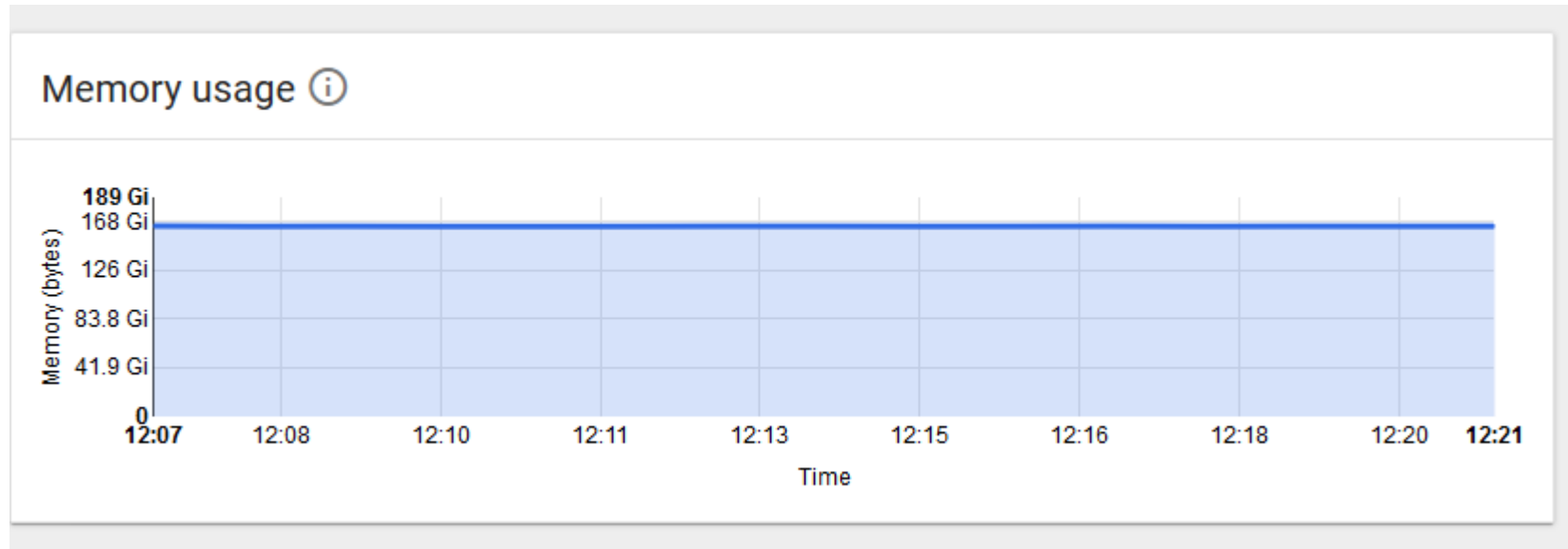


ONAP minimal

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October 24th, 2018

Beijing full ONAP memory footprint



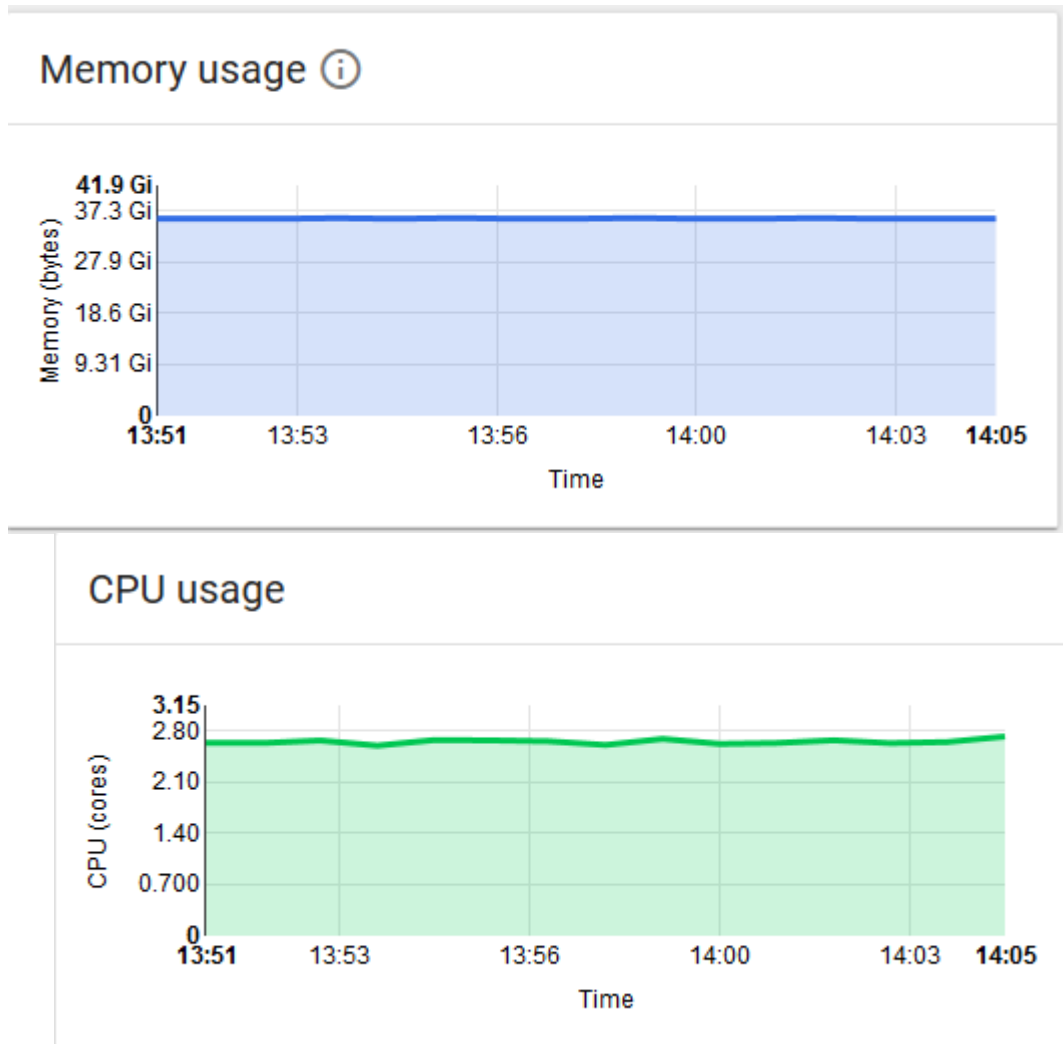
Objective

- Define a minimal ONAP configuration
 - One VM including K8S, Rancher, Docker + ONAP components
 - Target a VM with 16 GB memory
- For
 - Newbie
 - Basic tests
- Minimum components to onboard and deploy a VNF
 - Portal, VID, SO, SDC, SDNC, AAI, DMAAP, Robot

Default size for such components

Component	Size (GB)	CPU
Portal	6.5 - 11.9	
AAI	9.5 - 10.5	1.4
SO	3.5 - 4.0	
SDC	4.0 - 5.3	0.4
SDNC	2.1 - 2.5	1.0
VID	1.1 - 1.2	
DMAAP	1.6 - 1.7	
TOTAL	28.3 - 37.1	2.8

Values measured with no action !



How ?

- Limiting the JVM Heap size
 - Default minimum size is high or not defined
- Setting a single replica for DB
 - Cassandra DB for AAI
- Removing useless sub-components for such configuration
 - AAI UI
 - Portal SDK
 - SDNC Ansible Server

Limiting the Java Heap size: upgrade the Helm charts

```
# Portal
sed -i -e 's/ports:/env:\n          - name: JAVA_OPTS\n          value: "-Xmx512m -Xms256m"\n          ports:/g'
portal/charts/portal-app/templates/deployment.yaml
sed -i -e 's/ports:/env:\n          - name: JAVA_OPTS\n          value: "-Xmx512m -Xms256m"\n          ports:/g'
portal/charts/portal-widget/templates/deployment.yaml
sed -i -e 's/ports:/env:\n          - name: JAVA_OPTS\n          value: "-Xmx512m -Xms256m"\n          ports:/g'
portal/charts/portal-zookeeper/templates/deployment.yaml

# VID
sed -i -e 's/          env:/          env:\n          - name: JAVA_OPTS\n          value: "-Xmx512m -Xms256m"/g'
vid/templates/deployment.yaml

# Dmaap
sed -i -e 's/ports:/env:\n          - name: JAVA_OPTS\n          value: "-Xmx512m -Xms256m"\n          ports:/g'
dmaap/charts/message-router/templates/deployment.yaml
sed -i -e 's/ports:/env:\n          - name: JAVA_OPTS\n          value: "-Xmx512m -Xms256m"\n          ports:/g'
dmaap/charts/dmaap-bus-controller/templates/deployment.yaml

#AAI
sed -i -e 's/env:/env:\n          - name: MAX_HEAP\n          value: "512"/g' aai/charts/aai-
babel/templates/deployment.yaml
sed -i -e 's/env:/env:\n          - name: MAX_HEAP\n          value: "512"/g' aai/charts/aai-
gizmo/templates/deployment.yaml
sed -i -e 's/env:/env:\n          - name: MAX_HEAP\n          value: "512"/g' aai/charts/aai-search-
data/templates/deployment.yaml
sed -i -e 's/          env:/          env:\n          - name: MAX_HEAP\n          value: "512"/g' aai/charts/aai-
champ/templates/deployment.yaml
sed -i -e 's/          env:/          env:\n          - name: MAX_HEAP\n          value: "512"/g' aai/charts/aai-data-
router/templates/deployment.yaml
```

Modify the existing values

```
portal:
  portal-cassandra:
    config:
      cassandraJvmOpts: "-Xmx512m -Xms256m"
sdc:
  sdc-es:
    config:
     JvmOptions: "-Xms512 -Xmx512m"
  sdc-onboarding-be:
    config:
      javaOptions: "-Xdebug -agentlib:jdwp=transport=dt_socket,address=4001,server=y,suspend=n -Xmx512m -Xms256m"
  sdc-be:
    config:
      javaOptions: "-Xdebug -agentlib:jdwp=transport=dt_socket,address=4000,server=y,suspend=n -Xmx512m -Xms256m"
  sdc-fe:
    config:
      javaOptions: "-Xdebug -agentlib:jdwp=transport=dt_socket,address=6000,server=y,suspend=n -Xmx512m -Xms256m"
  sdc-cs:
    config:
      maxHeapSize: "512M"
      heapNewSize: "256M"
```

Setting a replica set to one

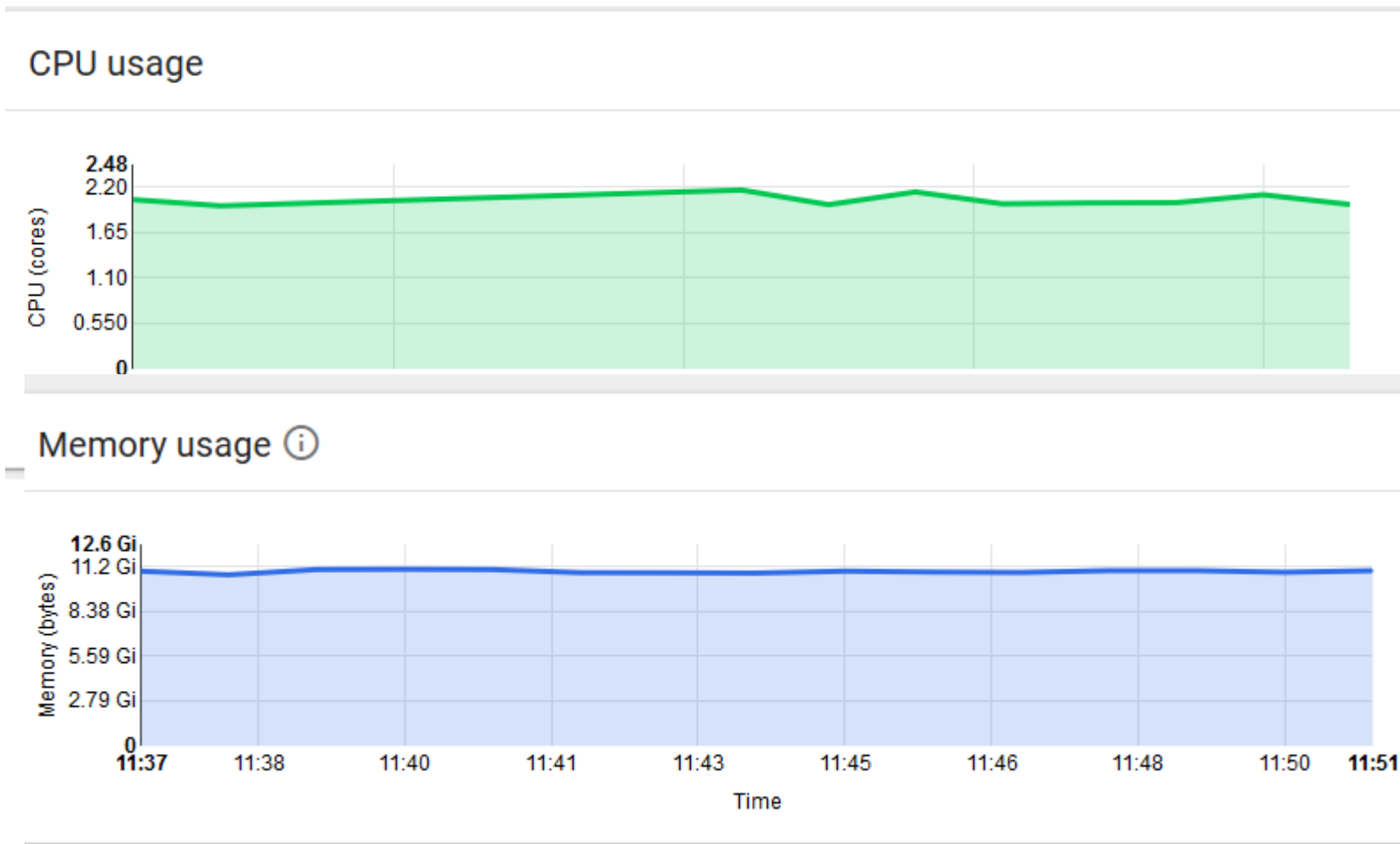
```
aai:  
  global:  
    cassandra:  
      replicas: 1  
aai-cassandra:  
  replicaCount: 1  
  config:  
    heap:  
      max: 512M
```


Removing some components

```
# suppress some components
rm -r portal/charts/portal-sdk
rm -r aai/charts/aai-sparky-be
rm -r aai/charts/aai-hbase
rm -r aai/charts/aai-elasticsearch
rm -r sdc/charts/sdc-wfd
rm -r sdc/charts/sdc-kb
rm -r sdnc/charts/sdnc-ansible-server
```

Results

- Heat template for All-in-One
 - Using swap memory to stay under 16 GB



Results

- Still > 16 GB
 - SO is large due to non configurable heap size (hardcoded value in a file)
- How to solve ?
 - Using Swap may enable to stay under 16 GB memory limit
 - Eliminate other components (eg VID ?)
 - Replace Portal by a lightweight portal
 - Reduce again the JVM heap size (but some components require a minimal heap size)

Casablanca

- Inflation !!!
- More and more components
 - eg SO requires multcloud
 - AAF
 - New containers for SDC, SO, AAI
- Minimal requests are very high

Memory Requests for Casablanca

project	requests.memory	small.requests.memory
aaf	-	-
aaf/aaf-cm	-	500Mi
aaf/aaf-cs	-	8500Mi
aaf/aaf-fs	-	300Mi
aaf/aaf-gui	-	200Mi
aaf/aaf-hello	-	200Mi
aaf/aaf-locate	-	300Mi
aaf/aaf-oauth	-	200Mi
aaf/aaf-service	-	300Mi
aaf/aaf-sms	-	10Mi
aaf/aaf-sms-quorumclient	-	10Mi
aaf/aaf-sms-vault	-	10Mi
aaf/aaf-sshsm	-	10Mi
aaf/aaf-sshsm-abrmd	-	10Mi
aaf/aaf-sshsm-distcenter	-	10Mi
aaf/aaf-sshsm-testca	-	10Mi
appc	-	2Gi
appc/appc-ansible-server	-	0.5Mi
appc/appc-cdt	-	500Mi
cassandra	-	-
clamp	800Mi	-
clamp/clamp-dash-es	2.5Gi	-
clamp/clamp-dash-kibana	750Mi	-
clamp/clamp-dash-logstash	750Mi	-
clamp/mariadb	200Mi	-
cli	-	500Mi

160 GB for 130 PODs !!!



`casa-min-memory.txt`

Using default Chart Helm values

<https://github.com/helm/charts/blob/master/stable/mongodb/values.yaml>

```
resources: {}  
# limits:  
#   cpu: 500m  
#   memory: 512Mi  
# requests:  
#   cpu: 100m  
#   memory: 256Mi
```

<https://github.com/helm/charts/blob/master/stable/postgresql/values.yaml>

<https://github.com/helm/charts/blob/master/stable/redis/values.yaml>

<https://github.com/helm/charts/blob/master/stable/kibana/values.yaml>

<https://github.com/helm/charts/blob/master/stable/postgresql/values.yaml>

<https://github.com/helm/charts/blob/master/stable/consul/values.yaml>

Recos to be discussed

- Limit the requests as minimal as possible in Helm charts
- Clarify small configuration
- Define a min configuration
- Define best practices for Java embedded in Docker
- Promote Python, Go languages for new components ?

THANK YOU;-)