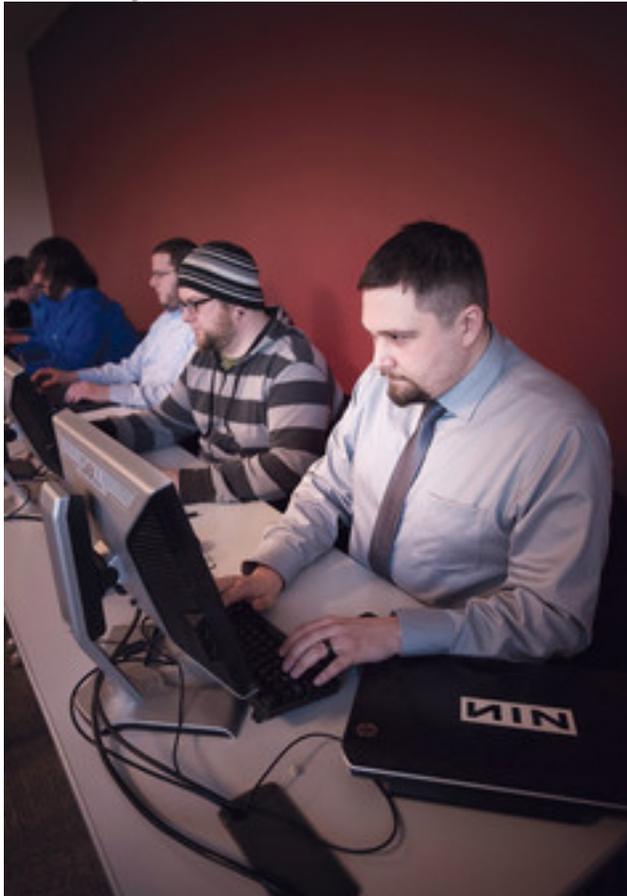


TECHNOLOGY

Can Rhode Island find niche in cybersecurity?

The 38 Studios collapse killed Rhode Island's hope of becoming a player in the video game industry. Now the state is laying the educational groundwork to train workers in another emerging industry. But are local businesses interested?



TECH SUPPORT: Cybersecurity major Rory Manier, right, at a New England Institute of Technology Incident Response class taught by Issy Ramos. PBN PHOTO/MICHAEL SALERNO

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2014 may come to be remembered as the year large employers across the country got serious about cybersecurity, following well-publicized cases of credit card, identity theft and other breaches of personal information reported by Target Corp., Sony Corp. and Anthem Insurance Companies Inc., among others.

The Massachusetts Institute of Technology recently announced a partnership funded by five major companies, including Waltham, Mass.-based Raytheon Co., to combat cyberthreats.

But in Rhode Island, where small and midsize companies without the budgets to handle Internet security breaches on their own dominate the economic landscape, there has been no call to arms among employers, says Don Nokes, president and co-owner of Warwick's NetCenergy.

"The marketplace is relatively quiet," said Nokes, whose company delivers "practical" cybersecurity solutions for small to midsize organizations.

While NetCenergy experienced a 27 percent increase in revenue, driven by a 47 percent increase in services in 2014, Nokes said, "there doesn't seem to be a lot of investment in the future" by clients upgrading their physical systems. So hiring at service providers has been tempered as well, he said, despite a plethora of local college programs focused on cybersecurity training. And small and midsize companies need the type of services Nokes' firm and others provide, he says, particularly in health care, banking and manufacturing. "You're pumping out highly skilled, educated IT people in Rhode Island who are leaving the area," explained Nokes. "What we really need is a sincere focus on [keeping them in] Rhode Island."

U.S. Rep. James R. Langevin, D-R.I., has been a longtime proponent of Rhode Island positioning itself as a leader in the developing cybersecurity industry. "What I want us to do is market ourselves as a place that has robust talent and has support of the state government, so we're meeting the needs of businesses, so our students don't have to go out of state," he said.

"We want businesses to expand [or] relocate here," continued Langevin, who co-founded and chairs the Cybersecurity Caucus in Congress. "You can't expect businesses to relocate here if you don't have the trained workforce to do the job."

From Nokes' perspective, it's not just about the talent pipeline, though. "If we deliver a state where people want to start their businesses here, where you're attracting business, there's going to be much more opportunity for service firms like ours to deliver" the cybersecurity that is needed and keep the local talent in Rhode Island.

WHERE THE STATE STANDS

In Rhode Island, using the most recent data available, the estimated employment for information-security analysts – a key occupation in cybersecurity – dropped from 240 workers in 2012 to 210 in 2013. The decline is deceiving, however, since job codes used to track the data have changed, leaving the data fragmented instead of combined, said Michael Healey, spokesman for the R.I. Department of Labor and Training.

"It's just going to take a little while for the statistics to catch up with the reality, which is that because of the obvious need for cybersecurity analysts, we're likely going to have [more] people working here," he said.

According to the U.S. Bureau of Labor Statistics, Virginia and Maryland are the top two states in the nation with the highest concentration of information-security analysts. (Cybersecurity cuts across occupations and disciplines and is not identified by the USBLS as an occupation itself.) Rhode Island is ranked 25th, though it is second to Massachusetts in New England.

So why is Rhode Island squarely in the middle of the pack, even with congressional advocates like Langevin?

"In order for an industry to grow, you need critical mass, and I have not seen a critical mass of technical talent in Rhode Island," said Alan Paller, director of research at the SANS Institute, a regionally accredited graduate school for cybersecurity in Bethesda, Md. The big markets for federal defense and security agencies are in Washington, D.C., while Silicon Valley caters to Google, Apple, Symantec and Intel, Paller says.

GROWING SUPPORT

But there are signs support for cybersecurity workforce development is growing in Rhode Island, beginning with education.

"Our colleges and universities are in many ways already leading the way, but because this is such a new field even the colleges and universities are still getting up to speed," said Langevin.

The University of Rhode Island and Brown University are developing new master's degree programs in cybersecurity. These would supplement varied programming and internships at these and other schools.

On March 14-15, a four-person Brown undergraduate team won first place in a national cybersecurity competition, the Cyber 9/12 Student Challenge in Washington, D.C.

Existing offerings include a Digital Forensics and Cyber Security Center at URI; master's, bachelor's, or certificate programs at New England Institute of Technology, Roger Williams University and Salve Regina University; and course work or certificates at some schools such as Johnson & Wales University and the Community College of Rhode Island.

The professional science master's degree in cybersecurity at URI is in the final stages of approval and is expected to be offered this fall, said Victor Fay-Wolfe, director of URI's Digital Forensics and Cyber Security Center and a professor of computer science and statistics.

Still, workforce development in cybersecurity depends not only on education but on retention of workers. And that can be a challenge, say employers and educators.

"A number of students [studying cybersecurity at the center] are going outside Rhode Island [for jobs]," Fay-Wolfe said. "A lot of them go to the [Washington,] D.C., area. Year to year about 35 percent go out of state."

Executives at Dell SecureWorks Inc. in Providence describe the job market as a double-edged sword. On the one hand, the digital-security service provider has had longstanding success hiring students from URI, RWU and the Rochester Institute of Technology in Rochester, N.Y., said David Collette, director of operations, and Rob Scudiere, executive director of engineering for the firm, headquartered in Atlanta.

Dell SecureWorks employees who come to Providence tend to stay with the company, and in recent months four or five new hires have relocated to the city from out of state, Collette said. Yet in March the company, which has about 200 employees, still had 50 job openings in Providence, Collette and Scudiere said.

There is security talent here, Collette insisted, but more qualified candidates are needed. He attributes that in part to a high demand nationally for cybersecurity analysts, software engineers and client managers.

Nationally, the U.S. Bureau of Labor Statistics projects 37 percent job growth from 2012-22 for information-security analysts, for which a bachelor's degree is required.

That growth rate is "roughly accurate," said Paller. But the growth rate for people who are generalists and policy analysts is slowing while those with technical penetration skills in forensics and reverse engineering are escalating, he says.

"The level of a degree doesn't do you any good," Paller said. "It's the amount of hands-on time you have in your courses and the internships you've done that set the schools apart." Debacles like the 38 Studios LLC bankruptcy in Rhode Island show just how risky chasing unproven economic sectors can be. The gaming company that was expected to create 450 jobs and spark the creation of a video-gaming industry in the state unraveled in mid-2012 after it defaulted on a public-financing payment and went bankrupt.

Steve Kitchin, vice president of corporate education and training for New England Institute of Technology, said when the school decided to offer additional video game design programming around the time 38 Studios emerged, it was a result of a demand in the labor market, not just the promise of Curt Schilling's startup.

"Labor-market opportunities drive our decision-making process in new-program development and not necessarily whether the industry is emerging or not," he said.

Unlike Rhode Island's ill-fated investment in 38 Studios, the opportunities in cybersecurity extend far beyond the prospects of a single company.

Raytheon, with a division in Portsmouth, specializes in defense, security and civil markets, providing electronics, mission-systems integration, and command and control communications and intelligence systems. Of the 2,000 jobs open across the company, 100 are in cybersecurity, said Cassandra Watson, public relations manager.

"Rhode Island is doing a lot of things right," added Raytheon Senior Technology Strategist Jennifer Havermann. "You will see the trend continue with more certifications, more education and more specialty."

MARITIME FUTURE

The Southeastern New England Defense Industry Alliance sees a future for Rhode Island in maritime cybersecurity and is working to establish a "center of excellence" in the state. According to a 2013 study by SENEDIA, "Securing the Future: Understanding and Advancing Rhode Island's Defense Industry," Rhode Island, with its defense industry and "critical port infrastructure, ideal coastal location and nationally recognized cybersecurity educational programs ... is uniquely positioned to provide a comprehensive, innovative approach to maritime cybersecurity research."

"The work is there," insisted Molly Magee, executive director of SENEDIA, which would like to capitalize on sector growth and model a nonprofit it is developing on the concepts for the National Cybersecurity Center of Excellence in Rockville, Md.

Besides defense interests with companies like General Dynamics Electric Boat and Raytheon, SENEDIA, based in Middletown, is focusing on maritime assets because Rhode Island has undersea technology that carries financial data along the coastline and has two key ports, ProvPort, in Providence, and Davisville in North Kingstown. The local ports have not been involved with the planning to date.

U.S. port facilities rely upon networked computer and control systems that "undergird" port operations, explained Magee, so cybersecurity problems "may or may not be resident in the local ports. The Maritime Cybersecurity Center would focus on national and global maritime cybersecurity issues," she said.

In that context, the ingredients needed to enter the marketplace – a high-tech workforce and academic environment to support research and analysis – are evolving steadily here, she said.

"Having a small state would almost be a beta site for developing cybersolutions," she noted. Jason E. Kelly, executive vice president of Moran Shipping, whose world headquarters is in Providence, has heard of the SENEDIA proposal and likes the idea of recognizing maritime cybersecurity as "one of our assets."

Some of the issues shipping companies are wrestling with include whether data should be in one place or in the cloud, or how to provide better training to employees so they don't use thumb drives to carry sensitive data, he said.

"Business continuity is an important aspect of our company," Kelly said. "There will be a cybersecurity component to that."

EARLY ADOPTION

Since cybersecurity is a discipline that crosses all sectors, "Rhode Island needs to continue to grow its investments and technology training to provide all industries with a skilled cybersecurity workforce pool to hire from," said Kathie Shields, executive director of the Tech Collective in Providence.

Youth also need earlier introductions to the discipline, say proponents.

Langevin spearheaded the High School Cyber Challenge, a 2010 pilot student competition, which has changed forms in recent years and is now known as CyberAces, in which high schools or sponsors no longer have to pay for participants, and the competition is open to all ages.

The CyberPatriot program run by the Air Force Association, in which students compete by managing virtual hypothetical "holes" in security, has engaged some high schools here, including one in Middletown.

Matthew J. Wainwright, technology director for Middletown, coached six students to a first place award for the state rounds recently. They take to the topic naturally, and "as long as you can train them to troubleshoot, eventually they're teaching you."

One of those students, Lucas Christian, 19, is now studying at the Rochester Institute of Technology, but is not sure the job market will lead him back to Rhode Island.

"If I end up working for a government contractor, there's the Naval War College [or] Raytheon," he said. "Those are examples of a reason I'd come back, because compared to other states, there's a lot less [opportunity]."

RWU graduate Gina Cardelli, 35, senior manager of a support engineering team at Dell SecureWorks, says the groundwork exists for growth in Rhode Island.

"The flashier jobs reside in Virginia and California" she said. "But ... the market for people relocating to Rhode Island is growing because they see the potential with all that's been going on with attacks on Target and Home Depot. It's starting to put a face to this industry that it didn't have before." •