

Requirements for WEB Browser-Based Internet Printing

Internet Printing

- ▶ Uses World Wide Web tools, programs, servers and networks
- ▶ Works for printers attached to servers locally or through networks
- ▶ Uses HTTP servers and browsers (although not exclusively) to provide print operations including
 - locating printers by attributes
 - ◆ *capabilities*
 - ◆ *geography*
 - ◆ *name*
 - launching a printer installation process on the client
 - printing jobs
 - cancelling jobs
 - monitoring and managing
 - ◆ *jobs*
 - ◆ *printers*
 - configuring printers
- ▶ Is independent of client and server operating systems

Requirements for WEB Browser-Based Internet Printing

What is Internet Printing?

Internet Printing is the application of World Wide Web tools, programs, servers and networks to allow "end-users" to print using methods and operations similar to those currently used for locally attached or LAN printing in the platform dependent OS. Internet Printing will include the use of HTTP servers and browsers to provide static, dynamic and interactive print services location, printer installation, selection and configuration as well as remote printer and print job monitoring.

IPP Requirements - Roles and Tasks

▶ End-user

- Finding and Locating Printers using WEB Browsers
- Creating a local "instance" of a printer
- Using a WEB Browser to view:
 - ◆ *Status of the printer*
 - ◆ *List of jobs*
- Submitting a print job
 - ◆ *Using standard applications*
 - ◆ *Pushing or Pulling a pre-formatted document*
 - ◆ *Using a reference to an existing document not located on the client*
- Viewing the status of a print job using WEB Browsers
- Alerting due to printer errors, job errors and job complete
- Cancelling his own print job

▶ Operator

- Alerting due to printer & job error conditions
- Changing some printer and job attribute

▶ Administrator

- Printer installation and configuration
- Access control lists
- Defaults, templates, views
- Charge-back, accounting

Printer Locating & Selecting

"Off the Shelf"
Web Browser

Select Printer
by Capability

Select Printer
by Model

The screenshot shows a Netscape browser window titled "Lexmark International Presents MarkVision". The address bar shows the URL: <http://sloth.unix.prtdev.lexmark.com/paul/mockup/paul/pqs/pqs.htm>. The main content area is titled "Select A Queue" and contains a table of printer queues. The table has columns for printer name, port, queue name, printer status, and queue status. The printer names include "ina2e.pfv.prtdev.lexmark.com" and "ina4e.pfv.prtdev.lexmark.com". The queue names are "Marketing_q", "Development_q", and "Testing_q". The printer statuses are "Ready" or "Printing", and the queue statuses are "Ready" or "Printing". The printer capabilities are listed below each queue name, such as "B/W -- 300 DPI -- TRAY 1 Letter -- Courier 10 -- 12 Pages Per Minute" and "COLOR -- 600 DPI -- TRAY 1 Letter -- Times New Roman -- 3 Pages Per Minute". The printer locations are also listed, such as "Printer located in Building 4 Room 12" and "Printer located in room 22".

Printer	Port	Queue	Printer	Queue
ina2e.pfv.prtdev.lexmark.com	1	Marketing_q	Ready	Ready
B/W -- 300 DPI -- TRAY 1 Letter -- Courier 10 -- 12 Pages Per Minute Printer located in Building 4 Room 12				
ina2e.pfv.prtdev.lexmark.com	1	Development_q	Ready	Ready
B/W -- 600 DPI -- TRAY 1 Letter -- Courier 10 -- 12 Pages Per Minute Printer located in New York Office				
ina2e.pfv.prtdev.lexmark.com	1	Testing_q	Ready	Printing
B/W -- 1200 DPI -- TRAY 1 Letter -- Courier 10 -- 12 Pages Per Minute Printer located in testing lab				
ina4e.pfv.prtdev.lexmark.com	1	Marketing_q	Ready	Ready
COLOR -- 600 DPI -- TRAY 1 Letter -- Times New Roman -- 3 Pages Per Minute Printer located in room 22				
ina4e.pfv.prtdev.lexmark.com	1	Development_q	Ready	Ready
COLOR -- 600 DPI -- TRAY 1 Letter -- Times New Roman -- 3 Pages Per Minute Printer located in room 33				

Details

Printer & Queue
Status

"Job Ticket" Creation

"Off the Shelf" Web Browser

Select the Store

Submit the Print Job

Select Print and Finishing Options

Shipping Options

Customer Information

Billing/Payment Information

PRINT OPTIONS

[Return to Order Form](#)

[Select Store](#)

[Send Print Job](#)

[Select Print Options](#)

[Select Shipping Options](#)

kinko's®

Internet Printing Order Form

Thank you for using Kinko's!

You have selected the Kinko's Store at:

145 Rose Street
Lexington, Kentucky 40507
606-253-1360 (phone)
606-231-8872 (fax)

Name:

Email id:

Address:

City: State:

Zip:

Country:

Phone:

Visa Number:

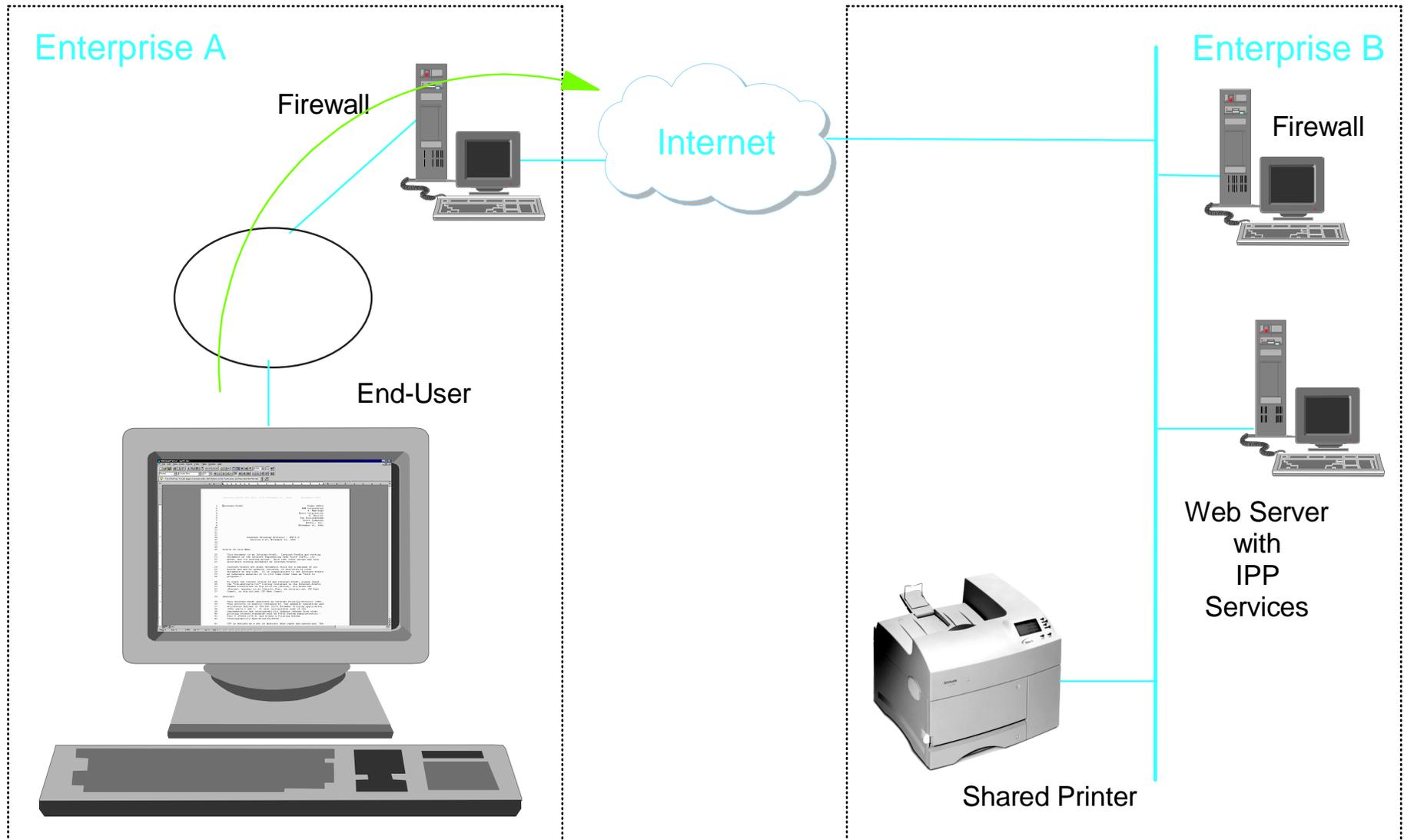
Mastercard Number:

American Express:

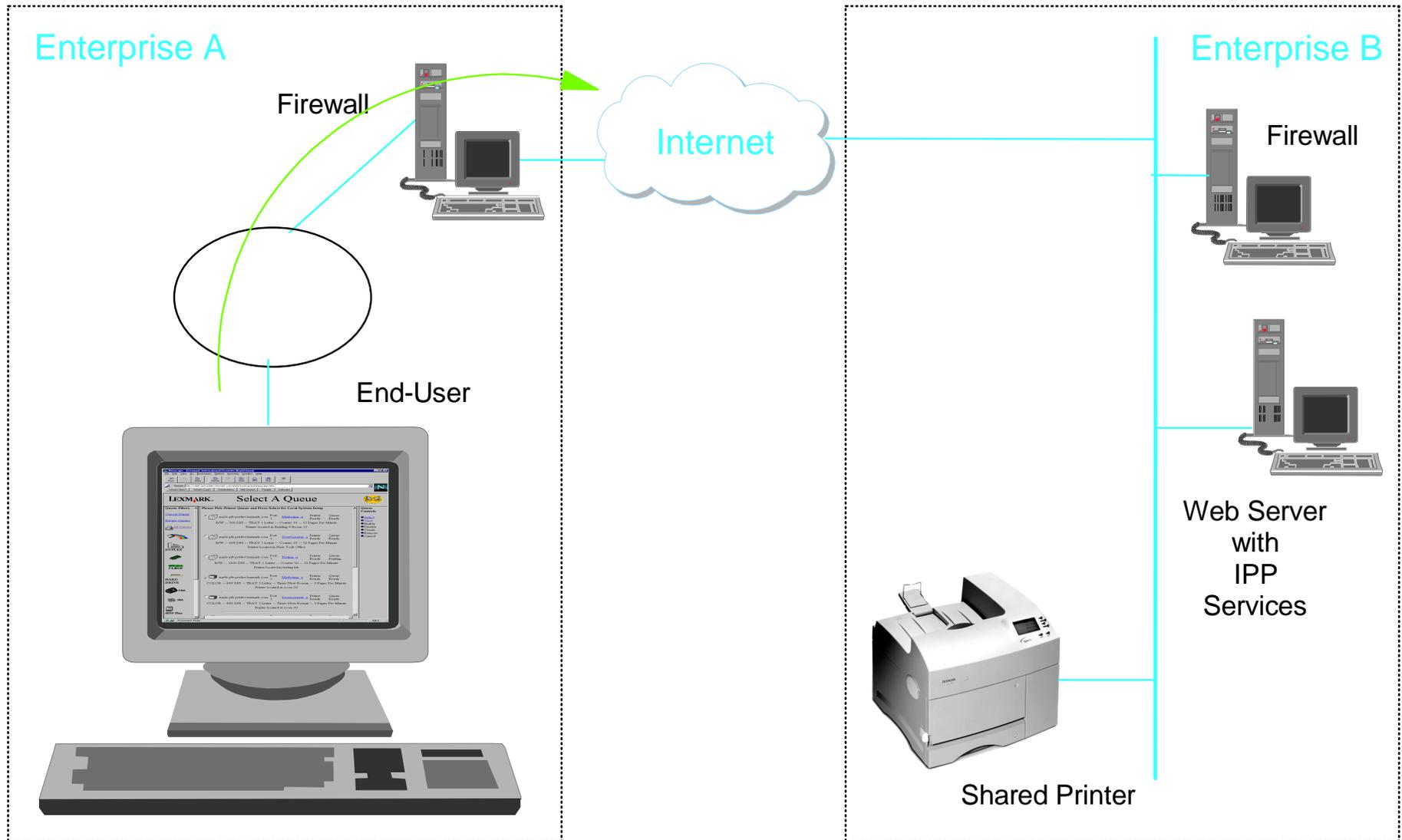
Cardholder Name:

Exp. date:

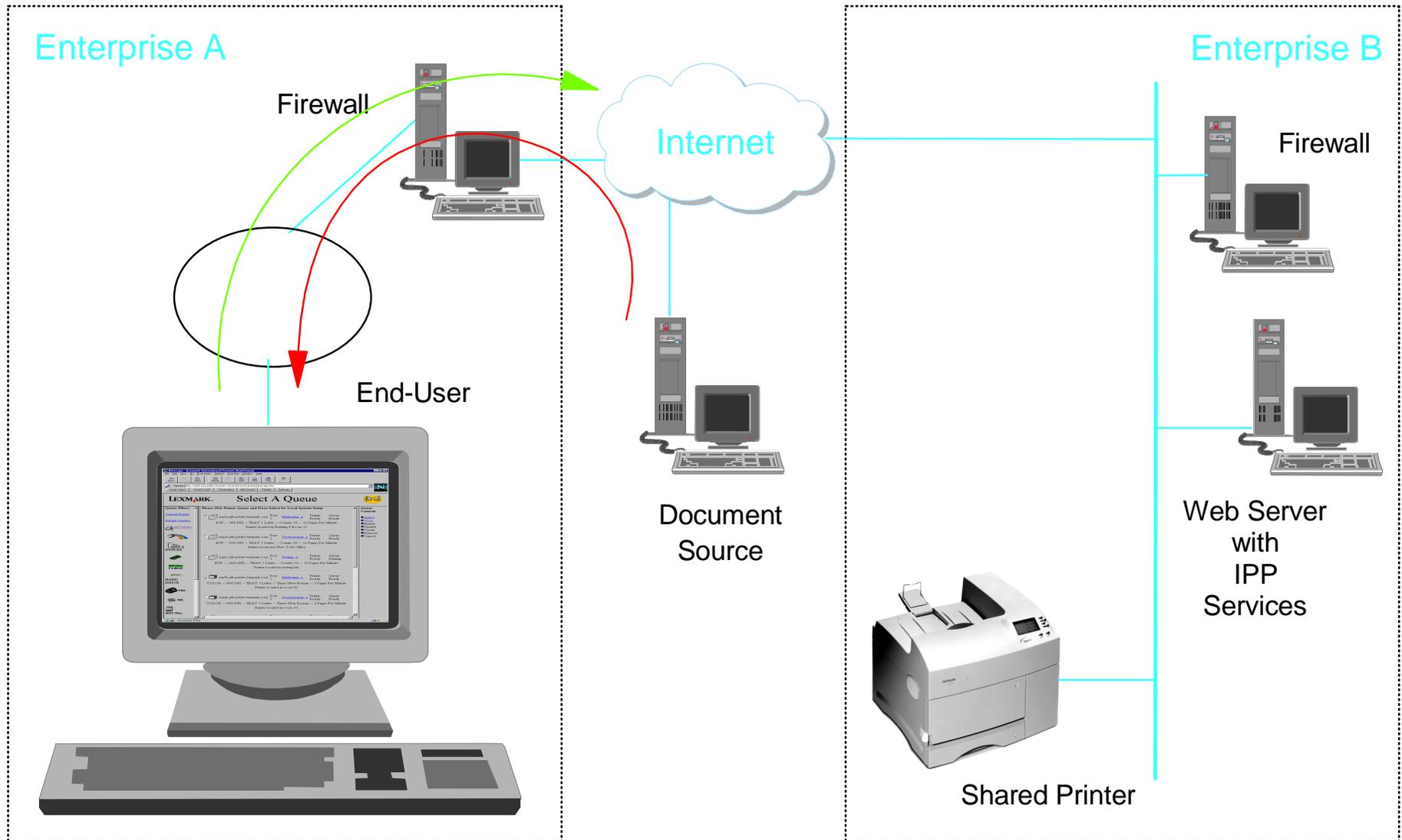
Internet Printing - Application



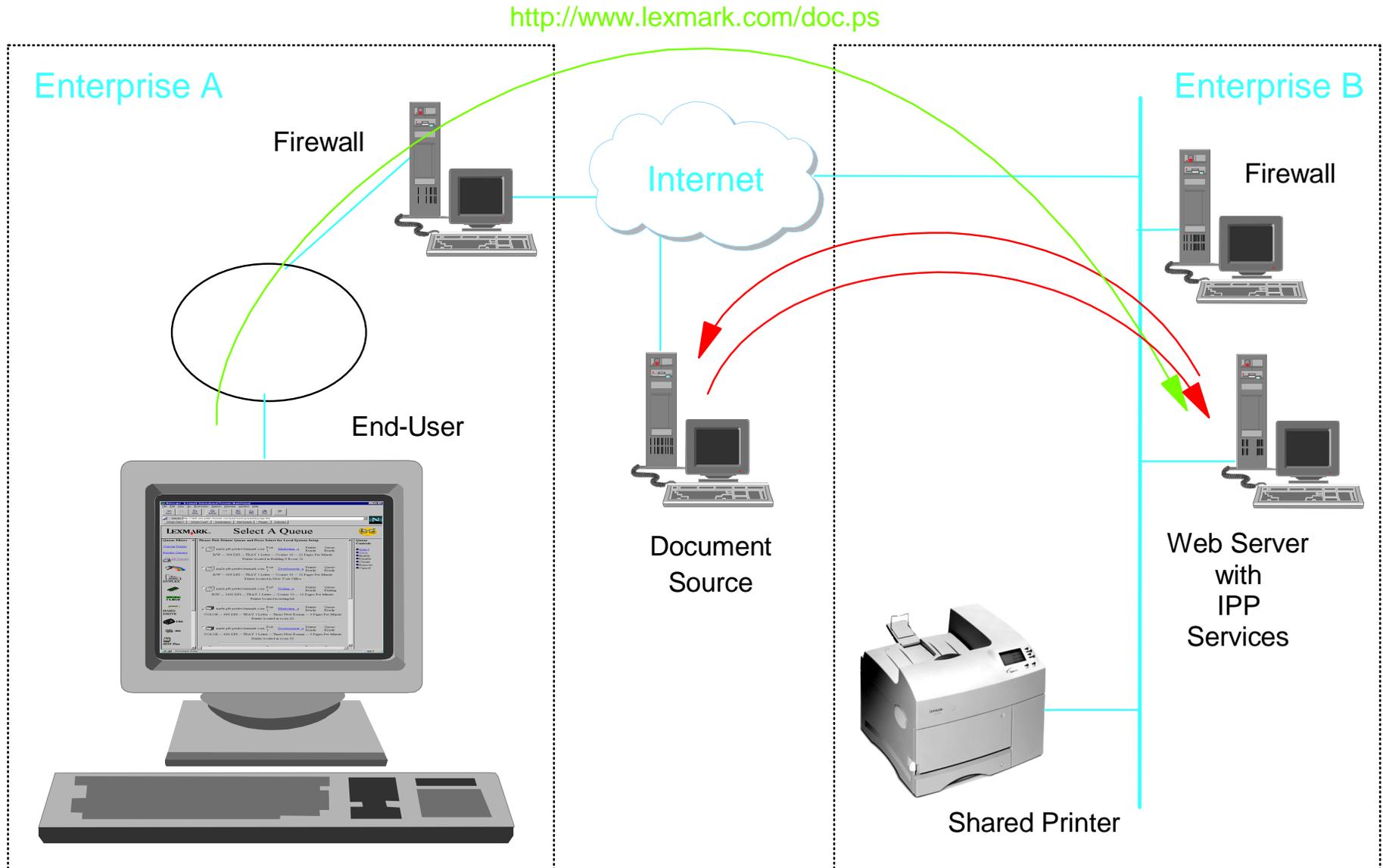
Internet Printing - Pushing



Internet Printing - Pulling



Internet Printing - By Reference



IPP 1.0 Requirements - Objectives

- ▶ End-User Requirements Only
- ▶ Independent of
 - Client operating systems
 - Server operating systems
- ▶ Security
 - Authentication, Authorization, Privacy, Commercial Transactions
- ▶ Interaction with LPD
 - RFC 1179
 - Not backwards compatible
 - Will supplant LPD
- ▶ Firewalls
 - Protocol must pass through firewalls where enabled by the firewall administrator
- ▶ Internationalization
 - Must be enabled

IPP Requirements - RFC1179

- ▶ RFC1179 designed for line printers
- ▶ Support for page printers is minimal
- ▶ Vendor extensions have been inconsistently added
(see <ftp://ftp.pwg.org/pub/pwg/ipp/historic/xopen-psis-xdpa/appendix-d-lpd-extensions.ps>)
 - Sun adds additional attributes
 - Xerox "buries" options in the `-Cclass` option
 - IBM adds
 - ◆ *extensions to the -o option*
 - ◆ *new options (-N, -T, -Z, -t, -n, -B)*
 - HP adds
 - ◆ *New control file extensions (R,A,"N B","N O",J)*
 - ◆ *extensions to the -o option*
 - Digital adds new control file extensions (>,<,A,B,D,E,F,G,K,O,S,X,Z,x,z)
- ▶ Conclusion -- RFC1179 not the place to start for an Internet Printing Protocol