ORACLE

OCI跟AMD聯手打造高性價比雲服務 (Compute/Database/VMWare /HPC/Cloud@Customer)

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首席雲端顧問

Jun 2023

AMD

Oracle’s Cloud Journey with AMD

DEC, 1994

Sun, 2010
Mellanox, 2010

Bare Metal, 2016

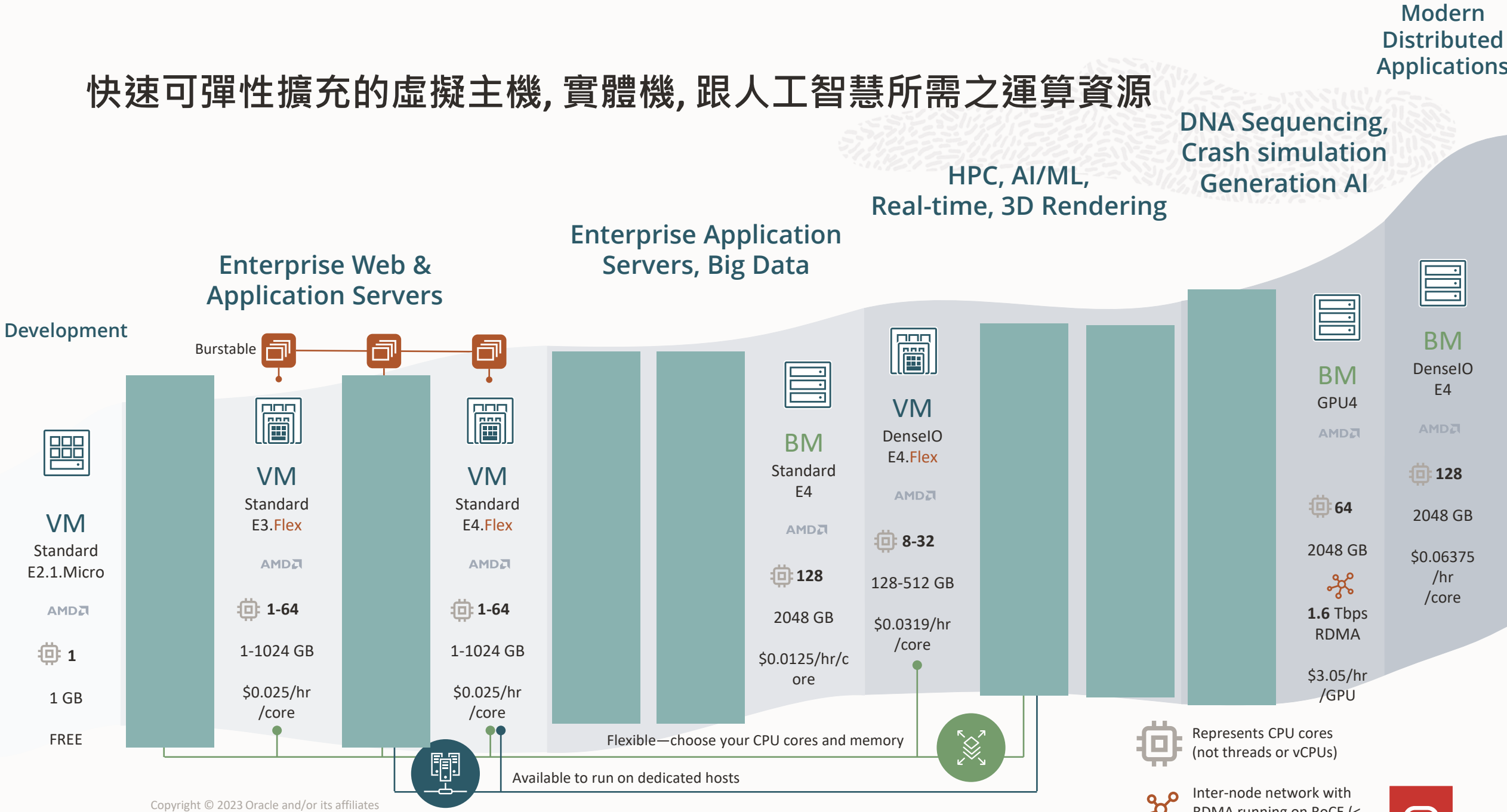
AMD, 3Q2018

AMDv2, 3Q2020

AMD to Exadata Cloud, 3Q2022

AMD Genoa on OCI, 2Q2022
AMD Genoa on Cloud@Customer
\3Q2022

快速可彈性擴充的虛擬主機, 實體機, 跟人工智慧所需之運算資源



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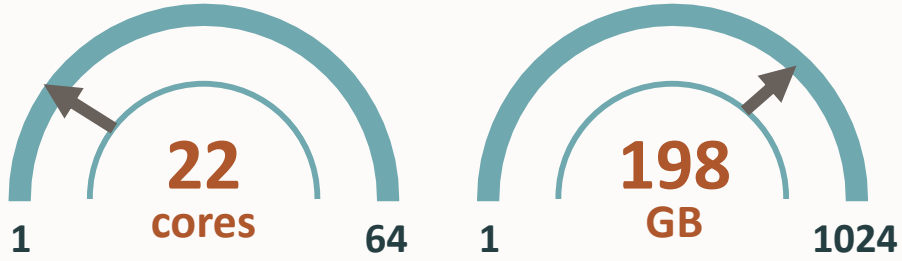
Unit Pricing as of August 2022 before discounts and includes only the CPU. Memory is extra for flex instances, but typically insignificant. For standard instances, the price for the smallest configuration is shown. All prices subject to change.

OCI Compute Flexible Instances—*Less Is More*

One Oracle Shape for Your Projects

One flexible instance type allows you to allocate cores & memory exactly as needed



Versus The Other Clouds

Fixed instance shapes dictate what you get, limit what you choose, cost more due to extra cores or memories than needed

General purpose AMD instances			
m5a.large	2 vCPU	8 GiB	Up to 10 Gbps
m5a.xlarge	4 vCPU	16 GiB	Up to 10 Gbps
m5a.2xlarge	8 vCPU	32 GiB	Up to 10 Gbps
m5a.4xlarge	16 vCPU	64 GiB	Up to 10 Gbps
m5a.8xlarge	32 vCPU	128 GiB	Up to 10 Gbps
m5a.12xlarge	48 vCPU	192 GiB	10 Gbps
m5a.16xlarge	64 vCPU	256 GiB	12 Gbps
m5a.24xlarge	96 vCPU	384 GiB	20 Gbps
Burstable AMD instances			
t3a.nano	2 vCPU	0.5 GiB	Up to 5 Gbps
t3a.micro	2 vCPU	1 GiB	Up to 5 Gbps
t3a.small	2 vCPU	2 GiB	Up to 5 Gbps
t3a.medium	2 vCPU	4 GiB	Up to 5 Gbps
t3a.large	2 vCPU	8 GiB	Up to 5 Gbps
t3a.xlarge	4 vCPU	16 GiB	Up to 5 Gbps
t3a.2xlarge	8 vCPU	32 GiB	Up to 5 Gbps
Compute Optimized AMD instances			
c5a.large	2 vCPU	4 GiB	Up to 10 Gbps
c5a.xlarge	4 vCPU	8 GiB	Up to 10 Gbps
c5a.2xlarge	8 vCPU	16 GiB	Up to 10 Gbps
c5a.4xlarge	16 vCPU	32 GiB	Up to 10 Gbps
c5a.8xlarge	32 vCPU	64 GiB	10 Gbps
c5a.12xlarge	48 vCPU	96 GiB	12 Gbps
c5a.16xlarge	64 vCPU	128 GiB	20 Gbps
c5a.24xlarge	96 vCPU	192 GiB	20 Gbps

Memory Optimized AMD instances			
r5a.large	2 vCPU	16 GiB	Up to 10 Gbps
r5a.xlarge	4 vCPU	32 GiB	Up to 10 Gbps
r5a.2xlarge	8 vCPU	64 GiB	Up to 10 Gbps
r5a.4xlarge	16 vCPU	128 GiB	Up to 10 Gbps
r5a.8xlarge	32 vCPU	256 GiB	Up to 10 Gbps
r5a.12xlarge	48 vCPU	384 GiB	10 Gbps
r5a.16xlarge	64 vCPU	512 GiB	12 Gbps
r5a.24xlarge	96 vCPU	768 GiB	20 Gbps
Memory Optimized with High IOPS AMD instances			
r5b.large	2 vCPU	16 GiB	Up to 10 Gbps
r5b.xlarge	4 vCPU	32 GiB	Up to 10 Gbps
r5b.2xlarge	8 vCPU	64 GiB	Up to 10 Gbps
r5b.4xlarge	16 vCPU	128 GiB	Up to 10 Gbps
r5b.8xlarge	32 vCPU	256 GiB	10 Gbps
r5b.12xlarge	48 vCPU	384 GiB	10 Gbps
r5b.16xlarge	64 vCPU	512 GiB	20 Gbps
r5b.24xlarge	96 vCPU	768 GiB	25 Gbps

One simple global pricing model with everyday low pricing make it easy to predict spend

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Lower product pricing across the stack

On-demand pricing

			Oracle (OCI)	Amazon (AWS)	Microsoft Azure	Google (GCP)
COMPUTE	**Virtual Machine Instance** [1]	(AMD, 4 vCPU, 16 GB RAM, Monthly)	**$54**	+134%	+132%	+157%
	DenseIO Virtual Machine Instances	($/OCPU/Hour)	**$0.025**	+54%	+70%	+46%
	Bare Metal Standard	($/OCPU/Hour)	**$0.064**	+50%	N/A [2]	N/A [3]
	Kubernetes Cluster	(100 vCPU, 750 GB RAM, Monthly)	**$1,734**	+142%	+142%	+119%
STORAGE	**Block Storage**	(1x1TB, 15K IOPS, 125 MB/s, Monthly)	**$522**	3×	3×	3×
	Object Storage [4]	(30K objects @ 100MB, Std/Infrq/Arch, Monthly)	**$70**	7×	Same	3×
NETWORK	**Public Bandwidth Transferred Out**	(50 TB, Monthly)	**$340**	13×	10×	10×
	Private Line Network	(100 TB Data, 1 Gbps, Monthly)	**$155**	14×	19×	13×
DATABASE	**MySQL Database**	(16 vCPU, 64 GB RAM, 500 GB, Monthly)	**$345**	3×	4×	3×

1 Comparisons performed with the eastern U.S. equivalent region.
2 Microsoft has sunset its Bare Metal server and there is no announced replacement
3 Google does not publish its bare metal server pricing
4 10K new objects into standard, 10K objects moved to infrequent, 10K objects moved to archive. 40K objects retrieved from standard. 2.5K objects retrieved from infrequent. 1K object retrieved from archive. Directory listing of all objects every 15 minutes. Auto-tiering is enabled, if available.

Green = Lowest cost
Based on published pricing as of April 9, 2023

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On-demand pricing

Lower pricing around the world

OCI has the same low price (excluding bandwidth) across the globe

	Oracle	AWS				Azure				GCP			
	Global	US East	Brazil	London	Tokyo	US East	Brazil	London	Tokyo	US East	Brazil	London	Tokyo
Virtual Machine Instance (AMD, 4 vCPU, 16 GB RAM, Monthly)	$54	+134%	+272%	+170%	+202%	+132%	+273%	+170%	+203%	+157%	+262%	+194%	+193%
Block Storage (1x1TB, 15K IOPS, 125 MB/s, Monthly)	$522	3×	6×	4×	4×	3×	6×	4×	4×	3×	3×	3×	3×
Kubernetes Cluster (100 vCPU, 750 GB RAM, Monthly)	$1,734	+142%	+285%	+184%	+193%	+142%	+285%	+184%	+193%	+119%	+206%	+149%	+148%
Public Bandwidth Transferred Out (50 TB, Monthly)	Regional	13×	7×	13×	5×	10×	5×	10×	4×	10×	5×	10×	4×

Green = Lowest cost

Based on published pricing as of April 9, 2023

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Enterprise or Standard Database Cloud Services (DBCS)

靈活的訂閱選項和環境選擇

Virtual Machine

成本效率和靈活性

- Select from a variety of VM shapes to meet compute and storage needs
  - Storage and shape scaling
- Address high availability requirements using Real Application Clusters (RAC) and/or Data Guard

Single Instance VM

- Up to 24 OCPUs
- Up to 320 GB memory
- Up to 40 TB of usable block-volume storage

Oracle RAC on VMs

- Up to 48 OCPUs
- Up to 640 GB memory
- Up to 40 TB of usable block-volume storage
- Extreme Performance Edition

Subscription Choices

範圍廣泛，可滿足不同要求

1. Standard Edition (DBCS SE)
2. Enterprise Edition (DBCS EE)
3. Enterprise Edition – High Performance (DBCS EE-HP)
4. Enterprise Edition – Extreme Performance (DBCS EE-EP)
5. Bring Your Own License (BYOL)

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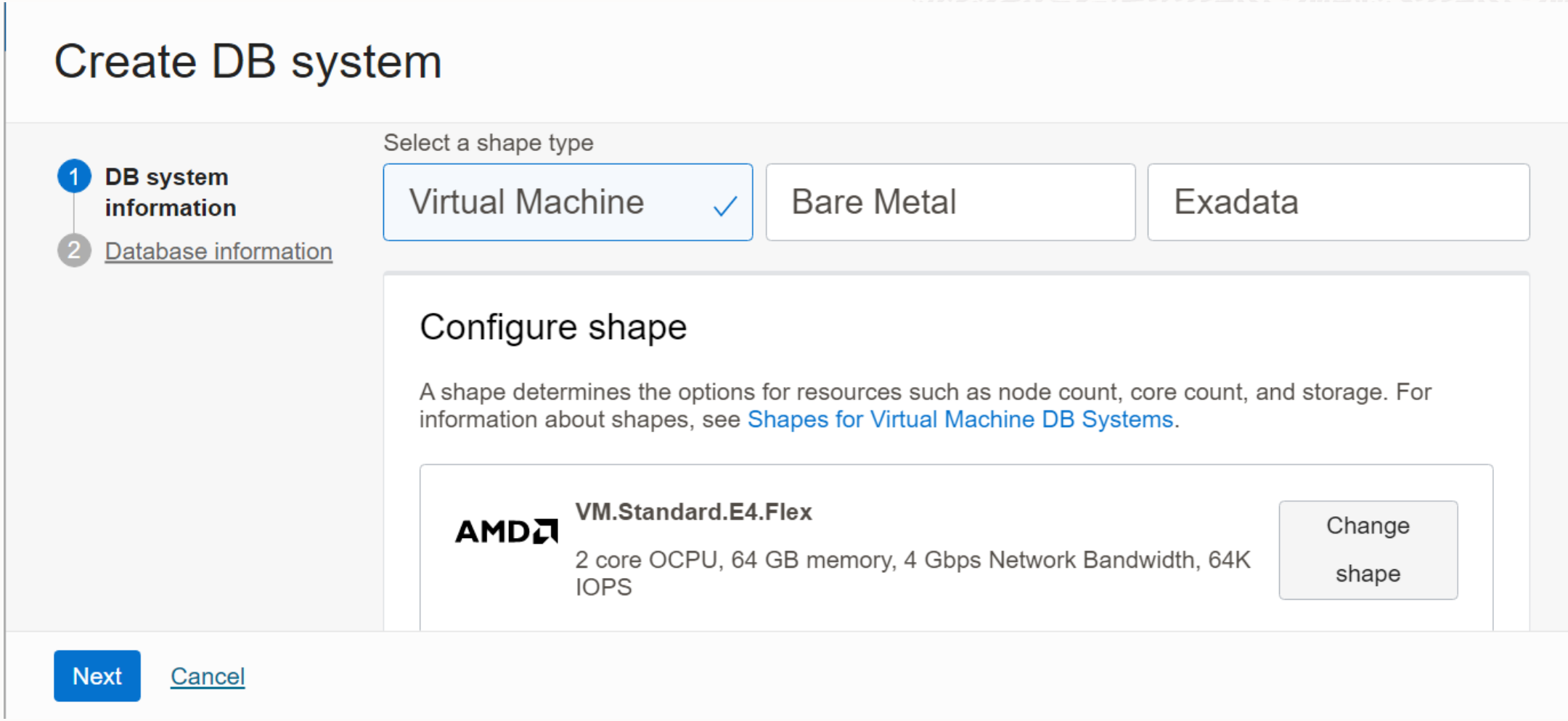
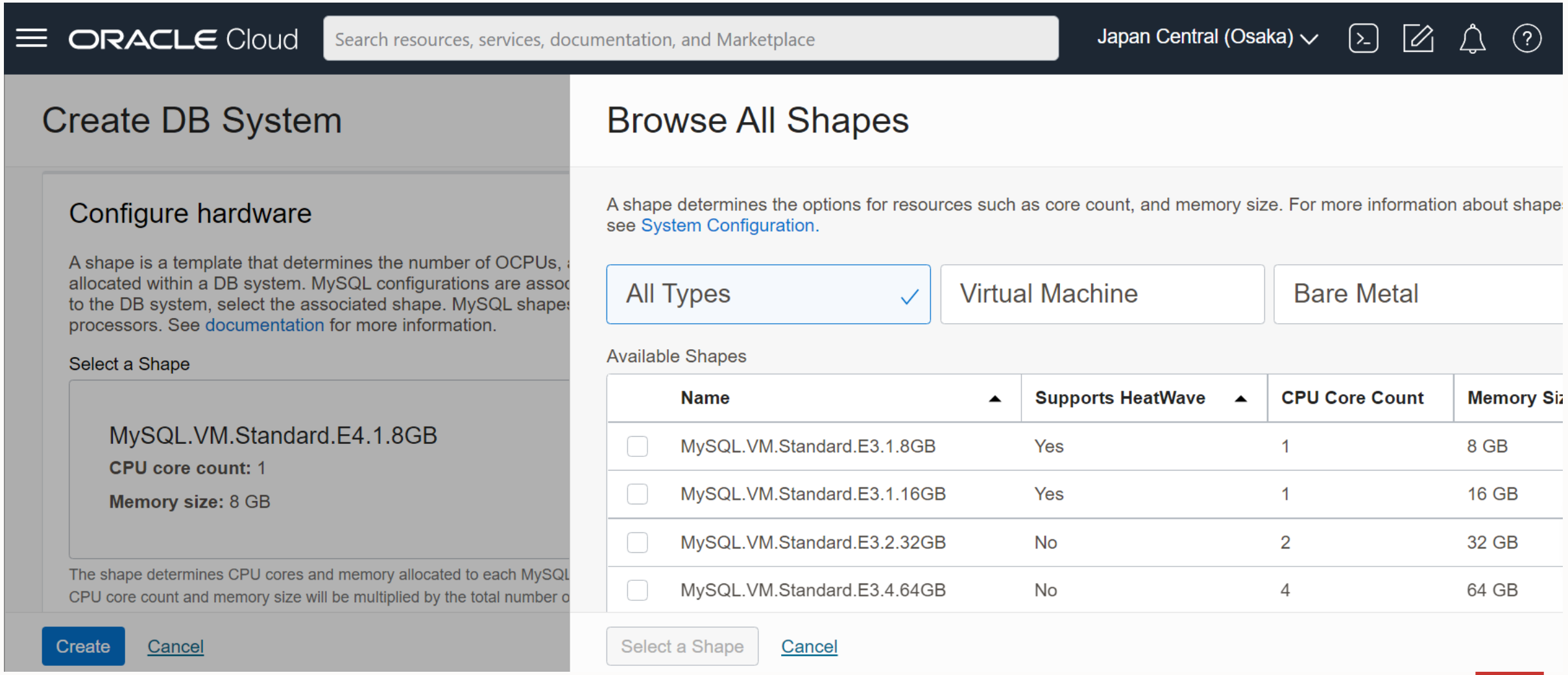
彈性設定Oracle Database Cloud Service with AMD



彈性設定MySQL with AMD



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3
Lower TCO

與AMD合作提供較低的成本跟多樣化的選擇 – OCVS Pricing

	較低的成本在臨時性 或突發性的需求		更低的成本在 長期性的需求	
	Hourly Commit	**Monthly Commit ~ -17%**	**1 Year Commit ~ -33%**	**3 Year Commit ~ -46%**
Intel Host X7 BM.DenseIO2.52 52 Cores, 768GB RAM, 51.2TB NVMe	~$12.67/Host/Hour (~$304/3Host/8Hour)	~$10.56/Host/Hour (~$23K/3Host/Month)	~$8.45/Host/Hour (~$222K/3Host/Year)	~$6.86/Host/Hour (~$541K/3Host/3Year)
AMD Host E4.32 BM.DenseIO.E4.32 32 Cores, 2TB RAM, 54.4TB NVMe	~$9.75/Host/Hour (~$234/3Host/8Hour)	~$8.12/Host/Hour (~$18K/3Host/Month)	~$6.50/Host/Hour (~$171K/3Host/Year)	~$5.28/Host/Hour (~$416K/3Host/3Year)
AMD Host E4.64 BM.DenseIO.E4.64 64 Cores, 2TB RAM, 54.4TB NVMe	~$15.60/Host/Hour (~$374/3Host/8Hour)	~$13.00/Host/Hour (~$28K/3Host/Month)	~$10.40/Host/Hour (~$273K/3Host/Year)	~$8.45/Host/Hour (~$666K/3Host/3Year)
AMD Host E4.128 BM.DenseIO.E4.128 128 Cores, 2TB RAM, 54.4TB NVMe	~$24.96/Host/Hour (~$599/3Host/8Hour)	~$20.80/Host/Hour (~$46K/3Host/Month)	~$16.64/Host/Hour (~$437K/3Host/Year)	~$13.52/Host/Hour (~$1066K/3Host/3Year)

Note: (1) Minimal 3 hosts (2) Minimal 8 hours for Hourly Commit. (3) The pricing interval is *always* tied to the *host*, not the SDDC or cluster.

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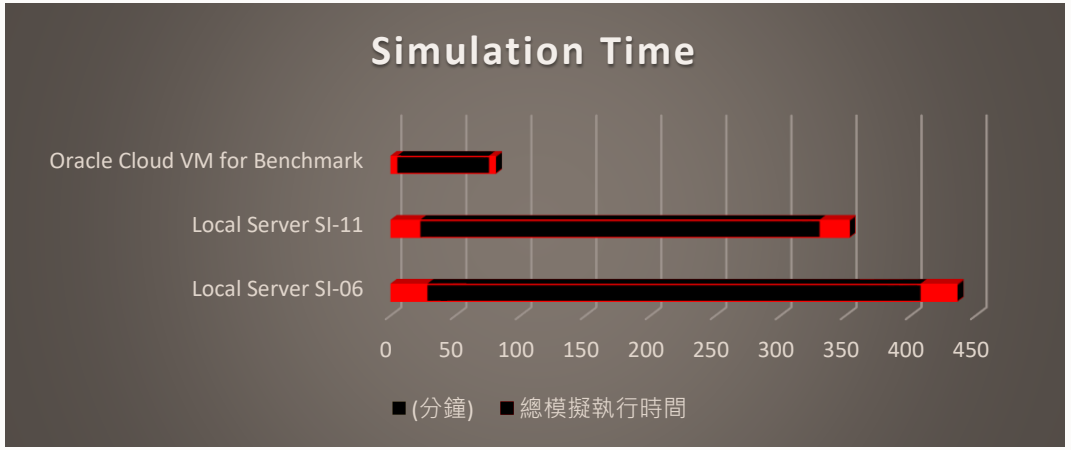
OCI offers supercomputer-level performance and tests higher than OP for Cadence – Reduce the time up to 80%+/Performance Improve 500%+

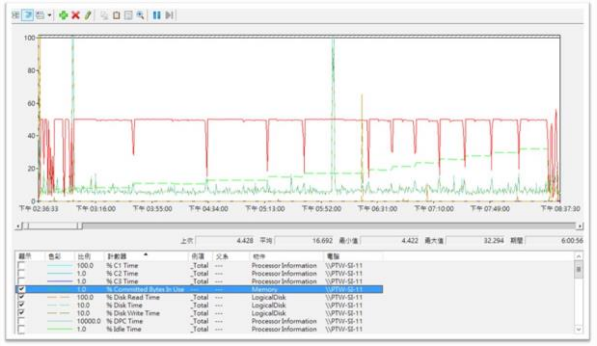
作業系統：Windows Server 2012 R2
模擬軟體：Cadence 3D-EM ver.19.0.1.09101

模擬設備環境	Local Server SI-06	Local Server SI-11	Oracle Cloud VM for Benchmark
CPU 規格	Intel Xeon E5-2680 V4 @2.40GHz 2x14 Core	Intel Xeon Gold 5520R @2.20GHz 2x24 Core	AMD EPYC 7J13 64 Core @2.54GHz (28 OCPU)
Memory 容量	128 GB	256 GB	96 GB
Hard Drive	SATA HDD	SAS HDD	Block Volumn Storage (SSD)
測試模擬期間	2021/11/12 17:18 | 2021/11/13 00:34	2022/4/8 14:36 | 2022/4/8 20:29	2022/4/8 08:32 | 2022/4/8 09:53
總模擬執行時間 (分鐘)	436	353	81
執行時間提升率 (%)	0%	↑ 19 %	↑ 81.5 %

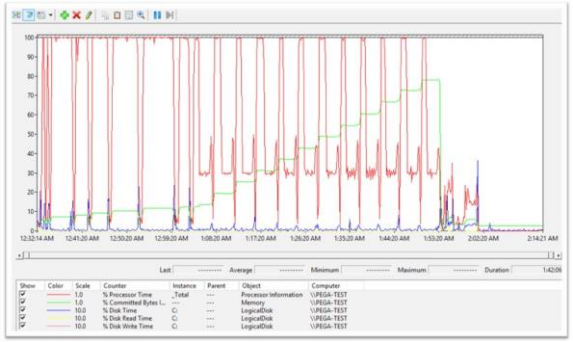
- OCI could fully realized CPU.
- Without over-sizing
- Performance Improve 500%+
- Reduce time up to 80%+



- Customer's OP Performance chart



- OCI's Performance Chart



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Oracle Cloud 將AMD EPYC Genoa 應用在更多的雲服務上包括Cloud@Customer

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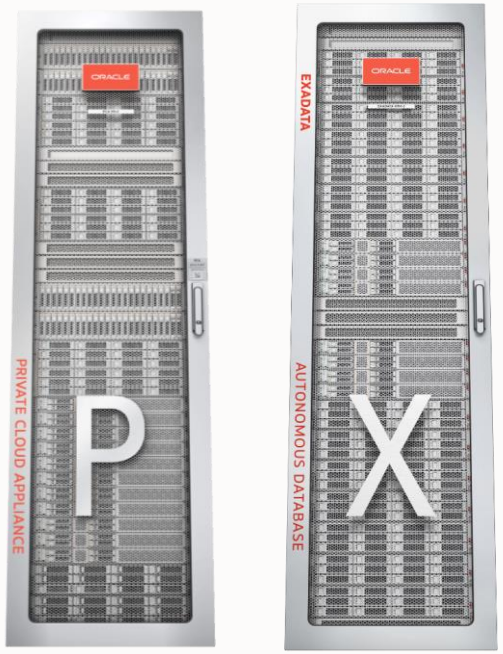
集成以實現快速部署和降低成本



1

應用程序/中間件及資料庫的最佳平台

- 關鍵應用程序的高可擴展性和可用性
- 降低授權許可費用並保護數據
- 提供End-To-End的支援, 避免問題無法釐清快速解決問題

2

私有雲和公共雲之間的可移植性

- OCI 兼容的 API 和管理工具，可簡化可移植性
- 跨 OCI 和 Cloud@Customer 的一致應用程序開發人員和用戶體驗——一次開發，隨處部署！

3

與 Oracle Exadata 直接連接

- 最低延遲連接：應用程序到數據庫
- 優化的多層應用程序部署

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Oracle Cloud Infrastructure Announces OCI Compute Instances Based on New 4th Generation AMD EPYC Processors – 已經協助客戶一年節省40M美金

	 OCI Compute E5 **Standard**	 OCI Compute E5 **Dense-IO**	 OCI Compute E5 **HPC**
Shapes	Bare Metal & Flex VM	Bare Metal & Flex VM	Bare Metal
vs. Previous Generation	• 33% better performance • 50% more memory bandwidth • 50% more cores on bare metal	• 50% higher storage capacity • 63% better storage performance	• 40% better price performance
Workloads	General purpose workloads	Large databases, big data, lift-and-shift	Simulations, analytics, AI training (storage)
Features	• Burstable (VM only) • Pre-emptible (VM only) • Shielded instances • Confidential Computing • Capacity reservations	• Confidential Computing • Capacity reservations	• RDMA Cluster Networking

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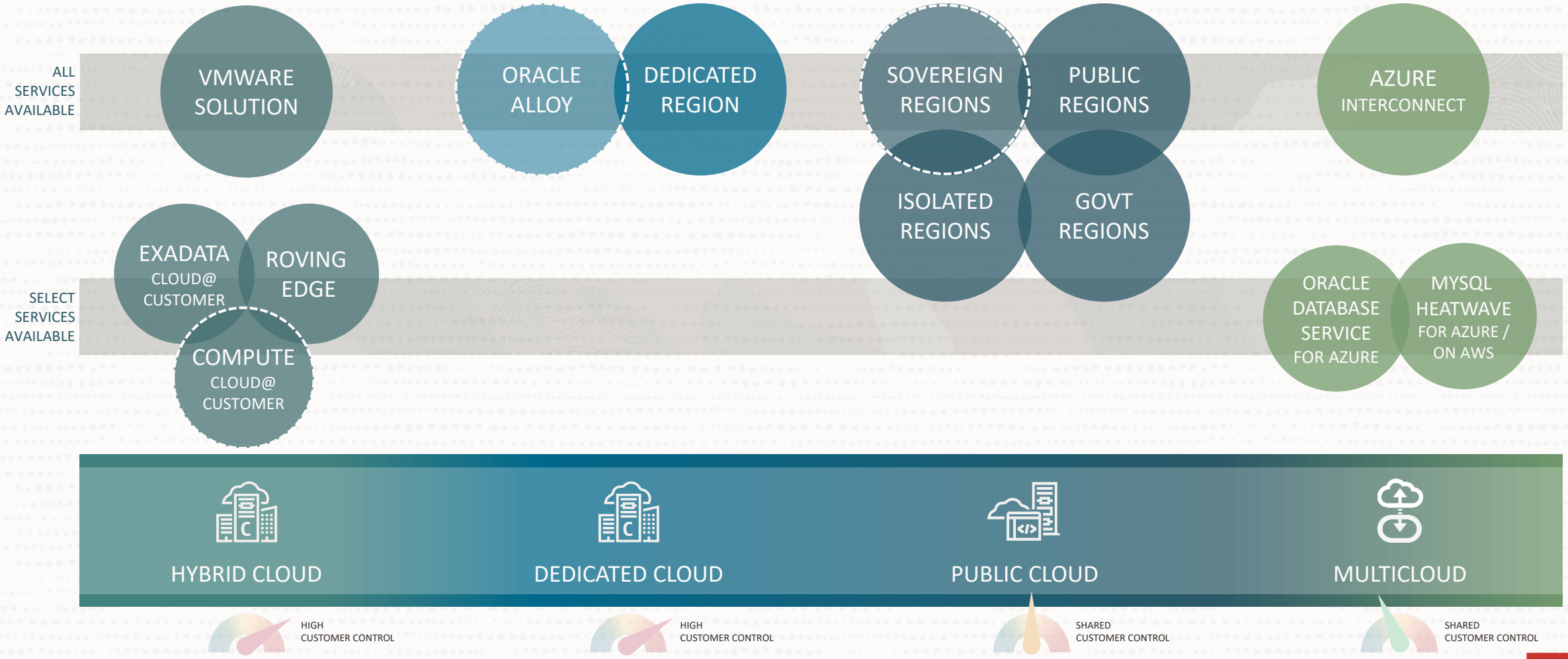
Uber Phenix Real Time Solutions SoundHound AI and Xactly Corp

依據你的需求部署你的雲服務 - OCI跟AMD聯手打造高效能雲服務



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Additional resources

Oracle Cloud

https://www.oracle.com/cloud/

Oracle Cloud@Customer

https://www.oracle.com/cloud/cloud-at-customer/

Oracle Dedicated Region Cloud@Customer

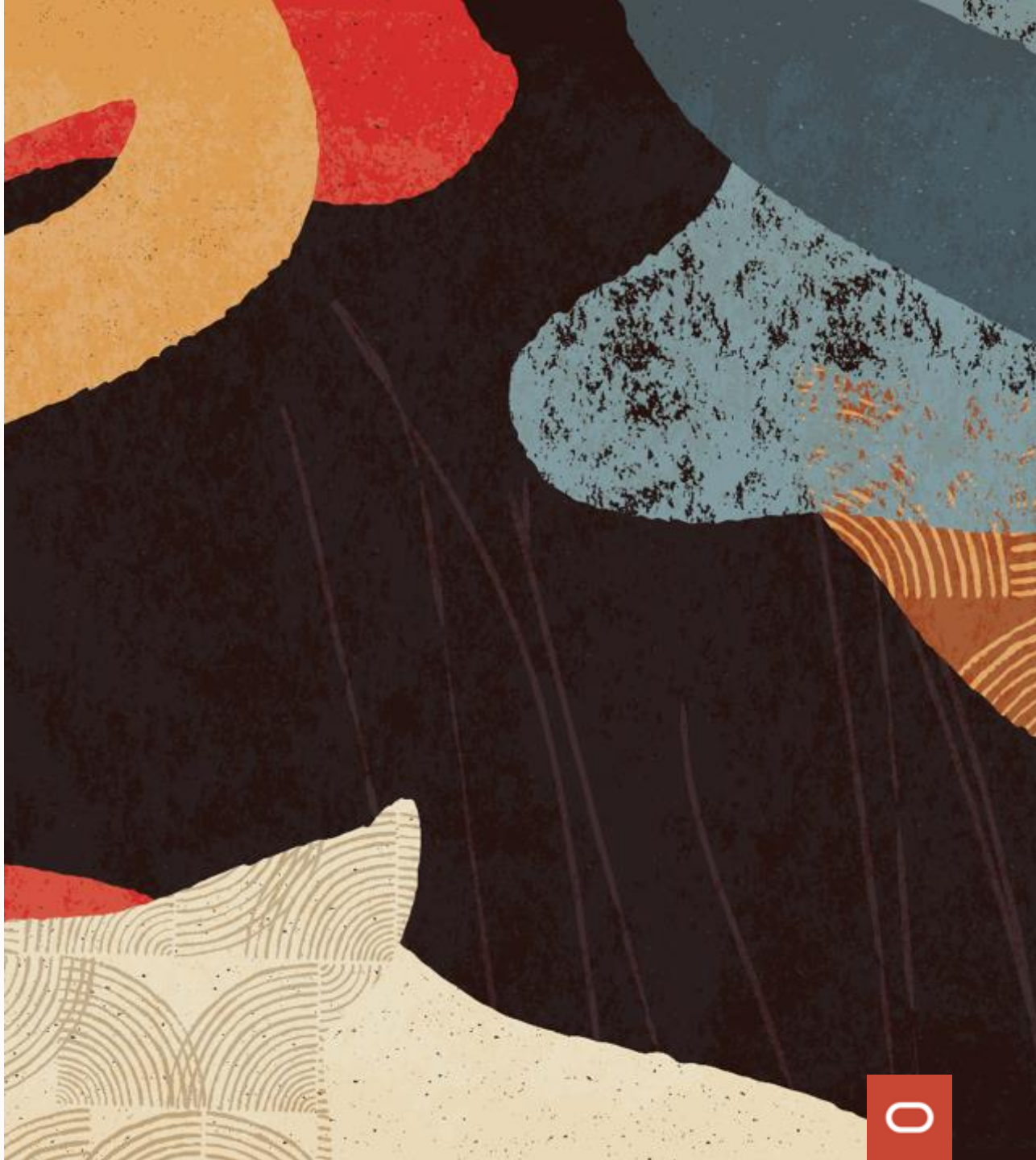
https://www.oracle.com/cloud/cloud-at-customer/dedicated-region/

Blogs

https://blogs.oracle.com/cloud-infrastructure/

Social Media

https://twitter.com/OracleCloud



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Thank you

Manish Kapur

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