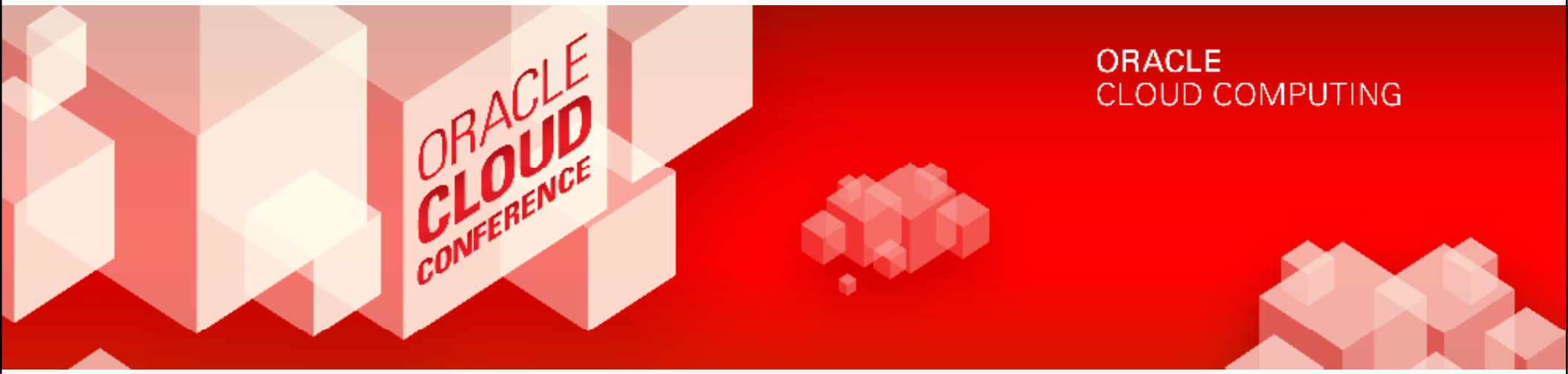


ORACLE

Gain Total Cloud Control with Oracle Enterprise Manager 12c

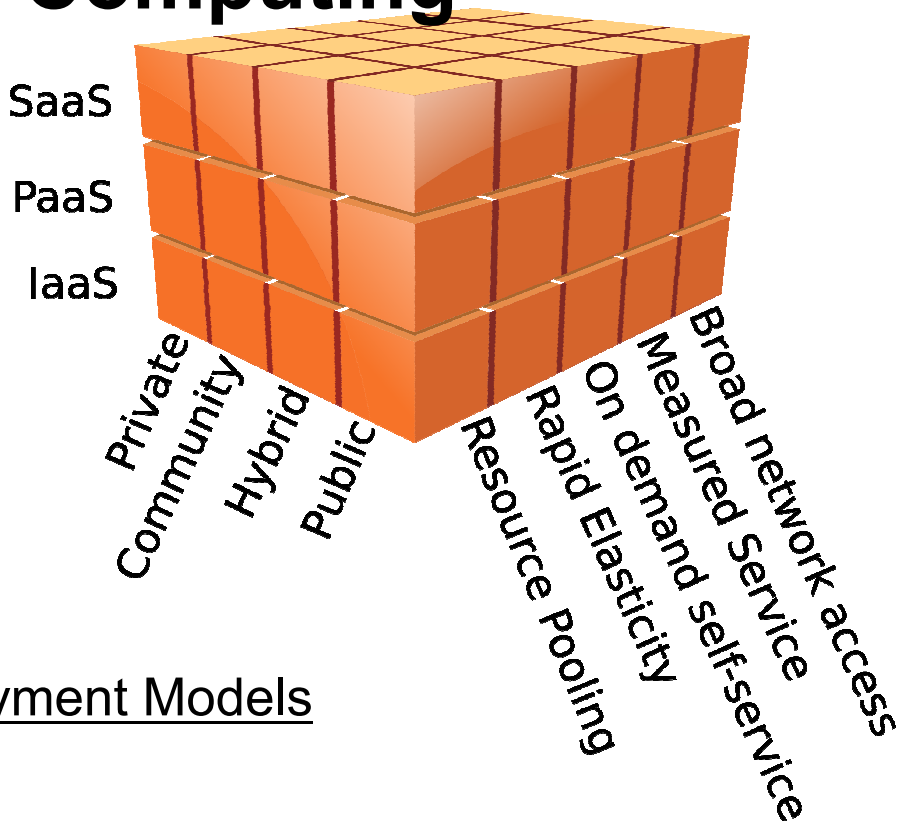
George Bourmas

Sales Consulting Manager Database & Options Oracle Hellas

Sponsored by

intel

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:

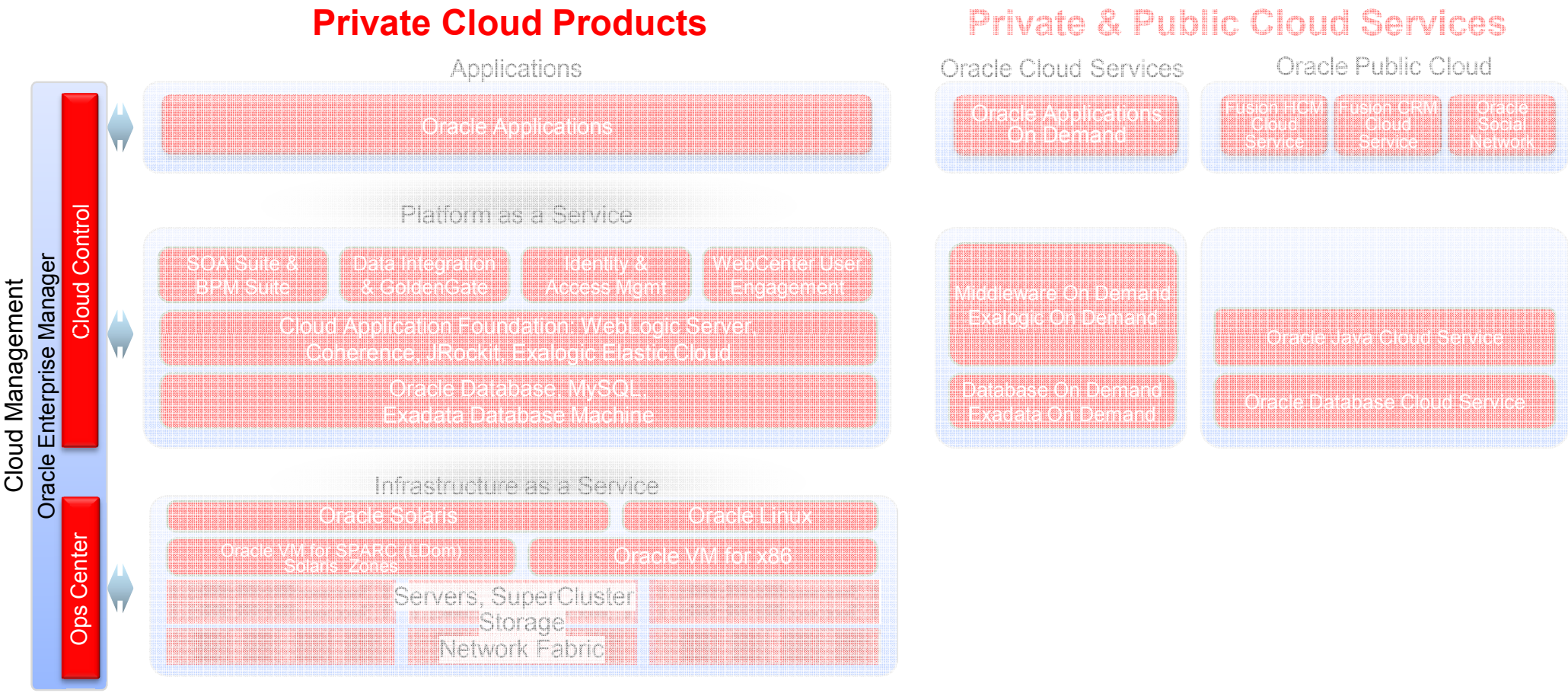
Source: NIST Definition of Cloud Computing v15

Enterprise Cloud Computing

Our Perspective

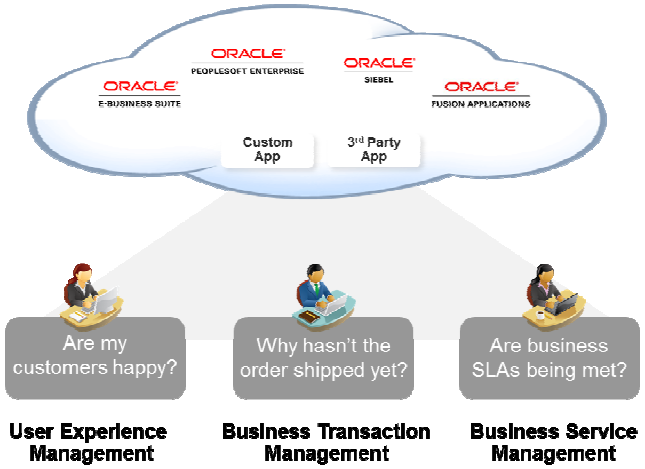
- Logical next step towards achieving greater automation and agility, driving efficiency and lowering cost
- An Enterprise Cloud solution should enable transformation of the entire IT into Cloud
  - And not build more pockets of automation
  - Should be broad enough to cover typical enterprise landscape
  - Should reduce complexity, not increase it
- An Enterprise Cloud solution must also cater to all personas and roles within an enterprise
  - Cloud consumer, Cloud administrators, Developers, Business Sponsors…..
  - New solution must be designed in Cloud context; just repackaging old wine in a new bottle won't do

Oracle Cloud Offerings – Cloud Management



Total Cloud Control

ORACLE ENTERPRISE MANAGER 12c



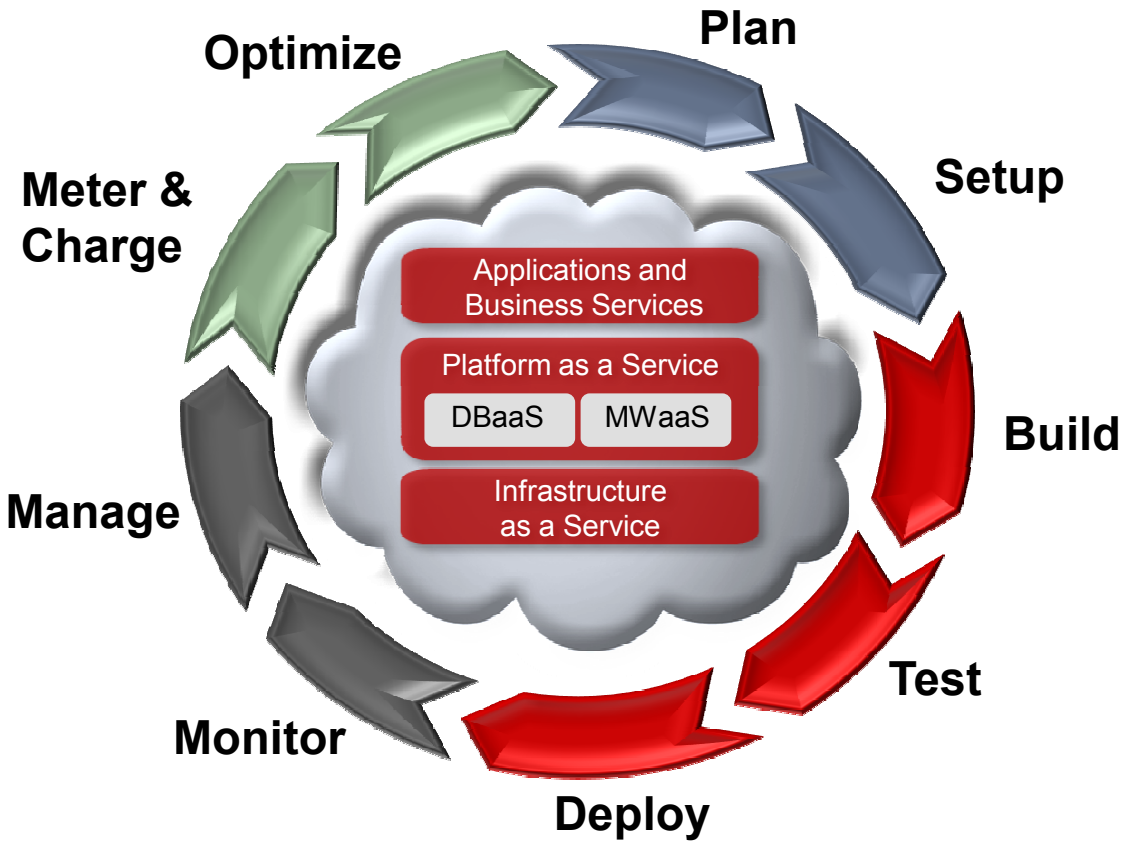
Complete Lifecycle Management

Integrated Cloud Stack Management

Business-Driven Application Management

Self-Service IT | Simple and Automated | Business Driven

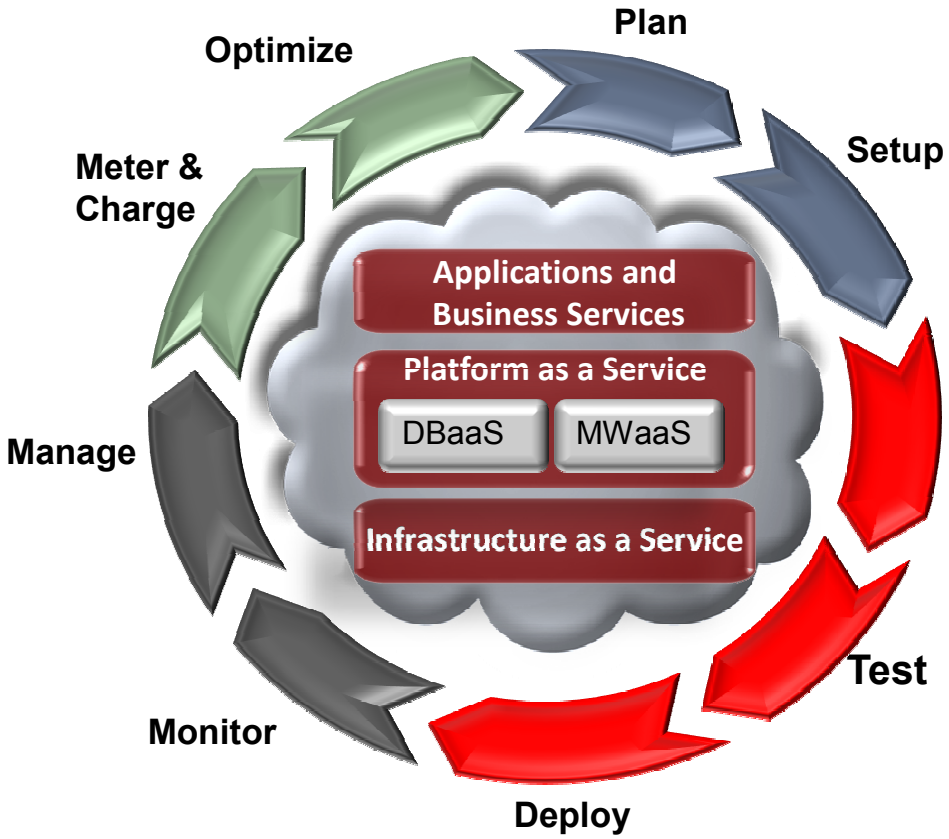
Complete Cloud Lifecycle Management



Complete Lifecycle Management

Comprehensive coverage across all lifecycle phases

- Meter resource utilization and cloud usage
- Optionally chargeback to application owners, end-users, and/or business departments
- Optimize cloud performance, capacity, QOS, agility, geography, people, costs…



- Identify all IT assets
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- Consolidation planning (P2V, P2E, DB, App..)
- Setup infrastructure…
- Setup shared services (IaaS, DBaaS, PaaS, Apps)

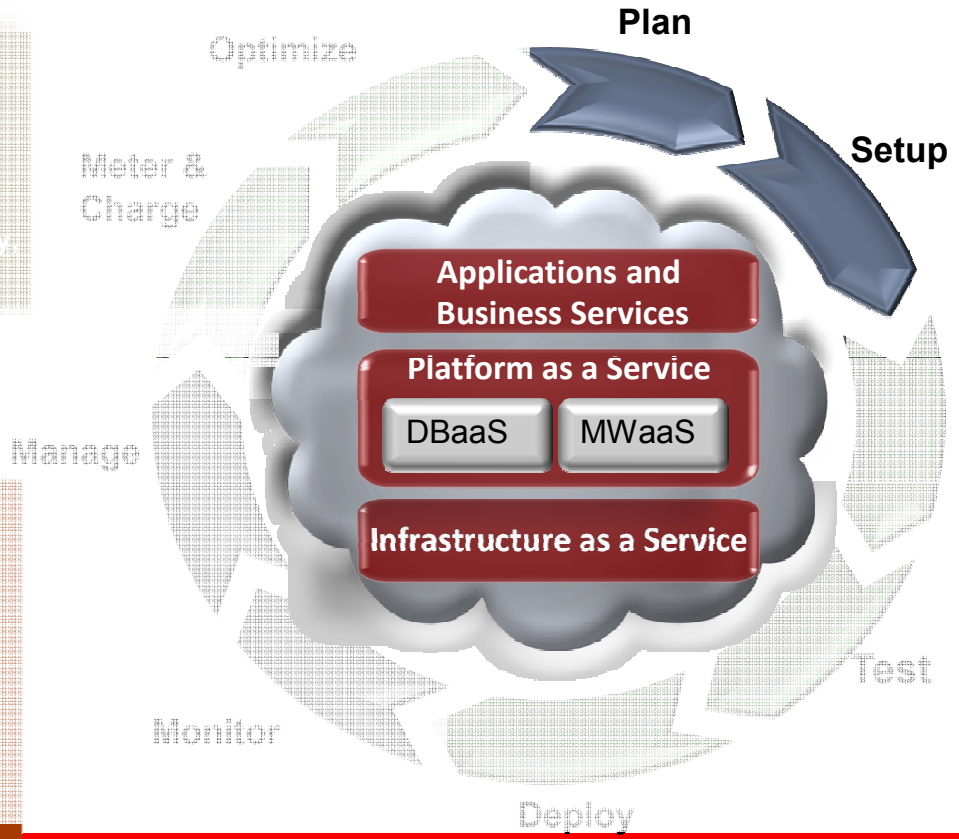
- Self-Service resource management
- Cloud resource and request monitoring
- Application to Disk stack management
- Centralized incident and configuration management
- End-user , business-level , application monitoring

- Assemble using shared components
- Test applications
- Deploy apps through self service GUI/API

Complete Lifecycle Management

Plan and Setup

- Meter resource utilization and cloud usage
- Optionally chargeback to application owners, end users and/or business departments
- Optimize cloud performance, capacity, SLOs, agility, geography, peaks/troughs…



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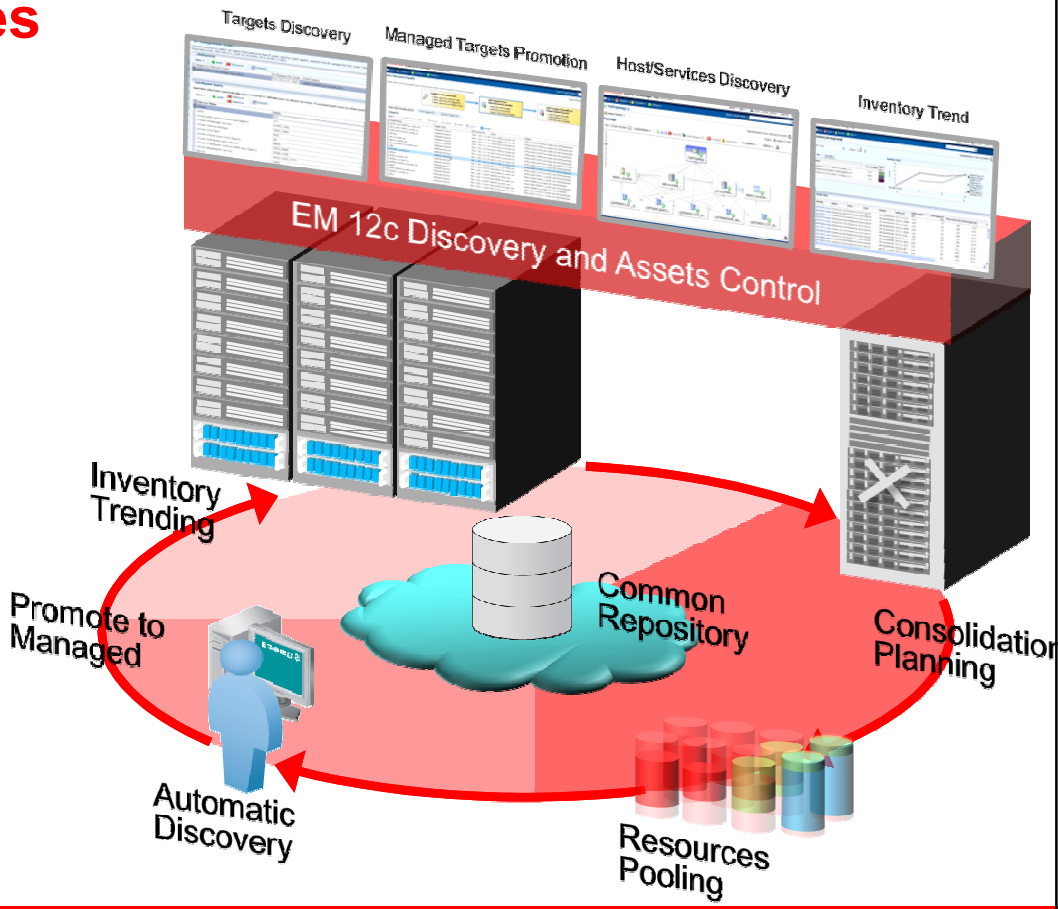
- Self-Service resource management
- Global resource and request monitoring
- Application to Disk stack management
- Centralized incident and configuration management
- End-user / business-level application monitoring

- Assemble reusable shared components
- Test applications
- Deploy apps through self-service and API

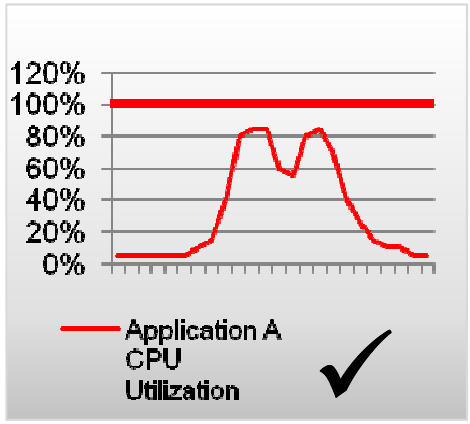
Automated Discovery of Existing Assets

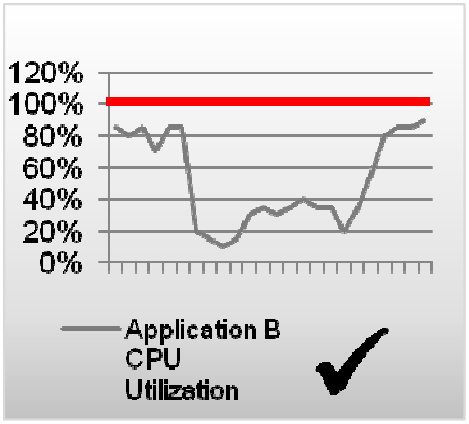
Know What You Have in Minutes

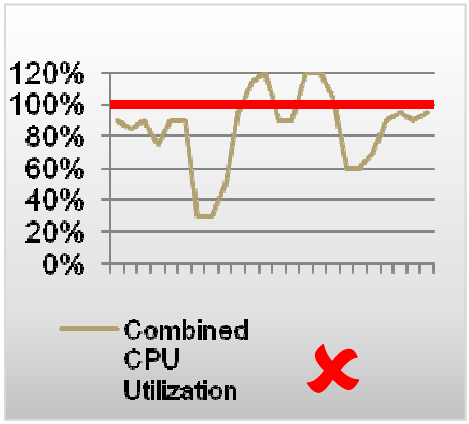
- Automatic asset discovery using network scanning techniques
- Support for multiple network segments (subnets)
- Integrated workflow for agent deployment for active management
- Promote the targets from “Unmanaged” to “Managed”
- Integrate with Consolidation Planner to identify underutilized assets

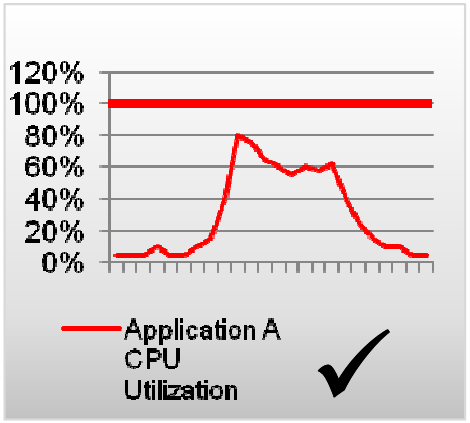


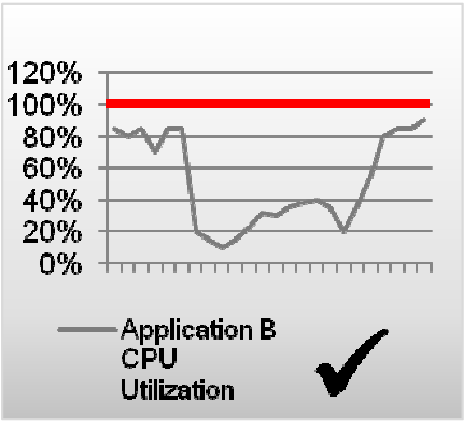
Consolidation Planning : Challenges

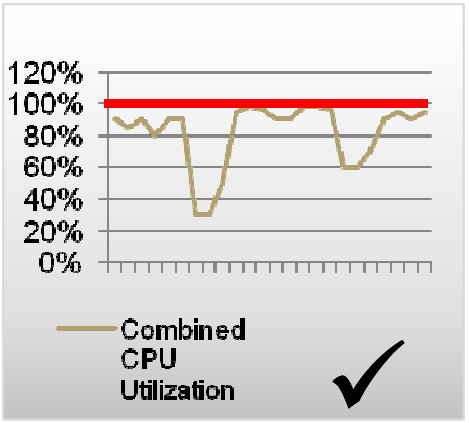








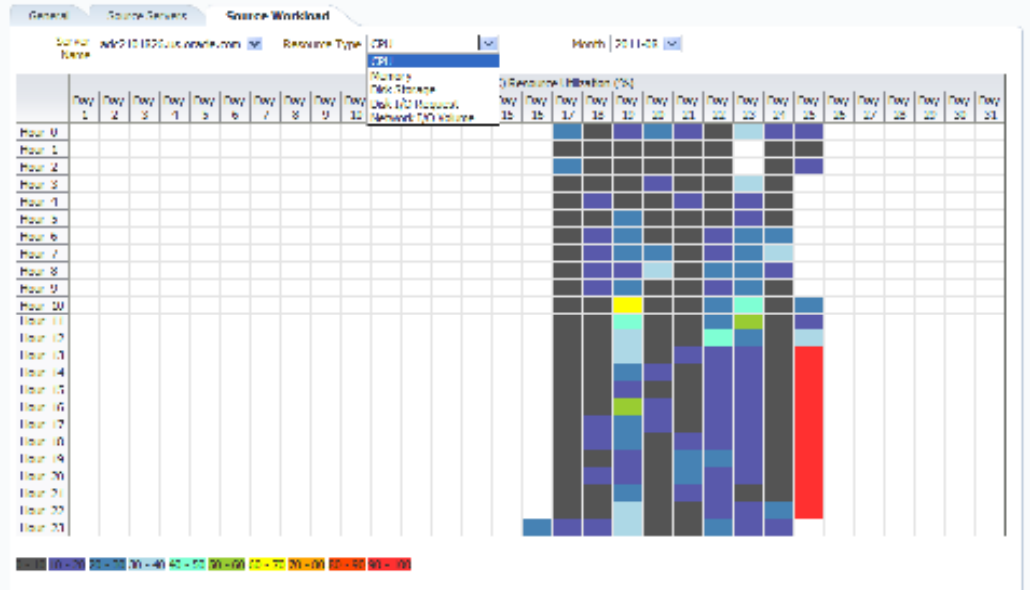




- Applications have different workload & resource profiles
- Before consolidation, analyze multiple resources
  - CPU
  - Memory
  - Storage

Consolidation Planner

- Target resource utilization and configuration data extracted from Enterprise Manager repository
  - CPU, memory, storage, network
  - Over a representative period
- Administrator specifies servers and constraints for workload migration
  - Physical/virtual servers
  - Existing/planned servers
  - Business/technical constraints
- Reports detail how consolidated workloads would perform on target servers



Service Delivery Planning

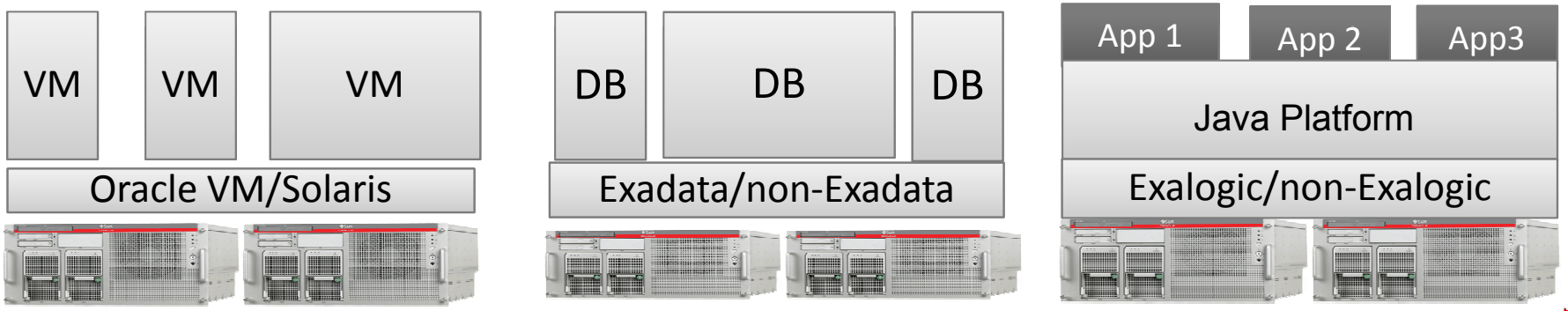
Broadest, Most Complete Range of Enterprise Services

Self-Service Application

Infrastructure-as-a-Service (IaaS)

DB-as-a-Service | MW-as-Service

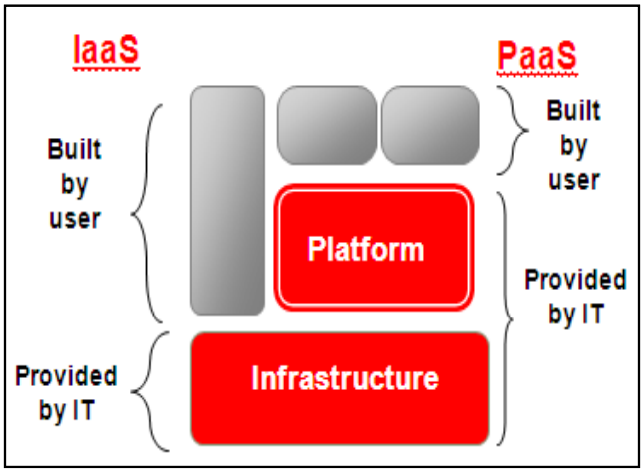
Platform-as-a-Service (PaaS)

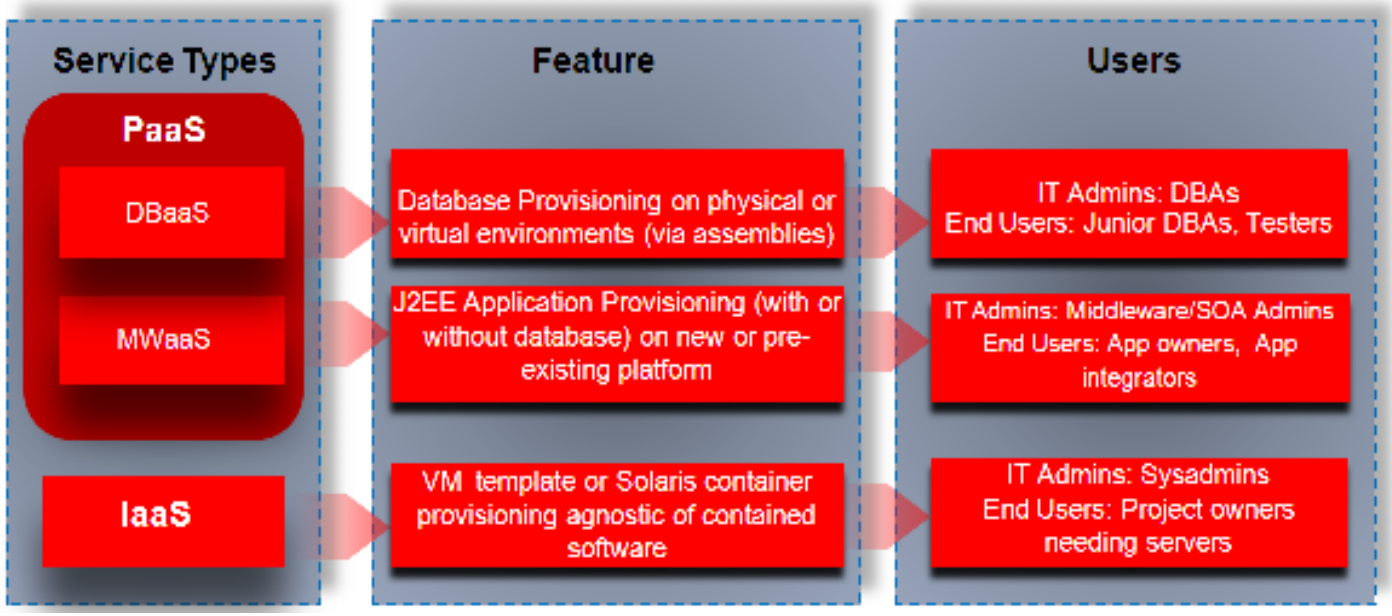


Increasing Enterprise Value

Supported Cloud Deployment Models/Services

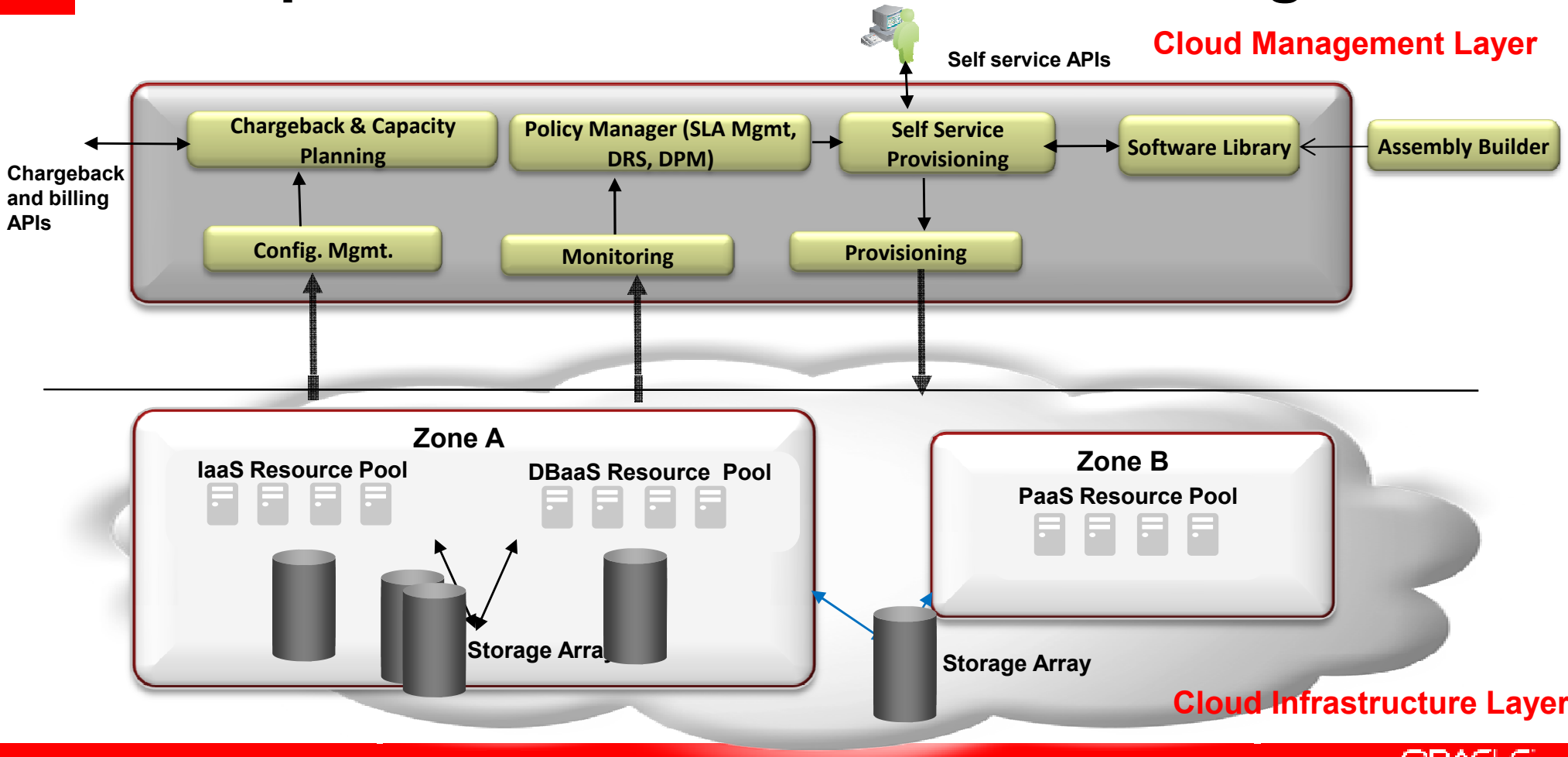
Increasing Enterprise value with Private PaaS





- Private PaaS
  - Provides Security and Compliance
  - Maximizes component re-use
  - Minimizes hand coding
  - Maximizes flexibility and control

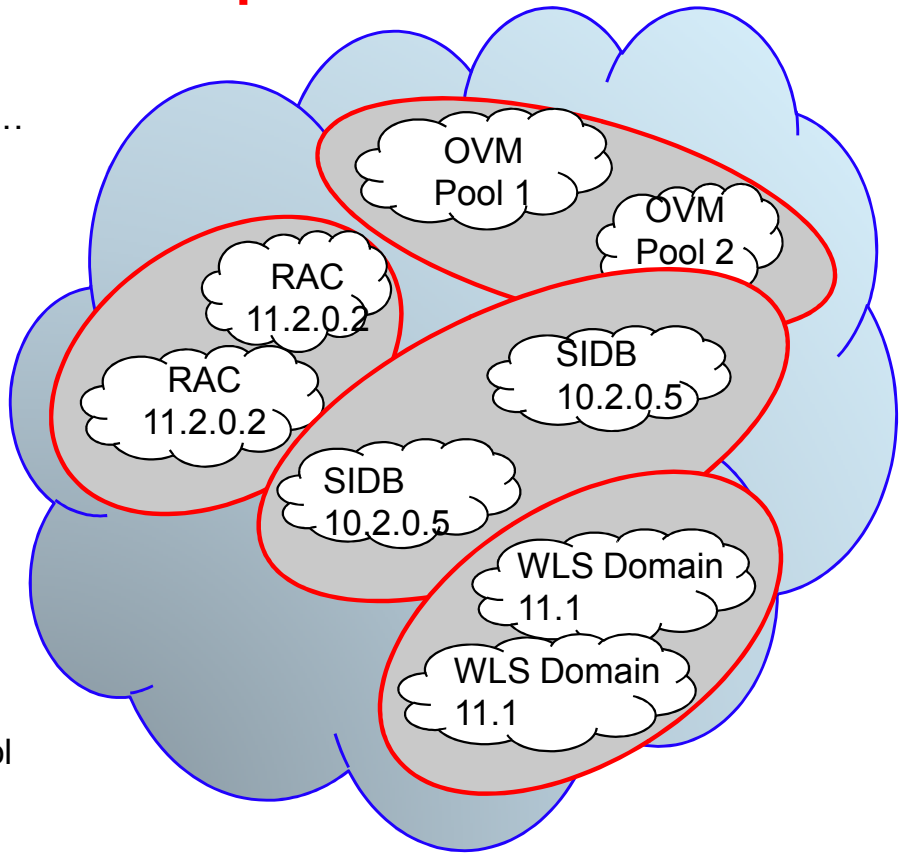
Enterprise Cloud Architecture Planning



Cloud Resource Model

Rich Out-Of-Box Resource Models for Enterprise Clouds

- **Cloud**
  - Top level entity; Collection of various zones – OVM, Database, …
- **Database Zones**
  - A logical unit of homogeneous single instance or RAC database software
    - RAC
    - Single Instance
- **Middleware Zones**
  - A logical unit of Managed Servers with or without Weblogic software
    - Domains
- **Infrastructure Zones**
  - Oracle VM Zones consisting of multiple Server and Storage Pool
    - OVM server pools



Guided, Automated Cloud Setup

From Bare Metal to Self-Service

Cloud Infrastructure Administrator

1. Provision Bare metal Hypervisor or underlying infrastructure software for DBaaS/PaaS
2. Configure Storage and network (VLAN)
3. Pool resources together
4. Define Zones based on functional and operational boundaries
5. Configure Software Library

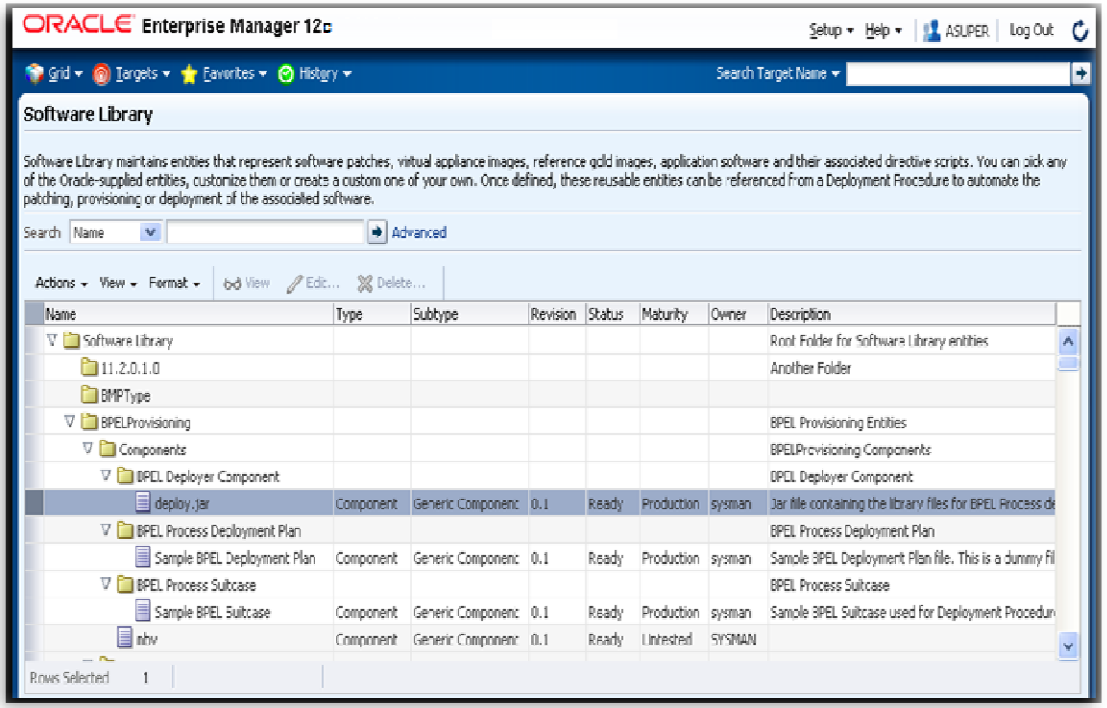
Self Service Administrator

1. Define allowable VM sizes
2. Assign quotas to Users and Roles
3. Define access boundaries (map roles to zones) and placement rules
4. Setup Chargeback Plans
5. Publish software components available for deployment by Self-Service users

Software Library Setup

Centrally Managed, Federated Software Repository for the Cloud

- Single repository for storing and retrieving images, scripts and assemblies
- Can be co-located with Self-Service Application or with cloud targets
- Choice of Storage types and Protocols (NFS, HTTP(S)), ideally suited for remote data centers
- Integrated with Packaging tools like Assembly Builder
- Supports Access rights for each image/assembly

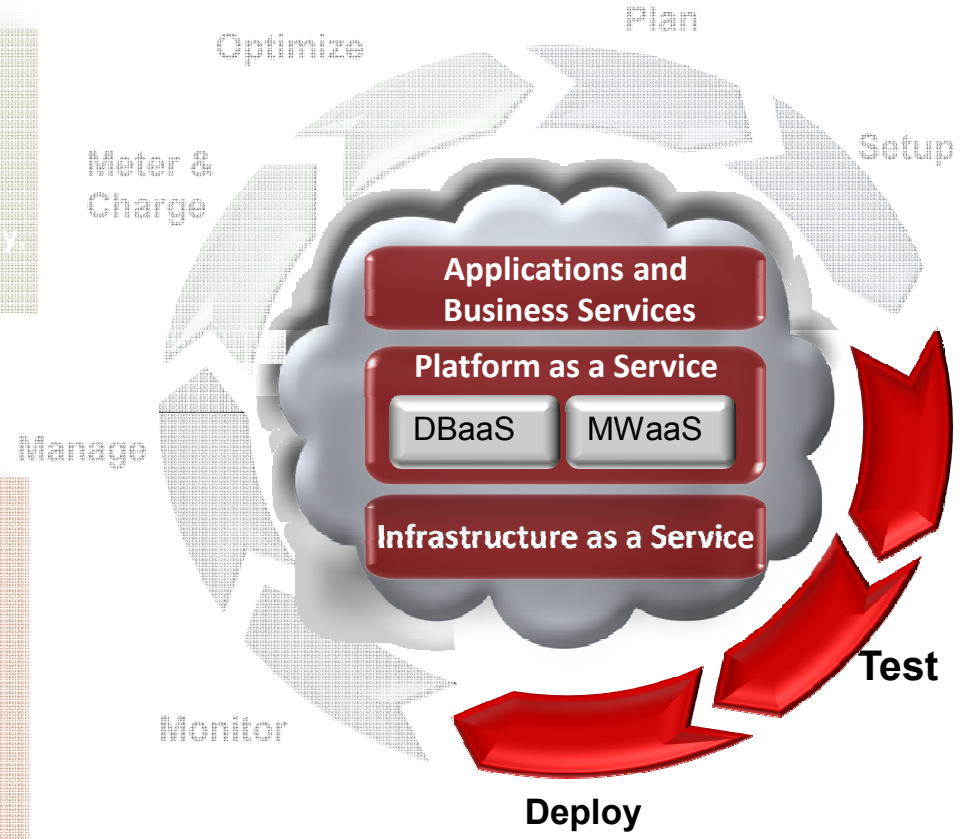


Complete Lifecycle Management

Build, Test, Deploy

- Meter resource utilization and cloud usage
- Optionally chargeback to application owners, end users, and/or business departments
- Optimize cloud performance, capacity, QOS, agility, geography, peer interests, ...

- Identify all IT assets
- Decide apps, cost models, policies, roles, ...
- Consolidation planning (P2V, P2P, DB, App, ...)
- Setup infrastructure, ...
- Setup shared services (IaaS, DBaaS, PaaS, Apps)

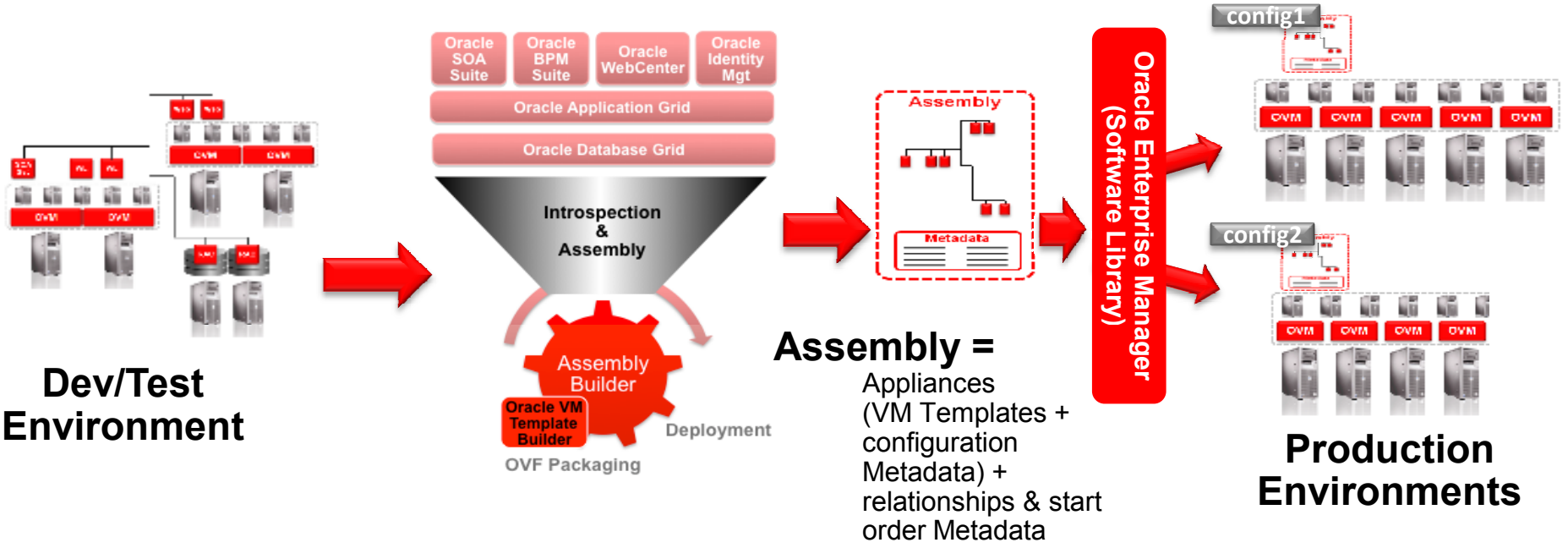


- Assemble using shared components
- Test applications
- Deploy apps through self service GUI/API

- Self-Service resource management
- Cloud resource and request monitoring
- Application to Disk stack management
- Centralized incident and configuration management
- End-user, business-level application monitoring

Oracle Virtual Assembly Builder

Package Complex, Multi-Tier Applications



Dev/Test Environment

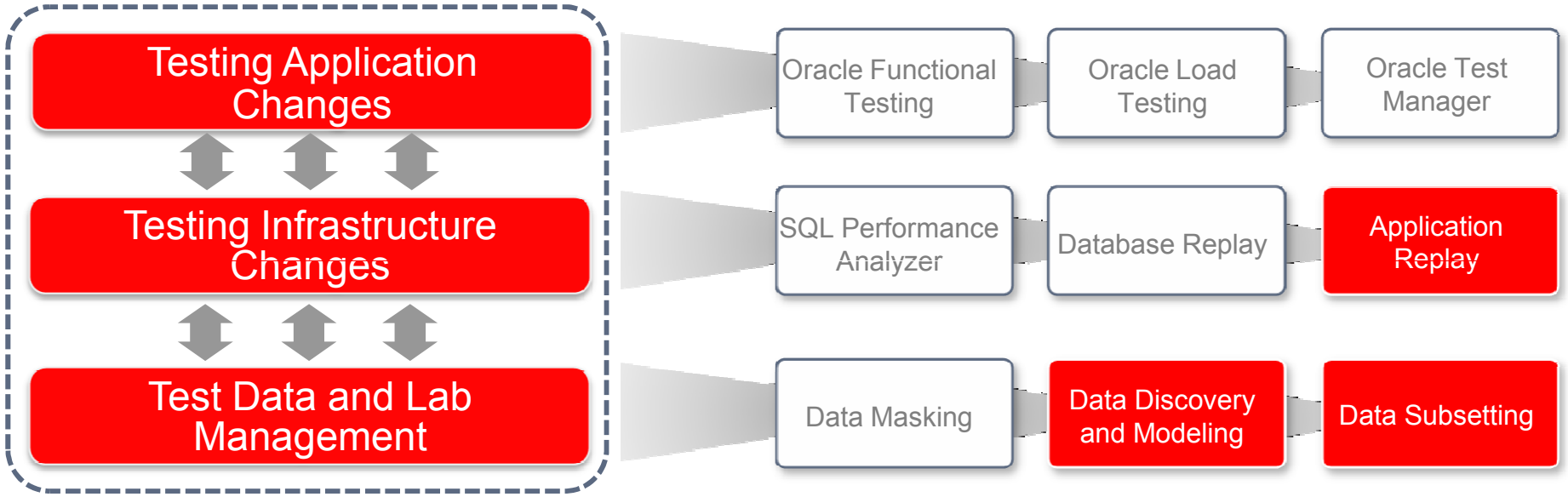
Assembly =
Appliances (VM Templates + configuration Metadata) + relationships & start order Metadata

Production Environments

- Define late binding configuration using OVF Metadata
- Easily replicate topology in production with minor variations
- Each production instance has well-contained configuration parameters for flexibility

Test Applications End-to-End

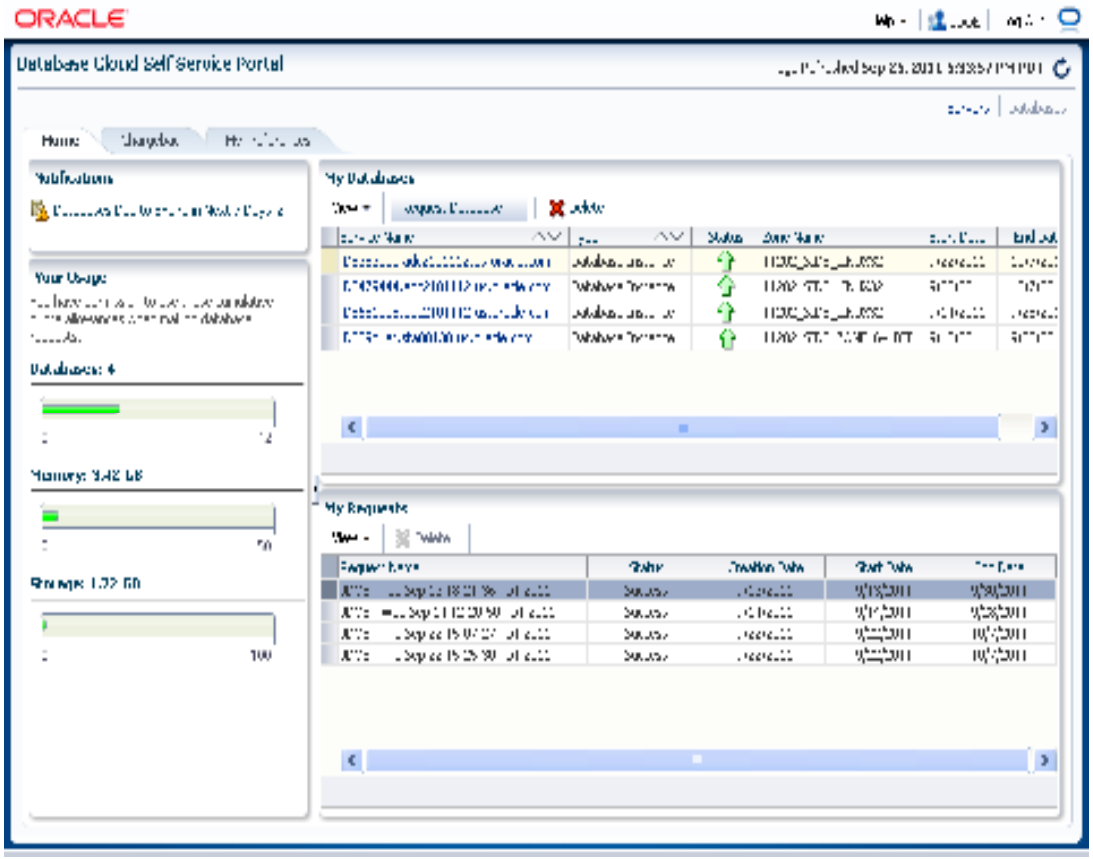
Automate Application, Middleware and Database Testing



✓ Synthetic Workload ✓ Production Workload ✓ Test Data Management

Self-Service Deployment

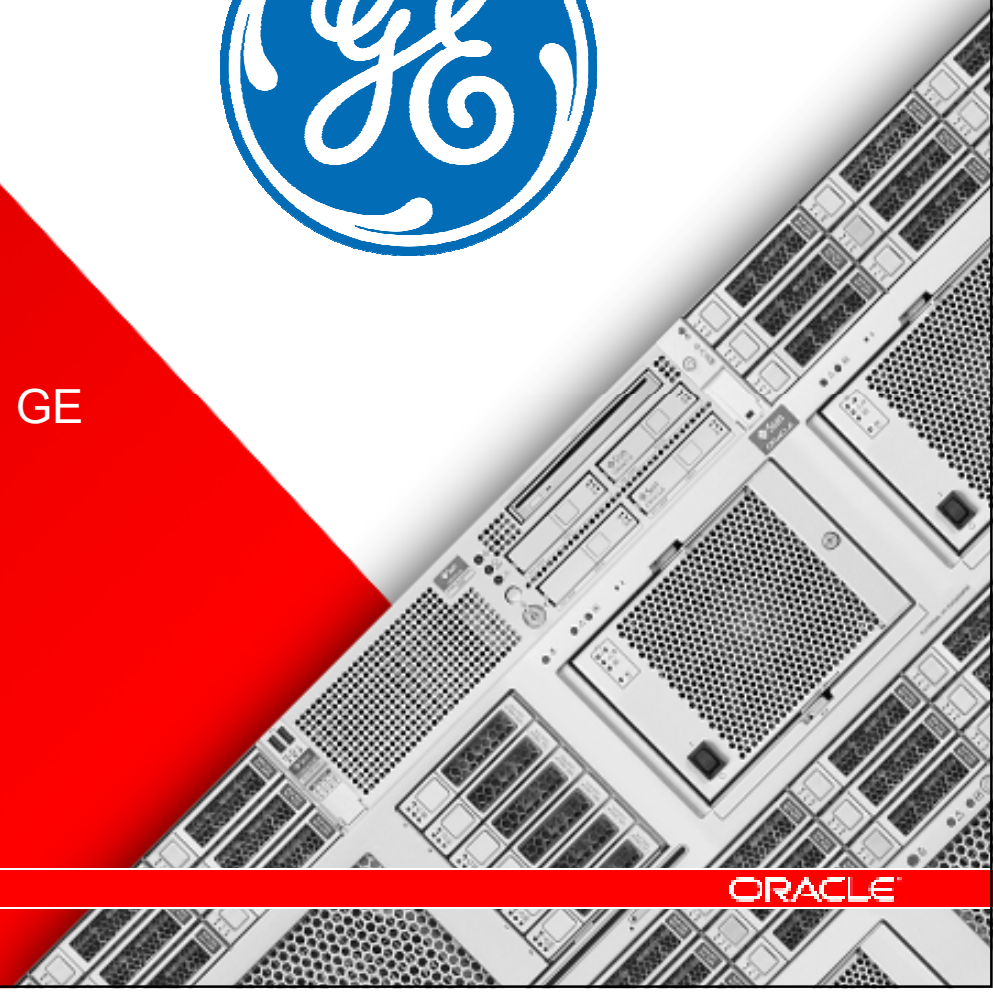
- Out-of-box console
  - Supports custom branding
- Rich service catalog:
  - Database service
  - OVM Templates and Assemblies
  - J2EE App
- Simplified runtime interview
  - Zone and account details for physical DBaaS
  - Late binding configuration for Assemblies
- Cloud APIs and CLIs for integrators
  - POST, GET, PUT, DELETE for Assemblies



CUSTOMER

"Supporting applications that keep up to 320,000 employees around the globe working, it is essential that our systems remain highly available and performing at a level that can provide resources during rapidly changing levels of demand."

- Tom Grimes, Global Oracle Leader, GE



Customer Solution

- Dynamic Elasticity
- Configuration Consistency
- Maximized Economy
- "Pay-by-the-Drink"

ORACLE

Complete Lifecycle Management

Monitor and Manage the Cloud

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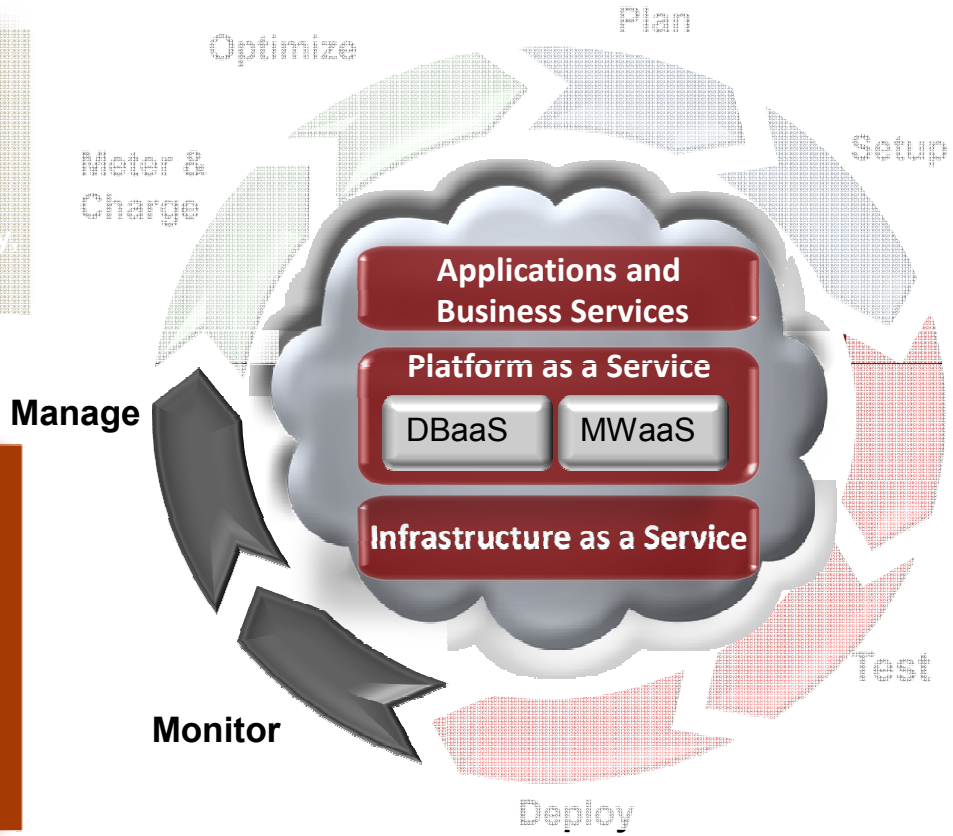
- Optionally chargeback to application owners, end users and/or business departments
- Optimize cloud performance, capacity, SLOs, agility, geography, people, costs …



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Role-based Monitoring and Management for the Cloud

Self-Service Application User

- Monitor own requests
- Monitor own apps, VMs, databases
- Monitor quota, chargeback, etc
- Startup/shutdown own apps, VMs, databases
- Scale out/back using Policies

Cloud Admin

- Monitor Cloud requests
- Monitor the health of the overall Cloud service
- Manage the Application–to-Disk stack (Monitor, Patch, Track Compliance…)

Self-Service Application Admin

- Monitor Application SLAs
- Monitor Business Transactions and metrics
- Monitor end user experience

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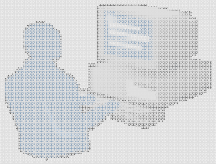

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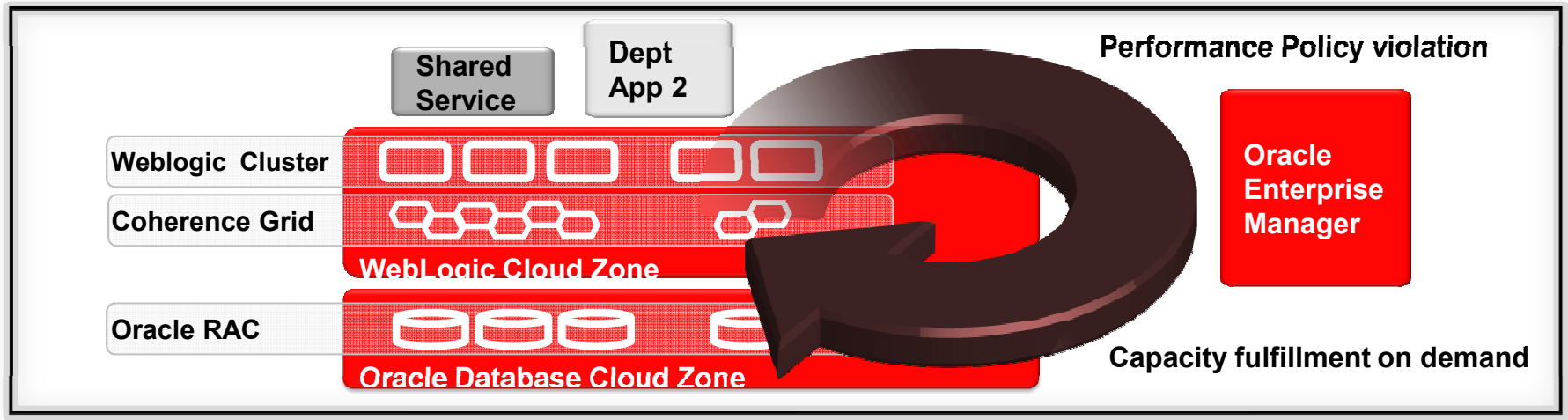
Self-service Resource Management

Empower Users through Transparency and Self-Service Control

- Basic monitoring of provisioned resources-VM hosts, databases
- Limited administrative privilege for change compliance and security
  - Shutdown, Startup, backup, restore
- Dynamically scale-out and scale back based on performance and schedule driven policies

Policy Based Resource Management

- Dynamically allocate resources based on pre-defined policies
- Out-of-box policy authoring capability combining metric thresholds with actions
- Schedule based
  - Invoke actions based on schedules. Example: Quiesce VMs on weekends
- Performance based
  - Scale out and scale back actions to support Capacity On Demand



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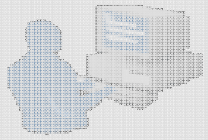

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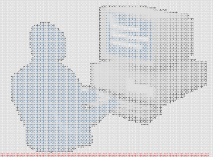

Self-Service Application Admin

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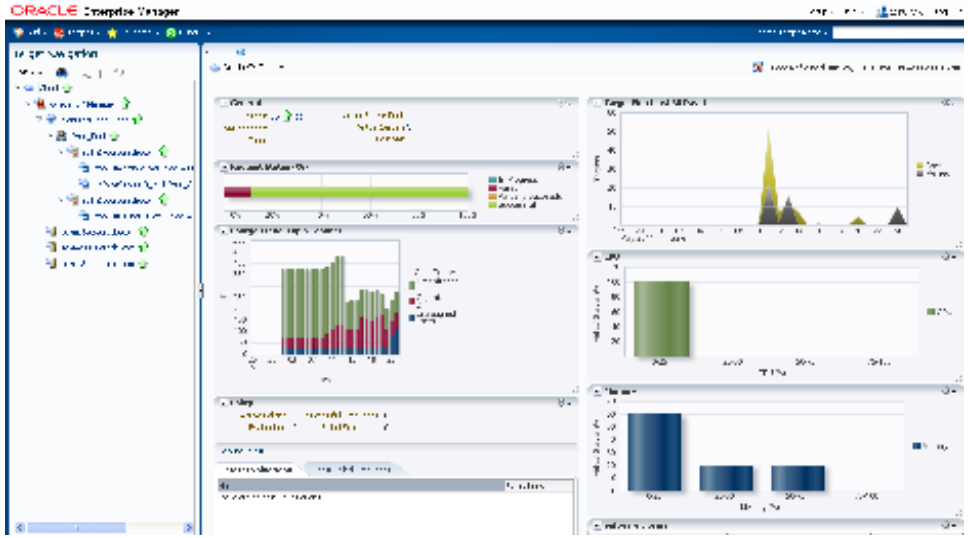
Cloud Resource and Request Monitoring

Single Pane of Glass for Cloud Administrators

- Manage Cloud Zones and underlying resources
  - Server Pools, VMs, databases, Middleware)
- Track resource flux, tenants, policy violations, etc
- Drill down into individual resources for deeper monitoring
- Monitor requests and failure rates and identify potential bottlenecks to remediate



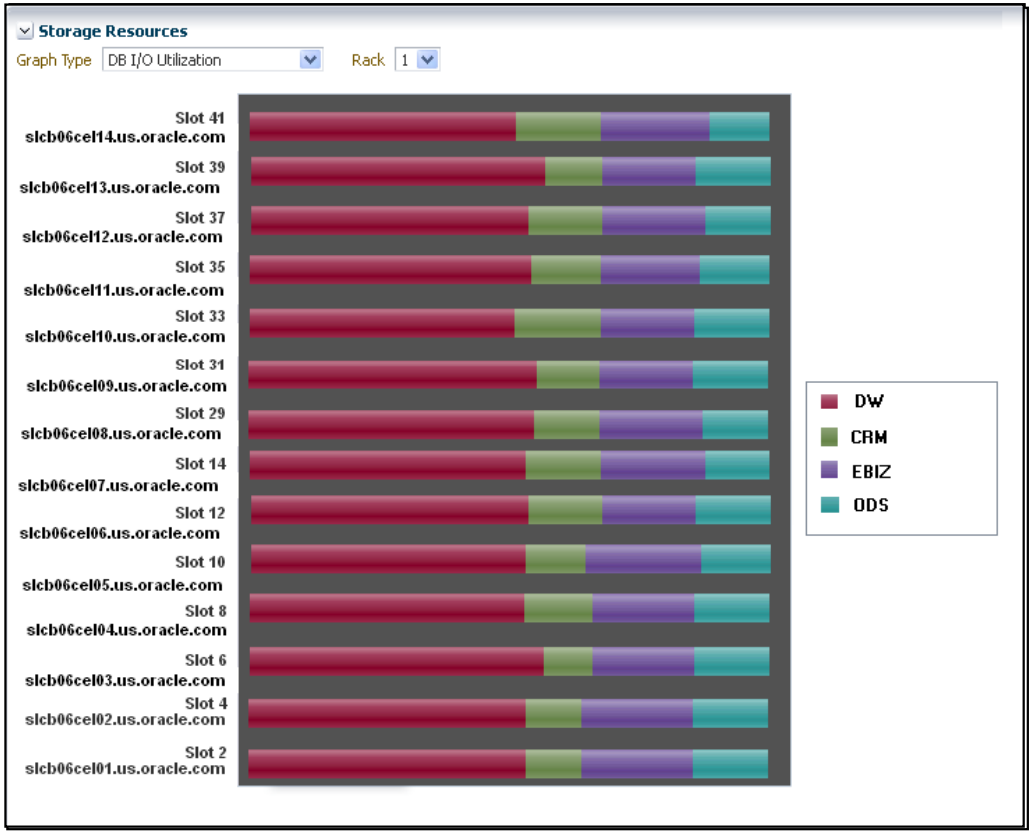
Application-to-Disk Cloud Stack Management

Hardware, Software and Management Engineered Together

- Engineered to work together
- Tested together
- Certified together
- Packaged together
- Deployed together
- Upgraded together
- Supported together
- **Managed together with EM 12c**

Exadata, Exalogic, SPARC SuperCluster Mgmt.

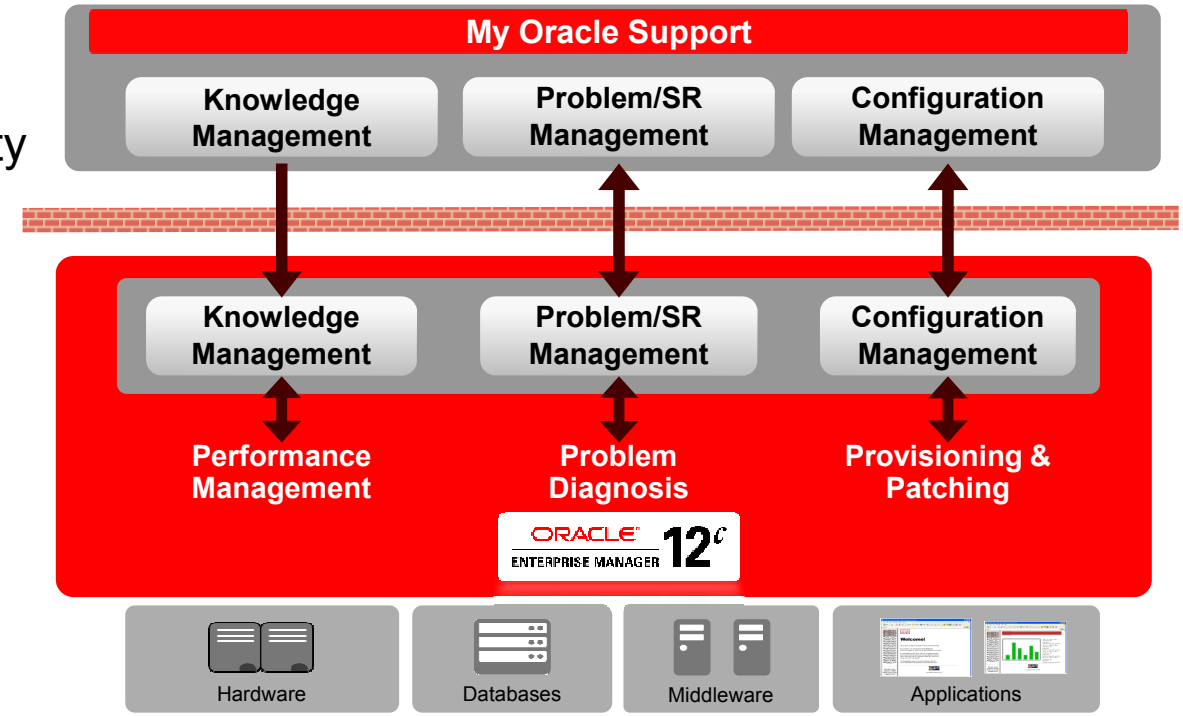
- Hardware view
  - Schematic of cells, compute nodes and switches
  - Hardware components alerts
- Software/system view
  - Performance, availability, usage by databases, services, clusters
  - Software alerts db, cluster, ASM
  - Topology view of DB systems/clusters
- Configuration view
  - Version summary of all components along with patch recommendations
  - Configuration drift control



Proactive Support

My Oracle Support Integration

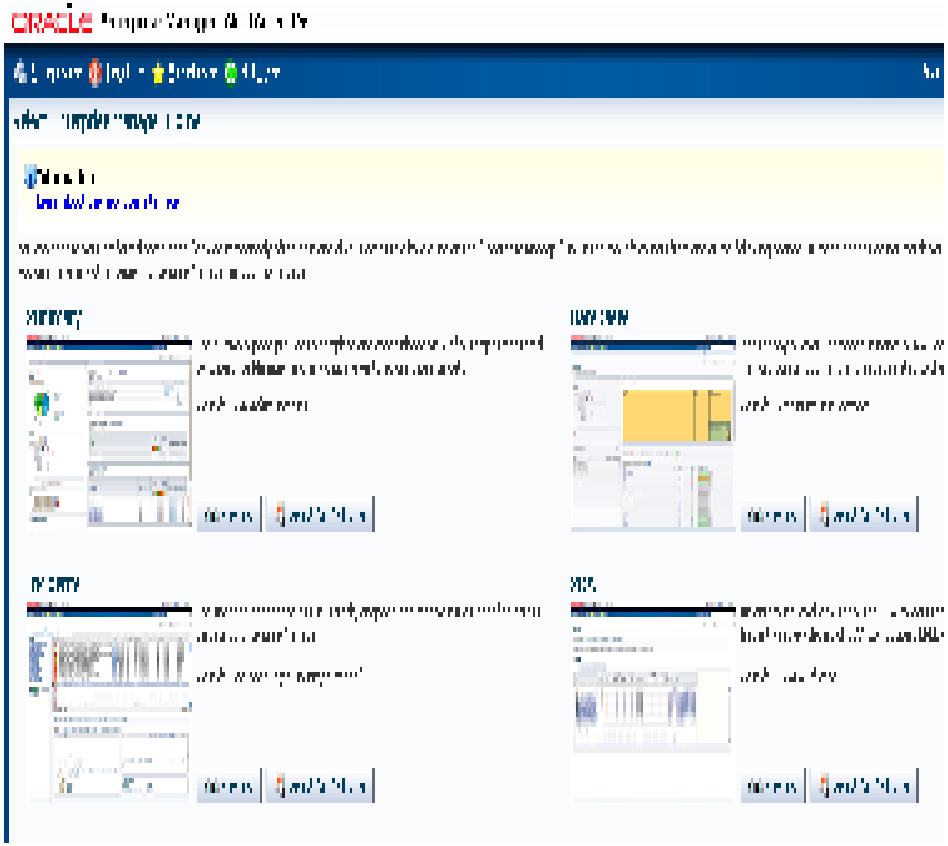
- Proactive Patch Advisory
- Certification Checks
  - Cross-tier version compatibility checks
  - End-of-life advisory
- Upgrade Planning and Automation
  - Proactive analysis if existing one-off patches are included
- Hardware Telemetry and Phone Home



Enhanced Framework for Cloud Administrators

Robust, Secure and User Friendly

- Better performance and scalability for Cloud scale data centers
  - Lightweight agent (50% smaller on disk)
  - Unified agent for acquired products – JVMD, ADP, CCC and ACC
- Improved diagnosibility
  - Integrated with Support Workbench
- Enhanced security
  - Integration with Oracle Access Manager
  - Target authentication with SSH, Kerberos
  - Fine grained access control
- New web 2.0 user interface
  - Menu, Personalization, Search



Enhanced Framework for Cloud Integrators

Extensible, self-updateable

- Independent Plug-in Lifecycle
- Enhanced SDK for Plug-in development
- User-defined monitoring and configuration metrics
- Custom configuration collections, comparison templates, relationships, compliance rules, reports
- User-defined Deployment Procedures
- Self-updateable entities
  - Connectors, Provisioning Profiles, Virtual Assemblies, Configuration Standards, Healthchecks

Role-based Monitoring and Management for the Cloud

Self-Service Application User

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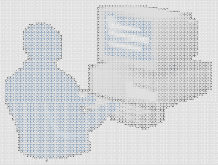


Cloud Admin

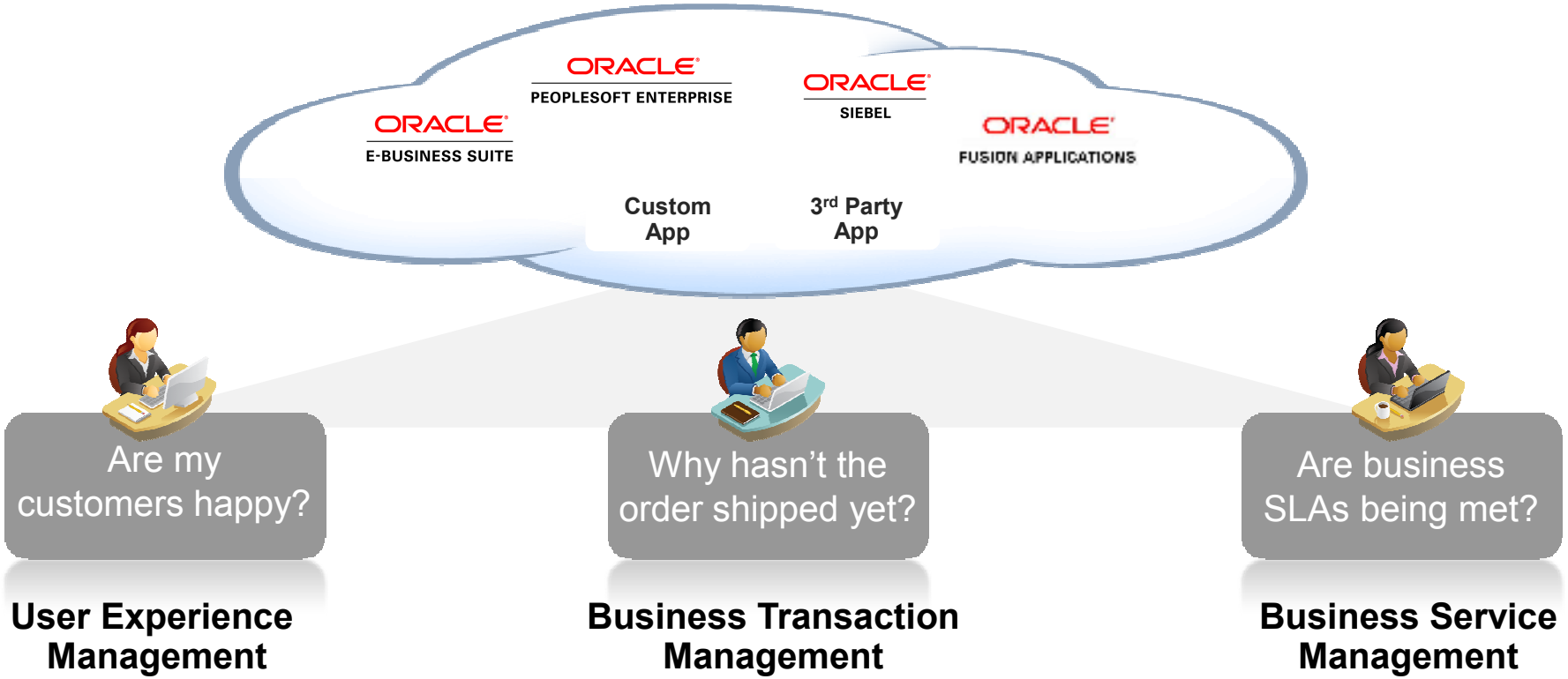
- Monitor Cloud requests
- Monitor the health of the overall Cloud service
- Manage the Application-to-Disk stack (Monitor, Patch, Track Compliance…)

Self-Service Application Admin

- Monitor Application SLAs
- Monitor Business Transactions and metrics
- Monitor end user experience

Business Driven Application Management

Optimize Your Cloud for Business Services



Real User Experience Insight Reporting

End User Analytics and Performance Management

- Massively scalable
  - 500M page views and higher
- Fine gained monitoring
- Geo-location Reporting
- Executive dashboards
- Integrated user experience and application monitoring view
- Extensive KPI and SLA monitoring
- Full alerting capabilities

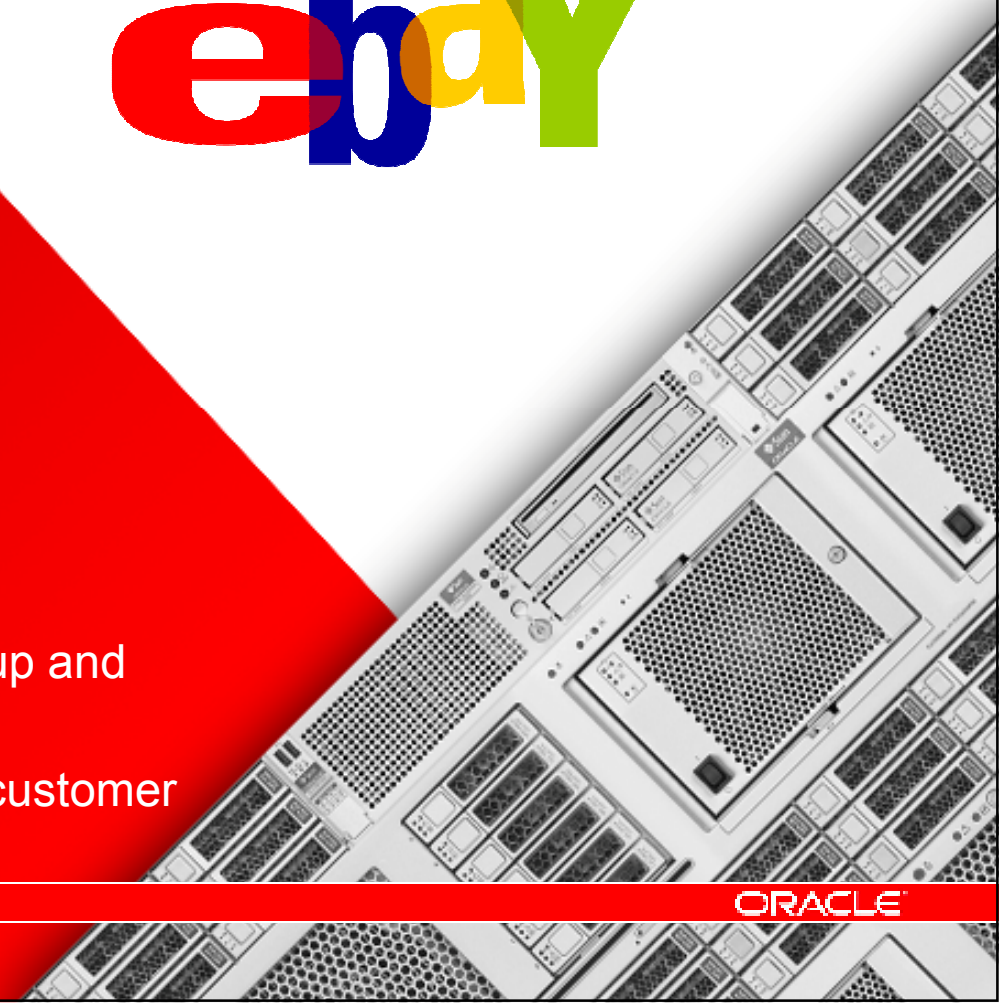
CUSTOMER

"Our critical revenue generating flows are always on our radar, thanks to our Engineering Center's ability to spot performance and availability degradations on a 24*7 basis."

-Cissy Abraham, Director,
-Site Engineering Center, eBay

Customer Solution

- Provide performance data on eBay's web pages
- Prevent it or fix it soon ! Infrastructure could be up and running but service could still be impaired
- Session replay provides deeper insight into the customer flow



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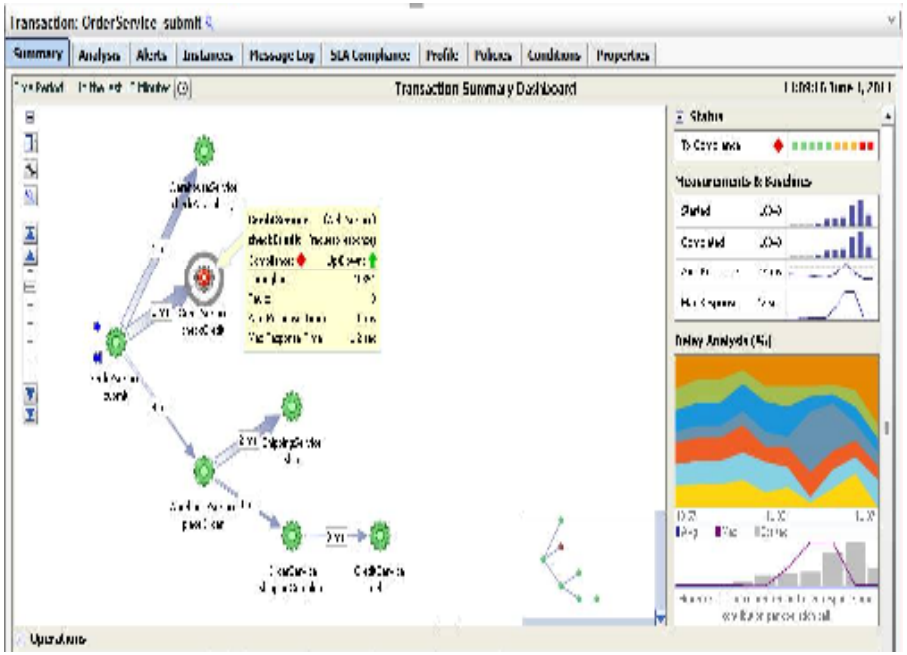
Business Transaction Management

Cross Tier, Cross Application Transaction Tracing

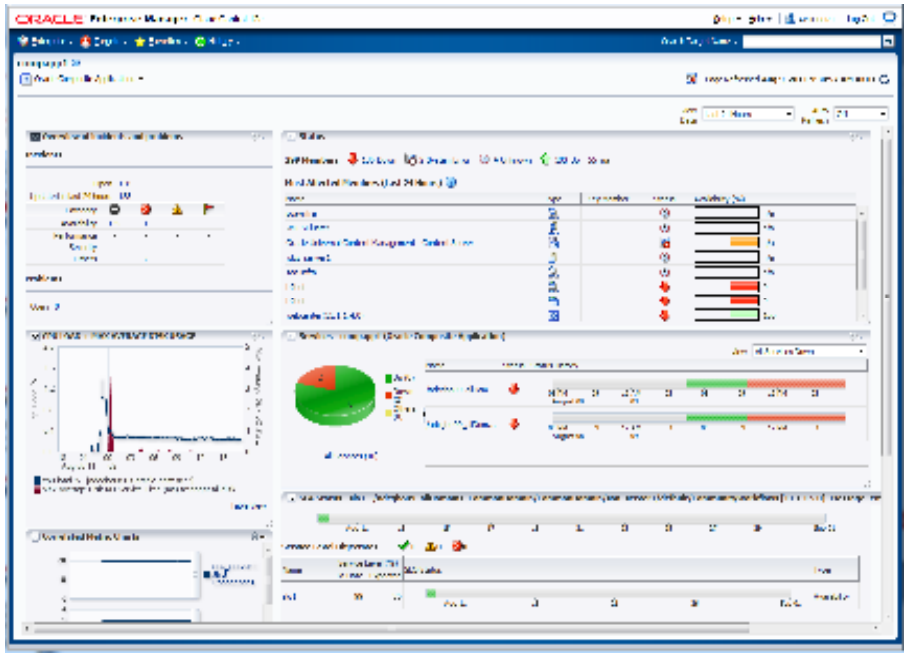
- Transaction-oriented performance breakdown, by service and over time
- Configurable monitoring
  - Aggregate performance
  - Trace every instance of every transaction
- 10x increase in number of manageable service endpoints
- Optimized transaction and condition evaluation to reduce cases where full transaction correlation is needed



Business Service Management

Discovery, Management and Component Diagnostics

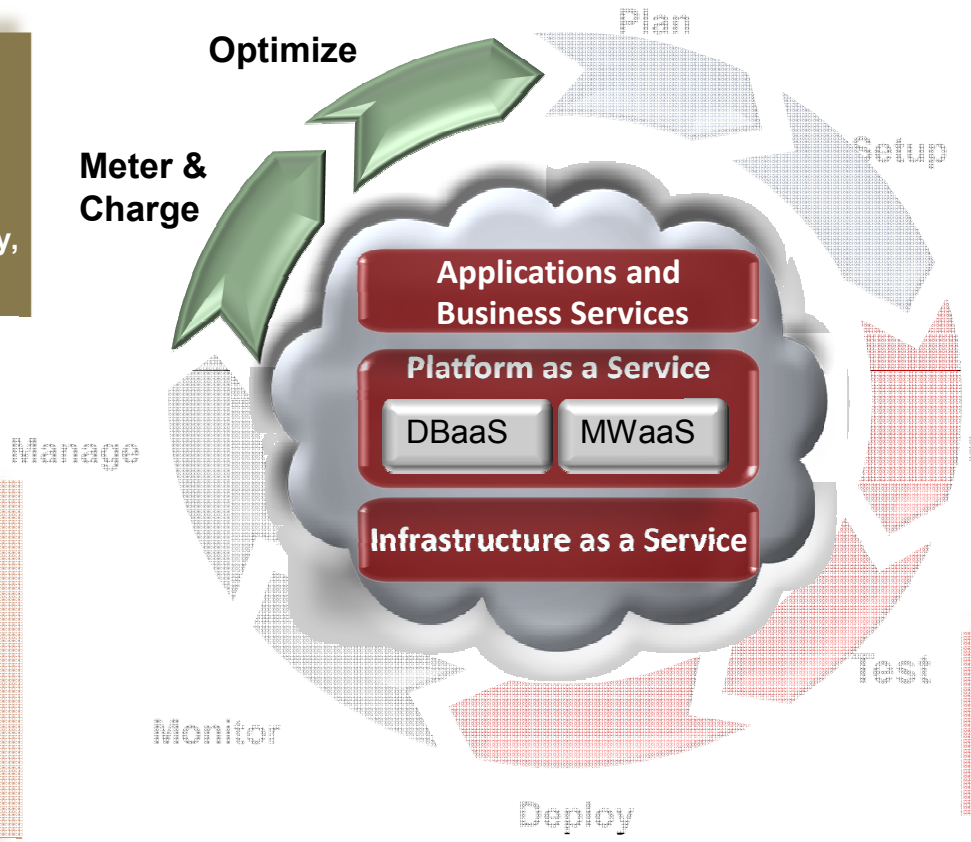
- Composite Application – View and manage performance of multi-tier applications, as a single entity
- Service Lifecycle Management
  - Static and Dynamic dependency topology
  - Performance, usage, and availability monitoring
  - Create, Update, Delete automation
- Enhanced SLA Management
  - Contractual SLA models
  - Real time SLA tracking and alerting



Complete Lifecycle Management

Meter, Chargeback and Optimize

- Meter resource utilization and cloud usage
- Optionally chargeback to application owners, end-users, and/or business departments
- Optimize cloud performance, capacity, QOS, agility, geography, people, costs…



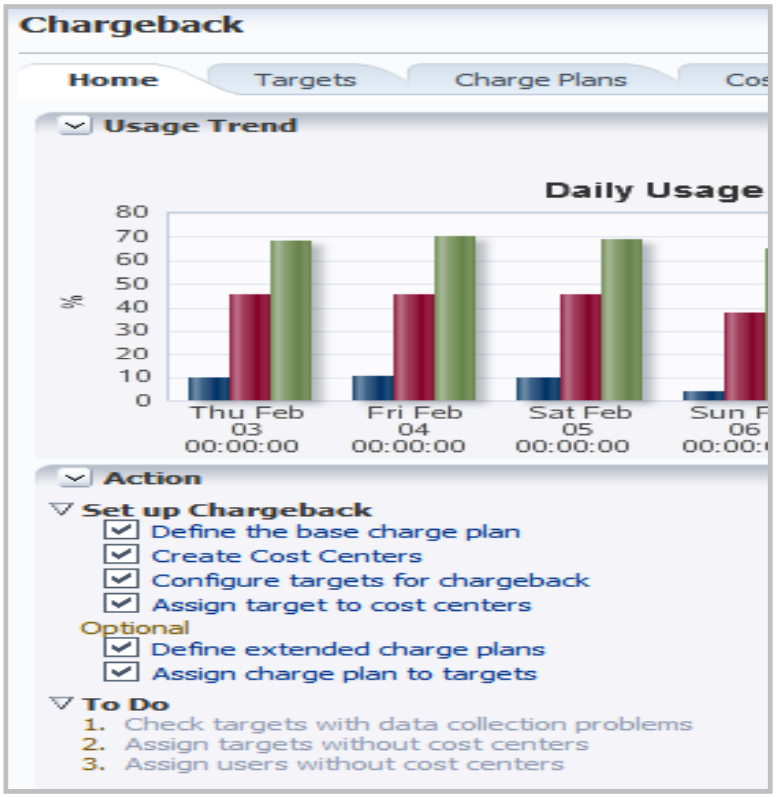
- Identify all IT assets
- Decide apps, test models, policies, roles
- Consolidation planning (P2V, P2P, DB, App…)
- Setup infrastructure…
- Setup shared services (IaaS, DBaaS, PaaS, Apps)

- Self-Service resource management
- Cloud resource and request monitoring
- Application to Disk stack management
- Centralized incident and configuration management
- End-user, business-level application monitoring

- Assemble using shared components
- Test applications
- Deploy apps through self-service e-UI/API

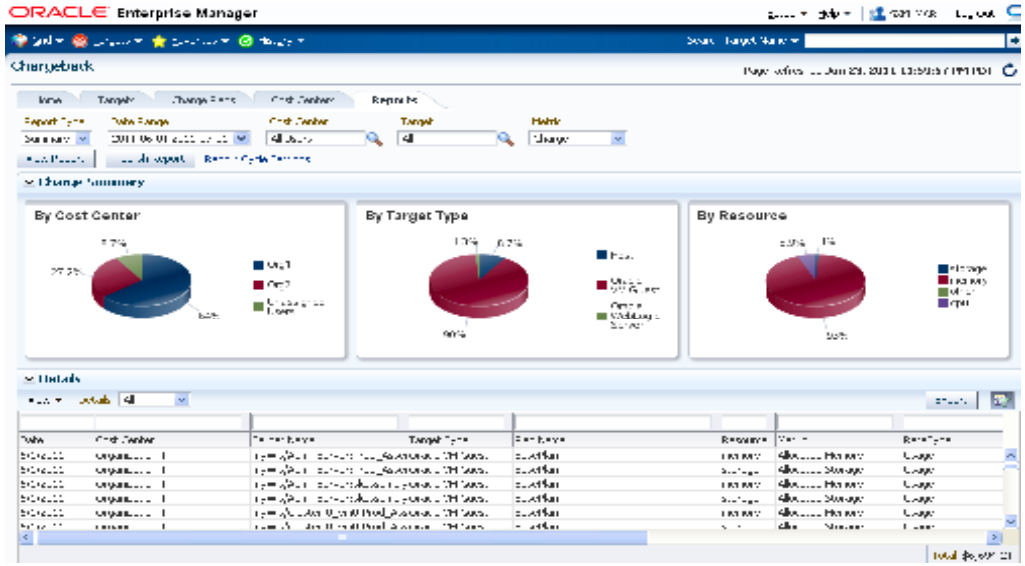
Metering and Chargeback

- Allows administrator to assign charge rates to shared resources
  - Supports fixed, configuration and usage based chargeback
- Leverages metrics in EM repository
  - ~50 DB, Middleware, host and VM metrics collected
  - Performance metric & Configuration data
- Resource usage metering & historical usage trends
- Supports dedicated and shared databases (via services)



Chargeback Reporting

- Rollup based on LDAP hierarchy
- Generate Reports in variety of formats (Excel, Work, PowerPoint, HTML, PDF)
- Accessible from Self-Service Portal
- Integrated with BI Publisher
  - Generate and Email reports to recipients on defined schedule (e.g. Monthly)



Oracle Enterprise Manager and Oracle Public Cloud

- Enterprise Manager agent deployed with every tenant
- Enterprise Manager facilitates
  - Application deployment by tenants
  - Fusion Apps, Middleware and Database monitoring
  - Operational activities: Jobs, backups, Start, stop…
  - Cloud Infrastructure monitoring

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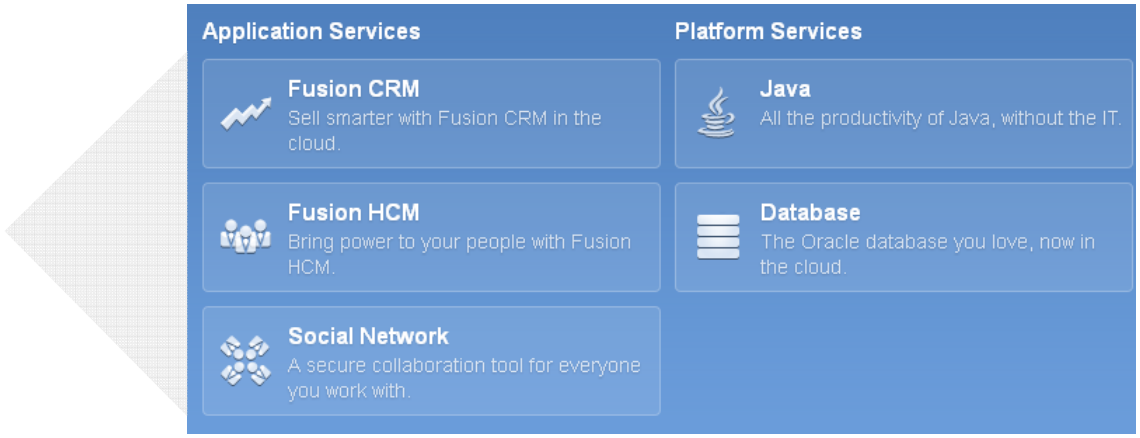

Summary: Total Cloud Control

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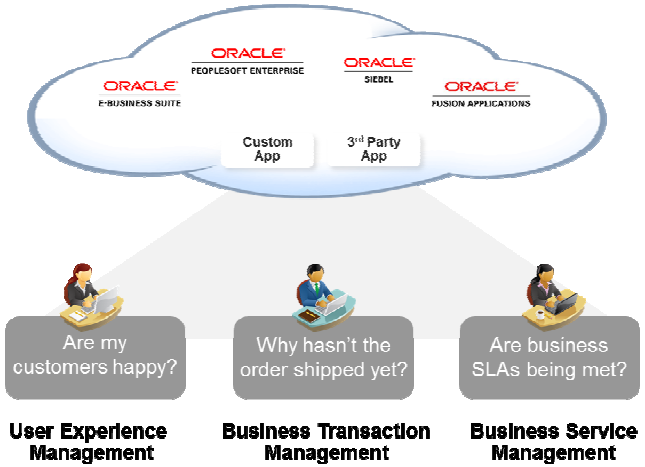

Complete Lifecycle Management

Integrated Cloud Stack Management

Business-Driven Application Management

Self-Service IT | Simple and Automated | Business Driven

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