

**MINUTES**

PANEL: Cyber Security Experts Panel

DATE: November 15, 2017

TIME: 5:30-7:00 PM

PRESENTER: Dwight Hughes, Clark College.

PANELISTS: Tom Strobehn, Fastech Solutions; Dustin Nikora, Conmet; Ben Cecka, Clark College; Francois Caen, Cisco; Patterson Cake, PeaceHealth; George DeCarlo, Woobox.

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|  | **QUESTION** | **DISCUSSION** |
| 1. | Introduction | The purpose of this panel is to explore the potential of offering a cyber-security bachelor’s degree at Clark College, building on the existing associate’s degree. |
| 2. | What are potential job titles that would include cyber-security roles as job responsibilities? | Tom: It is difficult to define specific job titles because all employees need to have an understanding of security. It is equally important for entry-level employees as it is for upper management. Most breaches occur at higher levels. Smaller companies do not necessarily have dedicated security staff, making each employee responsible for playing a role in security.  Dustin: Security administrator.  Ben: Network specialist, Windows specialist, information security officer. Everyone in the organization must be aware of and share responsibility for security. Everyone in IT has to have some knowledge of security.  Francois: All employees must have knowledge of security.  Patterson: Security engineer.  George: Three primary roles are customer support, network access, and developers. |
| 3. | Which cyber-related responsibilities, tasks, and skills would be required in these job titles or roles? | Tom: Monitoring log files and the ability to interpret these files, an understanding of phishing, the ability to interpret information from clients, and customer service. Students need to be strong in PowerShell.  Dustin: Audits, firewall techs, and troubleshooting methodology. Problem-solving skills are essential-students can be trained in technical skills, but they must know how to and be comfortable with solving problems.  Ben: Hard skills, such as automation scripting and filtering large amounts of data. Soft skills such as problem solving and customer service because the whole organization will benefit.  Francois: Policy should include basic scripting skills. Students should take Python 101 or something similar. Security ops should include firewall and a strong foundation in networking.  Patterson: Valuable skills include the ability to effectively prioritize, especially at entry-level. Basic functionality of operating systems, strong networking fundamentals, and scripting. There is a significant increase in attacks through PowerShell.  George: A graduate should be able to do everything on the PCI checklist. They should have an understanding of how attacks work from the other side. |
| 4. | Are there industry certifications that are essential to these job titles or roles? | Tom: Yes. At least a CompTIA.  Dustin: SANS GSEC. However, due to the changing nature of the industry, essential certifications may change in the future.  Ben: CompTIA, Certified Ethical Hacker (CEH), CISSP.  Francois: Cisco.  Patterson: CCNA, Security Plus, GIAC, CompTIA.  George: Could a bachelor’s degree include components of these certifications rather than having students graduate with specific certifications? |
| 5. | Which prerequisite skills would a candidate need to possess for these job titles or roles? | Tom: PowerShell, mathematics, CCNA classes, security courses of increasing levels.  Ben: CCNA, routing.  Francois: Basics of scripting. The necessary skills will depend on the student. A young student may already be familiar with desktop and basic skills; an older worker trying to translate existing skills may not have as many computer skills.  Patterson: OS, desktop, Windows 7, 10, Linux. Network Plus. Network services. Web technologies. OS/Windows—not only a familiarity with using these systems but perceiving active threats. It is necessary to have above basic user skills.  George: Web app. |
| 6. | What trends do you see that indicate the specific cyber-security skills that will be needed in the next five years? | Tom: Programming. Programs that will help entry-level security professionals do their job.  Dustin: Programming. Vulnerabilities that need to be watched for and protected against.  Francois: Automation. Things are changing—complexities and demand are increasing.  Patterson: PowerShell, automation, cloud security.  George: Fewer skills will be needed. Today, older software is being used that requires a lot of work on the part of the employee. In the future, newer software, such as artificial intelligence, will make the job easier by doing the work for them. However, it will continue to be critical to understand how the software works and how to use it. |
| 7. | Will a 4-year bachelor’s degree have the potential to provide enough skills acquisition for students to fill entry-level cyber-security jobs? | Current research shows that a two-year program is not enough to provide the depth of skills necessary.  Tom: Yes, a four-year degree will provide students with the necessary skills for entry-level positions in cyber security. The only way to rise is through work experience and further education.  Dustin: Yes, entry-level.  Francois: Yes, today students can graduate with a CCNA certification, work for two years, acquire skills on the job, are paid, and then progress into security. Would a bachelor’s offer the same, but with less income and less work experience? However, if students graduating with an associate’s degree are not able to find work without a bachelor’s degree, it sounds like offering the degree would meet the community’s need.  Question: What will the degree path look like?  Answer: It will build on the existing two-year program. Students who already have an associate’s degree could come back and take the remaining credits needed.  Patterson: The current trend is to hire someone with a two-year degree in related studies, who possesses a solid understanding of the industry. They would definitely be considered for an entry-level position. However, many companies expect a candidate to possess a four-year degree.  Many students desire a four-year degree in this field, but have not pursued it because it is not an option that is offered in the community. They can obtain a four-year degree in computer science or business management, but not in IT. They find that after graduating, they are hitting the glass ceiling if they do not possess a four-year degree.  George: Cyber security needs will only increase. Yes.  Question from the audience: Will there be an internship component?  Answer: Yes, there is already an internship component in the existing program.  Francois: Has seen personal benefits from participating in an internship program.  An audience member commented that they have personally experienced difficulty finding employment without a bachelor’s degree. They had to demonstrate the skills gained through internships and outside experience.  Tom: Many government contracts require a technician with a four-year degree to be onsite. |
| 8. | What challenges might students face as they graduate and begin searching for their first job? | Tom: A lack of experience and lack of customer service skills. Could the new program include mock interviews? Interviewing skills are very important. An interpersonal communication class should be mandatory in the program.  George: Soft skills are essential.  Dustin: More qualified candidates that did not possess the soft skills have been passed over in favor of less-qualified candidates who did.  Francois: It will be important to emphasize professionalism. For example, a professional appearance is very important.  Patterson: Students need to have a sense of responsibility towards the sensitivity and confidentiality of the data they will be handling.  George: The program should incorporate problem-solving ability—not just reading books or completing assignments, but really developing skills to not only solve existing problems, but prevent future ones as well. CCNP is a certification that Clark should look at. |
| 9. | Questions? | For the panel: Is there a trend besides cyber security or a subset of IT skills that should be focused on?  Patterson: The only department that will be growing in the near future will be cyber security. |