

WHITE PAPER

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# Optimize Epic Printing in VDI Environments

# Introduction

According to the Office of the National Coordinator of Health IT, as of 2016, more than 95% of U.S. hospitals have implemented Electronic Health Records (EHRs).<sup>1</sup> However, due to resource and budgetary constraints and the fact that many of these implementations were fast-tracked in order to meet meaningful use requirements as outlined in the American Recovery and Reinvestment Act (ARRA) and Health Information Technology for Economic and Clinical Health (HITECH) Act in the United States and the Canadian Health Infoway (Infoway) initiative in Canada, many of these one-time, straight-out-of-the-box implementations are not realizing the results and benefits of their EHR systems. This is prompting many healthcare IT executives to look for ways to optimize their eHealth infrastructure and one popular optimization is to make their EHR accessible through VDI.

Epic is one such EHR system that is being adopted by many healthcare organizations. Although delivering Epic through a VDI environment can improve reliability, availability, security and mobile requirements, one aspect still remains an issue – printing. This white paper addresses the common printing and workflow issues with Epic in a VDI environment and recommends using UniPrint Infinity to optimize VDI printing.

## Common Issues

Although using VDI to deliver Epic can improve reliability and availability while maximizing the use of computing resources, it also creates issues for printing. Printing is one of those functions that users tend to take for granted and assume that it will always work no matter how they access their applications. However, in a VDI environment printing isn't always this simple depending on the application being virtualized. Epic printing out-of-the-box is in itself complicated, even without VDI. Below we will go over three crucial printing challenges when it comes to Epic printing.

### Printing Issue 1

The first issue and potential problem that immediately stands out is the number of redundant print servers that are required. Not only does this solution require a third-party load balancer and at least 4 Epic Print Format Servers in the data center, but also at least 3 Epic print servers are required at each remote location. Each of these print servers is required to have the exact same printer drivers on them. As an administrator, the first thing that comes to mind is the time-consuming management of all of these printer drivers, on all of these print servers. Many of our customers have described the entire Epic system as a “monster”, with more than 30 modules and with all of these required print servers it can be quite a nightmare when it comes to printing alone.

### Printing Issue 2

By adding VDI into the Epic mix, the issue with printing is compounded since it becomes difficult to ascertain which endpoint initialized a print job. In many cases, Epic's Hyperspace client is hosted on a virtual desktop image or Citrix application server. So, users log into their application server as domain users and then within their server session they use Hyperspace to access an Epic application. The user's domain ID persists, but the location of the endpoint is lost. This makes it difficult to map printers to the user's session and the actual endpoint location each time the user disconnects from their session and reconnects as they roam from static endpoint to static endpoint.

<sup>1</sup> Office of the National Coordinator of Health IT. <https://dashboard.healthit.gov/quickstats/quickstats.php>

## Printing Issue 3

A user who roams from one static endpoint to another static endpoint is one issue, but what about a user who carries their endpoint with them? Many clinicians carry a tablet as they do their hospital rounds and use it to update patient information. If at some point during their rounds they need to print, there is no way to know exactly where they are within the hospital and therefore map the closest printer to them. Busy clinicians shouldn't be required to return to their office to print and should be given the option of printing securely wherever they are in the hospital. UniPrint Infinity can be configured to address all three of these issues.

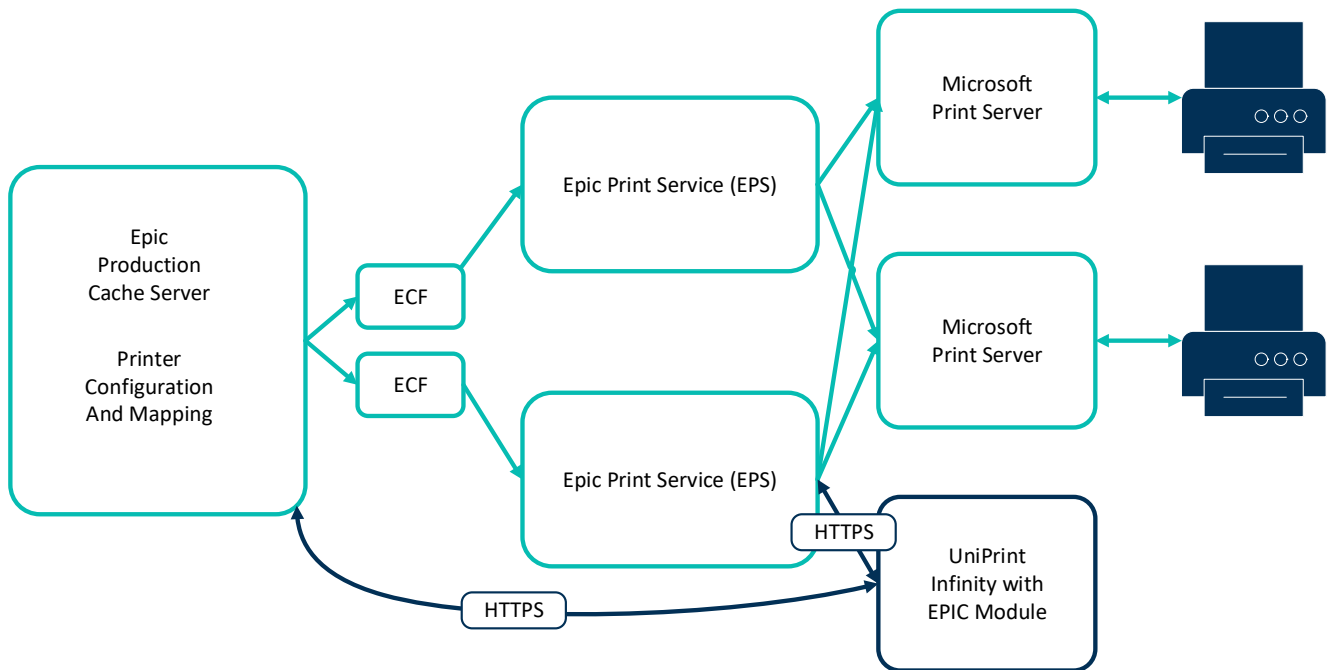


Figure 1: High-level overview of the UniPrint Infinity solution integrates with Epic.

## Consolidate Remote Print Servers to the Data Centre & Eliminate Epic Print Format Servers

The reason Epic suggests placing all of those print servers at each remote site is to reduce the amount of print traffic and therefore bandwidth consumed between the data center and the remote site. Epic also suggests having a minimum of 4 Epic Print Format Servers that are load balanced. With UniPrint Infinity, all of the Epic Print Format Servers can be replaced with the UniPrint Bridge and all of the remote print servers can be consolidated to the data center. Reducing the number of remote print servers has the immediate effect of reducing and simplifying administration and management.

# Reduce Print Data Traffic Between the Data Center and the Remote Site With Print Stream Compression

UniPrint Infinity accepts the ERTF file from the Epic Caché server, renders and targets it using the Epic Print Support component, and then sends it to the appropriate Windows print server. The print server in the data center then uses native print drivers to render the PDF print job into RAW data, compresses the data and then streams the print data to the appropriate vPad device. The remote site has a vPad Pro or CE device which decompresses the print stream and then forwards the print job to the appropriate printer. This feature compresses print jobs by as much as 95% and therefore saves a ton of bandwidth.

## Map the Closest Printers to the Endpoint Where the User is Accessing Their Server Session

The beauty of VDI is that users can start their server session on one workstation, temporarily disconnect from that session and then reconnect to the same session from a different workstation. To the user it's a seamless experience and they don't care which computer they're working on, as long as they can continue their work from where they left off.

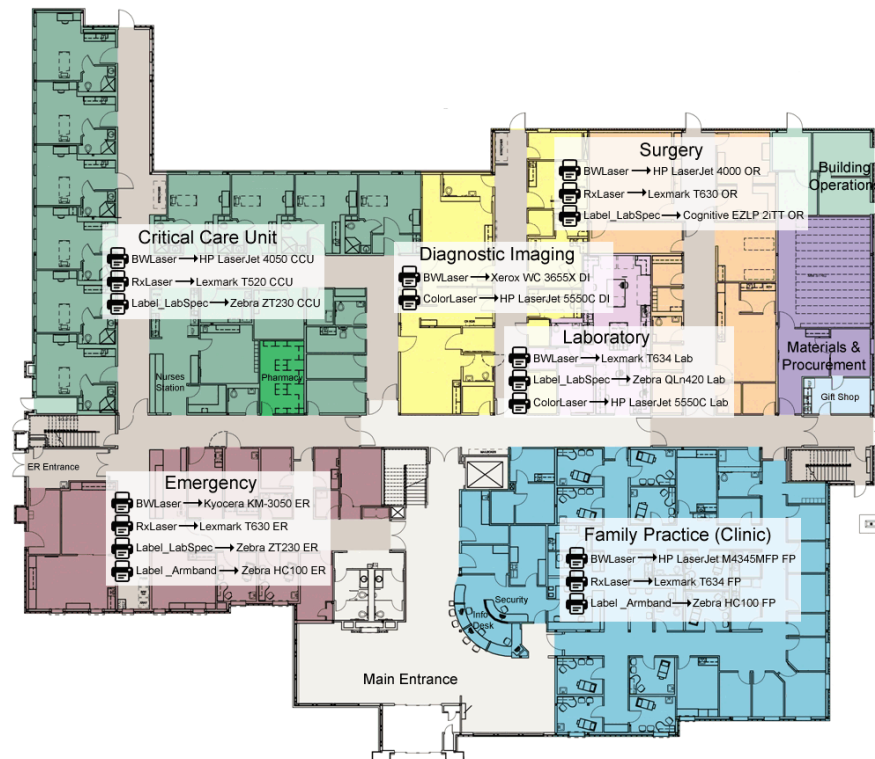


Figure 2: Simplified hospital layout that shows how Smart Route makes printing easier for users by automatically routing print jobs from simple, common printer queues to the actual correct printers in each area.

## **Consolidate Remote Print Servers to the Data Centre & Eliminate Epic Print Format Servers**

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## **Enable Mobile Users to Securely Release Their Print Jobs Wherever They Are**

While a user who roams from one static endpoint to another static endpoint can be solved by using PrintPAL or Smart Route, what about the user who carries their endpoint with them as they roam a building or campus? These users are difficult to track for the purpose of assigning the closest printers to their proximity. In this case, the solution would be to put the user in the driver's seat and allow them to control when and where to release their print jobs.

With UniPrint Infinity's SecurePrint and Mobile Printing solutions, clinicians who carry a tablet while they do their rounds can print to the UniPrint Virtual Print Queue (VPQ) and then wherever they are in the hospital, they can release their print job by going to a UniPrint vPad device to authenticate themselves. Based on the vPad's location and the users' permissions (using access control lists), the user will be presented with a list of permissible printers that are in close proximity to the vPad. Also, the user will only be presented with their own list of print jobs. They cannot view any other user's print jobs. The user can then select a printer and if desired even change printer properties, before releasing their print job.

## **Option to Require Two Factor Authentication for Print Release**

This model also supports Imprivata OneSign and if desired two-factor authentication can be implemented such that an RFID or HID card/token is required to unlock the vPad device first and then the user is required to enter their SecurePrint password in order to release their print job to a printer.

## **Option for Tap & Release and Print Job Filtering**

An alternative to two-factor authentication is Tap & Print. The vPad CE device can be configured, such that with a tap of a user's RFID or HID smartcard, all of their print jobs will be sent to print out at the printer associated with that particular vPad CE. Tap & Print is typically configured as a one vPad CE to one printer solution. However, what happens if a user sends a mixture of print jobs, some destined for black and white laser printer and others for a label printer. In this case, if the user taps at a label printer, the label printer will print out everything resulting in wasted labels and ink. With UniPrint Infinity, print job filtering can be used to filter print jobs and then send them to the label printer.

## Conclusion

With all the redundant Epic print servers, managing Epic printing in a VDI environment has been known to be an administrative nightmare. However, with UniPrint Infinity, the investment in Epic can be realized by optimizing printing and printing related administration by eliminating the need for Epic print servers. UniPrint Infinity can replace all of the Epic Print Format Servers with the UniPrint Bridge and consolidate Epic print servers to the data center. Bandwidth consumption between the data center and remote offices is greatly reduced, by as much as 95%, using print stream compression.

For the user, accessing an Epic application from a virtual desktop session is easy and printing should be just as easy. However, with users that move from static endpoint to static endpoint, ensuring that only the closest set of printers are mapped to their sessions is a challenge. UniPrint Infinity's PrintPAL and Smart Route can be configured to take the guess work out of selecting which printer the user should print to and if the user needs to print a prescription for example, Smart Route can be used to simplify the printing processing even more and all the user needs to do is print to the "Prescription printer".

Automatically mapping printers to user sessions becomes even more challenging if the user moves around with their endpoint in hand. UniPrint Infinity's SecurePrint and Mobile printing, enables the user to take control and print when they want and where they want. The user simply prints to the UniPrint VPQ and when it's convenient for them, goes to a vPad device to authenticate themselves and release their print jobs. Authentication methods supported include password, RFID, HID and Imprivata OneSign or any combination thereof providing the flexibility to make printing as secure as required by your organization.

UniPrint Infinity can optimize and simplify Epic printing within a VDI environment for both the administrator and more importantly the user.

**Try UniPrint Healthcare Printing Suite for FREE  
and see how easy cloud print management can be**

### About Process Fusion

Process Fusion is a software company and a cloud solution provider. We help organizations transform inefficient, paper (labor) intensive business processes into a secure, automated, mobile ready Digital First experience for all participants.

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