RAID types

RAID (Redundant Array of Inexpensive Disks or Drives, or Redundant Array of Independent Disks).

Purposes:

performance improvement (max. write read speed),

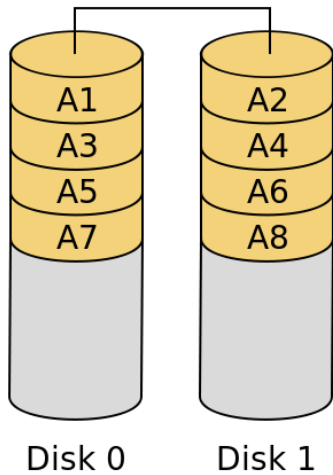increased data security against hard drive failure.
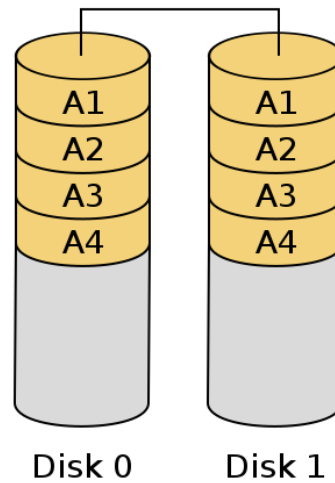

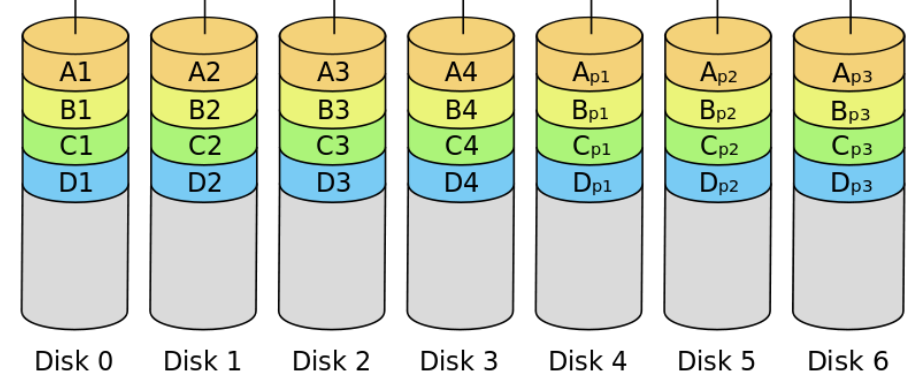Hardware RAID = RAID controller

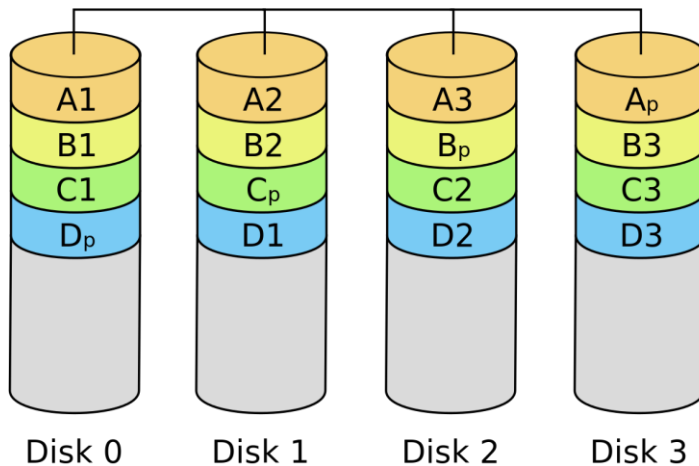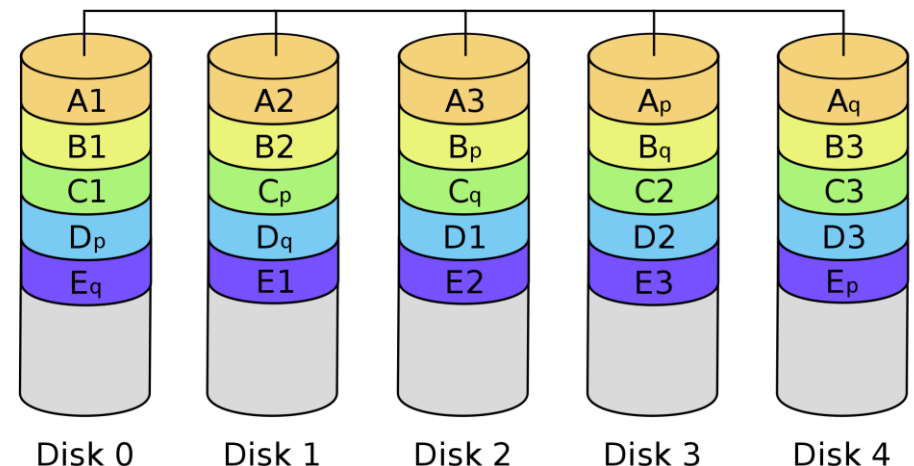or

Sofware RAID

RAID types

RAID 0

Disk 0	Disk 1
A1	A2
A3	A4
A5	A6
A7	A8

RAID 1

Disk 0	Disk 1
A1	A1
A2	A2
A3	A3
A4	A4

RAID 2 (Hamming code)

Disk 0	Disk 1	Disk 2	Disk 3	Disk 4	Disk 5	Disk 6
A1	A2	A3	A4	A_{p1}	A_{p2}	A_{p3}
B1	B2	B3	B4	B_{p1}	B_{p2}	B_{p3}
C1	C2	C3	C4	C_{p1}	C_{p2}	C_{p3}
D1	D2	D3	D4	D_{p1}	D_{p2}	D_{p3}

RAID 5

Disk 0	Disk 1	Disk 2	Disk 3
A1	A2	A3	A_p
B1	B2	B_p	B3
C1	C_p	C2	C3
D_p	D1	D2	D3

RAID 6

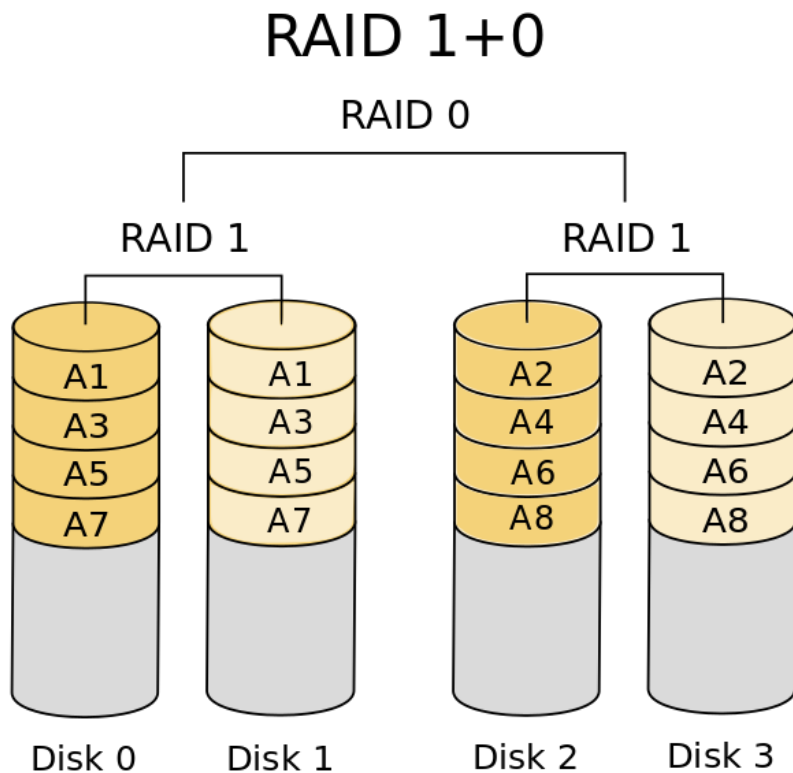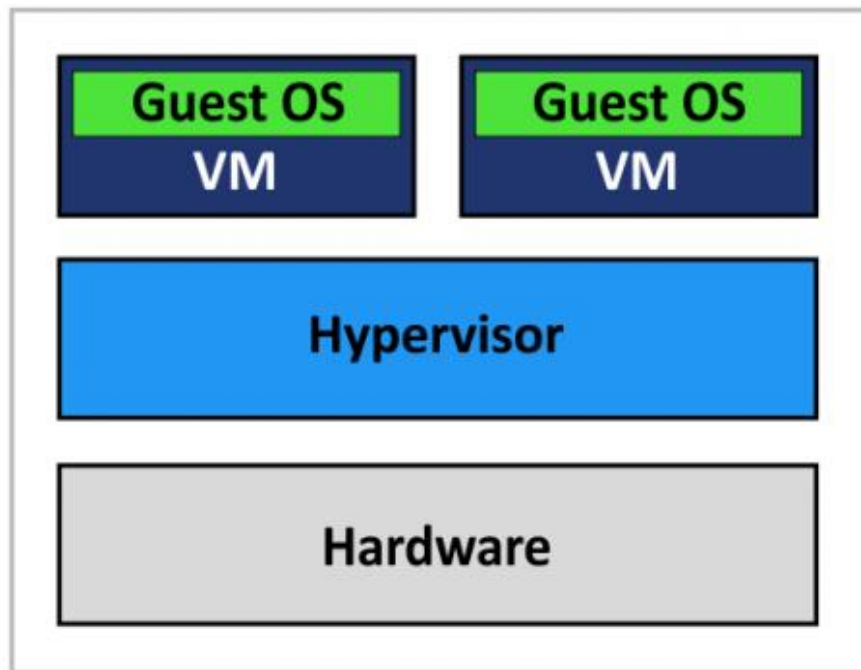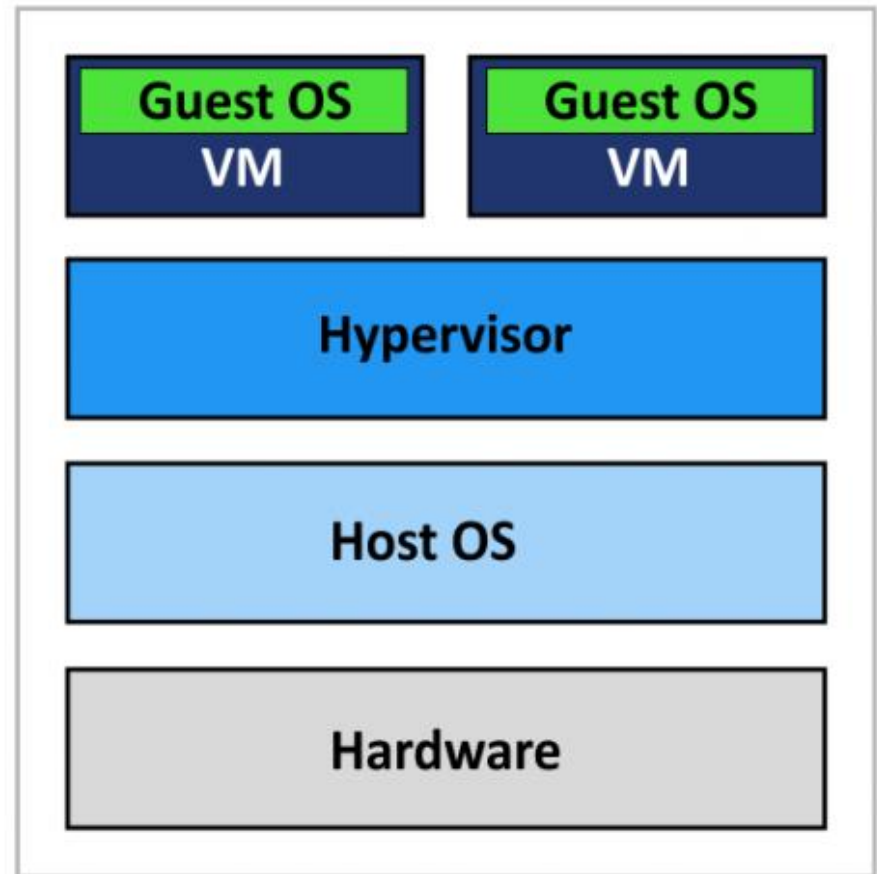| Disk 0	Disk 1	Disk 2	Disk 3	Disk 4
A1	A2	A3	A_p	A_q
B1	B2	B_p	B_q	B3
C1	C_p	C_q	C2	C3
D_p	D_q	D1	D2	D3
E_q	E1	E2	E3	E_p

Mixed RAID types principle
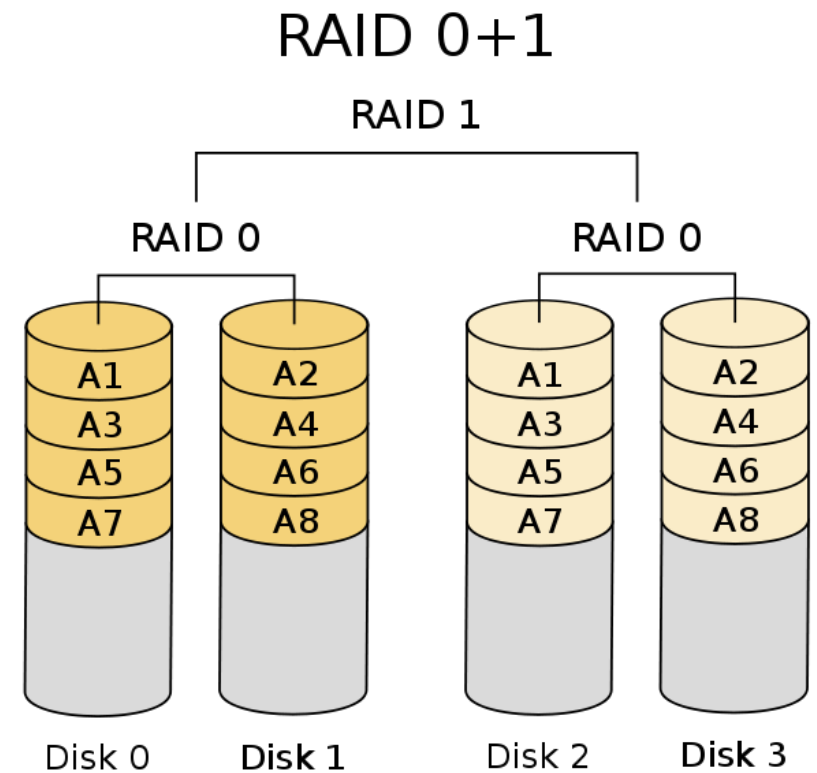
Virtual machine approach
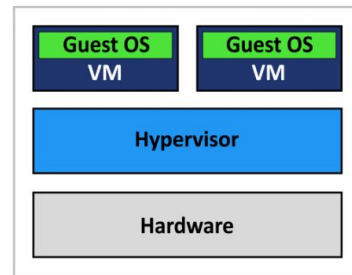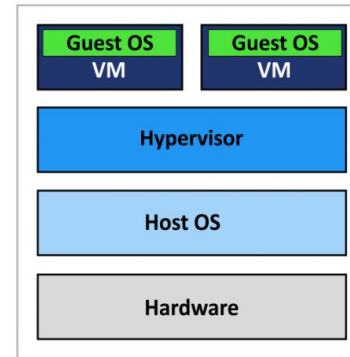

Type 1 Hypervisor
(Bare-Metal Architecture)

Type 2 Hypervisor
(Hosted Architecture)

Virtual machine approach
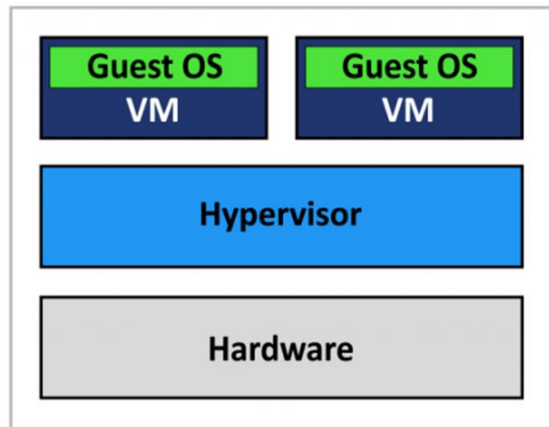

Type 1 Hypervisor
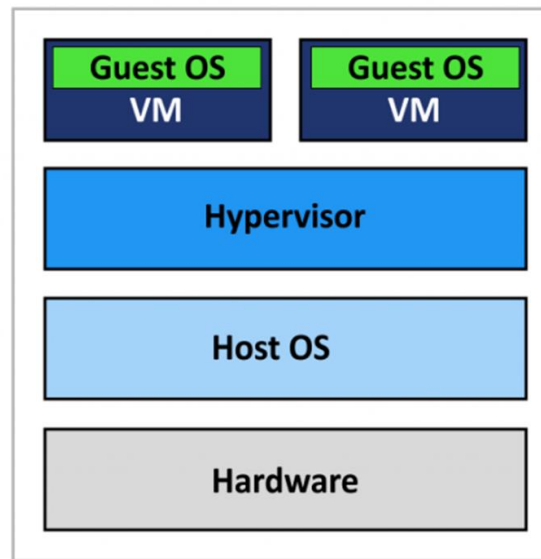(Bare-Metal Architecture)

Type 2 Hypervisor
(Hosted Architecture)

Vmware ESXi
Microsoft Hyper-V Server
Citrix XenServer
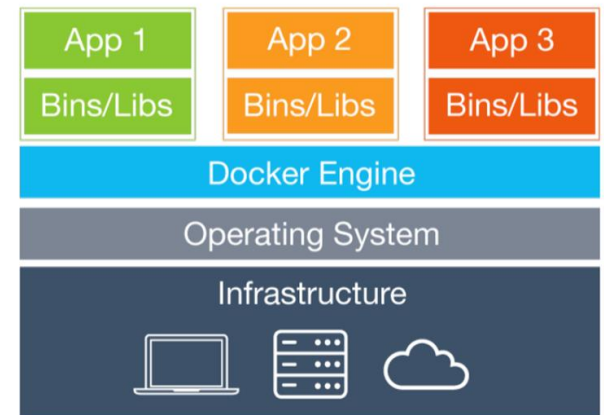KVM

VMware Workstation
Virtualbox

VM vs Docker

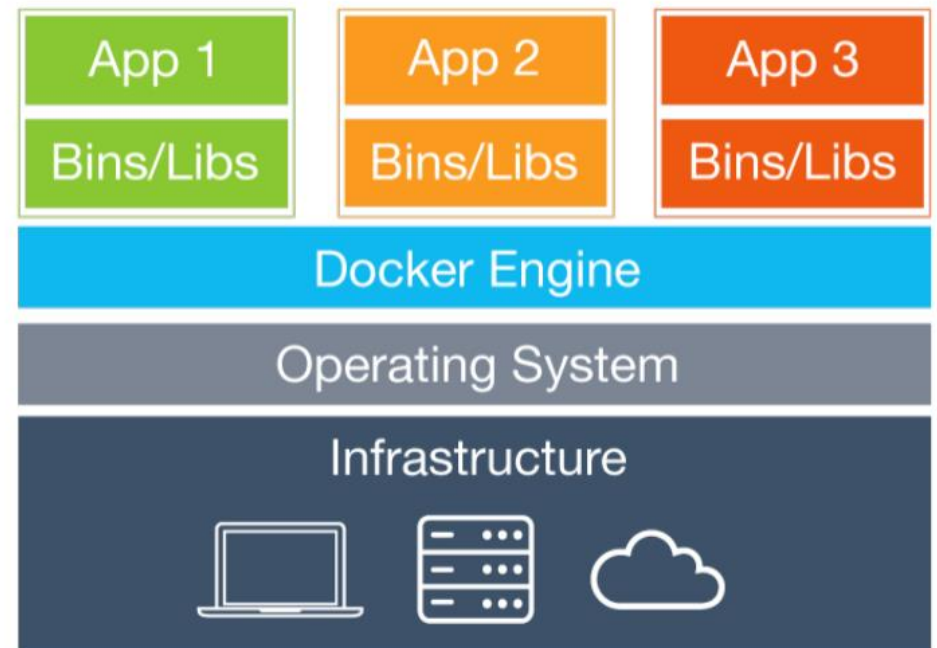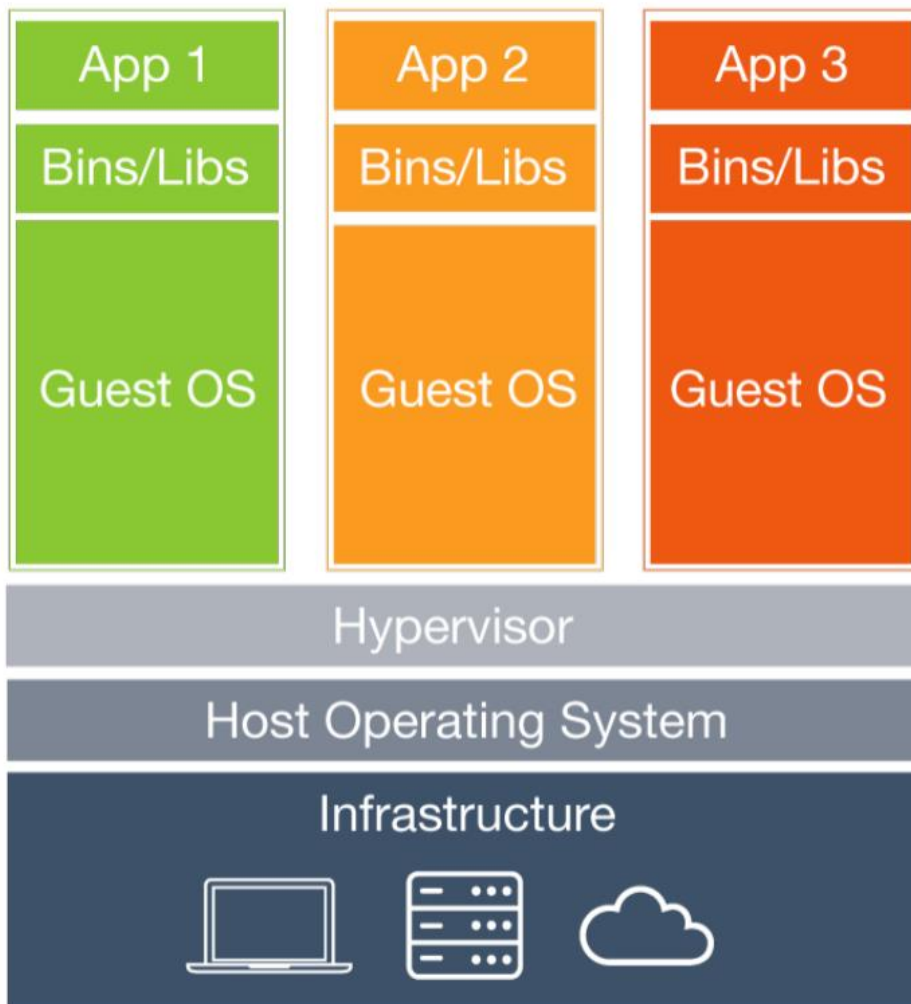**Type 1 Hypervisor (Bare-Metal Architecture)**

Type 2 Hypervisor (Hosted Architecture)

Docker

VM vs Docker

Docker Essentials

https://docs.docker.com/get-started/