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Serverless Printing: Eliminiating Print Server Costs

Workflow
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Technology is constantly changing, and enterprises are always looking for the newest solutions to keep themselves at the forefront of digital transformation. Businesses strive to reach full digitization, however, printing – an integral business process - still remains a physical process. Many of the steps in this process can be simplified using serverless technology. Consolidation of print servers from remote sites to a centralized data centre in the cloud has numerous benefits but also created problems such as increased costs and a slower WAN connection. This white paper will address the benefits and drawbacks organizations will experience using serverless infrastructure and how UniPrint Infinity provides a solution that eases the management of serverless setups.

Traditional enterprise printing meant that multiple workstations would be on the same network with the workstations having to install printer drivers to enable functionality. Older printers had little memory, and if multiple workstations sent their print jobs to the same printer, multiple documents would print at once. This led to confusion and frustration for workers as their documents would either not get printed altogether or would be mixed with someone else's documents.

Microsoft later introduced the print server, which properly buffers and schedules print requests to ensure that print jobs come out properly in a multi-workstation environment. The print servers also have the functionality of being a repository for all the printer drivers, so end-users do not need to install multiple print drivers. For organizations with remote offices and limited bandwidth availability, print servers were deployed at the remote site to minimize traffic on the WAN connection. However, it became very difficult and costly to manage a distributed fleet of remote print servers.

The introduction of cloud-based technology meant that businesses were able to host services and data on the cloud, like print servers. The advent of cloud technology has enabled the digitization of printing, as printer management became simplifed through server virtualization.

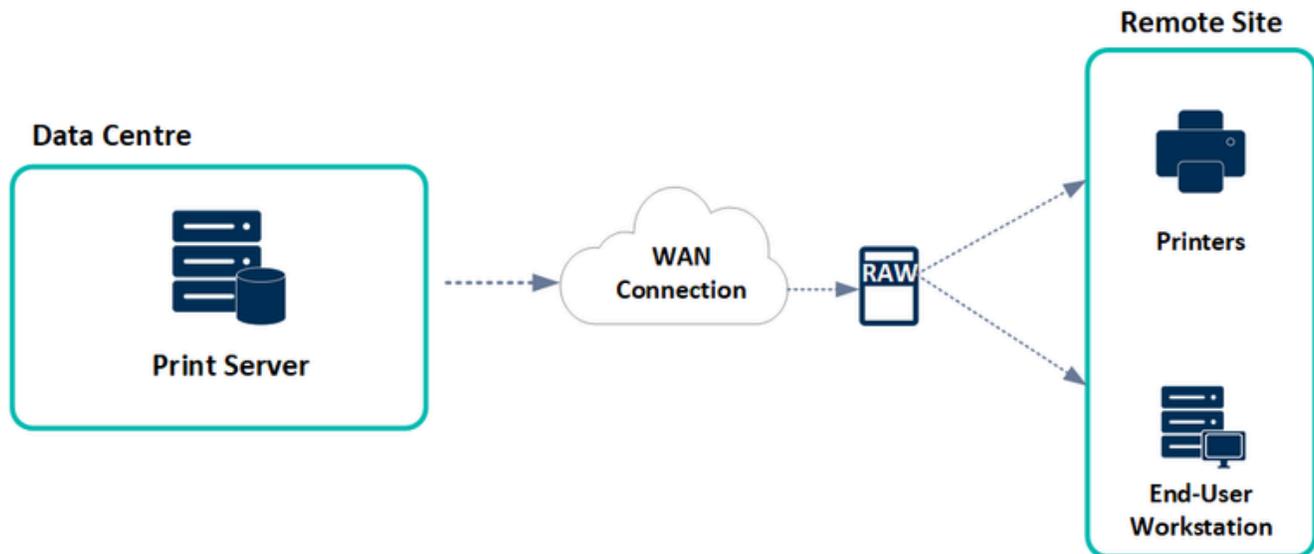# Printing from the Workstation to the Printer

FIGURE 1: Cloud Data Centre to Remote Site Setup

Figure 1 shows the typical enterprise setup between a remote site and the data centre. End user send a print jobs from their workstation, and print traffic is directed through the WAN connection to the data centre, where infrastructure such as file server, SQL server, and print server are centralized. The print server then sends the print traffic back through the WAN connection where it reaches the printer and outputs the print job.

Dedicated print servers can provide a multitude of benefits including a centralized print management, automatic driver updates, high availability, control over an user's printer profile, and statistics & archiving. With over 60% of organizations using Windows 10 and Microsoft print servers, cloud print servers appear to be a great option for businesses who need to print.

This feasible for large organizations that can afford to spend on multiple servers, but not for smaller businesses who need a simple printing solution. The problem with virtualized remote print servers is that print traffic can flood the WAN connection – large print data file sizes slow down the network as they are transmitted across the WAN to the printer which frequently causes printing speed issues.

Cost also becomes another issue as some organization do not want to maintain another piece of hardware on a remote site with over 100 sites and 100 print servers. Maintaining the print server normally requires a Microsoft server license, which is around $3000. With over 100 print servers costing $30,000 not including the extra cost from IT overhead to support the servers.

Thankfully, there is an alternative known as serverless printing which employs direct IP printing. Serverless printing removes the print server altogether, cutting down on IT management costs and completely removing the need to pay for print servers. As an inherently redundant solution, there is no single point of failure in serverless which allows your workers to keep the workflow they expect

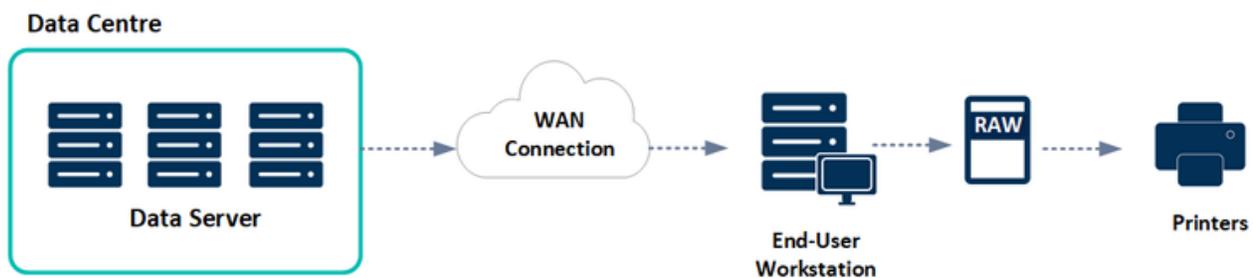## Serverless Printing Using Third Party Print Management

FIGURE 2: End-User Serverless Setup using Cloud Data Centre

As printer technology improves, additional features such as larger CPU and memory allow them to take multiple print jobs and output them properly. With print queue no longer an issue, end users can send their print jobs directly through the network using IP printing.

Direct IP printing is great for small deployment scenarios when businesses need to manage a few printers and workers need to keep their workflow from being interrupted. With serverless, if the print server is offline or WAN connection is down the workstation can still route to the printer. The removal of print servers also saves money for the organization, at the cost of management tools to help maintain the printers.

The major part that is missing from most serverless printing setups is a management tool that can help manage it all together. Third party solutions like UniPrint Infinity Serverless Printing help manage serverless setups so system administrators do not have to update all workstations constantly.

In Figure 2, UniPrint's Serverless Solution deploys a driver repository in the cloud data centre. The driver repository contains all printer drivers, printer information, and configurations which then talks to software agents through WAN who push the drivers into printers. The agent runs on each workstation and will pick up the driver that is required, map to the IP, and create a printer to print locally. Once an end user clicks print, the print traffic is sent directly to the printer without needing a WAN connection. Despite all the benefits of serverless, there are some minor disadvantages compared to regular cloud print solutions.

Noticeable Drawbacks of Serverless to Consider

1. Accounting, Statistics, and Monitoring A print server has the functionality to track anything coming from the router and collect the statistics. In cloud setups, tracking is done through router traffic. In the serverless setup, because there is no print server and workstations print directly to the printer through IP, management becomes more complex. There is no simple solution of tracking how much printing is done, to which printer.

2. Secure Pull Printing Some cloud print solutions come with the ability of secure pull printing, allowing users to print a document and only release when they are physically there. Usually, a storage database would keep track of print jobs but with no print server, this functionality becomes harder to achieve. Newer printers have secure pull printing but lack the mobility of a cloud print solution as users can only pull from that printer. A workstation could hold the print job but if it goes into sleep, the print job will be lost.

3. Environment Flexibility Unlike cloud printing solutions, the serverless solution only works with Windows desktop environments. In virtualized desktop environments, the advantages of serverless are negated by the issues of bloated WAN print traffic, workstation instability caused by constant updating of VDI images, and having too many printer drivers to install on the same image.

4. Third Party Management Tools Direct IP printing in environments with few workstations/printers often runs with no problems. When organizations scale up with more workstations/printers, system administrators have to go through the process of adding each printer driver and IP of the printers to allow users to print. Organizations turn to third party software allows easier management of the printers, which incurs additional costs.

Conclusion

Organizations looking for a printing solution to help bring convenience to their employees should make sure to compare the advantages and disadvantages that each setup provides. The configuration of the printing environment, whether direct IP printing or print servers, comes down to the needs of the organizations.

For larger organizations that can afford both multiple print servers and a strong WAN connection, the benefits provided by cloud printing alongside a third party software is invaluable to managing the printing process. In smaller organizations that have very few workstation or printers, serverless is the better option to save money on overhead print server costs. With third party solutions, serverless is a good option for enterprises that are in the process of consolidating their servers, reducing printing expenses, and simplifying the process for system administrators.

Enterprises not looking to completely eliminate their print servers can also benefit from a hybrid solution which may be a more reasonable, cost-effective solution. A hybrid solution deployed under a single management platform allows ease of use for administrators while still allowing for consolidation and cost savings.

Whether an organization chooses cloud printing or serverless, finding the best solution to fit the needs of the business is crucial. Third party software to help with print management enables organizations to reach a new age of digital transformation.

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