



Evolution of Printing Services at CERN

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Underlying golden rule: *everyone* at CERN can print – staff, visitors, conference participants, anyone!

Devices include:

- Networked & standalone **USB printers** (purchased)
- Networked **multifunction** copier machines – print, photocopy and scan-to-mail (4-year lease)
- A0 size **plotters** with related machines (purchased & leased)
- **Fax** machines (purchased)
- **Printshop** with production machines for volume A4 & A3 printing and plotter for A0-A1-A2 poster printing, plus specialised printing (e.g. business cards, conference badges, laminating, binding, ...)

Legacy issues



- Huge number of printer models **>100**
- Onsite support for just **half** the models
- No follow up of outsourced onsite support
- **Everything repaired = high costs + no rejuvenation**
- Still had many **32-bit only** printers!
- Photocopiers evolved into multifunction copier machines with **no IT involvement in specifications**
- Leases at **differing high prices**, as ordered individually
- Huge **administrative overhead** for ordering
- **No synergies** between different support personnel

First steps - standardisation

- Standardised printer models (**one supplier** not two)
- Standardised multifunction copier models (**one supplier** not three)
- **Took outsourced onsite support in hand**, covering networked & local printers, plotters, faxes (not multifunction copier machines)
- **Reviewed repair requests** to find most cost-efficient solution, looking at age & state of machine



Invitation to Tender

- Lease of **multifunction copier machines** with **onsite support**, prices for bulk, had to be manufacturer
- **Standardised models** with **set prices** (just 4 models)
- **Single per click cost** across all machines
- Scored **tests** carried out for **functionality** and **usability**
- Lease of Printshop **production machines** with 1st level **support** onsite plus experts available on call-out
- Added optional extension to cover **onsite support for ALL** machines including printers, plotters, faxes

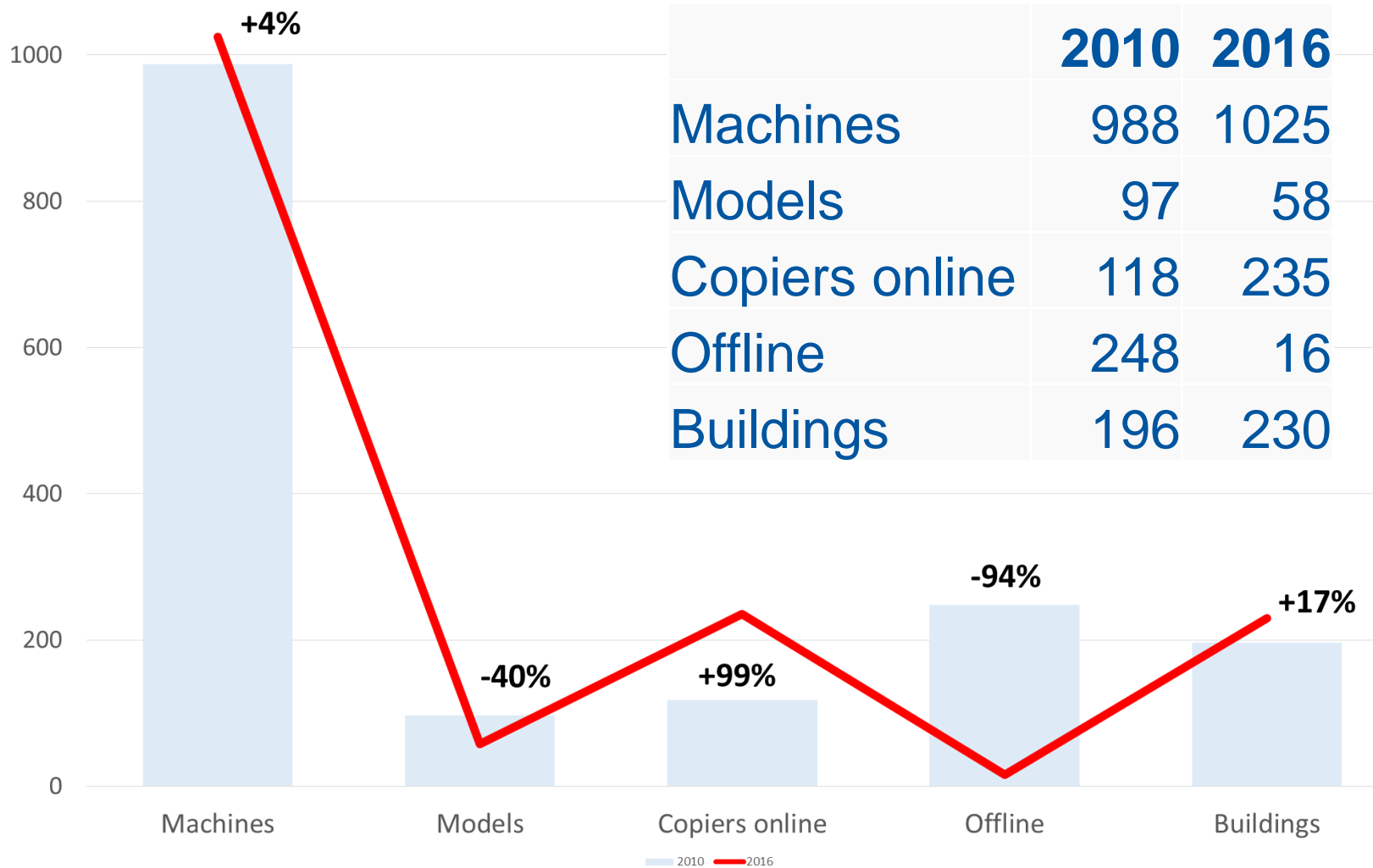


Initial results



- Greatly reduced machine lease cost, **average by 33%**
- **Reduced downtime** with onsite support
- **Proactive support** resulting in **36%** of multifunction copier machine tickets being dealt with proactively
- All multifunction copiers changed & connected, giving **same interface** on all machines plus **up-to-date park**
- Started to remove duplicates now that copiers online & used spares to **replace 32-bit only printers**
- After 18 months **activated support extension** so same team covering whole of printer park
- **Cancelled printer-only support** contract which reduced costs **by 35%**

Snapshot view: 2010 and 2016



Situation today

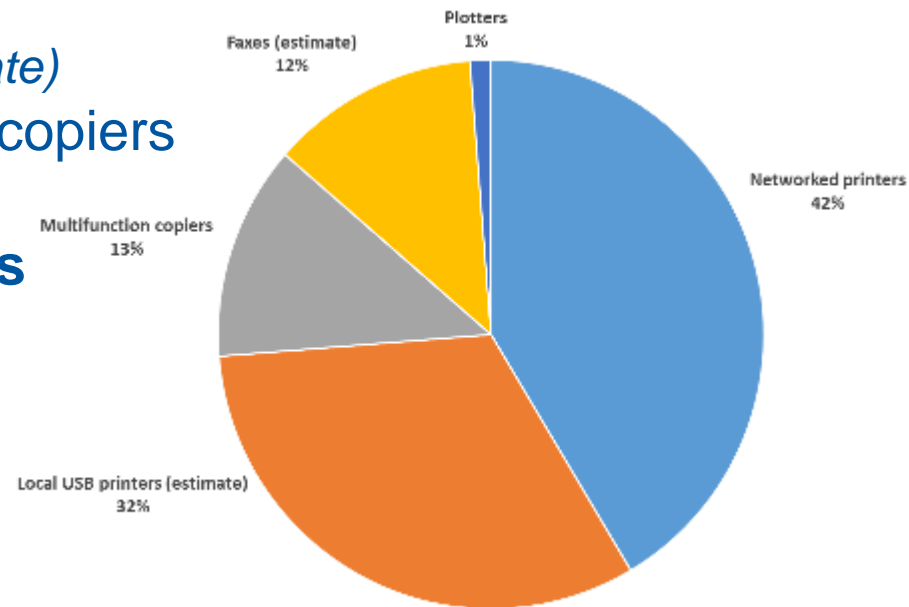
60-65,000 pages printed per working day / **14,000 print jobs**

Devices – **58** models

- **770 Networked printers**
- **600 Local USB printers** (*estimate*)
- **235 Networked multifunction copiers**
- **230 Fax machines** (*estimate*)
- **23 Networked A0 size plotters**

Support tickets

- **350 average total per month:**
 - **85 Incidents** (24%)
 - **125 Requests** (36%)
 - **140 Network communication** (40%)

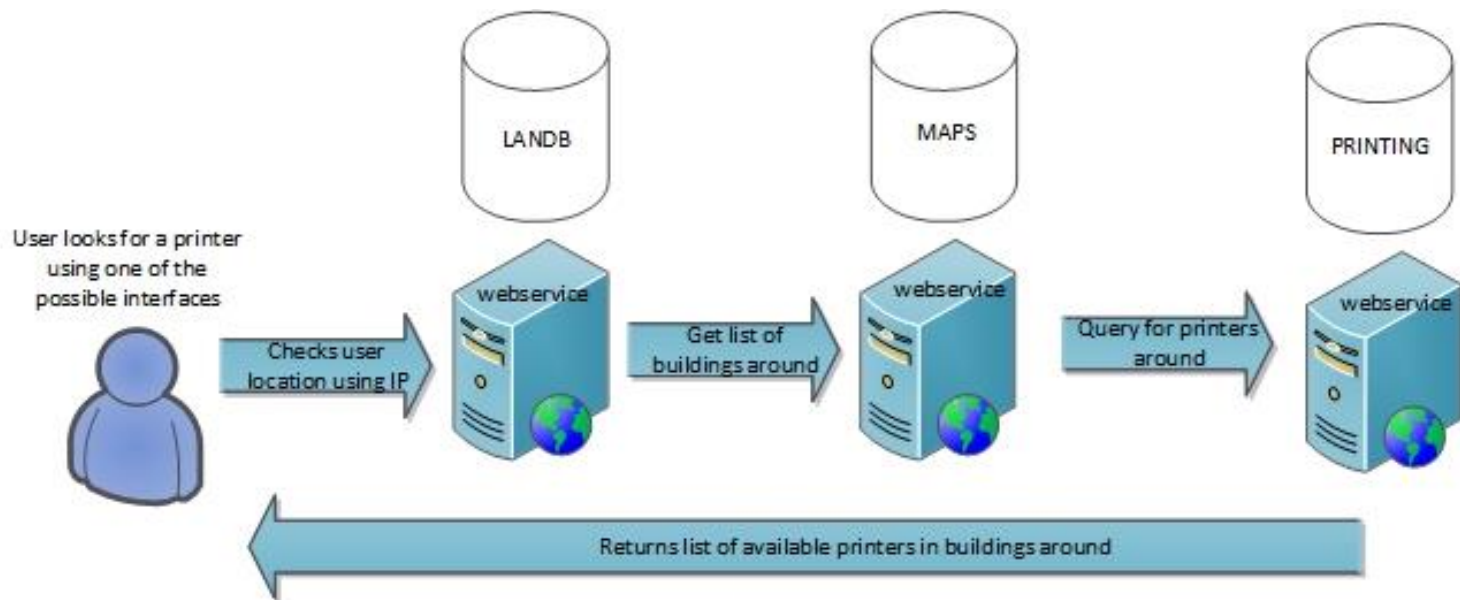


Improving user experience

Filtering options for list of >1000 printers:

- By type Color A3 Multifunction Copier
- By geolocation **Printers available in your building**

Printers available in buildings around your actual position




Easy installation – Windows

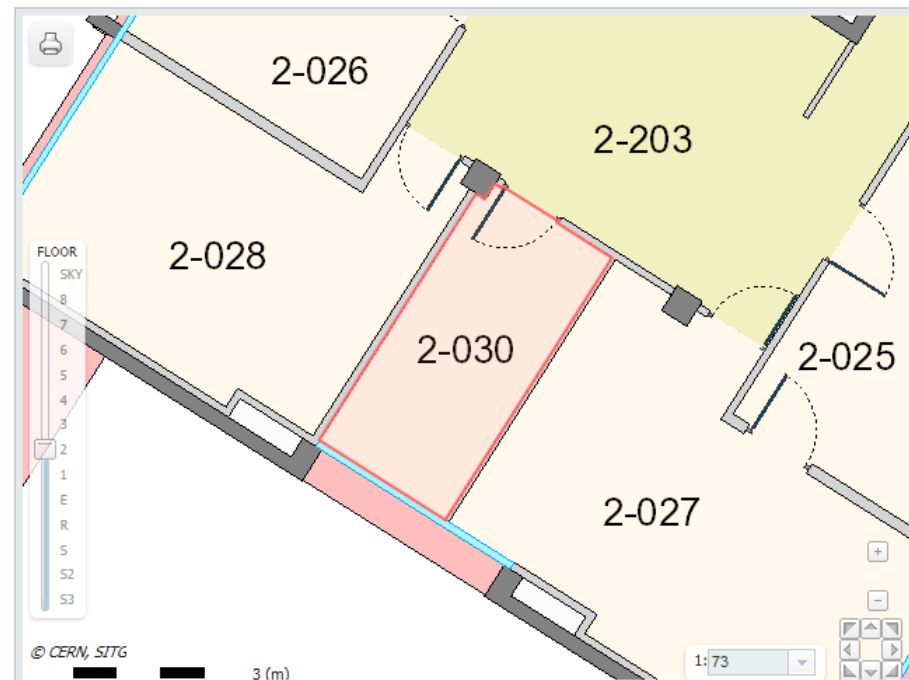
Web Add Printer:

- Windows domain members only
- Working on Internet Explorer only

Search for printer

[+Advanced search](#)

Printer Status	
Printer name:	31-2COR-CANON
Status:	READY
Windows driver name:	Canon IR-ADV C5235/5240 PCL6
Mac driver Name:	CNMCIRAC5235S2.ppd.gz
Printer Model (LAN DB type):	CANON IR-ADV C5235
Server name:	31-2COR-CANON.print.cern.ch
Location:	31 2-0030
Can print color:	Yes
Can print double-sided:	Yes
Default paper size:	A4
Default paper source:	Auto
Resolution:	
Banner Page:	NONE
Add this printer	



Easy installation – Mac

Web Add Printer: Signed applescript application, launched through URL

- Gets printer settings and information
- Downloads appropriate drivers package (if not already present)
- Configures CUPS (Common Unix Printer System) using lpadm command

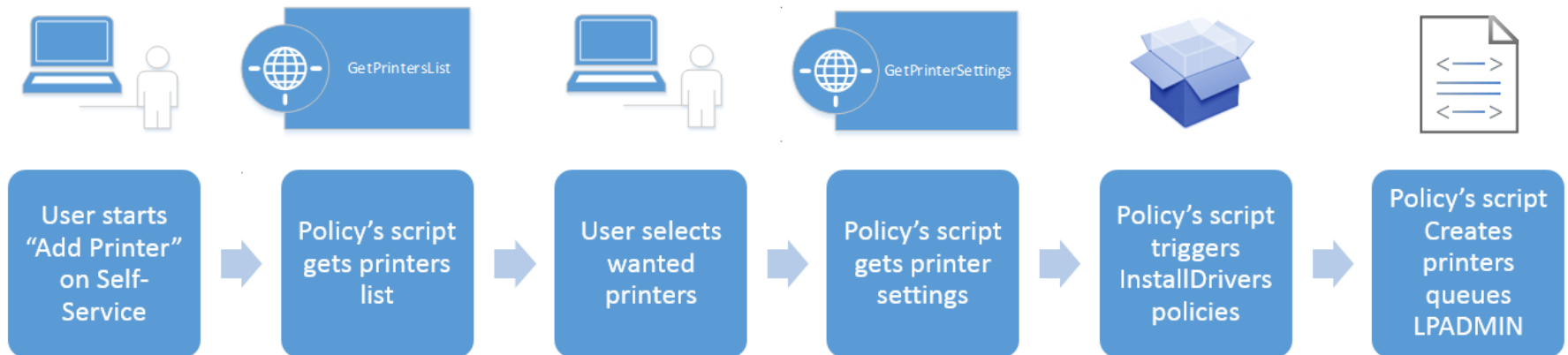


Easy install – Mac Self-service



User-friendly interface: based on JAMF Casper Suite

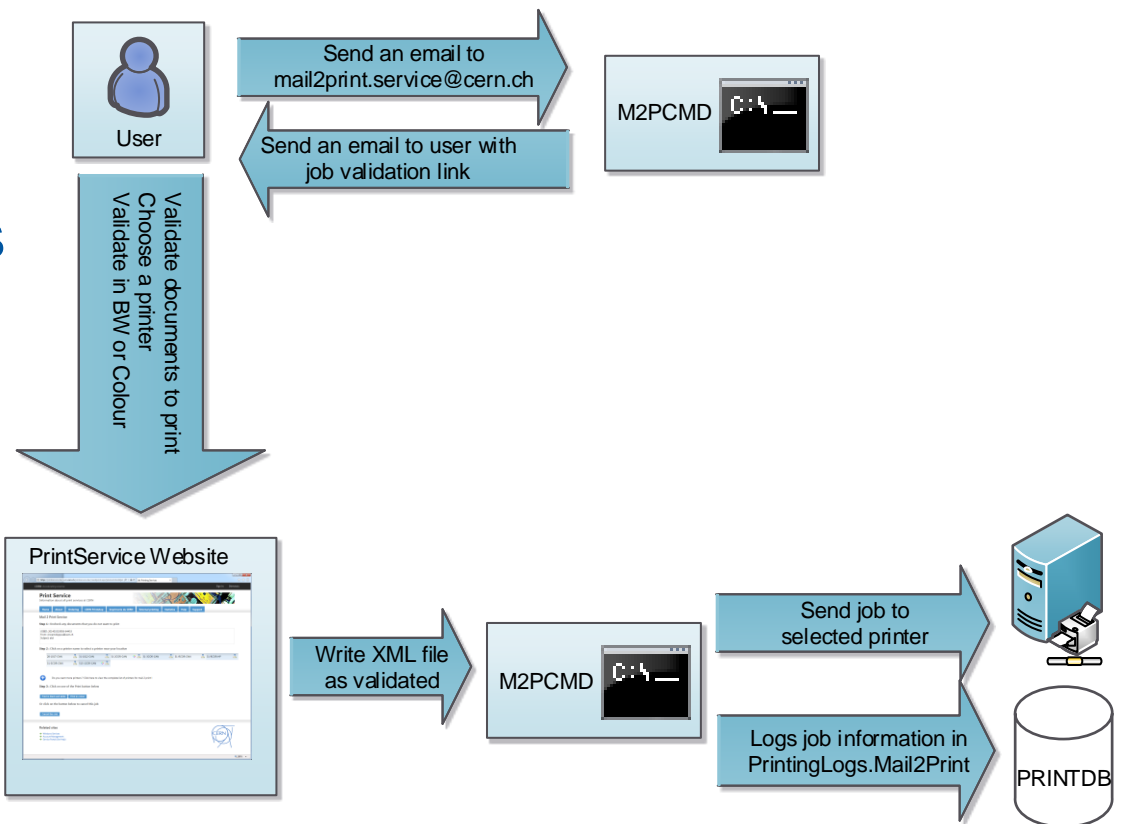
- Installs appropriate driver
- Multiple queue configuration in one go
- Proposes nearby printers, complete list also available



Simple print solution for visitors

Mail2print Service: any device registered on network can send files to mail2print.service@cern.ch for printing

- A validation link is sent via email:
 - Choose printer
 - Select options



Solution for **CONFIDENTIAL** printing

Secure Print: document is not printed until a pincode is input at the machine

- Print job is **deleted** after printing
- **Unprinted jobs are deleted** after 12 hours (or 4 hours)
- **Pincode** is sent with print job (can be activated for all jobs)
- Works with Windows, Mac and Linux
- Available on all printers, but we recommend only with **multifunction copier machines** (which have **keypad!**)
- **Removes need** for personal printers

Current / future steps



- **Reduce printer numbers:** look at areas with multiple printers and propose more cost effective solution?
- **Increase proactive support:** extend to printers? Need to identify owners & budget codes
- **Extend leasing to printers:** pay per usage but with minimum charge, covering machine lease & toners paid by per click costs?
 - **Removes printers** from list of assets
 - Gives solution for projects with **time-limited budgets**
 - **Reduces admin overhead** as no need to order & hold stocks
 - As printers “belong” to IT, we can **update models as required**
 - Automatically add to machines with **proactive support!**
- **Extend Windows Web Add Printer** to any browser
- **Enable “my favourite printers”** on Windows?

Thank you for your attention!
Questions or comments?



How is printing organised at your institute?
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