

Performance Considerations for Setting Up the Loftware Print Server

A Technical Overview

By—Dana Anderson, President & Co-Founder of Loftware, Inc.

We believe that the LPS 2000 is the fastest, most advanced barcode print server product on the market today. Its 32-bit multi-threaded architecture allows it to keep many printers busy at the same time. Although the overall performance of the LPS is very impressive, enterprise printing is a complicated process and many factors affect its performance. This section is meant to give you insight and provide you with guidelines for what you can expect using your particular system configuration. The LPS has been extensively tested in the Loftware lab with many different scenarios, none of which exactly matches your environment. Therefore, the information in this section is of a relative nature only. Your actual results will vary.

Hardware Factors

Number of programs your machine is actively running. The LPS is performing many complicated tasks when it translates your printer independent requests into the native printer languages necessary to print them. The speed at which your label requests are serviced is proportional to the processor clock cycles allocated (by Windows) to the LPS. The more processor time it gets, the faster it is. In other words, if you are running other 'server' type applications like a database, fax, or e-mail server, delays are experienced when the other servers are busy. Please note that the LPS need not run on your company server. You can dedicate an NT/2000 Workstation to the task if you wish.

Number of processors. The LPS 2000 is written to take advantage of multi-processors on an NT/2000 machine. Because it is a multi-threaded application, NT balances the threads among the available processors. The net result is that the more processors you have, the more throughput performance you are able to achieve.

Note: The Loftware Lab has a P2, dual processor, 450 MHz machine with 500 Meg of memory running NT Server. Thirty thermal transfer printers from various manufactures are attached to the server as described in the "Back End" section earlier in this chapter. The NT Task Manager has shown us how the threads are balanced between the processors.

Performance in the lab is quite impressive, especially with the Enterprise Edition! Multi-processor machines are becoming increasingly viable as their prices continue to plummet.

Available Memory. As with all programs, memory is a huge factor in speed. The more memory you have, the less applications have to swap to disk, and therefore, the faster they are. If you are running multiple applications on the same machine as the LPS, the more memory you have, the better. Do not attempt to run the LPS system on a machine with less than 64 Meg.

Processor Speed. Printing throughput is proportional to processor speed. A faster processor is a better processor. Do not attempt to run the LPS on processors less than P2, 333 MHz.

Network Speed. If you are dropping requests to a scanned network drive and/or printing to printers on your network, network speed and traffic are going to factor in. Remember, the faster the network the greater the speed. Making printer connections across a WAN may prove to be slow. This can be avoided by dedicating an LPS server to each LAN, although your file drops may still be coming over the WAN.

Printers and Printer Connections

Number of physical printers you are driving. The LPS can service up to 499 different configured printers. The more printers you supply jobs to, the slower each printer is serviced. 32-bit multi-threaded architecture allows you to keep all the printers working at the same time, but a performance penalty proportional to the number of printers you are driving is paid. Although this penalty still exists, it is greatly reduced when using the Enterprise Edition.

Note: If your system requires a large number of printers, you may divide the load between multiple LPS servers on multiple machines. For example, if you are driving 200 printers, one way you could increase performance is to have one LPS server drive 100 and the other drive the remaining 100. There is no practical limit to how many LPS servers you can have.

Thermal Transfer Printers versus Windows Printers (LaserJet etc.). Using the native Loftware printer drivers for supported thermal/thermal transfer printers is always faster than using Windows printers (i.e. LaserJets). The reason for this is that we use the thermal printers' high speed, native language as opposed to sending a bitmap (picture) for Windows Printers. The LPS works with any combination of thermal/thermal transfer and Windows

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printers, but throughput is degraded proportional to the number of Windows printers that you make requests to. [Brand names of the printers](#). Loftware, Inc. maintains a position of hardware neutrality when it comes to thermal transfer printers. We do not sell or recommend printers. We do say that some printers are much faster than others when it comes to imaging a request. Do not go by the documented print speed of your printers. This specification is for printing multiple copies of the exact same label without having to image new data. When you are considering purchasing printers, always look at imaging (processing) speed.

Labeling Factors

[Number of fixed fields on the label](#). Number of fixed fields on the label. The LPS pre-downloads fixed fields (lines, boxes, fixed images, and fixed text) on your label to the printer. Subsequent requests for the same label only download the variable data that has changed. Please note that some thermal transfer printers and all Windows printers do not support this capability. The number of fixed fields on your label affects the first download of the label, but not subsequent prints. The number of variable fields and whether or not you use logos or graphics has a much larger impact.

[Number of variable fields on the label](#). Variable data fields on the label are sent to the printer every time one of them changes. If you are printing multiple copies of the same label, expect very fast throughput. If your variable data changes between labels, the system slows down because of two factors. First, the new data fields must be sent to the printer. Secondly, the printer must take the time to re-image the label with the new data before it prints.

[Using fixed logos or graphics](#). An example of a fixed graphic might be a company logo on the label that is static for all labels. Most thermal transfer printers support the pre-downloading of logos so there is a download penalty for the first download, but once the graphic is there, it is not re-downloaded. Graphics are data intensive and take longer to download than normal barcode, text, and line/box fields.

[Using variable graphics or TrueType Fonts](#). If your label contains variable text fields that are formatted with TrueType fonts or graphics that change with each label, throughput suffers tremendously. Although the LPS system can handle labels like this, the time it takes to download new labels makes this prohibitively slow. Loftware strongly recommends that you use the printers' native fonts, some of which are smooth, like TrueTypes, but are native to the printer.

[Complex formulas and serial numbers](#). If you have fields on your label that are incrementing, or have a datasource defined as formula, you may pay a throughput penalty. If the printer is capable of performing the incrementing, the job is passed to it and no penalty is incurred. If, however, the printer is not capable of incrementing, then the LPS must increment the data and re-send the variable fields between labels thus causing a throughput delay.

Professional Services Group (PSG)

Loftware is the only label printing software developer that offers "free" pre-sales and post-sales printing systems consulting, analysis and configuration assistance through our Professional Services Group. If you are a MIS director, IT Manager or systems programmer and have advanced questions on how to best proceed with the design of your labeling system, you may call and contact one of Loftware's PSG Systems Analyst Consultants.

[The Loftware Systems Analyst](#). The System Analyst is a special added-value service we have developed to help guarantee maximum success when integrating with our applications. The Analysts are here ready to assist you in deciding how best to set your labeling system to meet your immediate and long-term printing needs. Remember, that setting up a significant size labeling system is never an easy task even for the very experienced. A little help up front from experts in the field goes a long way in reducing project time and saving money. Feel free to call the PSG Group even if you are in the evaluation stages - we are always here to help! To reach the PSG Group by phone call (207) 363-3195 x313 or e-mail the Analyst at analyst@loftware.com.



LOFTWARE, INC.®

*Worldwide Providers
of Innovative and Leading Edge
Barcode Printing Software*

Mailing: P.O. Box 799 Cape Neddick, Maine 03902

Shipping: 18 Brickyard Court, York, Maine 03909

(207) 363-3195 Fax: (207) 363-1394

e-mail: sales@loftware.com

Loftware's Internet Website: www.loftware.com