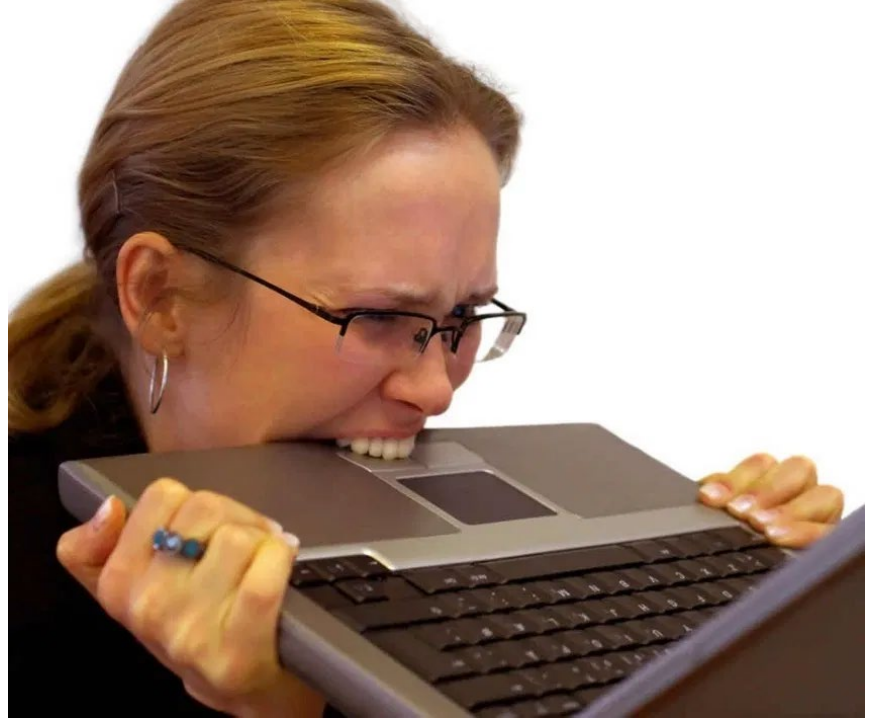# Campus printers

Jaden Long

Have you ever had the frustration of ...

- Trying to print out a paper for your next class that starts in 5 minutes in the learning center, but the printers there are queued up with 20 other documents *(most of them are Lyons' lecture notes)*

Have you ever had the frustration of ...

- Sitting in the chemistry classroom, having your lab report ready to print on your computer, only to find that you need a school Chromebook to print *(and then your Chromebook just won't turn on)*

Current restriction on printers:

- The majority of the students only have access to a tiny percentage of all the printers (more than 40) around campus, through Google Cloud Print:
  - 2 printers at learning center
  - 2 printers at writing center
  - 1 printer in Mr.Shumate's classroom
  - 1 printer in middle school
  - 1 printer in each dorm

More frustration!

- Everyone wants to use these printers!
- These printers print rather slowly!
- They are not in your classroom, so you have to sprint downstairs and back! Wastes time!
- It sometimes takes a couple dozen seconds for Google Cloud Print to process, so you don't know if you successfully printed or not!
- The dorm printers never seem to work!
- Students can queue a print to a jammed printer, and finding out it doesn't work, they try to print to another one. When another person fixes the jammed printer, all hell breaks loose!

My suggestion:
Allow student access to all printers directly!

Some day in 2018

Add Printer

Type a printer hostname or IP address

Device type: Autodetect

Hostname or IP address: 10.30.100.156

Port name: 10.30.100.156

☑ Query the printer and automatically select the driver to use

Next   Cancel

← Add Printer

Installing printer...

Next   Cancel

Makepeace's Office
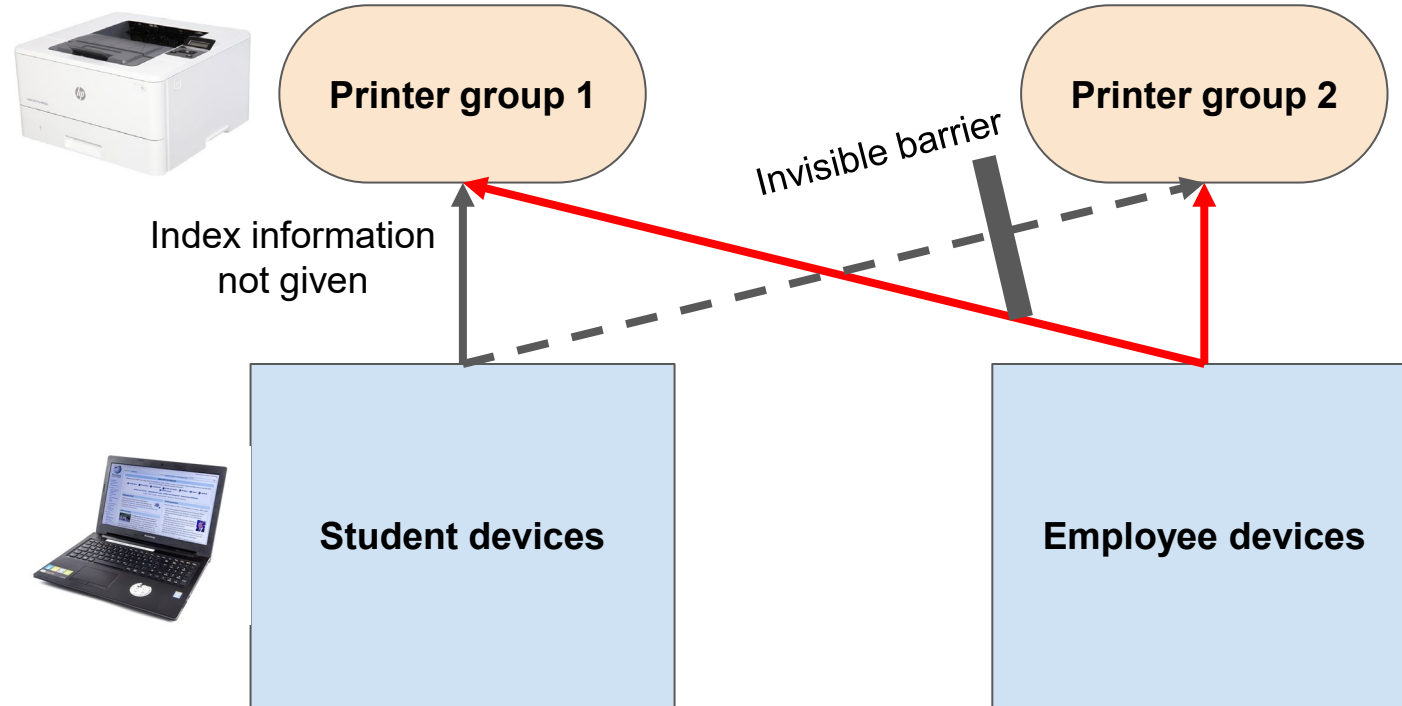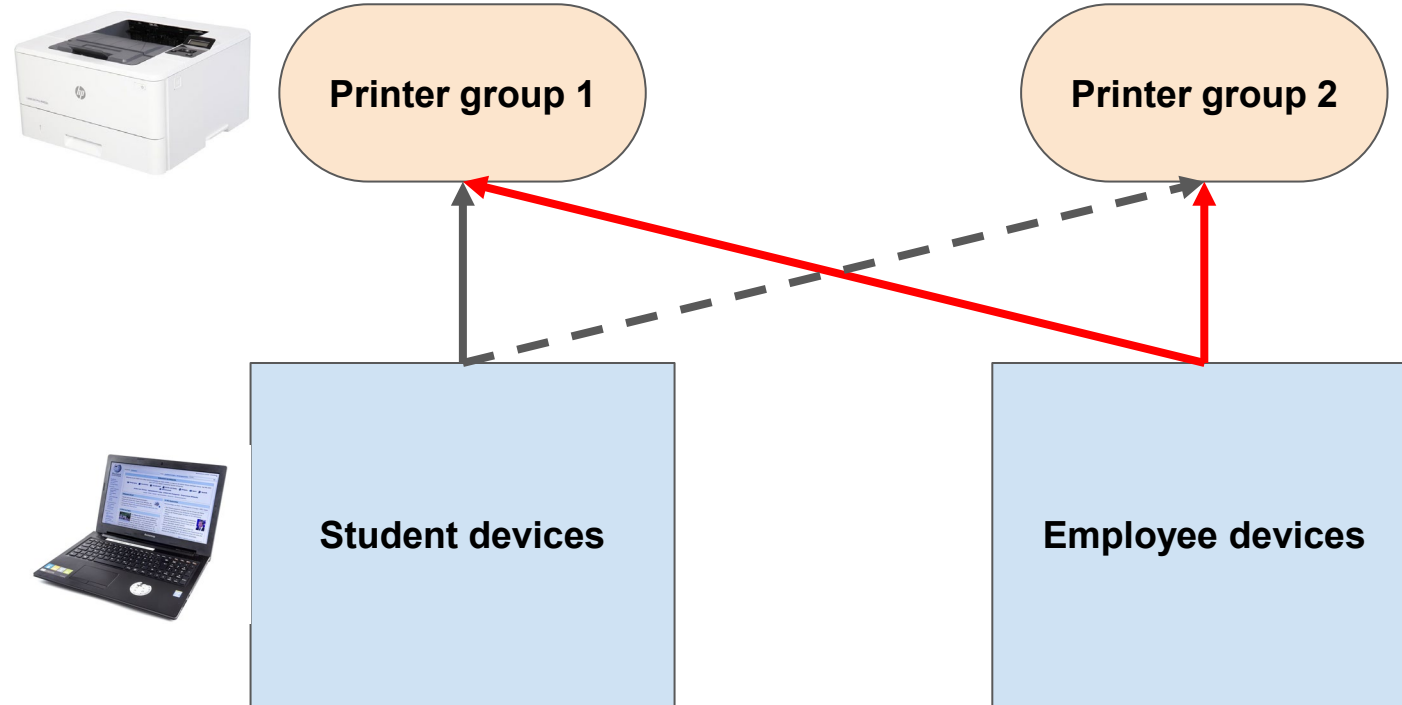
Open queue   Manage   Remove device

File   View   Settings   Help

Stop

C

10.30.100.0-255

Search

Results   Favorites

Status	Name	IP	Manufacturer	MAC address	Comments
	10.30.100.1	10.30.100.1			
	10.30.100.10	10.30.100.10			
	mab505ptr01.mccallie.org	10.30.100.11			
	mab501ptr01.mccallie.org	10.30.100.12			
	mab513ptr01.mccallie.org	10.30.100.14			
	mab_410_m402n.mccallie.org	10.30.100.15			
	mab503ptr01.mccallie.org	10.30.100.16			
	mab318ptr01.mccallie.org	10.30.100.19			
	mab504ptr01.mccallie.org	10.30.100.21			
	mab324ptr01.mccallie.org	10.30.100.22			
	pmh001ptr01.mccallie.org	10.30.100.23			
	theatre_booth_m477fdn.mccallie.org	10.30.100.25			
	chl_tgriffin_m402n.mccallie.org	10.30.100.26			
	pbsb05.mccallie.org	10.30.100.27			
	10.30.100.28	10.30.100.28			
	pbsb03.mccallie.org	10.30.100.29			
	sac_trainer_m227fdw.mccallie.org	10.30.100.30			
	npi103dfb.mccallie.org	10.30.100.35			
	pmh1officeptr01.mccallie.org	10.30.100.38			
	bh3320410853.mccallie.org	10.30.100.132			
	mab512ptr01.mccallie.org	10.30.100.133			
	mab516ptr01.mccallie.org	10.30.100.134			
	mab506ptr01.mccallie.org	10.30.100.135			
	mab502ptr01.mccallie.org	10.30.100.136			
	mab507ptr01.mccallie.org	10.30.100.137			
	mab316ptr01.mccallie.org	10.30.100.138			
	mab317ptr01.mccallie.org	10.30.100.139			
	pmabwc01.mccallie.org	10.30.100.140			
	pmabwc02.mccallie.org	10.30.100.141			
	mab307mp3053.mccallie.org	10.30.100.142			
		10.30.100.146			

IP

41%, 39 alive, 0 dead, 77 unknown

Structure of McCallie's LAN

Printer group 1

Printer group 2

Invisible barrier

Index information
not given

Student devices

Employee devices

Structure of McCallie's LAN

Structure of McCallie's network

Printer group 1 (open to students, not indexed)

- Writing center printers
- Classroom printers (in both MAB and Walker Hall)

Printer group 2 (not open to students)

- Learning center printers
- Colored printers
- Dorm printers

Indexing the print

Group 1 printers (more than 40), such as:

- Writing Center (pmabwc01)
- Innovation lab (wsb107ptr01)
- Jones' classroom (mab314ptr01)
- **Colored** printer in Walker (wsb_107_m451nw)

1	name	device_type	http_title
2	wsb107ptr01.mccallie.org	Printer	Tunnel is OpenSSL SSLv3: Kyocera MFP httpd 0.0.1
3	mab505ptr01.mccallie.org		HP LaserJet M402n 10.30.100.11 (gSOAP 2.7)
4	mab001ptr01.mccallie.org		HP LaserJet M402n 10.30.100.13 (gSOAP 2.7)
5	mab513ptr01.mccallie.org		HP LaserJet M402n 10.30.100.14 (gSOAP 2.7)
6	chl1sw01		
7	mab324ptr01.mccallie.org		Web Image Monitor (Web-Server/3.0)
8	npi322afb.mccallie.org		HP LaserJet 400 M401n 10.30.100.17 (gSOAP 2.7)
9	mab_410_m402n.mccallie.org		HP LaserJet M402n 10.30.100.15 (gSOAP 2.7)
10	mab510ptr01.mccallie.org	Printer	Kyocera MFP httpd 0.0.1
11	mab314ptr01.mccallie.org		HP LaserJet M402n 10.30.100.18 (gSOAP 2.7)
12	mab504ptr01.mccallie.org		HP LaserJet 400 M401n 10.30.100.21 (gSOAP 2.7)
13	theatre_booth_m477fdn.mccallie.org		HP Color LaserJet MFP M477fdn 10.30.100.25 (gSOAP 2.7)
14	mab318ptr01.mccallie.org		HP LaserJet M402n 10.30.100.19 (gSOAP 2.7)
15	pmh001ptr01.mccallie.org		
16	pbsb05.mccallie.org		HP LaserJet 400 color M451nw 10.30.100.27 (gSOAP 2.7)
17	pbsb04.mccallie.org	Printer	Tunnel is OpenSSL SSLv3: Kyocera MFP httpd 0.0.1
18	pbsb03.mccallie.org	Printer	hp LaserJet 4240 (HP-ChaiSOE 1.0)
19	sac_trainer_m227fdw.mccallie.org		HP LaserJet MFP M227fdw 10.30.100.30 (gSOAP 2.7)
20	mab506ptr01.mccallie.org		HP LaserJet M402n 10.30.100.135 (gSOAP 2.7)
21	mab_412_m402n.mccallie.org		HP LaserJet M402n 10.30.100.143 (gSOAP 2.7)
22	mab322ptr01.mccallie.org		Web Image Monitor (Web-Server/3.0)
23	mab307mp3053.mccallie.org		Web Image Monitor (Web-Server/3.0)
24	chl003ptr01.mccallie.org	Printer	HP LaserJet Pro MFP M225dn 10.30.100.155 (gSOAP 2.7)
25	mab516ptr01.mccallie.org		HP LaserJet M402n 10.30.100.134 (gSOAP 2.7)
26	phuntart01		HP LaserJet M1536dnf MFP 10.30.100.34 (gSOAP 2.7)
27	hnt_it_m225dw.mccallie.org	Printer	HP LaserJet Pro MFP M225dw 10.30.100.151 (gSOAP 2.7)
28	chl_mkealey_m1536dnf.mccallie.org		HP LaserJet M1536dnf MFP 10.30.100.149 (gSOAP 2.7)
29	mab316ptr01.mccallie.org		HP LaserJet M402n 10.30.100.138 (gSOAP 2.7)
30	pmabwc01.mccallie.org	Printer	HP » Device Status (Virata-EmWeb 6.2.1)
31	mab001ptr02.mccallie.org		Web Image Monitor (Web-Server/3.0)
32	mab507ptr01.mccallie.org		HP LaserJet M402n 10.30.100.137 (gSOAP 2.7)
33	chl_capgiving_hpljm605.mccallie.org		HP » Device Status (Virata-EmWeb 6.2.1)
34	npi103dfb.mccallie.org		HP LaserJet M1536dnf MFP 10.30.100.153 (gSOAP 2.7)

Accessing the group 2 printers

Two methods:

A. Use a school computer (e.g. learning center computer)
B. Set up proxy through a employee device (or a Raspberry Pi in the innovation lab)

Like this big one in the learning center

What are the benefits of directly printing?

- **FASTER!**
- **MORE RELIABLE!**
- **TRACEABLE!**

After these findings,
I talked to
Mr.Robert Wilson,
IT department head

FAQ with issues that Mr. Wilson raised

Will students print excessively?

No. Students with their own laptops are probably self-disciplined enough to know what they want to print. Making it difficult for them to print will result in frustration in grade and potential discouragement from learning more.

Will students accidentally print to the wrong printers (because of typing to the wrong IP address)?

If the printers are properly indexed, and adding a printer is just a copy paste job, Students can print to the wrong printers. The printers can only be connected under McCallie's network, so day students can't accidentally print at home. Additionally, students are able to track their print progress and confident that it will print, less paper and ink will be wasted as a result.

Detailed suggestion:
1. Index all the printers
2. Inform students how to add printers
3. Remove the "invisible barrier"

Or simply:
Set up a print server for students

And bonus!

KYOCERA

Command Center RX

TASKalfa

Model : TASKalfa 6002i
Host Name : KM4CF800
Location :

🏠 **Home**

Admin Login

👤 User Name

Password

Login

Device Information / Remote Operation :
Counter

Last Updated:
2020/01/30 20:53:38

Printed Pages

Type : Printed Pages by Function ▼

Function	Black & White	Total

Total   365959

Function	Original Pages
Copy	16420
FAX	0
Other	1277
Total	17697

Job Status >

Document Box >

Address Book >

Links