

NICE

NATIONAL INITIATIVE FOR **CYBERSECURITY** EDUCATION



Building a Capable Cybersecurity Workforce through Collaborations

Clarence Williams, NICE Lead for Government Engagement

nist.gov/nice

Outline

- **About**
 - Mission
 - Values
 - Goals
 - Purpose
- **Engagement**
 - Collaboration
 - Tools

NICE

Partnership between government, academia, and the private sector focused on cybersecurity education, training, and workforce development.

Mission of NICE

To energize and promote a robust network and an ecosystem of cybersecurity education, training, and workforce development.



Values of NICE



Seek Evidence
Pursue Action
Challenge Assumptions
Embrace Change
Stimulate Innovation
Foster Communication
Facilitate Collaboration
Share Resources
Model Inclusion
Measure Results

Accelerate Learning and Skills Development



Inspire a sense of urgency in both the public and private sectors to address the shortage of skilled cybersecurity workers

Accelerate Learning and Skills Development



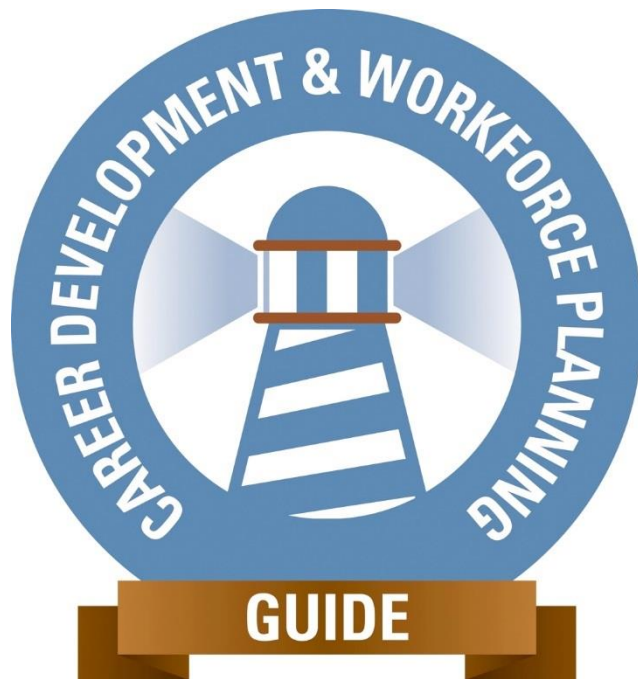
<http://gbievents.com/blog/minding-the-security-gap>

Nurture A Diverse Learning Community

Strengthen education and training across the ecosystem to emphasize learning, measure outcomes, and diversify the cybersecurity workforce



Guide Career Development & Workforce Planning



Support employers to address market demands and enhance recruitment, hiring, development, and retention of cybersecurity talent

Managing Risk

Risk Management

- Information technologies – products, services, and systems
- Processes - policies and procedures
- People
 - Users of information technologies
 - Trained workforce capable of addressing security threats



Image from <https://www.itgovernance.co.uk/blog/wp-content/uploads/2015/07/PPT-Diagram-Blog.png>

How to Engage

Participate and Learn



Contribute and Invest



Experiment and Innovate

NICE Engagement

Inform

- NICE Working Groups (K-12, Collegiate, Competitions, Training and Certifications, and Workforce Management)
- NICE Interagency Coordinating Council (ICC)
- NICE eNewsletter (Quarterly)
- Events:
 - Monthly Webinars – Cybersecurity Careers for Autistic People.
 - NICE Annual Conference – Nov. 7-8 in Dayton, OH
 - National K-12 Cybersecurity Education Conf. – Dec. 4-5 in Nashville, TN

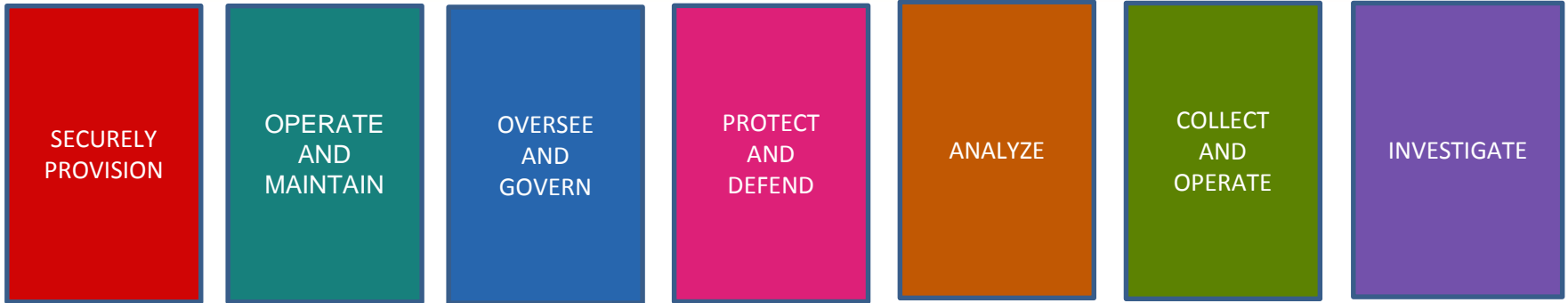
Influence

- NICE Framework
- Cybersecurity Jobs Heat Map
- RAMPS Federal Funding Opportunity

Innovate

- NICE Challenge Project

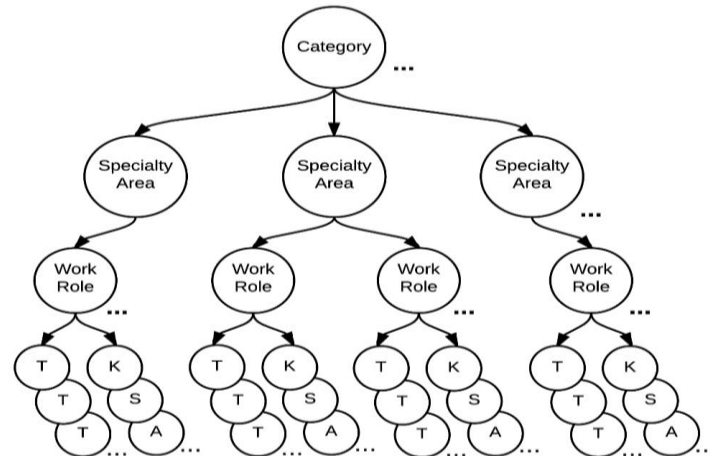




- **Specialty Areas (33)** – Distinct areas of cybersecurity work;
- **Work Roles (52)** – The most detailed groupings of IT, cybersecurity or cyber-related work, which include specific knowledge, skills, and abilities required to perform a set of tasks.
 - Tasks – Specific work activities that could be assigned to a professional working in one of the NCWF’s Work Roles; and,
 - Knowledge, Skills, and Abilities (KSAs) – Attributes required to perform Tasks, generally demonstrated through relevant experience or performance-based education and training.

Audience:

- Employers
- Current and Future Cybersecurity Workers
- Training and Certification Providers
- Education Providers
- Technology Providers



Common knowledge areas (6)

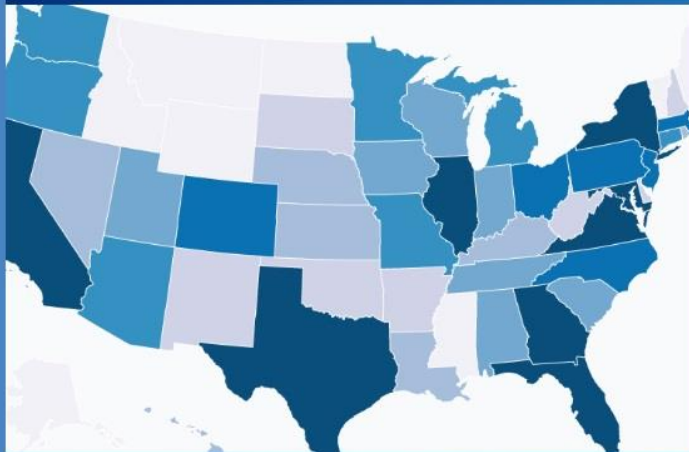
- Knowledge of computer networking concepts and protocols, and network security methodologies.
- Knowledge of risk management processes (e.g., methods for assessing and mitigating risk).
- Knowledge of national and international laws, regulations, policies, and ethics as they relate to cybersecurity.
- Knowledge of specific operational impacts of cybersecurity lapses.
- Knowledge of cybersecurity principles.
- Knowledge of cyber threats and vulnerabilities.

CyberSeek



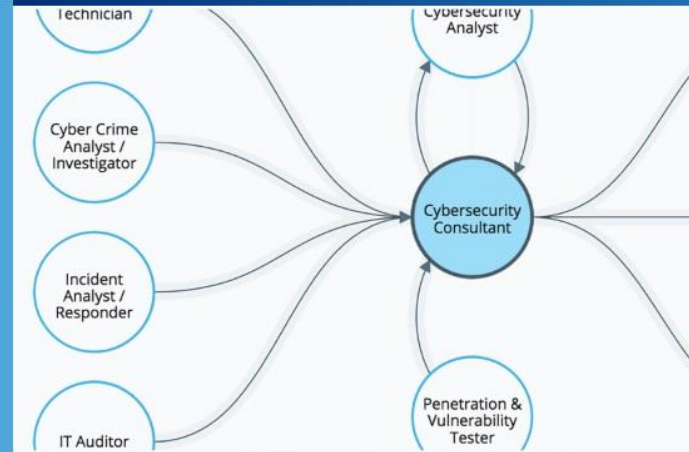
[About](#) [Interactive map](#) [Career pathway](#) [Who this tool is for](#) [Project partners](#)

Interactive Map



A heat map of cybersecurity supply and demand

Career Pathway



An interactive career pathway showing common roles within cybersecurity and transition opportunities between them

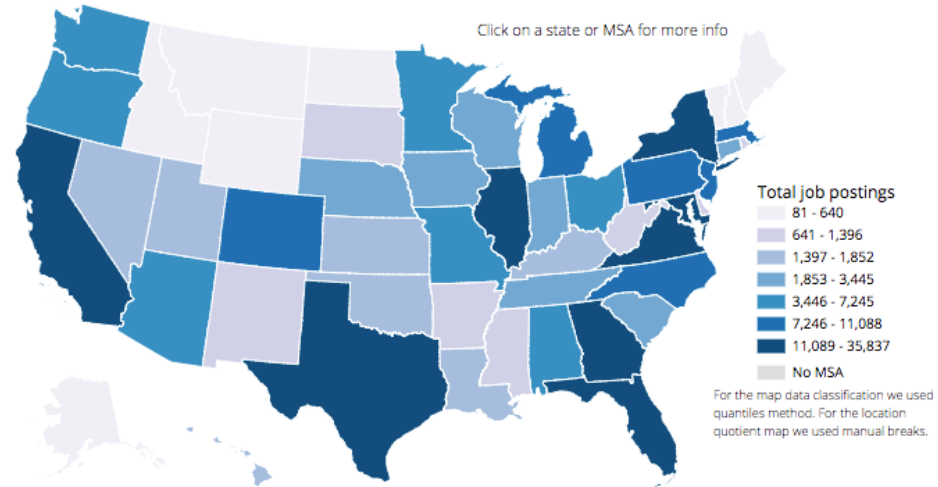
<http://cyberseek.org/>

Cybersecurity Supply/Demand Heat Map

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

States
Metro Areas
Total job openings



National level

TOTAL CYBERSECURITY JOB OPENINGS ⓘ

299,335

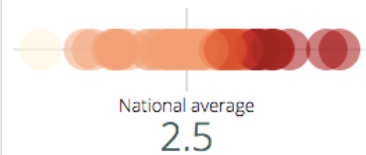
TOTAL EMPLOYED CYBERSECURITY WORKFORCE ⓘ

746,858

SUPPLY OF CYBERSECURITY WORKERS ⓘ

Very Low

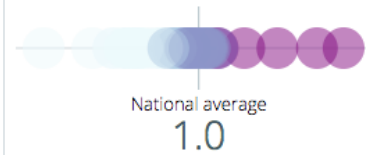
CYBERSECURITY WORKFORCE SUPPLY/DEMAND RATIO



GEOGRAPHIC CONCENTRATION ⓘ

Average

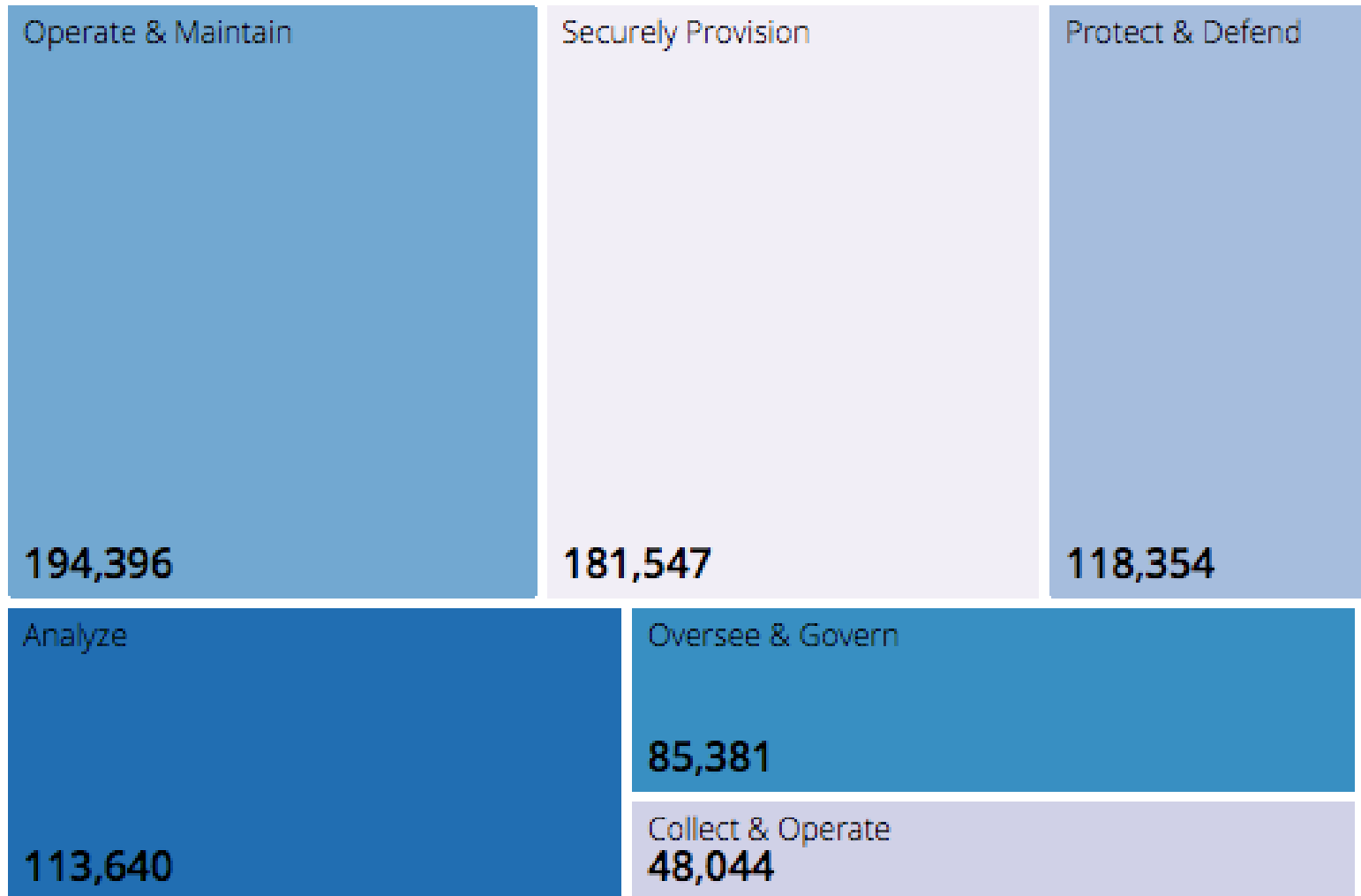
LOCATION QUOTIENT



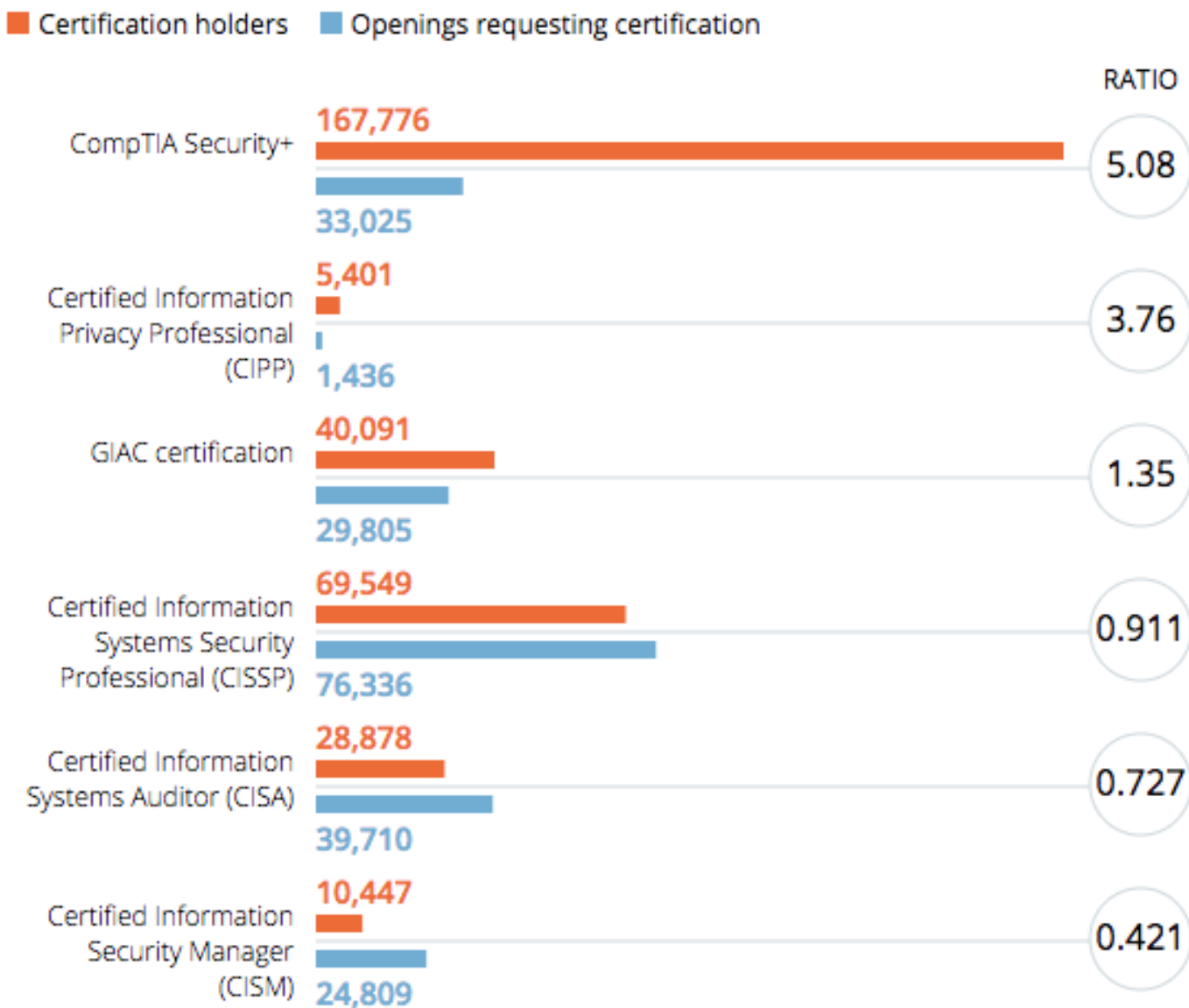
TOP CYBERSECURITY JOB TITLES ⓘ

- Cyber Security Engineer
- Cyber Security Analyst
- Network Engineer / Architect
- Cyber Security Manager / Administrator
- Software Developer / Engineer
- Systems Engineer
- Systems Administrator
- IT Auditor
- Vulnerability Analyst / Penetration Tester

POSTINGS BY NICE CYBERSECURITY WORKFORCE FRAMEWORK CATEGORY



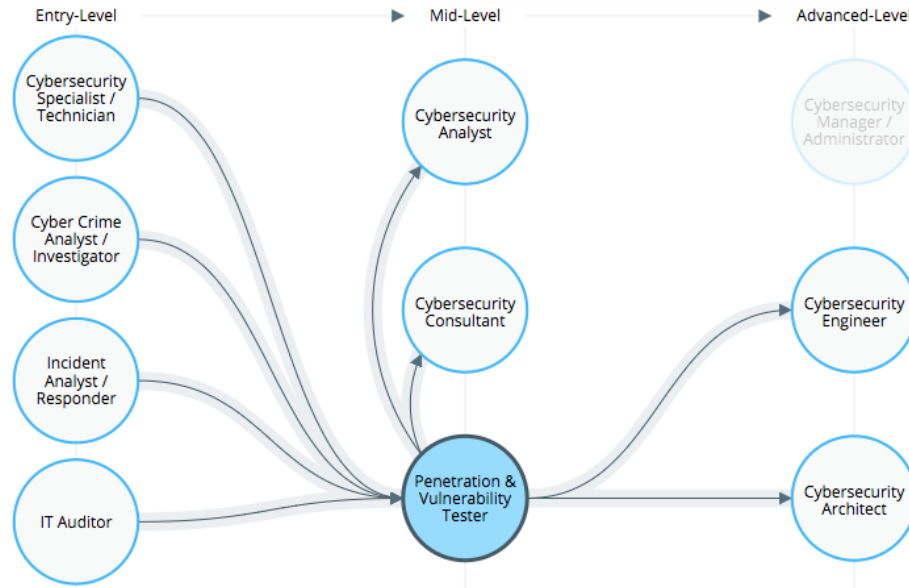
CERTIFICATION HOLDERS / OPENINGS REQUESTING CERTIFICATION ⓘ



Cybersecurity Career Pathway

There are many opportunities for workers to start and advance their careers within cybersecurity. This interactive career pathway shows key jobs within cybersecurity, common transition opportunities between them, and detailed information about the salaries, credentials, and skillsets associated with each role.

Share



Penetration & Vulnerability Tester

AVERAGE SALARY

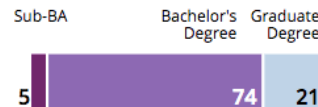
\$101,000



COMMON JOB TITLES

- Penetration Tester
- Security Analyst
- Application Security Analyst
- Senior Penetration Tester
- Lead Security Analyst

REQUESTED EDUCATION (%)

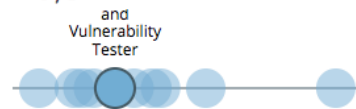


TOP SKILLS REQUESTED

- 1 Information Security
- 2 JAVA
- 3 LINUX
- 4 Information Systems
- 5 Project Management
- 6 Software Development
- 7 SQL
- 8 Python
- 9 Scanners

TOTAL JOB OPENINGS

10,547



COMMON NICE CYBERSECURITY WORKFORCE FRAMEWORK CATEGORIES

- Analyze
- Protect and Defend

TOP CERTIFICATIONS REQUESTED

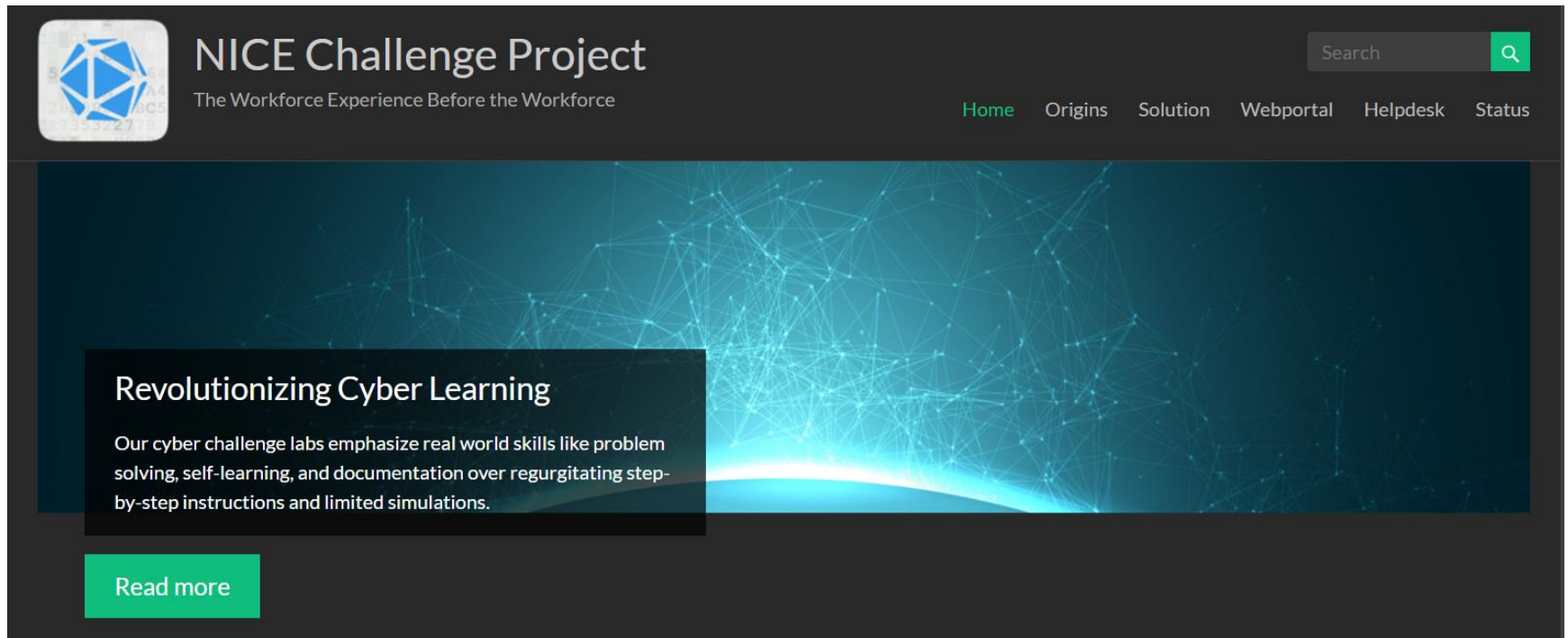
- CISSP
- GIAC
- CISA
- CISM
- Certified Ethical Hacker

RAMPS for Cybersecurity Education and Workforce

Regional Alliances and Multistakeholder Partnerships Stimulating (RAMPS) Cybersecurity Education and Workforce Development

- **Southwest Region:** Arizona Statewide Cyber Workforce Consortium
- **Western Region:** Cyber Prep Program
- **Central Region:** Cincinnati-Dayton Cyber Corridor (Cin-Day Cyber)
- **Mid-Atlantic Region:** Hampton Roads Cybersecurity Education, Workforce, and Economic Development Alliance (HRCyber)
- **Northeast Region:** The Partnership to Advance Cybersecurity Education and Training (PACET)

NICE Challenge Project



The screenshot shows the homepage of the NICE Challenge Project website. The header features the NICE logo (a blue geometric shape) on the left, the title "NICE Challenge Project" and the tagline "The Workforce Experience Before the Workforce" in the center, and a search bar on the right. A navigation menu includes links for Home, Origins, Solution, Webportal, Helpdesk, and Status. The main content area has a dark blue background with a glowing network pattern. A white text box on the left contains the heading "Revolutionizing Cyber Learning" and a paragraph: "Our cyber challenge labs emphasize real world skills like problem solving, self-learning, and documentation over regurgitating step-by-step instructions and limited simulations." Below this text is a green "Read more" button.

Virtual environment to test students and professionals alike on their ability to perform NICE Cybersecurity Workforce Framework tasks and exhibit their knowledge, skills, and abilities.

<https://nice-challenge.com/>

Going Forward

Let's Be.....

- Innovative: new ways
- Engaged: collaborate
- Aware: learn
- Adaptive: change
- Aligned: on same page
- Successful: progress
- Investors: workforce

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Thank you!

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