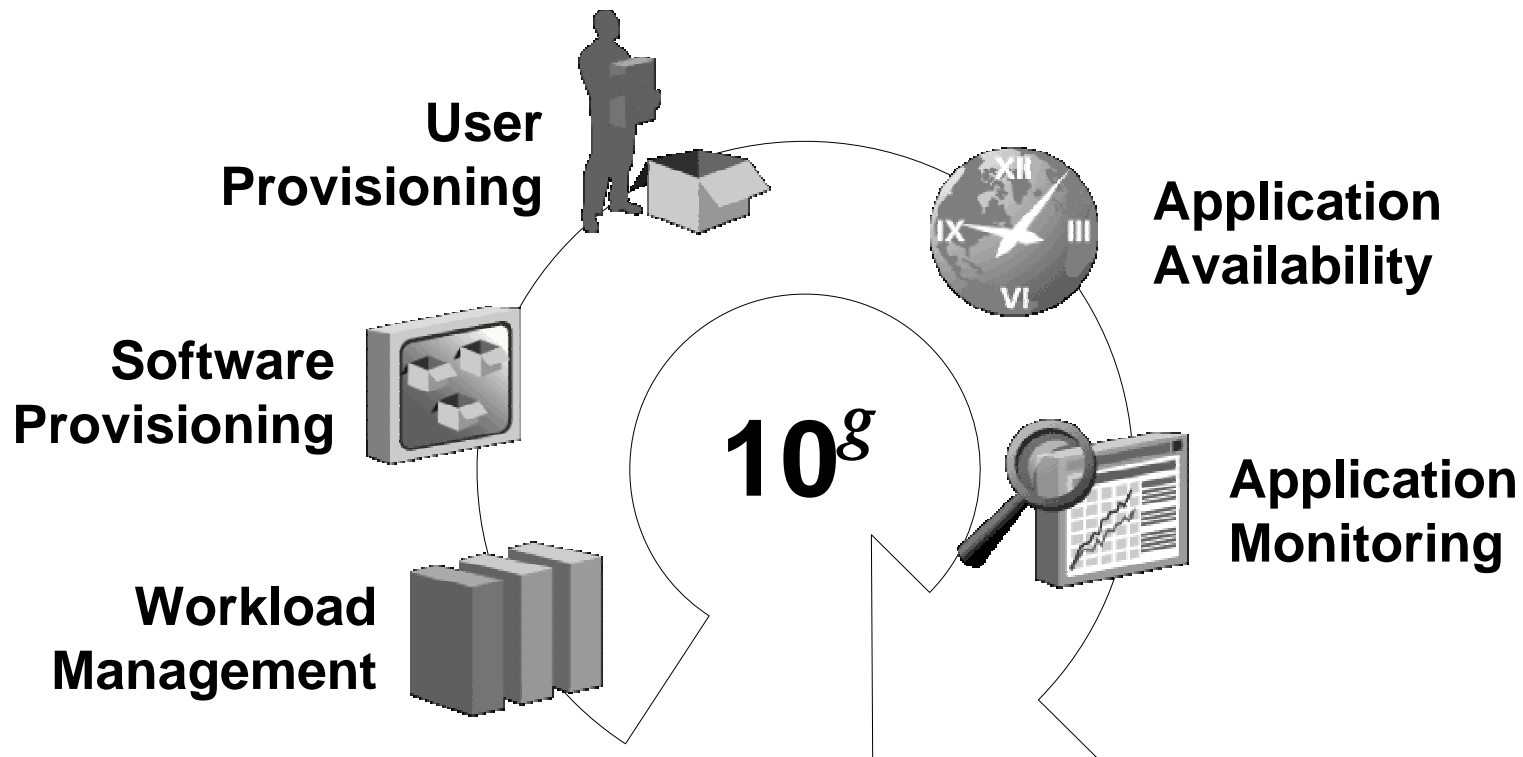
- 10g RAC
- Self Management
- Optimal resource utilization
- Integrated Clusterware

Storage Grid

- ASM
- Transportable Tablespaces
- Data Pump
- Gateways

Application Grid

Oracle Application Server 10^g: Complete & Integrated



Enterprise Grid

Virtualize – Ensure Quality of Service – Provision – Monitor

Application Service Level Management (ASLM)


- With Application Service Level Management (ASLM), you can:
 - Manage application availability
 - Monitor application performance
 - Diagnose application response-time issues



Manage Systems Holistically

- Administer the grid holistically with ASLM:
 - Monitor the end user's view of an application
 - Correlate performance issues between all components of an application
 - Trace transactions and URLs through the entire stack rather than in only a single component

General



Status **Up**
Up Since **Feb 25, 2005 6:36:21 AM**
Availability (%) **15**
(Last 24 Hours)
Home Page URL **<http://edt3r7p1.us.oracle.com:7778/estore/>**
Host **edt3r7p1.us.oracle.com**

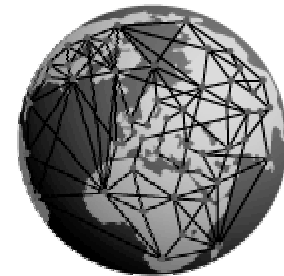
Availability: T1_Petstore

General

Current Status	Up
Up Since	Feb 25, 2005 6:36:21 AM
Availability (%)	16.04
Down Time (minutes)	1182
Blackout Time (minutes)	0
Agent Down Time (minutes)	0
System Error Time (minutes)	0
Status Pending Time (minutes)	32

Beacons

- Monitor availability from your key user communities:



All Targets		
Search <input type="text" value="Beacon"/> <input type="button" value="Go"/>		Page Refreshed Feb 25, 2005 7:26:18 AM <input type="button" value="Go"/>
Add <input type="text" value="Database"/> <input type="button" value="Go"/>		<input type="button" value="Remove"/> <input type="button" value="Configure"/>
Select	Name ▲	Availability
<input checked="" type="radio"/>	Australia	<input checked="" type="radio"/>
<input checked="" type="radio"/>	Beacon01	<input checked="" type="radio"/>
<input checked="" type="radio"/>	Brazil	<input checked="" type="radio"/>
<input checked="" type="radio"/>	France	<input checked="" type="radio"/>
<input checked="" type="radio"/>	Japan	<input checked="" type="radio"/>
<input checked="" type="radio"/>	Middle East	<input checked="" type="radio"/>
<input checked="" type="radio"/>	South Korea	<input checked="" type="radio"/>
<input checked="" type="radio"/>	United Kingdom	<input checked="" type="radio"/>
<input checked="" type="radio"/>	Western US	<input checked="" type="radio"/>
		Type
		Beacon
		Beacon
		Beacon
		Beacon
		Beacon
		Beacon
		Beacon
		Beacon

Define Availability

- Define application availability based on a key business transaction that is tested from critical end-user communities:

Availability Transaction Response					
Availability Transaction <u>Petstore Shopping Transaction</u>					
Define Availability					
Beacon	Total Transaction Response (ms)	Average Page Response (ms)	Slowest Page (ms)	Transaction Status	Collection Time
Local	49786	4526	12990	↑	May 7, 2004 12:22:47 AM
<u>United Kingdom</u>	<u>59719</u>	<u>5429</u>	<u>12996</u>	↑	May 7, 2004 12:19:27 AM
<u>Australia</u>	<u>58336</u>	<u>5303</u>	<u>13994</u>	↑	May 7, 2004 12:19:48 AM

Define Availability			
Availability Beacons			
Use	Beacon	State	Status
<input checked="" type="checkbox"/>	Local	In Sync	⌚
<input type="checkbox"/>	Western US	In Sync	⌚
<input checked="" type="checkbox"/>	United Kingdom	In Sync	⌚
<input type="checkbox"/>	France	In Sync	⌚
<input type="checkbox"/>	Germany	In Sync	⌚
<input type="checkbox"/>	Japan	In Sync	⌚
<input type="checkbox"/>	South Korea	In Sync	⌚
<input checked="" type="checkbox"/>	Australia	In Sync	⌚
<input type="checkbox"/>	Middle East	In Sync	⌚
<input type="checkbox"/>	Brazil	In Sync	⌚

Availability Transaction	
Select Name	State
<input checked="" type="radio"/> <u>Petstore Shopping Transaction</u>	Monitoring
<input type="radio"/> <u>homepage</u>	Monitoring

Diagnose Performance Problems

- Interactive transaction trace:
 - Trace transactions on demand
 - Find transaction performance bottlenecks quickly
- Middle-tier performance drilldowns:
 - Evaluate historical J2EE activity breakouts
 - Click to drill down to EJB and SQL levels
 - Correlate performance

Interactive Transaction Trace



Manage Transactions

			Create
			Edit View Delete Collection Settings Play Play With Trace
Select Name	State	Start/Stop	
<input type="checkbox"/> Browse Dogs	Monitoring	Stop	
<input type="checkbox"/> Browse Products	Monitoring	Stop	
<input type="checkbox"/> Credit Card Validation	Monitoring	Stop	
<input type="checkbox"/> Login Account	Monitoring	Stop	
<input checked="" type="checkbox"/> Online Purchase	Monitoring	Stop	
<input type="checkbox"/> Search Pets	Monitoring	Stop	

Transaction Playback

Show Results

Server Time Details

Step	URL	Server Time (ms)	Servlet/JSP Time (ms)	EJB Time (ms)	JDBC/SQL Time (ms)	Processing Time Breakdown
16	.../estore/control/commitorder	3407	37	3153	214	
14	.../estore/control/verifysignin	310	110	145	52	
10	.../estore/control/product?product_id=FL-DLH-02	90	46	0	2	
7	.../estore/control/product?product_id=RP-SN-01	100	56	0	2	
4	.../estore/control/product?product_id=FI-SW-01	88	46	0	0	

JDBC Components

8	.../estore/control/cart	12
Transaction Online Purchase		
URL http://dlsun1648.us.oracle.com:7779/estore/control/verifysignin		
Connection Details		
Data Source	Schema	New Connections
jdbc:oracle:thin:@dlsun1648-1521-EM401db	SCOTT	0
Total Connection Time (ms)		
0		
Component List		
SQL	Executions	Total Time (ms)
select itemid, listprice, unitcost, attr1, attr2, a.productid, name, descrn from item a, product b where a.itemid = 'EST-17' order by name	1	5
select itemid, listprice, unitcost, attr1, attr2, a.productid, name, descrn from item a, product b where a.itemid = 'EST-1' order by name	1	5
select itemid, listprice, unitcost, attr1, attr2, a.productid, name, descrn from item a, product b where a.itemid = 'EST-12' order by name	1	5
SQL Execution Time (ms)	Fetch Time (ms)	
4	1	
3	2	
4	1	

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Diagnose Middle-Tier Performance Issues

Middle Tier Performance

Middle Tier performance is a measure of the time taken to prepare web application content in the middle tier, including all end data sources.

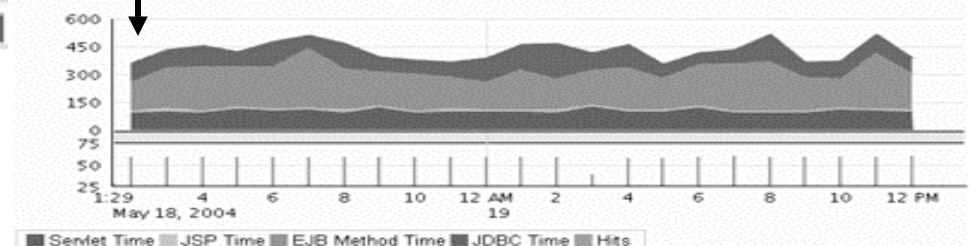
Slowest URLs by Average Time in OC4J

View By Minimum Hits

URL	Hits	Processing Time Per Hit (ms)	Processing Time Breakdown
/estore/control/commitorder	965	853.0	
/estore/control/verifysignin	1,360	433.4	
/estore/control/product	10,366	265.6	
/estore/control/search	414	248.8	
/estore/control/productdetails	4,599	147.5	
/estore/control/cart	9,368	142.9	
/estore/control/main	414	116.7	
/estore/control/category	12,643	105.1	

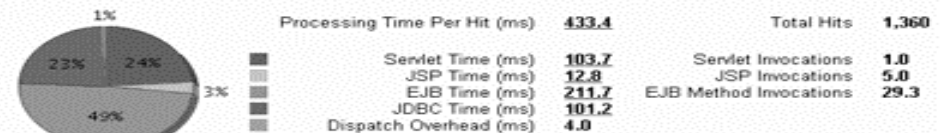
Processing Time and Load (Last 24 Hours)

Each data point shown represents the average time per URL hit (in milliseconds) for that hour.

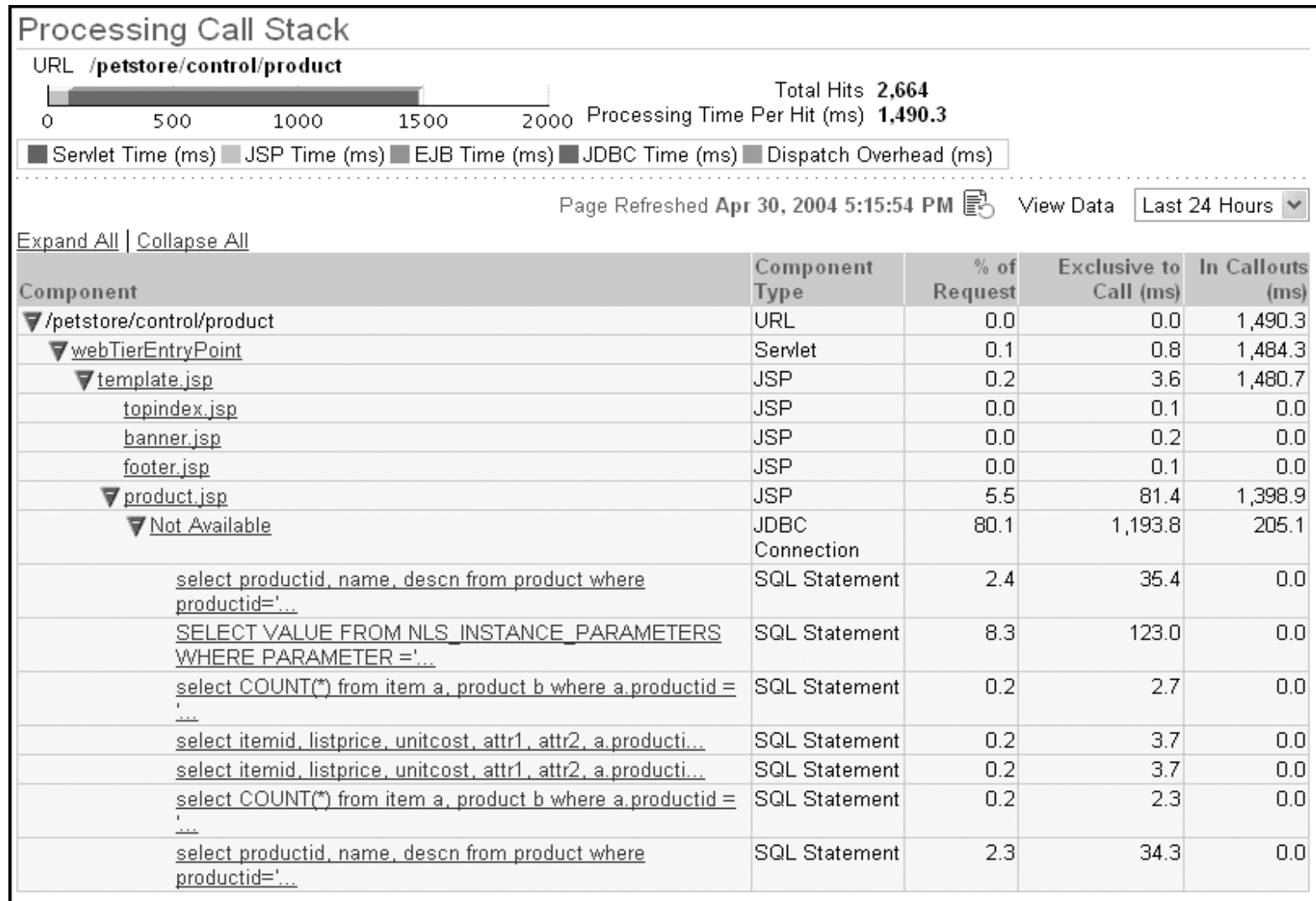


Processing Time Breakdown (Last 24 Hours)

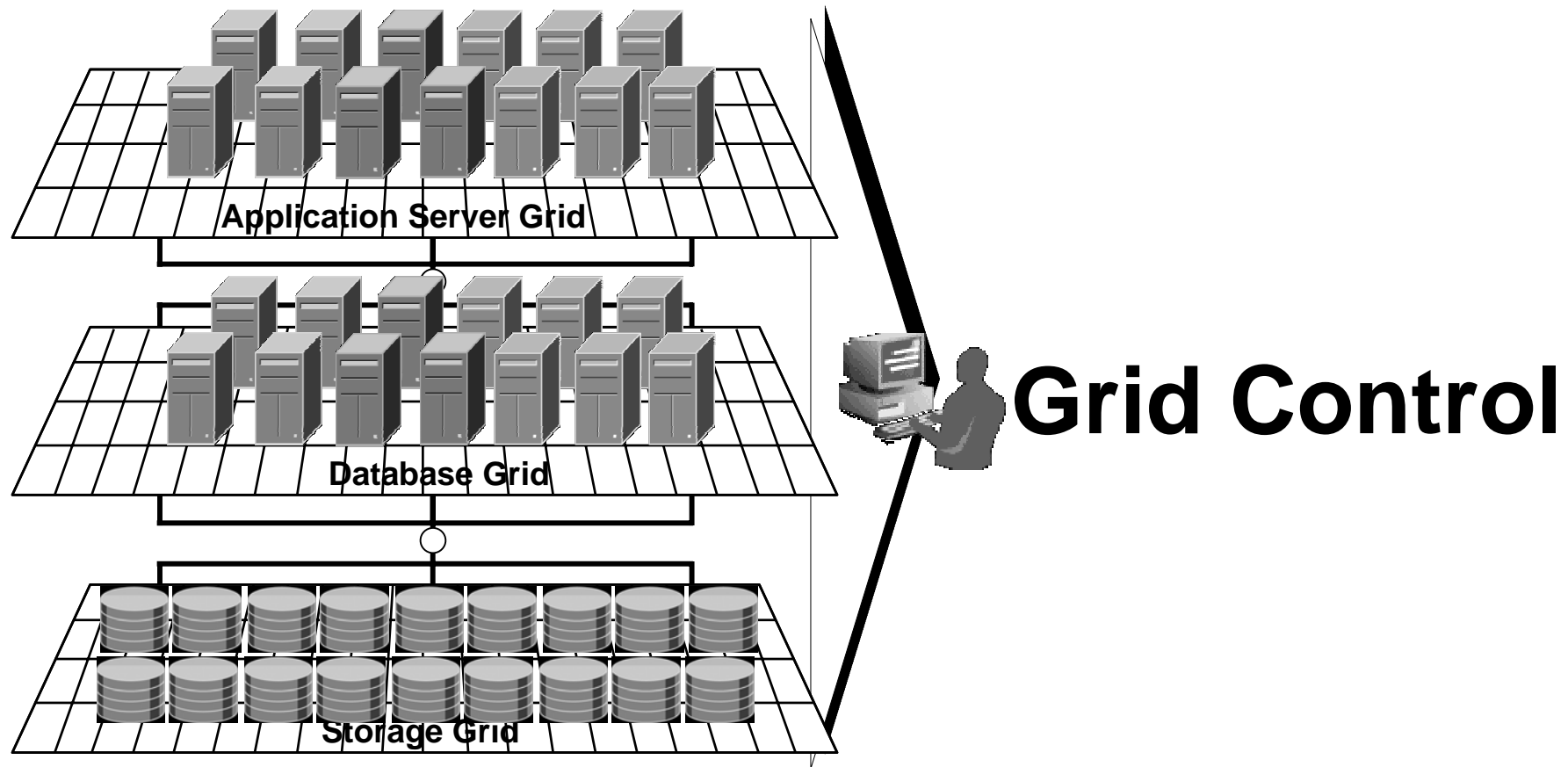
Breakdown of URL processing time by OC4J subsystem. Values are the average per URL hit (in milliseconds) 1



Analyze the Processing Call Stack



Oracle Grid Computing



Additional Technical Information

- Oracle Database 10g
 - <http://otn.oracle.com/products/database/oracle10g/index.html>
- Oracle Application Server 10g
 - <http://otn.oracle.com/products/ias/index.html>
- Oracle Enterprise Manager 10g Grid Control
 - <http://otn.oracle.com/products/oem/index.html>

QUESTIONS

ANSWERS