Air Force Association's
CYBERPATRIOT
National High School Cyber Defense Competition
presented by NORTHROP GRUMMAN Foundation

Issue 00011
January 2013

The CyberSentinel

Buck Buckwalter, CyberPatriot Lynchpin Retires

Over the past five seasons, CyberPatriot has grown from a local event to an international competition. The competition was built on a model that has excited and motivated thousands of high school students. Many of them have considered careers in network security and other science, technology, engineering, and mathematics (STEM) disciplines.

Buck Buckwalter cheers on the competitors at the CyberPatriot IV National Finals Competition.

But how did CyberPatriot get to this point? How did it evolve from nonexistent to having an international reach in less than five years? In large part, the answers revolve around the legacy of recently retired AFA Executive Vice President, David T. "Buck" Buckwalter.

The idea for CyberPatriot was proposed in a meeting of AFA's Aerospace Education Council in January 2008. The meeting's purpose was to identify youth education programs with a STEM focus that AFA could support or promote.

First robotics, team rocketry, and a few other activities were considered. But in the end, the importance and relevance of cyber security was undeniable. The key to cyber protection was not just technology, but also people and education. Combined with the uniqueness of the competition space, it became an even more viable option AFA to pursue.

"It would not have happened at all without the explosion of the [cyber security] issue," said Buckwalter, on the origin of CyberPatriot. "It answered an issue and had a wide open competitive space."

By September 2008, AFA's Board of Directors officially adopted the program. The same year saw cyber attacks on US oil and gas companies ExxonMobil, ConocoPhillips, and Marathon as well as a significant cyber attack against the U.S. military caused by infected flash drives inserted into laptops.

The opportunity was there, and AFA didn't hesitate to embark on the challenge.

At CyberPatriot Headquarters, Buckwalter was instrumental in organizing the prototype competition. With help from SAIC supplying CYBERNEXS, their patent-pending software, as the platform for the competition and the Center for Infrastructure Assurance and Security (CIAS) at the University of Texas in San Antonio (creator of the National Collegiate Cyber Defense Competition), CyberPatriot was able to become a reality.

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Program Office Bits

CyberPatriot VI
Pre-Registration is Open!
Go to: www.uscyberpatriot.org

See the list of
CyberPatriot V Semifinalists
Go to: www.uscyberpatriot.org

- CyberPatriot V Semifinals: Jan 11-12, 2013
- Coaches' Online Meetings: Jan 22 & 23, 2013
- Consolation Round: Feb 1-2, 2013
- The National Finals Competition: Mar 14-16, 2013

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Commissioner's Cache

As this issue of *The CyberSentinel* is published, the holiday season is winding down. I hope all of our wonderful supporters have enjoyed a peaceful time with family and friends, and that our competitors enjoyed a well-deserved rest from our challenging online rounds of competition.

Thank you for making 2012 a banner year for CyberPatriot—The National High School Cyber Defense Competition. The program grew enormously, in no small part from your enthusiasm and support.

There is big news in our Semifinals Competition: Less than one-third of qualifiers are returning from last year. That means, of course, that fully two-thirds of our Semi-Finalists are new to this advanced level of competition. Congratulations!

For teams that did not qualify for the Semifinals Competition, another exciting and challenging learning and competition opportunity is available: The online Consolation Round on February 1 and 2, 2013. (And note, for teams that might have registered this year, but for whatever reason were unable to participate in Rounds 1 or 2, you are welcome too!) Top teams from each state will be recognized, so even though your team may not have qualified as a Semifinalist, your team can still earn recognition by participating in the Consolation Round!

As *The CyberSentinel* closes out the year, you will find here a tribute to one of the founders of CyberPatriot--Buck Buckwalter.

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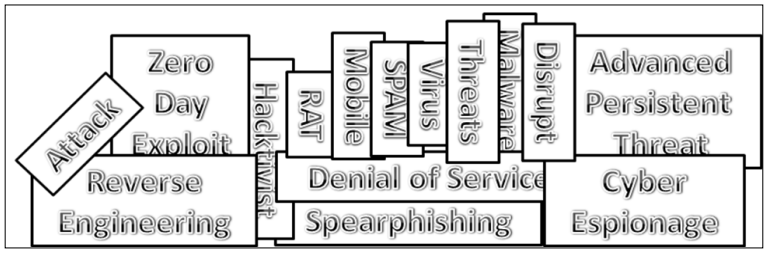
Sponsor Profile: URS

When one begins the arduous task of putting together a complex puzzle, many aficionados say the first step is to construct the borders and then interlock the remaining pieces to form the completed puzzle. However, in retrospect, the first step to completing a puzzle is to look at the picture on the box – to gain an understanding of the whole picture. Then, from the picture – determine the best strategy to complete the puzzle. The initial step begins in the mind – and the mind, enhanced by technology (analytics, forensics, situational awareness, etc.) directs the pieces into place – in an "interlocking" pattern that yields the complete picture.

Just like all individuals who solve puzzles, it is this cognitive capability of our Cyber Defenders, supported by technology and challenged by programs like CyberPatriot, that ensure our next generation of "Cybersecurity Puzzle Experts" are up to challenges they will face. URS understands that the right investment in our up-and-coming Cyber experts will yield results. In fact our key customers, such as Nuclear Facilities, Remotely Piloted Aircraft Operations, Security and Exchange Commission, USCYBERCOM, or Energy clients, are confident in the investments we are making in programs like CyberPatriot and the direct sponsorship of schools such as O'Connor High School in Texas.



As the pieces become more complex and more intricate in our Cybersecurity puzzle, the graduates of CyberPatriot will be called upon for their teamwork and leadership experience – asked to exercise critical-thinking skills to defend and protect computer systems. URS is committed to helping this emerging group of experts solve the expanding and evolving Cybersecurity puzzle!

San Antonio Educator Leads Way for CyberPatriot Girls

The Southwest High School (SWHS) All Girls Team made it to the CyberPatriot V Semifinals. That accomplishment was in large part due to passion, vision, and leadership of JoAnn Fey, the team's Coach and former principal.

When SWHS first hosted a CyberPatriot team that competed in the Open Division, Jo Ann Fey was their school Principal. "At the beginning it was about providing resources and removing obstacles. Over time it became a way of celebrating our student's IT passion." said Fey. The team became the highlight of conversations on campus, making its way onto faculty meeting agendas and e-mail announcements. During the morning announcements, the 1,000-plus student body received enthusiastic commentary from Fey as the team progressed through each CyberPatriot round.

The campus celebrated the CyberPatriot team with small tokens like Zebra Cakes and Dr. Pepper and recognized the team in a very traditional and ceremonious Texas high school manner: letterman jackets. Every time a Southwest student passed an IT certification exam (e.g., A+) they were immediately highlighted over the announcements.

"Ultimately, " Fey said, "my role was to share their voice through my very loud voice so that excitement about CyberPatriot became contagious for students and staff. Competition day for CyberPatriot at SWHS was like a national title game in any sport. CyberPatriot at SWHS was the purest form of a team. We learned that mistakes lead to inspiration and that working together helps us overcome challenges. Without realizing it, the kids, and the adults, experienced what learning looks like." In the end, the school did not make it to the final round, but at SWHS in San Antonio, Texas the team's accomplishment was treated like a national title.

New Job/Philosophy

In 2012, Fey was promoted to Executive Director for Student and Adult Leadership Development for Southwest Independent School District (ISD) and in that gave up a way of life that she relished for 17 years—days filled with kids. There was good news though as the position has afforded her the opportunity to impact not only every student in the school district but their families and the community as well. Fey said, "I believe that if we provide the means, then anyone can realize success and foster it in others, cultivating a community of leaders. Students can not realize their full potential if limitations are placed on them. I have found in many instances that when students are allowed to create anything, given rather broad parameters, that their unique interpretations and the methods in which they communicate their understanding tends to be not only scholarly but intricate and visually captivating." Fey hopes to extend the motivation and enthusiasm she brought to CyberPatriot to all students and community members in Southwest ISD. Target one: All-Girls CyberPatriot Team, done!

JoAnn Fey, CyberPatriot Coach and Executive Director for Student and Adult Leadership Development for Southwest ISD.

The CyberSentinel

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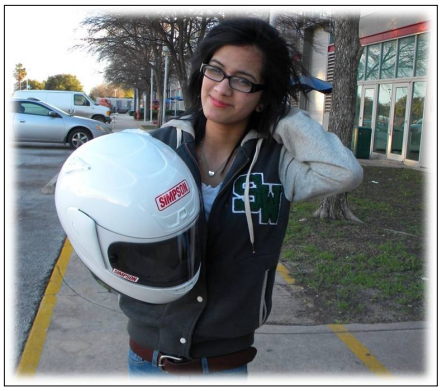
Spotlight on San Antonio

Southwest High School's All-Women CyberPatriot Team: Left to right: Maria Chavez Lopez, Coach Joann Fey, Vanessa Howard, Sabrina Goaetsch, Shakti Castillo, and Narda Mendez. The team's Captain, Deidre Carillo was on a college campus taking dual credits courses during the group picture. Carillo's photograph is at the right.



Southwest High School Fields All-Girls Team

By Arthur Celestin, Southwest High School

Exciting new developments are in the works at Southwest High School, a school of more than 3,000 students in the San Antonio metropolitan area, as the nation prepares to kick off the 2012 CyberPatriot V competition. Last year, Southwest was one of the leading teams in the city, nation, and world as they made it through all three virtual rounds of the competition and narrowly missed going to the finals by a mere three points. This year, things are getting even better as Southwest is sending not just one team into competition, but five teams of extremely talented students. However, while having numerous teams is a great new development for Southwest, perhaps an even more notable accomplishment for the school and the world is the establishment of the SWHS All-Girl CyberPatriot team.

"It's been both a challenge and a dream to attract as many females as possible in information technology" said team Coach and Mentor Arthur Celestin, a native of Haiti. "Seeing young women take interest in a field primarily dominated by males is truly inspiring."

But his passion and determination has produced a myriad of great results as more and more girls at Southwest are beginning to take an interest in the computer field. The team is made up of six girls for now, but as new freshmen enter into the system, they too are beginning to look up to these brave young women as role models.

"The computer maintenance and CyberPatriot program helps me set my goals for life and what I really want to do in the near future," said team member Shakti Castillo. And indeed, that's what she's learning to do. Today, these young women are performing complex security hardening techniques on multiple operating system platforms which is an impressive feat given that most of them joined the program with little or no knowledge. "Being a part of the Southwest CyberPatriot program and the Engineering Club has broadened my knowledge of cyber security and opened up great new opportunities," said team Captain Deidre Carillo.

Southwest is looking forward to an exciting year of competition among all of their teams and hopes the new development of an all-girls team will serve as inspiration to aspiring females, both locally and globally. With the team preparing for the first round of competition, the feeling is both optimistic and electric. As Narda Mendez, a confident team member said, "I am a very enthusiastic person, and right now I am more than excited to see how far the team's determination will take us in this competition. There is not a better place to be than Southwest High School!" Mr. Celestin would like to thank USAF Lt. Jonathan Hogan and Ricky Banda, the teams' mentors, and Digital Defense Inc. for being a pioneer of the "Adopt a School" program in the city of San Antonio and for supporting Southwest High School's CyberPatriot program with equipment, mentors, and internship opportunities. This is a great partnership of exceptional value for the students and the community!

San Antonio is a <u>CyberPatriot Center of Excellence</u>. *More than 50 San Antonio area teams registered for CyberPatriot V. San Antonio's Alamo Academies and MacArthur High School sent teams to the CyberPatriot IV National Finals Competition, in March 2012, with the Alamo Academies team winning first place in the Open Division.*

Southwest High School CyberPatriot teams with Mentor/Coach Arthur Celestin

Southwest High School Logo

Buck Buckwalter, CyberPatriot Co-Founder Retires (Cont'd)

"Buck's dedication to CyberPatriot has been nothing short of amazing," said Bernie Skoch, CyberPatriot Commissioner. "I took the program lead in 2010, and Buck had already established a strong foundation for the program. Truthfully, it couldn't have reached its level of success without the energy and support he put into it in its earliest years."

CyberPatriot's beginnings came in three phases.

Phase 1: The first CyberPatriot "games" took place in 2009 as a concept demonstration, in conjunction with AFA's 25th Annual Air Warfare Symposium. Seven Air Force Junior Reserve Officer Training Corps (AFJROTC) teams and one Civil Air Patrol (CAP) team from the greater Orlando area competed. Buckwalter and his small team created the prototype with the vision of a true national competition. The purpose of the concept demonstration was to determine if the competition would be exciting to youth and identify and resolve any technical or procedural issues with the competition.

CyberPatriot III Competitors working on images.

No one, including Buckwalter, quite knew how well the event would be received. But the enthusiasm of the competitors and the positive feedback from the surrounding industry professionals and senior military leaders demonstrated tangible success.

Phase 2: The key to this phase was the geographic breadth and a scalable game structure that allowed broader, distributed participation. This phase brought in the preliminary qualifications rounds and online training materials to baseline the participants' knowledge of computer and network security. For the 2009-2010 school year, CyberPatriot II increased its sample size and the competition went nationwide, accommodating nearly 200 AFJROTC/CAP units in 44 states, South Korea and Japan. The interest and enthusiasm for the competition only increased.

Phase 3: CyberPatriot III, with the support of the presenting sponsor Northrop Grumman, went to full national deployment for the 2010-2011 school year, open not only to AFJROTC/CAP units, but all Service JROTC programs and all high school students -- whether public, private, parochial or home schools. And by CyberPatriot IV, the competition had more than 1,000 teams registered from all 50 states, and U.S. Department of Defense Dependent Schools in Europe ,the Pacific, and Canada.

CyberPatriot IV Digital Forensics Event challenges Competitors.

The continued growth of CyberPatriot has been a full nationwide effort, with help from dedicated AFA members, educators and industry-leading sponsors. Generous grants from the program's presenting sponsor, the Northrop Grumman Foundation, and the support of other sponsors made national deployment to all high schools possible.

Buck Buckwalter (right) oversees a trouble call at the CyberPatriot Operations Center.

"But the biggest challenge now facing the competition is maintaining its growth and relevance," Buckwalter said. Last year saw the addition of the forensics exercise, teaching and testing competitors on the field of cyber forensics through the application of crime scene analysis, evidence gathering and critical thinking. But it won't stop there. This year, a networking event, conducted by Cisco will be part of The National Finals Competition. CyberPatriot will continue to evolve -- just as the threats in the cyber domain continue to evolve. And Buck was there from the beginning.

Thanks, Buck. We will miss you.

Commissioner's Cache (Cont'd)

Buck was responsible for transforming CyberPatriot from an idea to the program we all enjoy today, and we are forever indebted to his great work in promoting CyberPatriot.

Be safe as we end 2012 and begin 2013. We hope to see your team's name in The National Finals Competition or as one of your state's top teams!

Bernard K. Skoch
Commissioner
CyberPatriot Program
Air Force Association

This Month in Cyber History

In January 1995, AT&T Bell Laboratories and VLSI Technology announced plans to develop strategies for protecting communications devices from eavesdroppers. The goal would be to prevent problems such as insecure cellular phone lines and Internet transmissions by including security chips in devices. (Source: www.ComputerHistory.org.)

For more information, go to:
www.computerhistory.org/tdih/January/31/

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