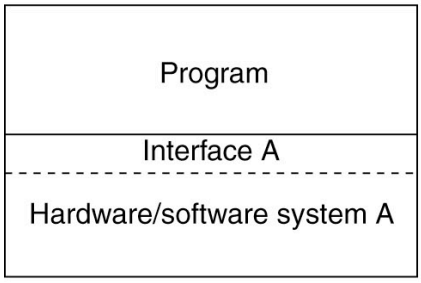
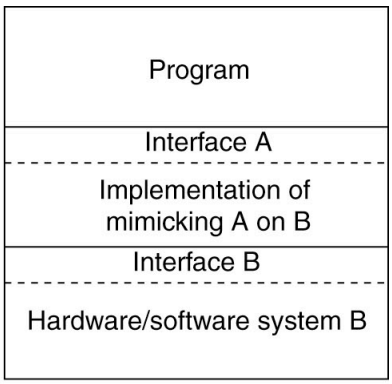
Virtualization



(a)

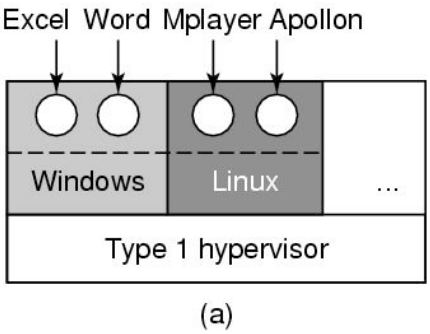
Physical interface



(b)

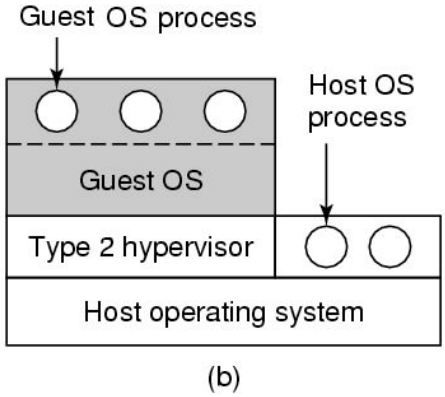
Virtualized interface

Hypervisors



(a)

Type 1 (bare metal)



(b)

Type 2 (hosted)

Virtualization Case Studies

VMware Fusion

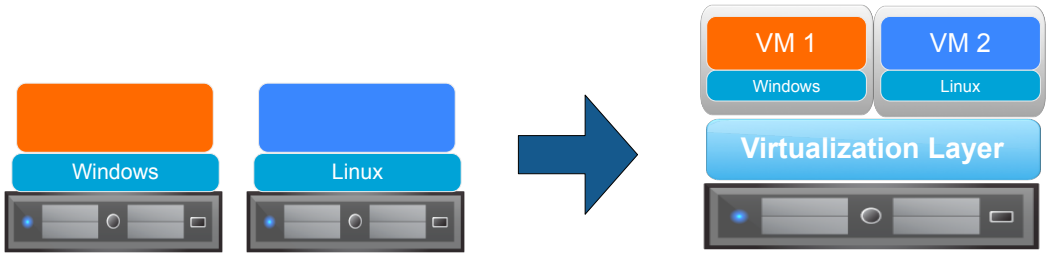
Data Centers

Google

NETFLIX

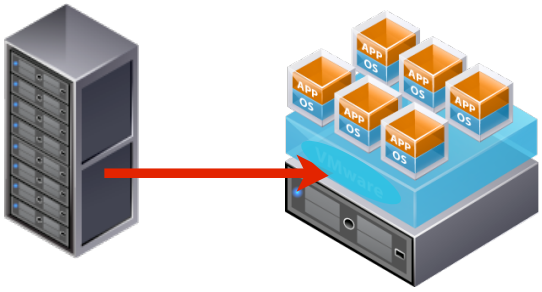
amazon.com

Server Virtualization

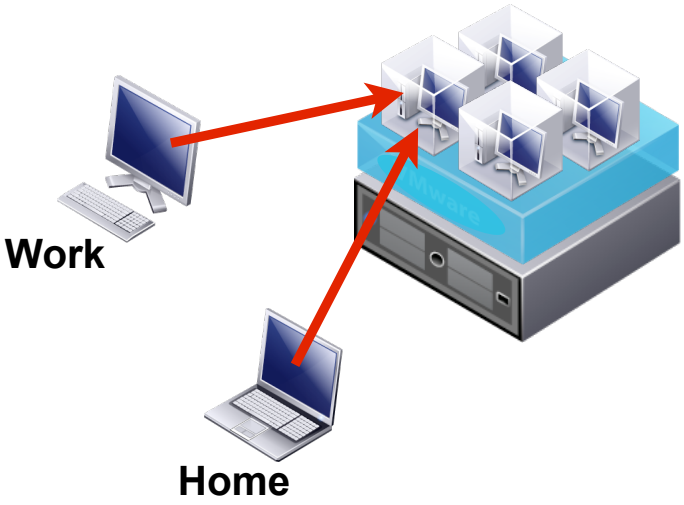


(a) before virtualization

(b) after virtualization



Desktop Virtualization



Cloud Computing

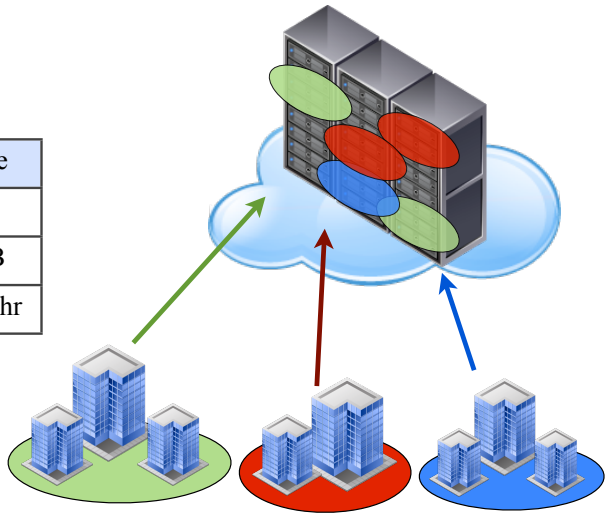
Types of Cloud Services

Software as a Service (SaaS)

Platform as a Service (PaaS)

Infrastructure as a Service (IaaS)

Amazon Elastic Compute Cloud (EC2)

	Small	Medium	Large
VCPUs	1	2	4
RAM	2 GB	4 GB	8 GB
Price	$0.02/hr	$0.04/hr	$0.09/hr

Storage	$0.10/GB per month
Bandwidth	$0.10 per GB