

It's About the People

A Culture of Cybersecurity

Employees are the hidden key to cyber resilience

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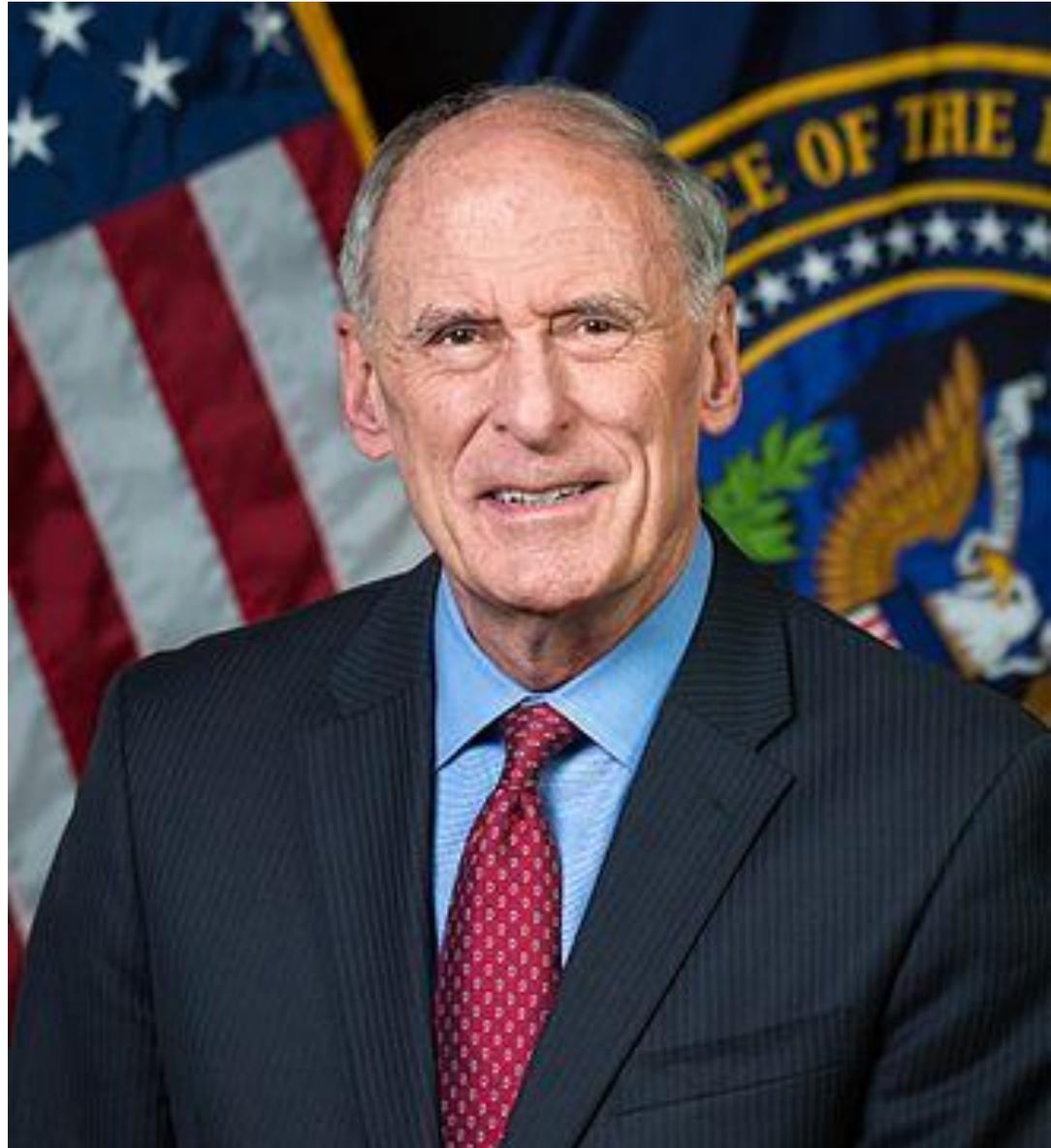
Clear and Present Danger

- Cyber attacks and security breaches are **increasing** in frequency and sophistication, with discovery after the fact, **if at all.**
- Targeting of organizations and individuals with malware and anonymization techniques that can **evade current controls.**
- Current perimeter-intrusion detection, signature-based malware, and anti-virus solutions are providing **little defense** and are rapidly becoming obsolete—Use encryption technology to avoid detection.
- Criminals are **leveraging innovation** and moving at a pace and security vendors cannot possibly match.

National Security Issue

Growing Concerns for Control Systems

"The system was blinking red. Here we are nearly two decades later and I'm here to say the warning lights are blinking red again"



Partnership Issue

"Between government and the private sector, we have the data needed to disrupt, prevent and mitigate cyberattacks. But we aren't sharing fast enough or collaborating deeply enough to keep cyberattacks from spreading or to prevent them in the first place."



Kirstjen Nielsen:
Secretary, Department of
Homeland Security

Concerns for Control Systems

Testimony to House Select Intelligence Committee –

“There shouldn’t be any doubt in our minds that there are nation-states and groups out there that have the capability to enter industrial control systems and to shut down [and] forestall our ability to operate our basic infrastructure.”

“All of that leads me to believe it is only a matter of the ‘when,’ not the ‘if’ that we are going to see something dramatic.”



Former NSA Director,
Michael Rogers

Democracy is under threat!

- Elections
- Evidence - Chain of custody
- Deep Fake Videos
- Politics



GOVERNMENT HACKINGS



Things are so bad the Government's energy is centered on protecting itself and critical infrastructure.

FORCE

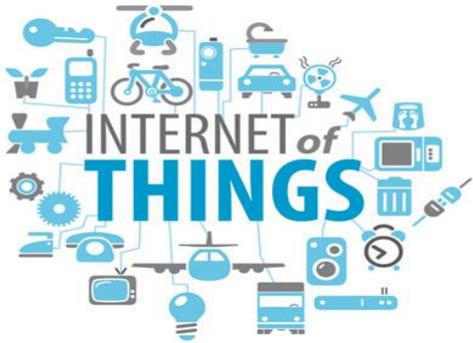
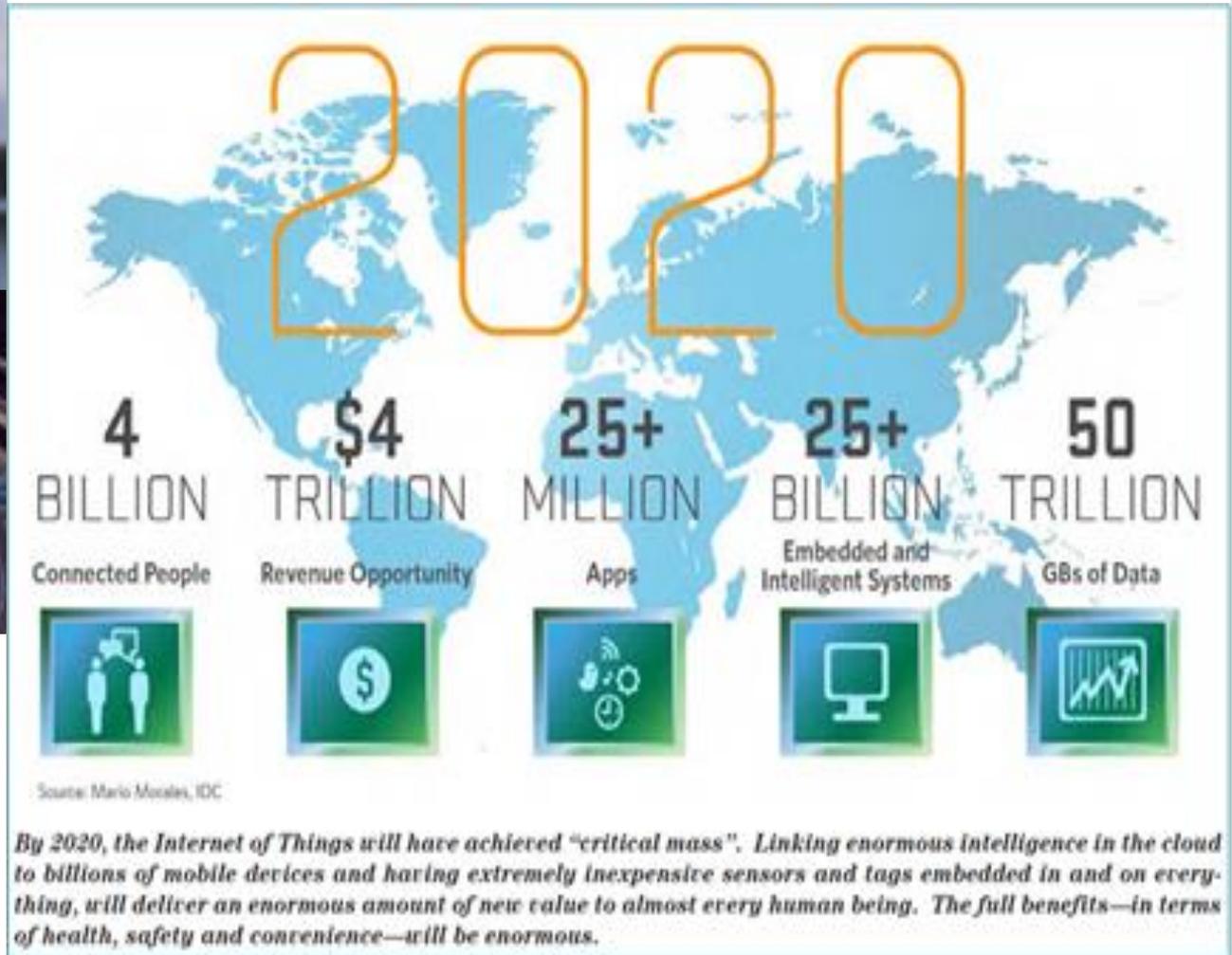
The net **force** on an object is equal to the **mass** of the object multiplied by the **acceleration** of the object.

$$F = ma$$

The diagram illustrates the units for each variable in the equation $F = ma$. A yellow arrow points from the unit 'N' (Newtons) to the variable 'F'. Another yellow arrow points from the unit 'kg' (kilograms) to the variable 'm'. A third yellow arrow points from the unit 'm/s²' (meters per second squared) to the variable 'a'.

Cybersecurity

WHO IS MANAGING THE BUILD?



Straight Forward Formula

The Path Forward

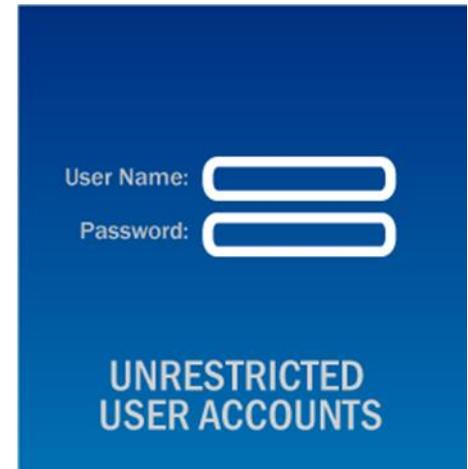
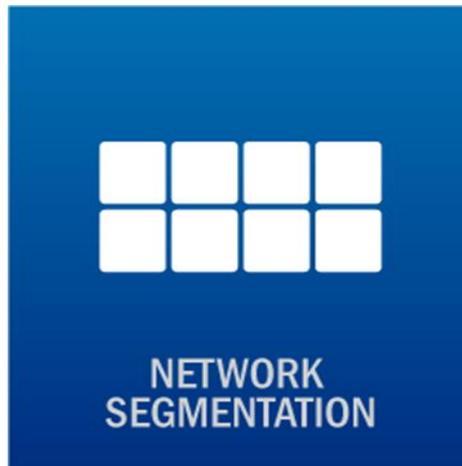
Today

- Many unknown vulnerabilities
- Incidents spread at network speed and defenses are manual
- Many attacks are undetected
- Independently defended systems
- Inconsistent security policies
- Users do not follow best practices
- Attacks increasing in number and virulence

Future

- Baked in security = fewer vulnerabilities
- Near real-time response with more automated defenses
- Many attacks, but less impact
- Information sharing and increasingly collaborative defenses
- Consistent security practices
- Unauthorized activity quickly identified
- Ability to learn and adapt defenses in near-real time

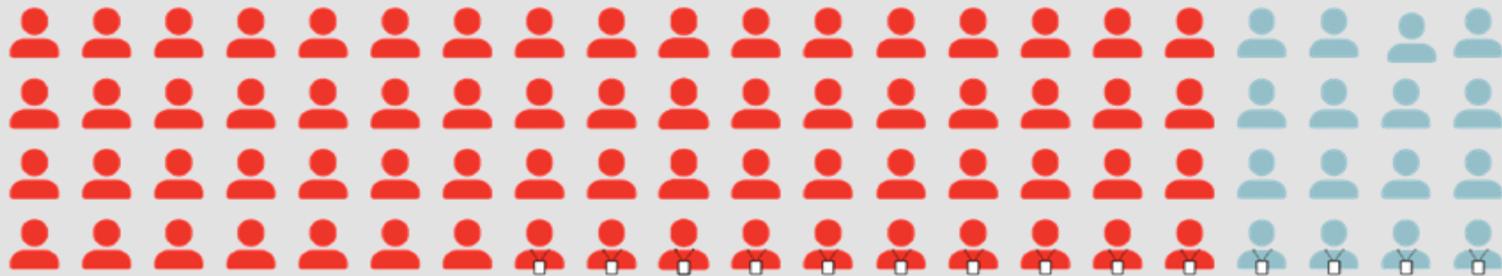
Cybersecurity



Culture Shift

USER RISK LANDSCAPE

76% of Data Breaches Involved Stolen or Exploited User Accounts



Business Users

84% of insider-based breaches involve users with no admin rights



IT Users

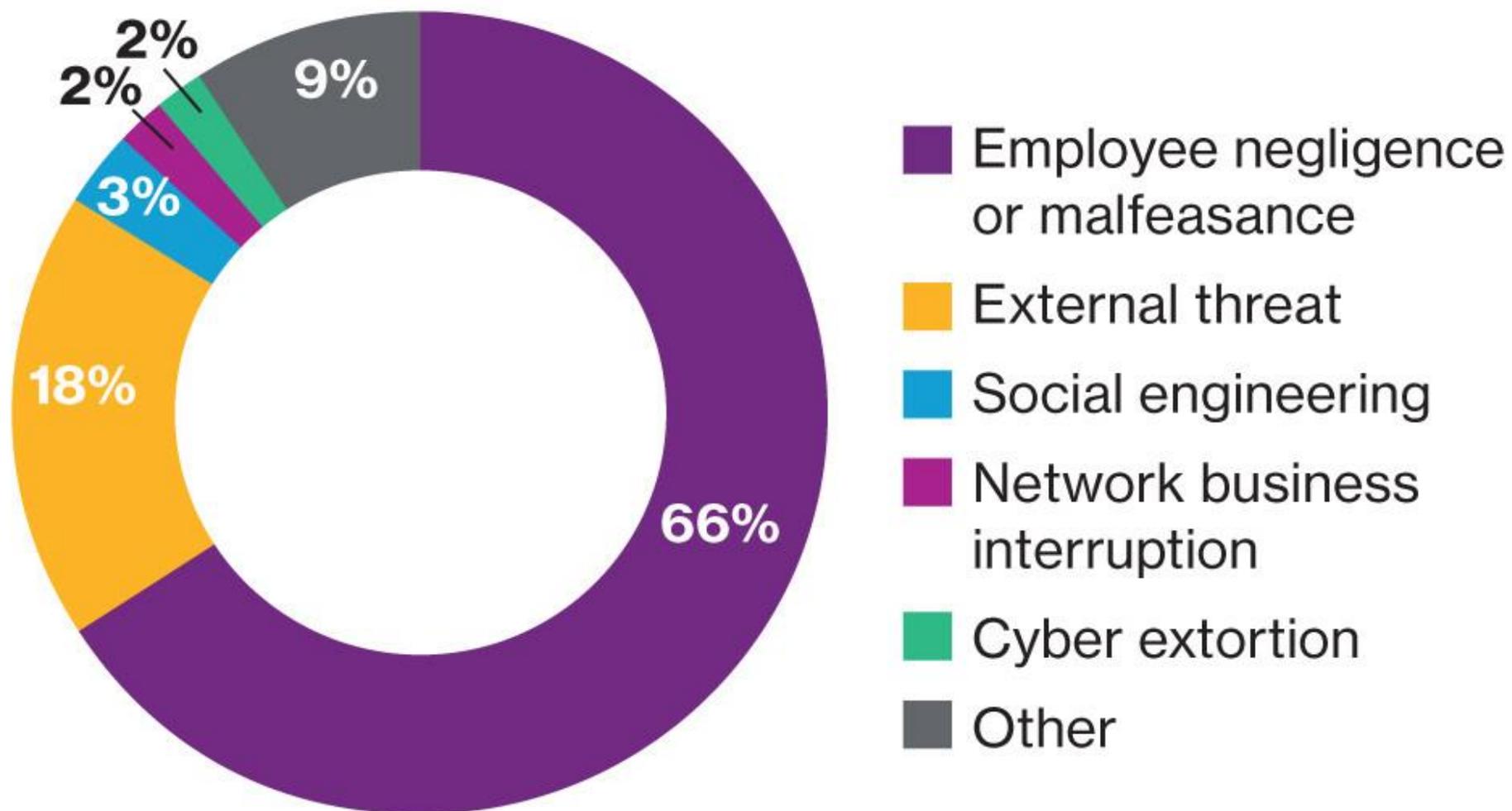
62% of admin-caused breaches are due to human error



Contractors

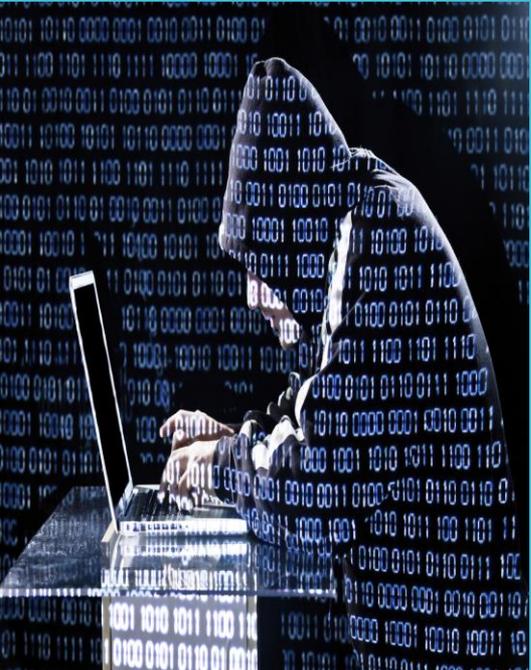
Breaches involving contractors have significantly higher data loss and severity

Percentage of claims by breach



Source: Willis Towers Watson cyber insurance claims data

Top Cyber Threat Attack Vectors



- **Spear Phishing / Watering Hole**
 - Organization email, personal webmail
- **Web Browsers**
 - Vulnerability exploitation (Adobe, Flash, Java)
 - Application patching
- **Web Servers**
 - Application and system patching
- **Remote Access**
 - Single factor (password-based)

Culture of Cybersecurity



“It is therefore up to security professionals to help their executives become more cybersecurity literate and thereby assist in framing security considerations as an integral part of any risk/opportunity discussion, as well as a wider enterprise risk management strategy.”

What are the expectations for cyber literacy?

Cyber Education

Nation's One Stop Shop for Cybersecurity Careers & Studies!

Resources for everyone – employees, employers, students, educators, parents, policy makers

- ✓ 5,000+ visitors per month
- ✓ 1,500+ training courses mapped to the National Cybersecurity Workforce Framework
- ✓ 100+ links to cybersecurity resources
- ✓ 15+ tools for managers
- ✓ 10+ monthly events
- ✓ 10+ links to customized job searches

The screenshot shows the NICCS website interface. At the top, the logo reads "NICCS™ NATIONAL INITIATIVE FOR CYBERSECURITY CAREERS AND STUDIES". Navigation menus include "Training", "Formal Education", "Workforce Development", and "About Us". A prominent banner features the text "Veterans, Are You Interested In Free Cybersecurity Training?" with a "Continue Reading" button. Below this, the "Training Catalog" section is visible, accompanied by a map of the United States showing training locations in various cities like Vancouver, Seattle, Chicago, and New York. A text box explains that the catalog provides over 3,000 cybersecurity training courses.

<https://niccs.us-cert.gov/>

National Initiative for Cybersecurity Careers and Studies (NICCS)

NATIONAL INITIATIVE FOR CYBERSECURITY EDUCATION (NICE)

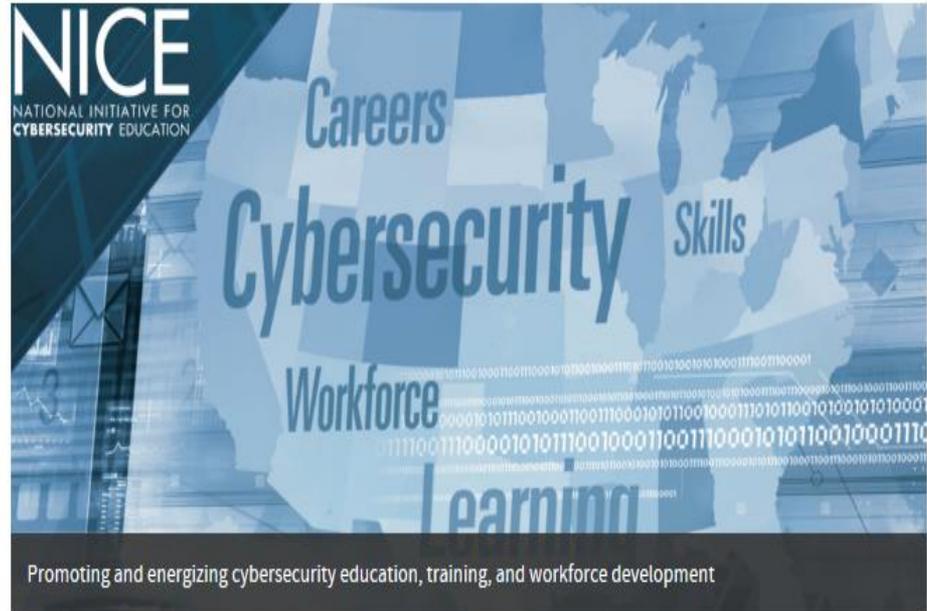
The mission of NICE is to energize and promote a robust network and an ecosystem of cybersecurity education, training, and workforce development.

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QUESTIONS

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