

ITFreeTraining



Windows Printing Components

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In this video, we will discuss deploying Windows Printing to your network. Windows allows the different components of printing to be separated quite easily, giving the administrator quite a bit of choice on how to deploy it in their environment.

Printing Components



Printer

Software interface



Print Device

Physical Device that
Produces printouts



Printer Driver

Converts job to commands
print device can understand



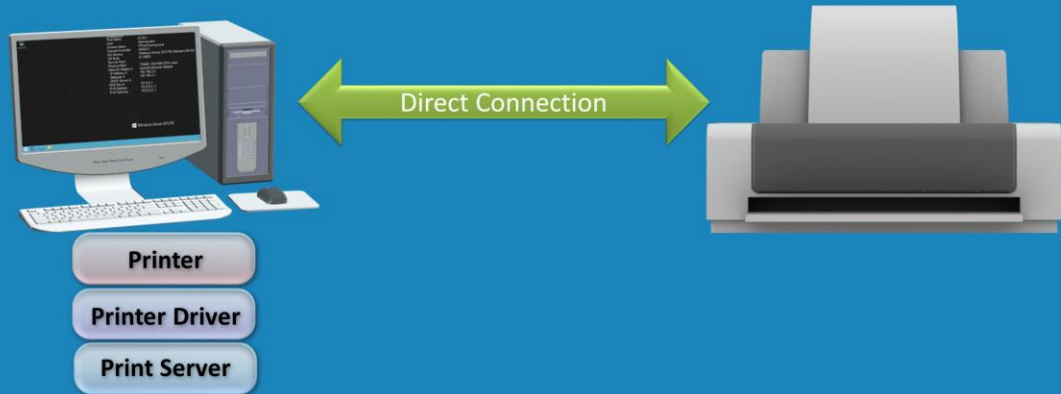
Print Server

Receives print jobs and
sends them to print device

0:17 - To review what we covered in the previous videos, there are essentially 4 primary parts of the Windows Printing process, which are shown here. A single computer can perform all 3 roles with the exception of the print device, or they can be split apart and placed on different parts of the network. We will now take a look at some of the different ways that these components can be configured and distributed across the network.

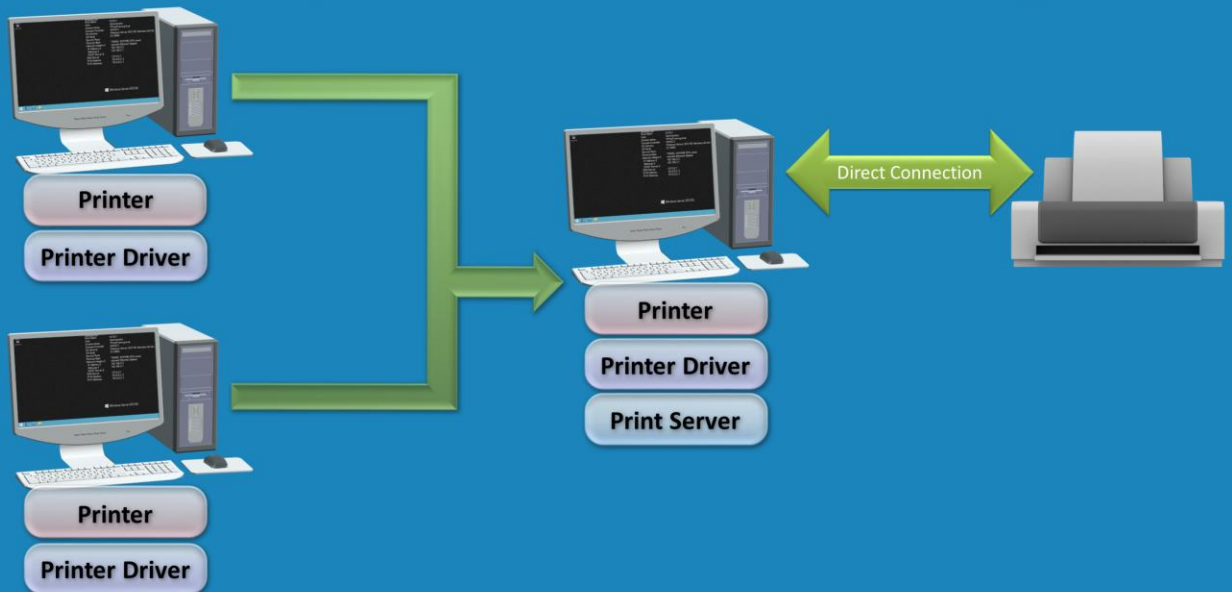
Direct Printing

- Locally attached print device



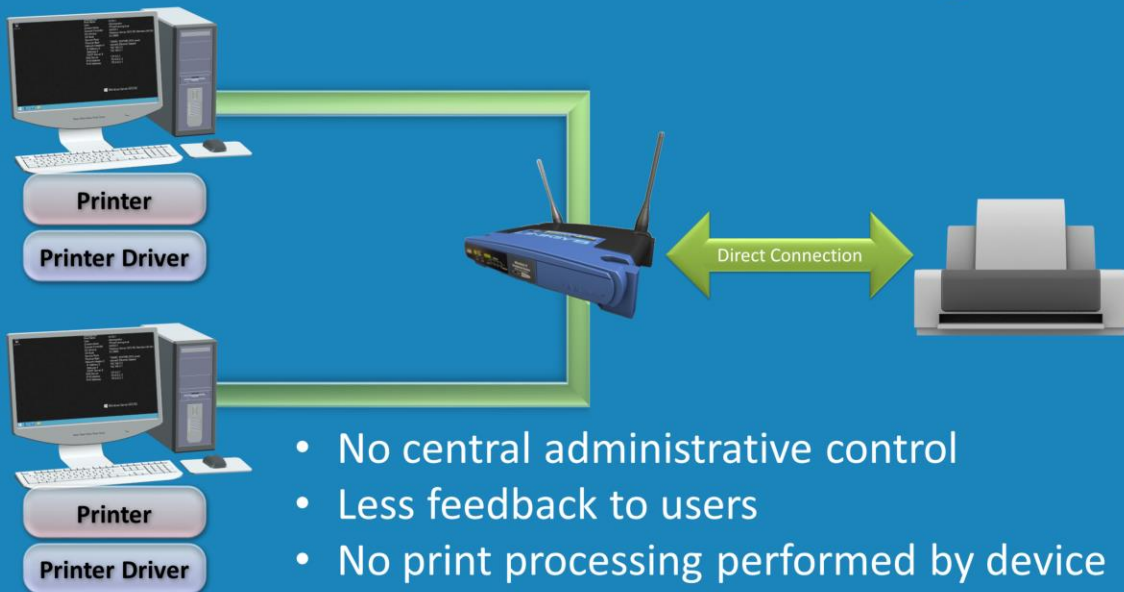
0:39 – The first method of printing is direct printing. This is when the printer is directly attached to the computer itself and the computer is able to send commands to it directly. This is also known as a locally attached print device. In this case, all the print components are configured on the local computer. The printer is connected to the computer through a direct connection such as USB, but there is the possibility of coming across other types of connections such as firewire and serial cables depending on how old the printer models are.

Locally Attached Printer Sharing



1:00 – The next method we'll explore is when a locally attached printer is shared out in a network environment. Like before, you have your computer that is directly connected, such as USB, to a print device itself. The printer components such as the printer, printer driver and printer server are installed on this workstation that is locally attached to the printer. In some cases, the administrator would prefer to share the printer with other workstations on the network. For example, in a small office environment there may not be a dedicated server installed to handle print jobs but the printers need to be shared anyway. So in this case, a workstation can be used to share the printer so that other workstations on the network are capable of seeing and printing to that printer. In this case, 2 other computers on the network use the shared printer on the workstation using the network. When this occurs, a printer needs to be installed on each computer. This will have the local printer receive the print job from the application running on the computer, but the print job will still need to be converted to a format the print device understands. Also, the computer will need to know what features are available on the print device, for example if it can do double sided printing or stapling. In order to do this translation and feature determination, the printer driver *also* needs to be installed on the individual computers that will be printing to this shared printer. You can see in the example that the print server is only on one computer. This print server on this computer is responsible for managing the print jobs that are being sent to this print device. If there are a large number of print jobs being sent to this shared printer, it can add additional processing overhead on the workstation sharing the printer. This may affect the performance of the individual using the computer.

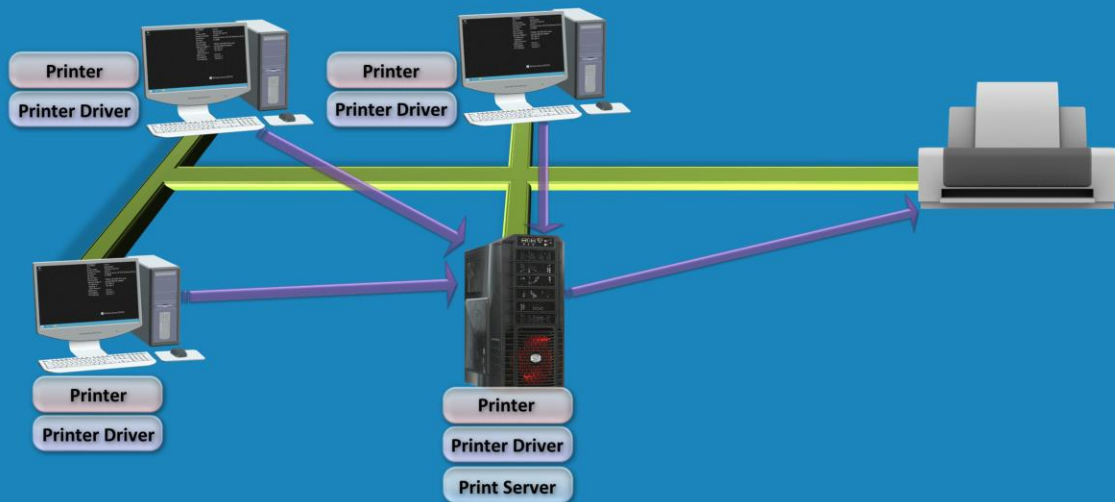
Network-Attached Printing



2:28 – The next method of printer deployment that I will look at is network-attached printing. Imagine you have a printer that is connected directly to a stand-alone print server. In the old days, these were generally standalone units that were network attached devices that then directly interfaced with the printer. These would be used for print devices that were not network enabled so that they could be basically retrofitted to fit the network needs. Nowadays, this functionality is available in a many other devices. You can still purchase one of those stand-alone devices, however some devices like routers have this functionality built in. Some physical printers also have expansion slots in them that allow a print server module to be installed, adding network functionality. Furthermore, some print devices themselves sometimes come with print servers built-in that allow them to be directly attached and used over the network. The standalone print server has a direct connect to the print device, however it is also connected to the network. This allows the network attached workstations to print to the print device. Like before, the printer and the printer driver need to be installed on the workstations. There are some caveats with this method. First and foremost, there's no central administrative control. This means that administrators cannot view the print queue and delete any jobs within. If the device allows it, the administrators may be able to login to the device and possibly have some control there but there is no guarantee this will be possible. It is also not as seamless as Windows printing. Since there is no central control, there is also less feedback given to the users. For example, users will not be able to see what print jobs are already printing on the printer and thus have no indication of when their print job

will start or how many print jobs are ahead of them. They may also not receive any error codes. For example, if the printer is out of paper this message will not be relayed to the proper user and may only be sent to the user whose current print job is printing. Lastly, there is no print processing performed by the print server. In Windows, you have the option to move some of the processing to the server. However, with a print server, all the processing needs to be done by the workstation. A lot of printers on the market come with network support; however there are still some times when you will want to use a print server. For example, if the printer needs to be connected to two networks such as a commercial and secure network. If the printer only has one Ethernet jack connection, it is possible to have it connected to the second network using a print server. If you want to do something like that, or get some more control over your print server, there is the next option.

Network Attached Printer Sharing



4:55 – The last option we will explore is network-attached printer sharing. This is when you have your print device and computers all on the same network. The print device could have its own network card or be connected to a standalone print server. The printer would be installed on the server, or one of the workstations. The rest of the computers will print to this server to access the print device. So essentially, the 3 computers are printing to the server which is then sending the commands directly to the print device over the network. Since only the server is printing to the print device, the administrator has complete control over the print device since they have control over the server. Any information from the print device, like being out of paper for example, will be relayed to the server. The server will then relay this message on its own to the desktop users. By placing the printer on the one server or workstation, this eliminates all the problems of the previous example and is generally the approach that most administrators take.