NVC Report – CyberWATCH, June 1-2, 2006
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PI – Vera Zdravkovich

NVC members present:
Dr. Barbara Belon, Chair, Dr. Eric Cole, Dr. Sujeet Shenoi, Mr. Erich Spengler, Mr. Dan Wolf, Dr. Marie Wright

Dr. Corby Hovis, Ex. Officio

Although CyberWATCH has only been operational for six months, the NVC members were presented with a large and varied amount of information on the Center's development. For this and subsequent reports, we will arrange our comments under Presentation topics, followed by relevant Commendations and Recommendations.

The committee would like to express our appreciation to Dr. Vera Zdravkovich and her staff at Prince George's Community College, Largo, MD for their hospitality and organization of the meeting. These commendations recognize successful activities in the areas of program development, leadership, teamwork, marketing, outreach, partnership development and reporting.

Overview: Currently, there are fifteen (15) 2-and 4-year institutions participating in CyberWATCH and an additional six (6) high schools, covering three states and numerous counties. This representation, when completely coalesced, will be able to exert a major force on IA education in the region.

Presentation Topics:

- **Curriculum development** – Dr. Fred Klappenberger. The IA model, developed at Anne Arundel Community College is being adopted/adapted by other CyberWATCH schools. The adoption includes mapping the course content to NSA's 4011 standard. Of note is the development of a state-wide articulation of the IA degree program, benefiting all schools that adopt/adapt the AACC curriculum.
  - **Commendations:**
    - The idea for deploying a core IA curriculum/program among member institutions presents a strong model for alleviating the "reinventing the wheel" syndrome. Paring the curriculum adoption with the NSA mapping exercise is

laudable and will go far to assist in standardization of approaches among the member schools.

- Investing in the development of a state-wide program articulation is laudable and will work well with the planned 2+2+2 pathway development.

➢ **Recommendations**:

- The committee recommends that thought be given how to encourage community college students to plan early to continue their education and transfer to a 4-year school, particularly one where an articulation has already been crafted.
- It is recommended that the weighting of emphasis within the program be considered. Too much emphasis on the Cisco curriculum, while important to the security foundation, can overshadow the IA courses. Placing heavier emphasis on moving at least the first two courses to the high schools may not only help solidify 2+2 partnerships but also bring the IA courses into sharper relief among the programs array of courses.

➢ **Concerns**:

- It is probably not too early to design a plan for curriculum revisions and how that would be rolled out to other colleges who have adopted/adapted AACC's program, and how those changes might impact the articulations. This is a problem for all institutions, so if CyberWATCH can devise an approach for handing this problem, then all 2-year colleges with articulated IA programs could benefit from the resulting information and plan.

❖ **Case Studies** – Casey O'Brien. Mr. O'Brien reported on the development of case study modules that are available for sharing among CyberWATCH members. He also described the cyber defense competition in which students from CyberWATCH schools participated.

➢ **Commendations**

- Participation in this year's Cyber Defense Competition, including team preparation and the handling of logistics, was a huge accomplishment for year one. Since the participating students so clearly benefited and received career direction from this event, it is even more laudable for a Center's first year initiative.

➢ **Recommendations**:

- While Internet distribution of articles on the competition is logical, it is recommended to develop much more aggressive advertisement/marketing distribution channels. Such a tremendous effort deserves wide-spread coverage. One recommendation would be to send all press releases to the offices of elected county, state, and federal officials. Additionally, public TV channels should be courted and kept apprised of CyberWATCH's events.
- Statistics should be collected on what modules are being used by which colleges, and included in the evaluator's annual report.

❖ **Technology-enabled delivery** – David Hall. The development of the remote lab and its management was explained.

- **Commendations**
  - Remote labs clearly are a good way to use idle equipment and to provide lab equipment to institutions that can not bear the financial burden of purchasing their own. This increased ROI on equipment purchases has shown to be a good idea when deployed at other institutions. Congratulations to CyberWATCH for replicating this enabling-program.
  - Additionally, opening discussions with the National Guard for shared use, providing potential program sustainability of this resource, is a laudable action.
- **Recommendations**:
  - The committee suggests that thoughts be given already to how the lab technician position (who maintains and schedules the use of the remote lab) will be supported/ institutionalized, when the grant expires.

❖ **Faculty training – Margaret Leary.** The work that has been done under the area of faculty training and development was presented. A needs survey has been distributed to CyberWATCH faculty and tabulated. This summer a Security+ course is being offered. An ongoing faculty development program is being explored. Ways to provide incentives to faculty for taking certification exams is also being explored.

- **Recommendations**:
  - Faculty training is crucial to the success of CyberWATCH. As such, it is recommended to put an aggressive, full-court-press on the development of IA training programs (or partnering with other sources to do so). Additionally, all training programs need to track how and when the faculty actually deploy their new IA skills/knowledge. These essential metrics should be included in the grant evaluator's yearly report.
  - It is recommended that a timeline for a 4-year plan of expected faculty development be developed, listing workshops and how these support the deployment of the CyberWATCH curriculum model
  - It is recommended that the possibility of granting graduate credit for faculty development courses be explored with partner institutions.

❖ **High School Teachers – Cynthia Mason Posey.** The current relationship with high school Cisco Academy partners was discussed. While the models within the schools vary, the potential for earning college credit remains a constant.

- **Commendations**
  - CyberWATCH is to be commended on the attention that is being paid to participating high schools, for both students and faculty. The Cisco program is clearly a logical instrument with which to build synergy between the high school and college programs.
- **Recommendations**:
  - Exploring a pathway to IA curriculum from these programs may increase opportunities for IA program participation.
  - To cement relationships, CyberWATCH personnel might want to point high school teachers in the direction of national training programs offered to high

school faculty (such as Microsoft's Educational Alliance). These programs can lead to additional IT skills training courses that might be candidates for credit transfer to the community college.

- **Career Pathways – Calvin Smith.** Career pathways and the identification of internships and externships were presented.
  - **Commendations**
    - Providing internships for students in an IA program is extremely commendable. Establishing this internship aggregator/placement service early on in the life of CyberWATCH will clearly benefit the Center.
  - **Recommendations**:
    - For those member colleges who have cooperative education offices already established, it is strongly suggested that they be contacted and encouraged to participate in the development of internship assignments.
    - Many well-tested internship models for building educational objectives into internship assignments already exist. They should be adopted/adapted, rather than reinvented.
    - Recommendation is made to explore internships with the Department of Defense since there are many facilities in the Baltimore/Washington area in need of security professionals.
- **Student internships – Allan Berg.** Student internship assistance in developing resumes, cover letters, and faculty assistance for learning how to coach students in interviewing was presented.
  - **Commendations**
    - It is a widely known need that students need "polishing" before they attempt their first interview. Attacking this deficiency head on is to be commended, especially in light of the importance that internships play in this degree program.
    - The exploration of student security clearances, early in the program, is merit-worthy and something that has not been addressed before in the community college environment.
  - **Recommendations**:
    - Adding an informational component within existing or planned recruiting programs should be developed to alert students to actions that would disqualify them from future security careers. Sample questions from the current FBI candidate polygraph would drive the point home.
  - **Concerns**:
    - Many of the described services (resume writing, interview skills, etc.) are currently under the purview of other college departments, such as guidance, placement, or cooperative education. In order to preclude competition and discord, it is suggested that any program developed would need to include personnel from these departments, if they exist at the various member colleges.

- **Middle and High School Educational Component – Davina Pruitt-Mentle.** The Young Scholars Program, C3 conference, Women in Cybersecurity Workshop, and GMU's "Sally Ride Science Fair" were presented.
  - **Commendations**
    - The committee congratulates CyberWATCH for the effort being placed on the middle and high school community. It is anticipated that these efforts will pay off in creating students who are more cyber-aware and also potentially assisting in developing the pipeline of students for careers in IA.
  - **Recommendations:**
    - It is suggested that thought be given to developing a non-credit security awareness course for the partner high schools to further cement the relationships and offer something unique to the high school faculty. As an alternative, a 1-credit hour graduate credit course for high school faculty could be developed and offered at one of the partner 4-year institutions.

Miscellaneous Topics:

- **Cyber WATCH Evaluation** – John Sener

It is expected that the report by the Center's evaluator will contain information such as number of approved state degree programs, number of students enrolled, number of A.A.S graduates who go on towards their Bachelors (and where), etc. Plans on which quantitative measures to gather need to be in place now for year 2. It is assumed that quantitative data regarding various aspects of the project (personnel, courses, certifications, students, etc.) along with performance measures and demographic data about students will be provided in future reports and presentations to the NVC.

- **Advisory Board**
  - Evidence from discussions supports the impression that the advisory board feels engaged
  - The board members have definite personal motivations for their membership, and are agreeable to doing more than just talking or giving suggestions.
  - It is suggested that a handbook be developed to outline the mission of the advisory board, length of service term (renewable, of course), and other operational items such as the process for moving an item onto the meeting agenda. Having a framework for the advisory board will provide an identifiable shape/structure.
- **Student Interviews**
  - Students clearly felt good about the program and were eager to continue their studies.
  - Most of the students queried had already thought about continuing their education through the Bachelor's degree. The existence of program articulations was the foremost driver.

- The Cyber Defense competition was a real eye opener and an excellent learning experience for the students.
- There was mention of a higher level course being “weak”. This may be due to the instructor’s skill set, or just incorrect leveling of the course, but needs to be explored. All instructors need to have knowledge of the contents of the entire array of IA courses to eliminate duplication of topics and ensure that the level of coverage is appropriate.
- Access to equipment was felt to be very important by all students.
- The driving factor for many of the students, as to why they were attending a community college, was money, and the affordability of the education.
- Proportion of male to female students within the program is roughly 20:1. Reaching out to female and minority/underserved populations could benefit from program focus.
- Students felt strongly that faculty who served as mentors were a great asset to their studies.
- There was a suggestion that an ethics course which focused purely on the traditional topics was “off-topic”. They preferred to attend an ethics class that targeted ethics in the IT space.
- Many of the students expressed an interest or desire to work for the federal government. This plays into the issue of security clearances and needs to be explored.
- When asked if they observed a hacker in one of their classroom labs, would they know who to report it to, the answer was definitely yes.
- The students requested that UNIX/Linux courses be made available.

The NVC appreciates the investment of time that the CyberWATCH member made in this meeting. We look forward to our 2007 visit, and hearing about a full year’s worth of progress towards your goals.

Respectfully Submitted on behalf of the NVC,

Barbara J. Huffman de Belon

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