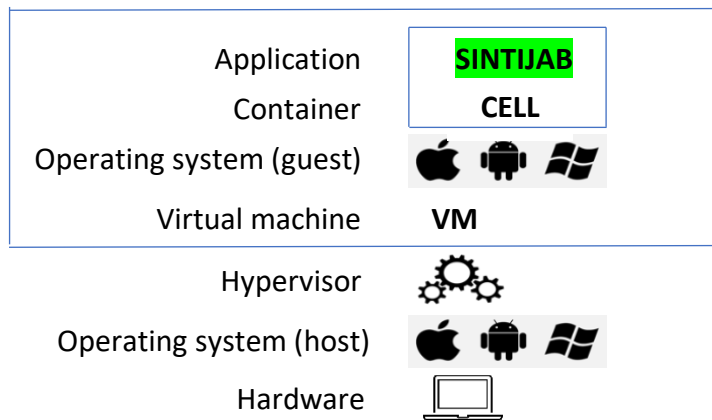
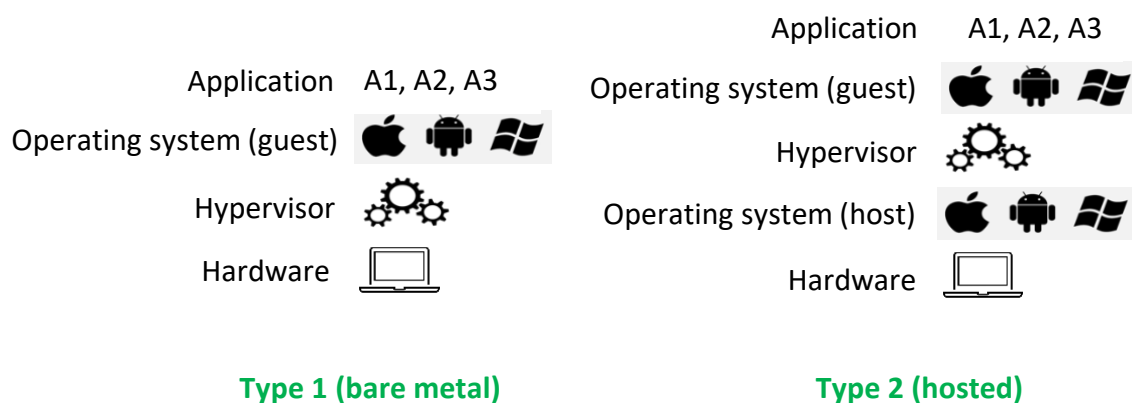


Task 1 - Draw the Virtualization Stack

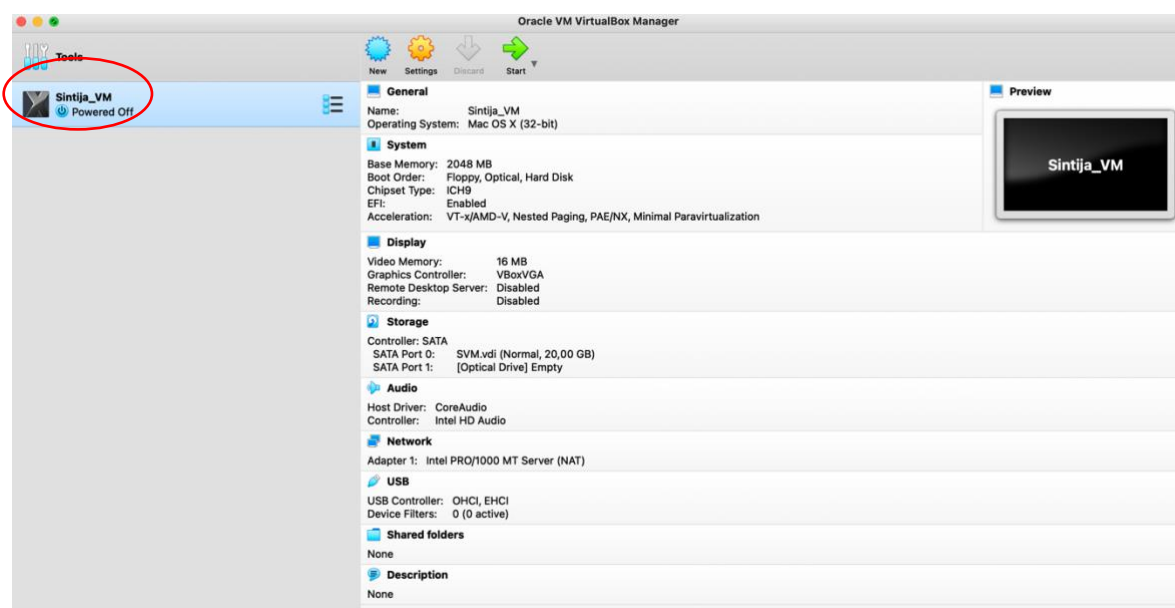


Task 2 - Create hypervisor building block for type 1 and type 2



Task 3 - Create VM on virtual box and show the memory and risk utilization

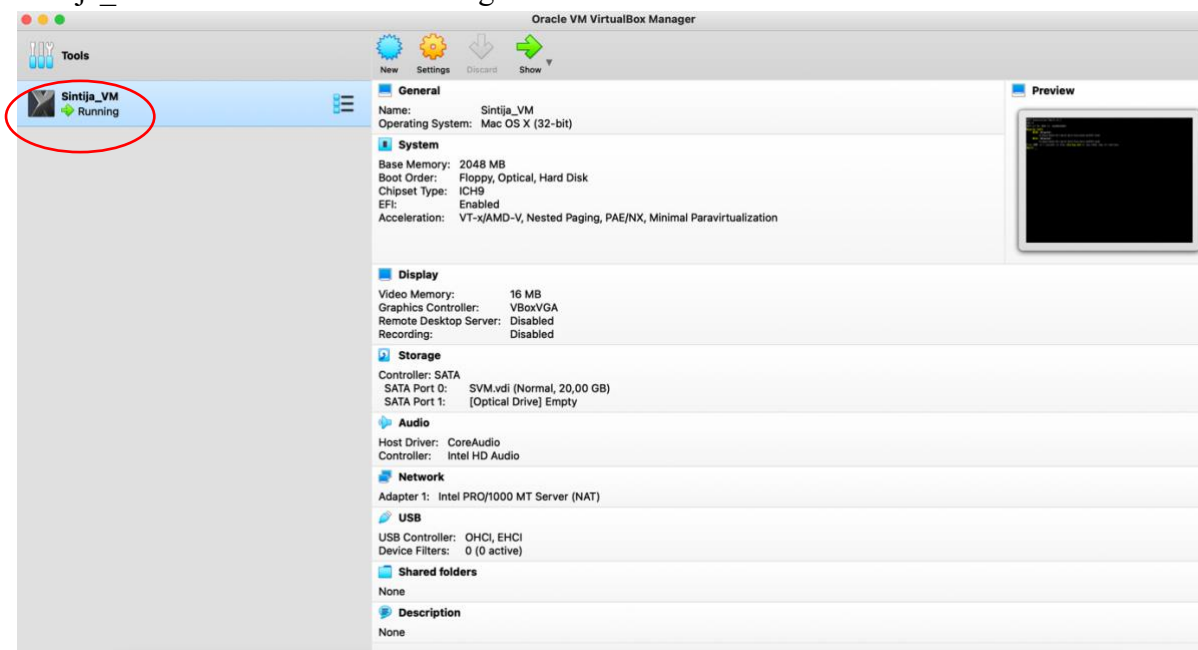
Sintija_VM Virtual Machine added:



```
sintijabuksa — -bash — 151x23
Last login: Fri Feb 18 00:02:43 on ttys000

The default interactive shell is now zsh.
To update your account to use zsh, please run `chsh -s /bin/zsh`.
For more details, please visit https://support.apple.com/kb/HT208050.
(base) Sintijas-MacBook-Pro:~ sintijabuksa$ df -h
Filesystem      Size  Used Avail Capacity iused   ifree %iused  Mounted on
/dev/disk1s5s1  233Gi  15Gi  139Gi    10%  577694 1456869680    0%  /
devfs           202Ki  202Ki   0Bi   100%    698      0  100%  /dev
/dev/disk1s4    233Gi   4.0Gi  139Gi     3%     5 1456869680    0%  /System/Volumes/VM
/dev/disk1s2    233Gi  317Mi  139Gi     1%   1540 1456869680    0%  /System/Volumes/Preboot
/dev/disk1s6    233Gi   1.8Mi  139Gi     1%     19 1456869680    0%  /System/Volumes/Update
/dev/disk1s1    233Gi   74Gi  139Gi    35%  888286 1456869680    0%  /System/Volumes/Data
map auto_home   0Bi    0Bi   0Bi   100%      0      0  100%  /System/Volumes/Data/home
/dev/disk3s1    674Mi  445Mi  229Mi    67%   670 4294966609    0%  /Volumes/Slack
(base) Sintijas-MacBook-Pro:~ sintijabuksa$
```

Sintija_VM Virtual Machine running:



```
sintijabuksa — -bash — 153x23
Last login: Fri Feb 18 00:07:23 on ttys000

The default interactive shell is now zsh.
To update your account to use zsh, please run `chsh -s /bin/zsh`.
For more details, please visit https://support.apple.com/kb/HT208050.
(base) Sintijas-MacBook-Pro:~ sintijabuksa$ df -h
Filesystem      Size  Used Avail Capacity iused   ifree %iused  Mounted on
/dev/disk1s5s1  233Gi  15Gi  140Gi    10%  577694 1467226920    0%  /
devfs           202Ki  202Ki   0Bi   100%    698      0  100%  /dev
/dev/disk1s4    233Gi   3.0Gi  140Gi     3%     4 1467226920    0%  /System/Volumes/VM
/dev/disk1s2    233Gi  317Mi  140Gi     1%   1540 1467226920    0%  /System/Volumes/Preboot
/dev/disk1s6    233Gi   1.8Mi  140Gi     1%     19 1467226920    0%  /System/Volumes/Update
/dev/disk1s1    233Gi   74Gi  140Gi    35%  888301 1467226920    0%  /System/Volumes/Data
map auto_home   0Bi    0Bi   0Bi   100%      0      0  100%  /System/Volumes/Data/home
/dev/disk3s1    674Mi  445Mi  229Mi    67%   670 4294966609    0%  /Volumes/Slack
(base) Sintijas-MacBook-Pro:~ sintijabuksa$
```

It can be observed that running virtual machine does not change/consume computer memory.

4 - Differentiate between IaaS, PaaS and SaaS layer wise

IaaS (Infrastructure as a Service) offer services like networking, virtualization, and pay-as-you-go storage. It gives users cloud-based alternatives to on-premises infrastructure, which allows businesses to reduce expenditures related to on-site resources. Responsibilities are shared:

- users need to manage applications, data, runtime, middleware, O/S;
- providers need to manage virtualization, servers, storage, and networking.

PaaS (Platform as a Service) vendor provides hardware and software tools over the internet, which are being used to develop applications. Responsibilities are shared:

- users need to manage applications and data;
- providers need to manage runtime, middleware, O/S, virtualization, servers, storage, and networking.

SaaS (Software as a Service) platforms make software available to users over the internet, there is no need to install and run software applications on your computer. It is hosted on a remote server by a third-party provider and basically everything is available over the internet when logging in, for instance, e-mail.