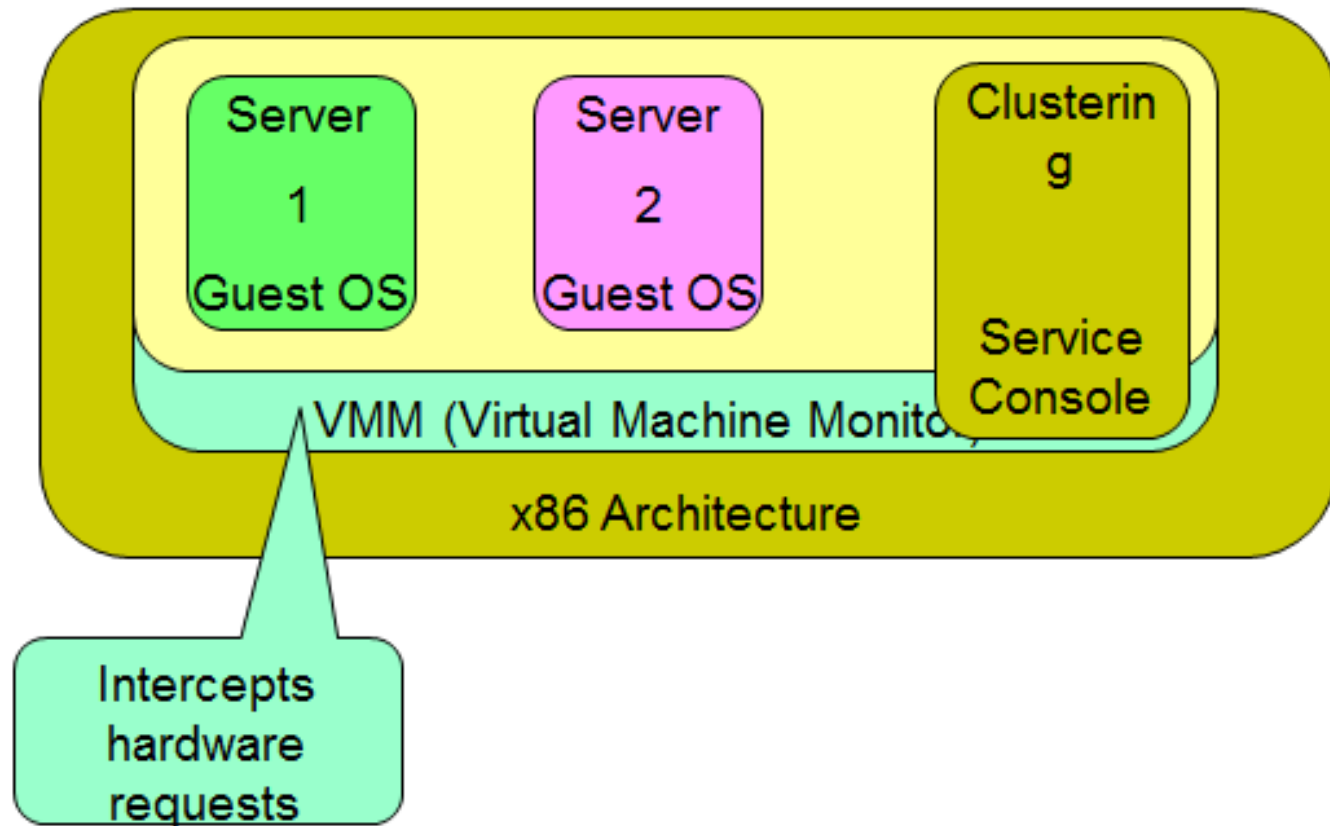# Server virtualization

- Server virtualization is the process of dividing a physical server into multiple unique and isolated virtual servers by means of a software application. Each virtual server can run its own operating systems independently.

- Software directly installs on the server system and use for a single physical server can divide into many servers on the demand basis and balance the load.

- With the help of software, the server administrator divides one physical server into multiple servers.

Server Virtualization

Server Virtualization

- Virtual servers seek to encapsulate the server software away from the hardware

- This includes the OS, the applications, and the storage for that server.

- A virtual server can be serviced by one or more hosts

- One host may house more than one virtual server

- Virtual servers can still be referred to by their function i.e. email server, database server, etc.

- If the environment is built correctly, virtual servers will not be affected by the loss of a host.

- Hosts may be removed and introduced to accommodate maintenance.

Server Virtualization

- Virtual servers can be scaled out easily.

- If the administrators find that the resources supporting a virtual server are being taxed too much, they can adjust the amount of resources allocated to that virtual server

- Server templates can be created in a virtual environment to be used to create multiple, identical virtual servers.

- Virtual servers themselves can be migrated from host to host

Server Virtualization

- Pros
  - Resource pooling
  - Highly available
  - Rapidly deploy new servers
  - Easy to deploy
  - Reconfigurable while services are running
  - Optimizes physical resources by doing more with less

- Cons
  - Slightly harder to conceptualize
  - Slightly more costly (must buy hardware, OS, Apps, and now the abstraction layer)

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OS Virtualization

- Virtualization technology which work on OS layer
- Here the kernel of an OS allows more than one isolated user-space instances to exist.
- Such instances are called containers/software containers or virtualization engines.
- In other words, OS kernel will run a single operating system & provide that operating system's functionality to replicate on each of the isolated partitions.

Containers vs VMs: What's the difference?

https://www.youtube.com/watch?v=cjXI-yxqGTI
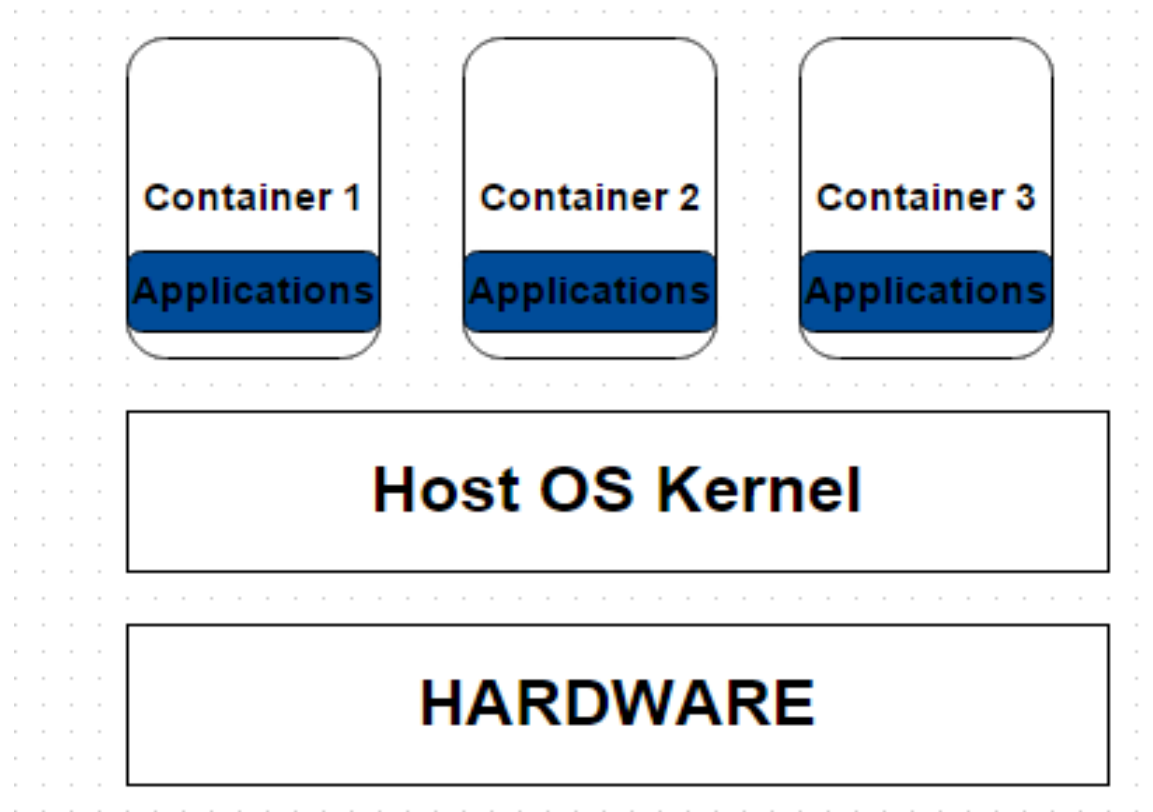
OS Virtualization

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