



DTLink Inc. - White Paper

NetSpooler – Corporate Printing Solution

DTLink Inc. www.arrowlink.com

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“Printing costs 1-3% of corporate revenue. Enterprise printing is costing companies around the globe a small fortune. And it’s only going to get worse unless CIOs, CFOs and CEOs take steps to gain control of a critical business function – and expense – that’s rapidly spiraling out of control.

Despite previous predictions that paper would some day magically disappear, today’s businesses are printing more than ever. Xplor, an organisation that tracks the digital hardcopy printing space, estimates that paper use is growing six to eight percent each year and that the number of pages printed between 1995 and 2005 will more than double. The average worker prints 33 Internet pages each day. And, for every US\$1 billion of revenue, an average corporation generates 88 million sheets of paper - a pile over seven miles high.

The cost of printing all these pages is hitting the bottom line of corporations virtually without notice. Analysts estimate that hard and soft dollar costs of enterprise printing represent between six and 15 percent of corporate revenue. Breaking it down further, Lexmark estimates that hardcopy output costs alone equal one to three percent of a company’s total revenue. At these rates, a US\$1 billion company is spending US\$10 million to US\$30 million on printing without even knowing it.

Companies that evaluate their hardcopy infrastructures can reduce these hard dollar costs by up to 20 percent, meaning that a US\$1 billion enterprise can save US\$2 - \$6 million in output related costs each year. **These savings come from optimizing output assets, lowering maintenance, decreasing document delivery costs, printing more intelligently and streamlining business processes by moving paper-based information back into the electronic realm.** These digital conversions, turning paper-based information into electronic information, can help speed up business, which can ultimately mean more revenue.”

NetSpooler Highlights

The NetSpooler is a Windows-based printing solution that will allow:

- Unique printer driver for any Windows printer
- One-touch printing configuration management
- Superior printing quality for any printer
- Web-based printer naming
- Remote printing to any Internet/Intranet printer
- User authentication, control and billing
- WYSIWYG Document proofing
- Print Job Archiving

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The New Printing Configuration

Conventional printing configuration will require to install physically the **printers** behind **printer servers**, create **printer queues** on file servers, give **rights** to users to place print jobs to printer queues and finally, configure individually workstations with the specific **printer driver**. This common way to configure printers presents many inconveniences and will not adapt to the reality of increasing pressure on maintenance cost reduction, the rise of document delivery using the electronic highway, the rapid growth of the printing from anywhere to anywhere and the need for printing control all of which mean Internet-oriented, high-speed workflows. Users need to print it fast, print it right and print from anywhere without compromising maintenance costs and legacy printing architecture. **This is what DTLink NetSpooler is designed for.**

The **NetSpooler Client**; a universal Windows printer driver, will be installed on the user's workstation whatever the target printer may be.

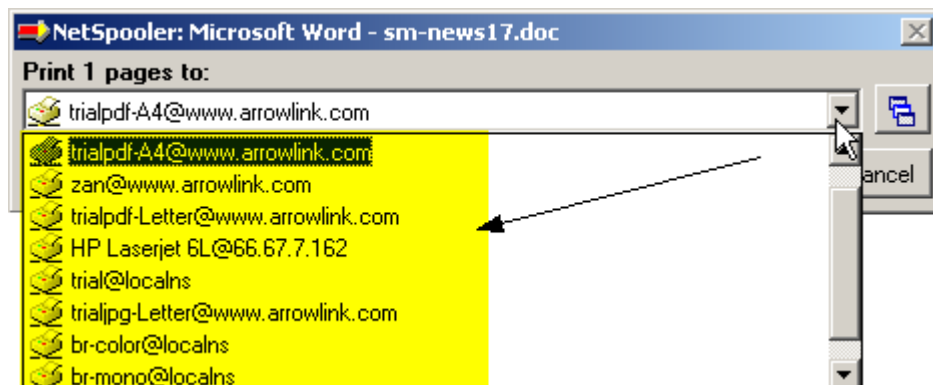
The **NetSpooler Server**, will install on any Wintel server having access to the target printers. Users will be able to send print jobs from **any Windows application** selecting the printer or typing the device address.

Low Maintenance, One-Touch Management

The NetSpooler technology will lower maintenance by using the NetSpooler printer driver that will serve any target printer and will not require any additional module update or configuration. This one-touch management feature of the software will help system administrators control maintenance costs and dissociate the printer configuration from the workstation printer driver.

Easy End-User Experience

End-users will not have to choose a different Windows printer every time they send a print job with a different configuration set. The NetSpooler Client will be the only printer driver used whatever the target printer may be. The target printer may be selected from either a drop-down list or by typing the printer address.



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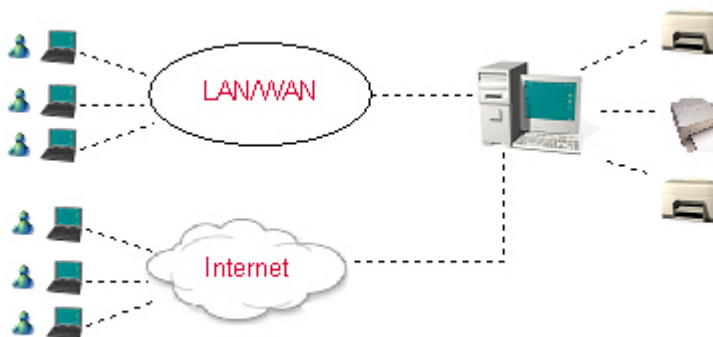
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Equal Internet or Intranet Printing

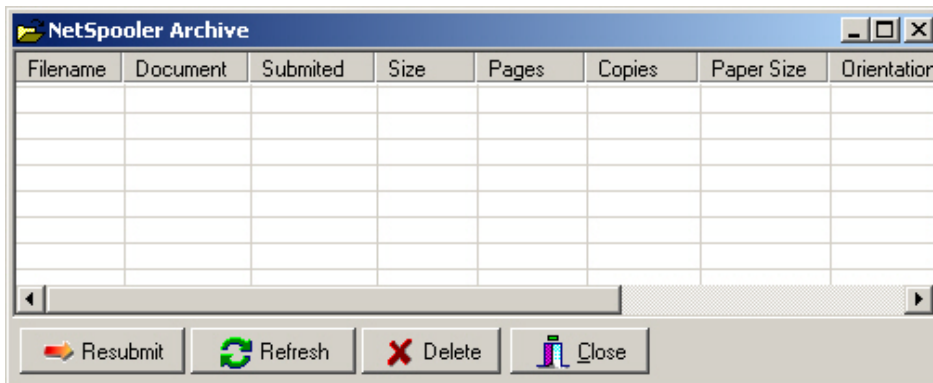
DTLink NetSpooler solution provides the means to access Windows printers thereby giving it an **intranet**, **extranet**, and **Internet** presence. As Net-enabled printers, your Windows printers can be located by a **Web-based address** so you can access them through Net-connected Windows computer.

With DTLink NetSpooler Client, users can have an **identical experience** with all type of printers, whether local or on the Internet. Users will not have to download any printer driver other than the NetSpooler Client. Imagine end users installing all needed printers with only a single driver and no administrative assistance. NetSpooler is that easy!



Architecture Flexibility

With DTLink NetSpooler, administrators have a great deal of power and flexibility in designing printing solutions. For example, a printing solution can be configured so that when a sales representative is visiting a branch office, he can use a new address to locate the nearest printer and print to it by providing the corporate user id and password. Guests will be able to print to the same printer by either providing a special user id/password or by printing against payment through a Credit Card or any other Prepaid card. The same employee will be able to print to any corporate printer while in a hotel room or even to hotel configured NetSpooler printers. Within minutes, he can send documents to the hotel attended printer and either pay directly or charge it to the room account.



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How NetSpooler Works

The DTLink NetSpooler is composed by the **NetSpooler Client**; a unique Windows printer driver and the **NetSpooler Server**, a Windows printer server that will provide the printer management and the **user authentication**. End-users will be able to download and install for free the NetSpooler Client software on their computers. The client software will appear as a printing device option and can be reached **like every other Windows printers** through the Print dialog box along with the other installed printers. To initiate a print job, the user will simply select the NetSpooler printer and type-in the remote printer address. After the end-user has selected the NetSpooler as the target printer, the client software will generate a **PostScript** file in the background that will be **encrypted and compressed** for uploading to the target NetSpooler Server.



The print file is encrypted for secure and reliable transmission and will be exclusively decrypted by the target printer. The target printers will be addressed by a **web-based naming** composed by the target **Windows printer name** the **@** sign and the **DNS name or IP address of the NetSpooler Server** controlling the printer. Before submitting the print job to the target printer, end-users will be able to proof it using the NetSpooler Client Previewer that comes with the software package. The preview function will provide the exact document output as it will communicate with the target printer and get the precise paper dimensions and printing parameters like: white space etc.. avoiding document scaling that may produce unpredictable results. NetSpooler printer operators will be able to define **authentication methods** that will be used to either authenticate the end user or provide pay-per-print services or provide any additional services like: printing control, binding, stapling etc.. Upon successful authentication the print job will be transmitted to the NetSpooler for printing. NetSpooler printer administrators will be able to monitor print jobs, hold printing documents before sent to the printer, print banners etc..



Get instant info on the printer status, location and other settings **on-line!**

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WYSIWYG Results On Any Printer

The NetSpooler Client will create a **PostScript** file; a page description language optimized for printing graphics and text in a device independent manner. The NetSpooler Previewer module will allow end-users to preview any print job before sent to the target printer. Different than the native application preview function, the NetSpooler will display the print job as a separate document. The software will communicate with the target printer and get and display the exact page boundaries.

The NetSpooler technology will ensure that the **What You See Is What You Get** on any target printer.



Print Job Archiving

All print jobs will be archived and remain accessible for previewing, deleting or resubmitting to any remote printer. End-users will be able to customize the print job title and handle the print jobs as if they were individual documents.

| Filena... | Document | Submi... | Size | Pages | Paper... | Orient... | Sessi... | Printer |
|-----------|------------------|----------|-------|-------|-------------|-----------|----------|------------|
| nsp_19... | Microsoft Wor... | 2003/... | 1 M | 1 | 1 Letter... | portrait | 158 | Zan l... |
| nsp_20... | Microsoft Wor... | 2003/... | 1 M | 1 | 1 Letter... | portrait | 159 | Zan l... |
| nsp_21... | Microsoft Wor... | 2003/... | 1 M | 1 | 1 Letter... | portrait | 160 | Zan l... |
| nsp_22... | Microsoft Wor... | 2003/... | 1 M | 1 | 1 Letter... | portrait | 162 | Zan l... |
| nsp_24... | Microsoft Wor... | 2003/... | 1 M | 1 | 1 Letter... | portrait | 163 | Zan l... |
| nsp_25... | Microsoft Wor... | 2003/... | 1 M | 1 | 1 Letter... | portrait | 164 | Zan l... |
| nsp_10... | Microsoft Wor... | 2003/... | 1 M | 1 | 1 Letter... | portrait | 165 | Zan l... |
| nsp_24... | Microsoft Wor... | 2003/... | 468 K | 1 | 1 Letter... | portrait | 166 | Zan l... |
| nsp_22... | Microsoft Wor... | 2003/... | 236 K | 1 | 1 Letter... | portrait | 167 | trialpd... |
| nsp_23... | Microsoft Wor... | 2003/... | 236 K | 1 | 1 Letter... | portrait | 168 | trialpd... |
| nsp_24... | Microsoft Wor... | 2003/... | 236 K | 1 | 1 Letter... | portrait | 169 | trialpd... |
| nsp_25... | Microsoft Wor... | 2003/... | 236 K | 1 | 1 Letter... | portrait | 170 | trialpd... |

Below the table is a control bar with buttons: Preview, Resubmit, Status, Refresh, Delete, and Close.

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Authentication Methods. Total Printing Control.

Printer administrators will be able to develop an unlimited number of authentication methods that will authenticate/bill end users for printing. Corporations will be able to make the whole procedure transparent without compromising the control over: **who** and **what** is printed and on which **target printer**. There is no limit to the authentication methods that may be developed and added to a printer.

The screenshot shows a window titled "SelAuth" with a tab labeled "Authentication". Inside the window, there are five radio button options for authentication methods: "Free" (selected), "Basic Authentication", "AUTHORIZE.NET", "Member Login", and "iCard". Below these options, there are three fields for pricing: "Price/Page (US\$)", "Minimum charge (US\$)", and "Tax (%)", each with a value of "0". To the right of these fields are two buttons: "< Back" and "Next >".

Same Printer Multiple Names & Authentications

The same NetSpooler printer may be configured through two or more NetSpooler servers with different printer name and domain. Authentication methods may be applied individually to each printer and provide access to different users or network segments.

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Print It Fast, Print It Right, Print It Anywhere, Control It!

Print It Fast. Today's network bandwidth and Internet connections will provide the power to deliver the print jobs to the NetSpooler Server instantly. NetSpooler will prepare a PostScript print job highly compressed and encrypted that will ensure a minimal bandwidth usage even for Internet connections. Bandwidth is the main concern for Internet users. While most corporations have high-speed network connections many home workers or satellite offices, may still use dial-up connections. Thus, despite the proliferation of broadband, file size concerns are still very much a reality that will be taken in consideration by the NetSpooler printing system.

Print It Right. Print it right means accurate output without scaling or any font mismatches whatever the target printer may be. Delivering print jobs in such a format that will fit to any target printer requires advanced technology based on standards that will eliminate even unexpected changes like font substitutions and text reflow as a result of different drivers in use. The NetSpooler software will use the PostScript page description language and native Windows tools that will provide WYSIWYG printouts to the target printers matching absolutely with the document as displayed through the NetSpooler Previewer. When previewing a print job, the software will communicate with the target printer and get the page borders and display the exact page boundaries.

Print It Anywhere. The NetSpooler printer is accessed by the Windows printer name and the NetSpooler Server IP address or DNS name. This standardized approach for accessing remote printers will provide a great flexibility to the way system administrators may design a consolidated printing environment and the way end-users will be able to access a printer from both the intranet and the Internet network.

Control It. The NetSpooler printing system will not only consolidate and facilitate printing for the Windows environment but will also provide the necessary tools for an accurate control of who what and where is printed through the Authentication methods that may be developed/configured to fit any business rules and any kind of user. The possibility to have the same printer under multiple names and even used by different NetSpooler Server combined to the individual authentication methods, will allow system administrators to create printing "zones" for different network segments and users.

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Join The NetSpooler Printing System

DTLink Inc. NetSpooler printing system will help system administrators consolidate Intranet and Internet printing by enhancing the printing workflow and simplify workstation configuration and maintenance.

Simplicity For The End-User. A unique Windows printer driver will be used by the end-user to access any corporate or Internet printer. In just a few simple clicks, the user, will be able select the appropriate target printer and produce print jobs from any Windows application. The user will no longer have to choose and configure the appropriate Windows printer in order to send a print job. The complete printing process for the end user is simplified by shortening the steps to selecting and configuring a remote printer without compromising the output quality.

PostScript & Windows Standards. The DTLink Inc. NetSpooler printing system adopts the PostScript (level 2) page description language and exclusively Windows tools for all operations and will not require any additional format (Adobe PDF or other) for transmitting or previewing the print job. Text, graphics and photographic images all will print reliably and look superb. The PostScript description will provide the most accurate and consistent reproduction of color. The PostScript language is continuously optimized with the introduction of special-purpose integrated circuits to improve performance for higher resolution printing, color printing, and electronic document distribution.

High Compression & Security. The DTLink Inc. NetSpooler will enhance even further the PostScript output introducing high private encryption and high compression algorithms that will reduce bandwidth usage and ensure communication between the client PC and the target printer.

Easy To Install, Configure & Deploy. The DTLink Inc. NetSpooler Client software can be downloaded for free from the www.arrowlink.com site and installed on any Windows OS version. The DTLink Inc. NetSpooler Server software will manage an unlimited number of target printers and is licensed at the printer level. The deployment of the system will not require to modify any changes to the legacy printing configuration and all printers may be accessed conventionally or through the NetSpooler system.

Authentication Methods For A Complete Control. Printing to NetSpooler printers will require user authentication through methods that can be applied to a printer. This powerful feature will open the NetSpooler system to integration with any legacy security system.

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One-touch workstation printer management. System administrators will not have to modify the workstation configuration. The maintenance cost savings can be measured in yearly man/hours and will payback the software investment within months.

Printing Control. Corporates will be able to get a real picture of the number of printing pages per user and additional information on printer usage that will allow the establishment of a clear printing policy.

Allow Remote Printing. Mobile workers and satellite offices will be able to print documents directly to remote locations and save document delivery costs.

Reduce Faxing Costs. Remote printing will reduce faxing costs and will enhance document output quality.

System Requirements

NetSpooler Client Software. Microsoft Windows 98, Windows Millennium Edition, Windows 2000, Windows XP.

NetSpooler Server Software. Microsoft Windows 98, Windows Millennium Edition, Windows 2000, Windows XP.

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DTLink Incorporated operates offices in Europe and the United States, providing Public Internet Access Products and Services since 1996.

The DTLink Inc. NetSpooler printing software was initiated a year ago and has been completed by the company's development team specialized in printing solutions.

DTLink Inc. products include service creation software like: PIA-Service Manager and Internet terminal software like: PayKiosk Terminal and Server.

The DTLink Inc. board of directors is composed by professionals previously in management positions in IBM, Compaq and DEC in the services, development and software departments.

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