

Oracle Cloud Computing

Solid foundation.
Elastic cloud.

The Oracle logo is displayed in a bold, red, sans-serif font. The letters are closely spaced, and a registered trademark symbol (®) is located at the top right of the letter 'E'.

ORACLE®

Roadmap to Enterprise Cloud Computing

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Linux & Virtualization GBU, Oracle Korea



What is Cloud Computing?

NIST Definition of Cloud Computing



Cloud computing is a model for enabling convenient, on-demand network access to a shared pool of configurable computing resources (e.g., networks, servers, storage, applications, and services) that can be rapidly provisioned and released with minimal management effort or service provider interaction.

This cloud model promotes availability and is composed of:

5 Essential Characteristics

- On-demand self-service
- Resource pooling
- Rapid elasticity
- Measured service
- Broad network access

3 Service Models

- SaaS
- PaaS
- IaaS

4 Deployment Models

- Public Cloud
- Private Cloud
- Community Cloud
- Hybrid Cloud

Do You Provide or Use Internal or Private Clouds?



Yes, in production at scale	11.3%	} 28.6%
Yes, in limited use	12.8%	
Yes, in pilot stage	4.5%	
Preliminary planning	4.9%	
Under consideration	10.5%	
No	47.4%	
Don't know/unsure	8.7%	

28.6% of respondents have internal or private clouds today

Source: IOUG ResearchWire member study on Cloud Computing, conducted in August-September 2010.

What Type of Private Platform and Infrastructure Cloud Services Is Your Company Providing?



Application server platform as a service	24.7%	PaaS
Database platform as a service	21.4%	
Identity as a service	4.7%	
Compute as a service	10.2%	IaaS
Storage as a service	18.1%	
Software development and test as a service	14.9%	
Don't know/unsure	20.5%	
None	37.2%	

Most popular: App Server as a service, Database as a service

Source: IOUG ResearchWire member study on Cloud Computing, conducted in August-September 2010.

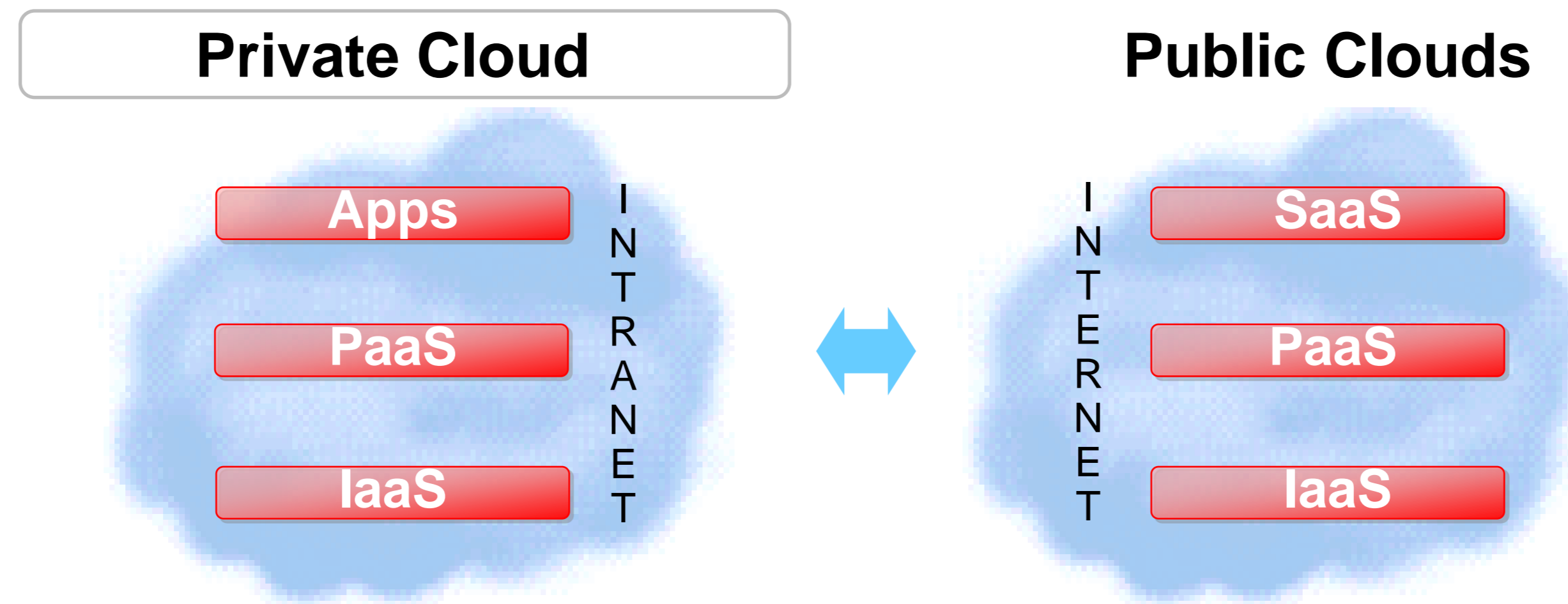
Oracle Has a Broad but Focused Cloud Computing Strategy

Private Cloud Solutions

- Applications on a shared platform
- Database & middleware for PaaS
- Hardware & systems for IaaS

Public Cloud

- Oracle On Demand cloud services
- Oracle on 3rd party public clouds
- Powering 3rd party public clouds



Cloud Integration

- Security, business process integration and data integration spanning on-premise and public clouds

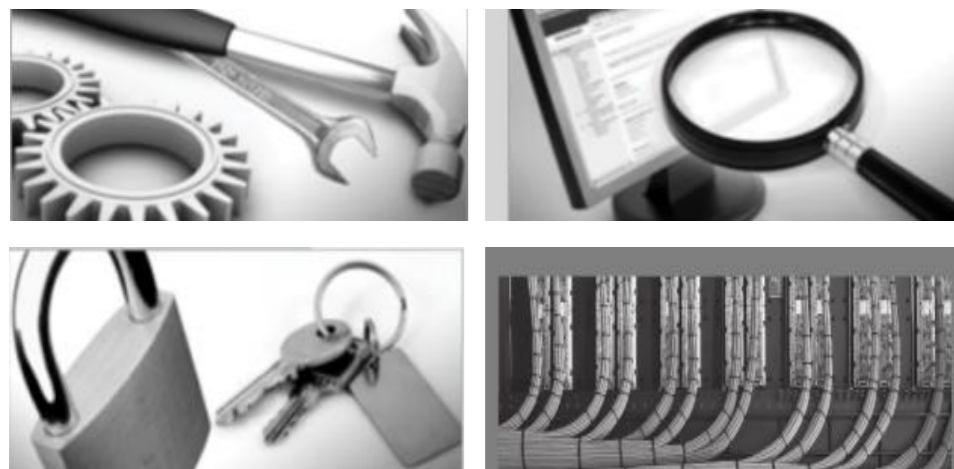
Roadmap to Cloud Computing



From Consolidation to Private PaaS



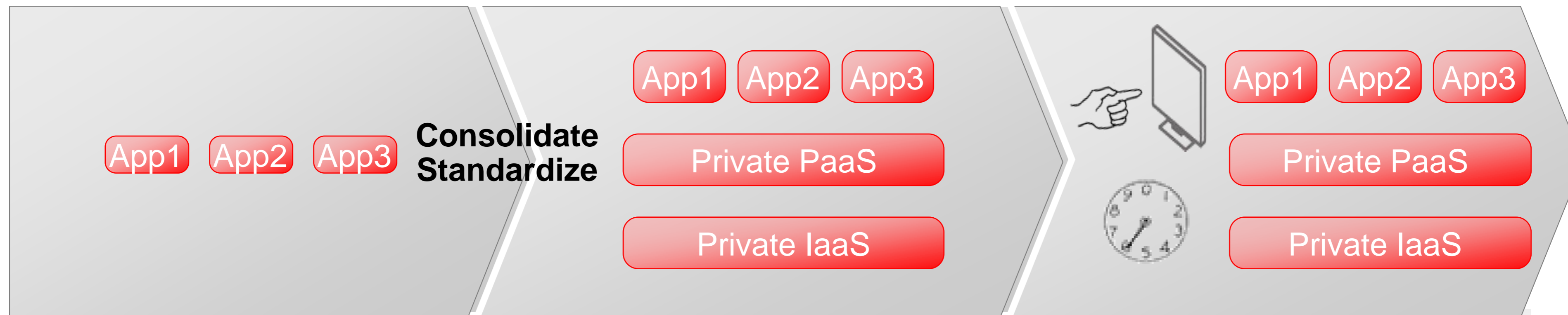
Exadata and Exalogic as the Foundation for Private PaaS



Oracle's Complete Cloud Offerings

Datacenter Evolution

From Consolidation to Private Cloud



Silo'd

- Physical
- Dedicated
- Static
- Heterogeneous

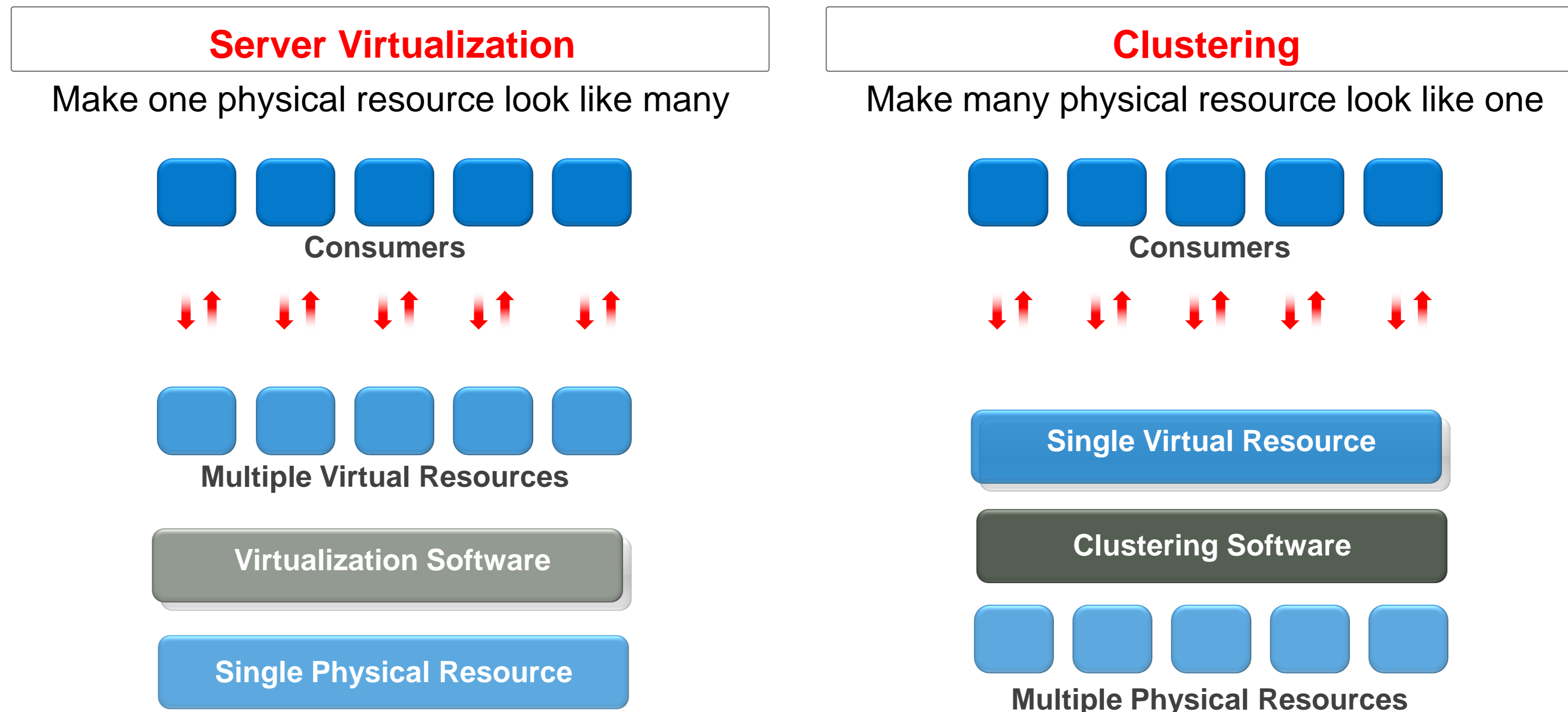
Grid

- Virtual
- Shared services
- Dynamic
- Standardized appliances

Private Cloud

- Self-service
- Policy-based resource management
- Chargeback
- Capacity planning

Server Virtualization and Clustering Deliver Resource Pooling and Elastic Scalability

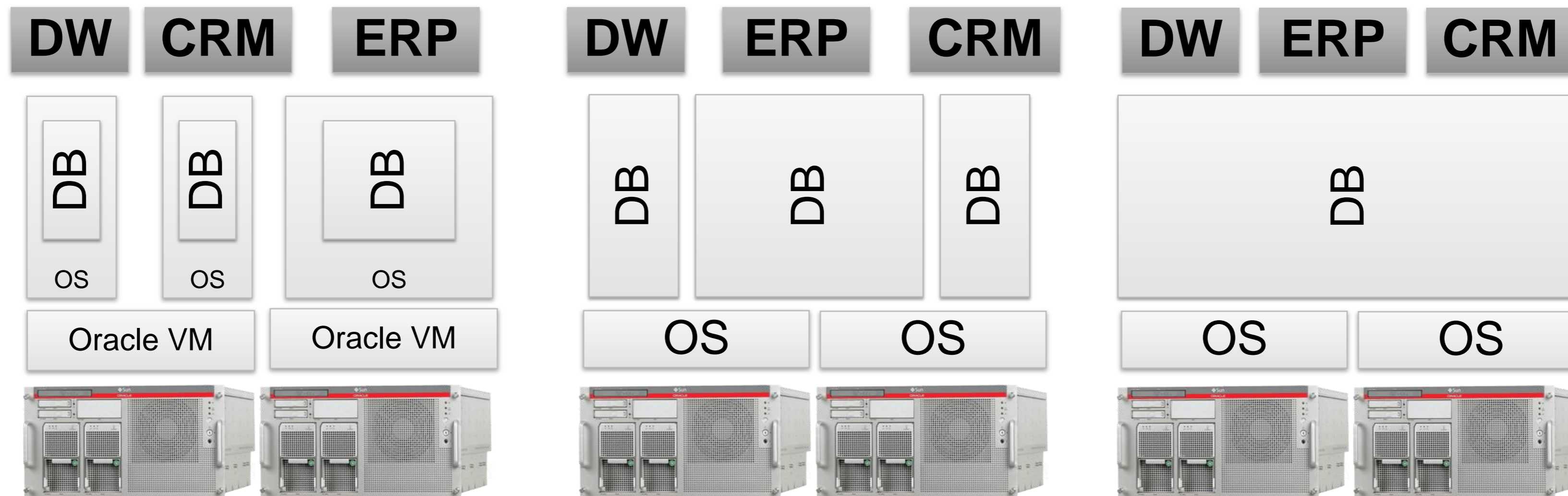


Both server virtualization and clustering are key technologies for cloud

Database Consolidation Approaches

Three Options Using Oracle Database 11g

Common building blocks are shared server and storage pools



Server

Deploy in dedicated VMs
Server virtualization

Database

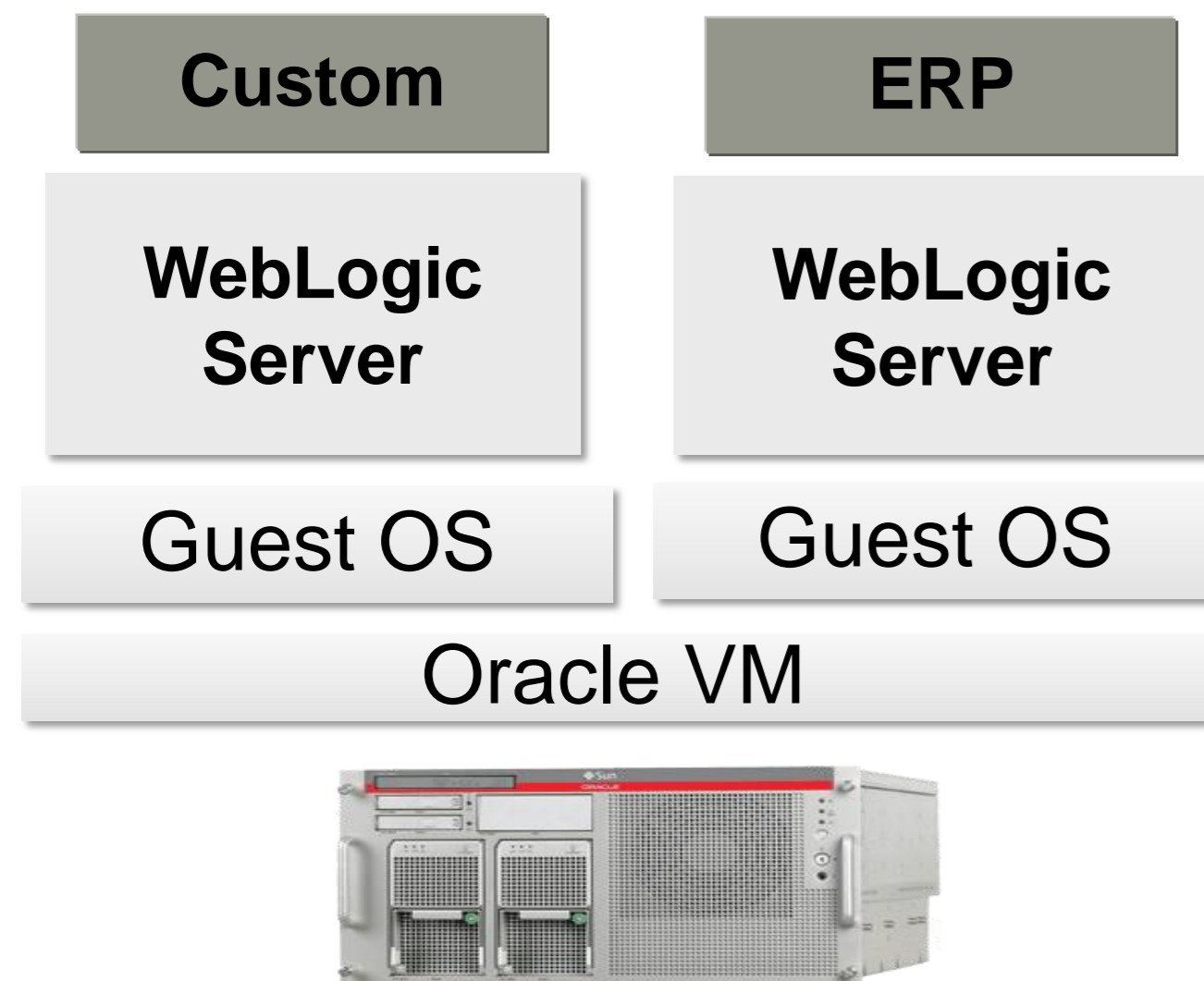
Share server pool
Real Application Clusters

Schema

Share database instances
Real Application Clusters

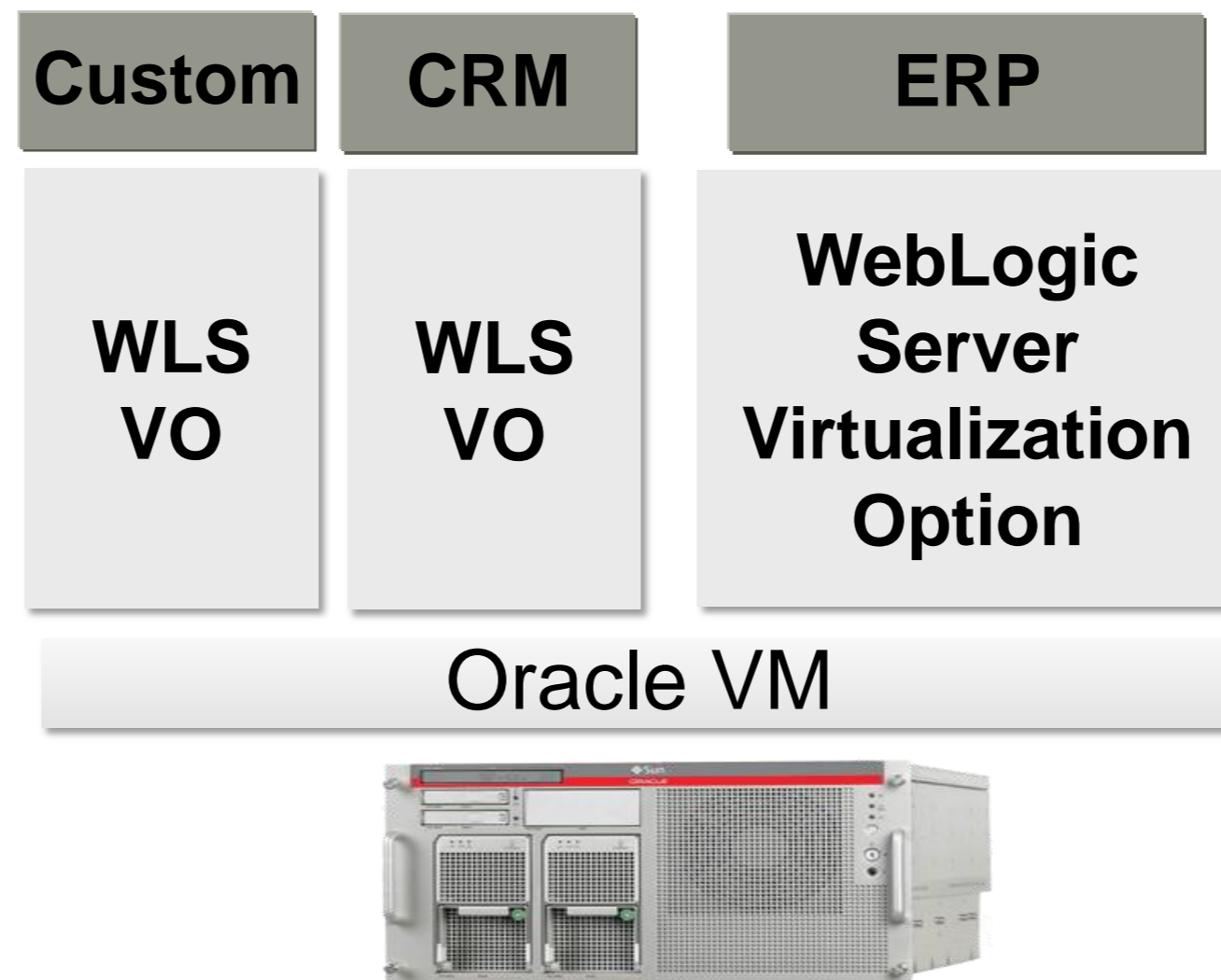
Middleware Consolidation Approaches

Three Options Using Oracle WebLogic



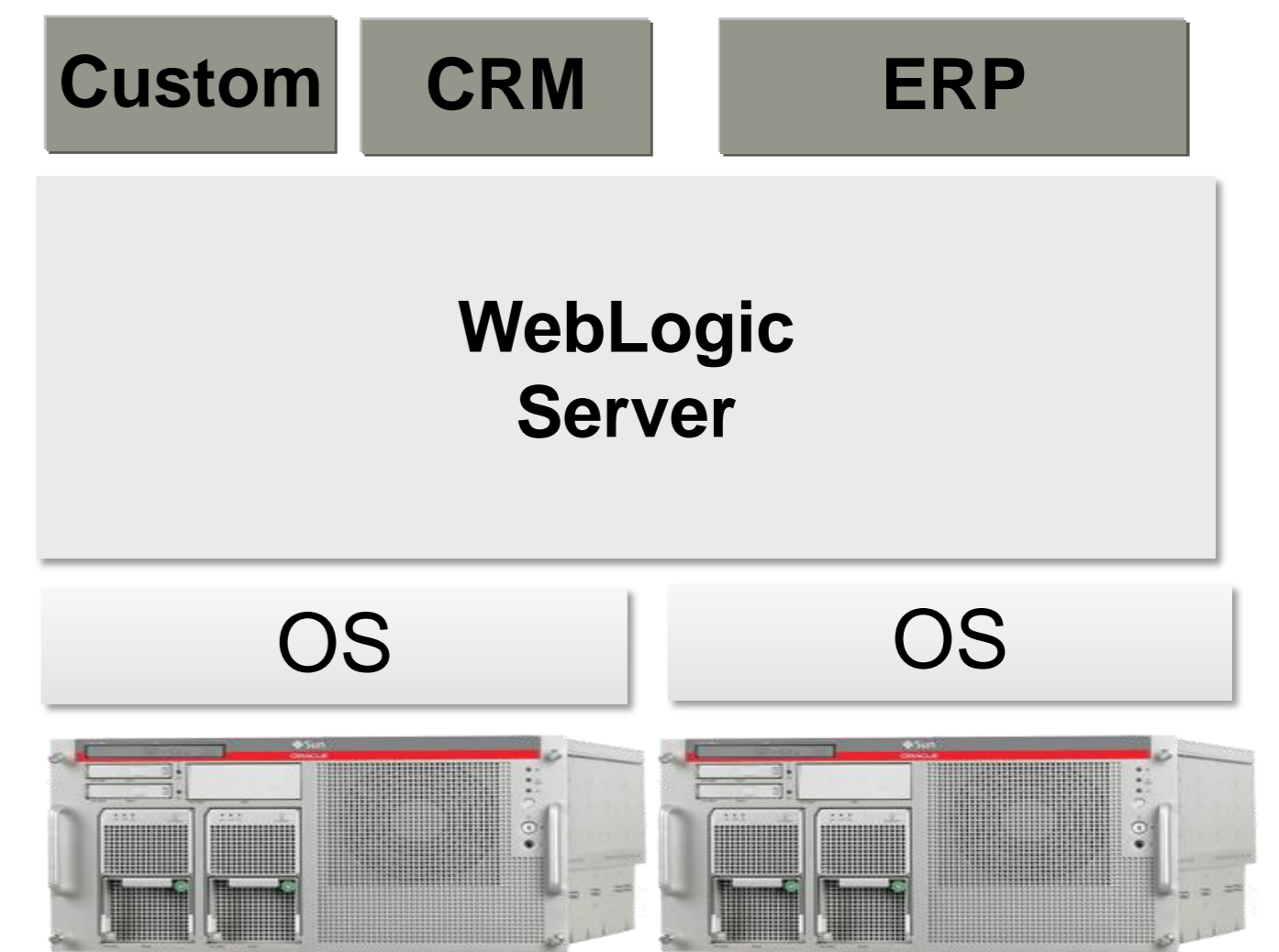
Virtualization with Guest OS

Dedicated App Servers
Server virtualization



Virtualization with no Guest OS

Dedicated App Servers
Higher System Utilization



Clustering

Shared App Server
Shared Pool of Hardware

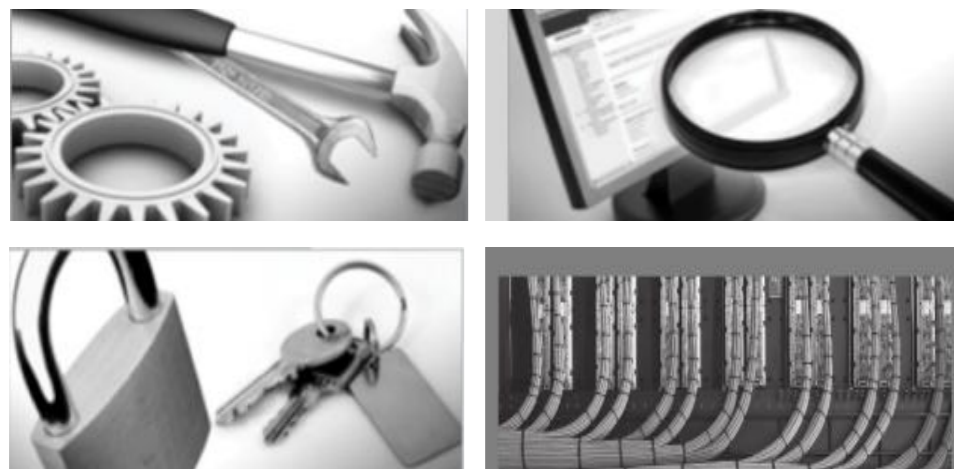
Roadmap to Cloud Computing



From Consolidation to Private PaaS



Exadata and Exalogic as the Foundation for Private PaaS



Oracle's Complete Cloud Offerings

Exadata and Exalogic

Extreme Performance, Engineered Systems

- Database and middle tier machines
- Unmatched performance, simplified deployment, lower total cost
- Building blocks for private and public PaaS



Oracle Exadata Database Machine

Fastest OLTP and DW Performance Best for Database Consolidation

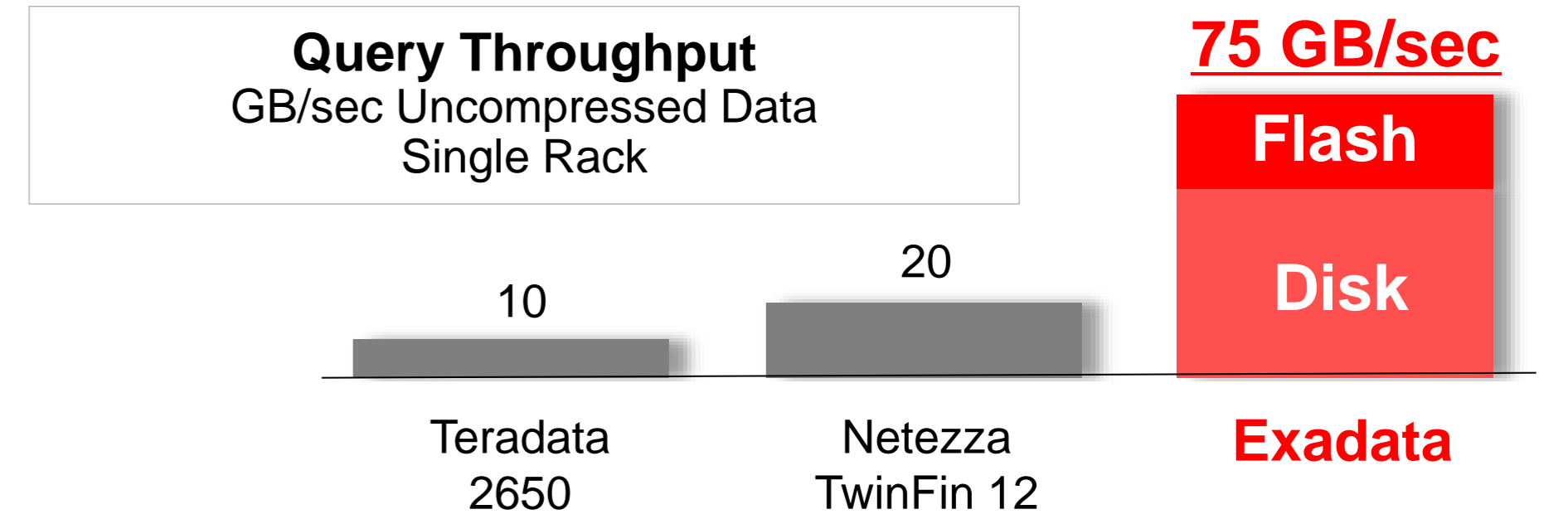


- **Database Server Pool**
 - Oracle Database 11g Release 2
 - Oracle Real Application Clusters
 - Automatic Storage Management
- **Storage Server Pool**
 - Up to 336 TB disk
 - 5 TB flash storage
 - Oracle Exadata Storage Software
- **InfiniBand Network**
 - 40 Gb/sec redundant switches

Oracle Exadata Extreme Performance

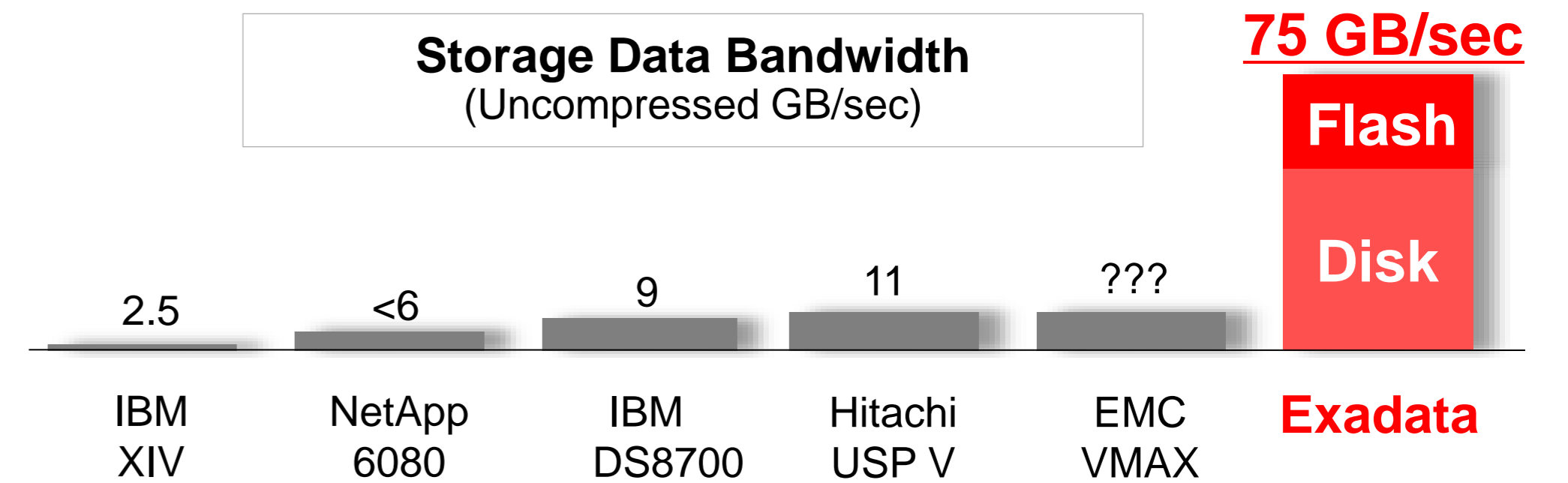
- **Faster Than DW Appliances**

- Faster query throughput
- Fastest disk throughput
- Much faster with Flash



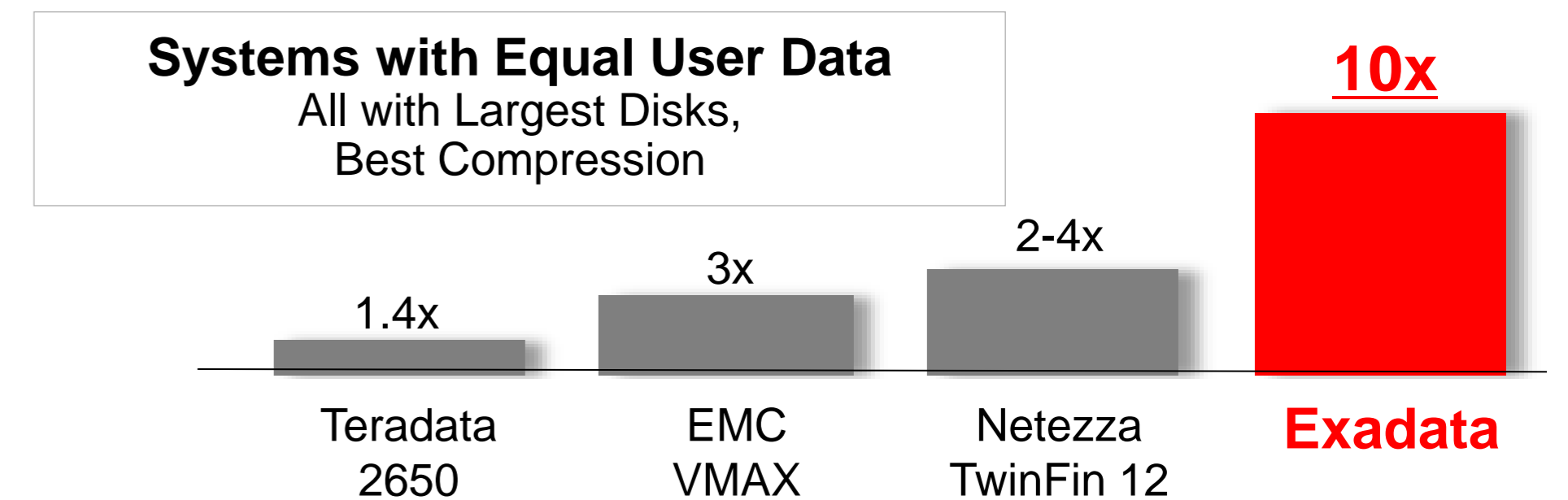
- **More Bandwidth than High-End Arrays**

- Storage Arrays can't deliver disk bandwidth
 - No extra bandwidth from Flash
 - No CPU offload
 - No Columnar Compression
 - No InfiniBand



- **More Data Capacity**

- More disk drives/rack
- Larger disk drives
- Much better compression



Oracle Exalogic Elastic Cloud

Fastest Java Performance, Best Java Cost/Performance

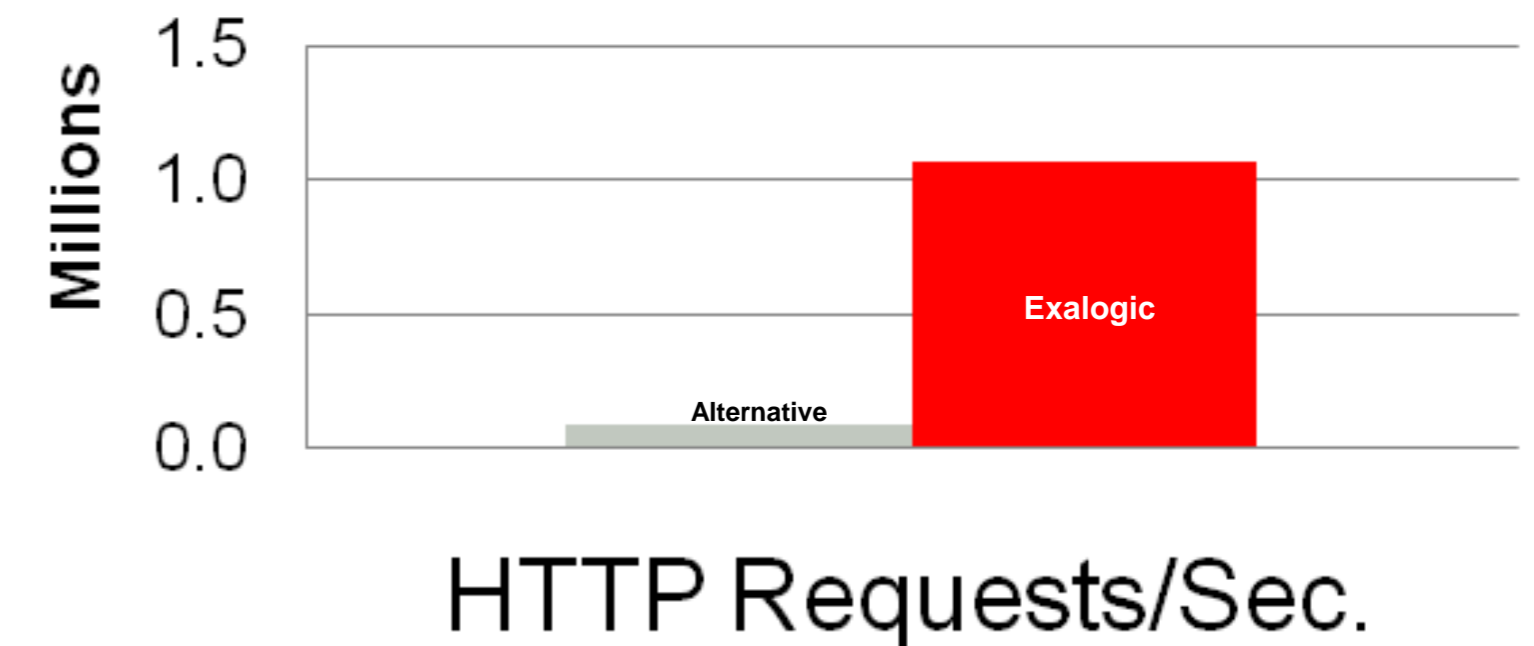


- **Oracle WebLogic Server Grid**
 - 30 compute servers; 360 cores
 - 2.8 TB DRAM
 - 960 GB solid-state disk
- **Integrated Storage Appliance**
 - Software images & application files
 - 40 TB SAS disk storage
 - 4 TB read & 72 GB write caches
- **InfiniBand Network**
 - 40 Gb/sec redundant switches

Oracle Exadata Extreme Performance

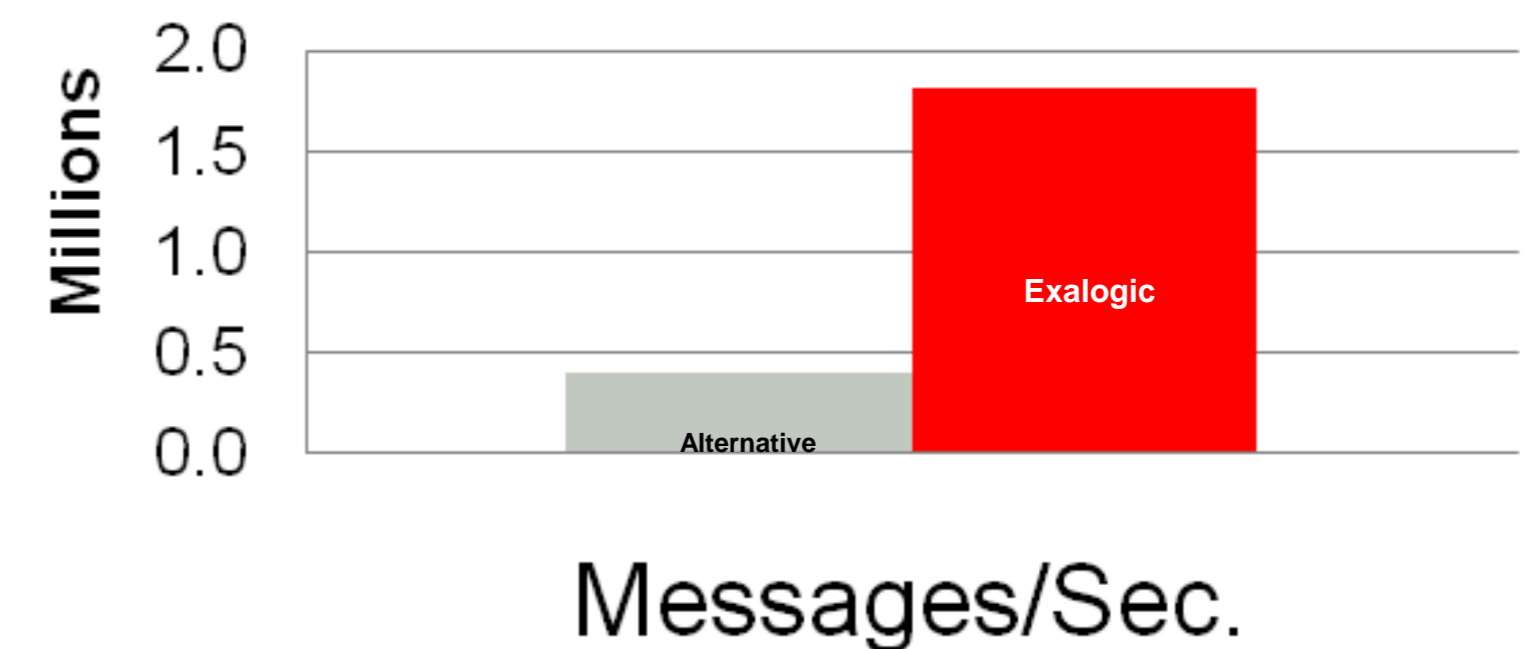
- **Internet Applications**

- 12X improvement
- Over 1 Million HTTP Requests/Sec.
- FaceBook's Web Traffic on 2 Full Racks



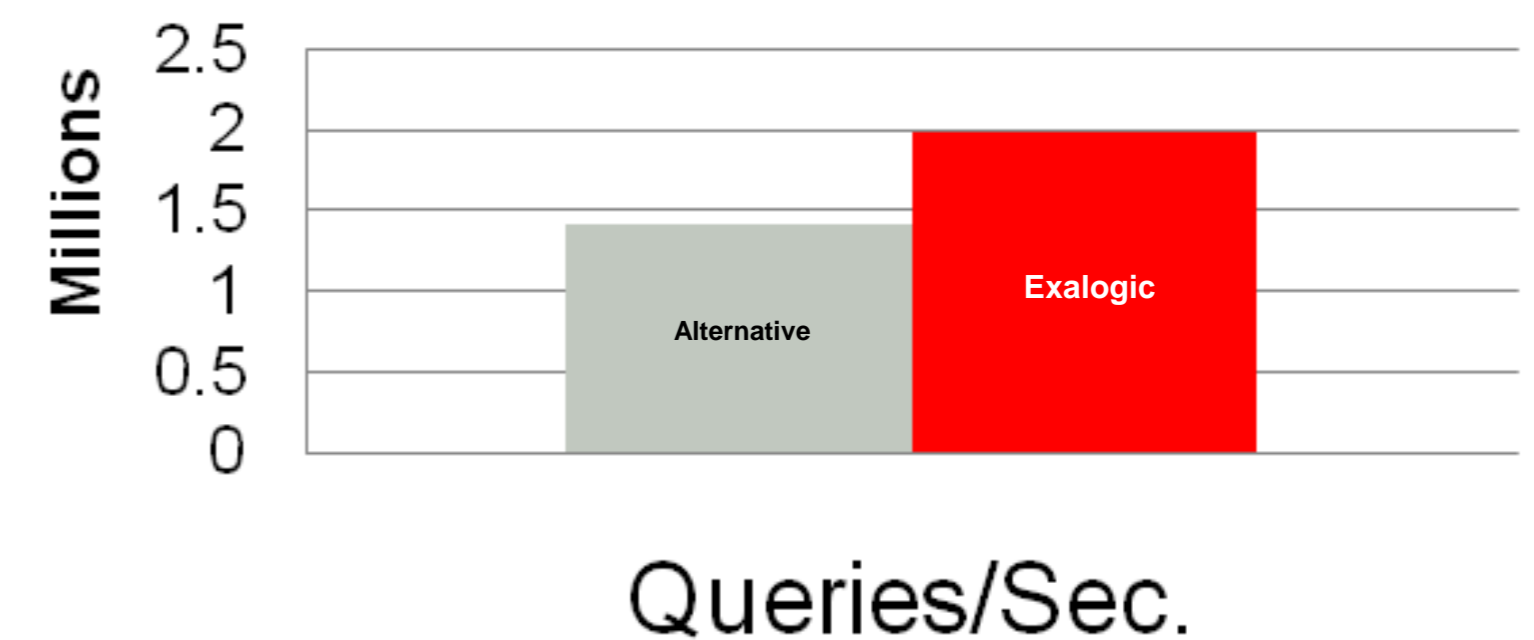
- **Messaging Applications**

- 4.5X improvement
- Over 1.8 Million Messages/Sec.
- All Chinese Rail Ticketing on 1 Rack



- **Database Applications**

- 1.4X improvement
- Almost 2 million JPA Operations/Sec.
- All E-Bay Product Searches on 1/2 Rack



Roadmap to Cloud Computing



From Consolidation to Private PaaS

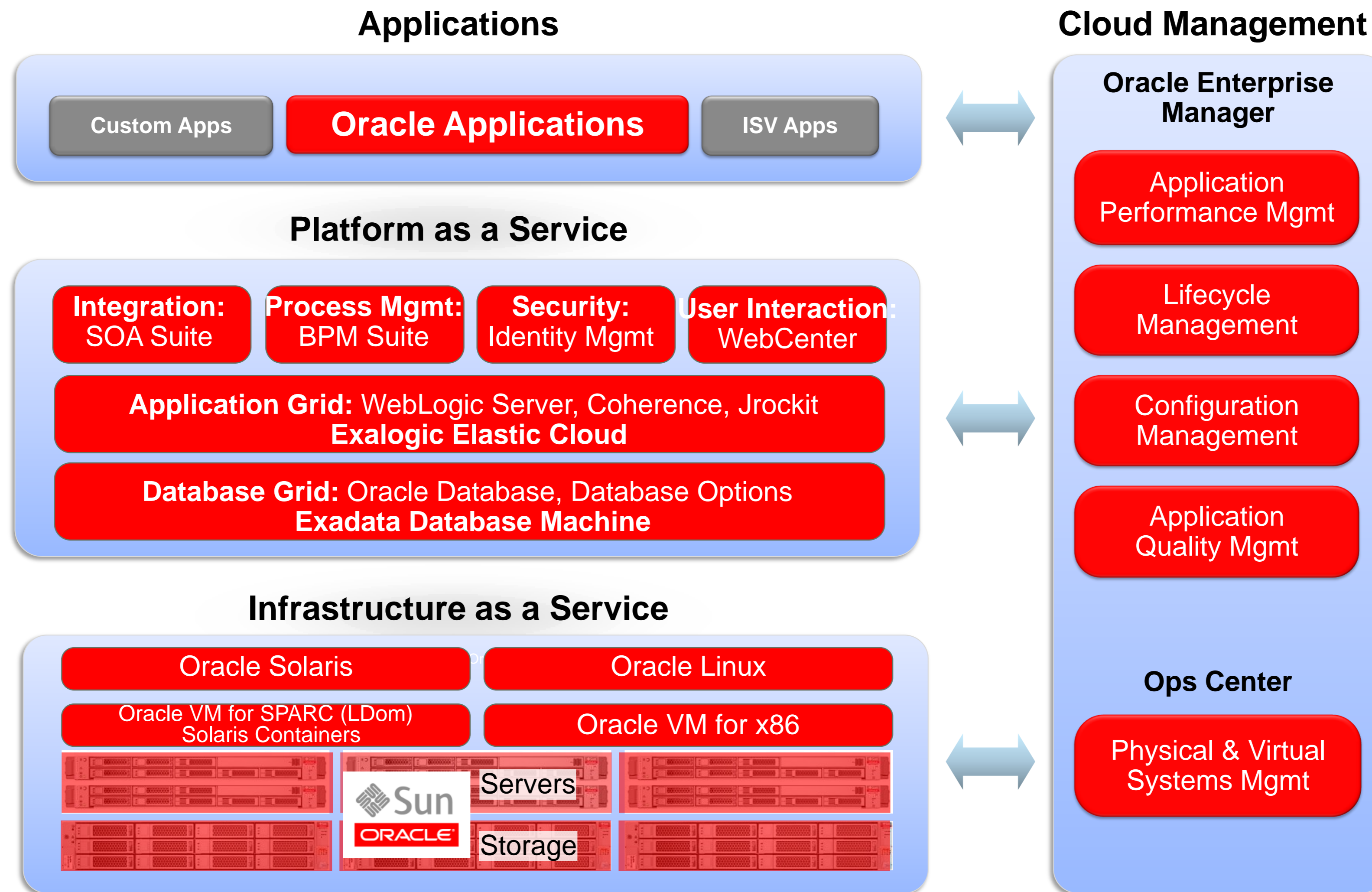


Exadata and Exalogic as the Foundation for Private PaaS



Oracle's Complete Cloud Offerings

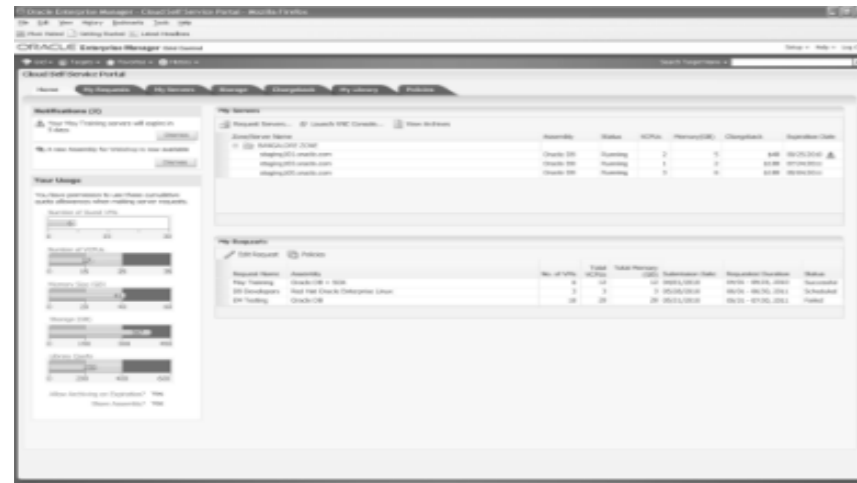
Oracle Cloud Solutions



Oracle Cloud Management Capabilities

Cloud Management Capabilities

Self-Service Provisioning



Metering and Chargeback



Policy-Driven Resource Mgmt



Capacity Planning

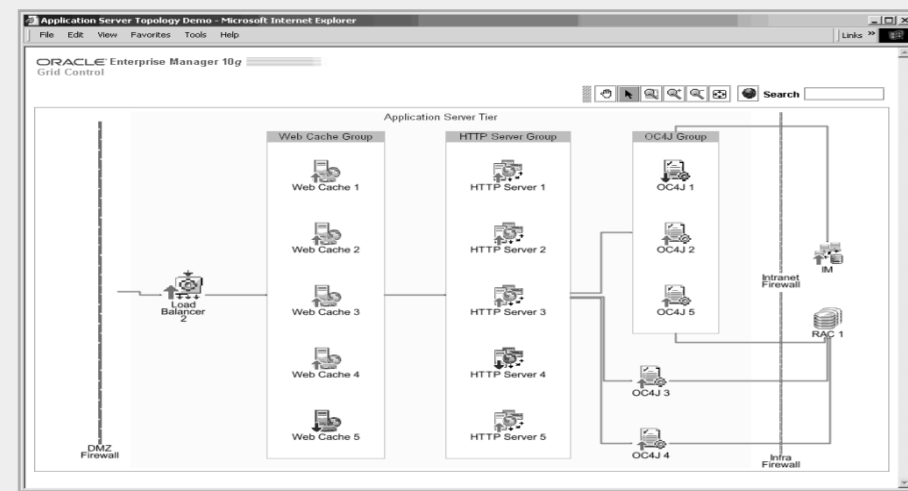


Assembly Packaging

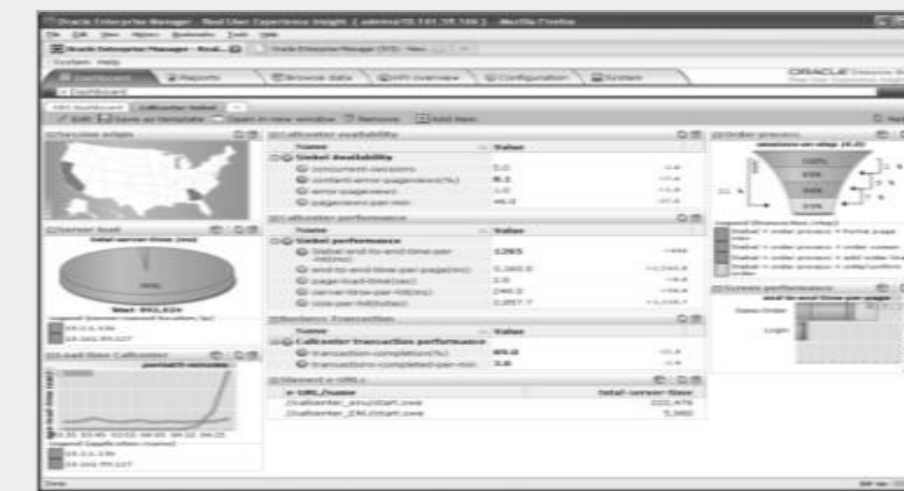


Foundation Capabilities for Managing Datacenters

Configuration and Compliance



Lifecycle Management



Application Performance Management



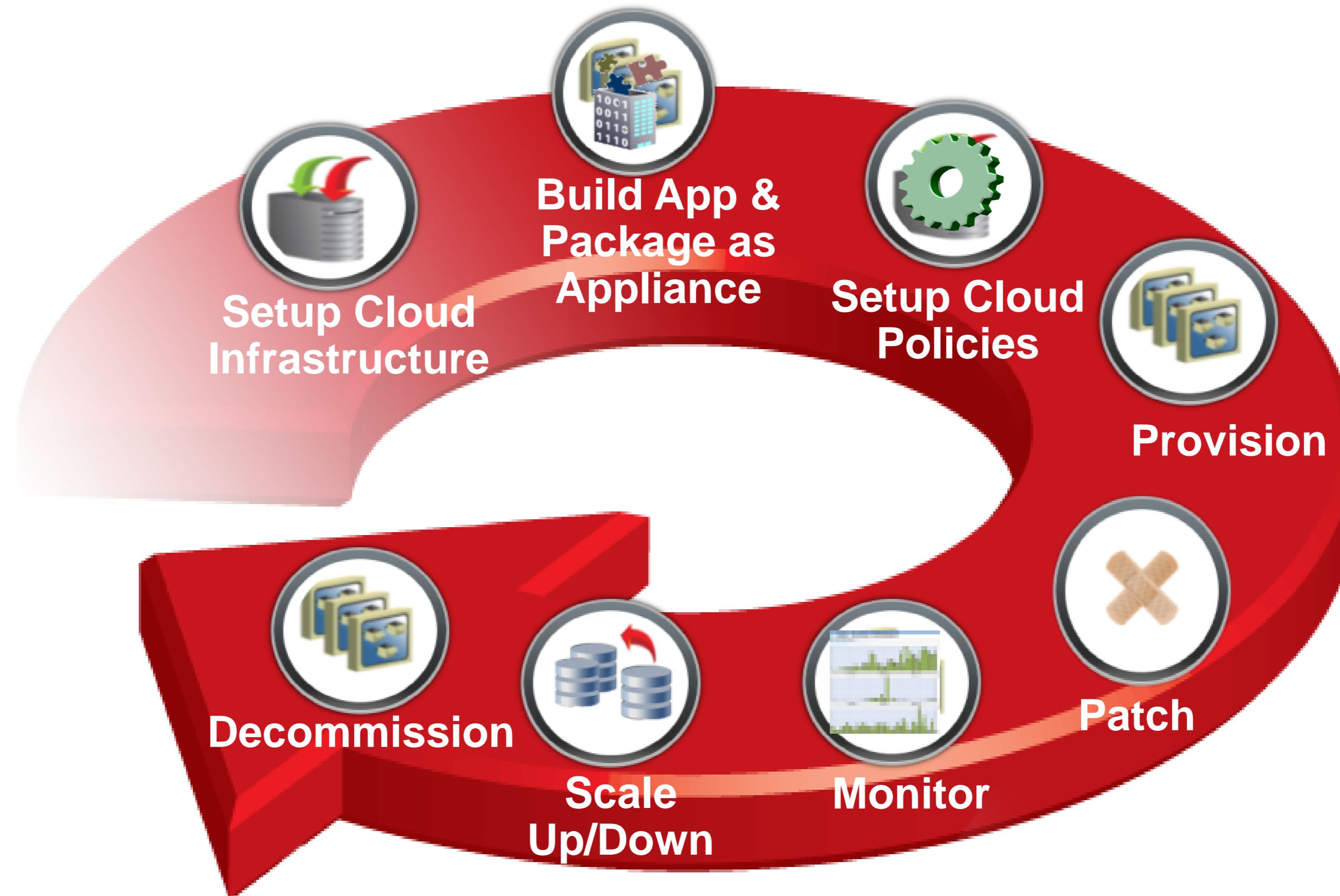
Application Quality Management



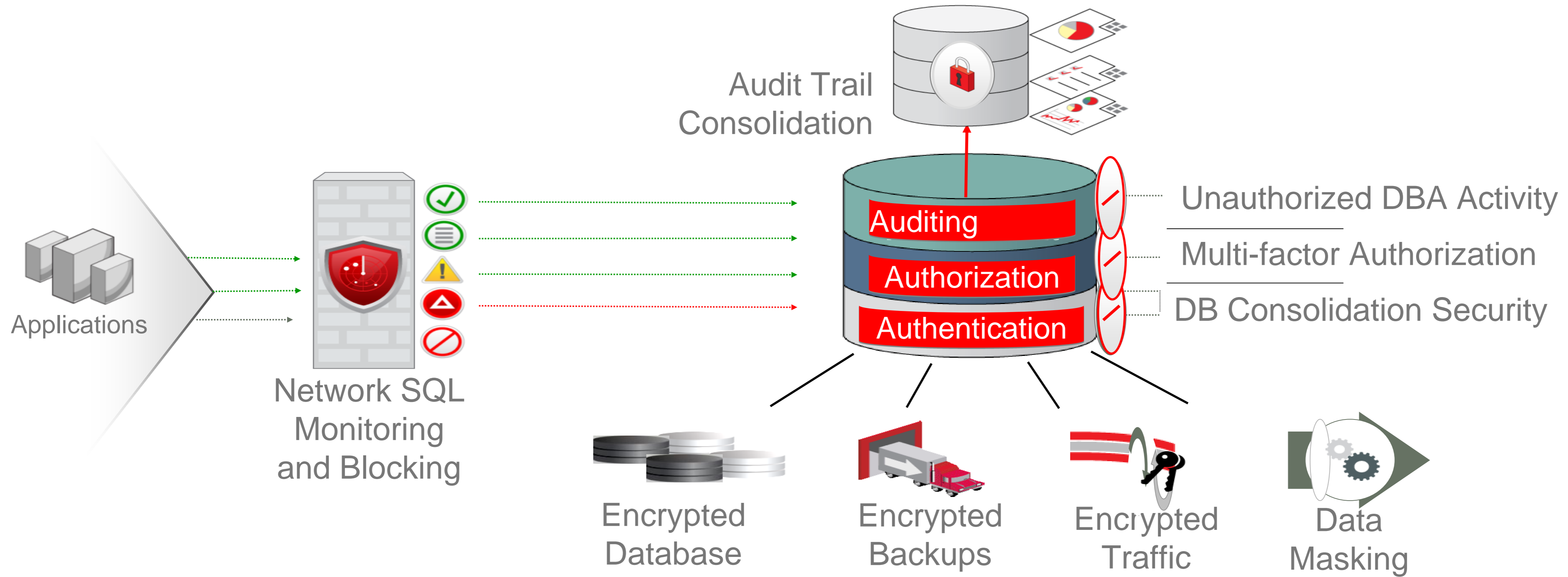
Full Apps to Disk Management

Complete Cloud Lifecycle Management

Oracle Enterprise Manager



Database Security for Cloud Environments

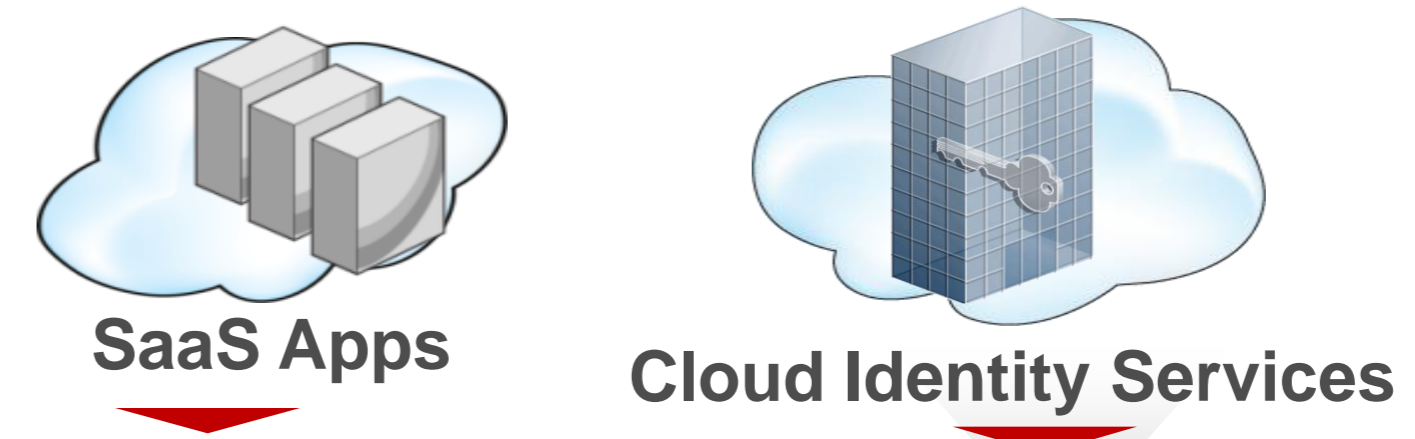


Securing Cloud with Oracle Identity Management

On-Premise Private Cloud



Public Clouds

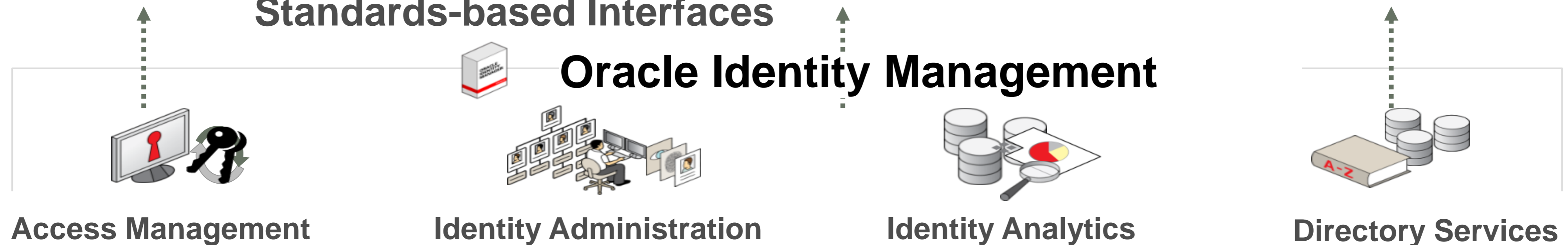


Oracle Platform Security Services



Standards-based Interfaces

Oracle Identity Management



Does Your Company Use Services from Public Cloud Providers?

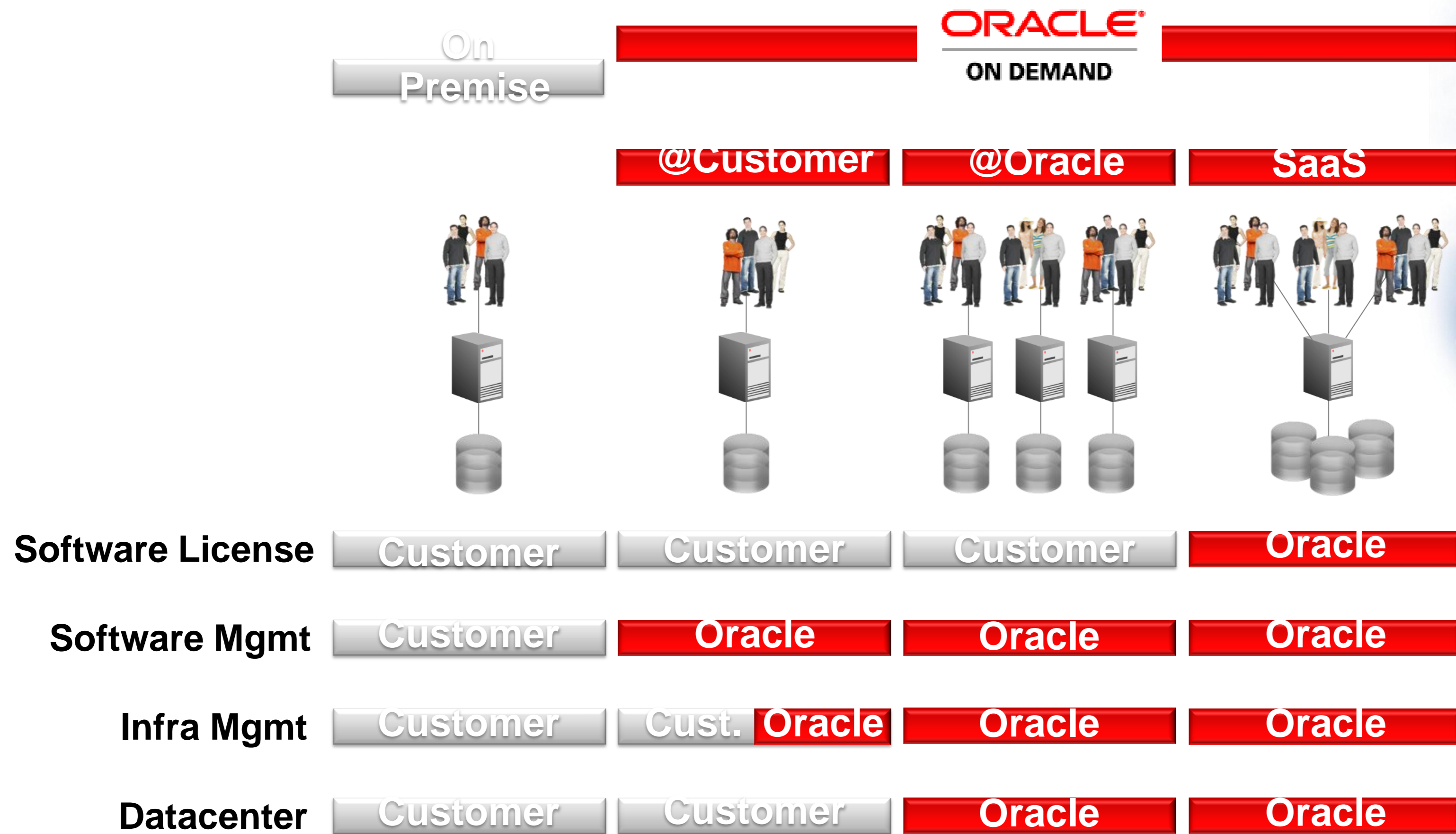


Yes	13.8%
No	54.6%
Under consideration	11.2%
Don't know/unsure	20.4%

13.8% of respondents use public clouds today

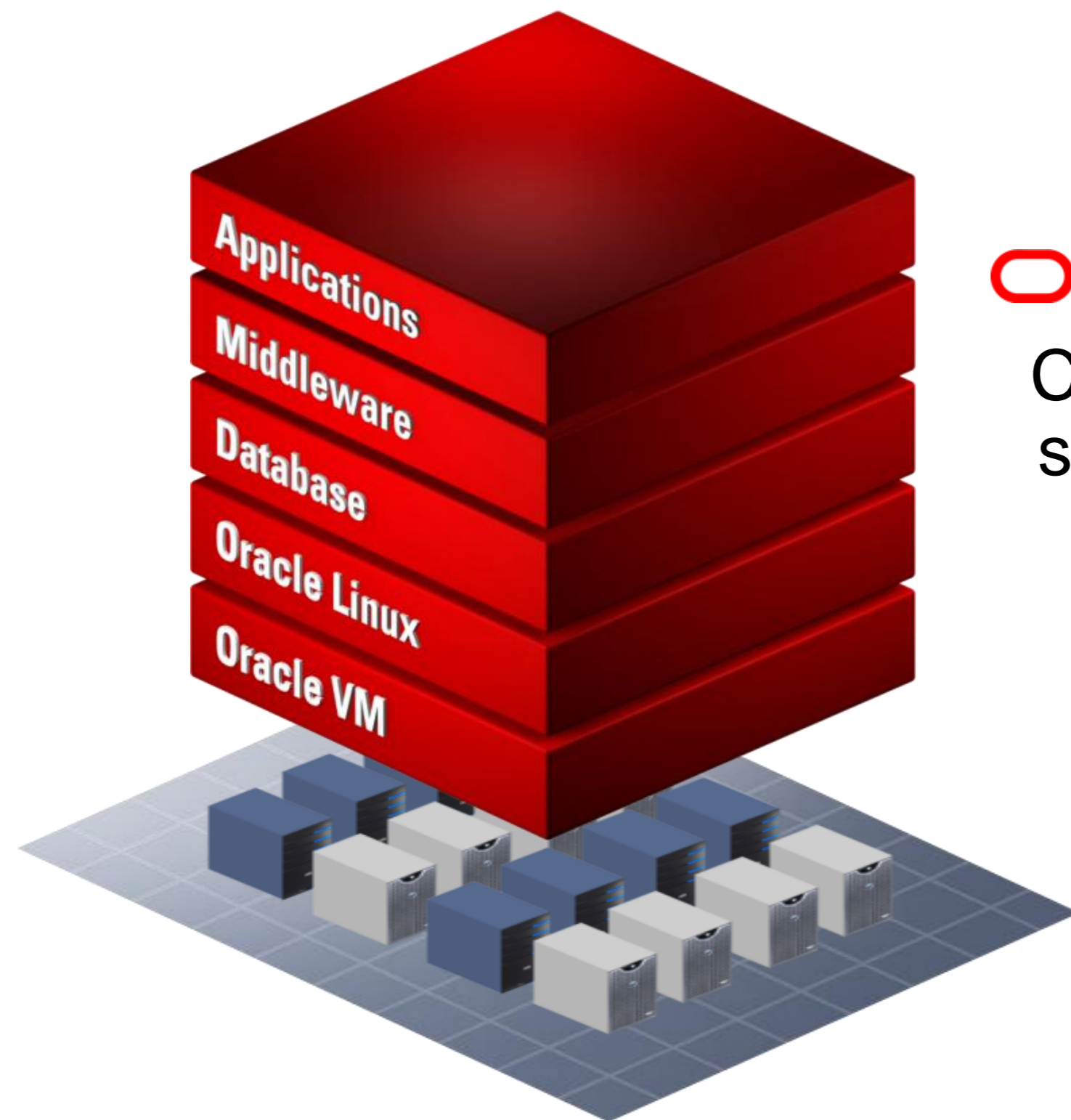
Source: IOUG ResearchWire member study on Cloud Computing, conducted in August-September 2010.

Oracle on Demand Cloud Services



Oracle On Demand is the premiere cloud service for Oracle software

Full Oracle Software Stack Certified and Supported on Oracle VM on Amazon EC2



ORACLE
Certified &
supported



- Amazon EC2 now supports Oracle VM
- Fully certified and supported: Oracle Database, Oracle Fusion Middleware, Oracle Applications (EBS, PeopleSoft, Siebel), Oracle Enterprise Manager
- Oracle license portability
- Oracle Unbreakable Linux support and Amazon Premium Support
- Amazon Machine Images (AMIs) based on Oracle VM Templates

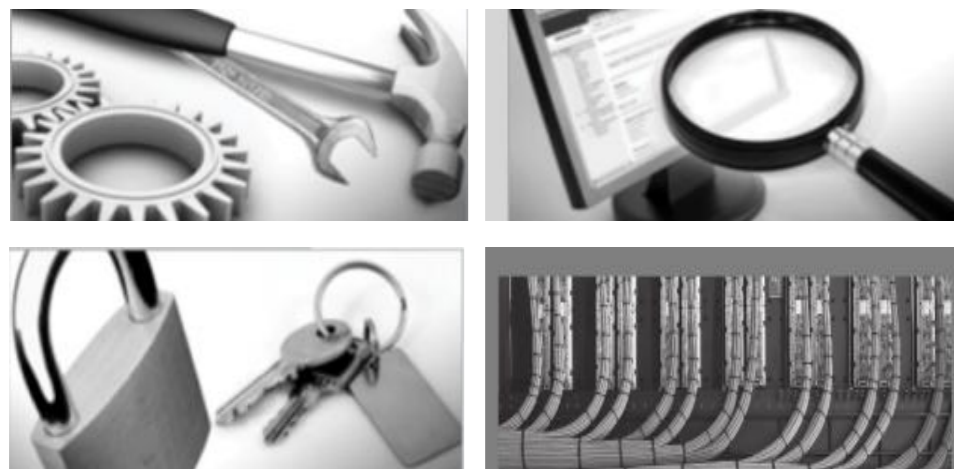
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Oracle's Complete Cloud Offerings



Hardware and Software

ORACLE®

Engineered to Work Together