

# Proposed Education & Workforce Development Plan for FY2015

Education & Workforce Development  
Work Group

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# Current Opportunities

- Significant state-wide opportunities for Cyber Security jobs
  - Estimated around 25,000 to 30,000
- Continued federal push for organizations to increase efforts to protect themselves from Cyber threats
  - 2013 Presidential Executive Order on Cyber Security
  - NIST Cyber Security Framework
  - National Cybersecurity Critical infrastructure Protection Act of 2014 (NCCIP)
- Cyber Security competency varies significantly (entry-level to executive) and can be gained in many ways
  - Education (Local & University)
  - On the Job Training (military, internships, etc...)

***Opportunities exists for all to have Cyber careers***

# National Centers of Academic Excellence (CAE) in Information Assurance (IA)

- Existing program co-sponsored by DHS and NSA to define a standard framework for Information Assurance curricula at universities and community colleges; compliant programs granted certification
  - National CAE in IA Education (CAE/IAE)
  - National CAE in IA 2-Year Education (CAE/2Y)
  - National CAE in IA Research (CAE/R)
- Six state Universities are currently CAE certified
  - George Mason University (CAE/IAE and CAE/R)
  - Hampton University (CAE/IAE)
  - James Madison University (CAE/IAE)
  - Marymount University (CAE/IAE)
  - Norfolk State University (CAE/IAE)
  - Virginia Polytechnic Institute and State University (CAE/R)
- One community college – Northern Virginia Community College (NVCC) certified
  - Adjustments to qualify community colleges require State Board approval
  - Creation of Cyber Security degree program can take 2 years
    - Consider both terminal degrees and degree programs that articulate to 4-year degree program at Virginia University (leverage NVCC/GMU relationship as a model)
    - **Recommended longer-term strategy for E&WD workgroup**

# Avenues for Development of a Cyber Capable Workforce

- Internships
- Military Veterans
- Existing Community College programs (certificate, non-degree) and relationships with private industry and Government for workforce development/deployment
- **Online training**
- Leverage existing Public-Private Partnerships addressing cyber education and workforce development challenges
  - Business Higher Education Forum (BHEF)
    - National Undergraduate Cybersecurity Network engaging Government, Academia and Industry to develop and leverage best practices in cybersecurity undergraduate education
    - Regional grants from represented companies to represented universities
  - U.S. Cyber Challenge
    - Computer facilitated testing & simulation
    - Top students receive invitation to U.S. Cyber Challenge bootcamp
      - Scholarship potential (“Top Gun” for hands-on Cyber elite)
  - Expand participation of Virginia universities and community colleges in Collegiate Cyber Defense Competition (Mid-Atlantic Region)
    - Participate in recruiting event that accompanies the 3-day Regional Final Competition
    - Participate in K-12 event for students and parents following the competition

# Avenues for Development of a Cyber Capable Workforce (cont.)

- CyberPatriot National Youth Cybersecurity Education Program
  - Fairfax County Public Schools is one of only five CyberPatriot Centers of Excellence in the United States
    - Opportunity: leverage to the **Virginia Governor's STEM Academy** level to increase participation across the Commonwealth
    - Virginia participation currently nearly 200 teams, a four-fold increase in two years (about 1,200 students state-wide)
  - **Virginia Governor's Cyber Challenge** in 2013 and 2014; state final competition between all Virginia CyberPatriot teams; held at GMU; Opportunity: 2014 program funded by \$40K grant from Secretary of Technology
  - Many participants secure internship opportunities with Government and private industry
  - Introduce cyber concepts through age-appropriate education (K-12)
    - Elementary: CyberPatriot event for all students and “cyber aware certification” for school; basic information about protecting personal information
    - Middle/High: CyberPatriot Camp (one week summer format) and CyberPatriot Cybersecurity Defense Competition (6-month education and competition format of national-level stature)
- Expand undergraduate research opportunities in cybersecurity and critical infrastructure protection; leverage private industry relationships

# Internships:

## Quick path to Cyber capable workforce?

- Internships in general have a high-rate of full-time conversion – greater than 80% in most companies.
- Increasing demand for entry-level cyber personnel
  - SOC Analysts aka Computer Network Defenders
  - Penetration Testers
  - Threat Analysts
  - Application Security Developers
- Provides multiple levels of cyber-ready talent across, high-school, community college (certificate, AS) and university (BS, MS)

# Internships – Quick Win Recommendation

- Develop and promote a joint intern program between industry, community college and university to start in 2015. Reduce state-level costs by co-funding with industry participants who need to ramp up cyber talent – estimated \$150k to fund (start-up program would support initial promotion costs and kick-off event).
- **Option:** Investigate feasibility of creating a state level version of the federal Scholarship for Service in cybersecurity program (“CyberCorp”) whereby students repay scholarship funds with years of service in the state’s cybersecurity workforce
- **Kick Off Event:** Hold during an existing Commonwealth cyber event (TBD, COVITS 2015?)
  - Showcase the top cyber “up & comers” at community college, university and public school system level
  - Showcase online programs (i.e. University of Maryland University College rivals)
  - State universities and community colleges could showcase cyber programs
  - Industry & Government could support/fund a career fair
  - Hold a K-12 day toward the end where parents could learn about in-state cyber programs

# Next Steps

- Develop more articulation agreements from K-12 STEM programs to Community College to University – enhance the cyber education pipeline to feed the increasing job demand.
  - Example: Fairfax County Public Schools – NVCC – GMU
  - Review K-12 STEM programs in conjunction with Virginia Tech/NVCC; Liberty University/CVCC; Hampton University/TNCC and others; enhance all Commonwealth regions
- Deeper dive on estimated costs/budget
  - Understand other initiatives and budgets that could be leveraged (e.g. New Virginia Economic Workforce Initiative, etc...)
  - Look for opportunities to map to existing educational workforce development efforts
- Engage with existing programs and organizations to leverage for scholarship and/or internship opportunities:
  - Mach37 participants
  - Northern Virginia Technology Council
  - Others?

***Keep Virginia cyber students working in the Commonwealth.***