Although the Wharton School has traditionally provided its students with access to a rich array of electronic communications software, many students used only a fraction of these tools. Wharton MBA student Laurie Bloomgarden points out that “Many students didn’t realize what resources were available, or they simply found them too difficult or frustrating to use.” Laurie and several other students in the Wharton Graduate Association (WGA) were determined to do something about it.

Last spring this group developed a proposal for a richer communications environment—one they wanted for themselves and for their fellow students. Their goal was to make all of Wharton’s computing systems “more accessible and user friendly” for students. They wanted a system that was:

• Easy to use, with a graphical Windows-based front end.

• Presented within a single, integrated interface that arranged services based on their functionality for students, not on their underlying technology or administrative organization.

• Available everywhere—from home, from Wharton’s labs, or “on-the-fly” from students’ laptop systems.

The students presented this proposal to School administrators and Wharton Computing and Information Technology (WCIT).

Alternatives considered

The students and WCIT evaluated alternatives, including outsourcing the project to a commercial information service provider or using a groupware tool like Lotus Notes to build a customized service. But each of these approaches had drawbacks.

While an online service such as AOL or CompuServe would be easy to use, there were concerns about the lack of focus on the specific needs of Wharton students and on the commitment to a (continued on page 16)
proprietary technology. Lotus Notes provides a strong set of tools for developing collaborative applications, but Notes did not fit well into an environment where students switch between using computers at home and in public-access labs. Notes also uses a proprietary architecture.

The solution preferred by the WGA advisory group and WCIT was to select “best of breed” Internet communications tools combined with a customized interface and special services geared to the needs of Wharton students.

Enter: SPIKE

With only eight weeks to develop the project before MBA students arrived for pre-term classes in August, WCIT was on a tight schedule. As Brett Hay, lead developer on the project, states “If you’re developing software for the consumer marketplace—like, say, Microsoft—you can slip your delivery schedule. We didn’t have that luxury. The incoming MBA class was arriving the first week in August. The product had to be ready.”

The project involved three major components: selecting the set of client tools, developing the customized interface, and building server-based applications to provide specialized services.

And the project needed a name. It was dubbed SPIKE. Why SPIKE? The official explanation is that SPIKE stands for “Student’s Personal Integrated Knowledge Environment,” although students and staff who have used Elm—the text-based e-mail program used at Penn—often prefer the acronym “SPIKE Probably Is (K)not Elm.” Insiders, however, know SPIKE was merely an arbitrary “code name” for the project. It didn’t mean anything. But the name stuck, and spawned several creative acronyms after the fact.

The project was completed on time and, on August 8, WCIT held its computer fair and distributed the first 625 copies of SPIKE to the incoming MBA class.

What does SPIKE do?

SPIKE’s main screen displays eight buttons for SPIKE’s primary functions:

- E-Mail: WCIT selected Siren Mail from Siren Software because of its functionality, graphical interface, and—most significantly—support for the IMAP protocol.
  
  One of the strengths of a host-based e-mail system like Elm is location independence—users can read and manage mail from any location with a consistent, command-line interface. Graphical mail clients that support the Post Office Protocol (POP), such as Eudora, provide a simple point-and-click interface, but typically manage mail locally by pulling all messages down to the

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**What to look for in the future**

The committee is committed to continued improvement of the site license program. To that end, it has outlined several key initiatives to help make the program run more efficiently. They include:

- Developing a Web site for site license information, pricing, and order forms. Staff are updating and converting old PennInfo data into an appropriate format for Web browsing and searching. The goal is to establish the site license home page as the place to find all there is to know about products available through site license or volume discount. In addition, you will be able to place an order for a product or request products for site license consideration from the site license home page.

- Upgrading the CRC’s disk duplicating device. The upgrade will help the CRC meet the increasing demands for quick turnaround on products, as well as adapt to changes in media formats while continuing to keep product distributions virus-free.

- Improving the software distribution process. While network distribution is the clear choice for low-cost, reliable distribution, a variety of technical and legal barriers have kept all but a few products from being distributed over the network. Vendors have been slow to modify their software installation programs to support distributed network file systems. And the software installation process doesn’t lend itself to network distribution; it usually relies on physical media installed from a floppy drive in a designated order. The steering committee will continue to work with vendors to overcome legal obstacles. It will also continue its work with Penn’s network engineers and vendor developers to overcome technical problems and implement appropriate access and accounting mechanisms.
user’s workstation. This can be problematic for students who want to read mail from various locations.

Using IMAP, mail can be read locally but all changes are sent to the server. So, for example, if you move a message to another folder at home, and then check your mail at school (whether from Siren or Elm), you’ll see the message in the correct folder.

Another advantage of IMAP is that when you open a mail folder only the *headers* of messages are downloaded. This helps users who read mail over a slow, dial-up communications link. Siren also supports MIME attachments and off-line mail reading and folder management.

- **NetNews:** SPIKE uses the news reader included with Netscape. This news reader offers a number of key features: its display of article “threads”—the sequence of articles and follow-up messages—is clear and logical and it provides an identical client on Windows, Mac, and UNIX platforms. One of Netscape’s most compelling features is its “live links” to the Web—if a news article contains a reference to an Internet resource (in URL format), you can simply click on the link to access the resource. You can thus transparently switch between reading news and browsing the Web.

  As part of the SPIKE installation, students are automatically subscribed to several newsgroups of interest to Wharton students.

- **World Wide Web:** SPIKE’s Web button launches Netscape Navigator starting at the Wharton Information Network, Wharton’s home page on the Web. SPIKE also includes “helper applications,” such as Adobe’s Acrobat document viewer, and configures them to automatically launch when you select a Web resource that requires their use.

  - **Library:** SPIKE takes students to electronic Library resources, such as Franklin (the online catalog), Lexis/Nexis, Dow Jones NewsRetrieval, and hypertext editions of the *Oxford English Dictionary* and the *Encyclopedia Brittanica*. A Telnet client, required to access many Library resources, comes preconfigured to automatically launch as needed.

  - **Course Downloads:** Students can download course files using a Web-based, point-and-click interface. They can either retrieve a ZIP archive of the entire data set or browse a list of file names and selectively download individual files.

  - **Who’s Who:** Students can locate information on other students and faculty using a graphical front-end to query Wharton’s CSO database. Students can search by name or select a more detailed set of search criteria.

  - **Update:** Students can keep their information current in Wharton’s CSO database by using this simple, forms-based option. In addition to changing current fields students can add additional categories that will be displayed when other
students look up their information.

• Mailing Lists: Students can subscribe, create, or get information on mailing lists available at the School. Wharton uses the popular Majordomo mailing list program, which provides many features but requires cryptic commands embedded in mail messages. SPIKE provides a Web-based front-end that gives students easy access to these features.

Additional menu items in SPIKE provide access to Wharton's systems, utility programs, and news and updates on SPIKE.

Since many of SPIKE's services are available from the World Wide Web, SPIKE could have included a single button to launch a Web page that branched to other services. But, as Carol Katzman, Director of Student Computing at Wharton, points out “The goal was to present information based on student interests, not the underlying technology. We wanted the user to see what the technology can do, not how it does it.”

Going live

Generally, the reception from students has been positive, although the project was not without difficulties. Some students encountered problems installing the software, and some of the newer applications had a few bugs. As Glenn Pereira, a Wharton MBA student who worked on the project, points out, “The installation difficulties are particularly unfortunate, since this is the first thing the students see. In some cases it created a negative impression before students even began to use the software.”

To make sure that SPIKE’s features were available to all users, WCIT supplemented the Windows SPIKE client with “NetSPIKE,” a World Wide Web implementation that provides access to most of SPIKE’s services to users of Macintosh or UNIX systems. NetSPIKE moves to the server much of the functionality of the local SPIKE client. If the user has an IP connection to PennNet (using Ethernet, PPP, or SLIP) along with Netscape and the necessary helper applications, SPIKE’s main server applications can be used.

And what about users that don’t have Ethernet, PPP, or SLIP? A text-based version of SPIKE provides access to SPIKE’s server features from Wharton’s UNIX systems. Although it doesn’t have the graphical “look and feel” central to SPIKE or NetSPIKE, when used in conjunction with Elm and Tin (a host-based news reader), it provides the functionality of SPIKE using only a vt100 terminal interface.

The future: SPIKE part deux?

What’s in the future for SPIKE and electronic communications at the Wharton School? “Our first priority is to improve the installation procedure” says Katzman. “SPIKE is easy to use once you get it running, but the ease of installation varies greatly depending on your computer system configuration.”

The next step is to increase the variety and richness of the resources available through SPIKE. Students are working with Wharton’s graduate and undergraduate divisions to help them provide more information electronically. And richer content can easily be provided as a part of the communications process using technologies like the Web and MIME-based e-mail packages. Wharton has already taken steps in this direction by moving some information away from simple ASCII text and HTML toward richer formats such as the Portable Document Format (see Penn Printout, Acrobatnic Network, September 1994) used in Adobe’s Acrobat software.

“But the most important information in SPIKE is generated by the students,” says Katzman. “The core content of SPIKE is communication among students and between students and faculty—that’s the key value SPIKE provides to the School.”

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