

printing@GSI

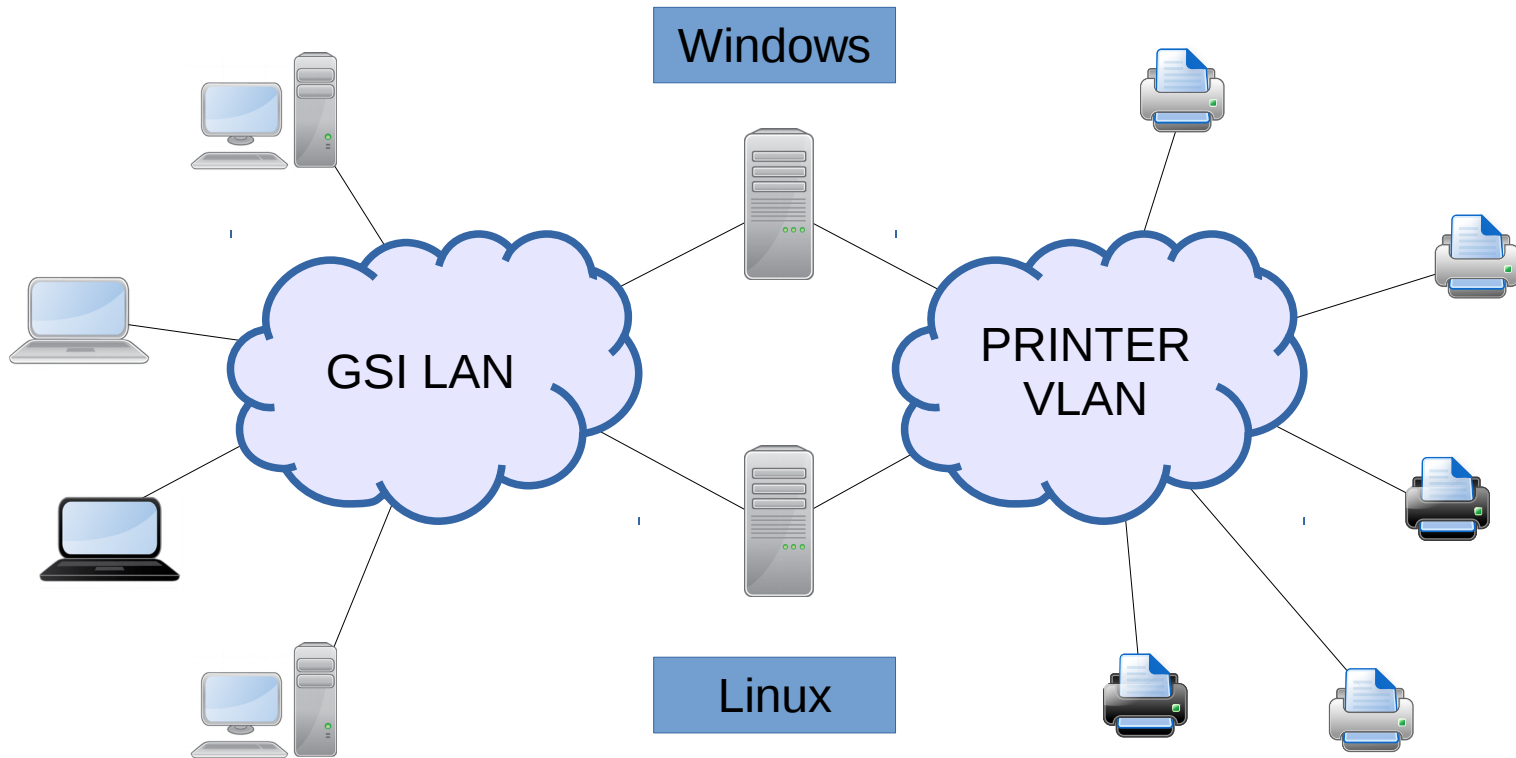
HEPiX Fall 2017

- Facts and numbers
- Printer network
- Management with CHEF
- Guest printing
- Security considerations

- many different printer manufacturers and models
- printers mostly managed by IT department, but still some unmanaged devices in GSI LAN

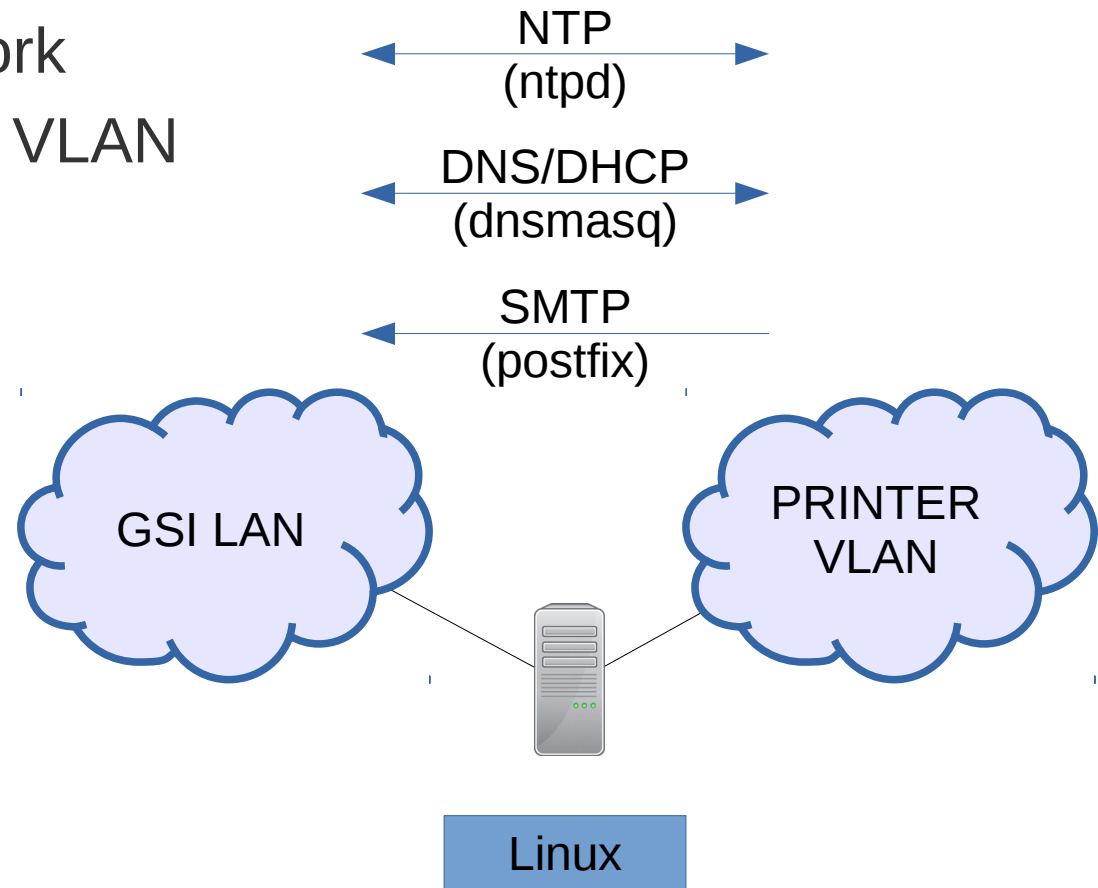
- ca. 310 printers for Windows clients
- ca. 120 printers for Linux (and Mac) clients via CUPS
- ca. 30 printers for guests via CUPS

- all new printers in separated VLAN, but
 - many old printers still in GSI network (ca. 70 %)
 - migration in progress
- access only via dual homed print server
 - Windows 2008 R2 for Windows clients
 - Debian Jessie for Linux (and Mac) clients
- Linux printing via CUPS
(got rid of `lp` finally)



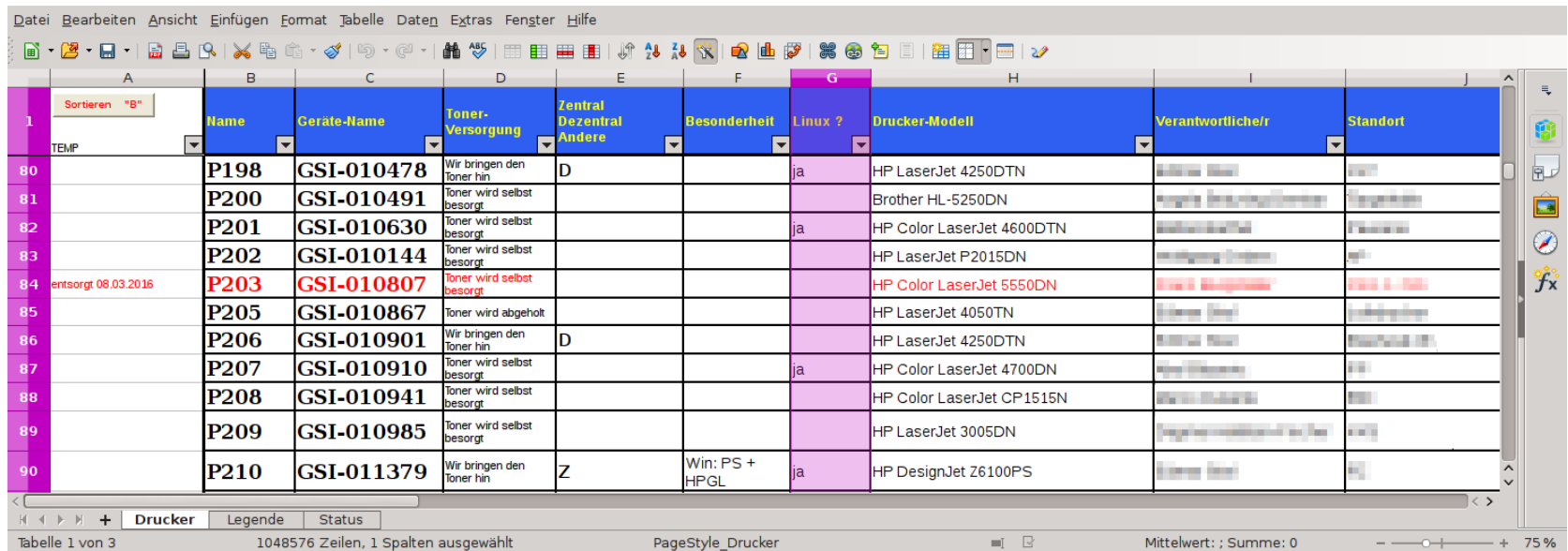
dual homed Debian Jessie

- eth0 in GSI network
- eth1 in PRINTER VLAN



Management with CHEF

- printer list available as .xlsm file on Windows share
- column **Linux?** with value **ja** marks printers for Linux



| | A | B | C | D | E | F | G | H | I | J |
|----|---------------------|------|-------------|---------------------------|--------------------------------|----------------|---------|---------------------------|-------------------|----------|
| 1 | Sortieren "B" | Name | Geräte-Name | Toner-Versorgung | Zentral Dezentral Andere | Besonderheit | Linux ? | Drucker-Modell | Verantwortliche/r | Standort |
| 80 | TEMP | P198 | GSI-010478 | Wir bringen den Toner hin | D | | ja | HP LaserJet 4250DTN | | |
| 81 | | P200 | GSI-010491 | Toner wird selbst besorgt | | | | Brother HL-5250DN | | |
| 82 | | P201 | GSI-010630 | Toner wird selbst besorgt | | | ja | HP Color LaserJet 4600DTN | | |
| 83 | | P202 | GSI-010144 | Toner wird selbst besorgt | | | | HP LaserJet P2015DN | | |
| 84 | entsorgt 08.03.2016 | P203 | GSI-010807 | Toner wird selbst besorgt | | | | HP Color LaserJet 5550DN | | |
| 85 | | P205 | GSI-010867 | Toner wird abgeholt | | | | HP LaserJet 4050TN | | |
| 86 | | P206 | GSI-010901 | Wir bringen den Toner hin | D | | | HP LaserJet 4250DTN | | |
| 87 | | P207 | GSI-010910 | Toner wird selbst besorgt | | | ja | HP Color LaserJet 4700DN | | |
| 88 | | P208 | GSI-010941 | Toner wird selbst besorgt | | | | HP Color LaserJet CP1515N | | |
| 89 | | P209 | GSI-010985 | Toner wird selbst besorgt | | | | HP LaserJet 3005DN | | |
| 90 | | P210 | GSI-011379 | Wir bringen den Toner hin | Z | Win: PS + HPGL | ja | HP DesignJet Z6100PS | | |

Ruby script using RubyXL for parsing .xlsm file:

- section `drivers` for assigning ppd file to printer model
- grab only lines with printers for Linux
- skip printers with no valid DNS name
- skip printers not responding to `ping`
- harmonize some model names (different notation)
- create data bags for CHEF

example for printer data bag:

```
$ cat p007.json
{
  "id": "p007",
  "model": "lsb/usr/custom/ncc1701.ppd",
  "uri": "socket://p007.gsi.de",
  "location": "Alpha Quadrant",
  "desc": "PhaserJet NCC 1701"
}
```

using two CHEF cookbooks:

- cookbook `cups` from github (Artem Sidorenko)
 - infrastructure for data bags
 - edit `printers.conf` using `lpadmin`
- additional site cookbook `gsi_cups` (Christopher Huhn)
 - deploying additional `ppd` files
 - removing outdated print jobs via `cron`

still some remaining hand work:

- no automatic addition of new printers → process has to be started manually
- data bags for disabled printers are not removed → must be done manually
- find the correct ppd file using:
 - `hp1ip` for HP printers
 - “Open Printing Database” by The Linux Foundation
 - “black magic” for remaining manufacturers

Where no one (@GSI) has gone before



- managing printer options with data bags
- authentication with Kerberos
- accounting
- redundant print server setup
- Windows printer driver distribution via Samba
- autodiscovery using DNS-SD (for guest printers)
- ...

- small subset of CUPS printers available for all operating systems from guest network (GSI-FREE)
- managed by CUPS forwarding server (VM)
- manual selection of public printers, data bags transferred automatically using CHEF
- data bags containing modified URI
 - pointing to `cups.gsi.de` instead of `socket`
 - done by script using `jq`
- all guest printers in PRINTER network (only one exception due to location)

You may check for ...

- empty, default, or easy to guess passwords
- public accessible shares for scans
- outdated firmware versions
- unused/unwanted features, e.g.
 - services like ftp, snmp, ...
 - protocols like IPX, Appletalk, ...
- second-hand printers not reset to factory defaults



Live long and prosper!

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