High Availability and Monitoring

Oracle Enterprise Manager 10g
Grid Control
Oracle AS
Architecture

Oracle HTTP Server
APACHE

Oracle Containers for J2EE (OC4J)

Oracle Application Server
Oracle Database

Web Cache

User store (LDAP)

HTTP

Static content
mod_oc4j
mod_plsql

AJP

Oracle SSO server

Thinking ahead with the knowledge of today.
Oracle AS Architecture

- Memory-based cache
- Combines caching, compression, and assembly to accelerate both static and dynamic content
- Also provides load-balancing, failover, and surge protection to improve availability, reliability
- Automatically installed and configured / cache invalidations are managed by Portal

Oracle Database

Web Cache

Oracle HTTP Server

APACHE

Oracle SSO server

Oracle Containers for J2EE (OC4J)

Oracle Application Server

User store (LDAP)
Oracle HTTP Server

- Powered by Apache
- De-facto standard web listener
- Serves as the HTTP entry point to Oracle9iAS
Oracle AS
Architecture

OC4J / mod_oc4j
- Apache plug-in + J2EE implementation
- Supports latest J2EE specifications
Middle Tier Availability
Oracle AS
Architecture, middle tier availability
Oracle AS
Architecture, middle tier availability

Web Cache
Web Server
Oracle HTTP Server
mod_oc4j
J2EE Container
Oracle Containers for J2EE (OC4J)
Oracle Containers for J2EE (OC4J)

Oracle AS
HTTP
APACHE
HTTP
AJP
Database

Thinking ahead with the knowledge of today.
Oracle AS
Architecture, middle tier availability

- Single hosts, single OHS, multiple OC4J’s
- OHS/mod_oc4j load balancing and smart routing
  - weighted, metrics-based, round robin, random
  - local affinity
- File based repository for OC4J clusters
- EJB Proxy: Auto-rerouting of requests from EJB Clients

Thinking ahead with the knowledge of today.
Oracle AS
Architecture, middle tier availability
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Architecture, middle tier availability

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Thinking ahead with the knowledge of today.
Oracle AS
Architecture, middle tier availability

Web Server
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Oracle AS
HTTP

J2EE Container
Oracle Containers for J2EE (OC4J)

Oracle HTTP Server
mod_oc4j

Oracle AS
HTTP

Oracle HTTP Server
mod_oc4j

Oracle AS

Database

Thinking ahead with the knowledge of today.
Oracle AS
Architecture, middle tier availability

- Multiple hosts, multiple OHS, multiple OC4J’s
- Both Web Cache and mod_OC4J are load balancing

Thinking ahead with the knowledge of today.
Oracle AS
Architecture, middle tier availability

Web Cache

Web Server
Oracle HTTP Server
APACHE
mod_oc4j

J2EE Container
Oracle Containers for J2EE (OC4J)

Oracle AS

Web Cache

Oracle AS
HTTP

Oracle AS
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Oracle HTTP Server
APACHE
mod_oc4j

Oracle Containers for J2EE (OC4J)

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Oracle Containers for J2EE (OC4J)

Database

Thinking ahead with the knowledge of today.
Oracle AS
Architecture, middle tier availability

Thinking ahead with the knowledge of today.
Oracle AS
Architecture, middle tier availability

- Multiple hosts, multiple OHS, multiple OC4J’s
- Web Cache cluster, HW load balancer
- Web Cache, mod_OC4J = load balancing
Infrastructure Availability
OracleAS
Infrastructure High Availability

- Critical Services
  - Identity Management Services – for SSO/OID
  - Metadata Repository Services – for Portal, Wireless, Discoverer, etc.
  - Management Services – for Enterprise Manager

- HA Options
  - Cold Failover Cluster (CFC)
  - Active Failover Cluster (AFC)
OracleAS
Cold Failover Cluster
OracleAS
Cold Failover Cluster

Clients

Load Balancer

MT

Active Infra

- OID
- SSO
- DAS
- Infra DB instance

Inactive Infra

Hardware cluster

V. Host

Active Infra

Shared storage

$ORACLE_HOME

Thinking ahead with the knowledge of today.
OracleAS
Active Failover Cluster

Clients

MT
MT2

Load Balancer

Active Infra Node 1
OID 1
SSO 1
DAS 1
DB instance 1

Local storage
$OH_Infra1

Active Infra Node 2
OID 2
SSO 2
DAS 2
DB instance 2

Hardware cluster

RAW storage
Infra DB files

Local storage
$OH_Infra2
OracleAS
Maximum Availability with AFC

Clients

MT

MT2

Load Balancer

Active Infra Node 1
OID 1
SSO 1
DAS 1
DB instance 1

Hardware cluster

Active Infra Node 2
OID 2
SSO 2
DAS 2
DB instance 2

Local storage
$OH_Infra1

RAW storage
Infra DB files

Local storage
$OH_Infra2

Clients

Thinking ahead with the knowledge of today.
Oracle EM Grid Control

Deep Diagnostics for Multitier Internet Applications
Application Server Control

Topology

Application Server Instance 1

Application Server Control 1

Application Server Instance 2

Application Server Control 2

Thinking ahead with the knowledge of today.
Enterprise Manager

Topology

Manage from Anywhere

Grid Control

Firewall

Application Server Control 1

Application Server Control 2

Management Repository

Management Service

Servers | Storage | Network | Software
--- | --- | --- | ---
Database | iAS | OCS | eBiz
Enterprise Config | Application Perf | Precision System Monitoring | Administration
Infrastructure (Jobs, Alerts, ...)

Portal

HTTP/S

Mobile Device

Thinking ahead with the knowledge of today.
Application Service Level Management

1. Monitor Key Business Transactions
   - Availability
   - Performance

2. Monitor Real End User Performance
   - All Users
   - All Pages
   - All the Time

3. Diagnose Root Cause of Performance Problems
   - Interactive Transaction Tracing
   - Historical Cross-Tier Page Performance
   - Application Performance Correlation

4. Complete End-to-End Application Service Level Management
   - Management across Oracle Ecosystem Stack

Thinking ahead with the knowledge of today.
More information

• Oracle AS 10g

• Oracle Enterprise Manager Grid Control