



VMware View™ 4 with PCoIP

INFORMATION GUIDE

Table of Contents

VMware View 4 with PCoIP	3
About This Guide.....	3
Desktop Virtualization and the Display Protocol.....	3
PCoIP: A Purpose Built Protocol.....	3
What is Unique About PCoIP?	4
The PCoIP User Experience.....	5
PCoIP Integration with VMware View.....	6
PCoIP and Endpoints.....	6
PCoIP and the Network.....	6

VMware View 4 with PCoIP

Support for the software version of the PCoIP protocol with VMware View™ 4 provides end users with a dramatic improvement in user experience across a wide variety of tasks and end point locations. The addition of this display protocol is the result of a co-development effort between VMware and Teradici, the inventors of the PCoIP protocol with proven hardware solutions that serve some of the most demanding customer environments. VMware View customers will be able to take advantage of the PCoIP protocol to deliver virtual desktops across the LAN and WAN, for usage scenarios that span from task-based users to designers with demanding 3D requirements. VMware View with PCoIP provides IT organizations with a single point of management and a flexible deployment model to deliver the best user experience and an increased return on investment.

About This Guide

This information guide provides a review of the functionality of VMware View with PCoIP, solution requirements, and network characteristics. Also described are the different modes of deployment and benefits in terms of user experience.

Please see the [VMware View Architecture Planning Guide](#) or the [VMware View Administrator's Guide](#) for more detailed information and the specifics of implementation.

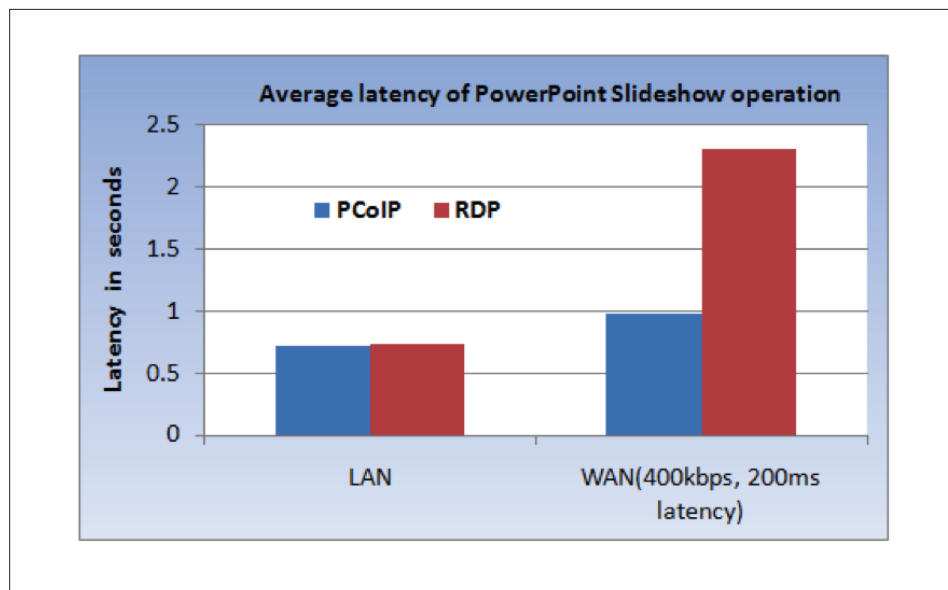
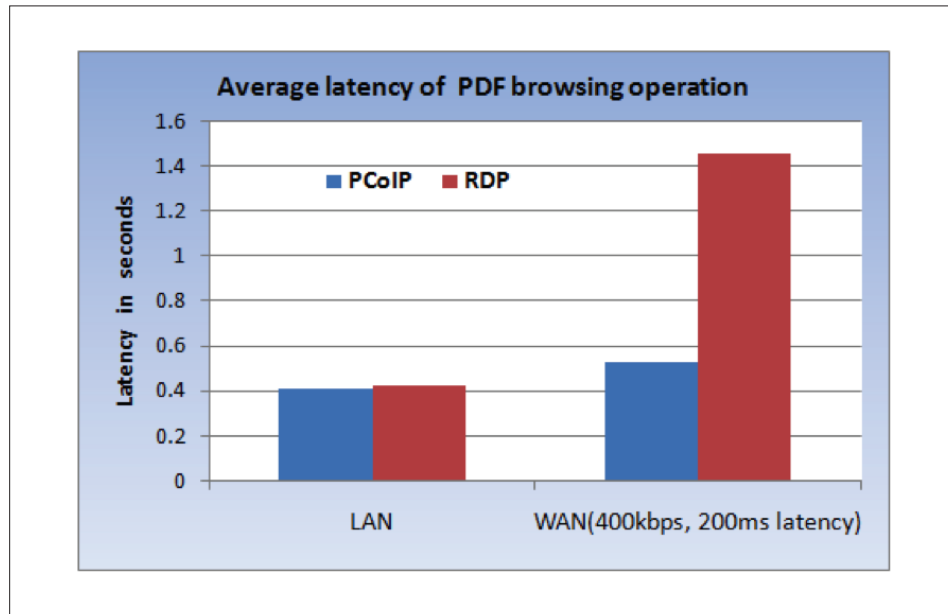
Desktop Virtualization and the Display Protocol

Desktop virtualization aims to reduce the total cost of ownership (TCO) for desktop management, while providing an equivalent or better end-user experience to what is available with a physical PC. The VMware View approach to desktop virtualization includes managing virtual machines in the datacenter and eventually on local devices through the client virtualization platform.

For desktops hosted in the datacenter, the screen, keyboard, and mouse must be 'displayed' to a remote endpoint. The display protocol performs this function and is one of the primary factors defining the quality of the end-user experience when performing functions such as moving application windows, scrolling through documents and accessing rich media content. IT organizations have historically faced challenges when using traditional display protocols to try to deliver a full fidelity experience to end-users. These challenges have therefore reduced the reach and limited the possible use cases for desktop virtualization in most organizations. The introduction of VMware View with PCoIP delivers a rich user experience over any IP network—thus addressing more use cases and accelerating the adoption of desktop virtualization solutions.

PCoIP: A Purpose Built Protocol

VMware View with the PCoIP protocol was designed to deliver an uncompromised desktop experience to a broad set of users with a single protocol over the LAN and WAN. To meet this objective, the protocol approaches the task of delivering the virtual desktop differently than other display protocols. The vision from the beginning was to deliver a rich desktop experience, made up of content such as application windows, web pages, graphics, text, streaming video, and audio. To deliver on this vision, PCoIP was architected to recognize different types of content and then use different compression algorithms based on the content type. Recognizing that the desktop is a composite of different content types resulted in a display protocol ideally suited to deliver on the promise of a rich user experience. PCoIP delivers a much improved experience to end-users accessing virtual desktops across the WAN when compared to legacy display protocols such as RDP. The graphs below compare PCoIP to RDP and show a more than 50% reduction in display latency for the common operations of manipulating presentations and scrolling through lengthy PDF documents.



What is Unique About PCoIP?

Progressive Build

Progressive Build's unique rendering approach works to provide the best overall user experience even under constrained network conditions. Progressive Build will provide a highly compressed initial lossy image, which is progressively built to a full lossless state, while text is always displayed using a lossless compression. PCoIP uses highly efficient encoding based on content and adaptive network management to build in graphics according to the bandwidth characteristics in real time. This allows the desktop to remain responsive and display the best possible image during varying network conditions.

Flexible Deployment with Software and Hardware Options

It is common for customers to approach the virtual desktop with a range of use cases with different requirements. For example, 3D designers have the most demanding requirements for a productive desktop environment while the workloads of the task-based user is less demanding. Both of these use cases also have different cost-justification models. VMware View with PCoIP offers flexible deployment options, which range from software to hardware on both the client side and the host. A customer can choose to use a hardware enabled PCoIP portal to connect to a blade workstation, which will result in the best possible performance. For task-based users, the VMware View client provides software based PCoIP to connect to a virtual desktop, which provides the best economy of scale. VMware View provides customers the capability to pair the demands of users with a range of software to hardware options on both the client and server side to address the needs of users with the appropriate implementation. See Figure 1 below for deployment options.

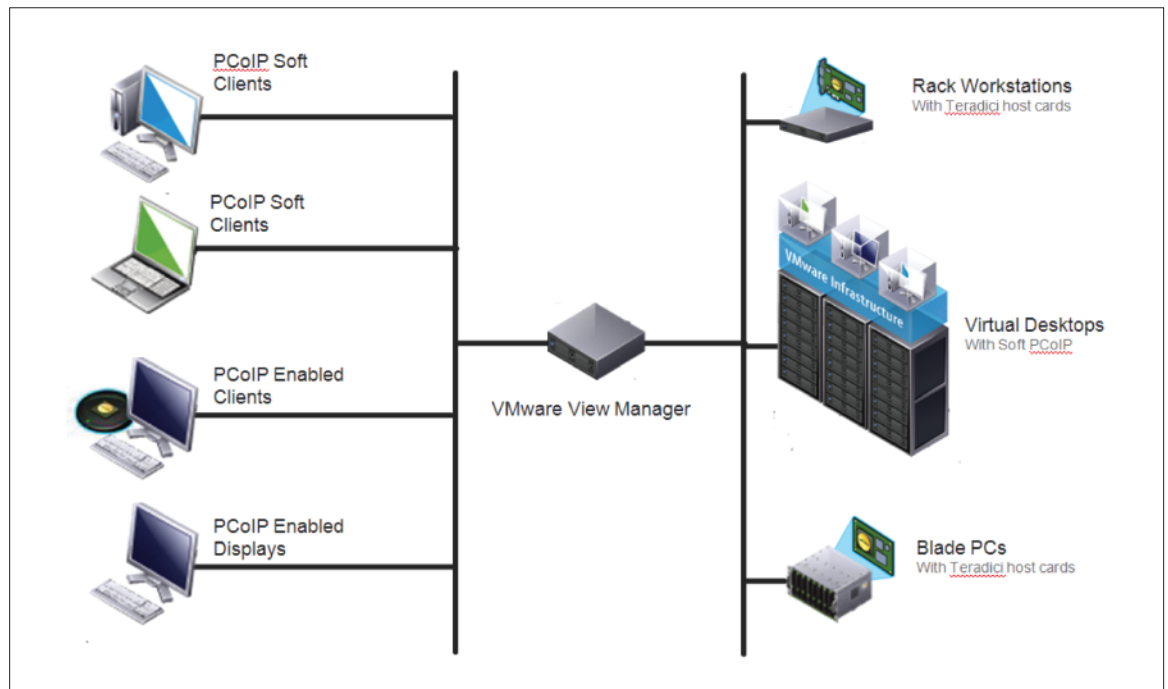


Figure 1. Flexible Deployment with PCoIP

The PCoIP User Experience

The PCoIP protocol allows IT organizations to present a rich desktop experience to the end-user, which makes use of multiple monitors, audio, video, and local peripherals. The following features characterize this experience:

- True Multi-Monitor support. Up to 1920 x 1200 resolution, clear-type fonts, and 32bit color per monitor for up to 4 monitors.
- Auto Display scaling, dynamic resizing, and support of monitor pivoting to accommodate users who continue their session between machines with different monitor set ups.
- Multimedia redirection for content in WMV, WMA, AC3, MP3, MPG-1, MPG-2, and MPG-4-part2.
- USB support for Human Interface Devices (HID), Mass Storage Devices, printers, scanners, and Isochronous devices.
- Support for host-based rendering of Flash with administrative controls for quality and bandwidth consumption.
- Bi-directional audio of recording quality for dictation or transcription needs.

PCoIP Integration with VMware View

VMware has integrated the PCoIP protocol into the VMware View Client and the View Agent while still providing backward compatibility for RDP and RDP virtual channels. The diagram in Figure 2 illustrates the architecture.

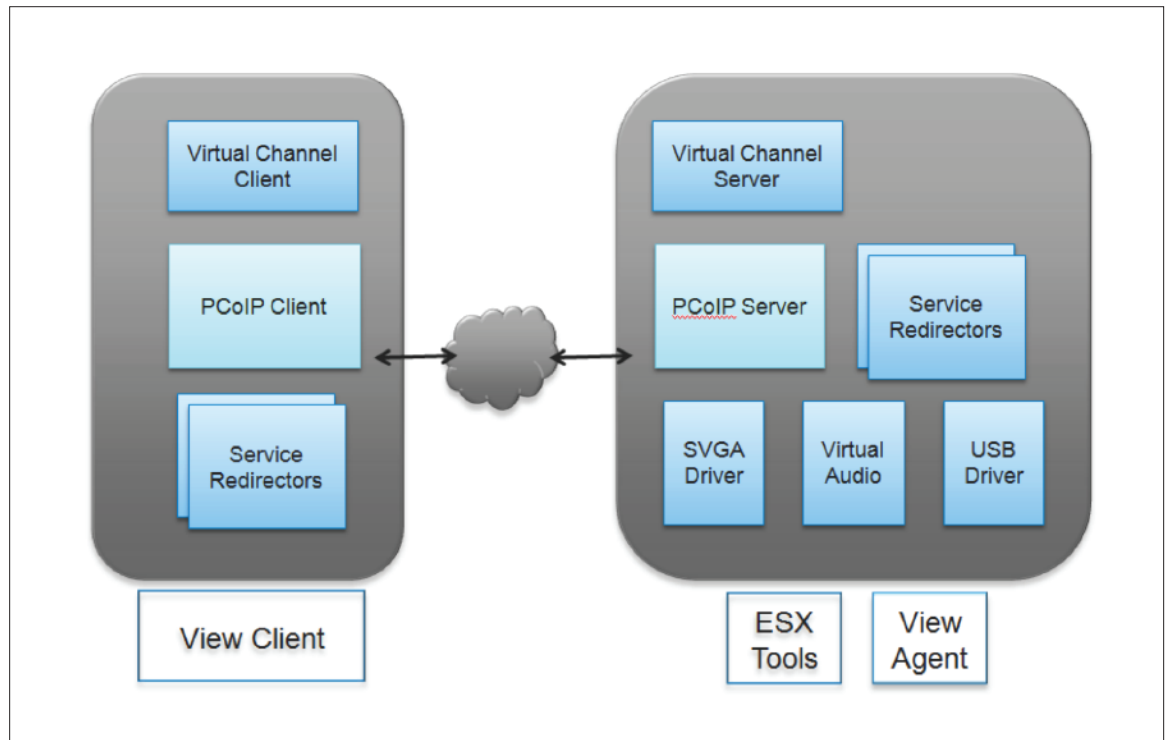


Figure 2. VMware View with PCoIP Architecture

PCoIP and Endpoints

VMware View will support both software and hardware based endpoints. Software endpoints will use the PCoIP functionality in the VMware View Client for Windows and Linux, whether on a full PC or a traditional thin client. For hardware-based endpoints, 'Zero Clients' will provide PCoIP functionality in the firmware leveraging Teradici chips for the most demanding users. These 'Zero Clients' have no local operating system so they offer both the highest performance with native PCoIP firmware and the least cost of ongoing management. The following location provides a dynamic updated list of the supported HCL for VMware View.

<http://www.vmware.com/resources/compatibility/search.php?deviceCategory=software>

PCoIP and the Network

The software implementation of PCoIP uses TCP and UDP over port 50002. The TCP port is used for session establishment and control while the UDP port can be leveraged for optimal performance of media and streaming content. The PCoIP protocol can tolerate high latency and low bandwidth and still deliver a responsive desktop experience. The adaptive network management functions within the protocol address quality of service controls and configuration. The display stream is encrypted with 128bit AES and when used in its hardware implementation can use AES or Salsa20.

