MODULE – 6

VIRTUALIZED DATA CENTER – DESKTOP AND APPLICATION

Module 6: Virtualized Data Center – Desktop and Application

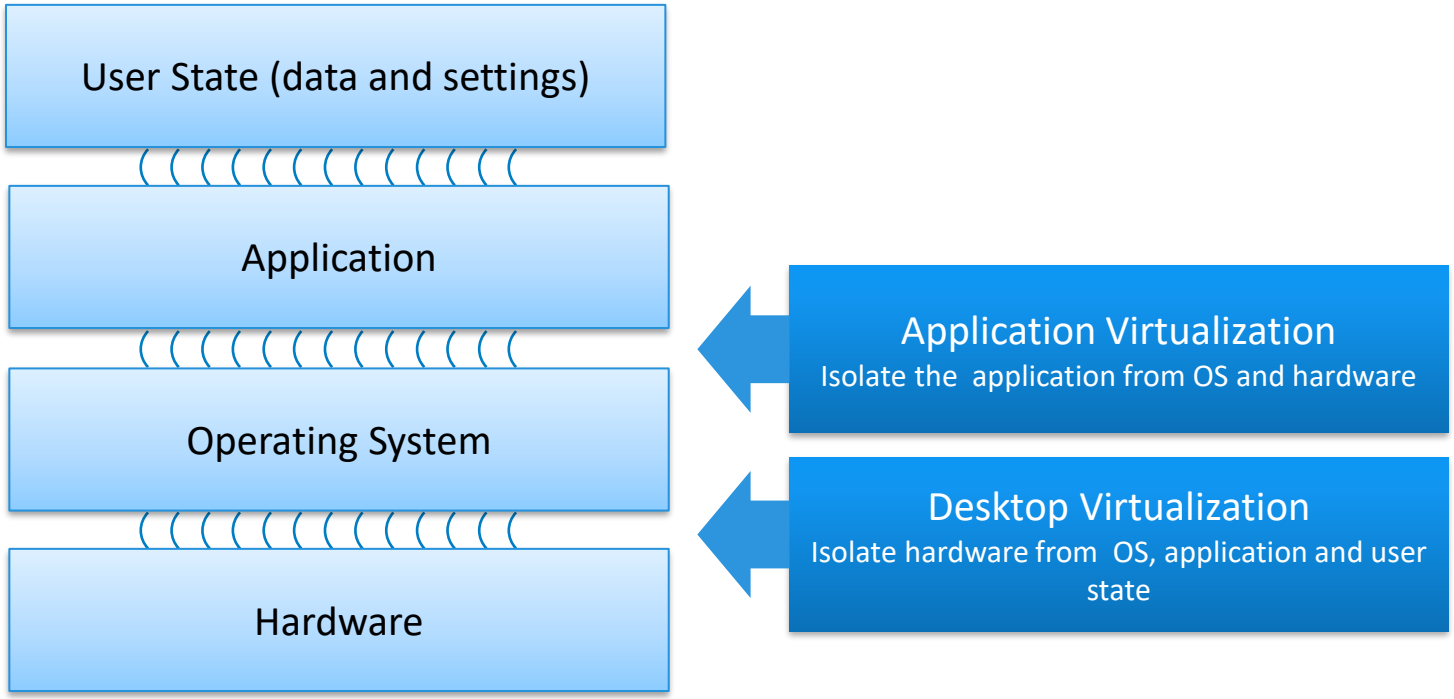
Upon completion of this module, you should be able to:

- Describe various methods for implementing desktop virtualization, their benefits, and considerations
- Describe application virtualization methods, benefits, and considerations

Overview of Desktop and Application Virtualization

Tight dependency between the layers

Virtualization breaks dependencies between the layers



Module 6: Virtualized Data Center – Desktop and Application

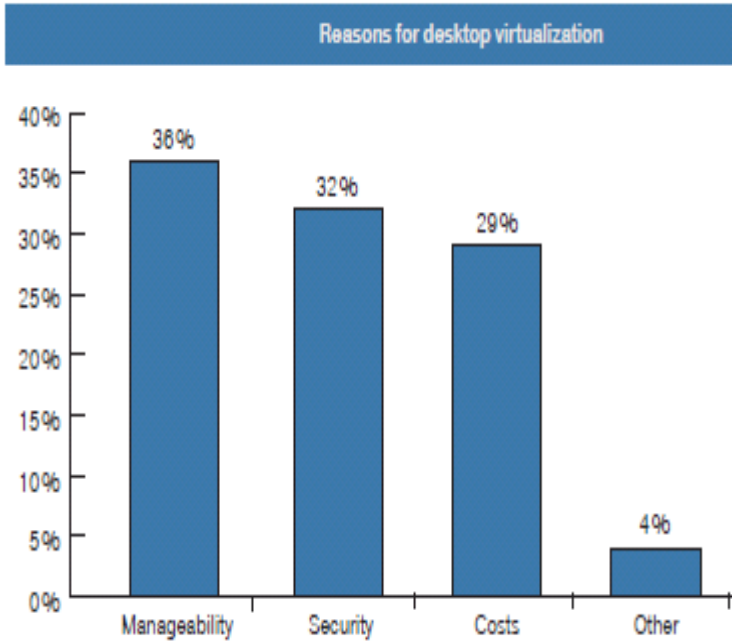
Lesson 1: Desktop Virtualization

Topics covered in this lesson:

- Desktop virtualization drivers
- Benefits of desktop virtualization
- Desktop virtualization techniques
- User state virtualization

Desktop Virtualization - Drivers

- Manageability concerns
  - Variety of hardware models, PC refresh cycles, and hardware incompatibilities
- Security concerns
  - Lost or stolen laptops/desktops
- Cost concerns



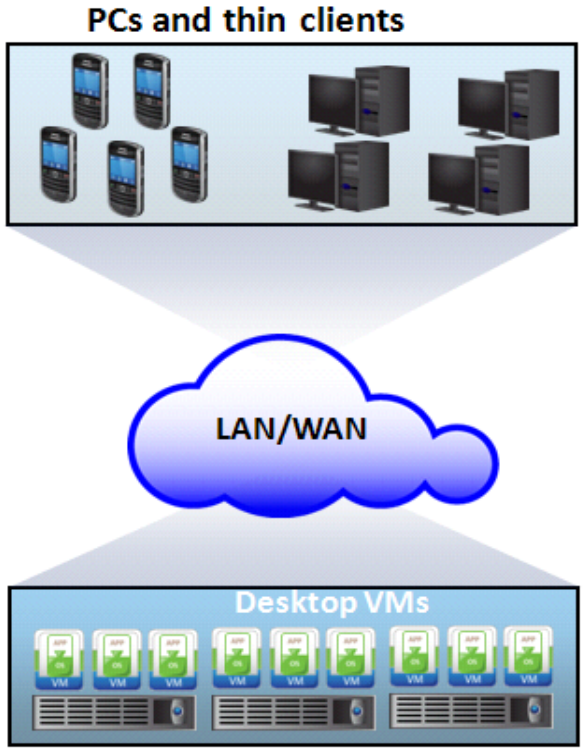
Source: Goldman Sachs, Independent Insight, US technology Strategy

Desktop Virtualization

Desktop Virtualization

Technology which enables detachment of the user state, the Operating System (OS), and the applications from endpoint devices.

- Enables organizations to host and centrally manage desktops
  - Desktops run as virtual machines within the VDC
    - They may be accessed over LAN/WAN
  - Endpoint devices may be thin clients or PCs



Overview of Desktop and Application Virtualization

Desktop Virtualization
Isolate hardware from OS, application and user state

- User can access their desktops from any computer or device that is connected to a centralized server.

- This can be achieved using a Virtual Desktop Infrastructure (VDI) that hosts user desktop environments on remote servers

- Since the resources are centralized, users moving between work locations can still access the same desktop environment with their applications and data

*http://en.wikipedia.org/wiki/Desktop_virtualization

Benefits of Desktop Virtualization

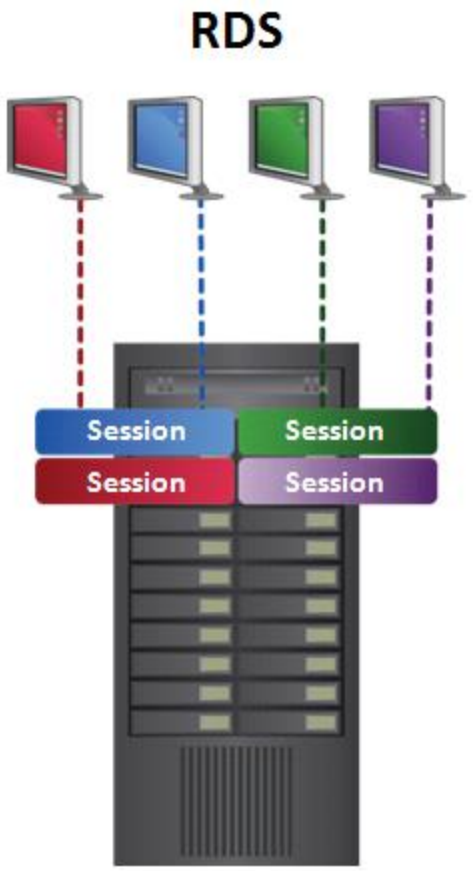
- Enablement of thin clients
- Improved data security
- Simplified data backup
- Simplified PC maintenance
- Flexibility of access

Desktop Virtualization Techniques

- Technique 1: Remote Desktop Services(RDS)
- Technique 2: Virtual Desktop Infrastructure (VDI)
- Desktop virtualization techniques provide ability to centrally host and manage desktop environments
  - Deliver them remotely to the user's endpoint devices

Remote Desktop Services

- RDS is traditionally known as terminal services
- A terminal service runs on top of a Windows installation
  - Provides individual sessions to client systems
  - Clients receive visuals of the desktop
  - Resource consumption takes place on the server

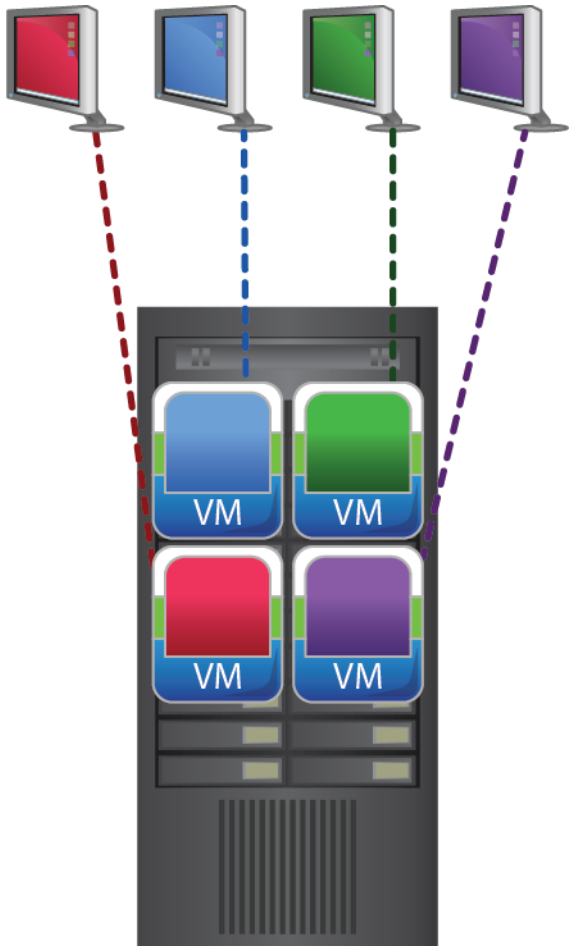


Benefits of Remote Desktop Services

- Rapid application delivery
  - Applications are installed on the server and accessed from there
- Improved security
  - Applications and data are stored in the server
- Centralized management
- Low-cost technology when compared to VDI

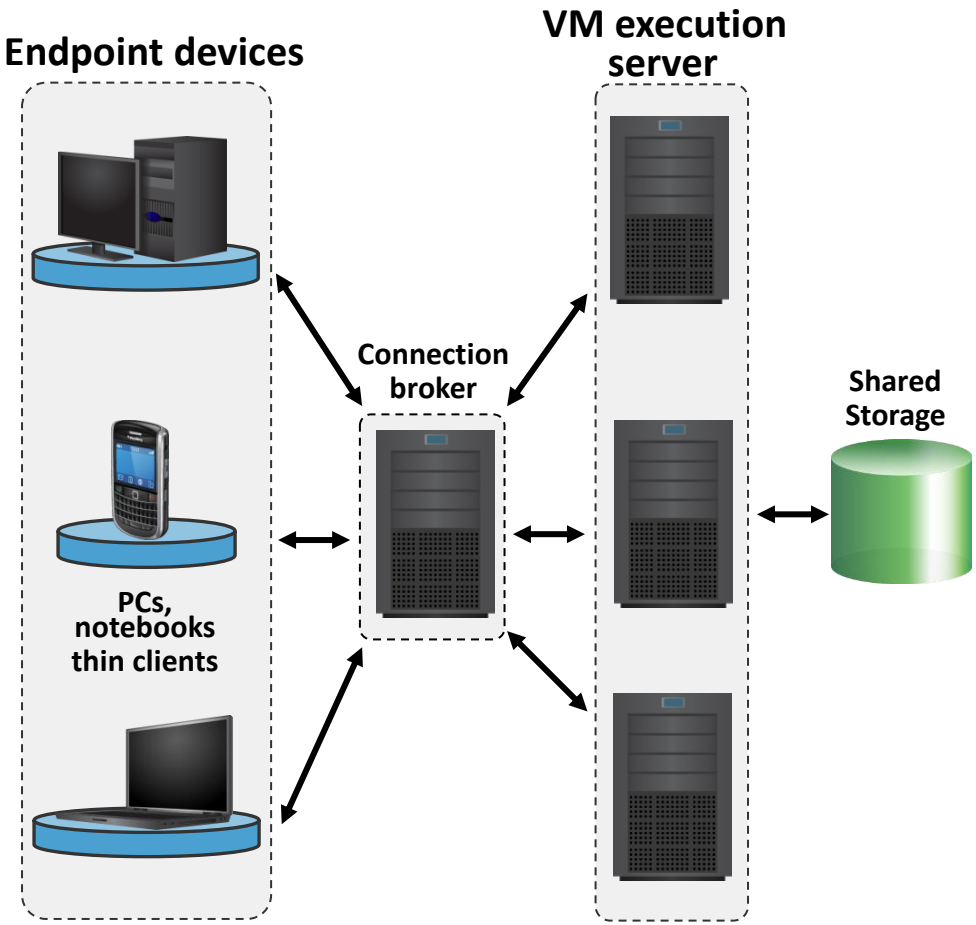
Virtual Desktop Infrastructure(VDI)

- VDI involves hosting desktop which runs as VM on the server in the VDC
  - Each desktop has its own OS and applications installed
- User has full access to resources of virtualized desktop



VDI: Components

- Endpoint devices
- VM hosting/execution servers
- Connection Broker

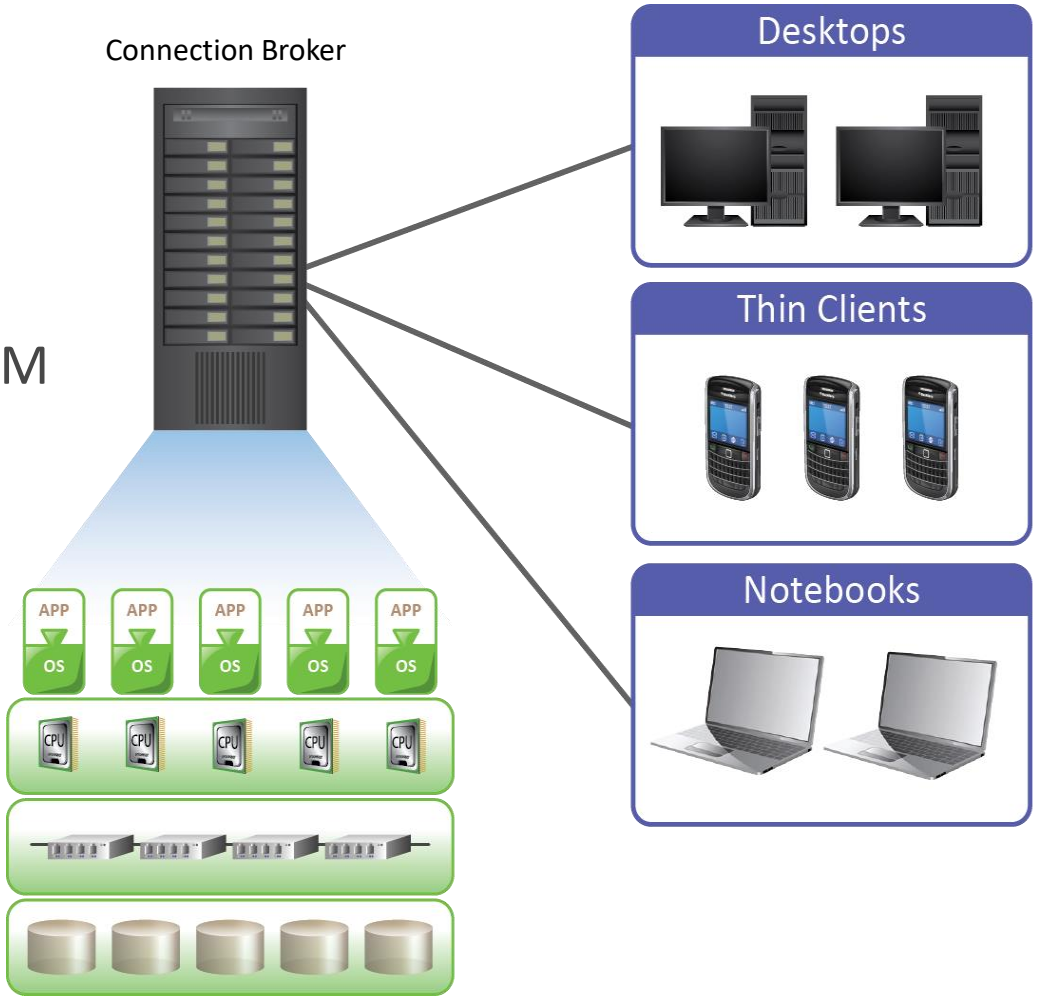


VM Hosting Servers

- VM hosting servers are responsible for hosting the desktop VMs
  - Remotely delivered to the endpoint devices
- Each VM may be dedicated to a specific user or allocated in a pool
  - A VM pool shares VMs for concurrent use by many users
- When provisioning a VM, a template or image may be used as a basis for the creation of the VM, settings, and disk

Connection Broker

- It is responsible for establishing and managing the connection
  - Between the endpoint device and the desktop VM



VDI: Benefits and Considerations

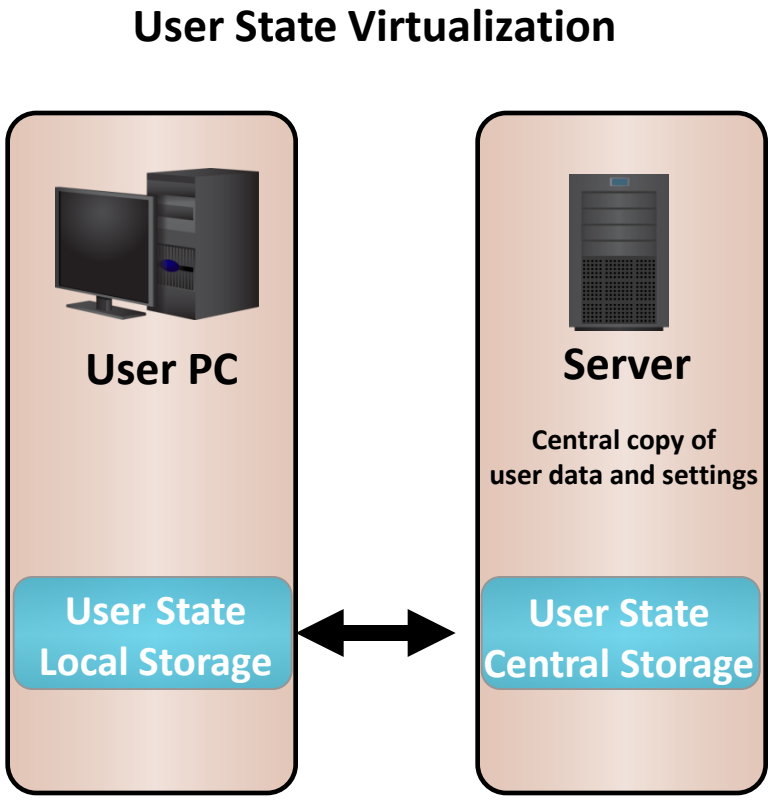
Benefit

- Centralized deployment and management
- Improved security
- Improved Business Continuity and Disaster recovery

- Considerations
  - Reliance on network connection
  - Unsuitable for high-end graphic applications
  - Requires additional infrastructure

User State Virtualization

- User state includes user's data as well as application and OS configuration settings
- User state virtualization is enabling technology for implementing desktop virtualization
- User state virtualization stores user's data and settings in a central location
- User state virtualization benefits:
  - Easier migration of user state during Operating System refresh/migration
  - Makes data available to user regardless of endpoint device



Module 6: Virtualized data center – Desktop and Application

Lesson 2: Application Virtualization

Topics covered in this lesson:

- Application virtualization deployment methods
- Benefits of application virtualization

Application Virtualization

Application Virtualization

It is the technique of presenting an application to an end user without any installation, integration, or dependencies on the underlying computing platform

- Allows application to be delivered in an isolated environment
  - Aggregates Operating System (OS) resources and the application into a virtualized container
  - Ensures integrity of Operating System (OS) and applications
  - Avoids conflicts between different applications or different versions of the same application

Application Virtualization: Deployment Methods

- Application Encapsulation
  - Application is converted into a self-contained package
    - Does not rely on software installation or underlying OS
  - Application packages may run from USB, CD-ROM, or local disk
  - Built-in agents are present within the package
- Application Streaming
  - Application specific data/resources are transmitted to the client device when the application is executed
  - Minimum amount of data (commonly between 10%-30% of the total application) is delivered to the client
    - Before the application is launched
  - Additional application features are delivered on demand
  - Locally installed agents are required to run virtualized application

Application Virtualization: Benefits

- Simplified application deployment/retirement
  - Applications are not installed
- Simplified operating system image management
  - Applications are completely separate from OS
  - OS patches and upgrades do not affect the applications
- Elimination of resource conflicts
  - Applications have their own virtual OS resources

Module 6: Virtualized Data Center – Desktop

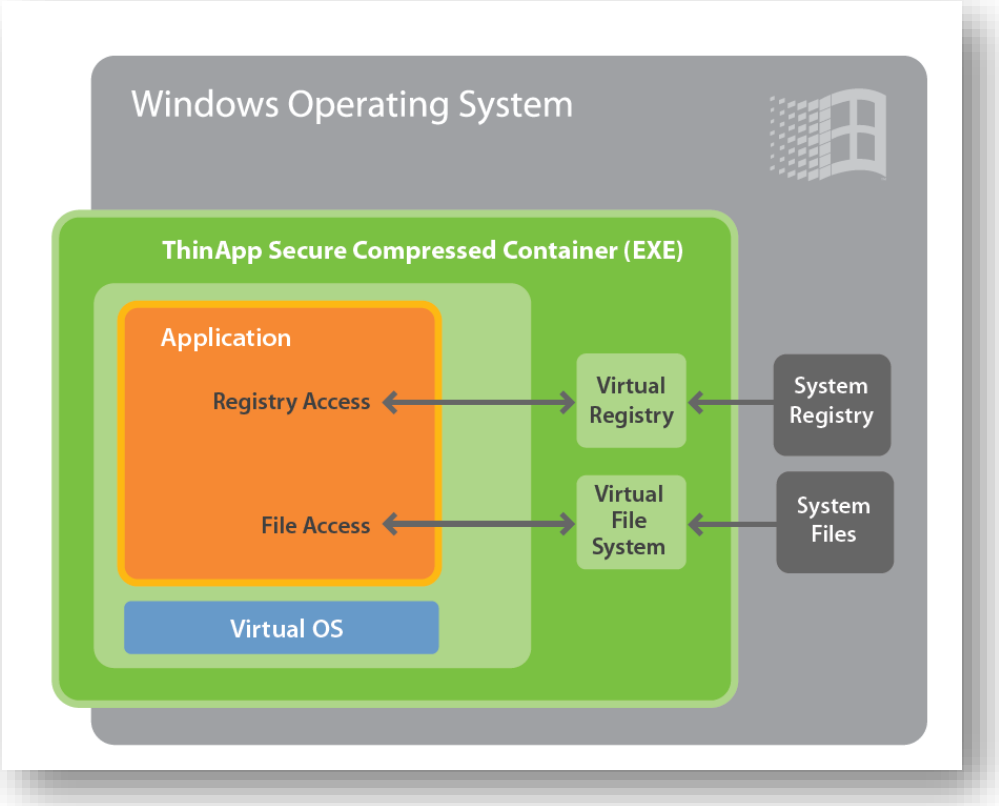
Concepts in Practice

Topics covered in this lesson:

- VMware ThinApp
- VMware View

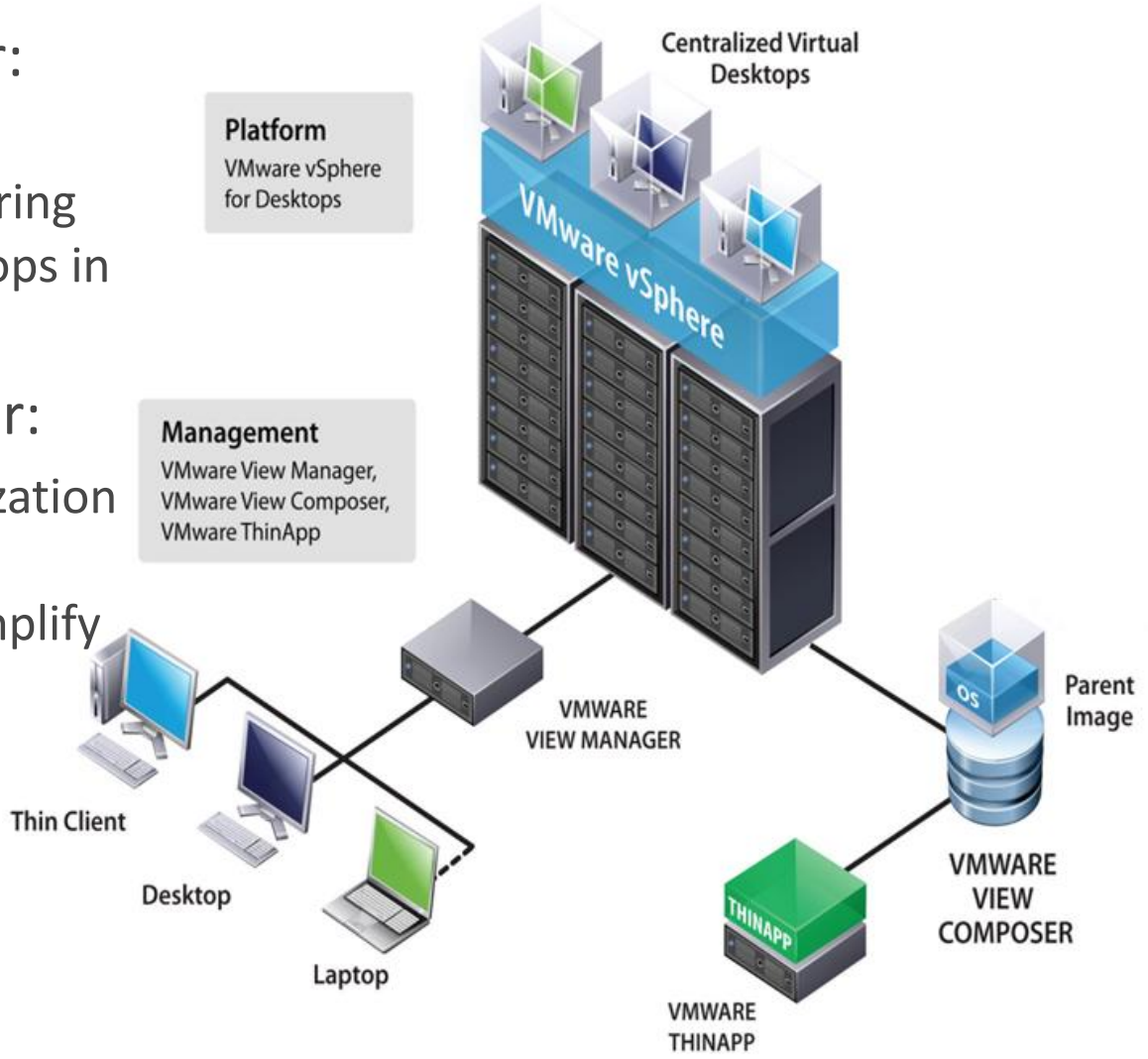
Concept in Practice: VMware ThinApp

- Links the application, Virtual Operating System (VOS), file system, and registry into a single package
- Enables applications to run directly from storage devices such as USB or network share
- Also Supports 64-bit Operating System
  - Virtualizes and runs 32-bit application on 64-bit OSs



Concept in Practice: VMware View

- VMware View Manager:
  - Provides centralized management and brokering of connections to desktops in the data center
- VMware View Composer:
  - Provides storage optimization to reduce storage requirements and to simplify desktop management



Module 6: Summary

Key points covered in this module:

- Drivers and benefits of desktop virtualization
- Desktop virtualization techniques
- Remote Desktop Services
- Virtual Desktop Infrastructure: Components
- User profile virtualization
- Application virtualization

Check Your Knowledge

1. What are the drivers of desktop virtualization ?
2. What are the benefits of RDS?
3. What are the components of VDI?
4. What are the benefits and limitations of VDI?
5. What are the two methods for deploying application virtualization?