Naval Postgraduate School ITACS Annual Accountability Report Fiscal Year 2009

Monterey, California. Naval Postgraduate School

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NPS Mission

NPS provides high-quality, relevant and unique advanced education and research programs that increase the combat effectiveness of the Naval Services, other Armed Forces of the U.S. and our partners, to enhance our national security.

ITACS Mission

The mission of ITACS is to provide technology and communications support for the Naval Postgraduate School’s core mission of teaching, research, and service to the Department of Navy and the Department of Defense, and to provide voice, video, and data infrastructure as mission-crucial enablers of innovation and experimentation within the educational enterprise.
Table of Contents

Message from the Vice President of Information Resources and Chief Information Officer ................................................................. 5

Five-Year Strategic Goals ........................................................................................................................................................................ 8

Cyberinfrastructure ................................................................................................................................................................................... 10
  Security ................................................................................................................................................................................................. 16

Academic Applications and Services ......................................................................................................................................................... 19
  Research Computing/High-Performance Computing ....................................................................................................................... 21
  Educational Technologies ........................................................................................................................................................................... 24
  Academic Services .................................................................................................................................................................................... 26

Administrative Applications and Services .................................................................................................................................................. 27

Resource Management .................................................................................................................................................................................. 31

Communications, Partnership and Outreach ............................................................................................................................................. 33
  Communications ....................................................................................................................................................................................... 34
  Partnerships and Outreach: Campus ....................................................................................................................................................... 34
  Partnerships and Outreach: Industry ......................................................................................................................................................... 35
  Partnerships and Outreach: Peer Institutions ......................................................................................................................................... 36

ITACS FY10 Goals .......................................................................................................................................................................................... 37
Message from the Vice President of Information Resources and Chief Information Officer

Dr. Christine M. Haska is the Vice President of Information Resources and Chief Information Officer of the Naval Postgraduate School. Since 2001, Dr. Haska’s responsibilities have included oversight of Information Technology and Communication Services, Educational Technology, and the Offices of Institutional Advancement and Institutional Research. Dr. Haska partnered with colleagues at the US Naval Academy and Naval War College to establish the Navy Higher Education IT Consortium; oversees the Monterey Peninsula Department of Defense Net, a regional infrastructure linking six local Department of Defense organizations; the institution’s Internet2 membership and related activities; and has been active in publishing articles and presenting papers at IT, Institutional Research, and Accreditation professional association conferences.

2009 has been a year of assessment and planning. We completed our second five-year IT Strategic Plan: Advancing the Mission, which gave us an opportunity for reflection on the previous five years and a framework for assessment. The plan also energized us to challenge the status quo and find new tools and develop new services to support our faculty, students and staff.

The assessment process also prepared us for the Capacity and Preparatory Review visit of our regional accreditation body, the Western Association of Schools and Colleges (WASC) in March of this year. It was gratifying to hear that the IT concerns in the 1999 WASC report were fully addressed, and the campus was praised for its substantial technology improvements. The second part of the reaccreditation process will occur in October 2010 with the Educational Effectiveness Review visit, and Information Technology and Communications Services (ITACS) will have a role to play in preparation for that as well. The Naval Inspector General (IG) conducted a comprehensive review visit in August of this year, and we were again pleased to hear that the IT issues in the 1999 Naval IG report were satisfactorily addressed; in fact, ITACS was commended for providing exemplary infrastructure and services.

We are proud of many accomplishments this year, and while they are chronicled in this Annual Accountability Report, I would like to call attention to a number of specific events and milestones:

• In early 2009, the installation of hammer, our 10.7 teraflop Sun Microsystems supercomputer, was a testament to the work of the IT Task Force and an effective partnership with the Research Office, the Graduate School of Engineering and Applied Sciences, and Provost Ferrari. Sun Federal President Bill Vass attended our public ceremony unveiling hammer, as did Mrs. Hamming, widow of Dr. Richard Hamming, for whom our high-performance computing cluster was named.

• Piloting Sakai, the Stanford, University of Michigan and MIT-developed learning management system, with an eight-member faculty advisory group proved to be a compelling model for change. This move will save NPS $1.5 million over the next five years and allow us to invest scarce resources in new technologies in other areas.

• Joining the Kuali open source community was an invigorating step away from expensive proprietary administrative systems and toward a flexible, scalable community of developers at some of the best research universities in the nation.

• Upgrading our network to a 10 gigabit core provided a “just-in-time” upgrade for a bandwidth-intensive institution. Upgrading the Monterey Peninsula Department of Defense (DoD) Net to a 10 gigabit ring topology leveraged our investment with those of...
our local DoD colleagues, and will make resource sharing easier and faster in the years to come.

• Installation of the 4K projector in the MAE auditorium is a small but important first step in building visualization capabilities on our campus. In a world of supercomputers and massively parallel computation, it is increasingly urgent to be able to visualize data to more fully understand its properties and dynamism.

• Launching our new Web Content Management System was a multi-year project that finally resulted in a public launch. This was a case study in partnership – first and foremost with the Dudley Knox Library who bravely volunteered to pilot the system, and then with every major administrative and academic area on campus.

• Making the case to the Department of Navy with our colleagues at the Naval War College and the US Naval Academy through the Navy Higher Education IT Consortium, that higher education requires advanced networking and IT service capabilities that are flexible, adaptive, and, often times, experimental.

• Celebrating our Naval Postgraduate School (NPS) Centennial with our own contributions of programs, events, and publications – all the while showcasing the important history of technology leadership over the last 100 years at NPS and the increasing criticality of information technology and communication services to our institution's future.

As we look forward to 2010, let me mention just a few aspirations for accomplishment:

• Upgrading our CENIC connection to 10 gigabit will maximize the benefits of our core network upgrade.

• Unified communications for the campus will take full advantage of the investment in the telephone switch upgrade made this year.

• Expanded visualization capabilities will excite our faculty and students and provide a way to show our many important visitors some of the complex science and engineering done by our faculty and students.

• Partnering with the Department of Operations Research to pilot MIT's Technology Enhanced Active Learning space as an alternative to conventional classroom space will provide an exciting place to try new approaches to teaching and learning.

• Continuing to frontier open source solutions that will help to reduce and contain our costs while providing more adaptive and responsive systems. Having a board role in Kuali Student ensures NPS requirements are represented and provides a leadership role for NPS in this important initiative.

• Helping to host the 2010 CENIC Conference in Monterey will provide a wonderful opportunity to showcase NPS and extend our Centennial celebrations.

All of our accomplishments and aspirations involve the talent and teamwork of the entire ITACS organization who are working to serve the NPS mission. As you will read on subsequent pages, those creative, dedicated efforts are energized by your support and partnership. We look forward to working with our NPS colleagues this coming year.
About Information Technology and Communications Services

Information Technology and Communications Services (ITACS) is the central IT support organization for the Naval Postgraduate School (NPS). Its mission is to provide technology and communications support for the NPS core mission of teaching, research and service to the Department of Navy and the Department of Defense (DoD), and to provide voice, video and data infrastructure as mission-critical enablers of innovation and experimentation within the educational enterprise.

ITACS provides a wide range of services to the NPS enterprise in the areas of:

Network Operations
The Network Operations Center operates seven networks that connect more than 6,000 wired and wireless edge devices, the .mil DoD Research Engineering Network (DREN), and several classified networks. The 10 gigabit per second network backbone connects to the California Research and Education Network (CalREN) Digital California (DC) and High Performance Research (HPR) networks.

Unified Communications
Unified Communications supports all of the e-mail, telephone, VoIP, cell phone, Blackberry and video teleconferencing communications at NPS.

Academic Computing
Academic Computing is responsible for supporting 19 computer labs and 95 smart classrooms at NPS, including the licensing and installation of over 350 academic applications, support of the audio-visual equipment, and the general space design. Academic Computing is also charged with administering all of the distributed learning systems which reach more than 1,000 non-resident NPS students.

Educational Technologies
Educational Technologies (Ed Tech) is responsible for the management of the Learning Management System, collaborative web-based tools, video teleconferencing and audio-visual services. Ed Tech’s primary customers are resident and non-resident students and faculty as well as a growing number of staff that are using collaborative tools to assist in managing their projects.

Business Solutions Group
The Business Solutions Group is responsible for the development of business solutions, web operations, and major administrative systems such as the student management and NPS financial systems.

Research Computing/High-Performance Computing and Visualization
ITACS Research Computing (RC)/High-Performance Computing (HPC) maintains 19 computing clusters for NPS researchers, the largest of which is the newly installed 1,152 core Sun cluster capable of 10.7 teraflop per second, named hamming after computer pioneer and former NPS professor Dr. Richard Hamming. RC is also leading the effort to establish a visualization facility. A Sony 4K projector with the capability of producing an image resolution four times better than high-definition was installed in the School’s MAE auditorium in FY09. The combination of the computational power of the hamming cluster combined with the capabilities of the 4K visualization studio will give NPS researchers greater ability to process and render very large data sets.

Helpdesk Services
The Technology Assistance Center handles the level one, two and three support calls, including software and hardware support for NPS faculty, staff, resident and non-resident students.

Classified Computing
Classified computing maintains connections to five classified NPS networks as well as three classified classrooms and three classified computer labs.

Mainframe Operations
NPS operates a mainframe on a twenty-four hour/five days a week basis in support of several DoD-related activities.
Both the Naval Postgraduate School (NPS) Strategic Plan: Vision for a New Century and the recent Capacity and Preparatory Review Report to the Western Association of Schools and Colleges underscores the importance of the technology and communications infrastructure and services as strategic institutional resources which have an impact on every dimension of the School’s mission. Research, education and service to the Department of Navy (DoN) and the nation are all affected by the currency, reliability, security, flexibility and responsiveness of Information Technology and Communication Services (ITACS).

The vision for information technology (IT) at NPS is to enable the School to realize its goal to become one of the top research universities in the United States. This environment will have a centrally coordinated IT service organization that provides high-level support for education, research, and service as its core mission characterized by innovation, talent, access to advanced tools, collegial and transparent decision-making, commitment to service, integrated, efficient administrative systems, accountability to stakeholders and effective leadership.

Five categories of recommendations are identified in the latest five-year IT Strategic Plan: Advancing the Mission.

- **Cyberinfrastructure** includes the campus Intranet, data and network security, remote access, Internet access, wireless access, connectivity to high-speed national and international networks, access to data repositories, applications, and backup capabilities, research computing/high-performance computing, visualization, computation, and collaboration tools, and the required systems support for hardware, software, and network access.

- **Academic Applications and Services** includes equipment acquisition, maintenance and replacement, technology assistance, and support of educational technology in local and distributed settings.

- **Administrative Applications and Services** includes administrative systems that are web-enabled, intuitive, and provide information resources that support conventional management practices of assessment, improvement, and planning.

- **Resource Management** includes oversight of human resources (recruitment, retention, professional development and training), budget, space, equipment, and contracts. The IT division should be managed with the highest levels of accountability and responsiveness to institutional goals, including adherence to sound and disciplined management practices to ensure that investment in ITACS is aligned with the NPS mission.

- **Communications, Partnerships, and Outreach** includes communications about IT issues that are frequent, timely, and accessible to all member of the NPS community. External communications about IT events and news should be part of the IT communications strategy, and an integral part of the larger advancement strategic plan for NPS. Partnerships and outreach should be sought and maintained with organizations strategic to NPS’ goals, such as the Department of Navy, the Department of Defense, campus constituents, industry partners and peer institutions.
Cyberinfrastructure Metrics for FY2009

Network:
- Wireless access coverage: 93%
- Number of buildings covered by wireless: 22
- Average number of systems connected wirelessly: 400

Network Connection Availability

The availability of the Internet to internal users on a network is used as a primary indicator regarding the performance of the network. The data provided below show the level of performance maintained on the NPS unclassified networks.

<table>
<thead>
<tr>
<th>Unclassified Networks</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
</tr>
</thead>
<tbody>
<tr>
<td>nps.navy.mil (DREN)</td>
<td>.999476</td>
<td>.999933</td>
<td>1.0</td>
<td>1.0</td>
</tr>
<tr>
<td>nps.edu (CalREN)</td>
<td>.998968</td>
<td>.999189</td>
<td>.999660</td>
<td>1.0</td>
</tr>
</tbody>
</table>

The data in the table above is based on the following formula (OOS minutes is calculated against unscheduled downtime):

\[
\text{Availability} = \frac{\text{Total Minutes} - \text{OOS Minutes}}{\text{Total Minutes}}
\]

Network Upgrade: Final Phase is Completed Successfully

ITACS completed the final phase of its three-year major redesign and upgrade to the School’s Education and Research Network (ERN) in FY09, ensuring that individual users now have 1Gbps speeds across the NPS network and 10Gbps throughput between buildings across the network backbone to resources on the School’s internal network and beyond, depending on users’ capabilities on their desktop systems.

In Phase III of the network upgrade, all core router and switch topology were linked in most of the buildings to a new 10Gbps high-speed optics backbone, edge switches in the building Individual Distribution Facilities (IDF) were replaced, new .mil border routers, firewall and CAC-enabled VPN concentrator appliances were installed, and 58 more wireless points were deployed. In the Enclave cottages, the network closets were completely rewired, the redundant core, building main switches and Power Over Ethernet (POE) switches for wireless were installed, a wireless management system and wireless access points were established, and the process for creating a new internal .mil network that is completely separate from the .edu network was documented. The work commenced on January 21, 2009; Network Operations Center staff and volunteers and completed the job at the end of March, which involved pulling out equipment, un-patching, installing the new equipment, re-patching and uplinking. Once the equipment was replaced, the Network Operations Center fine-tuned its web-based monitoring tools.

With this infrastructure in place, ITACS began to extend this 10Gbps backbone to the Internet Provider, Corporation for Education Network Initiatives in California (CENIC). CENIC designs, implements and operates the California Research and Education Network (CalREN), a high-bandwidth, high-capacity Internet network specially designed to meet the unique requirements of research universities in California which robustly peers with other national high-speed networks including Internet2, Defense Research and Education Network (DREN), and many others. NPS has 2 unique connections to CENIC: a 1Gbps connection to the CENIC Digital Commodity (DC) network, considered the CalREN "production" network, and a 1Gbps connection to the CENIC High-Performance Research (HPR) network, used more for bleeding-edge research activities with large data flows, including a 10Gbps peering point with DREN and 10Gbps connections to NPS Research Computing resources. This project, upgrading the NPS ERN connection to the CENIC HPR network to 10Gbps, will include adding more redundant paths to CENIC Points of Presence (POPs), and border firewall upgrades to support future research and education traffic flows. This upgrade, the foundation for future network services, including grid storage/computing, virtualization, disaster recovery, distance learning, advanced video telepresence, and other initiatives, commenced in summer FY09 and is scheduled to be completed in early FY10.
Golf Course Annex Gets High-Speed Boost

NPS leaders, students, faculty and staff gathered for the gigabit Light Speed and Beyond ribbon-cutting ceremony on January 16, 2009, to celebrate another milestone for the School and for ITACS. Monterey Pines is home to remote research facilities collectively known as the Golf Course Annex Labs, which are connected to the Mechanical and Astronautical Engineering, Electrical and Computer Engineering, and Physics and Oceanography programs at NPS. The Annex houses the jet propulsion lab, the laser lab, the modeling shop, a turbine lab, and a high-speed wind tunnel at the site; however, the labs were formerly inaccessible through the NPS network. The completion of the installation of fiber between the academic labs and the MWR-related spaces at the golf course has allowed operation of a 10 gigabit/sec. backbone at every network connection, and an upgrade to the Monterey Peninsula Department of Defense Net to 10 gigabit/sec. “We anticipate making very good use of this,” said Distinguished Professor of Physics Bill Colson. “There will be about 40 experts from around the country reviewing our Free Electron Laser Program, and this upgrade could not have come at a better time.” The project involved ITACS, the Graduate School of Engineering and Applied Sciences, and the Office of Research, highlighting another successful partnership among ITACS and its campus constituents.

“This project adds the high-speed connectivity between our station and NPS, not only helping our computational abilities, but also our experimental capabilities.”
~ Dr. Knox Millsaps Professor and Chair, Mechanical and Astronautical Engineering

(from left) Garth Hobson, Professor of Mechanical and Astronautical Engineering (MAE) and Director of the Turbopropulsion Lab, Chris Adams, Lecturer of MAE, Doug Weismann, the Collaborative Networking Program Manager for Information Technology and Communications Services, NPS President Daniel T. Oliver, Sivaguru Srinharan, of the Graduate School of Engineering and Applied Sciences, and Chris Brophy, Associate Professor of MAE and the Director of the Rocket Propulsion Laboratory, all take part in a ‘ribbon-cutting’ ceremony at Monterey Pines Golf Course, Jan. 16, 2009.
Faced with continuing server sprawl, increasing from 70 servers in 2004 to almost 200 servers in 2008, creating a footprint that was reaching its limit in terms of space and power; utility costs which were escalating due to high power and cooling demands; and an estimated $133,000 life cycle replacement cost for 19 servers and an additional $175,000 in life cycle replacement costs for 2009, ITACS conducted a Virtualization Readiness Assessment (VRA) in FY09. By collecting a month’s data on software from 80 servers, ITACS determined that all servers selected for the VRA were highly favorable for virtualization, particularly because 95% of the servers surveyed were using only 20% or less of their CPU capacity; 41% of the servers were using 40% or less of the allocated RAM; and of the 80 servers surveyed with 55TB of direct attached storage tested, only 11TB were being used. The VRA also revealed that the investment for the required hardware, $227,712, could be recouped in 14 months. In addition, after completing virtualization of 80 servers, the utility costs’ savings for power and cooling per year would be equivalent to reducing 169 tons of carbon dioxide in the atmosphere, removing 67 cars from the road, and/or planting 760 trees, making the data center and ITACS a “greener” department.

A thorough evaluation of the VRA and an assessment of the reoccurring costs associated with a traditional physical system such as a physical footprint, hardware maintenance, life cycle management, network cabling, power and cooling usage, were the deciding factors in ITACS’ decision to pursue virtualization.

Server Management staff designed and built the virtual infrastructure, comprised of two separate virtual data centers — one for the ERN

Gordon Herold and Eldor Magat hold one of the Dell Servers. These 7 servers comprise the virtual server environment that hosts 110 virtualized servers.
Intranet and one for the demilitarized zone (DMZ). Over 50 physical servers were virtualized, deferring $350,000 in hardware maintenance and life cycle replacement costs and an additional $350,000 in procurement costs for ITACS’ server supported projects such as Kuali Financial Systems, SAKAI, eHelpdesk, Digital X-ray imaging, Avaya phone system upgrade, Citrix front end, NPS Intranet Web, and various database servers.

The benefits of virtualization were immediate: While maintaining optimal performance of the vSphere cluster, the ratio of virtual servers deployed on one physical server is now 18:1 for the ERN Intranet and a 7:1 ratio for the DMZ. Time allotted for the procurement and installation of an average server has been reduced from 4-6 weeks to 8-16 hours. An upgrade to the system — to the newest version of VMware’s vSphere — uses cloud computing and newer virtualization technologies more effectively. Based on an average server procurement cost of $7,000, the more than 100 virtual servers deployed in FY09 have created estimated cost avoidance of $700,000, exceeding the estimated return on investment by $527,000, and four months earlier than anticipated. In addition, the $700,000 cost avoidance does not include costs for power, cooling, network cabling, maintenance and labor for installation, and disposal costs for old equipment saved from virtualization.

As the system continues to grow, more vSphere servers and storage arrays will be added to increase the resource pool of the cloud, which supports the greater vision of the virtualization initiative: to expand the capabilities of the virtual infrastructure to support a wider range of services on campus.

Green IT Comes to NPS

Because it is estimated that the IT industry accounts for nearly 2% of all carbon released into the atmosphere — on par with the aviation industry — ITACS decided to become a leader in both the Department of Defense and in higher education by developing a formalized Green IT program.

Steps were taken immediately: Power consumption was reduced in the data center by using heat-reflective windows; 101 servers were virtualized into 7 physical servers; a “virtualize-it-first” approach was adopted: when new servers are needed for projects and services, software products that can be virtualized for enterprise services are favored. ITACS is also replacing the uninterruptible power supply in the data center with a more capable and efficient model, and virtualization of some of the Learning Resource Center computers is being evaluated. In addition, all computers are being “green-screened” by ITACS prior to purchasing to ensure that they are environmentally friendly.

Research Computing joined the effort by opting for “hot-aisle containment” — a more efficient method of cooling — when designing the room for “hamming,” the NPS supercomputer. The “hot-aisle containment” method will continue to be used by ITACS as equipment is life cycled in the data center.

The occupants of Ingersoll Hall also collaborated with NPS Public Works’ Excess Property staff and the Seabees to clean up excess items from within the building, including the removal and recycling of furniture and electronic equipment. More than 125 pieces of computing equipment were collected and recycled. The project was completed with outstanding results!

To broaden the Green IT initiative, ITACS offered guidance for campus-wide purchasers of computers and peripheral devices to help them comply with federal Green IT requirements. One item under consideration is the “Smart” power strip, which turns off peripheral devices when the office computer goes into a power-save mode. Green-based alternatives will continue to be evaluated and implemented within ITACS and introduced throughout the campus in FY2010 as momentum for and interest in this initiative grows.

**FY09 Goals**

- Upgrade NPS campus Internet Service Provider (CENIC) network connection from 1Gbps to 10Gbps.
- Complete the upgrade of the telecommunications systems in support of unified communications.
- Implement Microsoft Mobile Manger.
- Expand the Monterey Peninsula Department of Defense Net capability to include classified data delivery.
- Work on off-site backup capability for NPS.
- Implement a new backup solution using spinning disks.
- Continue making physical improvements in the data center.
- Upgrade the Citrix presentation server.
- Upgrade .mil connection to a gigabit connection on the Defense Research and Education Network (DREN).
- Select and implement the best service desk/self-help system.
- Complete the annual Classroom Maintenance Plan.
- Develop a web-based system for audio-visual support.
- Increase IP video teleconferencing capacities.
In June 2009 the telephone and voicemail systems at NPS were upgraded because the version of our Private Branch Exchange (PBX) system software had fallen out of compliance with JITC (Joint Interoperability Test Command), and several hardware components had reached “end of life” by Avaya standards. New replacement parts were no longer available, and refurbished parts were becoming hard to obtain.

After investigating several competing solutions, ITACS decided to remain with Avaya for several reasons:

Keeping Avaya allowed over $750,000 worth of existing hardware to be reused, including all Avaya phones, which greatly reduced the cost of the upgrade hardware.

Importing the existing configuration of over 5000 analog, digital, IP and ISDN circuits could be done via software utilities, saving over $100,000. On a non-Avaya system, the configuration would have needed to be manually input into the new system, a process that took more than 600 engineering hours to document and input when the first Avaya system was configured in 2001.

Although analog, digital and ISDN continue to be supported, future expansion will use VoIP telephony. Avaya has the largest installed IP phone base and has been in VoIP technology longer than other vendors.

By preprogramming and pre-staging the new equipment, the upgrade installation was accomplished in one weekend, starting on Friday, June 19, 2009 at 5:00 p.m.

The upgrade allowed ITACS to do more than just replace an older system. Many new services (Unified Communications) were procured that will allow voice and e-mail messaging systems – including speech and computer access to messaging – to interconnect. “Presence” systems will allow customers to display their availability and to control how incoming calls are handled, including transparent forwarding to PC-based soft VoIP and cell phones.

NPS is the first DoD site to install many of these services. ITACS is currently in the process of testing and securing these systems to meet stringent DoD security requirements. As these requirements are completed, ITACS is planning to provide web-based interface to voicemail and faxes; fax reception service directly to voicemail; fax out capability from any Windows program; voicemail and faxes delivered via Outlook; voice command access to voicemail, e-mail, and voice command dialing; customer controlled presence and call routing capability, including via web portal and cell phones; and VoIP via VPN to remote computers such as laptops.

Joe Bornino, John Hafemeister, Paul Minik, and Sean Miller comprise the Telephone Communications staff, and are seen here wrapping up the final steps of the telephone switch upgrade project.
### Telephone Metrics
- VoIP installed: 135
- Phones: Average trouble ticket completion time: 1.5 hrs
- Phones: Work order average completion time: 4 hrs
- Phones: Number of work orders for FY09: 1,539
- Phones: Assigned numbers and subscribers: 2,764
- Reliability of Phone system: 100%

### Enterprise Service Metrics: Accounts Supported

<table>
<thead>
<tr>
<th>Year</th>
<th>Total Inbound</th>
<th>SPAM Blocked</th>
<th>Valid E-mail Delivered</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009</td>
<td>6130</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2008</td>
<td>5916</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2007</td>
<td>5425</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2006</td>
<td>5184</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Anz comparison of 2008 and 2009 data of the average number of e-mail messages received per day, by total inbound, SPAM blocked and Valid messages received.

### A comparison of high-performance computing capabilities between FY08 and FY09.

- Processors: FY09 - 5916, FY08 - 5425
- Nodes: FY09 - 5184, FY08 - 5425
- Racks: FY09 - 6130, FY08 - 5916

### Distribution of clients by operating systems for FY09

- Windows
- Linux
- Other

![Distribution of clients by operating systems for FY09](image)
The Information Assurance and IT Security staff continued to focus on certification and accreditation of campus networks and systems during this year, ensuring that system configurations and network architecture were aligned with both the governance criteria and best practices within the industry. The team expanded system tools for monitoring and assessing systems and networks, shifting from a more reactive mode to one of prevention. The DoD Information Assurance Work Force effort, which ensures that people in sensitive positions possess the right skills and credentials to accomplish the job, continued to be developed at NPS. The Information Assurance staff also completed the campus-wide annual requirement of delivering Information Assurance Awareness training to all students, staff and faculty.

New Appointment/Information Assurance and Privacy

A significant milestone this fiscal year was the hiring of the Director of Information Assurance and Privacy, shoring up the university’s ability to manage information protected by the Privacy Act.

Mr. Chris Gaucher, former Director in PricewaterhouseCoopers’ Advisory practice, was named the NPS Director of Information Assurance and Privacy. Mr. Gaucher’s experience includes development and assessment of information technology infrastructures across numerous industries and government organizations in areas such as Privacy, Information Assurance, Public Key Infrastructure, Data Protection and Integrity, Wireless Communications, Secure Voice and Data Communications, and extensive internal audit experience focused in the Financial Services and Entertainment/Media industries.

One of Mr. Gaucher’s top priorities was developing the privacy framework for the campus. For security and privacy reasons, expired/dormant accounts that are still active were being manually processed. To reach the long-term goal of consolidating user data stores, Mr. Gaucher worked jointly with the Human Resources Office, Academic Planning and Student Services to develop improvements to this current process.

Achieving Certification and Accreditation of NPS Networks

ITACS completed the Certification and Accreditation (C&A) efforts for the Educational Research Network (ERN), the Systems Technology Battle Lab (STBL), and the Restricted Resources Library (RRL). Aspects of the testing and reporting for the C&A required close coordination among the Network Operations Center, Server Management, the Technology Assistance Center, the STBL and RRL system administrators, researchers, and the Information Assurance team. The accreditations were monumental accomplishments that demonstrated to both the Navy and the DoD that NPS is working diligently to secure its networks. The accreditation of the STBL has allowed ITACS to upgrade the bandwidth of the current network connection thirtyfold.

Installation of the Host-Based Security System

Deployment of the Navy’s host-based compliance application was completed in FY09, when the Host Based Security System (HBSS) was installed on both the Defense Research Engineering Network (DREN) and the Systems Technology Battle Lab (STBL) classified networks. ITACS worked with DoD Information Systems Agency (DISA) to plan for and to provide training to the team via online courses and also attended periodic DISA training via distance learning. A HBSS assist visit by Network Warfare Command (NETWARCOM) was also successfully completed, and very positive remarks were received; ITACS is currently working to implement some recommendations for improvement.
<table>
<thead>
<tr>
<th>Information Assurance</th>
<th>FY08</th>
<th>FY09</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inbound E-mail classified as SPAM (per day)</td>
<td>70,000</td>
<td>124,662</td>
</tr>
<tr>
<td>Daily alerts within our IDS</td>
<td>12,000</td>
<td>23,555</td>
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</tbody>
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### Critical Patching

<table>
<thead>
<tr>
<th>Information Assurance</th>
<th>FY08</th>
<th>FY09</th>
</tr>
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<tbody>
<tr>
<td>Information Assurance vulnerability Alert (IAVA)</td>
<td>77</td>
<td>109</td>
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<tr>
<td>Information Assurance Vulnerability Bulletin (IAVB)</td>
<td>75</td>
<td>65</td>
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<tr>
<td>Information Assurance Vulnerability Technical Advisory (IAVT)</td>
<td>67</td>
<td>70</td>
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</tbody>
</table>

**Critical patches installed by fiscal year and category**

<table>
<thead>
<tr>
<th>Category</th>
<th>FY08</th>
<th>FY09</th>
</tr>
</thead>
<tbody>
<tr>
<td>IAVA</td>
<td>53,735</td>
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<tr>
<td>IAVT</td>
<td>18,948</td>
<td>1665</td>
</tr>
</tbody>
</table>

### Five-Year Strategic Goal

- Incorporate security and privacy practices into the daily business processes at the university and continue to research solutions to evolving threats.

### FY09 Goals

- Continue to establish computer network defense coverage on all networks.
- Continue the certification and accreditation process for all networks, enterprise systems, and applications.
- Continue to implement Common Access Card (CAC) authentication for Virtual Private Network (VPN) access.
- Continue to improve the ITACS Disaster Recovery Plan.
- Implement Network Access Control on the wired and wireless networks.
- Upgrade ventilation and security capability in network closets.
- Investigate additional hardware encryption options for remote access.
In early February, all Navy commands received a message from Navy Network Warfare Command which highlighted a persistent problem: the Department of Navy (DoN) continues to experience systemic issues with poor end-user practices related to computer and network security. It was determined that the key to addressing this issue was to increase awareness across the Department of Defense and the DoN; therefore, the Annual Information Assurance Awareness and Network Security Awareness (IAA/NSA) trainings, a campus-wide requirement, were redesigned to maintain a stronger security posture for the university community, and to help users learn about security practices which they can implement at home to protect their private information.

At NPS, 100% compliance of the Information Assurance Awareness training was achieved on the classified and unclassified .mil networks.
## Five-Year Strategic Goals

- Update and repurpose learning spaces to reflect active learning principles that leverage the power of information technology to enhance the learning experience in both classified and unclassified environments.
- Upgrade and deliver technologies and systems capable of supporting the fivefold growth in the distributed learning population.
- Improve processes and explore leading-edge technology to meet the functionality required by faculty and researchers.
- Expand the NPS computational and data GRID to enable research with large data sets, immense computations in a distributed environment.

## FY09 Goals

- Continue to work on the NPS GRID with the University of California Santa Barbara and Research Computing/High-Performance Computing.
- Assist in the selection of the next Student Management System.
- Integrate other learning tools into Sakai Collaboration and Learning Environment (CLE).
- Move Sakai pilot to enterprise.
- Prototype automated classroom audio/video podcast recording system for non-video teleconferencing (VTC) classrooms.
- Transition courses from Blackboard to Sakai.
- Update NPS public video portal.
- Update the classified lab: VTC systems.
- Upgrade Office 2007 in all Learning Resource Centers (LRCs) and classrooms.
- Build a database for storage, access and metadata tagging for the Podcasting Repository Pilot.
- Continue the move to virtualized classrooms and LRCs.
- Develop a NPS iTunes University presence.
- Develop a video archiving strategy.
- Develop a strategy for publishing podcasts.
- Establish faculty training and support/assistance for Sakai CLE.
- Expand Elluminate to include podcasting, increase courses, increase faculty involvement.
- Replace licensing server.
FY09 Progress

- Renewed forty-one academic software maintenance contracts.
- Installed concurrent licenses for 35 unique academic applications.
- Continued regular scheduled maintenance and cleaning of LRCs and classrooms.
- Maintained a standard Windows image for deployment to all campus LRCs and classrooms.
- Reconfigured two classified networks; installed firewall, an Intrusion Detection System and an Intrusion Protection System.
- Installed a Host Based Security System (HBSS) on the classified network.
- Replaced the VTC in the classified lab.
- Hosted 36 conferences and special events in the classified lab.
- Held 105 VTC classified (SECRET) sessions.
- Established a Life Cycle Management Plan for both classified facilities.
- Installed the Sun Microsystems’ supercomputer, hamming.
- Added Sun storage and tape archive system.
- Grew from zero to 110 supercomputer users in one year.
- Established Sakai Collaborative Learning Environment (CLE) as an enterprise resource.
- Continued to provide support of Vbrick classroom video capture hardware.
- Supported Elluminate and hosted 2,482 Elluminate sessions for Distance Education and Collaboration.

- Made 6,000 hours of course lectures and conference videos downloadable on our podcast site.
- Migrated 96 courses from Blackboard to Sakai.
- Developed an online Sakai project site where students and faculty can obtain online Sakai training.
- Held 32 training sessions for instructors to learn Sakai and Elluminate.
- Established a Wiki for Sakai best practices.
- Provided video capture and video streaming services to 72 academic and defense-oriented conferences held at NPS this year.
- Provided media design for various print and digital media projects for group as well as departmental needs.
- Researched, installed, configured and launched Apple’s Podcast Producer.
- Beta tested Apple’s Snow Leopard server and evaluated application upgrades that serve our groups’ direct needs.
- Designed, built, implemented, and manage XSAN video storage solution.
- Established a Flash Media Server that will provide an enterprise-level video distribution strategy for all NPS business units.
- Designed and installed a new type of hybrid VTC/Elluminate teaching tool.
- Built the new Technology Enhanced Active Learning (TEAL) classroom in Glasgow Hall.
- Designed, installed and configured a separate Sakai instance the Foreign Area Officer program.

- Entered into a Memorandum of Agreement with the MWR Fleet Family Readiness Center to host online continuing education.
- Designed and installed new conference room VTC and presentation systems.
- Installed two new VTC systems in Graduate School of Business and Public Policy (GSBPP) classrooms and upgraded one existing VTC/presentation system for GSBPP.
- Completed technology refresh of two GSBPP television classrooms.
- Complete audio-visual (AV) life cycle replacement of AV systems in 13 classrooms.
- Designed and installed 5 collaborative AV study rooms in the Dudley Knox Library.
- Completed standardization of classroom user interface controls (five-year project).
- Continued work to standardize classroom instructor console.
- Introduced new standard for classroom projectors that will increase reliability and decrease required maintenance.
- Conducted physical classroom inventory that supported classroom improvements as well as the new scheduling system installed by the Registrar.
- Purchased new VTC Gatekeeper, Border Controller, and licensing in order to increase NPS IP VTC capacity.
- Conducted a life cycle refresh of 3 VTC codecs in Root Hall VTC classrooms.
Visualization initiatives related to research computing and a site visit to the Calit2 facilities at the University of California San Diego sparked an interest in reinvigorating visualization capabilities at NPS.

In mid-December, ITACS sponsored a demonstration of the Sony 4K projector — located in the auditorium of Watkins Hall — which has 10,000 lumens, or three times the brightness of the current projectors, 4096x2160 pixels/8.8 megapixels, and is compatible with different types of signals. The projector supports four DVI inputs and was installed with an external multi-window video. Because of its level of detail, the Sony projector provides the capacity for content that can’t be displayed to more than a handful of people at this time. High-end software packages, special requirements for use, a faculty schedule for reserving time, and technical assistance will be developed in FY2010, during the second phase of the installation.

Harry Thomas and Jon Russell installed the Sony 4k projector, one of the initial components needed for NPS to expand research in the field of visualization.
Naval Postgraduate School (NPS) researchers gained high-powered processing capabilities in FY09 when ITACS’ Research Computing (RC)/High-Performance Computing (HPC) group installed a Sun Microsystems cluster with a processing power of 10.736 teraflops, or 10.736 trillion floating-point operations per second, 112 terabytes (100,000 gigabytes) of storage, more than 1,100 CPUs, and blade-based technology — which helps the system consume less energy.

Construction of Ingersoll Room 141, which houses the system, was completed and the supercomputer was delivered in late November. The delivery included the Central Processing Units, chiller, storage devices, cooling and Power Distribution Units (PDU). The physical size of the systems presented a challenge for installing the American Power Conversion (APC) PDUs in the cluster’s four chassis. NPS staff devised an improved solution to balance the load of the PDUs which will be used by APC in future Sun installations. In addition, policies and performance benchmarks were developed. The Sun grid engineering was configured, and various compilers, MPI stacks, and software were installed and tested on the supercomputer.

ITACS sponsored a ribbon-cutting ceremony for hamming — named in honor of the late Dr. Richard Hamming, world-renowned mathematician and NPS professor from 1976 through 1998 — on Friday, January 30, 2009. Guests included Mr. Bill Vass, President of Sun Microsystems Federal, as well as NPS President Daniel Oliver, Provost Leonard Ferrari, NPS deans, chairs, and members of the Information Technology Task Force as well as special guest Mrs. Wanda Hamming, widow of Dr. Richard Hamming.

The supercomputer became available for campus-wide use in late March. By summer, hamming had over 100 active accounts, and requests continued daily for new accounts. 19 faculty, staff and students from the Graduate School of Engineering and Applied Sciences (GSEAS), and 24 from the Graduate School of Operational and Information Sciences (GSOIS) are using the system as well as a smattering of users from the Monterey Bay Aquarium Research Institute (MBARI), the School of International Graduate Studies (SIGS), the Center for Homeland Defense and Security (CHDS), and the Modeling, Virtualization Environments and Simulation Institute (MOVES).

CPU hourly utilization on hamming has generally run between 30-50%; however, there have been periods where utilization has been up to 100%.

“Hamming is going to enhance the capacities of researchers all over the NPS campus, and will really help the national labs, warfighting labs and systems commands. Hamming will also help attract more civilians and Ph.D. students to the campus, so this is a great asset. This system ranks among the top 1,000 systems in the world. Today, that is an impressive number.”

~ Dr. Leonard Ferrari
Provost
Naval Postgraduate School
At the Naval Postgraduate School, as with all other research universities, information technology is strategic and mission-critical. We are committed to supporting a learning environment characterized by innovation, discovery, and access. That means investing in technology and extending the reach of the university beyond its geography — to our faculty and students wherever they are in the world.

~ Daniel T. Oliver
President
Naval Postgraduate School
As ITACS worked to meet the School’s strategic goal of increasing distributed learning enrollments and improving operations, the Educational Technologies group began investigating options for a Learning Management System (LMS), the backbone of the distance learning strategy. Although NPS had made a significant investment in the legacy LMS – with over 1,000 unique courses developed in the system — it had been plagued with slow response time, lack of flexibility and integration into other NPS systems and slow adoption of newer collaboration tools. Because the legacy LMS was a proprietary, stand-alone system, there were also a significant number of scalability issues. As enrollment increased, licensing costs and administrative overhead costs also increased.

Educational Technologies convened a committee consisting of eight faculty members and one instructional technologist which reviewed five learning management systems and interviewed several peer institutions, including Stanford, the University of California at Berkeley, the University of Delaware and Louisiana State University. The committee concluded that the Sakai Collaboration and Learning Environment (CLE), a community-source LMS that was developed by Stanford, MIT, Michigan and Indiana universities, now in use at over 300 higher educational institutions worldwide, was the best long-term fit for the needs of NPS for the following reasons:

- Sakai’s open architecture would allow it to be customized to meet the unique mission of NPS and be integrated with existing NPS systems such as Active Directory, Python, Kuali and the library databases.
- Sakai was designed so that it is easy to use, but will meet the needs of the most demanding users.
- Because Sakai is written in Java, it allows NPS to leverage the same talent across similar enterprise-level projects such as Kuali Financial, Kuali Students and the LifeRay portal.
- Peer institutions such as the University of California at Berkeley (UCB) and at Los Angeles (UCLA), Ohio State, Stanford and Yale universities, the University of Michigan and North Carolina, Oxford, and MIT use Sakai.
- Licensing fees allow NPS to grow the use of its LMS without having to count its users, which allows new and exciting uses for LMS, including supporting ongoing research projects, inter-institutional collaborations and alumni communities of interest. The total cost avoidance for this project is projected to be $1.5M over the next five years; NPS is projected to receive its return on investment in approximately 10 months.

ITACS began rolling out Sakai in March 2009. By October, there were over 270 unique Sakai sites operating at NPS, and 2,200 users in the system. Eighty-five courses — approximately 15% of courses taught at NPS — had been migrated to, and were actively being taught in the Sakai CLE.

The move to Sakai CLE has improved flexibility and upload speeds for NPS faculty, usability for the students, reduced costs and allowed integration into existing NPS systems like Active Directory, Python and library resources. Sakai has also given NPS researchers, NPS Centers and alumni communities a previously unavailable resource.

The Sakai project plan involves the migration of all remaining courses within the next calendar year, meaning that NPS will be fully migrated to Sakai by October 1, 2010. The move to Sakai CLE will ensure that NPS has a robust LMS platform that will encourage new educational and research endeavors.

“...NPS is implementing Sakai CLE to improve the educational effectiveness of its growing distributed learning enrollment by giving faculty members more flexibility in how they conduct their distributed learning classes. Additionally, Sakai is being used to help NPS researchers coordinate their collaborative research efforts with other educational institutions and Department of Defense organizations.”

~ From The Sakai Foundation Newsletter, April 16, 2009
### Educational Technologies Metrics

<table>
<thead>
<tr>
<th>Metric</th>
<th>FY08</th>
<th>FY09</th>
</tr>
</thead>
<tbody>
<tr>
<td>(48) point Multipoint Control Unit (MCU)/Video Bridge</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>ISDN Video-Conferencing</td>
<td>165</td>
<td>165</td>
</tr>
<tr>
<td>Multimedia Presentation Systems</td>
<td>100+</td>
<td>132</td>
</tr>
<tr>
<td>Video-Conferencing Facilities</td>
<td>2</td>
<td>14</td>
</tr>
<tr>
<td>Video Tele-Education Systems</td>
<td>7</td>
<td>10</td>
</tr>
<tr>
<td>Class hours recorded and streamed via the Internet</td>
<td>5,808</td>
<td>6,128</td>
</tr>
<tr>
<td>Class hours recorded and delivered through web-conferencing system</td>
<td>3,358</td>
<td>4,964</td>
</tr>
<tr>
<td>Logins to the Learning Management System</td>
<td>380,317</td>
<td>424,348</td>
</tr>
<tr>
<td>Courses hosted on the Learning Management System</td>
<td>3,780</td>
<td>4,705</td>
</tr>
<tr>
<td>Academic Servers</td>
<td>6</td>
<td>6</td>
</tr>
</tbody>
</table>

### Pilot: Technology Enhanced Active Learning Spaces

In 2001, in a sponsored research project at MIT, an “optimum classroom” was designed to promote active learning within the higher education environment. Called the Technology Enhanced Active Learning Classroom or TEAL, the classroom promotes group interaction and discussions, peer teaching and collaboration — with the goal of achieving knowledge creation — by reconfiguring the traditional classroom space into a series of round tables that accommodate 3-9 students, and giving them access to global educational resources by providing multiple collaborative technology systems with high-speed internet connectivity at each site. MIT built two TEAL classrooms; North Carolina State and Clemson universities and the University of Minnesota built similar rooms and all demonstrated that TEAL improves learning.

NPS faculty, early and enthusiastic adopters of educational technology tools, have partnered with ITACS Educational Technology to design and build a TEAL classroom at the School. In tandem with the Operations Research department, the TEAL classroom, located in Glasgow Hall Room 128, the former war-gaming lab, was built in FY09 and will be used for the first time in January 2010.

**TEAL Design**

![TEAL Design Image](image)

**TEAL Classroom**

![TEAL Classroom Image](image)
Academic Services

Academic Computing Services

During summer break, Learning Resource Centers (LRCs) and classrooms were imaged with new and updated software. In May, Academic Computing staff contacted academic department representatives on campus and requested their feedback in regards to any additions and changes they would like made to LRC and classroom software. As a result of those inquiries, 57 new and updated software applications were added to the five images that support the 13 LRCs and 71 classrooms. The LRCs and classrooms also received a thorough cleaning, including all tables, keyboards, and monitors.

PC Shop Switches Gears

For several years, the PC Shop at NPS has been run as a one-man shop. This year, the department decided to move the PC Shop organizationally under the Technology Assistance Center (TAC), creating a pool of skilled individuals to assist with the workload. The PC Shop was also physically moved to the first floor of Ingersoll Hall, improving the logistics of moving equipment in and out as well as collocating with the workforce. This shift has been a huge success, providing better service to customers, and opportunities for TAC staff to improve their skills.

Technology Assistance Center (Helpdesk) Support

The Technology Assistance Center (TAC) is the focal point for trouble calls for ITACS. A call is received via phone, e-mail, web, or as a walk-in, are input into a call system and categorized as an urgent, high, medium or low priority. Data are maintained and reviewed periodically to ensure that ITACS is performing according to its Service Level Agreements, which provide specifications for the expected time it will take to resolve a request for assistance. The following diagram provides the distribution in FY09 of the “by request” categories.

Mac OS Support

In 2008, when NPS had 275 Mac customers (in FY09 it was over 500), the Technology Assistance Center (TAC) announced its decision to support the Mac OS system. By February 2009, all TAC personnel and some specialists in the Educational Technology department were trained. Basic Mac OS and specialized needs classes through Apple were offered to users. ITACS also worked directly with Mr. Dan Frick of Apple to integrate educational licensing agreements, which Apple did not offer.

The TAC also implemented remote capabilities for Mac systems. Plans are underway to use the Mac server to distribute patches and updates to all Mac users on campus. The new plans will decrease the resolution time in assisting Mac users, will help incoming and continuing students update their systems easily and often, and keep NPS networks secure.

Apple Learning Resource Center

After years of underrepresentation at the institution, ITACS built an Apple classroom/Learning Resource Center (LRC) in Spanagel Hall Room 341. Seventeen Mac Pros were installed and configured with academic applications in the converted LRC, which is used for classes and research, and to provide basic and intermediate training for interested staff, faculty and students. The seventeen Mac Pros have also been configured to operate as an extension of the humming supercomputer, and their processors are used for graphic rendering in the evening hours by some NPS researchers.
NPS led the way as an early adopter among its higher education colleagues by implementing a cost-effective alternative to vended ERP software – a financial system developed in the community source model. The Kuali Financial System (KFS) — Kuali means “wok” or “humble utensil that plays an important role in the kitchen” in Malaysian — is scheduled to go live on October 1, 2009, after three years of preparation and planning by the School’s financial leadership team.

KFS is adapted from a financial system created by Indiana University and an initial core of the University of Hawaii, the University of Arizona, and the rSmart Group, a software consulting and implementation company founded in Phoenix in 2002 to support cooperative software efforts. This initial core group received a $2.5 million grant from the Andrew W. Mellon Foundation and additional support from the National Association of College and University Business Officers (NACUBO), the industry group for higher education business officers.

When Kuali goes live on October 1, 2009, NPS will be joining Colorado State University and San Joaquin Delta Community College in adopting KFS during calendar 2009.

Kuali provides an open source solution that aligns with academic values, is responsive to institutional requirements, allows ongoing contact with peer institutions, supports better internal controls, ease of reporting compliance, creates no disturbance to existing systems while initiating upgrades, and has e-authors/e-documents capabilities.

At NPS, KFS will run “parallel” to other management information systems, such as DORS and DMAS, throughout FY2010. During this important parallel processing period, NPS will develop all reports needed for academic and administrative reporting, fully integrate KFS with data from the Navy’s official systems, and ensure that everyone is trained and comfortable in using the workflow that is an integral part of KFS.

ITACS worked closely to support the Kuali Financial Systems’ project by adding an experienced JAVA developer and systems analyst to the core planning, development and implementation team. For ITACS, implementation of the Kuali system is very important because the current system uses aging technology, and the commercial alternatives are expensive and not tailored to NPS requirements. Kuali not only allows NPS to join an open source consortium with some of the best research universities in the nation, but also to benefit from best practices of other research universities’ financial processes. It also permits the staff in the Business Solutions Group to develop expert and marketable skills in this leading-edge technology, a boon to professional staff development efforts within the department.
New Look For NPS Web

“Our external Web site focuses now on the great work of NPS faculty and students and our world-class research. Keeping the Web site current and relevant will now be easier and faster and that is important as NPS takes its place among the truly great research institutions.”

~ Dr. Fran Horvath
Director of Institutional Planning and Communications

On Wednesday March 18, 2009, NPS launched its new external Web site, www.nps.edu, which was produced through a collaboration of departments and staff at NPS, spearheaded by the Business Solutions Group, who initiated the project by implementing the Web Content Management System in partnership with the Dudley Knox Library. The new Web site marks a milestone in reaching one of the School’s strategic goals of streamlining business processes and practices, and ITACS’ strategic goal of implementing the Web Content Management System.

With currency of information a primary issue, the new Web site is much easier to navigate and to keep updated. Postings can be automatically added or removed at a prescribed time and date, and delays in posting through a Webmaster have been eliminated because the new Web Content Management System is designed with automatic workflows, giving direct control of content to the information owner.

The enormous project of updating and reorganizing the Web site not only increased ease of use by content providers, but also produced a site in which NPS is presented in a manner that illustrates the many unique aspects of the School while using a similar look and feel throughout, allowing NPS to be visible and recognizable at every level. “The new Web site is not only designed to provide information to our students, staff and faculty, but also to further our outreach to other institutions, interested prospective students and the general public,” said Dr. Christine Haska.

The Web project is important because it permits NPS to use technology in very effective ways, not only to retrieve current information about NPS which will benefit stakeholders and NPS constituent groups, but to potentially transform business practices, an exploration that has just begun and will continue in the years to come.

External Web site hits (Extranet), by top five requested pages with the most annual hits, compared between FY08 and FY09.

<table>
<thead>
<tr>
<th>Top 5 Requested Pages</th>
<th>FY08</th>
<th>FY09</th>
</tr>
</thead>
<tbody>
<tr>
<td>Home Page</td>
<td>1,556,393</td>
<td>1,284,669</td>
</tr>
<tr>
<td>Current Students Home Page</td>
<td>921,599</td>
<td>449,492</td>
</tr>
<tr>
<td>Search Home Page</td>
<td>443,982</td>
<td></td>
</tr>
<tr>
<td>ITACS Home Page</td>
<td>314,756</td>
<td>240,279</td>
</tr>
<tr>
<td>Library Home Page</td>
<td>218,434</td>
<td>227,275</td>
</tr>
</tbody>
</table>
The NPS Automated Scheduling System

After a year of planning, development and testing, NPS launched its new automated class scheduling system on September 18, 2009. The project was a collaborative effort involving NPS, ITACS’ Business Solutions Group, Infosilem (Quebec) and EdaTech of Monterey. The commercial off-the-shelf (COTS) system has several benefits, including software documentation, standardized metrics, and operational sustainability. The system can also be used as a simulator for running "what if" scenarios involving the reduction of classroom inventory. Key enhancements include the capacity to prioritize the needs of students who are about to graduate, the ability to schedule alternate electives and to manage the special scheduling requests of faculty, and to view classroom attributes such as seating capacity, furnishings and instructional technology. The potential future benefits of the new system include a reduction in the time needed to schedule classes; additional software modules that can be used for event scheduling; integration with self-service room reservation systems; and integration with facilities management software.

Immediate changes for PYTHON users include significant user interface upgrades for department planners, instructors, students, Academic Associates and Program Officers.

The future state envisioned using the new system is one where students will have completed their required courses in a timely manner, instructors will have schedules that permit them to integrate their professional duties of teaching, research and service in a reasonable way, and classes are scheduled that best utilize teaching resources and classroom facilities.

Remote Access to IT Services at NPS

At NPS, some IT services such as Python are protected so that only computers on the NPS network may access them. In FY09, NPS added an additional method of access that supports a broader base of client operating systems, the Cisco AnyConnect VPN Client, which allows users to access internal Web sites or applications from off-campus locations. Some of the functions users are able to perform while connected via the Cisco AnyConnect VPN client are:

- Access the NPS Intranet Web site
- Access Python
- Access Student Muster
- Access Student Opinion Forms (SOFs)
- Map network drives (including your “H” drive)

Campus Emergency Communications System

In tandem with the upgraded telephone switch, the Athoc campus emergency communications system, also procured in FY09, will complete emergency notification capabilities at NPS. The entire system is being designed and is expected to become operational in FY2010.

Internal Web site hits (Intranet), by top five requested pages with the most annual hits, compared between FY08 and FY09.

<table>
<thead>
<tr>
<th>Top 5 Requested Pages</th>
<th>FY08</th>
<th>FY09</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student Muster Application Home page</td>
<td>2,047,199</td>
<td>Intranet Home Page</td>
</tr>
<tr>
<td>Intranet Home Page</td>
<td>1,724,985</td>
<td>Students Check-In Page</td>
</tr>
<tr>
<td>MWR Calendar Events</td>
<td>143,602</td>
<td>Admissions Office (AMS)</td>
</tr>
<tr>
<td>Student Home Page</td>
<td>64,778</td>
<td>MWR Calendar of Events</td>
</tr>
<tr>
<td>Search Home Page</td>
<td>29,225</td>
<td>Students Home Page</td>
</tr>
</tbody>
</table>
Total number of Web pages viewed per year, compared by fiscal year.

<table>
<thead>
<tr>
<th>Fiscal Year</th>
<th>Extranet</th>
<th>Intranet</th>
</tr>
</thead>
<tbody>
<tr>
<td>FY08</td>
<td>1,789</td>
<td>1,514</td>
</tr>
<tr>
<td>FY09</td>
<td>3,918</td>
<td>2,387</td>
</tr>
</tbody>
</table>

Distribution of Web browsers used by the NPS university community.

A comparison of the top search phrases used, by fiscal year, for both the external and internal Web sites.

<table>
<thead>
<tr>
<th>Top 5 Search Phrases FY08</th>
<th>FY09</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extranet</td>
<td></td>
</tr>
<tr>
<td>Python</td>
<td>1,789</td>
</tr>
<tr>
<td>Blackboard</td>
<td>1,514</td>
</tr>
<tr>
<td>Jobs</td>
<td>1,301</td>
</tr>
<tr>
<td>Lodging</td>
<td>929</td>
</tr>
<tr>
<td>Homeland Security</td>
<td>892</td>
</tr>
</tbody>
</table>

| Top 5 Search Phrases FY09 | |
|---------------------------||
| Intranet                  |      |
| Blackboard                | 991  |
| Map                       | 524  |
| MWR                       | 447  |
| DORS                      | 443  |
| IP                        | 431  |
| Blackboard                |      |
| webmail                   |      |
| MWR                       |      |

These search data results help ITACS understand what our university community and the public are having trouble finding. As a result of monitoring this information, adjustments have been made to the navigation on the new external Web site. These data will also be used for the Portal project, which will incorporate an update to the internal Web site as well as launch a NPS Portal.
Overview

Resource Management is focused on ensuring that each operational area within ITACS is fully able to carry out its mission in support of the institution. This is accomplished through a variety of activities, most importantly by obtaining, effectively utilizing and leveraging financial resources from a variety of sources, including direct and indirect mission funding, reimbursable accounts as well as “opportunistic funding” (IMET, mid-year, end-of-year, etc.). Streamlining internal processes while complying with federal regulations and local NPS policies and effectively utilizing a variety of procurement vehicles is also a necessity. Identifying and creatively adding appropriately skilled human capital to the ITACS team via permanent hire, contracting expertise or other means is also a critical component. Ensuring that existing staff obtain and hone critical skills through a variety of training and mentoring efforts ensures that the right skills are available to address any technical challenges presented.

In FY09, Educational Technology was absorbed by ITACS; Resource Management also increased its support for the Office of Institutional Advancement and the Office of Institutional Research.

FY09 ITACS Expenditures

Distribution of ITACS OPTAR funding by ITACS operational areas.

Five-Year Strategic Goals

- Continue to professionalize ITACS resource accountability to include Human Resources (HR), budget, space, equipment and contracts.
- Improve customer service at the university, including training and workshops.
- Ensure appropriate levels of funding for staffing and technology to deliver flagship-level services in support of NPS strategic imperatives.
- Report annually on IT expenditures.

FY09 Goals

- Absorb the NPS Educational Technology budgeting and budget execution functions into ITACS.
- Assist in the development of alternative funding sources.
- Examine options for electronic signatures of timecards.
- Absorb Institutional Advancement and Institutional Research resource management functions into ITACS, including budget, HR and procurement.

FY09 Progress

- Successfully integrated Educational Technologies, Institutional Research, and Institutional Advancement into ITACS resource management services.
- Prepared the department for the launch of Kuali Financial Systems.
- Created metrics for the ITACS’ Annual Accountability Report, the IT Strategic Plan, and the regional accreditation review visit (WASC).
- Improved the process to collect funds from reimbursable partners.
- Implemented a new performance awards program to reward outstanding performance in a timely manner using formalized processes to document awards.
- Hired: Privacy Officer, Tier 1 TAC position, Academic Department IT specialist, and a Java Programmer; converted 2 employees to permanent status; developed professional development plan for 5 employees.
- Maintained a space inventory for all ITACS spaces and developed a detailed space plan to document and plan for space requirements for the department.
Professional Development

ITACS allocated $150K for professional development which included training, attendance at technology conferences, management skills training, etc. The conferences attended provided a connection with a community of interest for networking with peers and for learning about new technologies or shared business processes. The training attended provided the staff with necessary skills and information to participate or lead various projects such as Kuali Financial Systems, Kuali Student, Sakai CLE, portal, server virtualization, improved network and system monitoring, increased Apple support, Microsoft Share Point, and unified communications.

NPS Committees, Task Forces, and Councils which ITACS Personnel Support/Serve

- Information Technology Task Force
- Faculty Council
- Student Council
- Senior Military Advisory Council
- Executive Council
- New Student Orientation
- Provost’s Council
- President’s Senior Staff

Conferences Attended by ITACS Personnel

- Kuali Days 2008
- wINConnections
- SuperComputing 2008
- CENIC 2009 Annual Conference
- Sakai User’s Conference
- VM World Conference
- Liferay Conference
- Educause 2008
- AFCEA West 2009
- DoN CIO Privacy Summit
- Defense Academic IT Consortium
- Navy Higher Education IT Consortium
- RSA Security Conference 2009
- National High-Performance Computing (HPC) Conference
- DoD HPC User’s Group Conference

ITACS Staff on Board During FY09

<table>
<thead>
<tr>
<th>Personnel</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Executive Director</td>
<td>1</td>
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<tr>
<td>Deputy Director</td>
<td>1</td>
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<tr>
<td>Senior Management</td>
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<tr>
<td>Academic Computing</td>
<td>4</td>
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<tr>
<td>Network/Server Management</td>
<td>13</td>
</tr>
<tr>
<td>Information Assurance</td>
<td>4</td>
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<tr>
<td>Helpdesk</td>
<td>14</td>
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<td>Resource Management</td>
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<td>Mainframe Operations</td>
<td>5</td>
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<tr>
<td>Business Solutions Group</td>
<td>7</td>
</tr>
<tr>
<td>Educational Technologies</td>
<td>9</td>
</tr>
<tr>
<td>Research Computing</td>
<td>4</td>
</tr>
<tr>
<td>Total</td>
<td>78</td>
</tr>
</tbody>
</table>

*Numbers include 5 student interns, 8 military, 1 contractor, and 64 permanent government employees.
Communications, Partnerships and Outreach

Five-Year Strategic Goals
• Continue to expand venues for communications on Information Technology.
• Continue to develop partnerships within the DoD, industry, education and research in support of the School’s strategic initiatives.
• Ensure that IT as a strategic institutional resource maintains its status as a core competency.

FY09 Goals
• Create or strengthen partnerships with Educause, DoN Chief Information Officer, NETWARCOM, Internet2 and CENIC.
• Create or strengthen partnerships with industries and peer institutions.
• Present ITACS initiatives at two major conferences.
• Transfer DLI telephone trunks from leased T-1 lines to the Monterey Peninsula Department of Defense Net (MP DoD-Net).
• Create or strengthen partnerships with the City of Monterey, CSUMB, MP DoD-Net and other local partners.
• Create and strengthen partnerships with departments and campus leadership.
• Reestablish HPC/RC “core” advisory group.

FY09 Progress
• Established NPS as a member of the Kuali Foundation.
• Established NPS as a member of the Sakai Foundation.
• Launched the IT Centennial event in May 2009, highlighting the history of IT at NPS.
• Continued to meet with local DoD partners, creating a shared vision and exploring opportunities for sharing resources and talent.
• Collaborated with Apple, Sun, Brocade, Avaya, Dell, Elluminate, rSmart, Unicon, Cisco, APC, Symantec and Xerox on research and IT operational solutions.
• Completed the transfer of the telephone for DLI from commercial circuits to the MP DoD-Net.
• Presented at CENIC, Super Computing 2009, WASC, and Educause.
• Co-authored a National Science Foundation grant proposal with the regional organizations focused at improving infrastructure to the central coast.
• Specifically, worked with Monterey Bay Aquarium Research Institute (MBARI), City of Monterey, County of Monterey IT, Central Coast Broad Band Consortium University of California Santa Cruz, and University of California Santa Barbara.
• Improved remote site IT capabilities between NPS and San Diego to support distance learning.
Communications

Publications Produced in FY09

- ITACS’ Annual Accountability Report FY08
- IT Strategic Plan: Advancing the Mission
- IT Strategic Plan Executive Summary
- ITACS: List of Services
- ITACS by the Numbers
- IT Technology Leadership: Our Heritage and Our Mission
- A Self-Guided Tour of Ingersoll Hall
- A History of Computing at NPS
- Technology News: monthly IT campus newsletter
- Featured articles: NPS In Review quarterly magazine and Update NPS, monthly campus newsletter
- IT Task Force Meeting summaries


Partnerships and Outreach: Campus

Centennial Celebrations Begin in FY09

As part of the launch of the NPS centennial this year, ITACS hosted the first of four quarterly events: an open house that featured exhibits and photographs that chronicled the use of technology at the School, and a ribbon-cutting ceremony celebrating “Technology Leadership: Our Heritage & Our Mission” on May 22, 2009, on the quad of Ingersoll Hall. President Daniel Oliver and Dr. Christine Haska spoke, followed by Mr. Casey Palowitch of Sun Microsystems, Mr. Vic Jacobsen of Xerox, and Mr. Doug Williams, a former director of IT at NPS.

The ITACS’ centennial Web site was also populated with an IT historical timeline, ITACS’ pictures, articles, and a section on “NPS notables.” Approximately 92 historical pictures were also framed and hung throughout Ingersoll Hall. Two handouts were also created: A Self-Guided Tour of Ingersoll Hall and A History of Computing at NPS.

ITACS is planning to host the second of its quarterly centennial events by sponsoring Cybersecurity and Privacy Awareness Month in October 2009. A 1950s horror film has been selected as the main theme; therefore, posters, handouts, and video kiosks with the latest important messages on cybersecurity and privacy will feature that theme. ITACS will host a kick-off celebration with “brown bag” discussions and presentations by key NPS faculty whose research involves finding better ways to protect our nation’s information assets. Dean Peter Purdue of GSOIS and Vice President Karl van Bibber of the Research Office will also be hosting an all-day NPS Cyber Summit highlighting faculty research in this important area.

(from left to right) Dr. Douglas Williams, Dr. Christine Haska, Mr. Casey Palowitch (Sun Microsystems), Mr. Victor Jacobsen (Xerox Corporation), NPS President Dan Oliver, Mr. Don Mitchell (Schneider Electric) and Mr. Joe Lopiccolo participate in an ITACS Centennial event celebration.
Classified Computing Committee Begins its Work

The Classified Computing Committee, charged by Dr. Christine Haska to assess requirements for classified computing at NPS and to provide recommendations for action, began its work — which will be completed in FY2010 — in late summer. Professor Hersch Loomis chairs the committee and members include Professor Chris Eagle, Professor Chris Olsen, Professor Bret Michael, Mr. George Goncalves, and Mr. Joe LoPiccolo. A survey was developed by the committee and issued to faculty, staff and students who utilize classified areas, the data of which will be used to help shape future needs within the classified spaces.

MOVES and ITACS Collaborate

Inspired by a presentation by Dr. Larry Smarr, Director of Calit2, whose project, Green Light, is focused on reducing the greenhouse gases/emissions within the IT environment, Dr. Donald Brutzman (MOVES) and Dr. Christine Haska submitted a proposal to the National Science Foundation, Directorate for Computer Information Science and Engineering Division of Computer and Network Systems, the title of which is "Deploying Ultra High-Quality 4K Digital Video for Archival Science Assets and Distributed Education." This project proposes a phased evaluation of the complex technology required to realize the vision of ultra high-quality video deployment in the deep ocean. Issues around data preservation and interoperability will be examined, and a prototype workflow for capturing, storing, and archiving digital content will be developed. A digital content repository which can be distributed over partner institutions, a long-term digital library and an archive will also be prototyped. Exploration of the required technologies for deployment of the new camera formats for the MARS Network in the Monterey Canyon — to collect data and to expose the user community to those results — will also be included, so that the techniques developed for the content archive can be utilized successfully in new domains and environments. Finally, best practices will be surveyed and employed for digital distribution to scientists’ desktops via desktop visualization, and for public access through exhibitions and outreach. A decision by the National Science Foundation will be made in six months.

Information Technology Task Force

As the primary body for reviewing all policies and plans related to ITACS, the Information Technology Task Force met regularly throughout FY09, and welcomed new members Prof. Neil Rowe from the Faculty Council, Prof. David Canright of the Math department, and Lt. Ryan King of the NPS Student Council.

The Internet Society announced its award of the 2009 Jonathan B. Postel Service Award to CSNET, which was the experimental networking project that bridged the work done on ARPANET with what we know today as the Internet. The Postel Service Award recognized the pioneering work of the four principal investigators that conceived and later led the building of CSNET including Professor, Chair and Director of the Cebrowski Institute Dr. Peter J. Denning, who is also a member of the IT Task Force.

Partnerships and Outreach: Industry

Center for Educational Network Initiatives in California (CENIC)

NPS hosted its first CENIC Technical Advisory Committee (TAC) bi-monthly meeting in late October. Mr. Ken Lindahl, the CENIC High-Performance Research (HPR) Chairman, and over 30 participants joined 10 members via unique video teleconferencing sites from California, Connecticut and Chicago. The group discussed the Research Computing/High-Performance Computing (RC/HPC) Next Generation status, performance measurement and testing guidelines, procedures to validate performance characteristics of the HPR network, the Internet2 IP network, strategies for managing congestion in the Internet2 and CENIC backbones, and IPv6 deployment strategies.

A team from ITACS attended the CENIC Annual Conference in Long Beach, CA from March 9-11, 2009. In accord with the conference theme, "Riding the Wave of Innovation", Mr. Jon Russell and Professor Bob Creasey presented on the TPARC experiment being directed by Professor Pat Harr, in which Elluminate Live was used as a chat box between people in Germany, Switzerland, Taiwan, and Miami, who were discussing the typhoon.

The 2010 CENIC Conference will be held at the Monterey Hyatt, and will include an afternoon visit to NPS, replete with presentations and demonstrations by areas such as MOVES and Research Computing. A committee has been formed to develop and organize the March 2010 visit.
Monterey Peninsula Department of Defense Net

The Monterey Peninsula Department of Defense Net CIOs from NPS, the city of Monterey, Defense Language Institute, Defense Personnel Security Research Center, Defense Manpower Data Center, and the Naval Research Laboratory gathered at NPS to discuss the 10Gbps upgrade and the following collaborative initiatives for FY10 and beyond:

- Scheduling a Team Monterey event with Congressman Sam Farr and Department of Defense leaders.
- Hosting a technology summit and inviting industry partners from Apple, Sun, Microsoft, Xerox, Brocade, Cisco and Impulse Technologies.
- Building a Private Virtual Cloud and designing a common Identity Management solution.
- Establishing a Sun modular “datacenter in a box” to house individual Disaster Recovery Plans (DRP) and Continuity of Operations (COOP) and carry out testing.
- Building centers of experts (virtualization, cloud computing, networking, application support, etc.).

Central Coast Broadband Consortium

Led by personnel from California State University Monterey Bay, Dr. Christine Haska and representatives from the Central Coast Broadband Consortium – County Administrator Lew Bauman, Asst. City Manager Fred Cohn, Monterey County CIO Virgil Schwab, and staff from the Monterey County Business Council — finalized and submitted a grant proposal for economic stimulus funding on behalf of the tri-county region.

Partnerships and Outreach: Peer Institutions

Navy Higher Education Information Technology Consortium

The Navy Higher Education Information Technology Consortium (NHEITC), comprised of the U.S. Naval Academy, the Naval War College and the Naval Postgraduate School, met in Monterey for their annual meeting in late June. The group traveled to the bay area to visit Google and Brocade to learn about emerging technologies. NETWARCOM and CARS staff joined the meeting as part of an effort to understand the unique education and research mission of NHEITC and how it relates to the IT environments. Each institution provided an overview of their future direction and areas of challenge. Presentations were provided by NPS staff members in Research Computing, Education Technology, and by several faculty members and research associates who discussed aspects of their current research and sponsored tours of their facilities with the NHEITC participants.

PEER INSTITUTIONS

- Mr. Matt Coombs, Information Architect from San Joaquin Delta College, presented the benefits, application and workflow examples of a web portal using Liferay technology to ITACS staff in preparation for the initiation of a collaborative web portal project between NPS and Delta College.
- DLI Commandant Sue Ann Sandusky invited Dr. Christine Haska and ITACS Executive Director Joe LoPiccolo to participate in a technology roundtable with Defense Language Institute (DLI) program sponsors, which included demonstrations of classroom technology and discussions about the importance of technology in serving the instructional mission in higher education. DLI representatives emphasized the importance of flexibility in higher education IT infrastructure and services, and asked NPS representatives to speak about the .edu experience, particularly because DLI is considering moving to an .edu domain, which would strengthen partnership capabilities between NPS and DLI.
- On October 8, 2008, Dr. Christine Haska and Dr. Clara Yu, former President of Monterey Institute of International Studies, hosted the Higher Education and Research Leadership Summit. The Higher Education and Research Cluster group is sponsored by the Monterey County Business Council and is focused on facilitating collaborative work and showcasing the importance of higher education and research on the economic and social vitality of the region.
CYBERINFRASTRUCTURE

- Complete the life cycle replacement of the Uninterruptible Power Supply (UPS) system.
- Implement Microsoft Mobile Manager.
- Develop a comprehensive Identity Management capability.
- Continue to implement Common Access Card authentication for Virtual Private Network access.
- Implement Network Access Control to both the wired and wireless networks.
- Implement Microsoft Mobile Manager.
- Upgrade .mil network to a Gbps connection to Defense Research Engineering Network.
- Establish a monitoring and reporting capability.
- Continue the Green IT initiative.
- Establish an IPv6 testing network.
- Partner with other local DoD commands in a Disaster Recovery Plan/Continuity Of Operations site.
- Implement tiered storage to include a new Enterprise backup system.

SECURITY (INFORMATION ASSURANCE)

- Add Privacy as a core component to IT Security.
- Improve central logging.
- Establish a monitoring and reporting capability.
- Continue to improve the ITACS Disaster Recovery Plan.
- Implement Network Access Control on the wired and wireless networks.
- Investigate additional hardware encryption options for remote access.
- Implement centralized logging and analysis of network security activity.
- Continue the Certification and Accreditation process of systems and networks.

ACADEMIC APPLICATIONS AND SERVICES

RESEARCH COMPUTING

- Augment hamming supercomputer by adding additional nodes and increasing physical memory.
- Develop NPS visualization for Research Computing.
- Implement Data Direct Network high-performance disk system and expand to several hundred terabytes.
- Add InfiniBand interconnect functionality to the entire hamming supercomputer.
- Implement a "hierarchical storage management" (HSM) system to archive important datasets.
- Continue series of short courses that educate users on cutting edge research computing topics.
- Pursue a "General Purpose Graphical Processing Unit" (GPGPU) initiative.
- Use the hamming supercomputer to produce research computing content for the Sony 4K system.
- Utilize the CENIC connection to rapidly receive and deliver data from partner institutions.

EDUCATIONAL TECHNOLOGIES

- Finish the migration of course content within Blackboard to the Sakai CLE.
- Continue developing the NPS visualization initiative.
- Launch the Joint Foreign Area Officer Skill Sustainment Portal or FAOweb which consists of instances of Sakai CLE, LifeRay, and language elements from DLI.
- Begin the development of the NPS academic portal.
• Replace the Video Teleconferencing bridge and add both Intergrated Services Digital Network and Internet Protocol capacity.

• Continue the life cycle plan for labs and classrooms in both classified and unclassified environments.

• Move to a paperless request system for Audio-Visual and conference support.

• Continue developing the Podcasting repository database and access solution.

• Develop an online conference room request system.

• Launch the new Technology Enhanced Active Learning Classroom pilot.

• Conduct a pilot of the new desktop video conferencing system El-luminate VCS.

• Continue development of the Kuali Student System and work with the university to evaluate the business processes.

ADMINISTRATIVE APPLICATIONS AND SERVICES

• Pilot a records management solution to meet government regulations.

• Continue the development work with Kuali Financial Systems to include report writing.

• Continue the enterprise Web Content Management System transition.

• Evaluate Sakai as a file transfer system.

• Continue to migrate legacy business systems to newer platforms of existing systems.

• Develop an Identity Management solution for NPS.

• Complete installation and deploy the encryption solutions for mobile devices (laptops).

• Implement the e-mail attachment and storage solution.

• Complete the transition to the replacement service Helpdesk/self-help system.

• Develop a roadmap for implementing a Service-Oriented Architecture (SOA) for the enterprise.

RESOURCE MANAGEMENT

• Develop budget and expenditure template with the Special Advisor to the President that can be used as standard reporting format for the Information Resources directorate.

• Update space inventory for ITACS and develop a proposal for future space requirements for the Vice President of Information Resources and CIO.

• Work with ITACS managers to assist in developing professional development plans for staff.

• Reach out to other institutions to learn how they maintain resource-related metrics that support accountability.

• Develop and populate metrics that provide success measures for HR, procurement, and budget sectors.

• Continue to develop alternative funding such as grant opportunities and consortium arrangements.

• Participate in the development of the replacement system for time and attendance.

• Update and review position descriptions for the department.

• Fully transition ITACS financial data and processes to the Kuali Financial System.

• Fill vacant positions.

COMMUNICATIONS, PARTNERSHIP AND OUTREACH

• Continue partnerships with city of Monterey, CSUMB, DoD Monterey Peninsula, and other local institutions.

• Continue partnerships with EDUCAUSE, DoN CIO, NET-WARCOM, U.S. Naval Academy, Naval War College, Internet2 and CENIC.

• Create or strengthen partnerships with industry.

• Create or strengthen partnerships with peer institutions.

• Create or strengthen partnerships with departments and campus leadership.
Information Technology Task Force

Christine Haska
Vice President of Information Resources and CIO

Doug Brinkley
Senior Lecturer
Graduate School of Business and Public Policy

Mary Bronzan
Project Manager
Information Professional Center of Excellence

David Canright
Associate Professor, Mathematics

Rob Dell
Professor, Operations Research

Peter Denning
Chair, Computer Science and Director, Cebrowski Institute

Douglas Fouts
Associate Dean of Research and Professor
Electrical and Computer Engineering

Simson Garfinkel
Associate Professor, Computer Science

Tom Halwachs
Director, Financial Systems

Richard Harkins
Senior Lecturer, Physics

Stephen Hurst
Senior Lecturer, Defense Management Resources Institute

Ryan King
Student Council

Jeff Knorr
Professor and Chair, Electrical and Computer Engineering

Danielle Kuska
Director, Sponsored Programs

Kevin Little
Executive Director for Business Affairs and Comptroller

Joe LoPiccolo
Executive Director, ITACS

Greta Marlatt
Supervisory Librarian, Dudley Knox Library

Tom Mastre
Director, Center for Design, Development and Distribution

Colleen Nickles
Special Advisor to the Office of the President

Rudy Panholzer
Professor and Chair, Space Systems Academic Group

Loren Peitso
Senior Lecturer, Computer Science

Neil Rowe
Professor, Computer Science

Paul Sanchez
Senior Lecturer, Operations Research

Margaret Schult
Director, Information Professional Center of Excellence

Judit Sedillos
Manager, Dudley Knox Library Systems

Jack Shishido
Supervisor, Office of the Comptroller

Scott Siegel
Assistant Professor, National Security Affairs

Kristen Tsolis
Lecturer, Defense Analysis

ITACS’ Senior Management Team

ITACS’ Managers

Joe LoPiccolo
Executive Director

Terri Brutzman
Deputy Director

Chris Abila
Technology Assistance Center

Jason Cullum
Information Assurance

Chris Gaucher
Director, Information Assurance and Privacy

Bob Gentry
Mainframe Operations

Jeff Haferman
Research Computing/High-Performance Computing

Jim Hall
Resource Management

Debbie Kreider
Academic Computing Services, Classified Computing

LCDR Simon McLaren
Innovative Enterprise Solutions

Alan Pires
Business Solutions Group

Jon Russell
Educational Technologies

Lonna Sherwin
Network Operations Center, Server Management