

What Works? Approved Apprenticeships Do!

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Everybody has the same issue Can't find enough Talent!!



We need a strong global cybersecurity workforce more than ever, but we are not doing enough to prepare young adults to be the next generation of cyber defenders and leaders. Young adults ages 18 to 26 from 12 countries told us:



CYBERSECURITY SUPPLY/DEMAND HEAT MAP

- All
- Public Sector Data...
- Private Sector...
- Total job openings

Reset

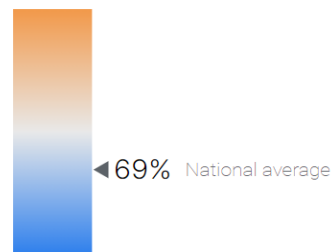
Cybersecurity talent gaps exist across the country. Closing these gaps requires detailed knowledge of the cybersecurity workforce in your region. This interactive heat map provides a granular snapshot of demand and supply data for cybersecurity jobs at the state and metro area levels, and can be used to grasp the challenges and opportunities facing your local cybersecurity workforce.

- Share
- Embed

National Level

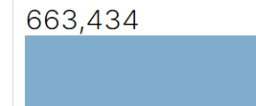
SUPPLY/DEMAND RATIO

NATIONAL, 2023



TOTAL CYBERSECURITY JOB OPENINGS

NATIONAL, 2023

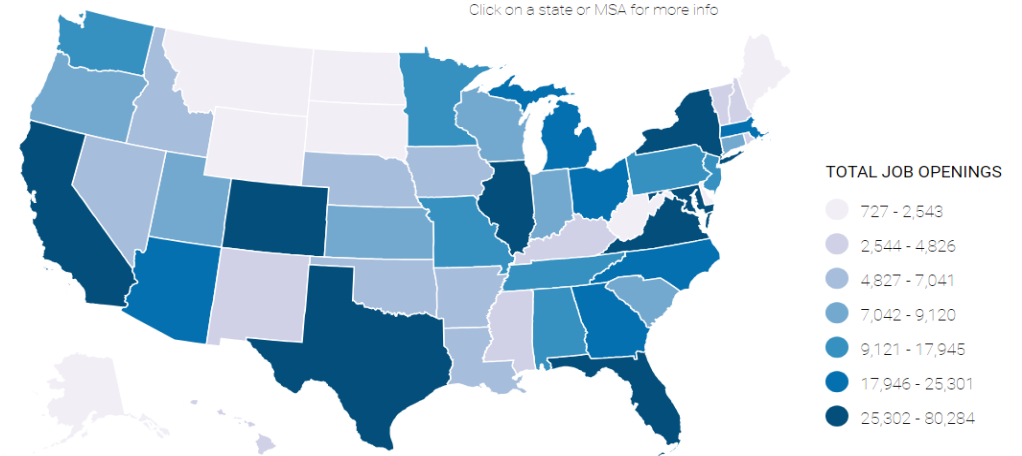


TOTAL EMPLOYED CYBERSECURITY WORKFORCE

NATIONAL, 2023



Current Date (2023) States Metro Areas Search State



This is the CyberSeek website which shows how many openings that there are for cybersecurity across the United States

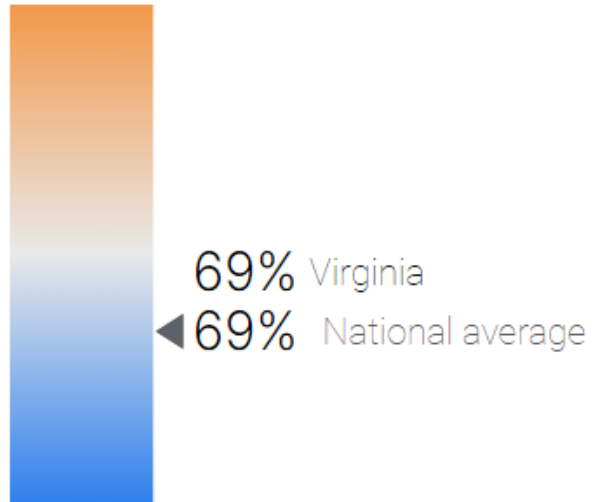
We know that we don't have cybersecurity talent in the US when we have in the community zero unemployment

Here is the data for Virginia

Virginia

SUPPLY/DEMAND RATIO ⓘ

VIRGINIA, 2023



TOTAL CYBERSECURITY JOB OPENINGS ⓘ

VIRGINIA, 2023

61,648



TOTAL EMPLOYED CYBERSECURITY WORKFORCE ⓘ

VIRGINIA, 2023

100,042



Peregrine's Cyber Apprenticeship Program

- Peregrine developed and successfully executed in 2016, the first DOL cyber registered apprenticeship program (RAP) and in 2019, the first DoL cyber youth registered apprenticeship (YRA) in the nation, plus our current youth cybersecurity apprentice was a keynote speaker last year, https://dnews.com/local/moscow-teen-on-a-cybersecurity-fast-track/article_32690d93-1198-50be-901e-a648775df059.html
- We are also one of the first 18 organizations selected by the DoL to be recognized as a Standards Recognition Entity (SRE), <https://www.apprenticeship.gov/employers/industry-recognized-apprenticeship-program/approved-standards-recognition-entities>, for cyber-security Industry Recognized Apprenticeship Programs (IRAPs) nation-wide in 2020.
- Appointed DOL Apprenticeship Ambassador in May 2022



Peregrine is a true believer in Apprenticeships

- Our first HBZ cyber apprentice was featured <https://news.tcc.edu/way-alaska-meet-states-first-ever-cyber-security-apprentice/>.
- Wrote an academic paper entitled “Cyber Apprenticeship: A Traditional Solution to a Vexing New Problem”, Journal of Information Warfare
- Quoted in INC. <https://www.inc.com/michelle-cheng/cybersecurity-companies-will-soon-have-millions-of-jobs-they-cant-fill-heres-tactic-theyre-using-to-close-talent-gap.html>, which referenced HBZs.
- Our first YRA, was a Keynote Speaker for the National Initiative for CyberSecurity Education (NICE) K12 on 7-8 December 2020, and for that speech, he got a shout out from the Idaho Lt Governor - https://dnews.com/local/moscow-teen-on-a-cybersecurity-fast-track/article_32690d93-1198-50be-901e-a648775df059.html
- Coordinated a session at the DoE EEx21 in August 2021, focused on “Building a Federal Cybersecurity Talent Base”.

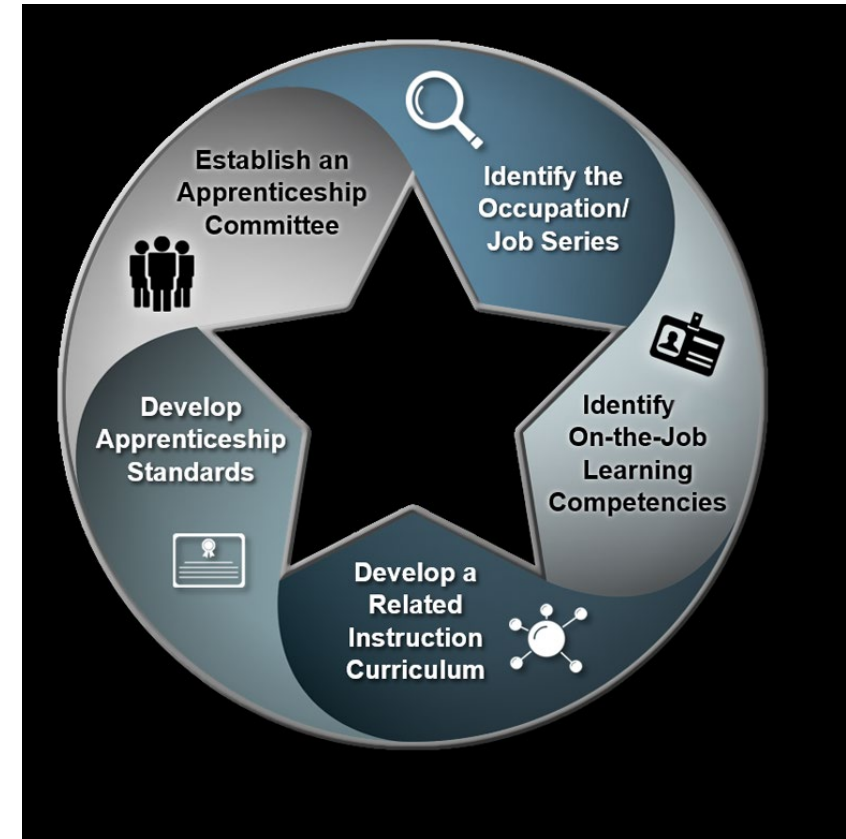
Clearances are key!

- Biggest hurdle for most DoD companies in hiring new cybersecurity talent
- Must be US citizen, with no misdemeanors or felonies
- Takes time to get and costs overhead dollars
- They may leave soon after, with no payback
- Internships or co-ops do not solve this issue



Five Elements of an Apprenticeship

- Committee – TCC, DOLI VA and Peregrine
- Occupational Series – O*Net with three types
- OTJ Competencies – matched to DoD 8570 and 8140 regulations to become an IAT 1
- Instructional Curriculum – worked with TCC for 100% online courses that will give training to pass certifications
- Standards – utilized new VA O*Net rqmts



Why an Apprenticeship is Best?

ROI Comparison: Work Based Learning Options

	Apprenticeship	Internship	Co-op
Active Enrollment in a Degree Pathway Required	NO	YES	YES
Average Length	12-24 months	3 months (1-2 rotations)	6 months (2-3 rotations)
New Hire Conversion Rate	91%	46%	28%
Retention Rate after 1 year	91%	70.6%	47.3%
Talent Acquisitions Cost (campus recruiting, sign-on bonuses, housing, relocation, etc.)	\$	\$\$\$	\$\$\$
Talent Supply Chain	Universities, Community Colleges, Bootcamps, Veterans, Career, Re-inventors, Returnships, incumbent Workforce, High Schools, NGO's	Universities	Universities
Federal Training and Wage Offsets	YES	NO	NO
Rate of Diverse Hires	41.8%**	While diversity hiring data is unavailable, according to NACE Trends and Predictions, 81% of employers have diversity recruiting efforts.	

*Source: 2018 Internship & Co-op Survey, National Association of Colleges and Employers
**Source: 2016 Urban Institute report on all RAPIDS states illustrates people of color

Cybersecurity Apprenticeships

Cybersecurity apprenticeships ("earn while you learn") models represent a promising approach to attract, train, and retain a highly skilled cybersecurity workforce.

Finding skilled cybersecurity talent is a well-known issue for employers in every sector. A method for increasing the supply of people with the desired combination of hands-on skills and academic knowledge is to build apprenticeship programs where participants can "earn while they learn." Apprenticeships may be an important mechanism for building a steady pipeline of job-ready talent and providing entry points for those switching careers, without advanced degrees, or re-entering the field.

The National Initiative for Cybersecurity Education (NICE) strategic plan includes "Experiment with the use of apprenticeships and cooperative education programs to provide an immediate workforce that can earn a salary while they learn the necessary skills."

STUDENT BENEFITS

- Earn wages and an industry-recognized credential
- Train with employer and position yourself for full-time employment
- Gain real-world job skills that can include earning college credits and/or industry certifications

VETERAN BENEFITS

- Access to GI Bill benefits for a monthly stipend in addition to an apprenticeship wage
- Funding for books and classroom supplies

EMPLOYER BENEFITS

- Develop highly-skilled talent that matches your needs
- "Try before you buy" - ensure good cultural and skill fit
- Lower cost to hire and high return on investment
- Lower turnover and improved employee retention
- Opportunities for tax credits and employer tuition benefits in some states

91% of employers have to provide on-the-job training for technical new hires.

CYBERSECURITY APPRENTICESHIP ROLES*

- Secure Software Developer
- Cybersecurity Analyst
- Computer Forensics Analyst

INDUSTRY-RECOGNIZED APPRENTICESHIPS

For information on developing an apprenticeship program, contact the U.S. Department of Labor: www.trainwithexperience.gov

"Cybersecurity apprenticeships are a traditional solution to a young-tech problem."

- U.S. apprentice employer, Redox, VA

* http://www.nice.gov/nice/learn/develop/cybersecurity_apprenticeship_roles

Additional Advantages of an Apprenticeship

- Increased Net Income (Profit) by using apprentices on direct charge tasks
- Discounted training costs as these new staff are registered with the Commonwealth – there are many types of savings that may be available depending on what grants are available to the community college.
- There are also tax benefits available that DOLI and the community college can help the employer understand.
- Increased retention and reduced turnover - apprenticeships have other financial incentive, which translates into recruiting costs.
<https://www.doli.virginia.gov/apprenticeship/>
- A path to certifications, clearances a Common Access Card (CAC)

Summary

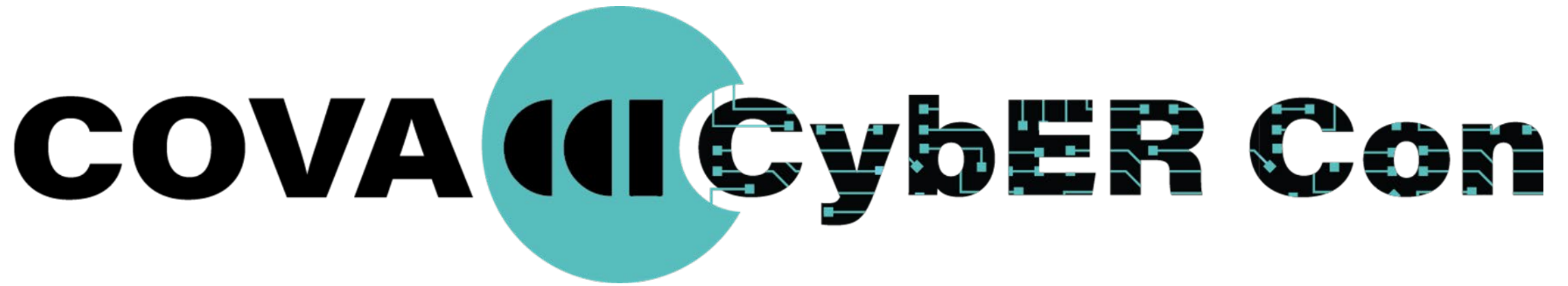
This brief shows how DOL approved cybersecurity apprenticeships, can fill the gap. Peregrine has worked very closely with TCC, TNCC and DOLI VA to develop these first cyber apprenticeship in the Nation. Continually update plan to match DoD / NIST workforce recommendations. Our staff can support other organizations to build their own registered model

The National Initiative for Cybersecurity Education (NICE) funding opportunities is built through state-to-state partnerships of employers, schools and institutions of higher education, and other community organizations. These funding opportunities provide avenues to create **Regional Alliances and Multistakeholder Partnerships to Stimulate (RAMPS) Cybersecurity Education and Workforce Development**. These partnerships focus on engaging multiple employers with skill shortages in specific cybersecurity work roles to focus on developing the skilled workforce to meet industry needs within the local or regional economy.

RAMPS PROGRAMS

- The Partnership to Advance Cybersecurity Education and Training (PACT)**
led by State University of New York, Albany
The goal is to identify the cyber cybersecurity workforce needs in the New York Capital District, form the network of students, education, professional training, internships, or job placement, by evaluating the needs of the local economy. They will use the NICE Cybersecurity Workforce Program as a model to create a regulatory program, available and industry workforce requirements in an attempt to align the two and to improve the quality and success of local cybersecurity talent entering the workforce.
- The Hampton Roads Cybersecurity Education, Workforce and Economic Development Alliance (HR Cyber)**
led by Old Dominion University
HR Cyber is a collaborative partnership between educational institutions, government agencies, non-profit organizations, and private employers focused on developing educational pathways from high school through community college, to four-year institutions, and on to workforce development programs that provide a viable cybersecurity work force for the region. Goals of the partnership include coordinating course delivery and training programs, aligning training the cybersecurity capabilities of the regional workforce, and more.
- Central-Region Cyber Corridor (Cin Day Cyber)**
led by the Statewide Ohio Council for Higher Education
The Southwestern Ohio and Eastern Ohio will advance the Cin Day Cyber regional alliance of over 20 partners to include cybersecurity education and workforce development to scale to the growth of a highly skilled cybersecurity workforce for both government and private industry. Cin Day Cyber will leverage a strong university and K-12 presence in cybersecurity, allowing a well-developed talent pipeline and best open industry demand.
- Cyber Prep Program**
led by Pike-Peak Community College
The Pike Peak regional cybersecurity alliance has engaged more than 18 partners to help train K-12 students and workforce needs by defining cybersecurity career pathways, supporting the development and growth of cybersecurity programs in area high schools and offering them meaningful work experiences, including internships and apprenticeships.
- The Arizona Statewide Cyber Workforce Consortium**
led by Chisanoz For La Casa
The Consortium is committed to developing a unified approach to meeting the cybersecurity workforce and education needs in Arizona. This is being done by collecting a number of ongoing efforts throughout the state and creating a dynamic and collaborative partnership. The consortium is working with state and local partners ranging from K-12, higher education, workforce, and the open community as a whole.

NICE
nist.gov/nice
NIST
National Institute of Standards and Technology
U.S. Department of Commerce



Questions?

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