DSE 5.0 / OpsCenter 6.0 WTF Exercise

This exercise is designed to get you familiar with using **DataStax Enterprise 5.0** (**DSE**) and **OpsCenter 6.0** (**OpsC**) It is also designed to introduce issues that you may encounter when working with either **DSE** or **OpsC**. The exercise is split into 3 separate phases.

The ***first phase*** will get you hands-on experience using the new **LifeCycle Manager** (**LCM**) in **OpsC** to install **DSE** on multiple clusters. You will be required to document any issues that you encounter while doing this along with the steps you took to overcome it. These will be the same issues that customers will run into when trying to use the **OpsC LCM** for the first time.

The ***second phase*** will introduce problems into your environment that you will need to troubleshoot and fix. You will also be required to document the problem and solution for the issues that you find.

The ***third phase*** will give you hands-on experience using **DSE Graph**. You will be required to insert data into **DSE Graph** using the `graphloader`. As with the previous phases, you must document the issues that you encounter, as well as the workarounds/solutions that you took to fix the problem.

There is a 5-day time limit for this exercise. The server instances that you spin up cost money. Because of this, the `ctool` instances that you create will have a ***TTL*** of 5 days. This will cause them to shut down after 5 days. They ***will not be destroyed***. You will ***still need to destroy them*** when done. They should not incur a charge while shut down, but it is best to destroy them when done.

Because this is not a lab, there will not be step-by-step guidance throughout. You will be given general direction, but it is up to you to fill in the necessary steps. The schema configuration and loading of data will be done for you in Phase 2, but all other steps are up to you.

Prerequisites:

Please configure your *~/.automaton.conf* file to use **rightscale** as the provider.

```
[cluster]
provider = rightscale
#provider = openstack
```

If you are currently using **openstack**, you can still access the nodes that are running in **openstack** by prefixing the **ctool** commands with `--provider openstack`.

Example:

```
$ ctool --provider openstack info this_is_in_openstack
cluster name: this_is_in_openstack
Node 0:
     public hostname: 10.200.181.167
     public ip: 10.200.181.167
     private hostname: 10.200.181.167
     private dns: this-is-in-openstack-73c79c7
     region: nova
     Instance ID: 037cb169-60d6-4f37-a98b-338d0f35dd84

$ ctool info this_is_in_openstack
error: cluster not found: this_is_in_openstack
```

Phase 1

1. Clone the *wtf* repo to get access to the initial launch and configuration scripts for this exercise:

```
$ git clone https://github.com/sequoyha/wtf.git
Cloning into 'wtf'...
remote: Counting objects: 69, done.
remote: Compressing objects: 100% (17/17), done.
remote: Total 69 (delta 8), reused 0 (delta 0), pack-reused 52
Unpacking objects: 100% (69/69), done.
Checking connectivity... done.
```

You will use these scripts to set up the server arrays for each of your 3 clusters. Phase 2 will introduce issues into your clusters by using these scripts.

2. Navigate into the wtf directory. There are 3 scripts in here for your test cluster. The *wtf_cluster_launcher* will create 3 separate clusters for your environment.

- ***death_star***
- ***alderaan***
- ***yavin_4***
- ***opscenter_6***

The ***alderaan*** and ***yavin_4*** clusters will each be used for a dense node cluster that will act ask spoke clusters in a hub and spoke topology. The ***death_star*** cluster will be your hub cluster.

3. Use the *wtf_cluster_launcher* script to launch your 3 clusters.

Note: This will take some time to launch.

```
$ ./wtf_cluster_launch
Creating clusters for WTF project
Launching death_star cluster of 3 nodes
Launching alderaan cluster of 1 node
Launching yavin_4 cluster of 1 node
Launching opscenter_6 cluster of 1 node
All clusters launched
```

4. Using the OpsCenter 6.0 documentation, install OpsCenter 6.0 on the ***opscenter_6*** node.

Once you have installed **OpsCenter**, read the **OpsCenter 6.0** documentation on the Lifecycle Manager. Follow the documentation for the next step:

5. Install **DSE 5.0** on the ***death_star***, ***alderaan***, and ***yavin_4*** clusters.

You will need to configure the ***death_star*** cluster to run with **DSE Graph** enabled. The ***alderaan*** and ***yavin_4*** clusters *must not run DSE Graph*.

*Note: You can get access to the **ssh** keys for each cluster by running the **ctool dump_key** command*

Document the issues that you run into and the solutions for those issues. Once you have completed Phase 1, name the file `wtf-phase1-<your_name>` and upload the file to the ***LMS*** Assignment of **WTF Phase1**. After you have uploaded your findings, ping me or your manager. You will not be able to proceed until either myself, or your manager, credits you with having completed this task.

Please understand that this requirement is not meant to micro manage you, or force you to get "graded" on your findings. This step is to guarantee that everybody contributes their findings to the group. The information that we gather will be shared with the entire team to get everyone better prepared for the real-world tickets that will follow.

Phase 2

Phase 2 introduces problems into your environment. Now that you have successfully installed and started **DSE 5.0** on all nodes, we will add schema information to the nodes and begin collecting sensor data from the different planetary systems. To create the schema, and begin populating data into your clusters, run the *wtf/what_have_you_done* script.

```
$ ./what_have_you_done

Results for Node 0:
Host: ec2-54-88-136-117.compute-1.amazonaws.com
Private: 172.31.7.41
Start: 1466050839.05
Finished: 1466050848.12
Elapsed: 9.07180595398
Return Code: 0
Out:

Err:
Cloning into 'wtf-exercise'...
…
```

The script sleeps for 3 hours to allow for data population. During this time, additional problems will come about. You will know that the script is complete when you see the following message:

```
what_have_you_done script completed. Help!!!!
```

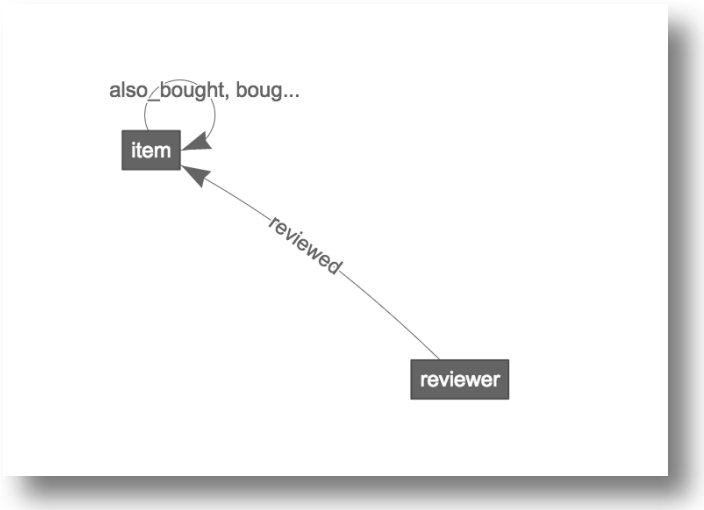
At this point you will have 3 clusters with 3 nodes in each of them. Remember, ***alderaan*** and ***yavin_4*** replicate their data to the ***death_star*** cluster. Check the following during your troubleshooting:

- All data is correctly replicating from spokes to hub.
- All nodes are healthy
  - No nodes down
  - No major GC events
  - Etc
- OpsCenter can still connect to all nodes properly

Document the issues that you run into and the solutions for those issues. Once you have completed Phase 2, name the file *wtf-phase2-<your_name>* and upload the file to the ***LMS*** Assignment named **WTF Phase2**. After you have uploaded your findings, ping me or your manager. You will not be able to proceed until either myself, or your manager, credits you with having completed this task.

Phase 3

Now that you have your clusters healthy again, you can begin populating your graph instances. If you look in the **/mnt** directory on **death_star 0**, you will find the graph directory. In this directory is the metadata.json.gz and the complete.json.gz file. These files contain the json data that you can use to populate your DSE Graph database. Upon successful completion of this data loading, you will have a schema similar to the following:



To load the data, you will be using the graphloader feature in DSE 5.0. Information on how to use the graphloader can be found here.

It will be up to you to figure out how to load the data with the **graphloader**. You will be following the same path as our customers will. Your pains will make you better prepared to assist customers when they are using the **graphloader**. After you have the data loaded, you must run traversals against the data to make sure that you can:

1. Retrieve the data
2. The traversal is performant

Go through your regular troubleshooting process to get the data fully loaded and performant.

Document the issues that you run into and the solutions for those issues. Once you have completed Phase 3, name the file *wtf-phase3-<your_name>* and upload the file to the ***LMS*** Assignment named **WTF Phase3**. After you have uploaded your findings, ping me or your manager.

Once you have done so, you can run the *you_may_fire_when_ready* script to destroy the clusters.

END OF EXERCISE