



OpenPrinting Summit 2007 Results/Status

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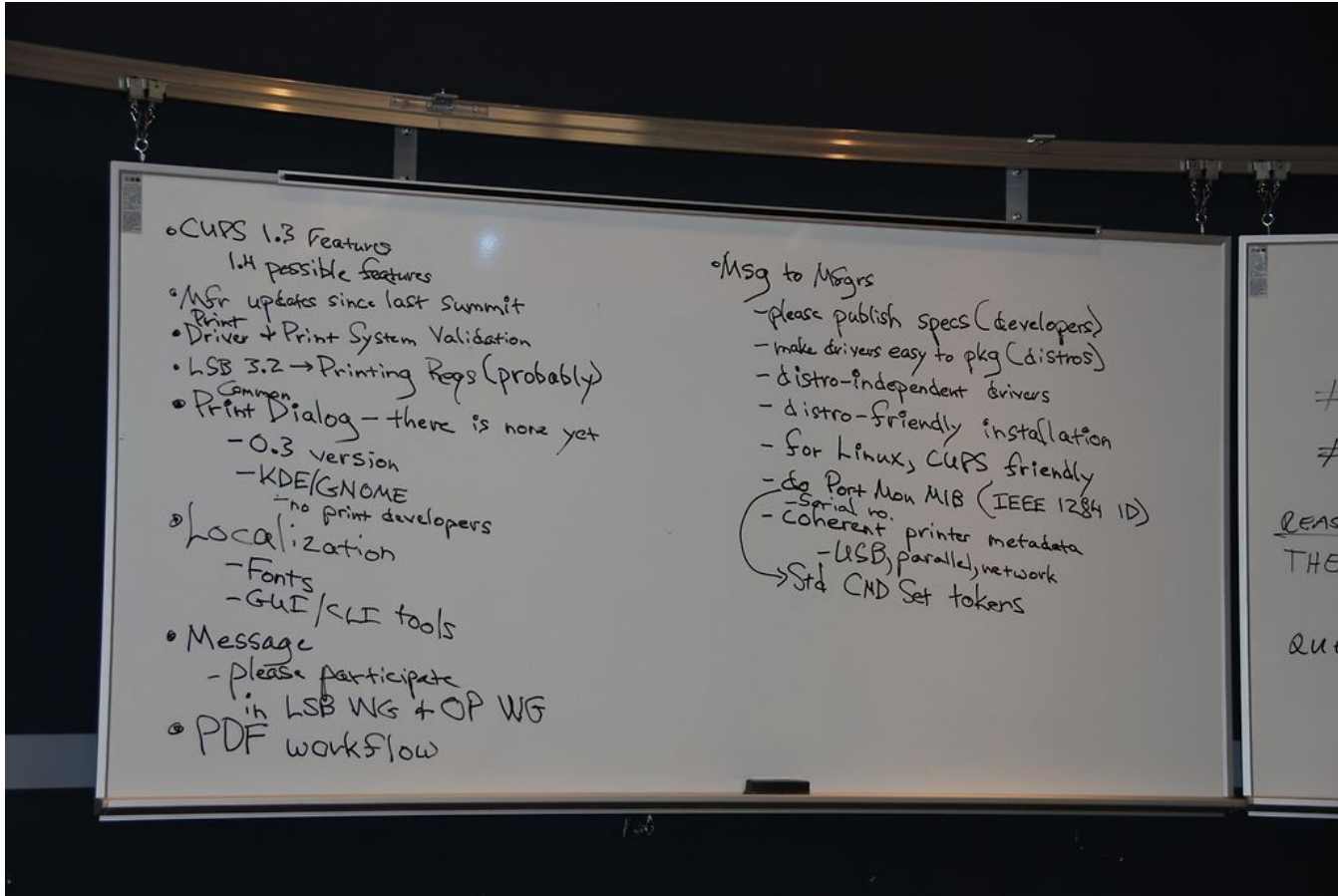
" 23 Participants ...





OpenPrinting Summit 2007, Montreal

" ... a lot of results





" **Goal:**

- Standardizing on a Scalable Print Environment in Linux

" **Printing Environments:**

- Production, Office, Home, Embedded/Mobile
- Distinguished by: Volume, job type, print location, system resources

" **Coherence:**

- Environment, Software level
- User, Application developer, OS/driver developer want consistency
- Single dictionary, Common dialog, APIs, Coding Style

" **Scalability**

" **OpenPrinting Embedded/Thin Thread (OPEP)**

- Implementation started by Glen Petrie (Epson) but due reassignment of Glen's work time project stopped and **developers urgently needed!**



OpenPrinting Workgroup Status

- " **OP Reference Model – stable**
- " **OP DSH (Directory Structure and Hierarchy) – completed**
- " **OP PAPI (Print API) – completed**
- " **OP JTAPI (Job Ticket API) – nearly complete**
 - Volunteers for implementation urgently needed!
- " **OP PDAPI (Print Driver API, aka OPVP) – nearly complete**
- " **OP PCMAPI (Print Channel Manager API) – work-in-progress**
- " **OP SMAPI (Status Monitoring API) – work-in-progress**
- " **OP Embedded/Thin Thread – started**
 - Volunteers for implementation urgently needed!
- " **OP PCAPI (Printer Capabilities API) – proposed**
- " **OP DDAPI (Device Discovery API) – proposed**
- " **OP TFMAPI (Transform API) – proposed**



OpenPrinting Workgroup Future Directions

- " **Short-term – Guidelines for printer testing/validation tools**
 - Directory names, calling sequence
 - Printer access only locally (USB, Parallel)?
- " **Mid-term – Guidelines for print system testing/validation**
 - Cover various printing paths, renderers, channels, ...
 - Output into a file?
- " **Long-term – Enhancements for discovery/installation**
 - Driver installation URI extension for 1284 Device ID?
 - See also previous PWG work on remote driver installation
- " **Printing Dialogs - Query the Linux distributions**
 - Is printing a vector of differentiation?
 - If not, the OP should standardize printing dialogs/installation
- " **JTAPI - Model and API are overly complex?**
 - Simple data structures should be exposed to application?
 - JTAPI could be extended with convenience calls



- " **Outcomes of discussion on OpenPrinting Japan F2F on printer driver validation**
 - What kind of things should be validated?
 - Printing results? Performance? Options? From apps? Language? -> **Test cases**
 - How to validate a printer driver
 - OS? Apps? Document types? Languages?
 - Who should do the validation
 - Driver developer/printer vendor is usually most suitable -> **Self validation**
 - Validation costs
 - Linux desktop market small
 - Conclusion: **Further discussion needed**



- " **Discussion continued on the Summit and in the OpenPrinting workgroup afterwards**
 - Distinction between printing path and print driver:
 - **Printing path:** Everything up to just before the printer-specific driver (test to be provided by distros)
 - **Print driver:** Printer-specific driver and backend (test to be provided by driver developer/printer manufacturer)
 - Tests print into a file, so actual printers not needed. Check CUPS log and output file size
 - For testing with the printer consider printer locally connected for now?
 - Standardized command lines and directories for validation tools have to be determined
- " **Guidelines for printer (driver) validation are short-term goal of the OpenPrinting workgroup**
- " **Guidelines for print system validation mid-term goal**



" **LSB 3.1 and older**

- Printing requirements insufficient: Only “lp” and “lpr” commands, no printer enumeration, no printer-specific options/capabilities, ...

" **LSB 3.2**

- CUPS 1.1
 - Convenience API, PPS API, Raster API
- Driver interfaces
 - IJS, CUPS Raster, OPVP
- Ghostscript with these interfaces plus pxlmono/pxlcolor
- foomatic-rip
- Standard search path for PPD files

" **LSB 4.0**

- CUPS uplift (1.2?)
- SANE, PAPI, ...



Distribution-Independent Driver Packages

" Problems

- Distributions do not ship all drivers
- Free drivers as source need compilation → Difficult for end users
- Manufacturer's packages only for a few major distributions
- Difficult to find on manufacturer's web sites
- Testing/packaging effort for manufacturers too high

" Solution

- Make LSB-based driver packages attached to OpenPrinting database
- Based on LSB 3.1+CUPS+Ghostscript+foomatic-rip+SANE, later LSB 3.2
- Web query API to allow printer setup tools to automatically find, download, and install the driver packages
- Also manual lookup easy as drivers are all on the OpenPrinting web site
- Easy development and packaging with LSB DDK

" Progress

- KDE Printing Manager in KDE 4.0 supports auto driver download
- Canon working on LSB packages¹⁰ of their drivers



" HP

- More than 1200 models supported by completely free software
- Printing, scanning, memory cards, fax, toolbox, installer
- Localization in 8 languages
- HP will continue keeping HPLIP free software
- Some printers need proprietary pieces of software: firmware, driver plug-ins
 - Auto-downloadable plugin packages containing the proprietary files
 - Currently auto-download only by “hp-setup”, later with distro tools using OpenPrinting driver download

" Canon

- Started 2001 in Japan, now also in Europe and Australia
- Wide range of models supported: Inkjets, BW/color lasers, MF devices, ...
- RPMs, DEBs, x86 32-bit and 64-bit
- Drivers mostly open-source with some closed-source parts
- Distro-independent LSB-based packages planned



PDF Instead of PostScript as Print Job Format

" CUPS

- File conversion: imagetops, texttops -> imagetopdf, texttopdf (utf8topdf?)
- Page management: pstops -> pdftopdf
- Renderer: Ghostscript -> pdftoopvp
- OpenPrinting Japan has developed pdftoopvp, imagetopdf, pdftopdf (Subversion repositories <http://opfc.sourceforge.jp>)
- Volunteers and further discussion needed for texttopdf/utf8topdf

" GNOME

- PDF generation by Cairo graphics library
- Currently PDF up to version 1.4 generated
- ISO PDF/A (Archiving) and IEEE PDF/Is (Streaming) should be considered
- Perfectly text-extractable PDF generation by the end of 2007

" KDE

- Development for PDF workflow started
- PDF workflow due for KDE 4.1



- " **No major changes on Foomatic for several years**
- " **Following recent development in printing infrastructure**
 - Support for PDF as print job format
 - New CUPS functionality, especially custom options
 - Automatic printer driver download from the OpenPrinting web site
- " **Further improvements**
 - DTD/XSD for the XML database, can change database format
 - Auto-generate printer XML entries from PPD files
 - Easy way to turn user-contributed printer entries into official Foomatic entries
- " **Implementation progress**
 - Intern working on PDF workflow support and reimplementing of foomatic-rip in C



" Common Printing Dialog

- OpenUsability project lead by Peter Sikking
- “One size does not fit all”
- One of OpenPrinting's measures to get printing coherent
- User knows how to print from application A, then he knows how to print from application B
- Three levels of printing: “Just print”, Quick presets, tweaking parameters
- Printer types: inkjets, lasers, large formats, ...
- Tags: One option can belong to several groups/fields of interest, like page layout, toner saving, color, security, ...
- To be implemented in both Qt/KDE and GTK/GNOME, interfaces to app via XDG/Portland

" Progress

- Version 0.4 published shortly after Summit, taken into account the comments from the Summit and on the mailing list
- Hacker meeting of OpenUsability, KDE/Qt/Trolltech, GNOME/GTK, and application developers planned, probably early next year



" KDE

- Nearly no move after Atlanta Summit 1 1/2 years ago
- Google Summer of Code: Auto driver download from OpenPrinting site implemented
- KDE 4 printing work started but still behind the level of KDE 3
- Protocols/technologies
 - CUPS 1.1/IPP, others to be dropped, CUPS > 1.1 still missing, CUPS backend needs reimplementation, PDF workflow not yet completed
- Tools
 - kprinter (GUIded lpr), printer setup tool, job viewer
 - Urgently needed: Better preview, PDF editor
- KDE 4 roadmap
 - 4.0: Port from KDE 3 failed, direct use of Qt, regression from KDE 3
 - 4.1: Back to KDE 3 level, PDF workflow, Usability-driven GUI
- **Manpower urgently needed!**



" GNOME

- Printing via GTK+ (since GTK 2.10.x)
- Rendering via Cairo and passthrough PostScript (Unix)
- Native dialogs on Win32/Mac OS X
- Apps can add elements to printing dialog, app can also ask for notification
- Backends: File, CUPS, lpr
- Preview via evince
- CUPS convenience API to be redone, async operation planned
- Also here **manpower urgently needed!**

" OpenUsability/KDE/GNOME/Application developer meeting

- We hope this will bring the desktop printing development, especially the common printing dialog forward



- " **Mac OS X 10.4: CUPS 1.1.23**
Mac OS X 10.5: CUPS 1.3.2
- " **CUPS 1.3.x**
 - Kerberos authentication
 - Zeroconf/Bonjour/DNS-SD CUPS-to-CUPS communication
 - Web interface improvements
 - New functions in convenience API
 - ...
- " **CUPS 1.4.x (to be expected in about 1 year)**
 - PDF workflow with Poppler-based filters
 - USB printer access via libusb
 - Streaming print API
 - ...



" General

- Johannes Meixner (SUSE) about printer setup tools:
 - *No printer in printing system*
 - *Queue management tool*
 - *Queue is a named output channel*
- Peter Sikking (OpenUsability):
 - *There is no such thing as printing*
- **Please participate in OpenPrinting WG and LSB WG**

" To the printer manufacturers from

- **Driver developers:** Please publish specs of the hardware
- **Distributions:** Make drivers easy to package, distro-independent packages, installable with distro's setup tool, CUPS-friendly
- **From everyone:** PWG 5107.1 port monitor MIB, IEEE 1284 device ID, coherent metadata on parallel, USB, network, standard tokens for PDLs (PDF, PostScript, PCL, ...)



What We Will Discuss Today

- " **Printer driver/Printing system validation**
- " **Device discovery issues**
- " **PDF workflow: CUPS filters, driver integration**
- " **How should drivers be designed/packaged for smooth Linux integration?**
- " **Distribution-independent driver packages**
- " **OpenPrinting API module coherence**
- " **OpenPrinting workgroup future directions**
- " **Raising manpower: OP JTAPI, OP Embedded, KDE/GNOME Printing**