

OFFERING OVERVIEW

Oracle Cloud at Customer Enables Next-Gen Computing

**System Offers Complete Deployment Freedom for
CxOs Regarding Any Aspect of the Oracle IaaS, PaaS
and SaaS Portfolio**



Holger Mueller
Vice President and Principal Analyst

Copy Editor: Jim Donahue

Layout Editor: Aubrey Coggins

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EXECUTIVE SUMMARY

This report provides an overview of the Oracle Cloud at Customer portfolio (this includes Oracle Exadata Cloud at Customer, Oracle Big Data Cloud at Customer, Oracle SaaS at Customer and Oracle Cloud at Customer) and analyzes its capabilities to satisfy the need of enterprises for a next-generation computing platform. A next-generation computing platform allows enterprises to deploy workloads across the premises and the public cloud.

For enterprises running their next-generation applications on a next-generation computing platform, Oracle Cloud at Customer does very well because of Oracle's vision of the "chip-to-click" integrated technology stack (i.e., from the CPU silicon, across all OSI layers and all the way to the end-user mouse click). With Oracle using the same technology stack and machines both in its cloud and on-premises, it has the highest degree of identity across these offerings from all vendors that are part of Constellation Research's Market Overview on next-generation computing platforms. The others are Amazon Web Services' offline portfolio, Google GKE On-Prem, IBM Cloud Private and Microsoft Azure Stack.

Business Themes



New C-Suite



Future of Work



Data to Decisions



Technology
Optimization

ABOUT ORACLE CLOUD AT CUSTOMER

Overview

Oracle for a long time has stressed that its technology is the same in its cloud infrastructure and its on-premises stack with the Oracle Cloud at Customer portfolio. The functional scope is nearly identical, with only very few capabilities not being available in Oracle Cloud at Customer. Overall, Oracle has the largest functional scope available on-premises, including all its software-as-a-service (SaaS), platform-as-a-service (PaaS) and infrastructure-as-a-service (IaaS) capabilities, running on Oracle Exadata and storage. Oracle Cloud at Customer is the closest that customers can get to having the Oracle “chip-to-click” (cloud) stack running in their own data centers. On-premises deployments of the Oracle Cloud at Customer portfolio are technically implemented in such a way that the on-premises installations are instances of the Oracle Cloud. This allows Oracle to offer the hardware and services on a subscription basis.

The large functional scope and the required technological setup and complexity could make operating Oracle Cloud at Customer a potential challenge for IT departments. Oracle tackles that issue by including operational management in Cloud at Customer, where it handles the overall system management and operation work, and customers are responsible only for security, networking and power. The functional similarity of the Oracle Cloud at Customer portfolio to Oracle’s public cloud theoretically and technically would allow it to offer the movement of machines between cloud and on-premises and vice versa. This assures CxOs that no matter what reasons they may have for either deployment form, they can deploy identical capabilities in the cloud and on-premises—just as demanded by the nature and demands of the enterprise.

Oracle’s challenges are less on the technical and functionality side of its offering and more on the side of its commercial behavior and history. Some CxOs do not like to do business with Oracle, and Oracle at times wins business if it’s the only feasible, viable option. CxOs esteem Oracle for its technical ability, but Oracle could do much better if it became more customer-friendly. The introduction of a credit model that can be used for consumption across the Oracle IaaS, PaaS and SaaS portfolio has been a step in the right direction, as has the addition of a bring-your-own-license ability for Oracle database licenses to Oracle Cloud at Customer.

Market Segment

Market Definition

Oracle Cloud at Customer competes in the next-generation computing platforms market. A next-generation computing platform is defined as a computing paradigm that runs the same infrastructure (with some limitations) for or by an enterprise on-premises and in the public cloud.

There has been a lot of confusion around the term “cloud,” with vendors accusing each other of “cloud washing”—that is, trying to rebrand an old product by adding the word “cloud” to its name. In reality, cloud definitions vary from vendor to vendor and even from enterprise to enterprise.

For the purpose of this report, Constellation defines “cloud” as the elastic provisioning of computing, storage and networking. The elasticity manifests itself in the form of dynamic ramping up and ramping down of resource availability, driven by workload demand, even on a per-second basis. The mechanics for this kind of computing have been established and have matured with public cloud IaaS vendors.¹

CXOs who have to manage on-premises loads also find that value proposition—the elasticity of computing resources—attractive. IaaS vendors have realized this and added offerings that make parts of their IaaS infrastructure available on-premises.

This report discusses six trends shaping this market.

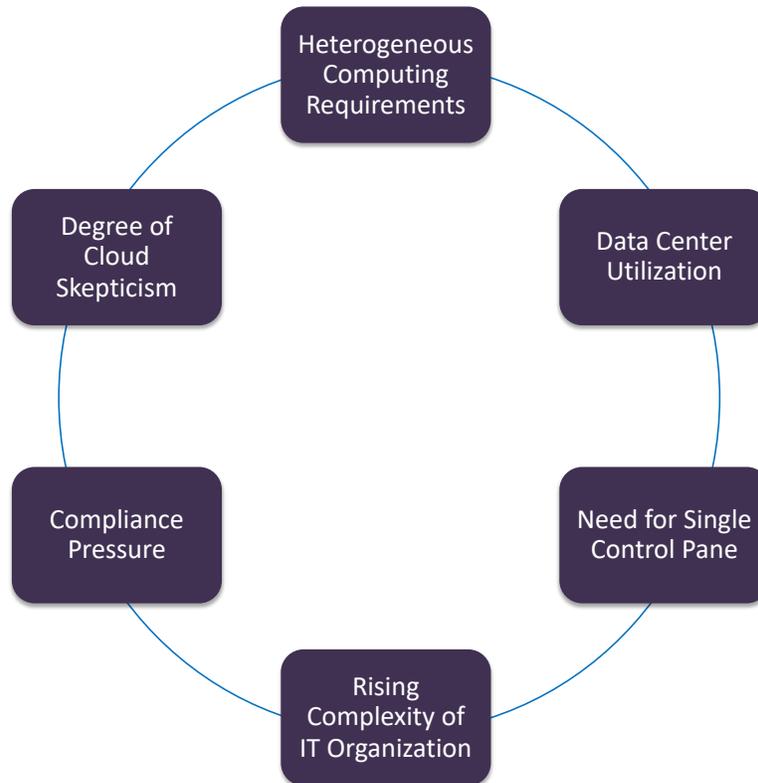
Market Trends

The following six market trends characterize the management of computing infrastructure (see Figure 1):

Heterogeneous Computing Demands

CxOs are confronted with rapidly changing computing demands. Barely having satisfied the business need for big data, the computing requirements that CIOs must answer stretch from support for machine

Figure 1. Six Market Trends Defining a Next-Gen Computing Platform



Source: Constellation Research

learning to speech recognition for internal and external digital assistant/chatbot solutions, all the way to the edge of the enterprise. New computing platforms have entered the data center—for instance, with the advent of large GPU racks to run machine learning. A never-before-seen platform diversity manifests itself at the edge of the enterprise to support the Internet of Things (IoT). And the pace of change is not slowing down, as shown by new demands for additional workforce support (e.g., augmented/mixed/virtual reality) and new user experience support (e.g., holographic displays).

Data Center Utilization

As workloads move from enterprise data centers to public cloud vendors, CIOs struggle to reach the level of utilization they intended when originally planning and investing in their data centers. One part of the challenge is the business practice of letting divisions choose their automation tools, which results in a lower degree of predictability for available workloads in on-premises data centers. An additional hurdle for CIOs is that physical infrastructure requests are moving slower and have a much longer-lasting

financial impact. Data center utilization can quickly change from full capacity to two-thirds of utilization. Dropping a single server-refresh cycle will create that scenario, which CxOs experience as they move workloads to the public cloud.

The Need for a Single Control Pane

The era of CxOs simply accepting that new products bring a new control pane is history. CxOs operating next-generation applications² must run them as efficiently as possible, via a single control pane. This not only allows for more efficiency to manage infrastructure but also is the best way to manage a heterogeneous landscape effectively. Ramping down and ramping up resources as demand requires cannot be done from a “zoo” of instrumentation. At the same time, the automation of resource scaling is essential, so humans can focus on oversight instead of spending time and energy on operational tasks.

Rising Complexity of IT Operations

The cloud has not fulfilled its promise to simplify IT for most organizations because they are operating on a fluid automation pane that includes the public cloud and on-premises computing resources. Business priorities, timing and write-down cycles all determine the specific time a load may be moved to the public cloud or whether it should remain on-premises. Changes in executive management often result in a shifting workload mix (for instance, due to SaaS portfolio changes) that affects the overall computing mix. A greater diversity in workloads and new next-gen application use cases create more heterogeneity and increase the complexity of IT operations.

Compliance Pressure

Enterprises see themselves confronted with a rise in compliance requirements that, because of the operation of larger software portfolios, affect more of the computing and storage infrastructure than ever before. Data privacy and data residency regulations often require enterprises to move loads to different physical locations, and sometimes from the cloud back to on-premises. Enterprises have not even recovered from the European Union’s recently enforced General Data Protection Regulation, and they see more data residency rules coming their way, such as the California Consumer Privacy Act. The rate of regulation will only increase, making CxOs desire a more fluid way to move workloads.

Degrees of Cloud Skepticism

Although many next-generation application use cases are best (and sometimes only) operated in the cloud, there is still a degree of skepticism over computing in the public cloud. It ranges from rational challenges (such as whether IaaS vendor data instances are available inside of a necessary jurisdiction) to reasonable challenges (hardware write-downs and connections to existing on-premises computing resources, such as mainframes) to less rational concerns (for instance, regarding data safety). Nonetheless, it means that CIOs need to implement and operate workloads in local data centers for at least the next decade.

FUNCTIONAL CAPABILITIES

This section describes the critical capabilities of the Oracle Cloud at Customer portfolio.

Very High Identity

Identity is one of the key advantages of a next-generation computing platform because it allows CxOs to move workloads more easily between on-premises locations and the cloud. The lower the degree of identity, the harder it is to move workloads, and fewer loads can be transferred automatically. Oracle has built its cloud offering over the last decade while always keeping identity in mind. For Oracle, identity has reached the point where the same machines, configuration and software versions are running in the Oracle Cloud and Oracle Cloud at Customer.

With Oracle Cloud at Customer, Oracle has delivered a complete public cloud experience that is delivered in a customer's data center and behind their firewall. This means that the Oracle SaaS, PaaS and IaaS are available both in the Oracle public cloud and on-premises. Oracle not only provides the same technical feature set but also the public cloud financial model, enabling pay-as-you-go mechanisms. Likewise, the operational model of the public cloud is supported by Oracle Cloud at Customer, with Oracle providing system operations and maintenance, not the customer. This enables enterprises to retain physical control over the hardware because they are in charge of physical security. Effectively, Oracle Cloud for Customer enables a hybrid cloud operating model, should an enterprise require this.

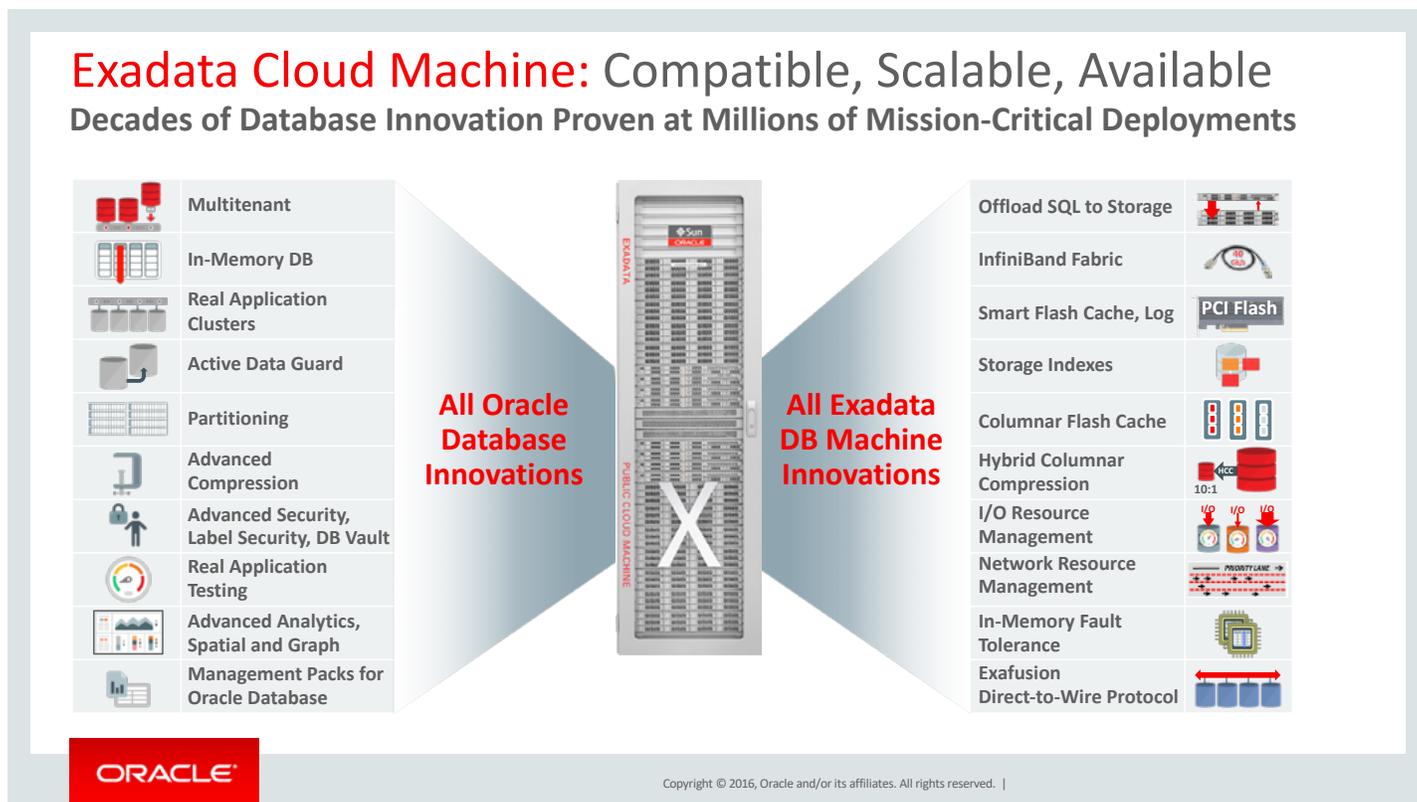
This gives Oracle Cloud at Customer customers the ability to experience public cloud benefits—most prominently, elasticity. Customers also benefit from the financial model of the cloud, as they have to pay only for IT resources that are being consumed. Moreover, the operational model is characterized by high scalability because clients use the same operational model to run their on-premises computing as Oracle does in the Oracle Cloud. The big benefit for customers, as in all on-premises deployments, is that they retain physical control over machines, workload and data all in their data center. These are important qualities from data privacy/locality, performance and peace-of-mind perspectives. Lastly, the identity enables a seamless load transfer between on-premises environments and the public cloud, moving workloads between locations as needed by an enterprise, giving CxOs a maximum degree of workload deployment flexibility.

This is not trivial to achieve as many new computing architecture offerings have been designed cloud-first, without on-premises operating requirements in mind. Scaling them back and making them work on-premises is not easy and typically results in a compromise. Oracle, on the other hand, has designed its Oracle Cloud and Oracle Cloud at Customer technology stack to be the same, resulting in the highest degree of identity. This enables CxOs using Oracle to benefit from the R&D put into the cloud technology stack, as well as benefits on the operating side, while being able to deploy these capabilities in their own data centers. Oracle has achieved the highest identity among the cloud and on-premises technology stacks from all vendors reviewed by Constellation in the recent Market Overview on next-generation computing platforms.

Exadata at Customer Is at the Core of Cloud at Customer

Given the vast capabilities of Oracle Cloud at Customer, a review of all its offerings is beyond the scope of this report. Therefore, Constellation is focusing on what most enterprises have installed from Oracle—its database. CxOs are looking for more cost-effective, elastic and flexible ways to manage their database loads in the 21st century rather than the traditional on-premises model of sizing a machine and then running it for three to four years. Oracle has combined the capabilities of its Oracle Database with Oracle Exadata Database Machine into one offering, Oracle Exadata Cloud at Customer (see Figure 2), designed to run its database most efficiently in a cloud model. For instance, the offload of SQL to storage and the built-in InfiniBand Fabric coming from the Oracle Exadata Database Machine

Figure 2. Oracle Exadata Cloud at Customer: Key Capabilities



Source: Oracle

are key functionalities that are important to public cloud hardware setups. On the database side, Oracle combines it with features such as Multitenant, Active Data Guard and Advanced Compression. The benefit of this engineering work for CxOs is that they can experience the same hardware/software setup that Oracle uses in the Oracle Cloud, in their own data centers with Oracle Cloud at Customer, specifically for its database workloads.

Overall, Oracle Exadata Cloud at Customer is a great proof point of the Oracle chip-to-click technology stack. Oracle has designed a platform that is optimized to run its database loads most efficiently in its cloud data centers.

Identity Enables Cloud Bursting

One of the biggest challenges of the traditional computing paradigm was that hardware had to be sized to the workload. Underprovisioning hardware would result in higher business costs because enterprises would have to wait for processes to be completed and capacity made available. Meanwhile, overprovisioning hardware would result in higher capital expenditure costs for enterprises as underutilized machines ran in the data centers, generating operating expenses for electricity, cooling, physical security and more. Sizing machines right was something between an art and science in the pre-cloud computing era. Cloud infrastructure is designed to be elastic, scaling up and down according to computing needs. On the commercial side, this meant that enterprises would only pay for the computing resources they would consume. The bigger promise made was that enterprises would also be able to “burst” their on-premises loads to the cloud as needed when capacity ran dry.

Oracle has achieved a technical capability for cloud bursting that has not been achieved to this level by any other vendor. Typically, cloud bursting (see Figure 3) would require a custom technology stack, a lot of planning, hand-holding and, in some cases, even a bit of luck. Oracle has demystified that process, benefiting from the high identity of the two technology stacks. This leads to substantial savings for enterprises, which do not have to provision Oracle Cloud at Customer to peak and buffer levels but can instead focus on average loads. Assuming the peaks are not happening too often, this will lead to operational cost savings as well. CxOs should still be careful, though, not to undersize their on-premises capacity, calculating through the cost of bursting to Oracle Cloud as well as possible before deployments.

Cloud at Customer Frees Up IT Operations

On paper, one of the inherent challenges of next-gen computing architectures is the notion of managing highly complex and scalable cloud technology stacks, which were never intended to be operated by enterprise IT shops, inside the corporate data center.

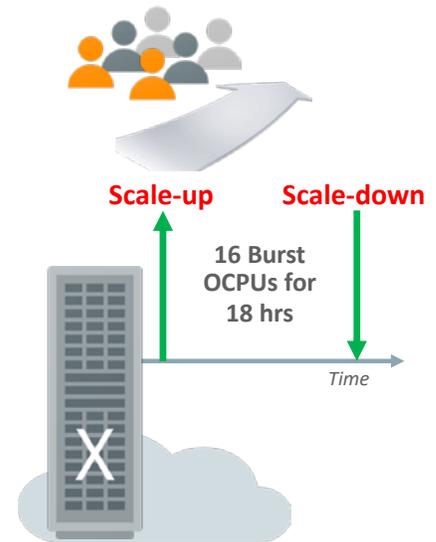
To help customers, Oracle offers on-site operations management for Cloud at Customer systems. This means a clearly defined division of labor between enterprises and Oracle must be established.

To illustrate this, let's look at Oracle's Exadata machines. Oracle has counted 81 operational tasks

Figure 3. How Oracle Enables Cloud Bursting with Oracle Exadata Cloud at Customer

Online Scale-up Through Compute Bursting

- Grow/shrink compute capacity to meet peak or seasonal demands
- **Dynamically** add or reduce OCPUs as often as once an hour
- Hourly rates to lower costs – avoids the need to provision for peak
- Burst up to 2x the base number of OCPUs or max capacity (whichever is lower)
- GUI-based self-service
- Save money by not having to provision for peak times



ORACLE

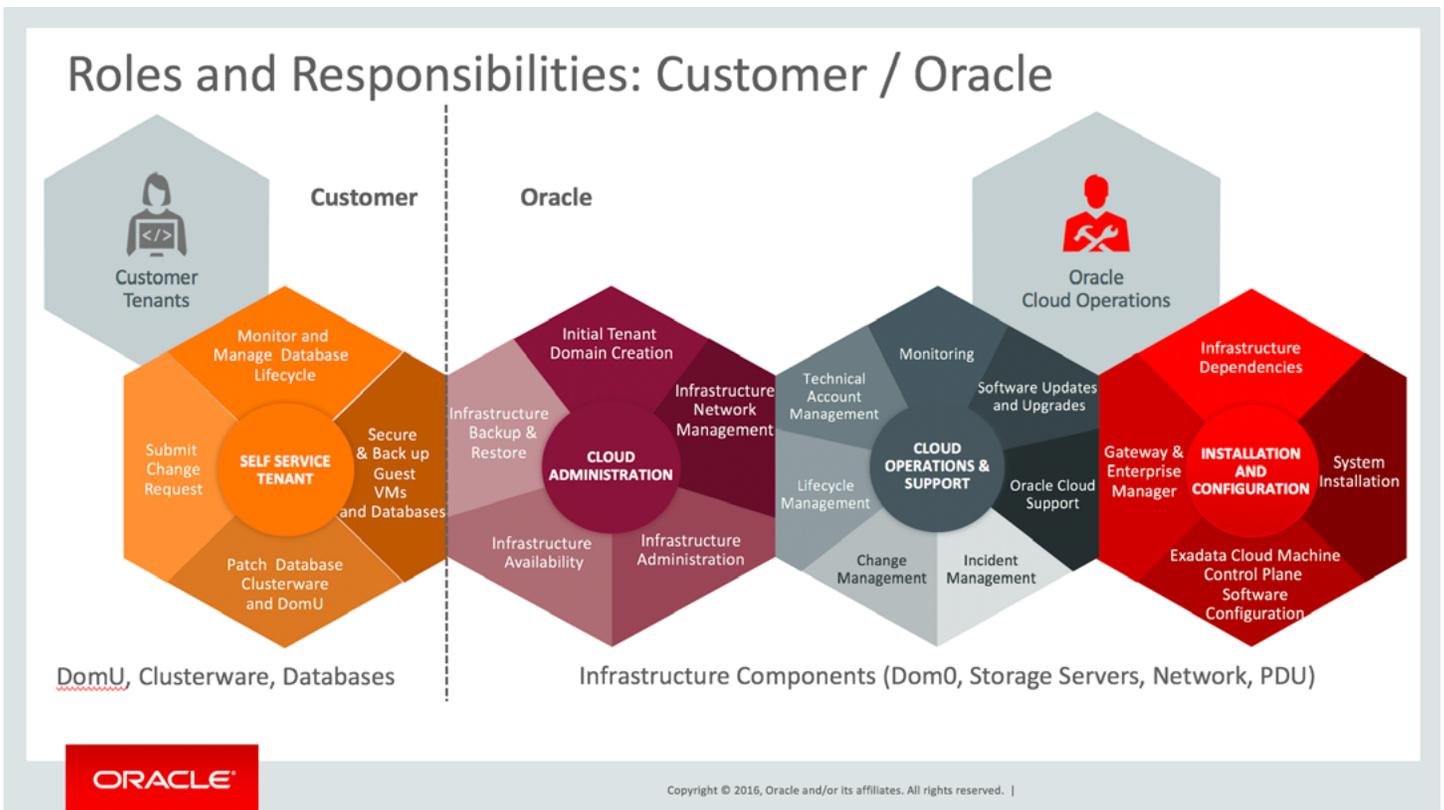
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Source: Oracle

needed to run Exadata. When the customer runs Exadata, it is responsible for 61 of these tasks. When the model switches to Oracle managing Exadata Cloud at Customer on-site as part of the service, the model flips: Now the customer is left with 28 processes, and Oracle provides 53 (see Figure 4 for an overview). The result is less complexity for enterprises, lower staffing needs and fewer skills that have to be acquired.

Making cloud technology stacks manageable on an enterprise level is a substantial challenge, even for the largest enterprises. Vendors, on the other hand, can scale to thousands of customers. Oracle is effectively establishing compute nodes (in physical servers) that can be managed centrally by the vendor, regardless of physical location. A lot of capability needs to be in the platform—one just needs to consider the security and access aspects of such a solution—but Oracle has done its homework and spent the time and R&D budget to achieve this. The benefit for CxOs is that they can focus on workloads and next-generation applications and not so much on the necessary lower-level plumbing.

Figure 4. An Example of the Division of Labor Between Customer and Oracle for Oracle Exadata Cloud at Customer



Source: Oracle

PRICING

Oracle has optimized the pricing both from a technical (minimum number of cores) and a usage perspective (CPU-based pricing). CXOs need to make sure that the minimum requirements are not too steep for their workloads and that they can derive a total-cost-of-ownership advantage. As usual, enterprises should negotiate well with Oracle (as with any other vendor) because discounts, especially in the fourth quarter of the vendor’s financial year, are always a possibility.

Oracle separates pricing between Oracle Cloud at Customer and Oracle Exadata Cloud at Customer. The latter offering separates between subscription license and bring-your-own-license (BYOL) pricing (see Figure 5). (See Figures 6 and 7 for more pricing information on pages 15 and 16.)

Figure 5. Oracle Cloud at Customer Pricing

PRODUCT	MONTHLY SUBSCRIPTION FEE (IN USD)	MINIMUM TERM
Oracle Cloud Control Plane (minimum 1 required per data center)	\$12,000	48 months
Oracle Cloud at Customer Compute 40 (minimum 3 required per data center)	\$3,000	48 months
Oracle High Performance Block Storage 32 (minimum 1 required per data center)	\$4,300	48 months
Oracle Cloud at Customer Object Storage 128 (minimum 1 required per data center)	\$4,200	48 months

Source: Oracle (https://cloud.oracle.com/en_US/cloud-at-customer/oracle-cloud-at-customer/pricing)

Figure 6. Oracle Exadata Cloud at Customer, with Inclusion of Oracle Database Enterprise Edition Extreme Performance

PRODUCT	PRICE	METRIC	MINIMUM	SERVICE INCLUDES PER MONTH
Oracle Database Exadata Cloud at Customer X7 Base System	\$35,000.00	Each	—	16 enabled OCPUs. Up to 28 additional OCPUs (purchased separately). Infrastructure managed and operated by Oracle.
Oracle Database Exadata Cloud at Customer X7 Quarter Rack	\$47,500.00	Each	—	22 enabled OCPUs. Up to 70 additional OCPUs (purchased separately). Infrastructure managed and operated by Oracle.
Oracle Database Exadata Cloud at Customer X7 Half Rack	\$95,000.00	Each	—	44 enabled OCPUs. Up to 140 additional OCPUs (purchased separately). Infrastructure managed and operated by Oracle.
Oracle Database Exadata Cloud at Customer X7 Full Rack	\$190,000.00	Each	—	88 enabled OCPUs. Up to 280 additional OCPUs (purchased separately). Infrastructure managed and operated by Oracle.
Oracle Database Exadata Cloud at Customer X7 Additional OCPUs	\$1,250.00	Each	1 per DB node	Additional enabled OCPUs. OCPUs added must be in multiples of: 2 for Base System/Quarter Rack, 4 for Half Rack, 8 for Full Rack. Total enabled OCPUs must not exceed the maximum limit for the particular Exadata Cloud at Customer system.
Oracle Database Exadata Cloud at Customer X7—Additional OCPUs—Metered	\$4.2003	Each	1 per DB node	Additional enabled OCPUs (also referred to as Burst OCPUs). Burst OCPUs can be added or reduced up to once an hour. OCPUs added must be in multiples of: 2 for Base System/Quarter Rack, 4 for Half Rack, 8 for Full Rack. Total enabled OCPUs cannot exceed 2x base number of OCPUs, and the maximum limit for the particular Exadata Cloud at Customer system.

Refer to Oracle Database Cloud Service for details on Oracle Database Enterprise Edition Extreme Performance (https://cloud.oracle.com/en_US/database/pricing).

Source: Oracle (https://cloud.oracle.com/en_US/database/exadata-cloudatcustomer/pricing)

Figure 7. Oracle Exadata Cloud at Customer: BYOL

PRODUCT	PRICE	METRIC	MINIMUM	SERVICE INCLUDES PER MONTH
Oracle Database Exadata Cloud at Customer X7 Base System BYOL	\$18,840.00	Each	—	16 enabled Oracle Database Exadata OCPUs—BYOL. Up to 28 additional OCPUs (purchased separately). Infrastructure managed and operated by Oracle.
Oracle Database Exadata Cloud at Customer X7 Quarter Rack BYOL	\$25,280.00	Each	—	22 enabled Oracle Database Exadata OCPUs—BYOL. Up to 70 additional OCPUs (purchased separately). Infrastructure managed and operated by Oracle.
Oracle Database Exadata Cloud at Customer X7 Half Rack BYOL	\$50,560.00	Each	—	44 enabled Oracle Database Exadata OCPUs—BYOL. Up to 140 additional OCPUs (purchased separately). Infrastructure managed and operated by Oracle.
Oracle Database Exadata Cloud at Customer X7 Full Rack BYOL	\$101,120.00	Each	—	88 enabled Oracle Database Exadata OCPUs—BYOL. Up to 280 additional OCPUs (purchased separately). Infrastructure managed and operated by Oracle.
Oracle Database Exadata Cloud at Customer X7 Additional OCPUs BYOL	\$240.00	OCPU per month	1 per DB node	Additional enabled OCPUs. OCPUs added must be in multiples of: 2 for Base System/Quarter Rack, 4 for Half Rack, 8 for Full Rack. Total enabled OCPUs must not exceed the maximum limit for the particular Exadata Cloud at Customer system.
Oracle Database Exadata Cloud at Customer X7— Additional OCPUs— BYOL— Metered	\$0.8065	OCPU per hour	1 per DB node	Additional enabled OCPUs (also referred to as Burst OCPUs). Burst OCPUs can be added or reduced up to once an hour. OCPUs added must be in multiples of: 2 for Base System/ Quarter Rack, 4 for Half Rack, 8 for Full Rack. Total enabled OCPUs cannot exceed 2x base number of OCPUs, and the maximum limit for the particular Exadata Cloud at Customer system.

Source: Oracle (https://cloud.oracle.com/en_US/database/exadata-cloudatcustomer/pricing)

ANALYSIS AND OBSERVATIONS

For CxOs making decisions on their next-generation computing platform, Oracle brings a lot to the table. With the highest identity of cloud and on-premises products available, Oracle makes the transition of loads from on-premises to the cloud and vice versa easy. The biggest concern arises around commercial tactics.

Strengths

Oracle Cloud at Customer possesses the following strengths compared with others in the market:

- **Highest identity of cloud and on-premises functionality.** Oracle Cloud at Customer delivers flexibility at times of uncertainty, including from legislative, top management and best practices perspectives. The main aspect of flexibility for computing platforms is the ability to transfer workloads between the cloud and on-premises. Enterprises are attracted to Oracle Cloud for Customer by the identity of the solution. They run on the same machines and have the identical setup. No other competitor can offer that.
- **One-stop shopping for management services.** Oracle Cloud at Customer offers on-premises management services as discussed on page 8. This is helpful for CXOs who struggle to find people with the right skills to run their IT operations. When it comes to run a complete cloud technology stack on-premises, it is very hard for enterprises to provide know-how and services in-house. Therefore, the Oracle offer to service and support the Cloud at Customer machines deployed on-premises with enterprise expertise is a key service and strength.
- **Integrated, chip-to-click stack.** Oracle is pursuing its founder and CTO Larry Ellison's vision of becoming the IBM of the 21st century, offering a fully integrated technology stack, designed, engineered and operated together, from the Oracle-designed silicon all the way to the mouse click of an end user using a SaaS application. No other vendor is currently pursuing that complete vision of a technology stack. This is likely the largest software and hardware engineering effort of our time and, as such, offers substantial

simplification, TCO and efficiency savings, and it all comes from Oracle. The desire of the legendary “one butt to kick” has never been closer to being achieved.

- **Cloud burst capability of workloads.** One of the benefits of the chip-to-click stack is that loads can transfer dynamically. CxOs using Oracle Cloud at Customer do not have to size their local Oracle (likely Exadata) machines to the load peaks but, rather, can operate with an average load (and a reasonable buffer). Typically, occurring loads can be burst to the Oracle Cloud, a unique value proposition today, saving enterprises potentially huge amounts in hardware costs.
- **Optimized for the leading RDBMS.** Oracle is the leading relational database management system (RDBMS) vendor; Constellation estimates that 30–40 percent of enterprise systems are either an Oracle RDBMS system or a third-party system that is so inextricably linked to the Oracle RDBMS that moving rarely makes sense from an operations and cost perspective. Oracle Cloud at Customer is optimized to run Oracle RDBMS loads and, with that, is attractive for CXOs to evaluate as a more modern and cost-optimized platform.

Weaknesses

Oracle Cloud at Customer possesses the following weaknesses compared with others in the market:

- **Predominantly known as RDBMs vendor.** Despite all the investments into PaaS and SaaS, Oracle remains primarily known as leading database vendor. CxOs have traditionally trusted other vendors to enable their computing platform, a mix of hardware, networking and more vendors. Oracle needs to overcome that perception from the past and position itself as a complete hardware, networking and software-layer vendor.
- **Catch-up mode on public cloud infrastructure vs. leaders.** Oracle has had numerous starts into the public cloud but only recently has what Oracle calls the second-generation IaaS seen traction and success. Oracle needs to showcase IaaS viability and

capex investment to give CxOs the confidence that there will always be a cloud option to which they can migrate their workloads.

- **CxOs' perception of Oracle.** At best, CxOs see Oracle as a challenging vendor. Too many stories of unfavorable, harsh commercial business tactics are out there—some true, some in the realm of myth. Oracle must make it easier to do business with the company, and manage the transition from being a respected to a liked technology partner for CxOs.
- **Less modern ISV uptake than “old-guard” ISV uptake in the past.** CxOs want to simplify things, and in the past a lot of Oracle technology was sold to the enterprise, because independent software vendors (ISVs) used Oracle as their technology stack. CxOs would keep platforms on Oracle for simplicity and compatibility reasons. But fewer new and recently founded ISVs have built technology on Oracle, so that historic advantage is slowly disappearing. It's something CxOs have to consider in their analysis of whether to invest in the chip-to-stack vision, or how much.
- **Integrated stacks don't harmonize with heterogeneous systems landscapes.** As enterprises have built up considerable technical debt over time, they operate a vast number of systems and platforms. Enter Oracle with its integrated stack, and it has forced an all or nothing approach regarding the system landscape. In some situations, enterprises need to keep operating these platforms for the foreseeable future and can't move to Oracle Cloud at Customer.

Opportunities

Oracle Cloud at Customer presents these opportunities for customers:

- **Shrink-wrap replacement offerings—e.g., for SaaS portfolios.** CxOs are under pressure to achieve scale, and when they see a next-generation computing platform like Oracle, they want to consolidate more loads on the platform. For Oracle, this means that Oracle can offer shrink-wrapped upgrades for its older business applications (for instance,

e-Business Suite, Siebel, JD Edwards, etc.) to move to Oracle's SaaS portfolio but deployed on-premises with Oracle Cloud at Customer. A next step would be to offer that for third-party enterprise applications as well.

- **Extend services for non-Oracle software via third-party services.** CxOs want complete solutions. They will want to run more workloads on Oracle Cloud at Customer, especially other ISVs solutions that run on Oracle (for instance, think of SAP). Technically, this is supported platform-wise but not services-wise. And while Oracle is not expected (and shouldn't be) to provide support for third-party software, a blended support and service agreement between Oracle and third-party vendors is desirable for CxOs and hence is an opportunity for Oracle.
- **Allow for third-party software on Oracle RDBMS to become part of Cloud at Customer.** Along the same lines, Oracle may consider improving its value proposition to the point of offering support on a platform level for third-party/partner application loads, as enterprises are and will be running third-party software that leverages part of the Oracle technology stack. A way forward for the large Oracle ecosystem is something that joint customers hope for and expect. This is Oracle's opportunity to lose.
- **Self-driving capabilities need to be applied to the whole offering.** Oracle has done well articulating and delivering the self-driving RDBMS platform for its database. And while Oracle Cloud at Customer has all the self-driving database capabilities, Oracle needs to expand the self-driving approach to all aspects of the offering.

Threats

Oracle Cloud at Customer exposes customers to the following potential threats:

- **Database migration alternatives get (so far) no or very little traction.** While the competition has tried and is certainly not giving up, Oracle has been able to keep almost all of its main business customers, the database customers. But the competition sees that business and is trying to get customers to move to alternative platforms. If

competitors succeed at an increasing rate, the alarm bells in Redwood Shores will be ringing at maximum volume. CXOs are keeping a keen eye on this because a reduction of market potential for Oracle Cloud at Customer will reduce their future growth and sustainability with the offering. Products with less market traction get subsequently less investment by vendors and are always at the risk of being phased out.

- **Microsoft expanding Azure Stack footprint to Oracle Cloud at Customer levels.** The closest competitor—with a deep enterprise understanding and sales force that has a traditional entry with the CxO—is Microsoft. Currently, Microsoft doesn't offer the same level of identity between cloud (Azure) and on-premises (Azure Stack), but Microsoft could get this to similar or even identical levels, depriving Oracle of one its key differentiators. Early adopters of Oracle Cloud at Customer would get understandably nervous if there is not a market success materializing after them for the same platform on which they run their enterprise. Why should CxOs care? It's a question of carefully weighing what's available now and could be in the near future before placing significant financial bets on a next-generation computing platform.
- **Most complex stack since IBM in the 1950s (and magnitudes more complex) collapses on itself.** Oracle is undertaking a massive engineering feat, from the silicon all the way to the user experience (the chip-to-click stack). So far, the development team has performed very well. Traditional stories of failures and challenges with Oracle software have not popped up in recent years even remotely to the level they were a decade and longer ago. But what goes well may one day go wrong, and Oracle's deep integration could have quick and massive downtimes if something were to go wrong (which no one hopes).³
- **Popular container platforms get persistence right.** With compute load being revolutionized by container technology—most prominently, Kubernetes—the standard as well as the vendors supporting containers may tackle persistence next. Persistence matters to enterprises because they need to record information for business and statutory reasons, so any shape of container-based persistence that is easily consumed by enterprises could become a threat to Oracle RDBMS leadership.

Figure 8. Oracle Cloud at Customer SWOT Diagram



Source: Constellation Research

RECOMMENDATIONS

The following recommendations can be made for CxOs looking at their computing architecture:

- **Enable enterprise acceleration.** Enterprises need to move faster than ever before, and IT/computing infrastructures cannot remain the shackles on agility that they have been in the past. This is why CxOs look for next-generation computing platforms that allow them to transfer workloads from on-premises to the cloud and vice versa. This is a key strategy to help the technical side of an enterprise contribute to the overall objective and necessity of enterprise acceleration.

- **Select companies that have the greatest capability of identity.** Identity is the key to work load portability. The higher the identity between an on-premises architecture and a cloud architecture, the better the chances to move workloads. This argument is intuitively clear to CxOs leading the transformation, and platforms with high identity are therefore clearly preferred. Even better when vendors state that they designed for identity and want to keep identity high—as high as technically feasible. As stated in this report, Oracle excels at identity between the Oracle Cloud and the Oracle Cloud at Customer platforms.
- **Evaluate Oracle Cloud at Customer as existing customers.** As most customers run the Oracle Database in one way or the other, it is important that they familiarize themselves with the most prominent member of the Oracle Cloud at Customer product family, Oracle Exadata Cloud at Customer. Being able to lower TCO, reduce support and maintenance, fit sizing to the average load of the machine, burst to the cloud for peaks and transfer loads between Oracle Cloud and on-premises are substantial benefit drivers that CxOs cannot ignore.
- **Consider Oracle’s option as a prospect.** Database and tech stack migrations are challenging, so non-Oracle customers will look at Oracle Cloud at Customer with some distance. The benefits of Oracle Cloud at Customer are substantial, though, and CxOs need to talk with their respective cloud and technology stack vendors about what they can do in this regard. Should the projected gap of future road map become too large, and the potential cost savings with Oracle Cloud at Customer substantial enough, it is time to pay attention, but consider a potential migration.
- **Take a stance on commercial prudence.** No matter which vendor, enterprises need to make sure they pay for value. For Oracle Cloud at Customer, CxOs need to pay attention that licenses and services (for instance, costs to burst to the cloud) are still providing their enterprise with an attractive TCO. As with all services-related offerings, prices will fluctuate, need to be contractually agreed as long as desired and need to be constantly monitored to avoid negative commercial surprises.

Oracle has invested for a long time, and practically gave up on short-term, incremental growth areas in the marketplace to get its products—engineered and designed from the silicon all the way to the SaaS application suite—together in one technology stack. Oracle has always kept the ability to deploy the same infrastructure on-premises, likely to anticipate customer demands as well as knowing that Oracle’s IaaS offering was the last of the Oracle “as-a-service” products to reach maturity. This has put Oracle in a favorable position compared with the competition for next-generation computing architectures because it gives CxOs the highest flexibility to fluidly deploy workloads across the cloud and on-premises.

RELATED RESEARCH

For the Market Overview, see: Holger Mueller, “Next-Gen Computing: The Enterprise Computing Model for the 2020s,” Constellation Research, September 14, 2018. <https://www.constellationr.com/research/next-gen-computing-enterprise-computing-model-2020s>

For a Constellation ShortList™ on IaaS vendors, see: Holger Mueller, “Constellation ShortList™ Global IaaS for Next-Gen Applications,” Constellation Research, August 15, 2018. <https://www.constellationr.com/research/constellation-shortlist-global-iaas-next-gen-applications-1>

Holger Mueller, “The Era of Infinite Computing Triggers Next-Generation Applications,” June 1, 2018. <https://www.constellationr.com/research/era-infinite-computing-triggers-next-generation-applications>

For the people-leader perspective on the skills shortage and the need for enterprise acceleration, see: Holger Mueller, “Why People Leaders Must Embrace Enterprise Acceleration,” Constellation Research, July 3, 2018. <https://www.constellationr.com/research/why-people-leaders-must-embrace-enterprise-acceleration>

For more best-practice considerations for PaaS offerings, see: Holger Mueller, “As PaaS Turns Strategic, So Do Implementation Considerations,” Constellation Research, May 9, 2018. <https://www.constellationr.com/research/paas-turns-strategic-so-do-implementation-considerations>

For more on next-gen applications and PaaS offerings, see: Holger Mueller, “Why Next-Gen Apps Start with a Next-Gen Platform as a Service,” April 5, 2018. <https://www.constellationr.com/research/why-next-gen-apps-start-next-gen-platform-service>

For a Constellation ShortList™ on PaaS vendors, see: Holger Mueller, “Constellation ShortList™ PaaS Tool Suites for Next-Gen Apps,” Constellation Research, August 22, 2018. <https://www.constellationr.com/research/constellation-shortlist-paas-tool-suites-next-gen-apps>

Also: Holger Mueller, “Constellation ShortList™ PaaS Suites for Next-Gen Apps,” August 22, 2018. <https://www.constellationr.com/research/constellation-shortlist-paas-suites-next-gen-apps>

For additional IaaS and PaaS selection criteria, see: R “Ray” Wang and Holger Mueller, “Key Questions for Every Public Cloud IaaS/PaaS Decision Matrix,” Constellation Research, January 24, 2018. <https://www.constellationr.com/research/key-questions-every-public-cloud-iaaspaas-decision-matrix>

For an example of digital transformation, see: Holger Mueller, “Lufthansa Digitally Transforms the Workplace for Flight Managers,” Constellation Research, February 27, 2018. <https://www.constellationr.com/research/lufthansa-digitally-transforms-workplace-flight-managers>

Check the Constellation Research website at www.constellationr.com for more Offering Overviews for the vendors covered in “Market Overview—Next-Gen Computing: The Enterprise Computing Model for the 2020s.”

ENDNOTES

¹ For a Constellation ShortList™ on IaaS vendors, see: Holger Mueller, “Constellation ShortList™ Global IaaS for Next-Gen Applications,” Constellation Research, August 15, 2018. <https://www.constellationr.com/research/constellation-shortlist-global-iaas-next-gen-applications-1>

² Holger Mueller, “The Era of Infinite Computing Triggers Next-Generation Applications,” Constellation Research, June 1, 2018. <https://www.constellationr.com/research/era-infinite-computing-triggers-next-generation-applications>

³ During the editing process of this Offering Overview, Thomas Kurian left Oracle officially on September 28, 2018, so CXOs need to pay special attention to how Oracle is doing going forward quality- and integration-wise for its products and offerings.

ANALYST BIO

Holger Mueller

Vice President and Principal Analyst

Holger Mueller is vice president and principal analyst at Constellation Research, providing guidance for the fundamental enablers of the cloud, IaaS, PaaS, with forays up the tech stack into big data, analytics and SaaS. Holger provides strategy and counsel to key clients, including chief information officers (CIO), chief technology officers (CTO), chief product officers (CPO), investment analysts, venture capitalists, sell-side firms and technology buyers.

Prior to joining Constellation Research, Holger was VP of products for *NorthgateArinso*, a KKR company. He led the transformation of products to the cloud and laid the foundation for new business-process-as-a-service (BPaaS) capabilities. Previously, he was the chief application architect with *SAP* and was also VP of products for *FICO*. Before that, he worked for *Oracle* in various management functions—both on the application development (CRM, Fusion) and business development sides. Holger started his career with *Kiefer & Veitinger*, which he helped grow from a startup to Europe's largest CRM vendor from 1995 onwards. Holger has a Diplom Kaufmann from University of Mannheim, with a focus on Information Science, Marketing, International Management and Chemical Technology. As a native European, Mueller speaks six languages.

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