

Simplifying VMware Horizon Printing with PrinterLogic

PrinterLogic

VMware Horizon 7 Printing Challenges

VMware Horizon 7 is a leading Virtual Desktop Interface (VDI) platform that provides a streamlined approach for managing, delivering, and securing virtual desktops and applications. In addition to ongoing improvements in the VMware Horizon platform, three market trends are fueling a rapid adoption of virtualization:

1. Prices of thin clients, networking equipment, and storage are down dramatically, making VDI implementations more cost effective.
2. Workforces are becoming more mobile, making the work-anywhere benefits of virtualization more attractive.
3. An increased demand for improved data security puts a spotlight on the value of centralized (as opposed to distributed) data management.

Organizations are finding that while VDI systems simplify many aspects of managing and securing end-user data, they complicate print management and make it more frustrating for IT and end users. These issues stem from the fact that the View virtual machine is located in a data center—sometimes miles away from the presentation at the user's desktop.

While recent improvements in the core solution make things easier, they all lack a coherent approach for managing printer drivers, and the end-user experience continues to be frustrating on several levels. A reliable printing experience for end users remains a critical part of any successful VMware VDI implementation.

PrinterLogic Solution Overview

In this paper, we'll describe how a typical VMware model manages print jobs, and how PrinterLogic can streamline a VDI environment so that printing is easier to deploy and manage throughout the organization.

PrinterLogic has designed its on-prem PrinterLogic SaaS (formerly PrinterCloud) solutions to seamlessly integrate with VMware Horizon via access to a web-based Admin Console for administrators and a Self-service Installation Portal for end users. These two features make the deployment and management of printers simple and fast for administrators and end users—while reducing WAN traffic and eliminating costly infrastructure.

Printing in VMware Horizon 7

In the beginning, VMware printing was not treated as an essential piece of core end-user functionality. Along the way, VMware developed some patchwork solutions. VMware Horizon 7 includes two approaches for printing known as Printer Redirection, and Location-based Printing. These are described below.

Printer Redirection—How It Works

Printer Redirection allows an end user to send print jobs from their virtual desktop to either a networked or locally attached printer. This method works as follows:

1. The end user initiates the print request, which is sent to the View virtual machine over the WAN/LAN network.
2. The print request initiates a remote session to determine which printers are already installed on the remote client (networked device or USB-connected printer).
3. A dedicated virtual print queue is created in the remote session on the Horizon client device.
4. A Virtual Printing component (installed with the Horizon Agent in the View master image) sends an Enhanced Metafile (EMF) back to the Horizon Client over the WAN/LAN network.
5. The Horizon Client then sends the EMF to the natively installed printer driver to be rendered.
6. Once rendered, the data is then sent to the print server (over the WAN/LAN network) and then to the networked printer, or the rendered data is sent directly to a locally attached printer.

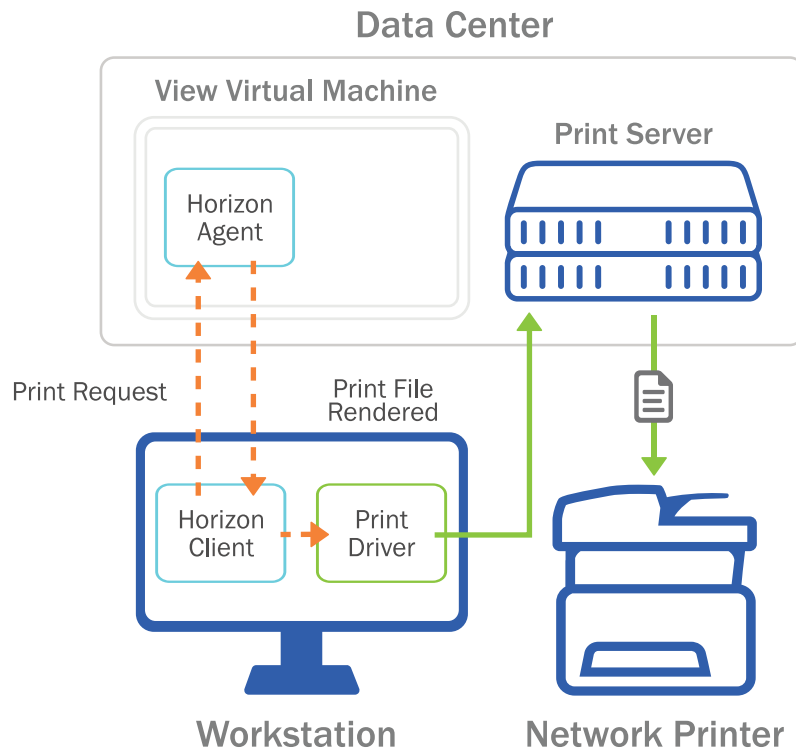


Figure 1: Printer Redirection in VMware Horizon 7

Although Printer Redirection is an improved scenario, there are still complications that lead to extra work for IT, and frustrations for end users. For example, network sizing and bandwidth planning is a critical step. If printing impact isn't thought through, performance issues can crop up as print jobs are processed. End users get frustrated when the network becomes saturated and their workflow slows down.

As shown in Figure 1, the client device must render the print job before sending it to the print server. This slows down the print request, consumes resources on the client, and increases the size of the EMF file by up to 80 percent. A bigger file must now travel up to the print server, do a hairpin turn, and go back to the printer—effectively doubling the network load for that job.

In addition to end-user frustrations, Printer Redirection with VMware Horizon 7 presents issues for administrators. Getting drivers to users requires either adding the drivers to the Master VM image or pushing each one out to the individual sessions using scripting or GPOs. Imaging drivers makes it easier for IT to manage, but they are less secure and more confusing for end users who end up with lots of printer drivers they don't need.

Scripting and GPO deployments solve this issue by allowing printer deployment, but this is more taxing on IT resources. GPOs are more end-user friendly, but are hard to manage, hard to modify, hard to update, and increase

login times. Installing new printers in the environment—or allowing for individuals using several printers—makes the print environment difficult to manage and maintain.

Since the client device needs onboard resources to handle the rendering task, zero clients cannot be used with this method.

Location-based Printing—How It Works

Location-based Printing in VMware Horizon 7 was designed to help in scenarios where end users need to have print jobs delivered to the printer closest to their location. Here's how it works:

1. The end user sends a print request from an application on the View desktop.
2. The application then sends the data to the printer driver on the View virtual machine for rendering.
3. After rendering, the data is sent to the print server.
4. From the print server, the rendered data is sent to the printer.
5. The administrator controls the mapping between the client device and the printer by defining policies in the Active Directory, or by using a script.

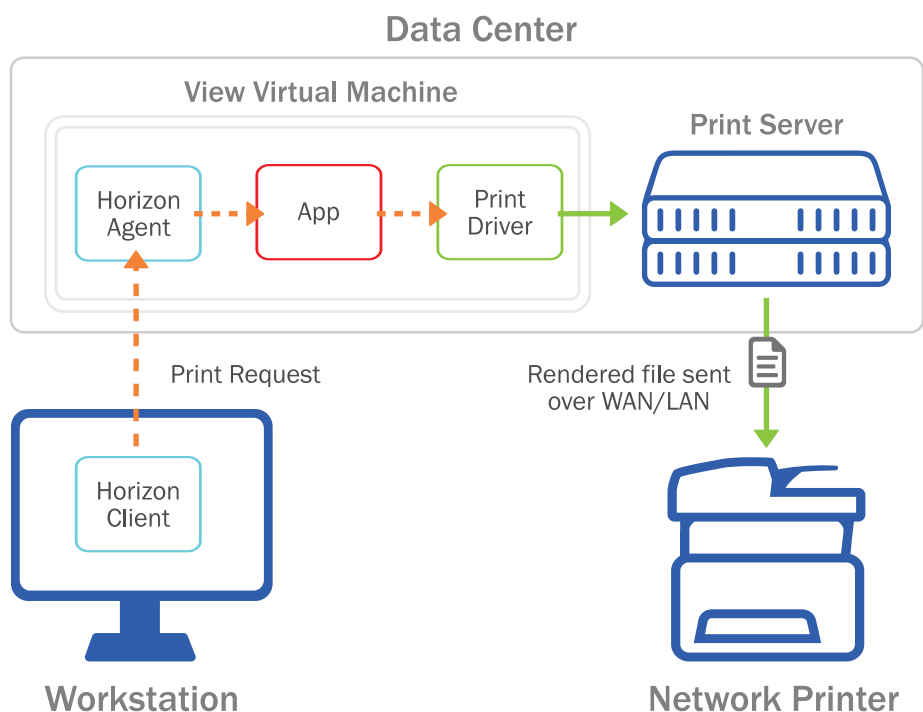


Figure 2: Location-based Printing with VMware Horizon 7

With Location-based Printing, printers must be accessible from the View desktop (typically located in the data center), either directly or via mapping. Virtual rendering is faster than host-machine rendering, but this approach ties up limited resources on the central View virtual machine. Direct access and printer mapping cause end users to lose access to printers that aren't nearby, which means printers in a remote office or branch office (ROBO), printers are removed from the end user's queue.

Rendered data is still sent over the WAN/LAN to the print server, so Location-based Printing presents the same network-traffic problems as Printer Redirection.

PrinterLogic Solves VMware Printing Problems

PrinterLogic improves operational efficiency across your entire print environment, including VMware Horizon 7. First of all, PrinterLogic eliminates print servers and converts the print environment to a centrally managed, direct-IP architecture. Second, several excellent tools are available to help manage printing. For example, a web-based admin console lets IT manage connections from every host machine to every printer. On the client side, PrinterLogic provides a self-service portal that empowers users to install printers by themselves with a single click.

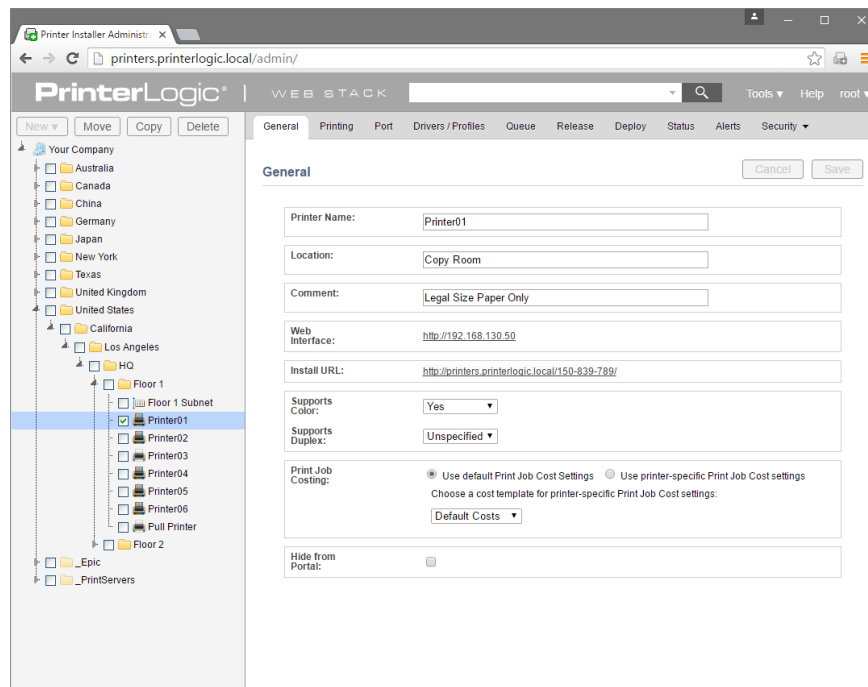


Figure 3: PrinterLogic's Web-based Administrative Console

How Our Web-based Administrative Console Streamlines IT Tasks

With PrinterLogic, driver and printer deployment and updates are done through a centralized, web-based console. In a single menu, you can update the driver for any printer or group of printers, and the update is automatically pushed to all end users without GPOs or scripts. This includes drivers for heterogeneous printer environments, as well as driver-tracking for every OS (Windows 32 & 64-bit, Mac OS, and Linux) in your organization.

The Efficiency and Simplicity of Centrally Managed Direct-IP Printing

Because direct-IP printing is inherently efficient, PrinterLogic simplifies and streamlines the end-user experience. The end-user client is connected directly to a nearby printer on the local network, rather than vectoring print traffic up through a print server in the data center. This allows simultaneous location-based and remote printing. PrinterLogic's admin software manages every printer connected to end-user clients. It can deploy printers based on location, Active Directory Group, IP address range, or using any combination of these criteria.

When the VM attempts to print, the PrinterLogic workstation agent pulls the file down the wire to the thin or fat client using the PCOIP protocol. Once the transfer is complete, the print driver converts the file to Enhanced Metafile (EMF) format, and the EMF is sent directly to the local printer. This is done without further compression, and without rendering the file up on the VM or on the print server. WAN traffic is avoided completely.

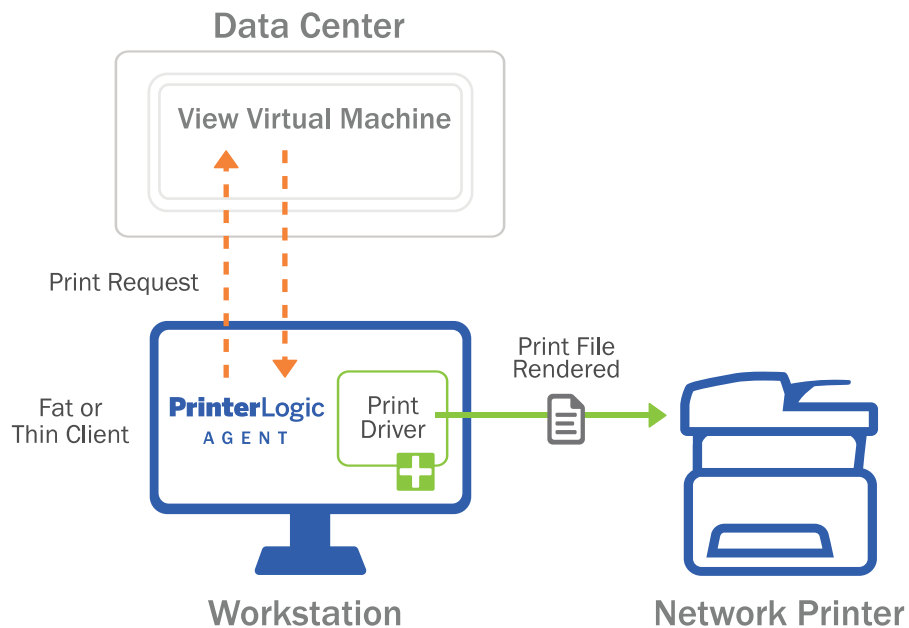


Figure 4: Managed Direct-IP Printing Using PrinterLogic with Thin or Fat Clients

When a zero client is used, PrinterLogic's client software is installed on the Desktop Virtual Machine. But even with this additional step, network traffic is minimal because the print job is not rendered until it gets to the printer. From there, the View desktop communicates to the printer using direct IP, and the job goes from the desktop to the desired printer. Figure 5, below, illustrates this workflow.

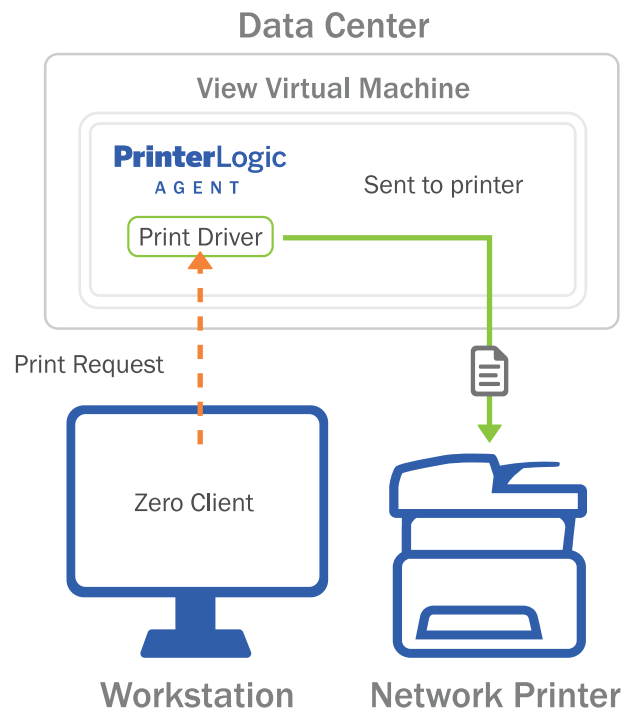


Figure 5: Managed Direct IP printing with Zero Client

How the Self-service Printer Installation Portal Empowers End Users

With PrinterLogic, users can install printers on their own using a tool known as the Self-service Installation Portal. The portal, which is part of the workstation client software, shows them printers in their area that IT decides they can use. Gone are the days of having to know a printer's name or a confusing IP address. The user clicks on the agent icon and they are shown a visual floor-plan map of their building or floor. They then click on one of the printers, and installation is automatic. The appropriate printer driver is installed on their View virtual machine (in the case of zero clients) or directly on the workstation with thin or fat clients. Users print directly to the selected printer—using the correct driver every time.

Using the PrinterLogic admin console, IT can change what printers are available to what users or groups of users. They can also set default printer-driver options, such as duplex black and white.

Dozens of PrinterLogic customers report that self-service installation not only empowers users, but it leads to dramatic reductions in print-related help-desk costs.

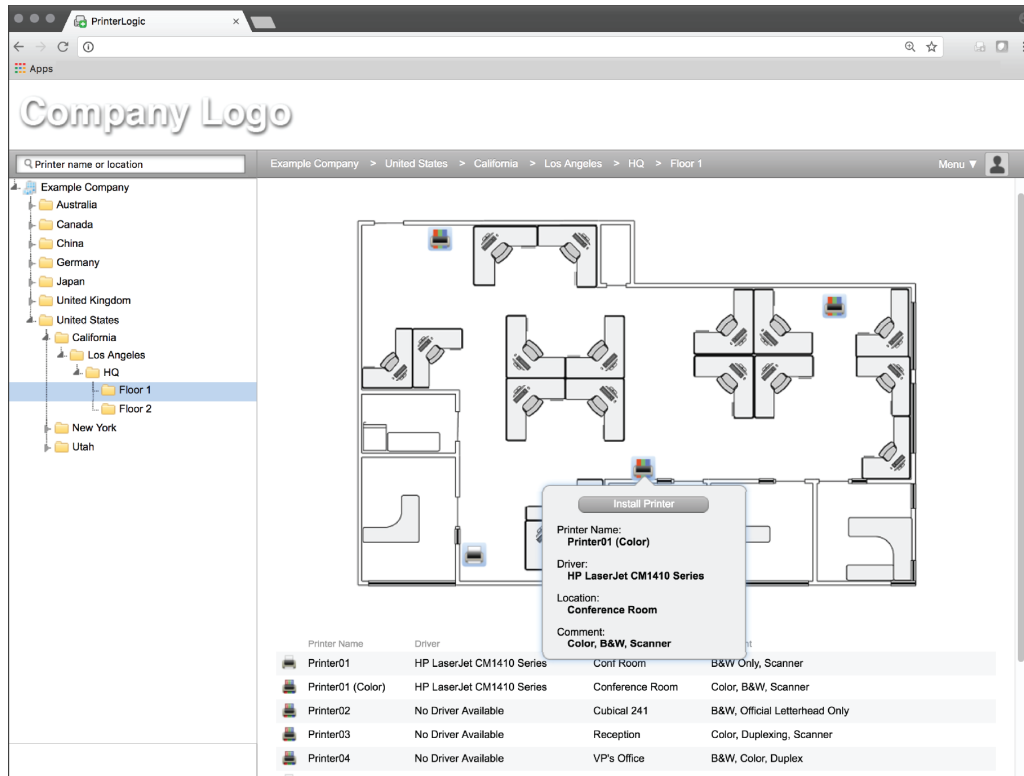


Figure 6: Self-service Printer Installation Portal with Visual Floor-plan Map

Networking Efficiencies

With PrinterLogic, there is no need to render the print file at the VM or at the print server. This addresses one of the biggest problems with VMware printing by reducing the size of the file that is transmitted over the WAN to the endpoint client, or to the printer.

Eliminating Print Servers and Associated Costs

PrinterLogic eliminates the need for any print servers in the environment. Print servers are expensive to maintain, sometimes neglected, and generally considered to be poor resources. This helps organizations with their infrastructure reduction objectives. And, by eliminating them from the environment, there is an increase in total resources available to the View VMs.

Conclusion

PrinterLogic greatly simplifies VMware printing by equipping end users and administrators with tools to easily deploy, manage, update, and control the use of printers. The solution reduces costs, frees up infrastructure, and increases print efficiency. All in all, PrinterLogic helps ease the transition to virtual environments.

PrinterLogic scales easily—from the ten-printer startup to the 10,000 printer enterprise. The solution frees up hardware and network resources normally required for printing, providing a high-efficiency and less complicated Horizon View 7 environment. It deploys quickly and easily, including migration tools that transfer settings and drivers from your current print-server infrastructure into a centralized direct-IP model.

To experience the many advantages of PrinterLogic's VDI printing benefits in your organization, [sign up to demo PrinterLogic for 30 days](#). It's free and there are no limitations on features.