A National Problem

- The Nation needs greater cybersecurity awareness
- The US work force lacks cyber security experts
- Many cybersecurity training programs exist but lack consistency among programs
- Potential employees lack information about skills and abilities for cybersecurity jobs
- Resources exist for teachers and students about cybersecurity but are difficult to find
- Cybersecurity Career development and scholarships are available but uncoordinated
- Lack of communication between government, private industry, and academia

NICE was established to create a cybersecurity education program for the nation to use sound cyber practices that will enhance the nation’s security.
NICE Components

NATIONAL INITIATIVE FOR CYBERSECURITY EDUCATION

NATIONAL CYBERSECURITY AWARENESS

FORMAL CYBERSECURITY EDUCATION

CYBERSECURITY WORKFORCE STRUCTURE

CYBERSECURITY WORKFORCE TRAINING AND PROFESSIONAL DEVELOPMENT

NATIONAL INSTITUTE FOR CYBERSECURITY STUDIES (NICS)
National Institute for Cybersecurity Studies (NICS)

Mission
Provide a national resource for the American public for cybersecurity awareness, education and training resources.

Goals
1. Build a national resource to elevate cybersecurity awareness and effect a change in the American public to adopt a culture of cyberspace security.
2. Promote cybersecurity education from kindergarten through the post graduate level to nurture the future cybersecurity workforce.
3. Guide the development of cybersecurity standards, training, and professional development to empower and advance cybersecurity personnel.
4. Manage NICS program through NICS Program Management Office (PMO).

NICS is an implementation tool for the NICE efforts.
National Outreach

STOP | THINK | CONNECT™

WWW.CSRC.NIST.GOV/NICE/  10/24/2011
Cyber Education Resources
Cybersecurity Training and Professional Development
Three Elements of the NICS Approach

**ADVISORY BOARD**
Comprised of representatives from government, academia and industry, the advisory board provides recommendations to NICS for the development of cybersecurity awareness, education and career training.

**VIRTUAL UNIVERSITY**
Enables federal, state, local and tribal government employees access online training resources that are optimized for cybersecurity workforce development.

**WEB PORTAL**
Makes cybersecurity information and resources more readily available to the workforce and promotes greater collaboration among cybersecurity educators and employers.
NICS Advisory Board

An advisory board composed of stakeholders with training and education focus from each of the target sectors.

- Government
  - Federal
  - State
  - Local
  - Tribal

- Academia
  - K-12
  - Colleges
  - Universities

- Industry
  - IT
  - Critical Infrastructure
  - Vendors
Virtual University

FedVTE Federal Virtual Training Environment

State Local Tribal Virtual Training Environment

FedCTE Federal Cybersecurity Training Exercise

WWW.CSRC.NIST.GOV/NICE/ 10/24/2011
Virtual University

Presented by: Ben Scribner
2-programs developed in parallel

To supplement role-based Federal IT security training

[Diagram showing two programs: FedVTE and FedCTE, with categories Online, On-Demand, Collaborative, and Rapid Dissemination]
Audience

Personnel who protect U.S. Federal information & IT systems
Virtual Training Environment

Online, on-demand IT security training

IPv4 to IPv6 Transition: Mechanisms

Dual IP Stack Operating Systems and Applications

IP Tunnels

Translation Gateways
Cybersecurity Training Events

Interactive, experiential training for Federal cybersecurity workforce
Here’s how it works

POC = department/agency point of contact
TA = department/agency Training Advisor
Homework

Help us establish POCs and TAs at your Department or Agency.

• CIO or CISO must nominate a POC
  – Nomination email should be sent to FedVTE@dhs.gov
  – Include POCs full name and email address
• Get organized! Establish TAs who can...
  – Identify IT security personnel
  – Authorize training for personnel
  – Run reports
NICS Portal
Presented by: Josh Hammerstein
Human-Centered Design Process
Human-Centered Design Process

RESEARCH
Human-Centered Design Process

RESEARCH

CONCEPT DEVELOPMENT
Human-Centered Design Process

- Research
- Concept Development
- Refinement + Implementation
Human-Centered Design Process

RESEARCH  CONCEPT DEVELOPMENT  REFINEMENT + IMPLEMENTATION  FINAL DESIGN
Human-Centered Design Process

We are here.

1. RESEARCH
2. CONCEPT DEVELOPMENT
3. REFINEMENT + IMPLEMENTATION
4. FINAL DESIGN
Methods & Deliverables

RESEARCH

Market Analysis
Online Surveys
Contextual Interviews

*Personas*
Methods & Deliverables

RESEARCH
Market Analysis
Online Surveys
Contextual Interviews

Personas

CONCEPT DEVELOPMENT
Affinity Diagramming
Brainstorming Sessions
Content Strategy
Usability Testing

Information Architecture
Wireframes
Prototype
Methods & Deliverables

**RESEARCH**
- Market Analysis
- Online Surveys
- Contextual Interviews

**CONCEPT DEVELOPMENT**
- Affinity Diagramming
- Brainstorming Sessions
- Content Strategy
- Usability Testing

**Personas**

**Information Architecture**
- Wireframes
- Prototype

**REFINEMENT + IMPLEMENTATION**
- Look & Feel Design
- CMS Implementation
- Usability Testing

**Screen Designs**
- Final Prototype
Methods & Deliverables

RESEARCH
- Market Analysis
- Online Surveys
- Contextual Interviews
- Personas

CONCEPT DEVELOPMENT
- Affinity Diagramming
- Brainstorming Sessions
- Content Strategy
- Usability Testing
- Information Architecture
- Wireframes
- Prototype

REFINEMENT + IMPLEMENTATION
- Look & Feel Design
- CMS Implementation
- Usability Testing
- Screen Designs
- Final Prototype

FINAL DESIGN
- Deployment
- Functional Website
Site Overview

WEB PORTAL

NEWS & EVENTS

CYBERSECURITY AWARENESS

EDUCATION

TRAINING

CAREERS

COMMUNITY
Personas

- represent the intended visitors of the portal
- synthesize research into core needs
- clarify how the system might be used

Julie Benson  Mason Jones  Alicia Lippert  Peter Mitchell
Julie Benson

Cybersecurity Workforce Entrant

Age: 21
Job Title: College Student - Junior
Major Responsibilities: Completing her degree
Education: Penn State University
Family Status: Single

Quote
Julie wanted to supplement her academic career with classes in cybersecurity since her degree program did not offer this topic in the disciplinary core.
“After having my Amazon account hacked and my password compromised, I wanted to make information systems that would prevent this from happening to anyone else.”

Environment
Spending most of her time on a college campus, Julie lives in a dormitory. She has many friends and is a member of a sorority. She does her work and personal computing via the computer labs and her laptop in her room using a Dell with Firefox via wireless connection. She is technically savvy.

Key Attributes
Julie is a bright, initiative-driven person with a strong work ethic. Her belief systems and morals are not often discussed; she is rather private. She is apt and affable. Her conduct is very reasoned and she is extremely likable.
Mason Jones

Age: 28
Job Title: Information Technology Support Specialist
Major Responsibilities: Provide technical support
Education: University of Maryland, Baltimore County
Family Status: Married

Quote
Mason wanted to transition from technical support into vulnerability analysis, but could not afford graduate school. He is interested in vulnerability analysis due to the multiple times he was involved in incident response of a certain protocol.
“I believe if we were more proactive in testing software before release we could prevent more breaches.”

Environment
Mason works for Naval Academy in Annapolis, Md. He is married and has many social activities related to his church.
He does his work on a “managed” machine and personal computing via his home laptop. He is currently taking courses on IP6 via computer-based training on his laptop at home.

Key Attributes
Being a veteran, Mason is eager to receive continuing education credits and take advantage of any training in the area, in which he is interested and enjoys.
He is an active member of his church community and helps people when they have computer issues. He is well-liked and well-respected both at work and in his personal life.
Alicia Lippert

Age: 41
Job Title: Business Analyst
Major Responsibilities: Completing her degree
Education: BS, Ohio State University
Family Status: Married

Quote
Alicia wants to advance her career by going for a graduate degree in cybersecurity.
“I’m looking for a trusted source of information that will show me possible education and career options, as well as providing a place where I can post questions to knowledgeable experts.”

Environment
Alicia is a 41-year-old business analyst. She has a Bachelor’s degree in business and 9 years of professional experience in addition to a strong knowledge of computers.
She enjoys working for A1 Secure Network Systems, Inc., but she feels that there is more room for advancement in the field of cybersecurity.

Key Attributes
While doing some research online, Alicia discovered that there are many different ways she could prepare for a position in the field of cybersecurity. But which ones should she focus on?
Her biggest problem is finding one place where she can get accurate and current information.
Peter Mitchell

Age: 39
Job Title: Information Technology Specialist
Major Responsibilities: Network manager for FAA
Education: BS, Civil Engineering
Family Status: Married

Quote
Witnessing many incidents from his network admin perch, Peter believes security policy and education can lead to less overall security incidents. “Security starts with our users. Until they realize the large role they play in our network security, we will continue to suffer from attacks.”

Environment
Peter spends 8-5 in an FAA office with a large FAA datacenter down the hall. He uses his FAA-issued desktop for general office apps, along with another dedicated laptop for network troubleshooting, etc. He’s competent on general IT concepts, but not from a security perspective, so he is looking to improve his skills in this area.

Key Attributes
A retired Navy pilot, Peter’s interest in complex systems has led him to the IT field. He’s working to improve his skills in the area of computer and network security. He logs many hours per day behind a system doing routine sys-admin activities, but he is interested in improving skills in network architecture, security engineering, etc.
Information Architecture

- maps out the information structure of the portal
Information Architecture

National Institute for Cybersecurity Studies

Scholarship Opportunities
- Alphabetical
- By Deadline

Other Resources
- Alphabetical

NICS Gap Area Courses

Professional Certifications
- Alphabetical

Training
- By Target Population
- By Type
- By Topic/Area

Training Directory
- Alphabetical

Commercial Training Providers Directory
- Alphabetical

Other Resources
- Alphabetical

Further taxonomy needs to be developed by/with content expert.
Wireframes

- communicate initial design ideas
- focus on content and structure, not visual design
- prioritize content areas on a page
Prototype Demo
Usability Testing

We invite you to interact with the NICS Portal prototype, help us test-drive it and provide feedback that will further the site’s development. Your input is very valuable to us.

<table>
<thead>
<tr>
<th>Where</th>
<th>When</th>
<th>Length of Session</th>
</tr>
</thead>
<tbody>
<tr>
<td>NICS Booth</td>
<td>Wednesday &amp; Thursday</td>
<td>5 - 10 minutes</td>
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<tr>
<td></td>
<td>10 - 11 am</td>
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<td>5 – 6 pm</td>
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NICS Project Timeline

**FY 2011**
- Validate portal requirements and design
- Portal mockup and start of development

**FY 2012**
- Establish NICS PMO
- Assemble Advisory Board
- Portal operational

**FY 2013**
- Pilot State, Local, and Tribal Virtual Training Environment
- Expand portal content partnerships
- Continuously update portal content
30 minute break...

- Please visit the NICS booth and participate in the usability testing.

- After the break, breakout sessions! *This is your opportunity to provide input to make this tool work for you and your organization.*

- Reach us after the conference and in the future with the NICS Mailbox: **NICS@dhs.gov**
Breakout Sessions - 30 minutes

4 Breakout Groups

- “Awareness” lead by Roy Siple
- “Education” lead by Michelle Young
- “Training” lead by Susan Morris
- “Career” lead by Chelsea Pickens

Please join the group that you would most like to contribute to.
Summary & Wrap Up