

THE REVIVAL OF THE APPRENTICESHIP: A NEW APPROACH TO CYBERSECURITY EDUCATION (NACE) WORKSHOP CONCEPT PAPER

by

Lauren Neely, JD

The job titles in cyber security vary, as do the skills, experience, and tools needed to successfully perform the duties demanded by those titles. The skill set that might prepare a potential employee to be a Security Analyst will not be the same skill set needed to work as a Security Software Developer or Engineer or a Security Consultant. For instance, a security software developer may require a greater knowledge of programming languages, web development, agile methodologies, and cloud computing. For this reason, I propose that the best way to address the levels of education and training needed for future cyber security professionals and the cyber security labor supply issue is through the revitalization of the apprenticeship model of workforce development. Programs such as the National Science Foundation's Scholarship for Service program have made important contributions for students who will work for federal agencies upon completing their education, but a similar effort needs to be embraced by industry. Apprenticeship programs are unique in that they often align education with on-the-job training and have the added benefit of ameliorating a persistent problem facing entry-level or career transistioners looking to move into the industry. In order to get a job they need experience, but they cannot get experience because employers can ill afford to take a chance on untried entry-level employees. Sources have recognized the current disconnect between the claims of thousands of unfilled cyber security positions and the new graduates and potential employees who have tried to break into the field unsuccessfully because they lack the requisite experience.¹ Apprenticeship programs can fill this gap.

According to the U.S. Department of Commerce,

“Apprentice programs work – not only because they help employers find exactly the trained talent they need but because they help people quickly enter a field, without college debt or an exhausting job search. Apprentices tend to be loyal workers because their employers have invested in them both on the job and through educational assistance to help advance their careers. This has shown to reduce employee turnover rates and increase morale.”²

The National Initiative for Cybersecurity Education (NICE) led by National Institute of Standards and Technology (NIST) and at US Department of Labor's Office of

¹Tripwire, The State of Security: News, Trends, Insights. “Talent Shortage Sanity Check.” <https://www.tripwire.com/state-of-security/risk-based-security-for-executives/connecting-security-to-the-business/talent-shortage-sanity-check/> retrieved April 30, 2018.

²U.S. Department of Commerce, Apprenticeship Works for the IT Industry, <https://www.commerce.gov/news/blog/2018/01/cybersecurity-apprenticeships-enhance-cybersecurity-infrastructure> retrieved April 30, 2018.

Apprenticeship offers support and guidance for those looking to build an apprenticeship program, but to date only a handful of these programs are in operation. It is incumbent upon local employers, educational institutions, and cyber security professional organizations to work together to create viable apprenticeship programs. These programs will serve to alleviate the labor shortage and allow for a more diverse cyber security workforce by actively recruiting women and minorities as apprentices.

Lauren Neely received her J.D. from the University of Houston Law Center. Upon graduating from law school, Lauren worked for a commercial real estate advisory firm for several years before deciding to return to the public sector and her alma mater, the



University of Houston. Lauren served in several capacities during her return stint to the University of Houston and is the former Assistant Director of the Hobby School of Public Affairs. In 2017, Lauren joined the University of Houston Law School Street Law Program as a co-instructor. Lauren is a member of the State Bar of Texas and is currently pursuing a Master's in Cyber Security Operations and Leadership at the University of San Diego.