

FROM MAGNETIC TAPE TO TERABYTES

THE EVOLVING DIGITAL LANDSCAPE OF YLS

BY KAITLIN THOMAS

As technology has changed in the past thirty years, Yale Law School has changed along with it. Not only have the systems changed (so long, typewriters, card catalogs, and registration punch cards) but so has the nature of interaction at the Law School. As recently as 1999, for example, the Registrar's Office was easily identified by a snaking line of students waiting to sign up for courses. Now it's a place of relative calm—at least physically—as the course selection process has gone online and the queue of foot-shuffling students has become a virtual one. Enter any classroom and there will be nary a pen and pad in sight. Instead, the classrooms of the Sterling Law Buildings are packed with laptops and the click-click-click of keyboards. In the Lillian Goldman Library, fat volumes of legal cases still grace the shelves, but online resources have become the primary vehicle for research.

Traditionalists, take heart. There are still many things that remain the same, and though the transition to the virtual world may seem, on the surface, less personal, it has, in fact, simply shifted the nature of conversation to a different medium.

The Law School's Information Technology Services department maintains more than 40 servers; these Apple servers host media files and the School's Quicktime streaming server.

INFORMATION TECHNOLOGY SYSTEMS

YLS interoffice memos from 1980 tell of a time when “data processing/word processing consultants” were called into the Law School to help advise administrators about how they might productively use new technology. “Computerization,” as it was called, was coming—and Yale Law School was getting ready. Far from the age of terabytes, the memos refer instead to magnetic tape and “Xerox keyboards.”

It was in 1985 that then Dean Guido Calabresi '58 announced that the Law School had received approval for its first computer lab, in which twenty IBM PC ATs and twenty IBM Proprinters were made available for student use. Each computer had 640 K of internal memory and two disk drives, one 1.2 MB drive, and one 360 K drive. Four of the machines were “heavy lifters” offering 20 MB of hard disk space. (Compare that to 2008 when each student is allotted 250 MB of storage on the Law School’s file server for the purpose of backing up files.)

When faculty members were first given computers in the mid 1980s, the biggest issues the (then-called) “Computer Services” staff faced were with floppy disks. Reminder memos posted in the computer lab relied on analogies between floppy disk drives and “stereo turntables” and were peppered with warnings not to take frustrations out on the hardware.

Spaces frequented at YLS a decade or two ago are now mostly quiet as changes in technology have altered the physical land-

scape of the computer labs and library. Students in the '80s lined up with floppy disks in hand to wait their turn to print. Today the Law School is completely wireless and email has replaced most paper. Students still print documents, though laser printers have replaced the behemoth dot-matrix machines in the computer lab.

Back in 1988 when she started working at the Law School, Susan Monsen (who is now Director of Information Technology Services) was the only staff member working in Computer Services. Slowly, the department’s staff expanded as computers replaced typewriters and word processors and the Internet age began. As of 1998, the staff still numbered five, while a decade later there are now thirteen ITS staff members.

Today the YLS ITS team still works intensively with hardware issues and user support, but their responsibilities extend to application training, networking, audiovisual services, and web application development and support. Three full-time staff members now work solely on networking and web development, supporting student organizations and administrative departments with web applications (*see sidebar on page 44*). One full-time staff member works exclusively on laptop support, consulting with students and faculty (all of whom have laptops) to sort out pesky technical problems on the more than 600 laptops that are used daily at the Law School.

“The Law School is unusual in the level of support it offers to students and faculty members,” says Kevin Bailey, Manager of



Bulky desktop computers have long since been replaced by sleek and portable laptops.

ADMINISTRATIVE COMPUTER STUDY AT YALE UNIVERSITY

January 31, 1983

Benefits offered by the computer technology are a topic frequently discussed by the administration and faculty of the Law School. The areas in which the need for computerization is acutely felt are: word-processing for faculty, statistical work for faculty research and financial administration. We hope that those needs will be satisfied in the near future.

We also recognize the need for computer facilities in the Registrar's and Admission Offices. However, we are not prepared to make any ventures in this area on our own before a campus-wide system is introduced.

During the last few weeks we have surveyed the computer facilities in Yale Computer Center, Administrative Data Systems, the Departments of Biology and Psychology, and the computer lab.

As far as we can see we have, at present, three options:

- (1) to rent the existing equipment and services from and ADS,
- (2) to purchase our own equipment and connect it to and ADS,
- (3) become fully independent of either YCC and ADS purchasing our own equipment, using the software available for that equipment and train our people in their use. On the basis of our preliminary we choose, at this time, Option I. We did so following reasons:

REMINDER

FOR THOSE WORRIED ABOUT RUINING OUR NEW IBM PERSONAL COMPUTER ATs, HERE ARE A FEW GUIDES TO PROBLEM-FREE USE.

1) There are indicator lights on each of the floppy disk drives which indicate when the disk is being accessed. Think of this as a light on your stereo's turntable which goes on when the needle is on the record. What would happen to your needle (and your record) if you tried to take the record off the turntable while it was playing??? Same idea here. If a drive's light is on, don't try to put in or take out a disk. If, for some reason, the light never goes off, don't panic. Just turn the machine off and start again. Similarly, think about how your turntable and needle feel about old, warped records, or about rough handling. Be gentle and use only disks which are in good condition.

2) Your desk is getting cluttered; books and papers are everywhere. The top of the computer's monitor seems like a great place to put some of the excess paperwork. Don't do it! The grillwork in the top of the monitor is there to help cool off the monitor. If those holes get blocked, then heat begins to build up rather quickly inside the monitor. Although it is unlikely that overheating the monitor will cause permanent damage, a protective device will shut down the monitor if it gets too hot, thereby getting revenge on the inconsiderate user by causing him or her to freak out. Note: Spilling soda, juice, or yogurt down those holes will not compensate for covering the monitor's top with paperwork, but will merely convert the damage done from temporary to permanent.

3) The keyboard is nice and sturdy, but come on ... do you have to pound on the keys when you get mad? After all, it's probably your fault and not the computer's anyway. If the liquid that you spilled on the monitor drips onto the keyboard, congratulations! You're well on your way to ruining another component of the computer. Similarly, the coiled cord connecting the keyboard to the computer is fairly strong, but the electrical connections can be broken if the keyboard falls or is spun wildly about like a lasso.

That's about all that can be done to cause actual damage to the computer. Most potential equipment damage can be avoided by simply employing common sense. Human bodies are regenerative; computer components are not. Therefore, if you have to take out your frustrations and aggressions on something, we suggest that you pick on fellow law students rather than beat on the computers.

Memos from the Law School administration describe some early issues concerning computer use.

Network Services and Student Computing. “IT support is now all of the time, all year long.” Even exam period is a busy time for ITS staff as most exams are now taken on computers rather than in traditional “blue books.”

Though laptops have never been a prerequisite of life as a YLS student, they are strongly recommended—and it seems that every student has one. Public and restricted-access computer clusters provide a total of 95 computers scattered throughout the building—the library hosts four separate areas for computers, including a computer lab, while the Legal Services Organization clinic offices are also home to YLS-maintained computers.

Enter almost any class in session and laptops are fully present; gone are the days of legal pads and binders for most Law School students. There are a few faculty members who prefer

having computer-less classrooms, particularly in their small groups, but classrooms filled with computers are now the norm. All classrooms are wired with power outlets, and wireless access is available throughout all of the Sterling Law Building.

When the Law School was renovated in the late 1990s, classrooms were also wired for audiovisual equipment and the old faculty mailroom was converted to a central audiovisual room. Two full-time staff members now handle AV requests and Instructional Technology (which includes everything from PowerPoint support to providing microphones for and taping of large-scale events).

Most recently, the ITS staff has been focused on developing a new password-protected intranet portal site, called YLS: Inside, which brings together a host of internal documents, resource lists and links, calendars, and course information individualized

*THERE ARE MORE EUREKA! MOMENTS IN THIS NEW DIGITAL WORLD.
THERE ARE MORE TIMES WHEN I SAY TO MYSELF,
'I CAN'T BELIEVE I WAS ABLE TO FIND THIS.'*

John Nann, Associate Librarian for Reference and Instructional Services and Lecturer in Legal Research

for current students, faculty, and staff.

Of course all of the connectivity means less demand for paper, but more demand for energy. In an attempt to cut down on energy use and costs, the Law School plans to implement a number of procedures including automated power saving on all desktops, the purchase of Energy Star-rated servers, and a move to “server virtualization” by which servers are used more efficiently.

----- THE LILLIAN GOLDMAN LAW LIBRARY

The Lillian Goldman Law Library represents the intersection of old and new technology at Yale Law School. While still a home to thousands of books, the library is also the go-to resource for high-tech research.

“Technology has completely changed how we work in reference,” says Associate Librarian for Reference and Instructional Services John Nann. “Things that were unimaginable ten to fifteen years ago are now doable with the touch of a button.”

The majority of library research has gone online; using resources such as LexisNexis and Westlaw is standard practice while paper-based research has become increasingly unusual. Texts can even be searched word by word, making the quality and efficiency of research better than in years past.

“Not only is most of the commonly used material now available online,” says Nann, “but we now have access to very arcane pieces of information and the ability to connect with people whose names you wouldn’t have even been able to find ten or fifteen years ago. You want to research water rights law in Botswana? Not a problem—you can even find the name of an expert in that field using an online search.”

Paper-based card catalogs have long been discarded. “High technology in those days was an electric eraser. Now you can change 25,000 to 30,000 records in half an hour,” says Associate Librarian for Technical Services Mary Jane Kelsey.

Digital cataloging began in the 1970s, with MORRIS (the University’s first local online database of titles) launching in 1985. This past year, the library staff has been working to roll out “MORRIS Encore,” which Kelsey calls “the new generation of catalog.” Designed to be more in-tune with the e-commerce world, MORRIS Encore displays facets and subject clouds, as well as thumbnails of book covers in the Yale Law collection (much like the popular online bookseller Amazon.com). Not just an online catalog, both “Classic” MORRIS and MORRIS Encore serve as portals for research, offering links to library databases and online journals as well as records for the YLS collection. MORRIS also allows users to set up periodic searches and alerts that notify users when there are specific changes to



The Lillian Goldman Law Library continues to be home to one of the world’s finest collections of printed legal materials. The Library’s collection is more than the physical building can hold, in fact. A shelving facility in nearby Hamden makes daily deliveries of requested books that are kept off-site.

the library collection. Students have access to thousands of databases through the library and University, with Lexis, Westlaw, and the Supreme Court decision database Thomas being just a few of the more frequented sites.

Though much library research has gone online, the switch to a digital format has not made the library an afterthought. Library patronage is up, in fact. It’s just that the library staff use different resources to help faculty and students find the information they need.

“What would have taken me five hours to research before can now take me five minutes,” Nann says. “But at the same time, the types of questions we get now are much more intricate and obscure. I can still often spend five hours on a question. It’s just

that questions that were unimaginable, unsolvable before are doable now.”

Besides helping students and faculty to acquire resources and perform research, the library also trains the YLS community about how to use available technology.

“At the level of research that our students and faculty are doing, they really need to be able to utilize the tools the best they can,” Nann explains.

As books become digitized, the library’s collection becomes increasingly available to scholars throughout the world. Books, though, will always have a home at the Law School’s library where students, faculty, and researchers can work with primary documents and search the pages of books handled by generations of legal scholars.

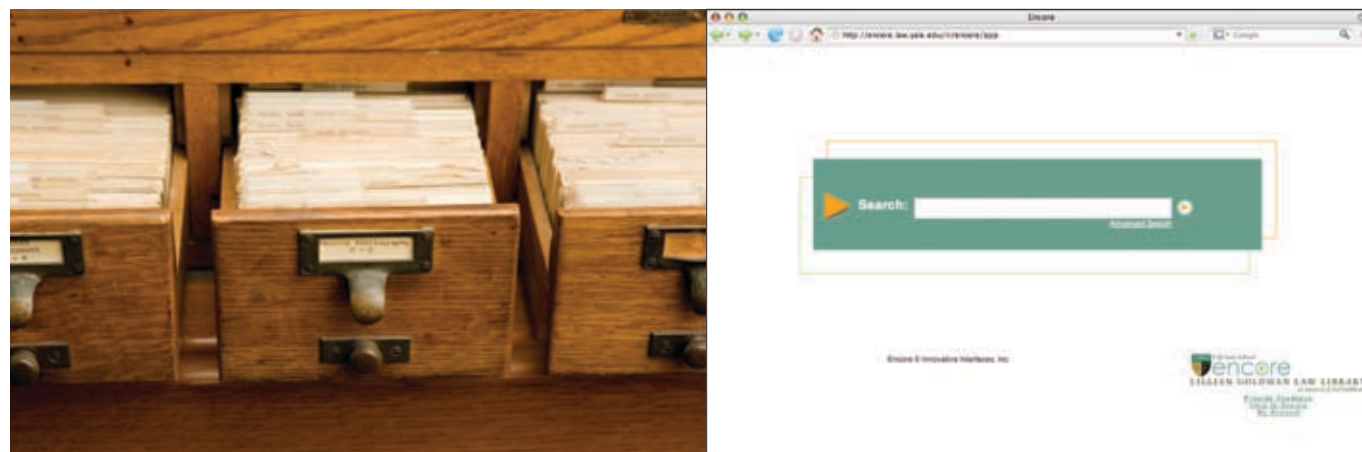
“We still love the artifact,” Kelsey says. “That’s our mission—[books] will always have a home here.”

----- THE REGISTRAR’S OFFICE

Just as the lines of students waiting to print from their floppy disks have disappeared, so, too, have the lines once so well known to the Registrar’s Office. Originally designed with an open rectangular layout to accommodate constant student traffic and long lines at course selection time, the office now rarely has a line—at least not a visible one—as much of the student traffic has gone online.

“There are still students who come to the office in person with questions,” Registrar Judith Calvert explains, “but their questions tend to be more substantive, and the ‘housekeeping’ details are sorted through online applications.”

The Registrar’s Office joined the University’s Student Information Systems (SIS) soon after the online system was launched in 1998, giving students access to grades, and allowing them to



Out with the old (card catalogs) and in with the new: MORRIS Encore, a new generation of catalog.

YLS TECHNOLOGY CHRONOLOGY

1985

MORRIS (the YLS digital library catalog) is launched

1986

All faculty members are given computers

1988

“Computer Services” is staffed by one full-time employee

1991

ITS hires an additional staff member

1995

First Yale email accounts and Net IDs are assigned; Students given space on servers for file backup



A sampling of web applications supported by YLS ITS:

CAREER CONNECTIONS

A Career Development Office website designed to support alumni and students with career networking

COMMUNITY SERVER

Used to host Blogs for the Admissions Office, the Law Library, and the *Law Report*

EXAM WEB

Used to administer YLS exams online

YLS EMS

An event management system that allows users to reserve rooms, request catering, and request AV services for YLS events

SHAREPOINT

Used to host Blog, Wiki, and document collaboration sites for student organizations

YLS : INSIDE

An intranet site accessed by YLS students, faculty, and staff for course information, administrative departments, internal documents, and calendars

bid for a limited number of courses online. Exams also gradually moved online, beginning with longer, self-scheduled exams.

Initially prompted by the motivation to give students greater flexibility in taking exams, the online system also facilitated the collection of exams from students and redistribution to faculty members by the Registrar’s Office. Rather than having to keep track of hundreds of blue books, the online system allows the Registrar to work with digital files that can be more easily tracked, stored, and shared with faculty.

Following the first iteration of online exam taking, the Law School worked with a third-party software vendor to build an exam system specifically created to mesh with YLS policies and procedures. Over the past four years, the Registrar’s Office has expanded the system. Today approximately seventy percent of exams are self-scheduled, and the majority of those are available online. Online exam taking is not a requirement however—old-fashioned blue books are still available to those who want to put pen to paper, and students are encouraged to use whatever system suits their comfort level.

“All we’ve done is add another shape of pencil to the pencil box,” Calvert says.

Today virtually all student records are available online via SIS. Course selection and bidding are exclusively online. Grade reports are online. Bills are paid online (paper bills no longer even exist). All contact information is updated online. Unofficial transcripts are available online. And all course evaluations are completed online.

What once took weeks to sort out—namely class rosters and student schedules—is now updated daily. The once time-consuming task of reviewing each student’s transcript by hand and tallying standings toward degree requirements is also now automated. Instead of the hand-tallying, degree progress reports are automatically generated and emailed to all third-year students,

ALL WE’VE DONE IS ADD ANOTHER SHAPE OF PENCIL TO THE PENCIL BOX.

Judith Calvert, Registrar

allowing them to track their progress toward their Law School diploma.

Some things are still very much the same as they’ve always been, though—official transcripts are still paper based and require an official signature and seal of the Registrar, and the Bar certification process has not yet gone online.

“It’s a constantly evolving system,” says Calvert, adding that the primary motivation behind all of the office’s online systems is increased efficiency. The ability to handle routine requests online has made the office’s interactions with students more substantive, she says.

In the summer of 2007, for example, Deputy Registrar Rebekah Melville worked with the Graduate Students Program to develop an online bidding system available specifically for LL.M. students. One hundred percent of the incoming LL.M. candidates used the online system and reported that the ability to select courses online helped in their transition to YLS. Gone was the added anxiety of trying to select courses while adapting to a new environment—a foreign environment for many of the international students in the LL.M. class. And rather than devoting their energy to long lines of frazzled students trying to fill out paperwork, the Registrar’s Office was able to focus on students’ individual questions.

“The goal is not to say we’re a distance learning school,” Calvert assures, “but to facilitate the process so that students can concentrate on what they’re here to do—to study law.”



Although the ubiquitous “bluebook” has not entirely disappeared, many exams are now self-scheduled and available online.

CHRONOLOGY CONTINUED

