UNITED STATES NAVAL ACADEMY
FOUNDATION

The Case for Support:
The Center for Cyber Security Studies
at the U. S. Naval Academy

Computer and network security threats of the future are of concern today, and new strategies are required to ensure the security of our Navy's information systems. These new threats require a shift in thinking from the "old normal" to a "new normal," according to the Navy's Chief Information Officer Robert Carey. And Chairman of the Joint Chiefs of Staff ADM Michael Mullen, USN states that we need "a force capable of continued operations while defending against cyber-attacks." A makeover of culture, conduct and capabilities is integral to the success of a new cyber security strategy, one that is designed to create a comprehensive "layered defense" that will form the foundation for the future of naval computer information and network defense.

The Navy has reactivated the Tenth Fleet as the U.S. Navy's Fleet Cyber Command under the command of VADM Bernard J. McCullough III, USN. And the Naval Academy has begun to adapt its educational offerings to reflect the requirement that its graduates be prepared to lead in the Navy's fight for information dominance and cyber security.

The Naval Academy has established a Center for Cyber Security Studies (CCSS) to serve as a locus for innovation and learning related to a broad variety of issues associated with the study of cyber security. The CCSS leads curriculum development related to information assurance and cyber security, and provides support for cyber-related faculty research, midshipmen internships, summer professional experiences, conferences, speakers and seminars. Opportunities exist for establishing midshipmen programs such as cyber scholars, for engaging midshipmen in practical applications via in-house CCSS run cyber attack and defense exercises, for creating and supporting summer professional cyber experiences, and for establishing a cyber-focused Distinguished Visiting Professorship or Faculty Chair. The CCSS provides a vehicle for supporting a Computer Network Defense Lab to provide midshipmen with the skills necessary to design, maintain and defend a computer network. And midshipmen will be able to develop the skills necessary to conduct cyber attacks and reconnaissance in a Computer Network Attack Lab. Midshipmen will use state-of-the-art commercial digital forensics software and hardware to learn how to identify cyber crime in a Computer Forensics Lab, and will study critical infrastructure attack and protection issues in a Supervisory Control and Data Acquisition (SCADA) Lab. The CCSS will also support a Wireless Network Security Lab and a Biometrics Lab.

The Naval Academy has hired its first CCSS Director, CAPT (sel) Steven Simon, USN, who will be joining the faculty in late spring or summer 2011. CAPT Simon is tasked with developing a detailed strategic plan for the Center, including staffing, hardware and software requirements, goals and objectives, and the establishment of a permanent physical home for the Center at the

Naval Academy. The Director will work closely with Naval Academy faculty and administration in the design and implementation of new interdisciplinary courses and fields of concentrated study, summer professional experiences, internships, and the development of appropriate facilities, all of which are focused on the fields of cyber security and cyber warfare.

The U.S. Naval Academy Foundation is an independent, non-profit corporation committed to raising and resourcefully investing private gifts for the benefit of the U. S. Naval Academy. These private contributions supplement federal funds to provide a *margin of excellence* that transforms programs from adequate to outstanding. Private funds are also used to jump start and operate new programs until appropriated funds become available. These programs have significant impact on the quality of the education provided at the Academy, the development of future Navy and Marine Corps officers, and ultimately, the long-term security of our nation.

Private donors are invited to support the establishment of the *Center for Cyber Security Studies* at the Naval Academy by contributing resources to meet the Center's initial and ongoing support requirements. For more information, please contact Steve Maconi, Director of Development, U. S. Naval Academy Foundation at 410-295-4177 or steve.maconi@usna.com.

July 2010

The Center for Cyber Security Studies
2010 - 2011 Lecture Series

22 November 2010	Professor David C. Gompert Former Acting Director, National Intelligence Distinguished Visiting Professor in National Security Studies, USNA "How We Got Here: Digital Revolution, Globalization, and Military Transformation"
7 February 2011	GEN Michael Hayden Former director, CIA; former director, NSA Distinguished Visiting Professor, George Mason School of Public Policy "Understanding the Cyber Domain"
28 February 2011	The Honorable Howard A. Schmidt, CISSP, CSSLP Special Assistant to the President and Cybersecurity Coordinator "Strategic Cyber Defense Efforts"

The Center for Cyber Security Studies
Private Gift Opportunities

- **Cyber Warfare Speaker Series**. In Spring of 2010, the Naval Academy inaugurated the Cyber Warfare Lecture Series. These presentations by academic technical experts, policymakers, and warfare leaders expose midshipmen, faculty and staff to a broad array of cyber topics and their impact on the practice and philosophy of modern warfare. Includes travel costs, honorarium and small speaker gift.
  $7,500 for 5 speakers annually.

- **Cyber Internships**. Midshipmen summer internships with cyber-related organizations such as the National Security Agency (NSA) and National Defense University (NDU). Occurring during summer training blocks, these six-week internships provide midshipmen with a unique opportunity to apply the technical knowledge gained during academic studies to real-world government and military problems.
  $35,000 for 5 midshipmen

- **Faculty Cyber Professional Development**. Intensive specialized computer security training courses for USNA cyber-technical faculty to maintain leading-edge currency on emerging cyber topics which then convey into the classroom. Typically offered by organizations such as the SANS Corporation.
  $7,000 per attendee.

- **Midshipmen Training**. Midshipmen-focused intensive specialized computer security training courses, such as those developed and taught by the SANS Corporation. These midshipmen will lead in-house mini-CDX events for the rest of the Brigade.
  $3,000 per attendee.

- **Computer Forensics Lab**. This lab will provide midshipmen with the skills necessary to employ, develop and test digital forensics equipment and techniques. Midshipmen will learn to identify organizational policy infractions and cyber crimes, and safeguard digital forensic evidence.
  Onetime cost: $125,000 (10 dedicated modular forensic workstations $8,000 each, 10 mobile forensics units $4,500 each).

- **Supervisory Control and Data Acquisition (SCADA) Lab**. This lab will provide midshipmen with the skills necessary to understand and protect against the vulnerabilities of computer-based automated controls that are often associated with infrastructure systems (e.g., electrical grids, water systems, oil pipelines, physical security systems, etc).
  Onetime Cost: $100,000 for programmable logic controllers (PLCs) and associated software controllers, a dedicated network, Remote Terminal Units, and specialized Human-Machine Interface (HMI) software.

- **Sandboxed Computer Network Attack Lab**. This lab will provide midshipmen with the skills necessary to conduct network intelligence gathering, network intrusion operations, network attack operations, and network exploitation.
  Onetime Cost: $100,000 for 2 high end servers, 8 routers, 32 PCs (16 PCs on a sandbox network and 16 PCs on the USNA network), and associated switches, monitors, racks, as well as licenses for virtualization software.

- **Wireless Network Security Lab**. This lab will provide midshipmen with the skills necessary to protect and exploit vulnerabilities associated with wireless communication systems, mobile ad hoc networks and sensor networks.
  Onetime Cost: $75,000 for 18 laptops, video, audio and other sensors with embedded processors, and related equipment.

- **Mini-CDX.** Laptops, servers and associated equipment on mobile carts, allowing for cyber security events to be moved to locales of interest around the Yard.
  Onetime Cost: $100,000 for 32 laptops, two high-end servers, associated switches, as well as licenses for virtualization software.

- **Cyber Security Studies Faculty Position**. The intent of this position is to bring distinguished academic leadership to the Naval Academy's cyber security program.
  Distinguished Visiting Professor: $175,000 annually.
  Faculty Chair: $220,000 annually.