

Printing and Pseudo-printing from SCO-based Applications

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Three printers walked into a bar...

Introduction

- Who I am
- What I'll talk about
- Questions for cards:
 - What's your biggest printing hassle?
 - If you're a programmer, what language?

Key Aspects of Printing

- Delivery mechanism
- Printfile content
- Job status tracking
- Pseudo-printing

Printing in the Old Days

- Greenbar reports
 - Plain text
 - **Mono-spaced**
 - ASCII character set
 - Edge to edge (often 132 x 66)
 - Preprinted forms

Printing in the Old Days

- Computer languages built on this model
- System printers
- Remote printers
- Slave printers

Printing Today: Needs and Wants

- An extreme example:
 - Generated purchase order
 - Font changes
 - Pictures of purchased goods
 - Barcoded PO number
 - Officer's signature (paperless)
 - Combined form image
 - Made into PDF

Printing Today: Needs and Wants

- An extreme example:
 - Made into PDF
 - Encrypted
 - Digitally signed
 - Supporting documents included
 - Emailed to vendor, with subject, notes
 - Archived
 - Logged
 - In Chinese

Printing Today: Needs and Wants

- Text
 - Multiple sizes
 - Multiple fonts
 - Embedded fonts
 - Variable pitch
 - **Bold**, *italic*, underlined
 - Rotation
 - Foreground/background colors

Printing Today: Needs and Wants

- Box-drawing characters
- International characters
 - Accents for Europe
 - European characters
 - Cyrillic, Turkish, etc.
 - Far East (Chinese, Japanese, Korean)
 - Right-to-left (Hebrew, Arabic, Farsi)
- Barcodes (of all kinds)

Printing Today: Needs and Wants

- Forms (overlays, underlays)
 - From paper
 - Generated in-house
 - Hand coded
 - Using standard applications
 - From outside
 - Government (etc.) websites
 - Usually PDFs

Printing Today: Needs and Wants

- Printer types
 - Dot matrix (impact)
 - Laser
 - Ink jet
 - MFP
 - Receipt printers (not page-oriented)
 - Control cutter
 - Label, card, other
 - Brain-dead printers

Printing Today: Needs and Wants

- Printer variations
 - Command languages
 - Builtin fonts
 - Unprintable margins
 - Bin options
 - Finisher
 - Stapler
 - Stacker

Printing Today: Needs and Wants

- Printer connections
 - Serial, parallel
 - USB
 - LPR/LPD
 - Network interface (JetDirect)
 - Network-shared

Printing Today: Needs and Wants

- Pseudo-printing
 - Faxing
 - Generating PDFs
 - Digital signatures
 - Emailing generated files
 - Emailing raw print files doesn't work well

Printing Today: Needs and Wants

- Ancillary needs
 - View before printing
 - Printing GIFs, DOCs, PDFs, etc.
 - Ganging
 - A group of documents need to print in a batch
 - Archiving
 - Logging
 - Cost control
 - Watermarking

Printing Today: Needs and Wants

- Replacing multipart forms
 - Form overlay
 - Multiple overlays
 - Proper sequence
 - Number of copies
 - Input bin sequence
 - Collation (or not)
 - Stapling

Printing Today: Needs and Wants

- Command and control
 - How much control
 - Fully interactive
 - Fully automated (programmatic)
 - Semi-interactive
 - To be controlled
 - Fonts and sizes
 - Paper sizes, margins, orientation
 - Bins, duplexing
 - Need to retrofit

Computing Environments

- Windows GUI
- Character-based (telnet, SSH)
- GUI-ized character-based
- Client-server
- Browser only

Computing Environments

- Print method at the Windows end
 - Windows printing API
 - Controlling fonts, sizing, etc. via Windows
 - Low-level
 - Outputting PCL-5, for instance
- Generating languages may still be text-oriented

UNIX Printing Today

- CUPS/IPP
 - Spooler
 - Delivery
 - Content
 - Print a TIF file on a PostScript printer, e.g.
 - NOT: intra-job control

UNIX Printing Today

- Delivery Mechanisms
 - System printers (serial, parallel, USB)
 - JetDirect
 - Netcat
 - HP software
 - LPR/LPD
 - To another computer
 - To a JetDirect
 - Passthrough print
 - “Follow-me printing”

UNIX Printing Today

- Command-line tools
 - txt2pdf
 - Ghostscript
 - etc.

History, a Step at a Time

- In roughly chronological order...
- Overprinting
 - Bolding
 - Underlining
 - Both
 - By character
 - By line
- Crude boxes (+-----+), nicer boxes
- Escape codes

History, a Step at a Time

- PCL-5
 - PJP
 - HPGL
 - Allowing:
 - Pitch control
 - Linespacing
 - Character set switching
 - Barcodes
 - Macros
 - etc.

History, a Step at a Time

- PCL-6
 - A big mess
 - NOT a superset of PCL-5
- PostScript
 - Difficult

History, a Step at a Time

- Non-text documents
 - Images, etc.
 - Photo printers

History, a Step at a Time

- Printer drivers
 - Moving toward device independence
 - Word Perfect
 - Windows
 - Unix
 - Language-level
 - filePro

History, a Step at a Time

- What Windows brought (key points)
 - Device independence
 - Page-oriented printing
 - Spooling
 - Sharing across networks
 - Soft font support
 - Shift of processing out of the printer

History, a Step at a Time

- Scalable fonts
 - Both directions
- JetDirect as a delivery mechanism
- Fax drivers
 - On UNIX
 - On PCs
- Color
 - PCL-5 can control this

History, a Step at a Time

- HTML
 - Not designed for printing
 - Not designed for precision
 - CSS helps some
- Unicode
 - “I18N” = “Internationalization”
- Tools

Printing Tools & Techniques Today

- Markup (nroff, troff)
- Typesetting (TeX)
- Report generators
- Report reproprocessors (UnForm)
- Import into Word, Excel, etc.

Printing Tools & Techniques Today

- PCL macros
 - Overlays, images
 - Stored in RAM or on disk
 - Triggered when needed

Printing Tools & Techniques Today

- PDF techniques
 - PDF-generating printer drivers
 - PDF-generating libraries
 - PDF manipulation tools (pdftk)
 - PDF printing (remarkably difficult)
 - Printers with built-in PDF renderers

Printing Tools & Techniques Today

- Conversion utilities
 - txt2pdf
 - Ghostscript
- Security
 - Release to print
 - Cost control
 - IPsec

Pause and Ponder

- Any questions?

What Print Wizard Is

- Windows-based
- Forms of Print Wizard
 - Passthrough print in AnzioWin terminal emulator
 - DLL
 - ActiveX (OCX)
 - EXE
 - Supporting modules
 - Some run as services

What Print Wizard Is

- Modules in Print Wizard
 - Text fitter
 - Unicode/font handler
 - Text/markup parser
 - Image input
 - PCL handler for PCL printers
 - PCL translator (including PJP, HPGL)
 - PDF generator

What Print Wizard Is

- Modules in Print Wizard (cont.)
 - Barcode generator
 - Fax output
 - Image combiner
 - Text & layout modifier
 - Labelizer
 - Previewer
 - Scanner controller
 - Email controller

What Print Wizard Is

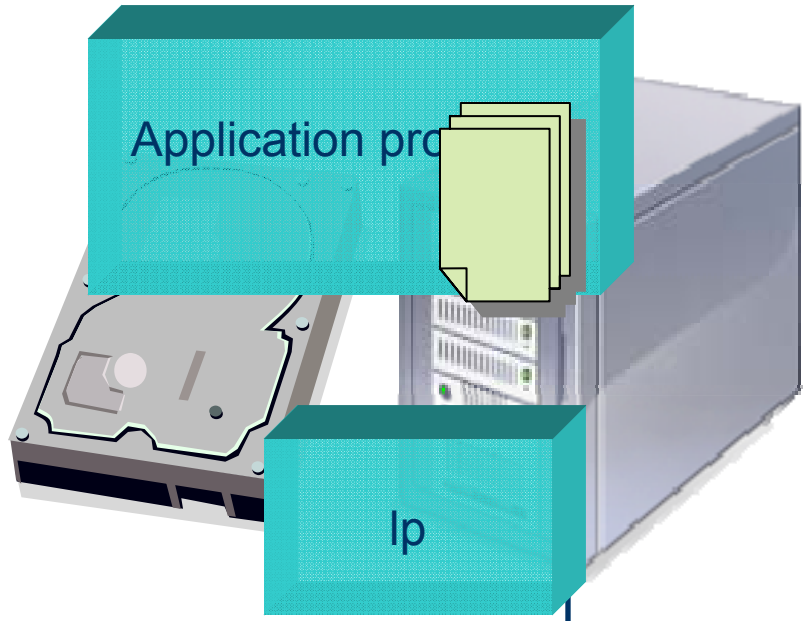
- Modules in Print Wizard (cont.)
 - Incoming data controller
 - FTP/HTTP/HTTPS client
 - Smart printer
 - Spooler interface
 - Ganging (job chaining)
 - Command and control
 - Debugging

Key Aspects of Printing (again)

- Delivery mechanism
 - Input
 - Output
- Printfile content
- Job status tracking
- Pseudo-printing

How Print Wizard Works

- Delivery mechanisms - Input
 - Command-line
 - DLL, etc.
 - Other Windows-only
 - Cross-platform, for Unix-side origination



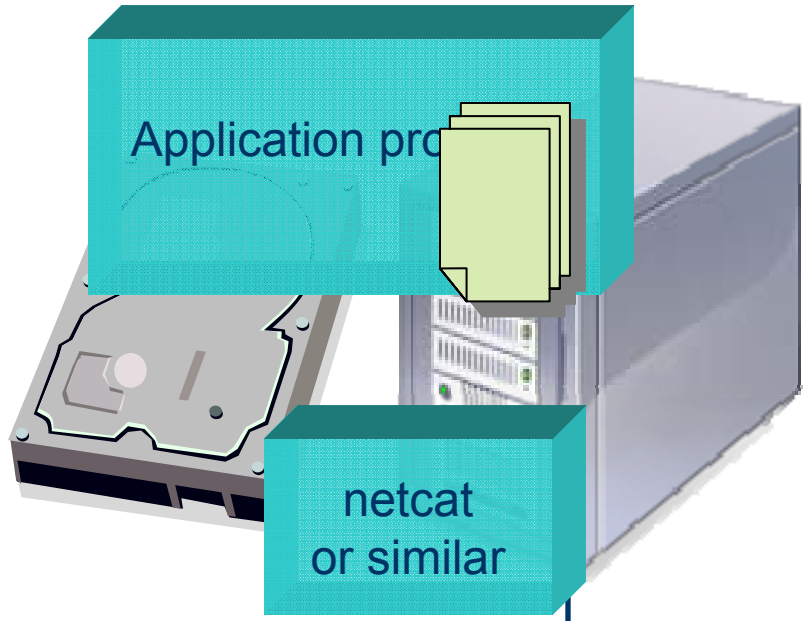
SCO
Server



LPR/LPD



Windows



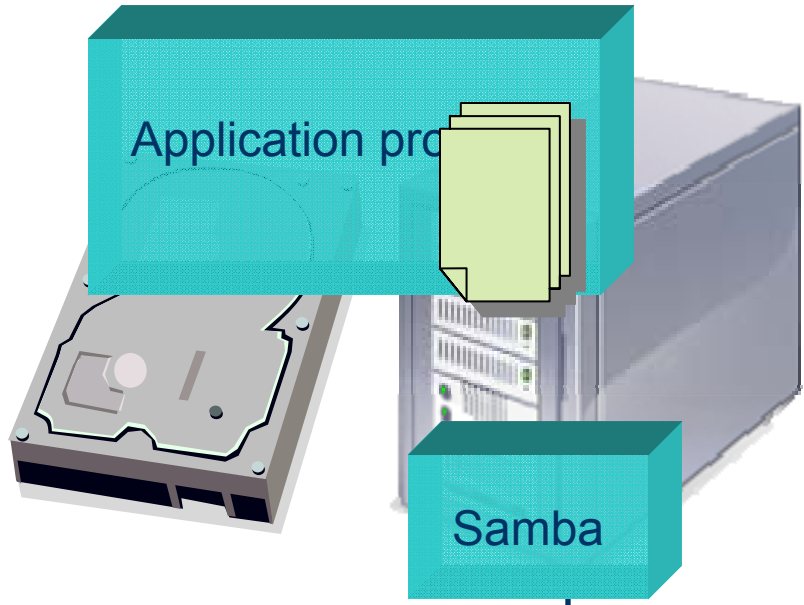
SCO
Server



Listen



Windows



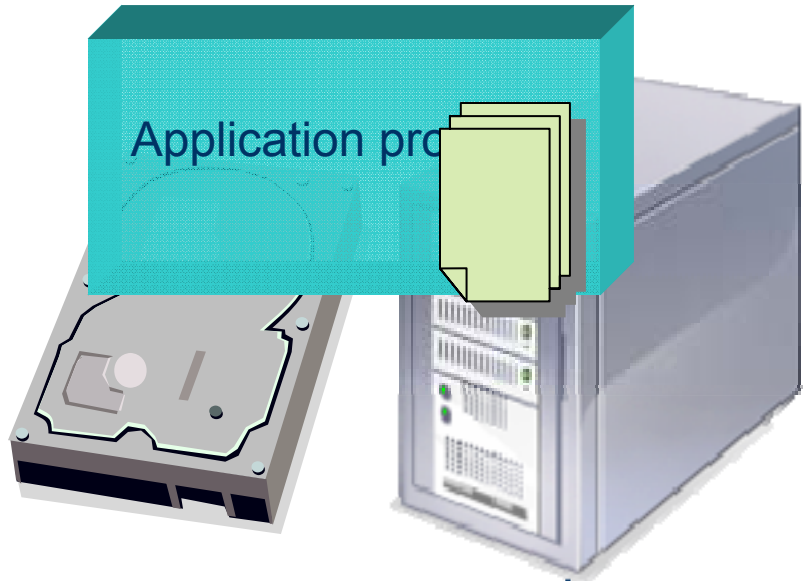
SCO
Server



Despool



Windows



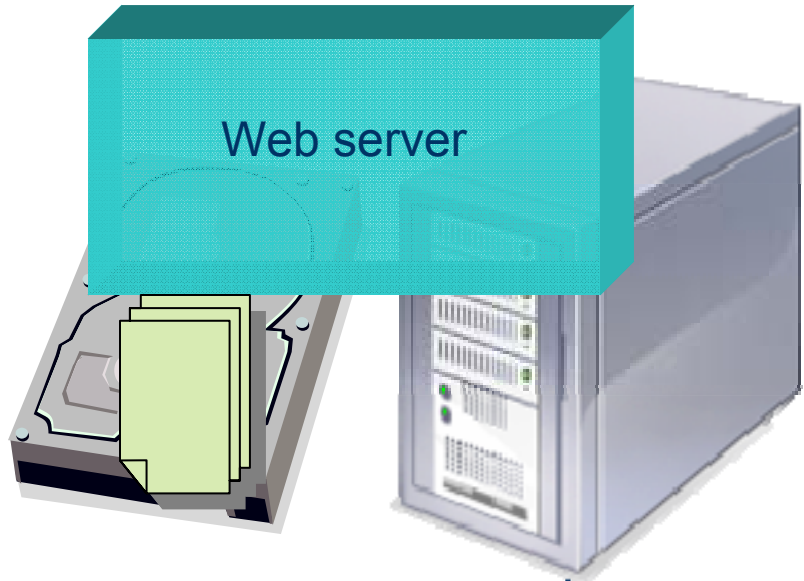
SCO
Server



Windows

Passthrough
print

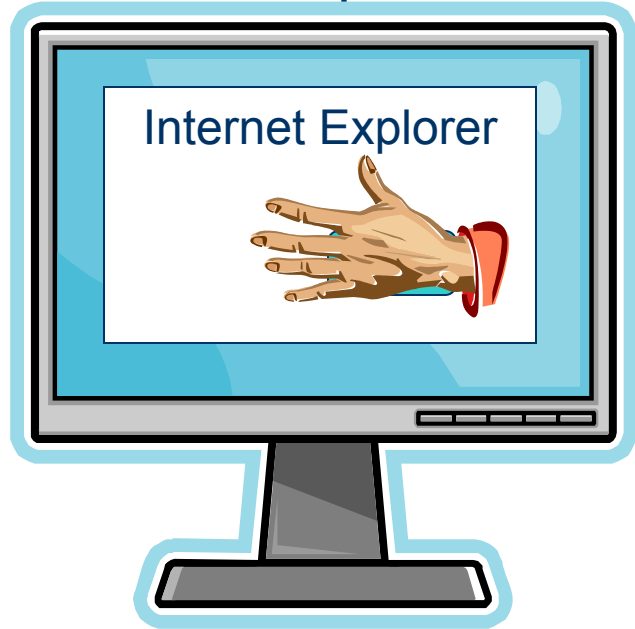




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Server



WēPO



Windows

How Print Wizard Works

- Delivery mechanisms – Output
 - Via Windows
 - Usually high-level
 - Sometimes low-level
 - To any Windows-supported printer
 - Even non-PCL
 - Even “Windows only”
 - Pseudo-printing
 - More later

How Print Wizard Works

- Printfile format
 - Plain text
 - Backspace-bolding, underlining
 - Tabs
 - Formfeeds (or not)
 - Character set
 - ISO
 - OEM (DOS)
 - Unicode

How Print Wizard Works

- Printfile format
 - PCL-5
 - PJP, HPGL
 - Color
 - Embedded fonts
 - PCL-6 (some)
 - EMF, WMF
 - SPL
 - Image

How Print Wizard Works

- Printfile format
 - Scan
 - Interactive
 - Program control
 - Tab-separated Values
 - Control file
 - “Bang commands”

How Print Wizard Works

- Printfile format
 - HTML (some)
 - No iframes
 - No CSS
 - Some <TABLE>
 - Character entities

How Print Wizard Works

- Printfile format
 - PWML (Print Wizard Markup Language)
 - Modeled on HTML
 - Optimized for legacy output
 - Page control
 - Size, orientation, bin, duplex, etc.
 - Margins, spacing
 - Precision
 - Sizing
 - Placement
 - Pagination

How Print Wizard Works

- Printfile format
 - PWML (Print Wizard Markup Language)
 - Font control
 - Width
 - Rotation
 - Alternative fonts for missing characters
 - Wrap control, including “squeeze”
 - Barcode generation
 - 15 styles
 - Many options
 - Line drawing

How Print Wizard Works

- Printfile modifications
 - Auto-fit
 - Paginate
 - Auto-font
 - Columnize TSV
 - Labelize
 - Search & replace
 - Change certain text
 - Move certain text
 - Wrap certain text with font or barcode tag

How Print Wizard Works

- Printfile modifications (cont.)
 - Add header
 - Add trailer
 - Draw on the document
 - Sign it on-screen
 - Variable page length (mini-page)

How Print Wizard Works

- Printfile modifications (cont.)
 - Add overlay(s)
 - Image file (full-page scan)
 - Scan
 - PWML
 - Use for watermark
 - Use to place a logo
 - EMF
 - Form saved from MS Publisher

How Print Wizard Works

- Printfile modifications (cont.)
 - Add overlay(s)
 - PCL
 - Start with document in any Windows program
 - Print to file with PCL-5 printer driver
 - SPL
 - Windows spool file
 - Multiple overlays can be sequenced
 - Patterns of overlays, paper sizes, orientation, bins

How Print Wizard Works

- Job status tracking
 - Logging
 - Debugging
 - Ganging

How Print Wizard Works

- Pseudo-printing
 - Fax output
 - WinFax Pro
 - Fading away
 - Via Windows
 - Control of recipient
 - Cover sheet
 - Data fields included
 - Use fax server
 - With attachments

How Print Wizard Works

- Pseudo-printing
 - TIF generation
 - Control of density, color format, compression
 - Default to fax-compatible (class F)
 - EMF generation

How Print Wizard Works

- Pseudo-printing
 - PDF generation
 - Our own code
 - Font embedding
 - Overlays (each only once in file)
 - PCL to PDF
 - Attachments
 - Index(es)
 - Encryption with permissions
 - Digital signature

How Print Wizard Works

- Pseudo-printing
 - Email generated files
 - Methods:
 - Outlook
 - SMTP
 - MAPI, CDO
 - Control recipient, subject, notes, etc.
 - Include attachments
 - No security popup
 - Can be semi-interactive

A Special Case: WēPO

- Legacy application has web server front end
- User has only a browser
- Dynamic and NAT IP
- Firewalls in place
- Server doesn't know printer type
- Browsers are bad at printing

A Special Case: WēPO

- Solution: Web Print Object (WēPO)
 - ActiveX object
 - Download/install once
 - Has access to client-side printer drivers
 - User sees a button that says “Print”
 - User clicks button
 - Object fetches specified file
 - Typically PWML or PCL
 - Prints it on user’s printer
 - Lots of options
 - Can also script it with JavaScript

More Info on Print Wizard

- www.anzio.com
 - Demo (fully functional for 60 days)
 - Manual
 - Samples
 - Pricing
- Stop by our booth at SCO Tec Forum 2008
- Resellers welcome
- Email: support@anzio.com
- Phone (US): 503-624-0360



Questions?

