

Microservice Arch

Monday, 20 January 2025 2:57 PM

Optum-Azure04

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<https://SpritStarter.io> link to create the Micro service through online and download zip and unzip and load in Eclipse

In Sprint boot 2 jars will be there 1.orginal(only code) 2. .jar(Fat Jar with Bootup dependecies included)

<https://github.com/sbtalk71/optum-azure-ms>

Actuator : Topic:

management:

 endpoints:

 web:

 exposure:

 include: "*"

 endpoint:

 health:

 show-details: always

Resilience4J and Circuit Breaker: Topic

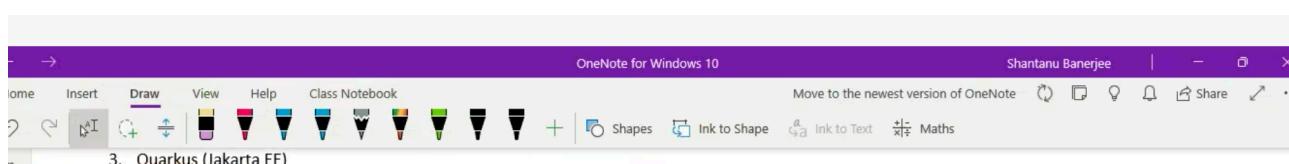
Need to dependency Resiliene4j and aop in pom.xml

Prometheus is used to visualize theactuator logs in spring microservices

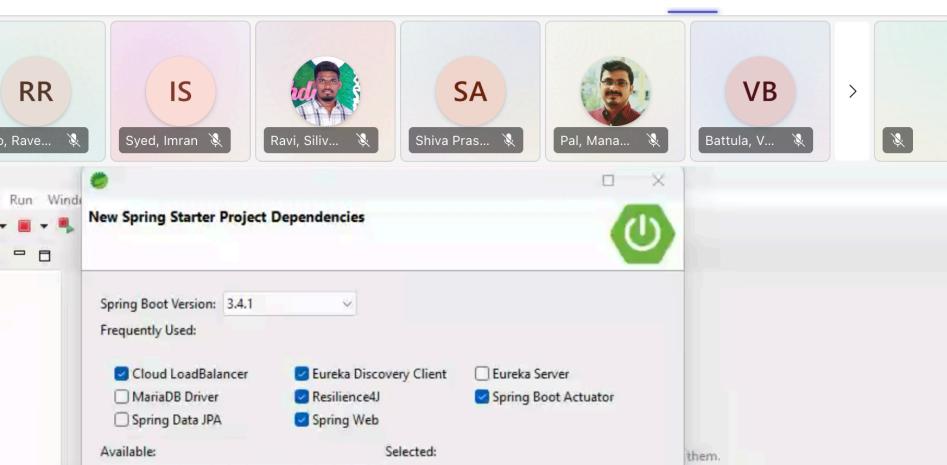
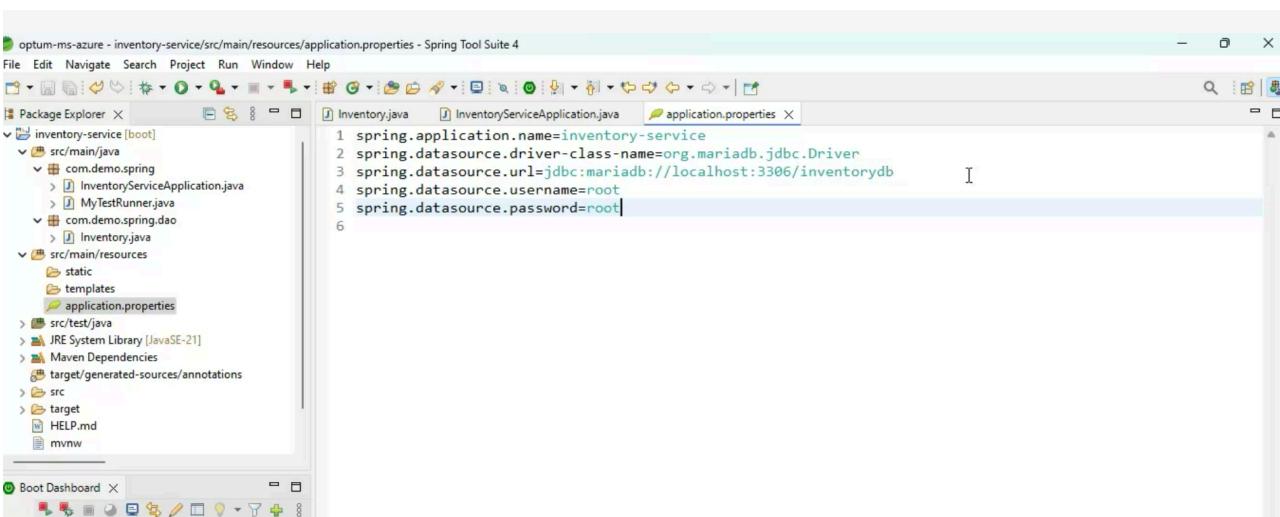
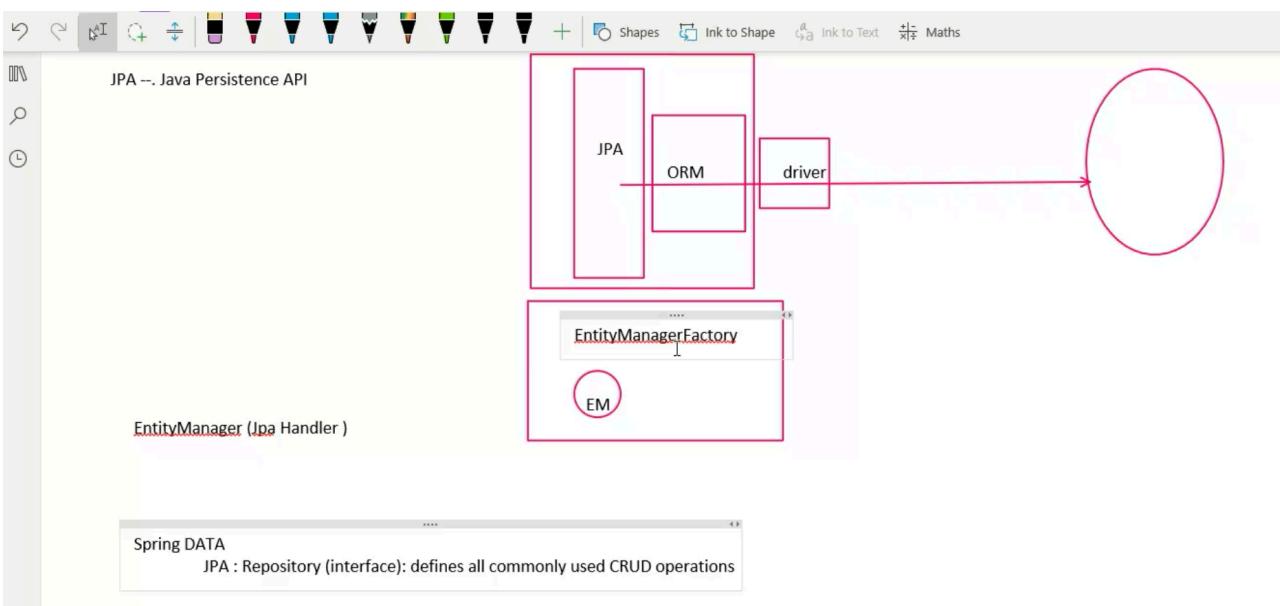
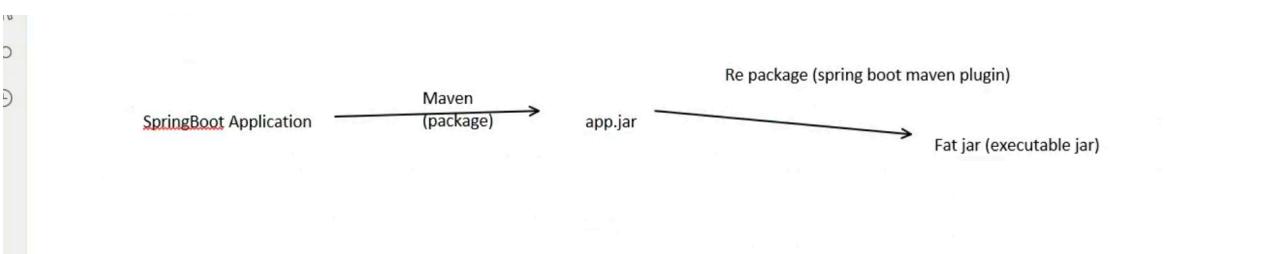
Prometheus- Collecting the data using the actuator

Grafana - Graphical visualise the logs

Micrometer - Used for metrics

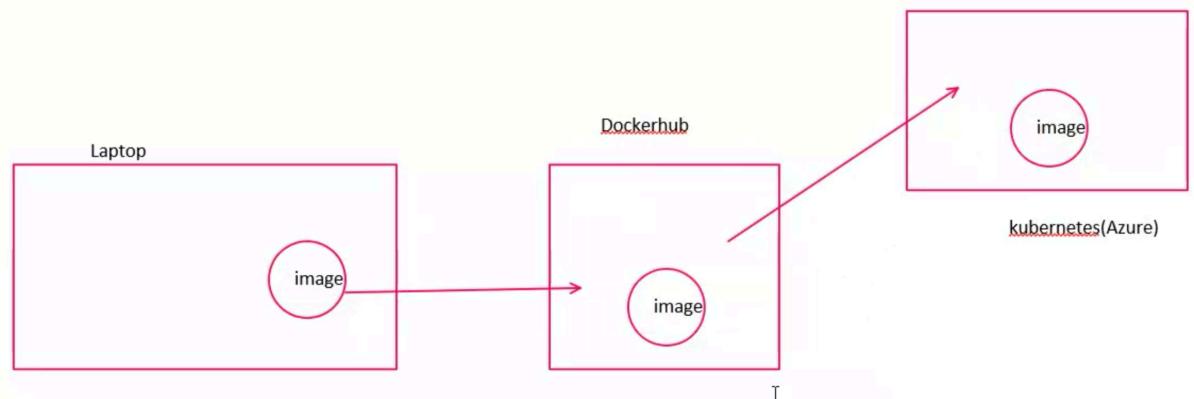


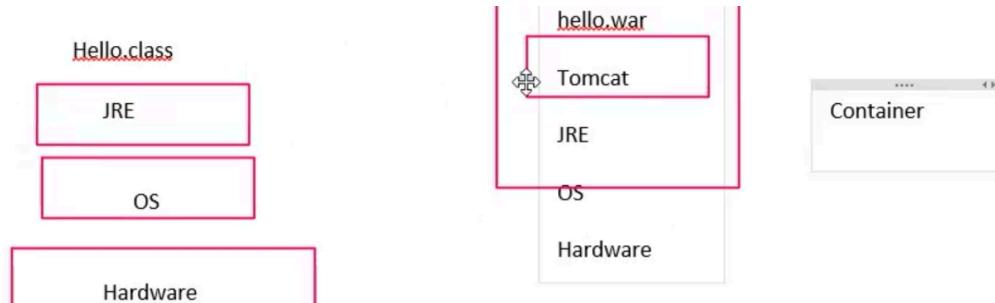
th



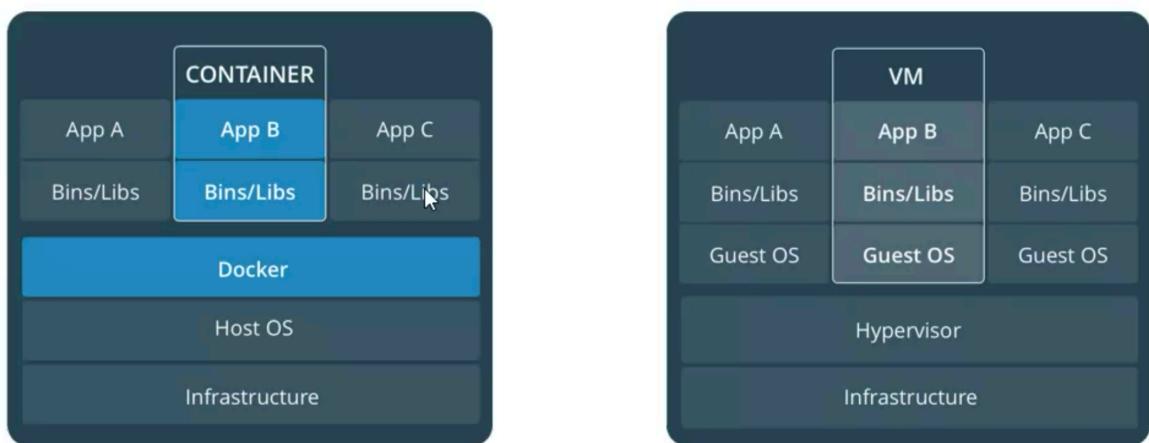
Application Containerization and cloud Deployment (Azure)

1. Create a git repository by name 'cloud-app'
2. clone the repository in your cloud lab machine
3. create a spring boot application with spring web dependency
4. add this app to the 'cloud-app' repository and commit, push
5. |





Comparing Containers and VMs



Containers are an app level construct

VMs are an infrastructure level construct to turn one machine into many servers

Docker Basics



Image

The basis of a Docker container. The content at rest.



Container

The image when it is 'running.' The standard unit for app service



Engine

The software that executes commands for containers. Networking and volumes are part of Engine. Can be clustered together.



Registry

Stores, distributes and manages Docker images



Control Plane

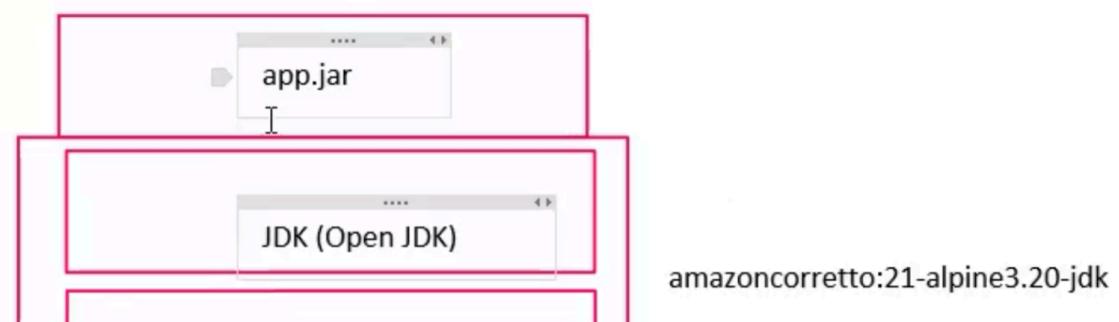
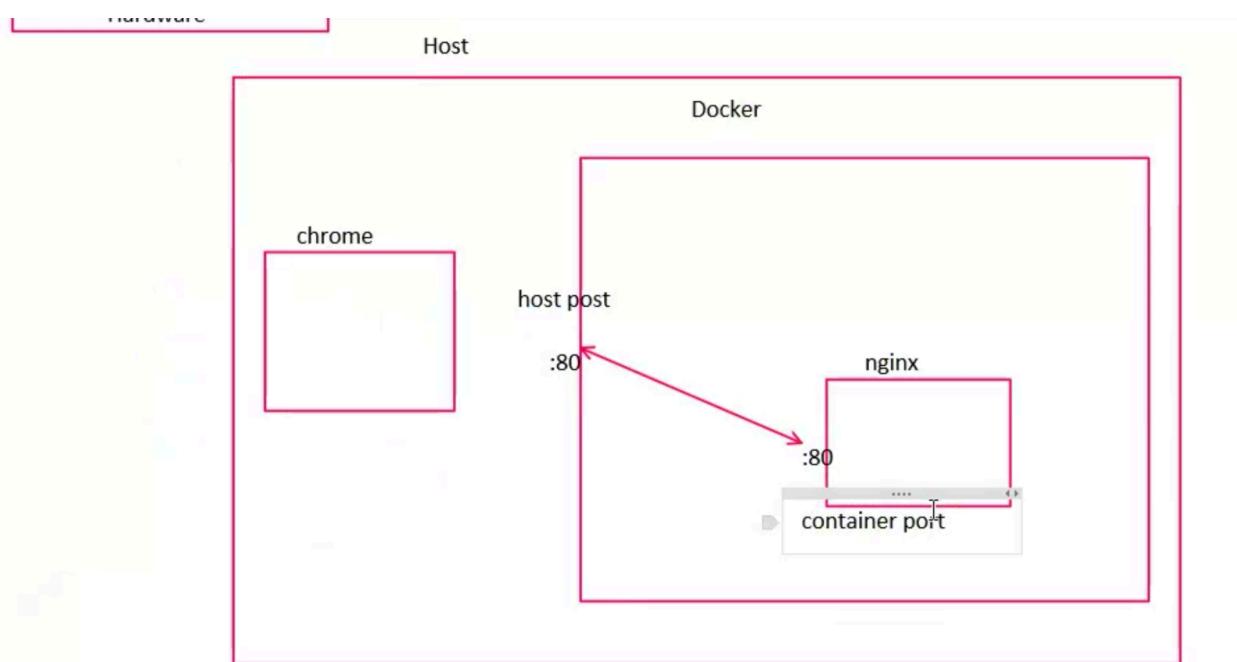
Management plane for container and cluster orchestration

- docker image ls
- docker pull busybox latest
- docker run -it busybox sh - to run the container with interactive into that container
- docker stop - it will stop but not remove (not good command)
- Docker container ls -a - to display container dead or live
- Docker rm <containerid>
- Docker run --rm --name nginx -p 8000:80 -d nginx #portmapping/forwarding
- Docker logs <containerid>
- Docker exec -it <containerid> sh #to display logs

To Paractice : docker palyground site

Image is like class

Container - can be many deployed

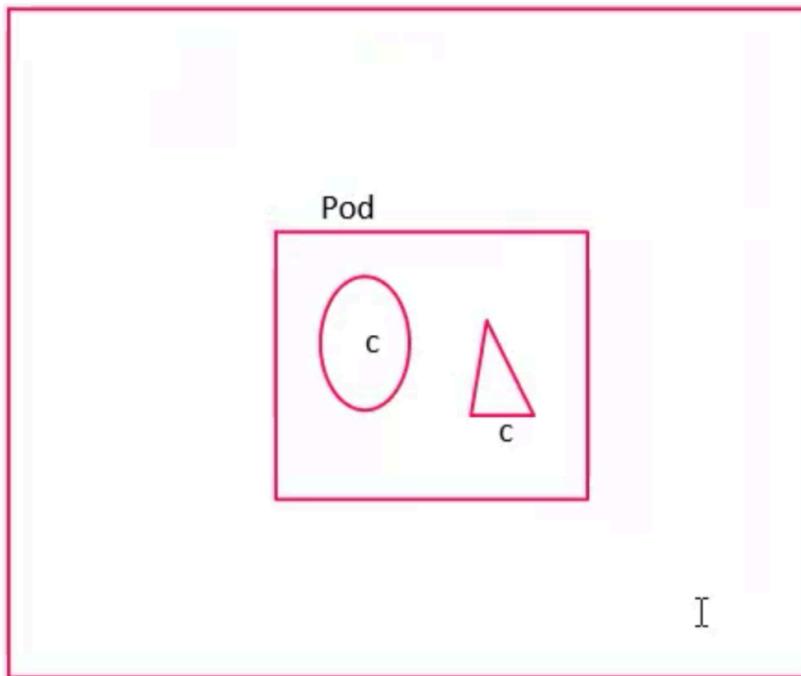


OS (alpine Linux)

```
docker build -t suryamnaiju1985/greet-service:1.0 .
docker run --rm --name greeter -p 8090:8080 suryamnaiju1985/greet-service:1.0
```

```
Docker push suryamnaiju1985/greet-service:1.0
```

Kubernetes:



Node means is machine

A screenshot of a Windows desktop environment. The taskbar at the bottom has several icons: Home | Income Tax..., hadoptutorial - Cu..., sbtalk71, Angular, Introduction to Big..., AWS Management..., and Welcome To TRANS... . There are also icons for File Explorer, Task View, Start, and a search bar.

Two Command Prompt windows are open in the foreground. The left window shows the command "ls" and its output:

```
23-01-2025 12:00      395 .gitignore
23-01-2025 12:01      <DIR>    .mvn
23-01-2025 12:06      718 .project
23-01-2025 12:01      <DIR>    .settings
24-01-2025 16:23      929 deployment.yaml
```

The right window shows the command "dir" and its output:

```
23-01-2025 12:00      395 .gitignore
23-01-2025 12:01      <DIR>    .mvn
23-01-2025 12:06      718 .project
23-01-2025 12:01      <DIR>    .settings
24-01-2025 16:23      929 deployment.yaml
```



```
23-01-2025 15:20          122 Dockerfile
23-01-2025 12:00          1,243 HELP.md
23-01-2025 12:00          10,665 mvnw
23-01-2025 12:00          6,912 mvnw.cmd
23-01-2025 12:00          1,394 pom.xml
23-01-2025 11:59          11 README.md
23-01-2025 12:01      <DIR>          src
23-01-2025 15:09      <DIR>          target
    11 File(s)        24,784 bytes
    7 Dir(s)  464,709,033,984 bytes free

D:\git-projects-classroom\cloud-app>kubectl apply -f deployment.yaml
'kuebectl' is not recognized as an internal or external command,
operable program or batch file.

D:\git-projects-classroom\cloud-app>kubectl apply -f deployment.yaml
deployment.apps/greet-service created
service/greet-service created

D:\git-projects-classroom\cloud-app>kubectl get svc
NAME      TYPE      CLUSTER-IP      EXTERNAL-IP      PORT(S)      AGE
greet-service  LoadBalancer  10.0.249.42  4.248.224.7  8080:32750/TCP  15s
kubernetes   ClusterIP   10.0.0.1     <none>        443/TCP      153m
```

```
D:\git-projects-classroom\cloud-app>
```

