Air Force Association’s CyberPatriot
The National High School Cyber Defense Competition

September 2012
U.S. critically dependent on cyber systems for industry, commerce, public safety, national defense
THE Cyber Issue

- Is **not** hardware
- Is **not** software
- Is **not** core, distribution, or access layer transport
- Is **not** IDS configuration
- Is **not** firewall configuration
• Is the cyber workforce

• When and where do we recruit them?
• When and where do we train them

• Most importantly:
  • When and where do we excite them about cyber careers?
• National cyber security can’t exist without strong, indigenous cyber workforce
• We aren’t graduating enough STEM scientists, technical grads, engineers, math majors, cyber experts
• College/Vocational education is too late!
• We must motivate high-school youth to pursue STEM paths

When compared to other nations, the math and science achievement of U.S. pupils and the rate of STEM degree attainment appear inconsistent with a nation considered the world leader in scientific innovation. In a recent international assessment of 15-year-old students, the U.S. ranked 28th in math literacy and 24th in science literacy. Moreover, the U.S. ranks 20th among all nations in the proportion of 24-year-olds who earn degrees in natural science or engineering.

2008 Congressional Research Study
“Science, Technology, Engineering, and Mathematics (STEM) Education: Background, Federal Policy, and Legislative Action”
What doesn’t work… What does…

• Academic instruction is important, but students aren’t particularly inspired by more class time, more lectures

• Multi-media instruction is a good tool, but they see plenty of that

• What excites, motivates: A well-organized, well-structured, competition
CyberPatriot Is...

1. The national high school cyber defense competition.
2. Carefully structured to excite, educate, and motivate participants.
3. Designed to instill in all participants the importance to our nation of cyber, cyber security, and good computer security practices.
4. Designed to motivate all participants to consider STEM academic disciplines to meet our nation’s needs.
5. Designed to motivate many participants to become the next generation of cyber defenders and our nation’s “digital workforce.”

“We will begin a national campaign to promote cyber security awareness and digital literacy from our boardrooms to our classrooms, and to build a digital workforce for the 21st century.”

President Obama, May 2009
CyberPatriot Is Not...

1. “Hacker training”  We don’t teach “hacking” tools or techniques, and “hacking” in competition is strictly forbidden.

2. A recruiting tool for the Air Force, the Department of Defense, or the Federal government  This is about building a strong national foundation for cyber skills throughout our high schools.

3. Boring academic instruction  CyberPatriot is designed with extremely high fun and excitement quotients.
Skills Participants Learn

• Leadership and teamwork
• Creative and analytical problem solving
• Computing and networking principles
  • Operating systems
  • Network topologies
• Foundational cybersecurity principles
  • Cyber and system vulnerabilities
  • Network topology
  • Vulnerability remediation
• Technical threats
• Non-technical cyber principles (e.g.—social engineering, phishing, spear-phishing)
  • “Netiquette”
• Cyber safety
• Cyber hygiene
Proof of Concept

Phase I: Feb 2009
Concept Demonstration (Orlando, Florida)
Eight teams (7 AFJROTC/1 CAP), all from Florida

Phase II: Apr 2009 – Feb 2010
Pilot Deployment
200+ teams (AFJROTC/CAP) – 42 States & Japan

Only
First Full Deployment: 2010-2011

Full-scale national deployment
Open to all high schools
Two Divisions:
• Open Division (Any bona fide educational institution, including home-schools)
• All-Service (CAP, JROTC (all Services))

During the 2010-2011 academic year, for the first time any high school in the nation was welcome to participate in CyberPatriot.
2011-2012

- Second full-scale national deployment
- All 50 states
- Canada
- DoD Dependent Schools overseas

*During the 2011-2012 academic year, over 1,000 teams from all 50 states, the District of Columbia, U.S. Department of Defense Dependent schools in Europe and the Pacific, and Canada registered for CyberPatriot!*
• Third full-scale national deployment
• 48 states so far
• Canada
• DoD Dependent Schools Korea, Italy

As of September 12, 2012
Two Competition Divisions

Open Division

- Open to any high school
  - Public, private, parochial, magnet, home-school
- Highly valued CyberPatriot competition attributes:
  - Technical/STEM education
  - Career preparation/development
  - Teamwork
  - Goal-achievement

All Service Division

- Open to any JROTC unit
  - Army, Navy, Air Force, Marine Corps Naval Sea Cadet Corps
- Open to Civil Air Patrol cadet squadrons and composite squadrons
- Highly valued CyberPatriot competition attributes:
  - Teamwork
  - Goal-achievement
  - Leadership
Team Structure

- **Coach** (Adult Leader): Supervises, chaperones team. Usually a teacher.

- **Mentor** (Technical Advisor)(Optional): Particularly useful when coach not cyber-savvy. Helps teach cyber concepts. AFA helps find them.

- **Competitors**: 2-5 students, 9th-12th grade, minimum age 13.

National Finals Competition teams consist of six competitors (five primary and one alternate), one coach, and one chaperone.
What Participants See
What Participants See

Current Score
You have no posted vulnerabilities. Your registration is not complete. Please restart your client.

Your client is not properly registered. Check that the HTTP and HTTPS servers below match:

**HTTP:**

**HTTPS:**

If they match, open a command prompt by clicking Start > Run and type CMD then press enter. In the command prompt window, type the following four commands:

```
net stop cybennexesclient
del /F C:\saic\cybernexs\client.id
del /F C:\Get My Status.html
net start cybennexesclient
```

This will cause your client to re-join with your existing registration information but with a different client.id. All changes you made will be sent to the server after you re-join.

Close this page, wait a few minutes, then re-open this page from the new Get My Status link under C:\. If they do not match, contact the help desk with the names of the servers shown above, as well as the information you registered with (school, system & team name).

No health updates have been received. Please restart your virtual machine to re-establish connection, wait a few minutes, and load this page again.

Score/Last Time: Thu, 06 Oct 2011 13:38:29 -0700 (PST)
What Participants See

Image Status and Scoring Report

Report Generated at: 06/01/12 11:29:17

45 out of 90 points received
CP-V Competition Timeline

**Open Division (Any High School)**
- Recruiting/Registration: April 1 – September 30
- Practice Round: Oct 1-12
- Round 1: Nov 16-17
- Round 2: Dec 7-8
- Semi-Finals: Jan 11-12
- 12 Finalist Teams

**All Service Division (JROTC/CAP/Sea Cadets)**
- Practice Round: Oct 1-12
- Round 1: Nov 16-17
- Round 2: Nov 30-Dec 1
- Round 3: Jan 11-12
- Semi-Finals: 36 Teams
- 12 Finalist Teams

**14 Finalist Teams**
- 2 x Army JROTC
- 2 x Navy JROTC
- 2 x Marine Corps JROTC
- 2 x Air Force JROTC
- 2 x Civil Air Patrol
- 2 x US Naval Sea Cadet Corps
- 2 x “Wild Card”

On-Line Consolation Round: Feb 1-2
National Finals Competition: March 14-15, 2013, Washington, DC
CP-III/-IV/-V Registrations

As of September 12, 2012
Where Open Division Teams Come From

CP-V Open Division registrations as of September 12, 2012

- Public: 223
- Private/Parochial: 20
- Charter/Magnet: 13
- Other/Home: 5
Where All Service Division Teams Come From

CP-V All Service Division registrations as of September 12, 2012
CP-IV (2011-2012)

• Surge in registrations:
  • All Service Division: +26%
  • Open Division: +113%
• Strong growth in female and underrepresented populations
• Canadian presence at National Finals Competition
• Cyber forensics event added to National Finals Competition
• CyberPatriot Centers of Excellence established
  • Enhanced focus, training, support
    • #001: Los Angeles Unified School District
    • #002: City of San Antonio, Texas
CNASSP listing renewed for 2012-2013
  • “Good Housekeeping” seal of approval
  • Doubled registrations in CRM system
    • Enables contact with and education/career tracking CyberPatriot alumni
      • Internship/employment opportunities
      • Tracking mechanism to measure our real effectiveness in drawing students to STEM training, education, jobs, and careers

NASSP: National Association of Secondary School Principals, the accreditation body for high school contests and activities
CRM: CyberPatriot’s Competitor Relationship Management system, a database of all present and past competitors
CyberPatriot Publication: CyberSentinel

- Began publication January 2012
  - Pushed monthly to 5,000+ readers
    - Coaches, mentors, participants, public
  - 4-8 pages
  - CyberPatriot news items
  - Competitor achievements
  - Cyber education
  - Cyber career news

- Sign up for a free email subscription by sending a request to info@uscyberpatriot.org
Outstanding National Finals Competition
National Finals Awards Ceremony
Initiatives for 2012-2013

• More domestic teams, especially in Open Division
• More presence in Canada
• Likely expansion into UK
• Regionalization of on-line rounds
• Improved competition engine
  • Improved scalability
  • Improved flexibility
  • Better mapping to curriculum
• Added feature at National Finals Competition
  • Likely a hardware event
• More CyberPatriot Centers of Excellence
Frequent the CyberPatriot Website

www.uscyberpatriot.org
Team Registrations

9/10/2012
Updated Mondays

Current Coach
CyberPatriot V Registration

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COE-LAX: Center of Excellence Los Angeles Unified School District
COE-SAT: Center of Excellence City of San Antonio
COE-SPS: Center of Excellence Spokane Public Schools

www.uscyberpatriot.org
This isn’t about AFA
This isn’t about the military
This isn’t about national defense

This is about a way of life