Women in Cybersecurity: Challenges, Obstacles, and Opportunities

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Agenda for today:

• Identify and Detect: Challenges
• A Cybersecurity Journey
• Countermeasures in Working in Cybersecurity
• Challenges Women Face in Getting into Cybersecurity
• Where to Start
• Bridging the Gap
• Conclusion
Identify and Detect: Challenges

Diversity in the workplace

Cultural Challenges

New language – new world

Personal Challenges - home life balance

Cybersecurity Stress – “When the going gets tough, the tough get going.”

Insider Threat
Excellent and caring Mentors... Great Managers...

24/7 Cybersecurity Learning

CSO/Management

Senior Security Analyst

Cyber Warfare Work

Graduate – Computer Forensics Instructor

Security Analyst

First Job – Network Admin

English Major/
Desktop Publishing

D.Sc.
Cybersecurity

- Cybersecurity Doctorate Professor/SME
- Speaker
- Author
- Futurist in Cybersecurity

Mentored women along the way both students and professionals...

Absorb Everything Cybersecurity
A Cybersecurity Journey: Another Woman’s Adventure

Outstanding and Inspiring Managers and Cohorts...

24/7 Cybersecurity Learning

Chemistry Major/Computer Programming

First Job – Computer Programmer

Undergrad: Software Engineering

Local Area Network Administrator

Wide Area Network > Firewall Engineer

Graduate: Information Security

Senior Security Analyst

CISSP/Security Management

Masters’ Cybersecurity

- Master’s Degree: Information, Network
  Computer and Application Security

- Security Subject Matter Expert
- Consultant and Advisor
- Cybersecurity Enthusiast

Partner with Women and Teens to Inspire and influence a STEM career...

Continuing Education and Application of Cybersecurity
A Cybersecurity Journey: Personnel Security to Security Analyst

Served on a team to manage Corporate Network set up

Computer Systems Security Analyst

Introduction to Cyber

Managed Privacy Security and Incident Response

Managed Personnel Security for 2010 Census Call Centers

Managed physical and personnel security

Served on a team to manage Corporate Network set up
At a young age, mentored and supported by a female Colonel who worked for the NSA.
- Utilized those skills during the rise of home computing.
- Graphic Design Education
- Joined a Network Engineering program out of college.
- Continued Network Engineering and Administration interests in Medical I.T.
- Accepted position at Northrop Grumman which promotes growth and it all encompassing.
Countermeasures to Working in Cybersecurity

- Perseverance 101
- Situational Awareness - Cybersecurity Feeds
- Continuous Education 24/7
- Be a Team Player
- Curiosity Part Detective
- Passion for the field - Key for Success

Protect, Respond, and Recover
Challenges Women Face Getting into Cybersecurity

1. What is cybersecurity and what are my job options?
2. How do I acquire on the job experience when I don’t work in cybersecurity?
3. What about certifications and education?
4. I have a Bachelors and or Master’s Degree in Cybersecurity but no experience – what next?
Where to start in the field of Cybersecurity?

Sample Careers in Cybersecurity

- Forensics
- Incident Response
- Disaster Recovery
- Database Security
- Cyber Warfare
- Auditor
- SOC Engineer/SIEM Mgmt
- Penetration Tester
- Encryption
- Senior Security Analyst
- Data Loss/Prevention
- Secure Software Developer
- Malware Reverse Engineer
- Security Privacy Engineer
- CISO/ISSO/CSO
Education and Certifications

Certification
- CISSP/CISA
- CISM/CISA
- SANS GIAC
- CEH
- CompTIA Security+

Degree
- PhD/DSc
- Masters
- Bachelors
- Associates
- High School

Not Equal in Weight

Server Room to Board Room
Challenges Women Face Getting into Cybersecurity

Middle School and High School

How to bridge the gap between STEM and Cybersecurity?
Corporate Citizenship – Girls, Women & STEM

• Strategic Priority
  – Contribute to the development of a pipeline of diverse talent by supporting STEM and strategic education programs and initiatives that align to the business needs of the company
    • Allow us to further direct our strategy on girls and students of color

• Program Highlights
  – Robotics
    • VEX – Sponsorship funding include grants for teams that include girls
  – Computers
    • National Center for Women & Information Technology – Mentorship program that encourages girls to pursue computing careers
    • Coding events – Support programs that introduce girls to coding
    • CyberPatriot – programming includes support for increasing female participation
      – 23% female participation rate
• Program Highlights continued
  – STEM engagement
    • Space Camp – Criteria includes consideration for girls and students of color
    • DiscoverE – partnership includes engagement and encouragement for girls in STEM, particularly engineering
Commitment to Developing Future Cyber Leaders

Through outreach and education we are starting early and building an education continuum for future development and growth of the workforce.

A Commitment to Lifelong Learning

- **Pre / Elementary School**
  - “Cyberchase” Series on PBS

- **Middle / High School**
  - CyberPatriot
  - CyberCIEGE
  - NG High School Intern Program
  - Cyber Watch
  - Cool Careers for Girls in CyberSecurity
  - NG Cyber Education Workshop
  - U.S. Cyber Challenge

- **College**
  - NG Cybersecurity Research Consortium
  - Collegiate Cyber Defense Competition
  - MDC3 Cyber Challenge
  - Intern Program
  - University Partnerships and Outreach

- **Professional Development**
  - NG Cyber Academy
  - Certifications
  - Education Assistance
  - University Partnerships

Our partnerships are a key element of our cyber strategy.
How do we attract cybersecurity talent?

- Recruitment takes on several facets
  - Internships
  - Social Media
  - Tease with Capabilities
  - Leadership Outreach
  - Established Talent
  - Brand Embedment
  - Focus on Top Colleges

One million cybersecurity jobs will be open in 2016 (expected to grow 53% by 2018)
How do we develop our cybersecurity talent

- Development has many elements
  - Orientation
  - Learning Exchange
  - Cyber Academy
  - Community of Practice
  - External Sources
  - Company Rotations
  - Certifications (5,400 in NGC)
  - Research Consortium

20% have poor relations with IT/Business Team

Source: Forbes
How do we retain/engage our cybersecurity talent?

**Retaining talent occurs via**
- Technical Career Map
- Rotations
- Interaction with Corporate Chief Security Office
- Interaction with world-class cyber professionals
- Competitive market pay
- Cyber Working Groups
- Cyber Symposiums
- Use of latest technology

**NGC Cybersecurity professional retention rate:**
- Six+ percentage point improvement (2016 compared to 2014 & 2015)

41% of cyber professionals are satisfied with their job

Source: The State of Cybersecurity Professional Careers
Opportunities in Cybersecurity
Welcome to the “Fun Side of Life”

Bridging the gap:
1. Collaborate with universities and colleges to develop a female cybersecurity professional
2. Create an actual curriculum for Cybersecurity which covers real world material and provides practical experience
3. Building partnerships with universities to retain female talent including internships and summer jobs to actual employment
4. Build Cybersecurity Teams and collaborate
5. Build a Community of Practice for Women in Cybersecurity
   A. Monthly breakfasts where women discuss cybersecurity issues
Summary

- Key elements for women to be successful in the field of cybersecurity field:

1. Go after your cybersecurity dreams and keep a positive attitude.

2. Look for opportunities in your current job and/or create cybersecurity projects.

3. Constantly learn about cybersecurity every day.
THE VALUE OF PERFORMANCE.

NORTHROP GRUMMAN