



Bringing the cloud to your data center

Simplicity and agility without moving apps or data

A dbInsight white paper for Oracle

Executive Summary

Trigger

Recent upheavals in the world economy have accentuated the need for enterprises to become more agile and resilient. The challenge is that the technology that is essential for enterprises to run their core business-critical systems is often the obstacle to agility and resiliency. The sheer variety, size, and number of databases has exploded, with most enterprises struggling to keep up even with routine maintenance, not to mention maximizing cost and efficiency from their database and IT operations. Enterprises need to simplify the operation of their technology systems so they can devote their energies, not to simply keeping the lights on, but managing change, innovation, and resiliency without the risk of disrupting or jeopardizing the core operations of the business. Many want to move to the cloud, but without the risks of moving their apps or data.

Our take

The cloud offers a transformational opportunity that could allow enterprises to simplify IT and make their business more agile by relieving them of the burden of budgetary, operational, and staffing bottlenecks. That applies equally to keeping the lights on with existing systems, along with procuring and installing new infrastructure for deploying new systems and solutions. There are several key developments in cloud platforms that will make transformational opportunity reality.

- **Emerging demand for hybrid cloud.** As enterprises are looking at the cloud to simplify IT and apply new flexibility, many are looking to hybrid cloud options for applications and data where policies, performance, or other requirements preclude deployment of critical data and applications to public clouds.
- **Autonomous, or self-running systems.** This takes IT simplification a big step forward by taking advantage of machine learning (ML) to configure and run systems, reducing, or eliminating the need for manual intervention. Autonomous systems can free up resources that can be redirected to supporting innovation and business resiliency.
- **The option for dedicated cloud regions.** This provides companies with new options for segregating workloads for organizations where latency, comingling of data, or data sovereignty issues are critical.

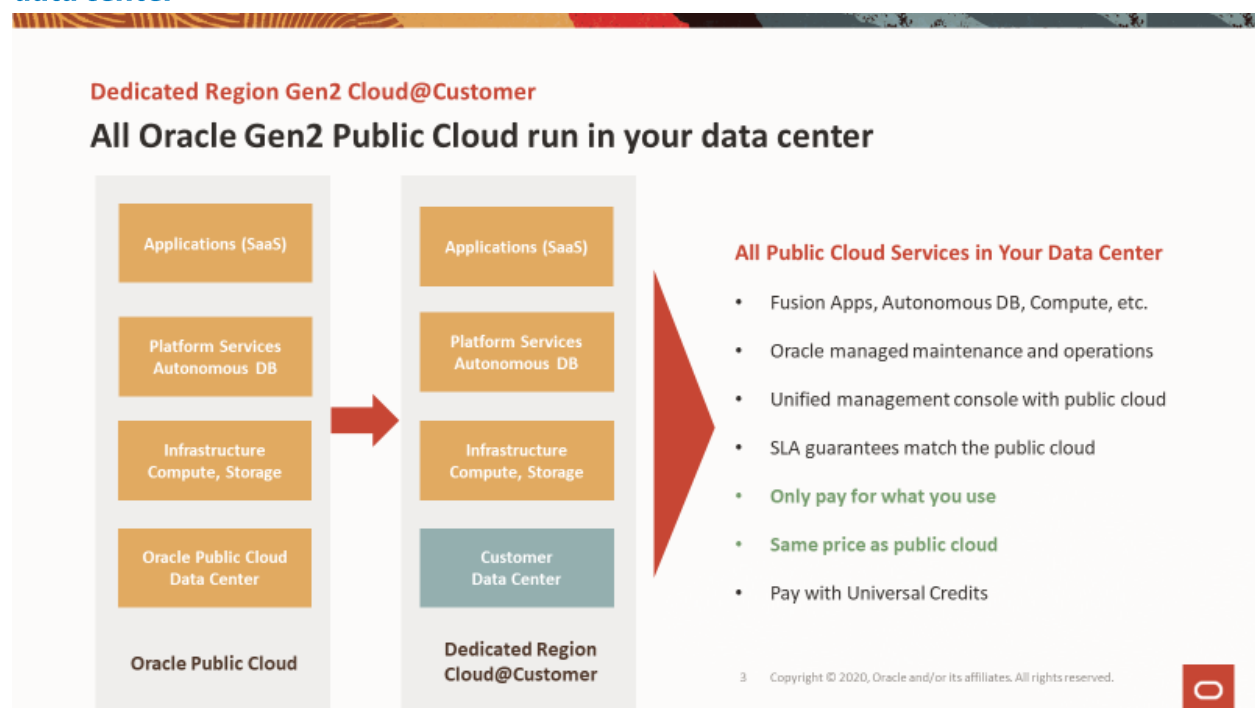
Oracle is the first and only provider to support all of these options. With 3+ years of service under its belt, Oracle Cloud@Customer was the first platform on the market to offer a completely vendor-managed cloud experience to enterprises within their own data centers. Today, it is one of the few in an emerging hybrid cloud-platform landscape to offer such end-to-end managed cloud service support. And, with its recent announcement, it is the only supplier to deliver a full machine learning powered Autonomous Database with a choice of

over 50 public cloud services on-premises. That enables customers to use the same infrastructure services, platform services, database software, and SaaS applications across various deployment choices in a customer's data center or in the Oracle public cloud.

Oracle is also the only provider to offer a fully self-running database. As previously mentioned, Oracle Autonomous Database, which is available in transaction processing and data warehouse configurations, is a cloud-managed self-running service that can run existing customer databases without changes to schema or code. After nearly 36 months in the field, it has delivered significant cost savings with a service that is providing 99.995% availability including planned and unplanned downtime; Oracle is the first, and so far, the only provider to make that service available, both in the public cloud and on-premises.

Oracle Dedicated Region Cloud@Customer (see Figure 1), which provides the segregation of services and workloads that many organizations require, brings access to all of Oracle's 50+ Infrastructure-as-a-Service (IaaS), Platform-as-a-Service (PaaS), and Fusion applications (Software-as-a-Service, or SaaS) services to the customer's data center. It offers more services than any other hybrid cloud platform currently on the market. Oracle is closing the loop, allowing customers to realize the same transformational benefits of the cloud regardless of whether they run inside their data center or in the public cloud.

Figure 1. Oracle Cloud@Customer Dedicated Region brings the Oracle cloud into your data center



Source: Oracle

Keeping the lights on won't cut it any more

Agility has become Job One

Change is hardly new for most businesses. The dislocations brought on by globalization, digital commerce, and accelerating economic cycles have become routine in the 21st century. Agility has become an established mindset for enterprises that have assumed that change is constant in their competitive landscapes. When enterprises become agile, their businesses can stay resilient as their competitive landscapes change.

The data estate keeps growing

There is nothing new about the growth of the data estate. There are numerous cross-industry projections showing the sheer volumes of data being generated growing geometrically year over year. And for most organizations, the processing of new types of data is hardly new; we used to call this “Big Data,” but today, the consumption of data outside enterprise transaction systems has become sufficiently routine that we simply think of it as “data.” The data world has seen emergence of fit-for-purpose databases, such as for document, key-value, graph, or time series data, and the extension of existing databases to support multi-model approaches. For most organizations, the volume and variety of data has multiplied – as has the number of databases under management. This is contributing to a growing management bottleneck. Since each single-purpose database has different development and operational requirements, and requires specialized management tools, practices and skill sets.

Instead, Oracle intelligently integrates support for all key workload in its current Database 19c, including OLTP, Data Warehouses, plus a wide array of development tools, including Advanced SQL, PL/SQL, JSON, Spatial, Analytic, IoT, Machine Learning, In-Memory, Time Series, Graph, and more. As a result, both IT and developers benefit from Oracle’s converged database. It provides a common management target and eliminates the need for developers to move data from one specialized database to another. This unified, converged database model forms the basis for the Autonomous Database, which introduces sophisticated layers of machine learning across this multi-model construct to automate many manual functions.

Keeping the lights on — The new tradeoff?

As data and databases are proliferating across the enterprise, routine tasks that were traditionally considered manageable are growing exponentially. Setup tasks such as configuring databases, creating indexes, procuring and provisioning infrastructure, and physical deployment, all require significant lead time. Meanwhile, maintenance burdens such as patching, upgrading, re-tuning the database, and optimizing queries can often result in significant labor and downtime. Multiply the time and cost of each of these operations, and the overhead for simply creating and running a single database consume significant time and resources. As their competitive landscapes are in upheaval, enterprises are facing trade-offs

between keeping databases running vs. modernizing or creating new systems for supporting their ability to succeed as their worlds change.

Enterprises are embracing the cloud

A transformational opportunity

The cloud presents a transformational opportunity for enterprises that extends well beyond its original purpose of providing more convenient ways for accessing compute capacity through operational expense (OpEx) budgets. The key is cloud-native architecture that fully virtualizes resources, makes compute elastic, and provides flexibility for customers to scale compute and storage as necessary. In place of having to plan ahead and manage capacity, customers get access to compute and storage, and manage resource consumption with a pay-as-you-go subscription model.

With its built-in virtualization, the cloud provides a simplified control plane for customers to manage and deploy applications and databases. The result is that organizations need not manage the integration of multiple toolchains to set up, deploy, and run the systems that run their businesses. And that is where the business advantages come in. Cloud-native deployments enable enterprises to become more *agile* in deploying new apps or systems necessary to sustain their business, while enabling them to take advantage of new business opportunities and become *resilient* when their markets suddenly change.

Evolution of cloud adoption

For enterprises, the role of the cloud is changing. The cloud used to be about cost and convenience, but today, enterprises are viewing the cloud as an opportunity to simplify their IT operations to support the broader mission of becoming more resilient and reduce costs.

As shown in Figure 2, use of the cloud is nothing new to most enterprises. After getting introduced through tactical and opportunistic use cases such as employee-purchased cloud file storage services, DevTest, or development of new mobile apps, enterprises are now looking at the cloud to simplify IT and apply new flexibility to addressing their core business-critical systems. Excluding digital born-in-the-cloud apps, the starting assumption for core business-critical systems has been on-premises deployments, with cloud deployment typically requiring justification.

Figure 2. Evolution of enterprise cloud adoption



Source: dbInsight

The ground rules are changing

Thanks to experience using the cloud, enterprises have learned how the cloud can speed time-to-benefit, support agility, and facilitate resiliency. Enterprises are now reappraising their deployment strategies, looking to the cloud as a *transformational opportunity*. The criteria for deployment decisions is shifting as more and more enterprises are starting to adopt cloud-first strategies. They are seeking to take advantage of the operational simplicity, flexibility, agility, and fast time-to-benefit that cloud-native deployment enables.

Hybrid cloud will play a major role in the next stage of cloud adoption

Welcome to the era of *The Hybrid Default*. While most enterprises have benefitted by taking advantage of public cloud services, for many, there is a major obstacle to cloud deployment for their business-critical systems that are attributable either to policy, regulation, and/or performance. Many organizations are subject to internal policies or external regulatory mandates restricting movement of sensitive data to a public cloud or any cloud data center located outside national boundaries. In other cases, the applications may have such demanding low-latency requirements that deployment over public networks or VPNs could mar performance. A related issue is applications that may be closely intertwined with other on-premises systems, making cloud deployment impractical.

That is where hybrid cloud comes in. Hybrid cloud could offer many of the benefits associated with public cloud deployment on-premises and offer a path for bridging public and private cloud. It ensures that organizations can keep their sensitive data on-premises, comply with data sovereignty regulations, and, for performance-critical scenarios, keep all operations inside the firewall on internal networks. Hybrid cloud provides a continuous cloud platform spanning from public cloud to on-premises with a consistent control plane, delivering an integrated and seamless experience, making it easy to move workloads without requiring specialized skills.

Our definition of Hybrid Cloud

There are many definitions of hybrid cloud, ranging from software-only frameworks to fully bundled products that optimize software and hardware, and from platforms that the customer implements to offerings that the vendor fully manages. Because of the diversity of perceptions of what a hybrid cloud is, we take a broad view. We define hybrid cloud as a *superset* of private and public clouds that (1) supports deployment on-premises with (2) some form of converged control that (3) is disconnected or connected to a public cloud.

Oracle brings the cloud to the data center

Oracle Exadata Cloud@Customer delivers the vendor-managed cloud experience on-premises

When it introduced Cloud@Customer back in 2016, Oracle became the first provider to deliver a vendor-managed hybrid cloud system that runs inside the customer's data center. While the hybrid cloud platform landscape has expanded since then, Oracle remains one of the only cloud providers to offer a hybrid platform that delivers a fully vendor-managed experience, on identical cloud infrastructure, on-premises.

Oracle Autonomous Database on Exadata Cloud@Customer is 100% architecturally identical with Oracle Cloud Infrastructure (OCI), enabling customers to focus on business priorities and not on mundane infrastructure maintenance tasks such as database tuning and patching.

Oracle Exadata Cloud@Customer replicates the ease and convenience of a managed cloud service inside the customer's own data center. With Cloud@Customer, Oracle customers get the same APIs, SLAs, and SDKs on both public cloud and on-premises.

It includes hardware and software that are designed to run together, with Oracle installing the system and managing the infrastructure and software. The guiding notion is delivering the benefits of a managed cloud service to customers who, for policy or other reasons, are unable to put their data assets or intellectual property in the public cloud. Oracle Exadata Cloud@Customer is now in its second generation, supporting Gen 2 Oracle Cloud Infrastructure. Gen 2 OCI optimizes the control plane, with most management functions

handled by the public cloud (rather than requiring dedicated hardware in the rack) and features simpler interconnects to the customer's on-premises networks.

With Exadata Cloud@Customer, the way was paved for Oracle to deliver the full portfolio of services of Oracle Cloud Infrastructure and SaaS applications on-premises. With this release, Oracle meets that promise, with services including:

- Exadata Cloud@Customer, which is intended for the consolidation of existing business-critical database workloads without changes to databases and applications.
- Autonomous Database on Exadata Cloud@Customer, which supports running existing Oracle Database workloads without change to the database or applications, but with the difference that the customer subscribes to an environment where everything is automated and managed by Oracle. Autonomous operations include database provisioning, tuning, clustering, disaster protection, elastic scaling, securing, and patching. This autonomy eliminates manual processes and human error while reducing costs and increasing performance, security, and availability.
- Dedicated Region Cloud@Customer, which provides access to over 50 of Oracle's second-generation public cloud services including IaaS, PaaS, and Fusion application (SaaS) services inside the customer's data center. This includes both Exadata cloud services: Exadata Cloud@Customer and Autonomous Database on Exadata Cloud@Customer. Dedicated Region allows customers to upgrade legacy applications, build new modern cloud native applications, and meet their most demanding data residency and latency requirements.

These capabilities are described below.

Introducing Autonomous Database on Exadata Cloud@Customer

The first to make the database self-driving

Oracle is the first provider to make the database autonomous. The Oracle Autonomous Database capitalizes on a decade of development of database automation, resulting in a service that not only simplifies database operation, but improves performance and efficiency, and reduces the total cost of ownership (TCO). Thanks to ease of use, developers and business analysts can become less dependent on IT, and with accompanying fast development tools, see rapid time-to-benefit. After nearly 36 months in the field, Oracle Autonomous Database has generated significant cost savings with a service that is delivering 99.995% availability including planned and unplanned downtime.

Bringing self-driving databases to the data center

Until now, the Autonomous Database was only available in the Oracle Public Cloud. With the addition of the Autonomous Database to the Exadata Cloud@Customer portfolio, enterprises that have not been able to tap the public cloud for their business-critical or sensitive Oracle Databases can now get all the benefits of a self-driving database within their own data centers. Existing Oracle Databases and applications can be lifted and shifted directly to Oracle Cloud Infrastructure services and Autonomous Database running on Exadata Cloud@Customer.

Most importantly, because the Autonomous Database runs on the same Oracle Engineered System that also runs the Exadata Database Cloud Service, customers can have it both ways. Oracle can run some databases autonomously while the customer operates other databases running alongside on Exadata; no change of hardware will be necessary. This allows flexibility, as customers may have less critical systems run autonomously while other systems require approvals or proof-of-concept trials before allowing those databases to transition to self-running status.

There is little or no risk of disruption. Autonomous Database on Exadata Cloud@Customer was designed to deliver the benefits of cloud while avoiding the risk of “lift and shift” scenarios: customers can get the advantages of an Autonomous Database without moving or changing their existing applications. Those applications stay right where they are at and are simply pointed at the same database, which is upgraded to the autonomous model if desired. If the customer already has an installation of Exadata Cloud@Customer, they will not need any new hardware, except for additional racks that might be needed if capacity expansion becomes necessary.

The Autonomous Database runs on proven technology – Exadata, used by 86% of the Fortune 100 – using the exact same Gen 2 cloud control plane and database services that are already offered in Oracle Cloud Infrastructure. And it delivers all of the benefits and features of the Oracle Cloud. That means a fully managed and fully run single-vendor solution with full accountability.

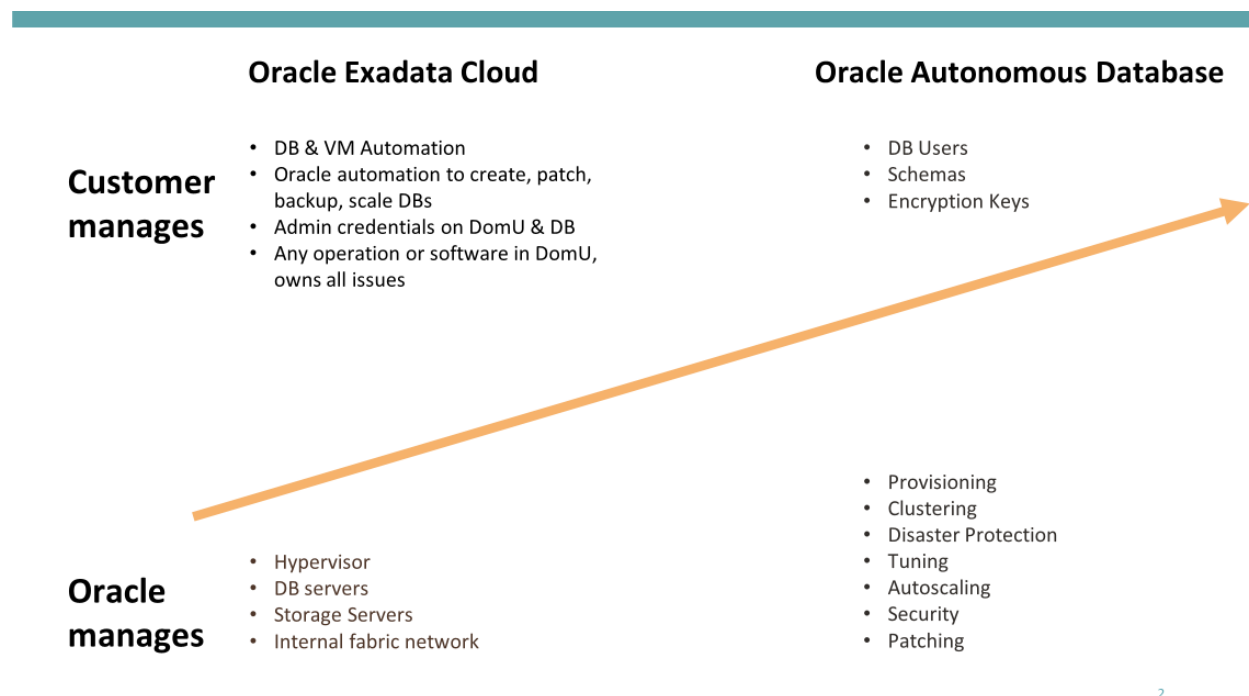
Additionally, as a *hybrid* cloud platform, Oracle Autonomous Database on Exadata Cloud@Customer supports seamless integration with Oracle Cloud Infrastructure, providing the option for customers to develop and test in the public cloud with full confidence in how the solution will perform when deploying to production on-premises. And, being deployed on the customer’s own premises, the platform helps customers meet all applicable data sovereignty and data residency requirements. Because the data never leaves their premises, they are best able to keep up with ongoing regulatory changes.

How Oracle Autonomous Database simplifies IT

There are many types of cloud services, ranging from IaaS to managed services (e.g., Database-as-a-Service or DBaaS; PaaS; and SaaS). Autonomous cloud services are the next step in the evolution of cloud services. They take operational simplification a major step forward by reducing or eliminating the need for human operators to make operational or system configuration decisions. Underneath the hood, machine learning is used to make the system intelligent and capable of making decisions on optimizing how the system operates, from maintenance and patching to configuration. And, as the underlying Oracle Database offers multi-model support, it can reduce the overhead of managing multiple specialized databases.

As shown in Figure 3, Oracle Autonomous Database takes cloud operational simplicity to the next step beyond traditional cloud managed database services. By making the database self-running, the Autonomous Database enables IT organizations to redirect their resources from keeping the lights on to the more pressing goals of enabling the organization to stay competitive and achieve the necessary agility *and* resiliency.

Figure 3. Comparing Customer and Oracle responsibilities



Sources: dbInsight, Oracle

Databases, with their complex operations and large stores of log data, are inviting targets for autonomous operation because provisioning, sizing, and optimizing the running of a database is exactly the type of data-rich, bounded, quantitative problem that is well suited for machine learning. Oracle is the first, and so far, the only database provider to deliver a fully autonomous database. And with the latest release, Oracle is the first to deliver a self-driving database both in the public cloud and on-premises.

The Oracle Autonomous Database is available in two configurations:

- Autonomous Data Warehouse, which is optimized for analytic workloads; and
- Autonomous Transaction Processing, which is optimized for transaction processing and mixed workloads.

How the autonomous database works

Self-driving

Oracle Autonomous Database is based on the notion that the database will be:

- Self-driving, meaning that the user defines the service levels and the database operates to those requirements
- Self-securing, automatically implementing security measures against internal and external threats; and
- Self-repairing, where the database anticipates and automatically fixes problems without taking the system offline

With over forty years developing and delivering mission-critical databases, Oracle clearly understands database operations and can optimize everything from the compute, storage, and networking to support it. The company designed all the interfaces and the software within Exadata just for the Oracle Database, so it is not simply a collection of commodity server, storage, and memory components that are reading and writing blocks. Utilizing the optimized infrastructure of Exadata Cloud@Customer as the core foundation, the Autonomous Database employs machine learning to make most, if not all of the operational decisions. It eliminates all manual cluster provisioning, disaster protection, SQL tuning, autoscaling, patching, error handling, and security management tasks. If desired, Oracle Autonomous Database can also automatically generate indexes based on usage.

The customer only controls the management of database users, schema, and encryption keys, and only pays for the compute and storage that is consumed. The serverless architecture automatically scales to match changing workloads, providing true pay-per-use. While a growing number of cloud database services are beginning to apply machine learning to

optimize individual tasks such as autoscaling, making a database fully autonomous requires a foundation of comprehensive automation and best practices learned over many years.

Runs on Exadata

Exadata is a logical target for Cloud@Customer because it is already built on source code-level co-engineering with Oracle Database that optimizes for the fastest performance and lowest cost of operation. Atop the infrastructure is smart system software with specialized algorithms to enhance the performance of analytics and transactions, making Exadata the best platform for Oracle Database consolidation. This capability has been well proven with industry leaders across numerous verticals relying on Exadata for massive consolidation from tens to thousands of databases, resulting in millions of dollars in savings. Finally, there is automated management that starts with self-optimized configuration for performance, and provisioning for fault tolerance.

Database automation leverages machine learning

The Oracle Autonomous Database was built on two key pillars. The first pillar is the database automation that Oracle built starting with the 9i generation, handling tasks ranging from automatic storage and memory management to table space undos, query rewrites, SQL tuning, columnar caching, diagnostics, and others. As noted above, the Oracle Autonomous Database leverages Exadata's existing smart system software, and it also leverages Oracle Real Application Clusters (RAC). Oracle RAC protects against server-level outages and automatically scales out the database to handle workload spikes and redistributes workloads during planned firmware, hardware, and software updates without incurring downtime.

Machine learning is the second pillar for building the Autonomous Database, as it makes decisions that are implemented through underlying automation and continuously adapts to changing workloads through machine learning.

Get started quickly

To get started, the customer simply needs to answer a few questions, and can get a secured database instance running in minutes. That includes entering the database name; type of workload (data warehouse or transaction processing); initial CPU and storage capacity; and administrative user credentials. Existing Oracle customers can move to the Autonomous Database without changing the database or the application. Budgeting is simplified, as customers only pay for actual usage.

While the customer is responsible for laying out the schema, designating roles, and managing encryption keys, the Autonomous Database does all the rest of the driving, enabling the customer to focus on the data, business problems, and innovation.

Meets developers where they live

With Autonomous Database on Exadata Cloud@Customer, developers can provision a fully managed converged database in minutes through a self-service portal or REST APIs, without having to worry about administration or tuning the database. Provisioned databases can store multiple data types; in addition to relational, the Autonomous Database supports JSON, XML, text, graph, and spatial data, enabling developers to build applications quickly depending on the application needs. Data can be accessed through standard SQL without having to learn or write using a proprietary language.

Oracle Application Express (APEX), a low code development framework, is pre-configured and ready to go out of the box with Autonomous Database. This easy-to-use development environment enables experienced developers and low code developers alike to quickly load data, manage database objects, develop REST APIs, and build applications which look and run great on both desktop and mobile devices.

Developers can build machine learning-based applications on the 30+ pre-integrated machine learning algorithms in Oracle Database, simplifying the development of applications that perform real-time predictions.

With SQL Developer Web tool, developers can use worksheets for running queries and scripts, dialogs for creating and editing objects, a console for monitoring and managing Oracle Database, and data modeling features.

Dedicated Region Cloud@Customer

Paving the way for all Oracle cloud services to run in the data center

Recently, Oracle introduced a dedicated infrastructure service as part of its Cloud@Customer announcements. First introduced in the Oracle Cloud, these same services are now available in the customer data center as *Dedicated Region Cloud@Customer*.

With the availability of Dedicated Region Cloud@Customer, customers can access all Oracle Cloud services on-premises. That means having the same SLAs guarantees and access to the same APIs for Oracle Cloud, and a choice of 50+ services. Some of those services include:

- Oracle Autonomous Database, Oracle Exadata Cloud Service, Oracle Database Cloud Service;
- Oracle PaaS services such as Oracle Content and Experience Cloud, Oracle Integration Cloud, Oracle Identity Cloud, Oracle Digital Assistant, Oracle Analytics Cloud, and other services;
- Access to compute VMs and Bare Metal servers;

- Developer services such as Oracle Functions and Oracle Container Engine for Kubernetes; and
- Access to Oracle Fusion applications SaaS services.

Dedicated Region Cloud@Customer complements Oracle Cloud Infrastructure and simplifies an organization's transition to cloud. Customers get single vendor accountability for infrastructure and software operations. New features and security updates can be implemented at the same moment that they become available in Oracle's Public Cloud regions. All applications and data are isolated in a self-contained, single-tenant cloud, and all services are certified for SOC 1, SOC 2, ISO 27001, and ISO 90001 compliance.

How the Dedicated Region differs from conventional cloud services

Most cloud managed services operate on a multi-tenant basis in the public cloud – an approach that enables multiple customers to share common infrastructure, which can lower the cost of cloud services. But some customers may need to segregate their workloads for policy, regulatory, or operational reasons. For instance, an enterprise may have policies which preclude running its applications or data in public cloud infrastructure that may be shared with competitors.

Oracle Dedicated Region Cloud@Customer is a complete cloud dedicated to a single customer with data and customer operations completely self-contained inside the data center. In fact, it is a cut and paste of Oracle Cloud Infrastructure services into a customer's data center. If it exists in Oracle Cloud Infrastructure, it is now offered on-premises and services are updated at the same time as in the Oracle Cloud. Both the control plane and data plane operations remain on-premises (e.g., start/stop/terminate operations) and data won't flow out of the region. This helps customers meet their most demanding compliance and latency requirements. Recent adopters include [Nomura Research Institute](#) and the [Oman ICT Group](#) who required a Dedicated Region to meet strict business requirements and needed Oracle Cloud Infrastructure and SaaS services that could not be met by any other cloud provider.

Why use Dedicated Region?

By using a dedicated cloud region, customers who are unable to move to the public cloud because of security, data residency, performance, or operational needs can run their mission-critical applications and databases on-premises while providing all the benefits of the public cloud. Using Oracle Dedicated Region Cloud@Customer, database users and developers can provision compute infrastructure and manage platform services like Kubernetes, Data Science, and Autonomous Databases separately. It can be used to support requirements such as:

- **Development Lifecycle** – Customers can separate business-critical from general-purpose and DevTest databases. Business-critical databases will require the highest availability, while at the other end of the spectrum, DevTest databases will have highly varying demands for resource.
- **Organizational** – Some enterprises may need to separate by department, such as delineating sales and marketing workloads from back office (e.g., HR, finance).
- **Regulatory/policy** – Some organizations may be bound by rules to segregate databases containing data that is subject to privacy or confidentiality requirements.
- **Performance** – While more of an issue in the public cloud, databases supporting latency-sensitive workloads such as factory automation, capital markets trading, or content/media streaming may be highly sensitive to “noisy neighbor” issues. They may require isolation to meet expected service and/or performance levels.

How Dedicated Region works with Exadata and Autonomous Database

Exadata and Autonomous Database customers now have two choices:

- *Use Autonomous Database on Exadata Cloud@Customer.* This will automate all database operations while providing the benefits of database cloud services inside the data center. Customers benefit from the added flexibility for tailoring policies for HA/DR and software updates just as they would implement inside in data center.
- *Use Dedicated Region Cloud@Customer.* Dedicated Region can bring the Autonomous Database and a choice of Oracle’s other IaaS, PaaS and Fusion SaaS services inside the data center. This option is for customers who want the autonomous cloud benefits for their database along with other Gen 2 Oracle Cloud services such as PaaS services for their application stack and/or Oracle Fusion Applications SaaS services, without moving the applications to public cloud. With a broad menu of 50+ services to select from organizations can select the Oracle Cloud Infrastructure and SaaS services that best match their specific business requirements in a pay-as-you-use subscription model.

Takeaways

With the global economy rapidly transforming – seemingly overnight – across virtually every industry sector, enterprises require agility and resiliency to thrive as their competitive landscape changes. With most enterprises already having experience with the cloud for tactical and opportunistic use cases, many are looking to the cloud to transform their core business critical systems. The attraction of the cloud is the operational simplicity, budgeting flexibility, and ease of adopting new services. Hybrid clouds will play a key role in enabling

business transformation because many organizations have systems and data that, for policy, performance, or regulatory reasons, cannot leave their premises.

With Cloud@Customer, Oracle pioneered hybrid cloud platforms, and with the addition of support for Autonomous Database and Dedicated Region, is now the only provider that is delivering the next generation of cloud managed services with access to the full portfolio of public cloud services inside the customer's data center. This brings the best of both worlds: an on-premise DBaaS cloud service that mirrors the policies already in effect within your data center, with all the benefits of the Autonomous Database. And, for customers requiring all cloud services for segregated workloads, it brings the assurance of running in their own exclusive region. No other cloud or database provider offers this level of simplicity and flexibility on-premises, and no other SaaS vendor offers its entire suite on-premises.

Existing Oracle databases can be lifted and shifted directly to the new Cloud@Customer portfolio, leaving organizations with the choice of which databases to run manually and which ones to run autonomously. An organization's applications are simply redirected to it, without changing any code. In addition, organizations have the option of choosing Dedicated Region Cloud@Customer for both databases and applications that cannot be moved to the public cloud and require operation within their own discrete zones to meet their most demanding compliance and latency needs. Customers can rely on the exact same SLAs, APIs, and tools available to them in Oracle Cloud Infrastructure and achieve a truly consistent experience for security, operations, and governance of on-premises and public cloud workloads. Combined, these two new offerings mark a major shift in the cloud landscape, as Oracle is the first and, for now, the only mover in bringing the full richness of public cloud services on-premises. Given our expectation of the role that hybrid cloud will play in business transformation for many enterprises, we expect rival cloud providers will respond.



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Author

Tony Baer, Principal, dbInsight

tony@dbinsight.io

Twitter @TonyBaer

About dbInsight

dbInsight LLC® provides an independent view on the database and analytics technology ecosystem. dbInsight publishes independent research, and from our research, distills insights to help data and analytics technology providers understand their competitive positioning and sharpen their message.

Tony Baer, the founder and principal of dbInsight, is a recognized industry expert on data-driven transformation. *Onalytica* named him as one of its Top 100 influencers lists for [data](#) and [cloud](#) in 2019 and 2020. *Analytics Insight* named him one of the [2019 Top 100 Artificial Intelligence and Big Data Influencers](#). His combined expertise in both legacy database technologies and emerging cloud and analytics technologies shapes how technology providers go to market in an industry undergoing significant transformation. His regular ZDnet “Big on Data” posts are read 25,000 – 30,000 times monthly.

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