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AGENDA

- + Cyber Workforce Shortage?
- + Skill Gaps
- + The Role of Work Roles
- + Competitions
- + Employer Attitudes
- + Tips for UPSKILLING

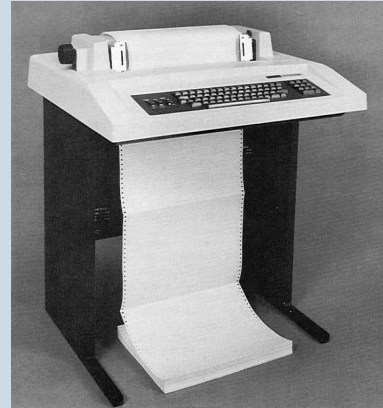
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Chip Thornsburg Cyber Defense @ Northeast Lakeview College

Short Bio

- 1st Tech Company CATSYS, Inc., 1996
- Master Peace Officer and Detective with Helotes
Member USSS Electronic Crimes Task Force
- Lectured & Taught at River City College, Southern
Careers, and North Texas State College
- Degrees in Management, Criminal Justice / Law
Enforcement, Criminology, an MBA, and Ph.D. in
Criminal Justice & Homeland Security (in progress)



My First Hack – Angelo State 1982

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+ The Confessions of Marcus Hutchins, the Hacker Who Saved the Internet

+ At 22, he single-handedly put a stop to the worst cyberattack the world had ever seen. Then he was arrested by the FBI.



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+ Aaron Schwartz Day

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4 Million Professionals Needed!

**So,
Where's
My
Job?**

Monday, July 16, 2018 Weather: P.27 \$2.50

**Hurricane
toll**

Isaac has
at least 20 victims in
States over the
wreaked havoc in
and the
the worst

★ HELP WANTED ★

CYBER SECURITY
SPECIALIST

needed

For more information, call

Weekly M

Gold price
weaker do.
tensions. U.S.
0.2 percent.
from recent
Wednesday
indexes res
increased mo
funds pulled
stocks and

* World Economic Forum, April 2024

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ISC2 Reports 5.5 Million in Workforce

Experience or Education?

Senior-Level Positions

- + 86% Experience v. 14% (PhD)

Entry-Level Positions

- + 70% Experience v. 30% (Bachelors)

- +440,000 New Jobs in 2022
- +43% Report Skills Gaps (Significant)
- +75% "Most Challenging" Threats
- +22% Cybersecurity Layoffs (51%)
- +30% Budget Cutbacks

* 2023 ISC2 Cybersecurity Workforce Study

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Why Do Companies Hire?

They need a task completed

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The slide features a light blue background with a white circular graphic in the top left corner. In the top right, there is a yellow emoji of a person wearing a cowboy hat and resting their chin on their hand, appearing to be in deep thought. To the right of the text is a photograph of a circular straw target mounted on a wooden stand, with several arrows embedded in it. The text is centered on the left side of the slide.

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Cybersecurity Job Applicants

The slide has a blue background with a pattern of many arrows pointing upwards and to the right, creating a sense of movement and direction. The text is centered in the upper half of the slide.

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Education v. Experience v. Skills

Competencies

Skills

Education

Experience

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Centers of Academic Excellence (NSA CAE-C)

2d. Student Participation in Extracurricular Activities

Provide evidence of three student participation in extracurricular activities within the last three years, which may include (but not limited to): experiential learning activities, local/regional/national **cyber exercises and competitions**, ...

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What is a Cyber Competition?

“A wargame must be interesting enough and playable enough to make its players want to suspend disbelief and so open their minds to an **active learning process**. It must also be accurate enough and realistic enough to make sure that the learning that takes place is informative and not misleading.”



Dan Manson
Cal Poly Pomona



-- Dr. Peter Perla
The Art of Wargaming, 1990



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Competition Types & Features

Blue Team

Defense Focused

- + Network or System based (VMs)
- + Points by Configuration
- + Framework Based using (NIST)
- + Goal is to Secure
- + Highly Academic



- K-12 Students (13+)
- Air & Space Force Association
- Regional & National
- FREE



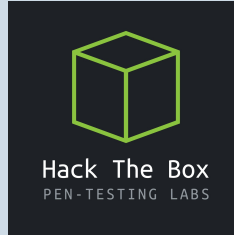
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Competition Types & Features

Red Team Attack Focused

- Virtualized Private Network Space
- Find & Exploit Vulnerabilities
- Points by “Pwning”
- Largely Proprietary
- Increasingly Academic
- Free & Subscription



- Adult Learners
- Continuous Competitions
- Highly Technical
- Limited Browser-Based



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Competition Types & Features

Red vs Blue Attack & Defend

- Virtualized Private Network Space
- Opposing Teams
- Find & Exploit Vulnerabilities
- Active Defense
- Points by Pwning
- Includes White teams & Green Teams



**NATIONAL
COLLEGIATE
CYBER
DEFENSE
COMPETITION**

- Undergraduate & Graduate Students
- Yearly Competition
- Highly Technical
- Non-Browser-Based

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Competition Types & Features

CTF Capture the Flag

- Jeopardy Style
- Multiple Categories
- Work Role Oriented
- Largely Proprietary
- Practice Platforms & Walkthroughs
- Academic
- Free & Subscription



- Adult Learners & Students
- Continuing Competitions
- Highly Technical
- Limited Browser-Based



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National Cyber League

- + OSINT
- + Password Cracking
- + Cryptography
- + Network Traffic Analysis
- + Digital Forensics
- + Log Analysis
- Web Application Exploitation
- Enumeration & Exploitation
- Scanning

Individual & Team Competitions
High School through Graduate Level
Provides Reports for Coaches



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What Do Companies Think?



Competitions are a Measure of Competency

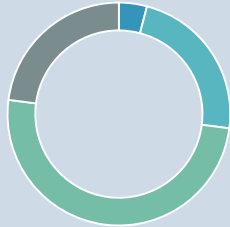
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n=77

Competition Awareness

How familiar are you with cyber competitions?



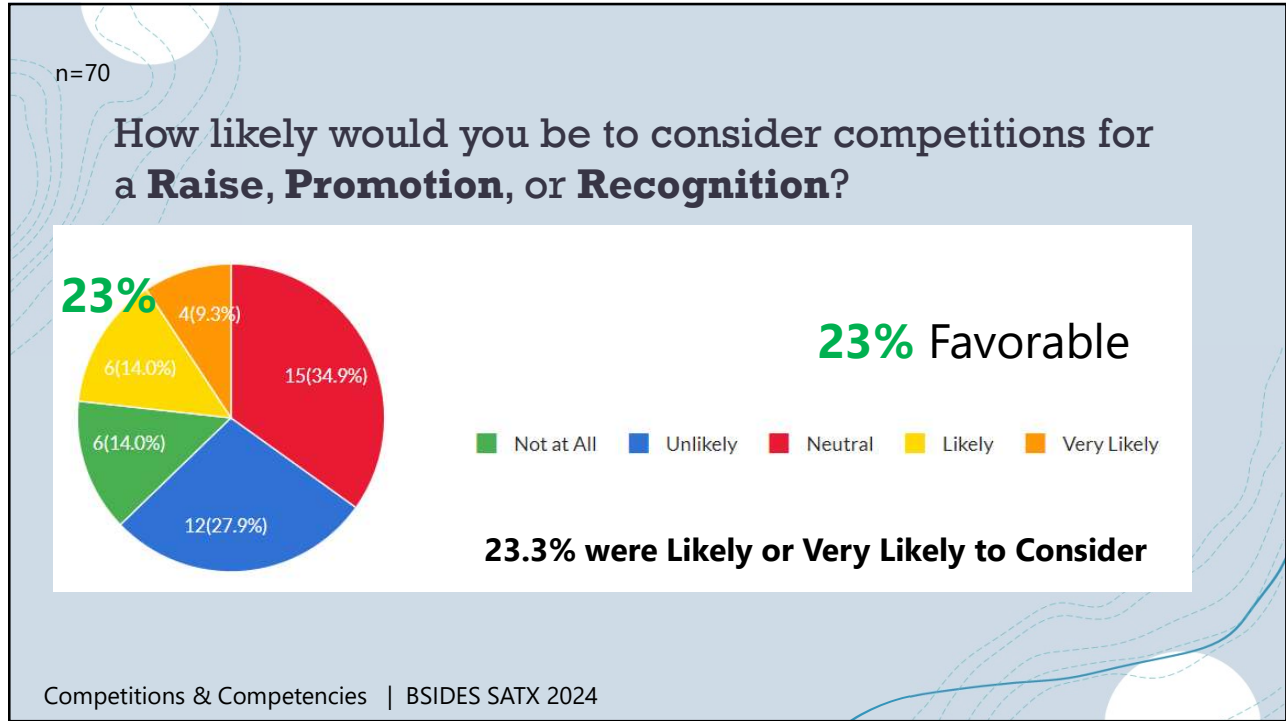
4-point Likert scale

- + 58% were "Very Familiar"
- + 11% have "Participated"

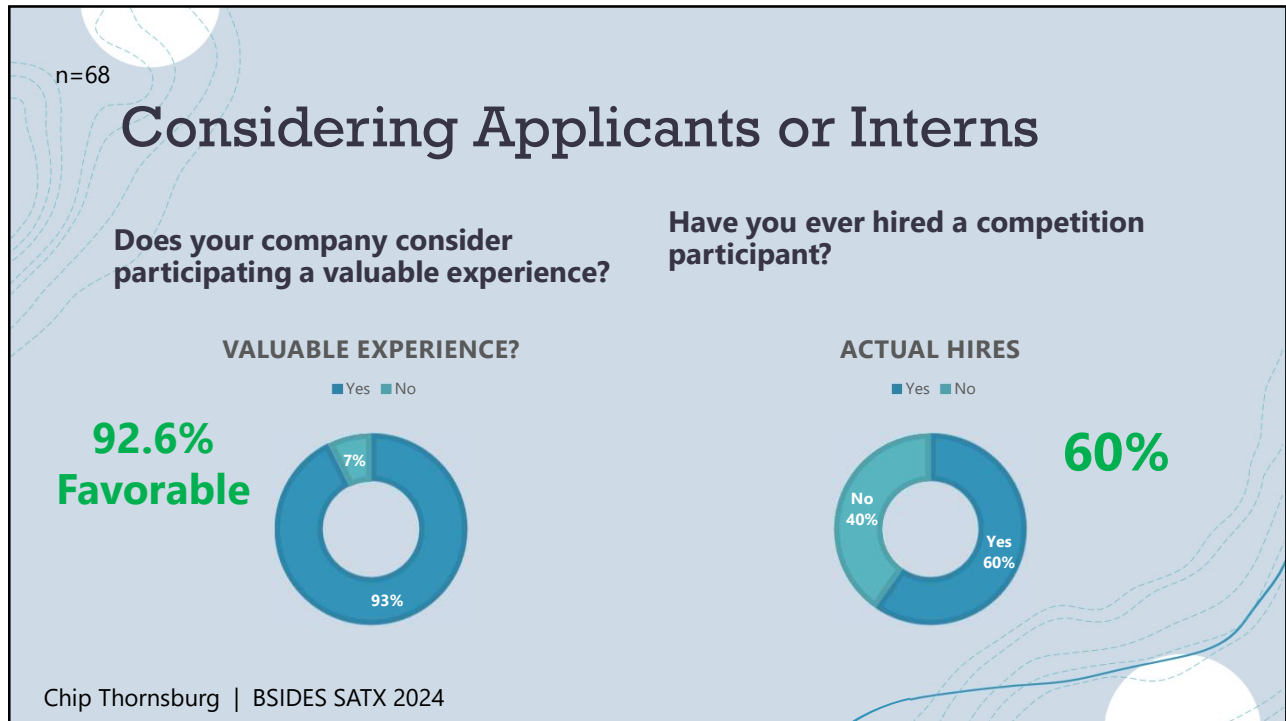
Legend: Unfamiliar, Aware, Familiar, Participated

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22

n=68

Resume Statements:

Employers remain positive about resume statements concerning participation leading to increased chances of an Interview.

80.9% more Favorable for **Individual** competition


73.5% more Favorable for **Team** competition

Add Competitions to your Resume!

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High-Demand Skills



- + Incident Response
- + Memory Forensics
- + Network Traffic Analysis
- + Malware Analysis
- + OT Security

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Questions?

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