

ORACLE®

# **Updates from Oracle OpenWorld – News of Grid and SOA**

**NYOUG – Sep. 20, 2005**

**Ken Jacobs**

Aka “Dr. DBA”

VP Product Strategy, Server Technologies

# Today's Topics

- ▶ OpenWorld Update
- ▶ Database and Enterprise Manager News
- ▶ Fusion Middleware
- ▶ [Q&A]

# Oracle OpenWorld Update

- Over 35,000 People!
- Peoplesoft, JD Edwards, Retek tracks ... and next year Siebel?
- Announced Lifetime Support
- Announced Hot-Pluggable Fusion Middleware
- Announced Q1 FY06 Earnings
- Next year: October 22 - 26 in San Francisco



# Product Update

**ORACLE®**  
D A T A B A S E

**ORACLE®**  
APPLICATION SERVER



**10g**

**ORACLE®**  
COLLABORATION SUITE

**ORACLE®**  
ENTERPRISE MANAGER

# New in 2005

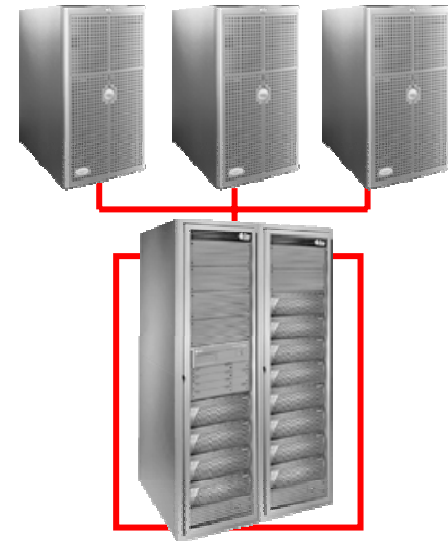
- ✓ Oracle Database 10g Release 2
- ✓ Oracle Database Standard Edition One
- ✓ Oracle Application Server Standard Edition One
- ✓ Oracle TimesTen In-Memory Database
- ✓ Oracle Application Server 10g Release 2
- ✓ Oracle Identity Management 10g
- ✓ Oracle BPEL Process Manager 10g
- ✓ Oracle Business Activity Monitoring 10g
- ✓ Oracle Collaboration Suite 10g

**COMPLETE**

# Oracle Database 10g **Release 2**

## Database For Grid Computing

- ▶ Fast and scalable
- ▶ Fault tolerant
- ▶ Secure
- ▶ Easy to manage



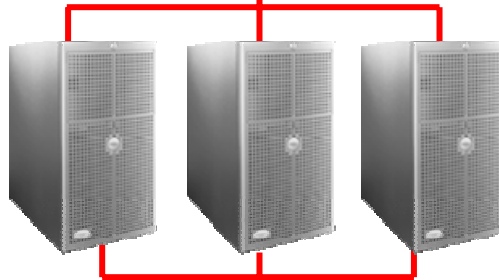
**Available  
Now**

# Oracle Grid

**Application  
Server  
Clusters**



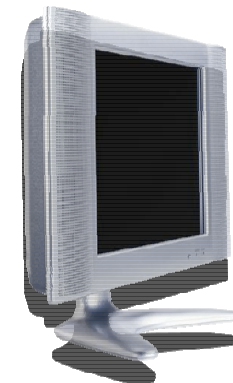
**Real  
Application  
Clusters**



**Automatic  
Storage  
Management**

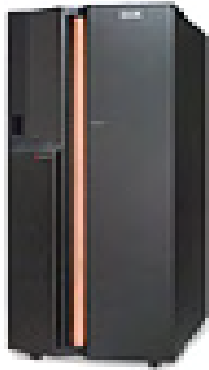


**Grid Control**

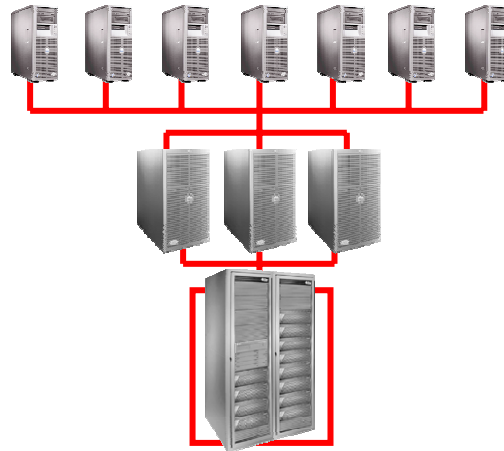


# Grid Delivers Mainframe Quality

**Mainframe**



**Oracle Grid**



AS SEEN ON

TV

- ▶ Runs faster
- ▶ Costs less
- ▶ And never breaks

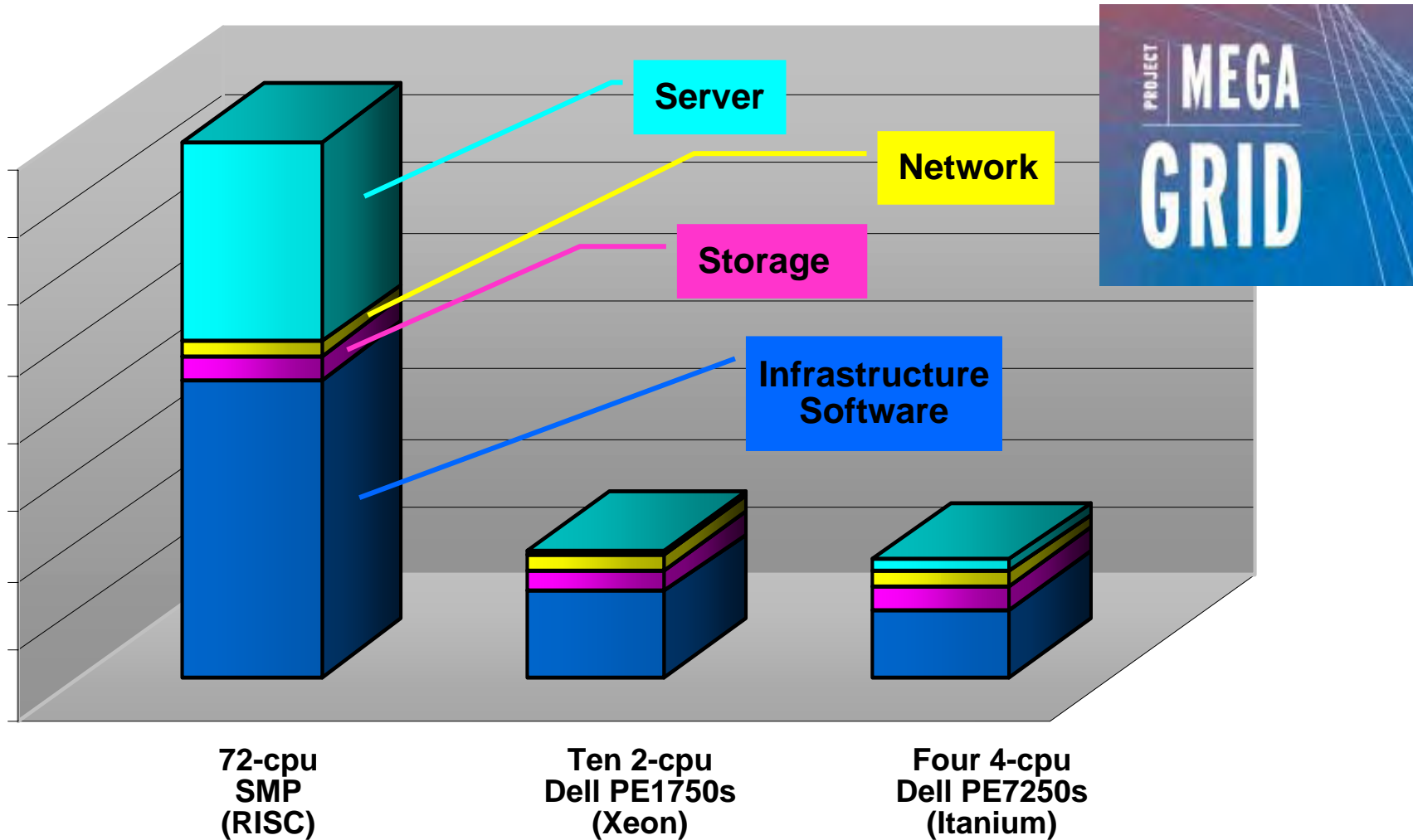
# Project MegaGrid



- Collaborate to develop joint best practices, publish white papers
- Prove grid computing at scale using real-world applications
- Address technical challenges and CIO concerns
- Guide development to improve products

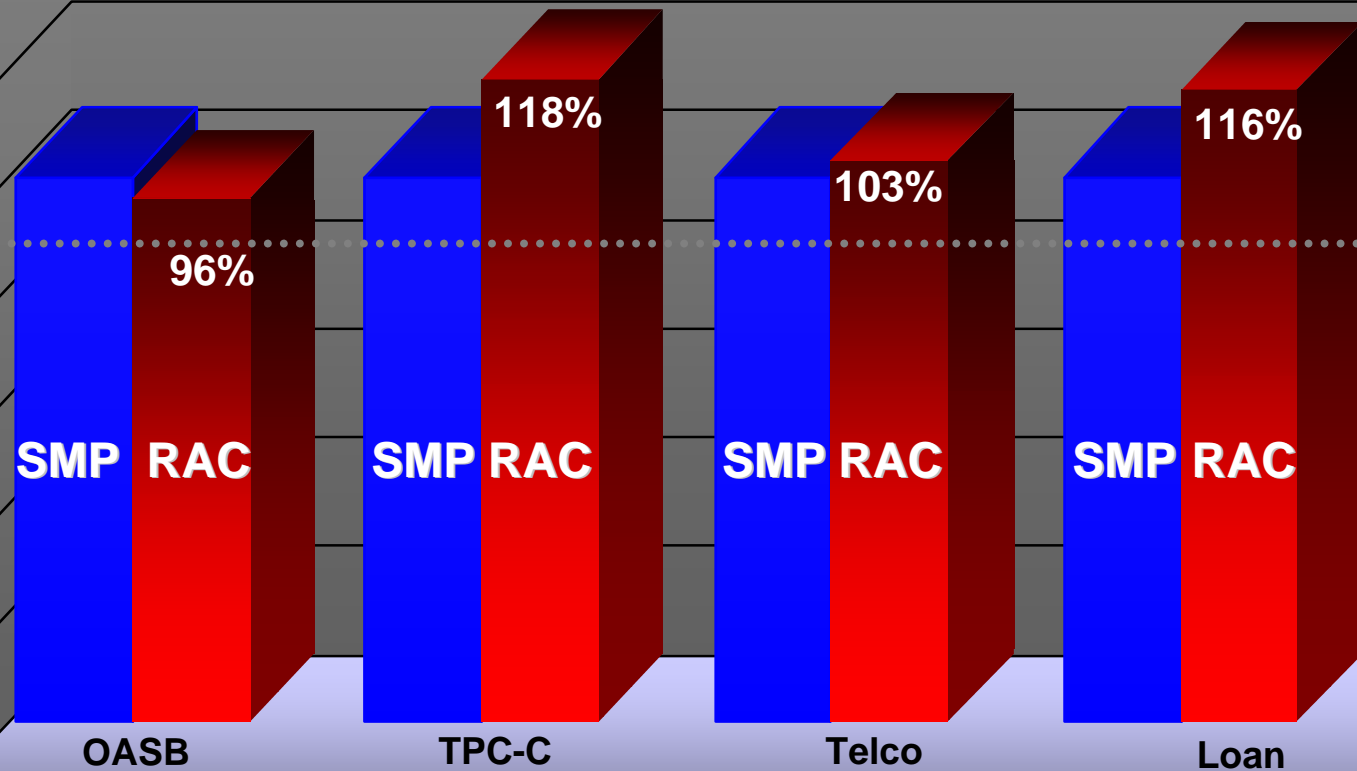
# Cost Comparison: SMP vs. Grid

Telecom Workload – 550,000 transactions/hour



# Low Cost, Yet Highly Scalable

## RAC Performance as % of SMP





# Fast and Scalable

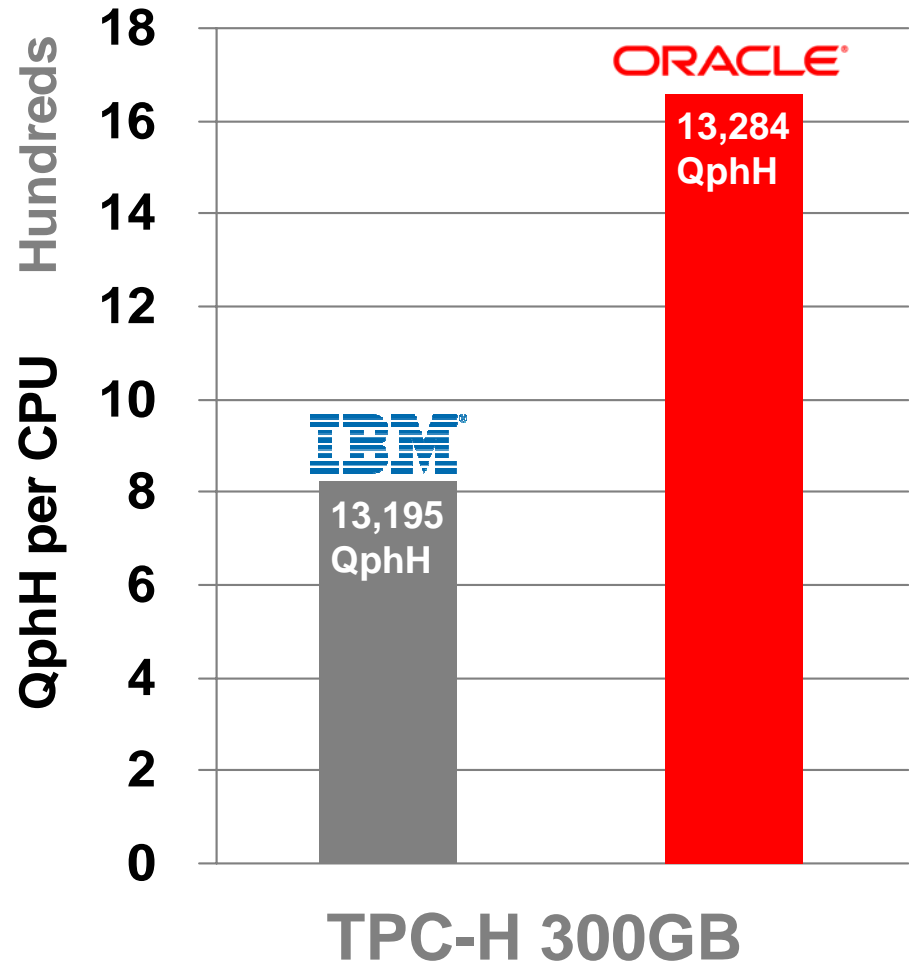


**On a Cluster:**  
**1,184,893**  
tpmC

As of 9/18/05: Source: Transaction Processing Council (TPC)  
[www.tpc.org](http://www.tpc.org). HP Integrity rx5670 cluster, 1,184,893.38/tpmC,  
\$5.52/tpmC, available 4/30/04.

# Fast and Scalable

**NEW**  
**World Record**  
**Beats IBM DB2**  
**on Half the**  
**CPUs**

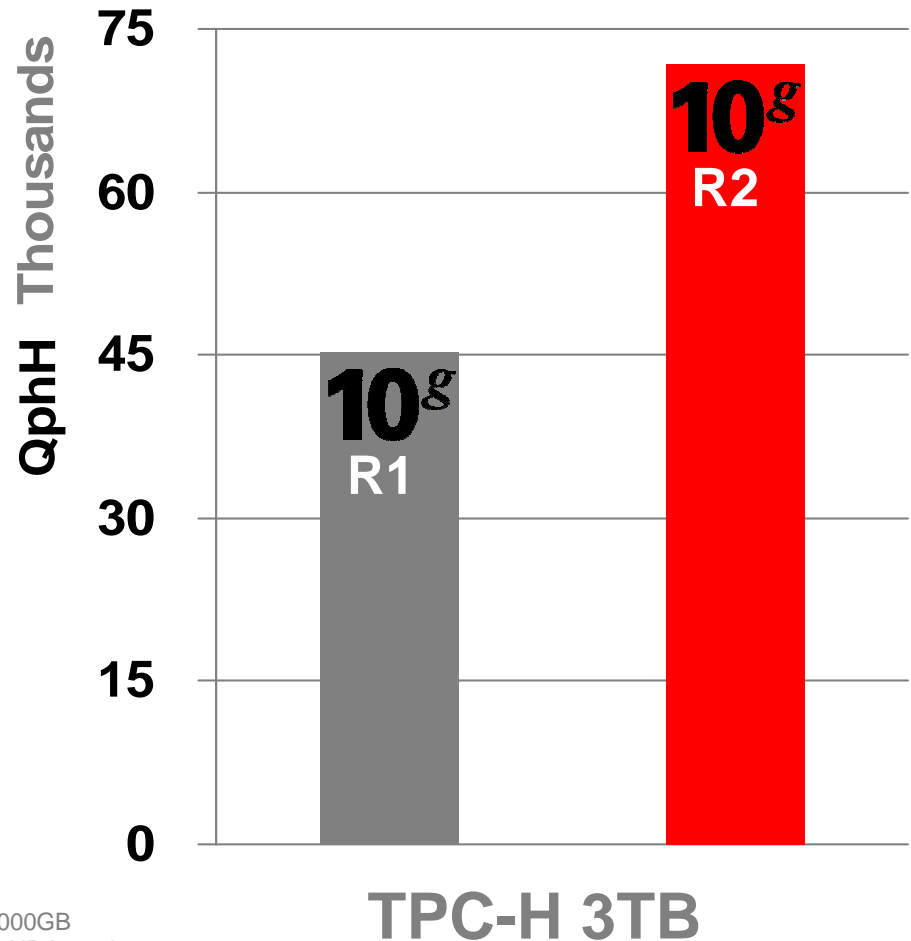


Source: As of September 16, 2005: HP Bladesystem ProLiant BL25p cluster (8 CPUs) with Oracle Database 10g Release 2 with Oracle Real Application Clusters, 13,284.2/QphH@300GB, \$34.20/QphH@300GB, available 10/31/05. IBM eServer 325 cluster (16 CPUs) with IBM DB2, 13,194.9 QphH@300GB, \$65/QphH@300GB, available 11/08/03.

# Fast and Scalable

**59%**  
improvement  
on the  
same  
hardware

**New Sort runs 5x Faster!**



As of 9/18/05: Source: Transaction Processing Council (TPC) [www.tpc.org](http://www.tpc.org)  
HP Integrity Superdome Enterprise Server, 45,247 QphH@3000GB  
\$108.78/QphH@3000GB available, 3/25/04 (Oracle Database 10g Release 1). HP Integrity  
Superdome Enterprise Server, 71,847 QphH@3000GB \$56/QphH@3000GB available 1/18/06  
(Oracle Database 10g Release 2)

# Oracle Powers World's Largest Data Warehouses

100 TERABYTES

YAHOO!



WINTER CORPORATION

[www.wintercorp.com](http://www.wintercorp.com)

SPECIALISTS IN THE WORLD'S LARGEST DATABASES

FOR IMMEDIATE RELEASE

LARGEST COMMERCIAL DATABASE  
IN WINTER CORP. TOPTEN™ SURVEY  
TOPS ONE HUNDRED TERABYTES

*Peak Workload Measurement Exceeds  
One Billion SQL Statements per Hour*

WALTHAM, Mass (September 14, 2005) — Winter Corporation, experts

in the design and implementation of the world's largest data warehouses, has been named the 2005

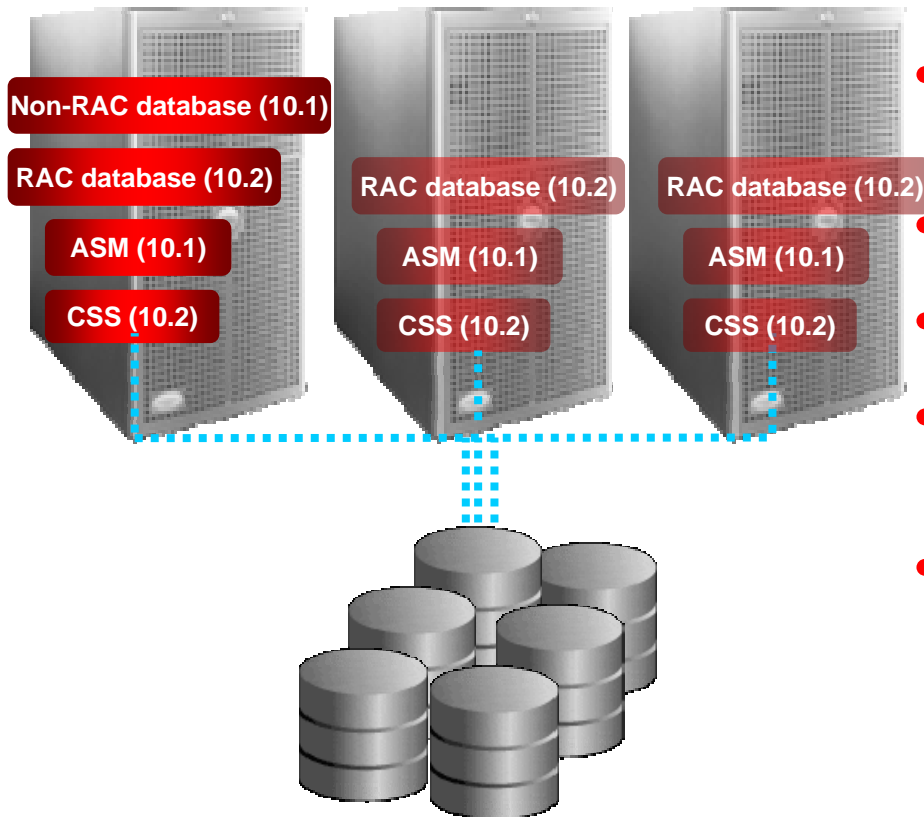
# Thousands of Customers Running on the Grid



Growing 43% per year

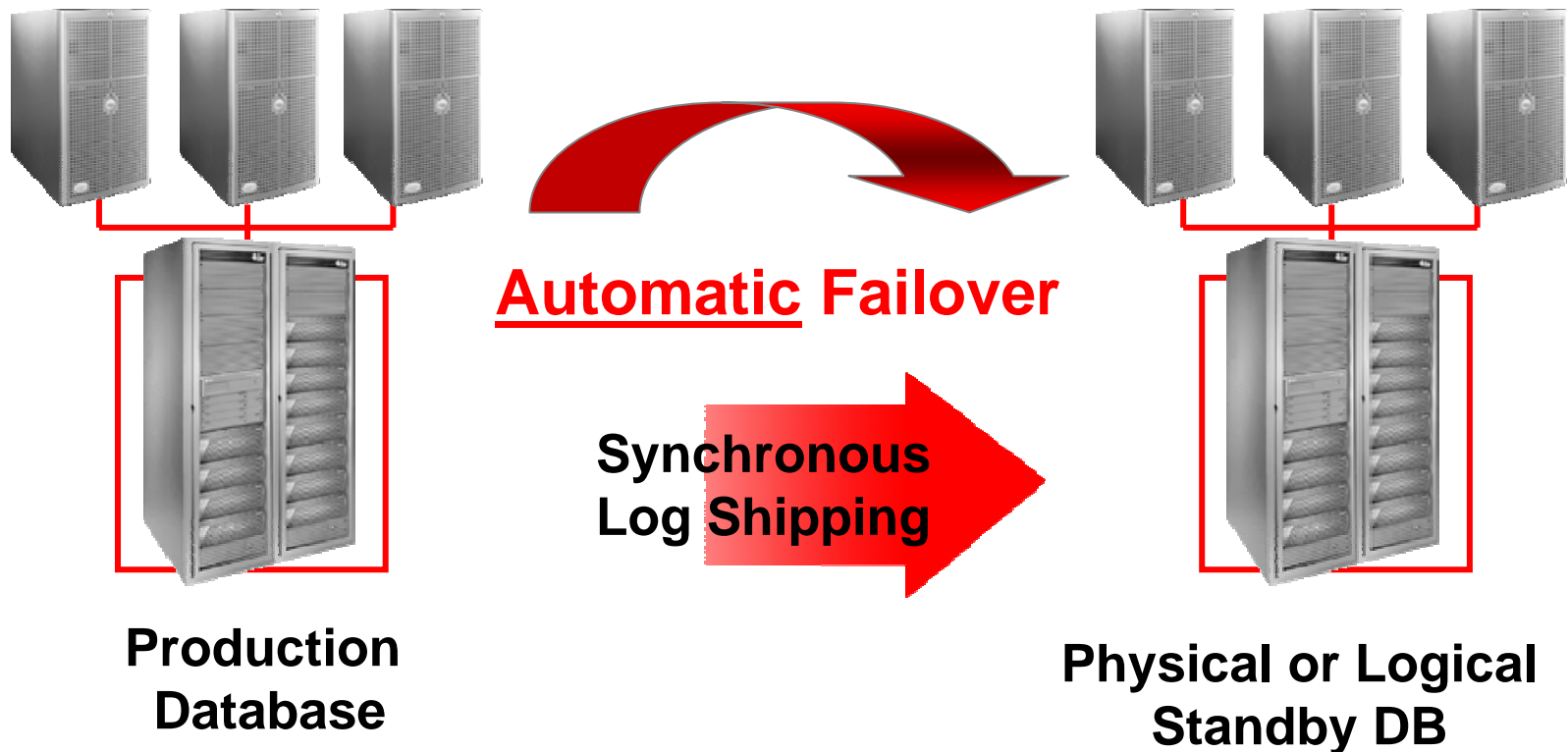
# Automatic Storage Management

Better manageability, performance, availability, lower cost



- Simple and automatic database storage management; no i/o tuning
- Automatic load balancing, striping
- Mirroring, on-line reconfig
- Free, replaces volume manager, improves utilization
- **New in 10g Release 2 ...**
  - Easier to use and configure
  - Supports transportable tablespaces
  - Supports multiple databases in a cluster
  - Support multiple release levels

# Fault Tolerant – Fast-Start Failover



# Database Security

What  
Happened?


Authentication

Authorization

Encryption

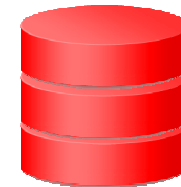
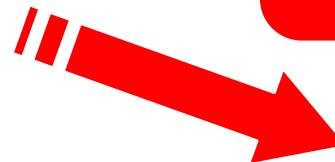
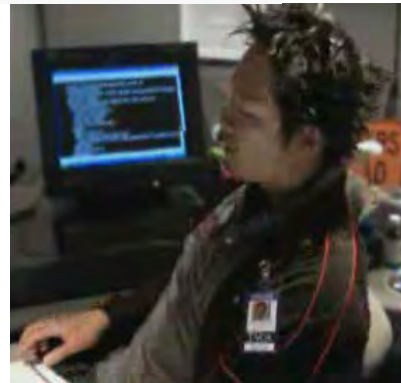
Auditing

```
S02kgtwp#1gksn!^hd
S1dkngw[dghas==3i
20ei$nn396//`93tv
Sp39tjc@~rncnq=3c/
Sp93/s,b=s+pqj93ec
sd9bvjq93gGG=qo0cd
1-3..xpa/+=w0e]\|}
>f:wcGs93=)3*1s1?/
#pg`8%)/]Af\|0*.yw
Pi.xu\{<5&/x=`hwqr
```



CUSTOMER_NAME	USED_CREDIT_CARD
Mak	1843-8234-8855-8344
Marlon	4832-5830-6345-9812
Hdfatio	5454-9012-8734-7876
Bruce	9898-7612-7467-1239
James	5612-9405-7324-9786
Jim	6724-0103-8947-3627
Montgomery	1843-8234-8855-8344
Amy	7845-7284-4672-8274
Corrine	8498-7457-3734-8579
Chuck	4398-7573-4765-5573
Cooper	3897-4747-4789-4783
CUSTOMER_NAME	USED_CREDIT_CARD
Khan	3434-5555-0912-3456

12 rows selected.





# Transparent Data Encryption



**New!**

- Maintains data in encrypted form on disk
  - protects stored data (in database, log and backup files) from access outside Oracle
- Transparent to applications
  - Caveat: indexes on encrypted data only useful for equality predicates
- Oracle manages encryption key in wallet
- Distinct from access control
  - users with SELECT privilege automatically see decrypted data

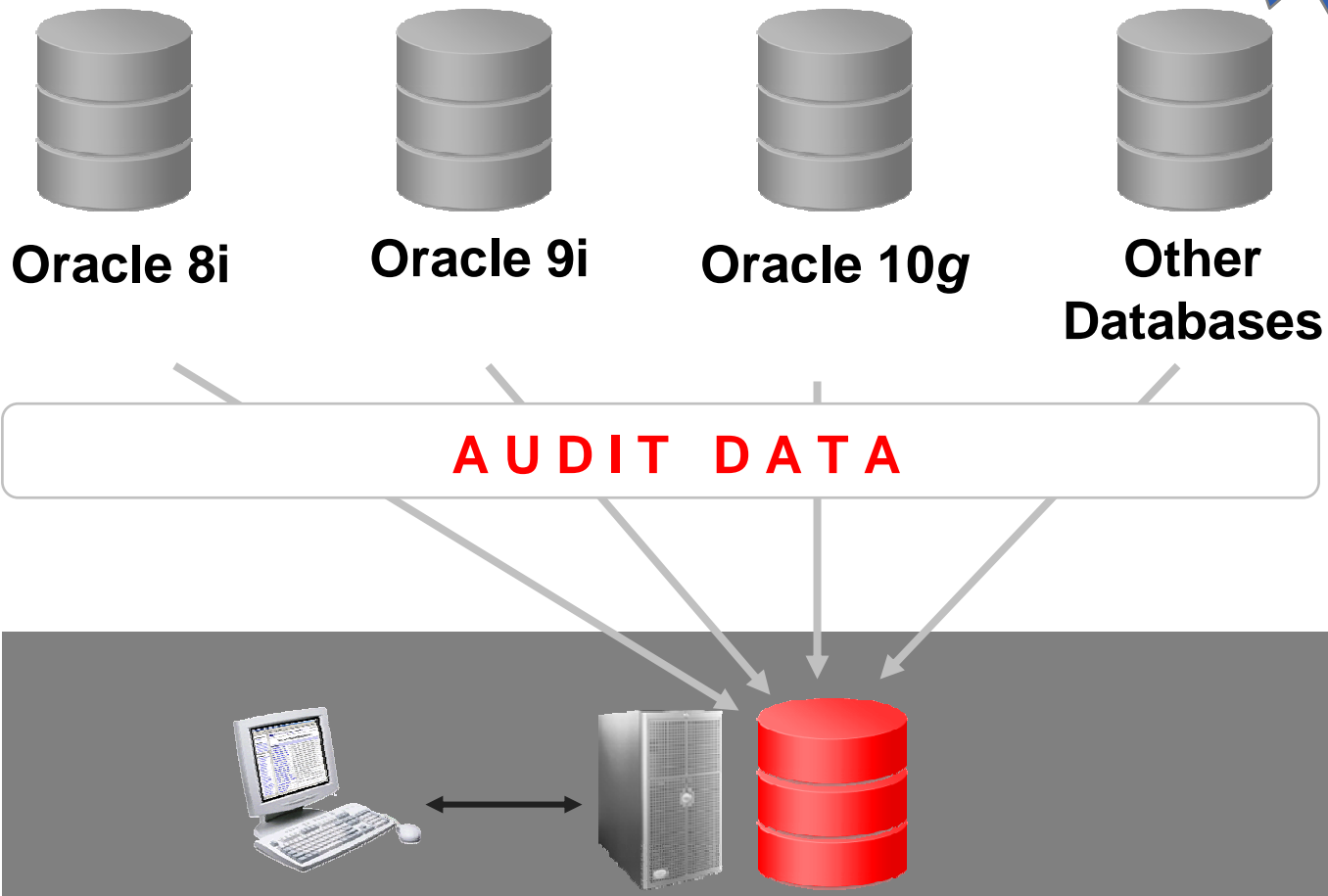
# Project Data Vault

Coming  
soon

One Oracle Database  
Multiple Separate DBAs



# Project Audit Vault



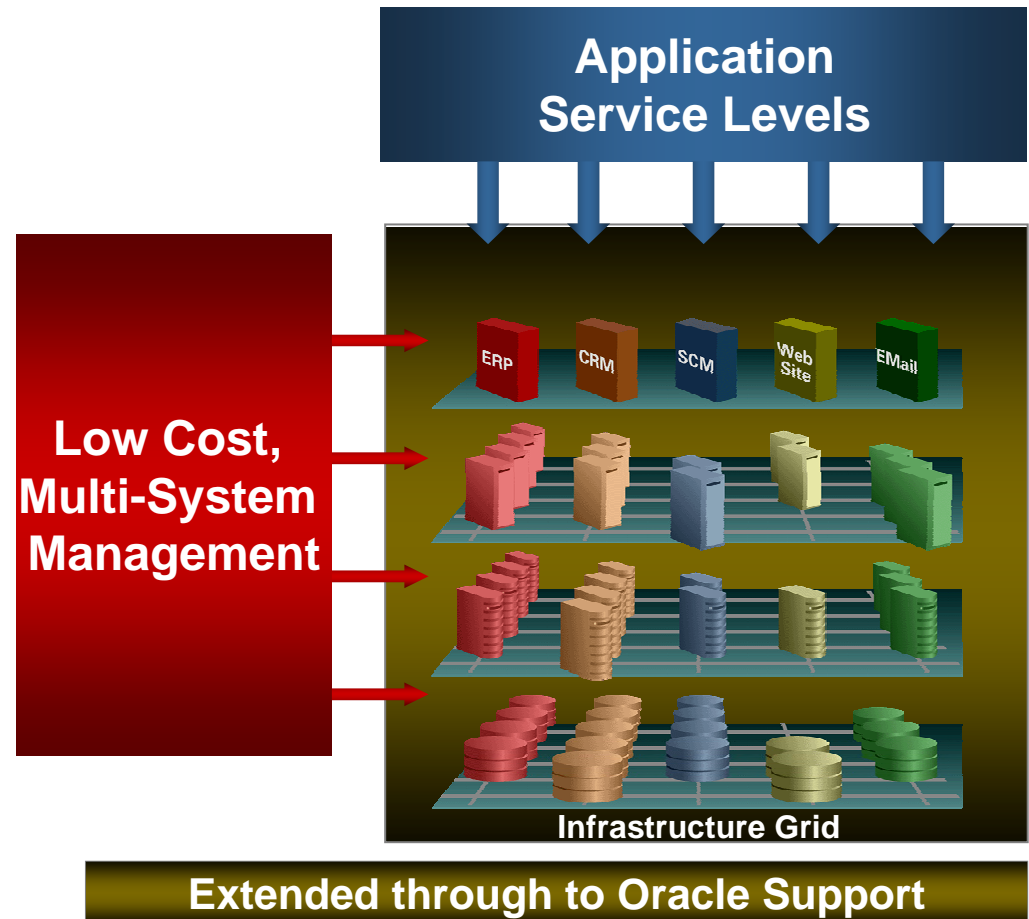
# Oracle Enterprise Manager 10g

## Release 2

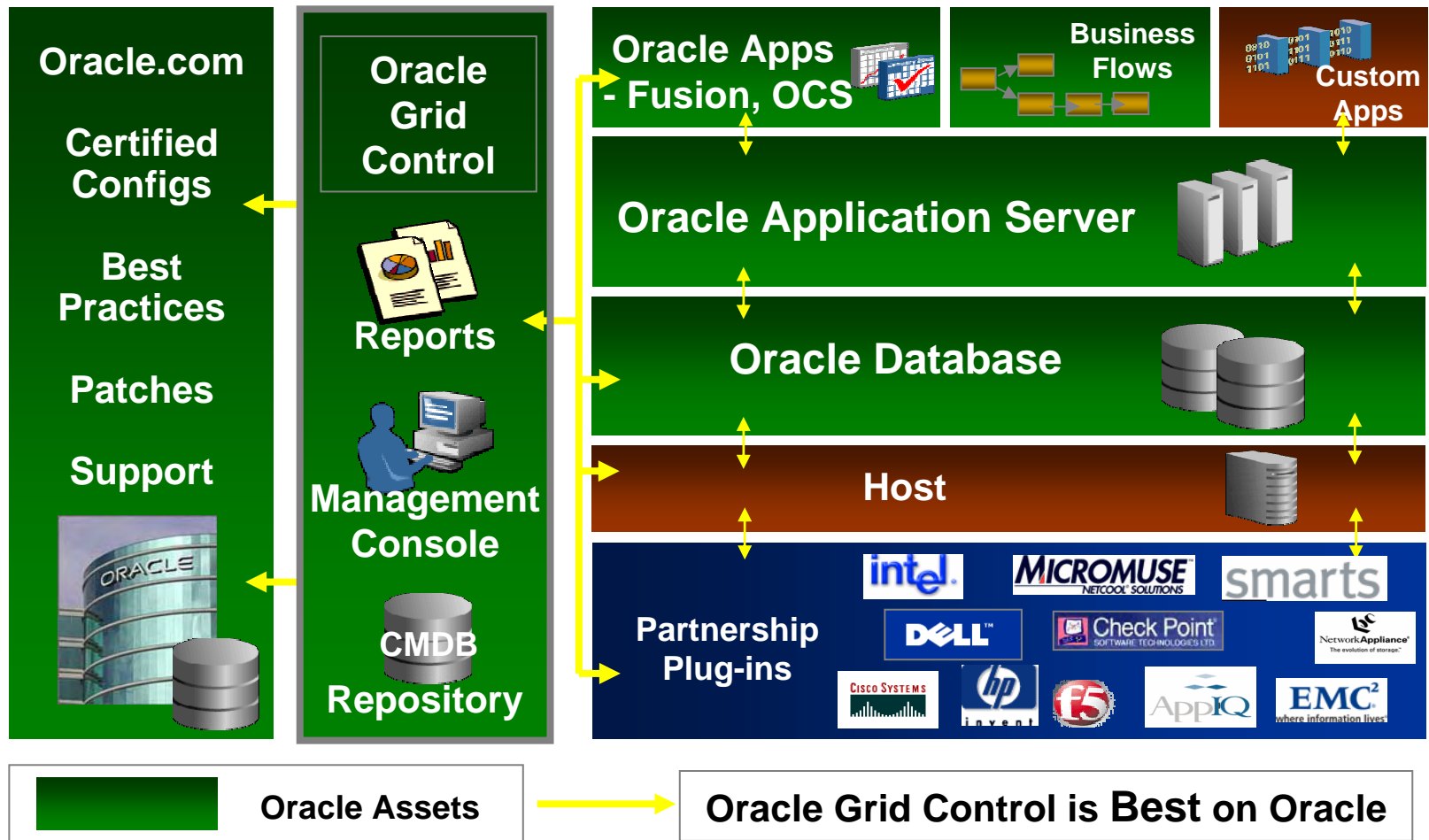
### Grid Management

- ▶ Greater Reach
- ▶ Software Provisioning
- ▶ Reporting and Monitoring
- ▶ New DBA Tools

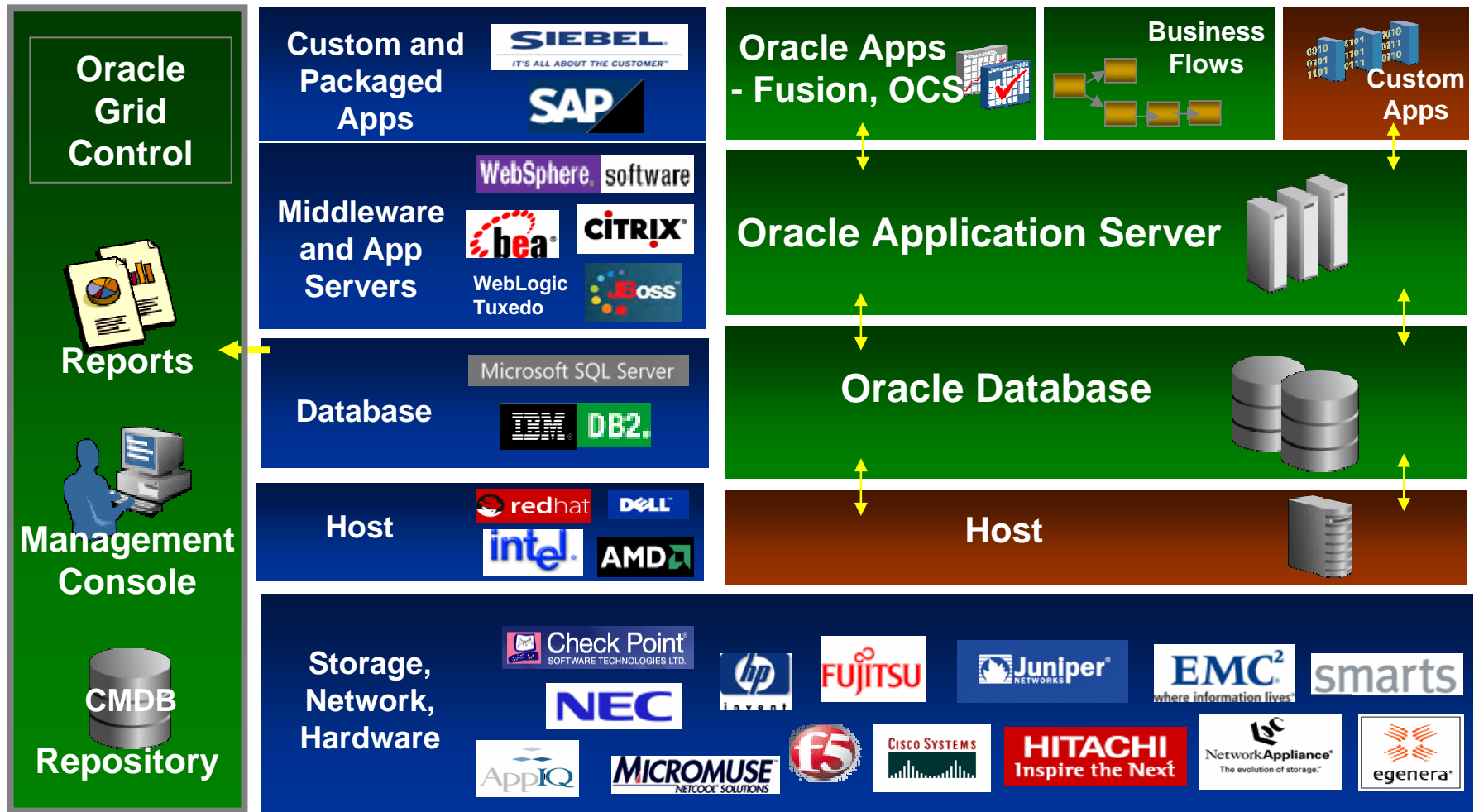
**Available  
Soon**



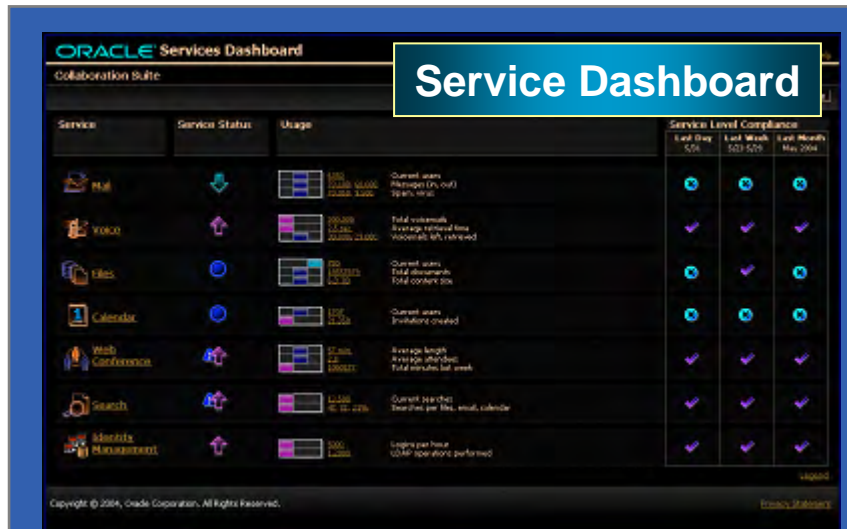
# Grid Control Management Scope



# Extended System Coverage

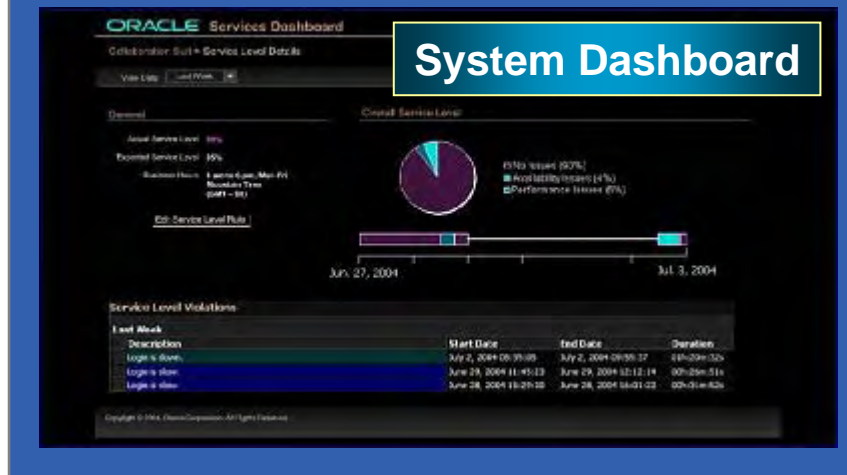


# Service & System Dashboards

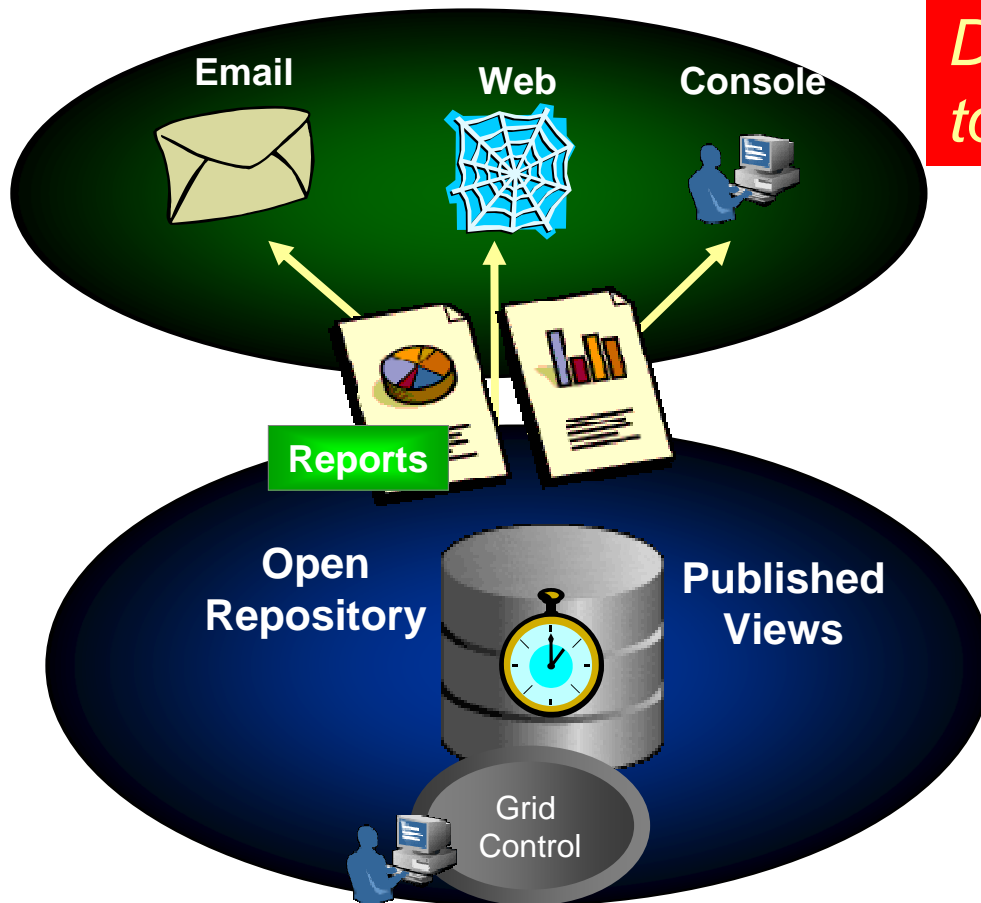


*‘One-stop’ management for your most critical operations*

- One view for overall status
- At a glance monitoring of all critical indicators
- Workflow-driven drilldowns
- Root-cause failure ID



# Enterprise Reporting

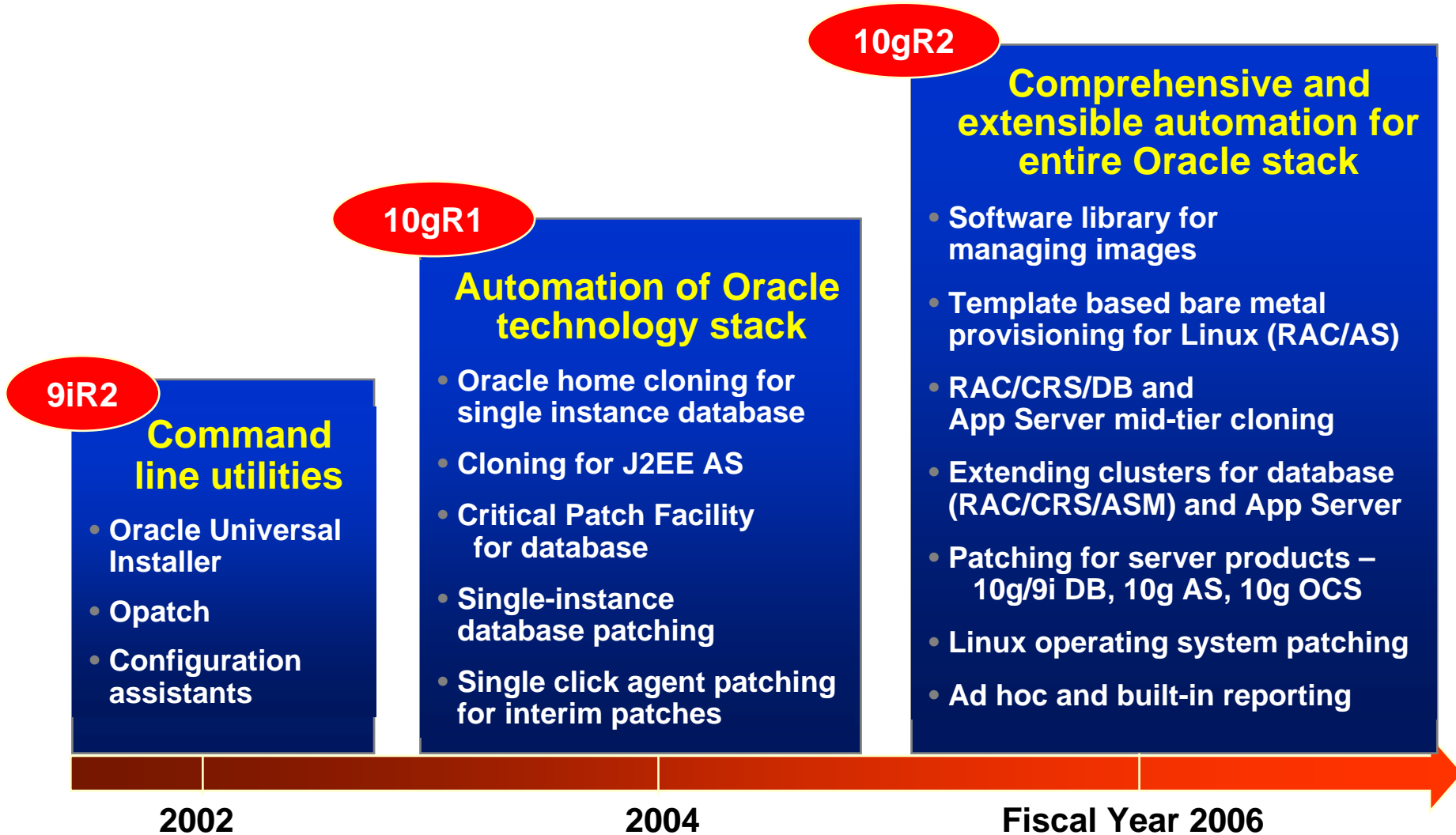


*Deliver specialized information to users, managers, executives*

- ▶ Out-of-the-box reports for all components
  - Configuration
  - Performance
  - Service level
  - Audit
- ▶ Graphical report creation tool
- ▶ Complete repository access
- ▶ Secure publishing capabilities
- ▶ Published well defined views

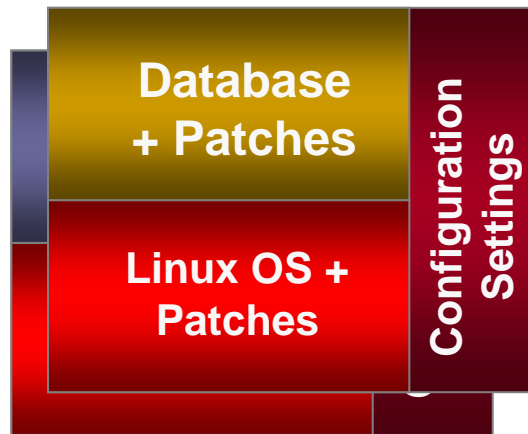


# Automated Software Deployment

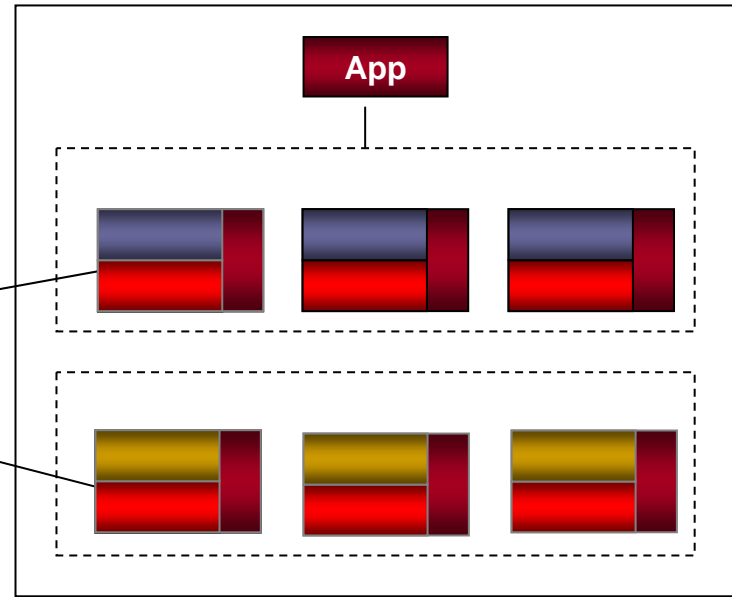


# RAC Provisioning with Enterprise Manager 10g Release 2

## 5-Step RAC Deployment



RAC Instance\*



Production Application  
with added RAC capacity

*\* Configured from bare metal!*

# RAC Provisioning with Enterprise Manager 10g Release 2

- Setup new clusters
  - Provision Software
  - Configure Clusterware
- Add Node
  - Clone Software
  - Extend Cluster
  - Add Instance, Listener & ASM
- Convert non-RAC Database to RAC (n-node)

# RAC Management

- ❑ Topology view with configuration details
- ❑ Critical, warning alerts
- ❑ Administration
  - startup & shutdown
  - add/delete instance
  - services management

The screenshot displays the Oracle Enterprise Manager 10g Grid Control interface. The top navigation bar includes links for Home, Targets, Deployments, Alerts, Policies, Jobs, and Reports. The main content area is titled 'Cluster Database: rac2' and shows the 'Topology' view. This view presents a hierarchical diagram of the RAC database architecture, including database instances, ASM instances, listeners, and interfaces. On the left, a 'Selection Details' pane shows information for the selected instance 'rac2\_rac21', including its type, host, and alert status. Below this, a 'Summary' pane displays key metrics like the number of up instances and cluster status. The bottom section, titled 'Instances', contains a table listing the database instances and their associated ASM instances.

Name	Status	Alerts	Policy Violations	Compliance Score (%)	ADDM Findings/ASM	Sessions: CPU	Sessions: I/O	Sessions: Other	Instance CPU (%)
rac2_rac21	Up	1	0	90	0 - ASM1_stay16.us.oracle.com:Q	0	0	0	05
rac2_rac22	Up	1	0	90	2 - ASM2_stay17.us.oracle.com:Q	0	0	0	01

Related Links: Access, All Metrics, SQL\*Plus, Metric Collection Errors, Rules Manager, Advisor Central, Blackouts, Jobs, Monitoring Configuration, SQL History, Alert History, Deployments, Metric and Policy Settings, Reports, Target Properties.

**CRACORE Enterprise Manager 11g**  
Grid Control | Home | Targets | Discoveries | Alerts | Policies | Jobs | Reports

Hosts | Databases | Web Applications | Services | Systems | Groups | All Targets

**Cluster: cr@1017**

Last Data Collected From Target Aug 17, 2009 11:55:03 PM PST [Refresh]

Note: Disconnect configuration and alternate communication will enhance the performance of cluster databases. The tables below show network interfaces on all hosts and network interfaces currently in use by cluster databases. It is important that cluster databases are configured to use a private interconnect for message and block transfer.

Host	Interface	Type	Interconnect	Transfer Rate (MB/Sec)
cr@1017	eth0	Ethernet	Private Interconnect	8.5199

Transfer rate on the private network in the last 5 minutes.

### Interfaces by Hosts

View [Private] [All]

Expanded All | Collapse All

Host	Type	Subnet	Interface Type	Total TX Rate (MB/Sec) & S. Missing	Total Error Rate (Tx & S. Missing)
cr@1017	Cluster				
▼ host01.oracle.com	Net				
eth0	Interface	10.07.24.0	Private	0.18	0
▼ host07.oracle.com	Net				
eth0	Interface	10.07.24.0	Private	0.0	0

### Interfaces In Use by Cluster Databases

Expanded All | Collapse All

Host	Target Type	Interface Name	Host Name	IP Address	Type	Source	Transfer Rate (MB/Sec) & S. Missing
cr@1017	Cluster Database						
cr@1017	Database Instance	eth0	host01.oracle.com	10.07.25.170	Private	Oracle Cluster Registry	0.014
cr@1017	Database Instance	eth0	host07.oracle.com	10.07.26.171	Private	Oracle Cluster Registry	0.011

(If RIP the Transfer Rate is the estimated traffic contributed by the instance spanning network block size to the database.)

Home Performance Targets Interconnects Troubleshooting

### Hosts

Name /	Status	Oracle Database Status	Alerts	Policy Violations	Compliance Score (%)	CPU Util %	Mem Util %	Disk I/Osec
host01.us.oracle.com	Up	Up	0	0	100	70	85.25	
host07.us.oracle.com	Up	Up	0	0	100	70	418.84	

### Related Links

- Account Backlog
- Active Collection Events
- Target Properties
- Alert History
- Discoveries
- Monitoring Configuration
- All Metrics
- Metric and Policy Settings
- Targets

Home | Targets | Discoveries | Alerts | Policies | Jobs | Reports | Setup | Preferences | Help | Logout

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[About Oracle Enterprise Manager](#)

**Inter-instance communication  
monitoring for performance tuning,  
problem diagnosis**



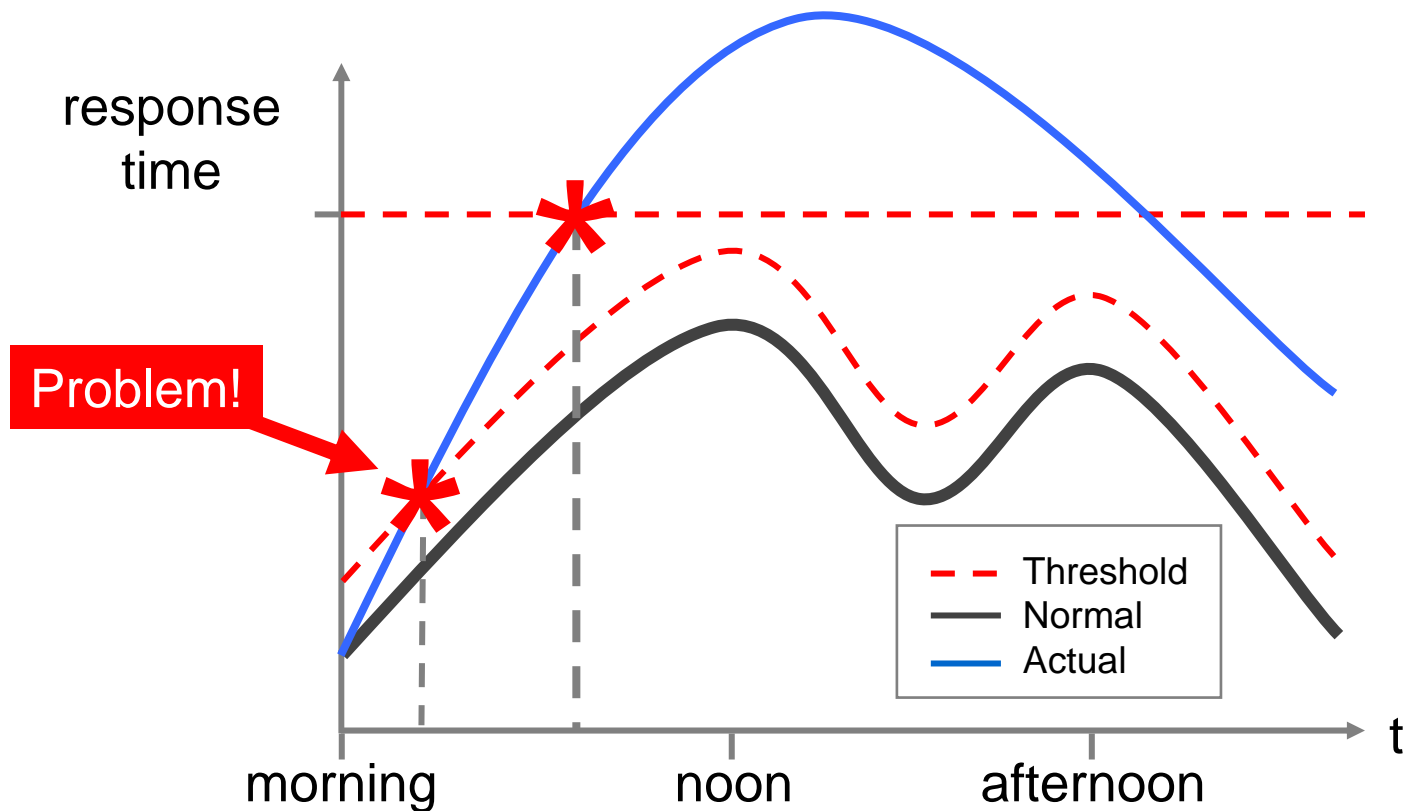
# Enterprise Manager ASM Support

- ▶ Migrate non-ASM to ASM
- ▶ Simplified management
  - Performance monitoring
  - Alerts on media failures, disk group dismount, disk and file alert log error
  - Disk group policy compliance





# Adaptive Metric Thresholds



**Abnormal performance is detected much earlier**

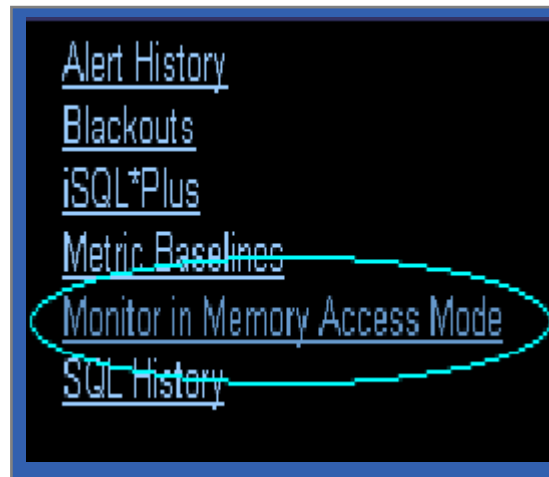
# Cool Tools for the DBA

## Performance Tuning



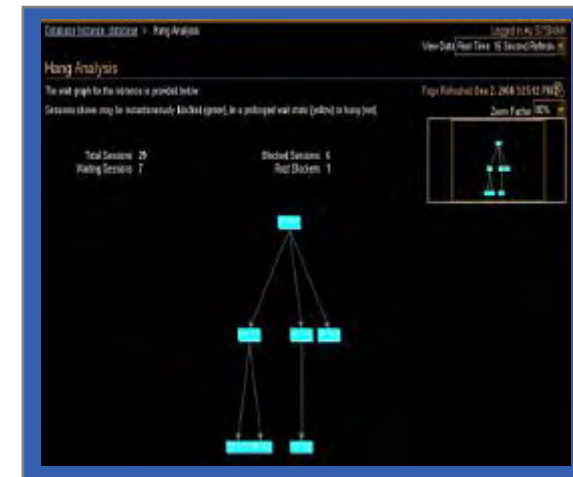
- Top sessions, top SQL
- Activity %, session IDs, SQL text

## Direct Memory Mode



- Useful for hung / slow databases
- Direct reads from SGA; no SQL

## Hang Analysis



- Quick root cause analysis of blocking sessions
- Graphical view, drill to details



# Project Raptor

- ☐ New tool for DBAs & database developers
- ☐ Lightweight, very responsive, easy to use
- ☐ Create and manage database objects
  - ☐ tables, views, etc.
- ☐ Browse, update data
- ☐ Create, edit, debug PL/SQL



**Announced at OpenWorld ...**

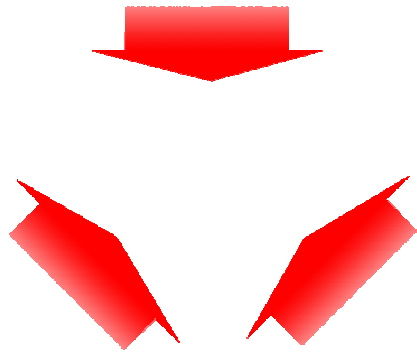
**ORACLE®**  

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**APPLICATION SERVER** **10<sup>g</sup>**  
**Release 3**

**Oracle Fusion Architecture**

APPLICATIONS



INFORMATION

INFRASTRUCTURE

# Fusion of Modern Architectures

## APPLICATIONS



Enterprise  
Information  
Architecture

Grid  
Computing  
Architecture

INFORMATION

INFRASTRUCTURE

# Fusion of Modern Architectures

## APPLICATIONS

Service-  
Oriented  
Architecture

**ORACLE  
FUSION**  
ARCHITECTURE

Enterprise  
Information  
Architecture

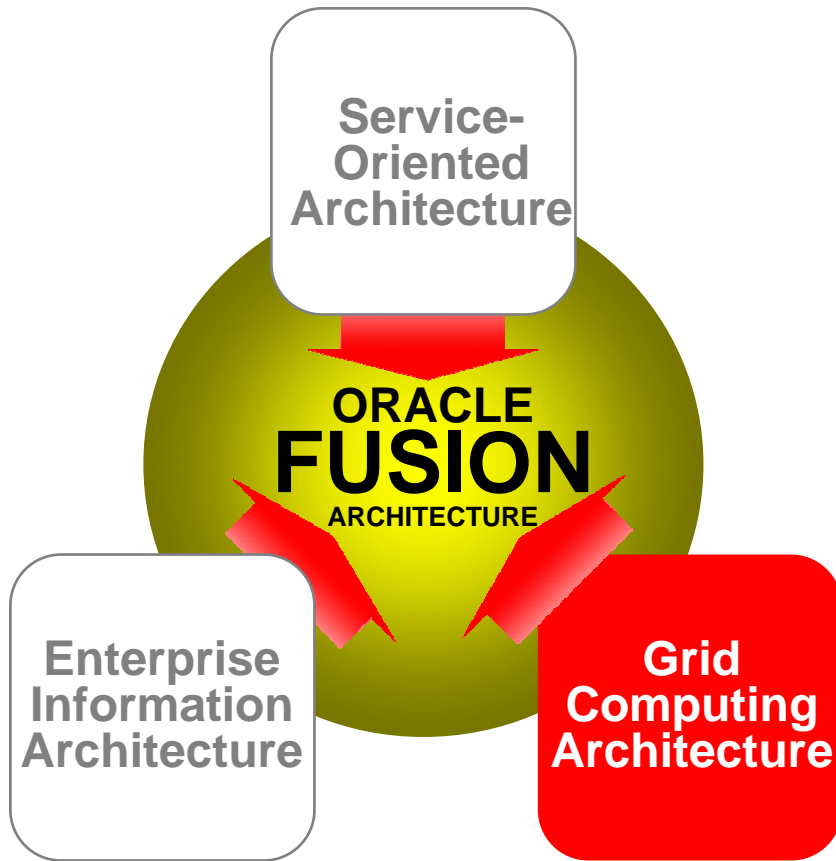
Grid  
Computing  
Architecture

INFORMATION

INFRASTRUCTURE

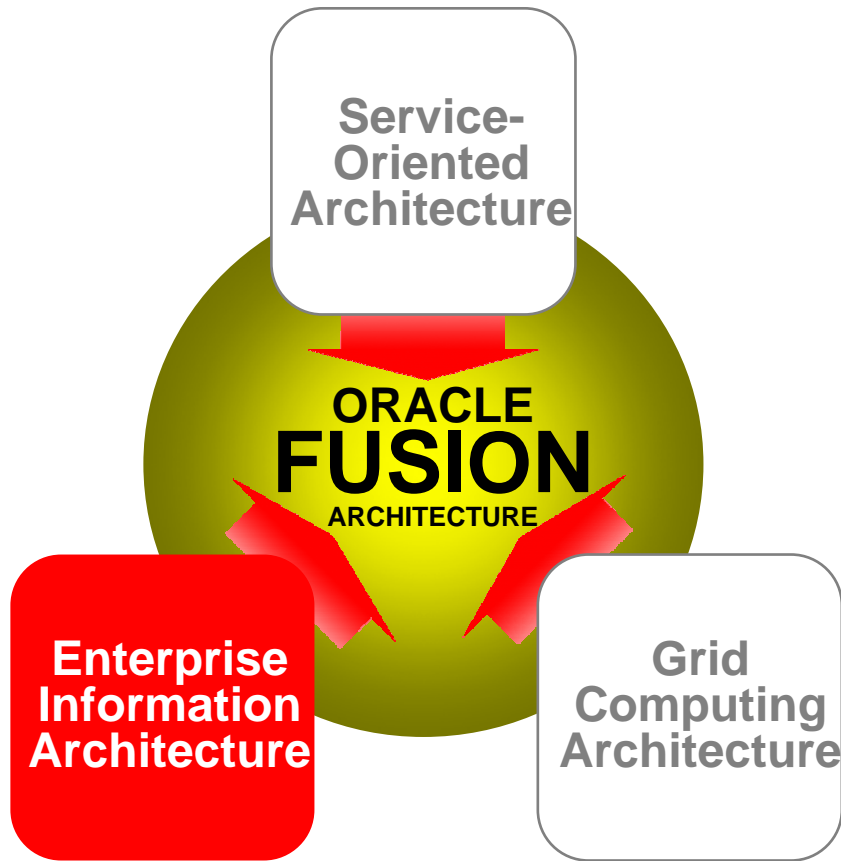
# Fusion of Modern Architectures

# Clusters of low-cost servers acting as one large computer



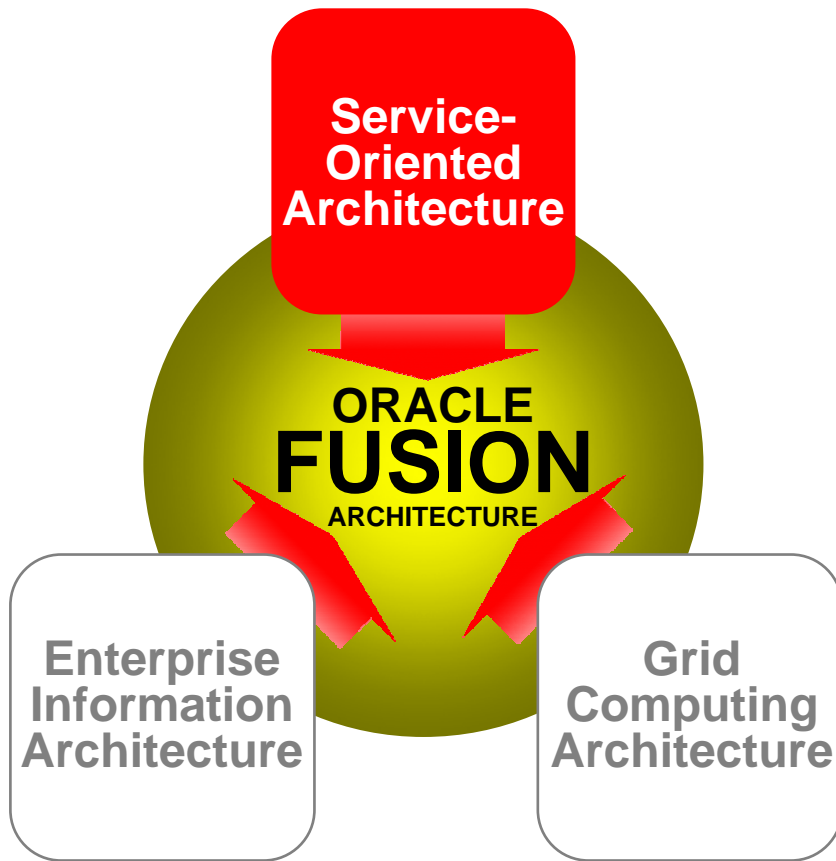
- ▶ High performance and scale
- ▶ Costs less
- ▶ Never breaks

# Unified storage, management and personalized use of information



- ▶ Role-based, real time information
- ▶ Content as enterprise asset
- ▶ More secure and auditable
- ▶ Lower cost

# Adaptable processes based on component services



- ▶ Speeds application development
- ▶ Aligns business & IT
- ▶ Extends IT investments
- ▶ Lowers maintenance costs



# Oracle 10g Delivers the Fusion Architecture

**ORACLE®**

**APPLICATION SERVER**

**ORACLE®**

**DATABASE**



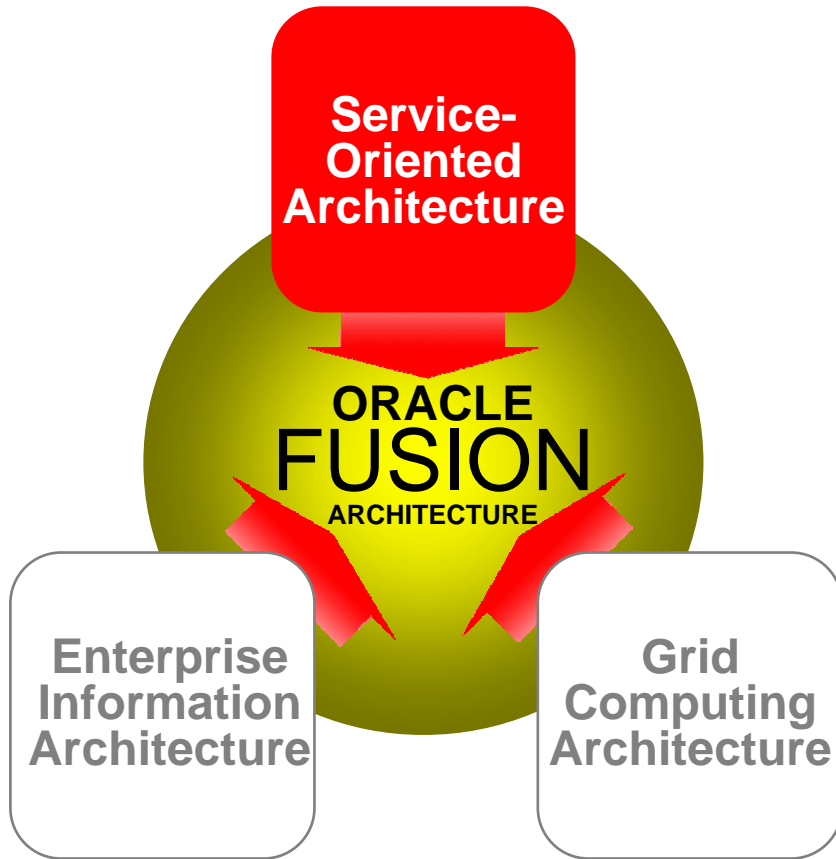
**10g**

**ORACLE®**

**COLLABORATION SUITE**

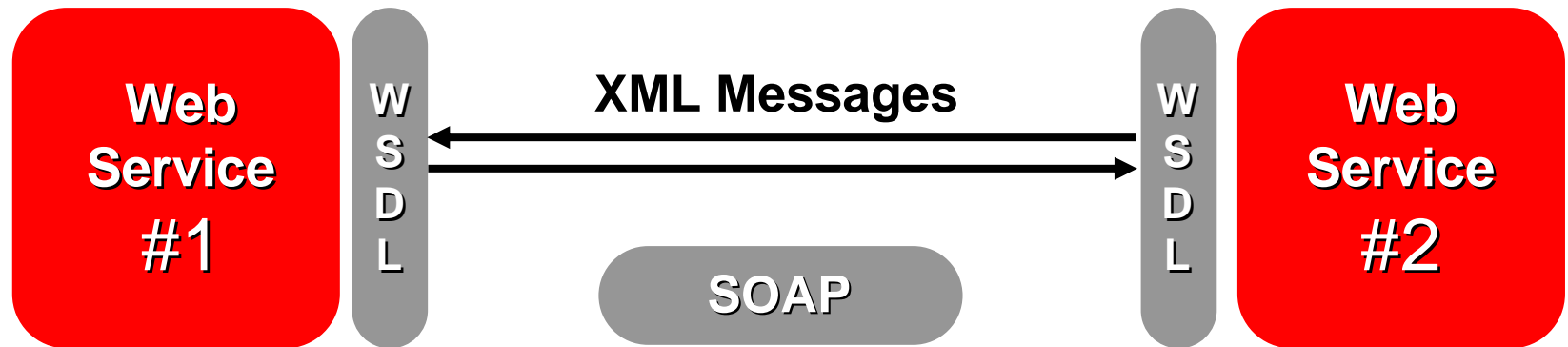
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**ENTERPRISE MANAGER**



# Fusion of Modern Architectures

# Service-Oriented Architecture



# Service-Oriented Architecture

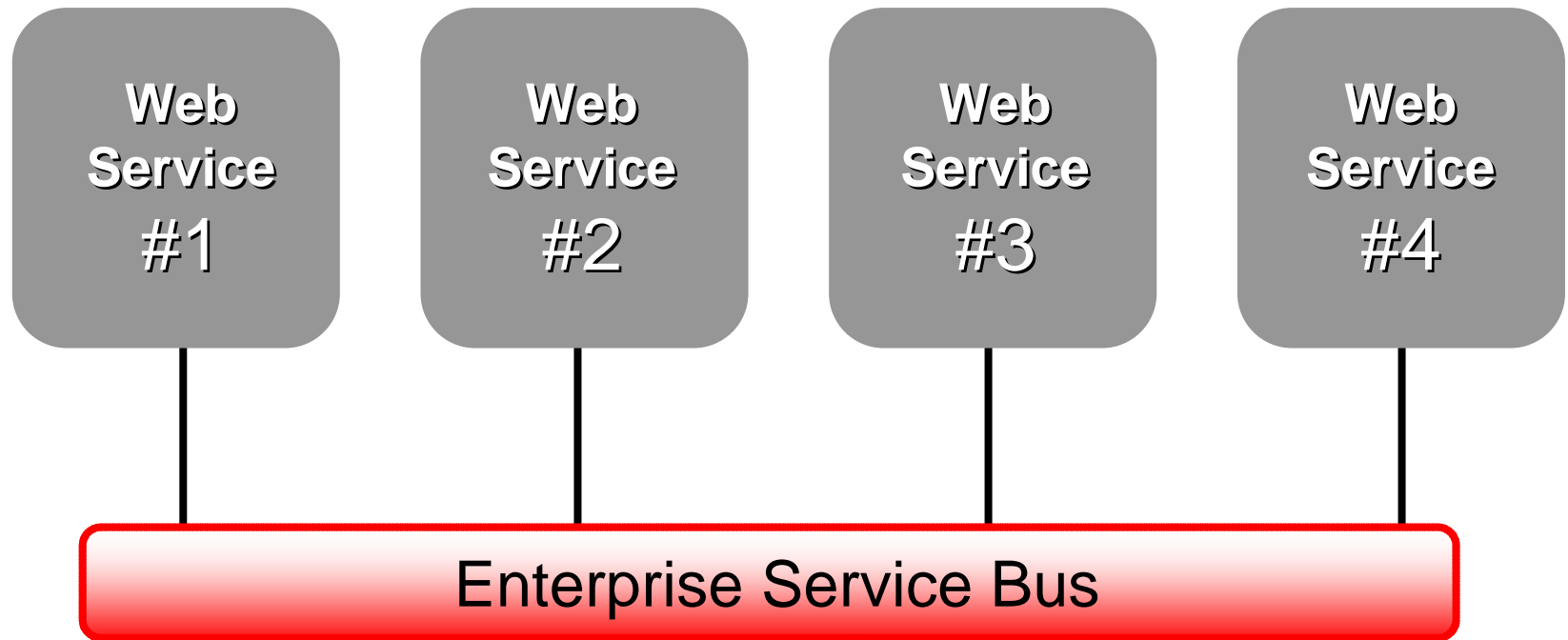
**Web  
Service  
#1**

**Web  
Service  
#2**

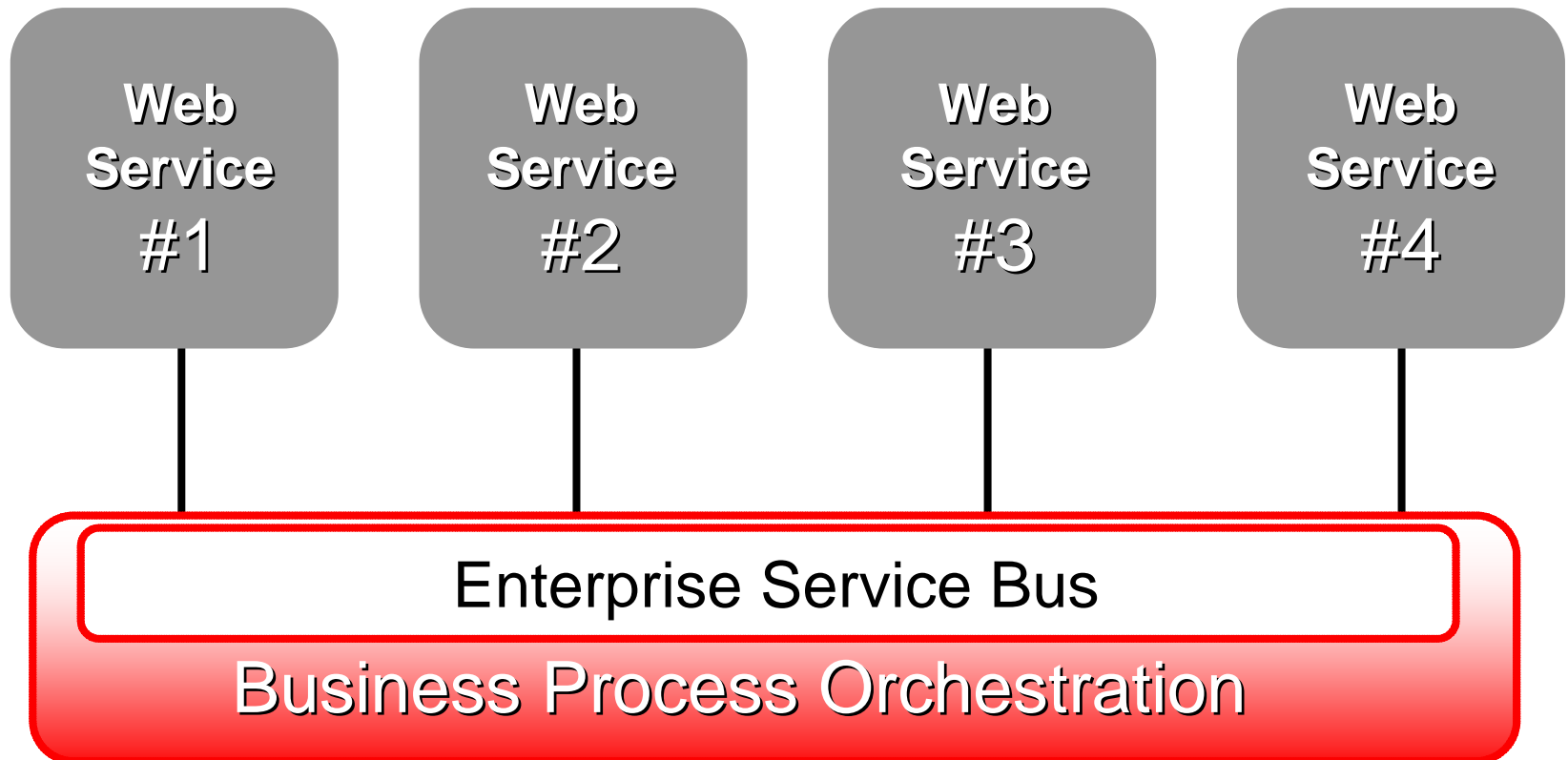
**Web  
Service  
#3**

**Web  
Service  
#4**

# Service-Oriented Architecture



# Service-Oriented Architecture



# SOA Lifecycle

**Develop**



**Integrate**



**Orchestrate**



**Secure**



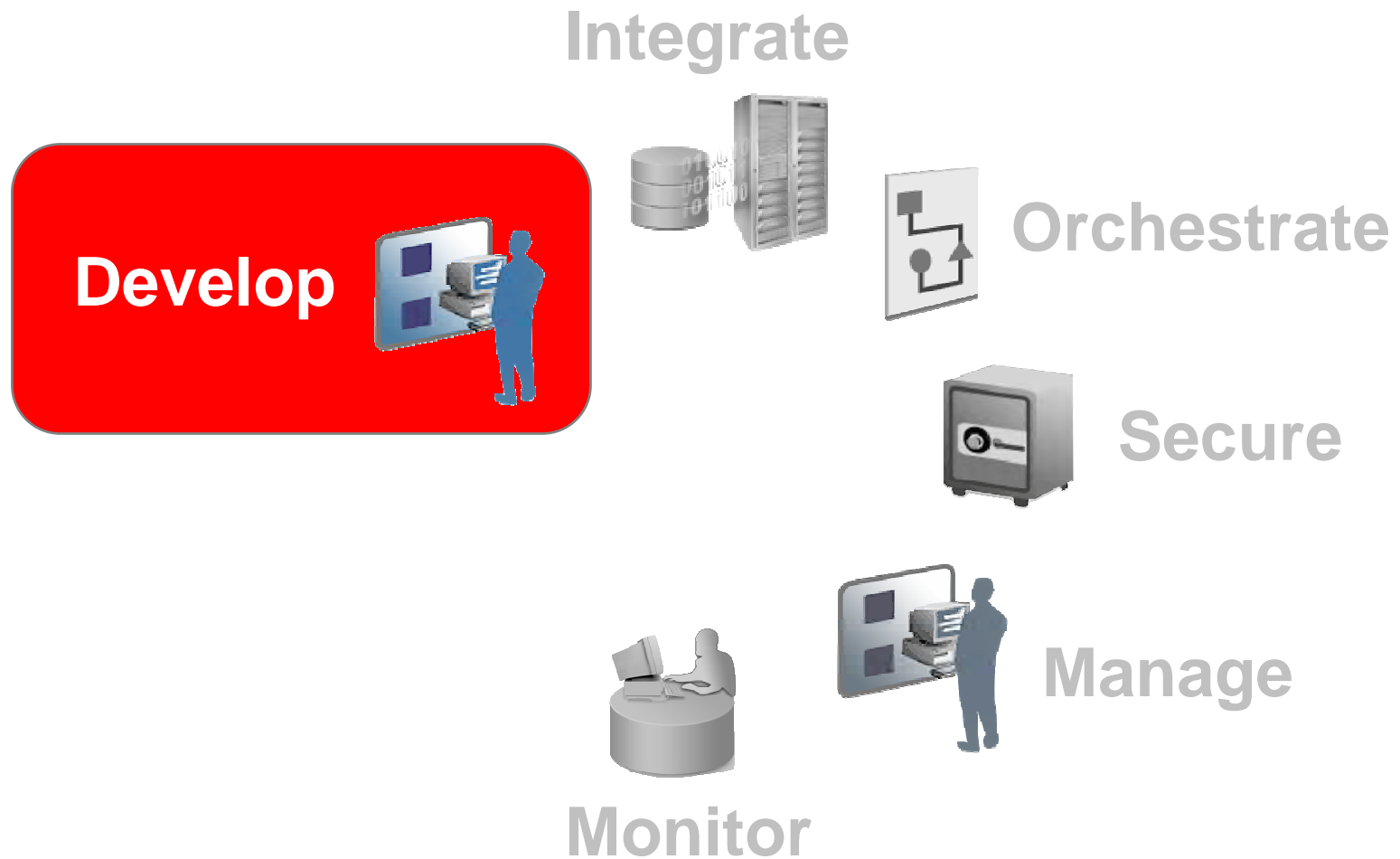
**Manage**



**Monitor**

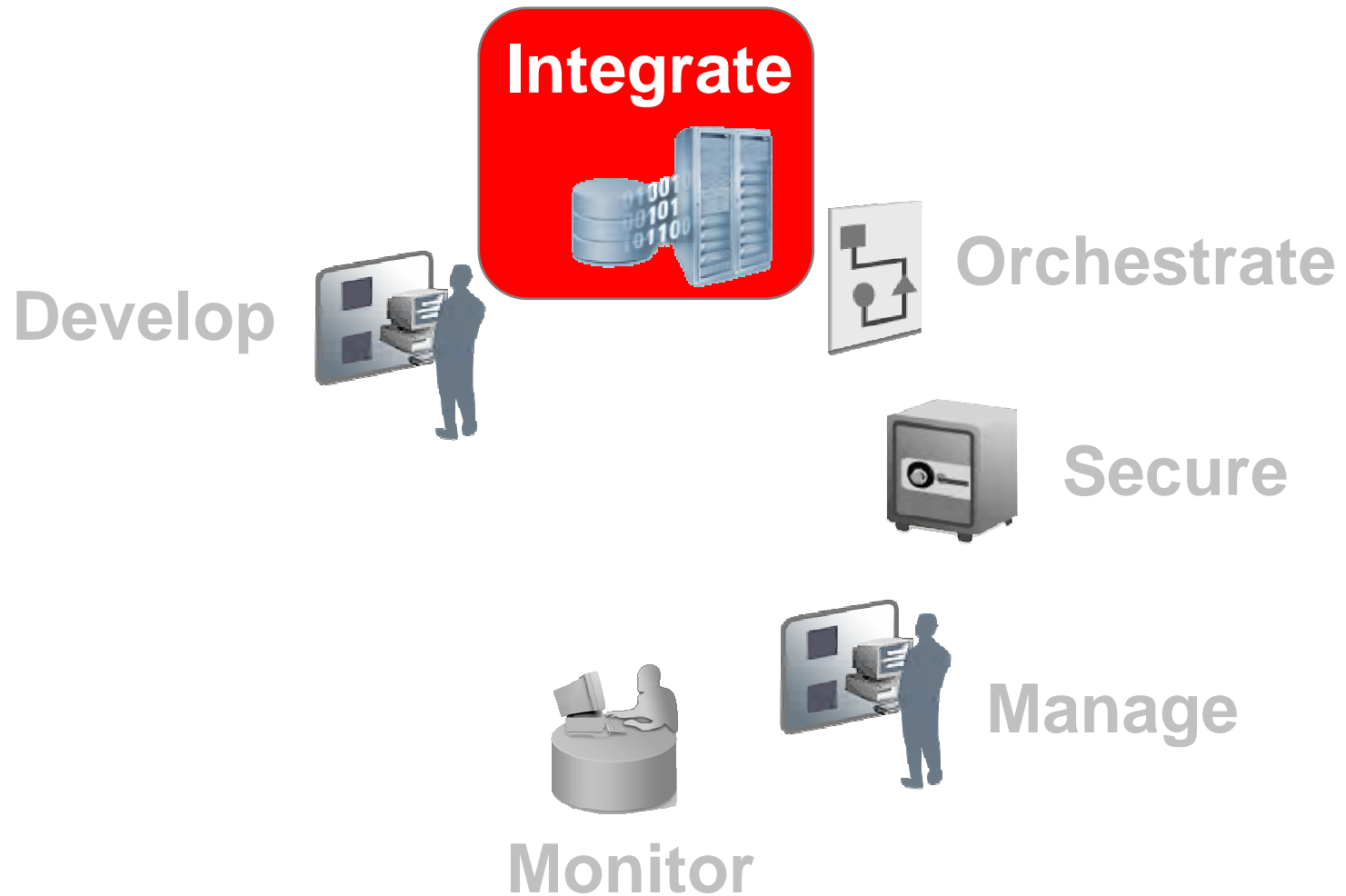


# SOA Lifecycle





# SOA Lifecycle



# SOA Lifecycle

Develop



Integrate



**Orchestrate**

Secure



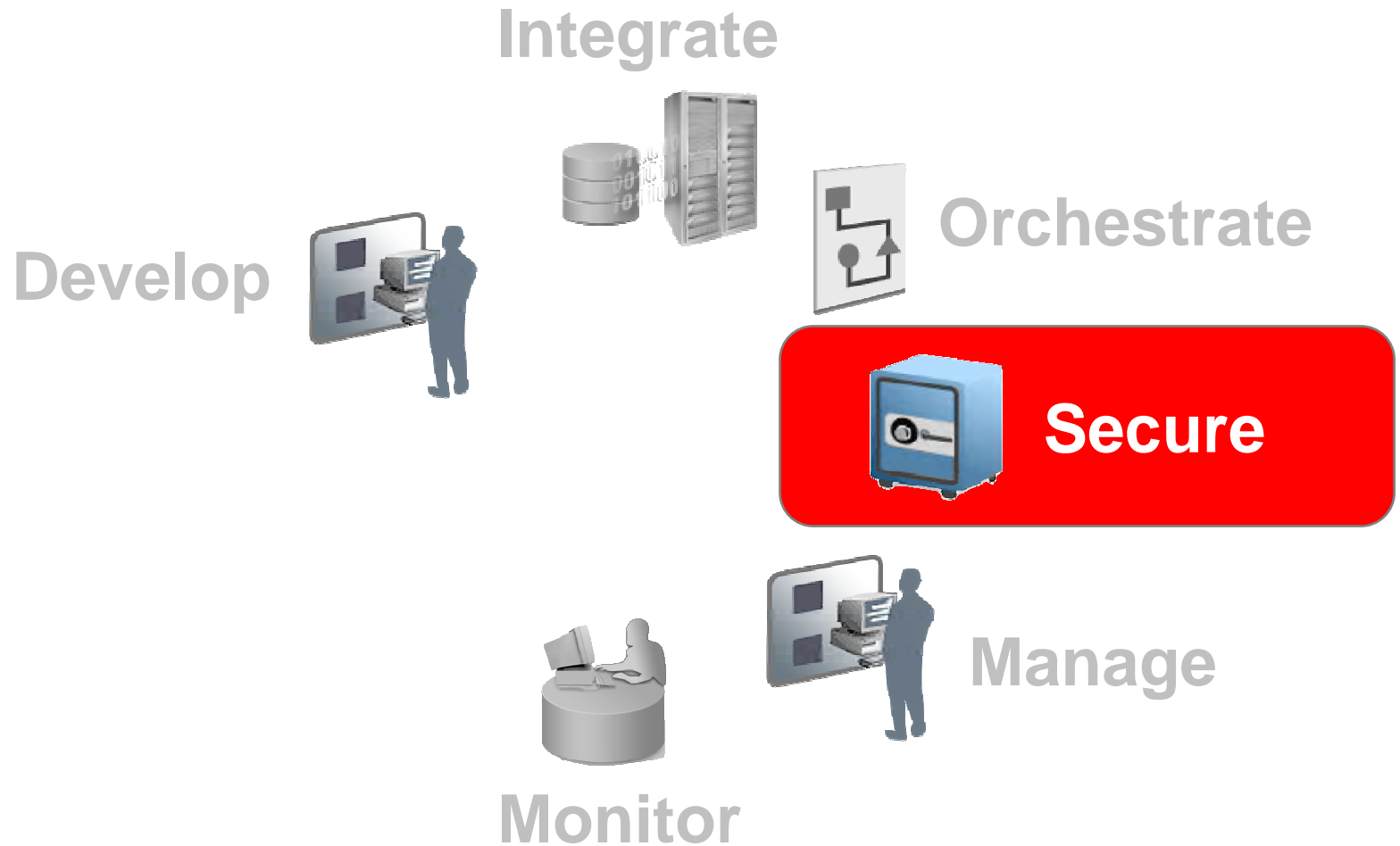
Manage



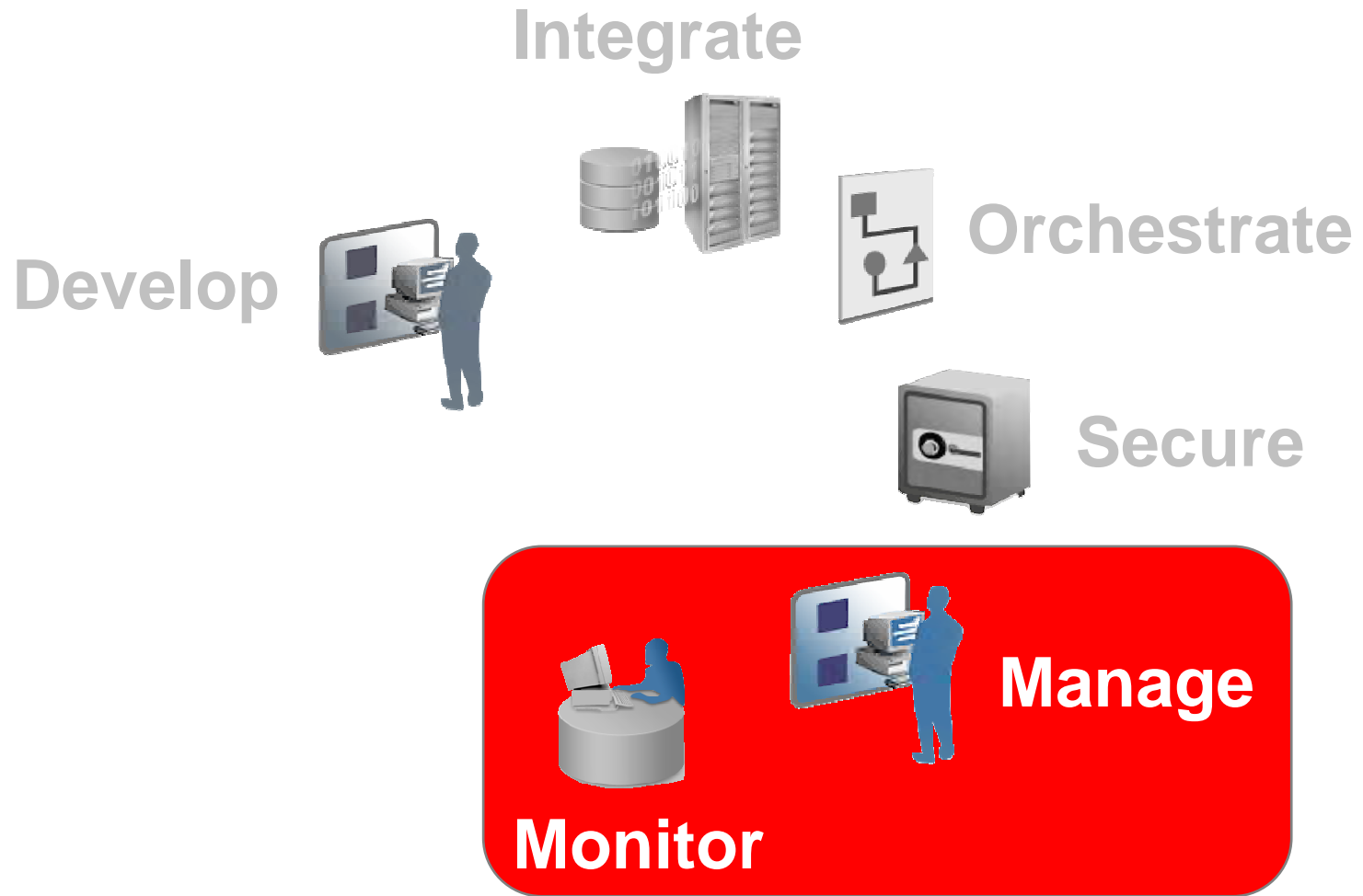
Monitor



# SOA Lifecycle



# SOA Lifecycle



# New in Oracle Application Server 10g Release 3

## Java Server Faces

Rich web-based standard user interfaces

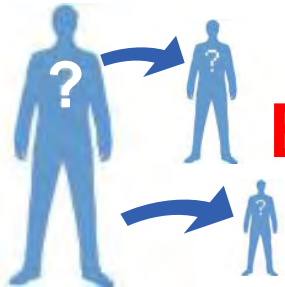
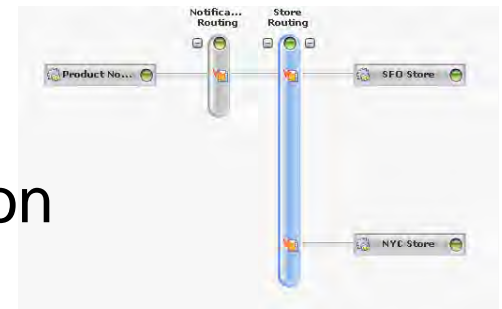


## EJB 3.0 & J2EE 1.4

Sophisticated business applications

## Enterprise Service Bus

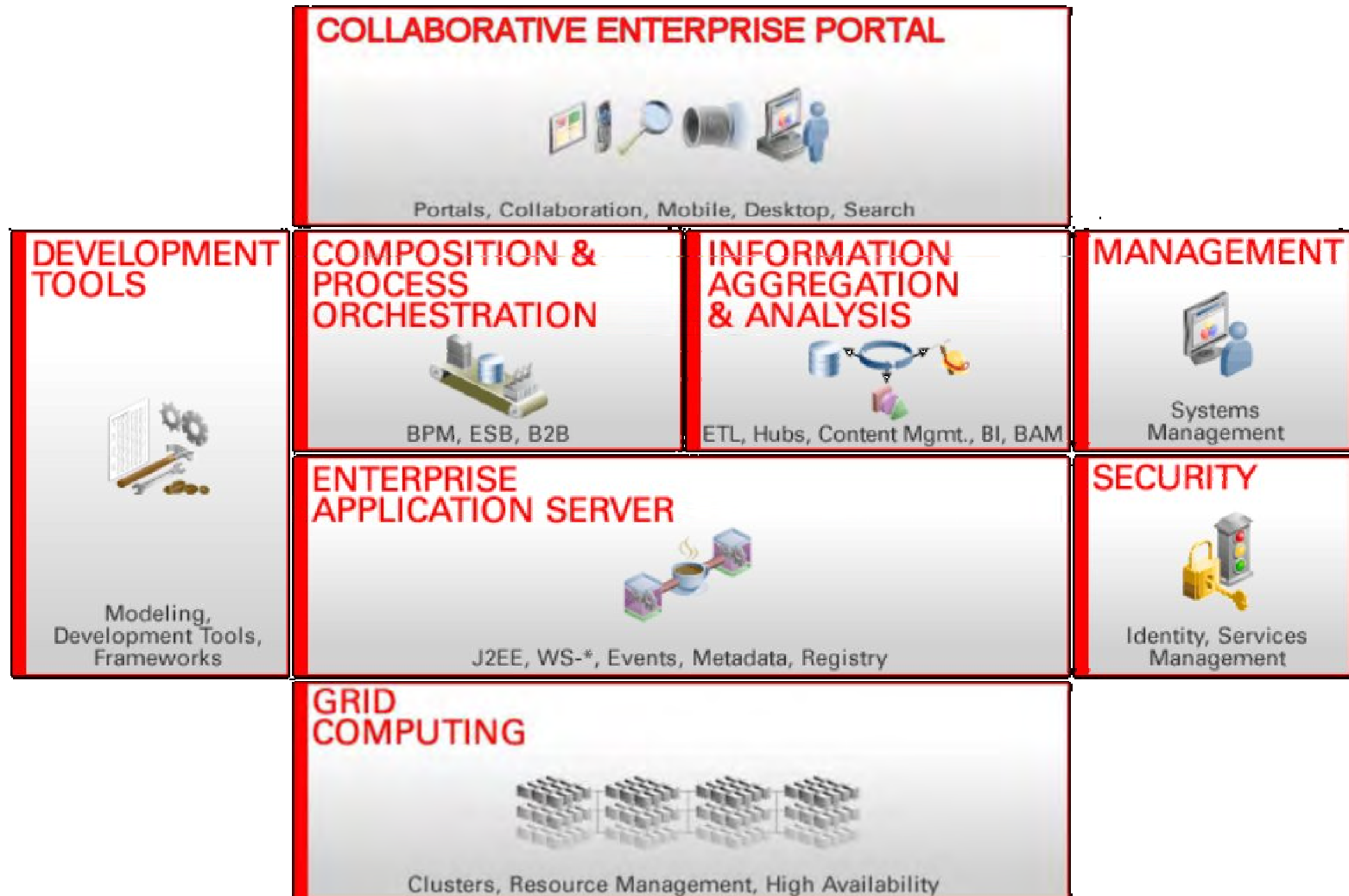
Standards-based, flexible integration



## Enterprise Identity Management

Provisioning, Federation, Identity Administration

# Oracle Fusion Middleware



# World's Best Integrated Middleware Suite



RANK	VENDOR & PRODUCT	OVERALL SCORE	PLATFORM ARCHITECTURE	AVAILABILITY AND RELIABILITY	ADMINISTRATION AND MANAGEMENT	DEVELOPMENT	STANDARDS AND INTEROPERABILITY	MARKET PRESENCE	COST
		▼	▼ +	▼ +	▼ +	▼ +	▼ +	▼ +	▼ +
1	<a href="#">Oracle Application Server 10g Enterprise Edition</a>	<a href="#">4.1</a>	<a href="#">4.0</a>	<a href="#">4.4</a>	<a href="#">4.6</a>	<a href="#">4.1</a>	<a href="#">4.3</a>	<a href="#">3.9</a>	<a href="#">3.4</a>
2	<a href="#">Microsoft Windows Server System</a>	<a href="#">3.5</a>	<a href="#">3.6</a>	<a href="#">3.1</a>	<a href="#">3.5</a>	<a href="#">4.4</a>	<a href="#">3.7</a>	<a href="#">2.8</a>	<a href="#">3.2</a>
3	<a href="#">IBM WebSphere software platform</a>	<a href="#">3.3</a>	<a href="#">3.8</a>	<a href="#">3.0</a>	<a href="#">3.3</a>	<a href="#">3.4</a>	<a href="#">3.6</a>	<a href="#">4.5</a>	<a href="#">1.4</a>
4	<a href="#">BEA WebLogic Platform 8.1</a>	<a href="#">3.2</a>	<a href="#">4.4</a>	<a href="#">2.4</a>	<a href="#">3.9</a>	<a href="#">3.5</a>	<a href="#">3.9</a>	<a href="#">3.5</a>	<a href="#">1.0</a>
5	<a href="#">SAP NetWeaver 04</a>	<a href="#">2.8</a>	<a href="#">3.7</a>	<a href="#">2.1</a>	<a href="#">4.0</a>	<a href="#">3.3</a>	<a href="#">3.4</a>	<a href="#">3.1</a>	<a href="#">0.0</a>
5	<a href="#">Sun Sun Java System</a>	<a href="#">2.8</a>	<a href="#">3.1</a>	<a href="#">1.5</a>	<a href="#">3.5</a>	<a href="#">2.4</a>	<a href="#">3.1</a>	<a href="#">2.8</a>	<a href="#">3.2</a>
7	<a href="#">Novell exteNd Enterprise Suite 5.2</a>	<a href="#">2.4</a>	<a href="#">3.7</a>	<a href="#">1.5</a>	<a href="#">2.7</a>	<a href="#">2.8</a>	<a href="#">3.6</a>	<a href="#">1.3</a>	<a href="#">1.0</a>
WEIGHTINGS:		15%	15%	14%	14%	14%	14%	14%	14%

# World's Fastest Growing Middleware Suite



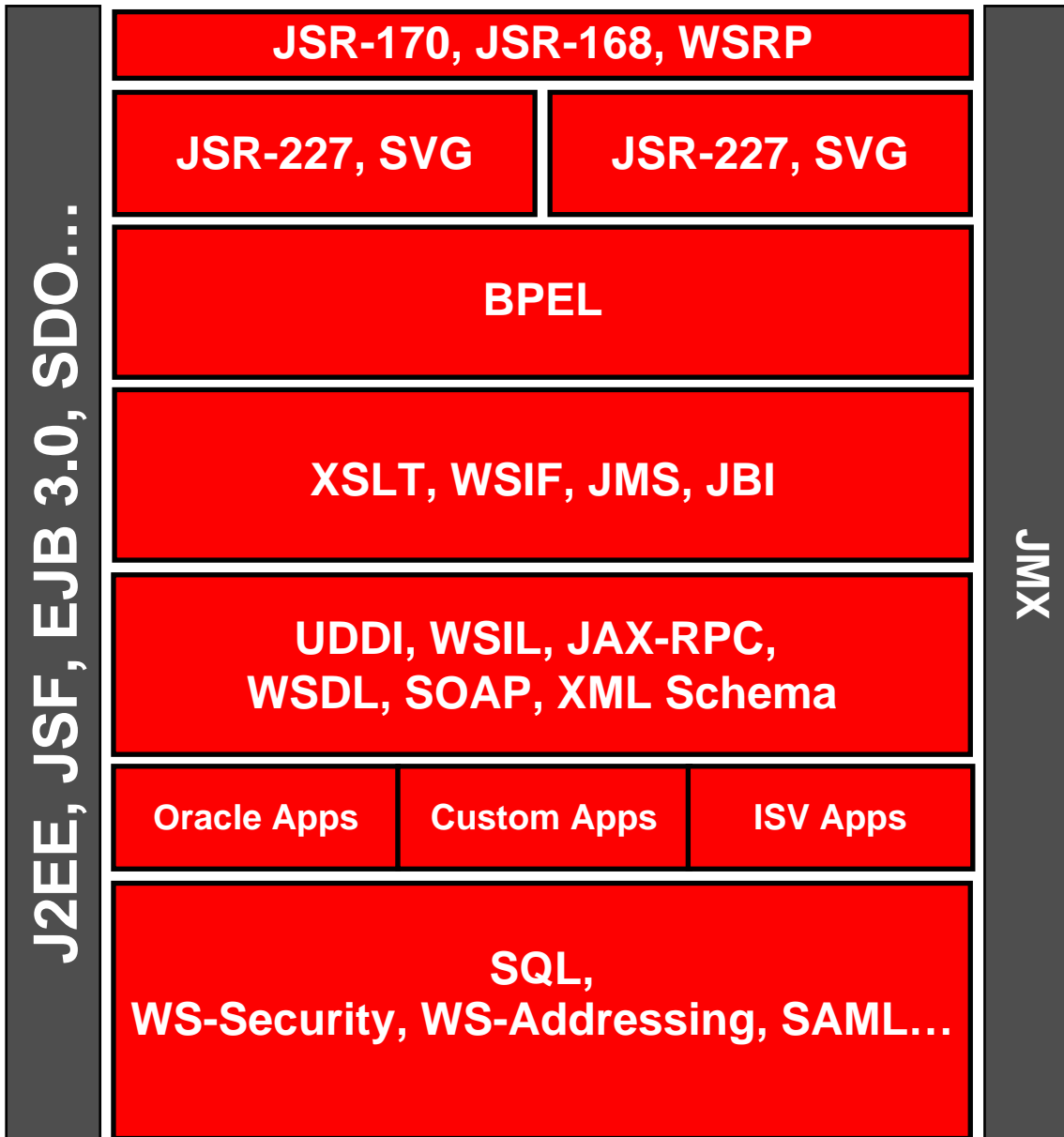
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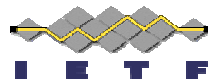
**Unified Portal****Business  
Intelligence****Activity  
Monitoring****Business Process Orchestration***Process models**BPEL Engine***Fusion Service Bus***Multi-protocol routing  
Message transformation  
Services and Event Mediation***Fusion Service Registry***Application Integration Services  
Process Integration Services  
Data and Metadata Services***Oracle Apps****Custom Apps****ISV Apps****Grid Computing***Clustering  
Provisioning  
Data Management  
Identity Management**Security  
Configuration  
Directories  
Web Cache*

# Oracle Fusion Architecture

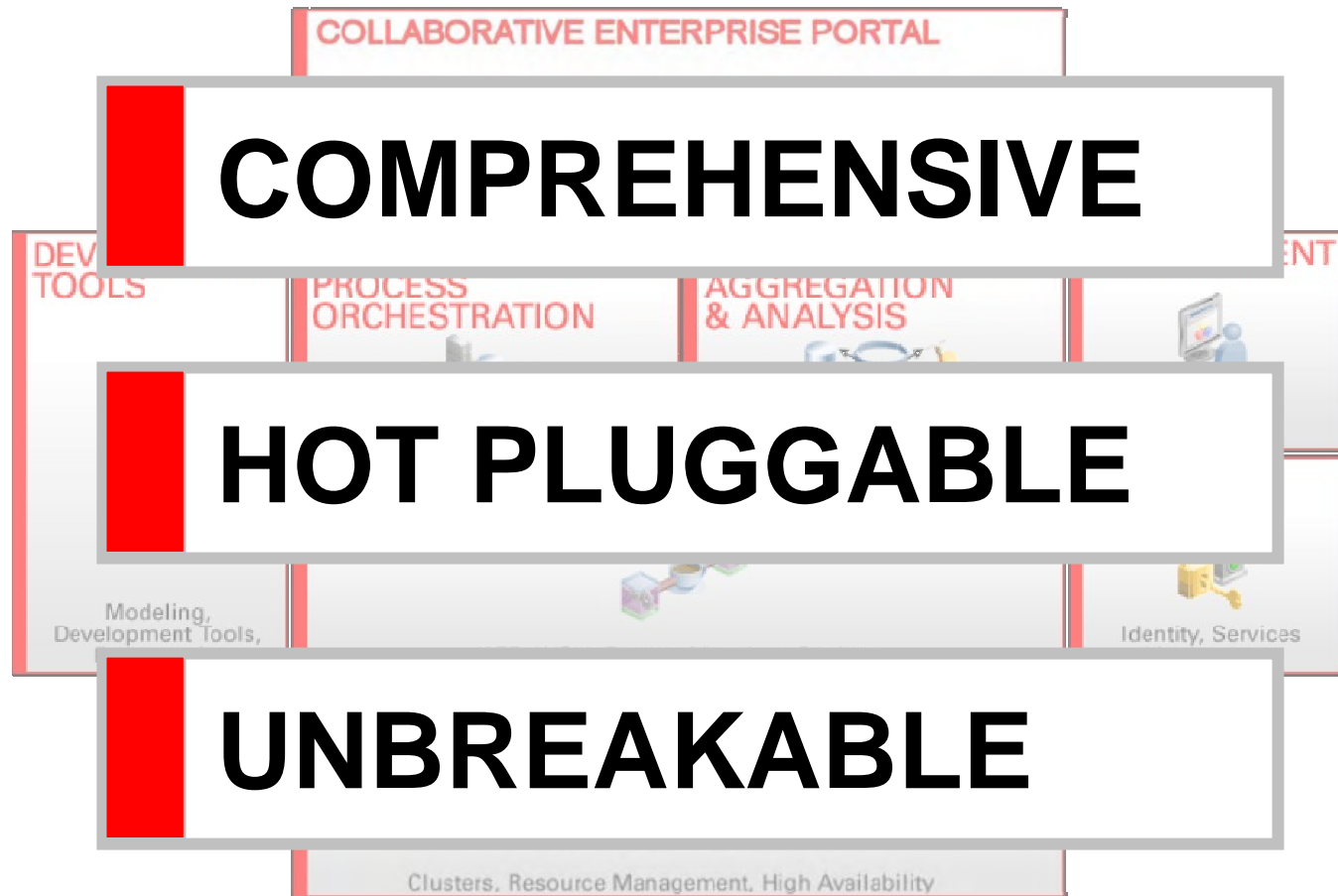


# Oracle Fusion Architecture *Standards*

# Based On Open Standards



# Oracle Fusion Middleware



# Oracle Applications, Fusion, Grid, SOA and You

- ▶ Project Fusion: Roadmap for future applications
- ▶ Fusion Middleware/Fusion Architecture: the basis for Project Fusion; driving Oracle development
- ▶ Fusion Applications (ours or yours) will be designed with a Service Oriented Architecture, and will run on a Grid
- ▶ DBAs' roles are expanding to include middleware deployment and application design issues
- ▶ Developers will use new tools and techniques to build better apps, and be more productive

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# Thank You, New York!



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