Oracle OpenWorld 2012 Focuses on Cloud Computing

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Summary
“"I’m here to talk about cloud computing," said Larry Ellison in opening his keynote address, and the cloud was the omnipresent backdrop for many of the key technologies announced at Oracle OpenWorld this year. These included new high-performance, high-capacity compute and storage hardware to run Oracle Cloud; and a new “pluggable” multitenant database to provide a secure, scalable way to isolate each customer’s data. A new service, Oracle Private Cloud, lets Oracle manage the Oracle Cloud behind a client’s firewall. New application services, social services, platform services, and infrastructure services all expand and strengthen Oracle’s cloud solutions portfolio.

Key Oracle OpenWorld announcements included:

• Oracle Cloud Infrastructure as a Service (IaaS), providing virtualized compute and storage services
• Oracle Owned and Managed Private Cloud, an extension to the Oracle Cloud behind the client’s firewall
• Oracle Multitenant Database Management System, a secure multitenant database for the cloud
• Oracle Exadata X3 Database In-Memory Machine with 26 terabytes of memory that can store multiple databases in memory and serves as the infrastructure for Oracle Cloud and Oracle Private Clouds
• Oracle Exalogic X3 Elastic Cloud, a high performance converged infrastructure

The unifying theme at Oracle OpenWorld 2012 was cloud computing. With the addition of infrastructure services, Oracle now provides cloud services at all three tiers of the cloud (SaaS, PaaS, and IaaS) and also offers public, private, and hybrid cloud deployment options. Oracle also announced a new multi-tenant, pluggable database architecture that it expects to release soon.
Infrastructure Services

In 2011, Oracle Cloud offered two tiers of cloud services: Software as a Service (SaaS) and Platform as a Service (PaaS). In June 2012, this evolved to social services (SaaS), application services (SaaS), platform services (PaaS), and common infrastructure services. At this event, Oracle announced that the common infrastructure services are now standalone services that can be called out from outside, not just used by its other layers.

Oracle Cloud runs on Oracle Exadata (database server) and Oracle Exalogic (middleware), with complete stack management including provisioning, monitoring, diagnostics, and change management. Oracle’s common infrastructure services include elastic compute power, object storage, in-memory cache, messaging, secure identity, and notifications.

Oracle Cloud

Oracle Cloud is deployed globally with multi-data center regional coverage and 24X7 active monitoring and support. Data centers are located in Chicago, London, Linlithgow (Scotland), Amsterdam, Sydney, Toronto, Santa Clara, Austin, and Oklahoma City. Two additional centers will soon be deployed in Singapore and Japan. Oracle Cloud offers flexible subscriptions, multiple payment options, self-service sign-up, instant provisioning, and self-service control. Users can leverage the three cloud tiers as needed.

Oracle Private Cloud

Oracle Private Cloud is a new offering in which Oracle owns, manages, and upgrades the infrastructure in the customer’s data center. Oracle E-Business Suite, Oracle’s PeopleSoft, Oracle’s Siebel CRM, or other applications can run on the Oracle Private Cloud infrastructure as a service managed by Oracle. Oracle Private Cloud is an extension of Oracle Cloud and uses the same hardware. This opens up some interesting options. A user or system implementer can do development in the public cloud and then move the system to a private cloud. The user can use Oracle Cloud for disaster recovery. Or they can use Oracle Cloud for backup or for extra ca-
Oracle supports the complete cloud stack. Oracle cloud services can be delivered as managed cloud services in a private cloud, as subscription-based services in a public cloud, or as a hybrid or combination of private and public cloud services.

**Oracle Engineered Systems**

Oracle Engineered Systems represent another key piece of Oracle’s architectural vision of providing complete, open, integrated systems.

**Oracle Exadata X3 Database In-Memory Machine**

The new Exadata X3 Database In-Memory Machine provides the hardware infrastructure for the Oracle Cloud and for Oracle Private Clouds. A high-performance, flash-centric machine with DRAM acceleration, it accommodates 26 Terabytes of DRAM and flash in one rack and supports multiple databases stored in memory. The X3 mass memory hierarchy keeps the “hottest” data in DRAM, the “active” data in PCI flash, and “cold” data on disk. It automatically moves all active data from disk to memory.

**Oracle Exalogic X3 Elastic Cloud**

Compared to Exalogic X2, the Oracle Exalogic X3 Elastic Cloud has more processor cores, more memory, more flash, better performance, and better consolidation, but the same price.

The converged infrastructure has impressive compute power, connectivity, and storage. Oracle Exalogic X3 is powered by up to 480 high-performance Intel Xeon processors and 256 GB of fast DRAM, with redundant SSD, power, cooling, and InfiniBand communications. The integrated Network Attached Storage is ZFS clustered for high availability, with 60 TB SAS disk, 4 TB read cache, and 292 GB write cache. The internal I/O backplane runs at 40 Gb/second, and the Exalogic X3 features 10 Gigabit Ethernet connectivity to the datacenter.

Oracle Exalogic X3 includes Oracle Exalogic Elastic Cloud Software 2.0, which includes Oracle VM for Exalogic, Exabus, Exalogic Control, Traffic Director, Operating Systems, and Storage Management Software.

**Platform Services**

Oracle Platform Services include database services, Java services, mobile services, and an application store. Coming soon will be collaboration services
including team workspaces, document sharing, and file and device synchronization; analytics services providing the ability to load data and model KPIs, build reports and dashboards, and publish to the Web, mobile apps, or Microsoft Office; and developer services supporting development project teams, lifecycle management, and agile development. The application store is also coming soon.

**Coming Soon: Oracle Database 12c, a Multi-tenant Database for the Cloud**

Oracle plans to introduce a new concept in database architecture in its next release, Oracle Database 12c (c for cloud). The idea is to use a “container” database that holds “pluggable” databases inside to facilitate administration while reducing resource requirements. The traditional database architecture is organized by application, with separate databases, separate memory, and separate background processes for each application. An enterprise can have hundreds of applications and hundreds of databases to support.

The new architecture will be a container that holds multiple separate private databases and keeps them secure. The underlying database layer will manage the databases. These pluggable databases will be far more efficient, requiring much less hardware (one-sixth the hardware for five times as many databases, according to Oracle’s benchmarks.) Databases in the new architecture will appear the same to applications, so no application changes will be required. Other expected advantages include more scalability and lower operational costs because the container approach will allows users to manage many databases as one for backups, etc.

With multi-tenancy at the database layer (instead of the application layer), the new architecture will provide the ability to simplify applications intended for consumption as SaaS. Private customer databases can be
plugged into a container database to get the needed data isolation, data security, and database tools.

**Social Services**

The company is also enhancing its Oracle Social Relationship Management Platform and will provide tools for social data and insight, social network, social engagement and monitoring, social sites, and social marketing to “socially enable” sales, commerce, customer service, recruiting, and the like. It will allow users to integrate public and enterprise social media and measure influence, engagement, and relationships across all channels.

**Application Services**

Oracle Application Services are built on SOA standards including Java, SOA, BPEL, and HTML5. They provide data isolation, and have built-in business intelligence, social, and mobile capability. Business users have self-service control to configure or extend applications. Application Services include ERP services, HCM services, Talent Management services, Sales and Marketing services, and Customer Service and Support Applications. New Application Services include Planning and Budgeting Services plus Financial Reporting Services. The Application Services are integrated with Social Services, which according to the company; enable organizations to transform their business processes and systems using social capabilities.

**Conclusion**

Cloud computing continues to gain traction at the enterprise level in industrial companies and ARC believes it is only a matter of time until we see the trend gain traction among certain applications at the plant level. With the latest releases and announcements, Oracle has fully embraced the cloud to provide customers with the ability to take advantage of public, private, or hybrid cloud models in a dynamic, flexible way.

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