Eliminating Print Servers

An Architectural and Use Case Overview

PrinterLogic

PrinterLogic

Introduction

PrinterLogic's enterprise printer and driver management solution completely eliminates the need for print servers, delivers centralized print management and empowers end-users to install their own printers with a single click. In addition, the platform solves the most prominent pain points in print management by:

- Simplifying Printing in Virtual Environments (Citrix, VMware, VDI)
- Increasing Security and Reducing Waste Through Pull Printing
- Simplifying Printer Driver Management and Deployment
- Printing From any Mobile Device to any Network Printer
- Delivering Powerful Reporting and Alerting Features
- Eliminating Print-job Related WAN Traffic
- Getting Rid of Scripting and GPOs

Eliminating Print Servers

PrinterLogic eliminates the need for print servers, thereby simplifying print management, reducing infrastructure and lowering costs. This section discusses the background, issues mitigated, implementation, features, and benefits of using PrinterLogic to eliminate print servers.

Background

In a typical printing environment, an IT staff member implements and provisions a print server to service the printers on the network. IT organizations use two types of architectures when implementing print servers: centralized and distributed print servers.

PrinterLogic
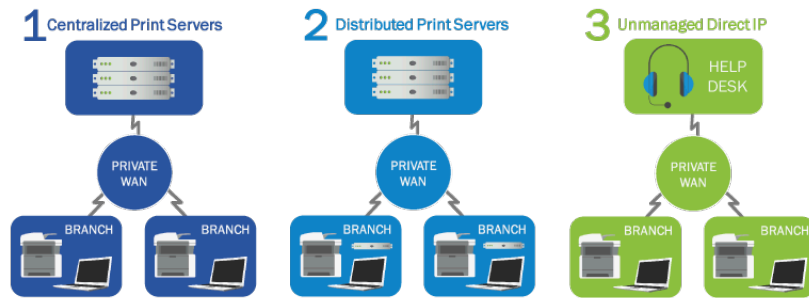
Figure 1: Multiple Sites with Multiple Print Servers

In a centralized model, a print server sits in the data center and services every network printer in the enterprise. The name, printer driver and configuration of each printer are used by the print server to distribute printers to end-users. To deploy printers to end-users, an IT admin creates group policy objects (GPOs) to define who gets the printer and how it is configured.

An end-user initiates a print job from a workstation. This sends it to the print server, where it is spooled, rendered and sent to the network printer. If the end-user is in a branch office, print jobs will travel both to and from the datacenter, creating additional WAN traffic. In addition, when the server goes down, the entire organization can no longer print.

To alleviate WAN traffic, some IT departments implement a distributed model in which print servers are placed at each location. Distributed print environments still suffer from the single points of failure that are part and parcel of the print server architecture, but these now tend to be more isolated to individual branch disruptions. Likewise, distributed environments also require complex scripting and GPOs to manage and distribute printers to end-user devices.

One way to overcome the disadvantages the print server architecture is through direct IP printing. This architecture eliminates the need for print servers because it creates a direct connection between the workstation and the printer but it lacks many of the deployment and management features of a print server.

In the direct IP model, the IT staff member configures each workstation to print to the network printer by manually associating the two devices. To manage printers, IT will maintain a spreadsheet that contains printer names, IP addresses, physical locations and printer driver file locations. Although this model eliminates the single points of failure, WAN traffic, and GPOs, it introduces a host of management challenges. Inevitably this model will generate additional service desk calls every time an end-user wants to install a new printer.

The Complexity and Cost of Print Servers

Historically, print servers were designed to provide self-service printer installation, printer deployment through GPOs, centralized print management, a printer driver repository, printer security and print queue management. Each of these features is designed to address the problems IT departments faced when managing and deploying printers to end-users.

Print Servers were initially a good idea. However, modern IT environments have found that they require additional management, create risk through a single point of failure, complicate deployment, consume IT resources and drive up costs. Some of the problems of print servers are outlined below:

Costs

Each print server at each site requires hardware procurement and licensing, cooling, power, physical security, management, maintenance, upgrades, virus scans and so on. The average cost per print server is $2,000 to $5,000 USD per year.

Risk from a Single Point of Failure

If the print server crashes, no one can print. Clustered print servers do not crash as often, but the trade-off for the high availability of clustered print servers is higher costs for hardware, licensing, management, power and maintenance.

Scripting and GPO Management Overhead

Managing scripts and GPOs to deploy printers to end-users can consume significant IT staff time and resources. Often even the simplest of tasks, such as changing a printer's name or replacing a printer with a new model and printer driver, requires a script. Scripts can get complicated and are often difficult to create and troubleshoot. GPOs require elevated permissions to manage, slow end-user logon times and can cause deployment and printing problems owing to their broadly hierarchical nature.

Self-Service Printer Installation

Print servers' native self-service printer installation features are often too difficult for end-users to use. Instead, they call the service desk and wait for assistance. Service desk calls are expensive and end-users are unproductive while they wait for printer installation assistance.

PrinterLogic

Management Headaches

Print servers require operating system upgrades, patches, security, virus scanning and so on. All of these take time and money to carry out. In fact, print server management requirements can be painful in many ways:

- **Difficult driver updates:** If you have 40 sites, you have 40 print servers. Each time a manufacturer releases a new printer driver that solves some problem you are experiencing, you must update the driver on all 40 print servers. Rolling back problematic driver updates can be even more time consuming.

- **Complicated caveats:** Another troublesome situation is when you need to support a 32-bit workstation with a 64-bit print server, but the manufacturer does not provide a model-specific 64-bit driver. In this case, the only solution is to use a 32-bit universal driver with the exact same name as the 64-bit universal driver, and then force all the 32-bit workstation users to change to the newly named driver.

- **Driver conflicts:** Yet another issue with print servers is that printer drivers do not always coexist gracefully. Just to keep drivers from conflicting, IT sometimes creates individual print servers for each printer manufacturer: a model-specific driver print server, a universal driver print server, another model-specific print server, a driver test print server and so on. Otherwise, the printer drivers can conflict and crash the print server.

Traditional print server architecture suffers from all these pain points, costs, and complications. Conventional direct IP printing introduces other problems, including a lack of management and constant service desk incidents for installing printers. An ideal scenario would be to combine the simplicity of direct IP printing with the management features of a print server.

Fortunately, PrinterLogic provides this solution. PrinterLogic's next-generation print management software converts your entire print environment to centrally managed direct IP printing and eliminates the need for print servers.

The Solution: Implementing PrinterLogic to Eliminate Print Servers

PrinterLogic is designed to support organizations of all sizes in a streamlined, efficient way. There are three quick steps to installing PrinterLogic's application and eliminating your print servers.

PrinterLogic

1. Install the Application

IT staff use the PrinterLogic installation package to automatically install the IIS role, PrinterLogic web application, and database on a virtual or physical Windows Server 2008 R2 (or newer) at your organization's data center or HQ.

2. Import Printers

IT staff use a web browser to access the PrinterLogic Admin Console and import printer objects and associated drivers from existing print servers. During the import process, all of your existing printer drivers, port settings, device settings, and preferences are copied from your print servers into the PrinterLogic application without changes. From then on, IT staff can use the PrinterLogic Admin Console to create and manage the printer objects.

3. Install the Client

IT staff use a small MSI, PKG or DEB file provided to deploy the PrinterLogic Client silently to all workstations.

Once installed, the Client silently converts all existing printers that were connected to print servers into centrally managed direct IP printers that print to a physical printer. Customized printer settings that were configured on the printer, such as the default printer setting or duplex and paper tray configurations, remain intact through the conversion.

After this step is complete, you can pull the plug on your print server(s) and users continue printing without any problems as shown in Figure 2. From then on, you can use the PrinterLogic Admin Console to centrally manage printers without any print servers, group policies, or scripts.
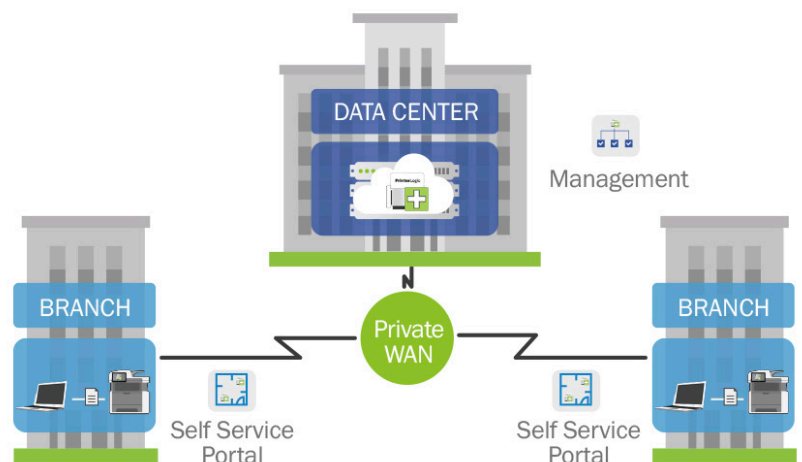
PrinterLogic

PrinterLogic Architecture

The PrinterLogic software consists of three main components:

- PrinterLogic Admin Console
- PrinterLogic Self-Service Installation Portal
- PrinterLogic Client

Each component is described briefly on the following pages.

PrinterLogic Admin Console

This web-based console enables IT to manage all the printers in your entire organization from a single screen. On the left, the Admin screen presents a tree view of your organization, where you can drill down by country, state or region, building, and floor number to select any particular printer in your fleet.

On the right, you can enter or edit any attributes for that printer.
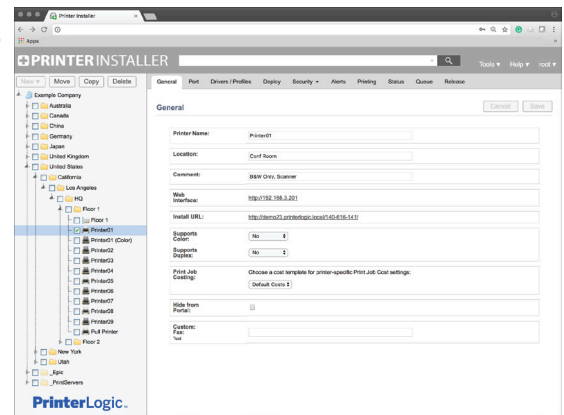
For example, on the General tab, you can enter or edit the printer name, location, add a comment, view the direct URL to the driver install, check to indicate a color printer, or check to hide that printer from the PrinterLogic Portal so that no end-users can see it. You can use the Port, Drivers/Profiles, Deploy, and Security tabs to configure and manage many other printer settings.

You can also perform many additional print management functions as explained in this document. You can use the same screen to add, edit, and delete printers.

- **Add printers:** With PrinterLogic, creating a printer is as simple as it should be. Select the folder for the location where you want to add a printer, then create the new printer.

- **Edit printers:** You can edit printer object attributes quickly and easily by selecting a printer in the tree and then changing the desired attribute(s). Any changes you make are automatically applied to that printer on all workstations.

- **Delete printers:** When you delete a printer, that printer is automatically removed from all end-user workstations.

PrinterLogic

Self-Service Installation Portal

The PrinterLogic Self-Service Installation Portal empowers your end-users to quickly find and install printers, with no need to call the service desk.

For example, when an end-user travels to a remote office where they need to print, they almost always end up calling the help desk for support. Users seldom know all the information required by the native Windows Add Printer dialog, such as the printer type (network or local), printer name, print server name hosting the printer, and so on.

If the help desk is not available immediately, the user can be blocked from completing a vital task. For example, printing out a proposal, contract, or letter to be signed at a meeting can be critical to the organization. Not being able to print is generally frustrating to the end-user.

PrinterLogic solves this problem by providing a web-based portal that empowers end-users to quickly find and install printers, with no need to call the help desk. This significantly reduces printer-related help desk costs, and boosts productivity by empowering end-users to do the task themselves.

An end-user can access the portal at any time by clicking the PrinterLogic icon in the Windows system tray, typing the URL directly into their default browser (printers.domain. com) or clicking a link on the company intranet site.

PrinterLogic's Self-Service Installation Portal can display optional floor plan maps that can be easily uploaded. Hovering the mouse pointer over any printer on the floor plan shows that printer's name, model, location, and an optional field for comments. The end-user simply clicks any printer icon to install it. If you don't have the floor plan maps uploaded, printers are also displayed in a clickable list.
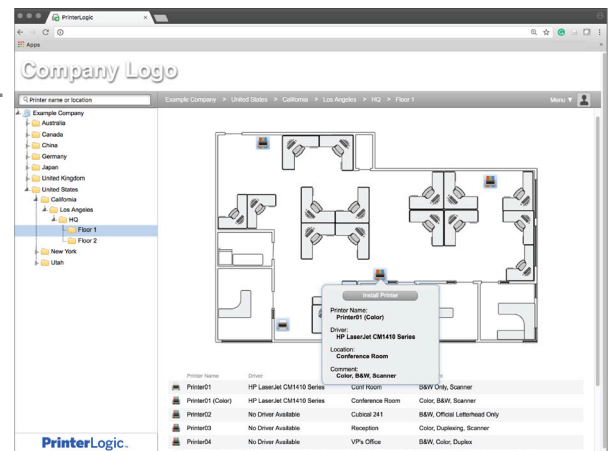

Figure 4: Self-Service Installation Portal

PrinterLogic Client

The PrinterLogic Client is a software agent that is deployed to end-user Windows, Macintosh or Linux workstations, using the provided MSI, PKG or DEB installation packages. The Client runs

in the background as a service to automatically perform print management tasks without any user intervention and allows for self installation without the end-user requiring installation privileges. These tasks include installing a printer, updating a printer driver, etc.

PrinterLogic Database

This database contains printer objects, floor plans, printer drivers, printer driver configurations, the tree structure, and other settings.

Features

Print management tasks that were previously accomplished with print servers, group policies, and scripts, can now be completed using the PrinterLogic application. PrinterLogic provides a rich set of features, including:

Centrally Managed Direct IP Printing

You can manage your entire organization's printers from a single Admin Console, regardless of whether you use domains or no domains, trusted or untrusted. Any changes you make to a printer object are automatically applied to that printer on all your workstations.

For example, if you change a printer's name in the Admin Console, the Client will change that printer's name on all your user workstations.

You can use the same screen to add, edit, and delete printers that will ripple through the organization and update all workstations.

Self-Service Installation Portal

Here are some of the added benefits of the PrinterLogic Self-Service Installation Portal:

- **Auto-locate:** When a user visits the portal, their current location is automatically selected based on their IP address, so they can simply click the desired printer to install it.

- **Floor plans:** Optional floor plan maps make it even easier for a user to find and install the nearest printer, especially when they're roaming.

PrinterLogic

- **Search:** The user can enter a partial printer name and see the location of any matching printers. When the user selects a printer from the list, they are taken to the right folder with the printer selected; they can simply click a prompt to begin the installation.

- **Customization:** You can customize the portal header to show your company logo and any instructions or comments in the local language, based on the end-user's location.

- **Security:** With Active Directory integration, you can hide or show the tree folders or printers according to the user's group, OU, or even IP address range.

- **Single enterprise portal:** Whether you have one corporate domain, many disparate domains without trusts, or no domains at all, all users can still securely access the web portal and see the printers that users have the rights to install

- **Fewer help desk calls:** Whether a user is in Los Angeles or in London, and no matter where they roam on the enterprise campus, they can simply click the PrinterLogic icon in the system tray (or a link in the company intranet) and the portal opens to their current location. Then they can easily install the nearest printer without calling the help desk or waiting for a ticket to be filled.

- **Citrix support:** The end-user can also access the PrinterLogic Portal in Citrix desktop sessions so they can quickly find and install the nearest printer.

- **VMware Horizon View support:** The end-user can access the PrinterLogic Portal in VMware Horizon View sessions so they can quickly find and install the nearest printer.

Mass Printer Edit/Create/Management

Enterprise customers with larger environments can benefit from the mass edit feature provided in the PrinterLogic Admin Console. Authorized IT Admins see all your printers and attributes at the same time and use find-and-replace to make numerous changes to printer objects, deployment assignments, drivers, and so on. The same feature enables the authorized admin to quickly create, modify or delete hundreds or even thousands of printers at a time.

PrinterLogic

Printer Deployment

PrinterLogic eliminates the need for time-consuming group policy objects (GPOs) or scripts to deploy printers to end-users. Instead of giving rights to IT staff to manage group policies—with the risk that they could make drastic non-printer-related changes—you can use the Admin Console to safely empower IT staff to manage printer deployment.

Here are some of the added benefits of using PrinterLogic's built-in printer deployment feature, instead of GPOs and scripts:

- **Active Directory integration:** With PrinterLogic's web-based GUI, you can easily deploy printers to Active Directory users, computers, groups, containers, OUs, or even IP address ranges. PrinterLogic shows you all printers with all deployment assignments, so you can make mass changes as easily as individual deployment changes.

- **No GPO rights required:** You can enable any IT staff—including service desk personnel you would never permit to edit group policies or scripts—to add and remove printer deployment assignments, without having any rights to group policy objects, scripts or print servers.

- **Desktop and thin client support:** You can deploy printers to Windows, Mac, and Linux desktops and thin clients.

- **Write filter for thin client support:** PrinterLogic can disable any write filters (either enhanced or file-based), install the required printer(s), and then re-enable the write filter.

- **Proximity printing/location-based printing:** PrinterLogic enables you to add printers to a workstation according to the workstation's IP address, name, or even Active Directory computer, group or OU membership. This provides a simple way to provision the nearest printers to any user accessing that workstation.

- **Faster logins:** With group policies or scripts, whenever a printer is installed during logon, the logon process is delayed, often for several minutes. With PrinterLogic, any required printer installation begins after the user's login is complete and the desktop is available. That way, the user can begin working immediately, while the printer is installed in the background.

PrinterLogic

- **Advanced default printer options:** You can set a default printer either the first time that printer is installed, every time the user logs on, or by the user's current location. To achieve this without PrinterLogic would require time-consuming custom scripting by someone with advanced programming experience. With PrinterLogic, all it takes is the click of a checkbox.

- **Orphan printer removal:** With PrinterLogic, you can remove printers from workstations as easily as you deploy them. Simply remove the deployment assignment and the printer will be automatically removed from all workstations where it was installed. No more slowdowns caused by orphaned printers trying to connect to printer shares that don't exist.

Printer Driver Management

You can use the Admin Console to change the selected driver for any printer. If the driver you want is not in the drop-down list, you can upload it to the database to make it available. The PrinterLogic Client will then update all installed printers to use the new driver.

To replace a driver so that all printers use the new driver, you go to the driver repository and simply replace the old driver with the new driver. With traditional print servers, you would have to install the driver on each print server, and then change the driver for each printer on every print server. With PrinterLogic, you only need to update the driver in a single location.

Printer Driver Profile Management

You can use the printer driver profile to configure driver settings such as DPI, duplexing, paper size, paper source, paper trays and so on. Since PrinterLogic displays the actual driver's interface, you can configure all the settings provided by the driver.

You can also configure the profile to apply each time a user logs on or even after each print job is printed. For example, suppose a company has a paper-saving policy so that all print jobs must be printed double-sided (duplexed). If a user manually disables duplex printing for a one-sided job like labels, the duplex profile is automatically reapplied to the next print job.

Port Management and Redirection

If any printer has a hardware problem, so that you need to redirect all its print jobs to a similar printer,

PrinterLogic

you can use PrinterLogic to quickly make a single port redirection change. From then on, all print jobs will be routed to the second printer. When the first printer comes back into service, simply remove the redirection.

SNMP Monitoring and Alerts

The SNMP console shows the status of your organization's entire printer fleet. Any notifications like ink low, paper low, paper empty, ping status, etc. are shown on this screen to make monitoring your printer fleet a breeze. Set up alerts that email IT workers to proactively manage printers.

Administrative Auditing

Auditing all print management events helps you quickly pinpoint what changed and who changed it. All actions—from a simple printer name change to a complex set of driver setting changes—are stored and viewable for quick management.

Role-Based Access Control

Since PrinterLogic integrates with Active Directory, you can specify which users can log on to the Admin Console with an existing Active Directory username and password. Once an IT or help desk person is logged on, you can control their privileges by assigning them a built-in role or create a custom one. These roles determine an employee's access to print management functions. You can use roles to empower each site administrator to manage their site's printers, or to give central control over all your printers to a single staff member.

Print Job Auditing and Reporting

Although print jobs are sent directly to a physical printer, the PrinterLogic Client on each workstation sends certain metadata to the Admin Console. This enables you to see print job statistics in an intuitive, exportable format.

The administrator then uses reports to determine print job usage and print job costs. You can answer valuable questions about the cost of printing on a single printer or the cost of toner and paper for the entire organization. It will also help you change any policies or help optimize your driver profiles for more efficient use.

PrinterLogic

The administrator has many predefined reports to determine departmental usage, printer usage, and paper waste. It can be as granular as how many print jobs are color vs. grayscale, duplex vs. simplex, and large vs. small print jobs. Administrators simply set up scheduled reports to be sent to executives or department heads to educate the organization on printing usage and costs.

Queue Management

PrinterLogic provides your IT staff with a single web-based portal for managing all your printer queues. The Client notifies the PrinterLogic Web Stack (formerly Printer Installer) Server of all print jobs in each workstation's local print queues, so that IT staff can cancel or delete any problem or unnecessary print jobs.

Printer Driver Caching

Some multinational enterprises have large presences in countries with a very limited or expensive WAN link, where they don't want users downloading drivers from PrinterLogic to install a printer.

To address this concern, you can create an IP Address Range object and specify a beginning and ending IP address and a Windows share (e.g. \\server\share) at the remote region or location.

From then on, when a user logs onto a PC in the IP address range, and needs to install a printer, the system will download drivers from the specified Windows share instead of the PrinterLogic server. Meanwhile, PrinterLogic will automatically keep the cache up-to-date with new drivers.

High Availability

PrinterLogic can be configured with a warm standby PrinterLogic server. In the unlikely event that the primary PrinterLogic server ever fails, the secondary PrinterLogic server can handle any print management requests. Remember that even if the PrinterLogic server is offline, all end-users can still print, since all print jobs are sent directly to a physical printer.

Quick Review—The Benefits of Eliminating Print Servers

The many benefits of eliminating print servers and implementing centrally managed direct IP printing with PrinterLogic include:

PrinterLogic

- **Simplify your infrastructure:** With PrinterLogic you can eliminate all your print servers and dramatically simplify your infrastructure (while drastically reducing cost).

- **Streamline your print management:** Now you can manage all the printers in your entire enterprise through a single web-based admin console.

- **Empower your staff:** IT staff can now manage all the printers at their own sites, and end-users can quickly and easily install their own printers.

- **Reduce help desk calls:** With a self-service installation portal to quickly install their own printers, end-users are much less likely to call the help desk for printer hassles.

- **Quick Return on Investment (ROI):** The ROI for PrinterLogic occurs very rapidly. Eliminating costly print servers and reducing help desk calls equals quick savings.

Conclusion

All the cost, effort, and complexity of traditional print servers are no longer necessary. PrinterLogic replaces all the functionality that print servers used to provide in a single integrated platform. It also adds many new features that simplify print management and provisioning, reduce costs, and empower users to install printers for themselves, without calling the help desk.

To find out more about how you can eliminate all your print servers with PrinterLogic, contact sales@printerlogic.com or call 435.652.1288 for a quick WebEx product demonstration and a 30-day trial install.

PLWP_ELIMINATING_PRINT_SERVERS_FV2_082019

PrinterLogic