Summary and Agenda Links

- Summary prepared by Ira McDonald (OP Chair, High North) based on:

```
* Conference agenda (see below)
* Presentation slides (see below)
* Ira's participation via teleconference in all sessions
* Very poor audio quality from meeting room in San Francisco
```

- Summary of OPS is archived at:

```
ftp://ftp.pwg.org/pub/pwg/fsg/April2009_OPSummit/
 Open-Printing-Summit-Summary-20090426.htm
```

- Agenda of OPS (with links to presentation slides) is archived at:

```
http://www.linuxfoundation.org/en/OpenPrinting/
  OpenPrinting_Summit_San_Francisco_2009
```

OPS Summary - WEDNESDAY - 8 April 2009

Introduction (Till Kamppeter, Linux Foundation)

- Introductions of participants
- Review of 3-day agenda

Google Summer of Code 2009 (Till Kamppeter, Linux Foundation)

- For details and links see Open Printing page at:

```
http://www.linuxfoundation.org/en/OpenPrinting
```

- Overview of GSoC 2009

```
* 150 mentoring organizations
* 1000 students
```

- Open Printing GSoC 2009 - 7 projects approved and staffed

```
* Common Print Dialog (CPD) - Library Implementations
- Student #1 - Patch applications (OpenOffice, Thunderbird, etc.)
  Svilen Kanev - approved
- Student #2 - Finish GTK+ toolkit (Gnome) version of CPD API
  Per Hermansson - approved
- Student #3 - Finish QT toolkit (KDE) version of CPD
```

```
      Alexander Wauck - approved

  * Open Printing Website Browsing - Enhancements
  - Student #1 - modifying web app to be MySQL-based for performance
    Subhankar Sett - approved

  * Open Printing Website Driver/PPD Upload - Enhancements
  - Student #1 - authentication of uploads, automatic addition to the
      package archive, indexing, adding to driver database
    Kevin Seitz - approved

  * Job Ticket API - Library Implementation
  - Student #1 - Implementation of libjtapi w/ JDF (C language binding)
      and JTAPI sample application to edit job tickets
    Paul Victor - approved

  * Printer Config Backend for Oryanos/CUPS - Implementation
  - Student #1 - Oryanos supports system-wide color management
    Joe Simon - approved (mentored by OpenICC consortium)
```

PWG Summary (Glen Petrie, Epson)

- For details see slides prepared by Ira McDonald at:

  ```
  http://www.linuxfoundation.org/images/2/2f/
    PWG-Summary-April-20090408.pdf
  ```

- PWG Face-to-Face Meetings in 2009

  ```
  * 27-29 April - Mt Laurel, NJ (hosted by Oki Data)
  * 16-18 June - Rochester, NY (hosted by Xerox)
  * 18-20 August - Seattle, WA (hosted by Microsoft)
  * 13-15 October - Boulder, CO (hosted by InfoPrint)
  * 8-10 December - Austin, TX (hosted by Dell)
  ```

- PWG Teleconferences

  ```
  * Most active Working Groups have bi-weekly teleconferences
  ```

- WorkGroup for Imaging Management Solutions

  ```
  * CIM Print Device Model (Ira McDonald and Rick Landau)
  - complete in DMTF CIM v2.21 - mapping of Printer MIB and Finisher MIB

  * CIM Print Device Prototype (Rick Landau, Dell)
  - complete - open source Python implementation available in June 2009

  * CIM Print Service Model (Ira McDonald and Rick Landau)
  - CIM_PrintServiceSettings/Capabilities classes - work-in-progress
  ```

- Multifunction Devices WG

  ```
  * Scan Service (Pete Zehler, Xerox)
  ```

```
      - complete - approved as PWG Candidate Standard (PWG 5108.2-2009)

    * Resource Service (Nancy Chen, Oki Data)
    - complete - now in PWG Last Call (ends 13 May 2009)

    * MFD Overall Architecture (Bill Wagner, TIC)
    - work-in-progress
```

- Internet Printing Protocol WG

```
    * IPP/2.0 First Edition (Ira McDonald)
    - complete - now in PWG Last Call (ends 4 May 2009)

    * IPP Printer State Reasons Extensions (PSX) (Ira McDonald)
    - complete - now in PWG Last Call (ends 4 May 2009)

    * IPP Production Printing Set 2 (Tom Hastings, Xerox)
    - work-in-progress
```

- Imaging Device Security WG

```
    * HCD Health Assessment Attributes (Jerry Thrasher, Lexmark)
    - completed - now in PWG Last Call (ends 19 May 2009)

    * HCD MS-NAP Binding (Brian Smithson, Ricoh)
    - work-in-progress
```

State of CUPS (Mike Sweet, Apple)

- For details see slides prepared by Mike Sweet at:

```
    http://www.linuxfoundation.org/images/7/78/CUPS-2008-04-08.pdf
```

- CUPS 2008 - Accomplishments

```
    * Releases
    - CUPS 1.3.6 through 1.3.9, 1.4beta1, and 1.4beta2
    - primary focus is CUPS 1.4

    * Website - http://www.cups.org
    - 1,000 new PostScript and DDK Driver PPDs added
    - enhancing bug tracking integration with other systems
```

- CUPS 2009 - Plans

```
    * Releases
    - CUPS 1.3.10,1.4beta3, 1.4rc1, and 1.4.0
    - primary focus still CUPS 1.4, but work starting on CUPS 1.5

    * Website - http://www.cups.org
    - finish Launchpad integrations
    - add more How-To/FAQ content
```

- CUPS 1.4 - What's New?

  ```
  * IPP/2.x support
  * Web interface overhaul
  * Bonjour/DNS-SD support via mDNSResponder
  * Improved security in scheduler (sandboxing and access restrictions)
  * New banner/test page and PDF to PostScript filters
  * New streaming request APIs
  * CUPS DDK now included in core software
  ```

- CUPS 1.5 - Tentative Changes (from Roadmap)

  ```
  * Web interface access controls
  * Per-object security in scheduler (Printers, Jobs, and Subscriptions)
  * SSL/TLS certification validation and revocation support
  * Direct printing to shared printers (especially for Kerberos)
  * PPD resource file support (security and allowable file locations)
  ```

- CUPS Development - We Want Your Feedback!

  ```
  * 75% of all bugs and feature requests included in CUPS come
    from outside Apple
  ```

- Discussion

  ```
  * CUPS Software Test Plan
  - CUPS IPP test - can be used to validate vendor IPP implementations
  ```

Automatic Download of Printer Drivers (Bin Li, Ricoh)

- For details see slides prepared by Bin Li at:

  ```
  http://www.linuxfoundation.org/images/b/ba/Autodriverdownload.pdf
  ```

- Demo for Auto Driver Download

  ```
  * Serious performance problems with download source
  * No video posted - too hard to hear on teleconference
  ```

Standard Printer Driver Download Discussion (Till Kamppeter, LF)

- For details see slides prepared by Till Kamppeter at:

  ```
  http://www.linuxfoundation.org/images/8/81/Driver-auto-download.pdf
  ```

  Why auto-download of distro-independent driver packages?

  ```
  * Distributions do not ship all available printer drivers
  * Free drivers from upstream need to be compiled by users
  ```

```
    * Manufacturers make packages only for a few major distributions
    * Driver packages often difficult to find on manufacturers' web sites
    * Testing/packaging effort for manufacturers and driver developers too
      high to ship binary driver packages for all distributions
```

- Existing Infrastructure we make use of

```
    * OpenPrinting database (former linuxprinting.org) - central database
      for printer/driver info
    * Linux Standard Base (LSB) provides tools and infrastructure to create
      distribution-independent binary packages
```

- Proposed Solution

```
    * Distribution-independent printer driver packages
    - Based on LSB 4.0 for binary format
    - Using CUPS, Ghostscript (with IJS, CUPS Raster and OpenPrinting Vector
      interfaces), Perl, and foomatic-rip (which is on every distribution)
    - LSB DDK (Driver Development Kit) helps packaging the drivers correctly
    - Make packages part of OpenPrinting database
    - Infrastructure for automatic package lookup, download, installation,
      and auto update through the internet by printer setup tools
    - system-config-printer (Fedora/Red Hat, Ubuntu, Mandriva) already
      supports automatic download of driver packages
```

- Discussion

```
    * HP would adopt a common solution (Shiyun Yie, HP)
    * Every distro should pick just one printer driver installation tool
      (Tim Waugh, Red Hat)
    * Lively discussion about distro security policies versus driver
      download - need for digital signatures and therefore authority chains
    * More discussion of HP Linux Printing Issues (Shiyun Yie, HP)
    * Lively discussion about the security and relative merits of binary
      plug-ins from manufacturers - proprietary image enhancement, etc.
    * Some conclusions?
    - too hard to hear on teleconference
```

Multifunction Devices Discussion (Till Kamppeter, LF)

- For details see slides prepared by Till Kamppeter at:

```
    http://www.linuxfoundation.org/images/7/75/Mf-devices.pdf
```

- Multi-function devices are printers with extra functionality

```
    * Scanner
    * Copier
    * Fax
    * Memory card reader
```

- Why are we discussing them here?

```
    * Manufacturers want to supply a driver package for the complete device
    * Linux misses standardization for certain components, like Fax sending
      and receiving, computer-controlled copying
    * Some devices need special access methods for the extra functions
```

- Discussion

```
    * Lively discussion about packaging of fax/scan/etc. drivers with print
      drivers - and integration or NOT of their client UI screens
    * Manufacturers (on ALL platforms) try to integrate status (for example)
      so that a copy job blocking a print job shows correct busy status
    * Some conclusions?
    - too hard to hear on teleconference
```

Printer Testing/Validation (Glen Petrie, Epson)

- For details see slides prepared by Glen Petrie at:

```
    http://www.linuxfoundation.org/images/6/68/
      OpenPrinting_Summit_2009_-_Print_Validation_Discussion_Slides.pdf
```

- What is Printer Driver Validation?

```
    * Self-Validation by Driver Developer
    - No Certification by Distros or Central Organization (LSB, OP)
    - Distro's or Central Organization (LSB, OP) can also perform
      Self-Validation

    * Includes Driver Packages and PPDs
```

- What is Needed?

```
    * Test/Testing Criteria - What is being tested?
    * Test/Testing Procedure - How to test
    * Validation Result Summary Submission - How to deliver the results,
      drivers and PPDs
    * Will exceptions be allowed?  - What are they?
```

- What is Being Tested (Scope)?

```
    * Driver Package
    - [yes] Installation
    - [yes] Interfacing from/with CUPS
    - [yes] Interfacing from/with Applications
    - [yes] Interfacing from/with Transform Applications
    - [yes] Driver Back-Ends
    - [tbd] "Standard" Print Capability
    - [no ] Print Quality - Too Subjective
    - [no ] Printing Performance - Too Subjective

    * PPD
    - [yes] PPD Base Attributes
    - [yes] CUPS PPD Extension Attributes
```

```
- [yes] CPD PPD Extension Attributes
```

- Discussion

```
* Lively discussion around scope of testing:
  (a) pure driver; or (b) printing infrastructure/environment.
* Lively discussion around methods and elements of testing:
  (a) scripts (e.g., xdgutils dependencies)
  (b) test documents (e.g., standard sRGB raster images)
  (c) file paths (e.g., PPD, ICC profile, driver, etc.)
* Some conclusions?
- too hard to hear on teleconference
```

HP Linux Printing Issues (David Suffield, HP)

- For details see slides prepared by Shiyun Yie at:

```
http://www.linuxfoundation.org/images/e/e4/
   Linux_Printing_Summit_Issues_from_HP.pdf
```

- Discussion

```
* Some issues addressed - too hard to hear on teleconference
```

OPS Summary - THURSDAY - 9 April 2009

New Color Architecture for Ghostscript (Michael Vrhel, Artifex)

- For details see slides prepared by Michael Vrhel at:

```
http://www.linuxfoundation.org/images/7/71/
   A_New_Color_Architecture_for_Ghostscript.pdf
```

- Outline

```
* Ghostscript overview
* Timeline: ICC, PDF, Ghostscript
* PDLs, Ghostscript & Color Spaces. Current State
* Color Review
* PDL Color Paths
* ICC Profile Format
* Color Management Modules (CMMs) & MLUTs
* Problems in Existing Ghostscript ICC Flow
* Proposed Architecture
```

- About Ghostscript

```
* Ghostscript is a document conversion and rendering engine.
* Essential component of the Linux printing pipeline.
* Dual GPL/Proprietary licensed. Artifex owns the copyright.
```

```
* Source and documentation available at www.ghostscript.com
```

- Goals of New Ghostscript Color Architecture

```
* Easy to interface different CMM with Ghostscript.
* Define all color spaces in terms of ICC profiles.
* Cache linked transformations.
* Manager for ICC profiles and linked transforms.
* Devices communicate their ICC profiles and have their ICC profile set.
* Include object type (e.g. image, graphic, text) and rendering intent
  into the computation of the linked transform.
* Operate efficiently in a multithreaded environment.
* Handle ICC named colors and proprietary formats.
```

- Conversion of PS and PDF Color Spaces

```
* PS and PDF CIE color spaces will be converted to simple ICC forms
  that the CMM can handle.
* If desired CMM could be provided with PS or PDF data in a private
  tag.
* PS and PDF mappings are 1-way. Device to CIEXYZ or CIEXYZ to Device.
  Care must be taken in this process to ensure we create a valid ICC
  profile.
* Procedural mappings will be sampled. This is already done in
  Ghostscript's joint CIE cache for transforming CIE based colors.
```

- Current Status

```
* New branch started in SVN.
  http://svn.ghostscript.com/ghostscript/branches/icc_work
* Currently interfacing to littleCMS (Marti Maria)
  http://www.littlecms.com/
* Written most of cache management and littleCMS interface.
* Need to firm up API with graphics library and interpreters.
* Need to add support for writing and reading profiles into command
  list.
* Debug, debug, debug..
```

- Call for Feedback

```
* Have had helpful feedback from OpenICC group
  Gerhard Fuernkranz, Kai-Uwe Behrmann & Leonard Rosenthol
* Led to addition of proofing profile
  Considerations for blackpoint compensation
* Suggestions from ICC meeting in Paris include addition of Device
  Link profiles. These can be used for special effects (e.g. sepia) or
  for redirecting Fogra or SWOP CMYK files to particular CMYK
  devices.
```

Integrating Color Management (Glen Petrie, Epson)

- For details see slides prepared by Glen Petrie at:

```
http://www.linuxfoundation.org/images/3/37/
   OpenPrinting_Summit_2009_-_Color_Management_Slides.pdf
```

- Presentation skipped due to time constraints

Printing From Applications (Till Kamppeter, Linux Foundation)

- For details see slides prepared by Till Kamppeter at:

```
http://www.linuxfoundation.org/images/f/f0/
   Printing-from-applications.pdf
```

- Many printing problems caused by applications

```
* Not very well implemented printing parts
* non-DSC-conforming PostScript output
* missing functionality in printing dialog
```

- What should be done?

```
* Printing functionality of apps needs systematic checks
* Bugs and problems reported to application developers
* New standards make high-quality printing support easier
- PDF workflow
- Common Printing Dialog
- Color Management
* GSoC student(s) will patch apps for PDF and CPD
```

Common Printing Dialog Project Proposal (George Liu, Ricoh)

- For details see slides prepared by Till Kamppeter at:

```
http://www.linuxfoundation.org/images/4/4d/
   CommonPrintingDialogLF09.pdf
```

- Problems of Linux Print Dialogs

```
* Applications have their own print dialogs
* For many applications, Print Dialog is an integrated part of the
  application.
```

- Common Print Dialog Proposal - Basic Idea

```
* Put CPDAPI under all major applications (Open Office, Firefox, etc.)
  using D-Bus
* Put CPDAPI above all major print dialog (Open Office, GTK+, QT, etc.)
  using D-Bus
```

- Two Phase Proposal

```
* Phase 1:
- Make Common Print Dialog a reality.  Make it into Linux distributions
```

```
    THIS SUMMER!
- CPDAPI 1.0 specification
- Make stand alone CPDAPI enabled Gtk+ print dialog module
- Patch Gtk+ Tool kit to make CPDAPI invocation.
- Patch Qt Tool kit to make CPDAPI invocation.
- Put it into a Linux distribution

* Phase 2:
- Config utility for user to pick CPDAPI enabled Print dialog.
- Open Usability Print Dialog
```

- Discussion

```
* Lively discussion about nearterm patching to GTK+ dialog in KDE/QT
  applications and vice versa
* Strong objections to diversion from the Open Usability designed GUI
  by some
* Strong support for 'let the best GUI win' from others
* Concerns about support costs for many print dialogs (Glen Petrie)
* Some conclusions?
- too hard to hear on teleconference
```

Common Printing Dialog by Open Usability (Peter Sikking, OU)

- For details see slides prepared by Peter Sikking at:

```
http://www.linuxfoundation.org/images/4/42/Sf09_peter_sikking.pdf
```

- Dialog Redesign - Montreal 2007

```
* Level 1
- printing does not exist
* Level 2
- quick presets
* Level 3
- tweak parameters
```

- Season of Usability

```
* Student/apprentice project - Riddhima Shelat
* What about PDF?
- Awful - Virtual PDF Printer
- Handle as files
- Export to PDF - integrate with existing export
```

- OpenPrinting Dialog On Tour

```
* Tokyo - OpenPrinting Japan meeting - thanks to Epson
* Istanbul - GUADEC (GNOME) - thanks to Epson
* Sint-Katelijne-Waver - Akademy (KDE) - thanks to Epson
```

- Usability Tests

```
* No video posted - too hard to hear on teleconference
```

- Discussion

```
* Lively discussion about layout and navigation
* Heavy focus on Preview Dialog - cost versus usability
* Some conclusions?
- too hard to hear on teleconference
```

Epson Request for Common Print Dialog (Glen Petrie, Epson)

- For details see slides prepared by Glen Petrie at:

```
http://www.linuxfoundation.org/images/9/9b/
   OpenPrinting_Summit_2009_-_Common_Print_Dialog_Slides.pdf
```

- Presentation skipped due to time constraints

OPS Summary - FRIDAY - 10 April 2009

Breakout - Common Print Dialog (Kyoto Room)

- Discussion

```
* Lively discussion about George Liu's proposal
* No schedule commitment made by Peter Sikking for Open Usability
* Some conclusions?
- too hard to hear on teleconference
```

Breakout - Color Management (Spring B Room)

- Discussion

```
* No information available
```

Breakout - Auto Driver Download (Spring C Room)

- Discussion

```
* No information available
```

Joint Session with LSB WG (Till Kamppeter, Linux Foundation)

- For details see slides prepared by Till Kamppeter at:

```
http://www.linuxfoundation.org/images/5/59/Lsb-printing-2009.pdf
```

- Discussion

```
* Change from CUPS/1.1 to CUPS/1.2 or CUPS/1.3
- Mike Sweet later endorsed - recommended CUPS/1.3
* Add CUPS IPP API
- Mike Sweet later endorsed
* Add SANE/1.0 API, D-Bus, and UDEV?
- too hard to hear on teleconference
```

Joint Session with Driver Backports WG (Till Kamppeter, LF)

- No slides
- Discussion

```
* Some conclusions?
- too hard to hear on teleconference
```

Next Steps (Till Kamppeter, LF)

- No slides
- Discussion

```
* Some conclusions?
- too hard to hear on teleconference
```