ORACLE

Scalability & Elasticity in Oracle Cloud Infrastructure

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& Cloud Technologies

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Safe harbor statement

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Agenda

- Compute Instances
- Database Cloud Service
- Autonomous Database

Scalability & Elasticity

Scalability : strategic increase of resources to meet expected long-term demands.

Elasticity: tactical increase or decrease of resource to meet unexpected short-term changes.

Benefits:

- High Performance
- High Availability
- Cost-effectivness

Agenda

- Compute Instances
- Database Cloud Service
- Autonomous Database

Compute | Block Storage

scale up

increase size of block volume

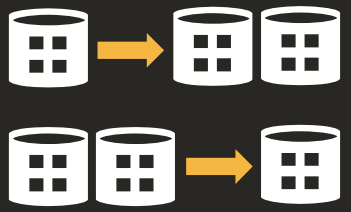
online

scale down

migrate data to smaller volume

online / offline

scale out/in



add/remove block volumes

online

Block Volume Demo

Compute Virtual Machine | CPU

scale up

change to bigger shape

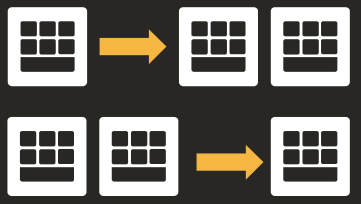
offline

scale down

change to smaller shape

offline

scale out/in



add/remove instances

online

Compute Bare Metal | CPU

scale up

migrate to bigger shape

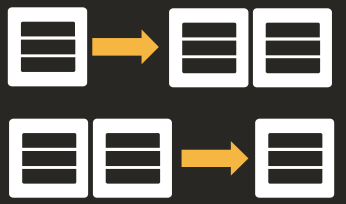
online / offline

scale down

migrate to smaller shape

online / offline

scale out/in



add/remove instances

online

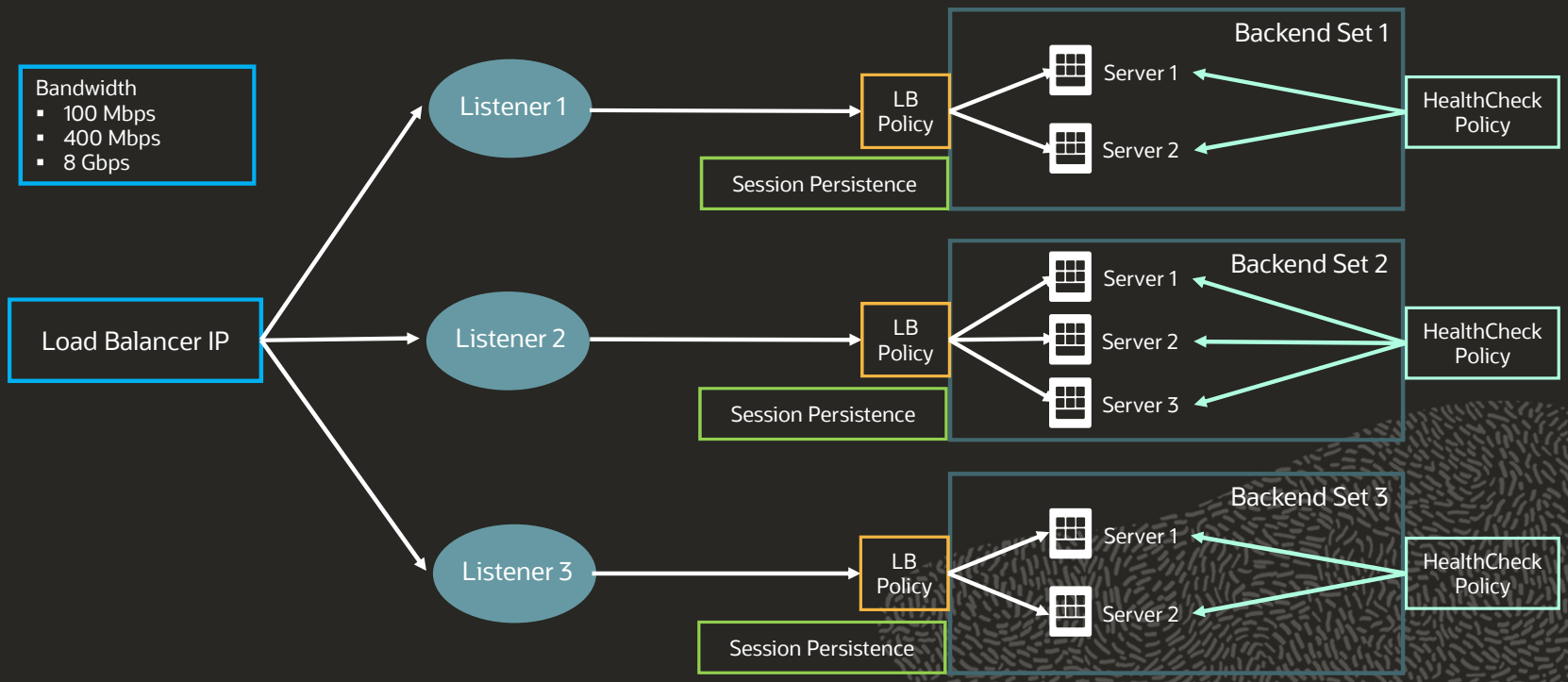
Load Balancer

Listener
- HTTP + port
- HTTPS + port
- TCP + port

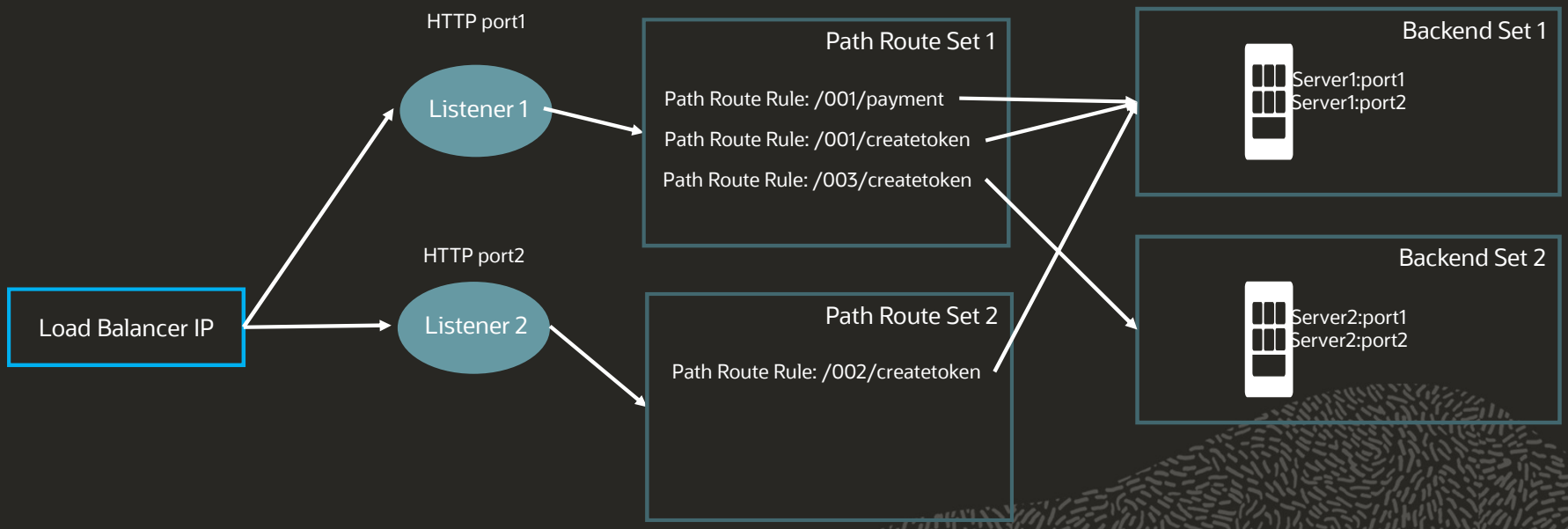
Policy/Algorithm
- Weighted Round Robin
- IP Hash
- Least Connections

Session Persistence
- Disable Session Persistence
- Enable application cookie persistence
- Enable load balancer cookie persistence

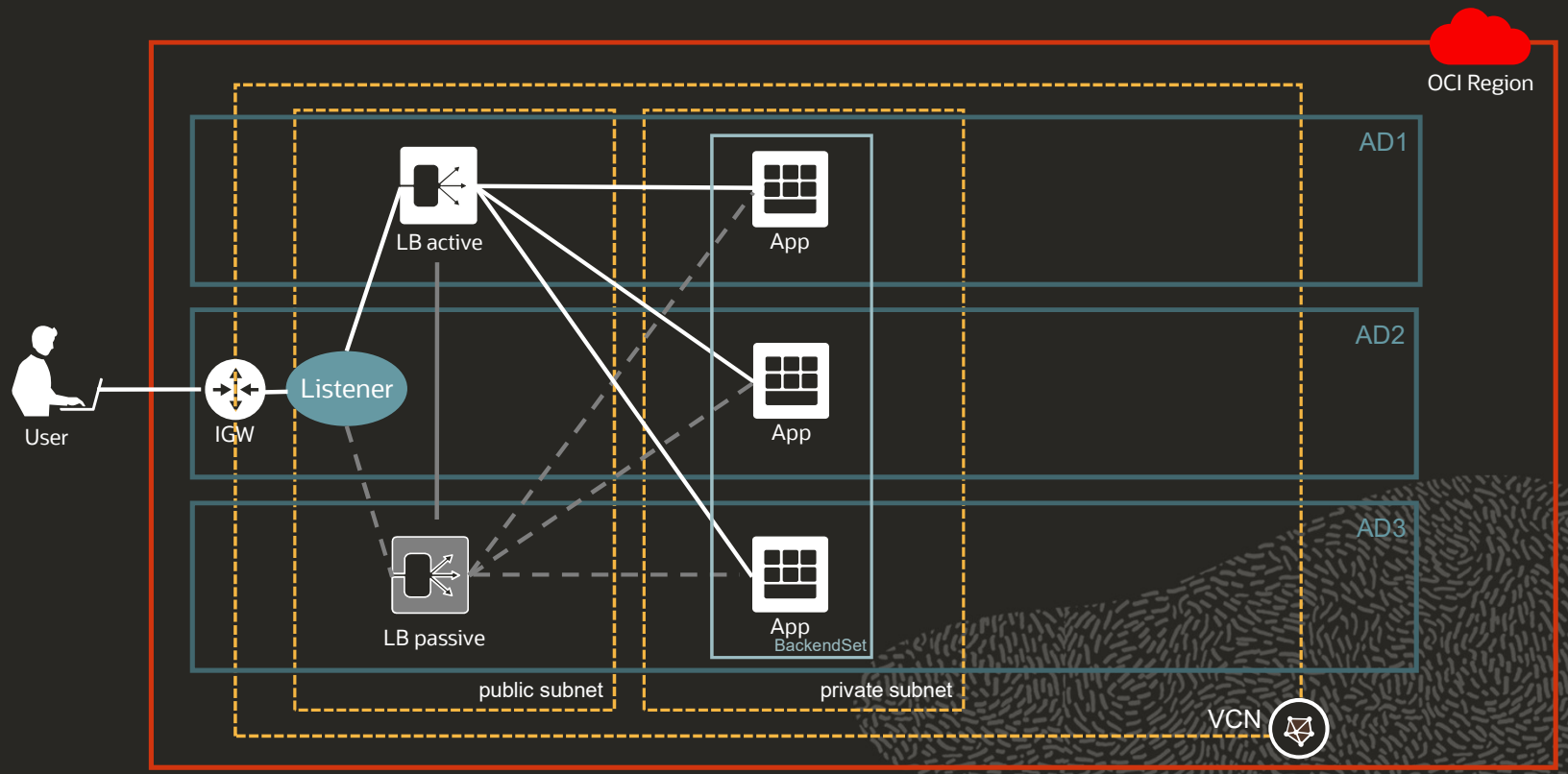
HealthCheck
- HTTP + port
- TCP + port



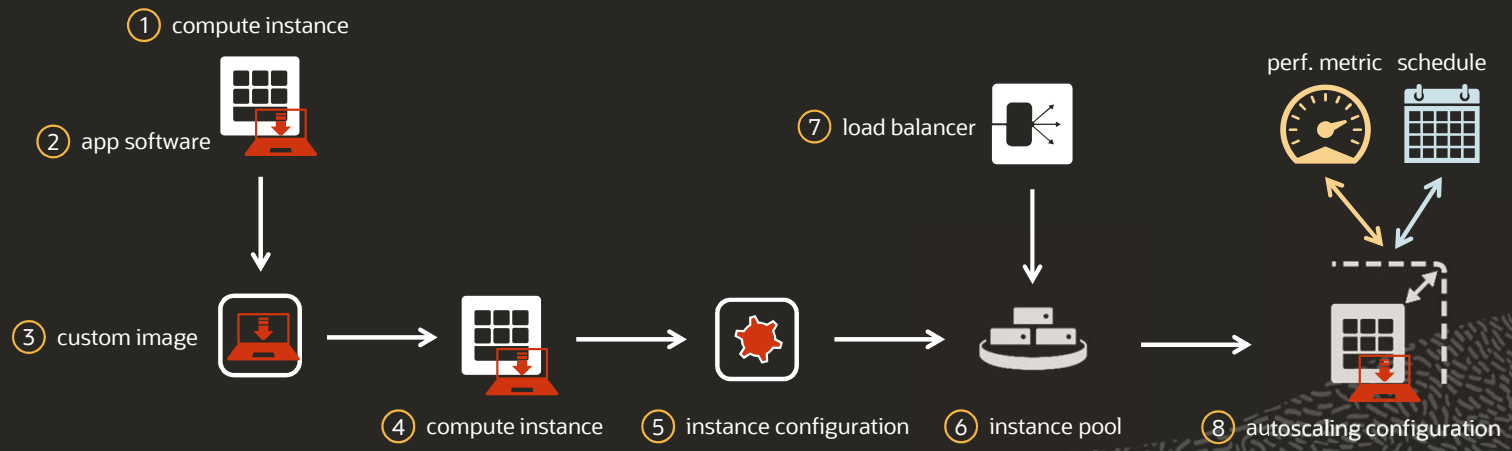
```
domainname/001/payment/      --> server1:port1
domainname/001/createtoken/  --> server1:port1
domainname/002/createtoken/  --> server1:port2
domainname/003/createtoken/  --> server2:port1
```



Compute Scale out/in | Manual with LB



Compute Scale out/in | Automatic with LB & Instance Pools



Load Balancer & Instance Pools Demo

Agenda

- Compute Instances
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DBCS Virtual Machine | Block Storage

scale up	scale down	scale out/in
		
increase size of storage	migrate to another system	/
online	online / offline	

DBCS Bare Metal | NVMe Storage

scale up

migrate to bigger shape

online / offline

scale down

migrate to smaller shape

online / offline

scale out/in

/

DBCS Exadata (ExaCS) | Exdata Storage

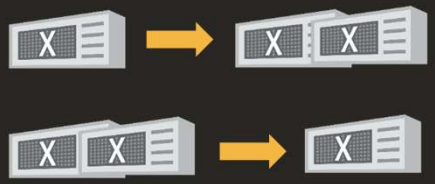
scale up

fix amount of storage

scale down

fix amount of storage

scale out/in



migrate to another shape

online / offline

Scale out online for X8M-2 Exadata machines

DBCS Virtual Machine | CPU

scale up

change to bigger shape

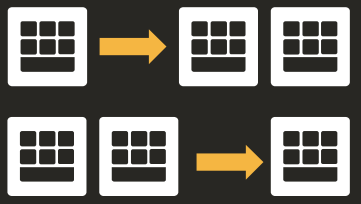
offline

scale down

change to smaller shape

offline

scale out/in



start/stop RAC nodes

online

DBCS Bare Metal | CPU

scale up

enable more CPUs

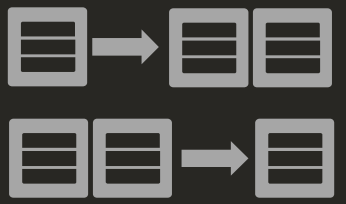
online

scale down

disable CPUs

online

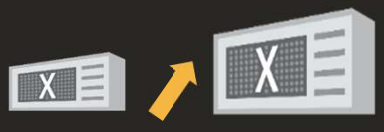
scale out/in



no RAC available for Bare Metal

DBCS Exadata (ExaCS) | CPU

scale up



enable more CPUs

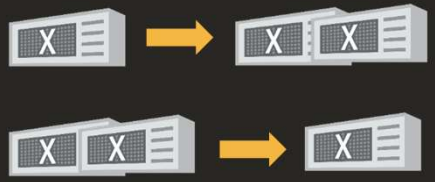
online

scale down

disable CPUs

online

scale out/in



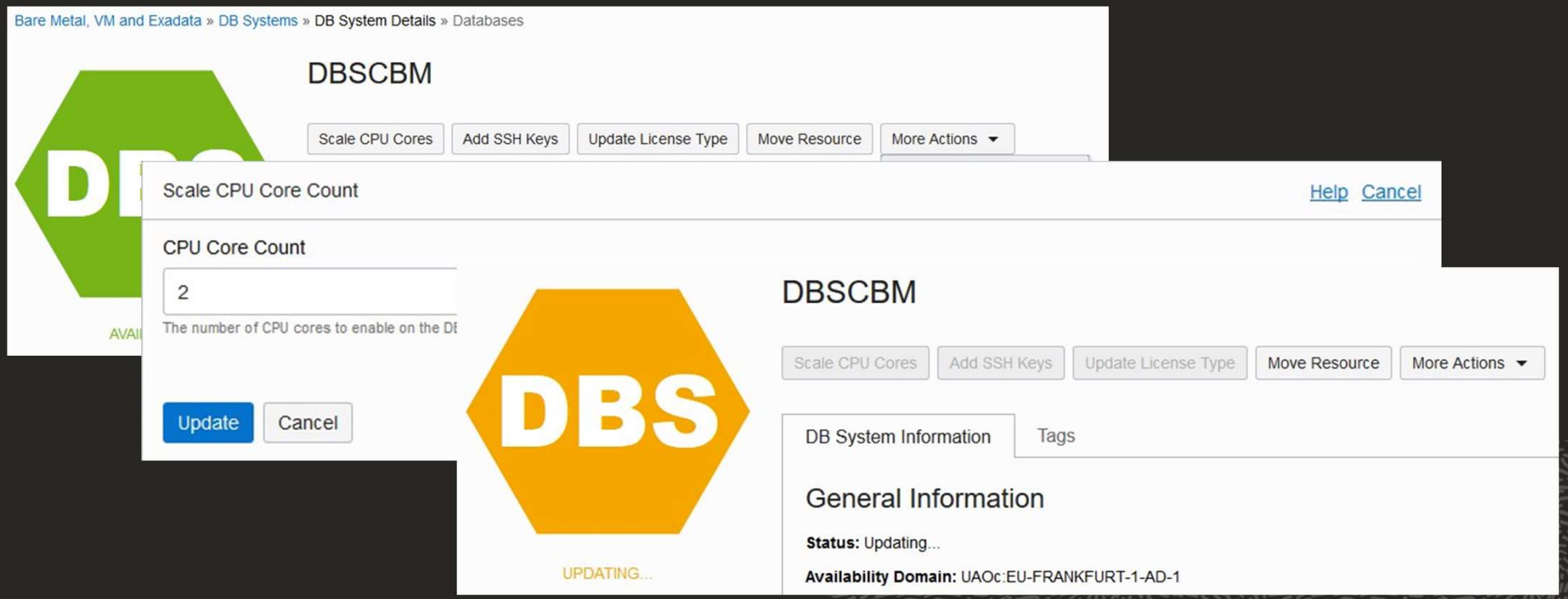
migrate to another shape

online / offline

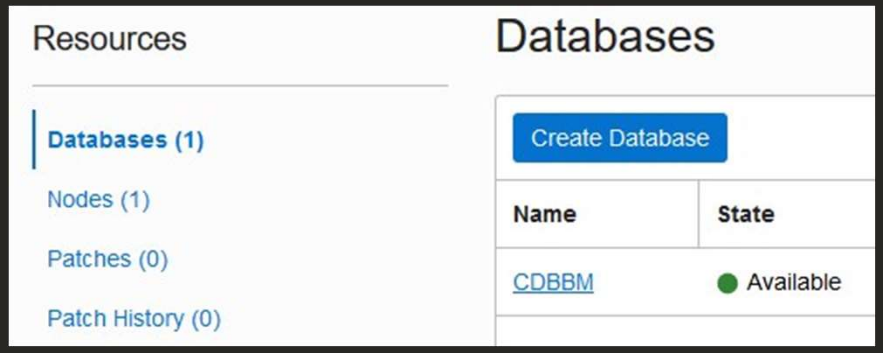
Scale out online for X8M-2 Exadata machines

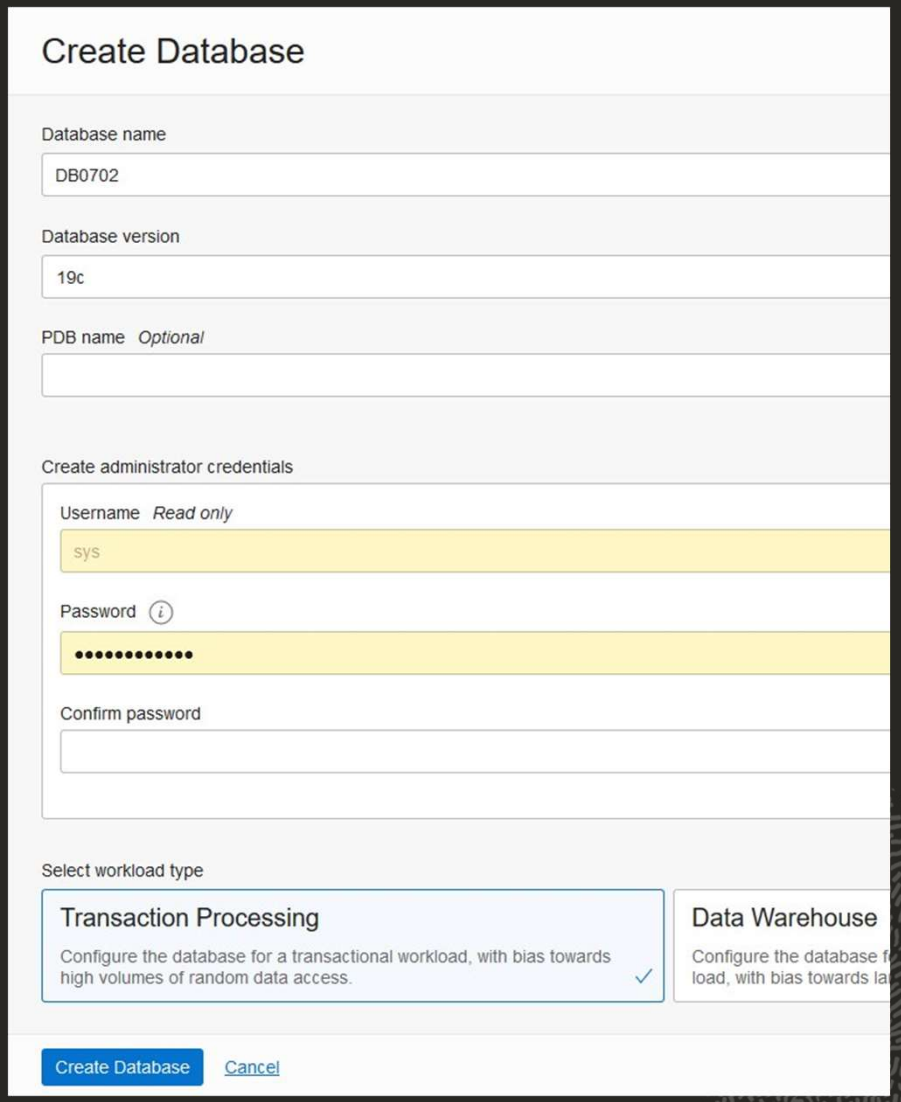
DBCS Demo

DBCS Bare Metal



DBCS Bare Metal





Agenda

- Compute Instances
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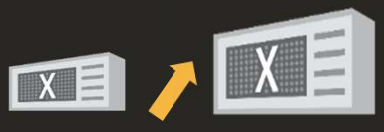
- Autonomous Database

Autonomous Database on Shared Infrastructure | Exdata Storage

scale up



increase storage

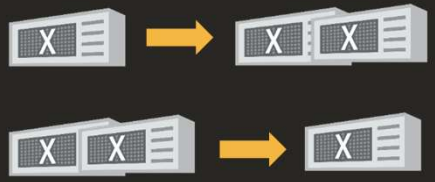
online

scale down

descrease storage

online

scale out/in

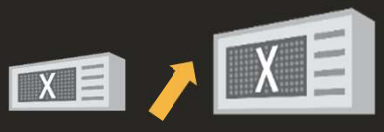


automatic & transparent to user

online

Autonomous Database on Shared Infrastructure | CPU

scale up



increase CPU count

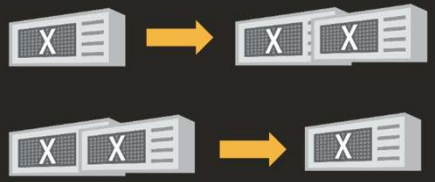
online

scale down

descrease CPU count

online

scale out/in



automatic & transparent to user

online

Autonomous Demo

SP1

	scale up	scale down	scale out/in
Compute - Block Storage			
Compute VM – CPU			
Compute BM – CPU			
DBCS VM – Storage			-
DBCS BM – Storage			-
ExaCS – Storage	-	-	*
DBCS VM – CPU			
DBCS BM – CPU			-
ExaCS – CPU			*
Autonomous Shared – Storage			
Autonomous Shared - CPU			
Autonomous Dedicated – Storage	-	-	
Autonomous Dedicated – CPU			

* Scale out online for X8M-2 Exadata machines

online operation
offline operation
possible through migration, online or offline

Slide 30

SP1 Sinan Petrus Toma; 01.07.2020

Further Reading

Online Resizing of Block Volumes
https://docs.cloud.oracle.com/en-us/iaas/Content/Block/Tasks/resizingavolume.htm#OnlineResize

Block Volume Elastic Performance
https://docs.cloud.oracle.com/en-us/iaas/Content/Block/Concepts/blockvolumeelasticperformance.htm

Compute Shapes
https://docs.cloud.oracle.com/en-us/iaas/Content/Compute/References/computeshapes.htm

Managing Compute Instances
https://docs.cloud.oracle.com/en-us/iaas/Content/Compute/Concepts/instancemanagement.htm

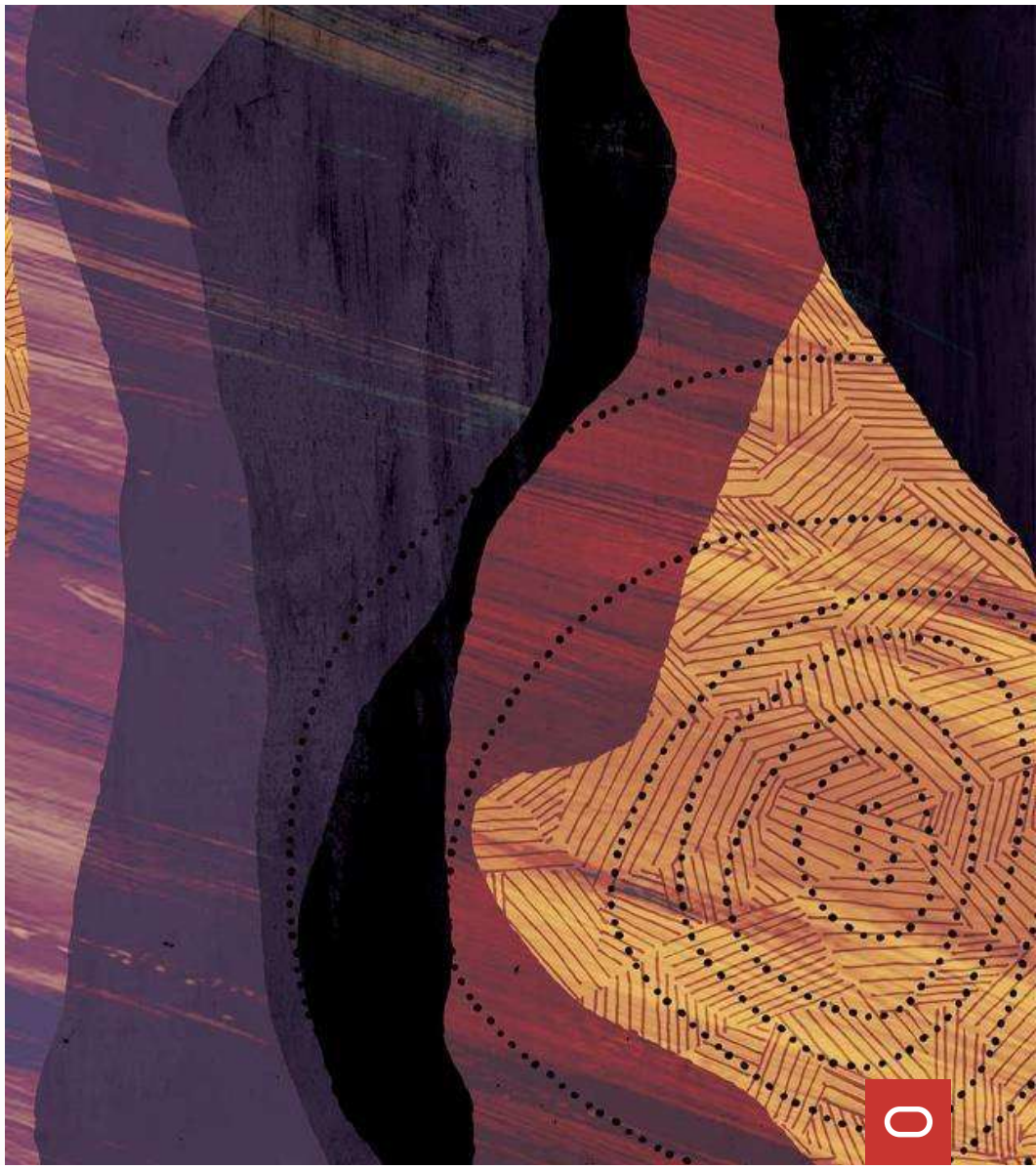
Bare Metal and Virtual Machine DB Systems
https://docs.cloud.oracle.com/en-us/iaas/Content/Database/Concepts/overview.htm

Exadata DB Systems
https://docs.cloud.oracle.com/en-us/iaas/Content/Database/Concepts/exaoverview.htm

Add CPU or Storage Resources or Enable Auto Scaling for Autonomous Database
https://docs.oracle.com/en/cloud/paas/autonomous-data-warehouse-cloud/user/autonomous-add-resources.html

Thank you

Sinan Petrus Toma




ORACLE

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