LEADTEK
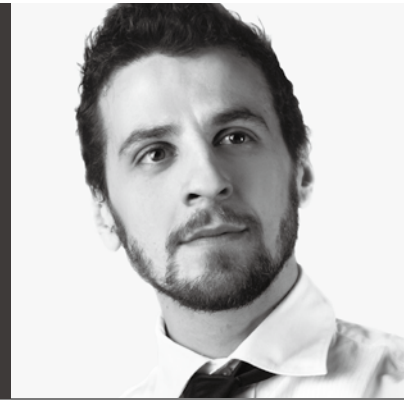
PCoIP Zero Client and Remote Acceleration Card Solutions

Enable the true experience of desktop virtualization and remote workstation.
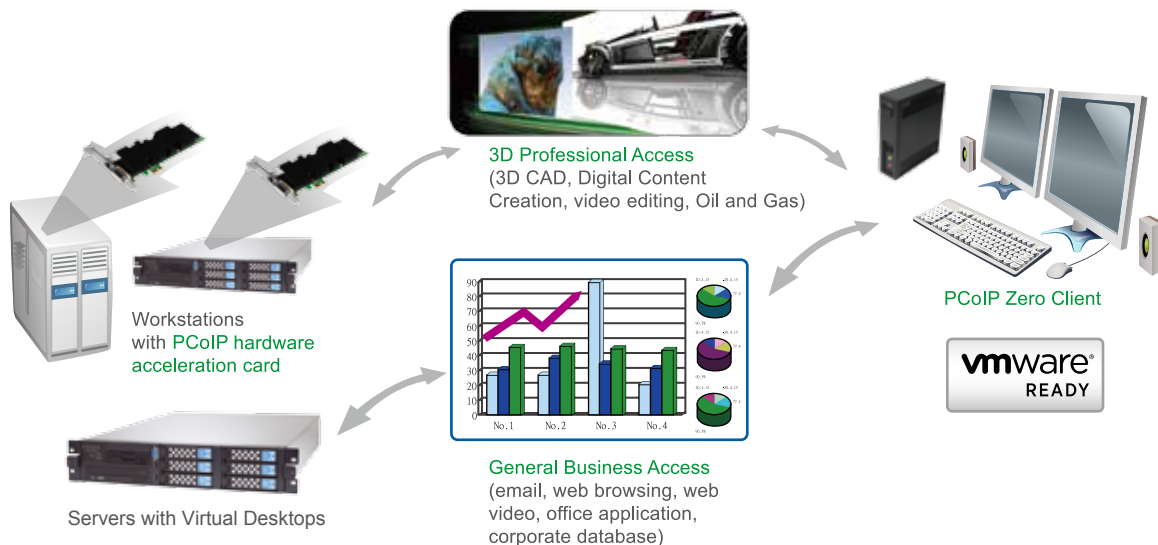
vmware READY

teradici
PCoIP®

PCoIP Zero Client Benefits

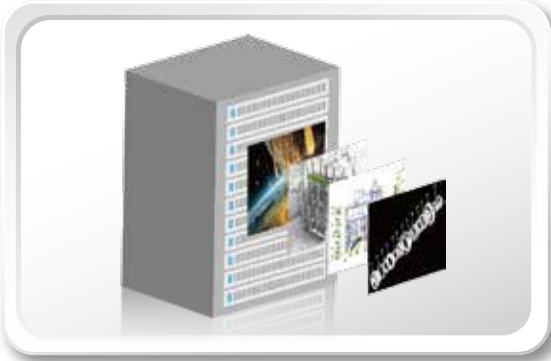|	PC	Thin Client	PCoIP Zero Client
OS Restricted	Yes	Yes	No
CPU	Yes	Yes	No
Hardware Drivers	Yes	Yes	No
Control Response	Fast	Slow	Fast
Graphics Performance	Great	Poor	Great *
Applications	Great	Limited	Great
Virus and Spyware	Yes	Yes	No **
IT Management	Heavy	Heavy	Easy
Power Consumption	High	Low	Ultra Low
Noise	High	High	Noiseless
Security	Poor	Medium	Great

* Use PCoIP host cards and 3D graphics cards for 3D or professional applications.

** Zero Client requires no virus signatures. With no CPU and OS, the zero client is impervious to viruses, spyware and hacking so you don't have to worry about anti-virus software or virus signatures.

Do it all with total security. The era of complex, non-secure PC solutions is almost over. In a traditional desktop environment, all computing resources and data are on the desktop, thus increasing the chance of corporate data leakage. Leadtek PCoIP®-enabled virtual desktop solution, on the other hand, enables all computing resources and data to be transferred to a centralized server in a secure data center and lowers support overheads for the enterprise. This enhances enterprise data management and security while delivering an immaculate, uncompromised end user experience over standard IP networks. PCoIP zero client makes it possible to deliver workstation class performance for professional applications including 3D CAD/CAM, Digital Content Creation, video editing and advanced knowledge worker level business software.

Workstations with PCoIP hardware acceleration card

Servers with Virtual Desktops

3D Professional Access
(3D CAD, Digital Content Creation, video editing, Oil and Gas)

General Business Access
(email, web browsing, web video, office application, corporate database)

PCoIP Zero Client

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Why can PCoIP Deliver the Best Image Quality over Network?

Host Rendering

In a regular PC, the applications, operating system and graphics drivers are tightly coupled to the display, such that the whole assembly is optimized for performance. PCoIP technology uses host rendering, which preserves the PC environment intact: system performance is maintained, hardware interfaces remain unaffected, applications perform as they should, and no driver changes are required. There are no application dependencies or incompatibilities between the host and the client. Host rendering also decreases latency sensitivity. The PCoIP protocol only re-sends lost packets if the image has not changed since the packet was lost.

Intelligent Image Decomposition Using Multiple Codecs

PCoIP technology is a multi-codec protocol, continuously analyzing and decomposing the image elements – graphics, text, icons, video, etc. – and compressing them with the right codec for each pixel. This enables efficient transmission and decoding, saves bandwidth, and enables image elements that rapidly change to be displayed. PCoIP codecs can build every pixel to a lossless state once they stop changing, which is critical when the image contains important information, such as medical diagnostics, or optionally can build to perceptual lossless to maximize bandwidth savings.

Dynamic Network Adaptation

The PCoIP protocol is an 'intelligent' protocol, dynamically adapting to network conditions in real time. Image quality settings can be easily configured to manage bandwidth use. PCoIP adaptive encoders then adjust image quality according to congestion on the network, within the set limits. Once network congestion decreases, maximum image quality is resumed. Because PCoIP technology transmits just the pixels, not data, it utilizes UDP, a real-time, highly efficient protocol, which is ideally suited to the practicalities of working remotely over a limited bandwidth network, and results in increased responsiveness and improved user experience.

PCoIP Zero Client

PCoIP zero clients are hardware-based endpoints that use a highly integrated, purpose-built processor to perform image decompression and decoding. PCoIP zero clients do not have a general purpose CPU, local data storage or application operating system, resulting in ultra-secure and easy to manage clients that do not require regular updates or patches.

Features

- A book-size desktop device for any system that has the PCoIP server installed with VMware® Horizon™ View or a PCoIP remote acceleration host card.

- True PC experience while enabling all IT resources and management into the data center.

- Supports up to two ultra high-resolution 2560x1600 or four high-resolution 1920x1200 video, four USB, a Speaker, a Microphone, a Headphone and Ethernet connectors.

- Input comes from the enterprise network via a standard Ethernet connector. Output is driven by the DVI/DisplayPort ports for video and USB ports for peripheral and I/O connections.

- The TERA2321 PoE zero client edition features Power-over-Ethernet (PoE) which allows a single cable to provide both Ethernet connection and electrical power to the client device.

- No CPU, no OS, no device drivers, no hard drive, no fan and no noise so it requires no management at all.

- The net result is a low cost and reliable client-side module that requires minimal IT administration and support because all processing resides in the centralized server, host PC or workstations.

- Go green with noiseless cooling and low power consumption.

- Completely driverless and stateless while it never stores any user or configuration data.

True PC Experience over IP

PCoIP sessions are established from PCoIP hardware zero clients to workstations with PCoIP remote acceleration host cards for full workstation-class performance, or to VMware Horizon View servers with the PCoIP protocol integrated to deliver enhanced security and performance. Leadtek PCoIP products are the only remoting solution that puts absolutely no load on the host CPU or graphics card, so CPU/GPU can devote all its energy for full-featured graphics. Maximum performance of 250 mega pixels per second (Mpps) capable of driving full screens of changing pixels or application refresh rates up to 60 frames per second (fps) ensures the best remote user experience.

High Security and Authentication

PCoIP solution allows ALL desktop computing hardware, including existing PCs, workstations, and servers, to be moved into a secure location. PCoIP transmits pixels – NOT data – so all data stays secure in your datacenter. PCoIP zero clients simply receive and decode encrypted image information, do not store any application data, and are immune to viral attack. It uses high standard AES 256 and NSA Suite B ciphers encryption. And extensive USB security and authentication features are provided, including single sign-on capabilities for use with smart cards.

Virtually NO Desktop Management

Unlike traditional thin clients which are basically small PCs running a version of Windows® or Linux, Leadtek PCoIP products are the only true zero clients that have no CPU, no operating system (no Windows or Linux), no device drivers, no hard drive, no fan, no noise, etc. This means it requires no OS patches, no driver updates or virus signature files. Once it's set up, users never have to touch it again. The net result is a quiet, ultra-low power and reliable system that requires minimal IT administration and support.

VMware® Ready

As a result of collaboration with VMware, VMware Horizon View incorporates PCoIP technology as the remote desktop protocol for virtual desktops, providing a significantly better user experience than is provided with other remoting protocols. Corporations deploying VMware Horizon View's latest versions can now achieve all of the advantages of virtual desktop deployments with all of the advantages of the PCoIP protocol and with the manageability and performance advantages of PCoIP zero clients.
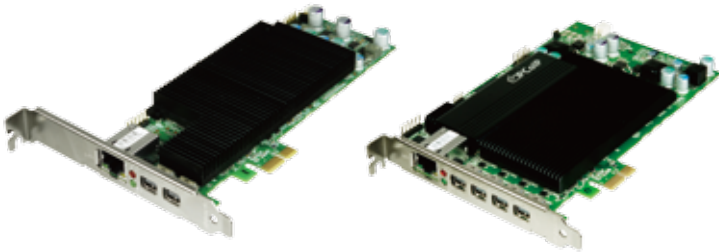
Resolution up to 2560x1600

A more powerful image engine and zero client processor core to support up to four displays at 1920x1200, or dual 2560x1600 resolution and the highest pixel processing power.

Go Green with Ultra-Low Power and Noiseless

Offers industry-leading low power consumption design and engineering technology. The net result is a small, quiet, low power and reliable device that requires minimal IT administration and support.

PCoIP Remote Acceleration Card for Workstation

PCoIP remote acceleration cards can be added to any existing PC or workstation to enable field-proven high-end 1:1 session leveraging PCoIP protocol graphics and desktop performance. It's the only hardware remote solution which can allows high-end 3D applications with dedicated GPUs that is not available when using virtualized desktops.
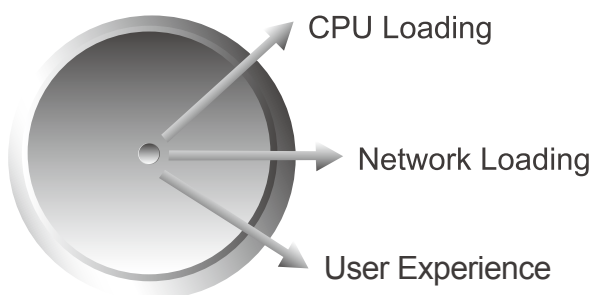
Powerful Collaboration with High Performance Graphics Card

No matter you are a 3D game artist, an animation modeling designer, movie editor, or mechanical engineer, your workstation which is embedded the workstation card or other high-performance graphics card must offer high level of interactivity while enabling unprecedented performance, features and photo-realistic image quality. PCoIP host card series is the only hardware remote solution which allows you continue using your current graphics card to deliver the fastest application performance and the highest quality workstation graphics.

Power-users can connect to their workstation remotely with a PCoIP Zero Client and experience the highest performance workspace necessary to their productivity, or a software client when working from home or on the go.

Hardware Advantages over Software Codec

PCoIP hardware acceleration host card optimizes CPU loading, network loading, and user experience at once, while other software remote solutions optimize one at the expense of the others.

CPU Loading

Network Loading

User Experience

CPU loading – Zero CPU loading for compression, real-time quality

Network loading – Wire-speed, strong encryption offload

User experience – Maximize number of displays at high resolution and frame rates

Features

■ Remoted to a PCoIP zero client or integrated PCoIP display
■ All you need is a free PCIe slot and a graphics card
■ TERA2220 host card is an ideal low profile solution for small form factor (SFF) PC/workstation
■ High Security and Privacy by locating data in the datacenter
■ Completely OS independent. All applications run as normal
■ Manages complexity and reduce cost by facilitating centralized management

Where are we…

CAD/CAM/CAE
Centralize large proprietary CAD data files, eliminate heat and noise at workstations, and provide third party suppliers secure remote access

Healthcare
Secure patient data in the data center, provide flexible access throughout facility, and provide high-resolution lossless viewing capability for medical images

Media and Entertainment
Prevent loss of intellectual property, eliminate heat and noise at the desk, use blades for render cluster, and support off-shore contract workers

Financial Transactions and Investment
Support the need for dual and quad- monitors, provide customer data security, alleviates heat and noise at the desk for financial traders, and easily recover disaster.

Education
Provide a simplified, centralized computing infrastructure for graphic-intensive engineering applications and research labs. Students and researchers easily access to computing resources on campus or across campus.

Oil and Gas
Display high-resolution accurate drilling information for natural resources, investigate and visualize entire regional data sets in vivid detail, highlighting large-scale trends.

PCoIP Zero Clients Specifications

Model	TERA1100 Series	TERA2140 Series	TERA2321 Series
Max Number of Displays	2	4	2
Processor	TERA1100	TERA2140	TERA2321
Imaging Performance	10 Mpps (VDI) 100 Mpps (Workstation)*	50 Mpps (VDI) 250 Mpps (Workstation)*	50 Mpps (VDI) 130 Mpps (Workstation)*
Maximum Resolution	Two 1920x1200	Two 2560x1600 or Four 1920x1200	One 2560x1600 or Two 1920x1200
Memory Type	128 MB XDR	512 MB DDR3	
Device Physical Dimensions	6.89 (height) x 5.20(length) x 1.42 (thinness) inches without stand	7.21 (height) x 5.22 (length) x 1.76 (thinness) inches without stand	5.91 (height) x 5.12(length) x 1.77(thinness) inches
Power Management	Partial	Full Wake-on-LAN and Wake-on-USB	
Typical Device Power	12W	12W	6W
Encryption	AES-128/Salsa256 Suite B Ciphers (Workstation)	AES-128/AES-256 Suite B Ciphers (Workstation)	
Connectors	Single-link DVI-I connector	Single-link DVI-D connector or DisplayPort	Single-link DVI-D connector
	Second Single-link DVI-I connector	Second Single-link DVI-D connector or DisplayPort	Second Single-link DVI-I connector
	Two front USB connectors	Third Single-link DVI-D connector or DisplayPort	(or One Dual-link DVI-D with adapter)
	(Smart card reader zero clients have one front USB connector)	Forth Single-link DVI-D connector or DisplayPort	Two front USB 2.0 connectors**
	Two rear USB connectors	(or Two Dual-link DVI-D with adapters)	Two rear USB 2.0 connectors
	Smart Card Reader port (Optional)	Two front USB 2.0 connectors**	Headphone jack
	Headphone jack	(Smart card reader zero clients have one front USB connector)	Microphone jack
	Microphone jack	Two rear USB 2.0 connectors	Speaker jack
	Speaker jack	Smart Card Reader port (Optional)	RJ45, RJ45 with PoE (Power-over-Ethernet), or Fiber Ethernet connector
	RJ45 or Fiber Ethernet connector	Headphone jack	12VDC Power jack
	12VDC Power jack	Microphone jack	
		Speaker jack	
		RJ45 or Fiber Ethernet connector	
		12VDC Power jack	
LED	PCoIP LED	PCoIP LED	PCoIP LED
	Zero Client Power Button LED	Zero Client Power Button LED	Zero Client Power Button LED
Button	Zero Client Power Button	Zero Client Power Button	Zero Client Power Button
	Remote PC Power Button		
Thermal Cooling Solution	Passive heat sink		
Operating System Support	Completely operating system independent		
Package Content	PCoIP Zero Client		
	Power adaptor and power cord		
	Ethernet cable (Optional)		
	Dual-link DVI adapter cables (Optional for TERA2140 Quad-DVI and TERA2321 zero clients)		
	Quick installation guide		
	VESA mount package (Optional)		

* Workstation: when used in conjunction with PCoIP hardware host solution

** USB devices like webcams and DVD writers use USB1.1 isochronous transfer mode

PCoIP Remote Acceleration Host Card Specifications

Model	TERA1202 Series	TERA2240 Series	TERA2220 Series
Max Number of Displays	2	4	2
Processor	TERA1202	TERA2240	TERA2220
Form Factor	Low Profile	ATX	Low Profile
Board Physical Dimensions	2.713 inches (height) X 6.6 inches (length), single slot	4.376 inches (height) X 6.6 inches (length), single slot	2.713 inches (height) X 6.6 inches (length), single slot
Bus Type	PCI Express x1 (compatible with any xPCIe slots: x1, x4, x8, x16)		
Imaging Performance	100 Mpps	250 Mpps	130 Mpps
Maximum Resolution	Two 1920x1200	Two 2560x1600 or Four 1920x1200	One 2560x1600 or Two 1920x1200
Max Application Frame Rate (with PCoIP Zero clients)	60 fps	60 fps	60 fps
PCIe Video Ports (connect to Graphics outputs)	One DMS-59 (with DVI adapter)	Four mini-DisplayPort	Two mini-DisplayPort
Memory Type	128 MB XDR	512 MB DDR3 with ECC	
Typical Board Power	13W	13W	13W
Encryption	AES-128/Salsa256 Suite B Ciphers (Workstation)	AES-128/AES-256 Suite B Ciphers (Workstation)	
Recommended Zero Client Endpoints for Full Functionality	TERA1100	TERA2140	TERA2321 or TERA2140
Connectors	59-pin DMS-59 connector (supports dual DVI-D)	Four mini-DisplayPort connectors	Two mini-DisplayPort connectors
	Ethernet connector or Fiber connector	Ethernet connector or Fiber connector	Ethernet connector or Fiber connector
	Power Button Cable connector (optional for Remote Power Management)	Power Button Cable connector (optional for Remote Power Management)	Power Button Cable connector (optional for Remote Power Management)
	Standalone Mode Power connector		
Thermal Cooling Solution	Passive heat sink		
Operating System Support	Completely operating system independent		
System Requirements	PCI Express compliant motherboard with one x1/x4/x8/x16 slot (Full height for TERA2240 and full/half height for TERA1202/2220)		
	PC/workstation with 1 or 2 graphics cards		
	For 2560x1600 resolution, graphics card port must be DisplayPort (dual-link DVI is not supported)		
	10/100/1000 Mbps Ethernet LAN or 100/1000 Mbps Fiber switch/router		
Package Content	PCoIP host card	PCoIP host card	PCoIP host card
	One DMS-59 to dual DVI cable	One to Four mini-DisplayPort to DVI cables	One or Two mini-DisplayPort to DVI cables
	Ethernet cable x 1 (Optional)	One to Four mini-DisplayPort to DisplayPort cables	One or Two mini-DisplayPort to DisplayPort cables
	Power Button cable x 1 (optional for Remote Power Management)	One to Four mini-DisplayPort to mini-DisplayPort cables	One or Two mini-DisplayPort to mini-DisplayPort cables
	Additional Low Profile bracket x 1	Ethernet cable x 1 (Optional)	Ethernet cable x 1 (Optional)
	Quick installation guide	Power Button cable x 1 (optional for Remote Power Management)	Power Button cable x 1 (optional for Remote Power Management)
		Quick installation guide	Additional Low Profile bracket x 1
			Quick installation guide

Teradici PCoIP Hardware Accelerator (APEX 2800)

The Teradici PCoIP Hardware Accelerator (APEX 2800) ensures the success of VMware Horizon View deployments by offloading PCoIP image encoding tasks, and reducing CPU utilization. This empowers IT managers to protect and ensure a consistent and improved user experience without use of a GPU. The Hardware Accelerator is a performance enhancement to VMware Horizon View that also compliments shared GPU or GPU passthrough deployments.

Key Benefits

Improve user experience

- Combined with a PCoIP zero client on an unconstrained network, improves frame rates & MPPS by up to 2x
- When vCPU or server CPU is starving, by giving back CPU cycles to the application(s)

Protect user experience against CPU peaks

- Reliable and consistent user experience as loads change by decreasing peaks in CPU utilization up to 50%
- Ensure consistent application performance

Increase consolidation ratio

- Consolidate more users on the same server, up to 1.2x in typical office environments (5% video,95% office applications)
- Add virtual headroom to any VDI implementation

Teradici PCoIP Hardware Accelerator (APEX 2800) Specifications

Model	LP PCIe card	Mezzanine for HP
Manufacturer's P/N	SA2800004	SA2800300
Format	Half height, half length PCIe x4 Gen 2.0	MXM Type A
System requirements	PCIe slot x4, x8, x16 ESX 4.1 U1/U2 or later VMware Horizon View 4.6 x or later Up to 2 cards per server	HP ProLiant Gen8 blade (WS460c, BL460c) ESX 4.1 U1/U2 or later VMware Horizon View 4.6 x or later Up to 2 cards per server
Memory	2 GB of onboard DDR3 SDRAM with ECC protection	

Display support	Resolution	Portrait	Landscape
	2560x1600	25	40
	1920x1200	40	64
	1680x1050	50	85
	1280x1024	100	100

Power	Power supplied to card via PCIe interface: 15W	
Regulatory	Safety: UL/cUL	
	EMC: FCC Class B, Canada ICES, Class B, CE, VCCI, C-TICK	
	Environmental: WEEE, RoHS	
Environmental	Temperature:	Humidity:
	Operational 0˚ to 55˚ C	Relative (non-condensing): 10% to 90%
	Storage -20˚ C to 70˚ C	Storage: 5% to 95%
Thermal cooling	Single slot passive heat sink	

Work small. Think big.

With the book-size, smart design PCoIP Zero Client, and the highest-performance Hardware Remote Acceleration Card, there's no limit to what you can achieve.