CSG Survey on Printing Services

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with the assistance of Gavin Eadie, CSG statistics coordinator

Survey questions are noted below in the left-most column
Institutional responses are largely verbatim

Executive Summary of Survey

18 CSG schools replied (private=11, public=9 (PSU+Cornell counted as both))
solutions: Pharos Uniprint(11), GoPrint(1.5),OpenSource/Homebuilt(5)
Everyone with Pharos seems to be pretty happy with their solution.
14 use some form of authentication for printing or release of print jobs.
11 charge some fee mechanism for print service.

Trivia: (*This is a swag based on those reporting*)
1.5M, 35M, 20M, 18M, 11M, 2.4M, 16M, 18M, 6M, 30M, .5M, 10M, 7.4M, 2.5M, 6M, 8M = 192M pages / year
192M pages per year = 384K reams of paper = 38,400 boxes = 1.92M Lbs of paper
OR (89,870 sheets = 1 cord of wood) 2136 Cords of wood = 273,408 cu. ft of wood (1 cord = 128 cu ft)
OR 38,400 boxes / 40 boxes (=1 ton = 24 trees) = 23,040 trees (a processed tree is apparently worth about $25)
OR 23,040 trees planted @ 660 trees/acre for hybrid poplars = 35 acres of forest
Operational Costs: 86.2K, 508K, 1.2M, 270K, 245K, 323K, 99K, 790K, 460K, 1.4M, 400K, 45K, 330K = 6156 / 13 = 473K / year average

Survey Questions	CMU	Indiana	Michigan	NYU	PSU	UT Austin	Columbia	Wisconsin	Duke
Context		Indiana University has a student technology fee that centrally funds services related to student computing. A goodly chunk of that at IU Bloomington comes into the budget for the Student Technology Centers group. We manage around 1800 Windows and Mac machines in labs, classrooms, and standup locations around the campus, and provide the software build to another 700 or so that are owned and managed by schools and departments, but are for use by students. We implemented Pharos Uniprint about nine years ago, and as schools and departments asked to be part of the STC build, they realized that if students knew their printers were not part of the Uniprint quota system, their print budgets would get hammered. Our build is installed on probably 90% or more of all student-accessible computers on campus, and all the printers in the associated locations are managed by Uniprint. We centrally manage all the queues, the user database, and recordkeeping/reporting; we provide supplies and maintenance for the printers we own, and the departments are responsible for theirs. Our printing environment includes no printers in departmental offices or other locations where use would be primarily administrative or [illegible]	We provide printing in computing sites/labs available to the general campus population. Individual schools and colleges might also provide printing to their students. Currently each student is allocated 400 b&w page sides per term while faculty and staff are allocated 50 page sides. Printing over the allocation, including color and large format printing, is charged to student or department accounts.	In many ways we have a mixed economy of policies and methods at NYU; at central IT, we are fairly liberal / progressive in our policies toward student printing, which can seem out of step with a New York environment that very price driven / controlled. But the color green in its multiple meanings is requiring us to be more sensitive to our print management approach. Therefore, I thank you for conducting this 'survey' and look forward to seeing the results and learning from them.			Managing the printing environment of computing facilities is challenging. In addressing this issue, we have developed a distributed network printing system to authenticate and authorize print jobs with a flexible page accounting model. There are several fundamental reasons to adopt a printing management system: to regulate the expense of printing millions of pages; to provide accurate statistics and information facilitating printing related purchase planning, expansion planning, budget allocation, and upgrades; to provide a reliable monitoring system for effective system administration; and to reduce overall waste, abuse, and environmental impact of printed pages.		
Organization for whom you are answering	Carnegie Mellon University		University of Michigan IT Central Services	Central Services exclusive of services, policies and resources of other NYU Schools, departments, and Libraries.			Columbia University Information Technology (CUIT).	University of Wisconsin – Madison	Duke University Office of Information Technology Includes all OIT, Library and Arts & Sciences printers (i.e., those available for student/public printing on the campus side) Excludes Health System (outside of a few OIT-maintained public printers in School of Medicine and other programs).
May we expose your name and / or email address in the survey in case someone else wants to contact you?	Karen Van Dusen (kvd@cmu.edu) Manager, Usage Architecture and Analysis Computing Services Carnegie Mellon University	Doug Grover <grover@indiana.edu> Manager, Student Technology Centers University Information Technology Services Indiana University (Bloomington)	Ruth Addis <raddis@umich.edu>	Vincent Doogan, Director ITS Student Technology Services Information technology Services New York UniversitY	John T Harwood <jth@psu.edu>	Kristin Robinson, Director, knrobinson@austin.utexas.edu Information Technology Services The University of Texas at Austin	Anil Lilly CUIT Manager of Field Operations 612 W. 115th St. New York, NY 10025 anil@columbia.edu Tel: (212) 854 5516	John Staley jstaley@doit.wisc.edu (608) 263-3911	Kevin Davis, ksdavis@duke.edu Assistant Director, Technology Support Duke University Office of Information Technology
Basic Statistics ***# of physical printers***	We have 27 physical printers	79 b&w laser; 15 color laser; 2 midrange color inkjet; 2 high-end widebed color inkjet; 63 b&w laser owned by departments; 2 color inkjet owned by departments	As of 3-18-08 we spool to 266 physical printers	12 HP high capacity b&w printers in 4 computer center/lab locations	127	80	100	120	116
Basic Statistics ***# duplex capable printers***	All 27 are duplex capable	All b&w laser	all 266 printers are duplex capable 41 of the 266 can print 11x17 33 of the 266 are color printers	All printers are default to duplex	127	0	100	10	85
Basic Statistics ***# of physical pages per month***	525,000 in Fall 2007 semester	For spring semester 2008, we are averaging 934,000 pages per week b&w. I just ran a report for January, and it came back at about 3,738,000.	If "physical pages" they mean sheets of paper, we don't know as we only track logical pages	18 million pages per year	901,238.5 (last 12 months divided by 12)	191,191	16M for the year, 1.3M per month average		1.36 million physical pages/month (based on fall 2007 data; includes summer months with much lower avg. usage)
Basic Statistics ***# of logical pages per month***	700,000 in Fall 2007 semester	We don't track logical pages (I assume you mean duplex, two-up, four-up, etc.). When we've done spot-checking in the past, it's been about 5%.	(c) If "logical pages" is impressions, last fiscal year we printed 26,392,977 pages, which gives an arithmetic mean of 2,199,415 pages per month.		avg # of logical pages per month (if known): 1,453,956.375 (total pages printed over the last 12 months divided by 12)	(c) avg # of logical pages per month (if known) N/A			2.03 million logical pages/month (based on fall 2007 data; includes summer months with much lower avg. usage)
Basic Statistics ***# of users during academic year***	not easily available	28-30,000	In FY06-07 we printed jobs for 43,587 different uniqnames.	25 thousand students, made a total of 550,000 visits/entries to our four lab facilities	54,836	N/A	about 22,000 peak	20K	Est. 11,000 users in a semester
Basic Statistics ***total cost of print service per year***	$86,200 per year.	According to the annual Activity Based Costing project conducted by our Finance Office, total cost for hardware, software, supplies, licensing, and personnel is $508,389.	Our budget is $1,204,491 of which $720,492 is provided by General Fund (the rest is collected from those who use over the allocation).	$270,00 of consumables	Avg cost over the last five years: $245,250 per year.	avg total cost of print service per year $323,384	about $99K	$100	Est. $790,000/yr. – but that's including a guesstimate of what our library spends on consumables based on OIT's expenses
Basic Statistics ***cost per user per year***	not easily available	Also from the annual ABC report, $13.29. Both the total and per user costs reflect only the service provided by UITS, not by departments. Their costs are unknown.	Our cost per user is $16.52/fiscal year.	the simple math works out to roughly $11 per stu, and approx 700 pages each			approximately, $4.5 per user based on above numbers		That works out to about $72/user/year.
Software Provider ?	Pharos	Pharos Uniprint.	Open Source - CUPS		Pharos	Pharos plus significant development	Home Built / Open Source (GPL2)	Home Built and Equitrac (now) GoPrint (future)	Pharos UniPrint + Blackboard
Software Details			Jobs are sent to the printers using IPP (Internet Printing Protocol). We have made some modifications for collecting page counts. We also have a set of home-built programs running on the print servers to do charging based on the page counts	No central print management system; however ran a small pilot project with GoPrint		To add on to the existing system a site that would only utilize the license and would require no technical support or monitoring, the avg. annual cost would be $914.	The NINJa print release station & management console are written in Java and APRICOT (aka PCD) (page counting backend written in PERL).	We have a home-grown solution for about 75% of our printers. We use Equitrac for the other 25%. However, we are in the process of standardizing campus printing to a single source vendor. We have selected a commercial product, GoPrint, for this campus.	We use Pharos UniPrint, connected to our Blackboard campus card system (which stores printing quota budget info) via the product's gateway. We're running v7.2 of the application and will remain there through summer 2009.
Software Cost	Can't provide	Their cost model is based on number of students. We have been customers so long that our initial license cost is probably not relevant, but annual maintenance is around $13,000.	Charges are submitted to an in-house accounting and billing system which talks to the University's Student Financial Operations system.		$2 unlimited FTEs per seat $65,796 maint costs: $28,105.67	$0.11 per page	Each NINJa station is a print server in itself. It uses PXE network boot technology that downloads an image from a server via TFTP. NINJa uses a page control server for page accounting and other information. All software pertaining to our NINJa release station is shared. NINJa has been built with open source and open standards in mind. Conceptually the NINJa solution begins with a release station kiosk atop each printer. A user sends a job to the printer, which then appears on the kiosk display. To print, the user selects his/her job from the queue and authenticates. If the user is authorized to print, the job is printed, and the user's printing quota is deducted. Some of the design goals of the NINJa printing system: Easily maintainable; scalable to 100+ printers; built on a distributed model; pluggable and use of open standards; database backend; support of credit card on-line transactions. What makes NINJa unique? The phrase "print server" is often interpreted to be a machine that processes print jobs from various clients [illegible]		Annual maintenance runs us about $13,500 a year. We bought directly from the vendor rather than using one of their pesky VARs.

Survey Questions	Washington	Virginia	Chicago	Princeton	Yale	MIT	Colorado	Brown	Cornell
Context		The responses below pertain only to IT managed printers and combination printer/copier/scanner/fax machines. IT manages these devices in 27 computer labs on campus, via our leased Copier Management Program (CMP) and two Digital Print Centers (DPCs). The CMP offers centrally supported printer/copier/fax/scanner machines to university departments. Departments may choose from a menu of machines of different capabilities (printer/copier/scanner/fax) and different speeds (ppm). Color machines are available via the CMP. Departments are not required to purchase printers via the CMP, but approximately 700 CMP copier/printer machines are placed on campus. We estimate that there are less than 100 non-CMP copier/printers in place on campus. The DPCs are staffed by technicians and offer full service copying services. In addition to basic services, the DPCs also provide finishing, cutting and folding and color jobs. Computer-Integrated Classroom Support (CICS) offers printing service in 27 computer labs on a pay-per-page basis. Two full-time employees maintain the system in addition to other duties. There are many non-IT managed desk-top printers in place on campus.	There is not a central printing system for campus (yet), so there are four major printing "camps" at Chicago: Central public computing (NSIT) Library Residence Halls & Commons (RHC) the Graduate School of Business (GSB) Statistics are for NSIT facilities; I've added what we know of the other environments. The students have requested we come up with one printing system for campus, so this could be different next fall. Also, we just replaced all of our public printers with color duplexing units, so the numbers will change starting this quarter.	Both the Library and OIT provide what I would call public access printing, on two separate systems, configured slightly differently. So, I have tried to included answers from both as appropriate. In places where only one of us has the answer, I've indicated that. Also, the data is from FY07.					
Organization for whom you are answering		Virginia Tech	University of Chicago		ITS		University of Colorado	Brown University	Cornell Information Technologies
May we expose your name and / or email address in the survey in case someone else wants to contact you?	Katy Folk-Way kfolk@u.washington.edu Lonnie Eisenbarth lonniee@u.washington.edu Dean Rieck ddrieck@u.washington.edu	For the Copier Management Program and Digital Print Center responses: John Pollard Director, Field Engineering and Service Operations Network Infrastructure and Services pollard@vt.edu (540) 231-7868 For the Lab responses: Robert Dickert Manager, Computer-Integrated Classroom Support Learning Technology rdickert@vt.edu (540) 231-4810	Emily Baker, Director of Learning Environments emly@uchicago.edu	From: Leila Shahbender <leila@Princeton.EDU>	Chuck Powell / Charles.Powell@Yale.edu Senior Director, Academic Media & Technology (AM&T) Yale University Information Technology Services (ITS)	Don Montabana Director, Client Support Services Information Services and Technology Office: (617) 253-5654 donm@mit.edu http://web.mit.edu/ist/org/css	Jon.Giltner@Colorado.EDU	John Spadaro <John_Spadaro@brown.edu>	Rick Cochran, rcc2@cornell.edu Cornell CIT - Systems & Operations - Net-Print
Basic Statistics ***# of physical printers***	88	CMP: 700; DPC: 12; Labs: 31	8	79	35		90ish	21	178
Basic Statistics ***# duplex capable printers***	88	CMP: 700; DPC: 12; Labs: 24	8	79	35		all	21	89
Basic Statistics ***# of physical pages per month***	500,000/m during the academic year	CMP: 2.5M DPC: 500,000 Labs: 17,000	49918	Total – 1,061,432 OIT – 635,974		Total - 7.4M per year Approx 1M per month during school year	250,000/mo Varies highly from printer to printer and week to week.	675,000 for all printers, avg=32,142/printer	We do not count "sheets". In the last 12 months, we printed an average of 816,711 "sides" per month. Of these, an average of 299,559 "sides" per month were printed duplexed. From these figures, very roughly, one might conclude that 150,000 "sheets" were printed duplexed, and 517,000 "sheets" were printed simplexed, for a total of about 667,000 "sheets" per month.
Basic Statistics ***# of logical pages per month***		CMP/DPCs don't track scans to fax or email Labs: 17,700		OIT only – 1,062,440			380,000/mo		816,711 sides per month. 299,559 sides were duplexed.
Basic Statistics ***# of users during academic year***	20,000	CMP: 3500 Labs: 4500 unique users, 56,700 transactions.		14,525 users printed to either a Library or an OIT printer	2000		Must have these stats somewhere, but I haven't found them.	6247 users have printed	15,249 (since begining of the fall '07 semester)
Basic Statistics ***total cost of print service per year***	$460,000/year	Labs: ~ $20,000 per year*, recovered from charges to users. CMP: ~ $797,000 for 30M impressions. We estimate approximately 5 users per CMP machine. DPCs: ~ $565,000 for 6M impressions.					Total program costs are about $400K/yr Includes: leases, all servicing (incl. load&fill), card vending and refund processing, supplies, internal costs to card office for processing fees, internal costs to pay for networking, internal overhead for auxiliary (for fee) program.	$45k	$330,000 (including some printers, servers, supplies, staff; excluding university overhead) Only 32 of the 178 printers are owned by the Net-Print service (see "service models" below).
Basic Statistics ***cost per user per year***		Labs: Approximately $4.44/user/yr* CMP: Approximately $228/user/yr *Does not include the cost of purchasing the printers or setting aside monies to replace them over time. The lab printers were either donated by the manufacturer or provided by a centrally funded program to place PCs and peripherals with faculty and in labs.		~$34 (OIT)					$21.64 (dividing the previous two figures)
Software Provider ?	Pharos UniPrint + Off the Glass	Pharos UniPrint	GoPrint	Pharos Uniprint	Pharos Uniprint	Open Source LPRng	Pharos Uniprint	Pharos Uniprint	Net-Print Home built
Software Details	We use Pharos Systems Uniprint and Off the Glass suite to provide pay for print and copy functionality.						Completely outsourced service to Xerox.		Open source
Software Cost	Approx. $25,000/year for maintenance and licenses.	Approximately $35000 for initial license for 30 printers and $6000 yearly maintenance/support fee. DPCs: We keep copies of Creative Suite 3 and Adobe Reader and PDF7 so that we can help our customers correct file errors. Approx costs $1000/yr. We manage the machines in the DPCs with a package named MicroPress. Approx cost $800/yr.			$.07 per page single side, $.06 for duplex (2nd side of the page) $.50 per page for color laser.				