Devops with Helios

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#Me udomsak
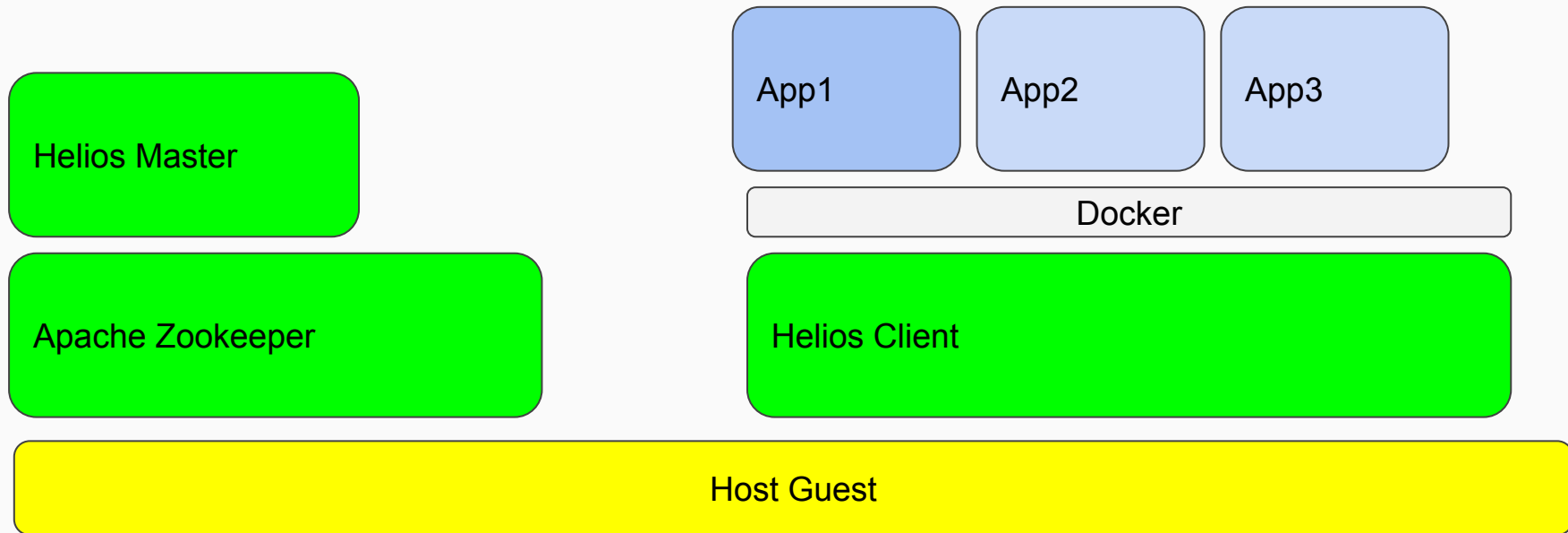# #Skill Newbies
#http://github.com/udomsak

What problem i want to resolve.

- Lot of Docker orchestration framework and tools but what tool easy to integrate with Dev. flow.
- Simple, Not complex but just work.
- Ensure container are/is running.
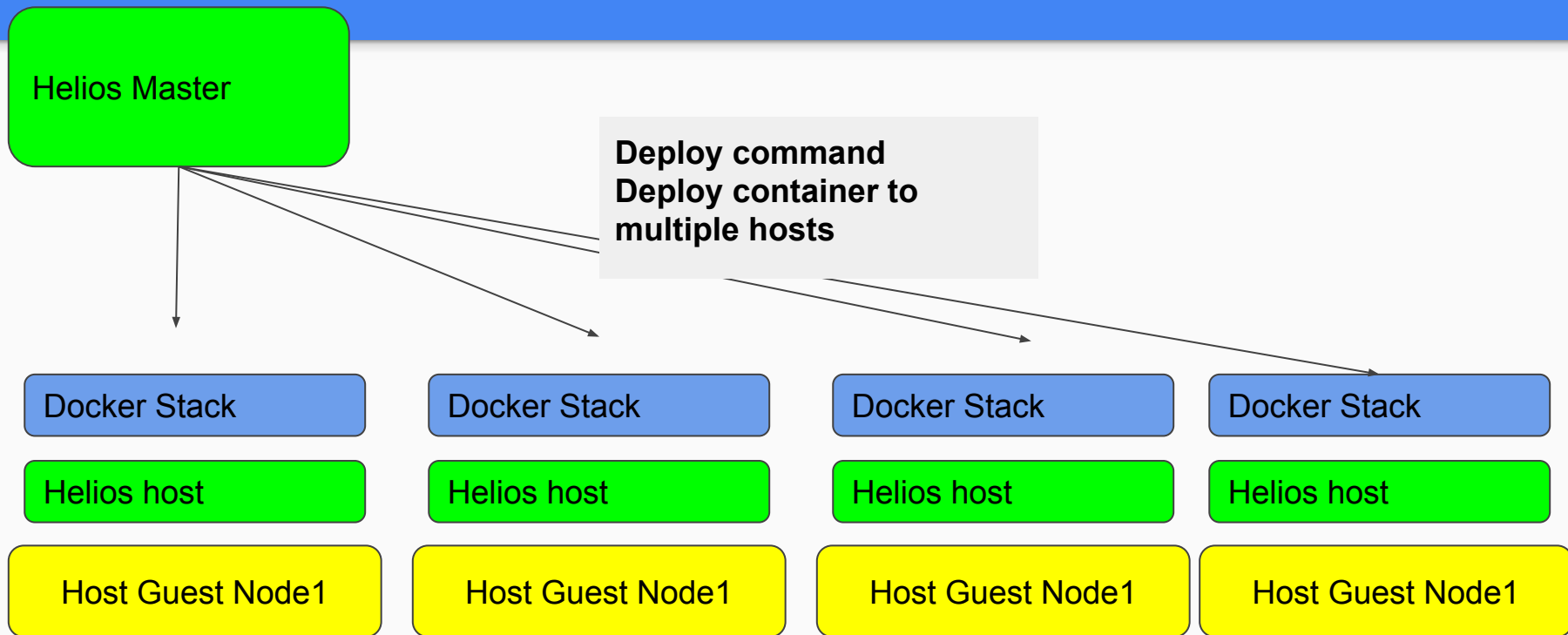- can monitoring.
- Remote API support.
- Stable.

Helios

- Opensource (Java Base). Use in production and sponsored by Spotify
- Build On Top Apache Zookeeper.
- Have Master and Agent.
- Work base on Job and each unique

Helios Architecture.

Helios Master

Apache Zookeeper

App1

App2

App3

Docker

Helios Client

Host Guest

Helios Deployment.

Helios Master

**Deploy command
Deploy container to
multiple hosts**

Docker Stack	Docker Stack	Docker Stack	Docker Stack
Helios host	Helios host	Helios host	Helios host
Host Guest Node1	Host Guest Node1	Host Guest Node1	Host Guest Node1

Components.

Simple workflow.

1. Developer dev and push code.
2. Run test if PASS then Build.
3. Build Container.
4. Deploy container.
   - Staging
   - Production

} CI

} CD

} Jenkins
+ Helios

Pros/Cons.

- Easy setup
- Support monitoring
- Helios Not support CPU and RAM limitation.
- Scaling container in one host need customize.
- If you need to customize need to know Java.
- not well developer document except your are expert Java.

DEMO

Helios CMD

- helios -z { master host} hosts
- helios -z { master host} jobs
- helios -z {master host} create {job_name}:{job_version} {docker_image}:{docker_tag_version} {parameter}
- helios -z {master host} deploy {job_name} { host }
- helios -z {master host} undeploy {job_name} { host}

Helios - host

- view host information
- Command view give information overview of Docker host

```
root@ip-172-31-23-109:~# helios -z http://localhost:5801  hosts
HOST              STATUS       DEPLOYED   RUNNING   CPUS   MEM    LOAD AVG   MEM USAGE   OS                      HELIOS      DOCKER
   LABELS
ip-172-31-23-109. Up 2 days    2          2         1      0 gb   0.05       0.92        Linux 3.13.0-48-generic 0.8.562     1.8.3 (1.20)
```

Helios Jobs

- list jobs helios
- Command view give information all of job create by helios

```
root@ip-172-31-23-109:~# helios -z http://localhost:5801 jobs
JOB ID                    NAME          VERSION   HOSTS   COMMAND   ENVIRONMENT
demo-app:10:66ae335       demo-app      10        0
demo-app:11:3fcd977       demo-app      11        0
demo-app:12:449efe4       demo-app      12        0
demo-app:6:59e899b        demo-app      6         1
demo-app:7:72ae935        demo-app      7         0
demo-app:8:29723c3        demo-app      8         0
demo-app:9:3ee0a47        demo-app      9         0
registry:base:c28bfe8     registry      base      1
registry:v1:4fdde4b       registry      v1        0
```

Docker images

- list docker images
- we can create version of application by docker TAG.

```
root@ip-172-31-23-109:~# docker images
REPOSITORY                      TAG         IMAGE ID        CREATED           VIRTUAL SIZE
127.0.0.1:5000/app-version-12   12          2a6e9c20c433    19 seconds ago    636.5 MB
127.0.0.1:5000/app-version-11   11          84ebb6002a06    2 minutes ago     636.5 MB
registry                        latest      8654ce96c306    2 weeks ago       423.3 MB
node                            0.10        2d887794f0b8    2 weeks ago       633.4 MB
127.0.0.1:5000/nodejs           latest      2d887794f0b8    2 weeks ago       633.4 MB
<none>                          <none>      507ac0a22634    2 weeks ago       633.4 MB
google/cadvisor                 latest      a1c47b5aade9    3 weeks ago       22.78 MB
root@ip-172-31-23-109:~#
```

Docker images

- list docker images
- we can create version of application by docker TAG.

```
root@ip-172-31-23-109:~# docker images
REPOSITORY                   TAG       IMAGE ID        CREATED          VIRTUAL SIZE
127.0.0.1:5000/app-version-12  12      2a6e9c20c433    19 seconds ago   636.5 MB
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registry                     latest    8654ce96c306    2 weeks ago      423.3 MB
node                         0.10      2d887794f0b8    2 weeks ago      633.4 MB
127.0.0.1:5000/nodejs        latest    2d887794f0b8    2 weeks ago      633.4 MB
<none>                       <none>    507ac0a22634    2 weeks ago      633.4 MB
google/cadvisor              latest    a1c47b5aade9    3 weeks ago      22.78 MB
root@ip-172-31-23-109:~#
```

Helios create job

- create job
- each job is unique
- you can create many of jobs
- deploy by job id

```
helios -z http://localhost:5801 create demo-app:${BUILD_NUMBER}
127.0.0.1:5000/app-version-${BUILD_NUMBER}:${BUILD_NUMBER} -p
http=3000:3000
```

Helios Deploy

- deploy job after create.

```
root@ip-172-31-23-109:~# helios -z http://localhost:5801 deploy demo-app:12:449efe4 ip-172-31-23-109
Deploying Deployment{jobId=demo-app:12:449efe48ea0bc1f4c9b591cbfaea881b03b5d751, goal=START, deployerUser=null, deployerMaster=null, deploymentGroupNa
me=null} on [ip-172-31-23-109]
ip-172-31-23-109: done
root@ip-172-31-23-109:~#
```

Helios undeploy

- remove current running job.

```
root@ip-172-31-23-109:~# helios -z http://localhost:5801 undeploy demo-app:6:59e899b -a
This will undeploy demo-app:6:59e899be2ac69fced28df73ebf93f2e87ebbddf0 from [ip-172-31-23-109]
Do you want to continue? [y/N]
y
Undeploying demo-app:6:59e899be2ac69fced28df73ebf93f2e87ebbddf0 from [ip-172-31-23-109]
ip-172-31-23-109: done
```

Helios and Docker State

- Show state before and after switch container (job running).
- Each job need time to switch up from 120Sec. up to size image.

Docker BEFORE

```
root@ip-172-31-23-109:~# docker ps
CONTAINER ID        IMAGE                              COMMAND                 CREATED             STATUS              PORTS                    NAMES
859c5ed42673        127.0.0.1:5000/app-version-6       "/bin/sh -c 'node dev"  43 hours ago        Up 43 hours                                  helios-C2
B6D5C14D5F05F4B410D68AF52D5122C6BAF875-demo-app_6_59e899b_56407309
969ba107d44b        google/cadvisor:latest             "/usr/bin/cadvisor"     2 days ago          Up 2 days           0.0.0.0:8090->8080/tcp   cadvisor2
8461295d1426        registry:latest                    "docker-registry"       2 days ago          Up 2 days           0.0.0.0:5000->5000/tcp   helios-C2
96D5C14D5F05F4B410D68AF52D5122C6BAF875-registry_base_c28bfe8_f7d0a12b
root@ip-172-31-23-109:~#
```

Helios and Docker State

- Show state before and after switch container (job running).
- Each job need time to switch up from 120Sec. up to size image.

Docker AFTER (120sec to switch)

```
root@ip-172-31-23-109:~# docker ps
CONTAINER ID        IMAGE                      COMMAND                CREATED           STATUS          PORTS                      NAMES
27195234d085        127.0.0.1:5000/app-version-12:12    "/bin/sh -c 'node dev"  21 seconds ago   Up 21 seconds   0.0.0.0:3000->3000/tcp    helio
s-C2B6D5C14D5F05F4B410D68AF52D5122C6BAF875-demo-app_12_449efe4_dcdf11b1
969ba107d44b        google/cadvisor:latest                "/usr/bin/cadvisor"     2 days ago       Up 2 days       0.0.0.0:8090->8080/tcp    cadvi
sor2
8461295d1426        registry:latest                       "docker-registry"       2 days ago       Up 2 days       0.0.0.0:5000->5000/tcp    helio
s-C2B6D5C14D5F05F4B410D68AF52D5122C6BAF875-registry_base_c28bfe8_f7d0a12b
root@ip-172-31-23-109:~#
```

Helios job result

- DONE

More.

END.