Oracle Cloud: Platform-as-a-Service Vendor Profile

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IDC OPINION

The platform-as-a-service (PaaS) market, and within it the cloud application platform (CAP) market, is growing rapidly as enterprises seek quicker development times along with cloud and mobile enablement of their applications and customers. One of the key forms of a PaaS is the cloud application platform. While cloud technology that enables CAPs is unsettled and changing rapidly, Oracle, with its Oracle Cloud and Oracle Private Cloud Solutions, is building a competitive position in the market by offering:

- A broad range of services varying from raw compute and storage to mobile, Big Data, and process and document management to enable assembly of custom applications with a wide range of functions and features
- Deployment choices and portability between public and private environments
- Database and Java software and associated standards that gives Oracle an advantage in a technology that has wide awareness and acceptance among enterprises
- Single platform for mobile, on-premise, and cloud applications that makes it easier to build and maintain business solutions
- Multitenancy built into the underlying technology of Oracle Fusion Middleware 12c and Oracle Database 12c, which gives users the benefits of security and scalability

IN THIS VENDOR PROFILE

This IDC Vendor Profile analyzes Oracle, a company competing in the cloud application platform segment of the PaaS market. It reviews key potential success factors for Oracle, including its market potential, technology/solution, go-to-market and product strategies, and differentiators, and provides essential guidance for technology adopters.

SITUATION OVERVIEW

Enterprises constantly face a variety of risks and challenges – changing regulations, country-specific privacy laws, fluctuating weather patterns, and unpredictable geopolitical circumstances. Information technology (IT) is increasingly seen as a competitive differentiator to overcome these risks and challenges. Corporate end users are increasingly tech savvy and demanding that IT departments provide them solutions at the same pace as some Web companies are making online solutions available. To meet these expectations, IT departments are looking for application development tools, environments, and methodologies that allow them to accelerate application development in both public and private clouds and support the proliferating array of mobile and networked devices.

Cloud application platforms, built on platform as a service, are emerging as a key enabler of application development acceleration and cloud/mobile enablement.

The PaaS provides integrated (i.e., made up of multiple discrete software functions) services organized around the tasks of application development and life-cycle management; application deployment; code testing, quality, data analytics, and management; and integration, when they are provided as a service delivered through public cloud or specifically designed to be included in a private cloud implementation. Virtualization, containerization, and dynamic scalability can help optimize resource utilization but do not change any of the underlying assignment of key roles and responsibilities. When PaaS is offered as a public cloud, customers use shared platform assets, ownership and management of the platform transitions from the customer to the service provider, and the use of platform capabilities is presumed to be shared.

The worldwide public cloud platform-as-a-service competitive market grew by more than 30% in 2013, after 80% growth in 2012, forming a market that is over $6 billion in size.

PaaS is segmented by IDC into five competitive submarkets that recognize how PaaS is composed and delivered in the cloud. The PaaS submarkets are:

- Cloud application platforms
- Cloud application development and life-cycle services (CADLS)
- Cloud data services (CDS)
- Cloud integration services (CIS)
- Other cloud platform services (OCPS)

Although this profile addresses Oracle Cloud as a CAP, it offers services that would qualify it for consideration in all of the other PaaS submarkets listed in the previous bullet points.

Cloud application platforms help developers build, deploy, and manage cloud-based applications as their foundation and providing value-added functionality and services directly or via third parties. A CAP provides the following core services/capabilities:

- **Multitenancy:** Shares the abstracted infrastructure in an efficient manner delivered through virtual machines and/or databases
- **Languages:** Develop, deploy, and manage applications written in multiple languages – particularly those that are popular with developers or useful for specific, high-value use cases
- **Development:** Handles the complete application development life cycle including project management, utilizing development methodologies, troubleshooting, version control, and updates
- **Management:** Involves application and infrastructure management, provisioning, deployment, performance monitoring, troubleshooting, analytics, and reporting
- **Integration:** Connects applications and endpoints easily so that a comprehensive business problem can be resolved by combining the capabilities of diverse resources; includes management to handle publication, consumption, and security of APIs
- **Data services:** Includes database management and analytics either built into the CAP natively as part of the platform or offered as an add-on capability provided by the CAP vendor directly or by third parties

- **Mobile enablement:** Involves application development geared to mobile device operating systems and recognizing that mobile apps need to communicate with back-end systems that may be legacy, on-premise applications, databases, or systems of record
- **Security:** Achieved at multiple levels, including the infrastructure level, by assigning roles, permissioned environments, encryption of data in motion and at rest, and certification of hardware and best practices related to the underlying infrastructure – all to provide developers with applications that meet compliance requirements, performance SLAs, and security objectives
- **High availability:** Takes advantage of multiple certified datacenters, geographic dispersal, and high-performance hardware/software
- **Elastic scaling:** Involves the CAP helping developers manage and optimize their infrastructure resources in testing and production (largely dependent on the underlying infrastructure)
- **Marketplace availability:** Allows users to easily assemble or supplement solutions using applications, services, or APIs offered by the vendor and third parties published in a common catalog

Company Overview

Oracle is a public company founded in 1977 with the goal of commercializing relational database technology. It expanded its portfolio organically and via acquisitions to include applications, consulting, middleware, and hardware. For its fiscal year ended May 31, 2014, it reported revenue of $38.3 billion, up 2.9% compared with the previous year. Software made up 76% of its revenue in fiscal 2014: software licenses and cloud software (SaaS and PaaS), 28%; license updates and support, 47%; and IaaS, 1%.

Oracle's acquisitions related to the company's PaaS offerings included BEA in 2008 and Nimbula in 2013. Private PaaS depends on a strong infrastructure and supporting acquisitions included Sun in 2009 and Xsigo Systems in 2012.

Product Description

Oracle calls its public cloud offerings Oracle Cloud and private cloud offerings Oracle Private Cloud Solutions.

Oracle's offerings leverage a full stack of supported Oracle technologies. The latest version of Oracle Fusion Middleware 12c and Oracle Database 12c were released in CY14.

Oracle's PaaS product portfolio is updated every four to six months for both the company's private and public offerings.

Oracle's PaaS offerings are primarily built on Oracle Fusion Middleware and the Oracle Database portfolio. Some examples of products within these portfolios are:

- Oracle Database 12c with a multitenant architecture easing database consolidation and management as a cloud service. With Oracle Public Cloud, Oracle Database Cloud Services delivers the Oracle Database in the cloud, with the choice of a dedicated database instance or a dedicated schema platform managed by Oracle.
- Oracle WebLogic Server 12c offers a development platform integrated tools and native cloud management. Oracle Java Cloud Service in the public cloud allows building, deployment, and management of Java EE applications with Oracle WebLogic Server as the application

container. Oracle Traffic Director can be used as the software load balancer integrated with Oracle Database and Storage Cloud Services.

▪ Oracle Enterprise Manager offers overall Cloud Management and Operational Lifecycle Management. These capabilities are delivered with Enterprise Manager packs for Private Cloud solutions. In case of public cloud, the appropriate metrics are published to the tenant's administrative console.

▪ Oracle's integration portfolio is made up of Oracle SOA Suite and Oracle Data Integration Suite offering different integration types like applications, services, data, and events, using various connectivity protocols, including Web Services, SOAP, and REST. In the public cloud, Oracle Integration Cloud Services has the option to use Oracle SOA Suite for cloud-to-cloud integrations.

▪ Oracle Identity Management Suite offers the ability to federate on-premise identity securing sensitive applications and data regardless of whether they are hosted on-premises or in a cloud.

▪ Oracle WebCenter Portal provides Web presentation that unifies cloud and on-premise data/application experiences into a common user interface.

▪ Oracle WebCenter offers a complete portfolio of portal, Web experience management, content management, and collaboration technologies. Oracle WebCenter Portal provides Web presentation that unifies cloud and on-premise data/application experiences into a common user interface. Oracle Enterprise Content Management (ECM) removes content silos and updates most current documents, images, and rich media files. With Oracle Document Cloud Service, you can securely synch and share files in the public cloud, and with built-in Oracle Enterprise Content Management integration, you can seamlessly execute on a hybrid ECM strategy.

Oracle uses the same standards, architecture, and products in the public cloud and private cloud.

In addition to its own infrastructure, Oracle supports Amazon Web Services (AWS), Microsoft Azure, and Verizon Terremark infrastructures for its PaaS services.

Services offered at the platform level and priced separately include:

- **Database.** Database Cloud Service (full-featured Oracle Database in the cloud) and Database Schema Service (dedicated and isolated database schemas in the cloud)
- **Database backup.** Scalable and reliable object storage solution for storing and accessing ever-growing Oracle Database backup data
- **Java.** Java Cloud Service (full-featured Oracle WebLogic Server in the cloud) and Java Cloud Service – SaaS Extension (dedicated and isolated WebLogic instances in the cloud for SaaS extensions)
- **Documents.** File sync and share (including iOS and Android devices and desktop syncing) and integration with Oracle WebCenter Content and other Oracle Cloud applications
- **Developer (not priced separately but included with Oracle PaaS for no additional fee).** Cloud-based development environment with auto deployment to Java Cloud Service or local infrastructure, life-cycle management, and collaboration features
- **Business intelligence.** Mobile device–enabled analytics platform including advanced analysis and visualizations and integration options from self-service import to operational ETL updates
- **Mobile.** Mobile Cloud Service, Oracle's Enterprise Grade (MBaaS) that simplifies mobile application development with a consistent way to consume enterprise back-end services and security via REST JSON API catalog with tools for creating and shaping these APIs via Node.js with built-in mobile analytics and life-cycle management
- **Big Data.** Hadoop as a service scalable to petabytes of data
- **Big Data discovery.** Hadoop-based data visualization tool
- **Process.** Design, automate, and manage business processes in the cloud
- **SOA suite as a service (full-featured Oracle SOA suite in the cloud), Integration Cloud Service.** Pre-built integrations, open connector SDK, visual integration designer, transform integrations into APIs for external consumption, monitoring of transactions and KPIs
- **PaaS services.** PaaS services that run on Oracle infrastructure-as-a-service offering compute, storage, network, messaging, and identity services

Oracle PaaS Offerings Summary

Table 1 provides a summary of the key features of Oracle PaaS offerings.

TABLE 1

Key Features: Oracle Public and Private Clouds

Key Features	Description
Underlying PaaS technology (Cloud Foundry, other, or proprietary)	Oracle Fusion Middleware and Oracle Database technologies
Type of CAP (model driven or deployment centric)	Deployment-centric note: Oracle does offer Process Cloud that falls in the model-driven category
Public cloud/private cloud/hybrid: Are apps easily portable among them?	Public and private cloud (public with Oracle Cloud; private with Oracle Private Cloud Solutions) — applications can be moved between public and private cloud. Same standards, architecture, and products are used in public and private cloud.
High availability (HA): Via multiple certified datacenters, geodispersal, high-performance hardware/software — How is this achieved and to what level? What is the default uptime SLA, and what is the maximum uptime SLA?	Oracle Cloud Hosting has a 99.5% uptime SLA. Oracle services and private cloud solutions offer high availability. For example, Oracle Java Cloud Service offers simplified provisioning, management, and operations of WebLogic Server clusters, supports deployment of Managed Servers (part of a WebLogic Server cluster) to individual virtual machines with full transaction and workload recovery in the case of application issues on a particular cluster node. The built-in software load balancer will load balance workloads across failed nodes within a cluster. In private cloud, Enterprise Manager can be configured in HA mode in both app and database tiers. The management servers can be front ended by a load balancer. HA options are also available as service catalog options.
Elastic scaling	Yes
Infrastructures directly supported	Oracle Cloud — Oracle PaaS services are supported on AWS, Azure, and Verizon Terremark.
Languages directly supported	Java, Javascript, and other Java-based scripting languages (JRuby, Scala, etc.)
Multitenancy: Being able to share the abstracted infrastructure in an efficient manner delivered through virtual machines (VMs) and/or databases	In public cloud, Oracle offers isolation and multitenancy using VM and schema-based isolation. For private cloud, Enterprise Manager 12c supports tenancy via: - Server virtualization to provision databases packaged as VMs - A number of databases sharing the operating system deployed on single instance or RAC - At applications level, deploying multiple schemas within the same database - Pluggable database with database 12c multitenant option
Development: Tools that allow developers to handle the complete application development life cycle including project management, utilizing one or more development methodologies,	Oracle Developer Cloud Service supports the complete development life cycle, including GIT, Hudson, wikis, and issue tracking. The service is fully integrated with other Oracle Cloud Services like Java Cloud Service and with JDeveloper and Eclipse and supports IDE's including JDeveloper,

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troubleshooting, version control, and updates	Eclipse, and Netbeans.
Security: Describe features at the infrastructure and application levels (via roles and/or permissioned environments, hardware, and datacenter certifications and best practices, etc.; integration with existing IAMs; and how data in motion and data at rest are secured) to yield development and production processes that meet compliance requirements, performance SLAs, and security objectives	Oracle's Key Vault key management service provides security across middleware, database, and servers. Oracle Identity Management is the backbone of Oracle's public cloud identity infrastructure for all its IaaS, PaaS, and SaaS offerings. Oracle will also offer the Identity Cloud Service for identity federation and extending on-premise identity to the cloud.
Integration: Connecting applications and endpoints easily so that a comprehensive business problem can be resolved by combining the capabilities of diverse resources (APIs – How are they consumed and published and managed by the CAP? Is the CAP API published and easily accessible to third parties?)	Oracle's integration portfolio (Oracle SOA Suite and Oracle Data Integration Suite) offers different integration types — applications, services, data, events, and using various connectivity protocols, including Web services, SOAP, and REST. It includes capabilities like managed file transfer to securely orchestrate transfer of large files between different on-premise and cloud investments.
Data services: Database management and analytics. What DBs are directly supported (Oracle, SQL Server, mySQL, noSQL, Hadoop, etc.)? What analytical tools are supported?	Supported databases include Oracle DB, Microsoft SQL Server, IBM DB2, MySQL, and Sybase. Oracle also supports Hadoop with its Big Data – Hadoop as a service, scalable to petabytes of data and Big Data discovery – a Hadoop-based data visualization tool.
Mobile enablement: How do developers develop mobile apps in this product, and does it include a native mBaaS or offer a third-party equivalent?	Mobile app framework consists of composer, components, and device integration for cross-OS and cross-device implementations. Mobile security provides identity management with secure containers, sign-on, and governance. Mobile Cloud Service (MBaaS) includes a development environment to define mobile interfaces and APIs and provide enterprise data connections and back-end services.
Container paradigm: How is app configuration and portability achieved for testing and production? Warden, Warden/Docker, buildpack (Heroku-Salesforce), proprietary, and virtualization	Oracle public and private cloud support hypervisor-based virtualization using Oracle VM (a Xen-based hypervisor). On this environment, Oracle WebLogic Server and Oracle Database are supported as the prime runtime environments for custom/bespoke and Fusion Middleware applications. Future plans include supporting container-based solutions, such as Docker, in the Oracle Cloud.

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Management functions: Application and infrastructure management, provisioning, deployment, performance monitoring, reporting, troubleshooting, and analytics	Oracle Cloud and private cloud solutions have monitoring through Oracle Enterprise Manager. The appropriate metrics in case of public cloud are published to the tenant's administrative console. For example, in the Java Cloud Service, there are detailed metrics around the Oracle WebLogic Server availability and workload characteristics. The information is then rolled up and aggregated for analytics. In case of private cloud, the monitoring spans multiple tiers ranging from application to infrastructure and can be integrated with customer's own ticketing system. Enterprise Manager also provides active management such as provisioning, cloning, patching, upgrade, scale-out and scale-back operations at infrastructure, platform, and applications level.
Pricing models	Oracle's private cloud pricing model follows traditional software licensing. Oracle Cloud service pricing is published on **cloud.oracle.com**. Pricing models include à la carte based on services and resources used and monthly fixed subscriptions, also based on resources and services used.
Marketplace availability: Mechanism to allow users to easily assemble or supplement solutions using applications, services, or APIs offered by the vendor and third parties published in a common catalog (Describe the size of the catalog and key offerings.)	Oracle Cloud offers a Cloud Marketplace — an online store to find and launch Oracle and third-party software and services that run in the Oracle Cloud. The applications offered are divided into six categories: enterprise planning, marketing, sales, service, social, and talent management.

Source: IDC, December 2014

Product Road Map

- Bring generic Java SE support and Node.js to the Oracle Cloud and support more Java-based scripting languages such as Scala and Groovy.
- Support container-based solutions, such as Docker, in the Oracle Cloud to improve application portability and ease of configuration.
- Increase support of OpenStack components.
- Offer database as a service – managed with the following features:
  - Essential management by Oracle
  - Complete access to dedicated Oracle Database instance
  - Full SQL*Net access
  - Oracle managed backup with point-in-time recovery
  - Oracle managed patching and upgrades

Company Strategy

Go-to-Market Model

Oracle's strategy is to bring leading infrastructure, technology, business applications, and information to customers and partners anywhere through the Oracle Cloud. The goal is to provide customers with a rich, integrated portfolio of IaaS, PaaS, SaaS, and data-as-a-service (DaaS) offerings. Customers get the database, middleware, and infrastructure technologies as a service.

Oracle sees three categories of potential customers:

- Its large installed base of Oracle Database and Oracle Fusion Middleware customers that want to take advantage of the flexibility, agility, and financial opportunities the public and private cloud presents. Oracle will market its ability to move workloads to cloud environments that makes the most business sense – private, public, or third party enabling customers to leverage their investments in Oracle infrastructure.

- Addressing public, private, and hybrid clouds allows Oracle to offer its software to new customers that previously may have considered Oracle software unattainable for various reasons – concerns about complexity, cost, skills, or other reasons. Cloud deployment models can yield dramatically simplified user experiences both on-premise and in the cloud, new financial models (subscription or perpetual), dramatically simplified operations models, and dramatically reduced entry barriers to acquiring/using Oracle software.

- Oracle cloud software changes the relationship of Oracle in the channel, making it dramatically easier and more valuable for partners and system integrators to sell and take advantage of the Oracle software value proposition.

Oracle has a large and rapidly growing SaaS business. It creates demand for the Oracle PaaS and IaaS to enrich these SaaS applications and connect them with other on-premise and cloud investments.

Oracle has a large Java and database developer community (15+ million) with established developer programs that allow the ecosystem to leverage Oracle's Cloud Solutions for innovations.

In addition, for private cloud solutions, Oracle's strategy is to fill the white-spaced accounts with cloud capabilities in the core products that it currently does not own and to expand the base by reaching out to more customers. For each of the categories described previously, Enterprise Manager 12c is the default product for systems management. Most enterprise customers (especially, the F500) already own at least one Enterprise Manager pack. In keeping with Oracle's strategy to deliver integrated solutions, Enterprise Manager often accompanies (attaches to) the base product at the time of sale but can also be sold subsequently to customers that do not own it.

Customers

Oracle PaaS customers include HDFC Bank, Société Générale, McKesson, Walgreens, IDEXX, PNC Bank, and 7-Eleven.

Partners

Oracle has a 25,000+ strong partner ecosystem including ISVs, SIs, VARs, and VADs. Oracle's Cloud Partner Program includes Cloud Builder Program (for private cloud implementation), Referral Program (for participation in cloud-building experience), Specializations (value-added implementation services),

Resale Program (maximize return through recurring revenue), and Business Process Services and Cloud Marketplace (develop, market, and sell value-added cloud services).

Geographical Coverage

Oracle operates in all geographies through sales teams. By December 2014, there were 19 Oracle datacenters throughout the world, some that are Oracle owned and others obtained from datacenter facility providers.

Competition

Oracle sees IBM, Pivotal CF, and Red Hat as its main competitors in the private PaaS market and Amazon Web Services, Elastic Beanstalk, Salesforce's Force.com-Heroku, and Microsoft Azure as its main competitors in the public PaaS market.

Key Differentiators

Oracle's sees the following as key differentiators:

- Broadest, integrated PaaS and IaaS for all enterprise-class applications
- Complete deployment choice with public and private cloud solutions
- Same architecture and standards for on-premise and cloud products/services allow easy portability of workloads between private and public clouds
- Real application Clusters, Data Guard, Identity, SOA, Content, Exadata, and Exalogic
- Root VM access and value-added management – patching, backup/recovery, upgrade, and so forth
- Fully integrated PaaS and IaaS for developers, IT, and line of business (LOB)
- Easy to use and zero learning curve for developers, IT, and LOB
- Extension platform for all Oracle SaaS applications

Pricing

Oracle provides public cloud platform services with monthly and hourly pricing. Monthly pricing typically starts at a minimum of $250 per month per platform component and increases based on performance levels or memory required. Private cloud software follows Oracle's standard license/maintenance models.

FUTURE OUTLOOK

The PaaS market is expected to grow from $6.2 billion in 2013 to more than $20 billion in 2018, with a CAGR of nearly 27% for the forecast period. With the overall software market growing at a five-year CAGR of 6.3%, cloud software is growing at more than four times the rate of the traditional packaged software market.

Making infrastructure more consumable while giving developers an easier way to test and deploy applications are the factors that will drive PaaS adoption as cloud computing matures. IDC predicts that these benefits and increased sensitivity to data privacy and security will require most cloud service providers (CSPs) to offer PaaS functionality by 2020.

The fierce competition at the commodity IaaS layer will continue to help platform vendors and application vendors with pricing, which frequently is directly tied to the underlying infrastructure pricing.

With increased adoption, the worldwide public cloud PaaS market has a bright future. It is proving to be a success on virtually every level. Each of its five competitive submarkets currently tracked by IDC – application, integration, data, cloud application development and life cycle, and "other" – exhibited growth in 2013, and vendors that offered features in more than one submarket (through either separate offerings or services that combined functions into a hybrid offering) did better than those that did not.

While we have yet to see a compelling number of truly mission-critical or high-performance transactional applications appear in the public cloud, interest in all forms of IT in the cloud continues to grow as concerns around security, viability, and cost-effectiveness begin to subside. IDC's ROI studies also show tremendous cloud benefits tied to streamlining the software development life cycle because of improvement in provisioning, testing, and deployment.

Because of the instability and immaturity of the underlying technology and much of it being developed through open source initiatives that are still in early stages, buyers need to avoid vendor lock-in and demand portability and interoperability so that the rapidly shifting cast of vendors and their roles in the market don't cause IT disruptions or forced migrations to other platforms.

Interoperability and portability will also help CAP customers optimize their IT resources, ultimately by allowing DevOps managers to continuously shift workloads to the most cost-efficient environment available.

ESSENTIAL GUIDANCE

Advice for Oracle

IDC expects to see a variety of infrastructure vendors, existing and emerging – the titans (Amazon, Google, and Microsoft), stack vendors (IBM, Oracle, and SAP), secondary infrastructure providers (Rackspace), hardware vendors, telcos, and regional cloud service providers. All of these vendors will probably need to offer their customers a PaaS solution.

Just as the infrastructure cast of players is still changing rapidly, so is the underlying technology of PaaS, partly because of PaaS-related standards open source initiatives like Cloud Foundry, Docker, Kubernetes, and OpenShift. In addition to the rapid evolution of the infrastructure market and PaaS and related technologies, feature sets, go-to-market models, and pricing are also changing.

These factors can make the selection of application development tools a complex and confusing exercise. Enterprises need to assess their strengths and weaknesses realistically and identify goals and needs to make the right selection decisions. Some of the questions buyers need to answer are:

- Is the primary need for the productive and agile application development of new applications or is it for more cost-effective and manageable deployment of existing applications and workloads?
- What are the application-scale requirements in terms of front-end workflow complexity or back-end business integration or algorithmic complexity? How many users are likely to use the system concurrently? What are the platform's limitations?
- Is the CAP vendor tied to a single infrastructure?

- Does the platform support the languages and frameworks that your developers are using?
- Does the platform provide the levels of high availability, elastic scaling, and security that you require?
- Does the platform have the integration and extension capabilities that will allow you to leverage it appropriately, internally, and externally and easily take advantage of third-party applications and services to extend the functionality of your CAP?
- Is cloud enablement a strategic imperative? What is the preferred cloud deployment model — public, private, or hybrid?
- Is the vendor viable on a long-term basis and capable of supporting its offering, and is the vendor offering a stable architecture and willing to provide availability stats on a continuing basis? Is the vendor staffed to provide a high level of support?

Vendors need to be able to comprehensively address these questions for buyers as they market and sell their cloud application platforms.

Oracle Cloud and Oracle Private Cloud Solutions map well to these questions particularly for its installed base of Oracle customers. Oracle is moving aggressively to keep its middleware and database platforms in the mainstream of a rapidly evolving technology base. It has significant strengths in its approach to:

- Security benefits from multitenancy using built-in features of their technology
- Existing Oracle customers leverage their applications and knowledge of Oracle products
- Database and Java platforms that are widely accepted among enterprises requiring minimal training on new technology
- Choice of deployment solutions includes private, public, and hybrid cloud environments
- Oracle says it will match any competitor's infrastructure pricing but will allow PaaS users to deploy applications on competing infrastructures as well
- Wide variety of fundamental application functions offered as services for application developers to use in composing and developing new applications

Still to be addressed are:
- How to attract developers beyond the Java ecosystem
- Moving beyond enterprises development organizations by building a public cloud platform with diverse capabilities and pricing plans to address developers in smaller companies and start-ups
- Leveraging the strong SaaS portfolio to draw net-new partners in building vertical solutions for customers

LEARN MORE

Related Research

- *Worldwide Competitive Public Cloud Platform as a Service 2014-2018 Forecast and 2013 Vendor Shares* (IDC #249893, July 2014)
- *IDC's Software Taxonomy, 2014* (IDC #249238, June 2014)
- *Worldwide Cloud Testing and ASQ Software as a Service 2013-2017 Forecast and 2012 Vendor Shares: Driving Quality Adoption* (IDC #245161, December 2013)

- *Worldwide Competitive Public Platform as a Service 2013-2017 Forecast* (IDC #243315, November 2013)
- *Worldwide and Regional Public IT Cloud Services 2013-2017 Forecast* (IDC #242464, August 2013)
- *IDC's Worldwide IT Cloud Services Taxonomy, 2012* (IDC #233396, March 2012)

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