ORACLE®

Cloud Computing Strategy

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EMEA Business Development Lead for Cloud & Virtualization

The following is intended to outline our general product direction. It is intended for information purposes only, and may not be incorporated into any contract. It is not a commitment to deliver any material, code, or functionality, and should not be relied upon in making purchasing decisions. The development, release, and timing of any features or functionality described for Oracle's products remains at the sole discretion of Oracle.

Private Cloud Adoption Is Increasing

28% increase from 2010 to 2011

Source: IOUG ResearchWire member studies on Cloud Computing, conducted in Aug-Sept 2010 and Aug-Sept 2010

Public Cloud Adoption Is Increasing

50% increase from 2010 to 2011

Source: IOUG ResearchWire member studies on Cloud Computing, conducted in Aug-Sept 2010 and Aug-Sept 2011

IOUG ResearchWire

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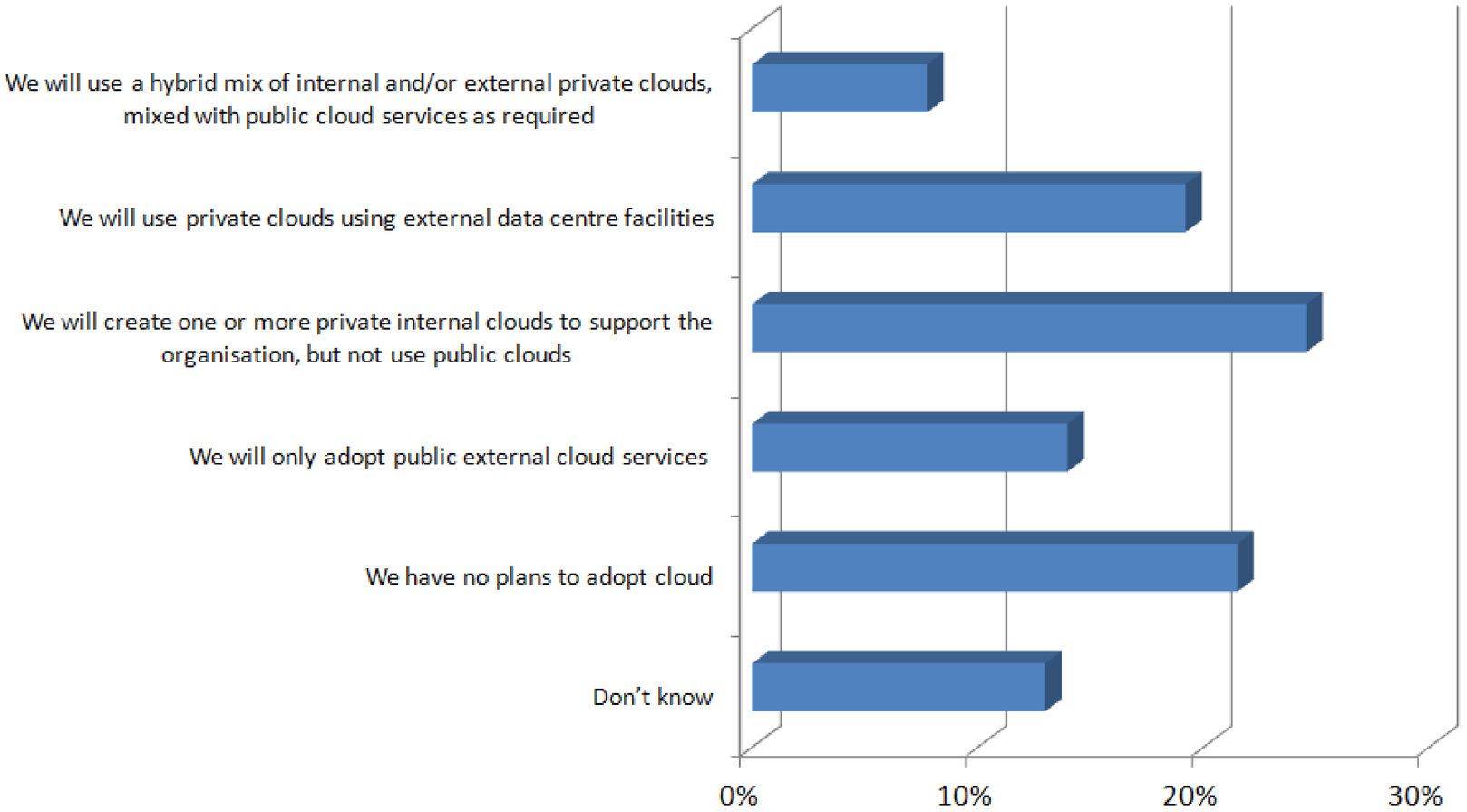
Cloud Adoption Plans

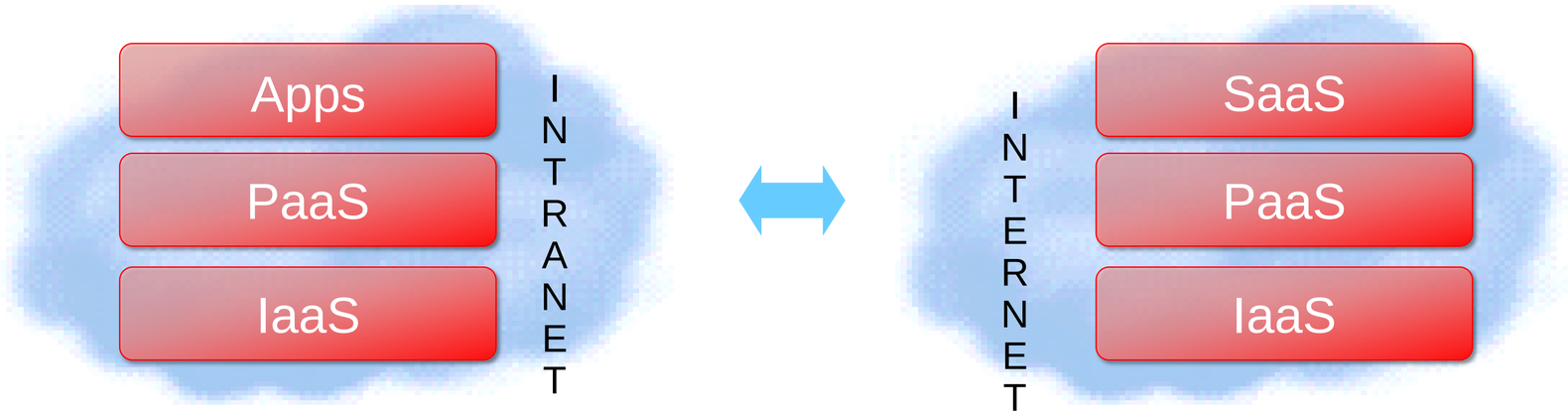
EMEA / USA



> 50% of organizations plan to adopt one or more Private Clouds

Private Clouds and Public Clouds

- Exclusively used by a single organization
- Controlled and managed by in-house IT



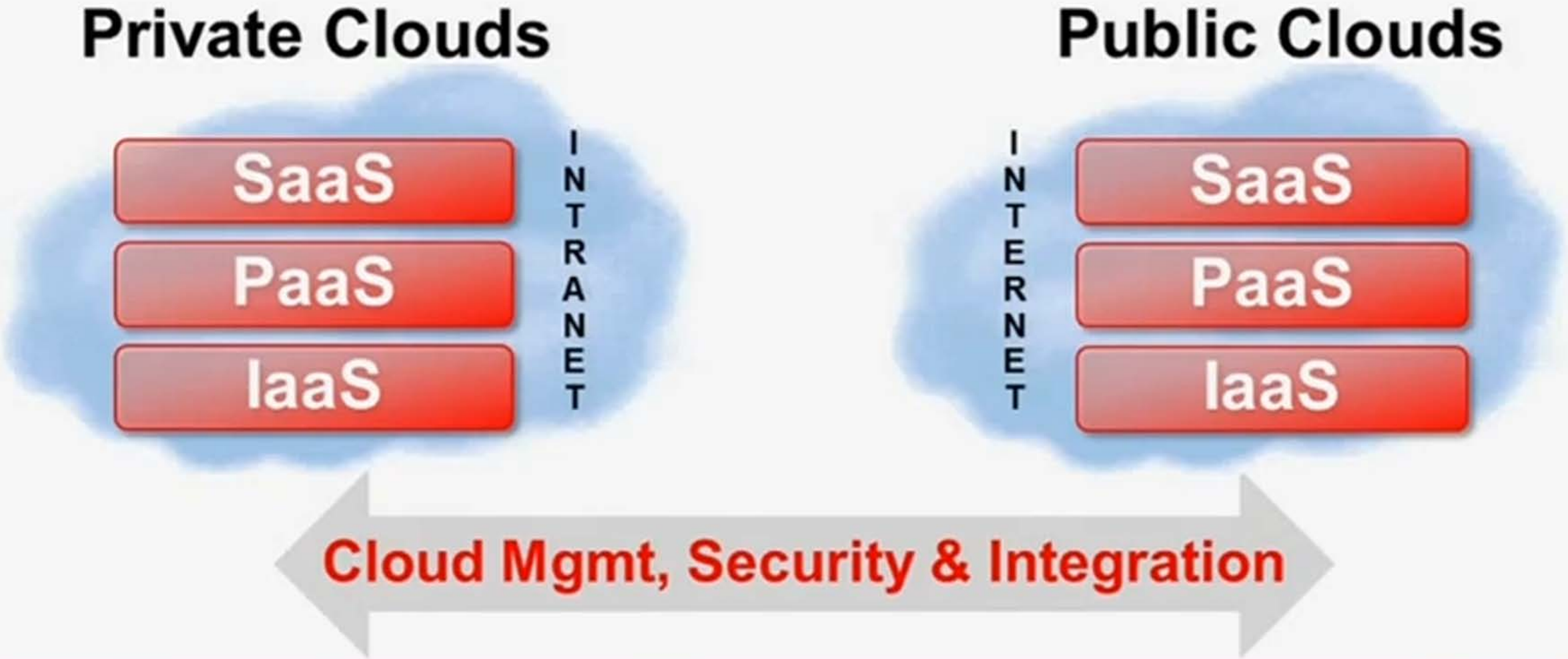
- Used by multiple tenants on a shared basis
- Hosted and managed by cloud service provider

Trade-offs

Lower *total* costs	⟷	Lower *upfront* costs
Greater control over security, compliance, QoS	⟷	Outsourced management
CapEx & OpEx	⟷	OpEx

Enterprises will adopt a mix of private and public clouds

Oracle Cloud Computing Strategy



Extremely Flexible

Easy To Adopt – Your Choice Of Strategy

Public Cloud

Private Cloud

On Premise

Hybrid

Oracle On Demand Cloud Services

Premier Cloud Services for Oracle Software and Hardware

12+ years as premier cloud provider

5.5 million satisfied end-users

2nd largest Enterprise SaaS vendor

14,000 Oracle Service experts

27 languages supported

Secure and Compliant: ISO 27001, ISO 27002, HIPAA, ISAE 3402 / SSAE 16, NIST, DIACAP, PCI, 21 CFR Part 11

Oracle Cloud Offerings

- Oracle Fusion Applications
- Oracle Fusion Middleware
- Oracle Database
- Sun Systems, OS, VM
- Oracle Enterprise Manager

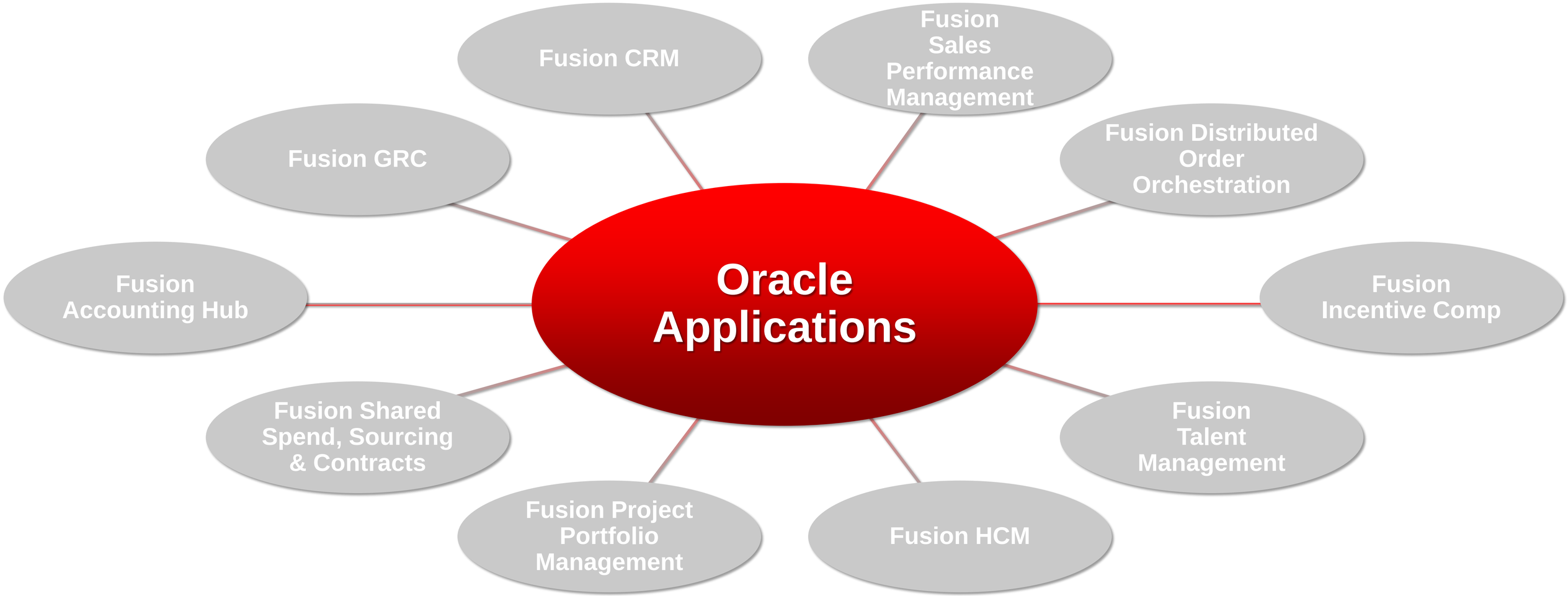
Oracle Fusion Applications

Complete Suite of 100+ Modules

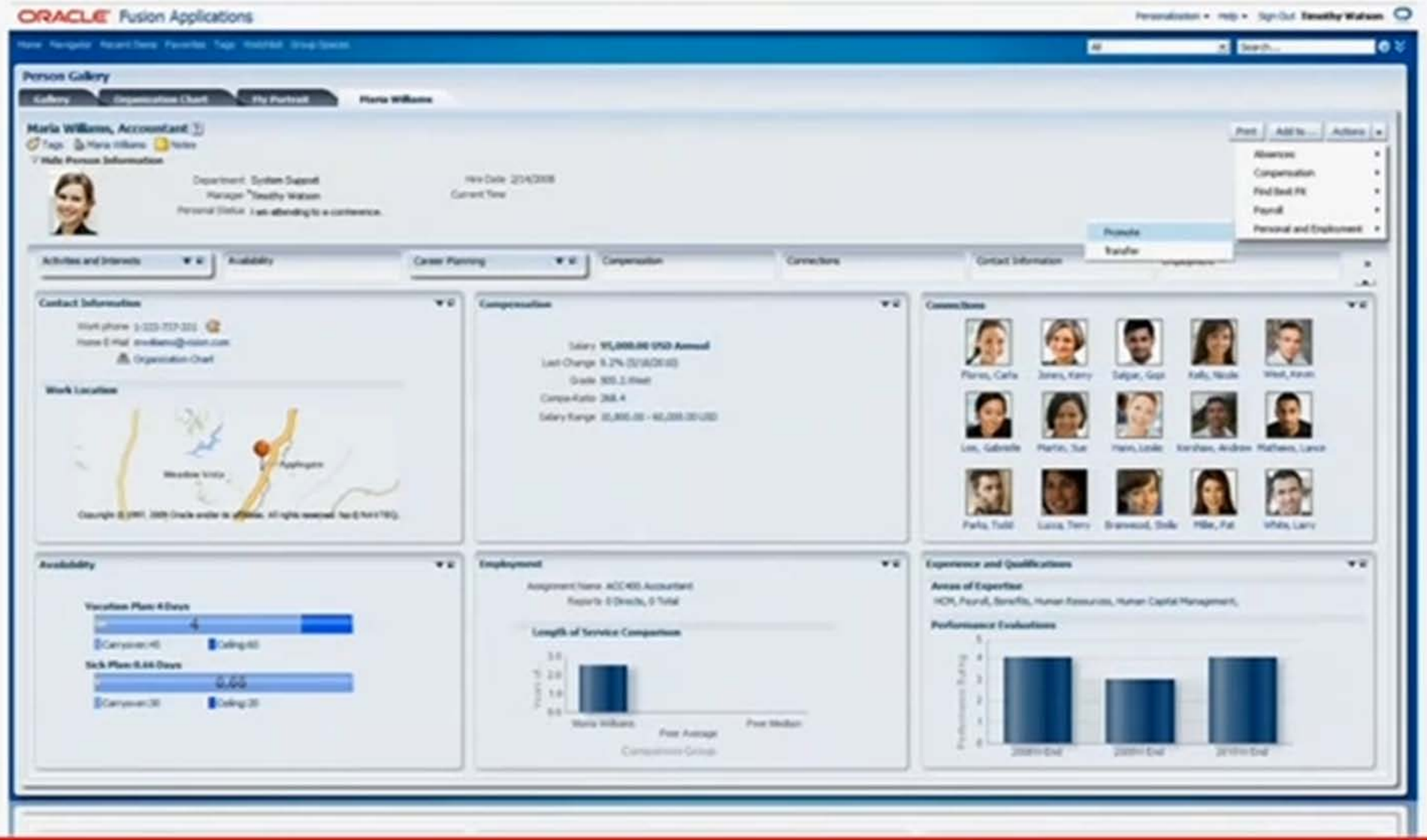
Financial Management	Human Capital Management	Supply Chain Management
Project Portfolio Management	Procurement	Customer Relationship Management
Governance, Risk & Compliance		

Co-Existence Solutions

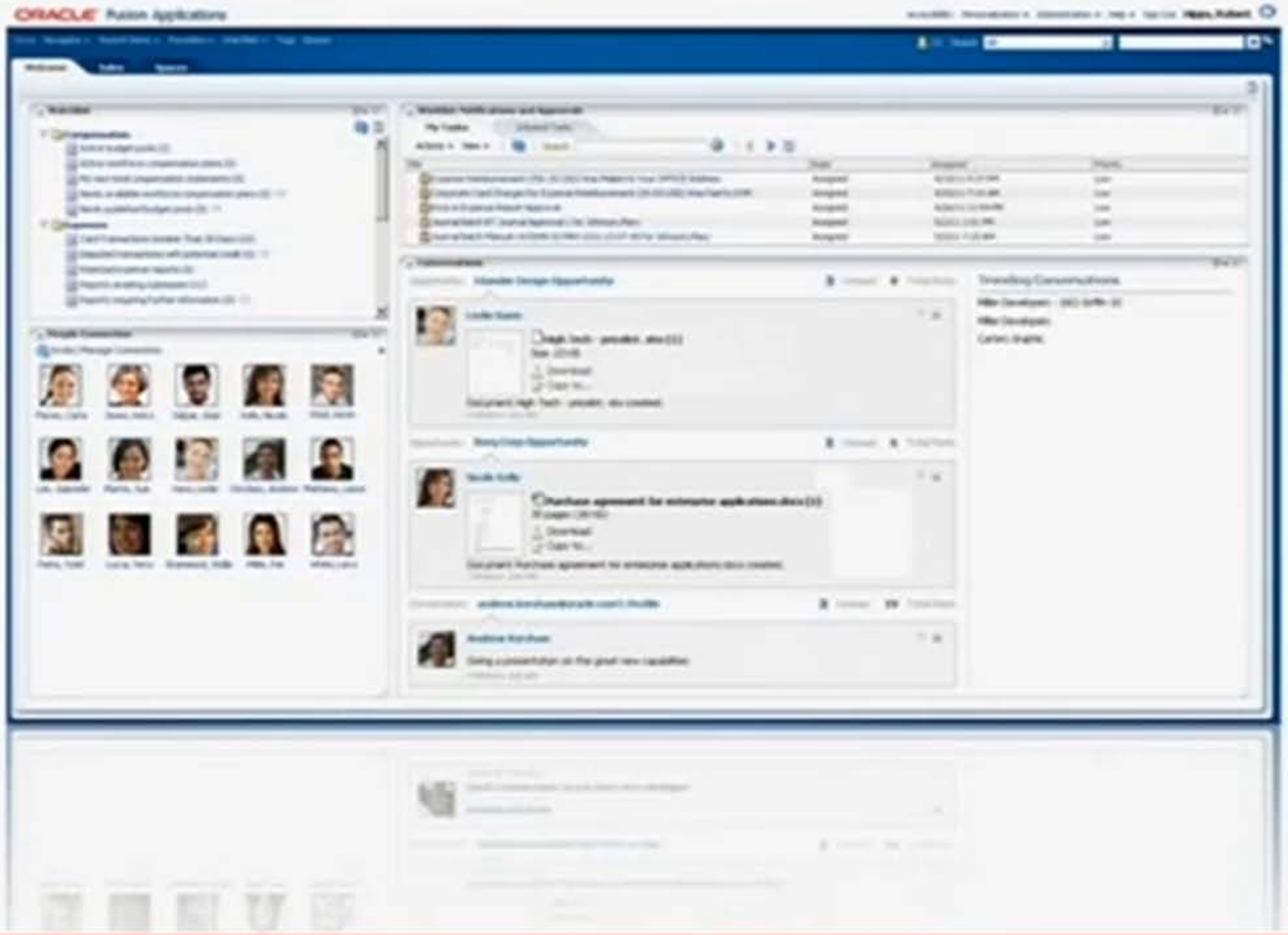
Extend Your Business Value With Fusion Apps



BI Navigation & Integrated Social Network



All Fusion Applications Run On Mobile Devices



Mobile Momentum

Built on ADF Mobile

- **Oracle Fusion Applications**
  - Fusion Tap for Oracle Fusion Applications
  - Fusion Mobile Sales
- **Oracle CRM**
  - Disconnected Mobile Sales
  - CRM On Demand Connected Mobile Sales
- **Oracle PeopleSoft**
  - Mobile Inventory Management, Mobile iReciepts for Expenses
  - Certification on the iPad coming with PeopleTools 8.2
- **Oracle E-Business Suite**
  - Mobile Field Service Applications - coming
- **Oracle JD Edwards EnterpriseOne**
  - Releases 8.12 and 9.0 Supported on iPad
  - Optimized Mobile Field Service Work Order
- **Oracle Hyperion Performance Management**
  - Financial Management Analytics

Runs In The Cloud And On Premise

Cloud Only Silos

SAP
Business Suite

On Premise Only Suite

Complete Suite
In Cloud **AND** On Premise

Oracle Platform As A Service Products

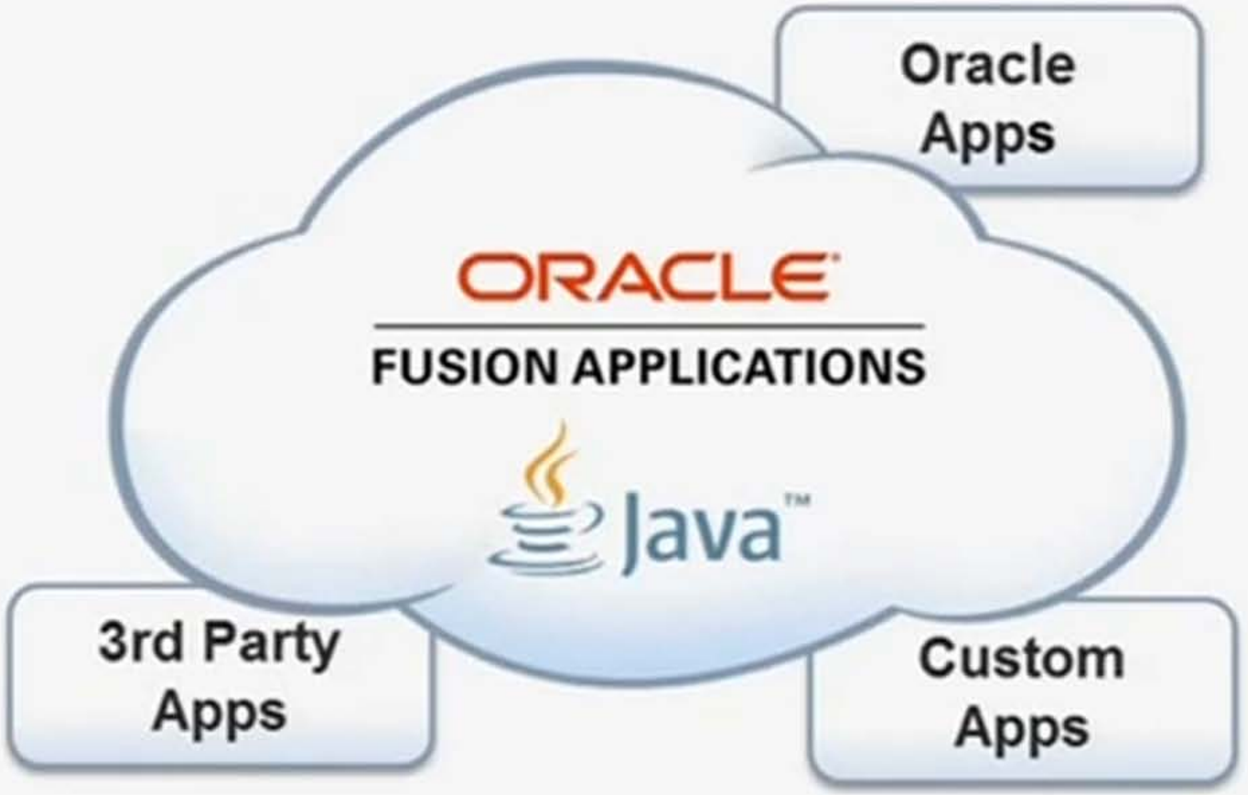
- Oracle Fusion Applications
- **Oracle Fusion Middleware**
- **Oracle Database**
- Sun Systems, OS, VM
- Oracle Enterprise Manager

Built On Industry Standards: Java +

Proprietary: APEX, Force.com, Appforce, Siteforce, vmforce

Standards-based: Java, BPEL, SQL, XML, Web Services, etc.

Service Oriented Architecture: Easy Integration



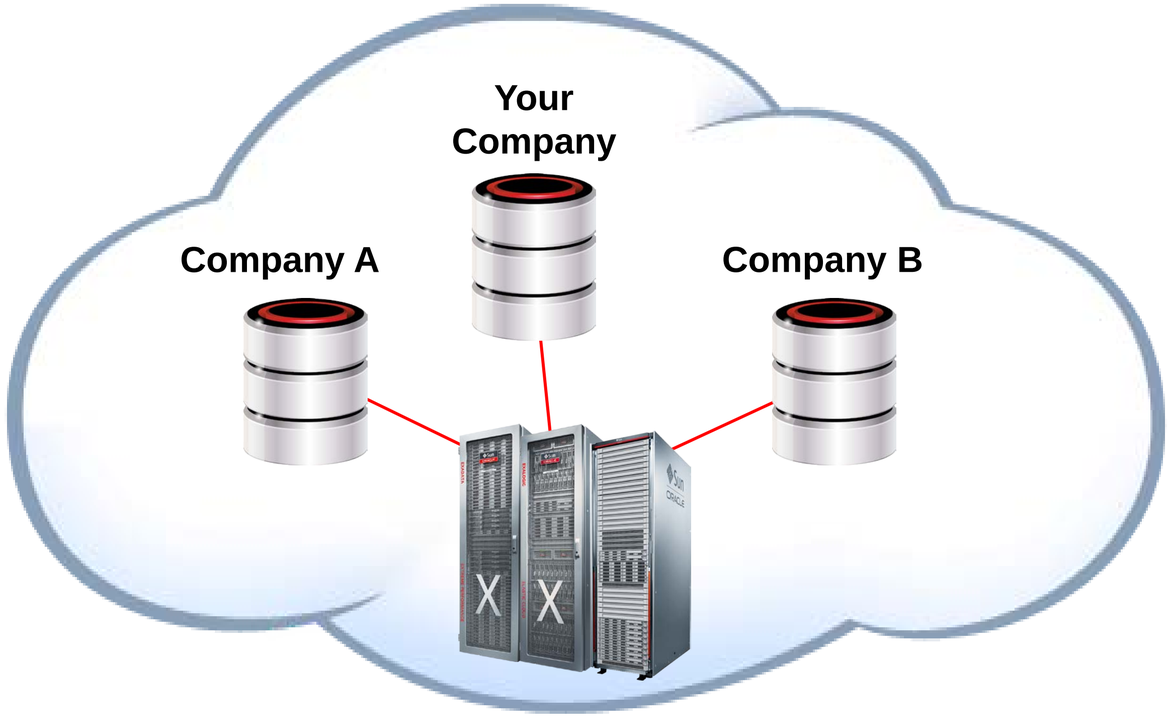
Vendor Proprietary Integration

Standards-Based Integration, BPEL

Security Built Into Middleware, DB, OS; Not Apps

Separate VM & Database per Customer

Company A Data
Your Data
Company B Data
Your Data
Company A Data
Your Data
Company B Data
Company A Data
Your Data



Fully Virtualized

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Oracle Infrastructure As A Service Products

- Oracle Fusion Applications
- Oracle Fusion Middleware
- Oracle Database
- **Sun Systems, OS, VM**
- Oracle Enterprise Manager

Exadata, Exalogic, SPARC SuperCluster

Extreme Performance, Engineered Systems

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

Exadata & Exalogic Engineered Systems

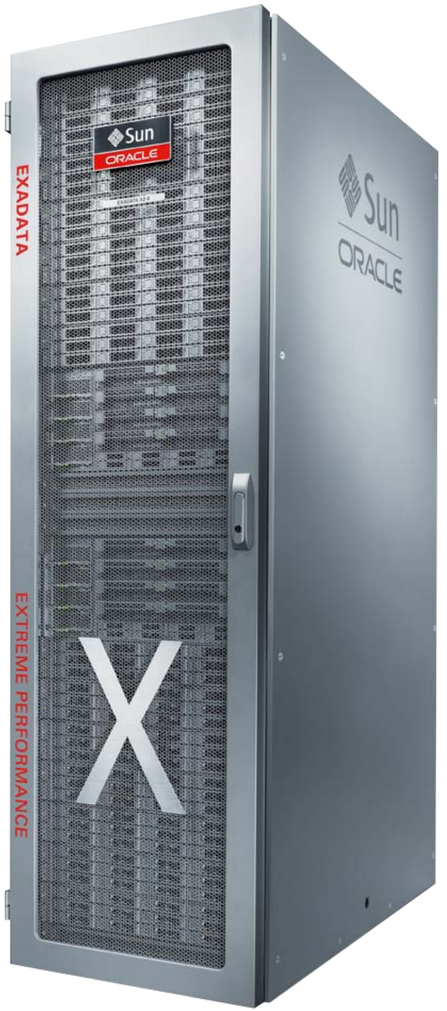
Highest Performance – Lowest Cost

- Highest Performance
  - Faster than IBM P795: IBM's Fastest Computer
- Best Cost/Performance
  - Cheaper than X86 Servers: World's Cheapest Servers

Oracle Exadata Database Machine

Extreme Performance

- 10 – 50X Faster Queries
  - Parallel Query Processing in Database Storage Servers
- 4 – 10X Faster OLTP
  - Smart Flash Cache
- 10X More Storage
  - Hybrid Columnar Compression
- Fully Redundant



Oracle Exalogic Elastic Cloud

Extreme Performance and Lowest Overall Cost

- Java Applications
  - **10X** Faster Response Time
  - **5X** More Users
- Oracle EBS & Siebel Applications
  - **4X** Faster Response Times
  - **3X** More users

Oracle Exalogic Elastic Cloud

Now Even More Extreme Performance

- **4x** better throughput with “Exabus” software
- **10x** faster than standard Web servers with new “Traffic Director” for load balancing
- **8x** faster than any other virtualization with new policy-driven resource elasticity

Oracle Applications

On Exadata & Exalogic

Exalogic and Exadata

Standard hardware

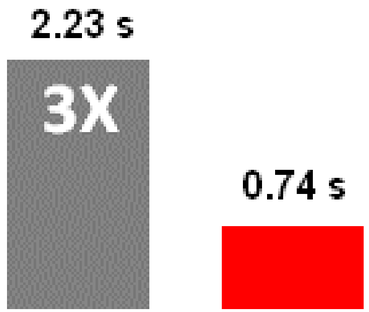
E-Business Suite

Order to Cash

3x better Response Time

2x better Scalability

Response Time



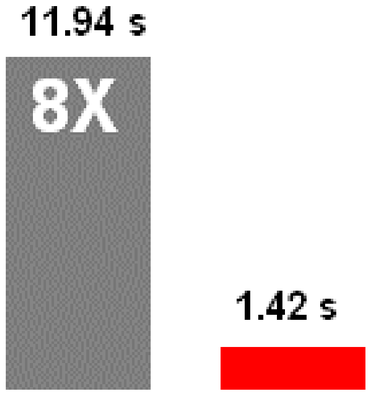
E-Business Suite

Self Service and Order Management

8x better Response Time

2x better Scalability

Response Time



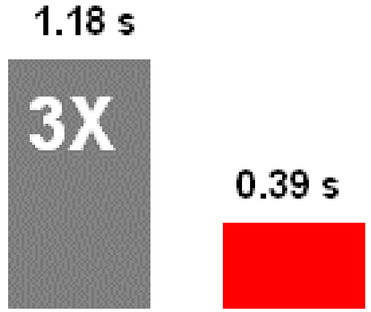
PeopleSoft

Self Service HRMS, FIN

3x better Response Time

5x better Scalability

Response Time



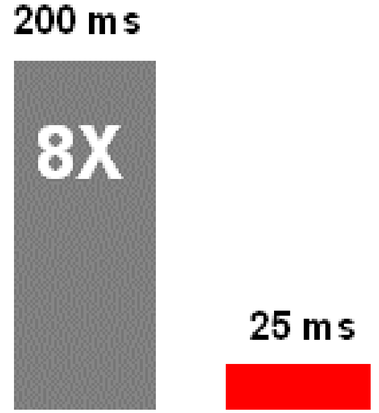
Siebel

Customer Hub

8x better Response Time

4x better Scalability

Response Time



Oracle Applications

On Exadata & Exalogic

Exalogic and Exadata

Standard hardware

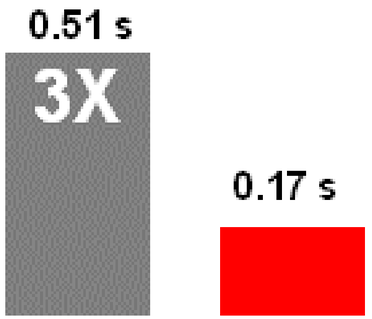
JD Edwards

Order Management

3x better Response Time

2x better Scalability

Response Time



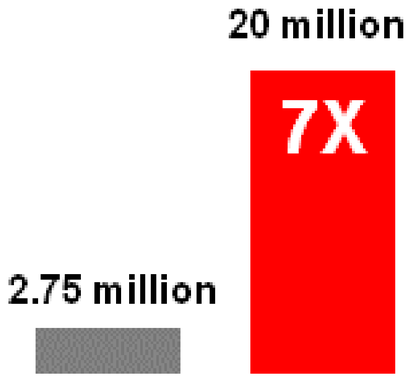
Utilities

Meter Data Management

2x better Response Time

7x better Scalability

Scalability



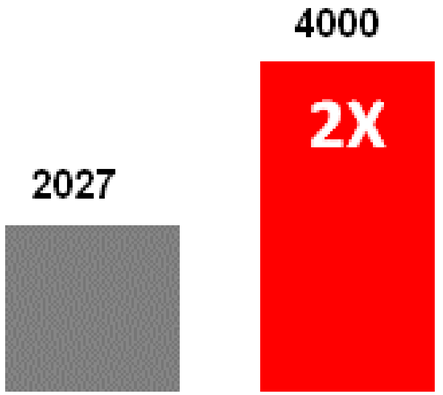
Communications

Billing Revenue Management

2x better Response Time

2x better Scalability

Scalability



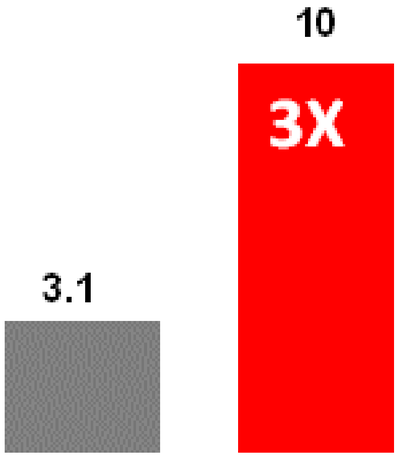
ATG Web Commerce

Commerce Reference Store

3x better Response Time

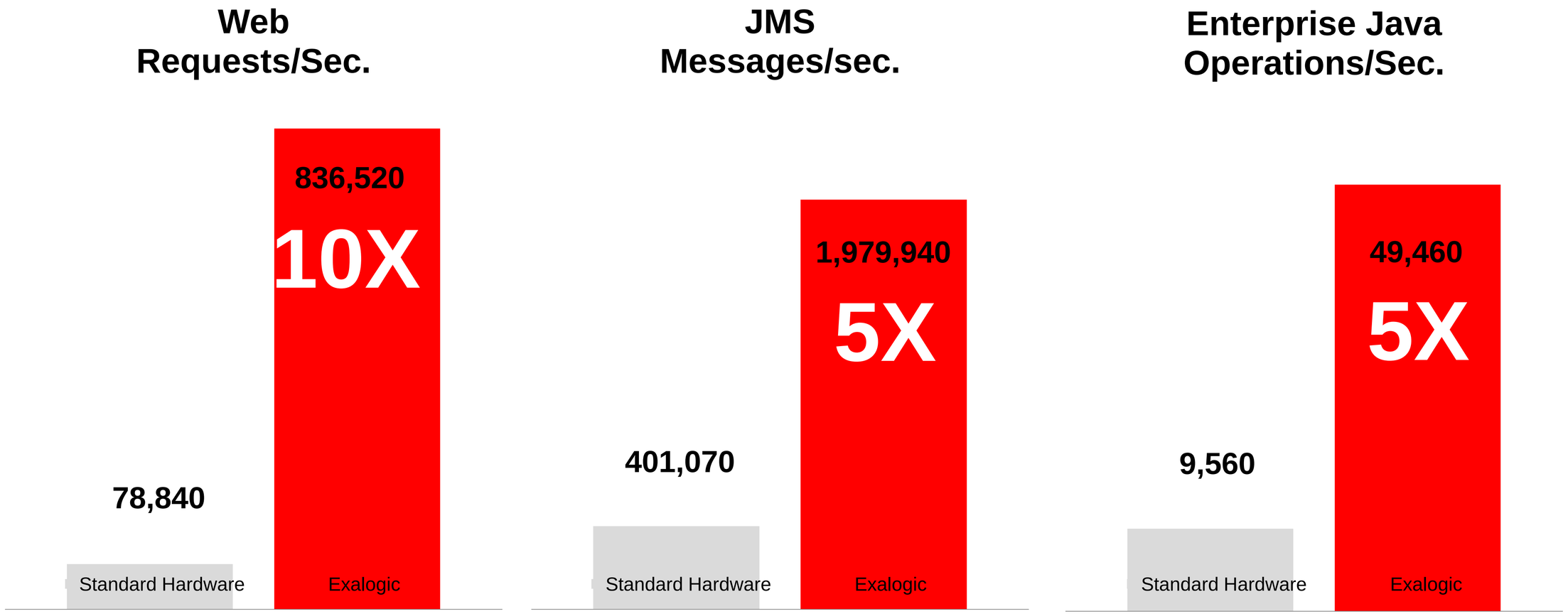
3x better Scalability

Scalability



Exalogic Elastic Cloud Performance

Next Generation of Exalogic Performance Optimization



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Oracle Exalogic Elastic Cloud

Delivering real business value

Extreme Java Performance

Improved up to

10X

Mission Critical Cloud

Operational Cost Reduced up to

60%

Integrated System

Time to Deploy Reduced

90%

New SPARC SuperCluster

Runs All Existing SPARC Solaris Workloads

SPARC T4 Compute Pool
9 World Records vs. IBM and HP

Exadata Storage Cells
1+M IOPS, 32 GB/s query throughput

Exalogic Elastic Cloud
10x Java performance

Integrated ZFS Storage
2x faster and ½ NetApp price

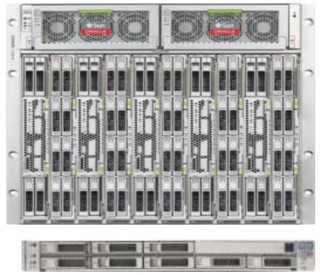
Solaris 11
Cloud provisioning in seconds
Unmatched Scalability

Virtualization
Near zero virtualization overhead

InfiniBand
5-8x the speed of current networks

Architecture Overview

Oracle Optimized Solution for Enterprise Cloud Infrastructure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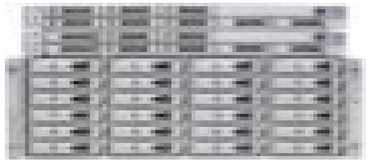

+ ORACLE VM + ORACLE LINUX ORACLE SOLARIS + ORACLE ENTERPRISE MANAGER OPS CENTER 11g

Oracle Optimized Solution for Enterprise Cloud Infrastructure

- Oracle Linux / Oracle Solaris
- Oracle VM
- Sun Blade Servers
- Oracle Network Fabric
- Sun ZFS Storage Appliance

Oracle Enterprise Manager Ops Center

Oracle Optimized Solution for Enterprise Cloud Infrastructure

ORACLE OPTIMIZED SOLUTIONS

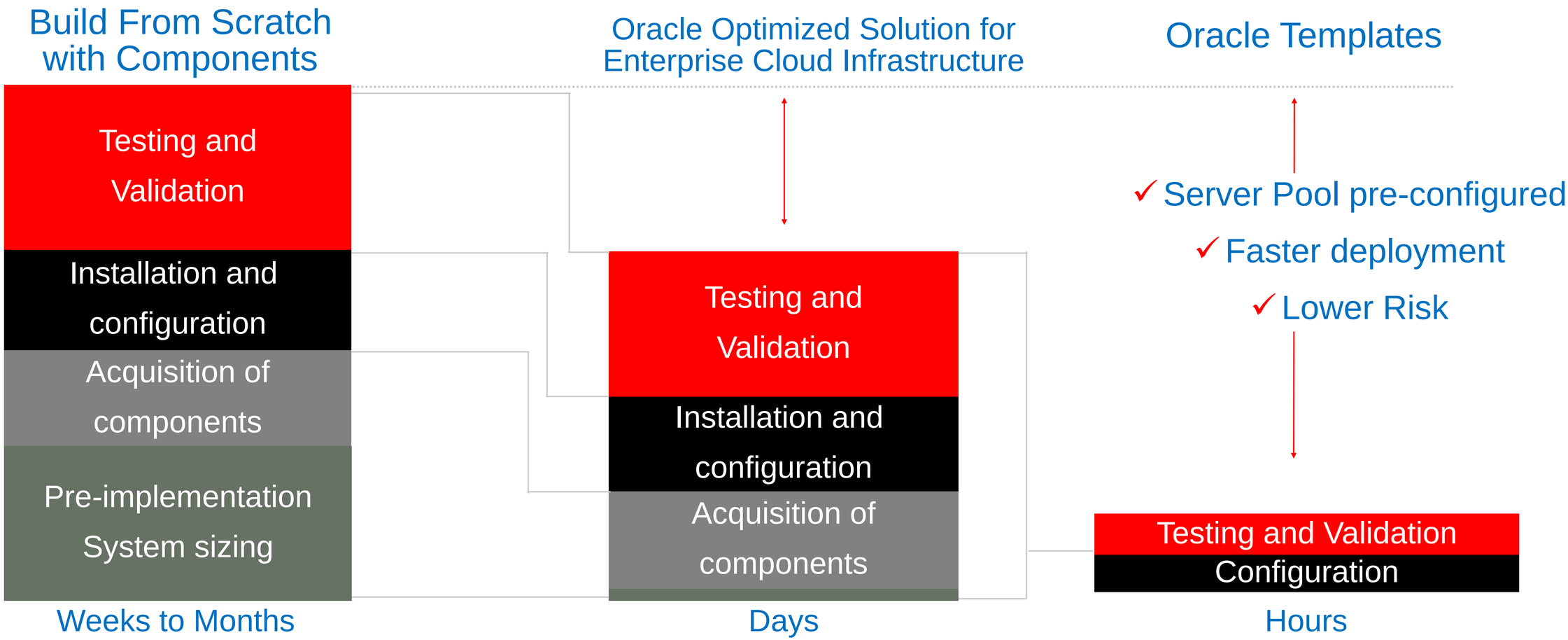
Enterprise Ready
- Enterprise RAS and security
- Optimal performance and maximum density

Accelerate Deployments
- Speed out-of-box deployment times up to 98%

Simplify Operations
- Flexible shared services foundation for diverse workloads

Reduce TCO
- Lower costs by up to 37% versus multi-vendor options

Optimized Solution for Cloud Infrastructure



Deployment time reduced from months to hours

Oracle Linux

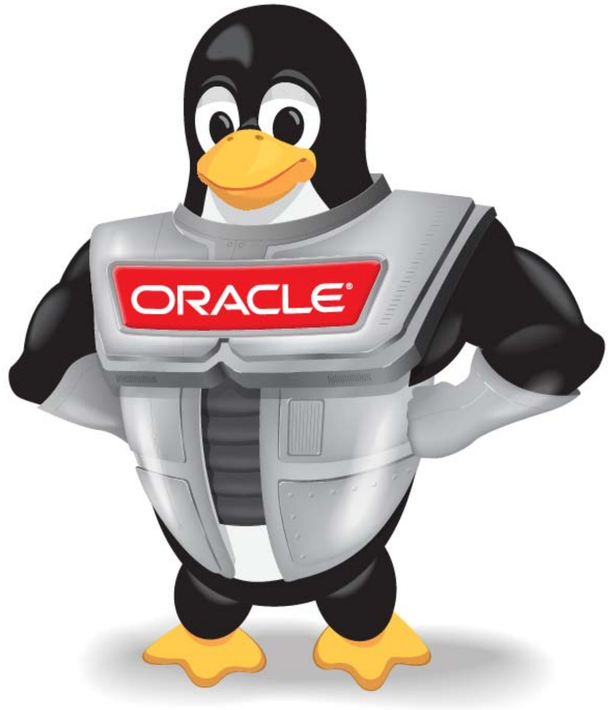
Best Linux for Enterprise Clouds

- Best performing, most modern and reliable Linux OS
- Designed for clustered environments
- Low cost of deployment
- Zero downtime updates with Ksplice

Oracle Linux Keeps Raising the Bar

Bringing the Latest Linux Innovations to Customers

- Zero downtime kernel updates with Ksplice
  - Install important kernel updates while applications are running
    - No downtime; no disruption; no rebooting
  - Not available from Red Hat
- Unbreakable Enterprise Kernel R2 beta
  - Based on the latest mainline Linux kernel 2.6.39
  - Better performance for database and middleware
  - Optimized for both small and large systems
- Engineered for Oracle Exadata and Exalogic



Oracle Solaris 11

#1 Enterprise OS. Built for Clouds.

- Built for Cloud Computing
  - **10x** faster provisioning
  - Built-in OS, server and network virtualization
  - Built-in multi-tenant security
- Extreme Scalability
  - **15x** less overhead
  - Instantly deploy 1000's of virtual environments
  - Built-in de-duplication – **10x** storage savings

New Oracle Solaris 11

#1 Enterprise OS. Built for Clouds.

- **Simplified Administration**
  4x faster upgrades, 2.5x faster reboots
- **Virtualization**
  Cloud provisioning in seconds, Near zero overhead
- **Efficient Data Management**
  5x compression
- **Advanced Protection**
  3x faster Encryption

2,700 Projects. 400 Unique Innovations. 56 Million Tests

Oracle VM 3.0

Application-Driven Virtualization

- High scalability – up to 128 vCPUs and 1 TB of memory per VM
- Manage of thousands of VMs from one console
- Policy-driven resource and power management
- Centralized network and storage configuration

New Oracle VM 3.0

Application-Driven Virtualization

- 4 Times More Scalable than VMware at 1/4th the Cost
  - Supports 128 vCPUs/guest vs. VMware's 32 vCPUs/guest
  - Lower Cost: No vRAM-based pricing
- Virtualization for the full stack, not just server consolidation
- Integrated with Oracle's software stack
  - Oracle Exalogic Elastic Cloud 2.0
  - Oracle Enterprise Manager 12c
  - Supports all Oracle Applications
  - 90+ Oracle VM Templates available

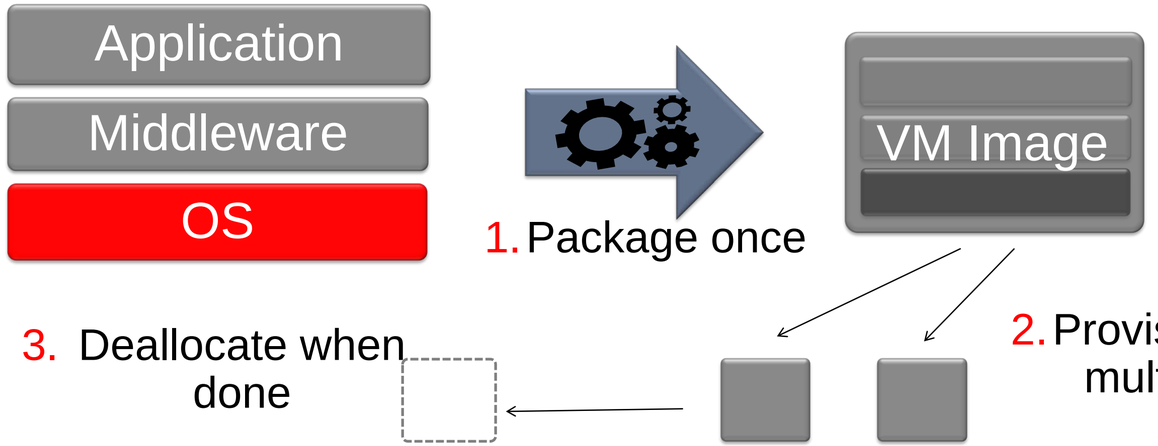
VM Templates Simplify Application Provisioning

Traditional Dev/Test Provisioning

For every dev/test environment:

1. Procure and configure hardware
2. Install and configure OS
3. Install and configure dev (or test) environment

Provisioning with Virtual Machine Images



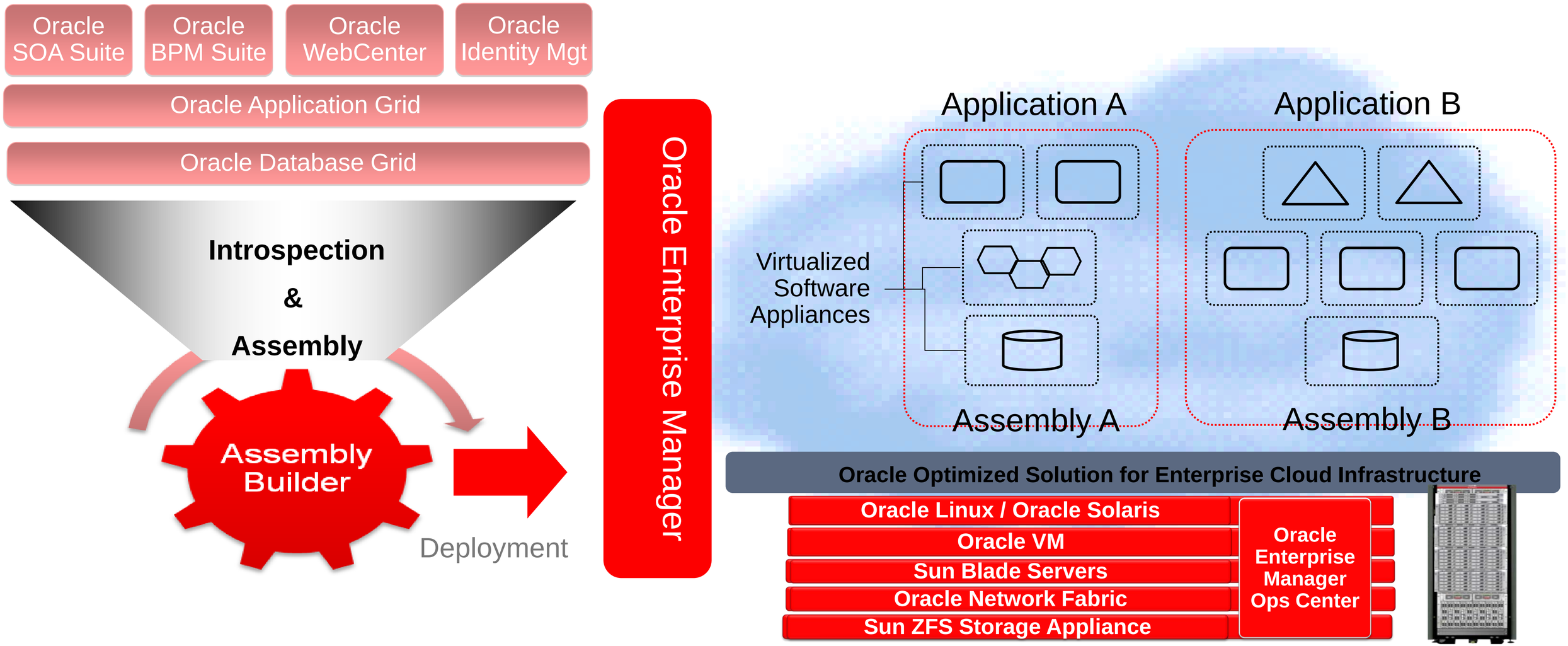
Oracle Optimized Solution for Enterprise Cloud Infrastructure

- Oracle Linux / Oracle Solaris
- Oracle VM
- Sun Blade Servers
- Oracle Network Fabric
- Sun ZFS Storage Appliance

Oracle Enterprise Manager Ops Center

Oracle Virtual Assembly Builder

Package Multi-Tier Applications



Oracle Cloud Management

- Oracle Fusion Applications
- Oracle Fusion Middleware
- Oracle Database
- Sun Systems, OS, VM
- **Oracle Enterprise Manager**

New Oracle Enterprise Manager 12c

Complete Application-to-Disk Management

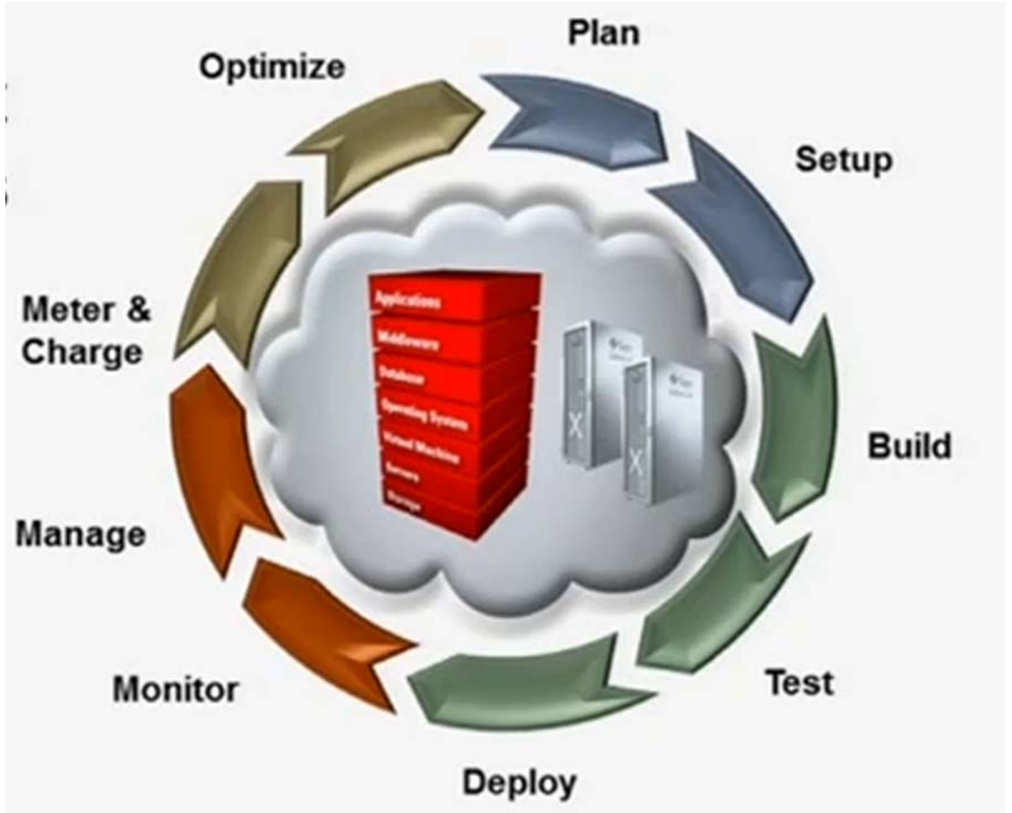
- Single, vertically integrated console for the entire stack
- Deep manageability built into each tier
- Complete management of Exadata, Exalogic, Exalytics, SPARC SuperCluster
- Proactive support through My Oracle Support Integration

Oracle Enterprise Manager 12c

Total Cloud Control

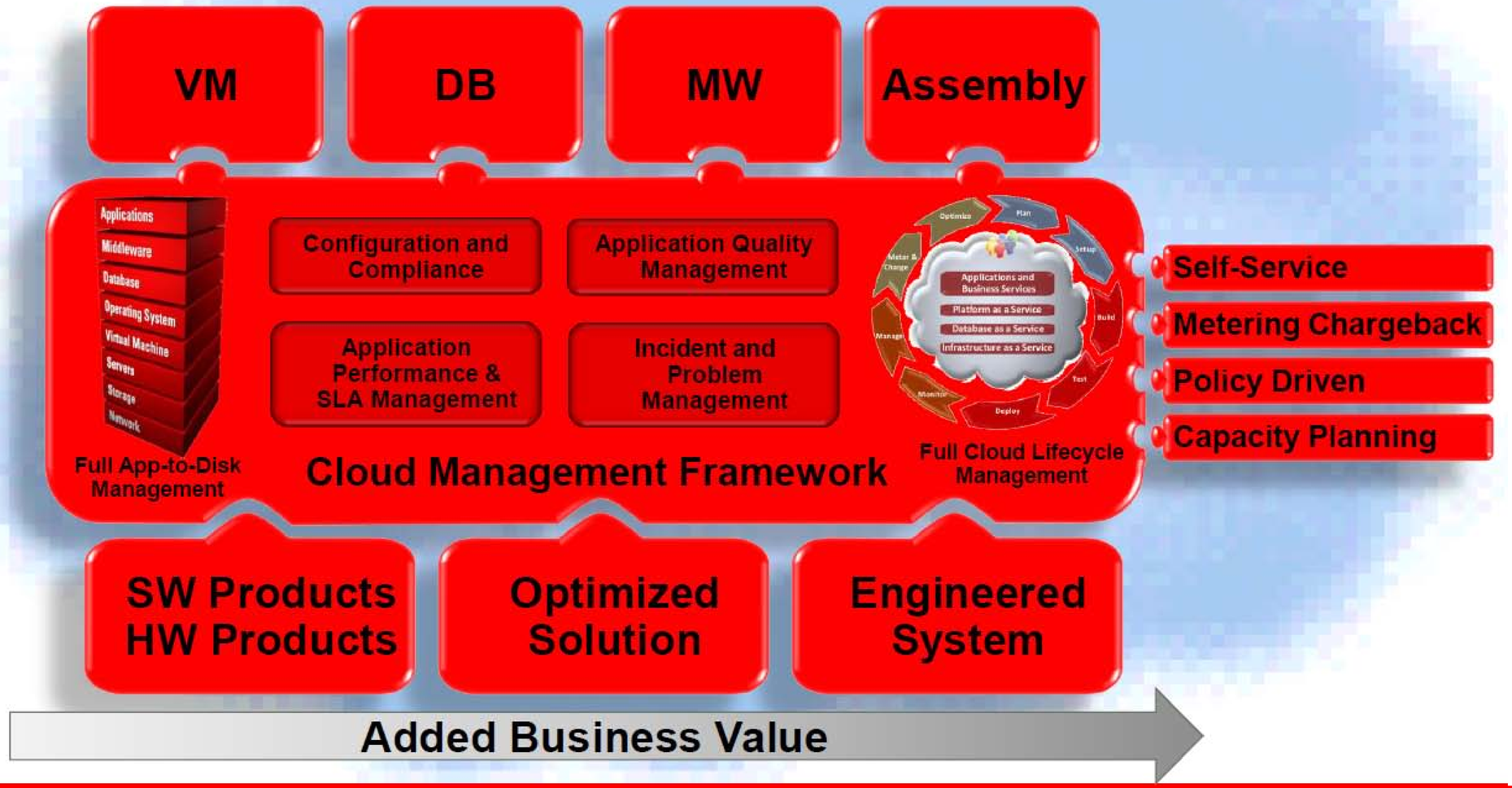
The only complete management solution for Oracle-based clouds

- Consolidation Planner
- Cloud Design and Setup
- Self-Service Provisioning
- Elastic Workload Management
- Metering and Chargeback



ORACLE® ENTERPRISE MANAGER 12c

Oracle Unified Modular Cloud Architecture



Hardware and Software

ORACLE®

Engineered to Work Together