

# Application and Desktop Virtualization

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# Why?

- ‡ Desktop Environment: Icon, files, wallpapers, ..
- ▣ Desktop virtualization delivers on-demand desktops to users for anytime, anywhere, any device access.
- ▣ Users have full access to their complete business desktop from multiple devices, such as their home PC, a smart phone or an iPad.
- ▣ Easy access to a virtualized desktop can help people to be more productive

# Why?

- | IT perspective:
  - | Reducing the time it takes to provision new desktop
  - Decreasing desktop management and support costs
  - Virtual desktops also provide greater security to the organization, since employees aren't "carrying around" confidential company data on a personal device that could easily be lost, stolen or tampered with
  - ...

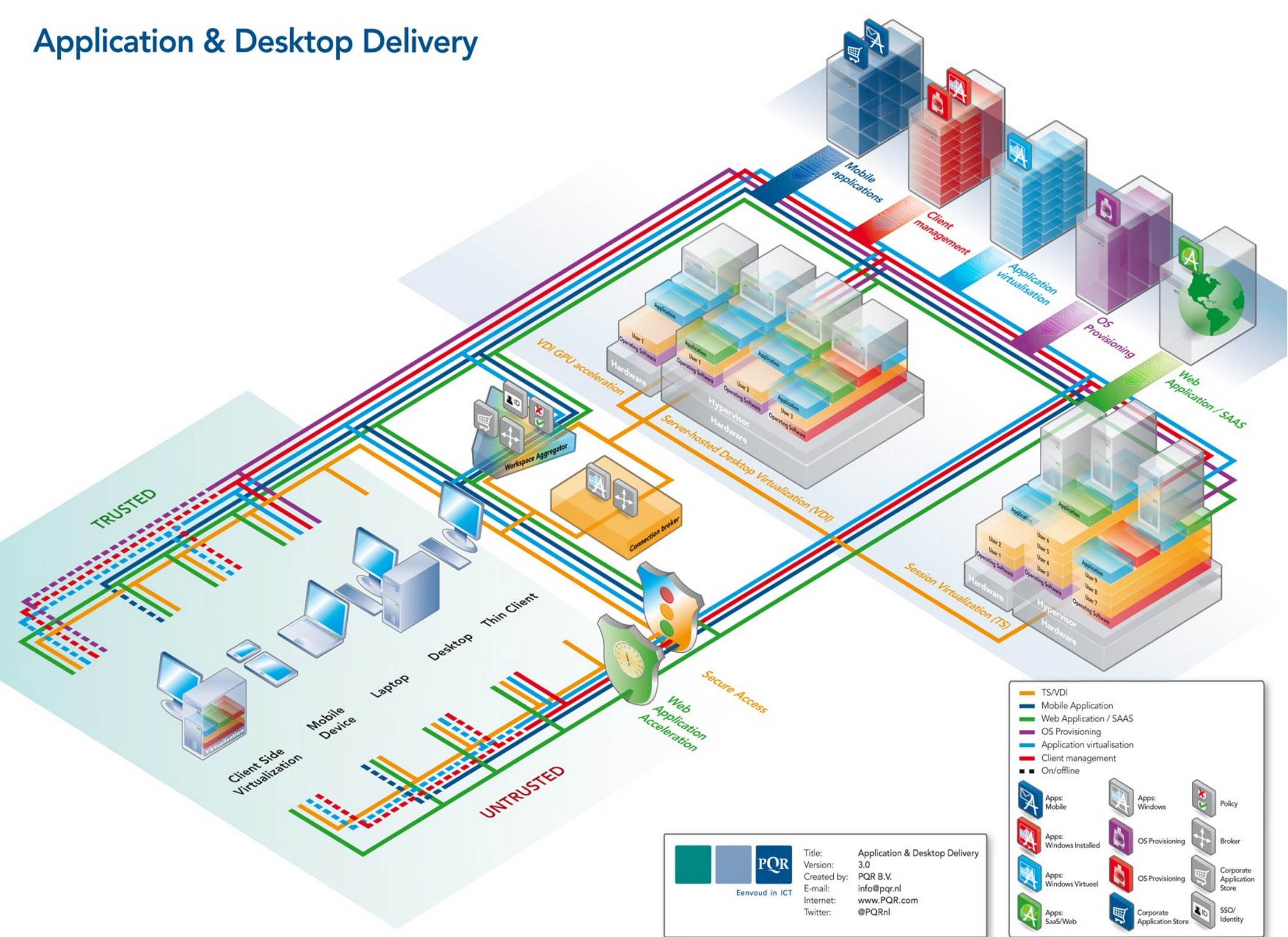
# Terms

- What is execution platform
  - System resource
  - Platform, devices,..
- How will application be made available on the execution platform
  - Installation
  - Virtualization
  - Layering

# Application and Desktop Delivery

- | Two types of vDesktop
  - | Applications are executed remotely
  - | Applications are executed locally

# Application & Desktop Delivery




 Title: Application & Desktop Delivery  
 Version: 3.0  
 Created by: PQR B.V.  
 E-mail: info@pqr.nl  
 Internet: www.pqr.com  
 Twitter: @PQRnl

Legend:  
 - TS/VDI (Yellow)  
 - Mobile Application (Blue)  
 - Web Application / SAAS (Green)  
 - OS Provisioning (Purple)  
 - Application virtualisation (Light Blue)  
 - Client management (Red)  
 - On/offline (Black dashed line)

Icons:  
 - Apps: Mobile (Blue icon with shopping cart)  
 - Apps: Windows (Grey icon with window)  
 - Apps: Windows Installed (Red icon with window)  
 - Apps: Windows Virtuel (Blue icon with window)  
 - Apps: SaaS/Web (Green icon with globe)  
 - Apps: Windows (Grey icon with window)  
 - OS Provisioning (Purple icon with document)  
 - OS Provisioning (Red icon with document)  
 - Corporate Application Store (Blue icon with shopping cart)  
 - SSO/ Identity (Grey icon with ID card)  
 - Policy (Grey icon with checkmark)  
 - Broker (Grey icon with plus sign)  
 - Corporate Application Store (Grey icon with shopping cart)

# Application Virtualization

- ▮ Virtualization is the process of decoupling layers of IT functions so that configurations of the layers become more independent of each other.
- ▮ Application virtualization is an essential and critical component for all desktop delivery solutions
- ▮ **Application:** These are the end-user focused Windows and web programs, executed on a Windows Operating System Platform.
- ▮ **Streaming:** is the process of transporting the application specific data/content as quickly as possible to the end-point. The application is quick-up-and-running where ultimately the required resources to run and use the application is being delivered to the user while the remaining data is transferred in the background.
- ▮ **Virtualization:** is a software layer that improves portability, manageability and compatibility of applications by encapsulating them from the underlying operating system on which they are executed. A virtualized application is not “installed” in the traditional sense, although it’s still executed and behaves as if it were. Virtualization isn’t emulation.



# Pros

- Applications are quickly and easy delivered.
- It is simple and easy to upgrade applications.
- The rollback to prior application versions is simple.
- There is no need to “install” applications anymore.
- Elimination of application conflicts.
- Reduce regression testing time.
- Allow multiple versions of the same application to be run simultaneously on multiple versions of Windows Operating System, greatly reducing the number of server silos.
- It stabilizes Windows user profiles.

# Cons

- Not all (Windows) applications can be virtualized
- Performance penalty of application virtualization solution.
- Different way of application packaging which can have impact on packaging tools and knowledge of packagers.
- Troubleshooting is different to deployed applications and can be challenging.

# Streaming

- | The delivery process of transporting the application specific data/resources to the end-point at the time the application is executed is called streaming
- Application is launched with amount of data: 10-30%
- Additional features of an application are delivered on demand, or 'in the background' without user intervention.

# Application Virtualization

- The process where applications are encapsulated or isolated from other applications and the underlying Windows Operating System on which they are executed is called Virtualization
- The application is executed inside the Virtual Environment

# Application Virtualization

- All resources required by the virtual application are included in the package
- The virtual application is completely separated (virtualized/isolated) from the operating system and other applications
- The virtual application cannot write to the OS file system or registry, or modify the native OS in any way. The application virtualization solution is of course able to write to specific locations to save documents etc.
- The virtual application must operate the same way as a natively installed application and provide full OS shell integration, inter-process communications, etc.

# Agent-based

- Client-based, or agent-based, application virtualization involves the use of a locally installed agent or client on the endpoint
- This agent or virtualization engine, contains functionality to setup and maintain the Virtual Environment for each application

# Agent-less

- Client-less, or agent-less, application virtualization involves the use of an embedded virtual OS that is deployed as part of the virtualized application
- VMware ThinApp and Spoon are examples of agent-less

# VENDORS AND THEIR VIRTUALIZATION SOLUTIONS

- CAMEYO
- MICROSOFT APP-V
- VMWARE THINAPP



# | CAMEYO

- | Cameyo's virtualization technology is about bringing entire application environments into one single executable that can run anywhere, and whose usage will not affect or modify your system
- The idea of Cameyo was born by thinking about how Windows applications should be like in today's era of Internet and mobility.
- Cameyo has been the first app virtualization product to offer a collaborative cloud-based apps library. They have also invented online virtual app packaging and editing.
- here are
- three different versions of the solution available. Free, Enterprise and Developer

# MICROSOFT APP -V

- Microsoft Application virtualization (App-V) transforms applications into centrally-managed virtual services that are never installed and don't conflict with other applications.
- App-V streams applications on-demand to desktops, servers and laptops.

# VMWARE THINAPP

- The most recent release, ThinApp 5.0, introduced support for 64bit applications
- Application virtualization encapsulates the applications from the OS.
- Eliminating costly regression testing and conflicts from badly behaving applications
- Deploy virtualized applications in user mode, without administrative rights

# Desktop Virtualization

- Virtualization is the process of decoupling layers of the Desktop, the OS and the Applications from the physical client device that is used to access it.
- Making Windows, Web and Mobile applications available to the end-user, regardless of the technology being used, is an important strategic objective of an advanced IT infrastructure

# Type of vDesktop

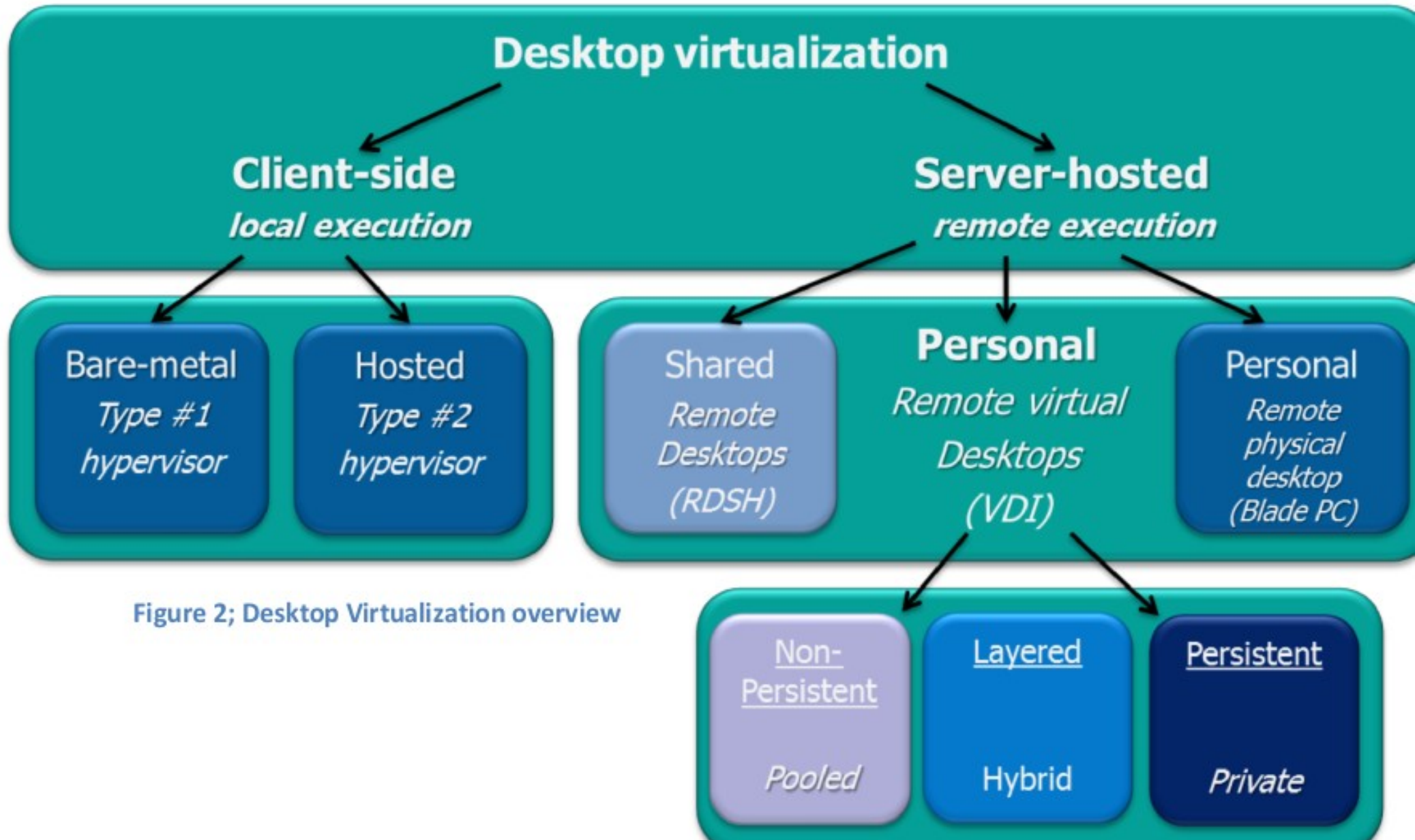


Figure 2; Desktop Virtualization overview

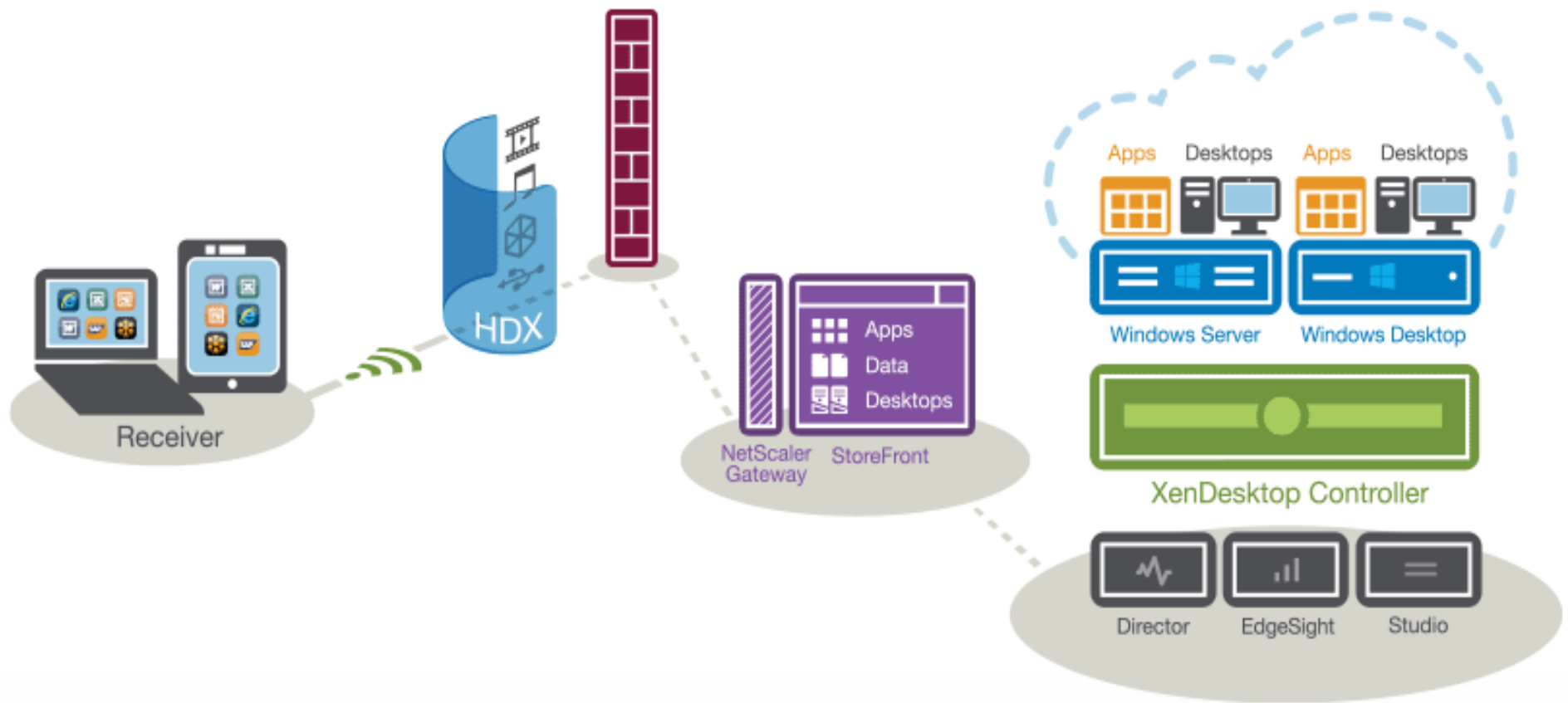
# WORKSPACE AGGREGATION

- The term Workspace Aggregator is used to describe software that unifies the delivery of multiple application or desktop types such as:
  - Native mobile applications
  - Software as a Service (SaaS) applications
  - Mobile web applications
  - Windows Applications via application virtualization or installation
  - Desktops, local, server Hosted Virtual Desktops (VDI) or published Desktops in SBC

# Vendors and their solutions

- CITRIX XENDESKTOP
- MICROSOFT RDVH - VIRTUAL DESKTOP INFRASTRUCTURE
- VMWARE VIEW

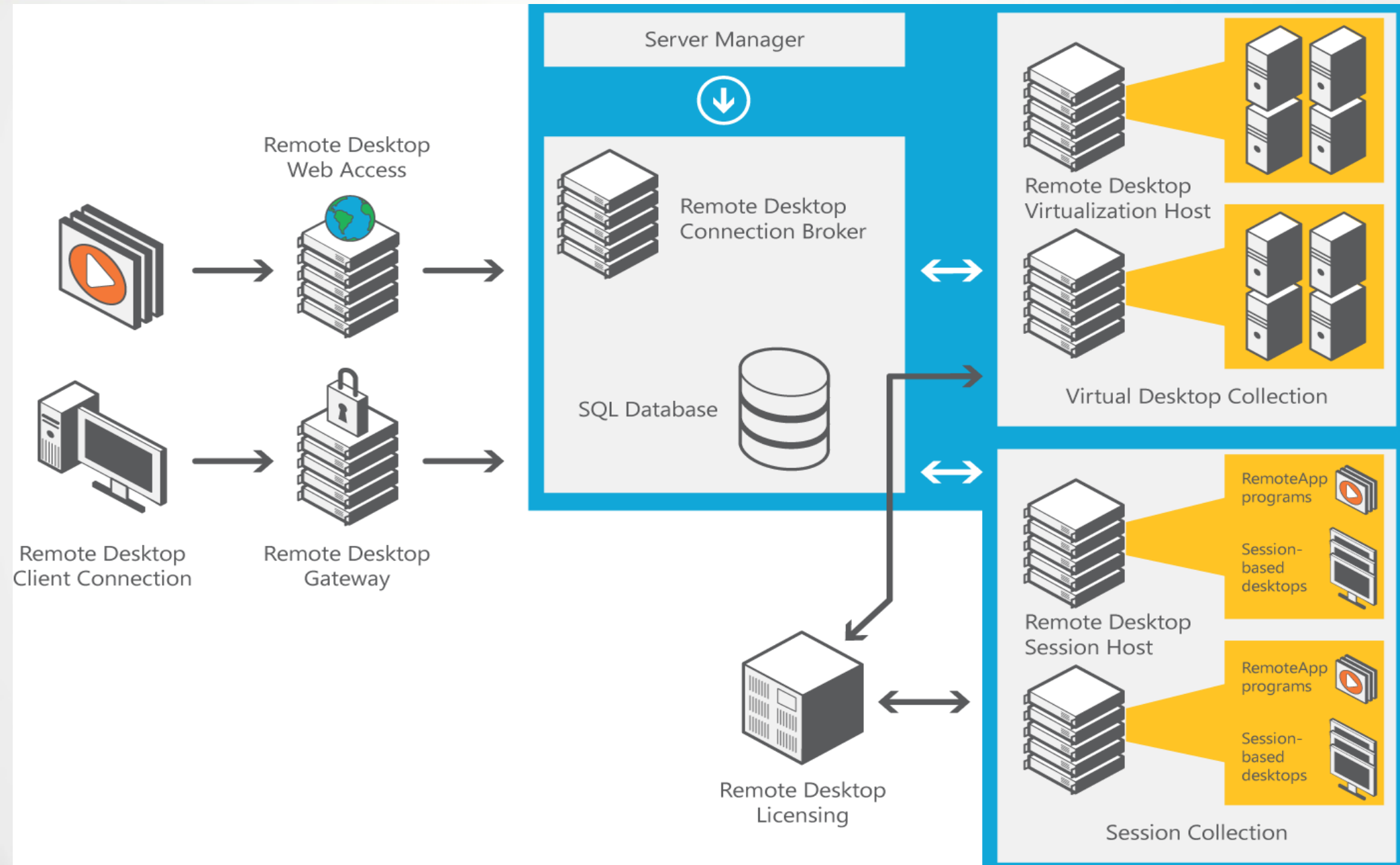
# CITRIX XENDESKTOP



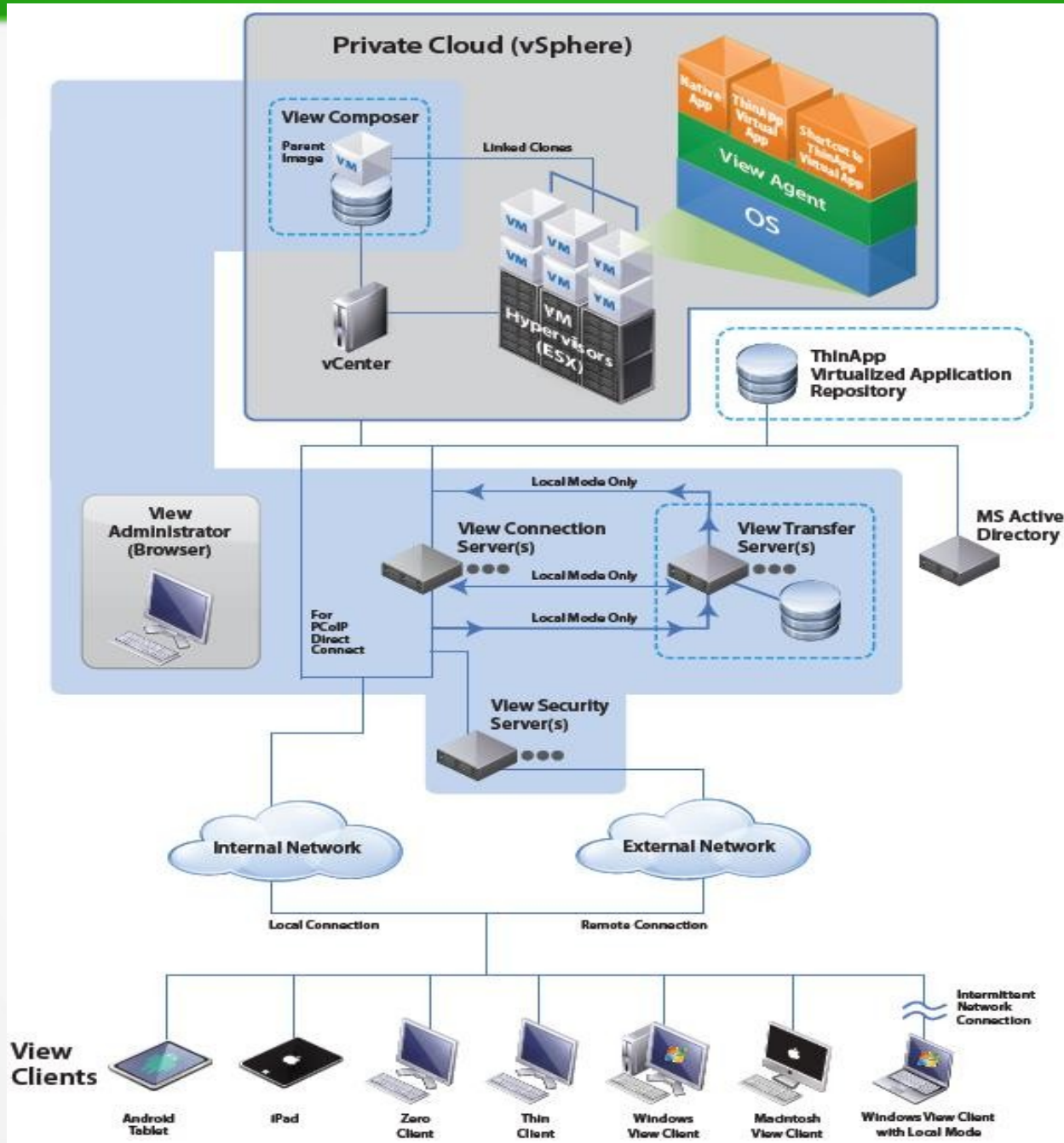
XenDesktop



# ▯ MICROSOFT RDVH



# VMWARE VIEW



# OPEN VIRTUAL DESKTOP

## Ports and Protocols

