ThinPrint®

How Businesses Enable Faster Print Output

ThinPrint

White Paper

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The Paperless Office Remains a Vision

Against all the odds, printing is still essential for day-to-day work. According to IDC Europe's Print and Document Management in Germany 2016 study, every second document is still printed.

This is supported by customers and employees that request printing to be facilitated since reading and editing them on paper is perceived as being far more convenient. Further, ICD states that legal regulations also play a role.

# Why Slow Printing Leads to Wasted Toner & Paper

When it comes to printing, companies still struggle with slow printers. Users expect their print job to be done shortly after having sent it off. If this isn't the case, they usually attempt it a second or even third time. As a result, there are often high levels of wasted paper and toner, working processes are significantly slowed down and the employees get frustrated.

And there are additional consequences:

Print jobs can strain the network. Especially images such as JPEGs or PNG files, and also special fonts and letters can lead to an unnecessary abundance of data.

This way a standard PDF file of 118 kilobytes for example that is sent to a printer can easily become a 1.75 megabyte file.

An amount of data as great as this can impact the internal network, this is particularly severe in a Wi-Fi environment, where mobile users are also competing for bandwidth.
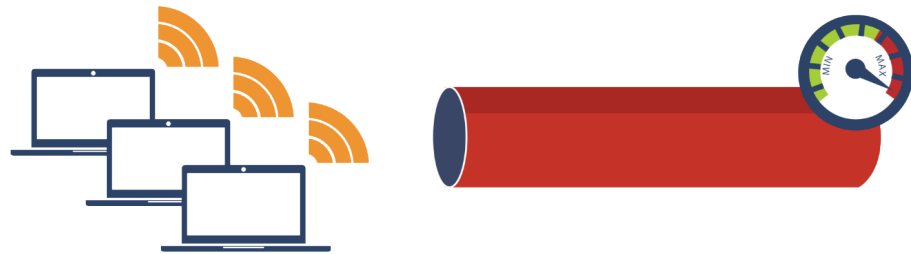
However, the volume of print data becomes disastrous for productivity in architecture practices which provide branch or home-office employees with computing power via the central datacenter. This can even result in sessions freezing and productivity coming to a complete standstill.

This can be helped through expensive lines with higher bandwidth, which however, is not always possible outside of urban areas. In addition to that, one can predict that the use of bandwidth is going to increase in the foreseeable future considering the advent of new cloud solutions and mobile devices.[1]

A different and far more sensible solution - this is what the white paper is about - is the implementation of suitable mechanisms and technologies for faster printouts. The most obvious solution is a drastic compression of print data.

But let's first have a look at the actual printing process and what happens upon starting a print job.

Print Jobs: Reasons Why Data Explodes

The size of a print job depends on the amount of data that enters into the printing system. In this case the printer driver has a crucial impact since it converts the data into commands that the printer can understand.

The reason for significantly bigger files are often embedded pictures. Even though it is usually JPEGs that are embedded, the images are sent to the printing system in the Bitmap format. This leads to data sizes that are ten or one hundred times as big as the original file. Applications that don't adapt the picture's resolution to the one of the printer, that don't reduce multi-layer pictures down to one layer or that transfer minimized images in their original size result in the volume of data ballooning.

The bad news though is that this can't be helped with common Windows tools.

Efficient compression of print data is offered with ThinPrint through a combination of their technology. This includes Advanced Adaptive Compression, SpeedCache and print data streaming which will be explained in more detail below.

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1 http://www.darkfibercommunity.com/blog/three-major-drivers-of-bandwidth-demand/
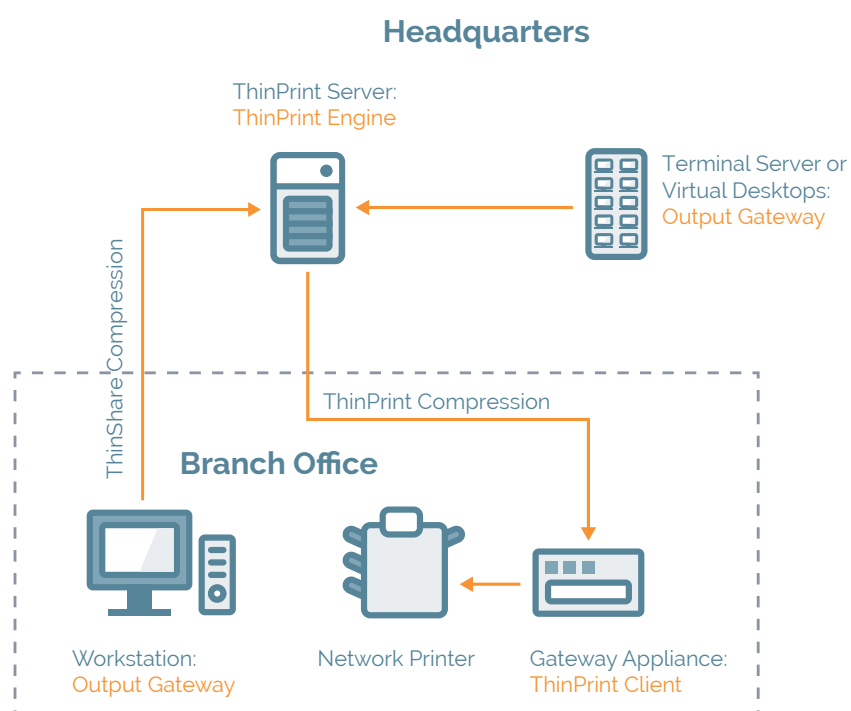
Why Compressing Print Data is a Necessity

ThinPrint compresses every print job regardless of the printer driver or the system on which it is run. When using the virtual ThinPrint Output Gateway driver there are further mechanisms that help reduce the data volume by up to 98%.
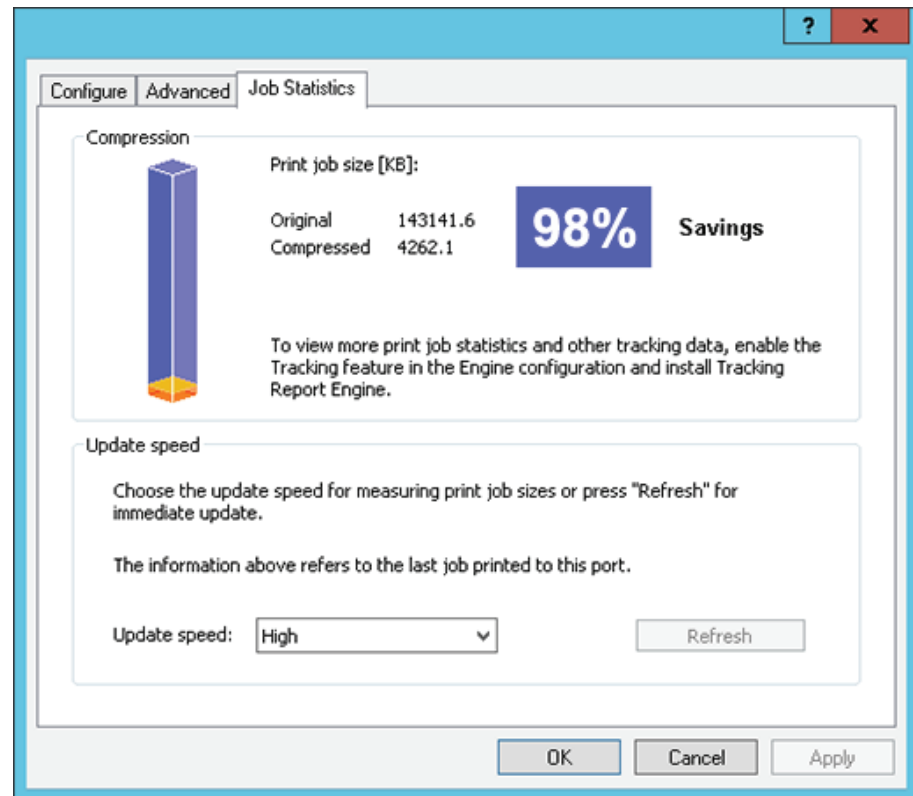
ThinPrint's Advanced Adaptive Compression technology first analyzes the individual components of a print job and then compresses the various components (e. g. graphics) using the best possible algorithm. The SpeedCache feature ensures that identical graphics, such as company logos, are only transferred once during printing. This results in very small file sizes that can be easily sent over the corporate network. This reduces server-client communication and does not lead to additional processor load.

In addition, ThinPrint always takes into account the bandwidth available for the transmission of the print job when compressing. The Adaptive Speed feature automatically controls how much compression is applied to each connection in the background.

Headquarters

ThinPrint Server:
ThinPrint Engine

Terminal Server or
Virtual Desktops:
Output Gateway

ThinShare Compression

ThinPrint Compression

Branch Office

Workstation:
Output Gateway

Network Printer

Gateway Appliance:
ThinPrint Client

There are five options for compressing the print data.

Compression Range	Meaning
No images	Only text will be printed
High image compression	Text lossless, low image quality
Good compression	Text lossless, medium image quality
High image quality	Text lossless, high image quality
Lossless compression	Text and images without loss

These compression standards can also be configured centrally from the management console. Of course, care should be taken to ensure that the default settings also take into consideration each organization's individual requirements and do not hinder employees' productivity.

ThinShare: Compressed Print Data for Printer Shares

ThinPrint's compression process is unique insofar that it compresses anytime and anywhere, including from the desktop PC to the print server via printer sharing. In order to benefit from this special procedure, ThinShare, no installation is even required on the workstations. Users can easily print via highly-compressed printer shares. ThinShare reduces the burden on the Wi-Fi network and ensures that print servers can be eliminated in the branch offices without having to transfer huge amounts of data via the WAN routes to the central print server.
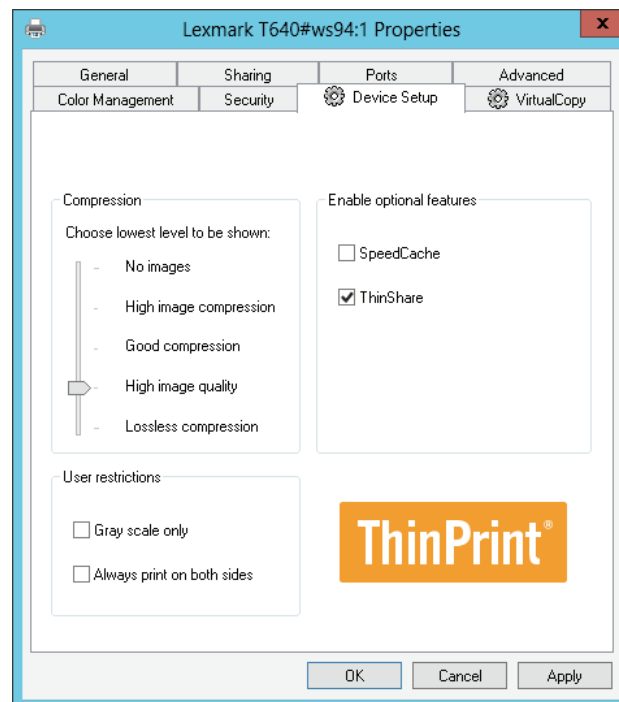
Streaming Print Data

ThinPrint's streaming technology plays a crucial role for fast print output. This means that after compression, individual, small packets of print data are transferred to the printer. The result is that the print job already starts without the total amount of data having arrived at the printer.

It is precisely this streaming technology that is decisive for speed and ultimately user acceptance. Even in environments with limited bandwidth, printing output is unrestricted.

Decompression of Print Data

Of course, the print data compressed by ThinPrint must also be "unpacked" or decompressed for print processing. ThinPrint customers take advantage of the free ThinPrint Clients for this purpose. These are available in different forms for all kinds of scenarios and for a variety of devices. The client is available for all Windows versions, for Linux and Mac OS as well as for internal and external print servers of network printers. In addition, some printer manufacturers such as HP or Ricoh have integrated the client directly into some of their devices. A particularly convenient way to connect printers in branch offices is the ThinPrint Hub, which not only provides the ThinPrint Client, but can also integrate the printers remotely into branch offices with virtually no administrative effort.

Conclusion

ThinPrint offers a range of unique compression mechanisms that enable businesses to benefit from fast print output. No matter whether employees are connected in the home office, employees have to print in field offices or the connection takes place via Wi-Fi, ThinPrint compresses in every conceivable scenario. This saves companies considerable costs for additional bandwidth, reduces the number of helpdesk requests and ultimately contributes to significant increases in productivity.

Additional white papers or questions:
You can download this and many other white papers on relevant IT subjects here:
www.thinprint.com/whitepaper

What customers think of ThinPrint?
Independent, third-party research on how customers view ThinPrint products can be found at: **www.techvalidate.com/product-research/thinprint**

Any questions?
The ThinPrint experts are happy to help. Contact us via one of our local offices listed on the next page or send an e-mail to **info@thinprint.com**.

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