Docker

Container

8 G RAM

الوضع الأفضل المؤقت
البرنامج مباشر k virtual

Container

LXC
Cgroups   linux

App3   App4
App1   App2
OS
HW

Hyper-v containers

VM

Service

24 G RAM

VM1	VM2	VM3	VM4	
App1 1G RAM	App2 1G RAM	App3 1G RAM	App3 1 RAM	4 G RAM
OS 4	OS 4	OS 4	OS 4	16 G RAM

Virtualization Hypervisor   4 G RAM

HW

الوضع التقليدي

Docker
Container Engine

C1   C2 IIS
C3   C4
Docker
OS   windows
HW

can be transferred to another server with different system
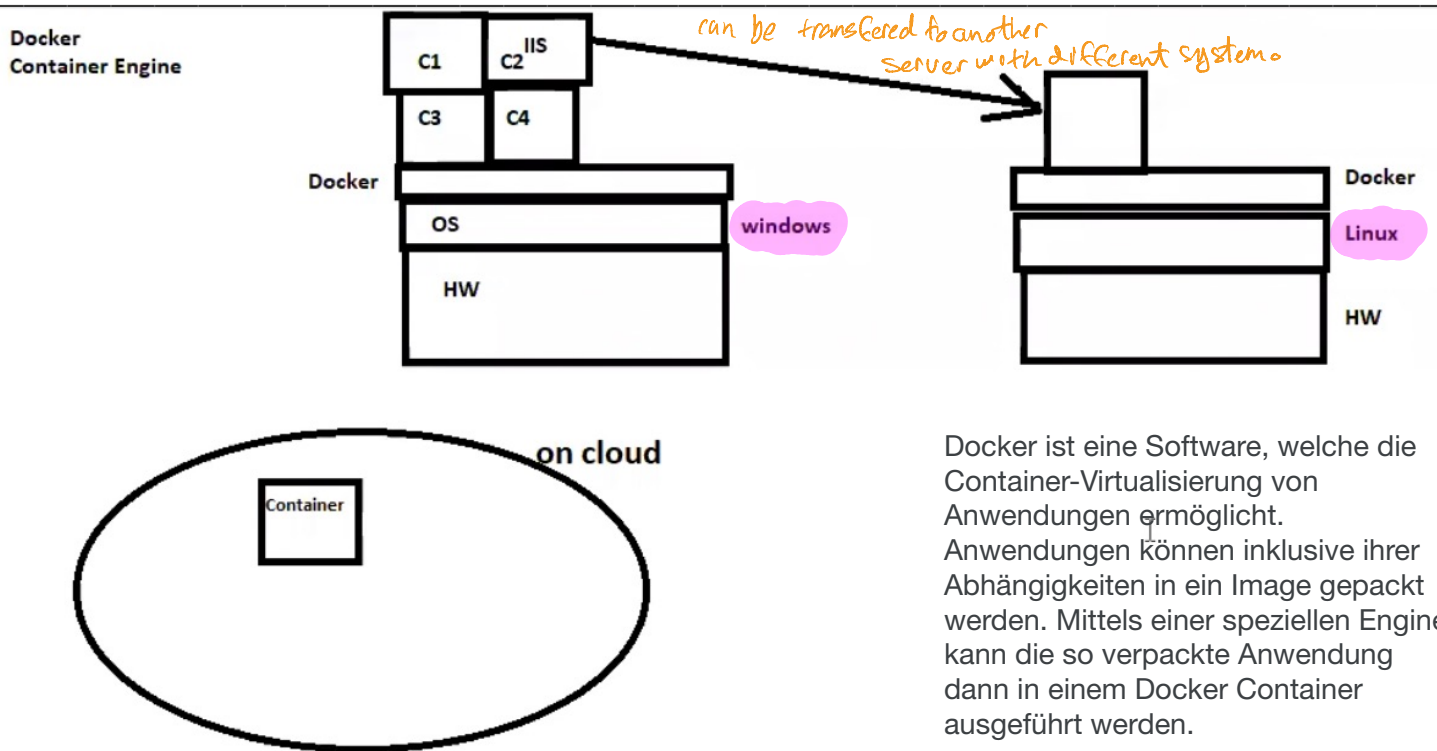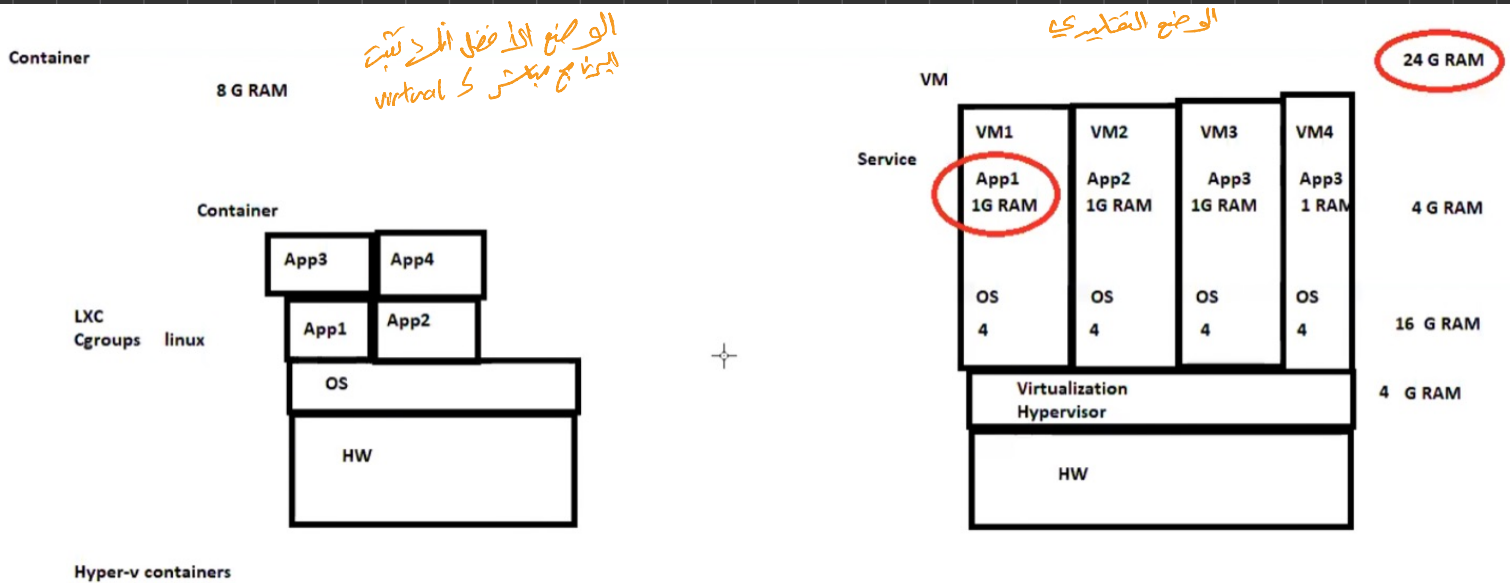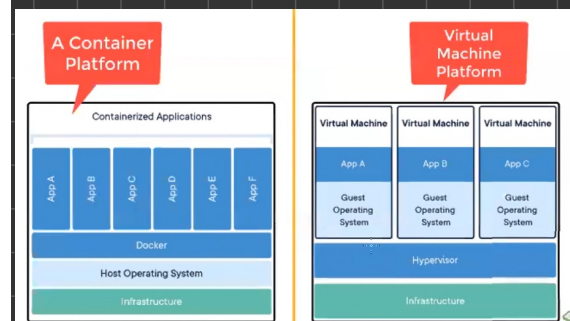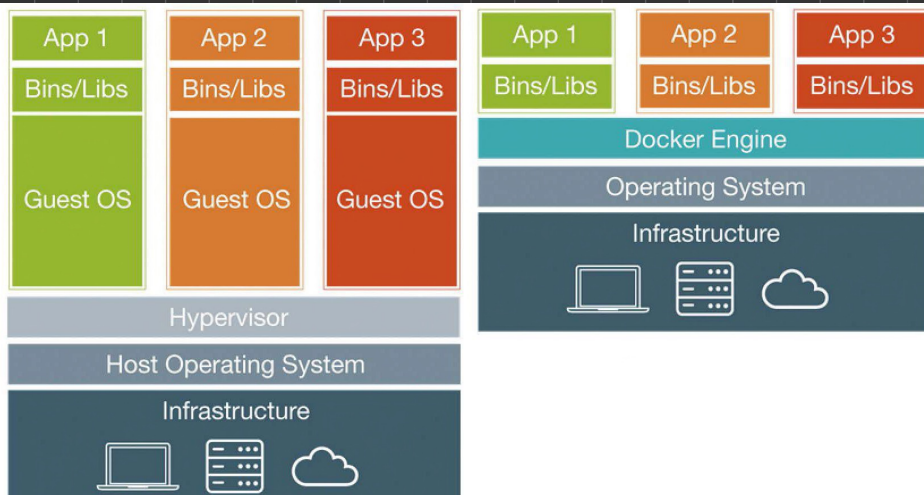
Docker
Linux
HW

on cloud

Container

Docker ist eine Software, welche die Container-Virtualisierung von Anwendungen ermöglicht. Anwendungen können inklusive ihrer Abhängigkeiten in ein Image gepackt werden. Mittels einer speziellen Engine kann die so verpackte Anwendung dann in einem Docker Container ausgeführt werden.

App 1	App 2	App 3
Bins/Libs	Bins/Libs	Bins/Libs
Guest OS	Guest OS	Guest OS

Hypervisor
Host Operating System
Infrastructure

App 1	App 2	App 3
Bins/Libs	Bins/Libs	Bins/Libs

Docker Engine
Operating System
Infrastructure

A Container Platform

Containerized Applications

App A	App B	App C	App D	App E	App F

Docker
Host Operating System
Infrastructure

Virtual Machine Platform

Virtual Machine	Virtual Machine	Virtual Machine
App A	App B	App C
Guest Operating System	Guest Operating System	Guest Operating System

Hypervisor
Infrastructure

```
install container utility podman (download-create-start-stop-manage Containers)
```

podman is an opensource utility to manage my containers.

```
# yum info podman
# yum install podman

# podman search httpd     search for httpd container images
# podman search ftp       search for ftp container images

docker.io/library/httpd       <<<<< Name of container image

# podman pull docker.io/library/httpd          → Download this image.
# podman ps
# podman run -dt -p 8080:80/tcp docker.io/library/httpd          create and run httpd container
# podman ps                                                      list started containers
# podman ps -a                                                   list all containers
                         → Show all containers (running/stopped)
# podman login confident_fermat
# podman logs confident_fermat
# podman rm confident_fermat                                     remove container (NOTE: first stop it )
```

redirect
default port

#podman imagen   → Show all pulled images.

```
[root@Server1 ~]# podman ps
CONTAINER ID  IMAGE                          COMMAND           CREATED        STATUS            PORTS                    NAMES
fe6791db6e25  docker.io/library/httpd:latest httpd-foreground  4 minutes ago  Up 4 minutes ago  0.0.0.0:8080->80/tcp  inspiring_wescoff
[root@Server1 ~]#
[root@Server1 ~]#
[root@Server1 ~]# podman run -dt -p 8081:80/tcp docker.io/library/httpd
8a84f08c1c15a3766a9fdccf3a946de64a12f009df78fb195bdfb1d20f012f2d
[root@Server1 ~]# podman ps
CONTAINER ID  IMAGE                          COMMAND           CREATED        STATUS            PORTS                    NAMES
8a84f08c1c15  docker.io/library/httpd:latest httpd-foreground  2 seconds ago  Up 2 seconds ago  0.0.0.0:8081->80/tcp  reverent_dubinsky
fe6791db6e25  docker.io/library/httpd:latest httpd-foreground  4 minutes ago  Up 4 minutes ago  0.0.0.0:8080->80/tcp  inspiring_wescoff
[root@Server1 ~]# podman run -dt -p 8082:80/tcp docker.io/library/httpd
977b4951dab00129b729c0fafb01c4dd3f3df27519bee4c6ca21265a1c1b5412
[root@Server1 ~]# podman ps
CONTAINER ID  IMAGE                          COMMAND           CREATED         STATUS             PORTS                    NAMES
977b4951dab0  docker.io/library/httpd:latest httpd-foreground  2 seconds ago   Up 2 seconds ago   0.0.0.0:8082->80/tcp  confident_fermat
8a84f08c1c15  docker.io/library/httpd:latest httpd-foreground  39 seconds ago  Up 39 seconds ago  0.0.0.0:8081->80/tcp  reverent_dubinsky
fe6791db6e25  docker.io/library/httpd:latest httpd-foreground  5 minutes ago   Up 5 minutes ago   0.0.0.0:8080->80/tcp  inspiring_wescoff
[root@Server1 ~]# podman stop reverent_dubinsky
8a84f08c1c15a3766a9fdccf3a946de64a12f009df78fb195bdfb1d20f012f2d
[root@Server1 ~]# podman ps
CONTAINER ID  IMAGE                          COMMAND           CREATED            STATUS               PORTS                    NAMES
977b4951dab0  docker.io/library/httpd:latest httpd-foreground  About a minute ago Up About a minute ago 0.0.0.0:8082->80/tcp  confident_fermat
fe6791db6e25  docker.io/library/httpd:latest httpd-foreground  6 minutes ago      Up 6 minutes ago     0.0.0.0:8080->80/tcp  inspiring_wescoff
[root@Server1 ~]#
[root@Server1 ~]# podman ps -a
CONTAINER ID  IMAGE                          COMMAND           CREATED            STATUS                    PORTS                    NAMES
977b4951dab0  docker.io/library/httpd:latest httpd-foreground  About a minute ago Up About a minute ago     0.0.0.0:8082->80/tcp  confident_fermat
8a84f08c1c15  docker.io/library/httpd:latest httpd-foreground  2 minutes ago      Exited (0) 12 seconds ago 0.0.0.0:8081->80/tcp  reverent_dubinsky
fe6791db6e25  docker.io/library/httpd:latest httpd-foreground  6 minutes ago      Up 6 minutes ago          0.0.0.0:8080->80/tcp  inspiring_wescoff
[root@Server1 ~]# podman start reverent_dubinsky
reverent_dubinsky
[root@Server1 ~]#
```