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# Function as a Service

Demo 4

# Recap: Sprint 1

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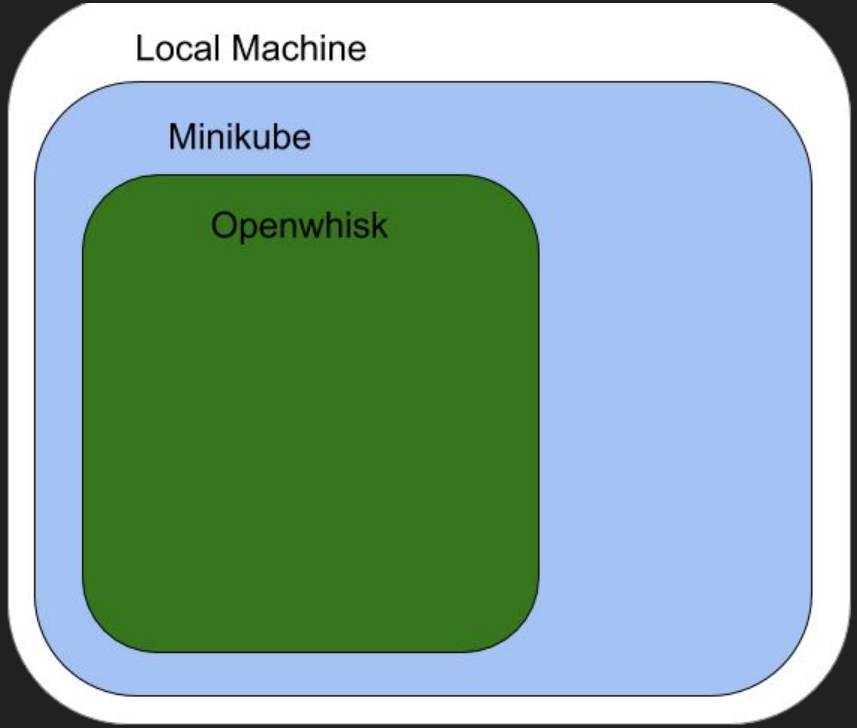
- OpenWhisk Deployment on Minikube
- Basic test



# Recap: Sprint 2

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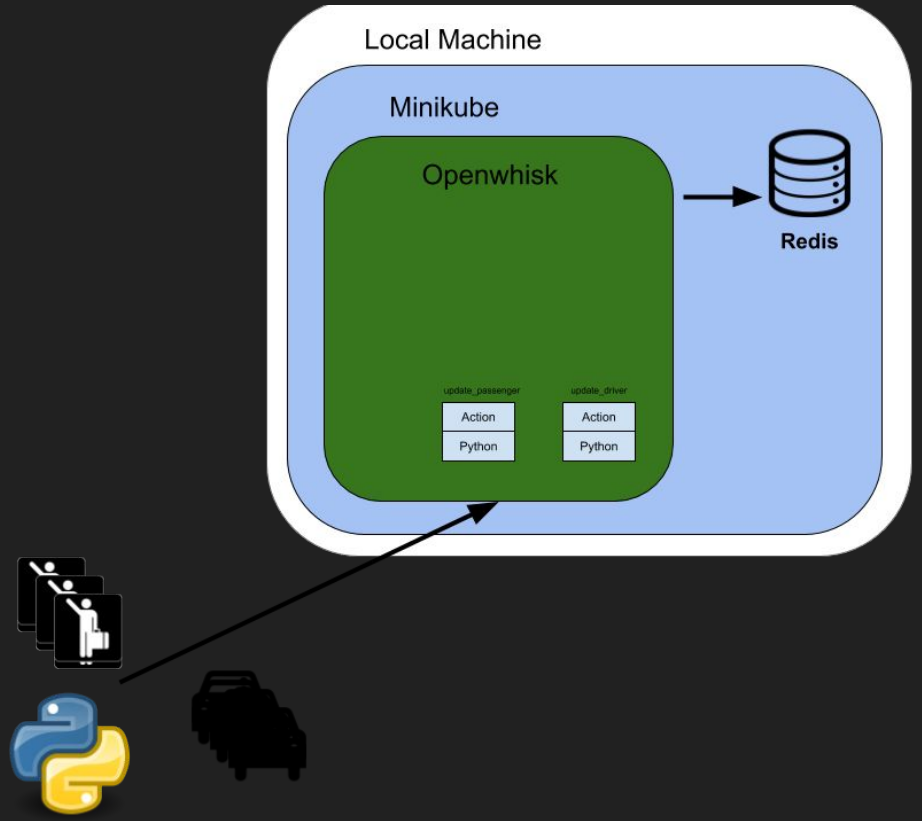
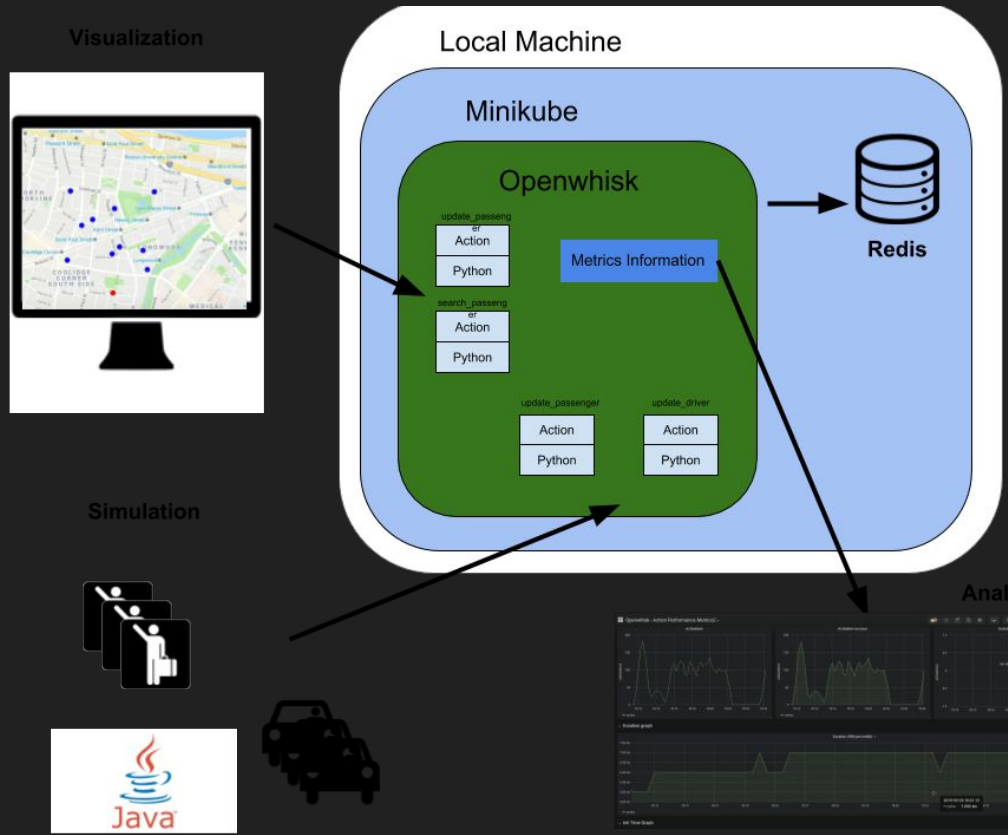
- Basic simulation code
  - Synthetic location data
    - Driver
    - Passenger
  - Random movement

- OpenWhisk Updating Actions
  - Synchronize locations with Redis database
  - Post request testing



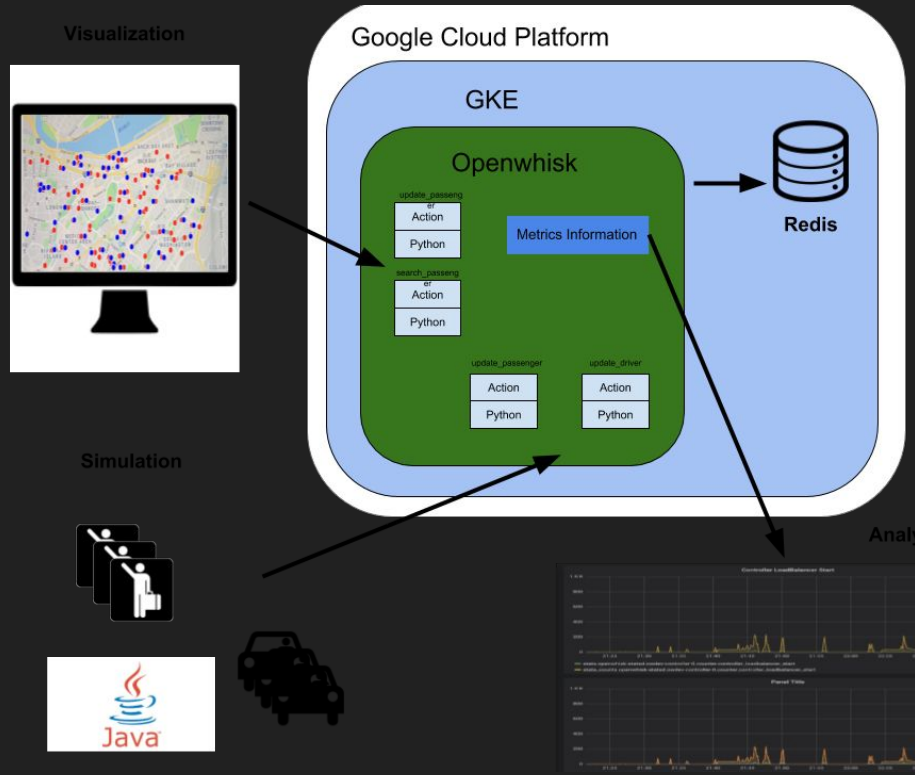
# Recap: Sprint 3

- Deployment
  - Deploy OpenWhisk on GCP
- Simulation part
  - Python -> Java
  - Random moving -> Continuous moving
  - Sending post requests
- Visualization part
  - Location display
  - Searching
- Analysis part
  - Metric visualization
    - Action performance



# Current Work: Sprint 4

- Deployment
  - Deploy actions on GCP
- Simulation part
  - GCP testing
  - Different requests sending mode
  - Pairing function (need to improve)
- Visualization part
  - Location updating
- Analysis part
  - OW performance
  - GCP performance



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# Simulation

- We want to evaluate the performance of OpenWhisk under different conditions
  - Condition 1: requests increase slowly:
    - 0 2 4 6 8……..
  - Condition 2: requests increase rapidly:
    - 0 1000 2000……..
- We want to evaluate the performance of GCP
  - Stress GCP with large number of requests

- Challenge (Solved)
  - Http status code: 429 (Too many requests)
    - OW system configuration: trigger times limitation for each user: 60 times per minute
    - Solved by modifying configuration file

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# Simple visualization video

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# Google Cloud Platform

Deployed all our so far results

Two set of monitoring metrics : GCP & Openwhisk

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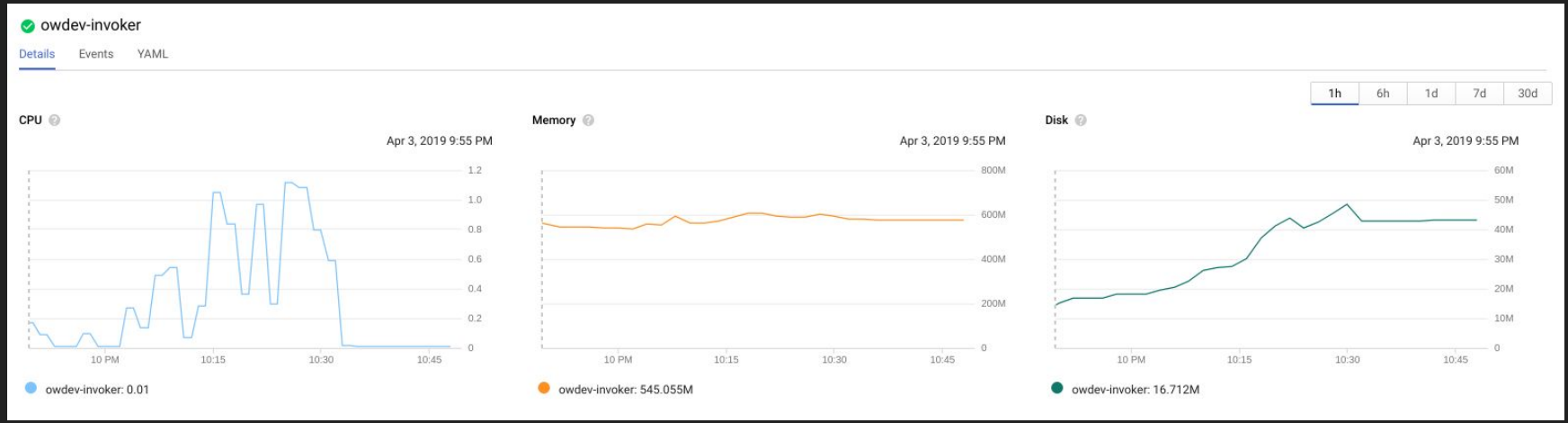
# Google Cloud Platform

For GKE service: CPU, Memory, and Disk Usage can be monitored



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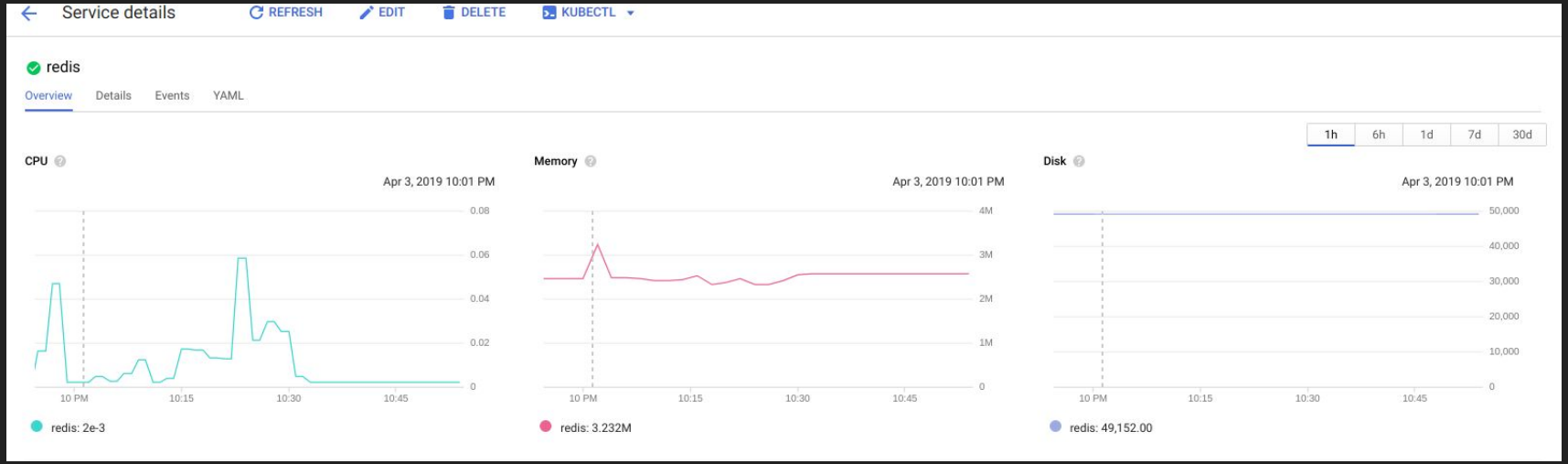

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# Google Cloud Platform

Our goal: Observe workload distributed on multiple invokers

Two types:

elastic ---  GCP automatically add node when work load is heavy

Fixed --- Deploy multiple invokers before start

w to get $300 credit to explore Google Cloud products. Learn more

tszlam-host-vpc

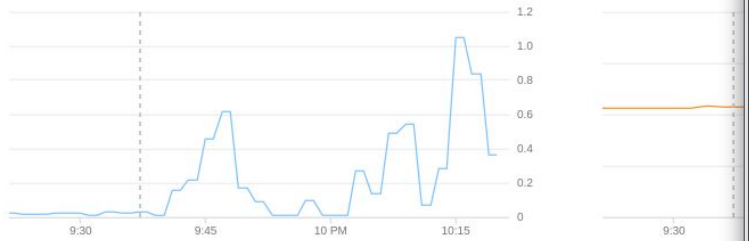
Daemon Set details  REFRESH  EDIT  DELETE  KUBECTL

owdev-invoker

Details  Events  YAML

CPU

Apr 3, 2019 9:37 PM




owdev-invoker: 0.03

Memory

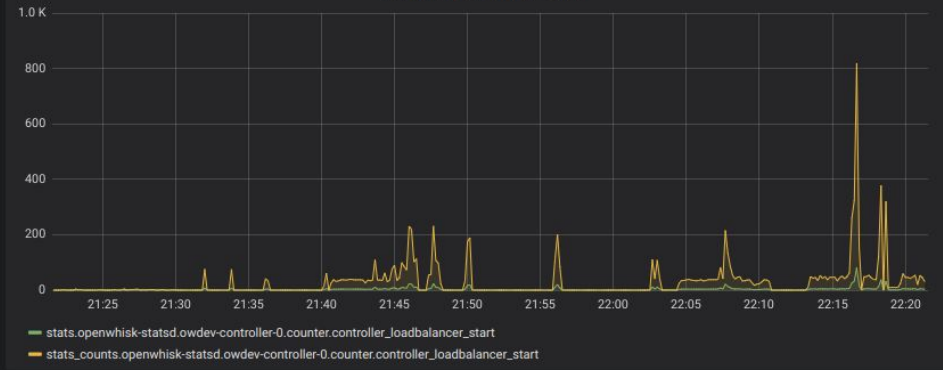



owdev-invoker: 427.

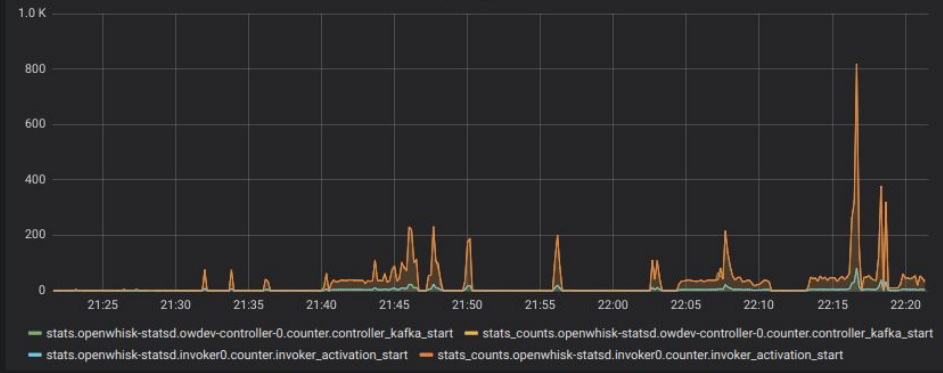
| | |
|---|---|
| Cluster | faas |
| Namespace | openwhisk |
| Created | Apr 2, 2019, 11:56:39 PM |
| Labels | app : owdev-openwhisk  chart : openwhisk-0.1.4  heritage : Tiller  name : owdev-inv |
| Annotations | *Not set* |
| Stackdriver logs | Container logs , Audit logs |
| Label selector | name = owdev-invoker |
| Pods scheduled | 1 |
| Pods desired | 1 |
| Pods ready | 1 |

New dashboard  Last 1 hour

Controller LoadBalancer Start




Panel Title



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# Future Work

Sprint 5

- Simulation part
  - Finish pairing function

- Visualization part
  - Real-time monitoring

- Analysis part
  - Explore both elastic and fixed type of multiple invokers setup

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# Burndown Chart