



# Reinventing the Desktop

## MOVE COMPLEXITY OFF THE DESKTOP

*The Pano Virtual Desktop Solution is purpose-built for server-based desktop virtualization. Moving all software off the desktop to the server, the Pano device is a zero client with no configuration or persistent memory to manage. Using functionality enabled by server virtualization, the Pano solution delivers not only a complete Microsoft Windows experience, including native USB and video support, but also a new set of high-value features not available with desktop PC and thin client architectures.*

### 70% REDUCTION IN TCO

By moving all software off the desktop and onto the server, the Pano solution can reduce desktop TCO by 70 percent—saving as much as \$3200 per desktop over three years.

- Pano devices are completely stateless requiring no updates or management
- Physical visits to the desktop endpoint by IT personnel are eliminated
- Software installations and upgrades are performed centrally
- Server virtualization efficiently shares CPU and Memory resources across the entire user population
- Pano devices consume less than 3 watts—3% of a typical PC—making it the ultimate green alternative

Pano boosts end user productivity by reducing downtime and providing fast, automated recovery from application errors or system crashes.

### GOING BEYOND TODAY'S DESKTOP

Using functionality enabled by server virtualization, Pano provides high-value features not offered by Windows. With a single touch of the Pano Button™, the user may choose from a set of actions that instantly solve painful desktop management problems. The Pano Button can be configured by IT or solution providers to orchestrate services provided by the server platform. Examples of configurable Pano Button actions are:

- Rolling back from a corrupted Windows instance to a known good instance
- Switching between virtual machines set up with software for different job functions

The Pano Button symbolizes Pano Logic's rethinking of desktop computing to take full advantage of virtualization, going beyond Windows to provide a superior user experience.

### STRONG SECURITY AT THE DESKTOP

Because it is completely stateless, the Pano zero client provides a completely secure desktop that is immune to viruses and other malware. Pano VDS gives IT centralized access control to all USB ports. Pano security features include:

- USB security—granular access control can be set easily based on user and type of peripheral. Specific operations can be blocked, allowed, or recorded as needed.
- Information leakage prevention—locally connected storage can be disabled to prevent users from copying information to local devices, including any USB devices.
- Network security—Traffic is protected using 128-bit AES encryption and an RSA key exchange.

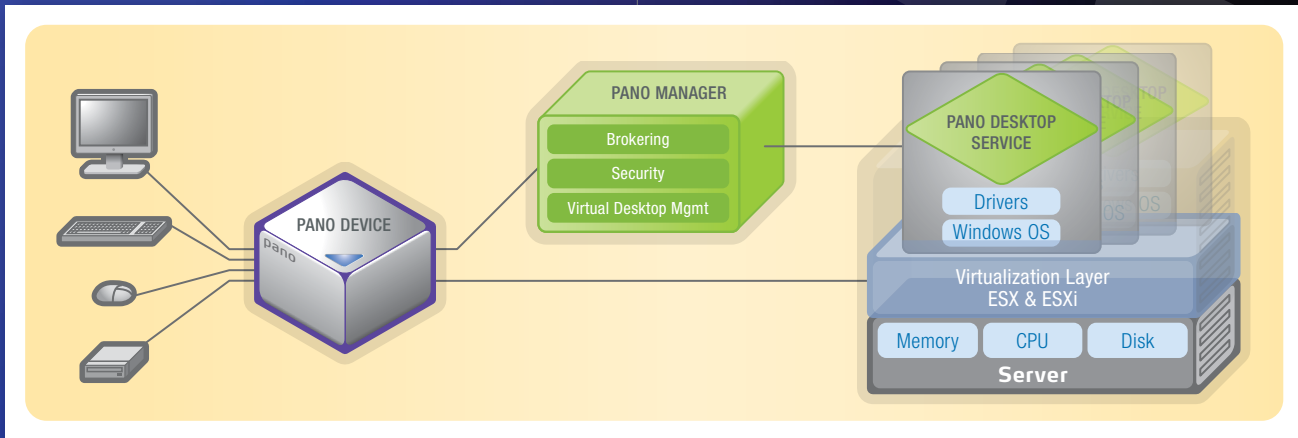
### COMPLETE TURNKEY SOLUTION

The Pano solution comprises Pano devices, the Pano Manager, the Pano Desktop Service, and comprehensive technical support covering the entire solution. For customers who have already deployed virtual servers, Pano can be installed on top of an existing VMware ESX deployment in less than 60 minutes. Pano is the fastest, most convenient way to get started with server-based desktop virtualization.

### PANO DEVICE

The Pano device is a zero client—which means it never has to be configured, updated, or managed. The Pano system connects keyboard, mouse, display, audio and USB peripherals over an existing IP network to an instance of Windows XP or Vista running on a virtualized server. The Pano solution is also power friendly, consuming only 3% of the energy consumed by a traditional desktop computer.

The Pano solution consists of a Pano device on the desktop, the Pano Manager virtual appliance imported into your Virtual Infrastructure, and the Pano Desktop Service that lives in each Windows XP or Vista Virtual Machine. and server-based Pano software.



The Pano solution can be viewed as using the IP network as an extension that connects all desktop peripherals to the desktop virtual machine running on the server. We call this technology “Console Direct™” as it enables a direct connection to the native audio, video and USB device drivers in each instance of Windows XP or Vista. Peripherals attached to the Pano device operate the same way they do when attached to a traditional PC. For instance, when users want to read data from a flash drive, they simply attach a flash drive to one of the Pano devices’ USB ports. If the user is authorized to use storage devices, the flash drive will appear to Windows as if it was locally attached. The only drivers that are used are the peripheral’s native drivers, and these drivers only need to be installed on the Windows virtual desktop, not on the Pano device.

#### THE PANO MANAGER

The Pano Manager is the central management component of the Pano architecture. The Pano Manager does the following:

- Discovers and controls Pano devices
- Controls the virtual infrastructure to automatically deploy desktops based on policy
- Connects users to their assigned virtual desktops
- Monitors status of user sessions and takes corrective action when necessary

The Pano Manager is continually discovering and controlling Pano devices to ensure users can always access their virtual desktops. Once a Pano device is discovered, the Pano Manager instructs the Pano device to display a login screen. Users enter their Windows credentials and are automatically connected to their virtual machines. From there on, it’s the same Windows experience.

The Pano Manager ensures a secure and reliable logon process by integrating tightly with directory services such as Microsoft Active Directory. Rather than maintain a separate database of users that might get out of sync, the Pano system queries directory services directly for each logon attempt. IT administrators only need to perform user account management in one place: Active Directory, LDAP or Novell eDirectory.

The Pano Manager includes a web-based Management Console that allows administrators to centrally administer their entire Pano system. The Pano Manager provides views and management functions for Pano devices and virtual machines. It also delivers a centralized log facility and simple setup page.

#### PANO DESKTOP SERVICE

Pano Desktop Service is a lightweight Windows service residing within each desktop virtual machine that links peripherals attached to the Pano device to the unmodified Windows drivers residing in the virtual machine with Console Direct technology.

The Console Direct technology manages the quality of video, audio synchronization, scrolling, and other performance elements that provide a true PC like experience.

**PANO DEVICE**



Pano Device: Front View



Pano Device: Rear View

**PANO VIRTUAL DESKTOP SOLUTION**

- I/O Peripherals:** Three USB 2.0 ports
- Video Display:** VGA-type video output (DB-15), max resolution 1920x1200
- Networking:** 10/100 Base-T Fast Ethernet twisted pair (RJ-45)
- Audio:** Output: Internal speaker; 1/8-inch mini jack  
Input: 1/8-inch mini microphone jack
- Physical Characteristics:** Height: 3.50" / 88.8mm  
Width: 3.50" / 88.8mm  
Depth: 2.00" / 51.0mm
- Power:** Worldwide auto-sensing 100-240 VAC, 50/60 Hz  
Average power usage with keyboard, mouse and display connected: 3.0 watts
- Temperature Range:** 50° to 104° F (10° to 40° C)
- Humidity:** 20% to 80% non-condensing
- Weight:** 1.1 lbs / 500 grams (Pano device)
- Regulatory Compliance:** RF Interference: FCC Class B, CE
- Warranty:** Three-year limited warranty

**PANO MANAGER (SUPPORTED ENVIRONMENTS)**

*(Delivered as a virtual appliance—Simply imports onto existing virtual infrastructure)*

- Virtual Infrastructure:** VMware ESX 3.0X, 3.5
- Connection Broker:** VMware Virtual Desktop Manager/View Manager 3
- Virtual Infrastructure Management:** VMware VirtualCenter 2.0X, 2.5
- Directory Services Integration:** Microsoft Active Directory, Novell eDirectory, OpenLDAP

**PANO DESKTOP SERVICES (SUPPORTED ENVIRONMENTS)**

- Operating System:** Microsoft Windows Vista; Microsoft Windows XP



**PANO LOGIC, INC.**  
 1350 WILLOW ROAD, SUITE 202  
 MENLO PARK, CA 94025  
 TEL 650.454.8961  
 FAX 650.329.8473  
 WWW.PANOLOGIC.COM

**PANO LOGIC CANADA, INC.**  
 1020 DENISON, SUITE 205  
 MARKHAM, ON L3R 3W5  
 CANADA  
 TEL 416.238.PANO (7266)  
 FAX 905.754.4707