QCon

在平台即服务（PaaS）上部署和优化应用与数据库

包彤

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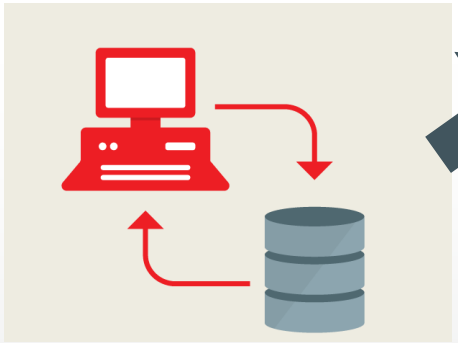
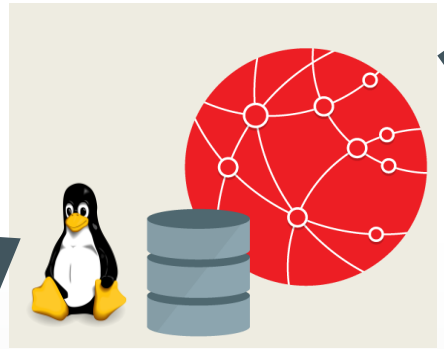
甲骨文（中国）软件系统有限公司

Database Application Development



Client Server



Internet

Big Data, Cloud

1990 1995 2000 2005 2010 2015

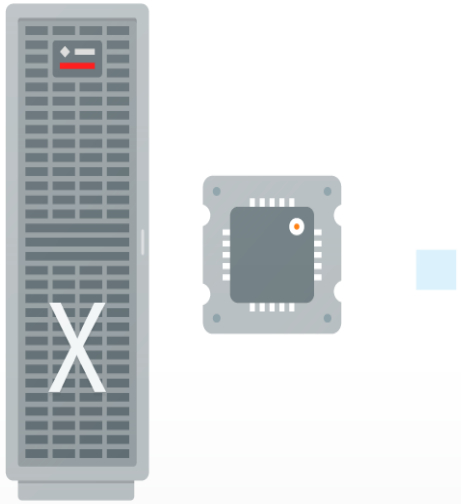
Cloud Services

Apps

Software as a Service (SaaS)

Platform

Platform as a Service (PaaS)



Infrastructure

Infrastructure as a Service (IaaS)

Cloud Adoption is Growing

Cloud is Mainstream

84%

- Using Cloud today or will be in Two Years

SaaS is Exploding

$56B

Total spending on SaaS by 2018 at 20% CAGR

IaaS & PaaS Growing Rapidly

~90%

- Will adopt PaaS within Five Years @ 22% CAGR

Source: Multiple

Oracle Cloud - Software as a Service

https://cloud.oracle.com

Oracle Cloud - Software as a Service

Comprehensive portfolio of home grown

ORACLE

FUSION APPLICATIONS

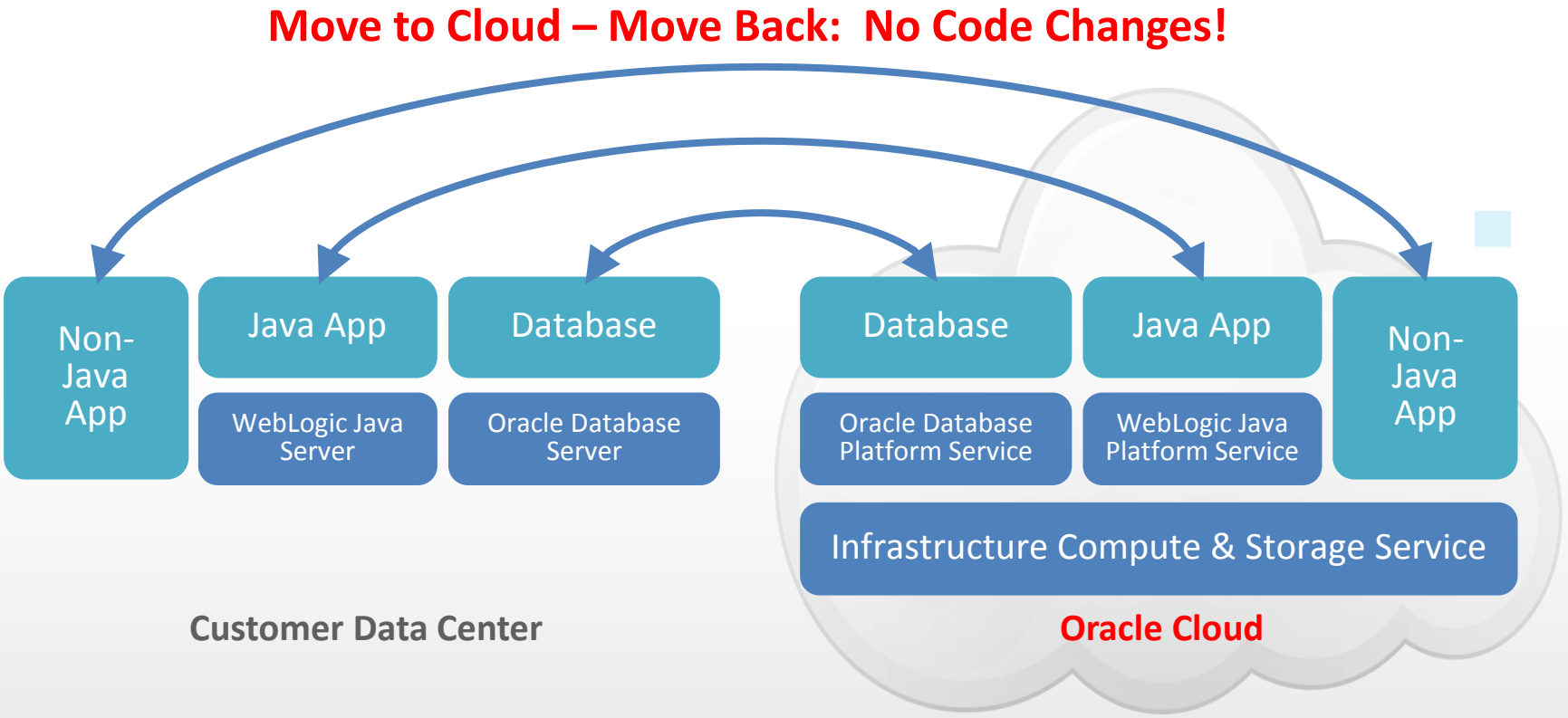
Oracle Cloud - Software as a Service

Comprehensive portfolio of home grown and acquired solutions

- BigMachines (10/13)
- BlueKai (2/14)
- Collective Intellect (6/12)
- Compendium (10/13)
- Datalogix (12/14)
- Eloqua (12/12)
- Involver (7/12)
- LiveLOOK (6/14)
- Responsys (12/13)
- SelectMinds (9/12)
- Taleo (2/12)
- TOA Technologies (7/14)
- Vitrue (5/12)

http://www.oracle.com/us/corporate/acquisitions/index.html

The Oracle Cloud: **Platform**

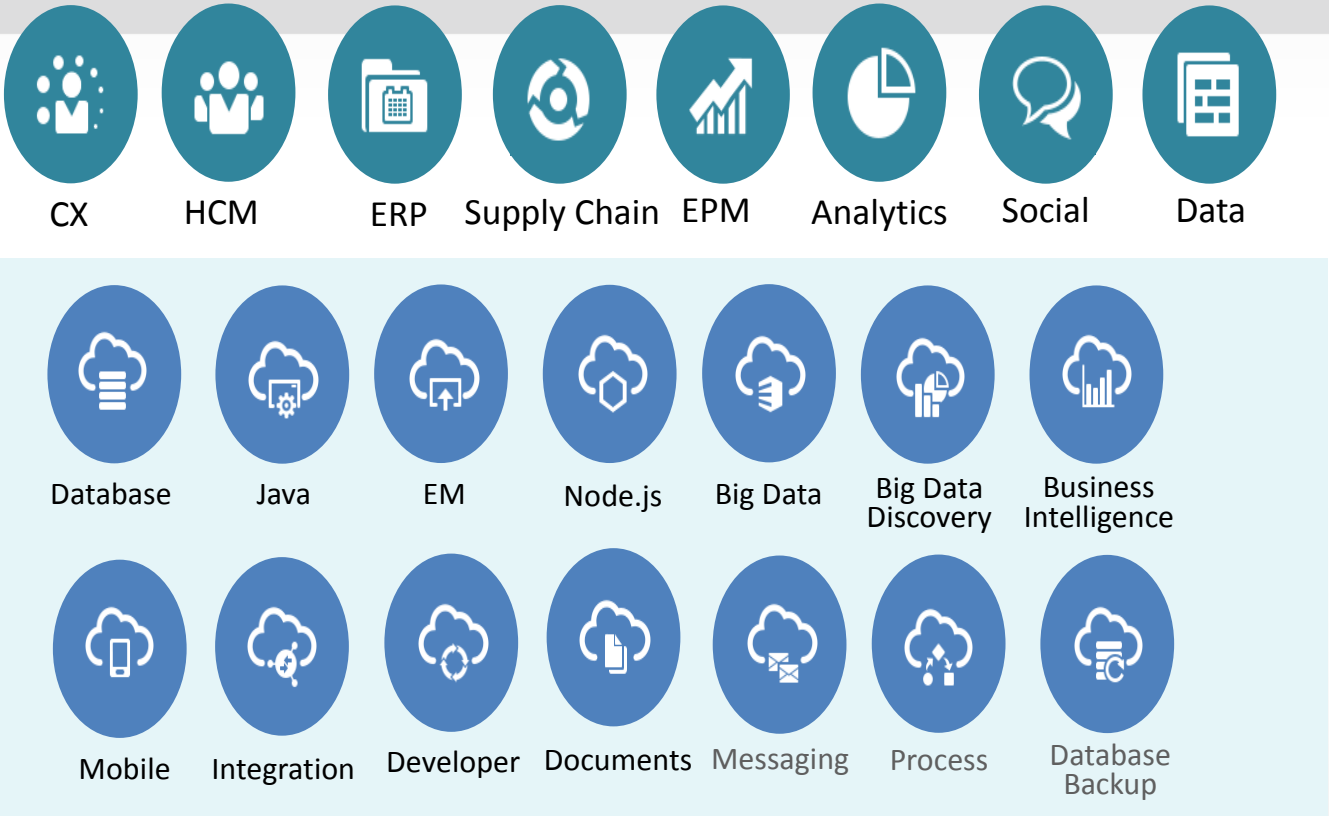


Oracle Cloud - Platform as a Service (PaaS)

Adding platform services addresses the SaaS extension and the rapidly growing standalone PaaS market

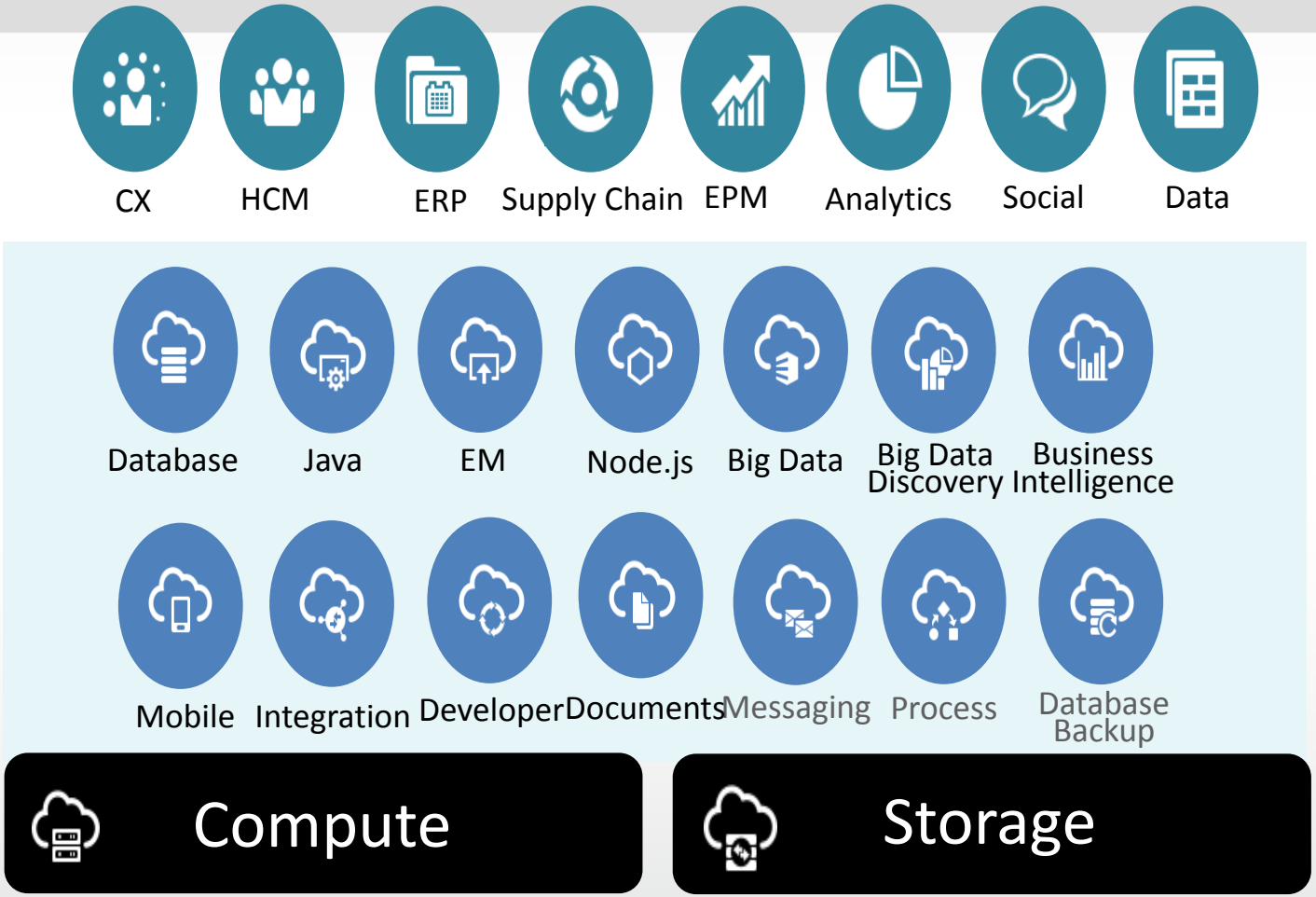
https://cloud.oracle.com

Oracle Cloud - Platform Services



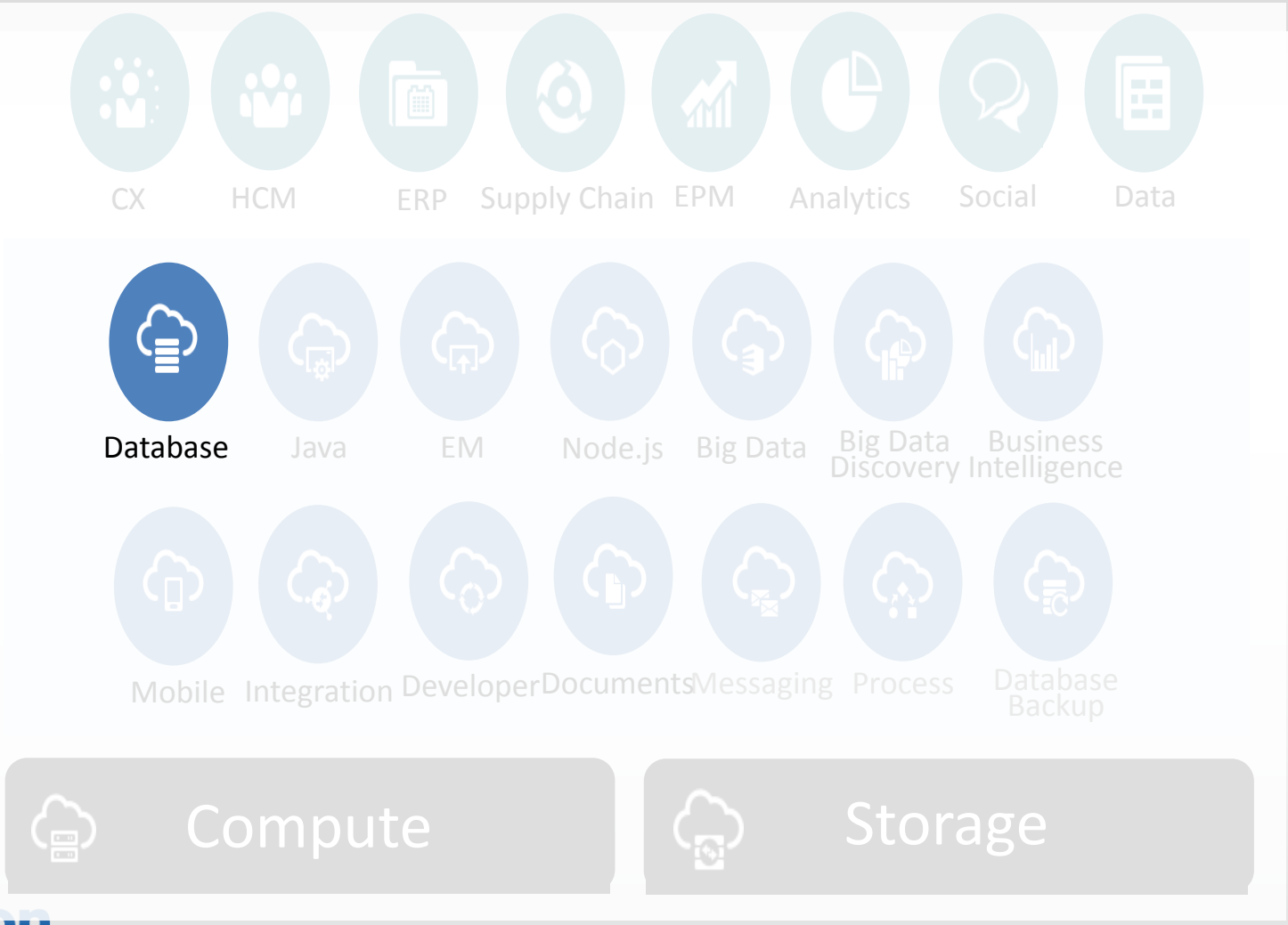
https://cloud.oracle.com

Oracle Cloud - Infrastructure Services

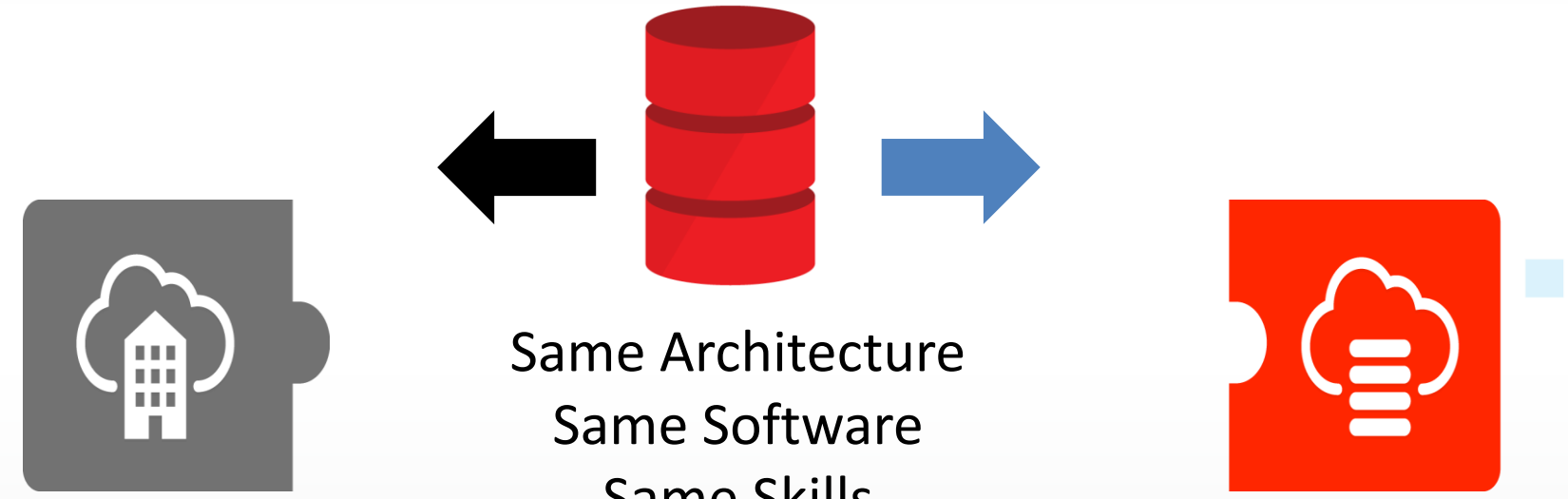


https://cloud.oracle.com

Oracle Cloud - Database Cloud Services



Oracle Database Cloud Services



Unified Management

Enterprise Manager manages both On Premise and Cloud*

* Planned for a future release.

Oracle Database Cloud Services

- Gracefully move workloads between on-premise and the cloud

Data Center

Quickly create databases using automated provisioning.

Easily move data and workloads.

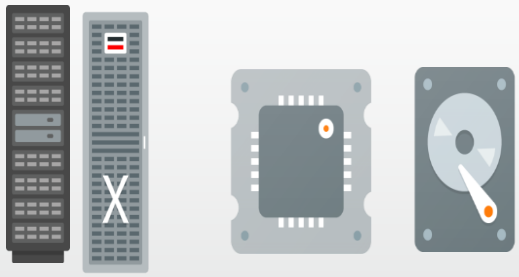
Oracle Cloud

Oracle Database Cloud Services

- Extend the enterprise data center to the cloud

On Premises

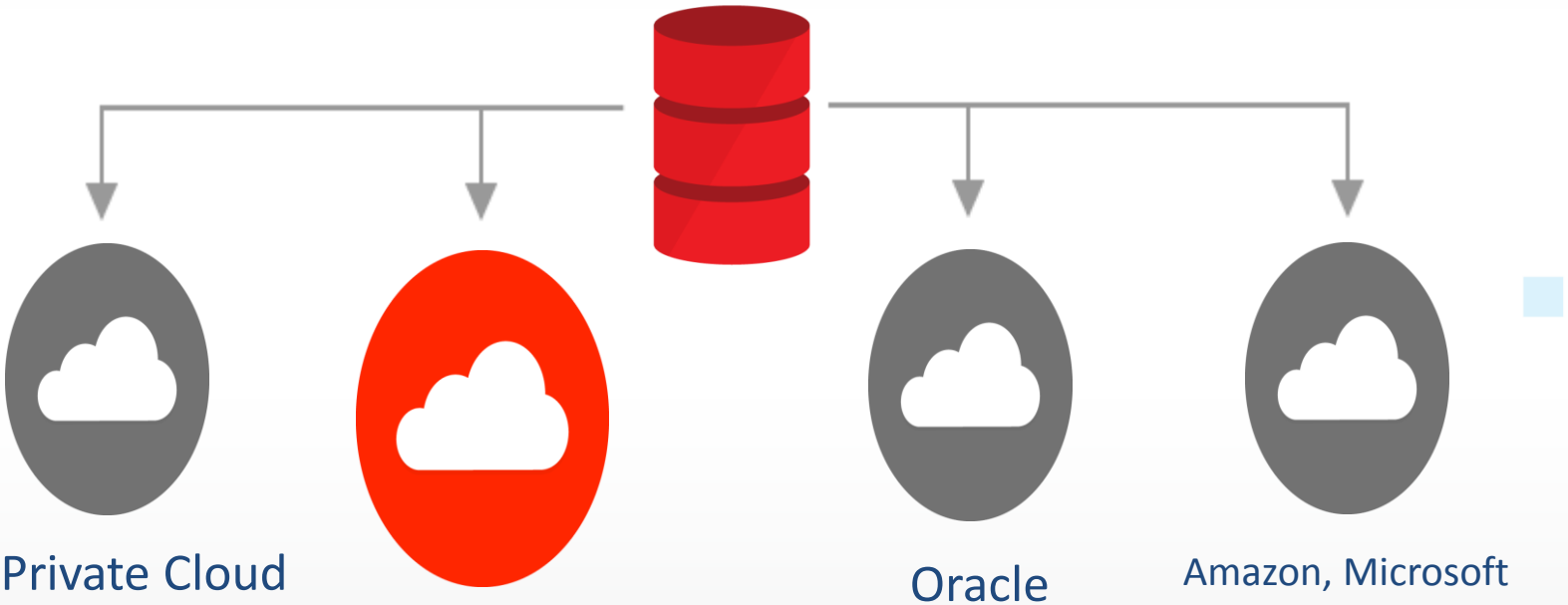
- ✓ Instantly gain access to infrastructure
- ✓ Elastic CPU and memory
- ✓ Elastic block and object storage
- ✓ Backup database to the cloud



Oracle Cloud

Oracle Database Cloud Services

- One Database Cloud Solution

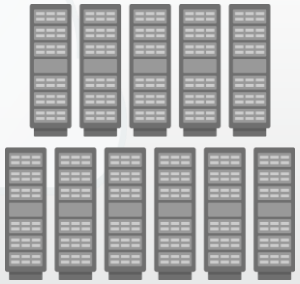


Preserve investment with any deployment choice

Oracle Database Cloud Strategy

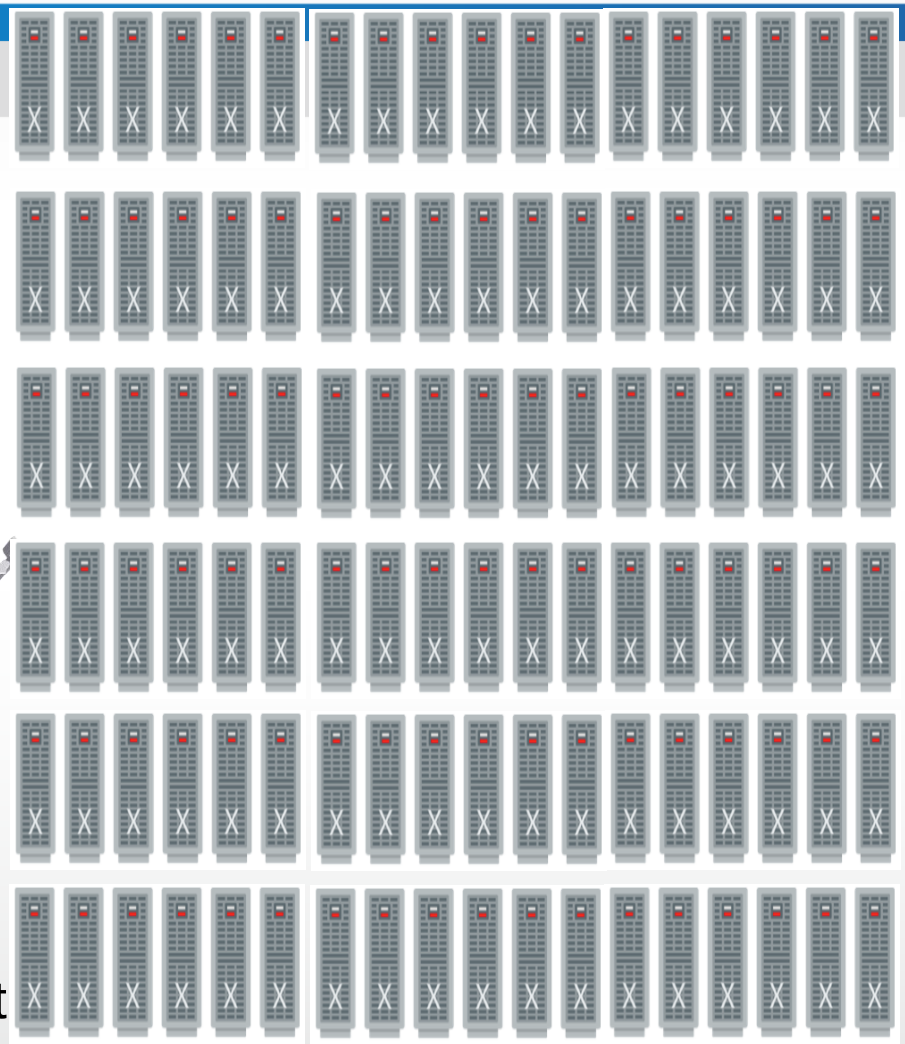
Engineered

Commodity



General Purpose

Oracle Cloud - Large and Rapidly Growing



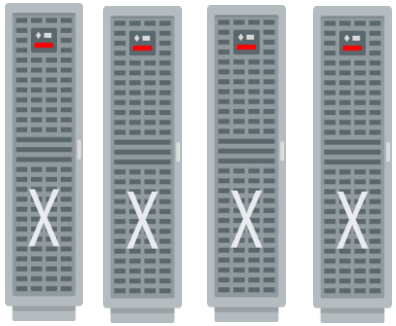
- **19** Tier 4 Data Centers
- **540 PB+** storage
- **34 Million+** SaaS users/day
- **23 Billion+** Database transactions/day
- Very Large Exadata Deployment

Oracle Database Cloud – Infrastructure

General Purpose

- General Purpose Infrastructure
- Test, Development, Departmental Applications
- Compute Shapes - by OCPU, Standard or High RAM
- Block Storage – by the GB, Up to 5TB

Engineered Systems*



- Engineered Infrastructure
- Mission Critical, Intensive OLTP and Decision Support
- ¼, ½ and Full Rack Shapes
- Fixed Storage and Memory by Shape
- 5TB +, mission critical, intensive OLTP, DSS

Oracle Database Cloud – Management Levels

Virtual Image

- Database software ready for install
- Tenant has root privilege
- Does not provide automated orchestrations
- Only available on general purpose infrastructure

Automated

- Automated install, patch, upgrade, upsize/downsize, backup/restore, recovery, data guard configuration, TDE encryption, monitoring…
- Tenant has root privilege

Managed*

- Oracle monitors and is responsible for keeping the database available
- Oracle manages install, patch, upgrade, upsize/downsize, backup/restore, recovery
- Oracle maintains privileged user access, tenant controls data.

Greater Capabilities

* Planned for a future release.

Oracle Database Cloud – Service Types

Schema

- Single database Schema available as a monthly Subscription by Size (5, 20, 50 GB)
- Fully Managed Service on Engineered Systems
- Database patches and upgrades performed during scheduled maintenance windows
- Editions: Modified (security locked down) EE
- Also underpins the BI, Document, Mobile, Java SaaS Extension,Developer Messaging, JaaS Extension…

Full Instance

- Full Database available as a metered service (Hourly or Monthly)
- Available as a Virtual Image, Automated, or Managed Service
- Tenant controls patch and upgrade schedule
- Available on general purpose and engineered systems
- Editions: SE1, EE, EE High Performance, EE Extreme Performance

Oracle Database Cloud – Full Instance Editions

Enterprise Edition (EE)

adds…

- Transparent Data Encryption (TDE)
- All standard EE features

Standard Edition 1

- Full database instance
- Up to 16 OCPUs

EE High Performance

adds…


Multitenant


Data Guard


Partitioning


Advanced Compression


Advanced Security, Label Security, Database Vault

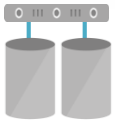

Real Application Testing


OLAP, Analytics, Spatial and Graph

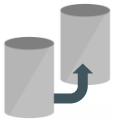

Management Packs

EE Extreme Performance

adds…


Real Application Clusters (RAC)


In Memory


Active Data Guard

Reference: http://www.oracle.com/us/products/database/enterprise-edition/comparisons/index.html

Greater Capabilities

Database Cloud Delivery Strategy

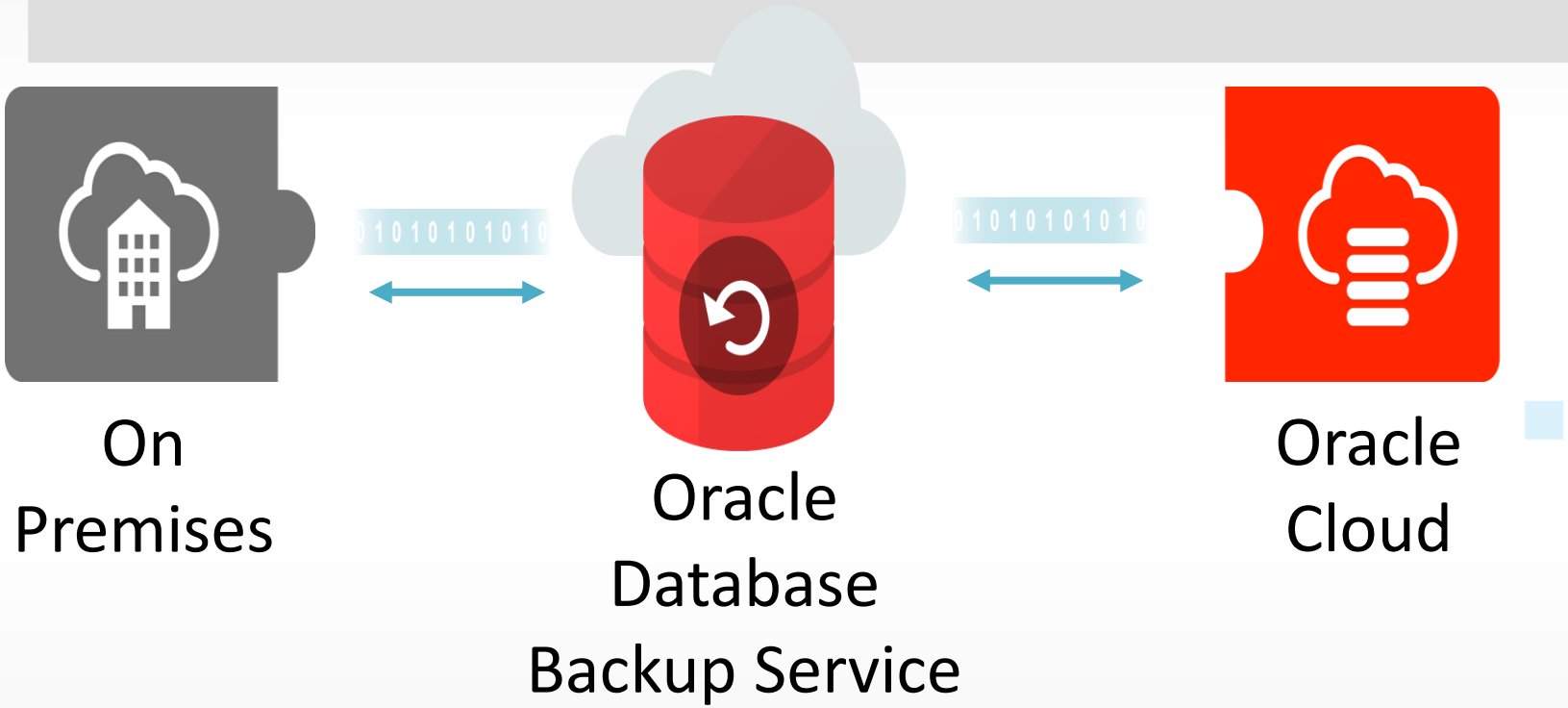
Engineered

- **Engineered infrastructure** for highest performance, scalability, and availability

General Purpose

- **General purpose infrastructure** for test, development, departmental applications

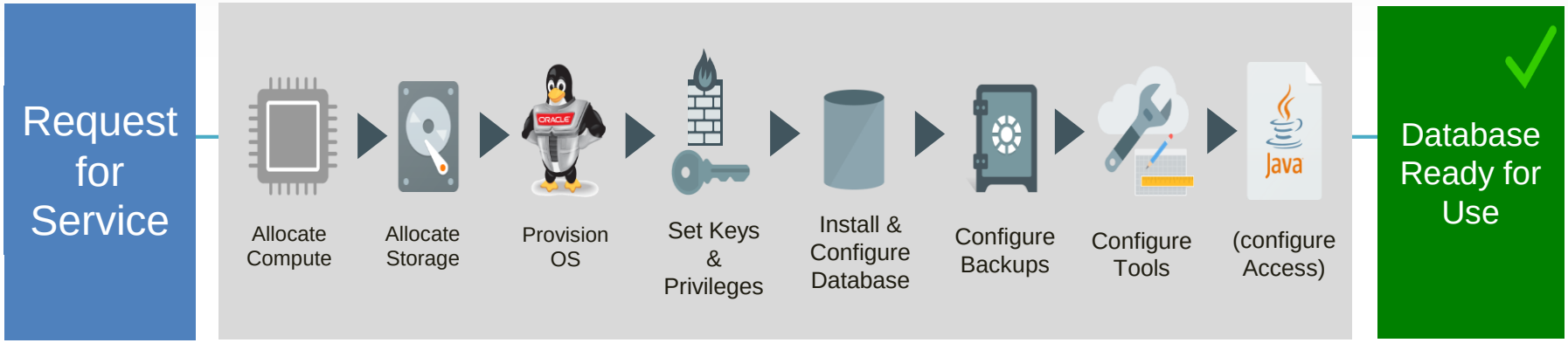
Oracle Database Cloud Backup



Oracle Database Cloud - Capabilities

- Automated Provisioning
- Automated Infrastructure and Database Administration
- Data Transfer and Connectivity
- Security
- High Availability
- High Performance
- Simplified consolidation, deployment, and integration (Multitenant)
- Database Application Development features
- Application Development Frameworks Support

Automated Provisioning



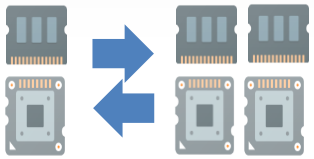
Benefits

Reduced time and complexity to provision database services

Increased standardization of the "fleet"

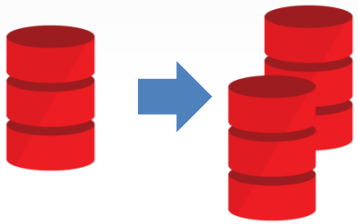
New use cases that were not practical before.

Oracle Database as a Service



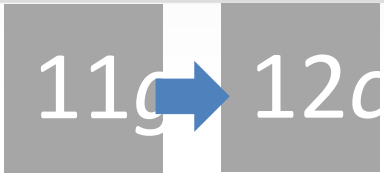
Compute Shape

CPU and Memory On-Demand



Block and Object Storage

Upsize, add archives all with encryption

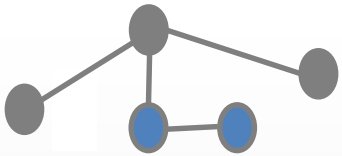


Upgrade and Patch

Upgrade automation

Point-in-time Recovery

Recover from human error



Point-to-point Networking

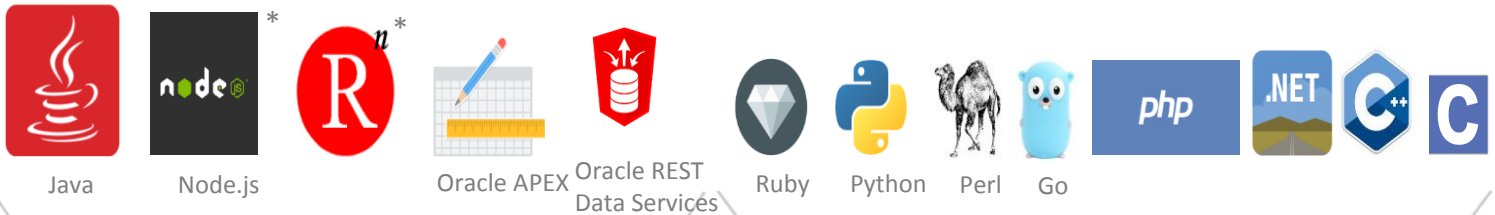
Open just the ports you need

Service Integration

Add PaaS offerings when Needed

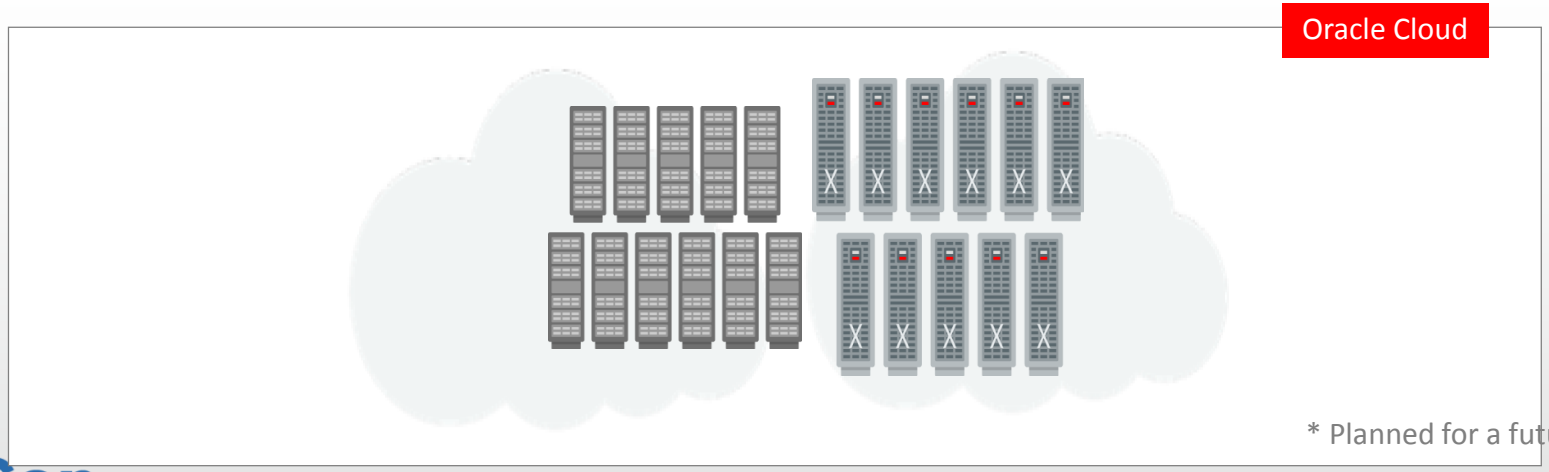
Robust automation reduces administrative time and promotes standardization improving manageability and availability. Available with all cloud editions.

Application Development Framework Support



Available as a PaaS Service

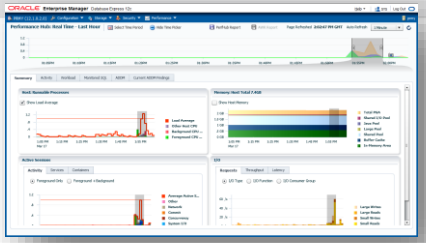
Available on Oracle Cloud via Compute Service*

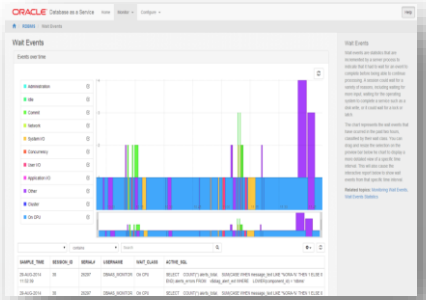


* Planned for a future release.

Development and Administration Consoles /Tools

- Cloud.oracle.com Database Service console
- Storage console
- Networking console
- Enteprise Manager Express
- Full Enterprise Manager from On Premise
- Database Cloud Services monitor
- GlassFish Administration console
- SQL Developer
- REST Data Services
- Appliction Express (APEX)





Oracle Database Cloud - Use Cases

1. Provision Database for: development, test, production, feature evaluation
2. Migration of on premise data to the cloud
3. Protect data with Backup & Recovery Service
4. Deploy a database application in the cloud
5. Change compute shape
6. Add Storage
7. Patch and upgrade
8. Clone 12c Pluggable Database (PDB)

Oracle Database Provisioning comparison

On-Premise

1. Procure Data Center Floor space
2. Procure Servers
3. Procure Storage Devices
4. Procure SSL Certificates & Keys
5. Procure HSM Devices (for encryption)
6. Procure OS Licenses
7. Procure Anti-Virus Licenses
8. Procure SIEM Licenses
9. Allocate Storage Admin
10. Allocate System Admin
11. Allocate Database Admin
12. Allocate Network Admin
13. Install Server
14. Cable Server to Network
15. Install SSL Certificates & Keys
16. Acquire Public/Private IP Addresses
17. Acquire Domain Name (from internal DNS)
18. Install Storage Devices
19. Acquire IP Addresses
20. Install SSL Certificates and Keys
21. Create Physical Storage Volumes
22. Register Storage Devices with Server
23. Install Operating System
24. Create System Administrator Accounts
25. Register with Corporate LDAP Directory
26. Register with Audit Software
27. Add Users to System Administration Accounts
28. Register Servers with Redhat Administrative Console
29. Install Hypervisor
30. Create Virtual LAN Partitions
31. Allocate IP Addresses (Private)
32. Carry out Network Address Translation (NAT)
33. Register Virtual LANs with Network Switch
34. Add Users to Hypervisor Administrator Accounts
35. Register Guests with VMWare ESX Console
36. Run Clusterware Pre-requisite checks
37. Run Oracle DBMS Install Pre-requisite checks
38. Read database installation guild
39. Stage Oracle Database software
40. Configure Oracle Database
41. Log in to the system as root
42. Check HW, Memory, System, Disk, software, OS, OS Kernel, package, compiler, and additional software requirements
43. Create required OS Groups and Users, Oracle Inventory group, oracle software owner, OSDBA group, OSOPER group
44. Synchronize groups with LDAP repository
45. Configure Kernel parameters and resource limits, create required directories, configure user
46. Install oracle database; select clusterware/grid installation, specify base installation pathname
47. Specify software location, choose file system or ASM, specify file location, specify ASNSNMP password, database edition, OSDBA group, global name
48. Specify database name, database name domain, administrative password, confirm password
49. Verify database is functioning properly
50. Email developers access credentials and configuration details

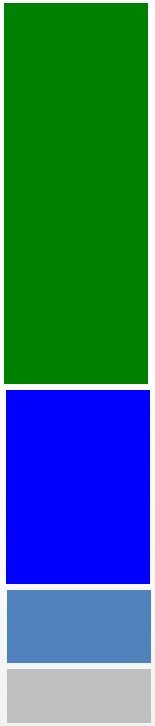
Days or Weeks

Oracle Cloud

1. Choose version of DBMS
2. Choose Edition SE, EE, EE High, EE Extreme
3. Choose Shape – storage, cores, memory
4. Choose Backup and Patching windows
5. Upload Key
6. Press Go

30 Minutes

Oracle Database Total Cost of Ownership (TCO) cost breakdown



Ongoing Maintenance

Backup, patching, hardware upgrade, OS upgrade, firmware upgrade, software upgrade, storage management, Test-Dev synchronization, cloning, data masking, security policies and auditing, configuration checks, monitoring, diagnosability…

Software

License, installation, configuration, security, high availability setup…

Hardware

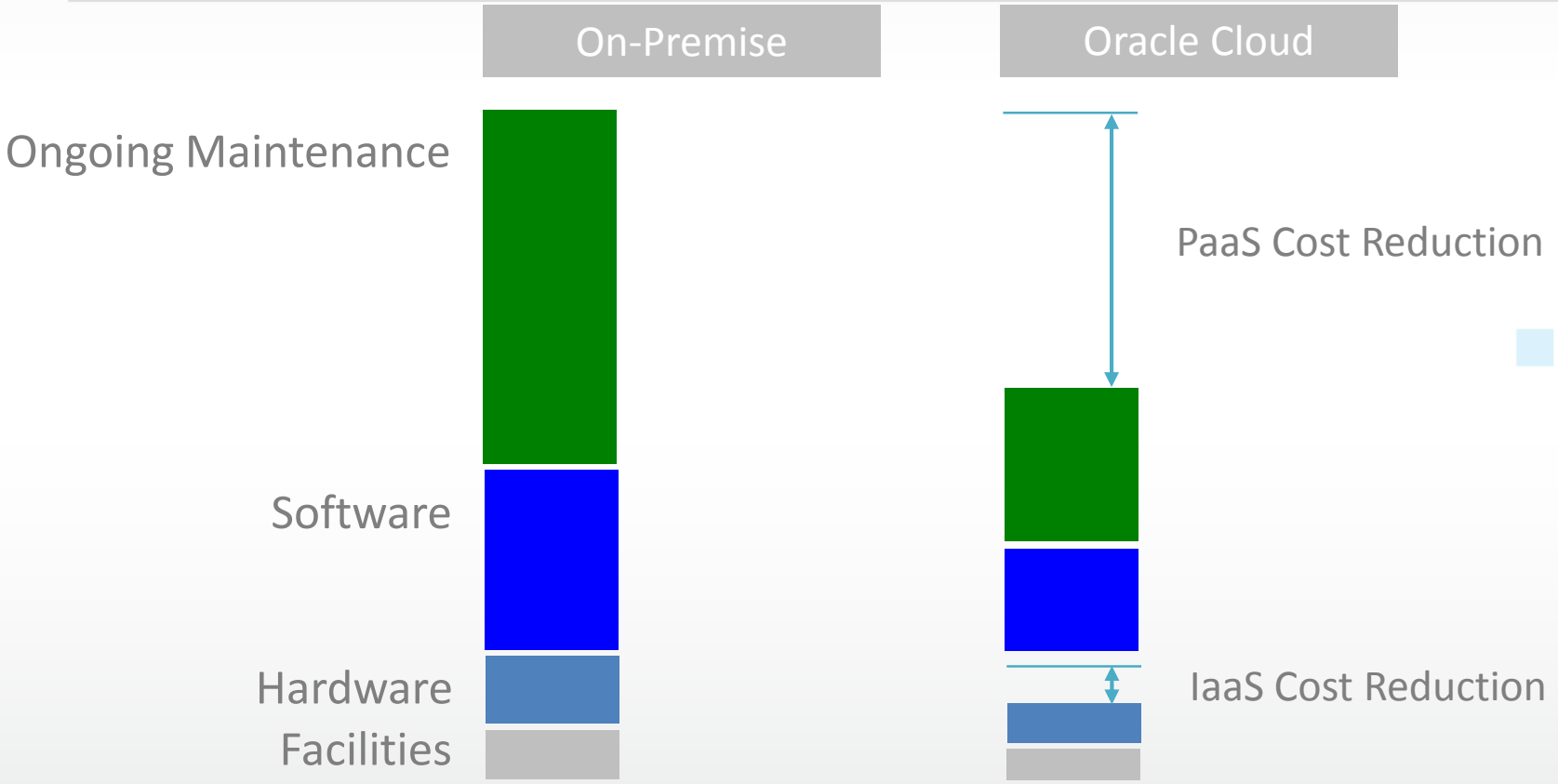
Server, storage, network, …

Facilities

Data center, ISP, CDN, DNS,…

Based on costs incurred by Oracle managed cloud services

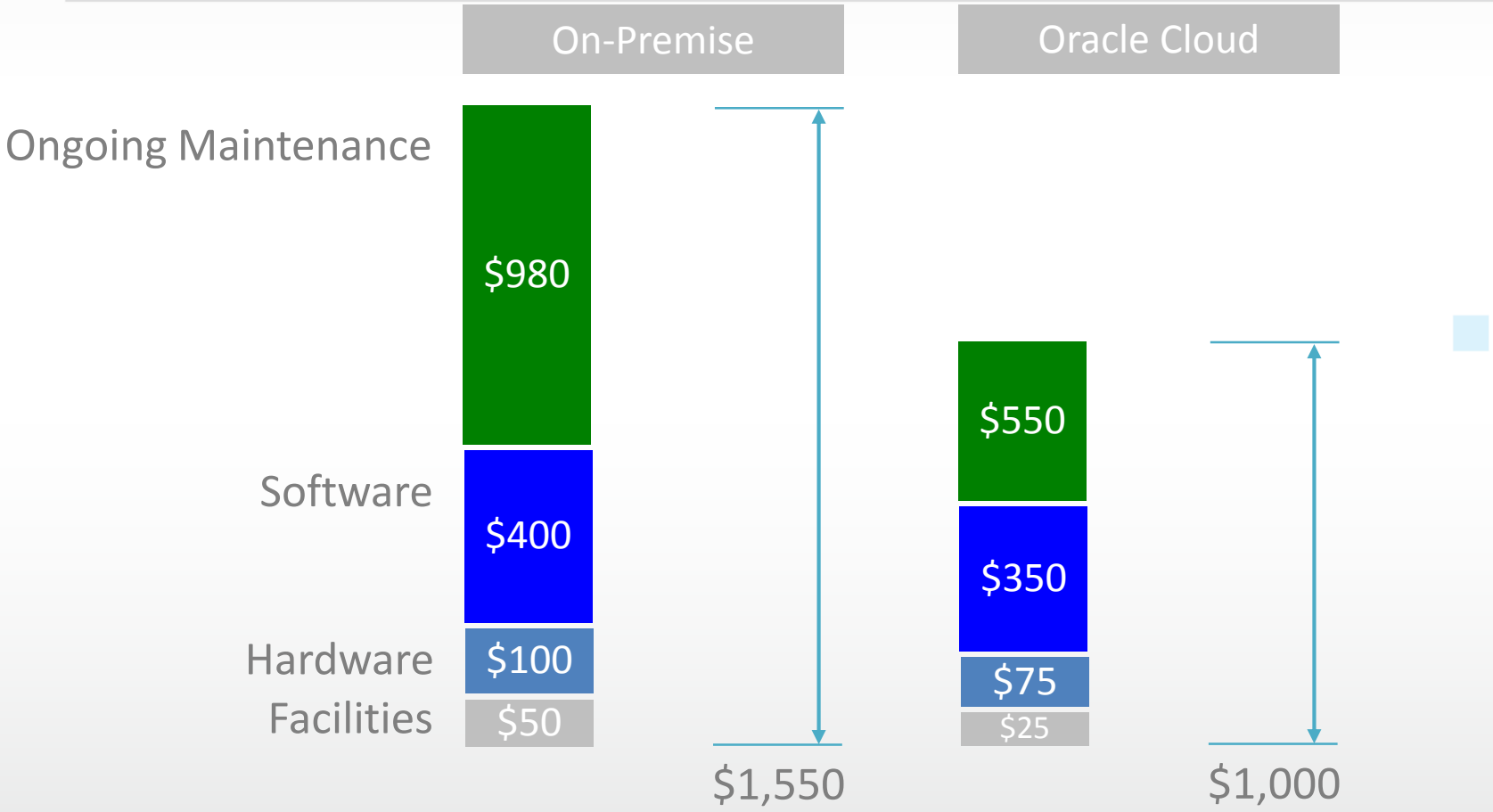
Oracle Database TCO comparison



PaaS Cost Reduction

Based on costs incurred by Oracle managed cloud services

Oracle Database TCO comparison; per core per month

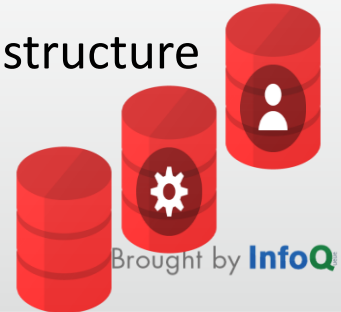


Based on costs incurred by Oracle managed cloud services

Oracle Database Cloud - Summary

- Extend Enterprise Data Center to the Cloud
  - Same database software and unified management on premises and cloud
  - Freedom of choice to deploy on premises, on Oracle Cloud, and 3rd party clouds
  - Gracefully move workloads between on-premise and public cloud, and back
  - Easily offload availability, management and security services

- Take Advantage of Cloud Computing
  - Choice of general purpose and engineered infrastructure
  - Choice of management levels; virtual image, automated and fully managed
  - Choice of editions, Oracle 11*g* or Oracle 12*c*
  - Large portfolio of complementary platform, data and infrastructure services



"Database is our largest software business and Database will be our largest cloud service business."

Larry Ellison, CTO, Oracle
Q1 2015 Earnings Call on 9/18/2014

ORACLE

#1 Database
Now in the Cloud

Thank You!