

Segmentation of Pools

VMIDACE – Internship (2023)

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Purpose

*The **goal** of the project is to create a script to automate the pool manipulation feature within Odo.*

- Currently Odo has problems processing the hosts/hypervisors/nodes when in a bulky pool
- The script adds value by reducing the amount of time a user spends when manipulating pools to comply with the necessary needs
- >The script is written in java; communicating between the Odo client as the back end, the script operations as the middle man (ODO_Facade) and the front end as CatergorizeOCID



Strategies

By Pool Size

- the user provides a maximum host size, then the program updates the pools to have the maximum hosts per pool in the region, creating extra pools if necessary

By Shape

- categorize the hosts based on the shape assigned from the API

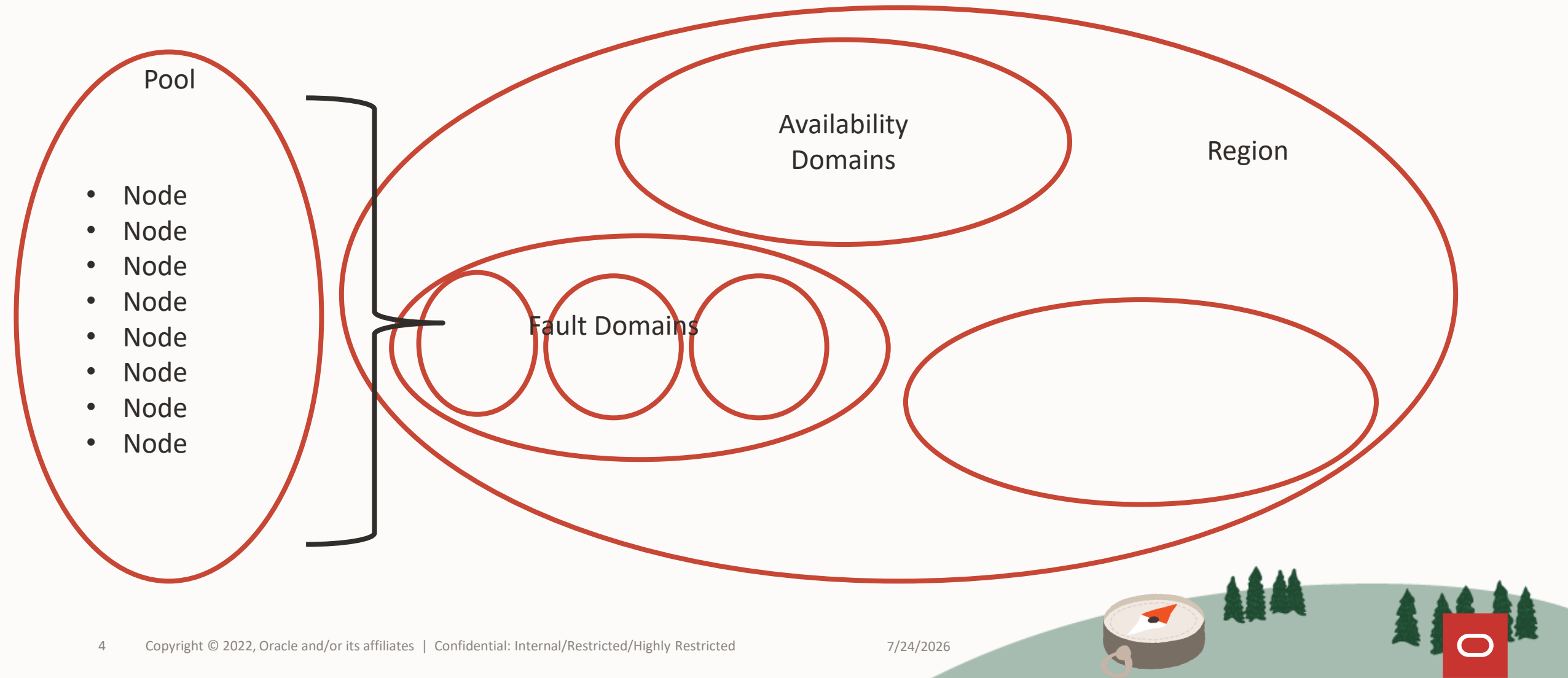
By OCID

- Categorize the hosts in the region by Oracle Cloud ID's (OCID)



Hierarchy of Odo Storage

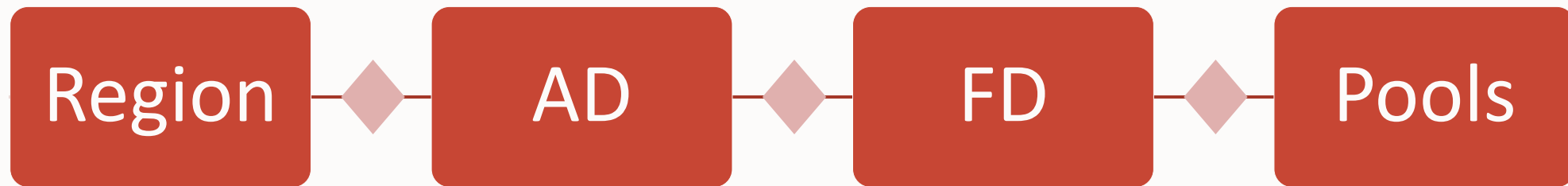
>Odo is the interface used to collect and manage hosts across the world.



Hierarchy cont.

Region is determined by user and the rest can be accessed through ODO API

Left to Right



High level overview

Operations for each class

CategorizeOCID. Java

- Provide user with three strategies to manipulate pools
- Redirects to strategy and thus calls ODO_Facade to compute
- *currently implementation includes Max Pool Size

Gathers:

- Region
- Max Pool Size

ODO_Facade. Java

- Reads nodes using Odo client
- segments nodes according to user specifications

Gathers:

- Region and max pool size from CategorizeOCID

OdoClient. Class

- Contains Odo specific methods
- This is the API which has built in functions that communicate with ODO_Facade such as “ODO.addNodeToPool”



Demo

DevOps Portal

Search for DOPE pages or people

UTC Ocean Actions Feedback

Details: <https://ira-sd.mcl.oracleiaas.com/browse/LSET50>

> nodes > iad-ad-1 > node:ocid1.instance.oc1.iad.anuwcljrvkd5gmyc3kizvtbr3jwvmsmvej53argxf5kzygcuwjdr17k7725q

Node **hypervisor-zylcq** in **iad-ad-1**
node:ocid1.instance.oc1.iad.anuwcljrvkd5gmyc3kizvtbr3jwvmsmvej53argxf5kzygcuwjdr17k7725q

This node will not support running ODO HostAgent v2/Docker 18.
More details can be found [here](#).

Last updated on 2023-06-16 09:32:08:245Z by dhayre (2 months ago)

Resource ID	node:ocid1.instance.oc1.iad.anuwcljrvkd5gmyc3kizvtbr3jwvmsmvej53argxf5kzygcuwjdr17k7725q
Last heartbeat	Just Now
Hostname	hypervisor-zylcq
Instance Id	ocid1.instance.oc1.iad.anuwcljrvkd5gmyc3kizvtbr3jwvmsmvej53argxf5kzygcuwjdr17k7725q
IP Address	10.0.28.104
Fault Domain	3
Assigned to pool	hypervisors-fault-domain-3-6
Administrative state	Enabled
ODO Agent info	bedrock v. 2.0.1494 Just Now hostagent-v2 v. 2.0.1494 Just Now

Category:OCID

```
.aaaaaaatzylulvtppygawobfp2qr3snrytk3kncradsry6sgnmmhkfkaia, userDisplayName=dhayre, systemId=devops-cross-realm-client))), NodeSummary(super=Node(resourceId=node:ocid1.instance.oc1.iad,
.anuwcljrvkd5gmyc3kizvtbr3jwvmsmvej53argxf5kzygcuwjdr17k7725q, poolResourceId=pool:iad-ad-1:dc2b83d-53ab-4ef1-b4a6-586ff2b4d21f, fleetId=null, faultDomain=3, instanceId=ocid1.instance.oc1,
.iad.anuwcljrvkd5gmyc3kizvtbr3jwvmsmvej53argxf5kzygcuwjdr17k7725q, poolAlias=hypervisors-fault-domain-3-6, hostname=hypervisor-zylcq, ip=10.0.117.252, adminState=Enabled,
.provisioningDeploymentResourceId=null, compartmentOcid=ocid1.tenancy.oc1..aaaaaaanto5efkxn3o276u2l4tpd55agnilqzxtgtce4ck26xzjvtbmlq, lastHeartbeat=Tue Aug 01 09:51:30 CDT 2023,
.source=Overlay, created=Sun Nov 14 07:17:11 CST 2021, updated=Thu Jun 15 04:32:04 CDT 2023, updatedBy=AuditIdentity(userId=ocid1.user.oc1.,
.aaaaaaatzylulvtppygawobfp2qr3snrytk3kncradsry6sgnmmhkfkaia, userDisplayName=dhayre, systemId=devops-cross-realm-client))), NodeSummary(super=Node(resourceId=node:ocid1.instance.oc1.iad,
.anuwcljrvkd5gmyc3kizvtbr3jwvmsmvej53argxf5kzygcuwjdr17k7725q, poolResourceId=pool:iad-ad-1:dc2b83d-53ab-4ef1-b4a6-586ff2b4d21f, fleetId=null, faultDomain=3, instanceId=ocid1.instance.oc1,
.iad.anuwcljrvkd5gmyc3kizvtbr3jwvmsmvej53argxf5kzygcuwjdr17k7725q, poolAlias=hypervisors-fault-domain-3-6, hostname=hypervisor-zylcq, ip=10.0.28.104, adminState=Enabled,
.provisioningDeploymentResourceId=null, compartmentOcid=ocid1.tenancy.oc1..aaaaaaanto5efkxn3o276u2l4tpd55agnilqzxtgtce4ck26xzjvtbmlq, lastHeartbeat=Tue Aug 01 09:51:51 CDT 2023,
.source=Overlay, created=Wed Feb 15 12:27:07 CST 2023, updated=Thu Jun 15 04:32:09 CDT 2023, updatedBy=AuditIdentity(userId=ocid1.user.oc1.,
.aaaaaaatzylulvtppygawobfp2qr3snrytk3kncradsry6sgnmmhkfkaia, userDisplayName=dhayre, systemId=devops-cross-realm-client))))
returnNodesInPool: fd3.6:564
```

devops.oc1.oraclecorp.com/odo/applications/iad-ad-1/hypervisor_update_fd_1_17/poolsPage1

DevOps Portal

Search for DOPE pages or people

UTC Ocean Actions Feedback

> applications > iad-ad-1 > hypervisor_update_fd_1_1

Application details for **hypervisor_update_fd_1_1** in **iad-ad-1**
application:iad-ad-1:1ac5ccde-2261-47e7-99f1-2aed220c31b3

us-ashburn-1-ad-1

AD 1 AD 2 AD 3

Use Shift + F to trigger Region/AD search

Odo policy score 1/3

Production

This node will not support running ODO HostAgent v2/Docker 18.
More details can be found [here](#).

Not all hosts are running the expected version
13 hosts are not running the expected version of [v. 18092.22](#) Show

Deployment History

Start Time	Deployment Id	Build Tag	CM	Status
2023-07-28 20:13:49.747Z	deployment:iad-ad-1:77dca47-fd9-41c3...	18092.22	CHANGE-1968...	Succeeded
2023-07-17 15:31:44.680Z	deployment:iad-ad-1:31546700-306b-47...	40842	CHANGE-1936...	Succeeded Rollback to...
2023-07-10 19:04:29.664Z	deployment:iad-ad-1:cfc33426-1790-44a...	40820.2	CHANGE-1894...	Succeeded Rollback to...
2023-07-10 15:35:08.054Z	deployment:iad-ad-1:f23b25b6-5166-4cc...	40820.2	CHANGE-1894...	Partial Succ...
2023-06-20 22:02:22.022Z	deployment:iad-ad-1:34018f0d-46a7-4a6...	18047	CHANGE-1888...	Succeeded Rollback to...

Pools

Start Time	Deployment Id	Build Tag	CM	Status
2023-06-20 22:02:22.022Z	deployment:iad-ad-1:34018f0d-46a7-4a6...	18047	CHANGE-1888...	Partial Succ...

Deploy

Deploy

Set Intended Version

Undeploy

Configure

Update Config

Add Pool

Remove Pool

Claimed by picvmicp-us-ashburn-1

Delete Application

865 Hosts + 12 identified as not running : 877

Resource ID matches for iad-ad-1; fd3-6

>resourceId=node:ocid1.instance.oc1.iad.anuwcljrvkd5gmyc3k
lzvtbr3jwvmsmvej53argxf5kzygcuwjdr17k7725q



Key take aways

What I learned

- Script manages pools based on strategy chosen
- Hierarchy of region determines how pools are rearranged to ensure there are no bottlenecks in the system
- The code is written in object oriented format to ensure future work can be constructed
- I personally learned about the extensive use of reusing other methods for simplicity and ease of reading



Future Work

Selected by Shape

- Organize hosts based on their shape type; maybe have to access shepherd

Selected by OCID

- This strategy needs to be accounted for

Pool Size addition

- Currently the pool size feature is in need of finishing (hardcoded)

User friendly

- Include regions name such as printing airport codes



Purpose:

- Provide user with three strategies to manipulate pools
- To be kept very simple

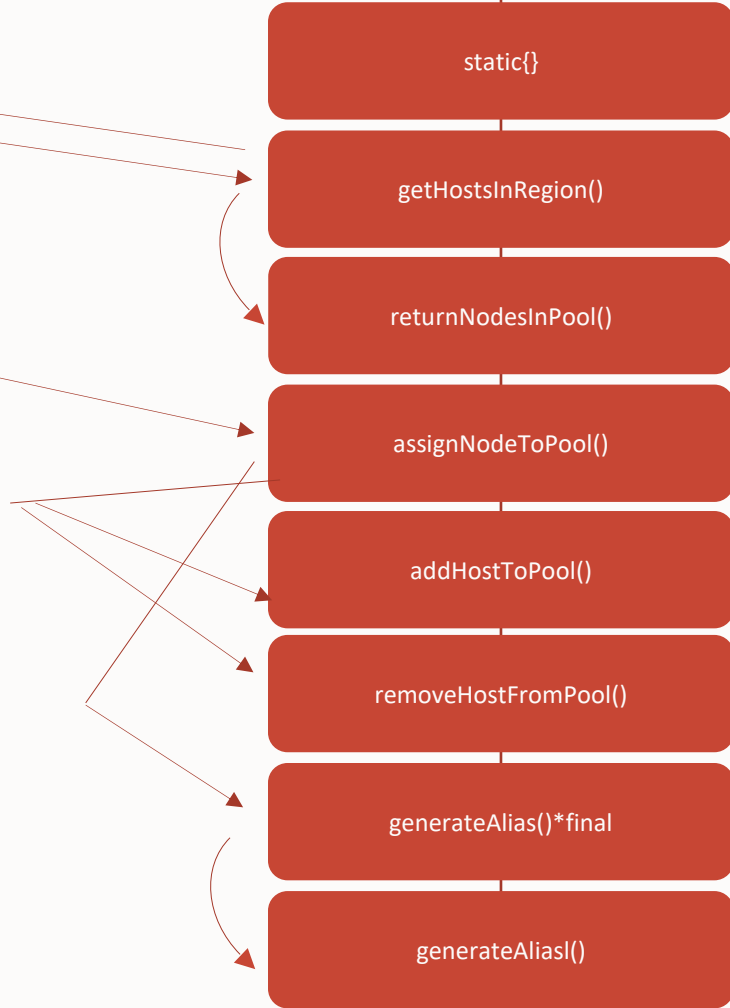
CategorizeO
CID. Java



Purpose:

- To hold the static configuration allowing for use with Odo
- Contains all functions for complex operation

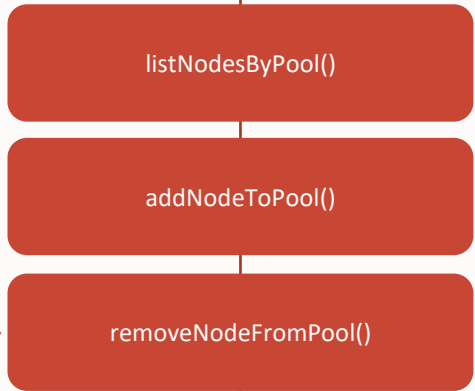
ODO_Facade.
Java



Purpose:

- Contains Odo specific methods which operate with Odo

OdoClient.
class



Q&A



Thank you

Fernando Sepulveda

7/31/23



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