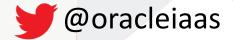
ORACLE® Cloud Infrastructure

GPUs for the Public Cloud

Ben Lackey – Director, Big Data Partners Taylor Newill – Product Management, HPC/GPU



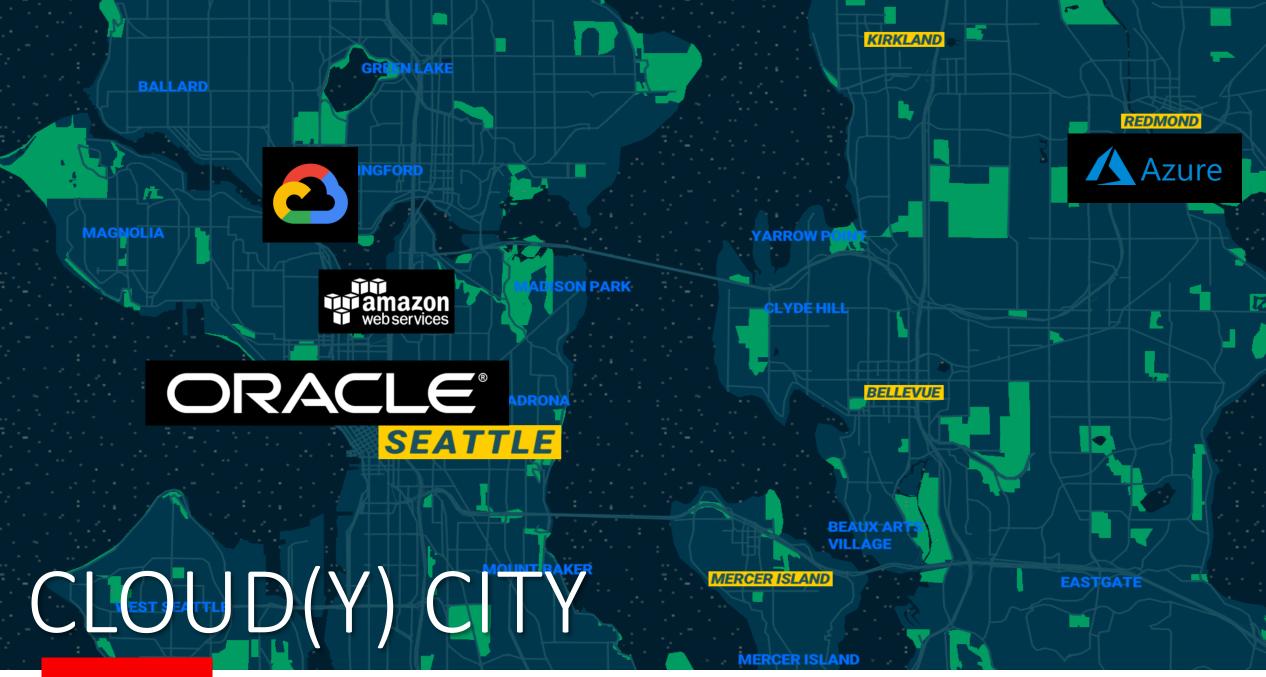
Safe Harbor Statement

The following is intended to outline our general product direction. It is intended for information purposes only, and may not be incorporated into any contract. It is not a commitment to deliver any material, code, or functionality, and should not be relied upon in making purchasing decisions. The development, release, timing, and pricing of any features or functionality described for Oracle's products may change and remains at the sole discretion of Oracle Corporation.



Our Journey





ORACLE

Three Strategic Pillars for Oracle Cloud Infrastructure







Best place to run specialized computing

Highest, most consistent performance at the lowest cost **Open Cloud**













Sun and Mellanox 2010





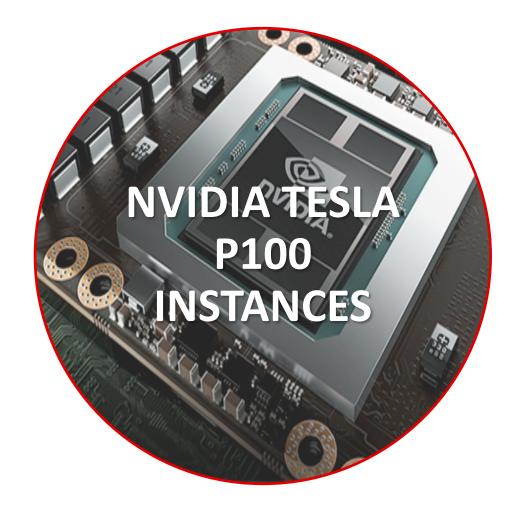
BARE METAL CLOUD Oracle Open World 2016





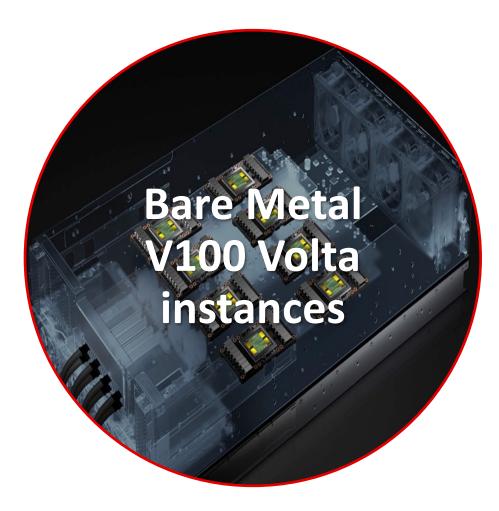
ORACLE CLOUD INFRASTRUCTURE October 2017





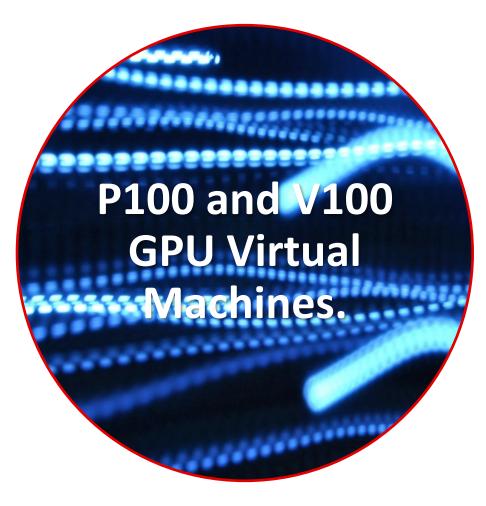
GENERAL AVAILABILITY Oracle Open World 2017





GENERAL AVAILABILITY March 2018





TOKYO September 2018



LERATING ORACLE CLOUD STRUCTURE WITH NVIDIA AND RAPIDS

are runs seamlessly on the Oracle Cloud, allowing support all their HPC, AI and data science needs, g advantage of the portfolio of GPU instances racle Cloud Infrastructure."

Software Development, Oracle Cloud Infrastructure



THE METAL IN BARE METAL

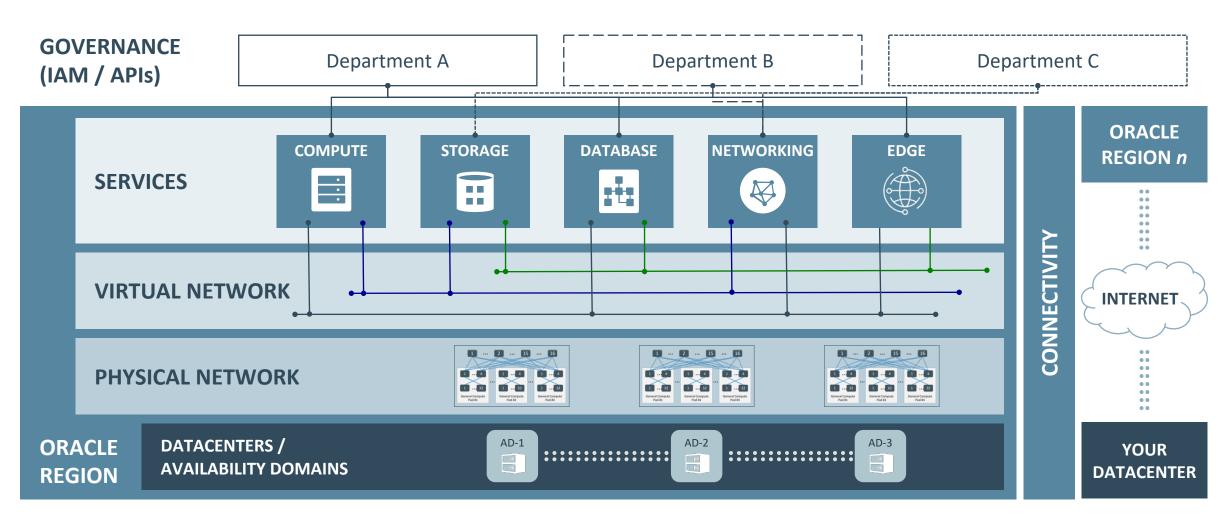






Oracle Cloud Infrastructure

High performance compute, storage, database, edge on the same flexible virtual network









Virtual Machine GPU 1 P100 GPU 12 OCPU | 104 GB RAM up to 1PB Block Storage \$1.275 GPU/h

Bare Metal GPU 28 Cores, 192 GB RAM, 2x Tesla P100 GPUs **\$1.275 GPU/h**



Virtual Machine GPU v2 1 – 4 V100 GPU 6 – 24 OCPU 104 to 360 GB RAM up to 1PB Block Storage NVLINK **\$2.25 GPU/h**



Bare Metal GPU V2 52 Cores, 768 GB RAM, 8x Tesla V100 GPUs NVLINK **\$2.25 GPU/h**

Oracle Cloud Infrastructure GPU

ORACLE

GPU TECHNOLOGY CONFERENCE

COMING SOON



Bare Metal GPU v3 48 OCPU – 3.5GHZ all core turbo 768 GB RAM HGX-2 8 * V100 32 GB SXM3 GPU NVLINK Up to 1PB Block Storage



Virtual Machine GPU v3 5 - 22 OCPU – 3.5GHZ all core turbo 90 - 360 GB RAM HGX-2 1 - 4 * V100 32 GB SXM3 GPU NVLINK Up to 1PB Block Storage



Oracle Cloud Infrastructure BM and VM



Bare Metal Standard 52 Cores, 768 GB RAM, up to 1PB Block Storage 2x 25Gbe Network Interfaces



Bare Metal DenselO 51.2 TB of local NVMe SSD up to 1PB Block Storage 2x 25Gbe Network Interfaces



Virtual Machine Standard 1-16 and 1-24 Cores 7 – 320 GB RAM up to 1PB Block Storage Up to 25Gb/s Ethernet

Virtual Machine Dense 4 – 24 Cores 60 – 320 GB RAM 3.2 TB – 25.6 TB local NVMe SSD up to 1PB Block Storage

\$ 0.0638 / core/h

\$0.1275 / core/h

\$0.0638 / core/h

\$0.1275 / core/h



Oracle Cloud Infrastructure Storage

\$0.0425 GB/month



File Storage Service Up to 8 Exabytes of storage Managed distributed file service NFSv3 mount point Pay for what you use

\$0.0425 GB/month



Block Storage 50 GB-16 TB volumes Up to 25K IOPS per volume 400K IOPS per host

320MB/S per volume Pay for Storage not IOPS



Local NVME 51.2 TB of local NVMe SSD 6.4-25.6 TB for VM



Object Storage Up to 10TB per object Highly durable

\$0.0255 GB/month \$0.0034 10,000 req



OCI Customer Base – 1 year ago

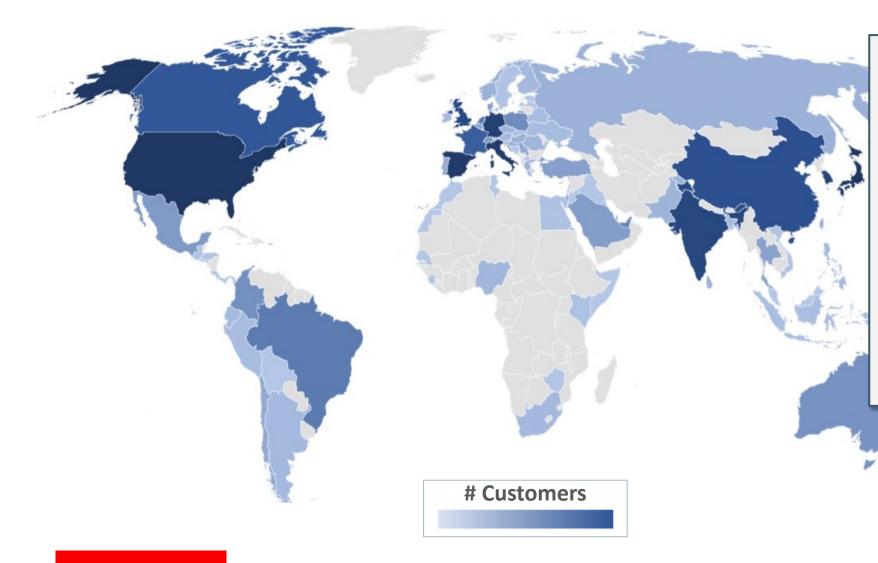
Customers

November 2017

- 20 Countries, majority US
- 3 OCI Region (PHX, IAD, FRA)
- ~35 laaS and Database SKUs



OCI Customer Base - 20x YoY Growth

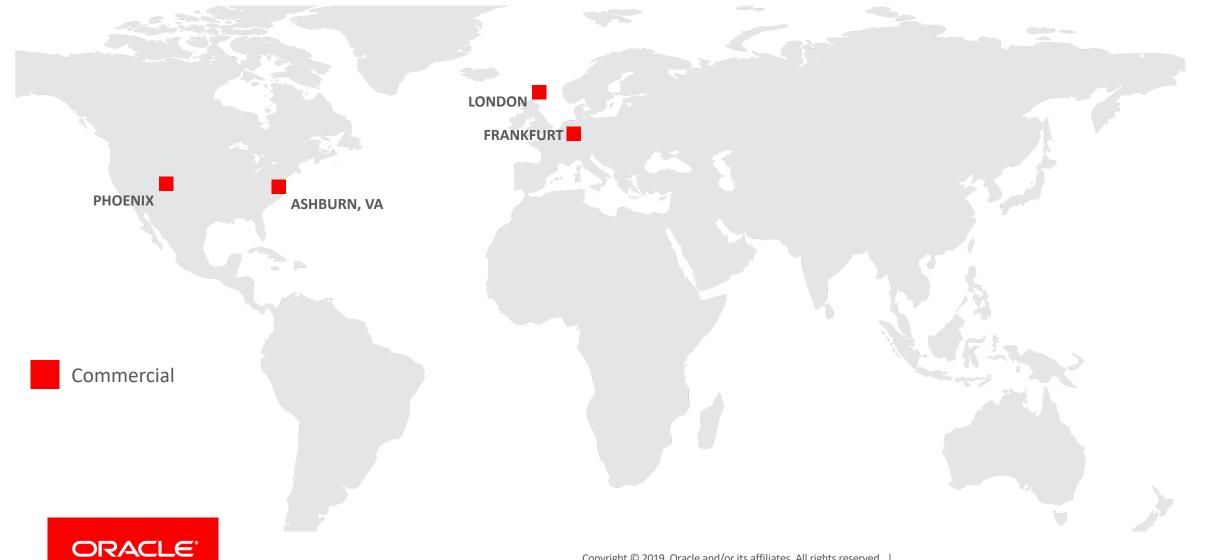


November 2018

- 94 Countries
- 4 OCI Commercial Regions
- Autonomous, Data Transfer, GPU, HPC, File Storage, Cost Tagging, Key Management, 200+ new services



Oracle Cloud Infrastructure Global Footprint Sep 2018



Oracle Cloud Infrastructure Global Footprint Dec 2019



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Workbench

Active Analytics

A admin	
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dsx

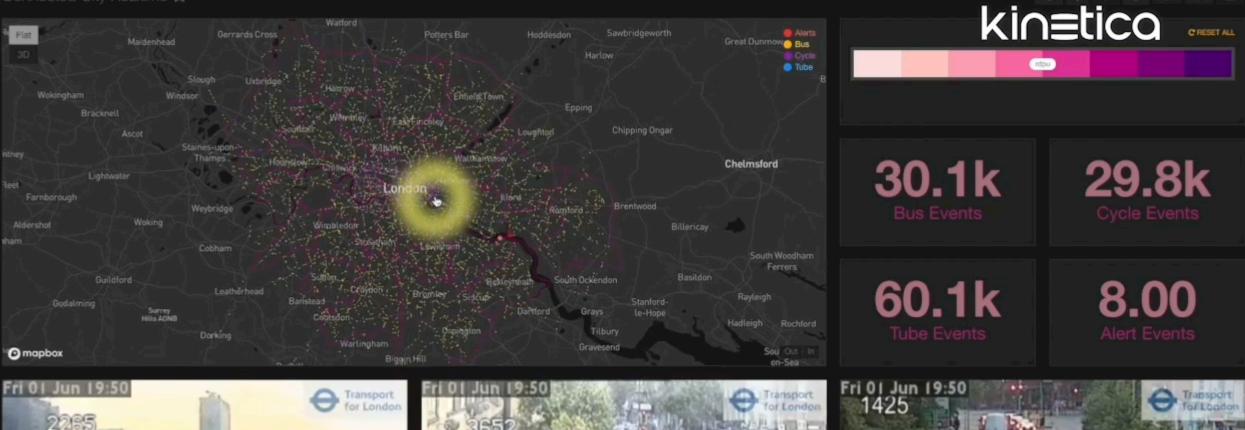
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EXELONDON

Connected City Realtime 🏠









Three Strategic Pillars for OCI



Best place to run Oracle workloads Highest, most consistent performance at the lowest cost

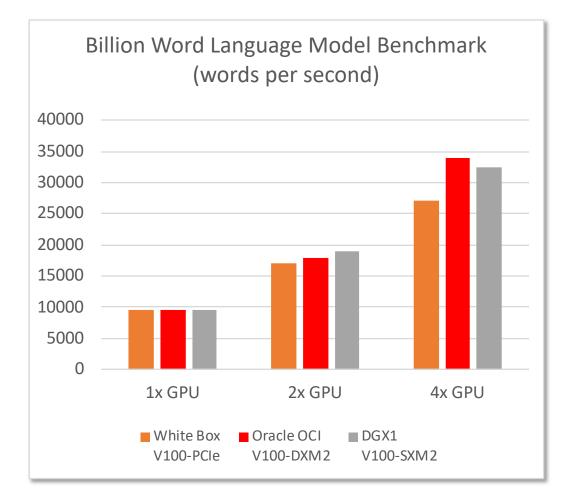


Open Cloud



Myth: GPUs don't perform well on the cloud

- **Truth**: Oracle Cloud Infrastructure GPUs match or exceed DGX1 performance
- Hardware refresh is faster and consistent on OCI. Jobs complete faster with each generation and the price performance increases
- Cost of full GPU server on-premises is over \$150,000 plus power, space, maintenance and support

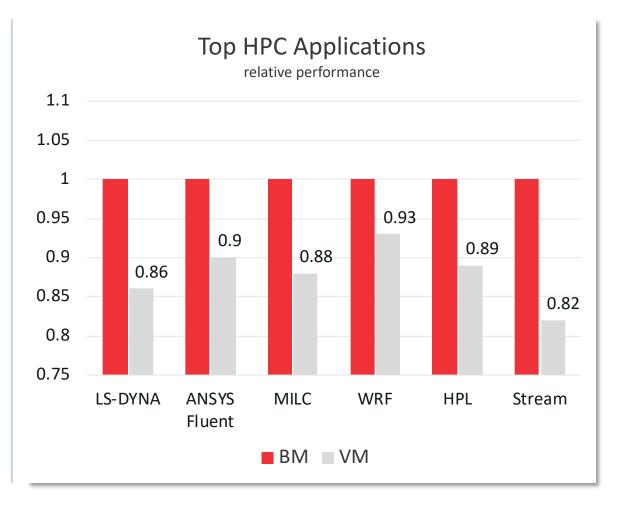


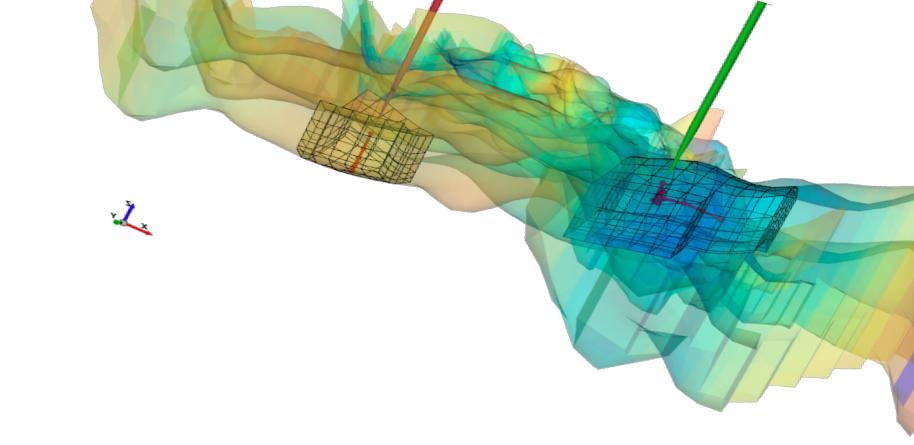
HGX-2 vs. HGX-1



Myth: Cloud means I HAVE to run virtualized

- Truth OCI Bare Metal runs HPC workloads up to 18% faster than a VM
- Faster turn-around time for a simulation model leads to increased license ROI
- 15% can mean hours and days when running large simulations or AI workloads





Customers

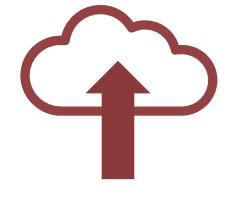




Three Strategic Pillars for OCI







Best place to run Oracle workloads

Highest, most consistent performance at the lowest cost **Open Cloud**

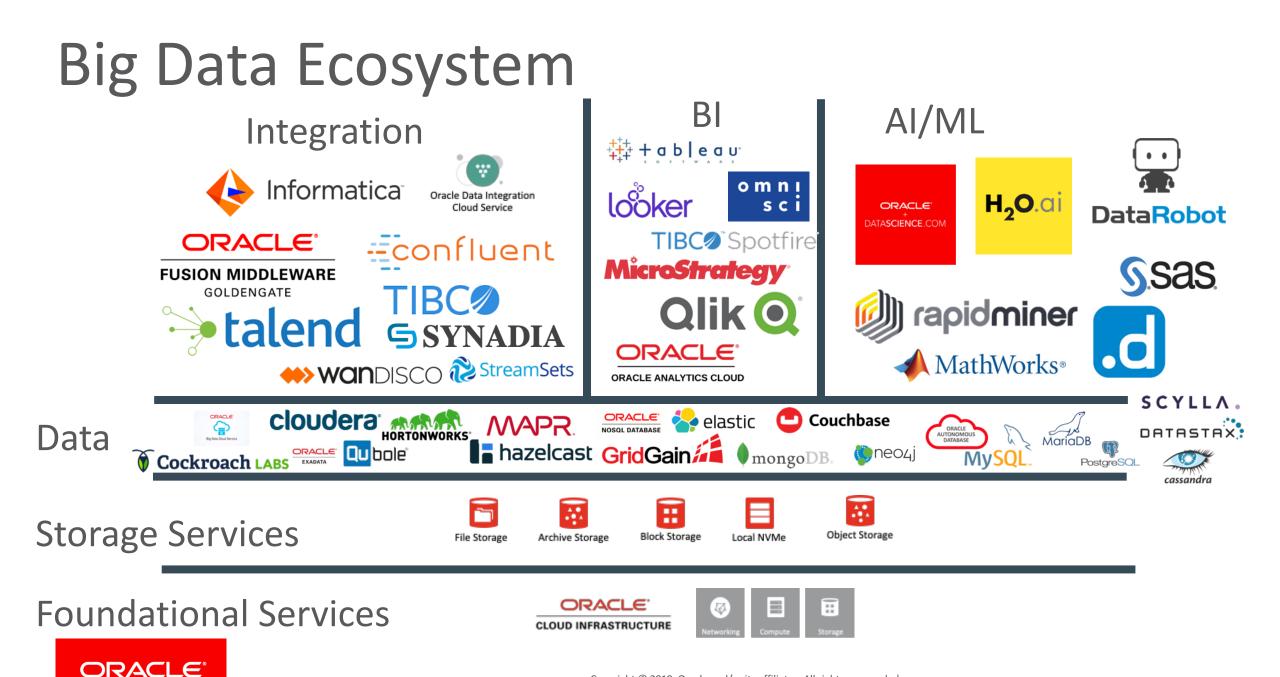


Terraform

- Open Source Infrastructure as Code (IaC)
- Runs everywhere OCI, AWS, Azure, GCP, Alibaba...
- OCI doesn't have a proprietary laC layer, just Terraform!
- The OCI provider is open source and hosted in <u>Hashicorp's org</u>

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	© terraform-providers / terra o Code ⊙ Issues 19	form-provider-oci	y Fork 197		
	Terraform Oracle Cloud Infra terraform bare-metal oracle-cloud terraform	structure provider https://www.terraform.lo/docs/provide iaas orchestration oracle-cloud-infrastructure oci -provider oracle			
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		mCity Cleanup after v3.15.0 release Latest commit ebfc9			
	.github	Renaming "baremetal" provider to "oci" and making region a re	a year ago		
	m docs	support for Traffic Management in DNS	10 days ago		
	m oci	support for Traffic Management in DNS	10 days ago		
	scripts	Update Oracle Copyright notices for 2019 (#703)	19 days ago		
	m vendor	Update to latest SDK release	10 days ago		
	📾 website	support for Traffic Management in DNS	10 days ago		
	.gitignore	revert httpreplay lib to unblock release.	3 months ago		
	.travis.yml	Upgrade to support Go 1.11	a month ago		
	CHANGELOG.md	Cleanup after v3.15.0 release	6 days ago		
	CONTRIBUTING.md	Update Oracle Copyright notices for 2019 (#703)	19 days ago		
	GNUmakefile	Virtual Circuit public_prefixes to be updatable and importable	17 days ago		
	LICENSE.md	Fixed merge errors and automation that caused them	2 years ago		
	README.md	Update Oracle Copyright notices for 2019 (#703)	19 days ago		
	🗈 main.go	Update Oracle Copyright notices for 2019 (#703)	19 days ago		
	wercker.yml	Update wercker build go version	21 days ago		
	I README.md				
	NOTICE				
	The OCI Terraform Provider is now available for automatic download through the Terraform Provider Registry. For more information on how to get started view the documentation and setup guide. Terraform Provider for Oracle Cloud Infrastructure				
	Documentation OCI forums Github issues Troubleshooting twid jawaky				
	Requirements				
	Terraform v0.10.1 or	greater			





H2O.ai

- H2O.ai Driverless AI (DAI) is a powerful machine learning tool for quickly creating models
- Ability to run on GPUs
- Automated feature engineering
- Time series support
- Cross validation
- Model export to Java and Python

