

By David Strom



Enterprise Printer Fleet Cost and Consumables Monitoring

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Keeping track of an entire collection of printers across an enterprise is still more of an art than a science. Various printer fleet-monitoring tools are available from most of the major printer vendors, including HP's Web JetAdmin, Toshiba's Encompass and Xerox's Office Document Assessment. These tools are useful for IT administrators with relatively single-vendor, homogeneous printer populations, but are not very helpful for printer VARs that want to monitor a mixture of vendor products and keep track of the different printer portfolios at multiple clients.

SYNNEX's PRINTSolv Solution is a way for VARs to keep track of per-page costs and supplies usage with an easy-to-set-up, Web-based administrative tool that can be engaged on the client's network. It is important to emphasize that the software is housed on a single workstation and does not require any changes to the overall enterprise network infrastructure. All the heavy lifting is done at the service provider's location, as with most ASPs. It is a vendor-neutral approach to managing an overall printer fleet, meaning that it can capture information from a wide variety of printer vendors and do so in a way that is both useful and effective.

This white paper describes the overall print fleet-monitoring market and talks about the various tasks that are part of any fleet-monitoring solution. We'll look at what matters from a printer VAR's perspective and how the SYNNEX tool complements and competes with vendor-specific solutions. We'll address these issues:

- Why are fleet-monitoring tools important for both VARs and IT managers?
- What are PRINTSolv Solution's strengths, and where does it fit in an overall enterprise printer solution?
- What are typical decisions that IT managers could make from this data as they evaluate their printer fleets?

We tested the PRINTSolv Solution on-site at a Washington, D.C.-based trade association with several dozen networked printers from HP, Xerox and Océ. We compared its features with HP's Web JetAdmin to show where SYNNEX's solution fits into overall printer fleet management.



About the Author

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How IT Manages Enterprise Printers

The enterprise printer market is anything but organized, even though printers represent a large capital and operating cost for IT organizations. Printers are purchased in a wide variety of ways — including centrally, departmentally and individually. And even if there is some method of centralized purchasing, it is rare for any enterprise to have a coherent plan for its printers once they arrive in their buildings.

“Typically, most enterprises don’t manage their printers. Organizations have fragmented purchasing for printers; usually, purchasing is done departmentally and supplies aren’t centralized, so they are paying the maximum amount that they can,” says Peter Grant, the managing VP of Printing Markets for Gartner Research.

In some cases, enterprises have job-cost accounting controls set up for their higher-volume printers that are located in their central copy/mail centers, but they don’t monitor the departmental or distributed printers scattered around their offices. While this gives these enterprises some control, it leaves a lot to be desired, and in some cases the uncontrolled printers can still consume a lot of paper and ink.

There are also many different forms of printer management. The most basic is the ability to anticipate the need for toner and paper, so that these supplies can be stocked and downtime kept to a minimum. Supply management can range from just stocking extra toner to more sophisticated tracking of the multiple consumables that multifunction printers (MFPs) and color printers require.

A level up from supply management is allowing access to particular printers, such as high-cost-per-page color printers, only to specific network users and key operators. This requires network authentication and user-access controls that are part of modern file-and-print-server operating systems, such as Windows and Linux servers. In this case, a network administrator is given a list of which users have which rights to particular output devices, so that not everyone can print 1,000-page jobs to the high-volume printers in the mail room, for example. Sometimes this can backfire, as we found in our tests at the trade association:

“Every quarter or so, our CFO comes through here and locks down the color printers when he sees what our ink and toner bills are. Then we gradually loosen up the network restrictions when users need to get color documents printed and sent to their clients,” says the IT manager at the association.

Another level of management is the ability to update printer firmware and configuration, to reset printers remotely or to monitor other error conditions that can be diagnosed and fixed remotely. Again, this requires some effort on the part of a network administrator and some monitoring software that can connect to individual printers across the enterprise. Most of today’s networked printers have internal Web servers that can remotely view, update and reset their operations. This makes the task somewhat easier, since only a Web browser is required, but someone still needs to be familiar with where the various configuration commands and menus are located on the screens for the different types of printers.

At a higher level is the ability to direct jobs to the most cost-efficient printer, so that overall printing costs are minimized. Few enterprises do this, since most rely on users to direct jobs to their nearest or most convenient printer. The savings can be significant if done right. “This is the last bastion of untapped savings in the IT department,” Grant says.

Added to this mix are the various roles of the printer reseller. These roles range from serving

as order takers to being trusted advisors for their IT clients, or — in some cases — substituting as an outsourced IT staff for smaller organizations. Resellers can be responsible for cost analysis and needs assessment, and can sometimes drive the actual printer-upgrade decision when it's time to consider modernizing the fleet or reducing per-page operating costs.

Printer management has many different dimensions, and no single tool can do everything equally well. The PRINTSolv Solution touches on elements of these types of printer fleet management with varying degrees of success, and we'll describe the specifics next. Let's dive deeper into the processes involved in managing an enterprise's printer fleet.

Discovery of Network-attached Printers

Before any printer can be managed, the IT manager or VAR must know it exists and where it is. Finding all of the printers that make up an enterprise's fleet is often the most difficult task.

So the first step is figuring out what an enterprise actually has. Doing this requires both picking the right tool to scan the network and locating as many devices as possible that aren't connected to the network.

These printer fleet-monitoring programs all use some form of Simple Network Management Protocol (SNMP) to discover the printers that are network-attached. None of the programs handle desktop-attached printers, unless these printers have been shared with other network users, and even then they are difficult to locate. So, complementing any network scan should be good old-fashioned shoe-leather — meaning, a VAR or IT manager should walk around and see what is on users' desktops, too.

In the case of the PRINTSolv Solution, the software is easily and quickly installed on any Windows XP or 2000 desktop that has a network connection. The software collects the information from the network and sends it back to SYNnex's main monitoring station via HTTP protocols, so that anyone anywhere can view them via a secure Web browser. Because the software communicates via standard Web protocols, no firewall changes are required. The workstation running the software can be a low-end machine, but it does need to remain powered on and connected to the network for the monitoring to be effective.

This is a somewhat different philosophy from that of HP's Web JetAdmin, which requires software to be installed on a Web server on the corporate network to monitor the network printer fleet. Typically, to get remote access to this information, some kind of virtual private network (VPN) or terminal server connection to the server is also required.

“A lot of times when IT managers go into these exercises, they don't even know how many printers they actually have. In every case, people have more printers than they thought they had. In some cases, they have more printers than they have users in their organizations. Most organizations need to carefully examine their printer fleets. These network discovery tools are important and can find more savings than IT managers can do on their own. It is worth going through [the tools],” says Steve Reynolds, a printer analyst with Lyra Research.

In most cases, a VAR can complete the setup of any of these tools in a few minutes. Because they use SNMP, the IT staff at the client needs to be involved in the setup and configuration of the fleet management tool. In some cases, the existing enterprise SNMP management software needs to be adjusted to ignore the presence of the fleet management utility.

In our tests of the PRINTSolv Solution and Web JetAdmin, both readily found most of the printers on our test network. Web JetAdmin was better at identifying the particular model numbers of the HP printers, as one might predict. Both products required some cleanup of printer model numbers and descriptions, as the programs didn't accurately capture

all of the printer models. While both programs got most of this information right, a VAR should plan on spending some time verifying the captured information with the physical inventory.

Managing Printer Configuration

Discovery is just the beginning of fleet management. An important part of the process is keeping up with the daily issues of running the printer fleet itself. This is often a full-time job in many large corporations. Help desks receive many calls about paper jams or printer errors or a user sending a large job that needs to be killed before an entire forest is turned into a pile of discarded paper. These tasks require real-time printer configuration and status tools, and this is the domain of HP's Web JetAdmin and similar tools from other printer manufacturers.

Web JetAdmin is primarily a real-time printer configuration management tool, whereby an IT manager can change parameters, such as printer descriptors, and reconfigure drivers or firmware on the printer's network cards. Its main status screen is designed for this purpose, so that an IT manager can see at a glance when a printer is misbehaving and quickly reset it.

Because of the way it was designed, the PRINTSolv Solution doesn't have any real-time features; it is more of a snapshot of an enterprise's printer collection at particular moments in time. While it can be set up to send its reports to the main SYNEX monitoring site on a frequent basis, the reports are still snapshots. The PRINTSolv Solution does make it easy to connect directly to each printer's Web console page, but unlike Web JetAdmin, it can't push out updates to a collection of printers with a single command. Thus, VARs that make use of PrintSolv will still need to employ one or more real-time monitoring and configuration tools to handle these tasks.

Tracking Printer Usage and Trends

But real-time monitoring is just one aspect of overall printer management. Another issue is being able to track printer usage over a period of time, so that a VAR can identify trends and make recommendations about changing an enterprise's printer fleet to something more cost-effective.

Once a VAR has created an accurate printer fleet inventory, the key is to understand how this collection of printers is used over a period of time, say a month or two. A good discovery tool will do more than just detect the individual model numbers; it will also identify the volume of pages printed and

the usage profiles of each printer. This gives the VAR an idea of where the higher-cost locations are within the fleet and shows the best opportunities and replacement targets.

Here, the PRINTSolv Solution does a better job than Web JetAdmin and the other real-time print monitoring tools for job-cost accounting, tracking printer-page usage statistics and displaying historical information about this data. A number of flexible reporting options are

Figure 1 Overall Summary

Device Name	Serial #	Start Pagecount	End Pagecount	Page Total	B&W Total	Color Total
Oce VarioPrint 1055 BE6C	100001887	3,702	9,515	5,813	5,813	
Oce CPS800 BE6A	280005047	12,676	18,341	5,665	5,665	
Oce VarioPrint 1055 BE6C	100001839	4,005	7,792	3,787	3,787	
HP LaserJet 4050 Series B	USBB109009	251,842	253,953	2,111	2,111	
HP LaserJet 4050 Series B	USQJ004871	145,147	146,866	1,719	1,719	
HP Color LaserJet 8550 BE	JPMB024219	89,213	90,834	1,621	309	1,312
HP LaserJet 4100 Series B	USBNK14086	179,049	180,649	1,600	1,600	
HP LaserJet 4100 Series B	USBDG02076	150,964	152,499	1,535	1,535	
Oce VarioPrint 1055 BE6D	100001884	3,163	4,670	1,507	1,507	
HP LaserJet 4100 Series B	USBNK14082	316,188	317,589	1,401	1,401	
HP LaserJet 4050 Series B	USCC024278	190,784	192,134	1,350	1,350	
HP LaserJet 4050 Series B	USQF050222	243,635	244,668	1,033	1,033	
HP LaserJet 5M BE54	S4601LD5Z20	160,922	161,833	911	911	
HP LaserJet 5M BE3D	S4601LD5Z25	262,142	263,002	860	860	
HP LaserJet 4100 Series B	USBBD00097	143,112	143,915	803	803	
HP LaserJet 4100 Series B	USBNK14074	210,002	210,774	772	772	
HP LaserJet 4050 Series B	USCC193201	115,930	116,644	714	714	
Phaser 8400DX BE66	RPCI66603	47,807	48,494	687	687	
HP LaserJet 4100 Series B	USBNK14088	137,387	137,880	493	493	
HP LaserJet 4050 Series B	USCCI72658	219,670	220,082	412	412	
HP LaserJet 4050 Series B	USCC172402	114,690	115,025	335	335	
HP LaserJet 4000 Series B	USSC008433	203,222	203,556	334	334	
Oce Imgaistics 6020		10,292	10,589	297	297	
HP LaserJet 4050 Series B	USQL060108	56,302	56,499	197	197	
HP Color LaserJet 4600 BE	JPFMF42821	57,165	57,311	146	15	131

available via the central SYNnex Web site, too, so that VARs can easily access this information from any Web browser. Here are a few examples of the reports available from the PRINTSolv Solution.

First, **Figure 1** shows an overall summary picture of the printers and their characteristics. Displayed are the model names of each printer, its serial number, page counts, and mono-chrome or color pages printed. A VAR can quickly scan this summary and determine the most popular printers for further analysis.

VARs can also drill down and examine individual details about specific printers.

Figure 2 shows this information for one HP LaserJet 4000, including a photo of the device itself, a representation of the device's control panel display, the printer's IP address (which is hot-linked to the printer's own Web-management page) and a summary of consumables.

Clicking on the meter-reads section will bring up the screen shown in **Figure 3**, which gives a historical chart of pages printed by month. Other reports are available that can break down this information by other time periods that may be of interest to the VAR or client.

Total Cost of Ownership

Once a complete inventory of printers has been done, the next goal of any discovery exercise should be to reduce the number of desktop printers. This is because they can quickly break, cost more per page than network printers for supplies and are hard to track down because they are purchased through departmental budgets and tend to fly under the radar of central IT and purchasing departments. It is also harder to keep ink in stock for these printers.

The PRINTSolv Solution can also be used to do extensive total cost of ownership (TCO) calculations, but setting up all this information can be onerous and time-consuming. This is the case for any tool, but it's worth the effort for the VAR to learn the true cost of the entire fleet and at the same time add a valuable service for the customer.

To do this properly, a printer fleet tool needs to incorporate page-cost accounting, so that accurate per-page costs for the TCO of the printer can be calculated. This is because a ream of paper printed by an

Figure 2 Device Detail of HP LaserJet

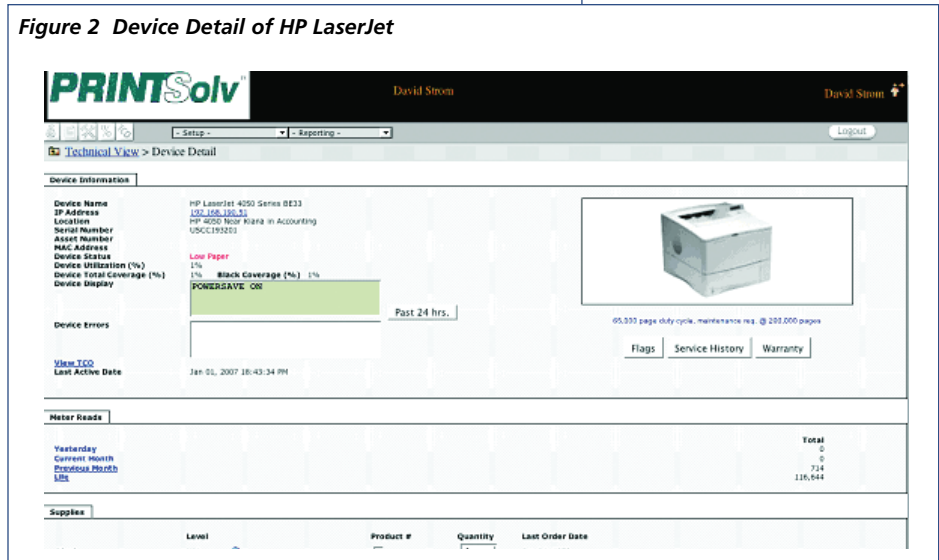
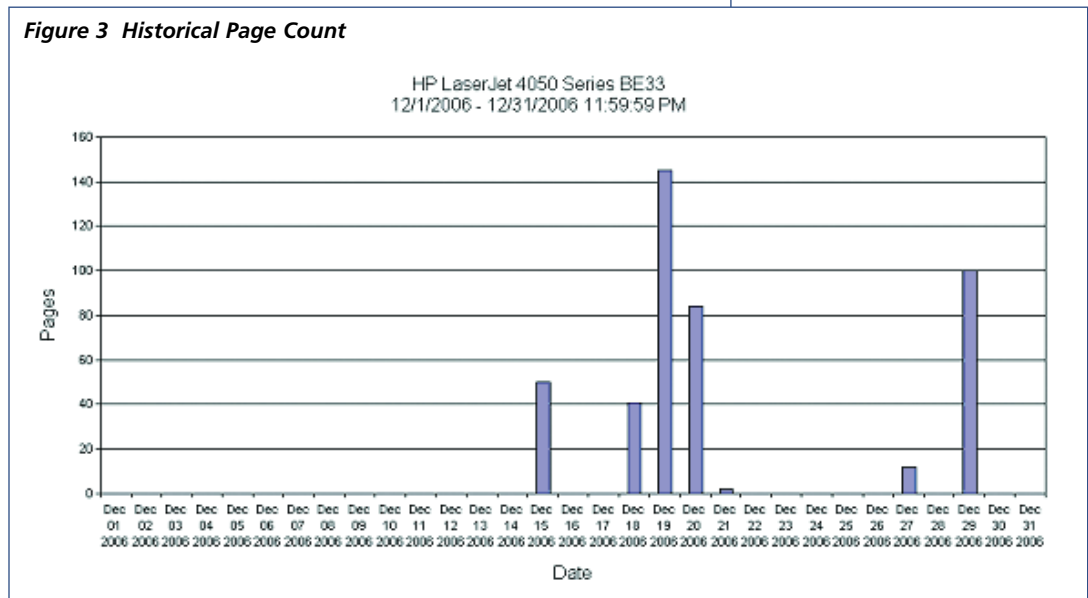


Figure 3 Historical Page Count



\$89 desktop inkjet is going to cost more than a ream printed by a high-volume MFP in the mail room. So, just finding out the total page count isn't enough to develop an overall TCO profile.

To display this information, **Figure 4** shows what a sample TCO screen looks like for an Océ monochrome printer. Users can get to this information from the device information screen (**Figure 2**), by clicking the hot link on that page.

This spreadsheet carries the volume information that has been reported by the printer and allows a VAR to input the cost of paper and toner in the appropriate fields and arrive at an overall monthly cost to operate this printer. This is a valuable tool for the VAR's arsenal to demonstrate that certain printers have lived on a corporate network too long and should be retired for newer models that can save a client money.

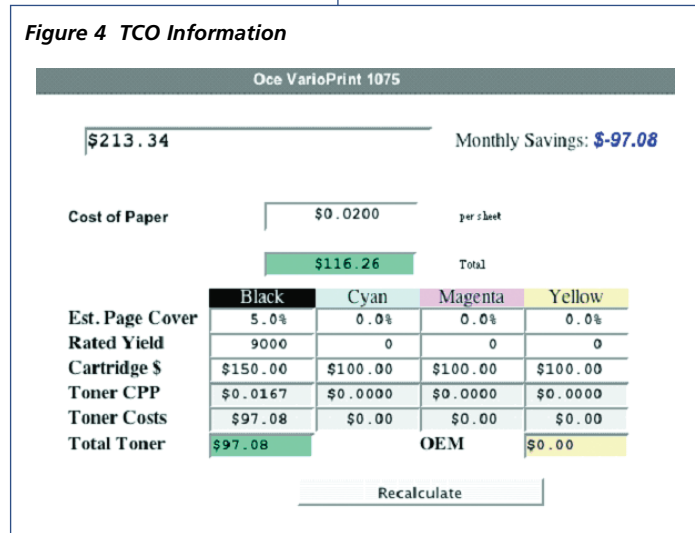
Consumables Inventory and Purchasing Fulfillment

Figure 2 shows a status display of consumables for each printer. A VAR can go directly from this page to other screens to order supplies for this printer, should that be necessary. This is one of the powerful things about PRINTSolv that can really save time and reduce supply inventory and fulfillment hassles. Because SYNEX carries supplies from most of the major printer vendors, purchasing of supplies can be centralized and quantity discounts realized for the customer.

Conclusion

VARs and printer resellers need a total end-to-end solution that can handle all the multiple tasks of printer fleet management, including discovery, supplies fulfillment, real-time configuration and cost management. While no single tool can do everything, SYNEX's PrintSolv solution goes a long way toward handling most of these tasks and doing them well. PrintSolv can be a powerful tool for providing the VAR with the right information about a client's printer fleet. This solution can capture 75 percent to 90 percent of the information, thereby enabling the VAR to improve relationships with clients and save them serious money. In the process, the VAR's role as a trusted printer advisor and partner will be enhanced as well.

Figure 4 TCO Information



ABOUT SYNEX

SYNEX Corporation is a leading global information technology (IT) supply chain services company, servicing resellers and original equipment manufacturers (OEMs) in regions around the world. They provide outsourcing services in IT distribution, contract assembly, logistics management and business process outsourcing. SYNEX distributes technology products from more than 100 world-leading IT OEM suppliers to more than 15,000 resellers throughout the United States, Canada and Mexico. Their focused product categories include IT systems, peripherals, system components, software and networking products. SYNEX is aligned with leading OEM suppliers in computer systems, peripherals, system components, software and networking products. A few of their key suppliers include HP, IBM, Intel, Seagate, Microsoft, Lenovo and many other world-class manufacturers. In 2006, their consolidated worldwide revenue was \$6.34 billion.