DC/OS Demo

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Note: most of these demos will run on a small nominal cluster. The last demo, Arangodb, requires at least 3 private agents and 2 public agents.

Demo I: Install CLI; Discover UI; Launch simple Hello-World

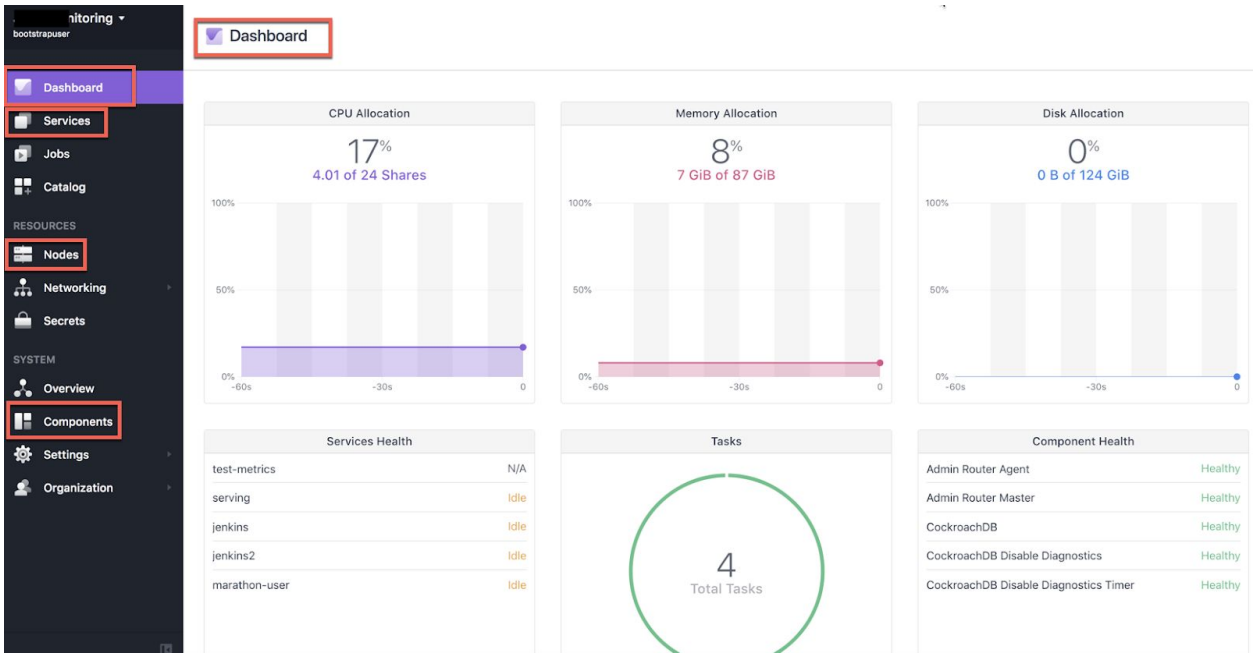
1. To install the DC/OS CLI -- you must first have an installed cluster and know what the UI address (master IP ADDR) is and the credentials to connect to the environment. The default credentials are username: bootstrap user; password: deleteme

Install the CLI

```
curl https://downloads.dcos.io/binaries/cli/darwin/x86-64/dcos-1.11/dcos -o
dcos &&
sudo mv dcos /usr/local/bin &&
sudo chmod +x /usr/local/bin/dcos &&
dcos config set core.dcos_url https://<master-ip-address> &&
dcos auth login &&
dcos
```

2. Login and Discover the DC/OS UI-- Investigate the following:
    a. Dashboard
    b. Nodes
    c. Components
    d. Metrics for currently configured environment

DC/OS UI



3. Create a simple Hello-world app in JSON and run it on the cluster via CLI

a. Create a file with the Hello-World JSON- this will be created where the DCOS-CLI was installed (e.g. Master server). E.g. “vi hello-world.json”

Hello-World JSON

```
{
  "id": "/hello-world",
  "cmd": "while [ true ]; do echo -n 'Hello Marathon: '; date; sleep 5; done",
  "cpus": 0.25,
  "mem": 10.0,
  "instances": 1
}
```

b. Run your Hello-World app:

```
dcos marathon app add ./hello-world.json
```

c. List the App from the CLI

```
dcos marathon app list
```

d. Verify you can find your app in the UI- under “Services”. It should also appear as a running task from the Dashboard

Demo II: Launch a Docker Container to DC/OS

1. In this demo we are going to run a Docker container on DC/OS. For ease of use, we'll repurpose the JSON below and also repurpose a content file called "master.zip". Both of these are available from Mesosphere's Github. We have the following details on the container and content:
    a. Container will be nginx
    b. Content is pulled from Mesosphere's Github

2. On the master server, create a JSON definition (file) for the nginx container

Nginx.json

```
{
  "nginx": {
    "cpus": 1,
    "mem": 1024,
    "bridge": true,

"contentUrl":"https://github.com/mesosphere/hello-nginx/archive/master.zip",
    "contentDir":"hello-nginx-master/"
  }
}
```

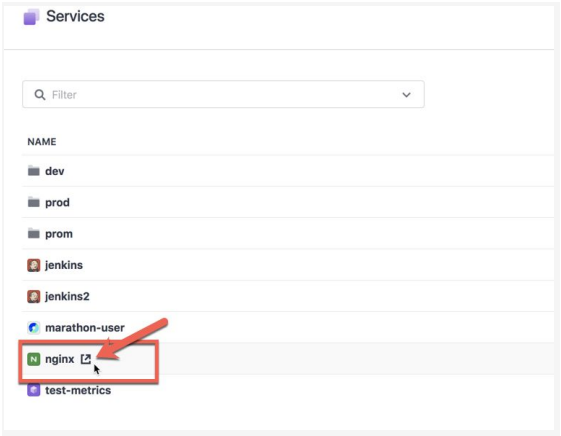
3. Launch your nginx based Container

```
dcos package install nginx --options=nginx.json
```

4. Check that the app was launched from both the CLI and the UI:

```
dcos marathon app list
```

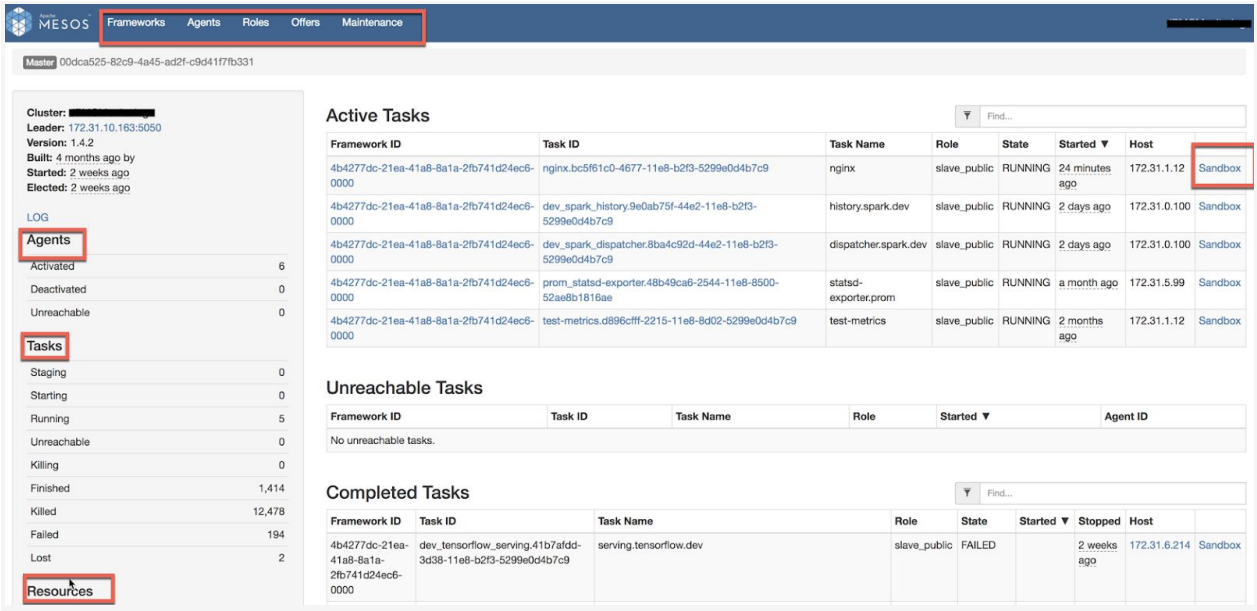
View the App in the UI -- go to: Services->Find your nginx→ and click the "pop-out" option to see the container serve a page:



Demo III: Check out the Mesos UI

Take some time to discover and explore the UI for Mesos. The UI for Mesos will be at the following service endpoint:

`http://<master-ip-Address>/mesos`



Demo IV: Implement health checks for a Tomcat container

As in the previous applications, launched via dcos-cli by add an app JSON, create an instance of Tomcat by using the below tomcat JSON:

```
{
  "id": "/tomcat",
  "instances": 1,
  "cpus": 1,
  "mem": 512,
  "container": {
    "type": "DOCKER",
    "docker": {
      "image": "tomcat:8.5",
      "network": "BRIDGE",
      "portMappings": [
        { "protocol": "tcp", "hostPort": 80, "containerPort": 8080 }
      ]
```

```
    }
  },
  "requirePorts": true,
  "acceptedResourceRoles": [
    "slave_public"
  ],
  "env": {
    "JAVA_OPTS": "-Xms256m -Xmx256m"
  },
  "healthChecks": [
    {
      "gracePeriodSeconds": 120,
      "intervalSeconds": 30,
      "maxConsecutiveFailures": 3,
      "path": "/",
      "portIndex": 0,
      "protocol": "HTTP",
      "timeoutSeconds": 5
    }
  ]
}
```

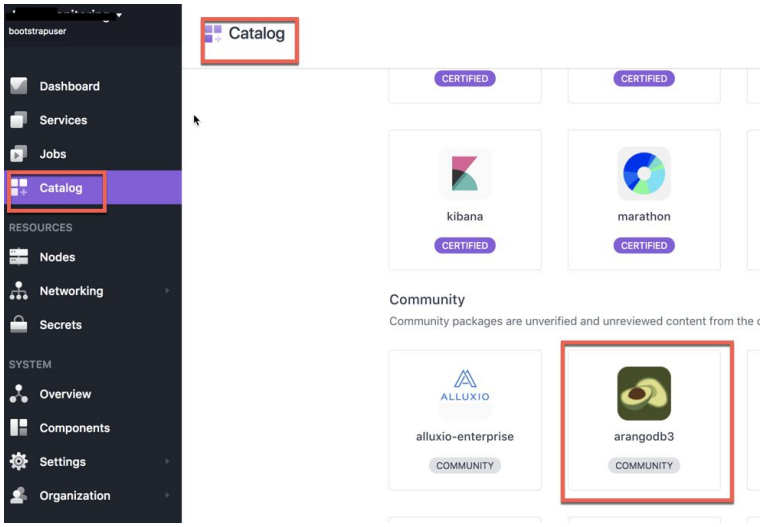
The last segment of the JSON is for “healthchecks”. The defined properties are considered to be default and can be tweaked to meet the expectations for an application environment.

After the application is running, attempt to get it to fail health checks by demanding more from the environment than is physically possible -- one way to do this is to ask DC/OS to run multiple instances of this application, e.g. 10. You can do this by ‘scaling the application’. Since the cluster does not have enough resources it cannot fulfil the deployment request and will mark the application as ‘unhealthy’. Find in the system where you can see it listed as ‘unhealthy’.

Demo V:Install a package from the Catalog: Arangodb

Install ArangoDB3 from the Universe/Catalog. Arangodb is a community offering that is available within the DC/OS catalog starting in version 1.9 of DC/OS. This demo does not go beyond installing and bringing the framework online. It does include verifying that the application did start and can be reached by the UI.

1. From the DC/OS UI, install the arangodb package from the Catalog:



2. Monitor from the DC/OS UI installation progress. This can take a few minutes or more.
3. Once the service is installed you should be able to open the interface to ArangoDB and browse it's capabilities from within the DC/OS UI
4. Connect to ArangoDB from within DC/OS and deploy the ArangoDB Mesos HAProxy. This can be done on the master server where you have DC/OS installed:
    a. Connect to the master
5. Clone the arangodb-mesos-haproxy repo

```
git clone https://github.com/arangodb/arangodb-mesos-haproxy
```

6. Add the arangodb-mesos-haproxy to the cluster

```
dcos marathon app add marathon.json
```

7. Review the marathon.json that is part of the Proxy

```
Marathon.json
{
  "id": "/arangodb-proxy",
  "cmd": "nodejs /configurator.js arangodb3",
  "cpus": 1,
  "mem": 128,
```

```
  "disk": 0,
  "instances": 3,
  "container": {
    "type": "DOCKER",
    "volumes": [],
    "docker": {
      "image": "arangodb/arangodb-mesos-haproxy",
      "network": "BRIDGE",
      "portMappings": [
        {
          "containerPort": 80,
          "hostPort": 8529,
          "protocol": "tcp",
          "labels": {}
        }
      ],
      "privileged": false,
      "parameters": [],
      "forcePullImage": true
    }
  },
  "requirePorts": true
}
```