



Multi-Function Devices

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- **Multi-function devices are printers with extra functionality**
 - Scanner
 - Copier
 - Fax
 - Memory card reader
- **Why are we discussing them here?**
 - Manufacturers want to supply a driver package for the complete device
 - Linux misses standardization for certain components, like Fax sending and receiving, computer-controlled copying
 - Some devices need special access methods for the extra functions



- **Epson**

- Components appear as separate USB devices: Printer, scanner, memory card reader
- What about network-connected Epsoms?
- What about fax?

- **HP**

- On parallel port device appears as a printer, a special protocol gives access to the other components
- Device appears as one printer on USB, which is more or less a parallel printer over USB with the same protocol for the extra functions as for a parallel printer
- HPLIP software provides library for this protocol and the CUPS backend, SANE driver, and utilities for the other functions use it.
- Memory card reader is separate USB device (or SMB server for network printers) on newer models.
- Fax opens GUI for fax number and cover pages via D-Bus



What do we have?

- **High-End**

- Printer is network-connected, understands PCL, PostScript, and/or PDF
- Scanner is controlled by front panel, scanned images are stored on local file system for mount via SMB or NFS or for download via FTP or HTTP.
- Maintenance via web interface (HTTP).
- Sending/receiving faxes?



- **Printing**
 - Mostly solved: LSB standards for printer drivers, printer access by apps,
 - Needed improvements in the works: Common Printing Dialog
- **Scanning**
 - SANE Drivers needed
 - SANE not yet in LSB, planned for next LSB
- **Fax sending**
 - CUPS queue to send faxes
 - Problem is supplying fax number(s) and adding cover sheet
 - HPLIP's D-Bus solution only supports local queues
 - Common Printing Dialog supports entering string options, for fax numbers and cover sheet content
 - CPD should be connected with user's phone book somehow



- **Fax receiving**

- Would need daemon to listen to signal from the printer
- Daemon has to save fax in a file and give a desktop notification (or e-mail notification for networked device)

Scanner buttons

- Similar to fax receiving, can be same daemon, but instead of saving a file we need to start a program, like X-Sane

- **Memory card access**

- Current USB models use USB mass storage, they work
- Network-connected models: OK when they allow mount via SMB. Here we need some auto-mount concept.

- **PC-controlled copying**

- Standardized bi-directional protocol needed to communicate between application and driver

- **Ink/toner level check, nozzle cleaning, ...**