

# Open Printing Project

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## Japan Implementation Group

Koji OTANI (AXE, Inc.)

Toshihiro YAMAGISHI (Turbolinux, Inc.)

KANJO Hidenori (BBR INC.)

Masayuki NAKASONE (EPSON AVASYS Corporation)

TORATANI Yasumasa (Canon Inc.)

Osamu MIHARA (FUJI XEROX Printing Systems Co Ltd.)



# Background of the Project

## \* When started?

- \* Open Printing Project was established in June 2003, as one of the Open Source Software Infrastructure Promotion Project 2003 funded by IPA( Information-technology Promotion Agency, Japan) .

About IPA: <http://www.ipa.go.jp/about/english/ipa/about.html>

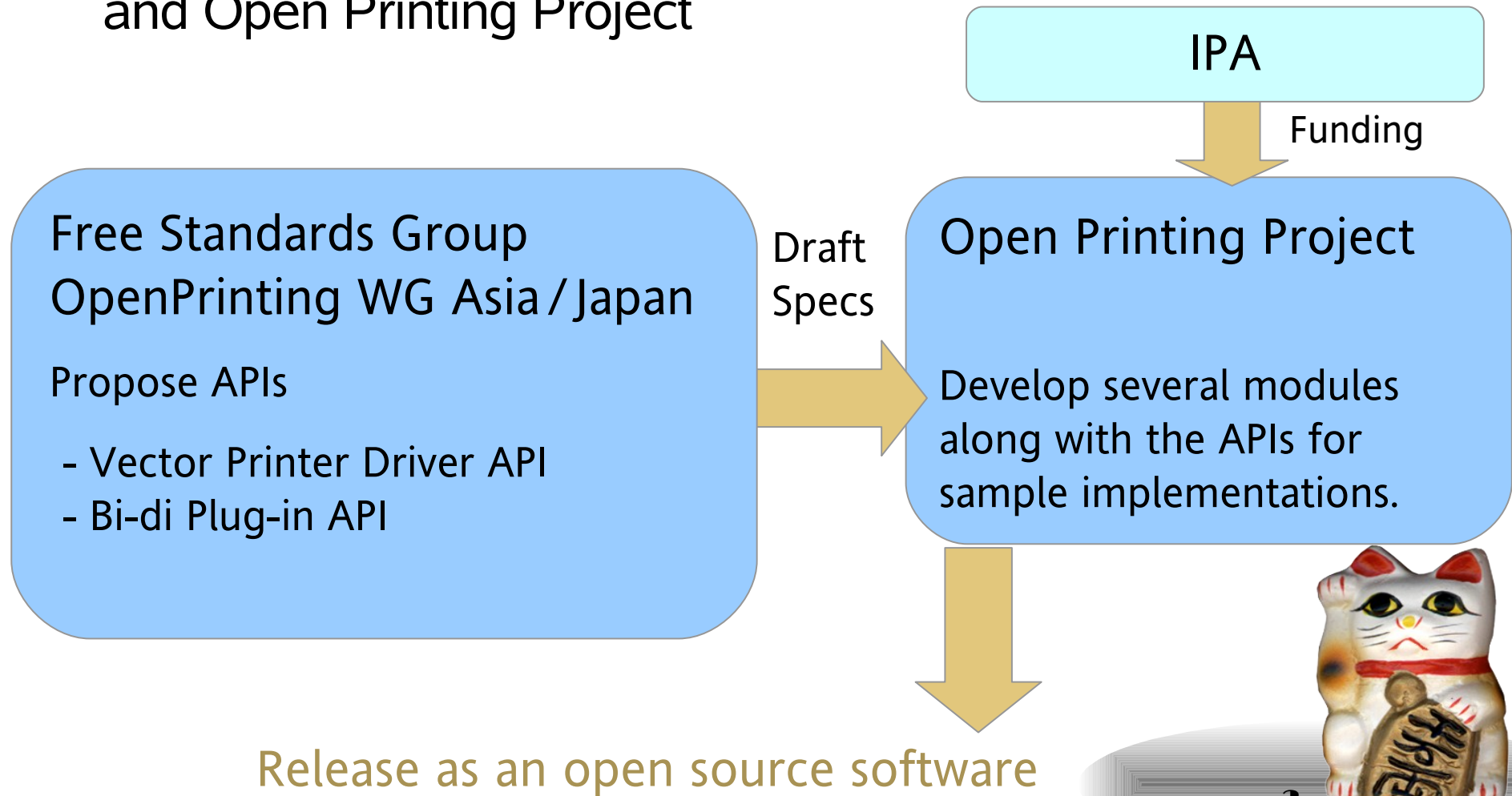
## \* Objectives

- \* Demonstration of the Vector Printer Driver API and Bi-di Plug-in API (Today, Bi-di Plug-in API which handled bi-directional communication with devices has been divided into two APIs, PCM and Status Monitoring API) discussed and reviewed in Open Printing WG Japan.
- \* Promotion of two APIs to vendors as well as users.
- \* Boost up the standardization of two APIs.



# Position of the Project

- \* Relation between the OpenPrinting WG and Open Printing Project



# Target Printers (Alphabetical order)

## \* Develop the Vector Printer Driver API

- |                     |                |
|---------------------|----------------|
| * Canon LBP-2810    | LIPS IV        |
| * EPSON LP-9500C    | ESC/Page-Color |
| * HP Laser Jet 4800 | PCL6           |
| * HP Laser Jet 5500 | PCL6           |

Using the Vector functions of the Vector Printer Driver API as a Shared Lib. type driver.

- |                   |
|-------------------|
| * Canon PIXUS850i |
| * EPSON PX-V700   |

Using the raster functions of the Vector Printer Driver API as an IPC extension type driver.

## \* Develop the Bi-di Plug-in API

- |                   |  |
|-------------------|--|
| * Canon PIXUS850i | —— Shared Lib. type Bi-di Plug-in module |
| * EPSON PX-V700   | —— Process type Bi-di Plug-in module     |



# Requirements

## \* Vector Printer Driver API

- \* Print faster than raster based printer drivers.
- \* Print the sample data over 90% of each printer's native speed with both normal and high-resolution mode.
- \* Print under CUPS with Ghostscript as well as Xprint.
- \* Be applicable for PDL printers as well as raster printers; such as inkjet printers.

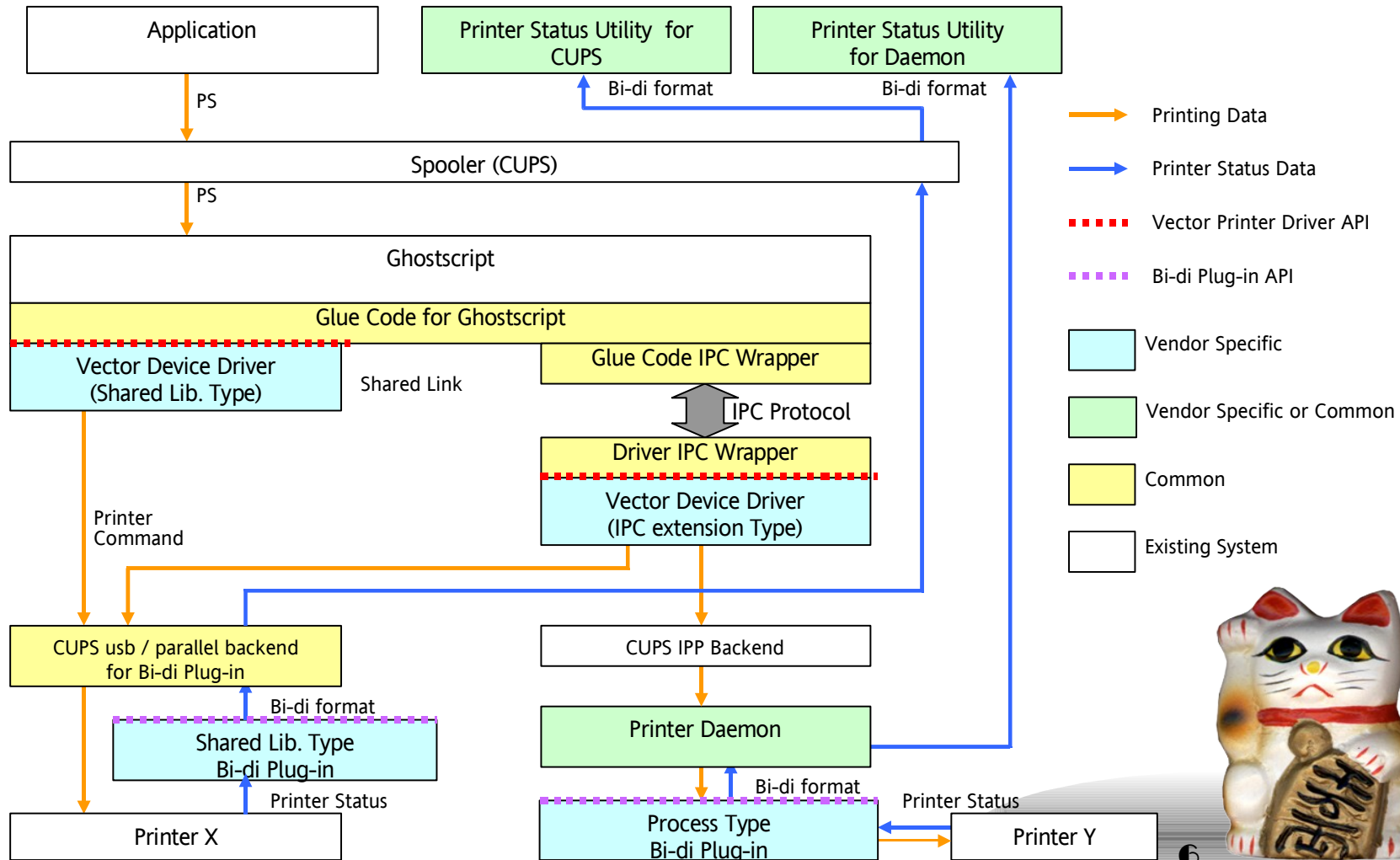
## \* Bi-di Plug-in API

- \* Obtain the simple printer status, such as ink empty, ink level, cover open, cartridge error, cartridge type, hardware option, paper jam, paper empty, etc, with the XML format data.
- \* Send back the printer status data to an upper system and display it by the Printer Status Utility program.



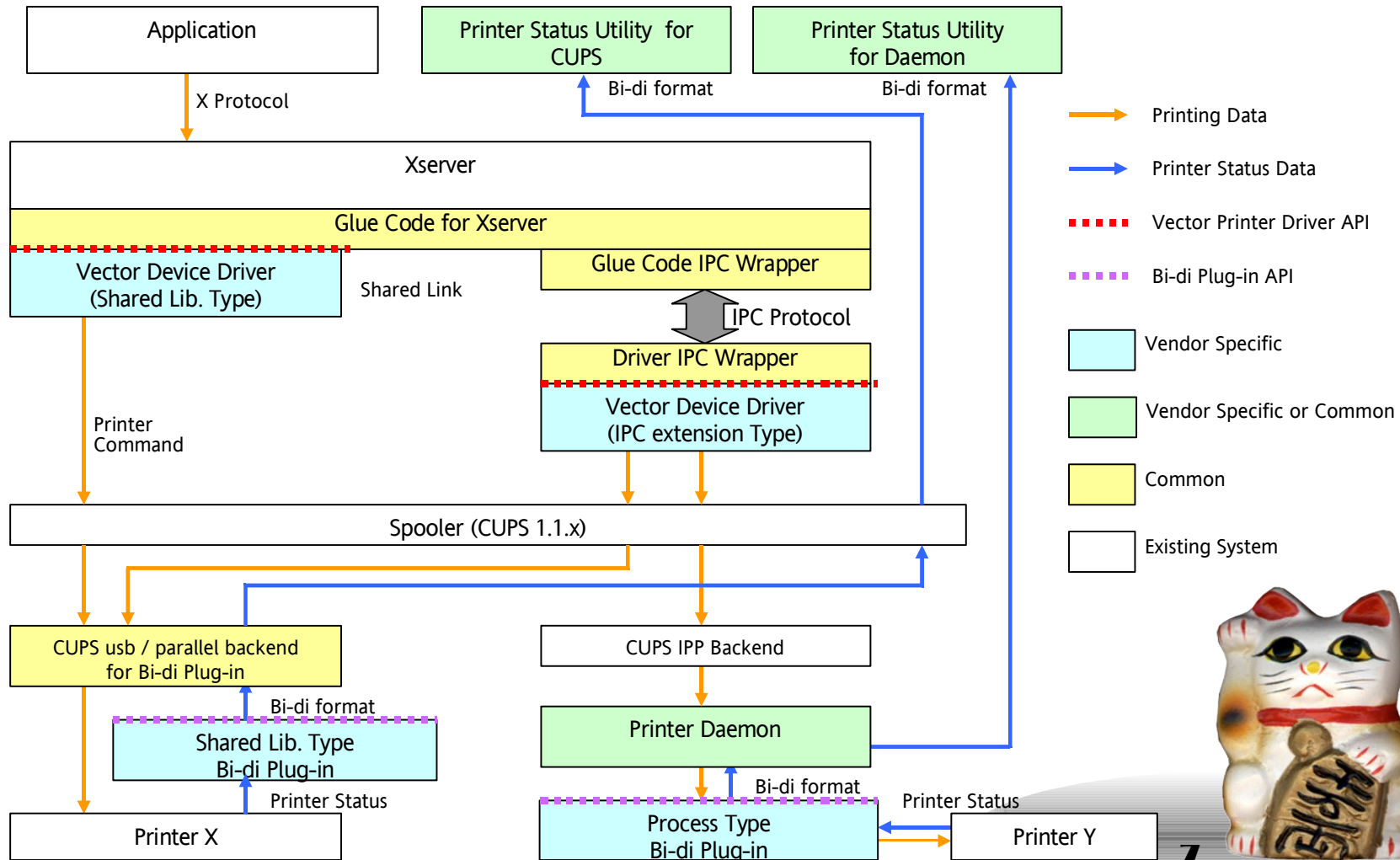
# Implementation Diagram #1

## \* Vector Printer Driver and Bi-di Plug-in Module with CUPS and GS



# Implementation Diagram #2

## \* Vector Printer Driver and Bi-di Plug-in Module with Xprint



# Licenses

## \* Vector Printer Driver API

- \* Glue Code for Ghostscript GPL
- \* Glue Code for Xprint X
- \* IPC Wrapper MIT

## \* Shared Lib. type Vector Device Driver

- Canon LBP-2810 GPL
- EPSON LP-9500C GPL
- HP Laser Jet 4800 GPL
- HP Laser Jet 5500 GPL

## \* IPC extension type Vector Device Driver

- Canon PIXUS 850i GPL + extension  
(can link with proprietary lib.)
- EPSON PX-V700 EPSON KOWA PUBLIC LICENSE





# Licenses (Cont.)

## \* Bi-di Plug-in API

\* Stub

MIT

\* Bi-di Plug-in module

- Canon PIXUS 850i
- EPSON PX-V700

GPL

EPSON KOWA PUBLIC LICENSE

\* CUPS backends for Bi-di Plug-in API

GPL

\* XML Parsing Lib. for Bi-di Plug-in

LGPL

\* Printer Daemon

GPL

\* Printer Status Utilities

- Canon PIXUS 850i
- EPSON PX-V700

GPL

EPSON KOWA PUBLIC LICENSE



# PDF Renderer Implementation

## \* When started?

- \* PDF Renderer implementation which based on the Vector Printer Driver API Started in Dec. 2004, as one of the Open Source Software Infrastructure Promotion Project 2004 funded by IPA.

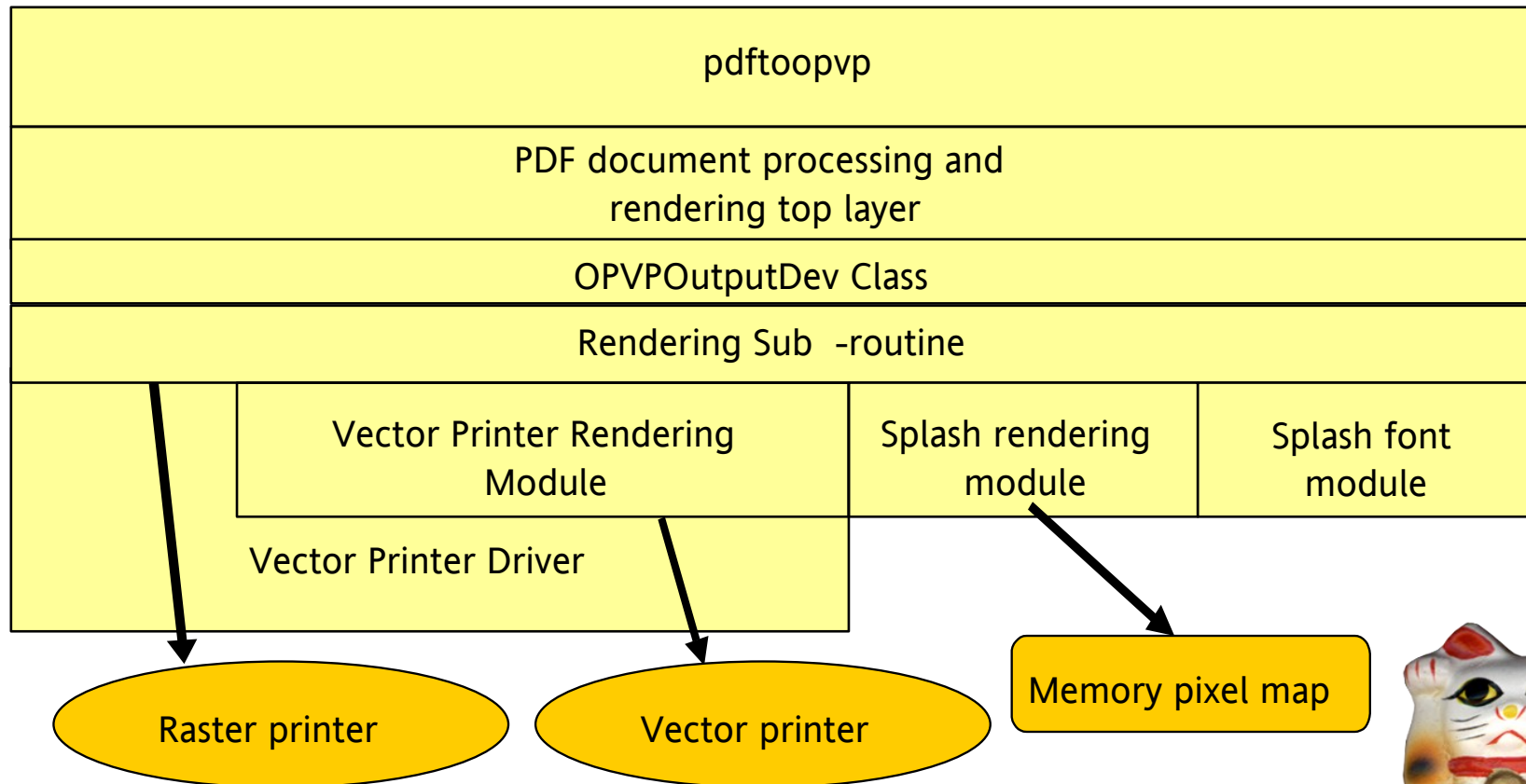
## \* Objectives

- \* Demonstration of the Vector Printer Driver API as a generic driver interface that can work with the completely same printer drivers which were implemented during the previous project.
- \* Make faster PDF printing than using “pdftops + psto\*” .
- \* Ready to accept the PDF data as a print spooling data format.



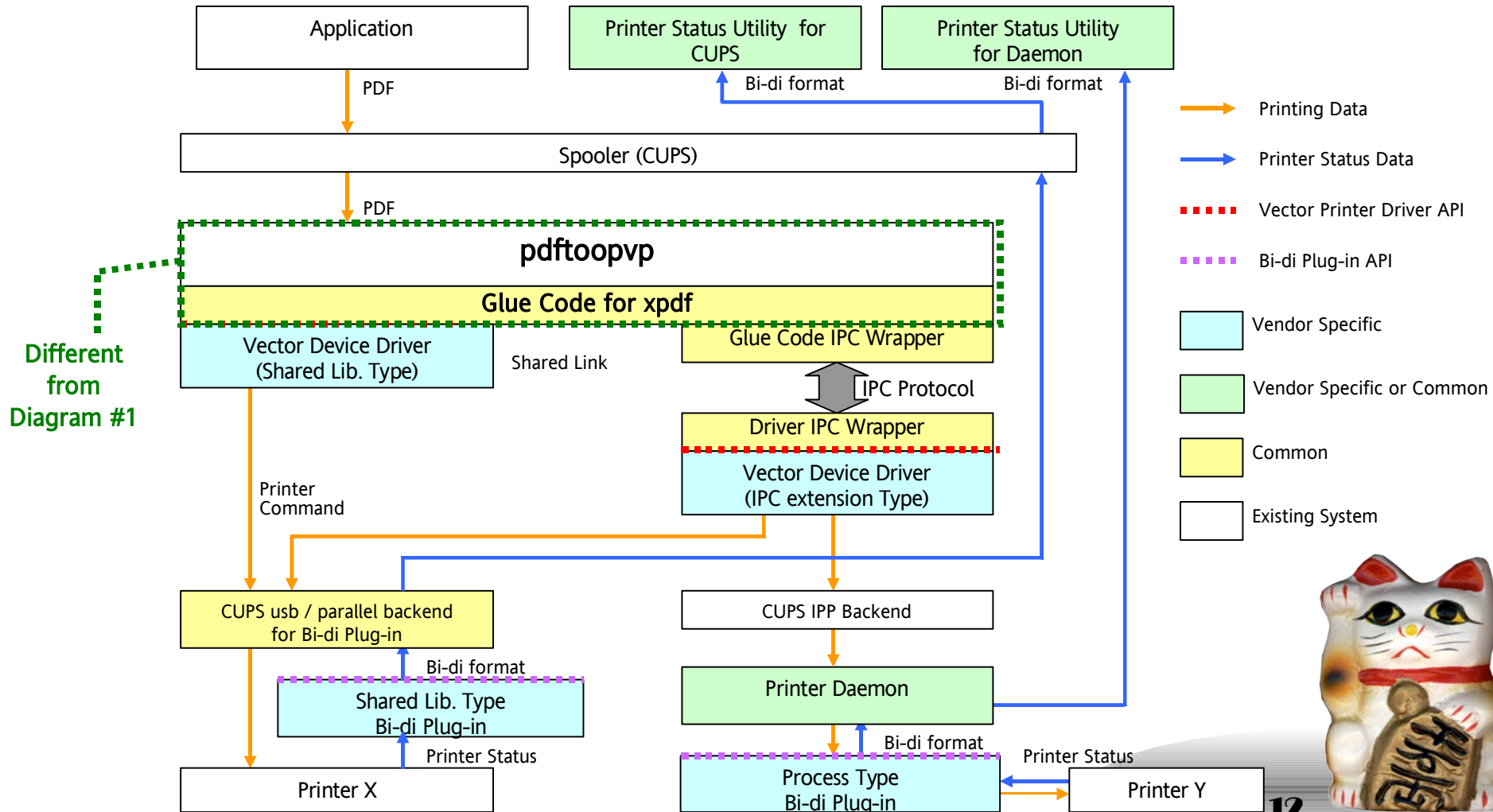
# PDF Rederer Classes

- \* pdftoopvp: xpdf based renderer with Vector Printer Driver API



# Implementation Diagram #3

## \* Vector Printer Driver with pdftoopvp(xpdf)



# Results, Updates and Related Projects

## \* Project Report Site

- \* [http://lx1.avasys.jp/OpenPrintingProject/index\\_e.html](http://lx1.avasys.jp/OpenPrintingProject/index_e.html)
- \* <http://www.axe-inc.co.jp/openprint/pdf/> (Under translating in English)

## \* Update Release Site

- \* <http://opfc.sourceforge.jp/index.html.en>

## \* Related Projects and Products

- \* ESP Ghostscript 8.15.1 including the Glue Code  
<http://www.cups.org/espgs/>
- \* Linux distributions including the Glue Code
  - Fedora Core 5, Novell SUSE Linux 9.3 and later, Turbolinux 10D and later...  
Please see <http://www.axe-inc.co.jp/opfc/stable/index-en.html>
- \* Drivers from Canon  
[http://cweb.canon.jp/drv-upd/lasershot/drv\\_linux.html](http://cweb.canon.jp/drv-upd/lasershot/drv_linux.html)
- \* Drivers from EPSON Avasys  
<http://www.avasys.jp/linux/>
- \* Drivers from NEC  
<http://www.express.nec.co.jp/care/prtechinfo/linux/index.html>



# Vendor Driver Example

## \* Linux Drivers Ver.1.20 developed by and released from Canon

### LIPS IV Monochrome / Color Printer (for Japanese Market)

LBP-1310, LBP-1420, LBP-1620, LBP-1820, LBP-1910, LBP-2050, LBP-2510, LBP-2710, LBP-2810, LBP3700, LBP3800  
LBP5500, LBP5700, LBP5800, LBP5900

### LIPS IV Monochrome / Color MFP (for Japanese Market)

iR400/GP405 LIPS D2, iR105, iR105-E, iR105i  
iR1500F, iR1600, iR1610, iR2000, iR2010, iR2200, iR2200i, iR2210, iR2800, iR2800i, iR2810, iR3300, iR3300i, iR3310  
iR2250i/2850i/3350i, iR2270, iR2870, iR3570, iR4570, iR5000, iR5000i, iR5110, iR6000, iR6000i, iR6010, iR5150i, iR6050i  
iR5160i, iR6060i, iR5570, iR6570, iR7200, iR7200-E, iR7270N, iR8500, iR8500-E, iR8570N  
iR C2570, iR C2570F, iR C2620, iR C3100, iR C3100N, iR C3100F, iR C3100i, iR C3170, iR C3170F, iR C3200, iR C3200N  
iR C3220, iR C5800, iR C6800, iR C6800N

### LIPS LX Monochrome Printer (for Japanese Market)

LBP3700, LBP3800

### CAPT Monochrome Printer (for Japanese Market)

LBP-1120, LBP-1210, LBP3000, LBP3200, LBP3210, LBP3600

### CAPT Monochrome Printer (for Overseas Market)

LBP-1120, LBP-1210, LBP2900, LBP3000, LBP3200

### Postscript Monochrome / Color MFP (for Overseas Market)

iR2200, iR2200i, iR2800, iR3300, iR3300i, iR2220i, iR2220N, iR3320i, iR3320N, iR2230, iR2270, iR2870, iR2830, iR3530  
iR3570, iR4570, iR5000-6000, iR5020, iR6020, iR5570, iR6570, iR7200, iR8070, iR85, iR8500, iR85+, iR9070, iR105  
iR105+, iR C2570, iR C2570N, iR 2570C, iR2570CN, iR C2620N, iR 3100C, iR 3100CN, iR C3100, iR C3100N  
iR C3170, iR C3170N, iR 3170C, iR3170CN, iR C3200, iR C3220, iR 5800C, iR 5800CN, iR C5800, iR C5800N  
iR 6800C, iR 6800CN, iR C6800, iR C6800N

### UFR II Monochrome MFP (for Overseas Market)

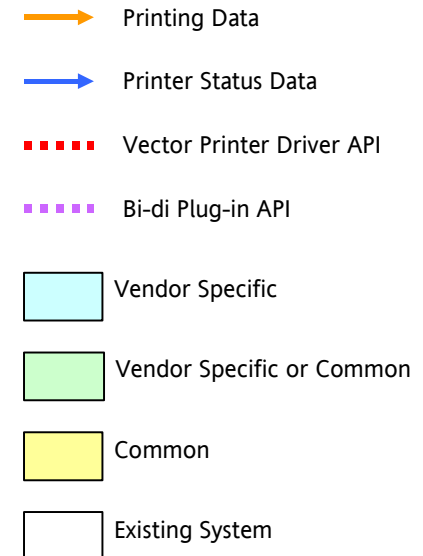
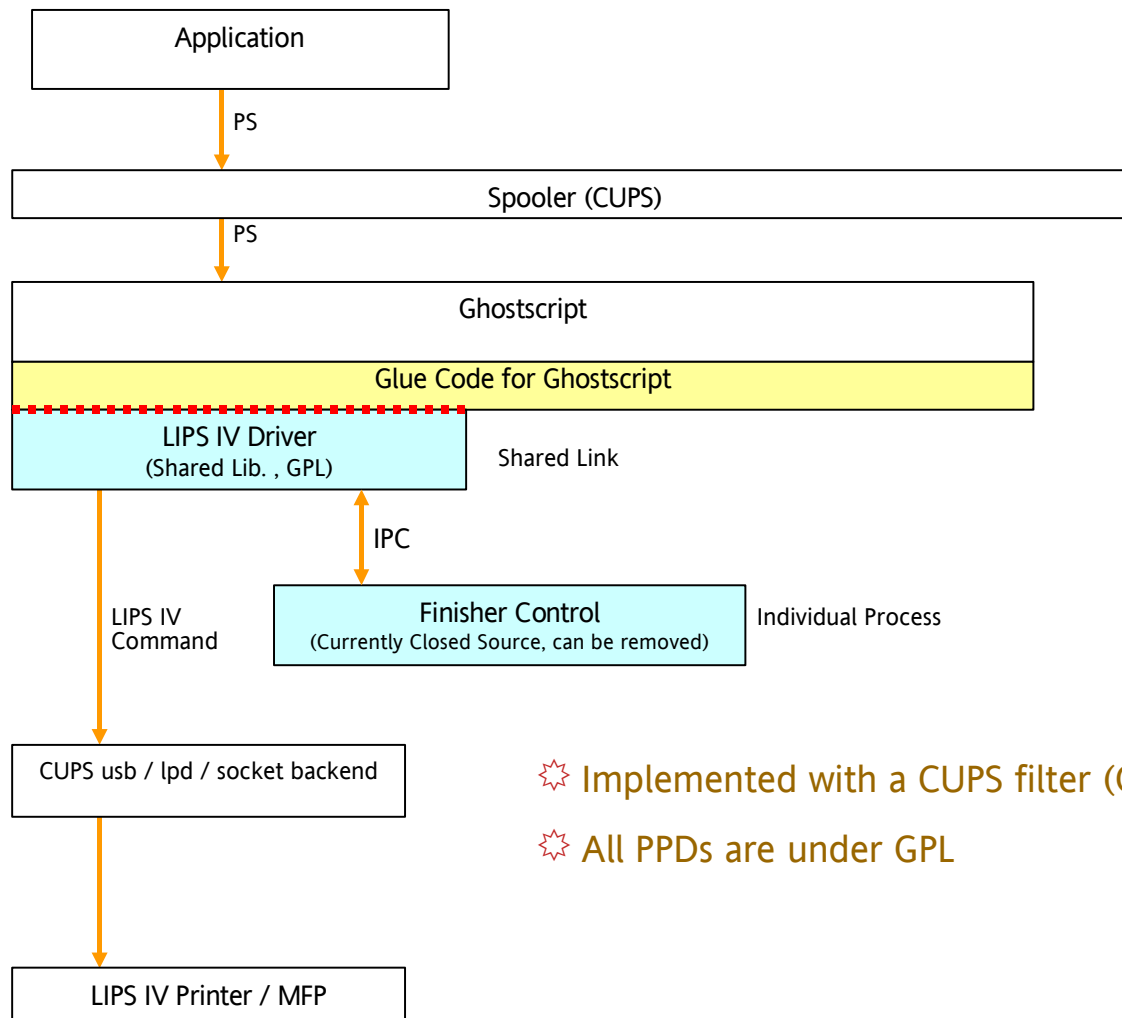
iR2230, iR2270, iR2870, iR2830, iR3530, iR3570, iR4570, iR5570, iR6570, iR8070, iR85+, iR9070, iR105+

[http://cweb.canon.jp/drv-upd/lasershot/drv\\_linux.html](http://cweb.canon.jp/drv-upd/lasershot/drv_linux.html) (Japanese Market Model)  
<http://www.canon.com.au/drivers/index.html> (Overseas CAPT, PS / UFR II MFP only)  
<http://software.canon-europe.com/> (Overseas CAPT only)  
(Not yet for the US market, under arranging)



# Vendor Driver Example (Cont.)

## \* Canon LIPS IV Printer Driver with CUPS and GS



\* Implemented with a CUPS filter (GPL)

\* All PPDs are under GPL



Thank you.

