OpenPrinting

We make printing just work!

Till Kamppeter – OpenPrinting
Opportunity Open Source Mandi, Sep 8, 2023

What we are doing

- Development of printing **architecture**, **technology**, **infrastructure** on Linux, Unix, and POSIX-style operating systems

- Collaboration with **IEEE-ISTO Printer Working Group (PWG)** especially on the **Internet Printing Protocol (IPP)**

- **Driverless scanning** support in cooperation with SANE

- Integration of printing with the **desktop environment**, esp. print dialogs and printer setup tools

- Integration in **all types of operating systems** (classic DEB, RPM, .../immutable) with **all packaging methods** (Snap, Docker, ...)

- **Printer/driver compatibility look-up lists**

- Helping **manufacturers** on printer driver design and integration

How it all began ...

- I was **system administrator** in Theoretical Physics department in 1997-2000

- We had **Unix** (SGI, Digital) and **Linux** (SUSE) machines

- **Printing via LPD**

- 2 **PostScript laser printers**: **2 trays**, **Duplex** (Off/Long Edge/Short Edge)

- **LPD has no support for options**, but **tricky scripting** (by my predecessors) allowed users to select tray and duplex mode

- We got **color laser with many more options**, only **proprietary GUI** to select everything

How it all began ...

- **CUPS 1.x** came in the beginning 2000

- **Article about CUPS** in German "Linux Magazin", by **Kurt Pfeifle**, made me discover CUPS

- I **deployed CUPS in department**, fully supports PostScript printers, including all options via PPD (PostScript Printer Description) files
  => Makes color laser fully supported under Linux

- CUPS only has command line interface for options, so I quickly wrote up a **simple print dialog** (X Printing Panel, XPP) with FLTK toolkit.

- **Published it on Freshmeat**

- **Kurt Pfeifle discovered it**, invited me to the **LinuxTag 2000**, largest free software show in Europe, in July 2000 ...

How it all began ...

- ... and in August 2000 **I lived in Paris**!

- Hired by **MandrakeSoft**, first task to **switch their distro to use CUPS**!

- I had to **package CUPS** ...

- ... but also get **PPD files for all the printer drivers** which were available for LPD

- There was the **linuxprinting.org** site with a printer/driver compatibility database and an **automatic PPD file generator**, Foomatic

- There was not enough driver data, had to fill in **invocation command lines** and **option lists**

- **All this made the fall-2000 edition of Mandrake Linux work with CUPS, without loss of support for any printer!**

How it all began

- Printing got **much easier** with Mandrake Linux

- And I did a lot of **evangelism** and **community work**:

    – **Community booths about OpenPrinting** on LinuxTag 2001-2006

    – Half-day and full-day **workshops about CUPS** on system administrator and developer conferences

    – Many **talks** on different conferences

    – Organized **hackfests**

- All this **made the other distributions follow**, making CUPS the standard

- **Other printing systems**, like LPD, LPRng, PPR, … **disappeared** and got not maintained any more

How it all began

- Co-founded **OpenPrinting** in 2001

- Participated in **development of printing-related APIs**

- **Organized first OpenPrinting Summit** in 2006 in Atlanta, Georgia

- On the Summit **Ian Murdock** (founder of DebIAN) **invited me to work at Free Standards Group full-time** to **merge linuxprinting.org into OpenPrinting** and **manage OpenPrinting**.

- In 2007 **Free Standards Group and OSDL merged** to be **the Linux Foundation** and so OpenPrinting got part of the Linux Foundation

- From 2006 on **I worked full-time on OpenPrinting**, full-time at the Linux Foundation, 1/3 part-time at Canonical (for Ubuntu packaging)

- **Got one of the 8 fellows of the Linux Foundation**

How it all began

- I organized **annual OpenPrinting Summits**, later together with the Printer Working Group (PWG)

- Since 2008 I organized the **participation of the Linux Foundation in the Google Summer of Code**, accepted every year

- From 2015 on I worked together with **Aveek Basu** (that time at Lexmark India). Aveek found GSoC contributors at Indian universities, most from IIT Mandi. He also created a **selection process** for OpenPrinting GSoC students,

Achievements

- Made **CUPS** the **standard printing system** for POSIX-style operating systems

- **All free printer drivers work with CUPS**

- Switched **standard print job forma**t from PostScript to **PDF**

- **Grand unified Ghostscript**: Merged Mike Sweet's ESP Ghostscript fork and all third-party drivers into upstream Ghostscript at Artifex.

- **system-config-printer**

- **cups-filters**: Continued drivers and backends which Apple dropped

- **Common Print Dialog Backends**

- CUPS **Snap**

- **All free printer drivers in Printer Applications**

Areas of work

- **Maintaining the components**
  - CUPS
  - cups-filters
  - Common Print Dialog Backends
  - Pappl-retrofit
- **Printer compatibility databases**
  - Foomatic
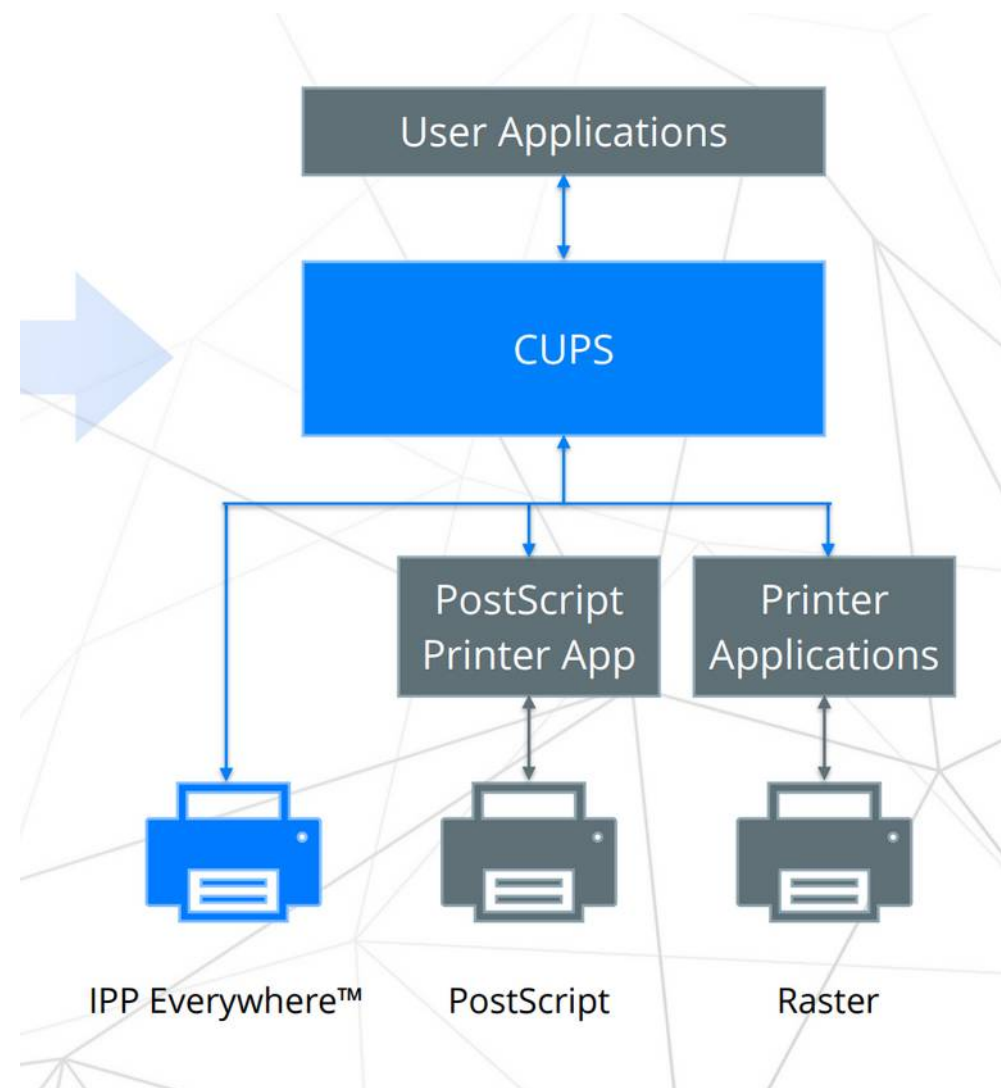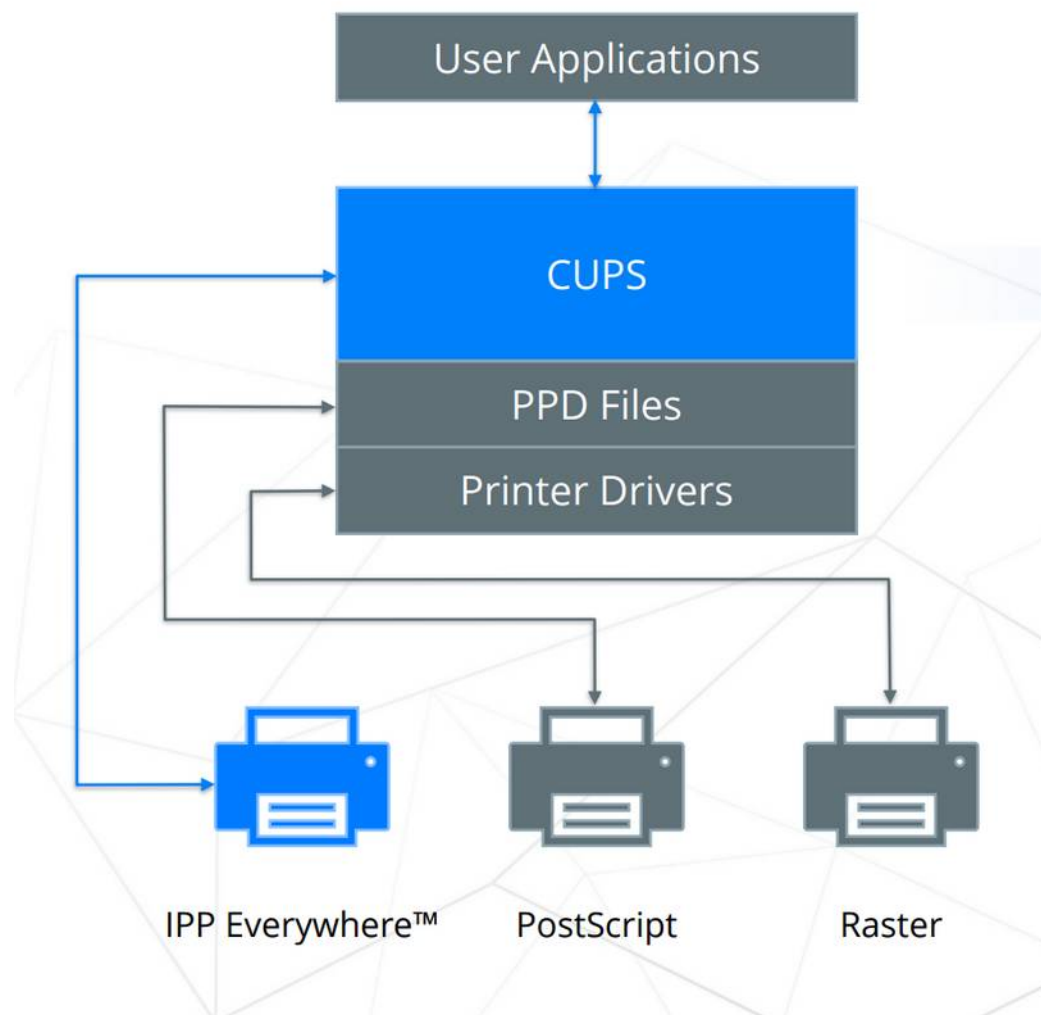 - List of driverless printers

Areas of work

- **Collaboration with Printer Working Group (PWG)**, maintainer of Internet Printing Protocol (IPP) and other standards

- Helping **printer manufacturers** to make drivers correctly

- Design of **general printing system architecture**

- **Desktop** Integration
  - Printer setup tools
  - Print dialogs

- Intergration in **immutable distributions**

- **Distribution-independent packaging** (Snap, podman,Docker, …)

New Architecture for Printing and Scanning

- **Modern printers are driverless IPP**

  - Auto-discoverable via DNS-SD

  - Tell full capabilities via IPP

  - Use standard job formats: PDF, PWG Raster, Apple Raster, PCLm

- **Stop** supporting **PostScript Printer Description** files (PPD, deprecated)

- **CUPS gets all-IPP**, no classic PPD/filter-based drivers (CUPS 3.x)

- Driver still needed? Use **Printer Application**, a software **emulation of IPP printers**

New Architecture for Printing and Scanning

New Architecture for Printing and Scanning

- Needs
    - Desktop integration
        - **Printer setup tools**: GNOME Control Center, KDE, desktop-independent, for further desktops
        - **Print dialogs**: CPDB support for GTK and Qt dialogs, also for LibreOffice, Mozilla (Firefox, Thunderbird), Chromium Browser
    - **Native Printer (Scanner) Applications** for HPLIP, Gutenprint
    - **Scanner Applications to replace SANE**

Get involved

- **Code, bug triage, CI testing, packaging, documentation, web site**

- **Google Summer of Code: Contributor, Mentor**

- OpenPrinting GitHub: https://github.com/OpenPrinting/

- OpenPrinting mailing list:
  https://lists.linuxfoundation.org/mailman/listinfo/printing-architecture

Questions / Comments