Spring 2004

CHIPS magazine

The Revolution in Navy Training . . .
Making the best Sailors in the world even better

Dedicated to Sharing Information - Technology - Experience

Department of the Navy Chief Information Officer
Mr. Dave Wennergren

Space & Naval Warfare Systems Command
Rear Admiral Kenneth D. Slaght

Space & Naval Warfare Systems Center Charleston
Commanding Officer
Captain John W. R. Pope III

Senior Editor
Sharon Anderson

Assistant Editor
Nancy Reasor

Web support by Tony Virata and Bill Bunton, DON IT Umbrella Program.

CHIPS is sponsored by the Department of the Navy Chief Information Officer (DON CIO) and the DON IT Umbrella Program Office, Space & Naval Warfare Systems Center, San Diego, CA.

CHIPS is published quarterly by the Space & Naval Warfare Systems Center, Charleston. USPS 757-910 Periodical postage paid at Norfolk, VA and at additional mailing office. POSTMASTER: Send changes to CHIPS, SSC Charleston, 9456 Fourth Ave., Norfolk, VA 23511-2130.

Submit article ideas to CHIPS editors at chips@navy.mil. We reserve the right to make editorial changes. All articles printed in CHIPS become the sole property of the publisher. Reprint authorization will be granted at the publisher's discretion.

Requests for distribution changes or for other assistance should be directed to Editor, CHIPS, SSC Charleston, 9456 Fourth Ave., Norfolk, VA 23511-2130, or call (757) 444-8704; DSN 564. E-mail address: chips@navy.mil; FAX (757) 445-2103; DSN 565. Web address: www.chips.navy.mil.

Disclaimer. The views and opinions contained in CHIPS are not necessarily those of the Department of Defense nor do they constitute endorsement or approval by the DON CIO, DON IT Umbrella Program Office or SPAWAR Systems Center, Charleston. The facts as presented in each article are verified insofar as possible, but the opinions are strictly those of the individual authors.

Features

Page 6

"Jointness is a term that is still not well understood — not only within the military but also within industry and by the public."

Adm. E.P. Giambastiani
Supreme Allied Commander Transformation and Commander Joint Forces

Page 10

"I want to have a robust network operations center that's able to react quickly and efficiently to the needs of the Navy customer."

Rear Adm. J.P. Cryer
Commander, Naval Network and Space Operations Command

Page 14

"Navy Knowledge Online, the electronic arm of the Navy's Revolution in Training, has grown to over 265,000 registered users. With new features and resources added almost daily."

CHIPS SPRING 2004

Volume XXII Issue II

4 Editor's Notebook
By Sharon Anderson

5 From the DON CIO
By Dave Wennergren

6 Born Joint
By Adm. Edmund P. Giambastiani Jr.
Supreme Allied Commander Transformation and Commander Joint Forces Command

10 Interview with Rear Adm. John P. Cryer
Commander, Naval Network and Space Operations Command

13 Navy Library Resources on NKO
By Darlene Goodwin

14 NKO – A Quarter Million Users
By JO1 Jd Walter

15 Center For Information Technology Presents Road Show
By Lt. Susan D. Henson

16 Naval Postgraduate School Master's Education Available at Your Fingertips
By JO3 Chad Runge

17 Civilian IT Workforce Skills Assessment Part II
By Sandra J. Smith

20 The Information Resources Management College Celebrates the Legacy of Rear Adm. Grace M. Hopper
By Sharon Anderson

22 Focusing on the "Big E"
The First Naval IT Summit
By Lynda Pierce

24 DON eGov Award Project Descriptions Fall 2003
By Lynda Pierce

25 Early Spectrum Consideration Delivers Results
By the DON CIO Spectrum Team

26 The Naval Reserve Knowledge Management Pilot
By Jim Grover

27 Training Gets Overhaul
By JO2(SW/AW) Clyde Smith

28 Implementing CMMI Compatible Processes Part IV
By Richard B. Waina, P.E., Ph.D.

31 Project Status Reporting using Earned Value Analysis
By Eric Verzuh, PMP

33 DON CIO Chairs DoD Identity Management Senior Coordinating Group

34 An Introduction to IPv6
By Brian Tamburello

36 Leading Change in Your Organization May Require YOU to Think Differently
By Dr. Barry Frew

38 Icon Testing for Shipboard Information Systems
By Bruce Green

40 Network-Centric Warfare Comes to the Ready Room
By Lt. Reginald Johnson

41 Command and Control Coordination
By Lt. Christopher Hobbs

42 CAP and Navy Partner to Ensure the Accessibility of the NMCI

43 The Lazy Person's Guide to Voice Telephony Part II
By Retired Air Force Major Dale J. Long

46 Under The Contract
By the DON-IT Umbrella Program Team

Rhode Island Army National Guard Staff Sgt. Matt Hayden and Sgt. 1st Class Edward Rose, members of the 115th Military Police Company, are completing their year of Operation Iraqi Freedom duty in Qatar. Photo by Army Master Sgt. Bob Haskell.

December 2003 - The guided missile frigate USS Stephen W. Groves (FFG 29) pulls into Panama City, Panama. Steven Groves is homeported in Pascagoula, Miss., and assigned to Commander, Destroyer Squadron Six. Groves is an Oliver Hazard Perry-class frigate, and is one of four ships in the Atlantic Fleet that has the distinction of serving as a training platform for Naval Reservists. U.S. Navy photo by Lt j.g. Ken Shade.

"Our nation has called upon the reserves more in the global war on terrorism than any other time in our recent history."

Adm. Vern Clark
Chief of Naval Operations

Editor's Notebook:

In this issue, the focus is on training and education with articles from Navy Knowledge Online, the Naval Postgraduate School, the Information Resources Management College and the Navy General Library Program. The continuing learning programs and resources of these institutions sparked by the Revolution in Navy Training have been the catalysts for sweeping innovation in delivering training and education through online and traditional classroom formats. With so many course choices, so many learning sources to choose from, and so many convenient ways to take a course — there is no reason not to be the best you can be through continuing education.

By late spring, nearly 40 percent of the combat forces in Iraq and Afghanistan will be drawn from the reserves and National Guard. The National Committee for Employer Support of the Guard and Reserve, an agency within the Office of the Assistant Secretary of Defense for Reserve Affairs, was established to promote cooperation and understanding between Reserve component members and their civilian employers, and to assist in the resolution of conflicts arising from an employee's military commitment.

The ESGR educates the reserves and National Guard members through their 4,500 volunteers located in each state, the District of Columbia, Guam, Puerto Rico, the Virgin Islands and Europe. Volunteers provide seminars to units and employers regarding the Uniformed Services Employment and Reemployment Rights Act (USERRA) and ESGR services, so that both employers and reservists will understand the reemployment rights of returning Guard and Reserve members. Volunteers also provide training at mobilization sites. For example, if there is a mobilization at Fort Dix or Fort Bragg, volunteers provide fact sheets and counseling on ESGR benefits. Training is also provided while Guard and Reserve members are in theater operations and again at demobilization upon request.

The ESGR has an Ombudsmen Services Program to assist reservists and Guard members. It provides information, counseling and informal mediation of issues relating to compliance with USERRA. I was introduced to the ESGR by a Virginia volunteer and wanted to find out more. Army Lt. Col. Bill Du Pont, Director of Marketing and Public Affairs for ESGR told me, *"We receive about 400 calls per month, out of that 400, 70 percent are requests for information and 25 percent require some form of informal mediation between the service member and the employer. Five percent of the calls are referred to the Department of Labor for resolution. The DOL is the actual enforcer of the law. In most cases, resolution is relatively simple because we find that employers may be misinformed regarding the law's requirements."*

Eighty-five percent of Total Force Military Sealift Command personnel are Naval Reservists and 50 percent of strategic airlift crews are found in the Air National Guard and Air Force Reserve. Ninety-seven percent of Army civil affairs units and 100 percent of Marine Corps civil affairs units are in the Reserve. Additionally, three of the 11 Marine Corps infantry regiments are in the Reserve; 100 percent of the deployable port security units are in the Coast Guard Reserve. Lt. Col. Du Pont said, *"The Army National Guard and Reserve — and all our reserve forces are so important to our warfighting capability; we literally can't go to war without them. Many of them have skills that do not exist in the active ranks, for example, our civil affairs people in theater, who coordinate with local authorities and people — they are instrumental in nation building. Ninety-seven percent of our current civil affairs people in theater are made up of mobilized Army National Guard and Reserve, with 85 percent making up the medical force and 66 percent making up the military police force."*

For assistance, Lt. Col. Du Pont can be reached at william.dupont@osd.mil or 1-800-336-4590, ext. 540 or go to http://www.esgr.org/.

Please go to page 46 to see the newly redesigned and expanded Umbrella contract pages — there are more ways to save than ever before by making your information technology purchases through the DON IT Umbrella Program contracts.

Sharon Anderson

The realignment of the Department of the Navy (DON) Information Management/Information Technology (IM/IT) executive leadership team last year has helped to strengthen and align the DON's IM/IT transformation efforts. In December 2003, this new team, consisting of Brig. Gen. John Thomas, Rear Adm. Tom Zelibor, Mr. Rob Care and myself, met for two days with the Information Officers from Navy Echelon II and Marine Corps Major Subordinate Commands at our first Naval IT Summit. The theme of the summit was "One Enterprise, One Strategy, Continual Transformation."

The Naval IT Summit and its follow-on activities exemplify this concept of the DON Enterprise as one team. The purpose of the summit was to strengthen, align and integrate IM/IT efforts across the Navy-Marine Corps team. At the summit the Department's IM/IT change leaders gathered together and, not only discussed IT successes and challenges related to their individual commands, but also discussed Enterprise-wide IT successes and challenges, and their part in leading IM/IT change.

In the last issue of *CHIPS*, I shared highlights of the DON IM/IT Strategic Plan for FY 2004-2005 and encouraged you to see the plan as your personal guide to help make the vision of a net-centric environment and knowledge dominance a reality. During the summit, I was encouraged to see the Strategic Plan's governing principles in action. These principles, which include leading continuous IM/IT transformation, optimizing information resources, and building integrated, joint IM/IT solutions, were put into action as the Navy and Marine Corps IM/IT leaders from different commands worked together to identify challenges and build solutions.

The attendees formed teams to explore areas of IM/IT that affect the entire Enterprise — Governance, Processes, Technology, Community, Capital Planning and Knowledge. During the summit, these teams identified projects aimed at solving Enterprise challenges in these six areas, identified team leaders, and made the commitment to carry on the work they started at the summit. These projects and the continuing commitment of your IM/IT leaders will deliver improved support to the warfighter and enable our transformation to network-centric warfare.

The empowerment of our IM/IT professionals across the organization, and the use of successful, high performance teams to address these complex, cross-functional issues, will ensure our success. I continue to be impressed and encouraged by the drive, dedication, innovation and commitment of the IM/IT professionals at all levels of the Department of the Navy team.

Dave Wennergren

BORN JOINT

As Supreme Allied Commander Transformation, and commander of U.S. Joint Forces Command, Adm. Edmund P. Giambastiani Jr. oversees the mission of military transformation for the NATO alliance and U.S. armed forces. Joint Forces Command is also responsible for providing combat ready U.S.-based Army, Navy, Air Force and Marine Corps forces to support the military requirements of U.S. combatant commanders around the world.

Adm. Giambastiani's assignments have included several in which he was responsible for development of new technologies and experimental processes, as well as four previous tours in command. He commanded Submarine NR-1, the Navy's only nuclear powered deep diving ocean engineering and research submarine. He also led Submarine Development Squadron Twelve, an attack submarine squadron that serves as the Navy's Warfare Center of Excellence for submarine doctrine and tactics.

The admiral also served as the first director of strategy and concepts at the Naval Doctrine Command. In addition, Adm. Giambastiani commanded the nuclear-powered attack submarine USS Richard B. Russell (SSN 687). He also served as the commander of Atlantic Fleet Submarine Force, commander of Submarines Allied Command Atlantic and commander Anti-Submarine and Reconnaissance Forces Atlantic in Norfolk, Va. Giambastiani's other shore and staff assignments include duties as an enlisted program manager on the staff of the Navy Recruiting Command Headquarters, Washington, D.C., in the early days of the all volunteer force; special assistant to the deputy director for intelligence, Central Intelligence Agency; and, a one-year fellowship with the Chief of Naval Operations' Strategic Studies Group. As a flag officer, he served as the deputy chief of staff for resources, warfare requirements and assessments for the commander of the U.S. Pacific Fleet; director of the Submarine Warfare Division on the staff of the Chief of Naval Operations; and finally as the deputy chief of naval operations for resources, requirements and assessments (OPNAV N8).

Prior to his current assignment, he served as senior military assistant to Secretary of Defense Donald H. Rumsfeld. Adm. Giambastiani graduated from the U.S. Naval Academy with leadership distinction in 1970. His decorations include the Defense and the Navy Distinguished Service Medals.

Text edited from remarks given at AFCEA West 2004, Feb. 5.

"Jointness" is a term that is still not well understood — not only within the military but also within industry and by the public. And here I mean the BIG "J" in joint, which refers to a seamless integration of joint forces, interagencies and multinational/coalition partners.

I will give you a sense of what jointness is from the perspective of our recent combat operations. Let me first state right up front three of the key operational insights we have learned:

• The United States DOES NOT send any individual service to conduct major operations but instead deploys its military as a joint force.
•The power of a coherently joint force is now greater than the sum of our separate service, interagency and coalition capabilities.
•"Speed kills" — not just physical speed, but mental speed and situational awareness. It reduces decision and execution cycles, creates opportunities, denies enemy options and speeds his collapse.

Arriving at these insights, which are now taken almost as articles of faith with our forces overseas, was actually not all that easy. They had to be proven in the caldron of actual combat. And it took a significant change in service culture to accept the message that the power of a joint force is far greater than that of any individual service.

This brings me to a discussion of Lessons Learned from Operation Iraqi Freedom. The insights and observations shown in Figure 1 are listed under three categories:

•Capabilities that worked well
•Capabilities that need more improvement
•Capabilities that did not work well

These insights require some explanation. The joint lesson is not simple to understand because we had never before stood up a Joint Lessons Learned team expressly for the purpose of capturing insights and observations at the operational level of war. The Army, Navy, Air Force and Marine Corps all have long experience in forming teams to capture service-specific lessons from operations. I have been involved in several such Navy initiatives. Usually, these efforts are more of a post-mortem rather than a dynamic diagnosis, and we have had mixed results turning "lessons observed" into practical proposals for change. Sometimes when you create 1,000 lessons that are not acted on, you don't have lessons learned — you merely have a list. There is little value in "lessons noted."

But during Operation Iraqi Freedom, for the first time, we instituted a Joint Lessons Learned team for the express purpose of gathering joint operational insights on a comprehensive scale, in real time, with a mandate to assist in operations and effect change.

Why did we do this? The simple reason is that our commanders realized that the key to harnessing the full power of jointness begins at the operational level of command and control. It is at that level — the level of the combatant commander and joint task force commander — where the real work for seamlessly integrating service capabilities into a coherently joint and combined force takes place.

We examined how well service and special operations force

Figure 1. OIF Joint Lessons Learned

Capabilities that performed well and need to be sustained:
- **Joint Integration and Adaptive Planning**
- **Joint Force Synergy**
- **Special Operations and Special Operations-Conventional Integration**

Capabilities that need enhancement:
- **Urban Operations**
- **Information Operations**
- **Intelligence, Surveillance and Reconnaissance**

Capabilities that fell short of expectations:
- **Battle Damage Assessment**
- **Fratricide Prevention**
- **Deployment Planning and Execution Reserve Mobilization**
- **Coalition Information Sharing**

warfighting systems and methods actually worked together as a coherent joint and combined team, including operations with other U.S. federal agencies and with our coalition partners.

This is why our Joint Lesson Learned team was present in Iraq BEFORE, DURING and AFTER major combat operations. They remain still. Our team had complete access to every facet of Gen. Tommy Franks' operations and, in turn, they provided Gen. Franks and his staff with real-time insights that were actually used to help in their adaptive planning. In other words, because we had a dedicated Joint Lessons Learned team embedded at the operational level they were able to reduce the overall reaction time for our forces and assist in the precision of our actions. This ties directly back to the point I made earlier that speed kills — it's not just about weapon systems; but also about a persistent situational awareness.

This type of unfettered access and interplay is simply unprecedented and speaks to my earlier comment about how service cultures have changed to accept a new way of conducting business. From my experience in the Navy, the two biggest lies are when the inspection team comes aboard ship and the team chief says, "We're here to help" and the ship's captain says, "Welcome aboard." This time around, Gen. Franks really made our joint lessons learned team part of the team.

Getting back to Figure 1, let me touch on the significance of some of these lessons learned. I won't cover all of them just those that will help give you a better sense of why we are focused on coherently joint operations.

You can see under the first category of "capabilities that performed well" that joint integration and adaptive planning tops the list. Joint force commanders today will tell you "It's not the plan; it's the planning." They understand that the ability to plan and adapt to changing circumstances and fleeting opportunities make the difference between success and failure in the modern battlespace. Many past leaders understood this — and it remains true today. Tom Franks and his staff practiced this and became masters of adaptive planning. The same is true of Gen. John Abizaid's staff.

Essential to the power of adaptive planning and execution is an ability to conduct large scale, vertical and horizontal collaboration. Frankly, required collaboration is on a scale that dwarfs any extant commercial application. In today's collaborative information environment, every level of command throughout the entire force, including coalition partners, is electronically linked to the combatant commander's decision-making process. Subordinate commanders and staffs understand the context behind key changes across the battlespace and are fully aware of changes in the commander's intent to guide their actions during specific missions. This does not mean that everyone knows what is happening in the battlespace every time, but they do all have a clear understanding of the commander's intent and a persistent situational awareness of the operational environment. In short, the entire joint and combined force is acutely sensitive to any nuances that occur in the battlespace and are highly adaptive to change, seizing opportunities as they arise or preventing mishaps before they occur.

We are also creating synergies with the closer integration of our special operating and conventional forces. In Desert Storm, for example, we had about 30 operational detachment teams of Special Forces working separate missions from the conventional force. In OIF, we deployed over 100 operational detachment teams. They were closely wedded to our conventional forces, and in many cases merged the combined capabilities of both ground and air forces. The net result is that we not only had precision munitions launched from air and ground but also "precision decision and execution" to guide the integrated Special Forces and conventional campaign.

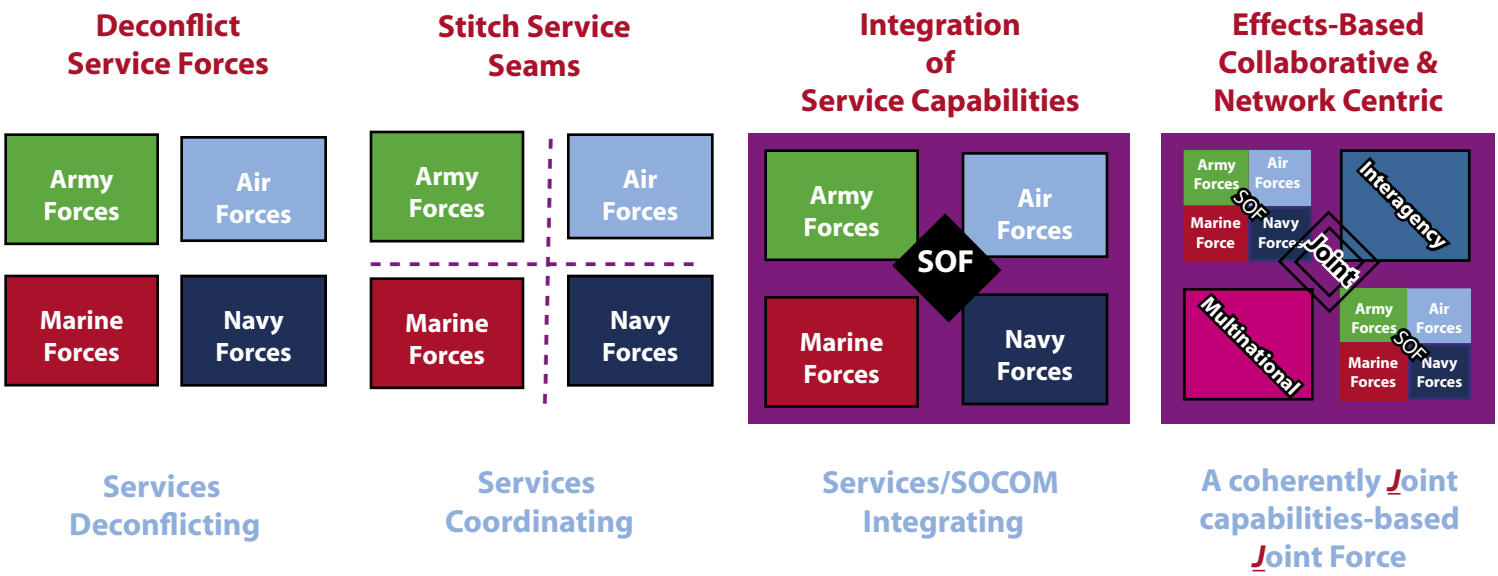
In total, what these lessons learned indicate is that our traditional military planning and perhaps our entire approach to warfare have shifted. The main change, from our perspective, is the shift from deconflicting service-centric forces designed to achieve victories of attrition to integrating a joint and combined force that can enter the battlespace quickly and conduct decisive operations with both operational and strategic effects.

This brings me to Figure 2, it depicts some of the key attributes of a transforming joint force. There are three points I want to make here. First, Joint transformation did not happen over night. It has been a painful process for the U.S. military to progress through the four phases of "Deconflict - Coordinate - Integrate - Coherently Joint."

We went from a period when our integration was so poor that in order to avoid killing each other we deconflicted our forces by saying, "Army you go here; Navy you stay at sea; Air Force fly over there; and Marine Corps you land over there." We later moved to a point where we could stitch together our service capabilities to move to the point where we are now able to conduct effects-based operations in a collaborative environment using network-centric capabilities.

Second, we clearly recognize that we have a unique opportunity today, and in the near future, to develop powerful asymmetric capabilities if we can focus on developing the attributes

Figure 2. Attributes of a Transforming Joint Force — The Operator's Approach



Supported/Supporting Relationships

described on the right side of the chart. But we must first develop an adaptive, dynamic change process that is comprehensive and coordinated; one that links concepts to the acquisition process and that integrates the lessons we learn in near-real time.

Third, the desired attributes on the right have application beyond just warfighting. Any organization that hopes to succeed in the new information age, whether military, commercial or even nonprofit, must move to the right side of this chart. They must also have a clear understanding of supported and supporting relationships. At various times you may have to operate across the chart. But at all times, from peace through major combat operations to stability and peace support operations, you must be able to operate in a real-time collaborative environment and with network-centric capabilities to achieve the asymmetric power we began to witness in OIF.

The "Big Question," of course, is how can we develop a process that produces the required capabilities in a comprehensive and coordinated way?

This brings me to Figure 3. This figure gives you a sense of where we are in the transformation of our joint forces. As you can see, the conditions that we want to establish are at the far right, a condition where our joint and combined forces can conduct coherently joint and combined effects-based operations across the full range of military operations, where the scope, speed and richness of operational knowledge can quickly lead to precision decisions. And where our commanders share and collaborate on near real-time information adaptively to the point of synergy. In short, we want to create the capabilities that will enable us to achieve asymmetric advantages in knowledge, speed, precision and lethality — advantages we began to glimpse in OIF.

Let me now turn to some of the initiatives we are instituting to move the joint force over to the right. I've listed just five of our initiatives in Figure 3, to give you a sense of how we are connecting the "process and product" of joint transformation. The first initiative, perhaps the most important, is to establish a common joint context where we can move our understanding of the future warfighter from a service-centric view to a commonly shared understanding of the future joint environment that all the services must operate in as a coherently joint team.

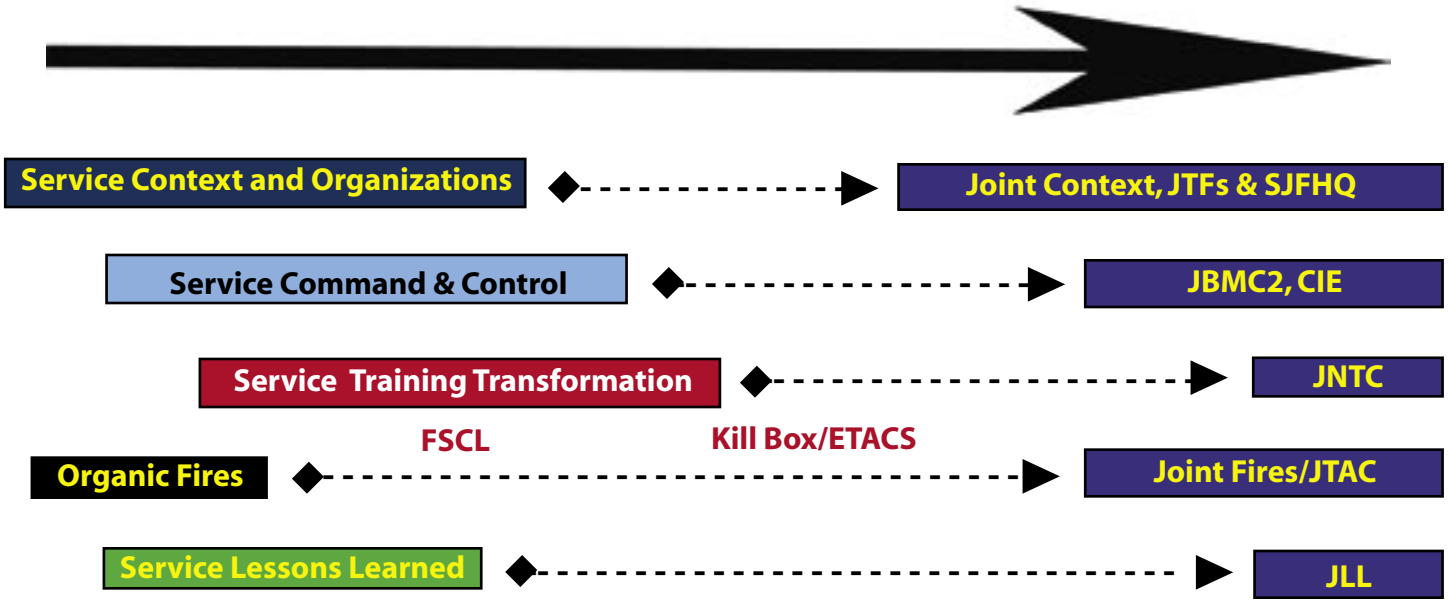
In establishing this common joint context, we have actively partnered with each of the services to assist them in embedding a joint context into their wargames. We visited all the combatant commanders and service chiefs and their staffs to help us focus on producing a list of challenges affecting future joint operations that Joint Forces Command could work on. We took their insights, perspectives and recommendations as a mandate to produce the joint operational concepts and capabilities that would enable coherently joint, effects-based operations.

These inputs led to the development of the common joint context that we have embedded into service wargames. The joint context allows services to examine for themselves how well their future capabilities can operate in a joint environment. They can then begin to acquire service capabilities that are *Born Joint*. This process is a fundamental shift in the force development paradigm.

Last year, for instance, then Army Chief of Staff Gen. Eric Shinseki and I co-hosted the first ever joint/Army wargame, Unified Quest 03, which had an embedded common joint context. We followed that event up with our joint wargame called Pinnacle Impact 03 and then Adm. Clark and I co-hosted the first-ever joint/Navy wargame called Unified Course 04 in October 2003. This year we will do the same thing with the Air Force and Marine Corps, and Gen. Schoomaker and I will co-host the second joint/Army wargame called Unified Quest 04.

This is just one example of the "process" end of transformation. On the "product" side, you can see that we have focused our efforts on standing up and training operational joint task forces. In

Figure 3. Direction of Transformation



fact, we have stood up and trained more Joint Task Forces in the last two years than we have in the previous 10.

Concurrently, we've expanded our joint experimentation efforts to develop prototypes like the standing joint force headquarters, which we are instituting within our combatant commands. The SJFHQ capability will allow for the rapid stand up of an operational JTF because it can bring to a service headquarters an established, robust and persistent collaborative information environment. The CIE is designed to quickly provide situational awareness of the adversary, the battlespace and their own joint force. The CIE allows for a persistent, robust 360-degree situational awareness of the operational environment and top-down clarity of the commander's intent. What results is a joint force that is empowered to create strategic opportunities because it has unity of effort at the top and trust and confidence throughout the force.

On the training end, we just delivered a Joint National Training Capability that we used in the first-ever joint training event in January. It's important to note that the services have done a marvelous job in launching the first wave of training transformation. This is when they established training complexes and ranges like the Navy's Top Gun, the Air Force's Blue Flag and the Army's National Training Center.

The joint community has been able to begin the second wave of training transformation where we can now link the service ranges with forces around the country, and in time around the world, to a common joint environment at the operational level. In a sense, this new training transformation is producing "Born Joint Training" that seamlessly brings together a combination of live, virtual and constructive capabilities to create a common joint training environment. An important aspect of the JNTC is that it also avoids any additive requirement to service training.

On my recent visit to the Army's Joint National Training Center, an Army major participating in the JNTC exercise summed up the value of this new capability best. He had fought with the 3rd Infantry Division in OIF and had participated in many training rotations. When I asked him what he thought was different about the JNTC exercise, he said: "… *the only time we ever get to play with all the [joint] 'toys' is in war. Now we get to play with everything in training.*" It's worthwhile to return back to the first of my top three points: No service will go to war alone. We will fight as a joint force. So we must train as a joint force. That is why we like to say that training is important, but joint training is more important.

We are delivering other new capabilities to help move the joint force to the right like the joint fires initiative. The key point to hit home here is how we are trying to move away from an exclusive reliance on service organic fires. Again, an important operational insight from Operation Iraqi Freedom is: Warfighters don't care where capabilities come from — they just care that they are responsive, integrated and effective.

In my other hat as the Supreme Allied Commander Transformation for the NATO Alliance, these products and processes are also very similar to those that we are working to establish in NATO. Allied Command Transformation is doing for the NATO forces what U.S. Joint Forces Command is doing for the U.S. military: Leading the change process to deliver new capabilities to an ever-transforming joint and combined force.

Now, let me conclude by talking for just a bit about the role of industry. I've talked about the importance of partnerships and alignment on the military processes and products of joint transformation. Well, it is vital to also have a similar type of dynamic, comprehensive and coordinated process on the commercial side as well. This process should lead to capabilities that are coherently integrated, loosely federated, nonproprietary and with transparent databases that are standards-based.

So my challenge to industry is to develop a similar type of process and to make it part of the new joint process. INDUSTRY MUST BE PART OF THE SOLUTION — if we are to move to the right side of the chart.

Interview with Rear Adm. John P. Cryer Commander, Naval Network & Space Operations Command

NNSOC was established July 12, 2002, through the merger of elements of Naval Space Command and the Naval Network Operations Command. This Navy initiative supports the Secretary of Defense's goals for transforming the U.S. military to meet 21st century asymmetric threats. The goals of this strategy include using space-based assets in support of information technology to link U.S. forces, and protecting our information networks from attack. This action was part of a broader organizational realignment that also established the Naval Network Warfare Command as the service's first type commander for the Navy network and the information technology, information operations and space systems that support it. Located at Naval Amphibious Base Little Creek in Norfolk, Va., NETWARCOM was created to be the central operational authority responsible for coordinating all information technology, information operations, and space requirements and operations within the Navy.

Q: NNSOC was created in 2002 through the merger of the former Naval Space Command and Naval Network Operations Command. What was the Navy's rationale for undertaking this reorganization?

The decision to stand up the Naval Network and Space Operations Command, or NNSOC, had its genesis in the initiatives begun by Admiral Vern Clark when he became Chief of Naval Operations in 2000. He quickly formulated plans to realign elements of the service to create a more efficient organization properly focused on the correct product or service to achieve the best possible return on investment.

What led to the formation of NNSOC, specifically, was recognition that the Navy lacked a central authority that was responsible to the fleet for network operations. It was very apparent at the time that while we had been touting ourselves as a network-centric force, in reality the Naval warfighter had no advocate for network operations. When a battle group commander would come back from a deployment, he didn't have a single, responsible organization to complain to when networks didn't work or connectivity wasn't there.

With that in mind, Admiral Clark approved the establishment of the Naval Network Warfare Command. Based in Norfolk, NETWARCOM was conceived to function as a type command responsible for coordinating all information technology, information operations and space activities within the Navy. As a corollary to that decision, CNO approved a proposal to merge Naval Space Command and Naval Network Operations Command into NNSOC, to be aligned as a subordinate organization to NETWARCOM to serve as its operational arm in coordinating Navy's space operations and providing network connectivity for the fleet.

Q: What has been your primary focus during NNSOC's first year of operations?

I've spent this first year learning what the fleet most needs from NNSOC — what was working well and what wasn't working well with regard to network operations — and determining how best to help them with connectivity problems. A particular issue we tackled immediately was the outages that battle groups were typically experiencing while cutting over circuits from one communications area to another, such as sailing from the Mediterranean Sea and the European Command's area of responsibility into the Red Sea and Central Command's area of operations. In some cases, it was taking a day or more to transition ships from one network to another to restore their connectivity and communications. NNSOC has been successful in bringing flag-level oversight to our global network operations and, as a result, today we have effectively eliminated the lag time in battle group cutovers, or at least reduced it to a matter of a few hours. Our ultimate goal is to provide the fleet with seamless cutovers with no interruption in service.

Another primary focus of the command in our first year — and an effort that I'm very proud of — is our support of Operation Iraqi Freedom. Prior to the start of combat operations last spring, we realized that we had a monumental task ahead of us in trying to figure out how to make sure all fleet and allied warships had the kind of network connectivity that would be required for this scale of military operation.

In the final analysis, we were successful in ensuring that the more than 170 U.S. and allied ships participating in OIF had the communications resources they relied upon for mission planning and execution, whether it was the 500-plus Tomahawk cruise missiles launched against Iraqi targets or the countless Naval air strike missions launched from our aircraft carriers. NNSOC and our subordinate commands were clearly instrumental in providing critical support to our warfighters going in harm's way. I would say that our performance with regard to OIF validates the rationale for establishing this command.

Q: What are your future near-term goals for the command?

We are developing metrics to help us determine how best to build more automation and efficiency into our network operations. We are still maintaining older legacy systems, which tend to be enormously expensive because they require substantial manpower. Also at issue is the fact that legacy systems do not have the capabilities afforded by newer technology.

Rear Adm. John P. Cryer

Rear Adm. Cryer received his officer's commission in 1976 through the Naval Reserve Officer Training Program upon his graduation from Jacksonville University. He was designated a Naval Flight Officer in March 1977. He trained as an electronic countermeasures officer at Tactical Electronic Warfare Squadron VAQ-129 and subsequently served with VAQ-130 where he made deployments aboard the USS Forrestal and USS Independence.

Cryer's sea duty has included multiple deployments aboard USS Saratoga with VAQ-137 participating in strike operations against Libya, a tour as executive officer for VAQ-129, and a third Mediterranean deployment aboard the USS Theodore Roosevelt as executive officer and commanding officer for VAQ-141, participating in Operations Provide Promise, Deny Flight and Southern Watch.

Beginning in 1998, Cryer reported as Commander, Electronic Attack Wing, U.S. Pacific Fleet. During his two-year command tour, he deployed to Aviano Air Base in Italy and participated in strikes during Operation Allied Force.

His other assignments have included tours with Air Test and Evaluation Squadron Five as an operational test director for an improved EA-6B Prowler aircraft, with Naval Air Systems Command in Washington, D.C., as the assistant EA-6B program manager, and with the Joint Chiefs of Staff as operations officer. In this last position, he was designated the Chairman Joint Chiefs of Staff Action Officer of the Year for 1997.

Cryer reported to the staff of the Chief of Naval Operations as the deputy director for the Requirements Assessment Division and as director of the CINC Liaison Division in July 2000. He served in Riyadh, Saudi Arabia from August through November 2001 as deputy commander for the Joint Task Force-Southwest Asia (JTF-SWA) to direct air operations in support of Operation Enduring Freedom.

Rear Adm. Cryer assumed command of Naval Space Command in Dahlgren, Va., on December 10, 2001 and directed the establishment of Naval Network and Space Operations Command on July 12, 2002.

Cryer holds master's degrees from the Naval War College, Salve Regina University and the National War College. He has 3,200 flight hours in the EA-6B and has executed 750 carrier-arrested landings.

Consequently, we're working hard to identify which legacy networks we can actually eliminate in favor of newer technologies to get us more capacity and to create cost savings. And this all folds very neatly into the requirements for FORCEnet as this becomes more and more of a real program.

Q: How will the establishment of NNSOC result in better support to the fleet?

In NNSOC, the fleet now has a single point of contact for connectivity and network operations. We have program authority and operational control for communications across all media from shore to ship. That takes in everything from SATCOM in UHF and EHF frequencies to phone networks at shore installations to pier side plug-ins for ships in port.

We are in a position to look at fleet operations globally to characterize fleet requirements on a broader scale than perhaps is achievable through the regional Naval Computer and Telecommunications Area Master Station. From that perspective, we can better align fleet operations and we're in a better position to help the numbered fleet N6s as well as Atlantic Fleet and Pacific Fleet N6s to meet their specific combat requirements.

Q: What are the greatest challenges in meeting the operational fleet's demand for telecommunications services and tactical information today, and how will NNSOC address those issues?

One of the biggest challenges the fleet has right now is to use available network resources in the most efficient way possible. Conventional wisdom tells us we don't have enough bandwidth. We have a tendency to get all we can, and more is better and what we have is never quite enough. It is probable that we don't have enough bandwidth when we consider the operational tempo we had during OIF, for example. Admittedly, during that operation, we were using a great deal of leased commercial satellite communications assets to give us more bandwidth. Nevertheless, we have to be willing to look at what's most important in terms of information exchange. Take Navy legacy messaging, for example. When you look at the tremendous amount of message traffic that flows to the fleet through those channels, that volume of data hogs precious bandwidth in transmission and ties up other communications resources in the process.

NNSOC has a major role to play in helping fleet communicators articulate their requirements and understand what information is truly important. I see NNSOC functioning like a traffic cop responsible for directing and managing the flow of all types of information across a multitude of networks. If we fail to blow the whistle and raise our hand, so to speak, and intervene to help speed information traffic on its way, then we're not doing our job. One of the things that strikes me as being critically important, and a great role for NNSOC, is for us to provide the technical expertise and operational leadership that can influence the fleet to adopt the most efficient means of establishing and maintaining communications connectivity.

Q: The Naval Space Surveillance System, designed, built and operated by the Navy for over 40 years, was turned over to the Air Force last year. What other changes in Navy's operational space activities do you foresee over the next few years?

We take a great deal of pride in our history of operating the Naval Space Surveillance System. NNSOC and its predecessor organizations — the Naval Space Surveillance Center and Naval Space Command — have played a central role in monitoring objects orbiting the Earth since the beginning of the space age in support of fleet operations, manned space missions and defense of the homeland. Nevertheless, turning over the Naval Space Surveillance System to the Air Force was an appropriate action for Navy to take when you consider that this is a mission that has been pretty much exclusively the Air Force's as the operator of the national Space Surveillance Network.

On the flip side, Navy's role in space operations overall has the potential to grow over the next several years as we develop new systems and capabilities more closely aligned in support of our core mission. For example, NNSOC currently functions as the Satellite Systems Expert for UHF satellite communications for the Department of Defense. I expect to retain that function, and I believe our contribution in this area will grow further with Navy's deployment of the Mobile User Objective System, or MUOS, as the next-generation UHF SATCOM system for DoD.

Another capability that we've only recently begun developing is counterspace operations from the maritime perspective. That is an area that we need to continue to explore and remain actively involved in over the years ahead.

Another potential growth area for us is the development of a space cadre in the Navy. The OPNAV staff, with the leadership of Rear Admiral Tom Zelibor as deputy for C4 integration and policy, and deputy CIO for Navy (N6F), is working this issue now. The challenge for NNSOC down the road will be to determine how best to use and develop that human resource smartly and in ways that can benefit the Navy in the joint environment.

Q: Has the organizational change that created NNSOC actually weakened the Navy's involvement in space?

I can see how someone might come to that conclusion. Clearly, network operations have been in the spotlight for us in the first year and a half since we stood up NNSOC. Furthermore, in the move by DoD to fold U.S. Space Command into U.S. Strategic Command — which was really independent of the realignment of Navy's space organization — my role as the Naval component commander for CINCSPACE was dissolved.

While these developments have brought about significant changes in mission focus for NNSOC, I don't believe they diminished Navy's bigger involvement in space. On the contrary, it was actually strengthened with NETWARCOM now serving as the functional component commander for space, networks and information operations for STRATCOM. This is a better alignment than having me serve as a one-star Naval component commander.

On balance, when you look at NNSOC today compared to what Naval Space Command was doing five years ago, I'm not personally convinced that we're doing that much less in space than NAVSPACECOM was then. We are still operating the Naval Space Surveillance System for the Air Force. We have developed a space control program that we didn't have five years ago. We're still providing a spacecraft telemetry and control capability through the Naval Satellite Operations Center. And we're still supporting space training and education in formal settings, such as the Naval Academy and Naval Postgraduate School, as well as through training teams and the development of Web-based support tools. When you look at the aggregate, we certainly haven't pitched out of the fight.

Q: Will the establishment of NNSOC generate new career development opportunities or choices for Sailors in the IT rating or officers in the new Information Professional community?

I fully expect that as this command matures that we're going to become a prime choice for shore duty among Navy members in the information technology professions. I believe that NNSOC is an organization that can offer a unique opportunity for them to develop their expertise. We're sitting at the helm of all the regional NCTAMS — an overall command structure of 7,300 people located worldwide — and we're making operational decisions daily.

The great majority of our work relates specifically to the IT rate and the IP designators. I don't feel today I have the right numbers in those fields, and we're in the process of reevaluating our manpower levels so that we can build a billet structure more properly aligned to our mission. I foresee smaller numbers of the right mix of NECs/designators throughout the command in the future. We are constantly looking at how we can create efficiencies through proper alignment, and that, I believe, will result in fewer subordinate commands meeting the mission needs.

In the meantime, we have formalized a unique training plan for Sailors currently being assigned to our military detachments involved with the operation of the Navy Marine Corps Intranet. We oversee Sailors assigned to detachments in Norfolk, San Diego and Ford Island [Hawaii] in support of the three NMCI Network Operations Centers, NMCI Base Operations and two NMCI Help Desks run by the EDS/Information Strike Force team. What we're doing is essentially embedding Sailors with the civilian team in the NOCs, Base Operations and the Help Desks. The Sailors are gaining valuable on-the-job experience in troubleshooting the specifics of NMCI. But, more importantly, they're presented with opportunities to go to school to earn state-of-the-art, industry-standard system engineer and system administrator certifications from CompTIA, Microsoft and Cisco, for example.

Through this program, Sailors can greatly enhance their careers in the IT field and the Navy gains a military workforce that is extremely technologically literate in the operation of NMCI. And we will be able to put this expertise to work at our Global NMCI NOC in Norfolk as we begin to maintain that staff with people who have gone through the NMCI Military Detachment training program and are very technologically accomplished.

I want to have a robust network operations center that's able to react quickly and efficienty to the needs of the Navy customer

We intend to expand the responsibility of the Global NMCI NOC in Norfolk to appropriately scale it to the size of the network. Right now we have deployed about one-half of the projected total 345,000 NMCI seats. We expect to have almost every seat deployed by the end of this calendar year. When you look at other enterprise networks of similar size, whether they're civilian or military, it is evident that a lot of horsepower is required to get things done and make sure the network is operated well. Successful companies don't just make the administration of their network an afterthought. By the same token, I want to have a robust network operations center that's able to react quickly and efficiently to the needs of the Navy customer.

Editor's Note: Thanks to Gary R. Wagner, NNSOC Public Affairs Officer and editor of NNSOC's Domain Magazine, for his assistance with this interview.

Navy Library Resources on NKO

By Darlene Goodwin, Navy Region Gulf Coast Public Affairs

The Navy General Library Program (NGLP) partnered with Navy Knowledge Online (NKO) to provide ebooks, reference materials and practice testing services at no cost to Sailors and Marines worldwide. These materials are also available to Reservists, retirees, Department of the Navy civilian and nonappropriated fund (NAF) personnel.

The move to partner with NKO saved the Navy an estimated $15.5 million compared to the cost of having each installation purchase the resources individually, according to Nellie Moffitt, NGLP Director.

"The primary reason for joining NKO was to provide greater library services to a greater number of Sailors at a cost savings," said Moffitt. "There isn't a Navy General Library at every Naval installation, so we can best meet Sailors' needs through Econtent (electronic content), which is accessible worldwide. An added benefit is that NKO also provides support to Navy civilians, NAF personnel and retirees. NKO allows us to meet many needs with a comparatively small investment."

The idea to put Econtent on NKO originated with Capt. James Kantner, Director of Knowledge Management at the Naval Personnel Development Command in Norfolk, Va. "These Econtent resources are the perfect fit for NKO," said Kantner. "We developed NKO to connect Sailors with the right knowledge at the right time to support their professional and personal development. The vision was to create a learning environment dedicated to providing our Navy workforce with the tools to excel, and that requires us to harness the best Navy and commercially-produced resources available today."

NKO is the Navy's Web Learning Portal through which Sailors will be able to access the professional and personal development resources needed to support their 5 Vector Model (5VM), the Navy's premier interactive career planning model. NKO is currently averaging more than 17,000 daily logins by approximately 265,000 users.

NGLP Econtent currently available on NKO includes:

Gale Student Resource Center – provides full-text resources including books and pamphlets on a wide range of subjects.

Gale Expanded Academic – 2,000 full-text journals, periodicals and magazines covering all academic disciplines.

Peterson's – an educational resource site, offering information on colleges, universities and distance learning. NGLP also purchases Peterson's study guides and sample tests for 10 subject areas of the College Level Examination Program (CLEP), the Armed Services Vocational Aptitude Battery (ASVAB), Scholastic Achievement Test (SAT) and several others. In addition, Peterson's offers full-text, printable study guides for eight tests including ASVAB and Officer Training.

Newsbank – offering 460 U.S. and 40 full-text international newspapers and special papers on hot topics. Most have extensive back files from prior years.

Morningstar Library Edition – stock, bond and mutual fund information, study guides on investment topics and approximately 100 courses on investing and related topics.

NetLibrary – offers more than 6,000 full-text ebooks, including computer titles, Cliff Notes, career and vocational information, testing study guides, personal financial information titles, library science titles and military history titles.

Moffitt said the NGLP/NKO relationship is a natural partnership. "It's great because they handle the technical end, and we do the analysis of what content meets the greatest needs of the Navy community."

"It's a seamless interface for the end user — they simply click on the product channel on NKO and go directly to a commercial vendor's site, such as the Gale Student Resource Center or Peterson's."

"We're going to expand the titles in this library next year," Moffitt continued. "We've

been very pleased at the usage, which has been high with all the products. Use of the Morningstar financial investment information product increased by 550 percent between October and December 2003. That's a good example of a product with strong personal interest among our users that also supports a Navy program — in this case, the Personal Financial Management (PFM) program. Morningstar offers a large volume of classes, which dovetail with the PFM emphasis throughout the Department of Defense. PFM managers can make use of this database, as well."

A part of Navy Region Gulf Coast, the NGLP headquarters at the Naval Education and Training Professional Development and Technology Center, Saufley Field, supports all general libraries in the Navy, including more than 300 afloat and 70 at shore installations. NGLP provides professional military materials, such as the Bluejacket's Manual, books from the Chief of Naval Operations and Master Chief Petty Officer of the Navy reading lists, reference materials including Jane's Fighting Ships, atlases, and other materials like DVDs, videos and audio books.

For further information, contact the Navy General Library Program office at nglp@cnet.navy.mil, (850) 452-1001, ext. 2185 or DSN 922-1001, ext. 2185. To access NKO, visit https://www.nko.navy.mil/.

NKO – A QUARTER MILLION USERS!

By JO1 Jd Walter, Naval Personnel Development Command Public Affairs Office

Navy Knowledge Online, the electronic arm of the Navy's Revolution in Training, has grown to 265,000 registered users. With new features and resources added almost daily, NKO is living up to its billing as Sailors' one-stop shop for all things education and training. But NKO is not just about online courseware and links to electronic training jackets; the Web site is now the exclusive home to Navy eLearning, the 5 Vector Model (5VM), and the Naval Personnel Development Command's Learning and Training Support Centers. Currently, NKO is receiving about 17,000 hits a day.

"With version 3.0, Sailors have even greater access to the tools they will need to succeed in their Navy careers," said NPDC NKO Program Manager Lt. Jeff Miller. "And every day we are looking for new ways to utilize the portal, new features to ensure Sailors are getting everything they need to excel both professionally and personally."

One of the most important features of NKO is the 5VM. For ratings that have models online, NKO is becoming routine, checking the status of data updates to ensure course and learning credit are being given where credit is due, and identifying future learning requirements, as well as interacting with 5VM managers to provide valuable inputs into the usefulness and efficiency of their personal models. For those not having a 5VM yet, NKO provides a primer for both the model's functionality and insight into NPDC's Career Management System. Together the 5VM and CMS, offered through NKO, will ensure the success of Sea Warrior by giving Sailors not only single point access to career management resources, but also by providing mechanisms for interaction with mentors, peers, community managers and detailers.

"What we don't want is Sailors spending their valuable time searching for databases, trying to piecemeal resources together in an attempt to manage their careers, do their jobs on a daily basis or find ways to better themselves personally. We want seamless movement so all Sailors ever see is NKO," said Miller.

The portal is arranged by communities of practice and Learning Centers responsible for a collection of enlisted ratings and officer designators, and the schools and learning opportunities associated with each. Logging in for the first time, Sailors will be prompted to join their respective community based on their occupational information. Once inside NKO, Sailors are free to move throughout the center pages and can access a multitude of community resources. Within the communities of practice Sailors will find, among other things, technical assistance, such as Naval Sea Systems Command's Tech Assist and Fleet maintenance program. These links, in conjunction with other communication mechanisms found throughout NKO, allow Sailors on the deckplates to get first hand guidance from subject matter experts wherever they are around the world. Message boards are also gaining in popularity, with just about every community establishing occupation and task specific boards to promote Sailor input.

"The ability to establish and maintain communications between forward deployed Sailors and subject matter experts, particularly in regard to maintenance or repairs, was one of our initial goals in developing NKO," said Miller. *"Having the ability to establish a real-time dialogue will drastically reduce repair times because information is now readily available. Think about a fairly new petty officer or ensign dealing with a new system. Being able to access all the appropriate technical information is only half the battle; having someone with more experience to provide guidance and support is the other half."*

These message boards have also become very popular among communities being faced with mergers. Community managers are going out to their Sailors to find out not only what they think about the future of their respective ratings, but also to dispel rumors and tell Sailors why a merger is even being considered. For the Navy's community of media ratings, NKO also provides the opportunity to solicit suggestions for a new name.

"The advent of NKO now allows us to engage in a dynamic dialogue with our entire community, almost like a virtual All Hands call," said Chief of Naval Information Senior Enlisted Advisor, PHCM(SW) Terry Cosgrove. *"These discussions via NKO allow every Sailor within the community the opportunity to have an impact, to play a part in the future of our community, to influence the decisions of senior leaders. And not just for our community, but for the Navy as a whole, real-time capability that will itself become more and more vital in conducting our day-to-day business."*

A trend setter in embracing change, the Center for Naval Leadership, which absorbed the Navy Leader Training Units responsible for conducting leadership training throughout the fleet, is both promoting NKO and capitalizing on its functionality. Having recently restructured course curriculums around the development of its Leadership Continuum, CNL integrated Navy eLearning courseware with a classroom seminar, creating a more versatile learning environment. The first day of leadership training includes an overview of NKO; that night's homework is logging in. Many students do so for the first time and their familiarity with NKO increases throughout the course as they complete their eLearning assignments.

"NKO is the future of the Navy, the way we are going to conduct business tomorrow, so its very important that we play a role in introducing all our leaders to it today," said CNL Detachment Little Creek Primary Leadership Development Course Facilitator, FC1(SW) William Bishop. *"As we present the NKO section to the class, we discuss its potential, and what it will mean not only as individual Sailors trying to manage their own careers, but as leaders trying to ensure the success and well being of their shipmates."*

NKO is growing by leaps and bounds as new information, links and tools are migrating to the portal, but the end state is not in sight. New communities of practice will continue to establish themselves, new support mechanisms will be added, such as Instant Messaging to allow Sailors to communicate at the most critical times to ensure mission accomplishment, and further architecture integrations will be made to give Sailors the most robust, intuitive, efficient Web portal possible.

Log on to your future today. Visit Navy Knowledge Online at https://www.nko.navy.mil today to learn, grow, lead and excel.

NKO features now available online

My Education. Sailors can access non-credit online courses from the Massachusetts Institute of Technology's (MIT) 33 disciplines including aeronautics, chemistry, economics, engineering, health sciences, literature and business management. Look in My Education for this and other great research resources, including the Naval General Library Program eBook Collection.

My Finance. Take three steps to better investment decision making with Morningstar.com's online stock and mutual fund resource, or explore Right on the Money's tips for better budgeting. Use these resources to build a better financial plan for the future. Check out My Finance for more.

My Career. Exam time is just around the corner. Visit My Career for links to the Navy Advancement Center, Naval Education and Training Professional Development and Technology Center's (NETPDTC) online nonresident course catalog, or download the new Advancement Exam Strategy Guides for that extra edge come test day.

My Health. Personal fitness encompasses both the physical and psychological components of the human animal. Don't be caught behind the power curve, maximize your productivity, learn to handle stress, or investigate the latest news in nutrition and conditioning. Via My Health you can assess your current level of fitness through the Virtual Health Coach, take a Lifestyle Risk Assessment, and find information on the latest programs being tested in the Navy, like the Personal Performance Assistant pilot being conducted onboard the USS Dwight D. Eisenhower (CVN 69).

CENTER FOR INFORMATION TECHNOLOGY PRESENTS ROAD SHOW

By Lt. Susan D. Henson
Naval Personnel Development Command Public Affairs Office

The Center for Information Technology presented its first road show brief Feb. 27, 2004, on Naval Station Norfolk. The Information Systems Technician/Information Professional Summit road show, given by Cmdr. Woody Henderson, CIT functional integration manager, was the first in a series to be delivered to information technology professionals around the fleet. The target audience are ITs, IPs and the Limited Duty Officer 6420 and Chief Warrant Officer 7420 communities. It is also open to others interested in the Navy's Revolution in Training.

The brief specifically addresses the Revolution in Training, how the center's mission to develop the Navy's information technology professionals fits into RIT, and the latest learning innovations and tools being developed by the CIT. The Learning Center is located in San Diego, Calif., but its role extends beyond that of a traditional training organization.

"Our mission is much broader than building and providing training," said Henderson. "We are responsible for our Sailors' personal and professional development from the moment they become an information technology professional until they end their career."

While information technology is the center's focus, it also provides training to 10 other enlisted ratings (electronics technician, cryptology technician [communications, maintenance, technical, collection], sonar technician [submarine], electronics technician [submarine], fire control technician, fire controlman, and operations specialist).

The center's mission of providing information technology professionals the essential skills and knowledge they need to support career growth and readiness is accomplished through the use of traditional as well as new and evolving methods.

This needs-based training philosophy means Sailors can get what they need in a variety of ways. Traditional classroom training is offered at the center's 17 training sites around the world. But the CIT is also delivering on its mission through extensive use of Navy Knowledge Online. The 5 Vector Model for ITs, launched in June 2003, was one of the first to go live online. The IP 5VM will be the first for officers, set to be posted on NKO spring 2004.

Among NKO's wealth of information offerings are more than 900 information technology courses available on Navy eLearning. Future plans include courses personally tailored to Sailors' needs. The center also hosts weekly chat sessions through NKO, usually held on Tuesdays at 10 a.m. PST. Sailors can look for updated chat notices on NKO.

In addition, the summit also addresses the latest developments with CIT's projects, such as the future of IT A school and the future use of simulations in training.

The IT/IP Summit road show schedule is:

April 22 – Bangor, Wash.
Week of May 11 – Pensacola, Mayport, Fla., and Kings Bay, Ga.
Week of June 14 – Washington D.C., and Great Lakes, Ill.

To learn more about the Center for Information Technology and the Navy's Revolution in Training, log on to Navy Knowledge Online at https://www.nko.navy.mil and visit the Center for Information Technology page.

By JO3 Chad Runge, Naval Postgraduate School Public Affairs Staff

While technology advances faster than one can comprehend, and our military's view on continuous education broadens, the Naval Postgraduate School has taken a bold leap into the world of distance and distributed learning using several different methods of dissemination. NPS has put its graduate education at your fingertips, no matter your location, offering more than 40 courses via the World Wide Web and over 100 Video Tele-Education courses.

Video Tele-Education courses have revolutionized the learning process. Students may now teleconference with a facilitator on the opposite side of the globe and still receive the same education offered in a traditional classroom setting. A real-time signal is broadcast from both NPS and the specific command, which allows the facilitator to carry on comprehensive discussions with the class via (ISDN) satellite feed.

NPS's VTE programs are unique. Unlike other distance learning courses, VTE courses may be tailored to fit the requirements of a specific command, whether afloat or ashore. Students will receive the basic course curriculum of the course; however, facilitators may expand discussion to show students how the information applies directly to them and their daily operations.

Prior to FY 2000, VTE courses were the school's primary means of distance and distributed learning. However, in FY 2000, NPS began to receive funding from the Naval Education and Training Command for the development of Web-based learning.

"Our goal is to provide anywhere, anytime, graduate education that is easily accessible," said NPS's Deputy Director of the Office of Continuous Learning, Kari Miglaw. "With new technology so readily available, you can now complete our courses while you're at your workspace, at home or even while deployed."

"In order to meet the demands of educational programs like Sea Warrior and Sea Power, we're going to need a better educated fleet," said Tom Hazard, director of the Office of Continuous Learning at NPS. "But due to the costs of schooling, billeting and classroom size limitations, it was becoming difficult to send students through the schooling they needed. Now students who wouldn't normally have a chance to come to NPS can still get our education, which is one of a kind."

Web-based courses also allow more flexibility in scheduling. No longer are students required to attend scheduled classes or even be at a scheduled VTE session, they may log on the Internet and complete certificate courses at their own convenience. This is a huge advantage to personnel and their commands.

Army Maj. Eric Stierna likes the flexibility of online courses, *"I think online courses will really expand the ability of warfighters to build up a diverse technical background to support the range of systems used to perform operations. The downsizing of forces coupled with increasing optempo will continue to trim the duration of "in-house" education. Web-based instruction will span the gap by providing targeted training that complements on the job experience."*

Although the courses lack personal contact between student and professor, faculty members go to great lengths to make sure all curriculums translate well into the online courses, so that all information is applicable and easily understandable. Access issues are also being addressed at NPS and at the fleet, where broadband and computer availability are often issues. Hazard said he would like to see that NPS's Web-based courses are accessible to all personnel afloat.

Cmdr. Pamela J. Wynfield expects to take full advantage of NPS e-course offerings, *"I will be heading off to be the commanding officer of Naval Computer and Telecommunications Station Sicily in October, and e-courses will be the only way I can keep up with what is happening."*

The Web-based courses have been a huge draw throughout the fleet. In FY 2003, the online course completions totaled 247. In FY 2004, that number jumped to 718. By 2008, NPS predicts that number will increase to approximately 1,350 courses.

Course completions are not the only thing that NPS hopes to see expand in the future. "We're working to develop several computer-based simulations, virtual labs, and also trying to incorporate streaming video into our courses," said Hazard. "We're also working with our information technology and communications services to continue to be able to reach out to current and prospective learners once the Navy Marine Corps Intranet is fully activated."

"NPS is expanding its presence in several fleet concentration areas to reach out and market these great tools we provide," added Hazard. "We're also working with NETC and fleet commands to help identify additional resourcing that will allow us to expand our distance learning program availability to the fleet."

"Without Distributed Learning, I definitely would not have the opportunity to take courses offered by NPS. In addition to the flexibility of taking a class while still flying, I like the integration of Blackboard because the discussion boards and interactive lessons replicate the feel of a classroom."

Lt. Sam "Messy" Messer

For available courses or more information on the NPS distance and distributed learning programs, please visit http://www.nps.navy.mil/dl. The Office of Continuous Learning is accepting inquiries about Web-based courses and programs, which can also be made online.

Civilian IT Workforce Skills Assessment Part II

By Sandra J. Smith

Assessing the IT Civilian Workforce of Today

This article provides key findings, conclusions and recommendations derived from an analysis of the federal information technology workforce skills assessment survey, which was conducted in September 2003.

The previous information technology (IT) workforce article, which appeared in *CHIPS Winter 2004, (*http://www.chips.navy.mil/archives/04_winter/Web_Pages/workforce.htm) provided a profile of the average civilian IT worker based on demographics, with an overview of the average IT worker's technical and general competencies, skills, certification areas and job activities. The following are some of the key findings.

Key Demographic Findings

Based on the profile of the DON average civilian worker provided in Figure 1, the IT workforce is aging, and there is a small percentage of younger IT workers to replace those who will be leaving the workforce within the next 10 to 20 years.

Profile of the Average IT Worker
... is between 46 and 50 years of age
... is a GS-12
... has little or no private sector experience
... is likely to retire in the next 10 to 20 years
... is fairly mobile
... holds a bachelor's degree
... has over 20 years of federal government experience

Figure 1.

Transferring knowledge from experienced workers to younger workers will be an increasingly critical requirement for the long term, but ensuring the existing workforce has current and relevant competencies is the higher priority for the near term. Attracting younger IT workers and ensuring the existing workforce has relevant competencies are both difficult in a resource-constrained environment in which many organizations face ongoing restructuring and downsizing. Workforce planning is critical to developing executable strategies to address these challenges.

Another interesting finding is that survey respondents indicate that they have very little private sector IT experience. This finding supports the need to take advantage of the IT Exchange Program that is one of the provisions contained in the E-Government Act of 2002. This law authorizes the temporary assignment of federal employees in the field of IT management to exchange jobs with private sector organizations.

There is a fair amount of mobility within the IT workforce, based on respondents who indicated that they may leave the organization in the next three years. This could mean that the workforce does not perceive barriers to changing positions. Certain levels of turnover within the workforce are expected — but too much would further exacerbate the challenges of ensuring a capable workforce.

Finally, across the DON, there is no single grade level that will bear the impact of retirement more than others, though for the near term, GS-15 and Senior Executive Service grades will lose the most employees due to retirement. This finding is expected since grade and tenure are usually related.

Key Competency, Skill and Certification Findings

The survey asked respondents to provide a self-assessment of their current proficiency in general and technical competencies, specific IT-related skills and certifications. Based on the responses, we found that competency proficiency in the DON is generally higher than skill proficiency. This could mean several things: (1) The workforce is equipped to handle complex jobs/activities without the need to understand the details of how a particular technology works; (2) The work is less task-oriented, so skills may not be as central to the job as competencies; (3) The workforce has not been given the opportunity (through training, certification, etc.) to stay abreast of skills related to rapidly changing technologies; or (4) These may be functions that are outsourced.

The Workforce team will be following up to determine what these findings mean.

Respondents rated their proficiency in general competencies somewhat higher than technical competencies. Among the top 10 general competencies, Leadership (see Figure 2) is a main driver for employee satisfaction as identified in the 2004 Best Places to Work in the Federal Government (available at www.feddesk.com).

Best Places to Work Top Drivers
Effective Leadership
Alignment of Mission to Employee Talents
Teamwork and Collaboration
Source: 2004 Best Places to Work in the Federal Government

Figure 2.

In terms of IT skills, many of those in which the workforce indicated that they were most proficient are ones considered basic or universal skills, such as using e-mail and Internet browsers. Conversely, many of the lower-rated skills are highly specialized, including portal development and biometrics.

In general, few IT workers indicate they have certifications related to their job areas. Less than 5 percent of respondents indicate that they have certifications in 42 of the 44 areas included in the survey. The areas in which there are relatively higher percentages of individuals with certifications are Information Systems Security and Network Security.

This is encouraging given its emphasis and direct linkage to the DON mission. Information Assurance competencies appear relatively high, and there are noticeable trends that as workers spend more time in IA activities, the higher their proficiency in related competencies.

Figure 3 shows the proficiency levels (none, basic, intermediate and advanced) for IA competencies along the horizontal x axis; and the amount of time spent (extensive, moderate or minimal) in this activity along the vertical y axis.

Another finding relates to the Chief Information Officer certification. When examining the 404 DON respondents at the GS-13 grade level and above, 4.2 percent (17) reported they had CIO certificates. Further assessment is needed to determine if DON employees are taking advantage of the CIO Certificate Program through the Information Resources Management College.

Specialized Job Findings

When comparing competencies, skills and certifications to the specialized job activities they are related to, it appears that DON IT workers' competency proficiencies are adequate and may not require a concerted effort at further development.

Generally, competency proficiency is appropriately matched to time spent on specialized job activities; for example, those who spend an extensive amount of time on a specialized job activity have "advanced" or "expert" level proficiency in the related competencies, while those who have "intermediate" or lower proficiency only perform the activity on a limited basis.

However, skill proficiencies tend to be more of a mixed result, with some skills indicating a lower than desired proficiency level. The numbers and percentages of individuals certified in an area where they spend an extensive amount of time are generally low across the board.

The workforce assessment summary, as shown in Figure 4, illustrates that competencies are generally strong; however, it also highlights the need for development in Capital Planning and Investment. Skill development in Information Assurance had mixed results. Currently, IA training, education and certification requirements are being addressed through ongoing efforts within the Department of Defense and DON.

Next Steps

The DON CIO Human Capital Management Model (HCM) includes five major components illustrated in Figure 5. The survey supports the third component — Workforce Assessment. The next building block is Workforce Planning. While trends and initiatives can be identified at the DON level to address broad deficiencies, the greatest value of HCM is realized at the organizational level — where individual development can be assessed against specific mission requirements.

The survey results will be incorporated into the DON Information Management/ Information Technology (IM/IT) workforce strategic human capital strategy as a critical baseline and a means for measuring change over time against future assessments. Additionally, the survey data will be made available to Navy and Marine Corps organizations whose personnel participated in the survey so they can perform a more in-depth comparative analysis and develop strategies to mitigate identified competency and skill gaps to meet their specific workforce planning needs.

The DON IM/IT Workforce team will further analyze the survey results, focusing on DON specific requirements in competencies, skills and certifications to develop enterprise level interventions. The use of partnerships and industry exchange programs, such as the Federal IT Exchange

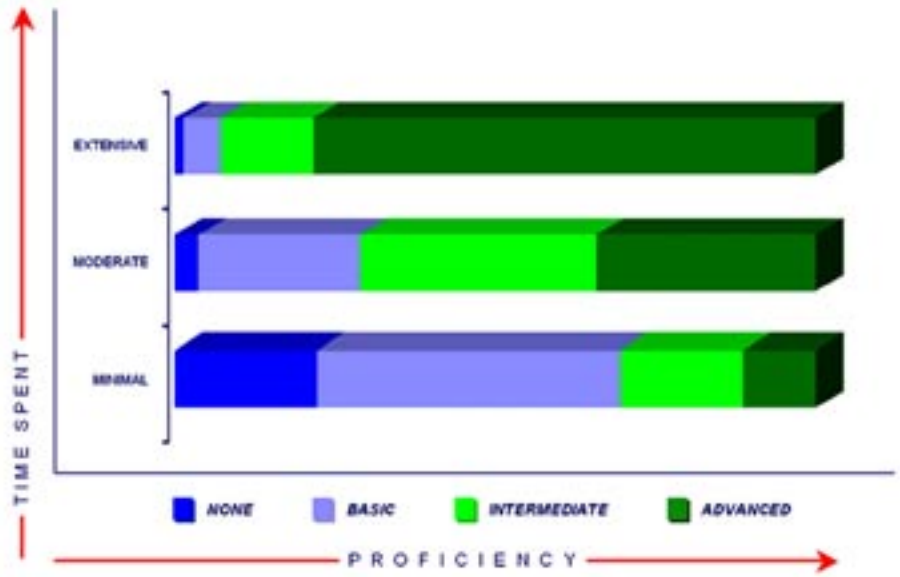


Figure 3. Time Spent Relative to Proficiency Level in Information Assurance

ACTIVITY NAME	COMPETENCIES	SKILLS	CERTS	RANK
IT PROJECT MGMT	ADEQUATE	MAY NEED WORK	9% FOR EXTENSIVE	1
IT SECURITY/IA	STRONG	MIXED RESULTS	9% FOR EXTENSIVE	2
IT WORKFORCE DEVELOPMENT/MGMT	STRONG	ADEQUATE	N/A	3
KNOWLEDGE MGMT	STRONG	MAY NEED WORK	N/A	4
RECORDS MGMT	STRONG	STRONG	7% FOR EXTENSIVE	5
SOLUTIONS ARCH	STRONG	MIXED RESULTS	2% FOR EXTENSIVE	7
PRIVACY	STRONG	MAY NEED WORK	10% FOR EXTENSIVE	6
ENTERPRISE ARCH	STRONG	MIXED RESULTS	N/A	8
CAPITAL PLANNING AND INVESTMENT	STRONG	CRITICAL DEVELOPMENT NEED	N/A	9
eGOVERNMENT	STRONG	MIXED RESULTS	10% FOR EXTENSIVE	10

Figure 4. Specialized Job Activities Assessment Summary

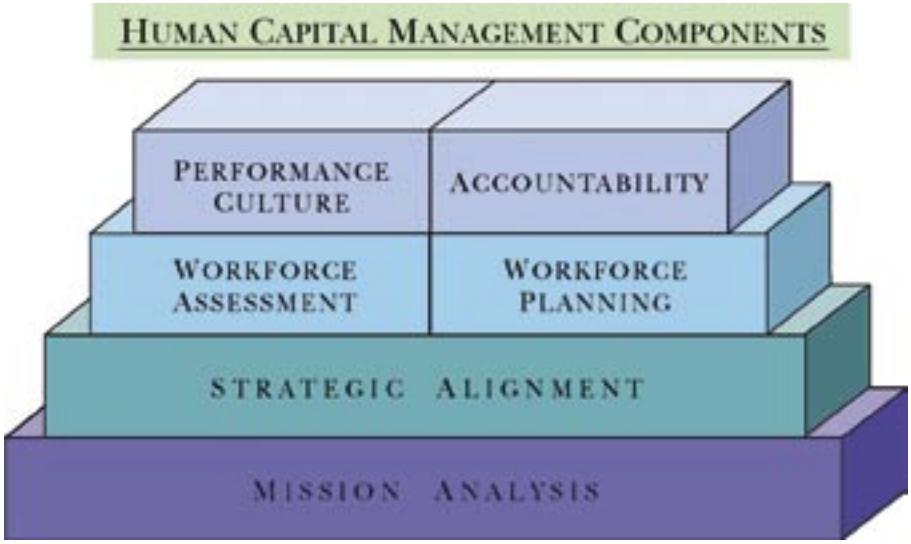


Figure 5.

Program, which is currently under review at the Office of Personnel Management, are examples of approaches that could be valuable interventions or professional development opportunities.

Enabling an Extraordinary Workforce

The survey validates some of the assumptions and conclusions from prior DON CIO enterprise-level workforce planning efforts, particularly the 1999 DON IM/IT workforce gap analyses. The results reflect the ability of the DON IT workforce to manage complex jobs and activities without the need to understand underlying technology. Work is less task-oriented so skills are less important than competencies. However, the assessment does highlight the need to develop and retrain current workers, and it shows there is not a critical concern that the workforce will retire en masse in the near future.

There are several resources that are available for further career development. A few of them are listed below.

- Federal IT Roadmap is a career planning application for IT professionals in the GS-2210 occupational series and is accessible at http://itroadmap.golearn.gov.

- The DON Civilian Career Path Guide for Management of Technology, Information, and Knowledge and the Career Planning Tool are job role-based career development resources for those in the Information Management, Knowledge Management, Computer and Information Systems Engineering, Information Assurance and Telecommunications areas. These tools are accessible from the DON CIO Web site http://www.doncio.navy.mil under the Products tab.

- The DON IM/IT Workforce Virtual Workplace is available for collaboration and information sharing (you may request membership through the DON CIO Web site).

- The Information Assurance Scholarship Program provides scholarships for master's and doctoral degrees in IA-related fields. Nominations are accepted each year from DON civilian and military employees (more information is available on the DON CIO Web site).

- The Chief Information Officer (CIO) Certificate Program is DoD-sponsored graduate education for federal CIO competencies and is available through the Information Resources Management College, the recognized education resource for DoD information resource managers. The IRMC offers other certificate programs including Information Assurance and eGovernment Leadership. Go to http://www.ndu.edu/irmc for more information.

An organization's primary competitive advantage is its people — "Hiring and retaining skilled professionals" is the No. 2 rated challenge for IT organizations cited in the Federal CIO Eighth Annual Top Ten Challenges Survey, Association for Federal Information Resources Management, November 2003. The September 2003 assessment provides a snapshot in time that will be used to assist in developing enterprise strategies to support the DON IM/IT Strategic Plan goal to "Shape the IM/IT workforce of the future."

Taking A Closer Look

The Capital Planning and Investment Activity in Figure 4 has four competencies, one skill, and no associated certifications. Federal/OMB Enterprise Architecture is the skill associated with the Capital Planning and Investment Activity, and this skill was rated as a deficiency across the federal government. DON IT workers ranked it 77 out of 80 surveyed skills. Enterprise Architecture provides a broad view of the entire organization and was identified as a requirement for Capital Planning and Investment.

Since assessments reflect work that is currently done — not work that should be done — the assessment reinforces the need for not only skill development but also awareness.

In today's eGovernment environment, applying enterprise architecture skills as an enabler of Capital Planning and Investment should not be limited to just the DoD or DON architecture view, but should be broadened to include the Federal Enterprise Architecture as well.

Sandra J. Smith is the DON CIO IM/IT Workforce Management Team Leader. .

Editor's Note: Go to page 20 for more information about the Information Resources Management College.

The Information Resources Management College Celebrates the Legacy of Rear Adm. Grace Hopper

By Sharon Anderson

At the invitation of Dr. Elizabeth McDaniel, Dean of Faculty and Academic Programs for the Information Resources Management College of the National Defense University, the *CHIPS* staff joined a distinguished group of guests in the dedication of the new Grace M. Hopper Auditorium at the IRM College. The dedication, which was held January 12, 2004, commemorated Hopper's pioneering efforts in Navy computing. In view of the IRMC's historic commitment to leveraging the power of information technology, it was a fitting setting for celebrating Hopper's genius in recognizing the essential role that IT would play in government and military operations.

IRM College, the largest at NDU, prepares students to become information leaders in directing information technologies for a national strategic advantage. Primary areas of instruction include policy; strategic planning; leadership/management; process improvement; capital planning and investment; performance and results-based management; technology assessment; architecture; information assurance and security; acquisition; eGovernment; and information operations.

The IRM College offers management courses in the eGovernment Leadership Certificate Program, the Information Assurance Certificate Program, the Chief Information Officer Certificate Program and the Advanced Management Program. AMP students also qualify for the CIO Certificate and have the opportunity to concentrate their studies in Information Assurance, thereby qualifying for an Information Assurance Certificate. The AMP diploma can be used as 15 graduate credits toward selected master's and doctoral degree programs at partner institutions.

The Center for eGovernment Education defines eGovernment as the use of information technologies to transform government operations, processes and systems, to improve effectiveness and efficiency, and service delivery to citizens and customers. The Center conducts research and identifies best practices in eGovernment. To this end, the Center forms partnerships among various government and Department of Defense agencies, sectors of government, private sector organizations, and the academic community to develop eGovernment strategies and initiatives.

Rear Adm. Hopper was a guest lecturer at the DoD Computer Institute, the precursor of the IRM College, beginning in the 1980s, and she left lasting impressions on those who were privileged to hear her speak. Students in the current Advanced Management Program were in attendance to witness the enduring spirit of Hopper's vision: *"We are only limited by our imagination to unleash the power of information technology."*

Karen S. Evans, Administrator of E-Government and Information Technology, Office of Management and Budget, was guest speaker, and impressed upon the audience the urgency of expanding the cost savings and effectiveness of eGovernment, especially in the areas of homeland security and protection. Other distinguished speakers included Dr. Margaret E. Myers, Principal Director for the Deputy Assistant Secretary of Defense (Deputy Chief Information Officer) and Dr. Robert D. Childs, Director of the IRMC.

Dr. Margaret E. Myers, Principal Director for the Deputy Assistant Secretary of Defense Deputy Chief Information Officer and Dr. Robert D. Childs, Director of the IRMC, unveiling the Grace M. Hopper memorial plaque. Photo by Army Sgt. Linda Tsang, Visual Information Specialist for the National Defense University.

Convocation speaker, Karen S. Evans, Administrator of E-Government and Information Technology, Office of Management and Budget. Photo by Army Sgt. Linda Tsang.

Howard Looney, IRMC Professor of Systems Management, introduced Rear Adm. Hopper when she was a guest lecturer at the DoD Computer Institute, and attended her lectures whenever he could. Looney said, *"Whenever Grace Hopper spoke, everyone listened with rapt attention. The admiral liked to be introduced in a certain way: 'She was the third programmer on the first large scale digital computer in the United States and has been wrestling with the infernal machines ever since.' She gave the same basic speech to each class of students, but she always added something new, typically her most recent concern or discovery. She always shared her philosophy, learned from her own experience: 'It is easier to ask forgiveness than to seek permission.'"*

"She was feisty and sharp, and very interested in people as well as

Above: Jim Looney, IRMC Webmaster, shared his memories of Hopper, "Rear Admiral Hopper worked at the DoD Computer Institute from 1984 to 1987…. She was a guest speaker in the Computer Literacy for Intermediate Executive course every other week, the same course that I taught. As down to earth as she was, it could be a challenge [for me] talking with her. Maybe it was the aura surrounding her that put me on guard, although she didn't know it. I hated for her to ask me a question directly, she was just so incredibly smart, and I was so young and inexperienced. We would chat informally in the lounge, and I was still uncomfortable …. There is a picture of us in the coffee mess that was included in the Grace Hopper poster that is being used for the dedication today. I'm very proud of it."

computers. We had a mix of students, mostly military officers and government employees from all departments. Some students were military officers with no background in IT; they would take the course on their way to a new assignment involving computers. Rear Admiral Hopper would tell them to learn everything they could about microcomputers, software and hardware, and to educate their bosses on the subject. She impressed upon them the need to be able to speak and write clearly and effectively, and to teach those skills to their employees. She was eager to share what she knew and she loved teaching."

Retired Rear Adm. Paul E. Tobin, who attended the dedication, said, *"Once I was selected to be the Director of Navy Information Systems, I was hoping that I would somehow have a chance to visit with Rear Admiral Hopper. As fate would have it, Rear Admiral Harry Quast and I had dinner with her in Pittsburgh during my second week on the job. She was even more amazing than I expected. This was in 1988, and she had recently retired from the Navy and was working as a consultant for Digital Equipment Corp. The admiral was very much 'with it' and had strong opinions on many subjects. She stressed several times that we were still in the 'Model T' age of information processing, and that I should keep an open mind for the new things coming down the road. I was fascinated by her description of growing up in New York and the early days of computers."*

"Most successful people I've met are very intelligent and very energetic. Admiral Hopper had an abundance of both qualities, and on top of that she had an abiding love for the U.S. Navy. The dinner and subsequent meetings and phone calls with Admiral Hopper are some of my most prized memories."

Above first row from left to right: Retired Rear Adm. Paul E. Tobin and Joyce France, Acting Deputy Director for Planning, Policy & Integration, OASD (NII)/DoD CIO at the dedication of the new Grace M. Hopper Auditorium at IRMC, which was held January 12, 2004.

IRMC Vision

World Leader in Information Resources Management Education

IRMC Courses and Admissions

IRMC courses are designed for mid- to senior-level managers in functional programs and CIO offices. While the primary audience is the DoD community (both civilian and military), students are actively recruited from other federal agencies, as well as from private industry and international governments. Federal employees must be GS/GM-13 or 0-5 and above. Non-federal employees, to include state and local government employees and private industry employees, must be at a comparable grade. All students must possess a bachelor's degree from a regionally accredited institution.

Exceptions: Requests for waivers are considered for applicants who are within one grade level of the minimum eligible grade or who do not meet the minimum education requirement.

Fees: There are no fees for DoD students in IRM College courses or programs. This includes all course offerings and the Advanced Management Program, but may not include special offerings such as executive or special seminars.

The FY 2004 intensive course fee for non-DoD federal, state and local government employees is $995. The FY 2004 intensive course fee for private industry students is $1,295. The Advanced Management Program fee for non-DoD federal, state and local government employees is $9,000 and $14,000 for private industry students.

For complete information regarding the educational opportunities offered by the IRM College go to http://www.ndu.edu/irmc/.

Focusing on the "Big E" The First Naval IT Summit

By Lynda Pierce

"Each of you represents an enterprise and all of us together represent an Enterprise. It is the all of us together Enterprise that we want to spend a little bit of time on."

- Mr. David Wennergren, DON CIO

"We have to try to converge these ['little e'] efforts so that we do something that's good for the entire Navy."

- Rear Adm. Tom Zelibor, DON Deputy CIO, Navy

"The Strategic Plan captures what we're really about. It's Big E and little e; whichever camp you're in, you're important."

- Brig. Gen. John Thomas, DON Deputy CIO, Marine Corps

December 16-17, 2003, marked a major milestone in the Department of the Navy's effort to strengthen and align its Information Management/Information Technology organization with the convening of the first-ever Naval IT Summit. The summit was the first gathering of the new IM/IT leadership team with their Navy and Marine Corps commands.

The summit marked the culmination of a restructuring that began in 2003 when the Secretary of the Navy appointed Brig. Gen. John Thomas and Rear Adm. Thomas Zelibor as DON Deputy CIOs for the Marine Corps and Navy respectively. Mr. Robert Carey serves as DON Deputy CIO for Policy and Integration. The three deputies, along with the DON CIO, Mr. David Wennergren, collectively provide the executive leadership necessary to align Department-wide IM/IT efforts with warfighter priorities.

The Naval IT Summit provided a forum for senior IM/IT leadership to meet face to face with Information Officers from Navy Echelon II and Marine Corps major subordinate commands. It enabled them to focus on creating a shared vision of how the DON IM/IT community will work together to advance the creation and continued enhancement of a single, integrated Naval IT Enterprise. The summit also afforded an opportunity to continue building close working relationships up and down the chains of command of the newly restructured Navy-Marine Corps team.

Each Navy and Marine Corps command represents an enterprise — "little e." However, during the summit, participants were encouraged to focus on the "Big E" — the larger Navy-Marine Corps Enterprise.

For solving Big E challenges, Dr. Barry Frew, former professor and Director of the Center for Executive Education at the Naval Postgraduate School, guided attendees through the use of Appreciative Inquiry. AI accelerates organizational breakthroughs by providing a framework and set of rules to help keep discussion focused on positive change.

Attendees were encouraged to share positive Big E experiences they have had during their careers in the DON. The experiences they shared were varied and included: (1) the transition to NMCI, which changed a fragmented IT structure to an Enterprise focus; (2) the rationalization of legacy applications that resulted in the elimination of tens of thousands of legacy and redundant applications; (3) the fact that the Navy-Marine Corps IM/IT team was aligned, and the Naval IT Summit was actually occurring.

Breakout sessions honed in on IT successes and challenges. By the end of the first day, it became clear that the Big E issues on most attendees' minds were related to Technology, Process, Community, Knowledge, Capital Planning and Governance. These became the focal points for the remainder of the summit.

With these six areas as their focus, attendees were encouraged to regroup and join teams according to their interests and passions. Applying their energy and resources to areas that they thought needed work, the teams came up with unique approaches to solving Big E challenges.

The Governance team conceived quite a few possible pilots, but narrowed them down to four high value pilots to work on: (1) Deconflict a set of existing policies and publish new policy; (2) Define roles and responsibilities to resolve ambiguity; (3) Analyze governance for a particular business segment to see how to move toward desired governance; and (4) Develop an overarching document that defines guiding principles, roles and responsibilities and operational differences of Big E and little e.

The Process team brainstormed and proposed a pilot project to develop an Enterprise view of requirements to include assessing existing tools and requirements, aligning existing systems and processes, and using the Navy Marine Corps Portal as the interface to view and access tools. By the end of the summit, all of the groups had identified pilot projects related to their areas, the teams had selected leaders, and team members had committed to continue working on their Big E pilots. To facilitate virtual team collaboration, Capt. Skip Hiser of Task Force Web, volunteered to set up a collaboration site on the Navy Enterprise Portal.

These independent, self-governing, virtual teams agreed to take the pilot ideas they conceived at the summit and continue to work to make them happen. Their progress will be monitored by the Operational Advisory Board, which is an IT management forum, chaired by Rear Adm. Zelibor and Brig. Gen. John Thomas.

The Naval IT Summit set the stage for important discussion among the Department's IM/IT leaders to resolve what each must do to enable the transformation that will realize network-centric warfare, knowledge dominance, and the increases in business and warfighting effectiveness that these capabilities will achieve. The Navy and Marine Corps change leaders attending the summit realized that vision and strategy must translate into action, and embraced their roles in directing and shaping IT — not just for their commands, but also for the Big E.

A second Naval IT Summit is planned for June 8-10, 2004. This summit will afford the teams the opportunity to report on their progress, focus on how the IM/IT team can improve their execution skills, learn organizational skills to take back to their commands, and continue building relationships with their fellow change leaders and the DON IM/IT executive leadership team.

Look for the *CHIPS Summer 2004* issue to read about the next Naval IT Summit.

Go to page 24 for descriptions of the eGov Awards presented at the summit.

Lynda Pierce provides communications and public affairs support to the DON CIO.

Below: Photographs of attendees of the first-ever Naval IT Summit. The Naval IT Summit provided a forum for senior IM/IT leadership to meet face to face with Information Officers from Navy Echelon II and Marine Corps major subordinate commands.

DON eGov Award Project Descriptions Fall 2003

Throughout the Navy and Marine Corps there are many teams whose work exemplifies the focus on benefiting the entire DON Enterprise. These teams have successfully transformed DON business and warfighting processes to reduce costs, improve mission performance and support information sharing. At the December Naval IT Summit, the following teams were awarded the 2003 DON eGov Awards in recognition of their outstanding efforts.

Task Force Web (TFW)
Task Force Web is THE catalyst for transforming the way Navy IT and the Navy as a whole, does business. Developing a Web-enabled architecture, the team integrated resources from three major areas: Navy Marine Corps Intranet (NMCI) – ashore, Information Technology for the 21st Century (IT-21) – afloat, and Base Level Information Infrastructure (BLII) – overseas. The architecture serves as the baseline for future information exchange architectures, the user interface for Web services and the Navy Enterprise Portal.

Total Force Administration System (TFAS)
TFAS is a joint effort of the Marine Corps Systems Command, Defense Finance and Accounting Service (DFAS) Technical Services Organization and Headquarters Marine Corps, Manpower & Reserve Affairs. Interoperable with existing human resources systems, TFAS significantly improved the timely delivery of critical HR information. In the first 11 months of use, almost 300,000 self-service transactions were processed.

Naval Reserve Order Writing System (NROWS)
NROWS is a collaborative effort of the Commander Naval Reserve Force, SPAWAR Information Technology Center and the DFAS Technical Services Organization. This team replaced the manual Reserve order writing process with a Web-based solution. NROWS shortened the process time to place Reservists into active status for training. NROWS is being evaluated as a plug-in to the Defense Integrated Military Human Resources System (DIMHRS).

NETC Military Awards Processing System (NMAPS)
NMAPS is a Web-based system that automated the paper intensive military personnel awards program throughout the Naval Education and Training Command (NETC) claimancy. It is used to electronically originate, forward, track, approve, store and retrieve personal and unit awards. NMAPS reduced processing time of commendation awards, assuring prompt recognition of deserving military members.

Refueling & Complex Overhaul Integrated Maintenance Software
The USS Dwight D. Eisenhower, in collaboration with the DON eBusiness Operations Office, developed software that enables the ship's force to coordinate their work with the shipyard force. The software assembles information from five disparate work planning and tracking databases, and displays it in an intuitive Web environment. This software has saved nearly 130 man-days during each day of the overhaul. This software is potentially applicable to any ship or submarine in overhaul.

Aircraft Shot and Recovery Log (ASRL) Web Pilot Project
ASRL is a collaborative effort between the Naval Air Systems Command ASRL Team and the DON eBusiness Operations Office. The pilot project provides real-time access to critical, event-driven information, enabling required maintenance to start immediately following flight operations. This pilot system, tested on the USS John C. Stennis, reduced the time required to complete data collection and maintenance planning.

TFAS Team Members from left to right: Capt. Andrew Finan, Developer Team Leader, TSO-DFAS; Mr. Jim Kenkel, Deputy Functional Manager, MI, M&RA, HQMC; Ms. Elizabeth Sedlecek, Business Manager, Product Group -10 ISI, MCSC; Lt. Col. Roger Angel, Functional Manager, MI, M&RA, HQMC; Mr. Dave Wennergren, DON CIO; Mr. Mark Mohler, DON Deputy Assistant CIO (Navy); and Brig. Gen. John Thomas, DON Deputy CIO (Marine Corps).

From left to right: Capt. Skip Hiser of Task Force Web; Ms. Monica Shephard, Director of Task Force Web and Director, C4 Systems, Atlantic Fleet, ; Mr. Dave Wennergren, DON CIO.

Electronic Planned Maintenance System (ePMS) Pilot Project
The Naval Sea Systems Command (NAVSEA) ePMS Team and the DON eBusiness Operations Office reengineered the manual, paper-based planned maintenance process. The pilot developed Web-enabled processes that reduced the time required to respond to technical feedback reports. The new process has the potential to provide updated maintenance procedures to Sailors in near-real time as opposed to the current semiannual distribution.

Just-In-Time Wiring Information System (JITWIS) eSuite
NAVAIR's Aircraft Wiring Support Equipment Commodity and the DON eBusiness Operations Office jointly developed the JITWIS eSuite, a secure, browser-based system that reduces maintenance time and costs by providing wiring data, on demand. It also provides a single point of entry for updating wiring system component information across multiple resources. It supports over 25 aircraft types and lends itself to a wide range of vehicle types.

Can You Hear Me Now?

Early Spectrum Consideration Delivers Results

By the DON CIO Spectrum Team

When bombers in postwar Iraq launched a new wave of attacks against U.S. troops last fall, Lt. Col. Steve Russell's innovative thinking spoiled one of their key tactics. As reported in *The Washington Post*, Russell used his knowledge of electromagnetic spectrum to scuttle remote control bombs that the Iraqi insurgents were making out of radio-controlled toy car transmitters, augmented with C-4 plastic explosives and blasting caps. Mounting one of the car controllers on his humvee dashboard, he took advantage of the toys operating on the same frequency to create an anti-explosive device.

Although the equipment in this example is primitive, spectrum supportability is as much a challenge and concern for the world's most powerful military as it is for our enemies. Today, virtually all new U.S. military systems used for combat operations rely on spectrum. So it is critical that they be developed with a forecast as to other spectrum-dependent systems that could be in use in the same time and geographical space — and that they take advantage of frequency ranges, antennas and power that will not cause or allow interference.

The failure to plan for spectrum dependency in the research and development stages — and the resulting discovery of spectrum-related problems shortly before deployment — have produced delays, cost overruns and, in some cases, useless (and very expensive) systems that cannot be fixed for combat operations.

The Department of the Navy is taking steps to ensure that its newer spectrum-dependent equipment does not become a victim of poor spectrum planning. Working through the Navy and Marine Corps Spectrum Center (NMSC), the Department is promoting a comprehensive spectrum supportability process with detailed operational, engineering and administrative procedures to coordinate the Navy's use of required frequencies. The process is a key part of the vision outlined in the Department of Defense Electromagnetic Spectrum Management Strategic Plan, which directs that spectrum requirements be established early in the program definition phase, and reviewed throughout the development and acquisition cycles.

NMSC is actively reaching out to educate program managers who help to design or procure spectrum-dependent systems about the spectrum supportability process. These outreach efforts scored a major victory earlier this year. For the first time ever, spectrum supportability became part of course instruction at the Defense Acquisition University.

The DAU course in which spectrum supportability is taught, SYS 301, "Advanced Systems Planning, Research, Development and Engineering," is a 10-day on-site class for DoD civilians and military officers who are Level II certified in the Systems Planning, Research, Development and Engineering career field. The course examines science, technology, and the systems engineering processes throughout a systems life cycle by using relevant case studies and exercises involving all acquisition phases and milestones. The SYS 301 course is scheduled to be conducted by DAU at 30 locations in 18 states through October 2004.

"Early consideration of spectrum requirements within systems engineering is important, and the DAU course helps us share that message," says John Lussier, the DON Director for Spectrum Policy and Planning. "We want program managers to walk away knowing what they can do to ensure their equipment has access to the frequencies required to enable the delivery of superior capabilities to our warfighters."

In addition to describing the spectrum supportability process — including equipment certification, frequency assignment, and host nation coordination/approval, the course is helping students develop an understanding of other key spectrum issues. Discussion topics include government and private-sector influences affecting spectrum availability and allocation, and regional and international spectrum forums, such as the International Telecommunication Union that helps to resolve spectrum development and infringement issues between countries.

Another NMSC-led outreach initiative is spectrum training courses offered by the Department of Commerce National Telecommunications and Information Administration (NTIA). For the past several years, NMSC has presented the DoD portion for the Spectrum Management Seminar (open to U.S. government employees and contractors) and the U.S. Telecommunications Training Institute Radio Frequency Spectrum Management Course (open to representatives from developing nations).

NMSC is also reaching out to DON organizations to provide education and guidance on supportability issues. The NMSC recently briefed the Naval Research Laboratory's Radar Working Group on spectrum supportability. The Laboratory's Radar Division conducts research on physical phenomena, such as electromagnetic spectrum, that are of importance to radar and radar-related sensors.

As the DON works to educate personnel about spectrum supportability, it is also conducting research into emerging technologies that offer additional options for managing spectrum. Ultra-wideband and neXt Generation (XG) communications are two such tools being examined that can, in some instances, enable spectrum-dependent systems to dynamically sense and use, unused or underused spectrum on their own.

"For our transformation to net-centric operations and warfare to be successful, we must ensure that our new systems can obtain adequate spectrum," says Lussier. "The success of our efforts to educate people about spectrum supportability coupled with our research into nascent spectrum technologies, will be major factors in determining how well we harness this resource in the years to come."

For more information or to sign up for the SYS 301 course, please visit the Defense Acquisition University Web site at www.dau.mil.

You can contact the DON Spectrum Team at DONSpectrumTeam@navy.mil.

The Naval Reserve Knowledge Management Pilot

By Jim Grover

The Secretary of Defense has stated that "Transformation is not an event — it is a process." It is best served by combining innovation and experimentation with new business processes, technologies and revolutionary operational concepts. In light of today's emphasis on transformation, it is not surprising that the Department of the Navy Chief Information Officer (DON CIO) has sponsored two pilots over the past 18 months aimed at operationalizing KM. The first pilot focused on off-crew training at Submarine Base Kings Bay, Ga., (see opposite page for "Training Gets Overhaul"), and the larger second pilot encompasses reengineering the processes that operate the entire Naval Reserve.

The Naval Reserve pilot began in April 2003 with the signing of a Memorandum of Understanding between the DON CIO and Commander, Naval Reserve Force. This was followed by an organizational assessment of the Naval Reserve, performed by Mountain Home Training and Consulting, Inc., a KM facilitator.

"Our nation has called upon the reserves more in the global war on terrorism than any other time in our recent history," said Chief of Naval Operations Adm. Vern Clark. "Our people are today's capital assets. In today's era where whole corporations are bought or sold in order to capture intellectual capital, we must capture the talents and efforts of our capital as well."

While KM conjures visions of information technology buzz-speak, the current Naval Reserve pilot has less to do with information technology and much more to do with identifying opportunities for positive organizational change. Most importantly, the Reserve effort is being led from, and embraced at, the most senior levels of the organization and enjoys the full participation of the CNRF staff.

A "skunkworks-like" strategic planning team is driving the Reserve's KM pilot forward with training and guidance from the contract facilitator. The Reserve KM team, comprised of a diverse group of Reserve staff officers and civilian employees from the Naval Reserve Force top three echelons, identified the Reserve core business process and associated decision makers and then considered how to promote and implement opportunities to apply KM principles in the Naval Reserve. The objective of this effort is to provide business efficiencies as well as contribute to operational effectiveness.

This journey differs from any other KM initiative in government or in the corporate sector in that the Navy's Reserve has chosen to take an enterprise-wide view of its business process. The pilot is restructuring the way the Navy's Reserve coordinates enterprise efforts, and has the potential to reshape how the entire Navy conducts its mission.

Most organizations do not justify such a large investment of time to complete a project of this magnitude. However, the potential for significant savings in time and cost for the Navy's Reserve (and the Navy) have been deemed worth the effort. Chief of Naval Reserve Vice Adm. John G. Cotton commented, "The CNO has challenged every Sailor to review current ways of doing business and find better solutions to improve effectiveness and find efficiencies. The Navy's Reserve has accepted the challenge and promises that we will continue to do just that."

The Navy and the Department of Defense are experiencing a period of transformation and recapitalization, driven in part by an increase in the complexity of threats to our national security. The current Naval Reserve KM pilot will allow the Reserve to seize this opportunity to align with Navy strategy and to fundamentally rethink and radically redesign its core business process and culture. The pilot leverages the Reserve's knowledge to achieve and sustain competitive advantage through dramatic performance improvement.

The goal of the KM pilot is to transform individual Naval Reservists into knowledge warriors in a high performance, knowledge-centric organization where information is readily shared and available to all. This goal was first established by Vice Adm. Cotton's predecessor, Vice Adm. John Totushek, as part of a CNRF Leading Change initiative to maximize the intellectual capital of the Reserve Force. The KM pilot will include improved use of existing technology, and elements of strategic planning, business process reengineering, and activity-based costing. Additionally, the Naval Reserve is collaborating with Kings Bay to share lessons learned and best practices.

The Reserve KM pilot consists of three phases. The first phase, an organizational assessment completed in April 2003, involved familiarizing contract facilitators with the Naval Reserve organization and the strategic initiatives that are impacting the Navy's Reserve today. The second phase identified the Naval Reserve core business process and created enterprise strategic and communications plans. These phases involved senior leaders from the top three echelons of the Naval Reserve, as well as several drilling reservists who provided a working level perspective.

The objective of the third phase is to build a business case for the use of KM and activity-based costing principles within the Naval Reserve and to expand the acceptance and awareness of KM throughout the entire Reserve Force. Critical knowledge and technology assessments were completed and are being analyzed, and a specific core business process step will be chosen to further apply the principles of KM. Additionally, team participation will be expanded to include other levels of the Naval Reserve to ensure all stakeholders (including field-level expertise) are fully represented.

This is an historic journey for the Navy's Reserve as it seeks to transform into a knowledge-centric, learning organization. Several active- and reserve-sponsored studies designed to achieve process improvements and to more fully integrate the Reserve into the active Navy are coming to fruition, so the timing is right. Until now; however, there has been no overarching methodology to connect these separate reviews of the Naval Reserve. The Reserve KM pilot will provide that methodology.

The KM efforts of the Naval Reserve to date have built a solid foundation from which to launch future transformational efforts.

The Reserve has also energized a small cadre of KM champions who are anxious to propel the Naval Reserve KM pilot to a successful conclusion. These individuals form a critical core of change agents who will facilitate the application of KM principles to the steps in the Naval Reserve core business process.

"We have never needed the U.S. Navy Reserves more than we need it today," Adm. Clark said. "Never has change been rolling at us at a faster pace than it is today. We have the right talent and you have the right kind of leadership to build the Naval Reserves in the 21st century."

To sustain a competitive edge in the future, the Navy's Reserve knows that it must continually learn and look for the best within itself. It must be comprised of high-performing knowledge workers who are self-adaptive, creative, responsive, and who collaborate and share what they know with others, and are continuously learning. It must systematically reach out to create knowledge that is useful to others, share it, and capture it to facilitate the execution of its key business strategies. The end result will be a Naval Reserve that is effective, efficient, innovative, and competitive in any environment.

Mr. Grover is Director, Strategic Planning, Studies and Assessment Division of the Chief of Naval Reserve. He is a retired Navy captain and has worked for the Reserve Force since 1999.

Training Gets Overhaul

New system to improve training, raise realism for off crews

By JO2(SW/AW) Clyde Smith
Kings Bay Periscope, Naval Submarine Base Kings Bay

In a world where technology meets today's work environment, all commands attached to NSB Kings Bay, in partnership with the Department of the Navy Chief Information Office, are working to train submariners in a realistic environment through Knowledge Management. Local commands have embarked on a KM project designed to improve the Pre-deployment Training Cycle by systematically bringing together people, processes and technology to facilitate the exchange of operationally relevant information.

The vision is to employ KM to achieve knowledge dominance resulting in a warfighting force empowered with accurate, timely and relevant information, and a culture of innovation, knowledge sharing and organizational learning. This is a process, which is not only being adopted by corporations, but also by the military and schools as a more efficient way of doing business. "Our goal with Knowledge Management is to enable warfighter readiness at all times," stated Cmdr. Tammy Campbell, chief knowledge officer at Submarine Group 10. "The Warrior Knowledge Pilot program is focused on crew training off the boat while the other crew is deployed."

"The problem has been, when a ship goes to sea, the crew left behind doesn't have a platform to train on," said FTCS(SS) Rob Dahmer, TTF Information Systems leading chief petty officer. "They have not been able to do their job like they normally would on a ship."

Rear Adm. Gerald Talbot, commander of Submarine Group 10, established three collaboration teams to implement the recommendations of the Warrior Knowledge Core Working Group.

"Our first team goal is to establish 100 percent participation in the EKM [Enterprise Knowledge Management] scheduling environment and develop metrics to measure training effectiveness to meet proficiency," added Campbell. The second team goal, according to Campbell, is the creation of common standards for training plans, lesson plans and course materials, and the development of yellow pages of subject matter expertise across the base.

The third team goal is to create a centrally located place, "a Super Wal-Mart," as described by Capt. Lindstrom, commander of Submarine Squadron 20, for training research materials and course materials easily accessed by all commands with required bandwidth for effective utilization.

The program was thought of with the ideal of making the process of the pre-deployment training period more efficient and to share information with others throughout the fleet. "One of the main purposes of this program is to effectively reduce redundancy," said MTCS(SS) Paul Theisen, Trident Training Facility training liaison officer. "The key is to train all of our Sailors the same way, at the same time and location, rather than having different individuals teaching the same thing at different times and locations. This initiative will give everyone a chance to share their experiences with each other whether good or bad and a chance to learn from each other's experiences."

The current initiatives have many benefits, including a comprehensive scheduler. "It will increase visibility because everyone will be able to access schedules for training easily through Enterprise Knowledge Management — a site on the SIPRNET which will be available to the off crews," added Theisen.

"With this program, we are now able to train our Sailors and keep them at a higher proficiency than before, even though they are not at sea," said Dahmer. "We are using all of the commands on base to help with this program due to the fact they are all here to support the submarine crews."

"We are now in the implementation stage of the pilot and should see results of the collaborative teams' effort within the next six months," stated Campbell. "You can follow the progress of the Kings Bay KM pilot at the Navy Knowledge Online Web site on the Kings Bay KM page under the SUBLANT Community Page."

Editor's Note: Reprinted with permission of the Kings Bay Periscope, the official weekly publication of Naval Submarine Base Kings Bay, Ga. Users from .mil addresses can access the NKO Web site by going to https://www.nko.navy.mil/ and registering.

By Richard B. Waina, P.E., Ph.D.

Previous articles in this series addressed Capability Maturity Model Integration, appraisals and general implementation issues. This article will focus on how to implement specific processes using process action teams.

The first thing to understand is that CMMI Process Areas are not processes. They are sets of related practices grouped together for ease of evaluation. You have to look at your business and technical processes and decide what critical issues you are facing. The CMMI helps you focus on issues that the general community believes merit attention to help the organization mature its processes.

The staged and continuous representations of the CMMI are identical at the detailed goal and practice level, except for the base and advanced practices in the continuous representation. Therefore, implementation of the two versions (for the same components) will be identical. The only question is the order of component implementation. These priorities will be driven by the needs of the organization, which are a function of the business purposes and current problems.

I suggest that the staged representation be used to develop the process improvement strategy, and the continuous representation be used to develop the tactics of process improvement. By this I mean that an organization should, per the staged model, focus on those Level 2 and Level 3 Process Areas that support its business needs. In general, this will enhance the ability of the organization to establish an environment that will enable lasting process improvement. In developing action plans for specific Process Areas, the organization should consider the continuous representation because this will give more detailed guidance for the exact steps that need to be taken to achieve maturity of a given process.

Generic Practice

An organization implementing processes using the CMMI should consider that the generic practices are generally enabled by the base practices of specific Process Areas. This has implications for both the strategy and the tactics of process improvement. To achieve institutionalization of a Process Area you may have to implement some Specific Practices of other Process Areas. For example, when you are achieving the specific goals of the Project Planning process area, you are establishing and maintaining a plan that defines project activities.

One of the generic practices that applies to the Project Planning process area is "Establish and maintain the plan for performing the project planning process." When applied to this process area, this generic practice ensures that you plan the approach you were taking to create the plan for the project. It has similar application to other process areas. Table 1 portrays relationships of Generic Practices to Process Areas.

Table 1: Generic Practices and Related Process Areas

Generic Practice	Process Area that enables (or is partly subsumed by) the generic practice
GP 2.1 Establish an Organizational Policy	
GP 2.2 Plan the Process	Enabled by Project Planning
GP 2.3 Provide Resources	Enabled by Project Planning
GP 2.4 Assign Responsibility	Enabled by Project Planning
GP 2.5 Train People	Enabled by Organizational Training
GP 2.6 Manage Configurations	Enabled by Configuration Management
GP 2.7 Identify and Involve Relevant Stakeholders	Enabled by Integrated Project Management
GP 2.8 Monitor and Control the Process	Enabled by Project Monitoring and Control
GP 2.9 Objectively Evaluate Adherence	Enabled by Process and Product Quality Assurance
GP 2.10 Review Status with Higher Level Management	Enabled by Project Monitoring and Control
GP 3.1 Establish a Defined Process	Enabled by Integrated Project Management
GP 3.2 Collect Improvement Information	Subsumes part of Integrated Project Management
GP 4.1 Establish Quantitative Objectives for the Process	Enabled by Organization Process Performance
GP 4.2 Stabilize Subprocess Performance	Subsumes part of Quantitative Project Management
GP 5.1 Ensure Continuous Process Improvement	Enabled by and subsumes part of Organizational Innovation and Deployment
GP 5.2 Correct Root Causes of Problems	Subsumes part of Causal Analysis and Resolution

Think of generic practices as reminders. They serve the purpose of prompting you to do those things that help ensure process stabilization and continuation. The generic goals and practices are expected model components that provide commitment and consistency throughout an organization's processes and activities. Consistency and commitment result in what is called "institutionalization."

Process Action Teams

Process Action Teams or some variant are generally used to implement processes or process changes. Getting them up to speed quickly is easier with a defined process. Figure 1 illustrates an eight-step life-cycle process to guide process improvement projects. The process is documented in ETVX (Entry, Task, Verification, Exit) format, and has assorted templates and guidelines for each step in the process for both outputs and for reporting status.

The PAT process must be tailored to the requirements of the specific implementation being undertaken. A seven-person PAT addressing requirements management for a medium-size organization used the following resources:

Kick-off - 30 man hours; Requirements Gathering - 75 man hours; Design Process - 140 man hours; Document Preparation - 450 man hours; Review, training and roll out - 1000+ man hours.

PAT Process Phases	
0.	Develop and obtain approvals for the PAT Project Plan to define and implement a specific process change.
1.	Kickoff meeting (2-3 hours): explain PAT process; desired outputs; available data; CMMI requirements; and review charter for this specific process improvement.
2.	Requirements gathering (2-4 hours). Output is a requirements matrix. Meet with selected process users. Review any other relevant requirements sources (e.g., CMMI, related processes).
3.	Process design (1 day): Output is Process Flow Model in ETVX format. Explore and focus on critical issues. Draft the new/revised process. Verify that all relevant PA practices are addressed. Select appropriate process measures. Document the process flow.
4.	Process documentation (1-2 days). Output is Process Guides (policy, practice, procedures, templates, guides, etc.).
5.	User review (2-3 hour). Document and address critical issues/action items. Repeat previous steps to rework process as necessary.
6.	Training development (1 day or more). Output is training materials and schedule.
7.	Roll out planning/pilot implementation (1-2 days). Output is implementation plan. Plan for implementation and evaluation (including appropriate measurements). Address institutionalization issues and transition strategies. (See Transition Strategies below). Pilot, review and approve the process: (1) Review pilot results (1/2 day). Revise as necessary; (2) Obtain a process mandate from the Process Management Board. Roll out the new process.
8.	Final wrap-up (1/2 day) Update the Process Asset Library. Document Lessons Learned.

Deliverables (for a PAT developing a requirements management (RM) process):

Process Model (ETVX format)
Requirements Management Process Flow (for example)

Process Guide (Rules and Tools)
RM Practice (see PA Activities References) – WHAT
RM Procedures - HOW
RM Templates and Guidelines
RM Policy (what is relationship of Policy to Practice?)
RM Roles and Responsibilities (where located in document set?)

Process Training
RM training material

Process Support
Recommended RM metrics
Recommended RM oversight mechanisms
Recommended RM transition strategies and roll out/ implementation plan

Completion Criteria: (1) Documentation for the new process is complete, including a standard process document and other documentation as needed; (2) The processes have been piloted and any needed revisions made; (3) The SEPG (Software Engineering Process Group), Process Management Board (PMB), selected senior management, and other involved groups have approved the procedures; (4) The SEPG and PMB agree the team charter has been met; (5) The new documentation has been entered in the Process Asset Library; (6) The Process Assurance Office has accepted the new/revised process; (7) The PAT team is no longer required for implementation.

Management Tracking and Oversight: (1) Semiweekly progress reports to SEPG, based on project plan and schedule; (2) Weekly reports to project sponsor.

Assumptions, Dependencies and Constraints: (1) Requirements determination is NOT addressed by this PAT; that topic will be the subject of a future PAT; (2) Coordinate with SCM PAT to use common control processes where appropriate; (3) Project estimates need to be based on project requirements; coordinate with Estimation PAT.

Process Action Team Roles

Executive Sponsor Functions: (1) Act as director and coordinator across functional groups within the organization; (2) Keep senior management informed of progress or issues; (3) Facilitate resolution of unresolved issues or implementation problems; (4) Work with senior management to insure implementation is completed and ongoing; (5) Approve charter and select team members with team leader.

Team Leader Functions: (1) Ensure that the team adequately represents all affected groups; (2) Make team assignments for tasks that are required by the transition effort to implement the process change; (3) Coordinate team meetings and ensure the smooth operation of the transition team (all those who have responsibility for implementing the change); (4) Ensure all action items and issues are closed in a timely fashion; (5) Conduct presentations for senior and mid-level management and the SEPG; (6) Communicate progress and results to the organization; (7) Manage the development of documented procedures and processes for the transition effort; (8) Manage the implementation and roll out of the transition team procedures.

Team Member Functions: (1) Develop solutions for problems and support the mandate for change that will result from this transition effort; (2) Regularly update their respective organizations and senior management regarding transition efforts and solicit their feedback; (3) Present the feedback from their organizations on a weekly

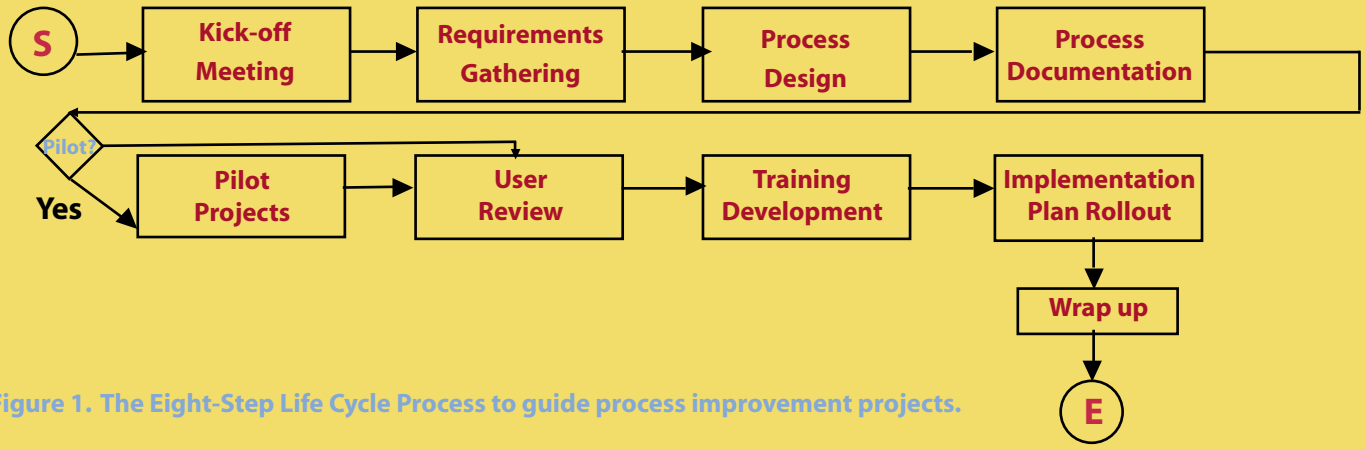


Figure 1. The Eight-Step Life Cycle Process to guide process improvement projects.

basis to the transition team; (4) Fully participate in the design and development of the procedures by reviewing documents, writing documents (if necessary), and participating in walk-throughs of the procedures; (5) Attend all meetings (see PAT meeting schedule); (6) Provide constructive feedback to the Team Leader or Facilitator; (7) Formally present the updated processes and the impact to their organizations; (8) Provide a pilot project from their functional area to participate in the initial roll out, if necessary; (9) Support the procedures by fully implementing the procedures in their respective areas when the roll out has begun.

Facilitator functions: (1) Assist the Team Leader by providing expertise on the methodology for process improvement; (2) Facilitate discussions that lead to solutions; (3) Ensure that appropriate actions are taking place such as capturing of action items and issues; (4) Recognize inadequate participation or sponsorship of transition team members and take action to resolve such issues; (5) Ensure that the procedures that are captured, are agreed to by all team members.

Other Roles: (1) Subject Matter Experts – brought in at any time; (2) Recorders – possibly use team members on round-robin basis or have one permanent.

Team/Resources: (1) Team members are selected by the Executive Sponsor in collaboration with senior management and the Team Leader; (2) The Team Leader and Facilitator agree to team composition; (3) Members are credible and high enough in organization to make changes happen; (4) Resources supplied by participating team members, including people and equipment, as needed.

Technical Tasks (Example for Requirements Management PAT)	
RM-Task 1.	Briefly review currently used requirements determination approaches to understand the context for requirements management.
RM-Task 2.	Develop and document process for reviewing and approving requirements; ensure that software engineers responsible for developing the product are involved in that review/approval process. Establish a standard template for documenting and approving requirements, so that it doesn't have to be reinvented for each new project.
RM-Task 3.	Establish the control process (initial archiving and change control) for the documented/approved requirements. Determine how the approved requirements will be used to plan the project (this ties into Project Planning, especially Specific Practice 1.2).
RM-Task 4.	Develop training for the requirements management process. Establish training schedule and train organization.
RM-Task 5.	Institutionalization Common Features (Commitment, Ability to Perform, Measurement, Verification): Write a draft organization policy for requirements management. Establish and document roles and responsibilities for requirements management. Ensure that the RM process is provided sufficient time and resources (people, tools, templates, guidance) to permit adequate performance. Establish some measures (see suggested measures in RM Generic Practice 2.8) to track performance of the RM process. Establish some sort of management oversight (e.g., a monthly review or Project Management Review) to: (1) communicate to the organization that RM is important, and (2) verify that the RM policy is, in fact, being followed.

Transition Strategies address key issues to be dealt with throughout the entire change process:

Team Structure – Establish the team and its structure to plan, implement and sustain the change: sponsor, leadership team, change team, change coach and transition team. (Who is responsible for ensuring that the change is implemented?)

Leadership – Establish the sponsorship development activity and learning organization environment for achieving and sustaining the desired change. (What are the responsibilities of the leadership in making this happen?)

Education and Training – Establish the education and training to provide stakeholders the knowledge and skills of methods, tools and processes integral to the change initiative. (What education and training (above and beyond training on the specific process) are necessary to make the change acceptable and make it happen?)

Measures – Establish the business value, process and readiness measures that should be tracked and monitored to enable learning and measure progress, as well as results. (What measures will indicate the value and results of the change?)

Business and Technology Integration – Determine the desired changes in business performance and integrate the technology-driven changes that will support it, such as systems life cycle, project management or new tools. (What changes are required in related processes and technologies?)

Performance Management – Identify the desired behaviors and performance results for the change; establish the reinforcement mechanisms for each behavior (positive and negative) to institutionalize the change. (What is required to motivate people to adopt the change?)

Relationship Management – Determine how the change will impact your customer or supplier and establish a win-win business relationship for working together. (What changes are required in relationships with customers and business partners?)

Communications –Establish communications for the change within all levels of the organization. (How will all this be communicated throughout the organization?)

Conclusion

This series of articles has described the CMMI models, appraisal methods and issues involved in implementing the CMMI and transitioning from the Software CMM to the CMMI. Successful implementation of an organization's technical and business practices using the CMMI for guidance requires in-depth understanding of the organization's goals, objectives and requirements, and the underlying principles of the CMMI model.

Richard B. Waina, P.E., Principal of Multi-Dimensional Maturity, has over 35 years of IT experience. He worked for five years at White Sands Missile Range, and on a number of missile programs at Hughes Aircraft Company, including Maverick for the U.S. Air Force, Phoenix for the Navy and TOW for the Army. At EDS he was responsible for deploying process maturity assessment methodologies globally. Dr. Waina is a SEI-authorized CMM and CMMI Lead Assessor/Appraiser and Instructor for the Introduction to CMMI. He has conducted over 80 CMM/CMMI assessments in nine countries since 1990. He holds engineering degrees from Carnegie Mellon University, New Mexico State University and Arizona State University. His Web site is www.mdmaturity.com.

"So, how's it going?" Whether you hear it in the hallway or in your regularly scheduled project review meeting, you have stakeholders who want to know the latest news on your project. There are usually a variety of topics they want to hear about, but there are two questions that are always asked: "Will it be on time?" "Will it be on budget?"

There is another question they all have, but may not be asking: *"Do you really know how it's going?"*

This article is fifth in the series on proven project management techniques. It will present a long-used method of project accounting known as earned value analysis. By using this approach, a project manager, sponsor or customer can make more objective, accurate assessments of project progress.

Why is this so important? Because many project managers don't really know the true cost and schedule performance until the project is almost over. For most of the project it can "feel" as if things are on track, and team members can be upbeat about meeting their individual deadlines. But relying on the feelings of the project manager or team can lead to disaster because as human beings our "gut feelings" are subject to many variables. That's why your management and customer may be wondering if you really know the truth about your project's cost and schedule status.

Now don't get defensive. Put yourself in their shoes for a moment. Let's take a simple example to see how this looks from a customer or owner standpoint. Imagine that you have a lot of work to do to make your backyard beautiful, and you are just too busy with work and family to do it yourself. So after laying out your design and obtaining bids, you engage a reputable landscaping firm.

The work consists of putting in a new lawn, pouring a concrete patio and building some raised beds for your garden. The bid was broken down in this way.

Lawn:	$4,000
Raised beds:	$4,000
Patio:	$4,000

The work is scheduled to be completed in six weeks, and you have agreed to progress payments of $2,000 per week. After two weeks a lot of dirt has been moved around and lumber has been delivered. The landscaper asks for a second $2,000 payment. You are nervous about the actual progress, but the landscaper assures you that things are going well, and that moving the dirt will enable progress on the lawn, patio and beds the next week. The lumber will be used to build forms and make the raised beds. "Oh yes, the work is easily one-third completed."

The bid of $12,000 had seemed to be reasonable. Breaking down the job into the primary products made it easy to understand and to compare this bid with other bids. But one-third of the way through the budget and schedule, all you have is a hollow feeling in the pit of your stomach. What could have been done differently to give you more confidence that the project is one-third of the way complete?

The answer is a technique known as earned value analysis (also called EVMS for earned value management systems). Earned value has been used for decades by project owners to ensure that progress payments have been earned — thus the name earned value analysis.

An Earned Value Example

The best way to understand earned value is with a simple example. So let's return to our landscaping problem. The problem we face on this project is our concern that we aren't getting our money's worth for our progress payments. We don't want to find out at the end of six weeks and six payments that the job still isn't done. A detailed work breakdown structure (WBS) and schedule will help us solve the problem.

Step One: Begin with a Detailed Plan

A work breakdown structure decomposes an entire project into a list of tasks. Figure 1 shows 10 tasks for our landscape example. (Note that these are finite tasks, each with a beginning and end.) Further, once the landscaper has created this WBS we can assign specific costs to each task. These estimated costs are seen under the "Planned" column. Notice in the table that there is also a schedule associated with the tasks. This detailed plan will be our basis for gauging the performance of our landscaper.

Step Two: Capture the Actual Progress during the Project

The landscaper has asked for weekly progress payments, so it makes sense that we can ask for weekly progress reports. The example in Figure 1 shows the actual costs incurred and progress after the first two weeks of the project. The columns labeled "Actual" show the actual cost of labor and materials for work completed so far.

Step Three: Calculate Progress

On a small landscape project you can see physical evidence of progress and intuitively know the answer to "How is it going?" when you see the planned and actual costs. But on larger projects (the kind your customer is worrying about) physical evidence is not always readily apparent and intuition is a poor substitute for measuring progress. That's where earned value calculations provide a better understanding of both cost and schedule progress. Using our example, we will first assess our cost performance, and then analyze the schedule progress.

The terms and formulas listed below have been in use for decades and are in the public domain. There are many sources for more information on these formulas, including most project management text books. It should also be noted that the Project Management Institute has suggested revising some of this terminology, but in this article we will use the terms endorsed by the National Defense Industry Association or NDIA.

Assess Cost Performance

Are we on track to spend more or less than our budget? The following terms and formulas will help us answer that question.

Budgeted Cost of Work Performed (BCWP): The amount we had planned to spend on the work that has been accomplished to date. In our example, after two weeks we have accomplished tasks 1, 2, 4, 6, 9 and 10. The original estimate for those tasks was $8,000. So the BCWP at two weeks into the project is $8,000. This is also known as the earned value, in other words, *"What value has been earned so far?"*

	Task Name	Labor & Material Cost		Weeks					
		Planned	Actual	1	2	3	4	5	6
	Put in Lawn								
1	Grade site	$1,000	$1,100						
2	Spread topsoil	$1,000	$1,000						
3	Seed lawn	$1,000							
	Build Raised Beds								
4	Level base	$1,000	$1,000						
5	Construct beds	$1,000							
	Build the Patio								
6	Level the site	$1,000	$1,100						
7	Build forms	$1,000							
8	Pour patio	$1,000							
	Purchase Materials								
9	Lumber Delivered	$2,000	$2,000						
10	Topsoil Delivered	$2,000	$2,000						

Figure 1.

Actual Cost of Work Performed (ACWP): The amount we have actually spent. The progress reports show the landscaper has spent a total of $8,200 to date.

Cost Variance (CV): The difference between what we planned to spend and what we have actually spent on the work that has been performed so far. CV = BCWP - ACWP. Example: CV = $8,000 - $8,200.

Cost Variance Percent (CV%): This calculates the percent over or under your budget the project is to date. Divide the Cost Variance by the Budgeted Cost of Work Performed. (CV% = CV/BCWP). If this figure is negative, it is bad news – the project is overbudget. In this example, the project is 2.5 percent overbudget. Example: CV% = -200/8,000.

Analyze Schedule Progress

Obtaining an accurate understanding of schedule progress has traditionally been even more difficult than assessing cost performance. For instance, if a project is behind schedule, we want to know how far behind. If a project has one task behind by one week that is clearly better than having five tasks behind by one week, but how do we accurately communicate that to our stakeholders? The formulas below allow us to use cost to accurately measure schedule progress.

Budgeted Cost of Work Performed (BCWP): We used this in our cost analysis above. It is the amount we expected to spend on the work that has been accomplished to date.

Budgeted Cost of Work Scheduled (BCWS): This is the amount we expected to spend to date. In the example, the original schedule called for accomplishment of tasks 1, 4, 6, 9 and 10 within the first two weeks. The budgeted (planned) cost of that work was $7,000.

Schedule Variance (SV): Here's where we measure schedule progress with dollars. Subtracting BCWS from BCWP shows whether you've accomplished more or less to date than what you had expected. SV = BCWP - BCWS. If the amount is negative, you are behind schedule. (As with the cost analysis, whenever the variance produces a negative number that is bad news.) Example: SV = 8000 - 7000.

Schedule Variance Percent (SV%): How far ahead or behind schedule are you? SV% = SV/BCWS. According to this calculation our landscaper is 14 percent ahead of schedule. Example: SV% = 1000/7000.

Other Calculations

By using these basic formulas it is possible to re-forecast the project completion date and the actual cost of the project. The source at the end of this article provides additional formulas that provide different insights on the project.

Advantages of Earned Value Analysis

Why do we need this special form of project accounting? As the example shows, these calculations enable project managers and owners a much more accurate view of project performance while it is still early in the project. That is important because it is only BEFORE the money is spent that we have an opportunity to change our approach to the project. Here are two other advantages:

• Cost performance is not a cash flow comparison. Understanding a project's cash flow does matter, but it does not often provide an accurate understanding of cost performance. Comparing the amount of money expected to be spent during the first three months of a project to the money actually spent isn't meaningful if the project is either behind or ahead of schedule.

• Schedule analysis recognizes ahead of schedule performance. On projects with many concurrent activities some tasks are

performed well ahead of schedule, even as others are performed late. The larger the project, the more likely this will happen (and the more difficult it is to accurately understand schedule status). By comparing the total value of work accomplished (BCWP) with the value we had expected to achieve to date (BCWS) we can see whether the overall project is ahead or behind.

The Most Common Earned Value Mistakes

We have used a simple example to demonstrate earned value analysis. Putting it to work on larger projects is obviously going to be a little trickier, and you need to be aware of two common mistakes that have tripped up many organizations in the past. Both mistakes are derived from the way the WBS is structured.

The right way to structure the WBS is to make each task finite with a specific, measurable outcome. This way a task can be started and completed. Sounds simple, right?

Here's the first mistake: Setting up your project with "level of effort" planning. This means rather than having discrete tasks, you just create categories, such as "design" or "engineering" and allocate a certain number of people to it over a fixed period of time. In our landscape example this would be the equivalent of just saying "labor" rather than defining specific tasks on the WBS. So the only measurement we have available is cash flow. For our landscape example it would be like the landscaper saying, "We said we would have three people working for six weeks, and so far we have had three people working for the first two weeks. So we are on budget and it's anybody's guess about schedule."

The second mistake is having tasks on the WBS that are so large in scope that we can only guess partial completion from week to week. This typically happens on a large project where tasks aren't broken down far enough. If we report progress on a weekly basis, but people are working on tasks that are many weeks long, then at each status meeting they are really only guessing their progress. That's the same problem that we started with. When tracking schedule status the only thing that we really know is whether the task is started and whether it is completed. In between those two points we are just guessing.

"So how's it going?"

Using earned value analysis we see that the landscaper is sufficiently on target to justify progress payments. Whether you have a cost-plus contract or a fixed price, whether your customer is in-house or external, the analysis we have performed provides an accurate view of progress for both cost and schedule.

Accurate project status will not ensure projects are on time or on budget, but you will get an earlier warning when you have a problem. That can mean more time to solve the problem and probably more options for solving it. Finally when you are asked, *"How is it going?",* you will have credible answers for a confident response.

Source

Verzuh, Eric. *The Portable MBA in Project Management*. New York: John Wiley & Sons, 2003. (pp. 162-167)

Eric Verzuh is the President of The Versatile Company, a project management training firm serving U.S. Navy, government and private industry since 1990. For more information go to www.versatilecompany.com.

DON CIO Chairs DoD Identity Management Senior Coordinating Group

Mr. Dave Wennergren, DON CIO, was recently named Chair of the new Department of Defense (DoD) Identity Management Senior Coordinating Group (IMSCG). Established by the DoD CIO in January 2004, the IMSCG provides senior oversight and coordination of DoD's biometric, smart card and PKI initiatives.

The IMSCG replaces three bodies: the Smart Card Senior Coordinating Group, the PKI Senior Steering Committee, and the Biometric Senior Coordinating Group. This consolidation produces a single forum that will streamline and integrate the management of DoD/DON biometric, smart card and PKI initiatives.

The IMSCG responds to the need within the Department of Defense to globally oversee and combine efforts of these important initiatives aimed at managing the identity of DoD employees and networked devices by improving the security of DoD's systems. The senior coordinating group will craft and monitor the Department's vision and strategy for utilizing identity management capabilities to enhance readiness, improve business processes and ensure necessary security.

Mr. John Stenbit, Assistant Secretary of Defense, asked Mr. Wennergren to chair this coordinating group based on the tremendous success of the Smart Card Senior Coordinating Group, which oversaw the roll out of over 4 million Common Access Cards throughout DoD. Mr. Wennergren has chaired the Smart Card Senior Coordinating Group since its inception four years ago.

The IMSCG consists of Flag/General Officer and SES representatives of each of the Armed Forces, OSD Principal Staff Assistants, National Security Agency (NSA), Defense Information Systems Agency (DISA), Defense Manpower Data Center (DMDC) and others. It is a cohesive DoD-wide policy, requirements, strategy and oversight group for managing the physical and virtual identities of all DoD personnel, support contractors and devices.

The IMSCG will focus on Department-wide interoperability standards, performance metrics, and ways to leverage identity management tools to enhance readiness, improve business processes and increase security. The group will receive support from the DoD Biometric Management Office, DoD Access Card Office and DoD PKI Program Management Office for their respective focus areas.

An Introduction to IPv6

By Brian Tamburello

The Internet, as well as most mid-to-large networks, is built on a system known as a TCP/IP stack (Transmission Control Protocol/ Internet Protocol). TCP/IP was initially developed by the U.S. Department of Defense (DoD) in the late 1960s.[1] Internet Protocol works at the networking layer of this system, and as the Internet has developed, it has gone through several adaptive evolutions to maintain relevant functionality. The most widely used version of this protocol (version 4 or IPv4) is nearly 20 years old, and will, according to most sources, gradually be replaced by a newer protocol: version 6 or IPv6.

IPv6, sometimes called the Next Generation Internet Protocol or IPng, was developed by the Internet Engineering Task Force (IETF) in the early to mid-1990s.[2] IPv6 improvements over IPv4 include: (1) better scalability (due to more addressable space); (2) new security specifications; (3) better support for higher bandwidth/ real-time traffic; (4) plug-and-play networking; (5) easy device renumbering; and (6) an automatic address clustering system. Additionally, it builds upon and improves the good optimization and logical structure of IPv4 while breaking away from some of its shortcomings.[3]

Replacing IPv4

Despite its age, IPv4 has shown considerable resiliency and has been extended in many ways to meet the needs of the rapidly growing Internet. There is; however, no easy solution for its most pressing problem: IPv4 uses a 32-bit standard. Under this system, every networked device requires its own unique IP address, usually denoted in a "dotted quad" decimal format, for example, 192.168.1.1.[1] In other words, there are, theoretically, 2^{32} individual addressable numbers available for use. In reality, the usable address space is somewhat less than that because there are many number ranges reserved for special purposes and network hierarchies. When the standard was initially developed, 32 bits seemed more than sufficient to address every computer worldwide, but more recent estimates have shown that at the current rate of IP address consumption, IPv4 will be out of addressable space within the next 10 years.[3]

Among experts, there is some controversary regarding what the IPv4 replacement standard will actually be. There are some who think that IPv4's address shortage problem can be overcome through judicious use of "Network Address Translation" (NAT). Others think that a complete redesign of Internet Protocols are needed to achieve the desired result and some unrelated standard will replace IPv4. The next logical replacement would be a 64-bit protocol, and one was created, IPv5, but it existed solely in an experimental form. The IPv5 header served to identify an experimental streaming packet protocol called ST. ST never gained widespread industry acceptance, but since the header was already used, the next obvious choice was a 128-bit protocol, IPv6.[2]

IPv6 Addressing

The IPv6 specification calls for a 128-bit address, which theoretically provides 2^{128} or 40 undecillion (40*10^66) unique addresses, yielding 1000 addresses for every square meter of surface area on Earth.[4] In practice that much space won't be available due to various network inefficiencies and reserved value ranges, but there are still clearly a very large number of addressable values available. Unlike the IPv4 decimal-based system, IPv6 uses hexadecimal values broken up into 8 groups of 4 values per group in the following manner:

0123:4567:89ab:cdef:0123:4567:89ab:cdef

For the sake of convenience and efficiency any leading zeros may be dropped, so:

fa36:004d:0000:0000:0000:0000:34bb:0001

Could be truncated to:

fa36:4d:0:0:0:0:34bb:1

Another format that allows further efficiency (referred to as "compressed" format) allows long sequences of zeros to be denoted simply as a double colon ("::"). The above address could then be written as follows: fa36:4d::34bb:1

These features will be especially useful in the earlier phases of address issuing because addresses containing "low" values (containing many zeros) will be quite common.

A third, final format is specified for a mixed IPv4/IPv6 environment (referred to as "IPv4 compatible") and allows the last 32-bits of the IPv6 address to store the IPv4 address (in decimal format). The first 96-bits are used to store a hexadecimal prefix identifying the host and signaling the existence of an IPv4 compatible address.[4] For instance, if you want to store an IPv4 address, such as, 192.168.1.1, in an IPv6 format, it could be written as follows:

0:0:0:0:0:ffff:192.168.1.1

This format also supports the compressed scheme:

::ffff:192.168.1.1

Address Autoconfiguration

One most important features of IPv6 to the end user is its automatic address configuration. To gain access to the Internet using IPv4, one must either manually set the IP address, network mask and default gateway or connect through a Dynamic Host Control Protocol (DHCP) server, which allows for automated IP address assignment. While IPv6 does allow manual configurations, it can be handled automatically with no reliance on outside systems using its "Stateless Address Autoconfiguration Protocol." This is accomplished by setting the right-most 64-bits of the IPv6 address to be the host's Interface ID, which is based on the system's unique 48-bit Media Access Control (MAC) address on its Ethernet device. After generating this number, it then checks to see if a duplicate address exists on the Internet. If it does, a randomly generated value will be substituted for the MAC address. This should happen rarely because there are procedures in place to prevent issuing the same MAC addresses to multiple Ethernet units.

This safeguard was necessary not only because there are some

legitimate uses of having identically addressed units, but also because Ethernet manufacturers have been known to accidentally issue duplicate MAC addresses. At this point, the system will then check to see if it can access an IPv6-capable router and, if so, will generate the left-most 64 bits of the address based on the ID of the host subnet and its public topology routing prefix, which specifies the location of the router.[2]

Security

The Internet currently has a number of security issues. The first issue is that all of its major privacy and authentication systems are implemented at the application level. IPv6 offers two integrated, low-level security features, which may be used individually or in tandem. The first mechanism is the "IPv6 Authentication Header," which is used to authenticate data integrity and sources, but does not, by itself, assure user confidentiality. The header supports multiple data authentication algorithms, but requires a keyed "MD5" (a popular authentication algorithm) validation routine to verify users/sources. Not only does having a standard for user authentication help assure interoperability, but it will also help prevent relatively common network attacks based on host masquerading. By providing this service at the low Internet level, applications that do not currently have their own host and data validation schemes can take advantage of this feature fairly easily.

The second integrated security feature is the "IPv6 Encapsulating Security Header," which allows user/host confidentiality. Like the Authentication Header, it is algorithm independent, but to encourage interoperability the "standard" algorithm currently used is known as DES CBC.5. When used together, these security protocols allow for anonymous but verifiable secure data transfers.

The "6Bone" Network

The IPv6 backbone or "6bone," is an international, experimental testing ground for IPv6 technology. This worldwide network, which is actually composed of several smaller, regional 6bone networks, is run by the IETF IPng Transition Working Group. This group's responsibilities include: (1) testing the standards and implementations of IPv6; and (2) testing transition strategies and providing opportunities for Internet Service Providers (ISP), application developers and hardware manufacturers to test the protocol prior to rolling out their own products and services.

Since most ISPs and private IPv4 communication providers have not yet integrated IPv6 routers into their systems, many IPv6 testers are forced to connect to other parts of the 6bone network through the existing IPv4 infrastructure. One of IPv6's transition features, "IPv6 Encapsulation," is particularly useful in this case. It allows the protocol to tunnel through the IPv4 routers to access the 6bone network unimpeded.[2]

Transition

The most important aspect of the transition to IPv6 involves getting it to coexist with existing IPv4 hosts, and accomplishing this well before the older standard reaches its maximum capacity. A second, related goal is to allow the transition to IPv6 hardware and software to occur in an incremental and diffusible fashion. Upgrading all the networks in the world at once or in any particular order would be difficult, if not impossible. Allowing any part of any network to be updated at any time while still maintaining a seamless system prevents this from becoming an issue, and it is critical to short-term IPv6 acceptance.

A third, less crucial objective is for the transition process to be as painless and easy as possible for end users and network operators. If the process advances as hoped, the changes would be virtually transparent to most users. IPv6 possesses transition friendly protocols making these goals achievable; it also has the invaluable advantage of requiring very little work and money to upgrade existing IPv4 systems to the new standard.[5] In fact, a great deal of existing and soon-to-be released software has been created with IPv6 compatibility specifically in mind. Microsoft, for instance, has already implemented a version of IPv6 into Windows XP and .NET Server. Although it is not activated by default, a simple command line option can enable it.[1]

Conclusions

It is obvious that IPv4, in its current form, is rapidly approaching the end of its ability to expand and adapt. Although it may appear that a global transition to IPv6 is an inevitable step that the ever-evolving Internet must take, it is very possible some other path might be taken that better suits its needs in coming years since there are other competing standards for the next generation of networking systems.

IPv6 is simply the official successor to the system currently in use, but because ease of transition was a key element in its design, it has a critical advantage over its competitors and currently has a great deal of industry support.[5] Unless some viable, long-term extension of IPv4 is created in the near future, IPv6 (or a combination of the two) will be the path of least resistance to the next generation of networking services. It is a realistic, evolutionary step that builds on all IPv4's successes and strengths. IPv6 will eliminate all of IPv4's weaknesses, and it will be able to offer many revolutionary networking advancements.

References

1. Shinder, Deb. "IPv6: What is it and why is it needed?" *TechRepublic, May 2002*. (http://www.zdnet.com.au/insight/0,39023731,20265559,00.htm)

2. Fink, Robert L. "IPv6 - What and Where it is." *The Internet Protocol Journal, March 1999*. (http://www.cisco.com/warp/public/759/ipj_2-1/ipj_2-1_ipv6.html)

3. WIDE Project, *IPv6 Working Group. Frequently Asked Questions.* (http://www.itojun.org/v6/v6faq.html)

4. Scholz Gregory R. "Internet Protocol Version 6." *Consortium for Computing in Small Colleges, 2001*. (http://portal.acm.org/citation.cfm?id=374779&jmp=abstract&dl=GUIDE&dl=ACM)

5. Hinden Robert M. "IP Next Generation Overview." *Communications of the ACM, June 1996*. (http://portal.acm.org/citation.cfm?id=228503.228517&dl=portal&dl=ACM)

Brian Tamburello is a computer scientist in the Technical Specifications and Acquisitions Branch, SPAWARSYSCEN Charleston, DON IT Umbrella Program Norfolk Office. He has a Bachelor of Science degree in computer science from Virginia Commonwealth University.

Leading Change in Your Organization ... May Require YOU to Think Differently

Dr. Barry Frew

There is certainly no shortage of books, articles and consultants professing how to manage change, how to create and manage innovation, and how to lead transformation. The discussion on change is heard everywhere, even in the Department of the Navy.

The topic of change is certainly not new, Niccolo Machiavelli wrote the following in "*The Prince*" in 1514:

"We must bear in mind, then, that there is nothing more difficult and dangerous, or more doubtful of success, than an attempt to introduce a new order of things in any state. For the innovator has for enemies all those who derived advantages from the old order of things while those who expect to be benefited by the new institutions will be but lukewarm defenders."

"This indifference arises in part from fear of their adversaries who were favored by the existing laws, and partly from the incredulity of men who have no faith in anything new that is not the result of well-established experience. Hence, it is that, whenever the opponents of the new order of things have the opportunity to attack it, they will do it with the zeal of partisans, while the others defend it but feebly, so that it is dangerous to rely upon the latter."

Why is it so difficult for someone to change their mind, or even more difficult, to change to another person's way of thinking? Machiavelli makes a good argument. It is difficult because it requires people to question everything, including the status quo, and to be willing to suspend their own beliefs.

Individual behavior is driven, in a large part, by an individual's values, beliefs and perceptions. An individual's mind-set causes bias to influence thinking, and this in turn, influences behavior. Thinking is a profoundly individual thing. It can be measured, much like assessing someone's personality tendencies with the Myers-Briggs Type Indicator tool.

Two of the best tools available to assess how an individual thinks are:

(1) Ned Herrmann's Herrmann Brain Dominance Instrument, which measures brain dominance, and (2) Jerry Rhoads' Theory Into Practice tool, which measures thinking intention preferences. Both tools give insight into a person's thinking patterns.

Although thinking is predominantly an individual function, we usually act in groups of two or more. Both of these tools can also be used in group settings to assess what kind of thinking is represented within a group. When matched with the requirements of the task and the type of thinking likely to produce better results, the tools can be used to better match teams with activities.

The way we THINK determines the way we BEHAVE!

Most of us are often unaware of how our attitudes affect our behavior. Most of us are often unaware of the impact our behavior has on others — both positively and negatively. If we learn how to behave differently and make new behaviors stick, we will begin to create a new world.

Just as each of us has a thinking preference, each of us also has a learning style preference. Some researchers have identified a dozen different learning styles, but most agree that three main categories of learners exist: visual, auditory and kinesthetic or tactile. A variety of assessment tools are available to determine your learning style.

Good listening skills are imperative for positive questioning of ideas posed by others or for encouraging understanding of someone else's perspective. If you prefer an auditory style of learning you may already possess these skills; if you do not, you may have to work harder at listening. A list of skills provided by University of Maine researcher, Dr. Marisue Pickering, identifies the four following characteristics of empathetic listeners:

- Desire to be other-directed rather than to project one's own feelings and ideas onto the other.
- Desire to be nondefensive rather than to protect the self. When the self is being protected, it is difficult to focus on another person.
- Desire to imagine the roles, perspectives, or experiences of the other, rather than assuming they are the same as one's own.
- Desire to listen as a receiver, not as a critic, and desire to understand the other person rather than to achieve either agreement from or change in that person.

She also identifies related skills like providing verbal and nonverbal awareness of the speaker, restating, paraphrasing, reflecting,

interpreting, summarizing, synthesizing, probing, giving feedback, supporting, checking perceptions, and giving the other person time to think as well as to talk.

I would add encouraging the speaker to say more — "That is interesting, can you tell me more about…." You can also listen for what is NOT being said — what's missing that you might expect to hear in the circumstances? Being aware of how things are said; the emotions, attitudes and body language provide additional clues to the listener regarding what is meant.

A tool that I use when I recognize that I have tuned out the speaker and have already began to generate a response, is to remind myself to listen to understand before speaking to be understood. I have to constantly remind myself that some people's thinking style uses more words than my thinking style prefers. How often does this habit preclude me from hearing a critical part of the story? Sometimes, the Cliff Notes version of the story won't work — sometimes you need the entire story.

One way to determine if people are willing to give alternative ideas a chance or whether a workplace is change ready is to listen to the language. You may hear phrases like these:

I don't think that will work here; We've never done that before; We've already tried that once; Our budget won't permit that; We'll form a committee to study this; We don't have the time/resources/culture to try that; And we do this because…. Oh, you were serious; Yes, BUT…

These phrases send a strong signal that it is likely that new ideas are not welcome and this person or group may have a difficult time becoming change ready. If this is your organization's language, then be prepared for difficulty dealing with change, creativity and innovation.

On the other hand if you hear phrases like those below, it sends an equally strong signal that a person is accepting and open to new and different ideas:

That's a great idea; Let's try that; I like your thinking; Go ahead start that; Do you have any more ideas; I think we can overcome those challenges; You're on the right track; How can I help? Yes, AND…

Careful attention to the language can also extend to how you ask questions and how you view the possibilities of the future. The Appreciative Inquiry work by Professor Frank Barrett at the Naval Postgraduate School and his colleague David Cooperrider from Case Western University, suggest replacing the problem and deficiency-focused approach and its language with a radically affirmative approach. It is an approach that focuses on the best possible outcomes.

This approach has been used within the Navy as a basis for summits focused on leadership, the Information Professional Officer Community and most recently at the Naval IT Summit. The focus of the Naval IT Summit was on thinking about what could result if information management/information technology leaders across the DON employed the concept of One Team – One Strategy – Continual Transformation.

Appreciative Inquiry can be a powerful new tool for individuals or organizations that only know or use a single approach to fix problems and use a language of deficiency. I believe the real power of this tool is in realizing that the beginnings of change are generated by the questions we ask.

If you ask someone, "What can be done to raise customer satisfaction responses by 25 percent?", be prepared for solutions that do just that. If, instead, you ask someone, "What can be done to generate braggingly happy customers?", not only does the customer satisfaction problem go away, but the solution will provide more impact and be longer lasting. Both questions can create a new future; which future would you rather create?

Recall the thinking preference, brain dominance and learning style assessment ideas from earlier. The thinking preference tool can determine whether someone is comfortable thinking about the future and its possibilities or not. Some would rather spend their thinking time someplace else — and that's all right, but engaging a little effort into knowing your own thinking preferences and those of your colleagues can go a long way to understanding one another.

When you are more aware of your own preferences for thinking and learning, you can better understand and adapt to situations outside your preference or take action to adjust the message to your preferred style. It can make all kinds of communications much more effective. Brain dominance and learning styles awareness can be used in a similar fashion to streamline communication.

Be a change leader … Be remarkable – innovate together – make a difference!

Reasons for change are many. Once-good-solutions or even great solutions, can outlive their relevancy. Markets, competition or technologies can introduce better solutions; new strategies to address new threats or different cultures usually require different people, processes or organizational relationships.

Good leaders allow themselves to question the status quo, assumptions and the thinking used to generate solutions, including their own. Good leaders are able to extract themselves from events and to view them objectively, even though they may have participated in or led the event. They understand that what worked before may not be an appropriate solution this time.

The fact that good leaders question everything does not diminish from their ability to be dreamers AND bold doers.

The fact that good leaders question everything does not diminish from their ability to be dreamers AND bold doers. You do not need to be one or the other — good leaders and peak performers are both.

Dr. Frew founded and directed the Center for Executive Education at the Naval Postgraduate School. He also designed and facilitated the Revolution in Business Practices course and the 30-Something Course. He is currently CEO of Frew & Associates. If you would like further information, visit www.frewassociates.com.

Introduction

Ease of use for shipboard information systems can be diminished by a number of factors relating to the uniqueness of the hundreds of software products installed on Navy ships. As a project manager in a Software Support Activity for machinery monitoring and maintenance systems onboard Navy ships (gas turbine, air conditioning plants, etc.,), my responsibilities include the full software system life cycle (design, test, acceptance, training, etc.,). One common design flaw that I see is the use of toolbars and icons where linked text would be more appropriate.

During the test phase of a recently completed software development project, I was surprised to see the developer had used an unusual symbol for an icon to represent the merge function. I knew that a Navy user would not be able to connect the merge function with that icon and asked the developer to include text with the symbol. Even proficient computer users will be unable to decipher the meaning of unique, symbolic icons when faced with an unfamiliar information system interface. With this concept in mind, I tested my icon recognition theory with 20 subjects using select icons from two fielded information systems and Microsoft Excel.

Background

The Apple Macintosh computer popularized the use of icons in the mid-1980s. Initially, icons took the image form of trash cans, documents and folders to mimic the physical world of an office. There were no toolbars on the original Macintosh desktop and all functions were chosen from pull-down menus on a menu bar. Later, a toolbar was added to allow common document functions such as New, Open, Save, Print — all accomplished by a mouse click. The original toolbars were simple because the available functions of the software programs were relatively simple. There were no color, charting or integrated draw functions. The original "Save" icon depicted the only save option available on a 1984-era Macintosh — a 3.5-inch diskette. As software functionality increased — the number and size of toolbars also increased. The familiar toolbars used today are the result of nearly 20 years of graphical user interface (GUI) computing work.

Today, the familiar Save icon has not changed even though options have expanded to include saving to hard disk drives and various removable and networked media. Microsoft Office toolbar icons have become familiar to computer users over the course of the GUI computing era. But there are hundreds of unique systems on Navy ships and each has a learning curve for a fleet user. Proficiency with information systems is hampered by the fact that Navy personnel frequently change job functions and commands. Due to the number of unique systems in use and the high turnover rate of users, it is imperative that information systems on ships be as user-friendly as possible.

A common feature of legacy computer systems is overuse of the icon toolbar. Until a user becomes an expert it is unlikely that he or she will remember how to navigate the options of a software product through the use of icons.

Since the GUI computing era began there have been several good studies regarding a user's ability to select the correct icon (Dix[1]); however, these studies all presuppose that users knew the functions they wanted to select (click) and could match the correct function to the appropriate icon. Shipboard users are often novices of the computer system they are using and must search for the functions they wish to perform. This study investigated whether icons should be used and how they could be improved. (Readers interested in more information on earlier studies can refer to the work by I. S. MacKenzie[2] and Robert J.K. Jacob.[3])

The Experiment

Twenty Naval Sea Systems Command Philadelphia employees were given an "Icon Usability Test" consisting of toolbar images and descriptive text from three software products. Two of the products are fielded on Navy ships and the third was Microsoft Excel 2000, which is installed on most Navy computers. Each subject answered questions regarding his or her familiarity with computers and the information systems to be evaluated. The test consisted of color printouts of portions of the three toolbars. Directly below each icon a letter designation was added (see Figure 1). Subjects were instructed both in writing and orally by a test administrator to match each icon letter to a short description of a function to which the icon would logically link, for example, "Electric Power Systems Module".

The subjects were instructed that the purpose of this evaluation was to create more user-friendly icons, and they were asked to match functions without using any external data source for help. The subjects were given as much time as they needed to complete the experiment and each worked separately. The correct responses were tabulated by icon and by subject.

Figure 1.

General Results

Each of the subjects had to correlate 22 separate icons to descriptions for the two Navy systems tested. This translates to a total of 440 instances of icon decoding. Overall, subjects were successful only 54 percent of the time when trying to match

Navy system icons to descriptors. All subjects reported having familiarity with computers and 16 of the 20 subjects reported familiarity with shipboard equipment. There was no statistical correspondence between the score and a subject's knowledge of shipboard equipment. There was a correlation between a subject's familiarity with the information system being evaluated and his or her accuracy.

The first information system evaluated, referred to as Sys#1, had zero of 20 subjects report they had previously used the system. The second system, Sys#2, had 6 of 20 subjects report they had used the system previously. Eighteen of 20 subjects reported they had experience with Microsoft Excel. The icons for the two fielded Navy systems were correctly matched to descriptors approximately half the time. Microsoft Excel icons were correctly matched by 17 of 20 subjects (correlating to 18 of 20 subjects reporting that they had used Excel) 100 percent of the time. Results are shown in Table 1.

Results by Icon Type

Users were able to match icons with descriptors in 100 percent of the responses when the icon contained text that explicitly linked it to the function (see Table 2). The icons that contained text included one with the letters "PMT" which linked to "PMT Query" and the "8 o'clock Reports" icon shown below in Figure 2. These results may seem obvious, yet many icons on shipboard systems are devoid of helpful text. Users were able to match icons that incorporated universal symbols such as a globe for "Global Log Review" and a lightning bolt for electric power source (see Figure 3) with 95 percent accuracy.

In one case, an icon contained text, but the text did not relate to the name of the function, and users were only able to link the icon to the descriptive statement with 65 percent accuracy. In this particular case the icon linked to a software product named "DynaText" and the icon contained the letters "CE" under a magnifying glass. Not surprising that many users were unable to make the leap from "CE" to "DynaText."

Conclusions

Analysis of this limited study reveals that if users can only match icons to the correct function about half the time, they will quickly become frustrated as they search for software links or mistakenly open the wrong modules. This frustration is heightened when the user is busy and trying to complete complicated tasks.

Figures 2 and 3.

Users had no problem linking this icon that contains a clock and an "8" to the descriptor "8 O'clock reports"

Icons that use universal symbols were highly recognizable, such as this lightning bolt icon for "Electric Power Systems module"

Experiment Results		
Familiar with …	Percent of Subjects Affirmative	Sys#1 & Sys#2 Icon Accuracy Rate
Sys#1	0%	N/A
Sys#2	30%	72.0%
Computers	100%	54.1%
Shipboard	80%	51.1%
MS Excel 2000	85%	56.4%
	Total	54.1%

Table 1.

Breakdown by Icon Type		
	Number of Icons	Percentage of Correct Responses
Icons containing explicit text	80	100%
Icons containing a universal symbol	60	95%
All icons containing text	100	93%
All other icons	280	44.6%

Table 2.

The results of the experiment show that icon symbols have limitations, but an icon that contains explanatory text increases the chances of a user picking the correct software function. Software designers and developers should be aware that users need to be able to easily determine what button or icon will lead them intuitively to the function they wish to perform. Natural language text or commonly used symbols should always be used rather than creating unique symbol-based icons.

References

1. Dix, Alan J. and Brewster, Stephen A. "Causing Trouble With Buttons." *Ancilliary Proceedings of HCI'94*. Ed. D. England. Glasgow, Scotland, 1994. Available at http://www.comp.lancs.ac.uk/computing/users/dixa/papers/buttons94

2. MacKenzie, I. Scott. "Movement Time Prediction in Human-Computer Interfaces." *Readings in Human-Computer Interaction*. (2nd ed.) Eds. R.M. Baecker, W.A.S. Buxton, J. Grudin, & S. Greenberg. Los Altos, CA: Kaufmann, 1995. (pp. 483-493)

3. Jacob, Robert J.K. "Eye-gaze Computer Interfaces: What You Look At is What You Get." *IEEE Computer*, July 1993, Vol. 26, No. 7, (pp. 65-67). Available at http://citeseer.nj.nec.com/context/835361/0

Bruce Green is a Technical Specialist in the Naval Surface Warfare Center Carderock Division (NSWCCD) Ship Systems Engineering Station in Philadelphia.

NETWORK-CENTRIC WARFARE COMES TO THE READY ROOM

By Lt. Reginald Johnson

Decentralized communication is one of the hallmarks of modern U.S. warfighting capability, and the concept of network-centric warfare encompasses this characteristic. The ability to send and receive information, as needed, was used at all levels of operations during Operation Iraqi Freedom. OIF not only used network-centric concepts at the joint forces level, but also in the individual squadron ready rooms in SIPRNET (Secret Internet Protocol Network) form. During OIF, if you didn't have SIPRNET access you were immediately behind the power curve. But while we had SIPRNET access; bandwidth was not used as efficiently as it could have been. As Automatic Data Processing and Quality Assurance Officer for the Carrier Airborne Early Warning Squadron VAW-124, I have some recommendations to make from an E-2C squadron perspective that will improve operational efficiency and conserve bandwidth.

Web access to U.S. Central Air Forces and Prince Sultan Air Base (PSAB) SIPRNET Web pages provided the primary access to Air Tasking Orders (ATO), Airspace Control Orders, Special Instructions (SPINS) and changes. Due to the fluidity of the battlefield lines, and an unprecedented sortie count, OIF operations executed under a constantly evolving ATO, with as many as eight changes in a given day. All of these changes and other mission planning information were disseminated over the SIPRNET.

E-mail access allowed almost real-time information exchange between squadrons and squadron liaison officers at the Coalition Air Operations Center at PSAB. Questions about ATO scheduled events and tasking could be answered almost immediately. E-mail was used for immediate tasking and dissemination of information before the next ATO change was available, and it also provided a direct link between Liaison Naval Officers at PSAB and watchstanders on the carrier. Just as importantly, it allowed squadron personnel to create ongoing lessons learned that included classified information, which couldn't be sent through NIPRNET (Nonclassified Internet Protocol Network) e-mails.

SIPRNET chat gave users real-time information exchange by giving geographically dispersed users an interactive bulletin board to disseminate information. This gave users the ability to create persistent virtual conference rooms allowing instant attention to issues and answers to problems.

CACHING

While the ability to access information quickly had advantages, SIPRNET use was not as efficient as it could have been. The use of prudent caching (one entity saving documents at a centralized location for access by others) could have saved bandwidth and given users quicker access to needed documents.

During OIF the use of caching was almost nonexistent at the Air Wing level. This caused numerous downloads of the same information within the Air Wing and at the squadron level. It caused what was already a sluggish network to slow to a crawl. A more efficient method would have been for the Carrier Information Center to download all the items needed from the original source, and make that information available to all users.

While this method of caching works well with Web-based information and downloaded files, e-mail and chat would need to be handled differently. Chat conversations occur in real time so caching in the traditional sense isn't possible. However, chat allows multiple people and organizations to have access to ongoing chat conversations leading to a network "economy of scale." Additionally, chat conversations can be logged to allow others access to the information at a later time.

However, as an alternative to standard caching, an efficient pass down among the people engaged in chat and their organizations would ensure that information obtained in chat sessions would not be lost.

Efficient use of e-mail would have to depend on a similar inter-unit pass down. This would eliminate the numerous mass e-mails that are traditionally sent and would save valuable bandwidth.

HARDWARE AVAILABILITY

In addition to bandwidth, the main issues affecting access to SIPRNET information were operational security concerns and a shortage of workstations with SIPRNET connectivity. Access to SIPRNET e-mail was restricted during a restrictive e-mail and Internet condition (RIVERCITY) set to restrict NIPRNET access. To avoid this in the future, the ship's ADP Officer could make provisions to continue SIPRNET access if NIPRNET access is secured.

Additionally, due to a hardware incompatibility with portions of the ship's classified local area network, squadrons were limited to one or two SIPRNET workstations. While there was typically only one standard Ethernet classified LAN drop in ready rooms, there were several drops available to provide fiber-optic connections to the SIPRNET. It would have been preferable to have more Ethernet LAN drops available with fiber-optic network cards available for installation in classified workstations. This would have more than doubled the available SIPRNET workstations.

SIPRNET proved to be a valuable communications tool during OIF. E-mail, Web access and chat were indispensable for exchanging critical information. But more efficient use of SIPRNET assets, prudent use of bandwidth and a sufficient number of workstations with classified access will make a smooth transition as your squadron engages in network-centric warfare.

Lt. Johnson is the VAW-124 Squadron ADP and Quality Assurance Officer (QAO).

Command and Control Coordination

By Lt. Christopher Hobbs

A well-ordered battlespace is critical to the success of any military operation. This article discusses a few of the issues involved in establishing and maintaining an organized communication structure for the battlespace, and makes recommendations for actions that a command and control organization can take before participating as a successful member of the C2 network.

These recommendations result from my experience as Mission Commander in VAW-124 [Carrier Airborne Early Warning Squadron] during Operation Iraqi Freedom.

The E2C-Hawkeye is the Navy's all-weather carrier-based tactical battle management airborne command and control aircraft — flown by the VAW-124 Squadron during Operation Iraqi Freedom. Photo courtesy of VAW-124.

Successful integration into the area of operations can be linked to three key factors: (1) Establishing and maintaining lines of communication with all platforms; (2) Determining the stationing requirements and capabilities of all C2 assets in the area of operations; and (3) Establishing a simple, well-defined communications plan for in theater operations.

The most important aspect of C2 integration is the initial establishment of clear lines of communication among all C2 assets. These lines need to be established early, not only on the SIPRNET [Secret Internet Protocol Network) but also via the NIPRNET (Nonclassified Internet Protocol Network) and telephone circuits. A general mail address list should be established to facilitate information flow among all participating and support units.

The SIPRNET should be used for <u>all</u> internal and external correspondence. This will ensure that all players are aware of the available data, and it will introduce other units into the decision process on topics that they may not have been privy to. A master alias can be used to quickly add or remove unit names as they enter or exit the theater. Lines of communication are critical not only for time-sensitive changes, but also to allow the transfer of platform knowledge and experience from one type of aircraft to another. It is advantageous for each C2 platform to develop a knowledge base of how other C2 assets operate, and to understand their capabilities and limitations so that real-time adjustments can be made more efficiently — and with greater effectiveness on the battlefield.

It is critical for C2 assets to know where all other players plan to station. Typically, this is already delineated in the theater Special Instructions (SPINS). When this is the case, SPINS provide a strong foundation for understanding where assets are going to be. But based on real-life situations (such as incoming threats, presence of previously unidentified threats, and exposure of ground forces to enemy deviations from the SPINS) changes are going to be inevitable. An understanding of how the C2 assets plan to react in these situations is critical for battlespace management.

Along with stationing requirements, an understanding of the platforms' capabilities is needed. Several of today's platforms are capable of remotely performing their duties, often many miles before they actually arrive on station, while others will be hesitant to enter into the mission until they have refueled or gathered situational awareness data.

Information about what C2 assets will do on arrival, how long they can extend or alert on station are critical pieces of the puzzle that C2 battlespace managers need. Knowledge of these critical items for each platform will enable the battlespace manager to quickly and efficiently make informed operational decisions. Closing down operations due to a lack of radar coverage or signal intelligence, realizing a simple retrograde will provide the needed safety buffer while waiting for a relief to arrive, or knowing an asset needs to press an additional 100 miles into country to support troops — are just samples of the necessary data required. Without this operational knowledge, the battlespace manager will fail to successfully use all assets — and may jeopardize lives on the ground and in the air.

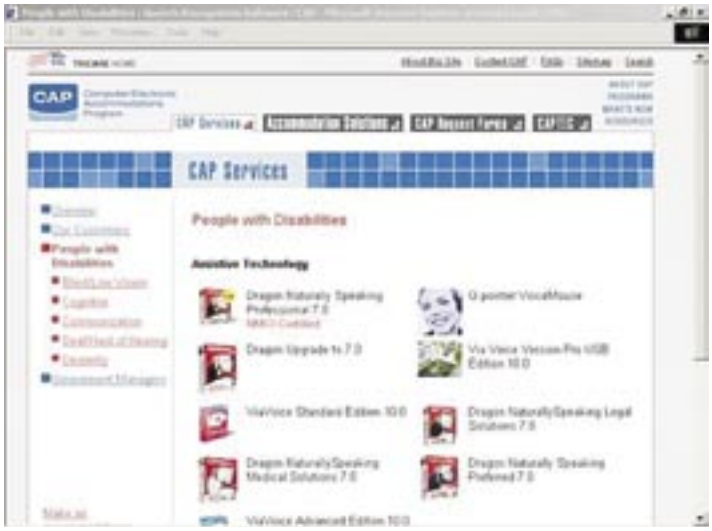
The final key to good battlespace management is the establishment of clear and easily understood communication networks and their associated encryption. The purpose of each communications network should be explained to prevent inadvertently sending critical information through the wrong circuits and to prevent saturating the network with information only usable by 5 percent of the network's current listeners. Like the stationing information, this information is also typically found in the SPINS.

Experience has shown that even with a well-written set of SPINS, as new assets come into theater and the real-world factors are taken into account, a lack of a clear and well-defined communications plan will result in a breakdown in communications and an uncoordinated effort. Network organization will ensure all players are safely monitored during ingress and egress with minimal threat from hostile forces — and from friendly or neutral assets that may also be in the area of operations.

Effective real-time communications in the area of operations ensures mission success and saves lives.

Lt. "Cheetah" Hobbs was a Mission Commander in VAW-124 during Operation Iraqi Freedom. He is currently a Fleet Replacement Instructor at VAW-120 in Norfolk, Va.

CAP and Navy Partner to Ensure the Accessibility of the NMCI The World's Largest Intranet



More departments and agencies are migrating toward a seat management system, which standardizes computer systems and controls the electronic environment of each user. Such a system allows for maximum security, cost efficiency and convenient networking within the organization.

The Department of the Navy is implementing a seat management system through their informational infrastructure called the Navy Marine Corps Intranet, which will provide "universal, secure and interoperable information technology."

This new network will ultimately provide seamless and secure communication throughout all facilities. In such a secure seat management system, all software and hardware associated with a user must be distributed electronically by a central source. This includes the use of assistive technology for NMCI users with disabilities, allowing them to access and use information in the NMCI environment. The final system will provide support to approximately 345,000 seats, making it the largest intranet in the world!

The Computer/Electronic Accommodations Program Office has been working closely with NMCI personnel to ensure that assistive technology can be integrated into the enterprise system. Before seat management, CAP was able to procure any assistive technology necessary for Navy employees without concern about Navy configuration management controls. CAP will continue to provide assistive technology to Navy employees; however, methods of procurement and distribution have changed to ensure the security and viability of the NMCI environment.

In partnership with NMCI and its lead support contractor, EDS, CAP has recommended applications that provide versatility and functionality for Navy employees with disabilities. These applications have been submitted for testing to ensure they do not compromise the secure NMCI environment. If they pass, they are certified on NMCI and CAP can continue to procure these applications for Navy employees. These applications can be distributed either electronically through a central source or through a local installation. Below is a list of certified and/or validated assistive technologies for NMCI:

- Speech Recognition - Dragon Naturally Speaking 6.1 and 7.0
- Screen Reading - JAWS for Windows 4.51 (JAWS 5.0 expected to be approved by early March 2004)
- Hand-Keyboard (Right or Left), - Goldtouch Ergo-secure Keyboard (with CAC reader), Wave 109 Keyboard
- Alternate Pointing Devices - EasyCat Trackpad PS/2, Cirque CruiseCat Touchpad, Kensington Orbit Trackball, Kensington Expert Mouse Trackball

Current users of the above listed software can continue to use their applications on the NMCI network. However, NMCI is working with CAP to rollover each of the software applications in an enterprise system to enable them to be delivered and upgraded electronically. In this manner, CAP will work closely with all of our Navy customers to move them to the most recent versions delivered through the enterprise by the end of FY 2004. Some of the current actions include the testing and certification of Dragon 7.0 NexTalk/NTS 4.0 and ZoomText 8.02 — all for enterprise delivery.

The CAP Director, Dinah Cohen, provided training sessions to the NMCI staff at the November 2003 and February 2004 Quarterly Conferences. Ms. Cohen coordinates CAP's four-person team focused on integrating assistive technology into NMCI. With over two years worth of time and resources invested, it is clear that Navy employees with disabilities will shortly receive increased flexibility and support as they begin to receive assistive technologies via the electronic delivery system.

Navy employees with disabilities who need assistive technology can contact CAP to submit a request or complete an online assessment via www.tricare.osd.mil/cap. CAP's Online Assessment Process will direct Navy employees to NMCI certified applications. It is important for these users to include their Customer Technical Representatives (CTR) in this request process.

For details on the NMCI policy regarding assistive technology, please access www.nmci-isf.com/downloads/userinfo/Tip_Assistive_Technology.pdf or contact the NMCI Help Desk at 1-866-THE-NMCI or 1-866-843-6624 to request installation.

For more information from CAP, please go to the CAP/NMCI Web page www.tricare.osd.mil/cap or call (703) 998-0800, ext. 27 (Voice) or (703) 681-0881 (TTY).

In *CHIPS Winter 2004*, we looked at the development of the telephone, telephone systems, and the traditional circuit-switching method of providing telephone service. In this installment, we will examine digital telephony in more detail, including a look at transmitting voice over Internet Protocol (VoIP). As with most communications technologies over the last century, the telephone has become inextricably linked with digital technologies. Computers control phone switches and all the call accounting and detail reporting that runs the multi-billion dollar worldwide telephone industry. Many telephones today are small computers themselves. Many in the telecommunications industry apparently want to go even further. The hottest topic in telephony today is converging voice and data networks and migrating traditional telephone services to VoIP. The end goal is the eventual delivery of all services — voice, data, video and teleconferencing — over the same network.

Digital Telephony: The Basics

The first successful system that supported digitized voice transmission was the T-carrier system, introduced in the United States in the 1960s by Bell Telephone. The basic connection in the T-carrier system is the "T-1" line, which is still a standard today for networking. In a T-1, voice signals are sampled 8,000 times a second and each sample is digitized into an 8-bit digital "word." The samples are then combined over 24 simultaneous digital channels to make a 192-bit frame. A T-1 transmits 8,000 of these 192-bit frames a second. In addition, each frame is separated from the next by a single bit, which makes each block transmit 193-bits. To calculate the data rate for a T-1, multiply the 192 bit frame by 8,000 and add the additional 8,000 framing bits. This gives us a T-1 speed of 1,544,000 bits per second, usually described as 1.544 megabits per second (Mbps).

The T-carrier system uses pulse code modulation and time-division multiplexing. TDM allows you to combine multiple data signals into a single stream by separating the original signals into many segments, each with a very short duration. The circuit that combines signals at the transmitting end of a communications link is called a multiplexer. The multiplexer accepts input from each individual sender, breaks each signal into segments, and inserts these segments into the stream in a rotating, repeating sequence. The resulting transmission contains segmented data from multiple senders.

For example, if you have four phone calls (A through D) traveling simultaneously over one circuit, a segment from phone call A goes into time slot 1, a segment from call B goes into time slot 2, etc., until each call is completed. If there is only one call, it uses all the time slots. At the other end of the line, the individual signals are separated out and routed to the proper receivers.

Voice Over IP: The Next Big Thing?

While a T-1 is digital, its use in voice telephony still follows the traditional circuit-switching concept of establishing a dedicated communications circuit between the participants. VoIP, which involves sending voice information in discrete digital packets, is a significantly different way of connecting calls. VoIP is based on the International Telecommunication Union H.323 standard for real-time multimedia communications. In a VoIP system, packets are not sent in a continuous stream over a single, dedicated connection. Instead, each individual packet is sent by the fastest route available at the time each packet is sent, just like data file packets. They are then reassembled back into their proper order on the receiving end. Packet-switched voice works, if you minimize latency (delay) and jitter (variation in delay that causes packets to arrive out of order). In the original frequency division multiplexing phone systems, the 4 kHz dedicated channel guaranteed this. Digital TDM systems also do a good job of delivering packets on time and preserving their order of delivery.

Packet-switching protocols, however, were designed to transmit data files and were not developed with any special delivery guarantees for individual packets. If a data packet arrives late, it is shuffled into the correct place when it arrives. If a packet does not arrive at all, it is just sent again later. This is, for example, what happens when you open a document from a Web site that loads via a Web browser plug-in — the document isn't displayed until the entire file arrives.

Voice quality using VoIP is a whole different ball game. Network delays longer than 150 milliseconds (ms) or packet loss of 10 percent or more will significantly degrade a voice transmission. If a packet is lost, there is not enough time to send it again. If a packet doesn't arrive in time for translation it might as well have been lost. In short, if you cannot guarantee rapid delivery (within 100 ms) of each packet, you probably won't be satisfied with your VoIP service. There are practical ways to achieve the required level of service. But first, let's look at an impractical one.

Zipped VoIP

In the summer 2003 issue, I described how Zippy's mega-networked cabin in the North Woods had crashed. OK, maybe crashed is too mild a term to describe the digital meltdown we experienced. However, like the Phoenix, Zippy arose from the ashes. This time, however, he did the one thing that guaranteed success: He got his wife to help rebuild the cabin's network. While Zippy has the attention span of a goldfish, his wife has the focus of an electron microscope. All the various individual management systems were replaced with a single, end-to-end environmental management application. The new system handles all the global functions (light, temperature control, power sensing, etc.) through one application that tracks and relates all the various things going on in the house. Lights and music, for example, can now follow you as you move from room to room. Overall, they went from over 100 different individual applications down to five.

One other significant change in Zippy's system was that the phone system was now VoIP. As their home network backbone is a SONET

(Synchronous Optical Network) ring running at OC-192 (Optical Carrier Level 192), they do not spend a lot of time worrying about packet loss in their phone calls. All in all, things looked pretty good until the phone started ringing. Well, perhaps "ringing" is the wrong word; "singing" might describe it better, though only very loosely.

Zippy has many idiosyncrasies, one of which is that he owns at least one of every singing fish ever produced. There isn't a room in his cabin that does not have some form of piscatorial oratorio. Zippy had wired every one of them into the phone system. When a call came in, instead of a phone ringing, the fish would start singing. It was actually pretty amusing, at least for the first two or three calls. The fish would sing until you said, "Hello." Then the lip-sync modifications would kick in and the fish would animate in time with the caller's voice. Like the lights, phone conversations would also follow you from room to room (i.e., from carp to catfish). Zippy was quite proud of his little telefishies and his toddler twins loved them, too.

As usual with Zippy's system modifications, though, things eventually went horribly wrong. Much to his children's delight, right in the middle of a call every fish in the house started "speaking" gibberish. The cacophonous babble filled the house until we found the problem — somehow the computer controlling the fish had become completely corrupted with "*Teletubbies*" sounds sampled from the broadband cable television feed. We suspect the children, though nothing's been proven yet.

VoIP Issues

As illustrated by Zippy's setup, the two biggest issues I see with VoIP at the moment are service and security. On the service side, VoIP really needs gigabit Ethernet running over single-mode fiber. There are network prioritization systems, in particular asynchronous transfer mode (ATM), which can give voice traffic the priority it needs as it flows over the same network as other packets. However, most networks will require significant expansion of their existing infrastructure capacity to make room for anything resembling enterprise-level VoIP on copper wiring where giving voice packets priority can really squeeze your data traffic. I prefer my VoIP over glass for two reasons:

First, I believe our future lies in optical networking. Today's advanced wide-area networks use a combination of Internet Protocol, ATM, SONET and Dense Wavelength Division Multiplexing. DWDM, in particular, has driven a tremendous improvement in long-haul bandwidth that will soon affect metropolitan and local area networking, as well. DWDM allows a single fiber cable to carry up to 80 separate channels of data using different wavelengths of light for each channel. That is a lot of room for whatever you want to transmit. As bandwidth increases to a point where there is enough space for everything, you can spend less time and effort managing traffic.

Wide-area telecommunications operations will probably continue using SONET for the time being, as it is an established technology that performs well for voice transmission. However, as IP and DWDM evolve, the ATM and SONET layers, which impose a significant amount of overhead, will eventually disappear. For example, increasing the capacity of a SONET connection requires an upgrade to every SONET device on the fiber. This is both expensive and disruptive. With DWDM, you can increase point-to-point bandwidth just by lighting up another color wavelength on the existing fiber connection. I believe that just-in-time provisioning of optical circuits using DWDM over IP will soon become the gold standard of optical networking. It will take time to evolve beyond ATM and SONET, both in terms of technology and culture, but it will happen.

Second, building optical networks to support voice traffic may help us avoid slow, painful evolutions of existing legacy data network infrastructures. We will not be ready to move voice services onto our networks until our "net tone" is as reliable as our dial tone. My cunning plan is to do it the other way around. Instead of trying to add voice traffic to legacy data networks already struggling to keep up with bandwidth requirements, why not build a discrete voice network and then gradually migrate data traffic to it? You can keep your existing voice and data services intact during the transition while you custom-build the new network from scratch without any legacy artifacts from the old data network. Once the voice services are stable, you will be able to start adding in data and video. It will not be a cheap, instantaneous process, but I believe it may be more rewarding in the long run than trying to do it the other way around.

VoIP Security

The second big issue for VoIP is security. Mention putting voice services on a data network and most network security professionals will be outraged. There are a variety of security concerns with attaching a phone switch to a network. First, there is a long list of security vulnerabilities associated with phone switches, though most of them are only threats on older key-based systems, not the newer digital PBXs (private branch exchanges). A report on PBX vulnerabilities released by the National Institute of Science and Technology in 2001 outlined a variety of maintenance, tapping and feature-related vulnerabilities.

Second, most phone switches come with modems, which might as well be made of wood and shaped like a horse as far as the network security staff is concerned. PBXs have modems to enable remote maintenance, which means the computer security officer is not likely to let you attach the PBX as long as the modem is active regardless of whether or not the switch is capable of being used as an attack platform. The best way to avoid using a modem is to do all the maintenance via IP inside the firewall, which is yet another argument for building a discrete voice network.

Third, many of the most publicized VoIP successes involve using 802.11 wireless networks. Given the perceived vulnerabilities of both wireless networks and phone switches, I cannot blame the network security community for thinking that combining the two is the network equivalent of throwing gasoline on an electrical fire. Not only has the 802.11b Wired Equivalent Privacy protocol been compromised, but so have the proprietary security protocols developed by VoIP vendors. Despite this, however, there are apparently quite a few places using VoIP over wireless network, though the people I have talked to have set up discrete wireless networks just for voice traffic. Hopefully the 802.11i secure wireless standard due out this year will address most of this. Fourth, I also have concerns about putting my voice switches on the data network primarily because anyone on the network can now try to hack the phone switch. Security is a two-way street.

Finally, as with any new thing there will be few wrinkles in how people implement it. A recent report by the United Kingdom's

National Infrastructure Security Co-Ordination Center (http://www.uniras.gov.uk/vuls/2004/006489/h323.htm) disclosed some vullnerabilities in products that support ITU H.323. While any vulnerability is theoretically fixable, this is why I recommend waiting until Version 3 (or even 3.5) before you invest in a new technology. Let someone else pay the company to fix their products; I will buy the one that finally works. For those with a serious interest in security, I recommend the Oulu University Secure Programming Group Web site at http://www.ee.oulu.fi/research/ouspg/. This is the group that developed the software used in the British group's H.323 testing.

Why Ask Why?

Now that we know what VoIP is, why would we want to use it? Traditional PBXs work just fine and provide pretty much all the same features without all the aforementioned service and security issues. Aside from being a stealth method of acquiring a new DWDM optical enterprise data network, what is the payoff for switching to VoIP? A lot of VoIP advocates propose that Internet telephony avoids the tolls charged generated from traditional telephone service. This is not really a good argument. Government long distance rates in 2003 through the General Services Administration Federal Technology Service's contract are less than 3 cents a minute. To use toll avoidance as the sole cost justification for a $100 million VoIP system, 1 million people would have to spend 3,704 hours apiece calling long distance. That comes out to 463 work days per person for 1 million people. As we are not in the telemarketing business, it does not seem likely that we will recoup much from toll avoidance, if we could even begin to provide an enterprise voice network for a million people for as little as $100 million.

A better reason might be to reduce administrative and maintenance overhead. System upgrades and reconfigurations can be expensive for traditional phone systems. Moving people from office to office or from one building to another requires rewiring and reprogramming. VoIP phones can each be identified by a unique IP address. Unplug one, move it, and plug it back into the network and it could identify itself and go right back into service with the same phone number, even if you move it from New York to California.

However, by itself this still is not enough to justify the cost of VoIP. In fact, if you already have relatively new (within six years old) digital PBXs on an installation, you will not see much, if any, benefit from switching to VoIP right now. Key-based PBXs will also hold their value for a long time. They have all the same features as VoIP systems and they are very good at the only thing they really have to be good at: They provide dial tone every time someone picks up a phone.

The people who will benefit most from VoIP are those who can make a great leap from leased services or really old, obsolete technology. If you are providing services to 5,000 people using Integrated Services Digital Network (ISDN) lines and Tone Commander telephones, you might be ready for VoIP. If your switch is so old that its label reads "Bell Telephone," you might be ready for VoIP. If your phone services are provided by leased Centrex lines and your account representative sends you a Christmas postcard from his villa in Acapulco every year, you might be ready for VoIP.

Evolution, Not Revolution

Let's say you have decided that VoIP is where you want to go, but you are not ready to completely replace your current systems. Here is a phased approach that might work for you.

1. Connect your digital PBXs via a network. In my region, we have 132 PBXs, with 21 models from nine vendors and almost as many different versions of the software as there are switches. They range in age from a few weeks to 19 years old and have all been managed locally as stand-alone systems. While this is not uncommon, it is a configuration management nightmare. My first objective is to be able to reach out and touch all our switches remotely, if only to get an audit of the hardware, software, number of phone lines, etc., associated with each switch. In this phase, the PBX is simply another dumb device attached to the network that has no rights or privileges, and it doesn't pass any traffic other than text-based data about itself back to whatever central management software is keeping track. Replace any switches that do not allow this functionality and gradually reduce your switch inventory down to no more than three models each from two vendors. Standardize the software version on each model of switch or, if possible, for each vendor's products. This gives you a foothold on the network and a chance to prove to the security officer that PBXs can play securely.

2. Remote maintenance and administration. Once you can pull information from each switch, the next step is to tinker with them from a distance. This is where you can do minor software patches or upgrades, and maybe even the adds, moves and changes that are the largest part of the day-to-day management of any PBX. This still is not VoIP, though you are getting closer at this point.

3. Local area VoIP. Your first steps into true VoIP should be on a small, local scale. Test and implement locally using a discrete voice network. However, unlike what we first did with data networking, try to make sure every VoIP implementation adheres to the same standards, equipment and protocols. That will make it much easier to assemble all the different VoIP networks into a cohesive system if you decide to expand it to the enterprise.

4. All VoIP – all the time. Enterprise-class VoIP, spread across the continent and around the world, including ships at sea — by the time this happens, I would also expect that we will no longer consider radios and telephones different communications mediums because it will not matter where you are standing or what device you are holding — they will all interoperate. Handoffs between telephone systems and command and control networks will be seamless and secure and your telephone number will follow you wherever you go.

I believe that we should design future systems on our expectations, not on current limitations. There have been too many systems deployed in the last 10 years that were obsolete when we flipped the "ON" switch. We have traditionally treated voice, video, text and data as different communications systems. I prefer to think of them as modular components of how we communicate. VoIP will eventually be a big step in that direction. Next issue we will look at mobile telephony.

Until then, Happy Networking!

Long is a retired Air Force communications officer who has written regularly for CHIPS since 1993. He holds a Master of Science degree in Information Resource Management from the Air Force Institute of Technology. He is currently serving as a Telecommunications Manager in the U.S. Department of Homeland Security.

Enterprise Software Agreements Listed Below

The **Enterprise Software Initiative (ESI)** is a Department of Defense (DoD) initiative to streamline the acquisition process and provide best-priced, standards-compliant information technology (IT). The ESI is a business discipline used to coordinate multiple IT investments and leverage the buying power of the government for commercial IT products and services. By consolidating IT requirements and negotiating Enterprise Agreements with software vendors, the DoD realizes significant Total Cost of Ownership (TCO) savings in IT acquisition and maintenance. The goal is to develop and implement a process to identify, acquire, distribute and manage IT from the enterprise level.

In September 2001, the ESI was approved as a "quick hit" initiative under the DoD Business Initiative Council (BIC). Under the BIC, the ESI will become the benchmark acquisition strategy for the licensing of commercial software and will extend a Software Asset Management Framework across the DoD. Additionally, the ESI was incorporated into the Defense Federal Acquisition Regulation Supplement (DFARS) Section 208.74 on Oct. 25, 2002, and DoD Instruction 500.2 in May 2003.

Unless otherwise stated authorized ESI users include all DoD components, and their employees including Reserve component (Guard and Reserve) and the U.S. Coast Guard mobilized or attached to DoD; other government employees assigned to and working with DoD; nonappropriated funds instrumentalities such as NAFI employees; Intelligence Community (IC) covered organizations to include all DoD INTEL System member organizations and employees, but not the CIA nor other IC employees unless they are assigned to and working with DoD organizations; DoD contractors authorized in accordance with the FAR; and authorized Foreign Military Sales.

For more information on the ESI or to obtain product information, visit the ESI Web site at **http://www.don-imit.navy.mil/esi.**

Software Categories for ESI:

Business and Modeling Tools

BPWin/ERWin

BPWin/ERWin - Provides products, upgrades and warranty for ERWin, a data modeling solution that creates and maintains databases, data warehouses and enterprise data resource models. It also provides BPWin, a modeling tool used to analyze, document and improve complex business processes.

Contractor: ***Computer Associates International, Inc.*** (DAAB15-01-A-0001)

Ordering Expires: 30 Mar 06

Collaborative Tools

Envoke Software

Envoke Software - A collaboration integration platform that provides global awareness and secure instant messaging, integration and interoperability between disparate collaboration applications in support of the DoD's Enterprise Collaboration Initiatives.

Contractor: ***Structure Wise*** (DABL01-03-A-1001)

Ordering Expires: 4 Sep 05

Click to Meet Software (CT-CTM)

Click to Meet Software - Provides software license and support for Click to Meet collaboration software (previously known as CUSeeMe and MeetingPoint), in support of the DoD's Enterprise Collaboration Initiatives. Discounts range from 6 to 11 percent off GSA Schedule prices.

Contractor: ***First Virtual Communications, Inc.*** (W91QUZ-04-A-1001)

Ordering Expires: 05 Nov 08

Database Management Tools

IBM Informix (DEAL-I/D)

IBM Informix - Provides IBM/Informix database software licenses and maintenance support at prices discounted 2 to 27 percent off GSA Schedule prices. The products included in the enterprise portion are: IBM Informix Dynamic Server Enterprise Edition (version 9), IBM Informix SQL Development, IBM Informix SQL Runtime, IBM Informix ESQL/C Development, IBM Informix ESQL/C Runtime, IBM Informix 4GL Interactive Debugger Development, IBM Informix 4GL Compiler Development, IBM Informix 4GL Compiler Runtime, IBM Informix 4GL RDS Development, IBM Informix 4GL RDS Runtime, IBM Informix Client SDK, IBM Informix Dynamic Server Enterprise Edition (version 7 and 9), and IBM Informix D.M. Gold Transaction Processing Bundle.

Contractor: ***IBM Global Services*** (DABL01-03-A-0002)

Ordering Expires: 30 Sep 04

Microsoft Products

Microsoft Database Products - See information provided under Office Systems below.

Oracle (DEAL-O)

Oracle Products - Provides Oracle database and application software licenses, support, training and consulting services. Inventory exists for Navy customers, contact Navy Project Managers below for further details.

Contractor: ***Oracle Corporation*** (DAAB15-99-A-1002)
Northrop Grumman – authorized reseller
DLT Solutions – authorized reseller
Mythics, Inc. – authorized reseller

Ordering Expires: 30 Nov 04

Special Note for Navy users:
On Nov. 28, 2003, the Department of the Navy Chief Information Office (DON CIO) executed an order for an Oracle Database Enterprise License for Ashore Navy programs and offices. This agreement provides significantly reduced pricing to programs and organizations for new products, reduced logistics costs by consolidation and management of maintenance and no escalation in maintenance costs for the next 10 years.

The Oracle Navy Shore Based Enterprise License will provide all U.S. Navy shore-based employees (including all full-time or part-time active duty, reserve or civilian U.S. Navy shore-based employees, not assigned to a ship) and U.S. Navy shore-based contractors (on-site contractors or off-site contractors accessing U.S. Navy owned or leased hardware for the purposes of supporting U.S. Navy shore-based operations) the ability to use Oracle Database Licenses without the requirement of individual programs or offices having to count users. The number of licenses required by the U.S. Navy will be managed at the DON CIO level. In accordance with the DFAR Supplement Subpart 208.74, if an inventory exists, new requirements must be purchased through the DoD Enterprise Software Initiative following the related procurement process.

We are currently in the consolidation phase of this enterprise license agreement scheduled to be effective Oct. 1, 2004. Until that date, organizations should continue to operate in accordance with their current Oracle license agreement. If an organization's scheduled renewal is prior to Sep. 30, 2004, they will receive a prorated quote for maintenance support for the remainder of FY 2004. The intent of this prorating is to have all Navy shore-based Oracle maintenance contracts begin concurrently Oct. 1, 2004. Excess funds which result from this prorating should be reserved pending further guidance.

Sybase (DEAL-S)

Sybase Products - Offers a full suite of software solutions designed to assist customers in achieving Information Liquidity. These solutions are focused on data management and integration, application integration, Anywhere integration, and vertical process integration, development and management. Specific products include but are not limited to Sybase's Enterprise Application Server, Mobile and Embedded databases, m-Business Studio, HIPAA (Health Insurance Portability and Accountability Act) and Patriot Act Compliance, PowerBuilder and a wide range of application adaptors. In addition, a Golden Disk for the Adaptive Server Enterprise (ASE) product is part of the agreement. The Enterprise portion of the BPA offers NT servers, NT seats, Unix servers, Unix seats, Linux servers and Linux seats. Software purchased under this BPA has a perpetual software license. The BPA also has exceptional pricing for other Sybase options. The savings to the government is 64 percent off GSA prices.

Contractor: ***Sybase, Inc.*** (DAAB15-99-A-1003); (800) 879-2273; (301) 896-1661

Ordering Expires: 15 Jan 08

Authorized Users: Authorized users include personnel and employees of the DoD, Reserve components (Guard and Reserve), U.S. Coast Guard when mobilized with, or attached to the DoD and nonappropriated funds instrumentalities. Also included are Intelligence Communities, including all DoD Intel Information Systems (DoDIIS) member organizations and employees. Contractors of the DoD may use this agreement to license software for performance of work on DoD projects.

Enterprise Architecture Tools

Rational Software (AVMS-R)

Rational Software - Provides IBM Rational software licenses and maintenance support for suites and point products to include IBM Rational RequisitePro, IBM Rational Rose, IBM Rational ClearCase, IBM Rational ClearQuest and IBM Rational Unified Process.

Contractor: ***immixTechnology,*** (DABL01-03-A-1006); (800) 433-5444

Ordering Expires: 25 Aug 04

Popkin (AMS-P)

Popkin Products and Services - Includes the System Architect software license for Enterprise Modeling and add-on products including the Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR) Extension, which provides specific support for the U.S. Department of Defense Architecture Framework (DoDAF), Envision XML, Doors Interface, and SA Simulator as well as license support, training and consulting services. Products vary from 3 to 15 percent off GSA pricing depending on dollar threshold ordered.

Contractor: ***Popkin Software & Systems, Inc.*** (DABL01-03-A-0001); (800) 732-5227, ext. 244

Ordering Expires: 13 Apr 0

Enterprise Management

CA Enterprise Management Software (C-EMS)

Computer Associate Unicenter Enterprise Management Software - Includes Security Management, Network Management, Event Management, Output Management, Storage Management, Performance Management, Problem Management, Software Delivery and Asset Management. In addition to these products there are many optional products, services and training available on the BPA.

Contractor: ***Computer Associates International, Inc.*** (DAAB15-99-A-0018); (800) 645-3042

Ordering Expires: 30 Mar 06

Merant Products

Merant Products - Includes PVCS Change Management Software used to manage change processes in common development environments, release procedures and practices across the enterprise. All software assets can be accessed from anywhere in the enterprise. All changes can be entered, managed and tracked across mainframes, Unix or Windows platforms. The PVCS family also includes products to speed Web site development and deployment, manage enterprise content, extend PVCS to geographically dispersed teams and integrate PVCS capabilities into custom development workbenches.

Contractor: ***Northrop Grumman*** (N00104-03-A-ZE78); (703) 312-2543

Ordering Expires: 15 Jan 06

Microsoft Premier Support Services (MPS-1)

Microsoft Premier Support Services - Provides premier support packages to small and large size organizations. The products include Technical Account Managers, Alliance Support Teams, Reactive Incidents, on-site support, Technet and MSDN subscriptions.

Contractor: ***Microsoft*** (DAAB15-02-D-1002); (960) 776-8283

Ordering Expires: 30 Jun 04

Enterprise Resource Planning

Oracle

Oracle - See information provided under Database Management Tools on the first page of contracts.

PeopleSoft

PeopleSoft - Provides software license, maintenance, training and installation and implementation technical support.

Contractor: ***PeopleSoft USA, Inc.*** (N00104-03-A-ZE89); (800) 380-SOFT (7638)

Ordering Expires: Effective for term of the GSA FSS Schedule

SAP

SAP Software - Provides software license, installation, implementation technical support, maintenance and training services.

Contractor: ***SAP Public Sector & Education, Inc.*** (N00104-02-A-ZE77); (202) 312-3640

Ordering Expires: Effective for term of the GSA FSS Schedule

Information Assurance Tools

Network Associates, Inc.

Network Associates, Inc. (NAI) - This protection encompasses the following NAI products: VirusScan, Virex for Macintosh, VirusScan Thin Client, NetShield., NetShield for NetApp, ePolicy Orchestrator, VirusScan for Wireless, GroupShield, WebShield (software only for Solaris and SMTP for NT), and McAfee Desktop Firewall for home use only.

Contractor: ***Network Associates, Inc.*** (DCA100-02-C-4046)

Ordering Expires: Nonexpiring. Download provided at no cost:

NIPRNET site: http://www.cert.mil/antivirus/antivirus_index.htm
SIPRNET site: http://www.cert.smil.mil/antivirus/antivirus_index.htm

Symantec

Symantec - This protection encompasses the following Symantec products: Symantec Client Security, Norton Antivirus for Macintosh., Symantec System Center, Symantec AntiVirus/Filtering for Domino, Symantec AntiVirus/Filtering for MS Exchange, Symantec AntiVirus Scan Engine, Symantec AntiVirus Command Line Scanner, Symantec for Personal Electronic Devices, Symantec AntiVirus for SMTP Gateway, Symantec Web Security (AV only) and support.

Contractor: ***Northrop Grumman Information Technology*** (DCA100-02-C-4049)

Ordering Expires: Nonexpiring. Download provided at no cost:

NIPRNET site: http://www.cert.mil/antivirus/antivirus_index.htm
SIPRNET site: http://www.cert.smil.mil/antivirus/antivirus_index.htm

Trend Micro

Trend Micro - This protection encompasses the following Trend Micro products: InterScan Virus Wall (NT/2000, Solaris, Linux), ScanMail for Exchange (NT, Exchange 2000), TMCM/TVCS (Management Console - TMCM W/OPP srv.), PC-Cillin for Wireless, Gold Premium support contract/year (PSP), which includes six POCs.

Contractor: ***Government Technology Solutions*** (DCA100-02-C-045)

Ordering Expires: Nonexpiring. Download provided at no cost:

NIPRNET site: http://www.cert.mil/antivirus/antivirus_index.htm
SIPRNET site: http://www.cert.smil.mil/antivirus/antivirus_index.htm

Xacta

Xacta - Provides Xacta Web Certification and Accreditation (C&A) software products and consulting support. Xacta Web C&A is the first commercially available application to automate the security C&A process. The software simplifies C&A and reduces its costs by guiding users through a step-by-step process to determine risk posture and assess system and network configuration compliance with applicable regulations, standards and industry best practices, in accordance with the DITSCAP, NIACAP, NIST or DCID processes.

Contractor: ***Telos Corporation*** (F01620-03-A-8003)); (703) 724-4555

Ordering Expires: 31 Jul 08

SecureInfo

SecureInfo - Enterprise Vulnerability Remediation (EVR) software allows IT managers the ability to automatically identify, track and correct vulnerability-related IT security material weaknesses. EVR distributes intelligence to the devices attached to the network to easily and quickly identify machines that require security fixes. With a single click of the mouse, administrators can confidently deploy patches that have been tested and approved to only the machines that need them.

Risk Management System (RMS) software offers organizations a highly automated certification and accreditation process that is customizable to meet the security requirements of enterprise networks. By utilizing extensive questionnaires, integrating specific requirements to exact standards and providing a straightforward intuitive user environment, RMS addresses the challenges experienced by C&A specialists throughout each individual phase including: security policies, test plans, security procedures, system posture and reports and management documentation.

Contractor: ***SecureInfo Corporation*** (FA8771-04-A-0301); (210) 403-5610

Ordering Expires: 19 Mar 09

Office Systems

Adobe

Adobe Products - Provides software licenses (new and upgrade) and maintenance for numerous Adobe products, including Acrobat 6.0 (Standard and Professional), Approval 5.0, Capture 3.0, Distiller 5.0, Elements 6.0, After Effects 6.0, Design Collection 7.0, Digital Video Collection 8.0, Dimensions 3.0, Frame Maker 7.0, GoLive 6.0, Illustrator 10.0, PageMaker 7.0, Photoshop 7.0 and other Adobe products.

Contractors:

ASAP (N00104-03-A-ZE88); Small Business; (800) 248-2727, ext. 5303

CDW-G (N00104-03-A-ZE90); (888) 434-6873

GTSI (N00104-03-A-ZE92); (800) 999-4874, ext. 2268

Ordering Expires: 30 Sep 05

CAC Middleware

CAC Middleware - Provides Common Access Card middleware.

Contractors:

Datakey, Inc. (N00104-02-D-Q666) IDIQ Contract for DATAKEY products; (301) 261-9150

Schlumberger (N00104-02-D-Q668) IDIQ Contract for CACTUS products; (410) 723-2428

Spyrus, Inc. (N00104-02-D-Q669) IDIQ Contract for ROSETTA products; (408) 953-0700, ext. 155

SSP-Litronic, Inc. (N00104-02-D-Q667) IDIQ Contract for NETSIGN products; (703) 905-9700

Ordering Expires: 6 Aug 05

Microsoft Products

Microsoft Products - Provides licenses and software assurance for desktop configurations, servers and other products. In addition, any Microsoft product available on the GSA Schedule can be added to the BPA.

Contractors:

ASAP (N00104-02-A-ZE78); Small Business; (800) 248-2727, ext. 5303

CDW-G (N00104-02-A-ZE85); (847) 968-9429

Hewlett-Packard (formerly Compaq) (N00104-02-A-ZE80); (800) 535-2563 pin 6246

Dell (N00104-02-A-ZE83); (800) 727-1100 ext. 37010 or (512) 723-7010

GTSI (N00104-02-A-ZE79); Small Business; (800) 999-GTSI or (703) 502-2073

Softchoice (N00104-02-A-ZE81); Small Business; (877) 333-7638 or (703) 469-3899

Softmart (N00104-02-A-ZE84); (610) 518-4000, ext. 6492 or (800) 628-9091 ext. 6928

Software House International (N00104-02-A-ZE86); Small Business Disadvantaged; (800) 477-6479 ext. 7130 or (703) 404-0484

Software Spectrum, Inc. (N00104-02-A-ZE82); (800) 862-8758 or (509) 742-2308 (OCONUS)

Ordering Expires: 26 Jun 04

Netscape Products

Netscape Products - Netscape Communicator Client and a number of the Netscape Server products for use across DoD. Available for download at no cost. Customers must choose between the commercial version and the Defense Information Infrastructure Common Operating Environment (DII COE) Segmented Versions.

Licensed software products available from Defense Information Systems Agency (DISA) are commercial versions of the software, not the segmented versions that are compliant with the DII COE standards. The segmented versions of the software are required for development and operation of applications associated with the DII COE, the Global Command and Control System (GCCS) or the Global Combat Support System (GCSS).

If your intent is to use a licensed product available for download from the DoD Download site to support development or operation of an application associated with the DII COE, GCCS or GCSS, you must contact one of the Web sites listed below to obtain the DII COE segmented version of the software. You may not use the commercial version available from the DoD Download site.

If you are not sure which version (commercial or segmented) to use, we strongly encourage you to refer to the Web sites listed below for additional information to help you to make this determination before you obtain the software from the DoD Download site.

DII COE or GCCS users: Common Operating Environment Home Page
http://disa.dtic.mil/coe

GCSS users: Global Combat Support System
http://www.disa.mil/pao/products/ccjtf.html

Contractor: ***Netscape***

Ordering Expires: Mar 05 – Download provided at no cost.

WinZip IS-1

WinZip – WinZIP file compression software includes two years of maintenance.

Contractor: ***Telos Corporation*** (DAAB15-99-D-0001-A); (703) 724-3730

Ordering Expires: 3 Sep 04 – Limited ordering for Air Force only.

Operating Systems

Novell

Novell Products - Provides master license agreement for all Novell products, including NetWare, GroupWise and ZenWorks.

Contractor: ***ASAP Software*** (N00039-98-A-9002); Small business; (800) 883-7413

Ordering Expires: 31 Mar 07

Sun (SSTEW)

SUN Support - Sun Support Total Enterprise Warranty (SSTEW) offers extended warranty, maintenance, education and Professional services for all Sun Microsystems products. The maintenance covered in thus contract includes flexible and comprehensive hardware and software support ranging from basic to mission critical services. Maintenance covered includes Sun Spectrum Platinum, Gold, Silver, Bronze, hardware only and software only support programs..

Contractor: ***Dynamic Systems*** (DCA200-02-A-5011)

Ordering Expires: Dependent on GSA Schedule (until 2011)

Section 508 Tools

Crunchy Products

Crunchy PageScreamer Software Tools - Provides services and training to assist users in complying with Section 508 of the Rehabilitation Act. Products allow users to correct deficiencies and test to Section 508 requirements to accommodate special needs of persons with disabilities.

Contractor: ***Crunchy Technologies, Inc.*** (N00104-01-A-Q446) Crunchy Professional Services and Training; Small Disadvantaged Business ; (877) 379-9185

Ordering Expires: 4 Jun 04

HiSoftware 508 Tools

HiSoftware Section 508 Web Developer Correction Tools - Includes AccRepair (StandAlone Edition), AccRepair for Microsoft FrontPage, AccVerify for Microsoft FrontPage and AccVerify Server. Also includes consulting and training support services.

Contractor: ***HiSoftware, DLT Solutions, Inc.*** (N00104-01-A-Q570); Small Business; (888) 223-7083 or (703) 773-1194

Ordering Expires: 16 Aug 04

Warranty: IAW GSA Schedule. Additional warranty and maintenance options available. Acquisition, Contracting and Technical fee included in all BLINS.

Web Links

Adobe Products
http://www.it-umbrella.navy.mil/contract/enterprise/adobe/adobe-ela.shtml

Computer Associates (BPWin/ERWin and CA Enterprise (C-EMS))
https://ascp.monmouth.army.mil/scp/contracts/compactview.jsp

Crunchy Technologies, Inc.
http://www.it-umbrella.navy.mil/contract/508/crunchy/crunchy.shtml

Datakey, Inc.
http://www.it-umbrella.navy.mil/contract/middleware-esa/datakey/index.shtml

Dynamic Systems (SSTEW)
http://www.disa.mil/acq/contracts/sstewchar.html

First Virtual Communications, Inc. (CT-CTM)
https://ascp.monmouth.army.mil/scp/contracts/compactview.jsp

Government Technology Solutions (Trend Micro)
http://www.don-imit.navy.mil/esi/

HiSoftware, DLT Solutions, Inc.
http://www.it-umbrella.navy.mil/contract/508/dlt/dlt.shtml

IBM Global Services (DEAL-I/D)
https://ascp.monmouth.army.mil/scp/contracts/compactview.jsp

immixTechnology (AVMS-R)
https://ascp.monmouth.army.mil/scp/contracts/compactview.jsp

Microsoft (Microsoft Premier Support Services (MPS-1))
https://ascp.monmouth.army.mil/scp/contracts/compactview.jsp

Microsoft Products
http://www.it-umbrella.navy.mil/contract/enterprise/microsoft/ms-ela.shtml

Netscape Products
http://dii-sw.ncr.disa.mil/Del/netlic.html

Network Associates, Inc.
http://www.don-imit.navy.mil/esi/

Northrop Grumman (Merant Products)
http://www.feddata.com/schedules/navy.merant.asp

Northrop Grumman Information Technology (Symantec)
http://www.don-imit.navy.mil/esi/

Novell Products
http://www.it-umbrella.navy.mil/contract/enterprise/novell/novell.shtml

Oracle Corporation (DEAL-O)
https://ascp.monmouth.army.mil/scp/contracts/compactview.jsp

PeopleSoft USA, Inc.
http://www.it-umbrella.navy.mil/contract/enterprise/peoplesoft/peoplesoft.shtml

Popkin Software & Systems, Inc. (AMS-P)
https://ascp.monmouth.army.mil/scp/contracts/compactview.jsp

SAP Public Sector & Education, Inc.
http://www.it-umbrella.navy.mil/contract/enterprise/sap/sap.html

Schlumberger
http://www.it-umbrella.navy.mil/contract/middleware-esa/schlumberger/index.shtml

Spyrus, Inc.
http://www.it-umbrella.navy.mil/contract/middleware-esa/spyrus/index.shtml

SSP-Litronic, Inc.
http://www.it-umbrella.navy.mil/contract/middleware-esa/litronic/index.shtml

Structure Wise (Envoke Software)
https://ascp.monmouth.army.mil/scp/contracts/compactview.jsp

Sybase, Inc. (DEAL-S)
https://ascp.monmouth.army.mil/scp/contracts/compactview.jsp

Telos Corporation (WINZIP IS-1)
https://ascp.monmouth.army.mil/scp/contracts/compactview.jsp

Telos Corporation (Xacta)
http://esi.telos.com/contract/overview/

ViViD Contracts

N68939-97-D-0040

Contractor: Avaya Incorporated

N68939-97-D-0041

Contractor: General Dynamics

ViViD provides digital switching systems, cable plant components, communications and telecommunications equipment and services required to engineer, maintain, operate and modernize base level and ships afloat information infrastructure. This includes pier side connectivity and afloat infrastructure with purchase, lease and lease-to-own options. Outsourcing is also available. Awarded to:

Avaya Incorporated (N68939-97-D-0040); (888) VIVID4U or (888) 848-4348. Avaya also provides local access and local usage services.

General Dynamics (N68939-97-D-0041); (888) 483-8831

Modifications

Latest contract modifications are available at **http://www.it-umbrella.navy.mil**

Ordering Information

Ordering Expires:
26 Jul 05 for all CLINs/SCLINs
26 Jul 07 for Support Services and Spare Parts

Authorized users: DoD and U.S. Coast Guard

Warranty: Four years after government acceptance. Exceptions are original equipment manufacturer (OEM) warranties on catalog items.

Acquisition, Contracting & Technical Fee: Included in all CLINs/SCLINs

Direct Ordering to Contractor

SSC Charleston Order Processing: **(como@mailbuoy.norfolk.navy.mil)**

Web Link

http://www.it-umbrella.navy.mil/contract/vivid/vivid.shtml

TAC Solutions BPAs

Listed Below

TAC Solutions provides PCs, notebooks, workstations, servers, networking equipment, and all related equipment and services necessary to provide a completely integrated solution. BPAs have been awarded to the following:

Hewlett-Packard (formerly Compaq) (N68939-96-A-0005); (800) 727-5472, ext. 15515

Control Concepts (N68939-97-A-0001); (800) 922-9259

Dell (N68939-97-A-0011); (800) 727-1100, ext. 61973

GTSI (N68939-96-A-0006); (800) 999-4874, ext. 2104

Hewlett-Packard (N68939-97-A-0006); (800) 352-3276, ext. 8288

Sun (N68939-97-A-0005); (800) 786-0404

Ordering Expires:
Hewlett-Packard (formerly Compaq Federal): 8 Oct 05 (includes two one-year options)
Control Concepts: 03 May 04 (Call for extension date)
Dell: 31 Mar 05 (includes two one-year options)
GTSI: 01 Apr 05 (includes two one-year options)
Hewlett-Packard: 28 Oct 05 (includes two one-year options)
Sun: 22 Aug 04

Authorized Users: DON, U.S. Coast Guard, DoD and other federal agencies with prior approval.

Warranty: IAW GSA Schedule. Additional warranty options available.

Web Links

Control Concepts
http://www.it-umbrella.navy.mil/contract/tac-solutions/cc/cc.shtml

Dell
http://www.it-umbrella.navy.mil/contract/tac-solutions/dell/dell.shtml

GTSI
http://www.it-umbrella.navy.mil/contract/tac-solutions/gtsi/gtsi.shtml

Hewlett-Packard (formerly Compaq)
http://www.it-umbrella.navy.mil/contract/tac-solutions/compaq/compaq.shtml

Hewlett-Packard
http://www.it-umbrella.navy.mil/contract/tac-solutions/hp/hp.shtml

Sun
http://www.it-umbrella.navy.mil/contract/tac-solutions/sun/sun.shtml

Department of the Navy Enterprise Solutions BPA

Navy Contract: N68939-97-A-0008

The Department of the Navy Enterprise Solutions (DON ES) BPA provides a wide range of technical services, specially structured to meet tactical requirements, including worldwide logistical support, integration and engineering services (including rugged solutions), hardware, software and network communications solutions. DON ES has one BPA.

Computer Sciences Corporation (CSC) (N68939-97-A-0008); (619) 225-2412; Awarded 07 May 97; Ordering expires 31 Mar 06, with two one year options

Authorized Users: All DoD, federal agencies and U.S. Coast Guard.

Web Link

http://www.it-umbrella.navy.mil/contract/don-es/csc.shtml

Information Technology Support Services BPAs

Listed Below

The Information Technology Support Services (ITSS) BPAs provide a wide range of IT support services such as networks, Web development, communications, training, systems engineering, integration, consultant services, programming, analysis and planning. ITSS has four BPAs. They have been awarded to:

Lockheed Martin (N68939-97-A-0017); (240) 725-5950; Awarded 01 Jul 97; Ordering expires 30 Jun 05, with two one-year options

Northrop Grumman Information Technology (N68939-97-A-0018); (703) 413-1084; Awarded 01 Jul 97; Ordering expires 11 Feb 05, with two one-year options

SAIC (N68939-97-A-0020); (703) 676-2388; Awarded 01 Jul 97; Ordering expires 30 Jun 05, with two one-year options

TDS (Small Business) (N00039-98-A-3008); (619) 224-1100; Awarded 15 Jul 98; Ordering expires 14 Jul 05, with two one-year options

Authorized Users: All DoD, federal agencies and U.S. Coast Guard

Web Links

Lockheed Martin
http://www.it-umbrella.navy.mil/contract/itss/lockheed/itss-lockheed.shtml

Northrop Grumman IT
http://www.it-umbrella.navy.mil/contract/itss/northrop/itss-northrop.shtml

SAIC
http://www.it-umbrella.navy.mil/contract/itss/saic/itss-saic.shtml

TDS
http://www.it-umbrella.navy.mil/contract/itss/tds/itss-tds.shtml

Research and Advisory BPAs
Listed Below

Research and Advisory Services BPAs provide unlimited access to telephone inquiry support, access to research via Web sites and analyst support for the number of users registered. In addition, the services provide independent advice on tactical and strategic IT decisions. Advisory services provide expert advice on a broad range of technical topics and specifically focus on industry and market trends. BPAs listed below.

Gartner Group (N00104-03-A-ZE77); (703) 226-4815; Awarded Nov 02; one-year base period with three one-year options.

Acquisition Solutions (N00104-00-A-Q150); (703) 378-3226; Awarded 14 Jan 00; one-year base period with three one-year options.

Ordering Expires:
Gartner Group: Nov 06
Acquisition Solutions: 30 Apr 04

Authorized Users:
Gartner Group: This Navy BPA is open for ordering by all DoD components and their employees, including Reserve Components (Guard and Reserve); the U.S. Coast Guard; other government employees assigned to and working with DoD; nonappropriated funds instrumentalities of the DoD; DoD contractors authorized in accordance with the FAR and authorized Foreign Military Sales (FMS).

Acquisition Solutions: All DoD. For purposes of this agreement, DoD is defined as: all DoD Components and their employees, including Reserve Component (Guard and Reserve) and the U.S. Coast Guard mobilized or attached to DoD; other government employees assigned to and working with DoD; nonappropriated funds instrumentalities such as NAFI employees; Intelligence Community (IC) covered organizations to include all DoD Intel System member organizations and employees, but not the CIA nor other IC employees unless they are assigned to and working with DoD organizations; DoD contractors authorized in accordance with the FAR; and authorized Foreign Military Sales.

Web Links

Gartner Group
http://www.it-umbrella.navy.mil/contract/r&a/gartner/gartner.html

Acquisition Solutions
http://www.it-umbrella.navy.mil/contract/r&a/acq-sol/acq-sol.html

The U.S. Army Maxi-Mini and Database (MMAD) Program
Listed Below

The MMAD Program is supported by two fully competed Indefinite Delivery Indefinite Quantity (IDIQ) contracts with IBM Global Services and GTSI Corporation. The Program is designed to fulfill high and medium level IT product and service requirements of DoD and other federal users by providing items to establish, modernize, upgrade, refresh and consolidate system environments.

	IBM Global Services	GTSI
Servers (64-bit & Itanium)	IBM, HP, Sun	Compaq, HP
Workstations	HP, Sun	Compaq, HP
Storage Systems	IBM, Sun, EMC, McData, System Upgrade, Network Appliances	HP, Compaq, EMC, RMSI, Dot Hill, Network Appliances
Networking	Cisco	Cisco, 3COM, HP, Enterasys, Foundry, Segovia

Products and manufacturers include:
Ancillaries include network hardware items, upgrades, peripherals and software.

Services include consultants, managers, analysts, engineers, programmers, administrators and trainers.

MMAD is designed to ensure the latest products and services are available in a flexible manner to meet the various requirements identified by DoD and other agencies. This flexibility includes special solution CLINs, technology insertion provisions, ODC (Other Direct Cost) provisions for ordering related non-contract items, and no dollar/ratio limitation for ordering services and hardware.

Latest product additions include Fortress Technologies, HP Overview, Remedy Websphere and DB2 Tools.

Awarded to:

GTSI Corporation (DAAB07-00-D-H251); (800) 999-GTSI

IBM Global Services-Federal (DAAB07-00-D-H252); CONUS: (866) IBM-MMAD (1-866-426-6623) OCONUS: (703) 724-3660 (Collect)

Ordering Information

Ordering: Decentralized. Any federal contracting officer may issue delivery orders directly to the contractor.

Ordering Expires:
GTSI: 25 May 06 (includes three option periods)
IBM: 19 Feb 06 (includes three option periods)

Authorized Users: DoD and other federal agencies including FMS

Warranty: 5 years or OEM options

Delivery: 35 days from date of order (50 days during surge period, August and September)

No separate acquisition, contracting and technical fees.

Web Link

GTSI and IBM:
https://ascp.monmouth.army.mil/scp/contracts/compactview.jsp

Antivirus Web Links

Antivirus software available for no cost download includes McAfee, Symantec and Trend Micro Products. These products can be downloaded by linking to either of the following Web sites:

NIPRNET site: http://www.cert.mil/antivirus/antivirus_index.htm
SIPRNET site: http://www.cert.smil.mil/antivirus/antivirus_index.htm

Expanded contracts section with DII COE, GCCS and GCSS compliant software and much more!

DON IT Umbrella Program Info Alert

Reminder! Antivirus software that provides multi-layered protection at the desktop, server, gateway and network levels is available for download at no charge to your organization. Antivirus software available for download includes McAfee, Symantec and Trend Micro products. DoD users with a .mil address, i.e., all Combatant Commands, Services, agencies and military academies; personnel within joint, NATO and coalition forces; contractors authorized to use government-furnished equipment; and the Coast Guard are authorized to download and use this software.

Products are available for home computers, home and office firewalls and wireless or Personal Digital Assistants. By expanding products to home use, the DoD is acknowledging that safeguarding computers at home is as important as safeguarding computers in the workplace. These products can be downloaded by linking to either of the following Web sites.

NIPRNET Site: http://www.cert.mil/antivirus/antivirus_index.htm

SIPRNET Site: http://www.cert.smil.mil/antivirus/antivirus_index.htm

www.it-umbrella.navy.mil

DEPARTMENT OF THE NAVY
COMMANDING OFFICER
SPAWARSYSCEN CHARLESTON
CHIPS MAGAZINE
9456 FOURTH AVE
NORFOLK VA 23511-2130
OFFICIAL BUSINESS

PERIODICAL
POSTAGE AND FEES PAID
SSC CHARLESTON
CHIPS MAGAZINE
USPS 757-910
ISSN 1047-9988