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CHOOSING A PRINTER

When I bought my first printer, back in 1985 (the Jurassic age of computing) there were 2 choices. I could get a noisy dot-matrix printer or a noisy daisy wheel printer. Color – as Mr. Ford said, any color as long as it’s black. Daisy wheel printers were better in that you could change the font by changing the wheel, whereas with a dot-matrix printer you had one font – courier. BTW, it cost me \$89.

Now you get to decide whether you want an ink-jet or laser printer, whether it is a printer only, or a printer/scanner, or a printer/scanner/fax. One of my clients just showed me their new \$89 All-in-one ink-jet printer for which they paid \$89. In this piece I’m going to try to help you decipher what type of a printer is best for you.

First let me explain the general differences.

An **ink-jet** printer paints dots of ink on the printed page. That’s pretty simple. A **laser** printer puts a fine plastic dust on the page which is then melted onto the page.

GENERAL PROS AND CONS:

Because ink “smears” just a little bit, the colors blend in a bit better than laser toner, so photos and other graphic images generally look slightly better. For this reason ink-printers are a bit better for photos.

Laser toner generally gives a finer image, which is why photos are actually too crisp. Conversely, laser printer output is exceptionally sharp for text output.

Also, laser toner is fused to the paper so it will not smear if the page gets wet, whereas ink-jet documents usually smear if they get wet.

Cost:

- A cheap color ink-jet printer, usually an all-in-one, can be had for under \$100. The quality is indeed cheap – I’ll get into that later. A decent quality ink-jet printer will run closer to \$150-\$200.
- A monochrome laser printer will run around \$130 or so, and a color laser printer can now be found for just over \$300. In my opinion, I haven’t seen a really cheaply made laser printer.
- A very nice monochrome all-in-one laser printer can be found for around \$150, and color all-in-lasers start at under \$400.

However, that is only the purchase price. What about the consumables (ink, toner, etc)? Laser printers cost about 1/3 that of an ink-jet printer per page. In general, with 5% coverage (the usual measurement) a color ink-jet page will use about \$0.30 in ink, whereas a laser will use about \$0.10 in toner. For monochrome pages, ink-jet runs about \$0.06/page compared to about \$0.02/page for a laser page.

DO YOU REALLY NEED COLOR?

I currently have 2 printers; a large Xerox Phaser color laser printer and a smaller Brother MFC-7420 monochrome laser all-in-one. The all-in-one cost me \$150, and prints over 20 pages/minute. It is also my fax machine, scanner, and copier. The automatic document feeder will hold up to 35 pages for scanning, copying or faxing. I’ve found that the vast majority of what I print doesn’t really need to be in color and use the monochrome laser

for probably over 90% of my printing.

For printing photographs, I suggest that you only print your own photos occasionally, and send most out. With at least \$0.30 per page for ink, plus around \$0.50/sheet for photo grade paper, your photos will cost over \$0.50 each, compared to around \$0.20-\$0.30 each for professionally made photos. Also, professional photo firms use dye-transfer printers which only the very best ink-jet printers can approximate in quality.

Recommendation: It depends on what you do.

1. If you only do occasional printing, then get an ink-jet printer. If you do a lot of printing, then consider getting an inexpensive color ink-jet for that occasional color job, and a monochrome all-in-one laser for your everyday printing. I know it takes up more desk space, but it’s worth considering.

If the only color printing you do is photographs, just send them out to Costco, Wal-Mart, or any of the online photo printing services. The cost of the photos will be less and the quality will be better.

2. **If you do only business letters and similar documents** then I recommend a monochrome (black only) laser printer. They are inexpensive to buy, cost per page is about a third that of an ink printer, and they are very fast (generally between 20 and 28 pages per minute).

FOR A BETTER “SERVER” USE NAS OR WHS

Several of my clients use one their computers as a fileserver, which they call their “server”. This article explores a better way. Note that I

will refer to ersatz servers as “servers” in this article.

All of the “servers” that I encounter are in workgroup networks, where Windows XP or Vista is the “server’s” operating system. Windows XP, Vista, and now Windows7 are not true file servers, which use a server operating system such as Windows Server that is optimized for this task.

Recent developments provide a better way of serving up files.

People use “servers” to allow two or more computers to access the same files, essentially making the “server” a common hard drive.

Here are some typical problems with these “servers”:

1. The “server” is usually used as a working computer by someone, which means that it can develop problems with incompatible programs, and so forth. If the computer goes down, work stops until it can be brought up again.
2. If the user of the “server” turns it off for the night, it must be turned on again in the morning, so it is not always available.
3. The person using the “server” computer as their working computer will find the computer to slow down when other computers access the hard drive.

Fortunately, there are now two better ways to get the job done, and more reliably. They are (1) a **Network Attached Storage device (NAS)** and (2) **Windows Home Server (WHS)**.

What is a Network Attached Storage device (NAS)?

A NAS is essentially an external hard drive, but instead of connecting directly to a single computer, it connects directly to the network. There are several advantages to using a NAS rather than a computer for shared access to files rather.

1. The NAS is always on.

2. Computers access shared files by connecting directly to the NAS over the network, rather than through a computer.
3. Most NAS devices support at **RAID1 (mirroring)**. This is a very good thing! RAID1 is an **array** of 2 identical hard drives, and all data is written to both drives. If one of the hard drives fails, the system continues to operate with the other (identical) hard drive, and the defective drive can be replaced later. Another advantage of RAID1 is that data is read from both drives, speeding up the time it takes to get a file (or files) from the drive.
4. Being a stand-alone device, nobody gets to mess around with it, so it tends to be very reliable.
5. A NAS uses much less electricity than a computer.
6. You can change the hard drives without bringing down any computers in the system, to put in larger drives, or replace a faulty drive. In some NAS devices, you can **hot swap** hard drives, without disconnecting the NAS, by just pulling out a drive and inserting another drive.

A 1TB (1,000GB) NAS device with RAID1 and 2 500GB hard drives starts at around \$225 or so. However, as its RAID1, the usable size of the NAS is really 500GB rather than 1TB.

What is a Windows Home Server (WHS)?

WHS was released by Microsoft a few months ago. It is designed to provide many of the features of a true server for the residential or home-business user – retaining a workgroup environment rather than having to escalate to a domain. The advantages of WHS are:

1. WHS is designed to be used as a file server over a workgroup network. This is exactly how the “servers” I encounter are being used.

2. WHS can mimic RAID1 by duplicating files on different drives. WHS goes beyond RAID1 by allowing more than 2 drives to be used, sort of a midway between RAID1 and RAID5.
3. WHS can also be set up to automatically back up some or all computers in your office or home.

I have read of one serious downside of WHS is the slowness of file duplication, however, which is that file access noticeably slows down because the software is emulating RAID1 rather than letting hardware do the job. Whenever a job can be done by the hardware rather than software emulation, there is a noticeable speed difference.

Synopsis

At this time, I have to recommend NAS as a preferred method of sharing files over a network in a workgroup environment. It uses less power, is very dependable, can provide RAID1 or RAID5 for fault tolerance, and SATA drives can be added (if you get one with additional drive bays) with little effort.

As a side-note, **fault tolerance** is a term used to denote a way to keep the system running if something fails. In the case of RAID1 or RAID5, both provide fault tolerance in the event of a hard drive failure, because if a drive fails, the system continues to read from the other copy of the file.

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