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Why Oracle Cloud Infrastructure over Amazon Web Services

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Oracle Cloud Infrastructure is built for enterprises seeking higher performance, lower costs, and easier cloud migration for their applications. Customers choose Oracle Cloud Infrastructure over AWS for several reasons: First, they can consume cloud services in the public cloud or within their own data center with Oracle Dedicated Region Cloud@Customer. Second, they can migrate and run any workload as is on Oracle Cloud, including Oracle databases and applications, VMware, or bare metal servers. Third, customers can easily implement security controls and automation to prevent misconfiguration errors and implement security best practices. Fourth, they have lower risks with Oracle’s end-to-end SLAs covering performance, availability, and manageability of services. Finally, their workloads achieve better performance at a significantly lower cost with Oracle Cloud Infrastructure than AWS. Take a look at what makes Oracle Cloud Infrastructure a better cloud platform than AWS.

1. Deploy the same public cloud on-premises

Enterprises choose on-premises infrastructure to help meet their regulatory and data sovereignty requirements, to minimize latency, and to ensure local control of resources. They want to leverage the attributes and benefits of the public cloud while combining them with the isolation and security of on-premises infrastructure.

Oracle gives customers the choice to consume their cloud services in the public cloud or within their own data center with [Oracle Dedicated Region Cloud@Customer](#). Unlike AWS Outposts, Oracle brings its complete portfolio of public cloud services into your data center so you can reduce costs, upgrade legacy applications with modern services, and help address your most demanding data sovereignty and latency requirements. Dedicated Region Cloud@Customer gives customers the best of both worlds.

CAPABILITY	OCI	AWS	EVIDENCE
Does your cloud provider offer the exact same services in your data center as their public cloud?	Yes	No	Oracle Dedicated Region Cloud@Customer is a completely managed cloud region that brings all of Oracle’s public cloud services (and Oracle Fusion SaaS applications) into a customer’s data center, helping address data sovereignty concerns. It enables autonomous operation to reduce human error and help maximize the security of your data. Dedicated Region Cloud@Customer delivers truly elastic services, enabling the highest performance and reduced costs with low consumption-based cloud subscription pricing—all while helping you meet your stringent latency and regulatory goals when connecting to existing data center resources. In contrast, only a limited set of services are available on AWS Outposts .
Is your billing model for on-premises deployment the same as the public cloud?	Yes	No	Dedicated Region Cloud@Customer uses the same billing model as public OCI, where customers only pay for what they use. Oracle manages capacity at no additional cost, as long as customers meet their spend commitment. With AWS Outposts, customers need to purchase racks and pay by the rack—there is no pay-as-you-go pricing. Customers also need to pay for installation, upgrades, and decommissioning. All capacity planning and costs are the customer’s responsibility with AWS Outposts .
Are the on-premises services covered by the same SLAs as the public cloud?	Yes	No	Dedicated Region Cloud@Customer offers the same exact SLAs for availability (99.95% uptime), manageability (API error rate), and performance (disk IOPS, network) as OCI public cloud. AWS does not offer any SLAs for AWS Outposts.

Customer Reference	Link	<p>“The choice was pretty simple – there was no other provider that provided the range of services that comes with the Oracle Dedicated Region. We believe we can deliver a modern, scalable and secure solution to help address the Australian government’s needs.”</p> <p>— Rob Kelly, Managing Director, Australian Data Centers</p>
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2. Migrate Oracle workloads with confidence

Customers are increasingly migrating business-critical enterprise applications and databases to the cloud to achieve operation efficiency and improve application performance and availability. Customers want to execute these migrations without changing familiar software or IT processes. Unlike AWS, Oracle makes migrations easier.

Oracle Cloud provides the best deployment options, highest performance, best availability, and lowest costs for Oracle databases and workloads. In the case of enterprise apps such as ERP, HCM, etc., Oracle offers customers the ability to ramp-up to a SaaS model, something not possible with AWS as AWS does not offer any enterprise SaaS application.

CAPABILITY	OCI	AWS	EVIDENCE
The highest scalability for enterprise workloads?	Yes	No	<p>Oracle Databases can scale to many times the compute and storage capacity of AWS, up to 1,600 database server cores and up to 2.5 PB database size (without compression) with Oracle Exadata Cloud Service X8M. Exadata Cloud Service X8M provides 1.6 PB PCI NVMe flash storage and up to 96 TB persistent memory.</p> <p>Amazon RDS for Oracle is limited to running databases that can only scale to 96 vCPUs (equivalent to 48 OCPUs) and 64 TB in size.</p>
Options to run a managed Oracle Database?	Yes	No	<p>OCI offers fully managed services for Oracle Database, including bare metal and VM database systems, Oracle Exadata database systems, and Autonomous Databases.</p> <p>Amazon Relational Database Service (RDS) for Oracle has several limitations: it supports only SE1 and SE2 Oracle Database licenses, and does not support Oracle Real Application Clusters (Oracle RAC), Oracle Data Guard, and many other Oracle Database features.</p>
The highest performance for Oracle workloads?	Yes	No	<p>Oracle workloads have the highest performance running on OCI. Exadata Cloud Service X8M supports an industry-leading 12 million read and 5.6 million write IOPS. Amazon RDS for Oracle is limited to only 80,000 IOPS.</p>
The lowest TCO for Oracle Database and applications?	Yes	No	<p>OCI provides the lowest TCO for Oracle Databases and applications. Oracle offers Universal Credits and BYOL2PaaS to help customers bring their existing Oracle software licenses to OCI. Oracle Bring Your Own License (BYOL) is 50% less on OCI than any other public cloud, including AWS. Oracle provides automation tools to ease the migration of Oracle Applications, Database, and Middleware to OCI.</p> <p>AWS does not offer Universal Credits or BYOL2PaaS for Oracle software. The automation tools (such as Oracle EBS Cloud Manager and PeopleSoft Cloud Manager) are not available on AWS.</p>

Oracle RAC and Exadata for mission-critical workloads?	Yes	No	OCI is the only cloud where customers can run fully supported advanced database options, such as Exadata and Oracle RAC, for scalability and high availability. Exadata Cloud Service offers the highest performance of any cloud database service. Oracle RAC offers capabilities that include multicasting, UDP for networking, and shared host access to single block volumes for the storage layer. AWS has no similar offering to Exadata Cloud Service and Oracle RAC.
Customer Reference	Link		“During the POC, OceanX observed meaningful performance differences building a Cognos cube on an Exadata platform versus on EC2. In AWS, an 11 million row cube took 40 minutes while a comparable 13 million row cube was built on Exadata in 8 minutes. This allowed OceanX to save time and money by eliminating the need to run each database on separate AWS instances”.

3. Migrate and run any workload as is, including those that need bare metal or VMware

On-premises, physical servers enable customers to run workloads directly on bare metal server hardware when performance, latency, or security require it, and they want the same options in the public cloud. Most enterprises also run VMware vSphere in their data centers. They want to migrate the workloads running on these physical servers and VMware environments without rearchitecting applications, change familiar software or IT processes, or introduce complexity to their operations. Oracle makes this easy; AWS does not.

CAPABILITY	OCI	AWS	EVIDENCE
VMware solution with full administrative control?	Yes	No	Oracle Cloud VMware Solution (OCVS) provides a native VMware-based cloud environment, installed within a customer’s tenancy. In OCVS, customers own the ESXi root credentials, as they do with on-premises deployments. Customers control whether—and when—to upgrade their VMware software. They have complete control with the same VMware tools they’re accustomed to, and can keep the same VMware provisioning, storage, and lifecycle policies in the cloud as they do on-premises. OCVS supports up to 64-node VMware clusters. VMware Cloud on AWS uses a least-privilege security model in which customers do not have full administrative access and have no control over when or how the underlying VMware software is upgraded .
Bare metal servers suitable for any enterprise application?	Yes	No	OCI offers the largest bare metal servers in the public cloud—up to 128 cores, 2 TB of RAM, and 1 PB of storage. These servers are accessible with the same portal and tools, and live on the same networks with direct access to other Oracle Cloud resources.
High performance bare metal servers with local storage optimized for use cases like HPC?	Yes	No	OCI high performance computing (HPC) bare metal compute instances have a unique direct memory interconnect for remote direct memory access (RDMA) and fast, dense local storage, and the RDMA cluster network provides < 2 microsecond latency across clusters of tens of thousands of cores. RDMA over Converged Ethernet (RoCE v2) is critical to the performance of tightly coupled HPC workloads that depend on message passing (MPI)

			to exchange data between cluster nodes during large, long-running computations. AWS doesn't offer an equivalent architecture, and their closest solution, the C5n, costs 44% more .
GPUs on bare metal servers?	Yes	No	Oracle's GPU-powered bare metal compute instances offer customers a platform for machine learning, image processing, and massively parallel high-performance computing jobs. OCI BM.GPU4.8 shape provide 8 NVIDIA Tensor Core A100 GPUs, 8 x 200 RDMA networking, and 320 GB of GPU memory . AWS does not offer bare metal GPU instances and RDMA networking.
Customer Reference	Link	<p>“Altair delivers engineering simulations at its user’s fingertips by leveraging the flexibility and elasticity of cloud computing. Oracle Cloud can deliver up to 20-25% better price performance for our CFD and Structural Mechanics solvers with its bare metal compute offerings with low latency RDMA networking. This helps our customer improve their product development process and bring product to market faster than their competitors without spending capital on upfront hardware purchase.”</p> <p>—Sam Mahalingam, CTO, Altair</p>	

4. Simplify and automate security with our zero-trust approach

OCI is designed with a zero-trust, security-first architecture. Unlike AWS, OCI provides you with easy-to-implement security controls and automation to prevent misconfiguration errors and implement security best practices. You can secure your workloads and applications in OCI through a diverse portfolio of security services, including identity and access management, data protection and encryption, unified security controls, infrastructure protection, incident identification, remediation, and compliance services.

CAPABILITY	OCI	AWS	EVIDENCE
Secure enclaves within accounts for the most sensitive workloads?	Yes	No	<p>OCI Security Zones provide a secure enclave within customer tenancies for the most sensitive workloads, where security is mandatory and always on. This helps ensure compute, networking, storage, and database resources comply with security principles, such as always-on encryption, no public access, and automated backups.</p> <p>AWS does not offer any service or feature equivalent to OCI Security Zones.</p>
Do built-in security posture management capabilities provide prescriptive and automated remediation of findings?	Yes	No	<p>Most cloud security failures result from misconfigurations and human error. Oracle Cloud Guard automatically detects security configuration issues across OCI services and can automatically alert administrators or act directly to remediate issues. Cloud Guard is provided at no additional cost.</p> <p>AWS Security Hub works with several other AWS services to gather security intelligence across many AWS services. While Security Hub provides a construct for enabling remediation, customers are responsible for developing a customized response and remediation workflows, which,</p>

			in addition to the effort and operational overhead, may add additional costs.
Security services are included without additional costs?	Yes	No	There are costs associated with using Security Hub and the underlying services including GuardDuty, Macie, and Inspector that are typically difficult to anticipate .
Easy management of access policies at enterprise scale?	Yes	No	Managing access policies can be extremely difficult as cloud environments grow. OCI simplifies the process by always enforcing least privilege and zero trust principles using compartments and SQL-like, easy-to-understand identity and access management policies. AWS relies on the tenancy as the primary security boundary. Customers must carefully manage access policies within a tenancy to create separation between workloads. AWS' JSON-based access policies are much more cumbersome to work with at scale .
Customer Reference	Link		“We were 95% moving to AWS. [But] at the end of the day, our Infrastructure team, our ERP team, our Project Management team voted—it was unanimous for OCI”. — Darren Owsley, CTO, Gonzaga University

5. Reduce risk with Oracle’s unique SLAs

Enterprises demand more than just availability from their cloud infrastructure. Mission-critical workloads also require consistent performance, and the ability to manage, monitor, and modify resources running in the cloud at any time. Only Oracle offers end-to-end SLAs covering performance, availability, manageability of services.

CAPABILITY	OCI	AWS	EVIDENCE
Manageability SLAs?	Yes	No	The elasticity and configurability of infrastructure is part of why people move applications to the cloud. Your services need to be manageable all the time to deliver this benefit. Oracle provides manageability SLAs to ensure your ability to manage, monitor, and modify resources. AWS does offer any manageability SLA.
Performance SLAs?	Yes	No	It's not enough for your IaaS resources to be merely accessible. They should consistently perform the way you expect them to. Oracle is the first cloud vendor to guarantee performance , so you can rely on our infrastructure for enterprise applications. AWS does not offer any financially-backed performance SLA.

6. Avoid AWS cost surprises

One of the most common issues faced by AWS customers is the AWS billing surprise, in which a customer receives a bill and finds they owe more than they expected—and can’t easily figure out why.

It happens because AWS pricing is complex, expensive at scale, and penalizes customers for hard to estimate usage elements such as data transfer and storage performance, which involves taking volume size, provisioned IOPs, and throughput into account for every volume.

AWS provides discounts for three-year commitments on products like compute, but ties those reserved instance commitments to particular compute shapes, operating systems, and regions. While discounting can help win business, the deployments are tying customers in to AWS-only services, and there's no guarantee that pricing will be there in the future.

Oracle Cloud Infrastructure provides better performance at a significantly lower cost than AWS. Our pricing structure is simple, predictable, and transparent, with none of surprises associated with AWS. Additionally, OCI charges the same flat rate for all regions worldwide, which means there are no hidden cost variances if your business expands globally.

Oracle also provides [Universal Credits](#), which enable customers to use any Oracle Cloud Infrastructure or platform service in any region at a significant savings, with a predictable monthly spend commitment. But just because your spend is monthly, doesn't mean your usage has to be: these credits don't expire at the end of the month — they can be used any time during their 12-month contract window.

CAPABILITY	OCI	AWS	EVIDENCE
Industry-leading pricing for compute, storage, and networking?	Yes	No	OCI offers industry-leading pricing, validated by independent-party analysts. OCI standard, Intel-based VMs are up to 61% cheaper than equivalent AWS instances, OCI block storage is up to 99% cheaper than AWS EBS volumes and OCI data egress is up to 95% cheaper than AWS data egress (as of February 2020). Comparison: AWS EC2 – M5 Linux On-Demand instances; Storage – EBS General Purpose SSD storage, data egress calculated for 100 TB; all costs from US East (Ohio) region, as of February 2020
Low, consistent pricing globally?	Yes	No	OCI has consistent pricing throughout the world, enabling customers with applications in multiple OCI regions to easily budget for cloud expenditure. In contrast, AWS charges different prices for the same resources in different regions, increasing costs for customers running applications in multiple regions, especially outside the US. For example, an AWS m5d.large (Linux, On-Demand) compute instance costs \$0.113/hour in the US East (Ohio) region, 29% more in Tokyo, and 59% more in Sao Paulo (as of February 2020). Read this analyst paper for more details.
Industry-leading low-cost data egress?	Yes	No	AWS has significantly higher data egress charges. With AWS, only the first gigabyte is free. Oracle gives you 10,000 times more – charges don't start until after 10TB of data egress each month. Once charges begin, AWS charges for every GB at rates up to 10 times higher than Oracle. Applications that require a lot of data egress will see savings of up to 95% on egress charges. See here for more details.

Is the cloud platform designed to deliver consistent and predictable performance?	Yes	No	<p>Leveraging isolated network virtualization, OCI provides near-bare-metal performance without oversubscription of network, compute, or memory resources. As a result, customers benefit from reduced jitter, lower latency, higher packets-per-second, and lower CPU overhead. Customers can run their most important enterprise workloads on OCI knowing that they will get consistent and predictable performance.</p> <p>AWS can deliver variable performance due to resource oversubscription that can lead to “noisy neighbor” performance issues and limit the viability of deployment of critical enterprise applications on AWS.</p>
Customizable compute shapes and storage performance?	Yes	No	<p>OCI supports flexible shapes, which enables you to customize the number of OCPUs and the amount of memory granularly in 1 OCPU or 1 GB increments when launching or resizing compute instances. Block volumes can have their performance—and cost adjusted while remaining up and running. This helps you precisely match resources to workloads, optimizing performance while minimizing cost. This is especially valuable for applications with special needs like unusual core-to-memory ratios or expensive per-core software licensing.</p> <p>Amazon Elastic Compute Cloud (Amazon EC2) compute instances are available in predefined sizes with no option to customize vCPU counts or memory sizes. This implies that customers cannot optimize for performance and minimize costs while choosing Amazon EC2 instances.</p>
Customer Reference	Link	<p>“As video meetings quickly became the connective tissue of today’s new world, we saw our user count soar. To support that exponential growth, we looked at several platforms and chose Oracle Cloud infrastructure for its strong security, outstanding price/performance, and world-class support”.</p> <p>— Vik Verma, CEO, 8x8</p>	

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