Virtualization Architecture - Overview

Virtualization is the capability to run an application or a computer in a virtual environment without affecting the components that already exist on that particular desktop or server.

Application virtualization

Application virtualization is where a software application is packaged to run in a self-contained, virtual environment that contains all the information necessary to run the application on the client computer without installing the software application locally.

Physical environments

In a Physical Environment, all components within a Desktop are tightly bound. The Hardware, Operating System, Applications, and Users Profile/State depend on each other.

Virtual environments

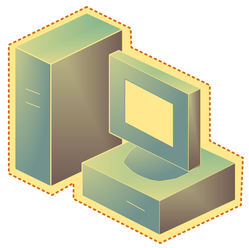
In a Virtual Environment, all the components within a Desktop can be independent of each other. With Virtualization you can choose which dependencies exist between each layer:

- Isolate and centralize the Operating System management and deployment with Desktop Virtualization
- Isolate and centralize the applications management and deployment with Application Virtualization.

Delivering a Virtual Environment

The Enterprise can deploy with one virtual delivery method or it can have multiple virtual environments in combination with each other. Below is a table that lists the virtual environments with a connected or disconnected client application, centrally managed or not.

Desktop Virtualization Virtual PC Options



Client-hosted desktop virtualization creates a separate OS environment on the desktop, allowing non-compatible legacy or line-of-business applications to operate within their native environment on top of a more current operating system, or enabling two IT environments (for example, personal and corporate) to run concurrently on the same physical device.

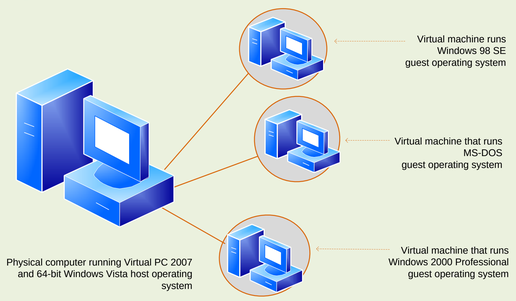
Three examples of desktop virtualization are shown to the right.

The **first** option exhibits a primary O/S with Guest Accounts, and multiple O/S.

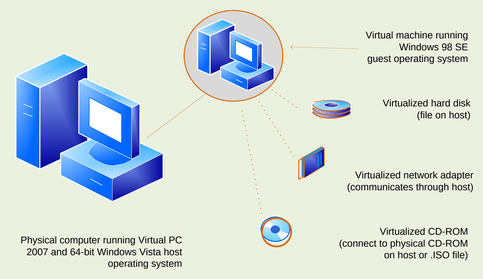
The **second** option exhibits a primary O/S with Guest Accounts, and virtualized components like CD-ROM, NIC, or HDD.

The **third** option exhibits a centralized server hosting a roaming profile with the users state, that can be accessed from multiple desktops.

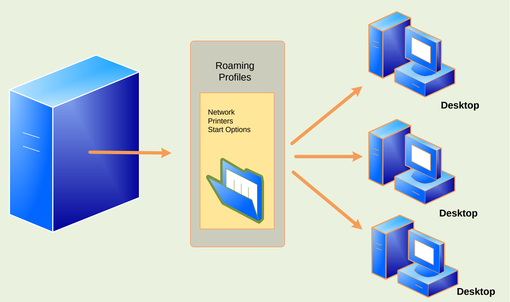
A Primary Desktop System with Guest Accounts running multiple O/S images
Host O/S = Vista



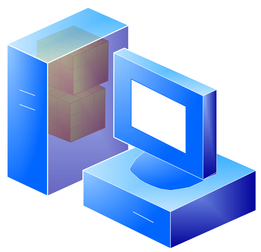
B Primary Desktop System with Guest Accounts and virtualized devices
Host O/S = Vista



C Data Center Server stores all user profiles containing user states (network/printer/start options) so that a user can log into any desktop.



Application Virtualization App-V Options



Application virtualization creates the environment where two applications can be installed on the same instance of an O/S without any incompatibility conflicts.

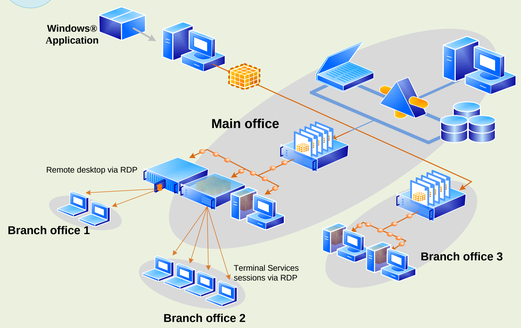
Three examples of application virtualization are shown to the right.

The **first** option shows an Enterprise architecture using Microsoft Application Virtualization (App-V) technology with a combined delivery.

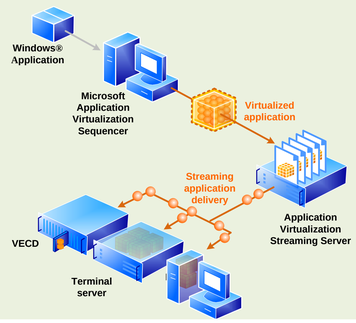
The **second** option shows a virtualized application streamed to a desktop, a terminal server, and VECD (Vista Enterprise Desktop Virtualization).

The **third** option shows a virtualized application delivered via an MSI on CD to a streaming server, to the same desktop, terminal server and VECD, as well to a mobile user.

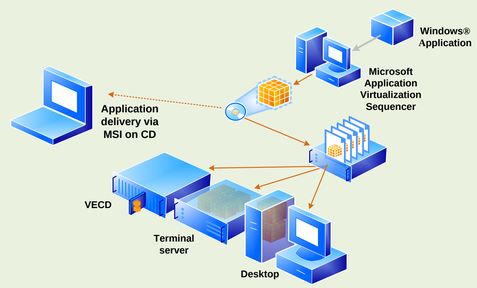
A A full virtualization infrastructure supporting multiple **connected** delivery methods of App-V managed by a system center central management server.



B A virtualized application environment delivered via a streaming server to multiple **connected** hosts.



C A virtual application environment delivered to a **disconnected** network via the MSI on CD.



Presentation Virtualization Remote Desktop Services Options

Remote Desktop Services (RDS), formerly known as Terminal Services, provides a virtual platform to run an application or an entire desktop in one location, but have it controlled in another.

With Remote Desktop Services, individual applications or an entire desktop runs off a server, rather than on the user's desktop. RDS sends screen images to the users, and the user's desktop sends keystrokes and mouse movements back the server. RDS allows clients to run applications or desktop environments that they might not have the hardware or bandwidth to support. On the server, applications and desktop environments can either run as shared sessions, or as a virtual machine environment with Virtual Desktop Infrastructure (VDI).

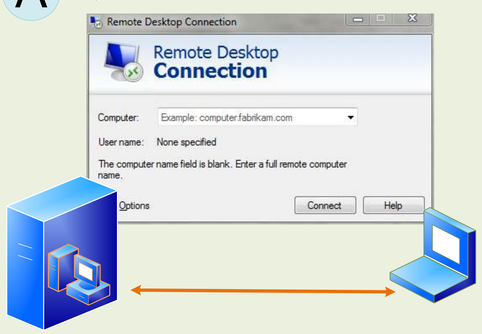
Three examples of RDS are shown to the right:

The **first** option shows Presentation Virtualization using a centralized server, where the client runs a session based experience. 100's of users can run off a single server in this configuration.

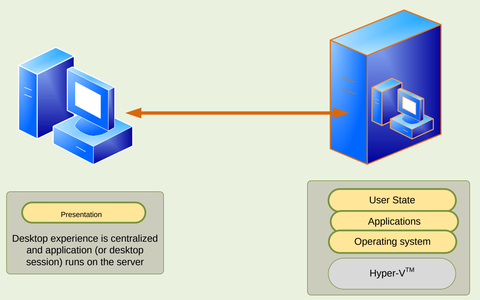
The **second** option shows Presentation Virtualization using a data center server hosting Hyper-V with a virtual desktop pool and VDI. This provides Virtual Machine isolation and independent static instance of the O/S.

The **third** option shows Presentation Virtualization using a data center server hosting Hyper-V and setup with App-V. The desktop experience is still centralized when delivered to the thin client however it is not presenting the full O/S instance, instead individual virtualized applications.

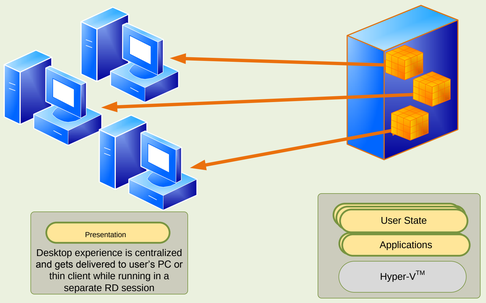
A A full client environment is virtualized within a session based to the desktop from a single server O/S.



B A full client environment is virtualized within a server-based hypervisor.



C App-V for RDS provides application-level virtualization and isolation for RDS sessions, so that conflicting applications running on a remote desktop session Host can coexist on the same RD session host.



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