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Cybersecurity Careers for Everyone

Webinar for School Counselors

UNIVERSITY OF MARYLAND GLOBAL CAMPUS

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Welcome!

Mark Loepker
Education Program Manager
Cyber Center for Education & Innovation – Home of the National Cryptologic Museum Foundation

“Thank You” to our Sponsor!

Webinar Guests

Dr. Loyce Pailen, Senior Director, Center for Cybersecurity Studies, UMGC

Dr. Greg von Lehmen, Special Assistant to the President, Cybersecurity UMGC

Jeffrey Smith, Targeted Populations Grant Program Manager, Maryland Department of Labor

Key Questions

- What is cybersecurity?
- What are cybersecurity work roles?
- Where can I get detailed information about employment opportunities in cybersecurity?
- What are some pathways to cybersecurity jobs?
- Concluding take-aways

During the Presentations

Please submit your questions through the chat

We look forward to addressing them in the Q/A!

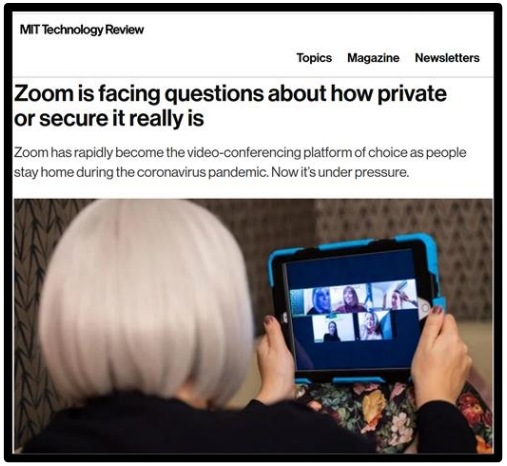
The NICE Cybersecurity Workforce Framework

Dr. Loyce Pailen

The World We Live In

"Former National Cybersecurity Center director Rob Beckstrom summarized it this way: (i) anything connected to the internet can be hacked, (ii) everything is being connected to the internet, (ii) as a result, everything is becoming vulnerable."

From Bruce Schneier, *Click Here to Kill Everybody.* New York: Norton & Company (2018), p. 19



Cybersecurity?

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Cybersecurity?

Generally speaking, cybersecurity is concerned with an organization's ability to protect its data and networks, to rebound quickly if networks are compromised, and to operate networks in a manner that respects legal rights and ethical considerations.

The cybersecurity workforce includes both technical and non-technical professionals who contribute to cybersecurity-related aspects of organizations.[1]

1. Foundational Resource: National Initiative for Cybersecurity Education Cybersecurity Workforce Framework (SP NIST 800-181)

(https://www.nist.gov/itl/applied-cybersecurity/nice/resources/nice-cybersecurity-workforce-framework)

NICE Framework Categories

https://niccs.us-cert.gov/workforce-development/cyber-security-workforce-framework

Analyze
Performs highly-specialized review and evaluation of incoming cybersecurity information to determine its usefulness for intelligence.

Collect and Operate
Provides specialized denial and deception operations and collection of cybersecurity information that may be used to develop intelligence.

Investigate
Investigates cybersecurity events or crimes related to information technology (IT) systems, networks, and digital evidence.

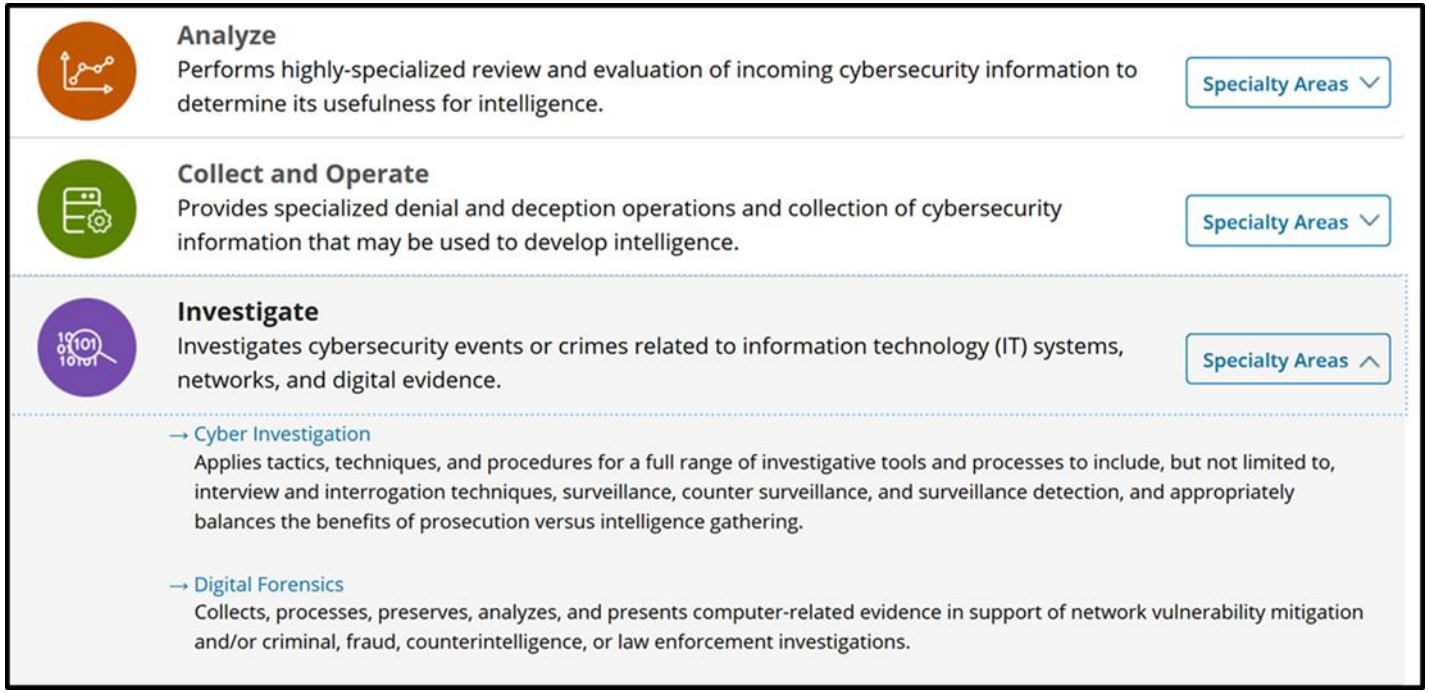
Operate and Maintain
Provides the support, administration, and maintenance necessary to ensure effective and efficient information technology (IT) system performance and security.

Oversee and Govern
Provides leadership, management, direction, or development and advocacy so the organization may effectively conduct cybersecurity work.

Protect and Defend
Identifies, analyzes, and mitigates threats to internal information technology (IT) systems and/or networks.

Securely Provision
Conceptualizes, designs, procures, and/or builds secure information technology (IT) systems, with responsibility for aspects of system and/or network development.

Categories to Specialty Areas

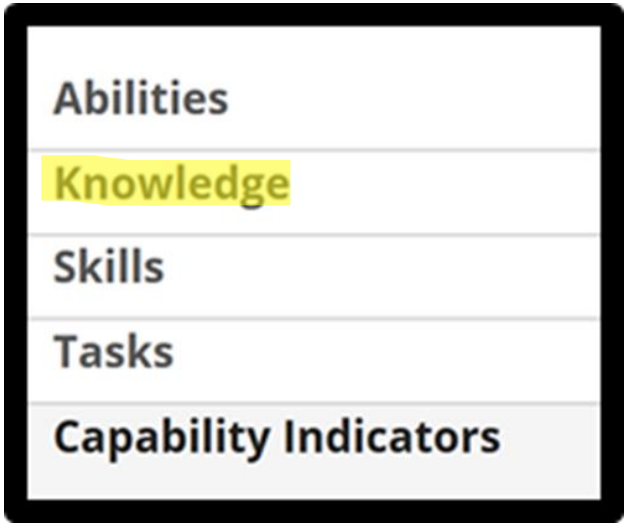


https://niccs.us-cert.gov/workforce-development/cyber-security-workforce-framework

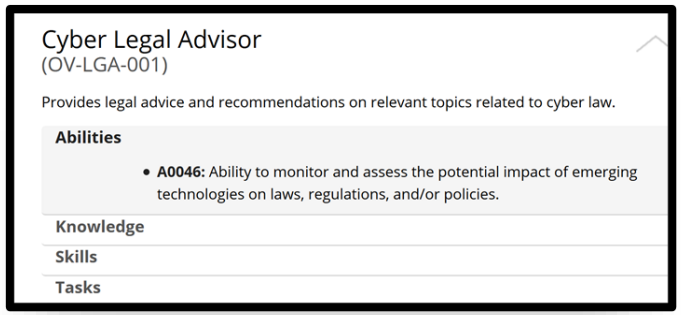
Specialty Area to Work Roles & KSAs

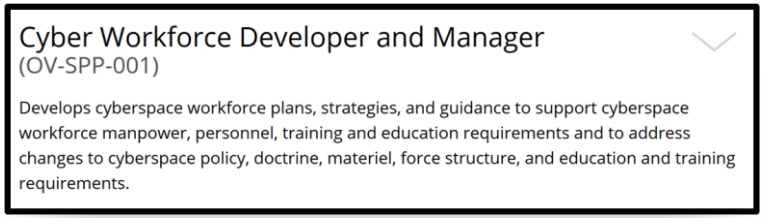
Example: Cyber Crime Investigator

	ENTRY	INTERMEDIATE	ADVANCED
CONTINUOUS LEARNING	**Recommended:** N/A **Examples:** N/A	**Recommended:** Not essential but may be beneficial **Examples:** 40 hours annually (may include mentoring, shadowing, conferences, webinars, or rotations)	**Recommended:** Not essential but may be beneficial **Examples:** 40 hours annually (may include mentoring, shadowing, conferences, webinars, or rotations)
EDUCATION	**Recommended:** No (not an Entry-level Work Role) **Example Types:** N/A **Example Topics:** N/A	**Recommended:** Not essential but may be beneficial **Example Types:** Bachelor's **Example Topics:** Computer science, cybersecurity, information technology, software engineering, information systems, computer engineering	**Recommended:** Not essential but may be beneficial **Example Types:** Bachelor's **Example Topics:** Computer science, cybersecurity, information technology, software engineering, information systems, computer engineering



Non-technical Cybersecurity Work Role Examples





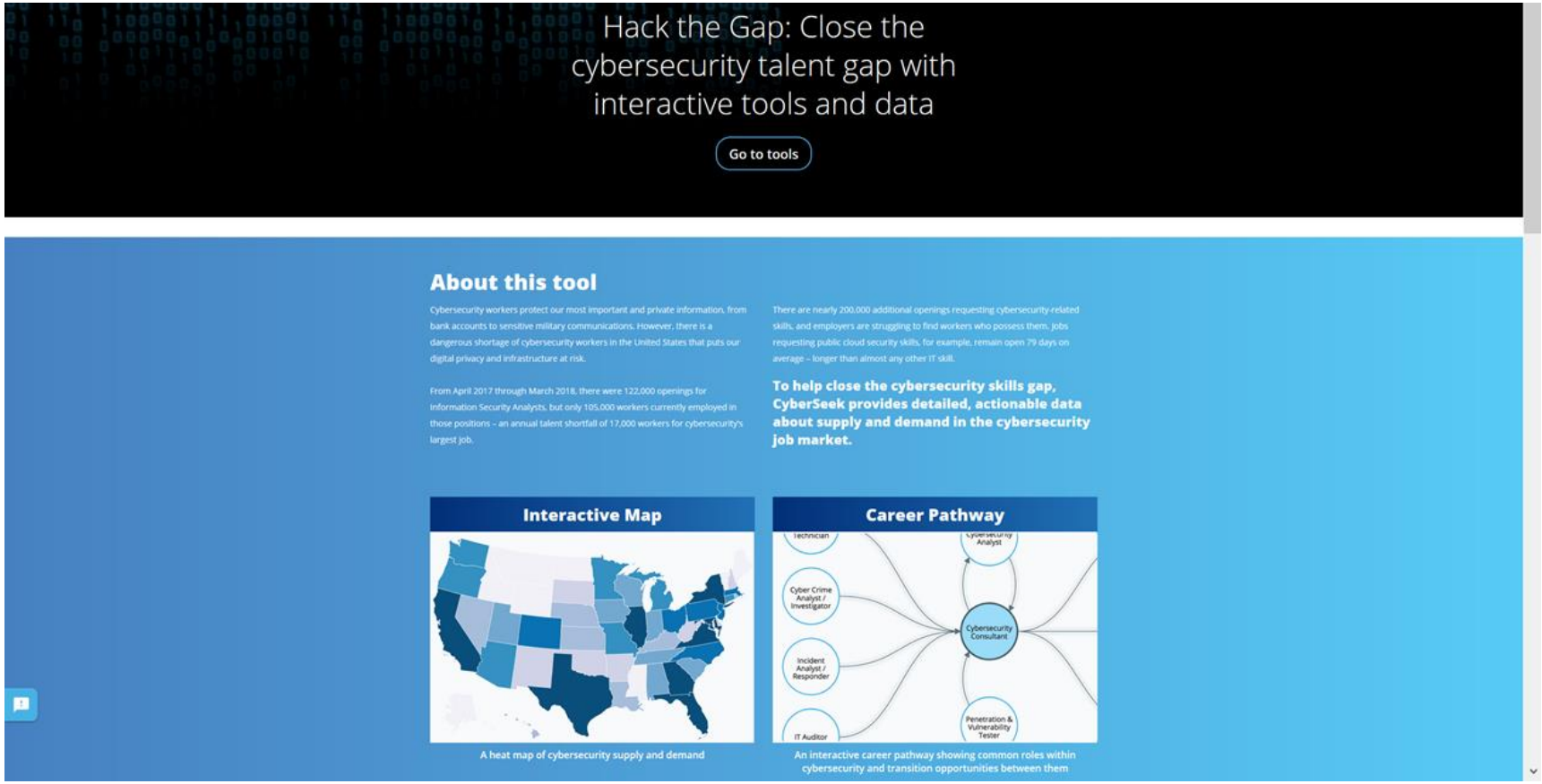
Who should reference the NICE Framework?

- Educators and school counselors
- Employers
- Job seekers
- Students
- Mid-Career changers
- Policy makers
- Technology Developers
- Training and Certification Providers

Cyberseek

Dr. Greg von Lehmen

Market Demand & Career Paths
https://www.cyberseek.org/



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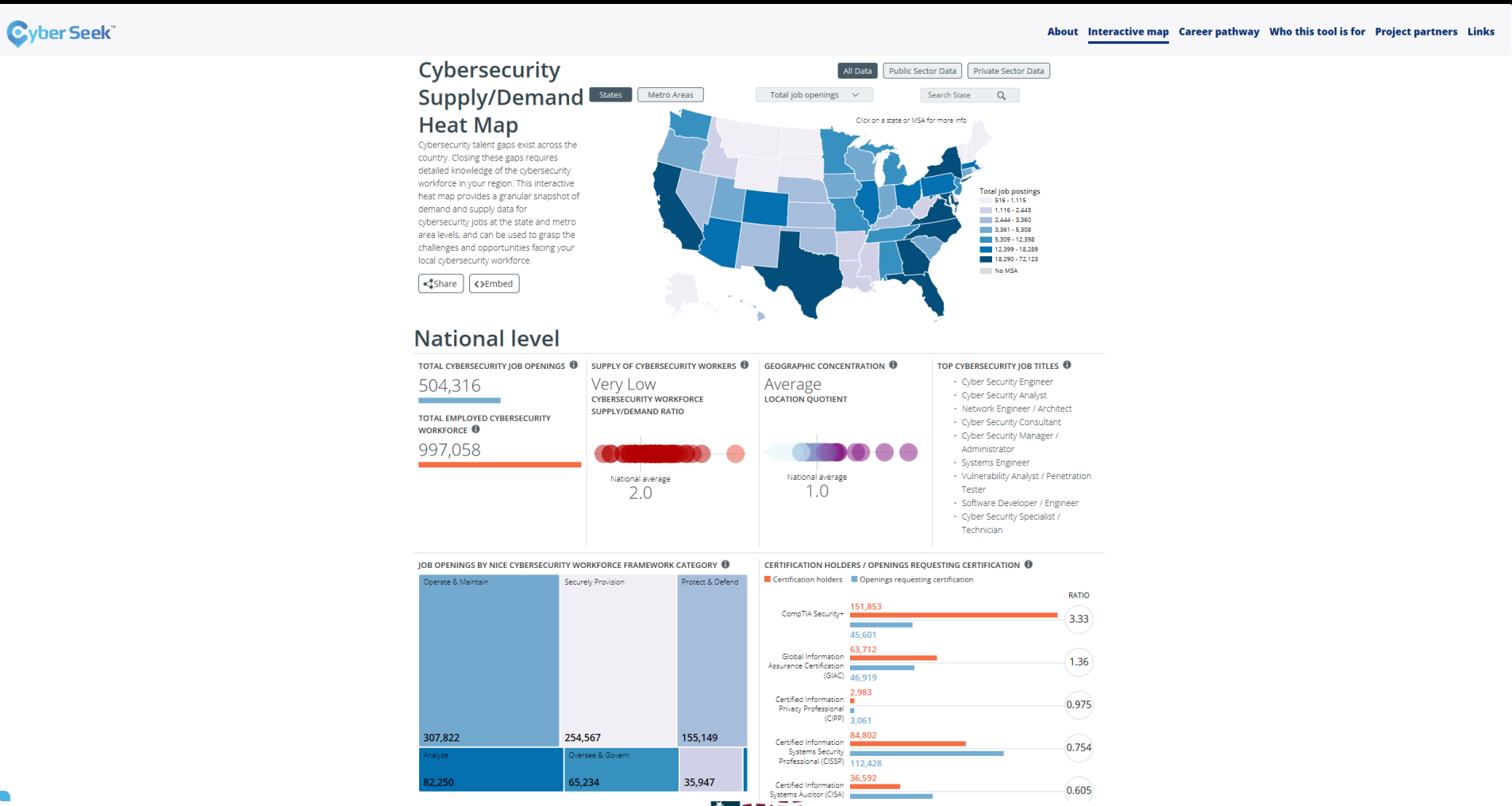
What Cyberseek Provides

- **The number of cybersecurity Job openings in the US** over a given time period
- Common **job titles** for cybersecurity-related work
  - mapped to the NICE Framework Categories
- Information about **job requirements**; e.g. industry certifications
- Salaries
- **Career pathways**: how one job can lead to more advanced positions in the market

Using the Heatmap: National Market Demand
https://www.cyberseek.org/heatmap.html



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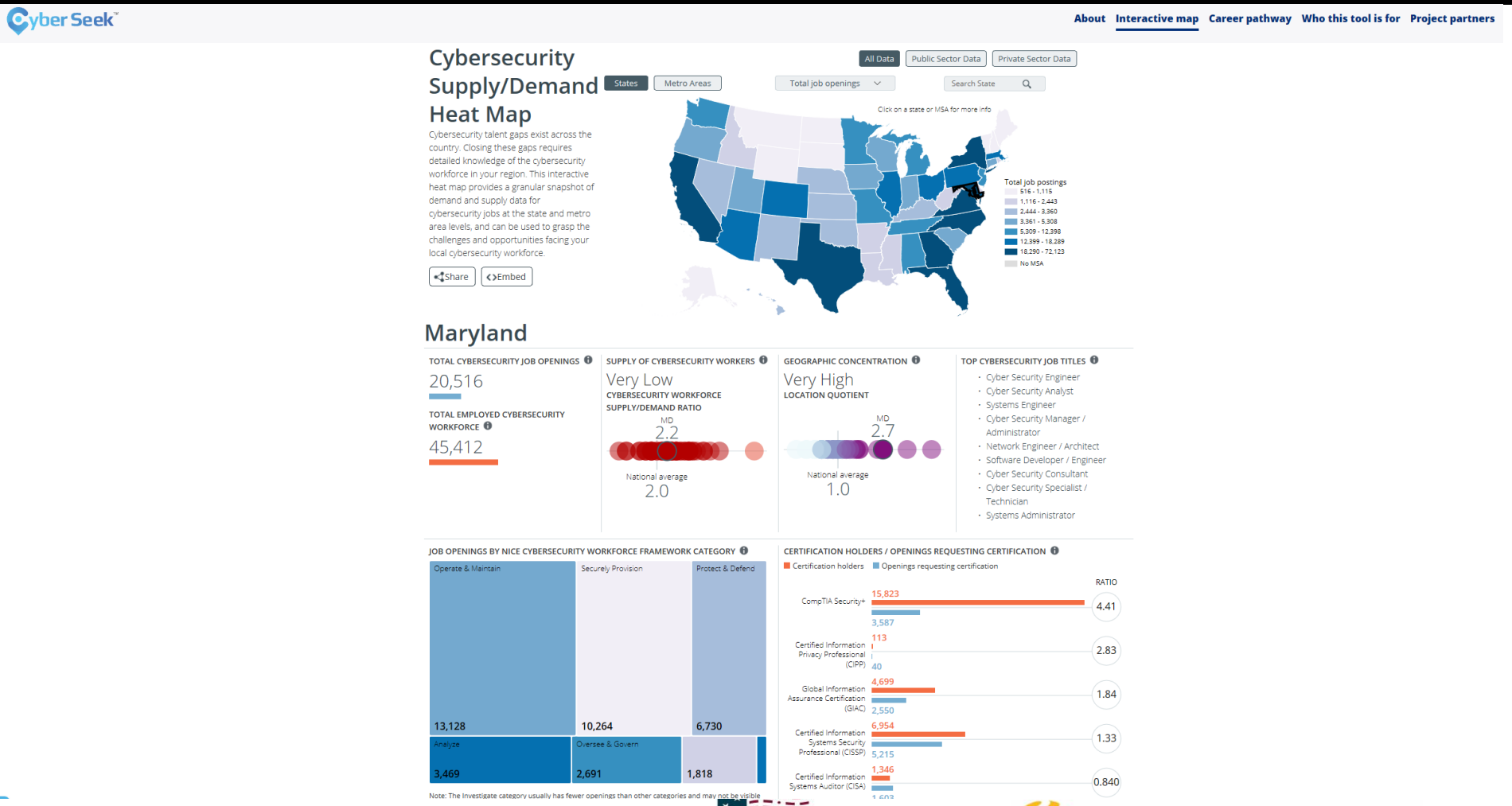
Demand in Maryland



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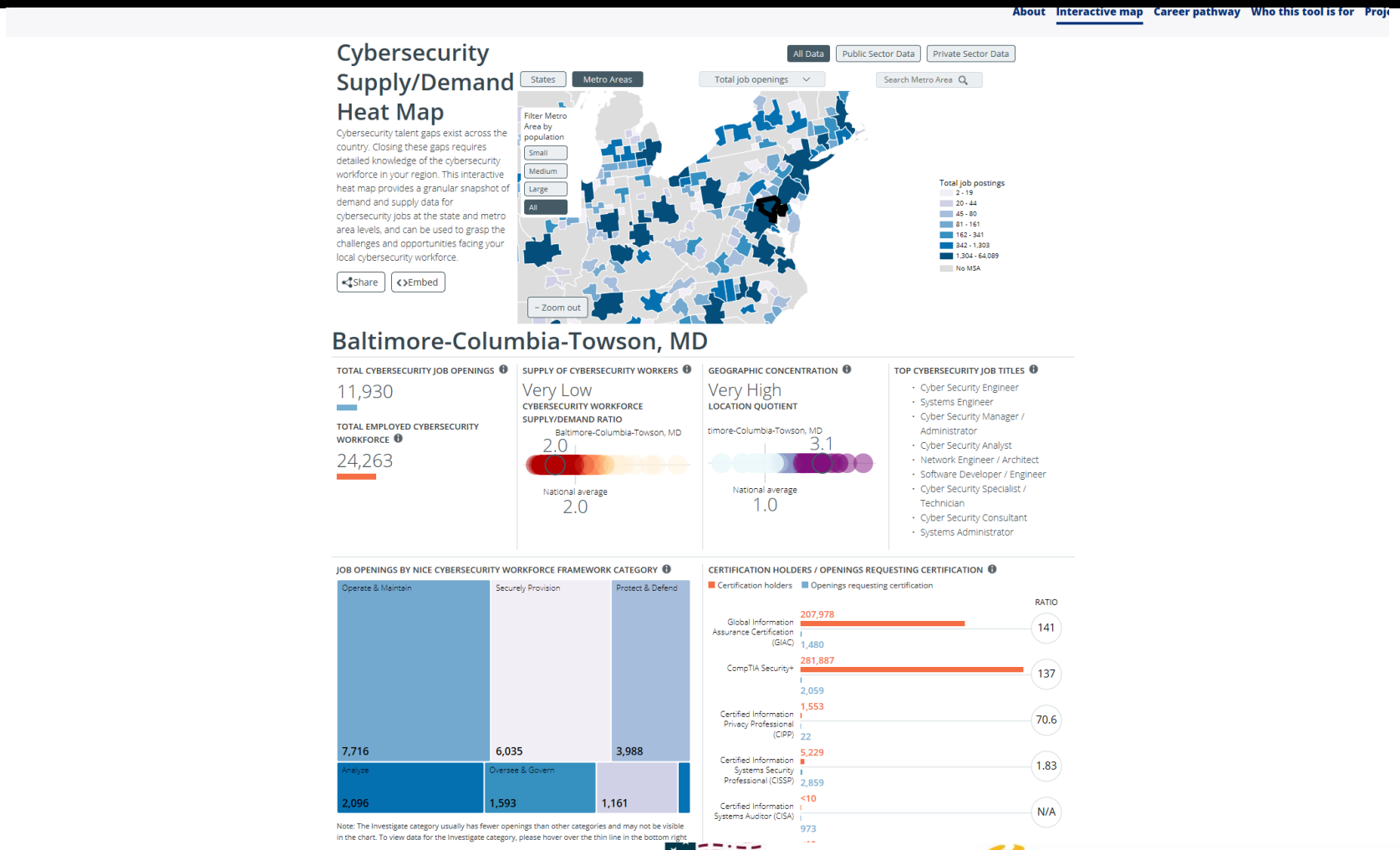
Baltimore - Towson



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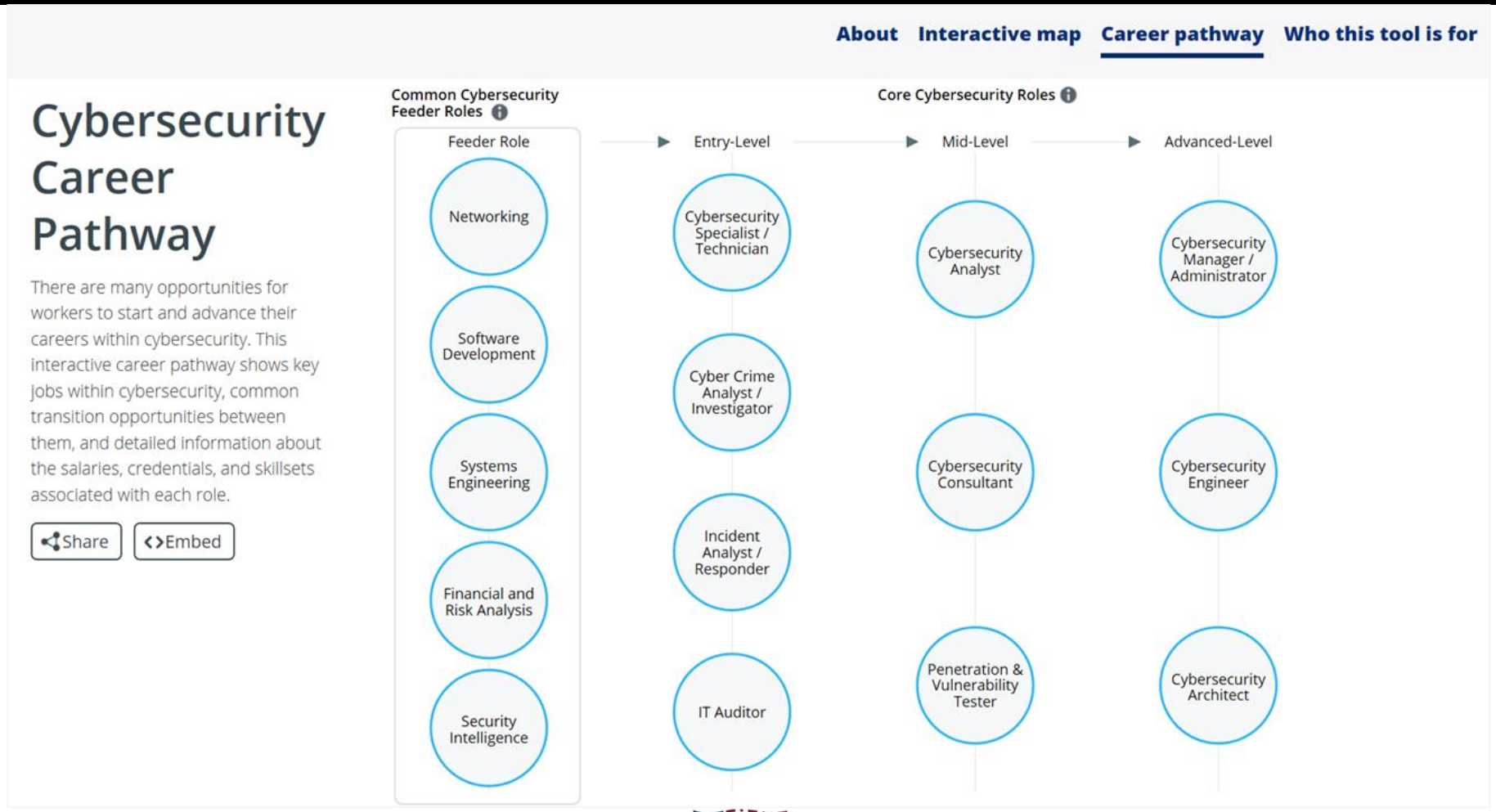
Cyber Career Pathways



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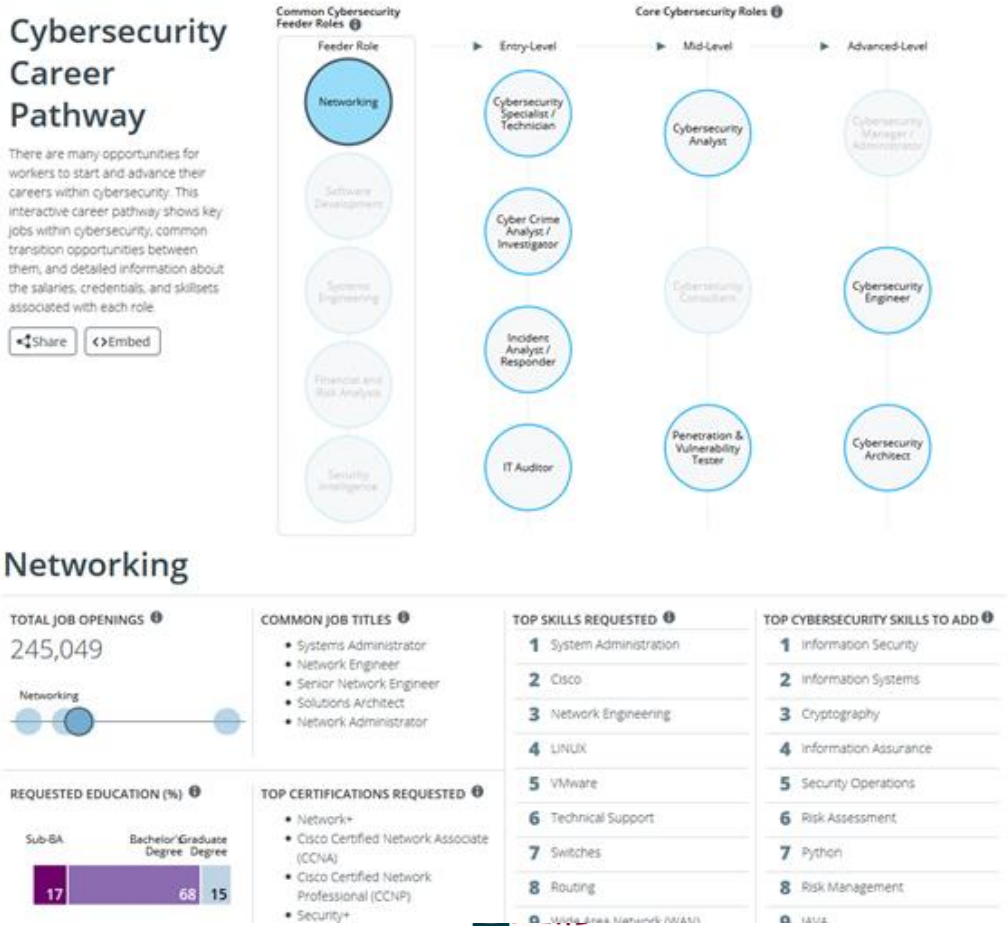
Networking Work Role – Where From There?



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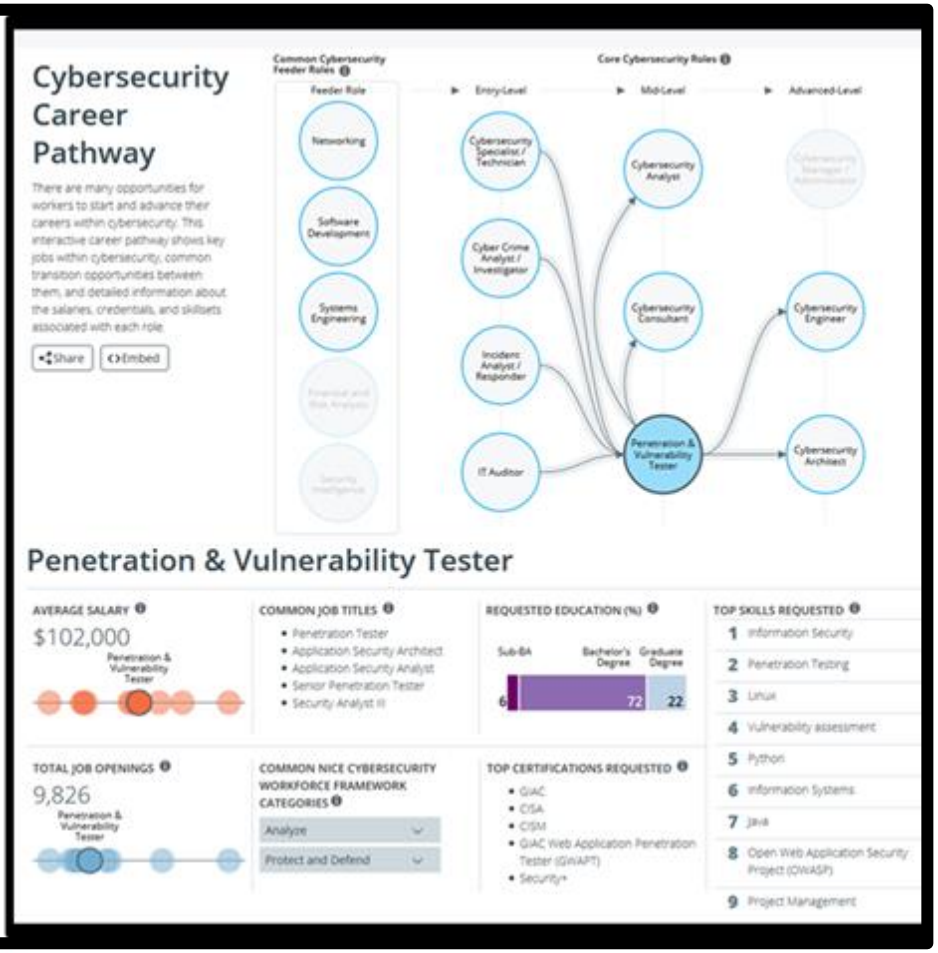
Career Progression - Example



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Training & Education Pathways

Jeffrey Smith

Educational Pathways to Cyber Work Roles

- Traditional degree pathways (AS, BS, MS)
- Nontraditional Pathway: Apprenticeships
- Nontraditional Pathway: Industry Certifications

Traditional Pathways – Degree Programs
https://www.caecommunity.org/#

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Nontraditional Pathway

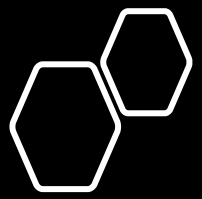
Apprenticeship: A Proven Pathway in Maryland to Cyber-related Careers

- Apprenticeship is an **industry-driven**, **high-quality** career **pathway** where employers can **develop** and prepare their **future workforce**, and individuals can obtain **paid work** experience, **classroom instruction**, and a portable, **nationally-recognized credential**.

Youth Apprenticeship - Maryland Apprenticeship and Training Program (MATP)

APPRENTICESHIP MARYLAND

Earn and Learn Opportunities for Youth



Nontraditional Pathway

Industry Certifications

- Software/Hardware-specific. Examples:
  - Microsoft certifications
  - CISCO certifications
- Non-vendor based. Examples:
  - CompTia
  - ISACA
  - $(ISC)^2$

Conclusion

Mark Loepker

Takeaways!

- Cybersecurity is fundamental to the interconnected work that we live in.
- The demand for cybersecurity professionals is off the charts and will to continue to grow.
- Cybersecurity as a field offers a wide range of employment opportunities, including both technical and non-technical jobs.
- There are varied pathways to a cyber job, depending on what someone wants to do and what level they want to work. A college degree is only one of several educational pathways.

Questions?

More Information

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