

What it Means for Your Enterprise

The Next Generation of Cloud Wars



After watching the cloud market mature, Oracle has arrived late to the cloud market with an enterprise-grade solution that aims to leapfrog the competition – and disrupt the cloud wars altogether.

Aside from a new ultra-low pricing structure, Oracle's second-generation cloud offers the performance you'd expect from the longtime database leaders. In the fight to retain its data management dominance, Oracle also has a few tricks up its sleeves.



“You come to our cloud, you get Exadata infrastructure, autonomous database, everything is automated, and you get really, really low cost. ...

More importantly, there’s no labor, there’s no human labor or error, there’s no downtime. Your developers are more productive. They get more projects to market. If you want all of those benefits, you’ve got to be willing to pay less. ...

“We are infinitely faster and infinitely cheaper.”

- Larry Ellison, CTO, Oracle

The True Enterprise-Grade Cloud is Here

Oracle's new built-from-the-ground-up Oracle Cloud Infrastructure (OCI) aims to solve some of the challenges that enterprises have battled on their long, complex journey to cloud

Ever since cloud computing burst onto the market in 2006, with the promise of lower costs and an array of other benefits, there's been a virtual gold rush to all things cloud.

While the pace of adoption remains undeniably high, it also shows signs of moving ahead at a more measured pace as enterprises start to take stock of what they've learned about the cloud over the years.

Year-over-Year Growth in Cloud Computing Forecasted to Moderate

Cloud computing is expected to grow 17.3% in 2019, compared to 21% in 2018, according to Gartner, Inc. Its forecast also shows year-over-year growth to slow to 16% in 2021.

Cloud Infrastructure to see strongest growth.

Trusted forecasts from Gartner, Inc., show evidence of a more thoughtful pace of cloud adoption ahead. The worldwide public cloud services market is projected to grow at 17.3 percent in 2019 compared to the prior year, to a total of \$206.2 billion, according to Gartner.

That's slightly slower than the forecasted growth of 21 percent between 2017-2018. And Gartner is forecasting year-over-year growth to stay at about 17% through 2021.

Gartner's 2019 Worldwide Public Cloud Revenue Forecast, shows a moderating of year-over-year growth in cloud spending. Gartner's full report can be found at <https://tinyurl.com/GartnerCloud2019>

Cloud infrastructure remains the fastest growing piece of the cloud puzzle, with growth of 27 percent forecast for 2019, slightly less than the 31 percent year-over-year growth forecasted in 2018.

Early Cloud Infrastructure Lessons

There are good reasons enterprises have slowed down the pace of cloud adoption.

Some of these early cloud lessons have, in fact, encouraged companies to proceed with a hybrid multi-cloud strategy. That's partly been an effort to pinprick test the still-maturing cloud offerings. On the other, it's a strategic move to try and retain some price negotiating leverage with an increasingly powerful cloud oligarchy.

While public cloud providers have offered initial operational cost reductions — and other significant IT benefits, such as scalability and flexibility — enterprises still face heady challenges and surprises in their moves to the cloud. Among them:

- IT teams must prepare their data-intensive workloads for new environments, sometimes re-architecting substantial legacy apps
- Integrations can be incredibly complex, especially as most companies move to hybrid multi-cloud environments
- Zero tolerance for lag times and performance disruptions of any kind has many IT leaders cautious
- New cloud governance, security and auditing procedures must be established or tweaked
- Evaluating the true and total cost of cloud computing has been more challenging than originally expected

The Diminishing Point of Cloud Returns

Many companies who have done thorough research, and in some cases testing, have learned that there is a point of diminishing savings for cloud computing — at least based on current pricing models.

With data-intensive workloads, and most cloud providers charging based on usage, a cloud computing strategy can sometimes become more expensive than a standard datacenter (in which most enterprises are already invested).

“A lot of people originally thought they were moving to the cloud to save money, but then they discovered the diminishing returns as they got more and more of their workload over there and the savings started going down ... Usage started to outstrip the cost of running a data center.

“Then, enterprises started to realize that they liked some of the other benefits anyway, such as faster time to market and instant scalability. You want to bring up a new functionality or service? That used to take eight weeks. On cloud, it's an hour.”

— Experienced IT Executive

Even if that point isn't reached, the degree of savings can diminish as cloud workloads increase, making the move not as attractive as original thought.

Experience Informs New Oracle Cloud

This past decade of watching public cloud growth, and all these benefits and challenges, has in many ways enabled Oracle, an acknowledged latecomer to the cloud market, to devise a battle plan for a new era of cloud.

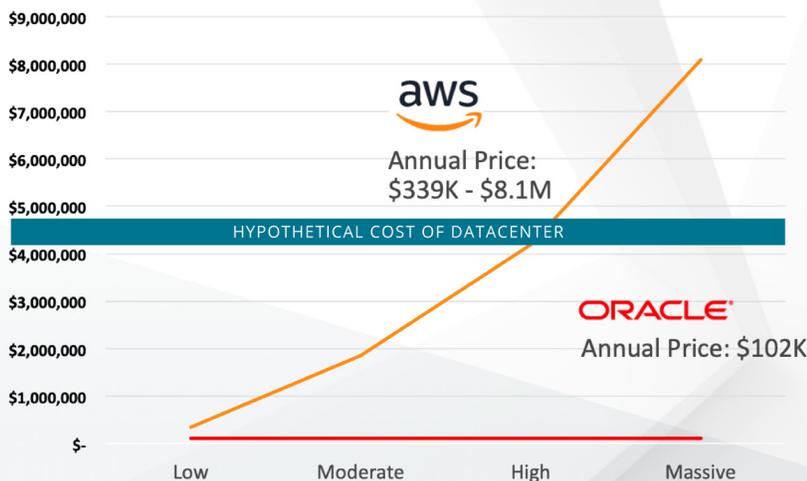
A longtime leader in databases and applications, especially for mission-critical enterprises, Oracle is now ready to leapfrog into the cloud market with an enterprise-grade solution that addresses many of the challenges on the cloud.

In the same way the iPod leapfrogged the Walkman and the CD leapfrogged the floppy disk, Oracle's second-generation cloud offers the fresh rebuilt-from-the-ground-up innovations and new strategy that could win over premium enterprise customers and re-energize adoption for enterprise customers.

In addition to its progressive new autonomous and AI-features, Oracle Cloud Infrastructure (OCI) also has a library of practical tools that simplify cloud migration for the largest enterprises, especially those already running Oracle business applications.

What's more, it's truly priced for data-intensive enterprise usage for worry-free consumption at predictable prices.

Storage Performance at No Extra Charge



- The more storage performance you need, the more you pay our competitors
- Oracle doesn't charge for storage performance, and we guarantee it
- Price difference over 500 block volumes can be millions per year

*Based on AWS EBS Provisioned IOPS SSD (io1) compared to Oracle Cloud Infrastructure Block Volume

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The Promise of Public Cloud Storage

The benefits of moving the cloud are widely reported and known. However, many of the challenges have received less notice and tend to be amplified for larger enterprises with data-intensive workloads.

Top Benefits

- **Reduced IT spending and operational costs.** Even as the volume of data explodes, enterprises can save money on cloud if their workloads are right. There's also the budgetary appeal of no capital expenditures
- **Instant capacity and scalability.** Add storage without procuring, installing and maintaining hardware on premises.
- **High availability.** Automatic replication of data theoretically provides durability and high availability.
- **Increased flexibility.** For faster development and deployment, cloud features can help developers iterate faster.
- **Improved security.** Despite early concerns expressed about the security of the cloud, most experts today regard cloud infrastructures as, arguably, more secure than on-prem datacenters. As with anything, however, security depends on the details, such as network connectivity, setup and even the apps running the data.



Top Cloud Challenges for Business

- **Getting on the cloud in the first place.** Yes, this can be an obstacle in and of itself. It requires intense planning and modeling. Re-architecting of applications may be necessary before a move can be made with legacy workloads
- **Surprises.** Many cloud providers charge based on workload. Large and even medium-sized enterprises can find that their usage is higher than expected, leading to more expensive bills than originally planned. More often, companies are delighted with their initial move to the cloud but as they add more workloads, the savings start to diminish, and costs may approach (or surpass) the cost of running your own datacenter
- **Egress fees.** Getting data into a cloud is often a lot less expensive than getting it out. For smaller companies with relatively less data, these egress fees may not be significant. For medium and large enterprises with substantial volumes of data, tread carefully. Egress fees vary widely and if your enterprise doesn't choose the right cloud for its workload, moving that data later could feel like a penalty. Make sure your cloud selection evaluation includes an exit plan.
- **Managing multiple clouds.** With most enterprises moving to a hybrid multi-cloud environment, there's new complexity for managing multiple clouds. And, yes, they still have to be managed in the cloud. For companies with an Oracle or Microsoft footprint, learning to fly another brand's cloud or datacenter isn't simply like driving a new car. In some cases, it can be more like driving a plane instead of a car. Be prepared for that learning curve.
- **Security.** Although many people regard cloud datacenters as highly secure, large-scale data breaches continue to jolt large enterprises and security will always remain a challenge.

Benefits of Oracle Cloud Infrastructure

Oracle's second-generation cloud infrastructure is a fundamental re-architecting of the conventional cloud specifically for enterprises. OCI represents all the benefits of a public cloud with more features and benefits that smooth the transition from datacenter to cloud for large enterprises with data-intensive workloads.

Simplifying the Transition

- **Simplified migration for big business.** Shift workloads from on-prem datacenters to cloud without re-architecting and redeveloping legacy workloads. OCI saves enterprises time and money getting onto the cloud
- **Enterprise integration features.** Built for seamless connectivity with on-prem IT systems, Oracle apps such as E-Business Suite and other third-party storage devices and clouds

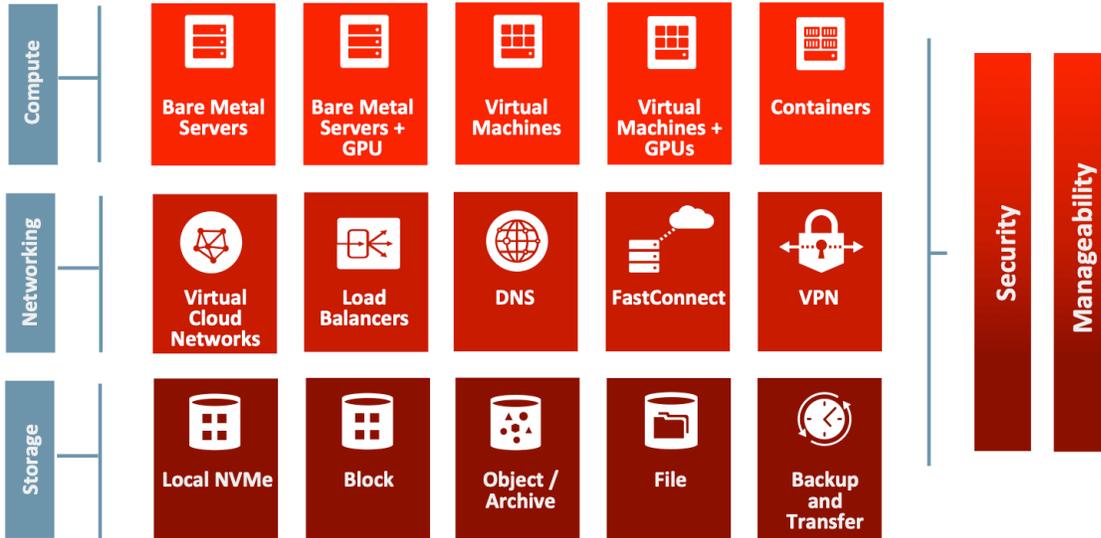
Best Performance and Best Price

- **Best performance in cloud computing.** Isolated environments for high performance and ultra-low latency (less than 2ms) using networks of the the same type of RDMA technology that underlies Exadada
- **Oracle Cloud SLA offerings are the best guarantees in cloud computing today.** That includes industry-leading performance, management and availability assurances
- **The best pricing packages in cloud computing, period.** Oracle Cloud pricing is completely transparent, predictable and, simply put, lower than the competition. Oracle doesn't charge more for more storage performance

Enterprise-Grade Administration

- **Cloud controls built for the corporate enterprise.** OCI provides full control and visibility for governance, auditing and oversight
- **Access to fully integrated groundbreaking innovations.** That includes Autonomous Database and self-healing capabilities that reduce demand for manual oversight.
- **Unparalleled data management features for the enterprise.** That includes superior tools for migrations, backups, restores, archives and data recovery
- **For object/data storage, data is encrypted, replicated and automatically healed.** Across multiple fault domains for high durability, data integrity and protection. What's more, OCI offers the lowest price in the industry for securely storing infrequently accessed data

Oracle Cloud Infrastructure



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OCI Storage Highlights

	Sample Use cases	Benefits
NVMe SSD local storage	HPC simulation, 3D rendering, machine Learning, OLTP Database, caching	All-flash, millions of IOPS, semi-persistent
Block Volumes	Database, application data	Persistent, managed all-flash block storage, up to 500 TB per compute instance, no extra cost for IOPS, rich data protection features including scheduled backups to object
File Storage	Application data, file share, containers	Persistent, managed all-flash file storage, petabytes of capacity per file system. Integrated with Oracle EBS
Object Storage	Application unstructured data, rich media, static websites data lake, storage target for images, block storage, database	Persistent, managed object storage, highly durable, encrypted at rest
Archive Storage	Long term storage for data	Persistent, managed archive storage, highly durable, Industry-leading low cost

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Whose Database is in Your Cloud's Datacenter?

When it comes down to it, the cloud isn't a magical place in the sky that stores and computes data. It's a concept that, at its core, is still just somebody else's datacenter. And enterprises concerned about performance and security may start wanting to ask whose database is in that datacenter.

For Oracle, the longtime market share leaders in relational database technology, with more than 44% of the market and more than twice the sales of the nearest competitor (Microsoft), there's a distinct advantage here.

Oracle has something special to bring to the cloud wars — namely, its own premium and trusted database technology on which to run its clouds.

Not to mention a level of knowledge about database technologies that, arguably, surpasses its competitors'.

"That's where Oracle has a distinct advantage," one longtime Oracle expert said. "They can engineer their system to meet their needs. Other cloud providers can buy general purpose hardware, but you can never truly get the same performance out of it."

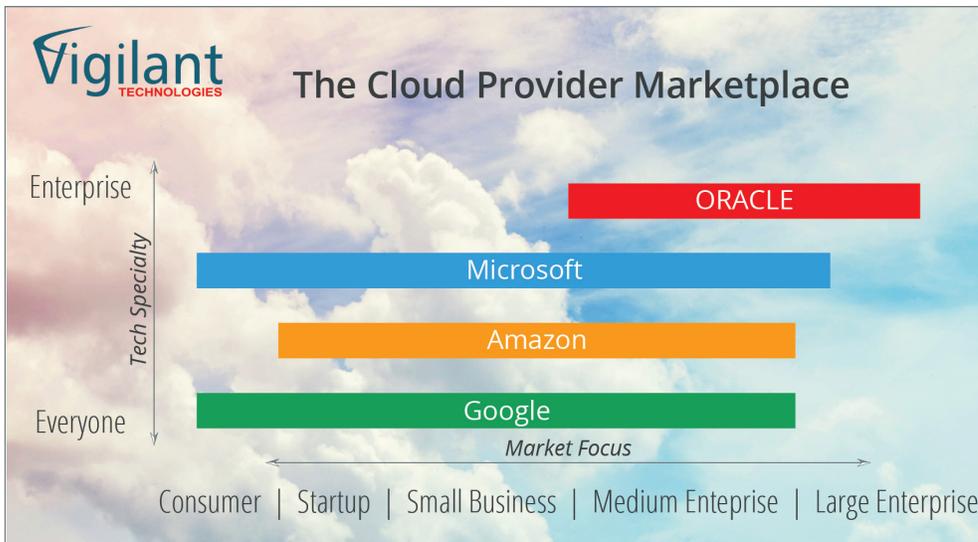
What's more, because Oracle makes its own powerful hardware, it can afford to run its cloud less expensively than its competitors.

Exadata-Style Low-Latency Infrastructure

To be expected, then, Oracle is building its cloud datacenter infrastructure with all the juice that you'd expect from the company that debuted Exadata, in all its raw horsepower, and other premium engineered solutions that earned them the dominant datacenter market share. In 2018, Oracle announced plans for 12 additional datacenters, with all expected to be online this year.

Performance, security and enterprise-centric features are critical underpinnings of the Oracle Cloud Infrastructure and the physical datacenters being built around the world to support it.

In contemplating the best cloud for your workload, it's worth considering the scope of your cloud provider's portfolio and who best understands the demands and mission-critical nature of your enterprise.



Moving Data to the Cloud infographic details three key stages of cloud migration:

- Moving Data to the Cloud:** Online and offline options simplify getting data to the cloud.
- Storing Data in the Cloud:** Broad portfolio of services keep data available and protected.
- Protecting Data in the Cloud:** Multiple options for backing up data, databases and/or VMs provide peace of mind.

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Highlights of OCI that go beyond standard cloud offerings include:

- **Ultra-low latency under 2 ms.** This speed is made possible with the same type of RDMA (remote direct memory access) technology that underlies Exadata. In fact, Oracle claims that OCI offers better performance than the on-premise database technology offered by some of its competitors
- **Enterprise solutions for migrations, backups, restores, archives and disaster recovery.** Special features such as a file storage service are already fully integrated with E-Business Suite
- **A bulk data transfer service** that supports uploads and backups to USBs, hard drives, tapes or ZFS devices. With complete chain of custody tracking
- **Comprehensive data protection** that includes replication of object and archive storage, snapshot capabilities for block volumes and VMs, scheduled backups
- **Comprehensive controls** for integrating governance and providing full visibility for auditing
- **Enterprise SLAs** that cover performance, management and availability

Conclusion

With businesses moving to the cloud at a healthy, but more moderate pace, many will likely be more carefully assessing their options. Oracle's new second-generation has given them a new option that changes the game.

**UNIFY YOUR STACK —
OR, MOVE IT TO ORACLE**

“I don't think we would ever entertain running Oracle on Microsoft or AWS. ... There might be a time where we would move our Windows workloads to Oracle.

**— Senior IT Director
Global Consumer Goods Company,
Migrated to OCI in 2018**

Oracle Cloud Infrastructure Global Footprint



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About Vigilant

Vigilant Technologies is a fast-growing boutique IT consultancy and Oracle Platinum Partner. Founded in 1999, Vigilant delivers premium advisory, implementation and managed IT and digital services. We specialize in enterprises looking for value and excellent, personalized service.

Vigilant is headquartered in Troy, Michigan and has offices in Toronto, Canada, and Hyderabad, India. We have more than 250 certified Oracle consultants on staff, who are also experienced in other technology offerings and at developing custom solutions for unique enterprise challenges.

What's more, our significant staffing practice provides the world's largest companies with IT professionals. Headquartered in Troy, Michigan, Vigilant also has offices in Toronto, Canada, and Hyderabad, India.