THE CHRONICLE OF HIGHER EDUCATION

Information Technology

http://chronicle.com/free/v55/i40/40a01701.htm

From the issue dated June 26, 2009

Community Colleges Mobilize to Train Cybersecurity Workers

With a new White House push against computer crime, two-year institutions try to put themselves on the front lines

By MARC PARRY

Arnold, Md.

If you work at a community college that teaches cybersecurity, it pays to be located in the backyard of a spy agency. Just don't ask Kelly A. Koermer what's inside those dark towers at Fort Meade.

"Not sure," laughs the Anne Arundel Community College administrator as she drives past the National Security Agency's headquarters at the Maryland base.

She points out other highlights of the restricted region: an employees-only exit off the highway, a sign that warns of military dogs, a large ball-shaped device that she figures is for radar signals. And another area that "must be really important, judging by the barbed wire," says Ms. Koermer, director of computer technologies at the college.

Community colleges like Anne Arundel want to train people to reach the other side of that fence — legitimately, as workers. With Barack Obama stressing the importance of such colleges and a new White House cybersecurity push that points to a need for work-force training, some experts foresee an increasing role for two-year colleges that can supply government agencies and private companies with workers steeped in cybersecurity.

But the colleges face a fire wall of obstacles as they attempt to educate those cybergrunts, most seriously the struggle to train and retain qualified teachers.

Seven years ago, virtually no community colleges offered cybersecurity programs. In recent years, though, cybersecurity education has spread across the two-year-college sector, spurred by federal grants and a post-9/11 focus on infrastructure security.

Now more money may be coming. President Obama's proposed 2010 budget includes what would be the biggest increase in recent memory for the National Science Foundation's Advanced Technological Education program: a $64-million budget, up from $51.6-million. The program's many technician-focused projects have included laying a foundation for cybersecurity education at community colleges.

Some two-year colleges are beefing up offerings to position for the future. They are also pushing for the ability to earn the same kind of seal of approval that universities enjoy through the government's

cybersecurity Centers of Academic Excellence, a prestigious label that helps standardize curricula and build employer confidence.

Watching this momentum from his office on the eighth floor of the National Science Foundation's headquarters in North Arlington, Va., is Corby Hovis, a bald, bespectacled astrophysicist who speaks with the twang of North Carolina's Piedmont region and helps turn on the faucet of federal cybersecurity-education dollars.

"The time is really ripe for community colleges' role in this area of technology to expand, be recognized, to get the kind of support that it needs," says Mr. Hovis, a program director who has overseen the Advanced Technological Education program's cybersecurity portfolio. "All of the stars, I think, are aligned for this."

Building a Work Force

Sujeet Shenoi, a University of Tulsa computer scientist who runs one of three NSF-backed regional centers that support community-college cybersecurity education, has watched with pride as students have risen from two-year schools to graduate degrees and jobs in the U.S. intelligence community.

But exceptional programs are the exception. The state of cybersecurity education at most community colleges, he says, is "not very good."

"I don't want to put down community colleges," he says, "but if you are really good, chances are you wouldn't want to take a job at a community college as an instructor."

Another issue: Community-college students are not eligible for Scholarship for Service, a ROTC-like program that pays for education in exchange for taking a government cybersecurity job.

A cluster of community colleges near Washington highlight the role two-year institutions can play. They belong to CyberWatch, an NSF-backed consortium based at Prince George's Community College, across the Anacostia River from the nation's capital, that was set up to build the information-security work force. When CyberWatch started, two of its member colleges had degree programs in information assurance, a technical term for the field. Now most of its 27 members do.

The students enlisting in these programs don't always conform to technogeek stereotypes.

On a recent afternoon, a 47-year-old woman sat in the student center at Prince George's wearing a black jacket that would look snazzy for a job interview. Angela Jenkins is a churchgoing mom with the relentlessly cheerful demeanor of a cosmetics saleswoman for Avon, one in a long list of her past employers.

Now the cybersecurity student hopes to be an FBI analyst. She is trying to land her first full-time position since losing her job as a computer administrator with a contractor that served the Department of Justice. Espionage and law enforcement have always intrigued her, she explains, but she is not the type to chase down criminals on the street.

"The computer allows you to help block them using software, without actually running out having to be the person to go with a gun and shooting 'em," she says, looking around the table out of concern someone could overhear her talking about weapons.

So far, the computer user she has frustrated most is her 16-year-old son. She practices what she learns in class at home, blocking his access to explicit music and secretly installing pornography-tracking software.

Nine area colleges have adopted some or all of a curriculum that a CyberWatch member, Anne Arundel Community College, developed with a group of advisers that included representatives from the NSA. The

agency, charged with gathering intelligence from foreign communications and protecting national-security information, is best known in recent years for the controversy over the Bush administration's domestic eavesdropping. But to Anne Arundel's information-systems-security program, the NSA is a different kind of big brother: a helpful source of curriculum advice, adjuncts, and retirees who teach full time.

Government agencies like the NSA support a constellation of contractors like Booz Allen Hamilton (20,000 employees) and Northrop Grumman (120,000 employees), all with their own security needs. You can look out toward a Northrop site from the windows of a new cybersecurity lab the college is installing at its campus by the Arundel Mills mall, five minutes from the NSA — one example of how the Anne Arundel is expanding the program to satisfy demand for both degrees and worker-training facilities.

Community colleges serve local needs. That's the case here in what Ms. Koermer calls "defense-contractor heaven," where computer security is crucial and ties to the NSA and private companies have helped Anne Arundel build a fast-growing program. The college now hopes to smooth students' transition into the work force by getting them vetted for security clearances before graduation. It also plans to move into more advanced areas like "ethical hacking," where you learn the enemy's tactics to better fight them.

Top-Secret Skills

In the meantime, college officials like Ms. Koermer are learning the quirks of operating in the backyard of an agency so secretive that its Web site advises job applicants to "not openly discuss the details of your employment processing" with family and friends.

Meeting at a contractor's office to discuss next year's classes? Check your cellphone in a locker. Taking a field trip to the Department of Defense's Cyber Crime Center? Watch for the flashing blue lights that alert workers to close down sensitive information on their screens. Need to use the bathroom at the Defense Information Systems Agency job fair? Wait for the escort.

Cybersecurity growth is not limited to the Washington-area national-security hub. At Moraine Valley Community College, in suburban Chicago, Erich Spengler's NSF-backed cybersecurity center has trained more than 600 faculty members in the past six years.

"What's happened in some sense is the enrollments in IT have remained steady or have moved down, and cybersecurity has definitely filled in the gap," Mr. Spengler says. "Students look at where the future opportunities are going to be. And the cybersecurity skills are where they see the future."

Those skills include setting up fire walls, securing servers, and detecting intruders. Demand is so high that employers often try to hire students before they finish school. Digital forensics is another growing area in local, state, and federal law enforcement. Authorities need people who can investigate computer crimes like fraud and child pornography without destroying or altering the evidence.

Within the past year, Ms. Koermer has seen a "significant turnaround" among employers that had previously paid no attention to her program. Companies — big companies — are now courting the college. Michael E. Burt, a CyberWatch project manager, was surprised at a recent conference when he found that even the NSA sought to fill internships and other positions with community-college graduates. Mr. Burt has been involved with the agency as a contractor for over 20 years, and he always saw their marketing directed at people with bachelor's and graduate degrees.

Daniel G. Wolf is a Maryland teacher and consultant who retired as the NSA's director of information assurance in 2006 after a 39-year career with the intelligence agency. He, too, saw significant emphasis on hiring graduates of universities whose programs tracked the government's standards. Asked about two-year institutions, he said: "I would think at the community-college level there would be some hiring, if not directly

into NSA, but certainly into some of the contractors that support NSA in some security areas."

Mr. Wolf feels CyberWatch, which he reviews as a visiting faculty member, has done a good job at outreach "but there's a lot more that needs to be done in terms of getting in the front of the people who can do the hiring." As a consultant, he has urged companies to check out community-college students. "I think that some of the companies hadn't actually thought about the community colleges in this context," he says.

http://chronicle.com
Section: Information Technology
Volume 55, Issue 40, Page A17
