

Multi-Tenant Isolation: Quarantine Your Tenants

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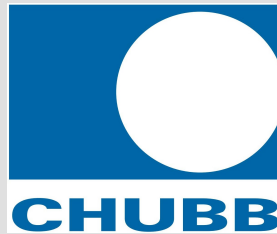
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Who Am I?

I started my 17-year IT career as an MS .ASP developer and transitioned into supporting web-based applications. The bulk of my time was spent providing production support as an on-call engineer.





QUARANTINE



**QUARANTINE AREA
NO ENTRY OR REMOVAL
AUTHORISED PERSONNEL ONLY**

THIS AREA HAS A LEVEL 5 INFESTATION



USE OF DEADLY FORCE AUTHORIZED



Ground Rules

- Not going to ask you to turn off mobile phones but, if it rings its mine :D
- Ask questions *(requirement)*
- Take any side conversations outside *(mainly because I like hearing myself talk only)*
- This workshop is hands on, please group yourself into groups no larger than 5. Please take turns doing stuff!
- Materials for the workshop are available here (case matters):

<https://goo.gl/s7YaGt>

Before we get started...

- Each group will be given a StudentID and instructions to connect to your tenant in the fully functioning OpenStack cloud
 - Each cloud consists of:
 - (1) Deployment node (1) Cinder node
 - (1) Controller node (4) Compute nodes
- We will be working via the Python CLI (*sorry Horizon lovers*)
- Review of the pros, cons and future OpenStack improvements at the end

Ready, Set, Go!!!



Lab Overview

- **Add additional Nova Scheduling filters**
- **Configure multiple backends on the Cinder node**
- **Create new volume type**
- **Create new host aggregate for tenant**
- **Add compute nodes to the host aggregate**
- **Update host aggregate metadata to include tenant filter**
- **Apply volume type quotas**

Ready...

Please go to the URL below in your browser (case matters):

<https://goo.gl/s7YaGt>

**Next connect to the lab environment,
connection details are on the handout**

Set...

Step thru the Lab

and make sure to ask for help along the way

Go...

You have 30 minutes to complete the Lab
first team to finish and show it works gets a prize



Now Let's Automate It

Open the document at the URL below (case matters):

<https://goo.gl/Sf2fkS>

Follow the instructions at the bottom of page 2. Ansible is already installed :D.

```
/group_vars/util_container
```

```
OS_USERNAME: <student username>
```

```
OS_PASSWORD: <student password>
```

```
OS_TENANT_NAME: <student tenant name>
```

```
OS_AUTH_URL: http://172.29.236.7:35357/v2.0
```

```
TENANT_NAME: <your choice>
```

```
TENANT_DESC: <your choice>
```

Now Let's Automate It – cont...

```
/roles/tenant-isolation/vars/main.yml
```

Compute:

- name: 021579-compute01
- name: 021579-compute02

```
ALLOW_VOL_TYPE: <your choice>  
RESTRICT_VOL_TYPE: <your choice>  
FLAVOR_NAME: cust_<student ID>  
FLAVOR_RAM: 2048  
FLAVOR_DISK: 20 GB  
FLAVOR_CPU: 1
```

Considerations With This Approach

Per the OpenStack blueprint on Multi-Tenant Isolation...

If a compute node does not belong to any aggregate, all tenants can create instances on it.

Also, if a compute node belongs to an aggregate that does not have defined the metadata *filtertenantid*, all tenants can create instances on it.

In other words, if you apply the Multi-Tenant Isolation filter, you must have all compute nodes in an host aggregate with the *filtertenantid* metadata defined.

Considerations With This Approach

- A host aggregate can only be bound to a single tenant
 - With every new tenant you would need to create an matching aggregate
- Good news...you can create as many aggregates as you want
- Tenant quotas controls the access to volume types
 - To properly allow or restrict access to new volume types, you must continuously update your tenants quotas

Q&A Session

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WE'RE HIRING!

Expo Hall Booth P-11

Python

C, C++

Ruby

Java

C#, .NET

JavaScript, CSS, HTML

Twisted, Backhone

Angular.JS, Ember.js, Node.js

Restful/JSON/XML

Closure, Scala, Erlang

Hadoop, MongoDB, MySQL

OpenStack Engineers

Linux Systems Engineers

DevOps Engineers

Frontend & Backend Developers

Software Developer in Test

iOS/Android Development

Data Scientist

Field Sales Specialist

Strategic Account Executive

Solution Architect

Data Visualization



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