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2019

FY19 Annual ITACS Accountability Report

Monterey, California. Naval Postgraduate School

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FY19 ITACS ANNUAL ACCOUNTABILITY REPORT



Naval Postgraduate School

Information Technology And Communications Services

OUR MISSION



Naval Postgraduate School Mission Statement

The Naval Postgraduate School provides relevant and unique advanced education and research programs to increase the combat effectiveness of commissioned officers of the naval service to enhance the security of the United States. In support of the foregoing and to sustain academic excellence, NPS will foster a program of relevant and meritorious thesis and research experiences for NPS students that informs the curricula, supports the needs of Navy and Department of Defense, and builds the intellectual capital of NPS faculty. To support the core Navy mission, NPS' programs are inherently joint, inter-agency, and international.

Information Technology and Communications Services (ITACS) Mission Statement

The mission of the Naval Postgraduate School's Information Technology and Communications Services is to provide technology and communications support for the NPS core mission of teaching, research and service to the Navy and Department of Defense, and to provide voice, video, and data infrastructure as mission-critical enablers of innovation and experimentation within the educational enterprise.

TABLE OF CONTENTS

Message from the CIO and Director	p. 4
FY19 Initiatives and Goals	p. 5
Classified Computing Programs	p. 6
Cybersecurity	p. 8
Development and Operations	p. 10
Educational Technologies	p. 14
High Performance Computing	p. 16
Plans and Projects	p. 18
Resource Management	p. 20
Technology Assistance Center	p. 22
Department Highlights	p. 24
Partnerships and Outreach	p. 26

MESSAGE FROM THE CIO AND DIRECTOR



Continuing to build and gain efficiencies in customer service, 2019 was a significant year for ITACS. Overarching themes included cybersecurity, automation, flexible acquisition strategy and supporting active learning.

This document is our accountability report to the campus and a quality check for the department. Did we provide the best possible IT service worthy of a premier defense research and education university? Do we offer the services to maximize faculty research and education efforts? Are we staffed and funded correctly to improve? Is our staff evolving and keeping pace in an accelerating field?

I believe we are on course, although the job is not complete. When reviewing ITACS 2019 goals and objectives, we do see progress:

- ◇ Develop Mature Cybersecurity Capabilities. The Cybersecurity Operations Center is staffed 24/7 providing protection to the campus, Defense Language Institute-Foreign Language Center and beyond. By performing 3rd party penetration tests, we have measured a 50% decrease in our attack surface and increased malware detections by over 20K. This scalable resource continues to deliver increased quality and quantity of service.
- ◇ Technology Enabled Workflows. With new tools and expertise, several key business processes in Human Resources and the Financial Management Directorate were created or streamlined. Much opportunity ahead in this area as we partner with all staff units.
- ◇ CAPEX to OPEX in network services and upgrade to a CENIC 100G network connection. A new “Network as a Service” agreement with one of our key industry partners gives us flexibility in technology and provides the latest networking equipment across the .edu. This infrastructure supports the recent order of magnitude bandwidth upgrade that’s required by students, faculty and researchers at a leading university. Please see pages 10-11 for details of this work.
- ◇ Accelerate into the Cloud. ITACS added tools and expertise in this area. Funding provided opportunity for increased computational power to existing Cloudlab, CyberCloud, and increased cloud-based software as a service.
- ◇ Assist Vice Provost-Graduate Education in establishment of the Teaching and Learning Commons (TLC). The ITACS Educational Technology team was instrumental in operationalizing four active learning classrooms. As the TLC assesses the effectiveness of these spaces, we will assist in outfitting more in 2020. AV support to resident and DL education was improved in FY19. Zoom is becoming a primary DL tool. Important as Collaborate Original goes “end of life” this year.
- ◇ Other key accomplishments include full accreditation of the SIPR network, hardware upgrades to the classified computing networks for increased bandwidth, and increased compute and storage to our High Performance Computing Center.

I look forward to serving as your CIO and leading ITACS in 2020, we have important projects to complete that support you and the NPS Strategic Plan in the year of Execution, Implementation and Communication – that’s right up our alley!

Very respectfully,

Scott Bischoff
CIO and Director ITACS

ITACS FY19 Initiatives and Goals

Assist in Establishing a Teaching and Learning Studio

Research and pilot new and emerging educational technology concepts to further the Teaching and Learning Commons effort.

Institutional Advancement

Extend communications and marketing to prospective students, research partners, and research sponsors.

Expand Bandwidth in Classified Networks

Expand bandwidth in classified networks and grow classified cloud computing capabilities to enhance research collaborations and facilitate processing of large data sets.

Improve and Establish Technology-enabled workflow

Assist the campus in developing technology-enabled, well-defined and documented business processes and workflow. Use Artificial Intelligence (AI) and Machine Learning (ML) to improve cyber defenses and IT services.

Develop Mature Cybersecurity Capabilities

Leverage the integration of industry leading tools as part of the Cybersecurity Operations Center (CSOC) to establish a Cybersecurity Information Sharing and Analysis Center with Defense Language Institute-Foreign Language Center (DLI-FLC), the US Naval Academy (USNA), and the Naval War College (NWC). Evolve capability to provide 24/7 cybersecurity operations to all supported customers. Provide NPS students with real-world experience managing risk in a benign operational IT environment while allowing faculty to demonstrate newly developed cybersecurity design concepts to DoD and DON.

Operationalize the Campus-wide Software-Defined Network.

Develop trust zones of known IT assets from the business units and research groups and better manage shared risk between the two. Improve quality-of-service to Researchers and Faculty and deliver more predictable outcomes.

Accelerate into the Cloud.

Migrate candidate on-premise hosted enterprise applications to Cloud-hosted environments. Train and certify ITACS staff to operate and maintain enterprise applications in the Cloud including alternative educational delivery technologies. Build virtualized lab, server, and desktop capacity across campus.

Become more power independent.

Explore reliable energy sources as an alternative to existing diesel generator and UPS battery infrastructure.

Plan and Implement a Records Management Archive.

Plan and budget for the emerging technologies and processes required to enable NPS' records management program using the DON Tracker RM program.

CLASSIFIED COMPUTING PROGRAMS

As part of the *Client Services* team, the *Classified Computing Programs (CCP)* provides staff and infrastructure to support the operations of the University's five classified networks. Leveraging the expertise found in ITACS' other functional areas, CCP supports classrooms, computer labs, secure video teleconferencing, distance learning, conferences, and seminars in the Sensitive Compartmented Information Facility (SCIF), Systems Technology Battle Lab (STBL), the Dudley Knox Library, Watkins Hall, and in various auditoria and lecture halls around campus, as needed.



NPS SIPRNet Authority to Operate (ATO)

On 20 September 2019 U.S. Fleet Cyber Command/U.S. Tenth Fleet granted the NPS Systems Technology Battle Lab (STBL) Secret Network a three year ATO . This significant milestone is notable as the first NPS network to obtain full accreditation under the Risk Management Framework (RMF) mandated DoD transition. All DoD IT networks must transition from previous DIACAP accreditation to RMF accreditation. RMF is a six step process that requires strict adherence and understanding of the framework process. It began with identifying the new security controls not before identified in the DIACAP process. NPS networks are aligned with the new controls and the security posture is paramount in order to be accredited to connect to the main DoD Secret Network. Upon NPS achieving step 5 Authority to Operate (ATO) to the DoD backbone network, we are now in step 6 constant monitoring to ensure we continually adhere to the DoD instruction principles in the RMF process.

The recently accredited NPS network is a core component to the mission of NPS, providing classified information access to students, staff, and faculty. Consisting of multiple components, the NPS SIPRNet is combined with joint forces

networks, FVEY, U.S. BICES, JIANT, and NETCOM Data Science.

The most recent addition to NPS is "Releasable to Five Eyes" (FVEY), which refers to an alliance comprising Australia, Canada, New Zealand, the United Kingdom and the United States. These countries are bound by the multilateral UKUSA Agreement for joint cooperation in signals intelligence, military intelligence, and human intelligence, network. This enclave enhances NPS efforts to teach and learn with our allies across information domains.

U.S. BICES (Battlefield Information Collection and Exploitation Systems) provides collateral releasable connectivity for the U.S. combatant commands, services and intelligence community agencies to the other BICES nations and NATO; along with JIANT (Joint Special Operations Command Information Automated Network) allow for our onboard warfighters to stay operational while attending NPS.

Army NETCOM (Network Enterprise Technology Command) Data Science Center Monterey provides NETCOM with a full time dedicated data science analysis center.



Classified Computing

To support the ITACS Acceleration to the Cloud strategy, all SIPRNET emails migrated to a Defense Information Systems Agency (DISA) Enterprise solution. From a user perspective all account holders will have visibility outside of NPS with access to the smil.mail.mil global access list and ability to access email at off base SIPR terminals.



FY19 STBL Statistics

Number of accounts:	294 (SIPR)
Secure video tele-conferences:	135
Meetings and briefings:	150
Classes:	16
Special events:	15

FY19 SCIF Statistics

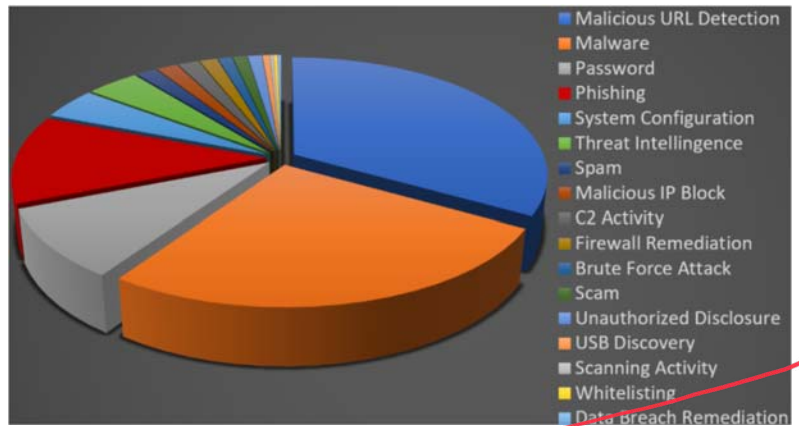
Number of accounts:	231
Secure video tele-conferences:	51
Special events:	76
Classes:	29

CYBERSECURITY

Cybersecurity is responsible for securing the networks and data on campus and off campus in locations throughout the world via remote access servers including computer network defense and monitoring, antivirus and vulnerability management, operating systems and application patch management, and certification and accreditation of networks and applications. Staff provide the tools and technologies to find, protect, and react to the unauthorized disclosure of sensitive/privacy data on NPS networks, liaise with third parties throughout the DOD, DON, the greater academic community and state and local government organizations to maintain currency with the latest cybersecurity and privacy policies, guidelines, threats and vulnerabilities. Additionally, staff deliver relevant and timely trainings to the campus user population and collaborate with faculty and students on cybersecurity-relevant research topics.

CSOC—Incident Types Identified in FY19

NPS Cybersecurity Operations Center (CSOC) has identified that 80% of handled incidents are either directly or indirectly related to malicious email traffic. There are automated controls in place to protect NPS' assets. When a threat surpasses the security controls, it is critical that users recognize email threats and report them to abuse@nps.edu.



Threat Hunters

The ultimate desire for any cybersecurity operations professional is to ensure, with significant confidence, advanced persistent threat actions are known with the area of responsibility. With the added complexity and diversity of hardware, operating systems, and applications, we must elevate the defensive activity of cybersecurity professionals out of the required manually intensive actions to complete an operation, to those that require decisions. In other words, we want threat hunters, not incident handlers. For example: pulling phishing emails from individual email boxes is very time consuming. Using a tool to present relevant information that an email should be pulled and then completing the request automatically leaves the cybersecurity professional with only the decision to execute. This is a tremendous time saver while simultaneously increasing accuracy. A group of tools known as Security Orchestration Automation and Response (SOAR) tools are designed specifically to meet this need. The CSOC has begun the lengthy onboard of Demisto, Palo Alto's offering, this year. The tool maintains a database of cybersecurity incidents that is searchable and includes timeline evidence to reconstruct attack chains. Our first implementation reduced IP block effort from roughly five minutes to under two seconds. To date, the CSOC has used Demisto to block over a thousand known malicious IP's before they could impact our networks.

- ⇒ Number of suspected phishing tickets managed: 440
- ⇒ Number of incidents managed: 623
- ⇒ Number of SPAM emails blocked: 5,335,570
- ⇒ Number of extortion tickets managed: 98
- ⇒ Cost savings to NPS by using SPAM firewall: \$3,014,597.05
- ⇒ Malware blocked, preventing workstation infections: 8,700
- ⇒ Number of network remediation tickets managed: 85

Indicator of Compromise (IoC) Timeliness

Your cybersecurity operational center (CSOC) has adopted MineMeld as a method for real-time communication of IoC's across our partnered organizations. Internet Protocol (IP) addresses, domains, and file hashes are a few types of IoC's. IP addresses and domains can be very temporal in threat presentation, rapidly adapting to defenses by shifting to another location or obfuscation within trusted environments. Therefore, timeliness is almost as important as our defensive precision. MineMeld (or any similar electronic IoC sharing application) attempts to address both precision and timeliness as it pertains to partner organizations. In the past, IoC collaboration was manually broadcast to effectively share meaningful and timely information of potentially damaging attacks. With MineMeld, NPS CSOC collaborates with the Defense Language Institute and the US Naval Academy to synergize our threat prevention capability. This tool integrates with firewalls to automatically (if desired) create new access controls derived from all source IoC's. Once an emergent IoC is recognized (via automatic updates or manual detection) all organizations sharing IoC data through this method will decrease time of implementation and increase precision.

Intelligence Feeds

Cyberdefense is ineffective working on an information island. If defensive actions are privy to only information within your local computer, they will fail continually and catastrophically. Collaboration with outside agencies and vendors is a must. Onboarding of 42 major electronic and real-time feeds of actionable open source threat intelligence has progressed significantly throughout the year (ex. US-CERT, SANS, and Maxmind). One of the most important intelligence feeds is you, the user through crowdsourcing. Major cybersecurity devices leverage this concept of crowdsourcing of incidents to communicate and distribute indicators of compromise at a global scale. Likewise, your cybersecurity team leverages crowdsourcing for threats the world has not identified, but you have through abuse@nps.edu.



Virtual Environment for Cybersecurity Courses

ITACS conducted a major upgrade of the CyberCloud virtualized infrastructure for cyber security courses. CyberCloud has been successfully used for over four years to provide an isolated network for modeling malware, network attacks and incident response techniques. As the importance of Cyber has increased in the last decade, CyberCloud has helped prepare the nation's cyber warriors at NPS and around the world. The latest high-performance hardware was installed and configured during the Winter break at the end of 2019. This provides a major capacity improvement to meet the increasing demands of NPS Cyber courses. Faculty and students will experience faster performance on lab exercises with complex requirements and higher computational workloads. Academic departments are collaborating with ITACS to fund additional support staff and training dedicated to this virtualized desktop environment for increased responsiveness to meet demand. This effort will further expand NPS education in the Cyber realm.

DEVELOPMENT AND OPERATIONS

Development and Operations provides the full scope of core IT services, to include server hardware, network cabling, datacenter management, and the management, maintenance, and operation of systems to provide IT resources to our customers throughout the campus and the world. The team behind the services includes system administrators, network engineers, infrastructure managers, telecommunications specialists, and developers, all working to ensure that the NPS systems are reliable and available when needed.

Liferay Portal Upgrade



LIFERAY

At NPS, we use the Liferay Content Management System (Liferay CMS - <https://www.liferay.com/>) to create public and private departmental and organizational websites, including the NPS Internet and Intranet sites. Since our last update on the Liferay upgrade project, Liferay launched a new and improved version - Liferay Digital Experience Platform (DXP) 7.2, and NPS will upgrade to this latest version.

Liferay DXP 7.2 is a major upgrade of the software that provides many new features and enhancements. The upgrade project scope includes all NPS public and private websites and web applications hosted on Liferay. The system will be migrated to AWS for increased performance and flexibility. NPS custom Liferay applications such as Duo Device Enrollment, ITACS Systems Service Status, Research Summaries, and Naval Research Program Portal, are currently under development for DXP readiness. The roll out of Liferay DXP to NPS customers is expected to occur by the end of calendar year 2019.

Here are some usability improvements we look forward to:

- * Improved search capability
- * Updated page editor, making it easier for web content managers to create page templates
- * A generous selection of out-of-the-box widgets for different business needs
- * Menus decoupled from page navigation, allowing for easier menu creation
- * Web forms with new options and functionality
- * Ability to create audience segments based on user behavior

As part of the upgrade process, ITACS will work with Liferay Support to provide Liferay DXP training to NPS web content managers. More information about training brown bags and updated tutorials will be available later in the year.

Please provide any feedback or questions you may have about the Liferay upgrade or NPS websites to [mailto:webmaster@nps.edu].

Switch to 100G CENIC Link

The Corporation for Educational Network Initiatives in California (CENIC) provides the Naval Postgraduate School (NPS) high-speed access to both commodity Internet and to other institutions of higher education for the purpose of conducting research. CENIC provides connection speeds from 1 gigabit per second up to 100 gigabits per second, and in early FY19 only our high-performance research applications were able to utilize the 100 gigabit per second connection. In August, and in coordination with CENIC, ITACS completed the transition of our primary commodity internet from a 10 gigabit per second connection to a 100 gigabit per second connection. This dramatic increase in available bandwidth will provide students, staff, and faculty at NPS more robust and resilient connections research, education, and day-to-day work.



Automating the Service Lifecycle

A large portion of any ITACS employee's day is spent making decisions and using critical thinking skills: /How should I implement this service/? /What mitigations can be applied against this security vulnerability/? /How might this software product help student outcomes/? /Why is this system not working as intended/? The impact of these activities is clearly felt across campus and elsewhere.

On the other hand, some of what we do is routine. For example, the decision of whether or not to remedy a vulnerable server isn't something that needs to be revisited constantly---cybersecurity policy, including routine patching, is already in place. So we apply fixes and patches regularly, and we've done our job well if nobody notices.

In order to spend our time on the most impactful work, we must automate the routine work. To that end, ITACS has been working hard to automate and centralize the configurations of services we manage---not just servers, but workstations, cloud infrastructure, network equipment, and even documentation. Using software like Git, Ansible, Vagrant, Docker, and Kubernetes, in addition to writing some of our own automation tools, we are able to not only reduce the burden of repetitive workloads, but also share, audit, and test our work more thoroughly and more often.

It all starts with inventory. Capturing the services our customers expect, while decommissioning those that have gone unused, has already begun to pay off. By automating how these services get deployed in the first place, we're better able to take advantage of cloud providers such as Amazon Web Services (AWS), and prepare for other migrations in the future. Most importantly, we're able to focus more time on serving NPS' unique mission needs.

Network Infrastructure Transformation Begins

NPS recently awarded a contract to AT&T transitioning our EDU campus network infrastructure to an "as-a-service" model. The purpose of this change is to unite all network support requirements into a single network subscription service which includes support for NPS' wired network, wireless network and software defined networking requirements. These services will provide for cost efficiencies, help unify the school network infrastructure for better management and oversight, utilize new technologies that will enable and improve the school's overall operational excellence capabilities, and remain agile to emerging education and research requirements.



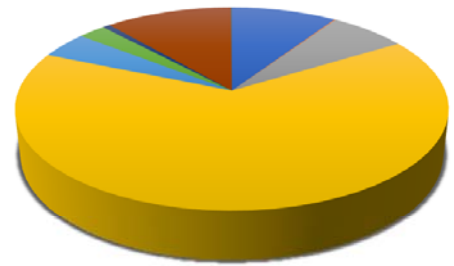
DEVELOPMENT AND OPERATIONS

SharePoint Online Migrations

ITACS is continuing the migration of NPS's SharePoint sites from an on-premise installation to the cloud. Once completely migrated, SharePoint will no longer be an internal only application. Approximately 65% of the existing NPS SharePoint sites have been migrated, and another 11% of sites have been archived. Completed migrations include several large and complex sites (ITACS, Safety, Academic Administration, and the Library) and one currently in progress (Comptroller).

As part of the transition to SharePoint Online, the SharePoint migration team is improving the design and architecture of several sites, including the Research and Sponsored Programs Office (RSPO) and the student thesis processing sites.

The new features include an improved user interface, the ability to access SharePoint sites on mobile devices, updated browser support and compatibility, and the capability to access SharePoint without a VPN connection. In addition, new functionalities become available automatically. Microsoft also has multi-layer security, such as data encryption, new permission levels, multi-factor authentication, backups, and redundancy. A big advantage to using Cloud computing services is that NPS no longer needs to maintain physical servers, which provides protection against catastrophic hardware failures. Updates and patches are applied at the cloud level to ensure NPS is protected against the latest vulnerabilities.



■ Not Started (85 = 9%) ■ Testing (1 = 0%) ■ Deleted (62 = 7%)
■ Migrated (592 = 65%) ■ In Progress (39 = 4%) ■ New (22 = 2%)
■ ITAR (6 = 1%) ■ Archive (102 = 11%) ■ Cancelled (1 = 0%)

SharePoint Online classes are now part of the training offered quarterly for Microsoft products to NPS staff, faculty, and students. Migration team members continue to attend these SharePoint classes and they are available to answer any governance questions and inquiries about the migrations.



Did You Know...?

"SharePoint sites on SharePoint Online can be accessed using any internet connection, no VPN required.

That is good news for those users who have a need to access SharePoint data from home or while on travel."

AWS Update

The 2019 AWS expansion of services has continued to move quickly. This year we introduced thirteen departmental accounts in an effort to accommodate the rapid rise of individual accounts which were becoming cumbersome to manage. We have also expanded our single sign on utilizing SAML which allows users to log into AWS using their ERN credentials. Cybersecurity has improved considerably with the inclusion of SPLUNK, which is now monitoring our AWS environment. In total we currently have 59 active commercial accounts and 34 GovCloud accounts. In 2019 we started moving our accounts into a new "organization", an ongoing effort. Once the organization migration is completed we will have greater granularity in our ability to enforce rules and policies on the accounts belonging to the organization.

Video Streaming Upgrade

NPS' video streaming services were moved to Amazon Web Services cloud and now use the Wowza streaming engine. With the capabilities of the new services, we were able to show the Spring 2019 graduation ceremony live on social media (Facebook, Twitter) accounts both NPS and DON PAO, that greatly increased the visibility of the Naval Postgraduate School. The new video streaming services have allowed us to increase the quality of videos that we stream as well. Additionally, the VTC classroom streams have seen a 10x increase in their video resolution, which makes it easier for remote students to read the slides being presented.

Finally, streaming media services are now used to broadcast the Leadership Council meetings to the campus. The Leadership Council live stream allows all faculty and staff to see the briefing slides and hear the audio from the meeting. You can watch the Leadership Council Meeting (Tuesday's 0930-1100) via live stream at: <https://wiki.nps.edu/x/HR1ZRQ>.



Telecommunications Update: SIP Trunk, Telephone Replacements

At present, the NPS telephone system utilizes TDM (time-division multiplexing) trunks for incoming, local, and long distance calls. In response to industry trends and a DoD directive to move away from this legacy technology through normal lifecycle replacements, we are transitioning to a 50Mbps MPLS (Multi-Protocol Label Switching) SIP (Session Initiation Protocol) trunk. This single trunk will replace our current 18 TDM trunks while providing both cost savings and increased call capacity.

The Telecommunications Office (TCO) is also working on a lifecycle replacement of older Avaya VoIP phones that have reached end of life and are no longer eligible for feature or security updates. The new Avaya J169 phones will provide the same basic features as these older phones as well as some improvements, including a smaller form factor, more programmable buttons, and high quality audio. When they arrive, the TCO will coordinate with departments to replace eligible phones.

NPS joins EDUROAM



As a participating institution of eduroam (<https://www.eduroam.us/>), NPS faculty, staff, and students can connect to eduroam's world-wide secure wireless networks at other participating institutions in the U.S. and abroad using their NPS email address and password. Some of these include universities here in the Monterey Bay area and throughout California like CSU Monterey Bay, UC Santa Cruz, and Stanford University.

Because this participation is reciprocal in nature, visiting faculty, staff, and students from eduroam participating institutions may also use their home institution login information on the NPS campus by selecting the 'eduroam' in the list of available wireless networks shown on their device.

For more information on the eduroam service, please refer to the eduroam website at <https://www.eduroam.org/what-is-eduroam/>.

EDUCATIONAL TECHNOLOGIES

Consistent with the NPS mission, Educational Technologies provides faculty, staff, and students cutting-edge technology, outstanding support services and extraordinary facilities to achieve their educational and operational goals.

As part of the Client Services team, Educational Technologies manages over 138 learning spaces across campus. These spaces include classrooms, labs, video-tele-education suites, auditoria, and conference rooms. Staff are responsible for training faculty in the use of the technologies in all of the spaces.

Educational Technologies also manages NPS' collaborative learning environment, consisting of Sakai, Collaborate, live video-streaming, on-demand class recordings, and on-campus podcasting. Progressive audio visual coupled with video tele-education infrastructure, has led to NPS's successful distance learning program.

Exciting NEW Flexible Learning Experiences (FLEx) Spaces



The Classroom of the Future (CoF) team partnered with NPS schools to design flexible, student-centered learning environments. Each school identified a room (GSDM: IN-285; GSOIS: GL-122; SIGS: GL-306; and GSEAS: SP-431) to update with furniture and technology that meets the needs of a diverse group of instructors and students.

During the beginning of FY20, the team will outfit these classrooms with features that allow instructors to actively engage their students and facilitate learning within different group size settings. Classrooms are scheduled to be ready for use winter quarter FY20.

Standard features of the rooms include an instructor's touchscreen computer monitor, whiteboard capture, wireless collaboration, multiple screen presentation capability, power solutions for personal computers, and mobile furniture.

Throughout the design process and implementation of the new spaces, the CoF team looks to partner with faculty interested in adopting active learning into their instruction.

Faculty support resources pair with faculty to:

- ◇ Discuss new room capabilities
- ◇ Identify comprehensive learning objectives and skills that require structured interactions with content, peers, and instructors as part of skill and competency development
- ◇ Identify courses that will gain the most value from the space



The teaching and learning support team is available to offer guidance, feedback, ideas, etc. to support implementation. ITACS was in support of D'Marie Bartolf who ran this project.



SCAN ME

Sakai Learning Management System

Current investment in our Learning Management System, Sakai continued in FY-19. The two person on campus LMS support team caters directly to faculty and students with site service and training.

Sakai was upgraded on June 19th to version 19. In the new version of Sakai, there are some added features as well as some much-needed improvements.

The "Gradebook Classic" tool is discontinued; "Gradebook" is used instead. Within the "Gradebook" tool, one can exclude an individual graded item from a student's course grade. In "Assignments", new optional reminder emails to students are available, and user interface improvements were made for selecting groups and sections. Within "Tests & Quizzes" you will find a simplified, more responsive landing page interface. And in "Site Info", managing participants is now separated from the main page, and every site in Sakai now has a built-in chat function with anyone in the site at any given time.

For any Sakai related questions, please contact the Sakai helpdesk at 831-656-2020 or email clehelp@nps.edu

FY-19 Sakai metrics include:



- 2,862 service tickets
- 1170 course creation tickets

NPS maintains two Sakai instances – NPS courses and "DoD Learn" where non-NPS DoD entities host courses. Customers include SOCOM, the Navy Chaplain School, and Fleet and Family Readiness.

DoD Learn:



- 190 Courses
- 9,011 Users enrolled

Version upgrades occurred on both instances and DoD Learn moved to the Cloud further reducing dependence on local hardware.

ITACS and Graduate School and Defense Management (GSDM) concluded a 1-year pilot of distance learning through Zoom video conferencing software. It did meet expectations and additional licenses were added for FY-20 for use across entire campus as an option with Blackboard Collaborate. Advantages include ease of use across any device and integration with any application.



- Total Zoom Distance Learning Classes - 177
- GSDM – 125
- Non-GSDM – 52



FY19 VTE/VTC

Statistics

Video tele-education hours streamed:

Fall quarter:462

Winter quarter:330

Spring quarter:407

Summer quarter:495

Number of video tele-education

connections:504

Video tele-education instruction

hours:3,179

Number of video tele-education

classes:97

Number of video tele-conference

events:98

HIGH PERFORMANCE COMPUTING

The HPC supercomputer is named Hamming after the computer pioneer and former NPS professor Dr. Richard Hamming. It has over 5,000 computational cores and 11,296 graphical processing unit (GPU) cores tied together by a fast InfiniBand network. It is used primarily for scientific number-crunching operations such as: weather/ice forecasting, turbo-propulsion models, and earthquake prediction. HPC also supports a big data system called Grace named after Navy Admiral Grace Hopper, one of the first computer programmers in the world.

High-Performance Computing (HPC)

ScienceDMZ

The “ScienceDMZ” is an experimental network segmented/segregated from both the NPS Intranet and Internet. Its purpose is to be an externally facing network where researchers can share datasets and perform computations with external research partners. We currently have one machine on that network, called “Maserati”. Maserati is capable of transferring data over a 100 gigabit per second (Gbps) network to researchers located worldwide through the “Pacific Research Platform” (see <http://pacificresearchplatform.org/> for details).

In order to connect additional machines at NPS to the ScienceDMZ at 100 Gbps rates, a special switch that can accommodate these high data rates was procured at the end of 2019. This switch is now being installed and tested, and in addition to Maserati, a second machine will be installed to the ScienceDMZ with a 120 TB storage capacity. The purpose of this machine is to be a “data transfer node” which will allow researchers to share large datasets with external collaborators.

Hamming MPI Compute Nodes

The Hamming Supercomputer originally came online in January of 2009. At that time, it was a “blade”-based Supercomputer manufactured by Sun Microsystems. Since that time, we have refreshed our hardware several times, typically on a 4-5 year rolling cycle (i.e. a fraction of the equipment is refreshed annually, so that the entire system is replaced over 4-5 years). Currently, most of the Hamming compute nodes are from SuperMicro. In 2019, we purchased 20 new compute nodes based on two 32-core AMD “EPYC” CPUs per node. The state-of-the-art processors will allow our researchers and students to continue to perform cutting edge computations. Hamming consists of approximately 80 compute nodes, so we look to continue to refresh annually as funds allow.

Hamming GPU Nodes

In 2019 we also purchased new “GPU” nodes for hamming. GPU stands for “graphical processing units” and are at the heart of gaming platforms – they are what allow gaming consoles to render amazing graphics in real-time. However, they are also very important for performing specialized computations as part of many Supercomputing systems. In our case, we purchased one

GPU compute system for use by the Applied Math department, whose researchers will be using the system to continue development of an advanced weather forecasting model. This GPU system consists of 3 NVIDIA “Titan V” GPUs.

A second set of GPU systems is available to anyone with an account on Hamming. This set of systems consists of 3 compute nodes, each with 3 NVIDIA “Titan RTX” GPUs. These systems can be used for a variety of applications, but are particularly useful for machine learning and artificial intelligence applications.

Storage

In 2019 we also upgrade our Supercomputer storage systems (manufactured by “Data Direct Networks” or “DDN”). We upgraded our existing 1.5 petabyte (1 petabyte = 1000 terabytes) DDN 12K20 to a 12K40 in order to get an additional 3 years of support. We also procured a new state-of-the-art DDN 18Kxx with a capacity of 6 petabytes. This second system should allow us to meet our Supercomputing storage needs for the next 5 years or more.

Grace

The Grace Supercomputer is used for “big data and data analytics”. This is the type of computing that is at the heart of search engines. For DoD applications, users typically are searching through large datasets that aren’t available on the internet, but are of particular interest for defense purposes. This supercomputer was purchased in the fall of 2015 through a \$1 million grant obtained through the DoD “High Performance and Computing Modernization Program.” Unfortunately, this was a one-time grant, and there are no plans to replace the aging Grace, though they system continues to function and will remain online.

Infrastructure – Air Conditioning

In 2019, we did experience a failure of our air conditioning system on two separate occasions. This system was installed in the fall of 2008, and it need to be replaced. With the assistance of NSAM Public Works, repairs were made in December of 2019 that should see us through for at least another year. NSAM has made the replacement of this system a priority for replacement sometime in FY21.

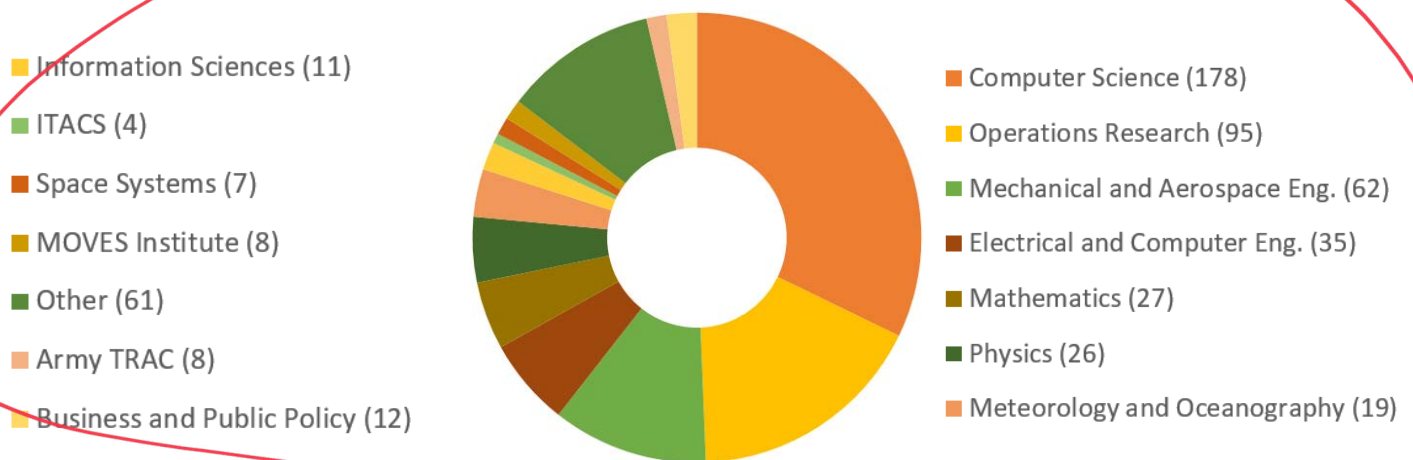
Research Computing Support

Research Computing provides support for High Performance Computing (or HPC, also known as Supercomputing), Linux computing, Machine Learning/Artificial Intelligence, and Big Data/Data Analytics (Hadoop).

The HPC Data Center was established in 2009, and currently hosts approximately 400 users (students, faculty, staff, and their collaborators) that are using the computers for teaching and research.

As of May 2018, the systems in the HPC datacenter have approximately 5,570 CPU "cores" across 124 servers, and over 3 Petabytes of disk storage. The users of the systems typically are running models and codes which requires immense amounts of computing power and storage that would otherwise require them to obtain resources on systems outside of NPS. Several new faculty members have come to NPS in part because of the availability of the NPS Research Computing resources.

HPC USER ACCOUNTS BY DEPARTMENT



HPC Quarterly Maintenance

Did you know that maintenance is performed on the Hamming and Grace Supercomputers ("High Performance Computers" or HPC) every quarter, right after finals week? The HPC Team reserves 1-5 days the week after finals take place in order to perform routine maintenance, replace broken parts, and to upgrade hardware and software. The Hamming SuperComputer has thousands of computing "cores" and is used to solve problems which require billions of mathematical calculations. The Grace SuperComputer has fewer computing cores, but it has more physical disk drives so that it can be used to solve "Big Data" problems. There are also several smaller computers in the HPC facility which are used for special purpose computing. For example, a new computer called "Bowditch" (named after the father of mathematical oceanographic navigation) is being used to analyze ship tracking data.

The Hamming Supercomputer operating system, CentOS, was upgraded to version 7.4. Though this may not sound terribly exciting, it ensures that our Supercomputer has the most recent security patches installed, and also allows our researchers to take advantage of advances in hardware and software technology. The Grace Supercomputer was upgraded with the Cloudera 5.13.1 and Spark 2 distributions. These are very important software packages for Big Data Research.

The HPC team also made sure that upgrades to compilers (Intel, Portland Group, and gnu) were put into place, along with mathematical software packages such as Matlab, R, Octave, Julia, Autodyne, and many others. These packages may not be household names, but to our faculty, students, and staff engaged in HPC work, it is important that we keep up-to-date versions available. We also ensure we replaced any failed hardware, such as hard disks, power supplies, and networking cables.

PLANS AND PROJECTS

The Plans and Projects team defines and maintains standards for ITACS project management, mentors ITACS project managers, implements project management principles, practices, and methodologies in the department, and manages many of ITACS projects. The team also reviews IT programs to assess overall compliance with industry best practices, NPS plans and policies, and alignment with business requirements. Additionally, the team is responsible for establishing policy and procedures for effective and appropriate management of NPS' records from their creation through to their final disposition.

Records Management FY19



During FY 2019, the members of the ITACS Records Management Team continued working with the Records Custodians for the NPS organizations that produce or receive records to help them develop/maintain a file plan. A file plan lists the categories of records the organization has, where those records are located, and the disposition schedule of the categories of records.

NPS was one of four Echelon II commands that participated in a pilot of the Navy's new Electronic Records Management System, called: Department of the Navy Tasking, Records and Consolidated Knowledge Enterprise Repository Records Management (DON TRACKER RM). Selected members of the ITACS Records Management Team received Train-the-Trainer sessions on DON TRACKER RM. Roll out of DON TRACKER RM to the Navy will begin in FY 2020. NPS will be one of the first commands to use it. The ITACS Records Management Team will receive one additional training session and then these individ-

uals will train the NPS Records Custodians.

NPS has implemented the Capstone approach to email records management. Under this approach, certain positions at or near the top of a Command are designated as Capstone Officials and their email is treated as a permanent record – meaning it is preserved forever. Those individuals who have been identified as being in a Capstone Official position for NPS have been notified by email. Additionally, in the future a copy of all of their emails (both sent and received) will periodically be uploaded into DON TRACKER RM.

The Team continues to develop the Records Management wiki space as an information resource for NPS personnel. The wiki space is located at:

<https://wiki.nps.edu/display/RECORDS/Records+Management>.



FY19 KFS Metrics

- ◇ Number of research and data call requests: 48
- ◇ Number of new KFS features implemented: 47
- ◇ Number of bugs fixed: 16

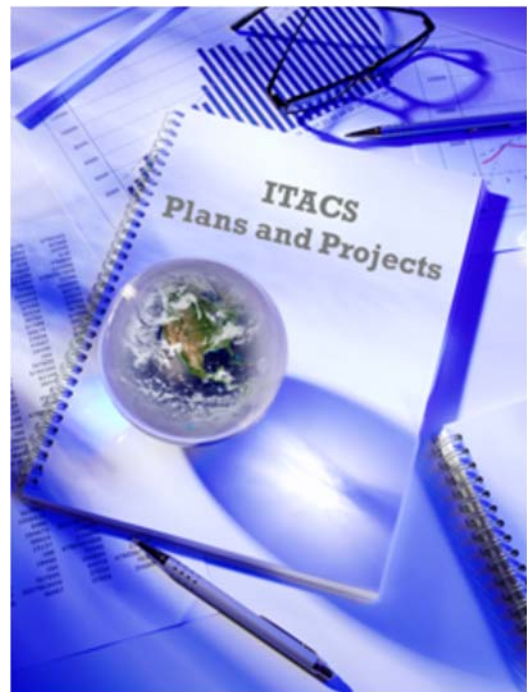
FY19 PYTHON Metrics

- ◇ Number of improvements and new features implemented: 373
- ◇ Number of bugs fixed: 93

Microsoft (MS) Premier

We renewed the Microsoft Premier Support contract, which provides NPS with fully-integrated and comprehensive support for all Microsoft software for supporting the NPS networks and its mission. It provided rapid response and solutions for mission-impacting operational problems. It also provided proactive services to assist NPS in ensuring the health of configurations around Microsoft software products.

The MS Premier support contract in fact provided extremely helpful assistance with the NPS migration to Office 365 email and SharePoint Online. The transition to O365 email was so seamless for most customers that they did not realize their email was moved to the cloud. O365 provides five licenses per FTE here and at home



Enhancements to Kualu Financial System (KFS)



KFS is continually improving with updates and additions to the software to make navigating and running reports easier for the user. Over the past fiscal year (FY19) there were several improvements to the reporting aspect. One such improvement was to the procurement timeline report, which is generated in an Excel format and provides the user to view details about the timeline of the purchase to include the

Contract Manager it was assigned to. Another improvement was to the monthly Metrics report, which is also provided in Excel format and presents data from KFS showing budget versus expenses data across all departments. Another updated report was the purchase log report for the new mandatory screening tab. The custom Purchase Log Report, generated in Excel as well, added new fields for specific customization reporting.

NPS cardholders had several requests among them was the ability to adjust final cost on Purchase Orders (PO) after it is closed. This enable the cardholder to accurately adjust the final costs after the closing of the PO. Another requested change was made to allow changes to documents that are final. Such editing can now be accomplished via the KFS Administrators who can edit the Purchase Order or Requisition on behalf of the user.

The KFS Administrators are diligently working with all involved in the transition from STARS to SABRS. They are working on a FIP to JON mapping tool within KFS required for the transition. This mapping tool is necessary to allow for the processing of Travel and Labor form Navy systems into KFS after the start of Fiscal Year 2020.

Expect continual enhancements to KFS for the upcoming Fiscal Year as we try to keep the user interface as user friendly as possible while ensuring accuracy and customization of report running.

RESOURCE MANAGEMENT

Resource Management fully supports all operational areas within ITACS in budget, procurement, contracts, human resource services, and facilities. In addition, Resource Management supports ITACS in areas of training, travel, and communications.

Resource Management is committed to providing a stable work environment with equal opportunity for learning and personal growth. Creativity and innovation are encouraged for improving the effectiveness of ITACS. Above all, employees are provided the same concern, respect, and caring attitude within the organization that they are expected to share externally with every customer. The mission of ITACS Resource Management is dedication to the highest quality of customer service delivered with excellence and integrity.

Military Staffing

Military staff are valued for their exemplary professionalism, specialized knowledge, and genuine representation of the service component of ITACS' core values. Tour of duty is normally between 2-4 years.

Number of Military staff per team:

Classified Computing Programs.....	3
Cybersecurity.....	2
Development and Operations.....	1
Educational Technologies.....	4
Records Management	1
Technology Assistance Center.....	4

Professional Development

Continuous information technology training is crucial to the success of ITACS, as well as NPS. Technology is always changing and new applications and capabilities are constantly released in an effort to streamline business practices. In order to keep updated with the latest technology and with campus demands, it is mission essential that ITACS personnel be trained. Part of keeping up with the newest technology is also the attendance at DoD and non-DoD conferences where networking with IT professionals can be very beneficial.

In FY18, \$150K was devoted to professional development and attendance at technology conferences and training events. The money allotted provided over 29 training and conference events. Whenever possible, training was brought to campus in order to provide instruction to as many individuals as possible, minimizing travel time and reducing costs. Providing professional development opportunities for ITACS personnel enhances their knowledge and skills in an effort to meet the NPS mission.

ITACS Staffing

Number of government civilian employees by team:

	On-Board	Billets
Client Services		
Classified Computing Programs	4	6
Educational Technologies	4	7
Technology Assistance Center	12	15
Cybersecurity	5	6
Development and Operations	17	20
High Performance Computing	1	1
Records Management	1	2
Resource Management	4	5
CIO, Deputy CIO's	3	3

ITACS Conferences Attended:

- Super Computing 2018 (Nov. 2018 in FY19)
- Amazon Web Services (AWS) Executive Summit, reinforce 2019)
- REN-ISAC
- Educause (Annual Conference & Cybersecurity Professionals)
- DON CIO IT West 2019
- CENIC Annual Conference
- RSA Conference
- CISA Conference

What It Takes to Keep the Lights On

Of the total ITACS budget, \$248K was spent on internal department non labor requirements. Approximately \$162K was spent on hardware lifecycle replacements and \$134K was spent on training and travel for ITACS personnel. The remainder of the budget was spent on Enterprise equipment and service that supports the campus educational and research missions. ITACS generates over \$6 million in procurements each year. The procurements are required to support the campus' IT requirements. The requirements span across a spectrum of categories: academic software licenses, maintenance agreements, service contracts, and hardware purchases. Some of the purchases were simple government-wide purchase card holder acquisition while others involved contract specialist support. In 2019 ITACS initiated approximately 185 procurements, roughly one third of these were simple credit card purchases while the remaining were contracts.

In order to support the needs of the NPS faculty and students, ITACS procured a little more than \$1.2 million in service contracts that provided the campus with IT expertise to support the teaching and research mission of NPS. Some of the service contracts included support for NPS' Quali Financial System (KFS), Bursar system development, and Python (NPS' Student Information System).

ITACS Overview/Data Center Tours-Cyber Briefings/Visits

The Chief Information Officer (CIO) and Deputy CIO provide an overview of how the Information Technology department supports NPS' core mission to include tours of the Data Center and the High Performance Computing Center along with a Cybersecurity briefing. In FY19 the below tours were provided.

- 10/21/18- Navy Higher Education IT Consortium
- 10/26/18
- 10/24/18 Professor Frank Narducci, Physics, NPS
- 11/16/18 Master Gunnery Sergeant Scott Stalker, Senior Enlisted, National Security Agency
- 01/25/19 VADM Ann Rondeau, USN (Ret.), President, NPS
- 02/26/19 COL Eric Tollefson, Director of Data Science, Network Enterprise Technology Command (NETCOM)
- 03/04/19- Department of Defense (DoD) CIO EDU Meeting
- 03/07/19
- 03/21/19 Mr. David Radcliffe, OSD Strategist and Policy Advisor
- 03/26/19 Mr. Mike Mellinger, CIO, NUWC Division, Keyport
- 04/04/19 NPS Cybersecurity Student Tour
- 08/05/19 IS4926 & MV3500 ITACS Tour
- 08/12/19 Col Harold Hoang, CIO, US Air Force Academy



TECHNOLOGY ASSISTANCE CENTER

The Technology Assistance Center (TAC) is the primary means of information technology support for students, staff and faculty. The TAC receives, prioritizes, and handles a high call volume of IT trouble tickets daily. The TAC is dedicated to providing a high level of customer service to support the academic mission.

TAC's Remote Call Center

October '19 marked one year of service from our Remote Call Center. As highlighted last year, the call center was implemented to ensure a larger percentage of calls were immediately answered and problems fixed real-time. Data validates this effort.

During FY19 the call center received 13,000 calls. On average 77% of the calls are picked up by a technician before going to voicemail and 65% of the issues are resolved at that time. For comparison, FY-18 data show many days when 1 out of 2 calls were missed as on-site technicians assisted other customers.

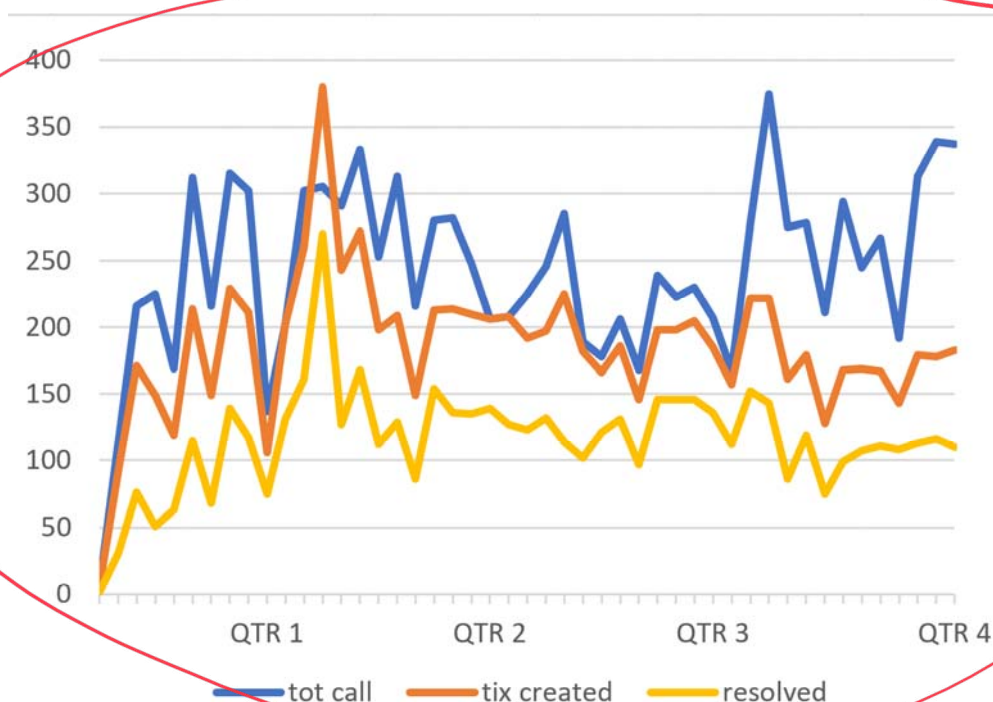
Additionally, we received 22,000 service tickets, a 20% increase from FY18.

We believe this increase is due to tickets made from phone calls that were actually answered via our off sight telephone service.

Increasing call volume was driving our wait times and voice mail numbers too high. The contracted technicians meet all operational security requirements for work on your computers. They are expected to answer the phone, create Jira tickets and resolve the Tier 1 level tickets. They will also elevate more technical tickets to our Tier 2 technicians here on campus who you are familiar with.

Top Five Trouble Ticket Categories:

- ⇒ Account Administration
- ⇒ Software
- ⇒ Hardware
- ⇒ Network
- ⇒ Web





Tickets Created Via:	
Walk-in	3,624
Phone	13,122
Email	5,749
Total	22,495

Migration to the Cloud

During FY19, the Technology Assistance Center (TAC) began work on migrating all users away from on premise storage and into the cloud. This is part of the Naval Postgraduate School’s continued transition to Microsoft’s Office 365 solution. After migrating all user’s email into the cloud from the previous year, the next step is to migrate every user’s **H: Drive** and **Roaming Profile** from the current, on premise servers to Microsoft OneDrive (Microsoft Office 365 Cloud). The TAC has migrated ITACS users for evaluation purposes and will continue to test through early 2020. Once everything is ready, the TAC will roll the migration across campus in FY20. Users will be notified well ahead of time before they are scheduled to be migrated.

Benefits of this migration include:

- Faster login times on campus computers
- Access to all files remotely without having to connect to VPN
- Increased storage space to 5TB

Stay tuned for more information on the continued cloud migration.



DEPARTMENT HIGHLIGHTS

DoD Secure Access File Exchange



DoD Secure Access File Exchange achieves Initial Operating Capability in response to a DoD Chief Information Officer (CIO) directive, the Defense Information Systems Agency Services Development Directorate deployed Department of Defense Secure Access File Exchange (DoD SAFE) Aug. 15. other upgrades, such as users being able to access their files for seven days, as opposed to the current two-day time limit with AMRDEC. Users are also able to download the files multiple times and send up to 25 files at once. Users outside of DoD may notice lengthy download and upload times depending on their bandwidth availability, but DISA will work to continually improve the experience for all users.

DoD SAFE, a replacement for the U.S. Army Aviation and Missile Research Development and Engineering Center (AMRDEC) Safe Access File Exchange (SAFE) slated to be retiring in August, will provide, at no cost, users with a DoD enterprise-wide method of securely transferring files.

The file exchange will support transfer of files up to 8 gigabytes, an increase from the current 2 gigabyte limit, on the Non-classified Internet Protocol Router Network (NIPRNet). The service can be used to securely transfer unclassified data to include: For Official Use Only (FOUO), Personally Identifiable Information (PII) and Protected Health Information (PHI).

In addition to being able to transfer large files, DoD SAFE offers

In addition to package level encryption, DoD SAFE is also improving security by requiring authenticated Common Access Card (CAC) users, who are the main user base of DoD SAFE, to initiate all file transfers.

With a deadline from DoD CIO to complete the program in six months, DoD SAFE was based on an open source code, which was further reviewed, refined and hardened to meet DoD's security requirements.

Collaborating with public sources for the code used in the project was just the beginning of the teamwork that transpired during the project.

Your Security Operations Center



"The best defense is a good offense!" While this philosophy has significant merit within the military kinetic domain, NPS's ITACS cybersecurity professionals architect the Security Operation Center (SOC) upon the very same foundation.

General knowledge of the cyber adversary affords the creation and implementation of defensive measures, and yet this is proven woefully inadequate. The scale, scope and adaptation of the adversary consistently breach even layered defenses. So, how does one change the status quo? How does one add proactivity to reactivity, bolster defense through offense in this domain? Data aggregation and visualization tools. Leverage the best available to unlock the intellectual capital needed to 'see' the adversary in the wire, in the cloud, or on your hard drive. Wielding these tools, your SOC intends to identify and neutralize the enemy.

Over the next few months, your SOC will integrate data filter and aggregation techniques from one of the world's most widely used and beneficial security tools, Splunk™. It assists the analyst by connecting important and disparate information from a wide variety of sources, removing the irrelevant, and 'painting the picture' of adversarial network activity. This is one way to take the offensive, and to add proactivity to our defensive posture.

Cyber defense professionals of the SOC stand watch 24/7/365 protecting your privacy, your intellectual property, and your research.

Navy Agility and Accountability Impact Award



NPS ITACS department has been recognized for innovative support to the university with its receipt of the Navy Agility and Accountability Impact Award, presented Sept. 18.

ITACS was recognized in the Agile Technology category, which highlights achievements in the development, adoption and/or delivery of new or improved hardware, software or tool(s) that improved the effectiveness or overall mission readiness of the organization. In other words, as leaders across the services are touting the value of rapid acquisition processes to respond to emerging requirements, NPS ITACS is making it happen for faculty and students across the university campus.

“The EDU network affords NPS the ability to make changes quickly to respond to emerging faculty, staff and student requirements,” said Chris Gaucher, NPS’ Deputy Chief Information Officer (CIO), on hand to accept the award on behalf of CIO Joe LoPiccolo and the entire ITACS team. “Timeliness is absolutely critical in an academic environment.”

“This is a great opportunity for the institution,” added university president, retired Vice Adm. Ann Rondeau. “With NavalX here talking about how to bridge and integrate efforts across various entities to create the kind of ecosystem of innovation is really great. I want to thank NavalX for its efforts and being here today.”

The EDU network employed by the university is a critical enabler to the mission, Gaucher stressed, much like every member of the larger ITACS community on campus.

“Although the list of explicit awardees is short, the list of those who made this possible is quite long,” he said. “Our ITACS team’s flexibility and agility, combined with our desire for learning new things, taking some risk and learning from failure, contributes daily towards our growing success.”

Gaucher went on, “We want to especially thank our industry vendors, such as Amazon Web Services, Extreme Networks, Ruckus and Palo Alto Networks. As experts in their field, they are the partners on whom we rely most heavily and could not and should not do any of this without them.”

ITACS serves as the central IT organization for NPS and provides technology and communications support for its core mission of teaching and research. This challenging academic environment requires that faculty and researchers constantly explore new boundaries of the unknown, and that leads to failures, often.

Academic IT services must be agile, resilient and secure, Gaucher stressed. Static IT services with limited capacity and long procurement lead times cannot keep up with the demands of NPS faculty.

The ITACS department “meets this challenge every day,” Gaucher said, in three major areas that led to its selection for the award.

First, a 100-gigabit-per-second Software Defined Network-capable EDU network using a hybrid Infrastructure-as-a-Service model leveraging elastic cloud services with on-premise hardware. Second, a High-Performance Computing suite of systems that supports education and research at NPS, and actually helps recruit top faculty. And third, a determined focus on security with its Cybersecurity Operations Center that monitors and defends the Navy’s EDU networks 24 hours a day, seven days a week ...while offering unique experience tours to students and cyber research opportunities to faculty.

Put it all together, and NPS’ innovative team at ITACS is doing its part to enable the mission, and being recognized for it through the new Agility and Accountability Impact Awards program.

PARTNERSHIPS AND OUTREACH

ITACS has dedicated time to participate in campus-wide committees with the goal of improving services on campus. These efforts have been related to financial systems, student systems, web applications for academic programs and academic administration. Additionally the team works to stay connected and leverage partnerships on the peninsula, both within DoD and education. These partnerships provide opportunity to leverage resources, stay aligned with best practices and collaborate on innovation that can be applied as each organization serves their customers and their mission.

Navy Higher Education IT Consortium



The three peer institutions of the Navy Higher Education Information Technology Consortium (NHEITC); the Naval Postgraduate School (NPS), the Naval War College (NWC), and the United State Naval Academy (USNA) have had a 13 year collaboration to enhance the consortium’s employment of Information Technology (IT) towards meeting the mission needs of the three member institutions.

Classified Computing Committee

The Classified Computing Committee, composed of experienced faculty and staff from many of the academic disciplines, is deeply involved in classified teaching and research. The committee acts in an oversight and advisory capacity in the management of classified computing services by setting priority for the allocation of resources, ensuring alignment of proposed projects with the NPS mission, and providing a campus-wide collaboration for NPS’ classified computing program.

Information Technology (IT) Council

The Information Technology (IT) Council, consists of representatives from the NPS Academic and Support Directorates and allows an open forum for the review of NPS’ Information Technology strategic decision-making. They provide guidance and input to the Chief Information Officer (CIO) and the Provost in the development and annual update of strategic IT goals. This includes review of the annual budget, operational plan, resource plan, network development plan, the annual accountability report, and campus-wide Information Technology and Communications policies.

HPC Advisory Panel

Given its interdisciplinary nature, supercomputing at NPS is governed in consultation with a panel of NPS faculty. These experts in supercomputing work to create a “roadmap” that determines how to best augment the computing power of the NPS Supercomputers Hamming and Grace applied to NPS mission needs. The panel includes members from Operations Research, Computer Science, Applied Mathematics, and Meteorology and meetings are typically held once per quarter.



Configuration Control Board (CCB)

The CCB is the official mechanism for controlling the configuration of the networks in place at NPS. As such, the CCB manages the integrity of the networks' configurations over their life cycle. The NPS networks include everything inside the border routers on both the classified and unclassified networks. In addition to the network devices, firewalls, routers and switches, the CCB oversees the operational efficiency of the network as well as maintains an appropriate information assurance posture in accordance with statutory requirements and acceptable practices.

Web Advisory Board

The Web Advisory Board is comprised of a group of representatives throughout NPS who seek to advance the mission of the university by recommending policies, procedures, and guidelines regarding web-related issues. The board acts as a facilitator, fostering communication, education, collaboration, and a sense of community among those involved with or are interested in online communications at the Naval Postgraduate School.

Cybersecurity Workforce

The Cybersecurity Workforce (CSWF) is comprised of personnel (DoD Civilian, Military, and Contractor) responsible for planning, implementing, and managing technology in order to effectively prevent and respond to attacks. The NPS CSWF professionals have signed non-disclosure agreements and agreements for privileged level access, and possess the training and certification to properly execute their tasks. The CSWF includes all those employed, appointed or assigned to facilitate information technology services. Members of the CSWF spend their days perfecting their craft to ensure technology devices and services are secure, operational and available, as well as invest time in maintaining their professional certifications through continued education.

CENIC

Being Charter members of the Corporation for Education Network Initiatives in California (CENIC) provides connectivity to leading-edge institutions and industry research organizations around the world, serving the public as a catalyst for a vibrant California. Our external connectivity to the CENIC network provides an initial layer of protection, through access control lists, between CENIC and the Internet at their Internet Access Points, and additional protections between CENIC and NPS. The security stack between NPS and CENIC is the second major line of defense in the overall network defense-in-depth posture. Also, we are members of their Cybersecurity Advisory Board and Executive Members of the Board of Advisors.

Monterey Peninsula CIO Council

The Monterey Peninsula CIO Council is comprised of Chief Information Officers and IT leaders from various education, research, and medical institutions as well as federal and local government organizations in the Monterey Bay area. The Council meets to align goals, leverage resources, share information, and maximize the benefits of information technology efforts in the region. The Council embraces collaboration to accomplish mission through cooperative efforts.



Information Technology and Communications Services

Naval Postgraduate School

555 Dyer Road

Monterey, California 93943

<https://www.nps.edu>