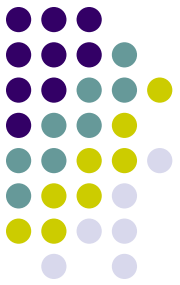


Take control of printing system with PYKOTA

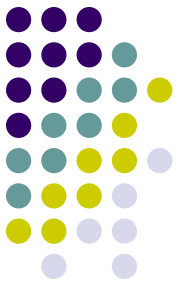
By
Umar Akram





Objective

- The Objective of this presentation is to describe how you can handle the printer management issues of your company with Open Source Software like Pykota.



Agenda

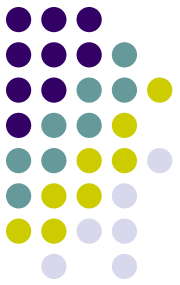
- Introduction
- Architecture
- Comparison
- Conclusion
- Q&A



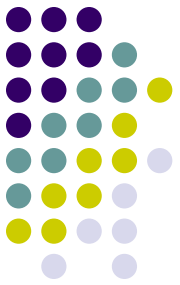
Pykota

- Pykota is one of the most advanced Open Source Software dedicated to print accounting and print quota enforcement.
- It is a full featured, internationalized, centralized, and extensible print quota system for CUPS.

CUPS



- Common Unix Printing System is a modular printing system for Unix-like computer operating systems, allows a computer to act as a print server. A computer running CUPS is a host that can accept print jobs from client computers, process them, and send them to the appropriate printer.



Pykota Clients

- Any operating system which can print through IPP, HTTP, LPR, or Samba shares :
GNU/Linux, MacOSX, MS-Windows are the main ones, but most operating systems probably work.



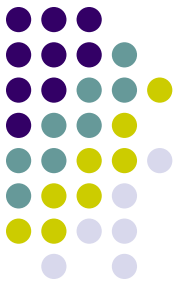
Database backends

The database server(s) can be any machine supporting one of the following databases systems.

- MySQL
- PostgreSQL
- SQLite
- LDAP

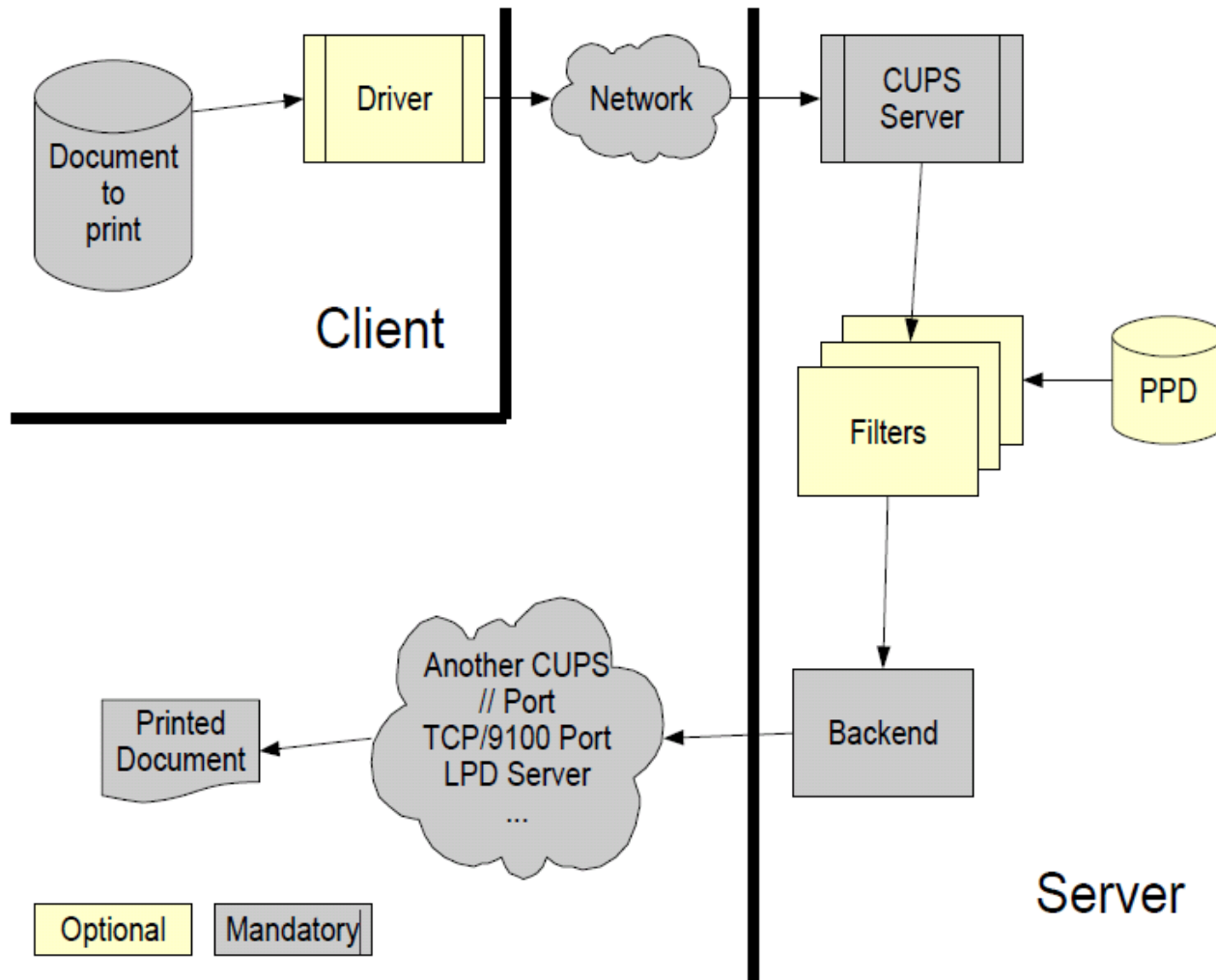
The database can be installed on the print server itself, but remote database servers are supported as well.

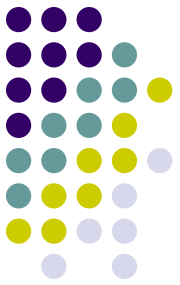
Printers



- Any physical or virtual printer which can report the value of its internal page counter and its printing/idle/error status through SNMP (Simple Network Management Protocol) or PJP (over a TCP/IP port) is natively supported for hardware accounting.
- Any physical or virtual printer is supported in software accounting mode (i.e. count pages by parsing print job's data) if it accepts print jobs in one of the following formats :
 - PostScript
 - PDF
 - Microsoft Word
 - Plain text
 - TIFF
 - Etc

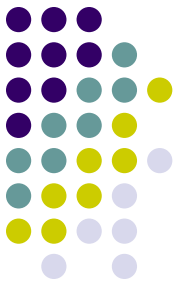
Printing flow with CUPS





Features

- Pykota Supports both **Print Accounting** and **Print Quota enforcement**. Each can be set on a **per user** or **per users group** basis.
- Supports both **Page based** and **Credits based** quotas. Both can be set or reset independently.
- Each page quota can be set on a **per user per printer** basis, or on a **per users group per printer** basis, or both.



Features

- For a given user, credits are shared between all printers or printers groups.
- **Any currency** is supported.
- Cost per page and per job can be set **depending on the printer** being used.
- It's possible to give **free credits** or pages to any user.



Features

- A **passthrough mode** is supported for printers, allowing people to print on them **without impacting their quotas or credits.**
- A **maximum allowed job size** can be set on a **per printer** basis.
- Each user can be **independently either forbidden to print, or allowed to print with no limit** and no change to his credits.

5 Ways to limit an « account » from printing



- Number of pages per printer :
 - 100 pages on HP LaserJet 2100
 - 30 pages on EPSON Stylus Color
- Number of credits to spend :
 - 1 page = x credits on HP 2100
 - 1 page = y credits on Stylus Color
 - Cost of the job itself (optional)
- No limit, but accounting done
- No limit, and no accounting
- Printing is forbidden



2 Accounting modes

- Hardware accounting (direct querying of printers) :
 - SNMP (Simple Network Management Protocol)
 - HP PJP (Printer Job Language)
 - External scripts
- Software accounting :
 - pkpgcounter :
 - Counting pages
 - Computing percent of ink coverage
- External scripts :
 - Counting pages

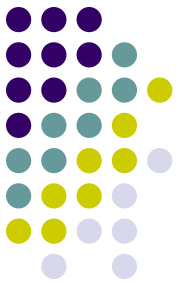


Installation

With PyKota, you need to install three main components:

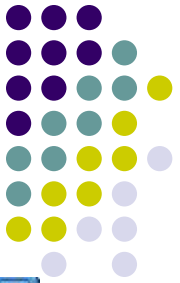
- The back end. You can use LDAP, MySQL or PostgreSQL.
- The dependencies. PyKota depends on 17 other packages.
 - CUPS
 - Python language interpreter
 - mxDateTime
 - Python-PygreSQL
 - Python-PAM
 - Python-OSD
- The PyKota application itself.

Important Commands



- Pkusers: to manage users and users groups.
- Pkprinters: to manage printers and printers groups.
- Repykota: to do some basic print quota reporting.
- Edpykota: to manage users' and users groups' print quota entries.
- Warnpykota: to warn users over quota from time to time
- Pkinvoice: an invoice generator which can create personalized PDF invoices for your users from their printing history.

Pkusers --list



```
Terminal
File Edit View Terminal Tabs Help
urana - <urana@kics-uet> - root
  Limited by : quota
  Account balance : 0.00
  Total paid so far : 0.00
  Overcharging factor : 1.00

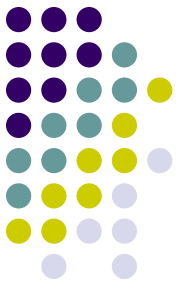
imran - <imran@kics-uet> - root
  Limited by : balance
  Account balance : 4.00
  Total paid so far : 4.00
  Overcharging factor : 1.00

ahammad - <ahammad@kics-uet> - root
  Limited by : quota
  Account balance : 0.00
  Total paid so far : 0.00
  Overcharging factor : 1.00

root - <root@kics-uet>
  Limited by : balance
  Account balance : 5.00
  Total paid so far : 5.00
  Overcharging factor : 1.00

DEBUG: PyKota (PID 20701) : Database closed.
debian:~# █
```

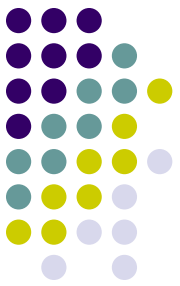
Pkprinters --list LaserJet-1200



```
Terminal
File Edit View Terminal Tabs Help
LaserJet-1200 [] (0.0 + #*2.0)
  Passthrough mode : OFF
  Maximum job size : 100 pages
  Routed through PyKota : YES

DEBUG: PyKota (PID 20976) : Database closed.
debian:~#
```

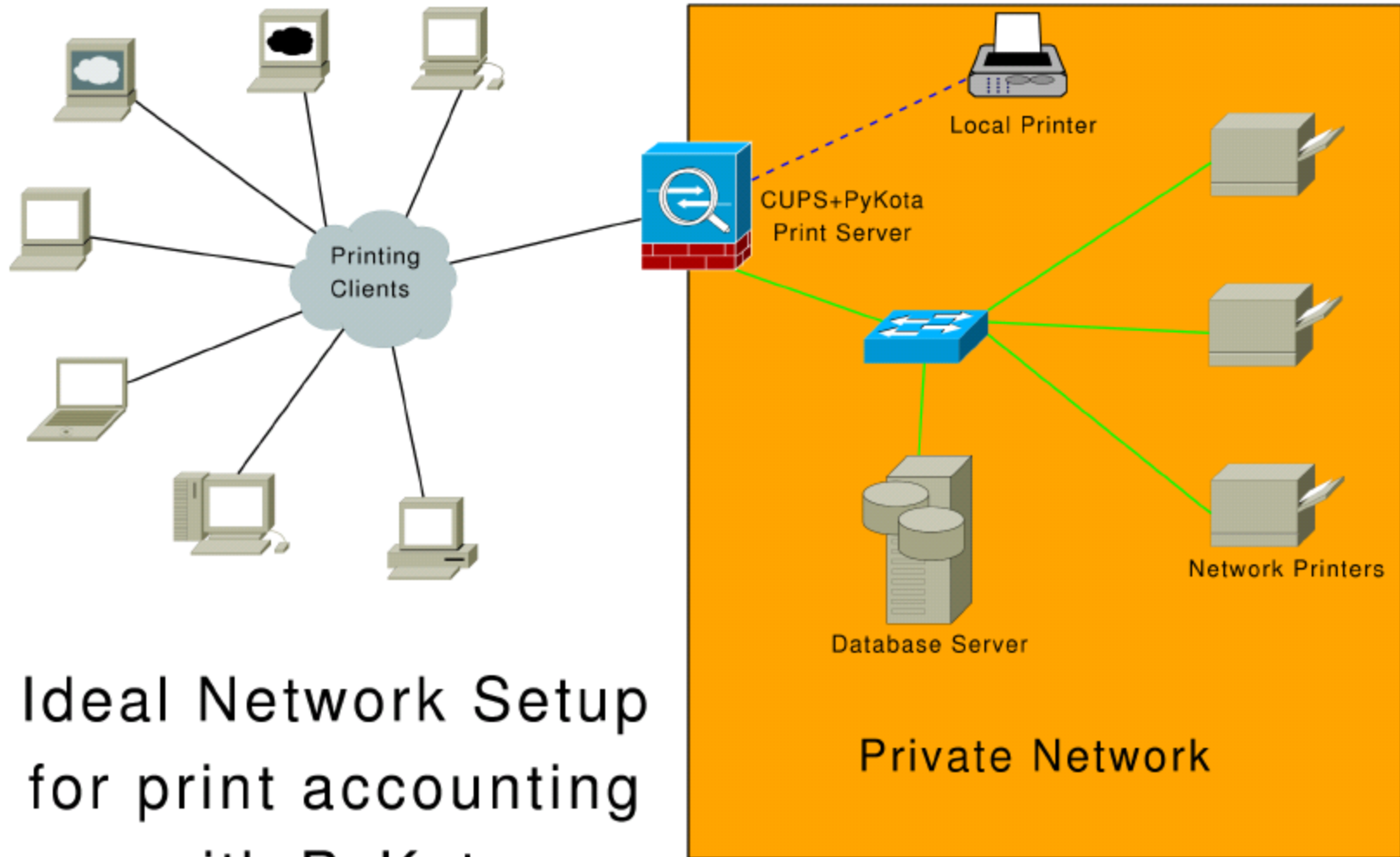
Repykota --printer LaserJet-1200 root



```
Terminal
File Edit View Terminal Tabs Help
Report for user quota on printer LaserJet-1200 ()
Pages grace time: 7 days
Price per job: 0.000
Price per page: 2.000
User          overcharge  used  soft  hard  balance grace  total
-----
root          -B  1.0    0    1    3    5.00          0
Total :          0
Real : unknown

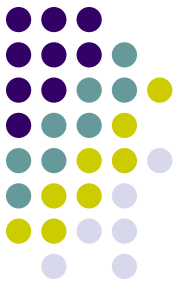
DEBUG: PyKota (PID 20856) : Database closed.
debian:~# █
```

Recommended Setup



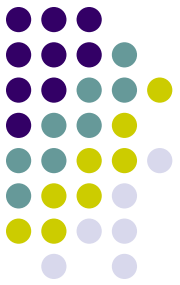
Ideal Network Setup
for print accounting
with PyKota

Comparison



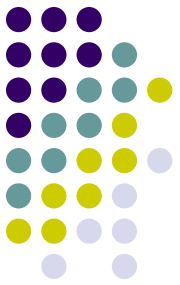
Functionality	PyKota	Printbill	Printquota	PQuotas
Programming language	Python	Perl + C	C	Shell scripts + PHP
Internationalization	Yes: English, French, Spanish, Portuguese, Brazilian, Swedish, Thai, German and Italian. More translations are planned	Yes: English and French.	No	No, only French
Web Interface	Report quotas and history alone, the web administration interface is planned	Yes, including graphical reports	No	Yes complete administration interface in PHP
Central Storage	Yes	Yes	Yes	Yes

Comparison Continued



Functionality	PyKota	Printbill	Printquota	PQuotas
Printing Systems Supported	CUPS and LPRng	LPRng and CUPS	LPRng	LPRng, LPD
Do you work with Windows clients?	Yes	Yes	Yes	Yes
Documentation	Yes	Yes, FAQ (in text format)	Yes	Yes, only in French

Other Important Packages



- Tea4Cups
- Pkpgcounter

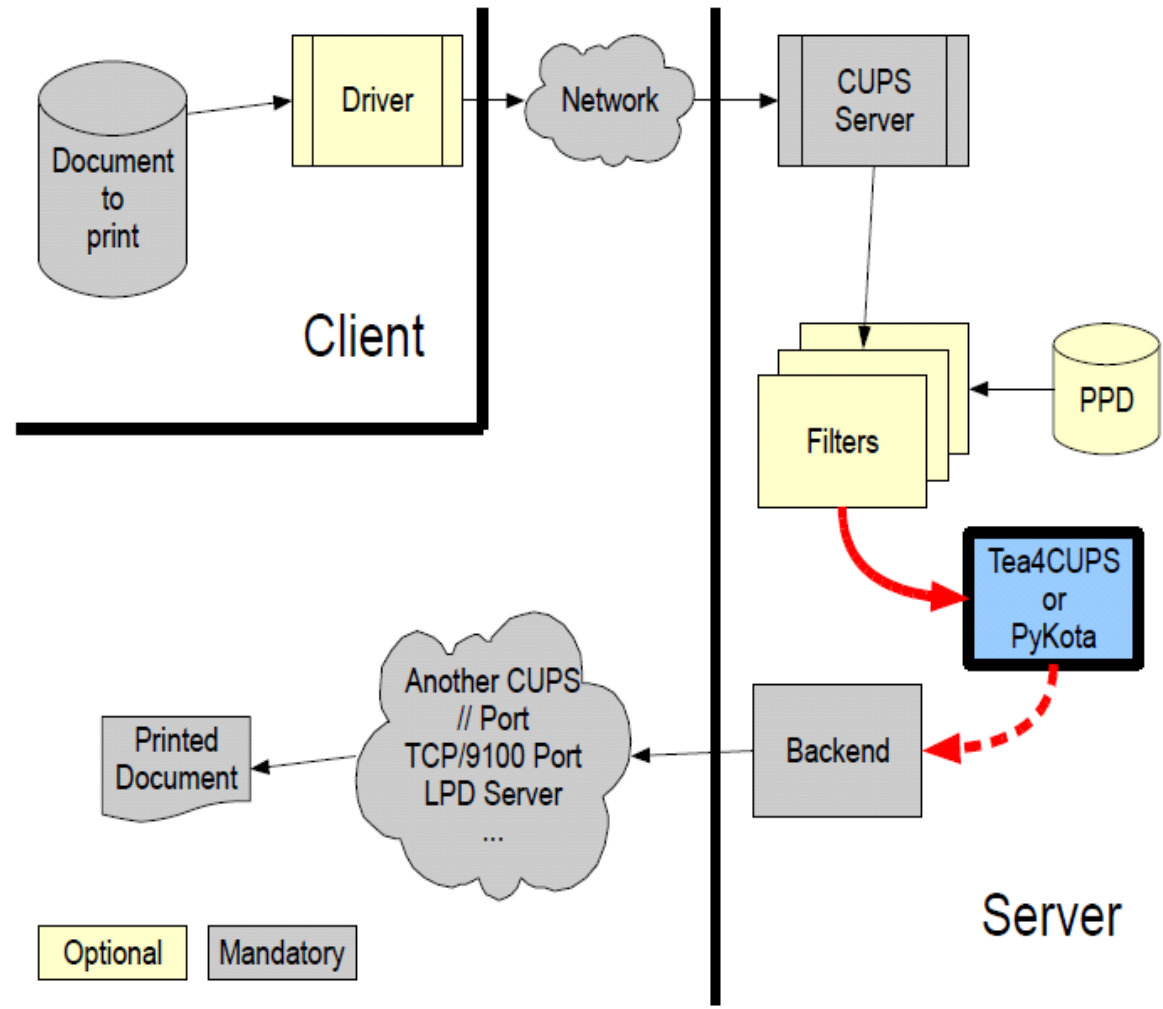
Tea4CUPS



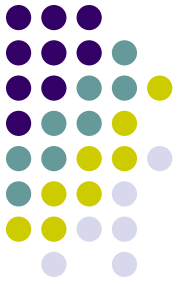
- Tea4CUPS is a CUPS backend wrapper which can capture print data before they are sent to a printer and process, duplicate or dispatch them in a number of ways.
- You are greatly encouraged to use this software instead of writing your own CUPS back-ends :
Tea4CUPS will let you plug your own scripts, filters, tools, or commands wherever you want, while giving them access to all the print job's characteristics in a consistent way.
- Tea4CUPS is a 100% Python written standalone script distributed under the terms of the GNU General Public License



Printing flow with Tea4CUPS

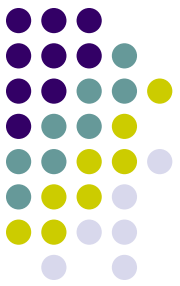


Pkpgcounter



Pkpgcounter is a generic Page Description Language parser which can either count the number of pages or compute the percent of ink coverage needed to print various types of documents. It currently recognizes the following file formats :

- PostScript (both DSC compliant and binary)
- PDF
- PCL3/4/5
- PCLXL (aka PCL6)
- DVI
- OpenDocument ([ISO/IEC DIS 26300](#))
- Microsoft Word (c) (tm) (r) (etc...)
- Plain text
- TIFF
- Several other image formats
- ESC/P2
- Samsung QPDL (aka SPL2)
- Samsung SPL1
- etc.



Conclusion

- One of the best choice for printing system management.
- Pykota is suitable Open Source Software for Quota Management.
- Provide best control over Printing Resource Management.

Who uses PyKota ?

