

**Information Assurance -
Information Security - Digital Forensics
Career Preparation and Opportunity Workshop
For Guidance Counselors**

**Thursday, May 7, 2009
9:00 am – 3:00 pm**

Summary Report

**National Electronics Museum
Linthicum, Maryland**



Organized by: Educational Technology Policy, Research, and Outreach
www.edtechpolicy.org

ETPRO CyberWATCH
IS/IA Cybersecurity and Digital Forensics Career Preparation and Opportunity
Workshop for Guidance Counselors

YEAR 3

Event Summary

A full day workshop occurred on May 7, 2009, held at the National Electronic Museum <http://www.hem-usa.org/> Linthicum, Maryland, in partnership with the MD State Department of Education and Northrop Grumman. The workshop focused on educating 72 counselors on current and future career options for students in Information Assurance, Information Security, Cybersecurity and Digital Forensics, what's expected (i.e., clearances) and how to get there.

The morning included insight from Lynn McNulty, CISSP, Director of Government Affairs of (ISC)², discussing statistics from the most recent Intelligence Careers, Department of Labor Survey, and Global IS Workforce Study. Lynn also shared with the audience the need for filling the IT/IA/IS pipeline, current and future career trends, and provided an opportunity to describe the landscape through the eyes of an organization dedicated to certifying IS professionals. Mr. McNulty was followed by Paul Joyal, Director of National Strategies, Inc. who first shared what a career in public safety, homeland security and cyber warfare was, and shared the need for increasing the IT pipeline to address these career opportunities. Davina Pruitt-Mentle then moderated a panel discussion with the primary topic being academic tracks and outside programs in this area. Panel members represented 2nd and 4 year programs, including Johns Hopkins University, Capitol College, University of Maryland University College, University of Maryland-College Park, Howard Community College and Prince George's Community College. Luncheon keynote was Mark Hardy, President of National Security Corporation, who spoke about the evolution of the field. The audience then had a chance to rotate through two sessions: Sean McDowell who spoke about career opportunities with the US Secret Services and a tour of the National Electronics Museum and the connection to IS/IA careers. Tim Sullivan from DISA then who spoke on the topic of "Clearance Processes and Requirements". Davina Pruitt-Mentle ended by sharing what resources are available through the CyberWATCH Center and website.

(ISC)² supplied a keynote speaker and also supplied each participant a variety of materials/resources (hard copies) including:

Resource Guide for Today's IS Professional – Global Edition

<http://www.isc2.org/resourceguide/default.aspx>

Career Guide: *Decoding the Information Security Profession*

<http://www.isc2.org/careerguide/default.aspx>

IDC Analyze the Future: White Paper: 2006 Global Information security Workforce Study <https://www.isc2.org/download/workforcestudy06.pdf>

Northrop Grumman TASC supported the facilities and media personnel.

The National Cyber Security Alliance shared their Top 8 Tips Brochure

Additionally, stipends @\$100.00 were made available through NSF (National Science Foundation) funding for 20 guidance counselors based on 1) first come first serve basis and 2) stipend participants were asked to create recruitment brochures/ fliers based on workshop content that will then be shared with students and parents (and other GC), and to present materials and/or new resources with faculty and/or parents at their school. Stipend awardees were required to attend the stipend briefing. Materials are currently being added to the website for others to view, utilize and share.

Presenter materials and an overview of the event have been archived at:
<http://www.edtechpolicy.org/Cyberwatch/gcworkshop.html>

Summary Evaluation

The workshop was uniformly regarded as excellent and essential by both participants and speakers. Summary evaluation and comments are listed below.

Questions	Average Evaluation (0-strongly disagree, 4 – strongly agree)
General Questions	
The workshop’s objectives/goals were clear	3.6
The 1 day length of the workshop was sufficient time to cover the subject matter	3.2
Overall, the workshop speakers were effective	3.4
The workshop materials are useful	3.4
I learned new information in this workshop	3.7
I will use the information that I learned in this workshop in my current position	3.7
I would recommend this workshop to others	3.7
Considering what I learned in the workshop, the cost was reasonable.	3.9
Speaker Presentations	
Lynn McNulty “Information Security: A Growth Career” was relevant and useful	3.3
Opening remarks from Paul Joyal , National Strategies Inc, about Public Safety and Homeland Security Practice: Cyber Warfare was relevant and useful	3.2
The Panel discussion was relevant and useful	2.8
The Working Lunch/Speaker Mark Hardy , President National Security Corporation was relevant and useful	3.8
Sean McDowell , US Secret Service, was relevant and useful	3.8
The afternoon Museum tour was relevant and useful	3.7
Clearance Processes and Requirements presented by Tim	3.9

Sullivan, DISA was relevant and useful	
The Online Reputation management (if time) was relevant and useful – leave blank if not covered	

How could this workshop be improved?

- shorter presentations from panel and more time for panel discussion
- It is not rude to keep professional to a time line it is rude when others do not get equal time. Too many people on panel for such a short time. Needed a time keeper
- the info from the panel was interesting, but too detailed for the audience. Which is why they spoke too long. Perhaps a short (2-3 minute) time line for each would be useful
- more handouts. More visuals of actual jobs and activities. Less technical
- Paul had great stories and examples-very interesting but not necessarily about awareness & careers. Mark was relevant and fun! The museum was not relevant or useful but fascinating and fun. Have seen Tim before and always good. Perhaps consider having him first since all the others made clearance references--and we would have better understood. Speakers especially panelists went far far beyond goals into minute and esoteric specifics of their programs to the severe detriment of their presentations--need to be more to the point, what we need are what jobs exist? what course work do our students need at HS level, what skills should students have? what are the characteristics of kids moving into these career fields. next time clarify for speakers to give them a more appropriate focus. Sally, Baker and Alana good example of how to do it right!
- this was an excellent opportunity, but at times the wealth of information was overwhelming. Technical aspects should be eliminated
- Paul was interesting but not geared toward US. First two panelists too long. Good light lunch speaker. Overwhelming amount if info. Can lose some of the tech info.
- shorter panel presentations. Less presenters for panel and more interactions. Mark dynamic! But Really enjoyed
- we are missing one of the brochures on "careers" as a reference to by Lynn and shown in his PPT
- reduce technical language. More suitable temperature
- more interaction with audience. Too much setting, smaller groups to interest presenters
- thank you! Very informative to hear directly from industry experts.
- "Speakers list" according to expertise, availability & grade level audience would be helpful. Very well organized, with a wealth of information.
- Diverse speakers (race/sex) as well as by topic. great tour-applied science/math
- so much crammed in time allowed
- I wanted to know clearance requirements and at the end of the day it was hard to wait that long. First two speakers weren't too relevant went on too many tangents. Museum tour not relevant but interesting

- it is difficult to do this but you have to insist the speakers respond to the key points of the workshop. We don't need to hear story after story. The MC read nice bios and the program helped a lot. If you give the speaker an outline & tell them they need to answer basic questions i.e., what opportunities are there for these students? internships? would recommend this workshop to others with this modification. Objectives were clear but not addressed by all speakers. Hardy person--good speaker and story teller but oh my gosh!!! Pull the plug on this guy! Sean McDowell covered all points. tour was fine. Its a thought but probably start off the day with the tour to allow for late arrivals. suggest start with clearance person to set the stage for the remainder of the day. this is GREAT! I think people have taken advantage in order to toot their horns. George Walls--provided practical info HS people could understand and use. Jim Chen programs are relevant by presentation was very technical. A counselor would not understand the language...way over our heads! Alana Johnson very good speakers hands on MS & HS programs speakers and mini grant (1000.00 to promote STEM John Baker good info
- Although a lot very interesting—thank you great ideas
- the idea and concepts are great! You can tell everyone worked very hard on this endeavor. Great Job! limit speakers. Tim clearances should go first because all prior session questions were in Tim's presentation he set the tone of the session some of the speakers need to get an "elevator speech" specifically the panel members. Several speakers spoke over our heads--they were difficult to follow. Lynn and Paul were excellent kept your interest and left you with knowledge. and excitement necessary to sell the programs to students. John Baker from JHU should have gone first! John was observant and an excellent communicator--he knew his audience. john actually told us how we & our students could & can use their programs. G-Mark had good observations however once again he was a little long winded. No list should be more than 1--13 items and better to have less than 10 Please make sure speakers stay within their allocated time---give them a 5 minute warning left of time Goals and objectives were clear but not sure addressed
- resource page with website put all materials /handouts in a binder or bound book format to better follow, for better organization. Leave lined page for notes. Less speakers esp on panel better room setup so all seats facing front and can see speakers
- He should have gone first (Tim) It would be better if we learned real skills & knowledge--courses necessary or desired for our students. Some speakers talked way over our heads about technical things that were irrelevant for us to know. I don't think I learned anything about hooking my students into STEM fields. I had hoped to be able to go back to school to encourage and excite my students. Capitol college guy good and John Baker--he should have also gone first because he gave simple definitions that explained a lot so more things made sense. I would have preferred not to have a luncheon speaker although he was entertaining
- try to keep on time with panel--overall great!
- Thank you I loved it

Please list any additional comments or suggestions below:

- The AC was freezing me out. Would be helpful to have a glossary of the terms since I was lost for most of the panel. Lunch was very nice and chocolates were a nice touch.
- consider a bit more time focusing on days objectives & purpose before each speaker--however, this was nicely defined in writing in handouts and explained in beginning
- in future build in time for networking or if possible send out list of participants and their emails
- Good size. Very Informative
- thank you this was very interesting
- G. Mark Hardy was perfect as the luncheon speaker--entertaining, insightful. Would like to know more about his company. Although I appreciate the other speakers, Sean McDowell was very helpful to me as a HS guidance counselor. I want him as a guest speaker for my 9th, 10th & 11th graders!
- thanks for the invite. Facility was great!
- needs to be much more straight forward
- Great topic covered. Lots of info!!
- thank you for this great opportunity!
- Have the cyber crime lab located here in Linthicum to speak (Jim Christy). Hardy way too long. I think he liked to hear himself talk...yank him off the stage! Need break in schedule although you might loose some then
- great speakers and they were very knowledgeable
- very nice to find out about colleges but don't really need to be so detailed down to course numbers. Give broad overview of program, what graduates are doing and how much \$ they are making. Tons of good information thank you! Some technical stuff over our heads
- lunch speaker was funny--enjoyed his presentation. Would return to visit museum tour was too short overall well worth the time!!
- great presentations, but a bite rushed at times thank you for having us! Very helpful
- Please keep on doing these kind of workshops
- limit technical presentations panel especially at times to detailed
- great information ! I really enjoyed the day
- it was a lot of info to absorb & a lot of time sitting a few more stretch breaks
- the college panel; could be shortened--we had handouts of their programs to use for students recommendations but we (counselors) only need an overview--not a full sales pitch
- Limit number of panel members so more discussion is possible
- much of the info was repetitive. Cut down on # of speakers or at least panel--more time for questions. Personally, I felt saturated and exhausted. However, the

information was excellent so perhaps it was because it was all new to me. Thank you I enjoyed

- more activities/hands on/group work
- Panel" To indebt info
- Speakers assumed level of background was high (not everyone is familiar with terms, process)
- this was very helpful for students and parents. It would be great to invite them
- Thanks!!
- better time management for the panel
- the panel was too long could have been presented in paper. Mark Hardy was good
- this info could have been condensed and still relevant to counselors. Some info was too technical, and therefore difficult to follow. For example, the descriptions of classes and examples of labs and so on—we do not need that
- the room was extremely cold, which made it difficult to concentrate and stay awake. There was little down time. Even lunch was booked. Although the lunch speaker was excellent, it would have been nice to have some time to unwind and perhaps to exchange ideas with others at our tables
- Shorten the panel presentations. The first 2 were way too long
- the air condition was too cold and distracted from the presentation

Resources and Speaker Materials can be found at:

<http://www.edtechpolicy.org/Cyberwatch/gcworkshop.html>

Lessons Learned

Originally the Maryland event was to be held at the Colombia Gateway JHU building as done in years past. However, the dates available did not match with the dates available for Maryland guidance counselors. The newly opened National Electronics Museum seemed a perfect match.

Overall, the participants enjoyed the workshop and found the materials and resources very useful and the presenters informative. On a 0-4 scale (4 being the highest positive scores) the average overall evaluation score was a 3.5. Scores for individual items (see evaluation summary) ranged from a low of 2.8 and a high of 3.9. Qualitative comments based on face to face comments, evaluation written comments and selected follow up questionnaire comments were more revealing. The participants found the workshop "new and different". As several indicated, "we rarely have a chance to attend something like this." The cost (free) was greatly appreciated. All gave extremely positive feedback on logistics such as registration, directions, location and parking. Additionally, the food was a big hit. Overall, the participants found the presenters knowledgeable, interesting and informative. The appreciated the materials and resources, especially those they could immediately share with their students and parents.

Participants also shared a number of things that could be improved for future events. Two specific suggestions were emphasized. First, the temperature in the facility became too cold mid-way through the schedule. Although we attempted to make adjustments, the room did not “get warm” until the end of the day. Second, and most referenced in evaluations, was the panel session having too many panelists and the fact that a few took too much time or spoke too technical in their presentations. I will address each of these in the next section.

The panel was originally set up to have 5 members. Unfortunately, one canceled but then decided to come at the last minute. Another had two members come (one from the department and another from admissions office) rather than one representative. However, the numbers could have been tolerated if everyone kept to the 5 minute overview. Even with hand jesters and walking mid-way on the floor, presenters continued to talk. It is difficult to cut speakers short who have given up their time for free—however, something we will work on for the future. A briefing before the panel begins; reminding them of the time limit will be added next year. Additionally, I will remind each presenter before they take the podium, that they have 5 minutes, and that I will give them a one minute warning and will have to cut them off at 5 minutes in order to stick with the schedule. This will make it easier to step in without making the presenter or audience uncomfortable. Having additional time to ask questions and discuss was a key design for the panel—which was not able to happen due to the time factor. The past guidance workshops have emphasize a need to know a little more “about what courses, and what the courses are about...what do they include”, therefore, we asked several panel members to give more specifics about what these type of programs are like and what they include. Unfortunately, this new audience did not want the technical aspects and in some cases did not see the need to know. “For example, the descriptions of classes and examples of labs and so on—we do not need that” and “just tell us what the jobs are, what classes students need to take in high school and how much people make—that’s all we need”. Two items of interest to note. First, the difference between each year’s audiences’ “needs and wants” was and will probably continue to be a challenge. Second, there seems to be a dilemma between what students’ share they wished their counselors had known more about and what counselors want to know about. “I wish my counselors had known the possibilities” and “would have explained to me” were common comments. Student feedback (from freshman and juniors) indicates guidance counselors “often hear we like computers and so tag us for computer science or engineering. They don’t have a clue what courses there are, what type of courses there are or what it even includes” “I don’t think they even know that much of this you could take in high school or community college to get a jump start”, “when I asked what these courses were they said I don’t know you’d have to ask the college, so I choice something else until now”. Somehow, we need to make guidance counselors aware of what the classes/courses include and cover (beyond just a list of courses that can be found in a college catalog), but in a way that is less technical so that all can comprehend.

Other suggestions included: having clearance processes go first and having more small breaks or the lunch free to network. We strategically placed the clearance presenter at the end of the day to keep the audience. However, perhaps a short “primer” at the beginning of the session would be helpful to coach the preceding presentations. Having a shorter lunch followed by a speaker, rather than a speaker at lunch will be considered for next year.

Another insight the committee found interesting, was even after the presentations a few did not see the connection between careers in Information Assurance, Cyber defense and digital forensics with what the presenters shared. Paul Joyal, shared real life stories regarding work in the area of Cyber warfare (Georgia—not the US state). One participant shared, “Paul was interesting but not geared toward US”. Another noted that the National Electronics Museum tour was, “not relevant but interesting”. These comments clearly highlight the need for additional awareness workshops and activities. Additionally, to take a more active awareness campaign, PR and marketing materials, specifically related to careers options in this area will be developed to help bridge this knowledge gap. Possible materials include:

- Booklet with possible career overview
- Flier and poster highlighting career options
- Bookmarks with career options and then areas of study and focus on clearance processes etc...
- Short YouTube type media explaining (PPT type)
- Short YouTube type media explaining (with people discussing)
- Short highlights of people in the field—how they got there etc...add to website
- Adding the preexisting presentation on online identity management and clearance processes to the website

In addition, the materials developed by the guidance counselors will be linked to the website and available for others to view and use. We should also consider opening with the CW presentation video <http://www.cyberwatchcenter.org/CyberWATCH/> and perhaps including several of the movie trailers that we use with students throughout the workshop to help share the scope of the issue

- <http://www.archive.org/details/Ncccd2009> Cyber Defense Competition Trailer
- NATO Trailer <http://www.truveo.com/New-NATO-cyber-defence-centre/id/13338847>
- Sneakers <http://www.imdb.com/video/screenplay/vi2448753433/>
- Hacker <http://www.youtube.com/watch?v=2efhrCxI4J0>
- The Net <http://www.imdb.com/video/screenplay/vi2046230809/>
- NSA Commercial - http://www.nsa.gov/careers/Media_Center/index.shtml



Attention
 School Counselors
 STEM Coordinators
 Media Specialists
 You are invited to participate in a
 special workshop sponsored by
National Science Foundation



Information Assurance/Information Security/Digital Forensics Career Preparation and Opportunity Workshop

Future Job Titles

- Info Steward
- Outsourcing Manager
- Mobile Application Developer

Clearances

- Polygraph
- Secret
- Top Secret
- SCI

When: Thursday, May 7, 2009

Time: 9:00 am-3:30 pm **Cost:** none

Where: National Electronics Museum, Linthicum MD

Deadline for Registration: April 28, 2009 - [Online Form](http://www.edtechpolicy.org/C3Institute/GuidanceCounselor/2009/GCRegistration2009.html)

<http://www.edtechpolicy.org/C3Institute/GuidanceCounselor/2009/GCRegistration2009.html>

(you must provide your transportation-refreshments and lunch will be served)

Note: This program is limited to 80 participants on a first-come, first-served basis.

School counselors/career counselors are critical in the career choices of students. This 1 day workshop will introduce counselors to IS/IA, Cybersecurity and Digital Forensics career opportunities, and choices within these categories, as well as, the multiple pathways to enter the workforce in these areas. Industry employers will speak to participants about career opportunities, student internships, externships and other related opportunities.

School counselors will learn about current and future career trends in IS/IA, receive updates and current promotional materials for distribution to interested students and parents, and discover how to use the CyberWATCH Regional Center Web site to find answers to questions from parents, students, and other educators. Each counselor will also receive materials and handouts.

Defense Careers

- Counterintelligence
- Linguists
- CISA, CISSP, SANS
- Database Analysts & Administrators
- Digital Forensics
- Forensics Investigator
- Systems Engineer
- Graphics Specialists
- Risk Management
- Network Security

20 stipends @\$100.00 are available for **guidance/career counselors** through NSF (National Science Foundation) funding and will be arranged based on 1) first come first serve basis and 2) stipend participants will be asked to create recruitment brochures/ flyers based on workshop content that can be shared with students and parents. Stipend awardees must attend the 3:15 - 3:30 meeting.



Tentative Speakers:

- AACC JHU PGCC UMBC
- NSA
- Northrop Grumman
- (ISC)2
- National Strategies, Inc.
- National Security Corporation

For More Information:
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 410 767 0769



TASC



The Goals of the School Counselors Workshop are to:

- Increase counselor awareness of the workforce needs of the United States in IS/IA and related fields (digital forensics, homeland security, network security, systems administrator, cybersecurity) and requirements (clearances) including 2 and 4 year and certification tracks.
- Increase the knowledge of counselors about the Regional CyberWatch Center and its benefits to students and the future technology workforce.
- Share the connection between the CyberWATCH program and post-secondary success at partnering colleges and universities.

The Information Assurance/Information Security/Digital Forensics Career Preparation and Opportunity Workshop Tentative Agenda

8:45 AM	Check in
9:00 – 9:15	Welcome
9:15 - 10:00 AM	Background/Need: Information Security: A Growth Career <i>Lynn McNulty, (ISC)²</i>
10:00 -10:45 AM	Public Safety and Homeland Security Practice: CyberWarfare <i>Paul M. Joyal, Managing Director, National Strategies Inc.</i>
10:45 -11:00 AM	BREAK
11:00- NOON	Panel Discussion & Open Forum <i>John Baker (JHU), Jim Chen (UMUC), Ken Crockett (Capitol), Sally Sullivan (PGCC), Vini Nithianandam (HCC), George Walls (Capitol), Alana Johnson (MAGiC/UMD)</i> <ul style="list-style-type: none">• Two Year Pathway/Certificate Programs and Options• Four Year Track Programs• Promoting Women in STEM fields
12:00-1:15 PM	Luncheon Speaker - <i>G. Mark Hardy</i> President National Security Corporation
1:15 - 2:45 PM	Overview of Computer Crime and Digital Forensics: (participants will break up into groups and rotate through) <i>Sean McDowell, US Secret Service</i> Tour of Museum and connection to IA/IS Careers
2:45- 3:15 PM	Clearance Processes and Requirements <i>Tim Sullivan, DISA</i>
3:15- 3:30 PM	Digital Reputation Management CyberWATCH Regional Center Resources/Closure Briefing for Stipend Participants Davina Pruitt-Mentle, CyberWATCH

Directions on Next Page

National Electronics Museum, Inc.

1745 West Nursery Road

Linthicum, Maryland

Phone: 410-765-0230

Directions***From Baltimore***

- Route 295 South (Baltimore Washington Parkway)
- Take West Nursery Road exit, turn left at light and go through four stoplights.
- Museum is on the left, next to the Marriott Hotel.

From Annapolis

- Route 97 North
- Take BWI Airport exit. Right at first light onto Aviation Boulevard.
- Turn right at sixth light onto Elkridge Landing Road.
- Turn right at second light onto West Nursery Road.
- Museum is on the right, next to the Marriott Hotel.

From Washington

- Route 295 North (Baltimore Washington Parkway)
- Take West Nursery Road exit, stay right on ramp.
- Go through three stoplights.
- Museum is on the left, next to the Marriott Hotel.

From Route 195

- Route 170 North (Camp Meade Road) towards Linthicum.
- Left at first light onto Elm Road.
- Left at light onto Elkridge Landing Road.
- Right onto West Nursery Road.
- Museum is on the right next to the Marriott Hotel.

From Interstate 95

- Exit onto I95 East to 295 North and follow directions from Washington (above)

[Click Here For Directions with a Map](#) (requires Adobe Acrobat Reader)

Parking

Parking is free. Additional parking is available in the lot at the end of the building.