
Introduction to CLOUD

Oracle Corporation and CLOUD

Oracle Applications in the CLOUD

The Future Direction

Questions and Answers

Introduction to the Cloud

Cloud – A Simple Picture

How did the clouds form?

Layers of Clouds and Altitudes

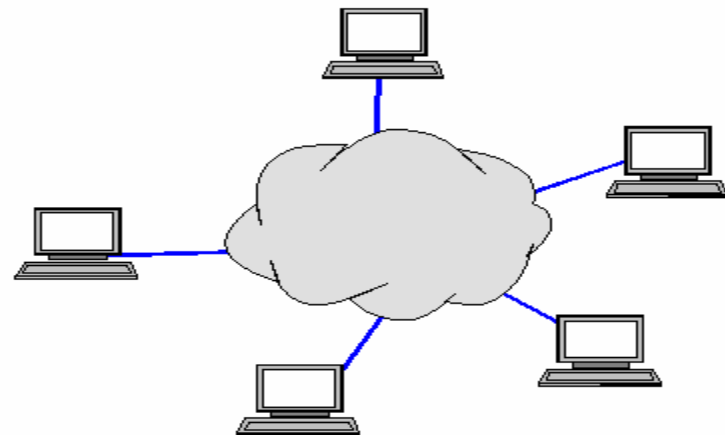
Oracle and Cloud – The Present

Oracle Applications in the CLOUD

Oracle and Cloud – The Future Direction

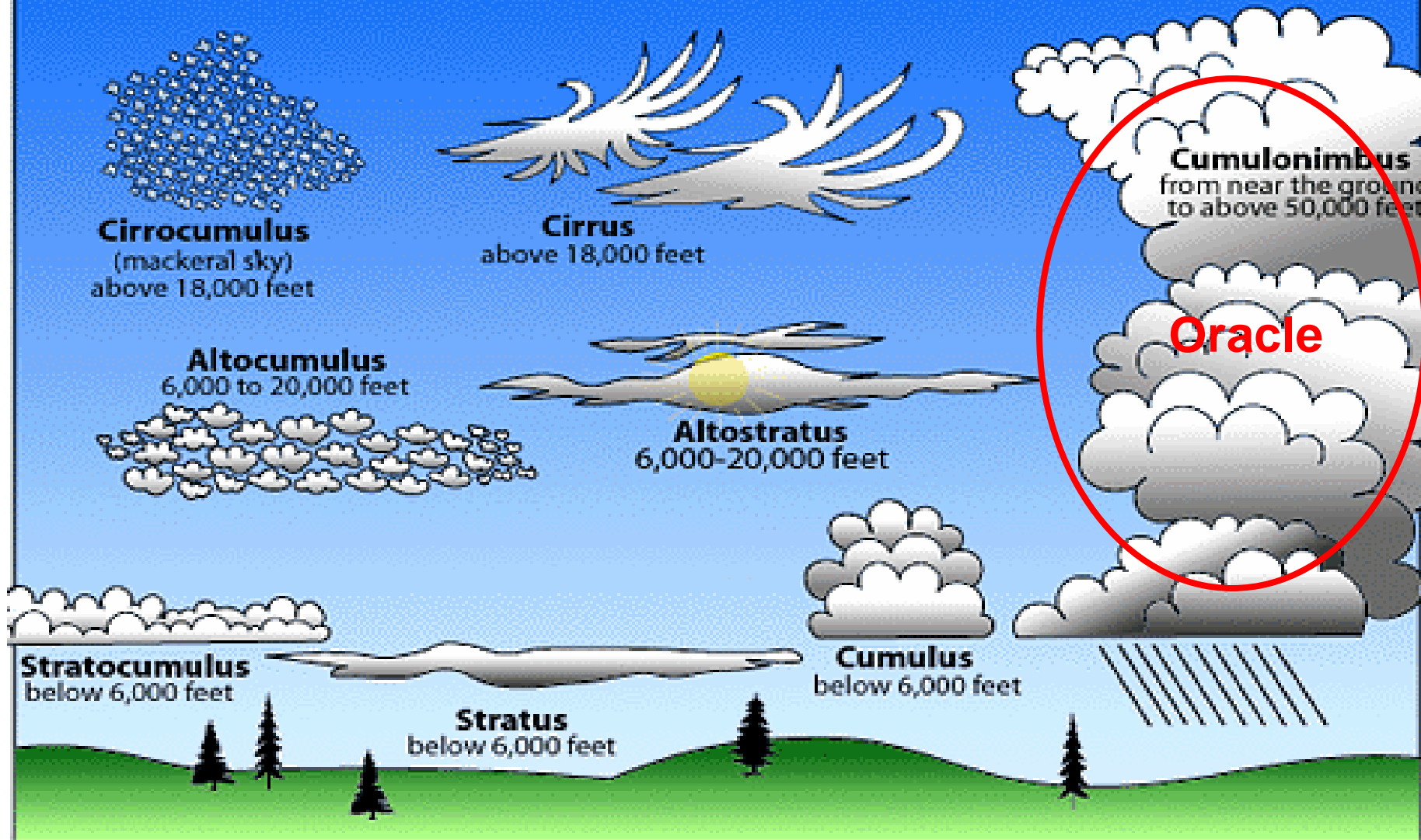
Questions and Answers

- **Service over the internet**
- **Infrastructure separated from the service**
 - ❖ Customers do not own the physical infrastructure
 - ❖ On-demand service
- **Pay as you use**
 - ❖ Reusability and pooling of resources to optimize operations
 - ❖ Operational load balanced by the Cloud
- **Allows scalability of operations without investment**
- **Elasticity**



- **Mainframes and Virtualization**
- **TCP/IP and the Internet**
- **SOA**
- **Grid Computing**
- **Automatic Storage Management**
- **Identity Management**
- **Application Grid**
- **RAC**
- **Distributed Application Design**

Common types of clouds in the troposphere



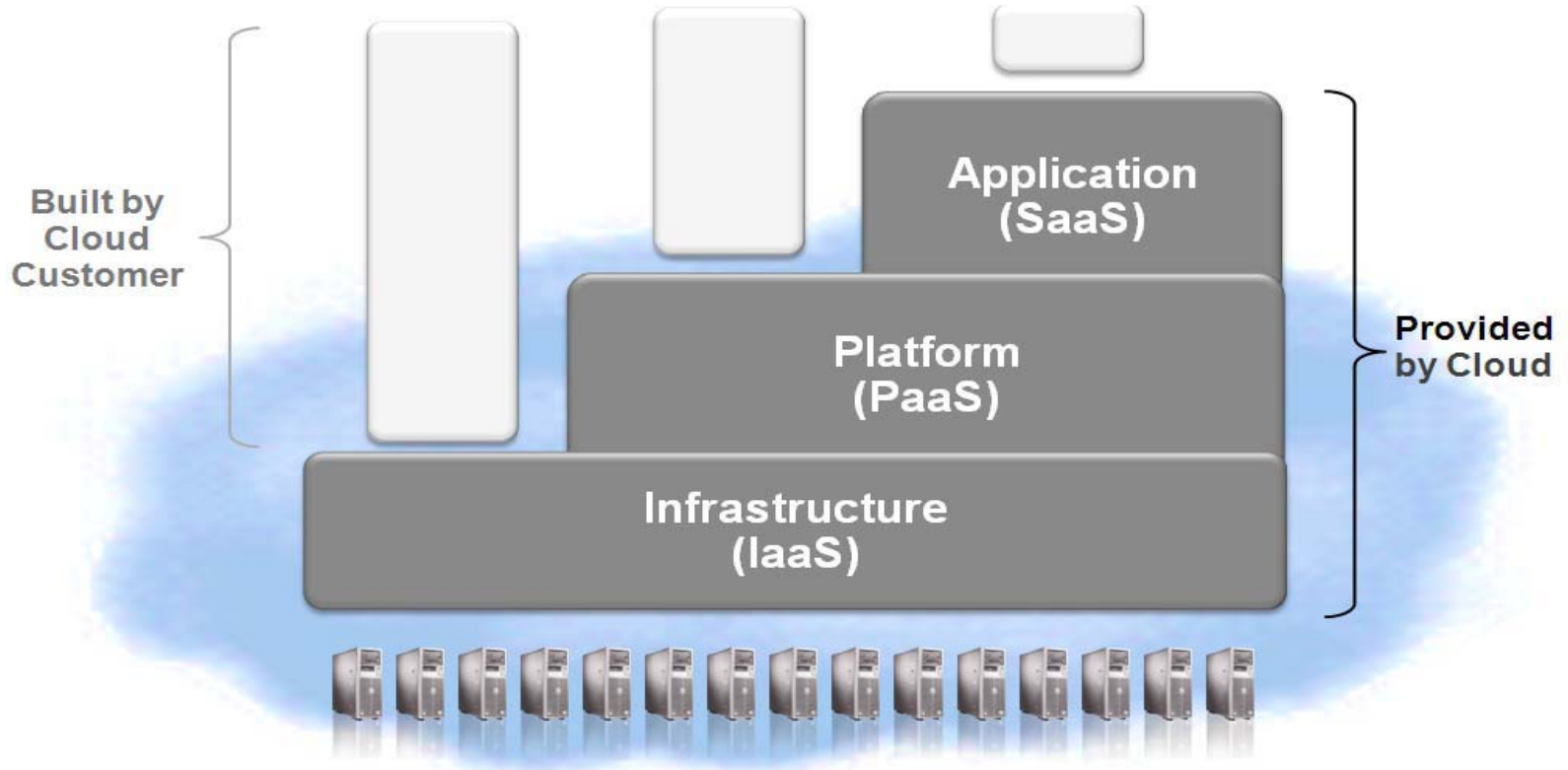
ARE THERE LAYERS OF CLOUDS

AT DIFFERENT ALTITUDES

IN INFORMATION TECHNOLOGY?

The Layers

- SaaS – Software as a Service
- PaaS – Platform as a Service
- IaaS – Infrastructure as a Service



Features

- **Single Application**
- **Multiple Users across Customers**

Examples of Uses

- **HR – ADP Processing Services**
- **Credit Card Services to Vendors and Consumers**

Examples of Companies providing SaaS

- **Salesforce.com**
- **Microsoft – Web Services**
- **Amazon Web Services**

Features

- **Set of software and development tools hosted on the provider's servers**
- **Delivers a computing platform and/or solution stack as a service**
- **Facilitates deployment of applications without the cost and complexity of buying and managing the underlying hardware and software layers**

Solution stacks

- **AWA (Amazon Web Service)**
- **Python Django (Google App Engine)**
- **ColdFusion (Adobe Systems)**
- **.NET (Azure Services Platform)**

Features

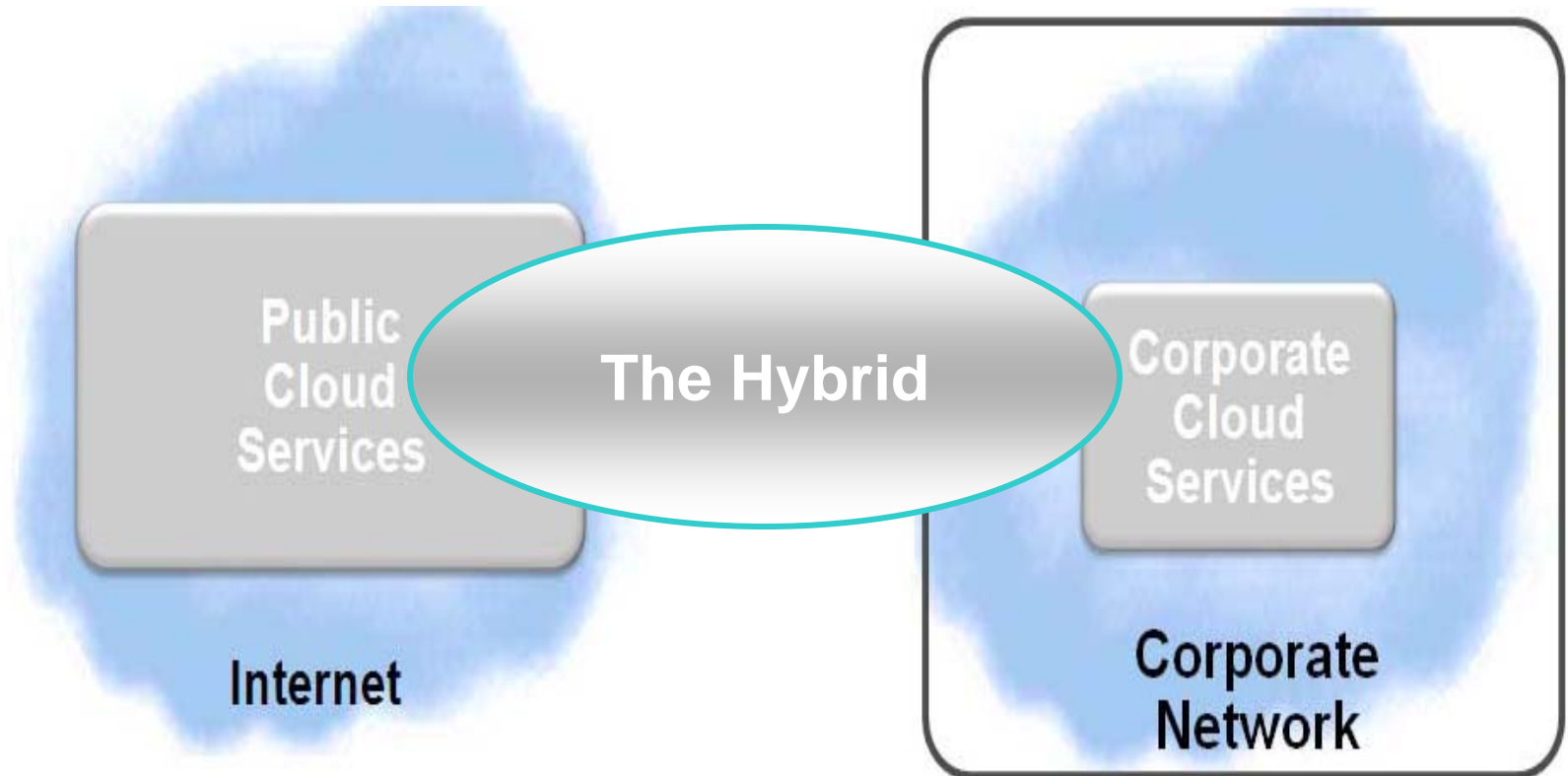
- Provides virtual servers with unique IP addresses
- Provides blocks of storage on demand.
- Customers benefit from an API from which they can control their servers.
- Because customers can pay for exactly the amount of service they use, like for electricity or water, this service is also called utility computing

Examples of Uses

- Amazon EBS

The Layers at Altitudes

- Private Cloud
- Public Cloud
- Hybrid Cloud



What type of cloud is each?

Company	Offering
Google	Google Apps,Gmail,Google Docs
Amazon	C2,S3,SQS,Cloudfront,SimpleDB
Salesforce	Force.com
Microsoft	Windows Live Suite and Live mesh,Azure platform
Oracle	Offers EBusiness, Database and Storage on AWS (Amazon Web Services).

So each Vendor has a noticeable and different presence

Introduction to the Cloud

Oracle and Cloud – The Present

Oracle in Private Cloud

Oracle in Public Cloud

Oracle Applications in the CLOUD

Oracle and Cloud – The Future Direction

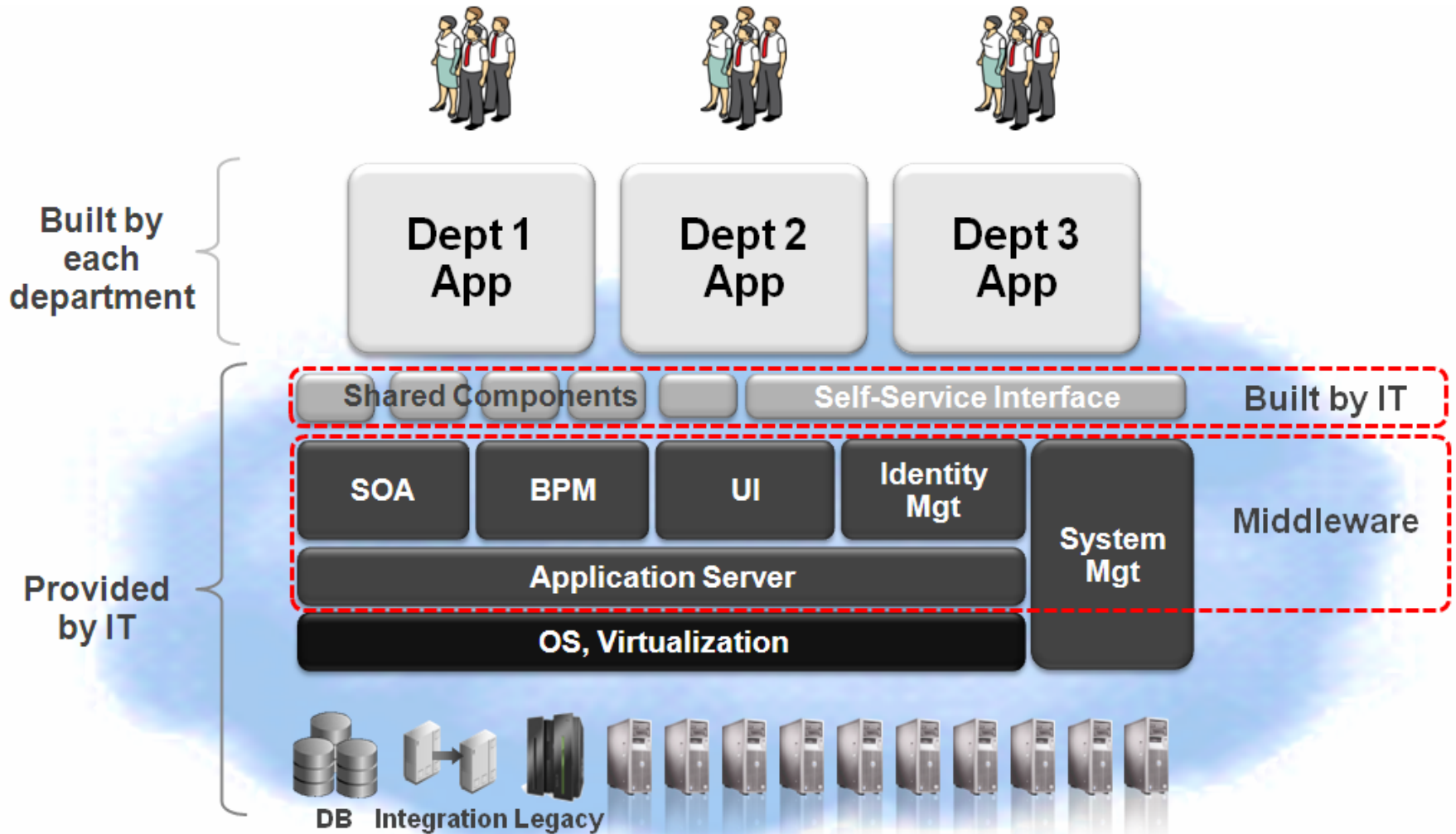
Questions and Answers

Oracle helps Cloud formation in PaaS Space

Fusion Middleware

- ❖ WebLogic Server
- ❖ SOA and BPM
- ❖ User Interaction
- ❖ Identity and Access Management
- ❖ Systems Management

Basic PaaS in Private Cloud Architecture



1. Cloud Set Up



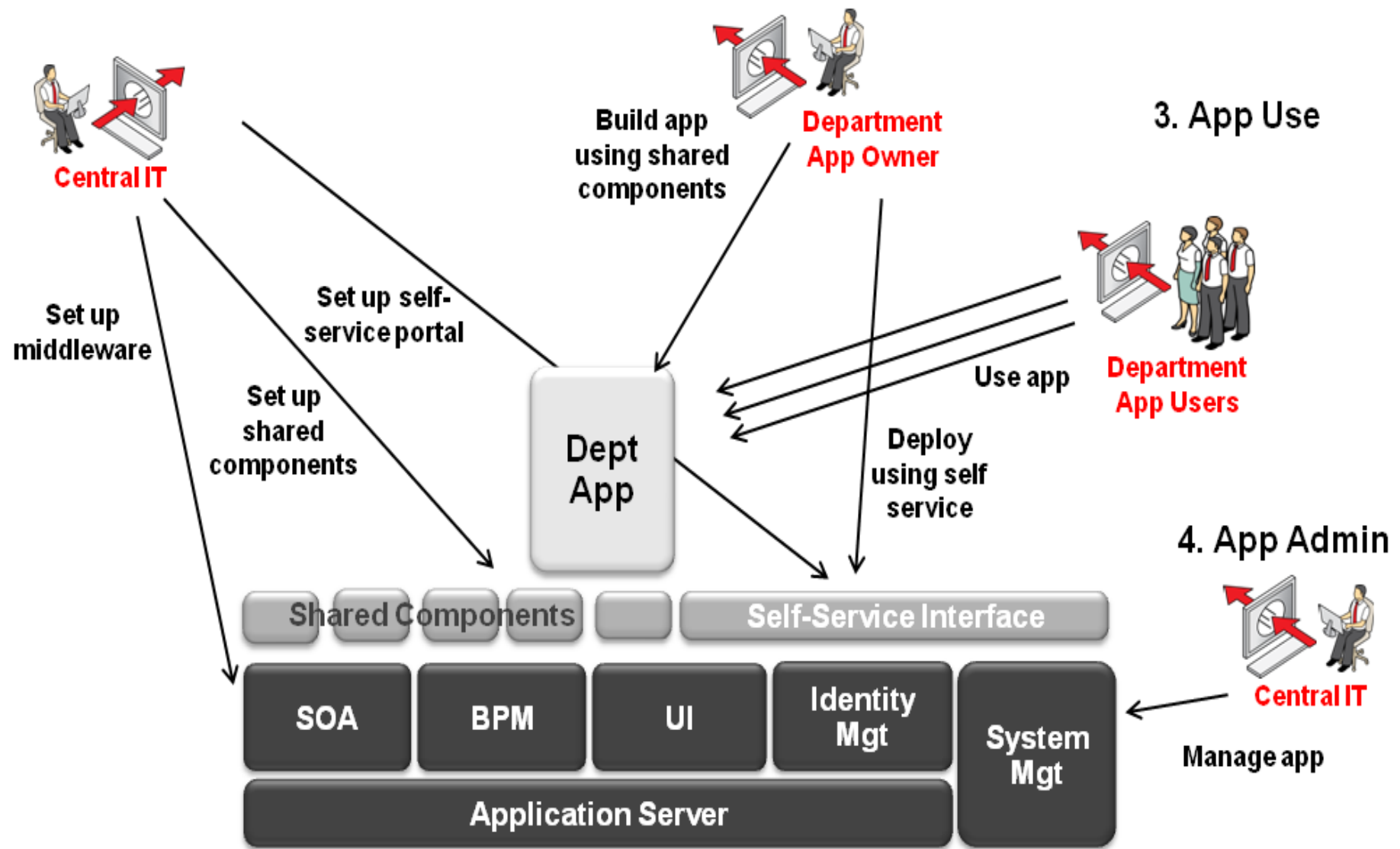
2. App Set Up



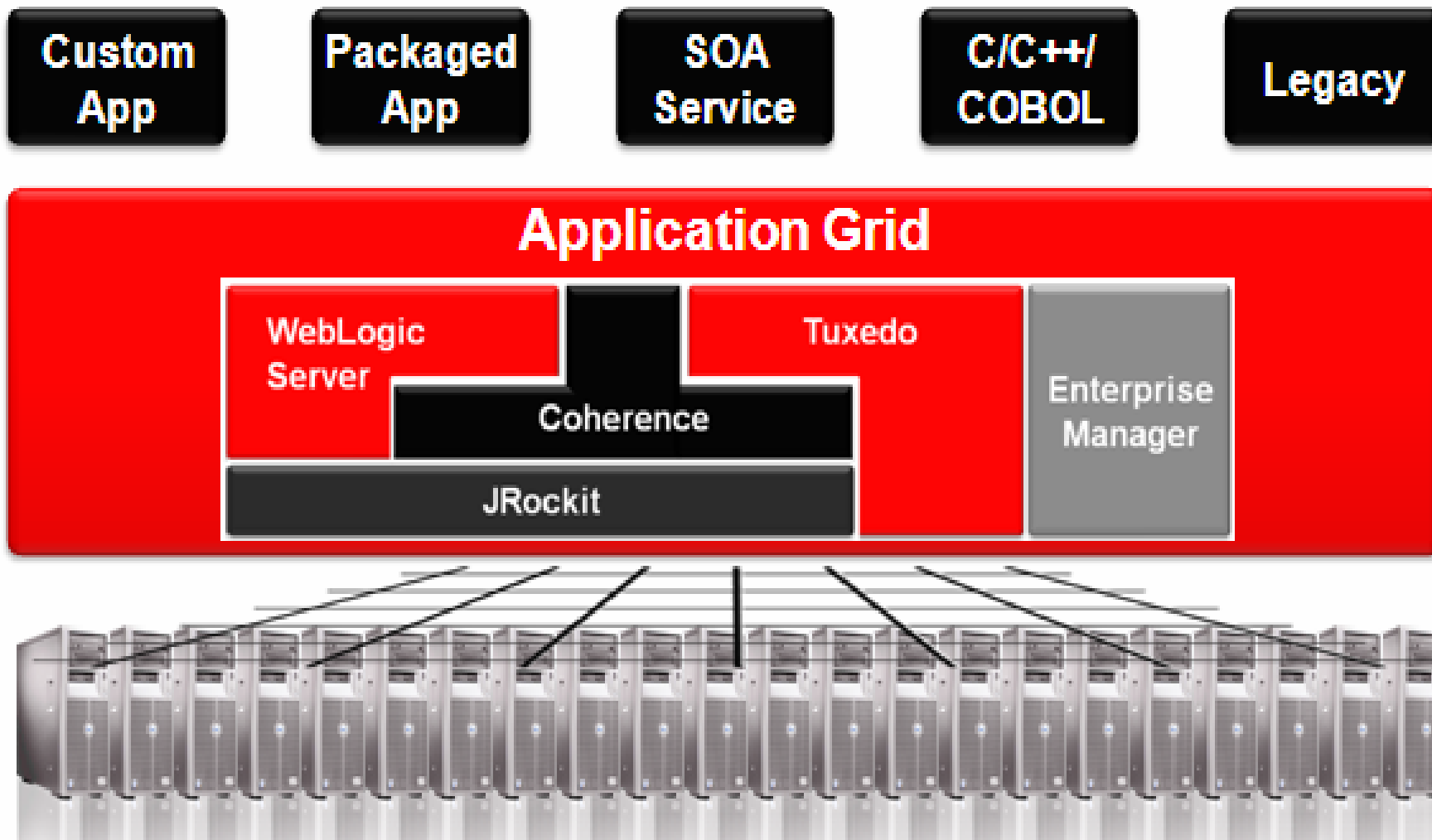
3. App Use

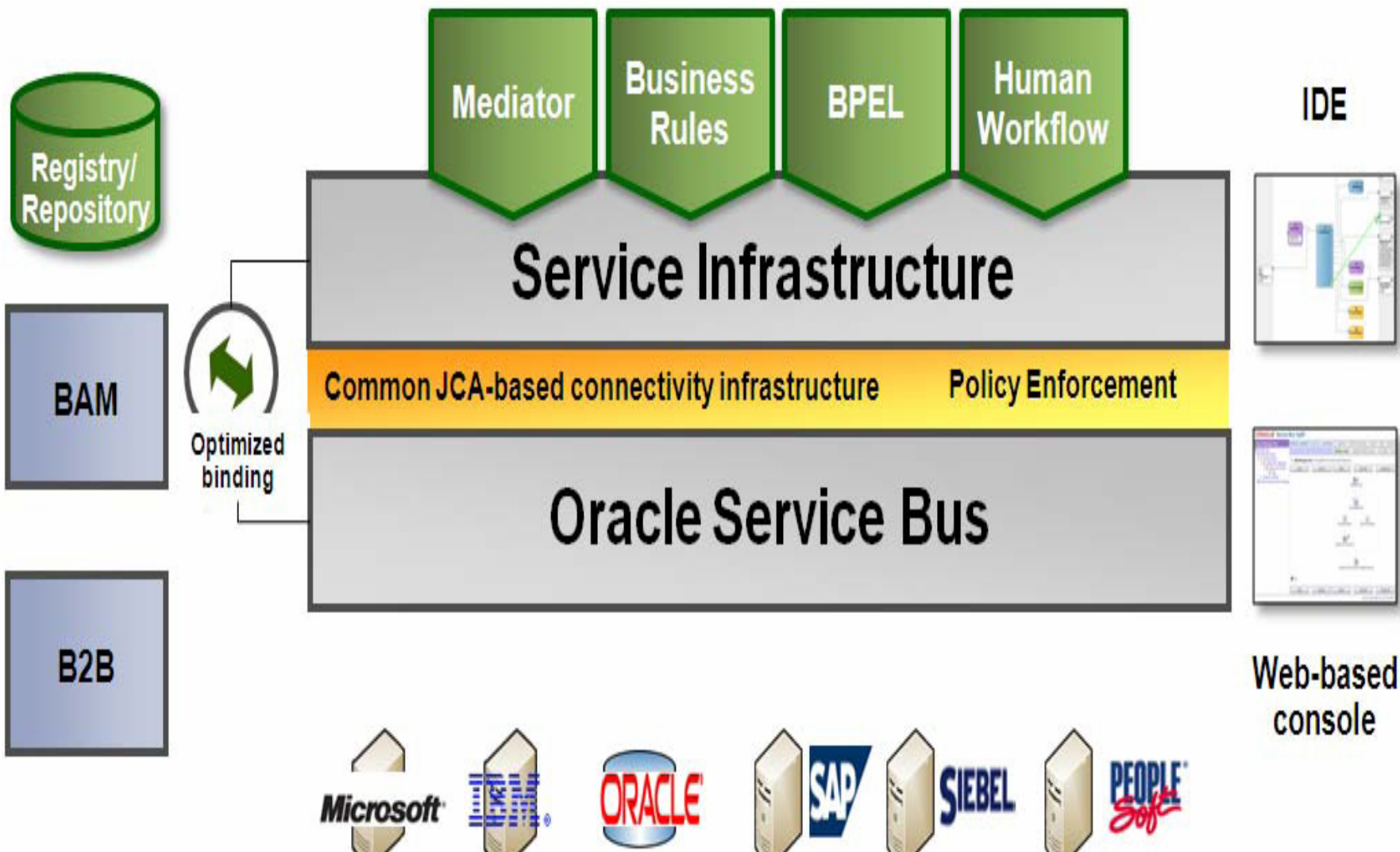


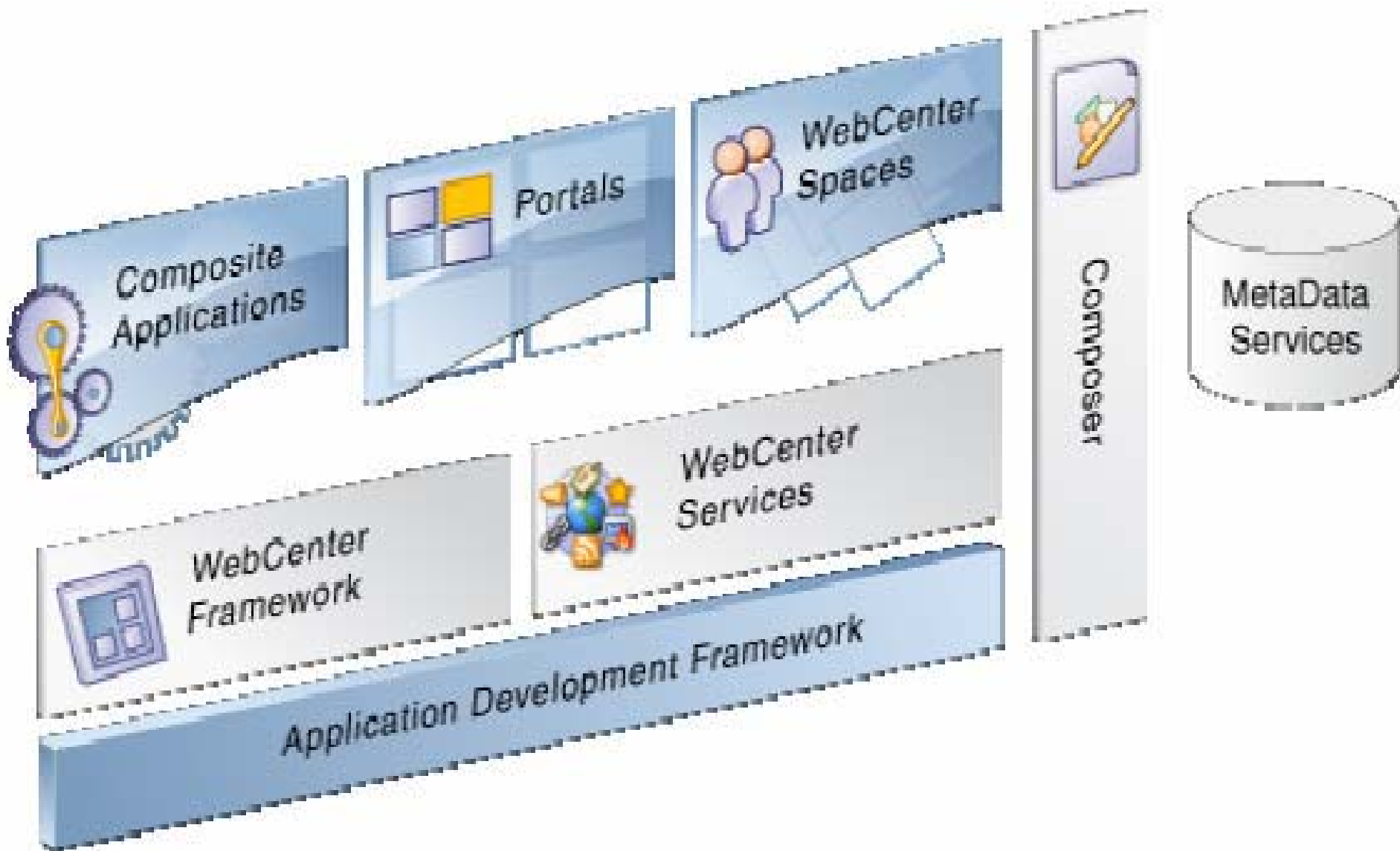
4. App Admin



Oracle Application Grid

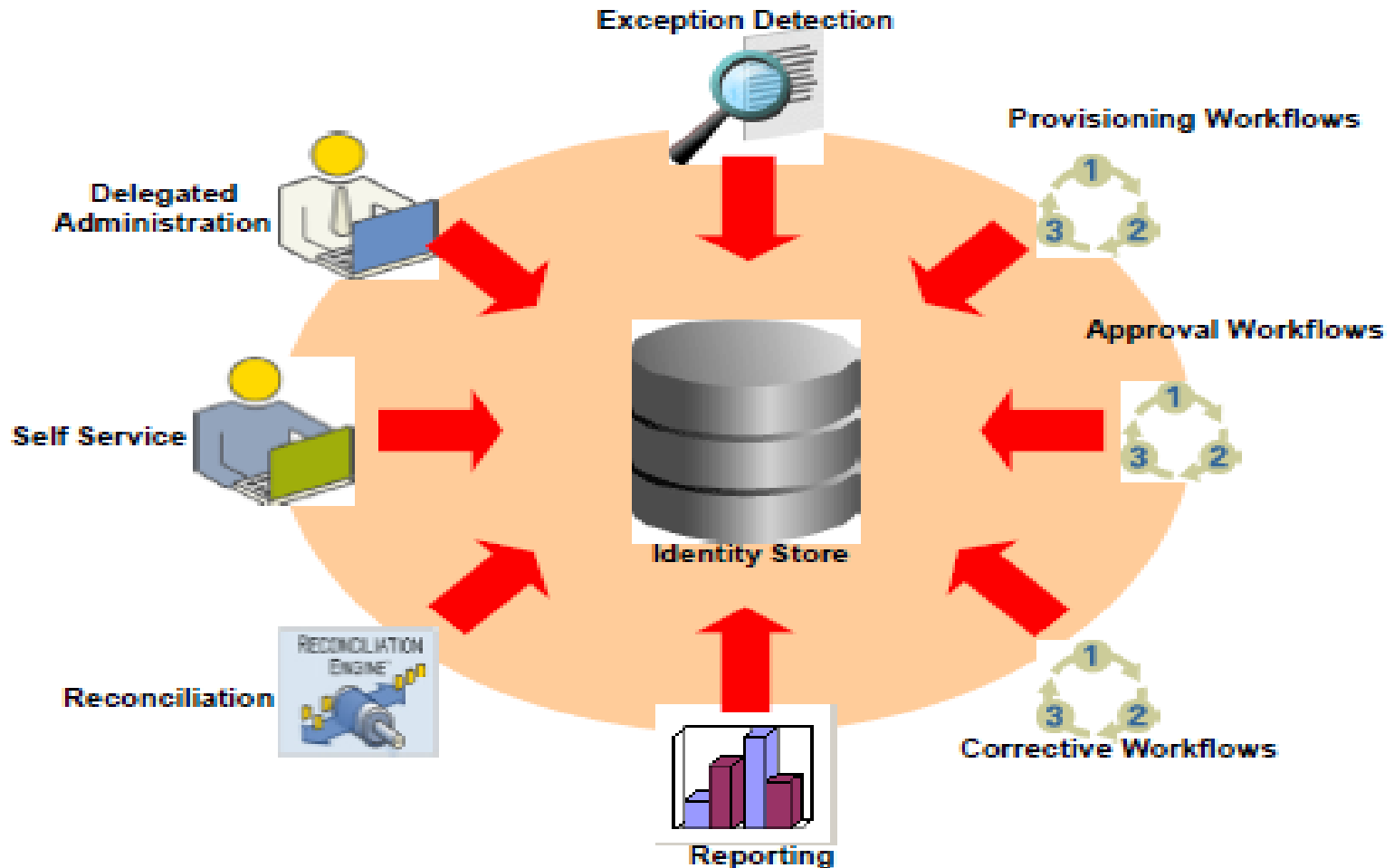




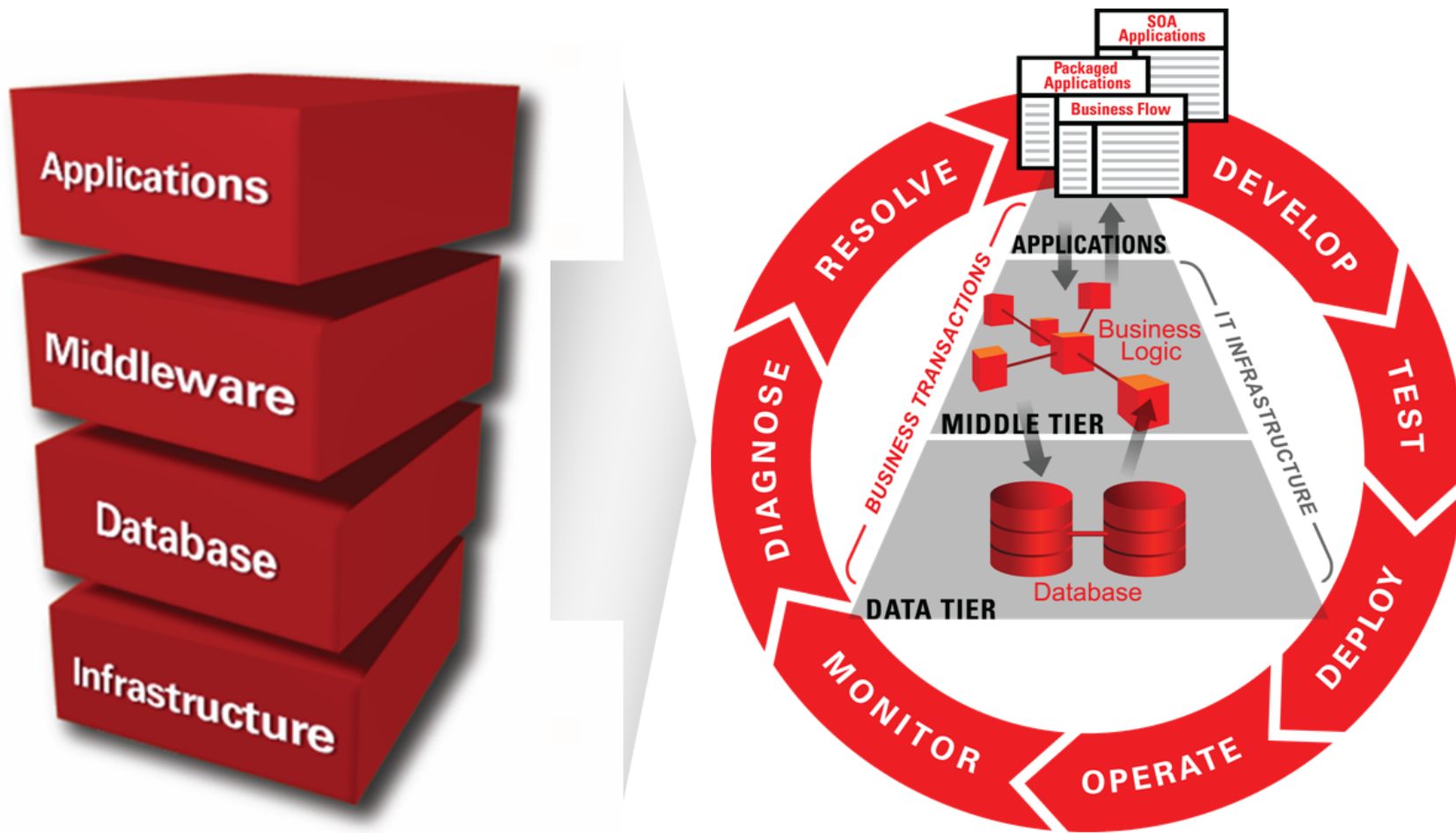


Oracle Identity and Access Management Suite

Comprehensive, well-integrated security and identity management



Oracle Enterprise Manager



Association with Amazon Web Services (AWS) for Hosting of Oracle Database

- Database
- Elastic Block Storage
- Applications



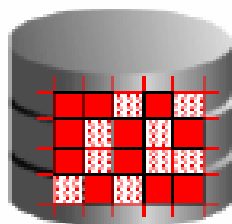
Amazon Elastic Compute Cloud (Amazon EC2) is a web service that provides resizable compute capacity in the cloud



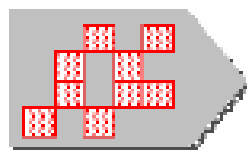
- **Pre-packaged Amazon Machine Images (AMIs) containing Oracle Enterprise Linux 5 and Oracle Database 11g**
- **Weblogic Server**
- **User Authentication**
- **Ready to use scripts for new database creation**
- **Supported by Oracle and Amazon Premium Support**
- **Separate licensing fee**

Oracle Database Backup in the Cloud

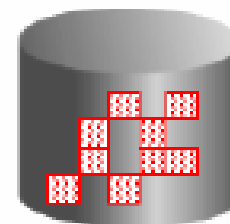
Database Files



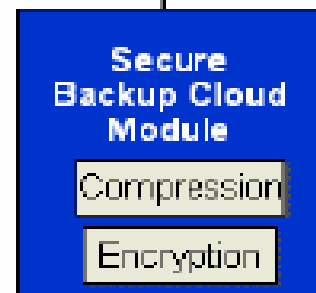
RMAN Backup



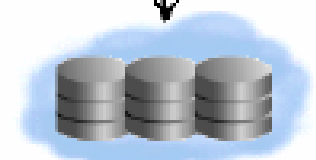
Local Disk Backup



RMAN Tape Interface



- **New Oracle Secure Backup Cloud interface**
 - Works with 9i and higher DB versions
- **More Reliable than tapes, Faster Restores**
- **Eliminates tape backup and offsite tape management overhead**



Introduction to the Cloud

Oracle and Cloud – The Present

Oracle Applications in the CLOUD

Apps Deployment on Public Cloud

Apps Deployment on Private Cloud

Sticky issues with Apps Deployment

Oracle and Cloud – The Future Direction

Questions and Answers

Hosting EBS Instances on Amazon EC2 Cloud

- Support for non-production instances is provided
- Configuration has to be standard
- Redirect to Amazon for any virtualization-related issues.

- **Virtual private cloud: VPN-based extension to the customer's intranet**
- **Elastic IPs: allow sticky IP addresses for persistent references between nodes**
- **Large file import service: for DBFs larger than 5 TB, it is better to ship them on 2TB disks to Amazon**
- **Instance up in 4-5 days**
- **High-memory instance types: EBS needs higher memory-to-CPU ratios, and higher I/O bandwidth .**

- **Certification for Oracle Applications not available for production instances**
- **Stack additions in Virtualization Layer**
- **No control over physical hardware for Oracle**
- **Virtualization Engine in Amazon EC2 not supported**

Oracle VM platform fully supported for Ver. 12.1

- Officially certified for Oracle products
- Single environment for virtual and physical infrastructure
- Complete stack is on Oracle Products – single point contact
- Complete integration and automation with comprehensive and open APIs
- Insight into performance and utilization at every level
- Improve speed of true end-to-end provisioning
- Do it in an extendable, customizable way

Oracle VM Concepts Overview

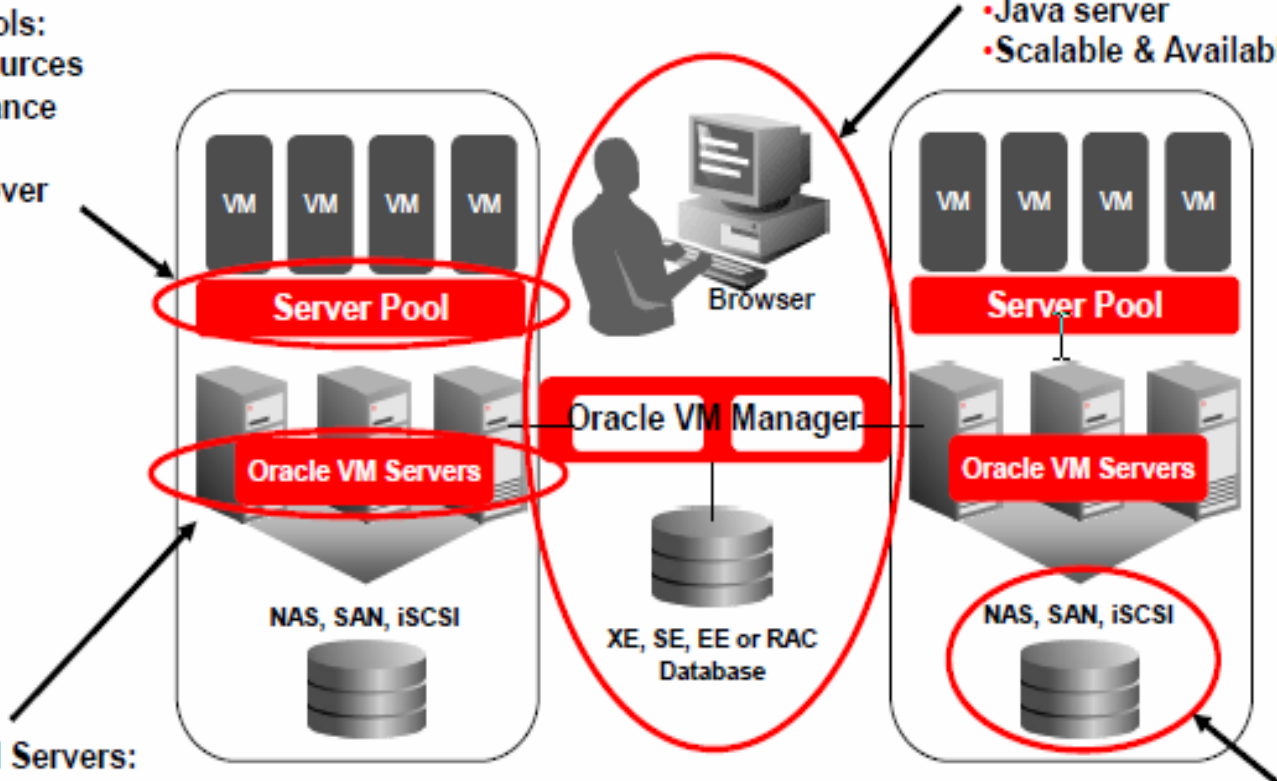
VM

- Server Pools:**
- Pool resources
 - Load balance
 - Migrate
 - Auto failover

- Oracle VM Manager:**
- Browser-based
 - Java server
 - Scalable & Available

- Oracle VM Servers:**
- Hold guest VMs
 - Enterprise Linux
 - Windows

- Shared Storage Pool Options:**
- NAS/NFS
 - SAN
 - iSCSI



- Installation is done once, and never again
- Which Identity Management instance do you want your dev and test vs. copy-of-prod to use?
- Real world topologies and integration support
- Issues with multiple copies running together
 - ❖ **Browser needs to pick only one to connect to**
 - ❖ **Integration is done once, and never again**
- **Dynamic node identification**
 - ❖ **For each vm, the virtual machine name and virtual machine ip need to be properly reflected not just on OS level, but within EBS**
 - ❖ **Virtual machine name or ip change require EBS re-initialization**

Introduction to the Cloud

Oracle and Cloud – The Present

Oracle Applications in the CLOUD

Oracle and Cloud – The Future Direction

Cloudy Business

Cloudy Outlook

Oracle Apps future direction

Questions and Answers

Questions without answers - External

- **Communication between different cloud environments coming out of different vendors**
- **Failover reliability in the Cloud**
- **What are customers expecting**
- **No quantifiable measures for Real Cost Saving**
- **How to quantify performance SLA's**
- **Contractual Agreements– Legal issues**
- **No interoperability standards**

Questions without answers – Internal

- **Ability to move towards a different process**
- **Willingness to change the mindset**
- **Willingness to invest in new concepts**
- **Change in Role of IT**
- **Public information in a Cloud – legal issues**
- **Sunk costs on existing infrastructure**
- **Security Issues**
 - ❖ **Network Security and Host Security**
 - ❖ **Physical security and how physical access to servers is controlled**

- **Agility** improves with users' ability to rapidly and inexpensively re-provision technological infrastructure resources
- **Device** and location independence
- **Multi-tenancy** enables sharing of resources and costs across a large pool of users
- **Reliability** improves through the use of multiple redundant sites
- **Scalability** via dynamic ("on-demand") provisioning of resources
- **Security** could improve due to centralization of data

- ❖ About 3.2 % of U.S. Small businesses, or about 230000 businesses, use cloud services
- ❖ Another 3.6 %, or 260000, plan to add cloud services in the next 12 months
- ❖ Small-business spending on cloud services will increase by 36.2 % in 2010 over a year ago, to USD 2.4 billion from USD 1.7 billion.
- ❖ So what is the trend?
- ❖ Is it cloudy or bright?

- **Standards are needed and are evolving - Open Cloud Consortium**
- **Consolidation of architecture**
- **Measures required for Cost, serviceability, scalability, reliability**
- **There should be business drivers – they should be profitable**
- **Internally there should be a level of centralization and consolidation in technologies and architecture.**

- **Working on compatability with Amazon EB2 for all instances**
- **Future availability of EBS 12.1.1 OVM templates**
 - ❖ **64bit OEL 5**
 - ❖ **Two templates: database and mid-tier**
- **Capture custom deployments, configurations, and integrations**
- **Improvement in performance**
 - ❖ **First-time boot from template to active process 11 minutes for database virtual machine**
 - ❖ **15 minutes for mid-tier virtual machine Machine boot**
 - ❖ **Future powering up of virtual machine w/EBS processes: 2 min database, 2 min mid-tier**
 - ❖ **Power off of virtual machines is 1min**

NIST – National Institute of Standards and Technology

Pioneering efforts to get approved standards in Cloud Computing

Web Site: <http://csrc.nist.gov/groups/SNS/cloud-computing/>

ISACA. Formerly - Information Systems Audit and Control Association

International professional association that deals with IT Governance.

Web Site: <http://www.isaca.org/>

Questions and Open Discussions



Contact Information

Subash Krishnaswamy

Email: skrishna@astcorporation.com

Phone: 815-715-5013

Vijay Tirumalai

Email: vtirumalai@astcorporation.com

Phone: 630-240-3367

For Presentation Copy Visit

www.astcorporation.com/papers