



vmware

Prepared by :

Tarek Mohamed Akarak

163106001

Presented to :

Prof.Dr. Hasan Hüseyin

vmware®

Outline

- What is VMware ..?
- What is Virtualization..?
- Types of Virtualization
- VMware Virtualization Architectures
- Hypervisor
- Virtualization Risks
- Techniques of VMware
 - VMotion
 - Storage VMotion
 - High Availability
- With VMware & Without VMware
- VMware Storage and Network Consolidation
- VMware Key Features



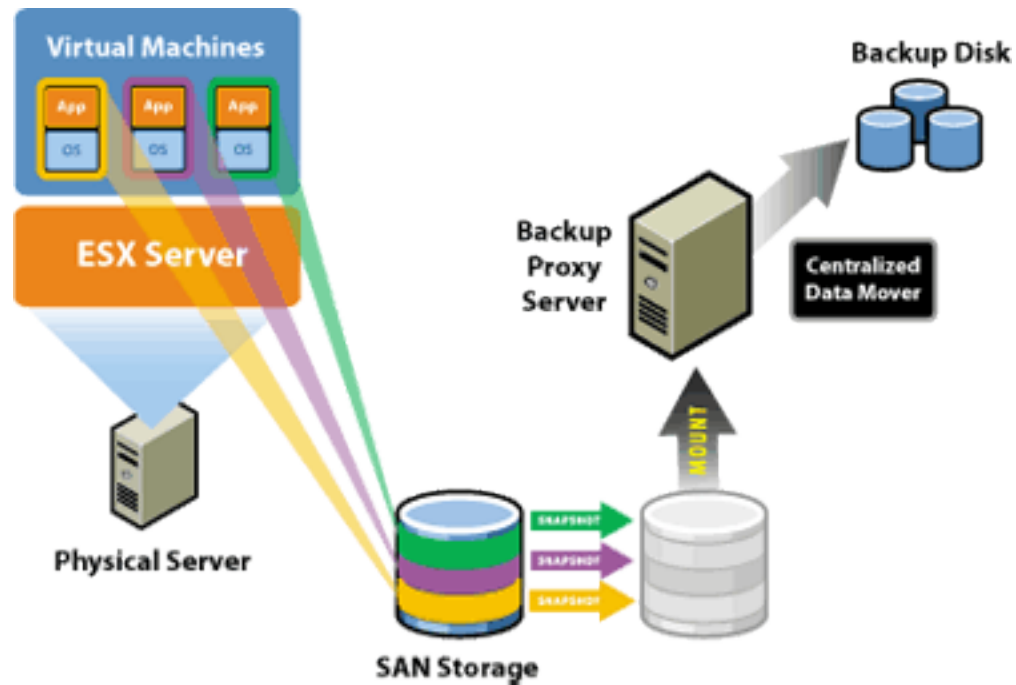
VMware



- VMware® Server is a free **virtualization** product for Windows and Linux servers with enterprise-class support. It enables companies to partition a physical server into multiple virtual machines and to start experiencing the benefits of virtualization. VMware Server is a robust yet easy to use product for users new to server virtualization technology and is based on VMware's proven technology, which has been used by thousands of customers for more than six years.
- **An infrastructure **virtualization** suite that does the following:**
 - Provides virtualization, management, resource optimization, application availability, and operational automation capabilities
 - Aggregates physical hardware resources and provides virtual resources to the datacenter VMware

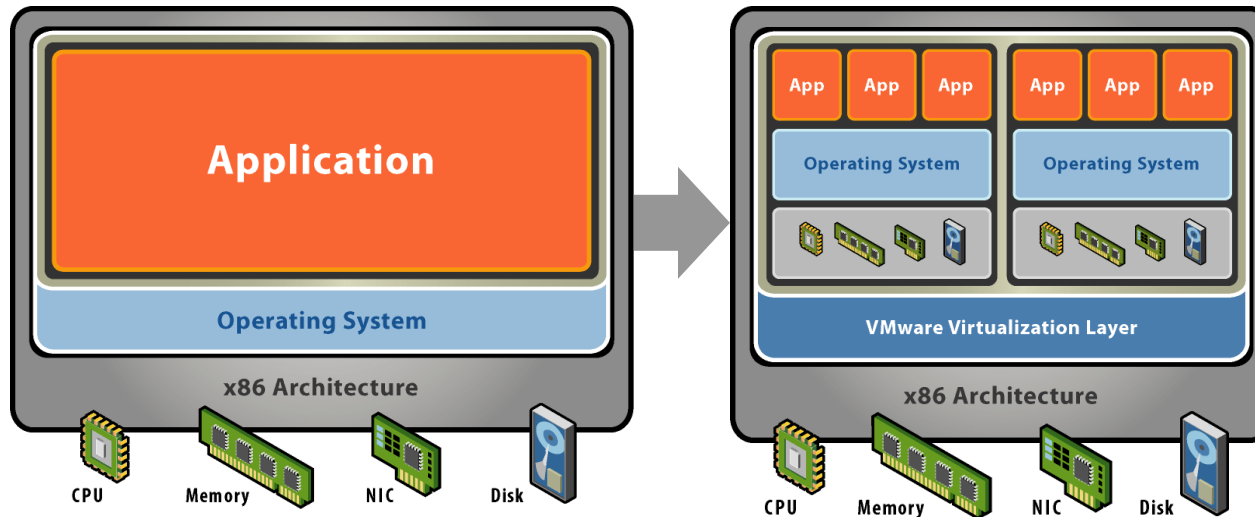
How Does VMware Server Work?

- VMware server installs and runs as an application on top of a host Windows or Linux operating system. A thin virtualization layer partitions the physical server so that multiple virtual machines can be run simultaneously on a single server.





What is Virtualization..?



- VMware provides hardware virtualization that presents a complete x86 platform to the virtual machine
- Allows multiple applications to run in isolation within virtual machines on the same physical machine
- Virtualization provides direct access to the hardware resources to give you much greater performance than software emulation

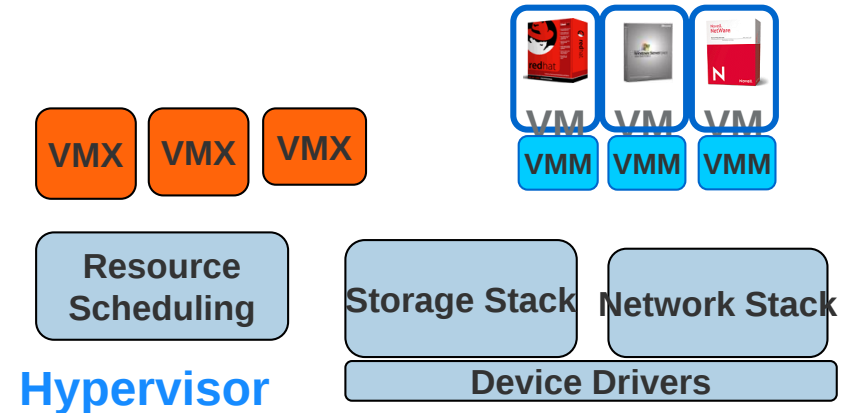
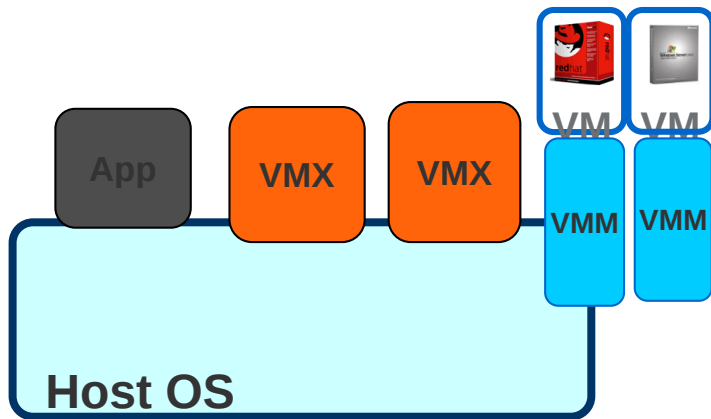
Types of Virtualization

- Desktop Virtualization
- Server Virtualization
- Network Virtualization
- Storage Virtualization
- Application Virtualization



- Business applications runs on servers located in datacenter
- Secured by design
- One / more apps runs on same set of servers
- Centralized application management
- Shared resources with maximum utilization
- Supports multimedia / memory intensive apps
- Reduces licensing cost
- Role based user access controlled by policies

VMware Virtualization Architectures



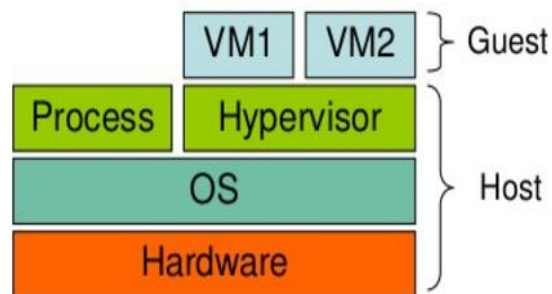
- Runs on Windows, Linux, MacOS
- Device support is inherited from host operating system
- Virtualization installs like an application rather than like an operating system

- Virtualization supported via small kernel (VMkernel)
- Highly efficient direct I/O pass-through architecture for network and disk
- Excellent management/scheduling of hardware resources

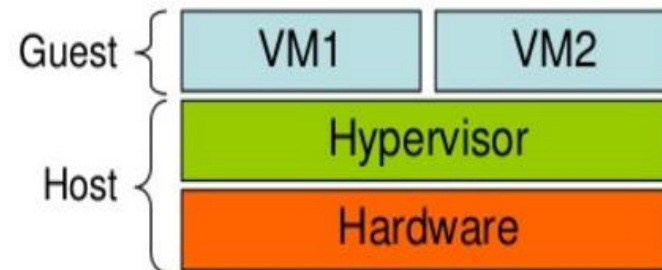


What is Hypervisor ?

- Hypervisor is a software layer sits between Hardware and OSes which will interact with hardware and resources and provide an interface to share the available resources to Virtual containers.



VMware Workstation, Microsoft Virtual PC,
Sun VirtualBox, QEMU, KVM

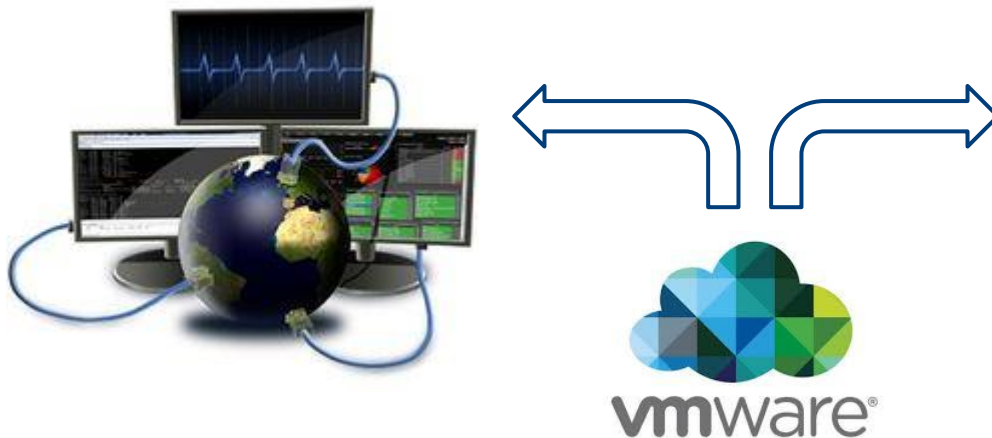


VMware ESX, Microsoft Hyper-V,
Citrix XenServer

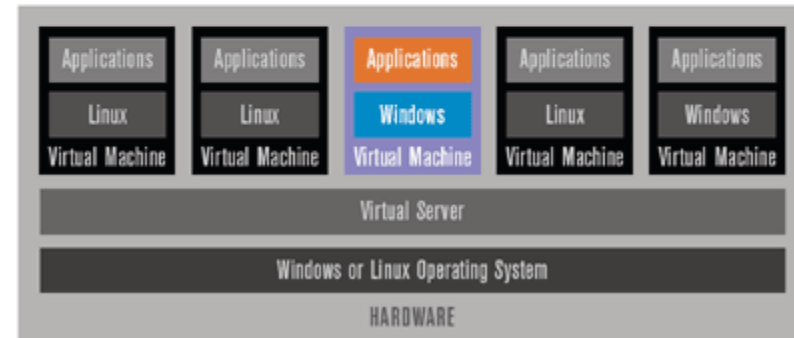
Virtualization Risks



- Failure virtualization layer
- Information loss
- Security breach in virtualization network between VM-VM
- Lack of control on administrative access and administrative tools
- IT asset tracking and management

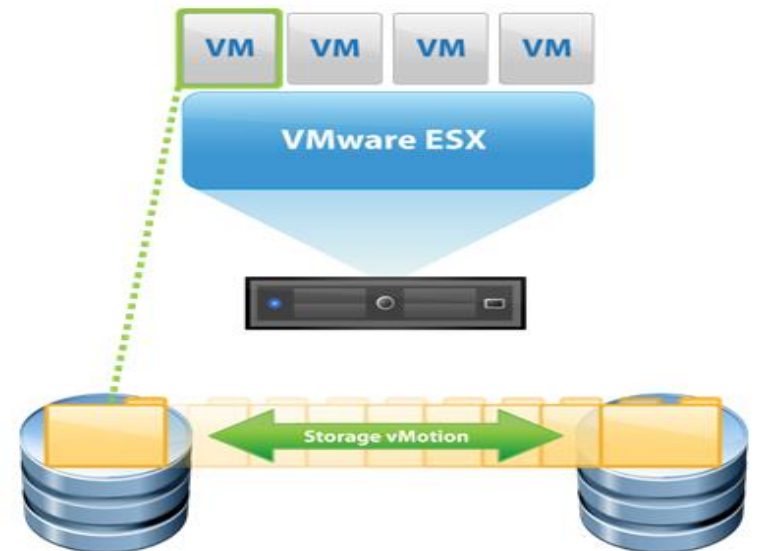


DON'T ignore the
risks of virtualization
add-on services



Techniques of VMware

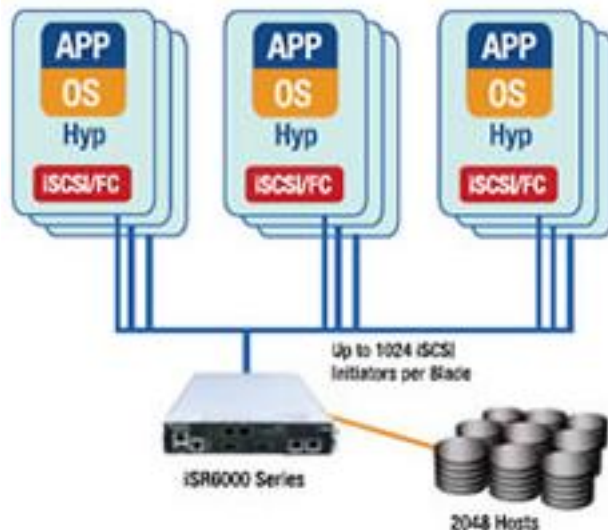
- **Vmotion** : VMotion allows you to quickly move an entire running virtual machine from one host to another without any downtime or interruption to the virtual machine .
- **Storage Vmotion** : it's allows you to migrate a running virtual machine and its disk files from one datastore to another on the same ESX host .
 - The difference between VMotion and Storage VMotion is that VMotion simply moves a virtual machine from one ESX host to another but keeps the storage location of the same VM .
- **High Availability (HA)**: Continuously monitors all hosts in a cluster and restarts virtual machines affected by a host failure on other hosts .



With VMware



- Reduced cost
- Rapid provisioning
- Flexibility & Automation

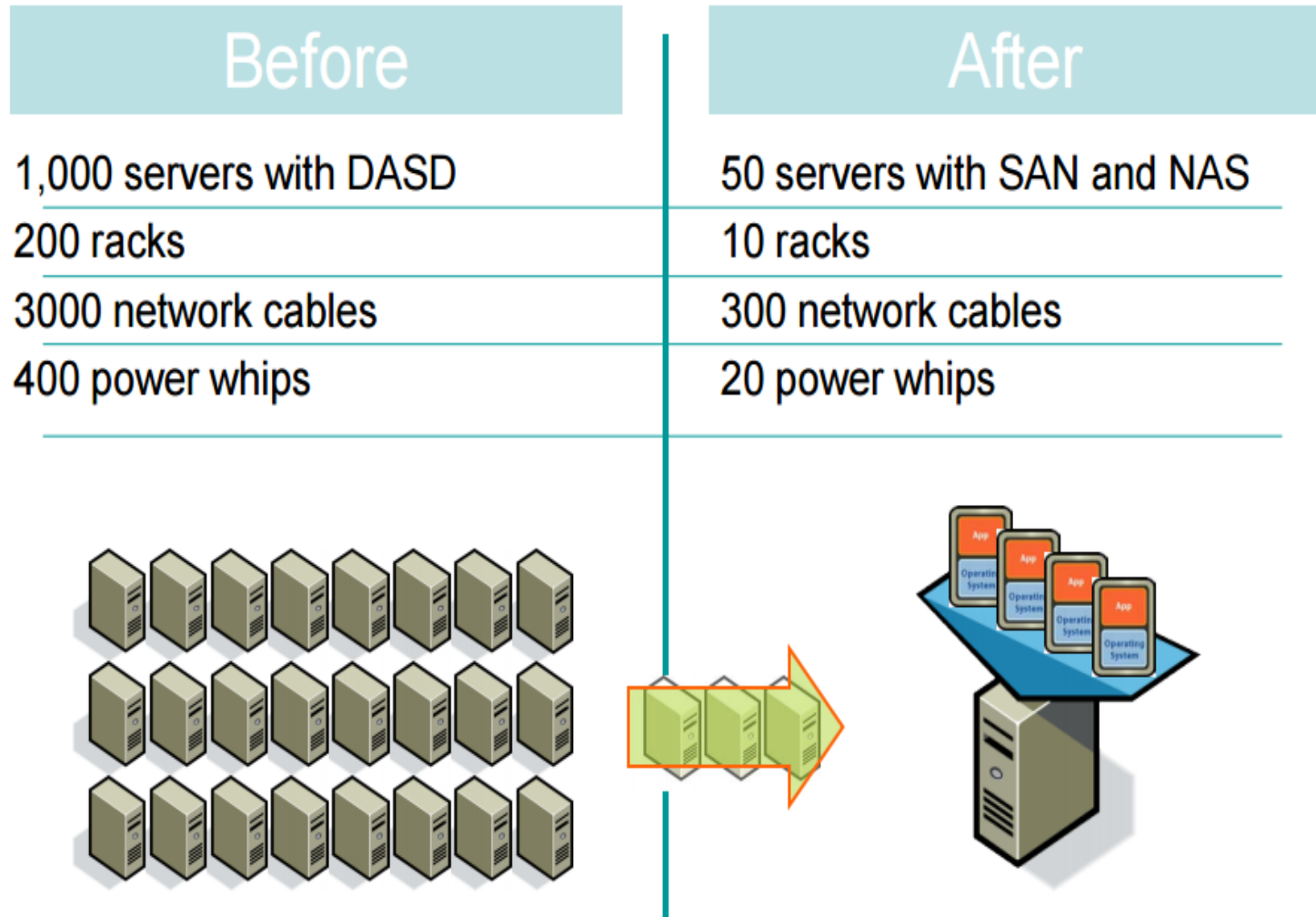


Without VMware

- All require power and cooling
- All require real estate
- Setup ,Configuration
- Maintenance ,Support



VMware Storage and Network Consolidation



Vmware Key Features



- Runs on any standard x86 hardware.
- Supports 64-bit guest operating systems, including Windows, Linux, and Solaris.
- Support for VMware Virtual Center to efficiently manage infrastructure from a central management console.
- Experimental support for two-processor Virtual SMP™.
- Experimental support for Intel® Virtualization Technology.
- Runs on a wider variety of Windows and Linux host and guest operating systems than any server virtualization product on the market.
- Support for any Windows or Linux application, including pre-built virtual appliances.

VMware Key Features Con...

- Installs like an application, with quick and easy, wizard driven installation
- Quick and easy, wizard-driven virtual machine creation
- Support for any VMware or Microsoft virtual machine format and Symantec LiveState Recovery images
- Investment protection with easy upgrade path to VMware Infrastructure and other production-proven VMware products
- Virtual machine monitoring and management with an intuitive, user friendly remote console



References

- Nanda, S., Chiueh. T. A survey on virtualization technologies 2005, <http://www.ecsl.cs.sunysb.edu/tr/TR179.pdf>
- <http://www.vmware.com>
- <http://www.vmware.com/solutions/>
- <http://www.vmware.com/vinfrastructure>
- <https://www.slideshare.net/kerneltraining/learn-vmware-online-introduction-demo>
- https://software.intel.com/sites/default/files/m/d/4/1/d/8/An_Introduction_to_Virtualization.pdf
- Wasserman, O. and Hat, R. (2013) Nested Virtualization: Shadow Turtles. KVM Forum.
- G.Cephas And A.Sari, Security Challenges of Virtualization Hypervisors in Virtualized Hardware Environment, Int. J. Communications, Network and System Sciences, 2015, 8, 260-273

