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Global Information Grid

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Commander,
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Cover by Staff Sgt. Bill King, AFMC/IG

Lt. Gen. Donahue retires, Lt. Gen. Woodward to become new SC

WASHINGTON, D.C. — Lt. Gen. William J. Donahue, Air Force director of Communications and Information, commander of the Air Force Communications and Information Center, and deputy Air Force Chief Information Officer, announced his retirement after 34 years of service. His retirement is effective May 1.

During his tenure, General Donahue successfully instituted an Air Force-wide initiative called “Operationalizing and Professionalizing the Network.” This initiative ensures everyone treat communication and information networks as the weapon systems they have become. He also led the Air Force successfully through the largest information assurance challenge we have ever faced—the Year 2000 rollover.

General Donahue succeeded Lt. Gen. John Fairfield in December 1996 as Air Force SC.

General Donahue’s successor, pending Senate confirmation, is Lt. Gen. John L. “Jack” Woodward Jr., the director of the Command, Control, Communications and Computer Systems directorate, J6, Joint Staff.

General Woodward entered the Air Force in 1968 and has served in key line, staff, and command positions in the command, control, communications and computer systems arena. He has commanded two communications units and a major command headquarters



Lt. Gen. William Donahue



Lt. Gen. John L. “Jack” Woodward Jr.

squadron, and was director for communications and information at Headquarters Air Combat Command and Headquarters Air Mobility Command.

The general has wide experience in space operations, air mobility operations, acquisition program management, tactical warning and attack assessment, as well as tours in five major commands and a Pentagon tour on the Program Review Committee, C4 Resource Allocation and Joint Matters.

Before assuming his current position, he was director of command control systems, Headquarters North American Aerospace Defense Command and U.S. Space Command, and director of Communications and Information, Headquarters Air Force Space Command.

Lt. Gen. Woodward’s career -- At a glance

Aug 68 - Jun 69, student, Basic Communications Technical School, Keesler AFB, Miss.

Jun 69 - Sep 70, telephone maintenance officer, 2045th Comm Group, Andrews AFB, Md.

Sep 70 - Dec 71, computer operations branch chief, Northern Communications Area, Griffiss AFB, N.Y.

Dec 71 - Dec 73, chief of maintenance, 2128th Comm Sq, Tainan, Taiwan

Jan 74 - Apr 74, student, SOS, Maxwell AFB, Ala.

Apr 74 - Dec 77, program manager, Deputy Chief of Staff for Engineering and Programs, HQ AFCC, Richards-Gebaur AFB, Mo.

Dec 77 - Jun 78, commander, 1801st HQ Squadron, Richards-Gebaur AFB

Jun 78 - Jan 81, commander, 1881st Comm Sq, Hill AFB, Utah

Jan 81 - Jul 81, student, Armed Forces Staff College, Norfolk, Va.

Jul 81 - Jun 83, deputy director, Ballistic Missile Integrated Advanced Warning and Attack Assessment System Architecture, Systems Integration Office, Air Force Space Command, Colorado Springs, Colo.

Jun 83 - Aug 85, director, Space Communications Satellite Systems, Space Communications Division, Colorado Springs, Colo. (Aug 84-Dec 84, director, ELF ONE C4 systems, Saudi Arabia)

Aug 85-Jul 86, student, AWC, Maxwell AFB, Ala.

Jul 86 - Jul 89, deputy commander, later, commander, 1961st Comm Gp, Clark AB, Philippines

Jul 89 - Apr 90, deputy director, Programs and Air Force Board Matters, Assistant Chief of Staff for C-4, HQ USAF, the Pentagon, Washington, D.C.

Apr 90 - Jul 91, director, Joint Matters, Personnel and Future Concepts, Office of the Assistant Chief of Staff for Command, Control, Communications and Computer Systems, HQ USAF, the Pentagon, Washington, D.C.

Jul 91 - Jul 92, Assistant Deputy Chief of Staff for C4 Systems, HQ AMC, Scott AFB, Ill.

Jul 92 - Aug 94, Director C4 Systems, HQ AMC, Scott AFB.

Aug 94 - May 96, director of Communications-Computer Systems, HQ ACC, Langley AFB, Va.

Jun 96 - Dec 96, director of Communications and Information, HQ ACC, Langley AFB

Dec 96 - Oct 98, director of Command Control Systems, HQ North American Aerospace Defense Command and U.S. Space Command, and director of Communications and Information, HQ Air Force Space Command, Peterson AFB, Colo.

Oct 98- present, director, C4 Systems Directorate (J-6), the Joint Staff, the Pentagon, Washington, D.C.

Global Information Grid ... an enabling foundation of JV 2010

By Lt. Gen.
John L. "Jack"
Woodward Jr.

Director of the Command,
Control, Communications
and Computer Systems
Directorate, the Joint Staff



Lt. Gen. Woodward

On a potential future battlefield, a U.S. Joint STARS aircraft detects a column of vehicles nearing a sector patrolled by a German reconnaissance company, one of our Coalition Partners, and injects the positional data of the column into the Common Operational Picture. The Combined Joint Forces Air Component Commander and the Combined Ground Component Commander and the Commander of the Joint Task Force all see this information simultaneously.

The CGCC, using the secret Coalition Wide Area Network, directs an orbiting, U.S.-controlled Unmanned

Aerial Vehicle to reconnoiter the area and identify the vehicles as friend, foe or neutral. The resulting real time, satellite-relayed video stream is analyzed at Allied intelligence centers on different continents and the vehicles are identified as hostile. The centers quickly coordinate and build an analysis and targeting package with a common collaborative planning tool and forward this information to the Commander of the Joint Task Force and his coalition component commanders.

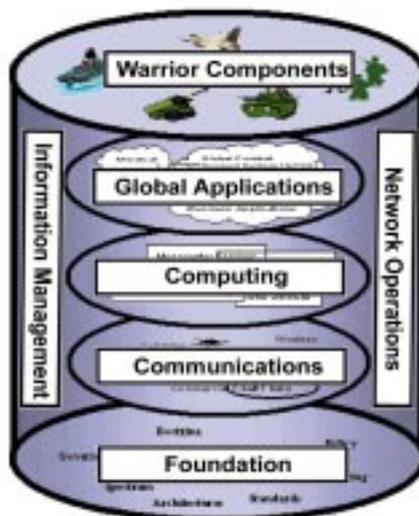
After studying the information, the CJFACC directs an air strike against the enemy vehicles. A rapid review of real-time status of aircraft in the area reveals the best course of action is to direct an orbiting 4-ship cell of Joint Strike Fighters to engage the target. In addition, a carrier-based EA-6B is directed to provide Electronic Warfare support. The pilots consult their onboard common tactical picture enroute to the target to verify the German team's position and receive the latest targeting information. Following the air attack by laser-guided precision weapons, satellite systems re-

See **GIG** next page



Global Information Grid

- * A single secure Grid providing seamless end-to-end capabilities to all warfighting, national security, and support users
- * Supporting DOD and IC requirements from peacetime business support through all levels of conflict
- * Joint, high capacity netted operations
- * Fused with weapons systems
- * Supporting strategic, operational, tactical, and base/post/camp/station
- * "Plug and Play" interoperability
 - Guaranteed for US and Allied
 - Connectivity for Coalition users
- * Tactical and functional fusion a reality
- * Information/Bandwidth on demand
- * Defense in Depth against all threats

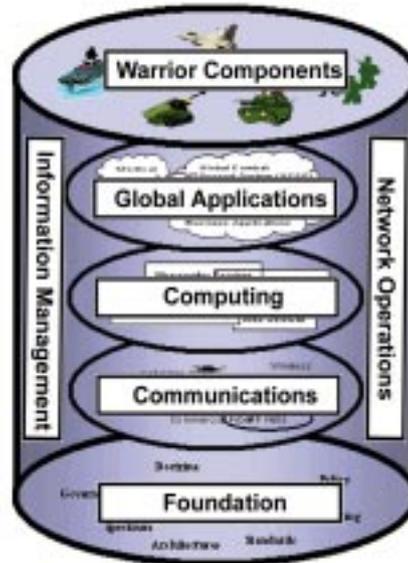


Protected, Assured, Interoperable "Communications"



GIG Components

- * Warrior
 - Networked planes, ships, vehicles, missiles, ground troops, platforms
- * Global Applications
 - Mission/functional automated info systems
- * Communications
 - Bandwidth on demand
- * Computing
 - Common user processing services
- * Network Operations
 - Network Management, Info Dissemination Management, Information Assurance
- * Information Management
 - Information on demand
 - Life cycle management
- * Foundation (Processes)
 - Doctrine, Architecture, Standards, Policies, Organization, Resourcing, Training, Testing, Governance



GIG

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lay the real-time strike information from the UAV to the CJFACC, the CGCC, and CJTF commander. Immediately after the strike, the UAV collects and transmits battle damage assessment information to the analysts to determine if a re-attack is required.

As this scenario unfolds, operators and analysts are monitoring and assessing the military resources necessary to conduct the operations such as strike and support aircraft, fuel states, weapons loading, system status, and proximity of friendly forces and prohibited targets. The CJTF's C4 coordination center monitors bandwidth requirements to support real-time voice, data, and video streams necessary to coordinate this coalition operation. They are ensuring the networks are properly configured, enough bandwidth is allocated, and the C4 systems are immune to hostile cyber attacks. Operators are alert to jamming and are poised to respond as necessary to ensure uninterrupted radio spectrum availability.

Joint Vision 2010 is our roadmap to the future and one of the foundations of that roadmap is Information Superiority. The Chairman of the Joint Chiefs told Congress: "An important aspect of future operations will be the development of a Global Information Grid, or GIG, to provide the network-centric environment required to

achieve information superiority. The GIG is the globally interconnected, end-to-end set of information capabilities, associated processes, and personnel to manage and provide information on demand to warfighters, policy makers, and supporting personnel. It will enhance combat power through greatly increased battlespace awareness, improved ability to employ weapons beyond line-of-sight, employment of massed effects instead of massed forces, and reduced decision cycles. It will contribute to the success of non-combat military operations as well."

JFCOM has the lead to develop a Capstone Requirements Document for the GIG. This is the first time a single, overarching document will provide a definitive architectural framework describing the interrelationships of the seven key components mentioned below. This provides opportunities for a comprehensive view of the entire "network" for analysis, resource options, technical solution alternatives, interoperability compliance, network level configuration management, and additional decision processes. This GIG vision is the first time the DOD can view the C4 arena as tied to all mission areas and manage this vast capability whether globally, tactically, or operationally.

The Global Information Grid concept moves us beyond the current Defense Information Infrastructure.

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It envisions a networked capability from sensor to decision-maker to shooter allowing us to achieve information superiority, a vital enabling foundation of Joint Vision 2010.

The GIG is divided into seven key components:

- * Warrior
- * Global Applications
- * Communications
- * Computing
- * Information Management
- * Network Operations
- * Foundation components

At the heart of the GIG is the Warrior Component, connecting warfighters to the network, to receive, share, and act on information. These are the pieces that translate data into usable information for the weapon system or warrior, such as Unmanned Combat Aerial Vehicles and Tactical Data Link Terminals.

The Global Applications Component supports all mission areas—Command and Control, Intelligence, Weather, Personnel, Medical, Logistics, etc. – and includes such initiatives as Theater Battle Management Core Systems, Global Combat Support System, Global Command and Control System, and Joint Operations Planning and Execution System 2000.

The Communications Component of the GIG provides common-user information transport and processing services to all DOD users. It is the transport mechanism and includes initiatives such as Teleport, MILSATCOM, Global Fiber, and the Joint Tactical Radio System.

The Computing Component consists of hardware, software, capabilities, and processes. It includes megacenter services, shared data warehouses for storage and access, electronic mail delivery, web services, and collaboration services to share information and ideas.

The Foundation Component provides a host of efforts essential to building, operating, and maintaining the GIG — everything from policy and governance to architecture, standards, resourcing, people skills and more.

Two components that are integral to all the other components and enable the GIG to efficiently and economically operate are Information Management and

Network Operations Components. Information Management seeks to deliver the right information, at the right place, at the right time to Warfighters at the right level. This capability increases the speed of information delivery and allows the decision-makers to find the data when they need it. Finally, Network Operations provides overall network management, Information Dissemination Management, and Information Assurance to ensure information is not lost, tampered with, or accessed by unauthorized systems or people.

Each Combined Joint Task Force mission is unique. Based upon the situation and theater, it may incorporate a wide variety of interagency, Allied, and Coalition elements and must meet any assigned mission, from peacekeeping, homeland defense, humanitarian efforts, and drug enforcement task forces through total warfare. The Global Information Grid must support all phases and levels of planning, integration and execution including day-to-day logistics, contracting, pay, and health, just to name a few.

The Air Force is well on its way to making the GIG a reality. Superb efforts in Operationalizing and Professionalizing Networks, the work put into the Air Force Capstone Requirements

Document for the Air Force Global Grid, and the active involvement with JFCOM in developing the overarching GIG Capstone Requirements Document are laying these foundations. And as the Expeditionary Aerospace Force concept matures, it will rely more and more on the GIG to train and operate efficiently.

Like any of today's information technology areas, the Global Information Grid will continue to evolve with an eye toward seeking out new innovations that can be acquired and integrated into the GIG. By co-evolving these new technological opportunities with changes in military doctrine and organization, our future warfighters will continue to maintain their leading edge in combat effectiveness. The Global Information Grid is a weapon system and delivers enhanced combat power through assured, protected information delivery and efficient/effective information services.

Take the time to learn more about this vision by reading JV2010, CJCSI 6510, Joint Pub 3-13, Information Assurance through Defense-in-Depth Joint Staff Brochure, and the soon to be published GIG Capstone Requirements Document. Please contact Joint Staff, J6Q and visit the Joint Staff J6 SIPRNET Homepage at <http://199.114.114.220> for the latest information on the GIG.

... as the Expeditionary Aerospace Force concept matures, it will rely more and more on the GIG to train and operate efficiently.

Global Grid-AF assures transport of protected information

By 1st Lt. Javier Ibarra
Air Force Communications Agency

SCOTT AIR FORCE BASE, Ill. – Joint Vision 2010 and Air Force Global Engagement identify information superiority as a key factor of our operations of today and into the future. Information superiority is the ability to collect, control, exploit, and defend information while denying an adversary the ability to do the same. Achieving information superiority is key to winning future battles.

A major part of the solution to achieving information superiority is a robust grid of interoperable networks covering the globe. This grid provides the warfighter with high-speed voice, video, and data when and where they need it. This grid concept is the Global Information Grid.

GIG is a DOD level construct. A GIG Capstone Requirements Document is under development by the Joint Forces Command. Its purpose is to ensure interconnectivity and interoperability on a DOD and Intelligence Community level by providing guidance on the development of service specific ORDs. Figure 1 is a representation of the GIG. The GIG CRD website is at <http://www.jfcom.mil/gigcrd.nsf>

The Air Force's portion of the GIG, the GG-AF, assures transport of protected information. GG-AF links fixed AF bases to airborne and deployed forces worldwide and supports air operations, command and control, intelligence, and military operations other than war. AFCA is developing the GG-AF Operational Requirements Documents. The GG-AF is broken down into a four-part construct: Outside the Gate, Inside the Gate, Last 400 Feet, and Information Appliances as shown in Figure 2.

Outside the Gate is best defined as the Wide Area Network concept. It encompasses all communications equipment external to a base's internal infrastructure or Service Delivery Point. The components can be fixed

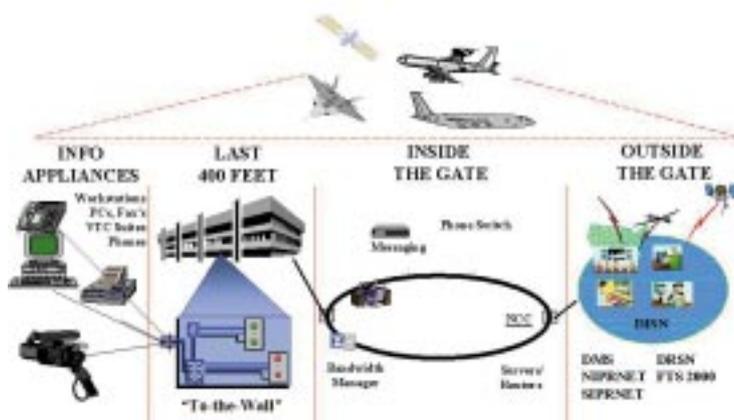


Figure 2. 4-part construct

or deployed, terrestrial or space based. OTG provides connectivity to all domains of electronic information transfer, both military and non-military, CONUS and OCONUS. OTG links AF warfighters and weapon systems across the globe.

The "Inside the Gate" portion comprises all the infrastructure that provides the connection from the base service delivery point to the installation's core, or mission support buildings. It is the transport mechanism to provide voice, video, or data to all functional users on a base or deployed site. Inside the Gate also serves as the focal point for Local Area Network, Metropolitan Area Network, WAN interface, Information Protection, Network Management, Personal Wireless Communications Systems, multimedia, and future infrastructure requirements.

The Last 400 Feet is the intra-building communications network systems. It is the critical local link from the building entry point to the desktop. The Last 400 Feet links computer systems and personnel within a weapons system or deployed site. Any com-



Figure 1. DOD Global Information Grid Systems Reference

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Photo by Tech. Sgt. Michael Leonard

Ken Becker gives a briefing on the Global Information Grid in a seminar at AFCA.

Air Force professionals are “GIGged” at AFCA seminars

By Chief Master Sgt.
Chuck King
and Ken Becker

Air Force Communications Agency

SCOTT AIR FORCE BASE, Ill. — Air Force professionals are being ‘GIGged’ at Air Force Communications Agency seminars. No, AFCA is not handing out military demerits at their seminars. They are however, getting the word out on the Global Information Grid, or GIG to all the communications and information professionals attending their Information Management, Planning and Implementation Management, and Network Management seminars. Based on student feedback, the sessions on the GIG have been extremely informative, exceeding expectations.

The seminar staff added the GIG briefing to the curriculum to ensure communication and information leaders are exposed to the different facets of the Global Informa-

tion Grid architecture. They are introduced to the big picture of global interconnectivity and how the different architectural layers contribute to a cohesive, interoperable, and sustainable warfighting capability.

The sessions focus on defining the concepts, relating the key DOD elements to their Air Force counterparts, and how the GIG can and will impact the real AF comm and info world. Students leave with a clear understanding that the GIG is all-inclusive, from the information source to the information receiver.

“I step the class through the concept from top to bottom. My objective is to have each person understand that the GIG is a mission enabler. Each Air Force core mission depends on the flow of information to the right place at the right time to the right person. It is our job as C&I professionals to ensure this happens at the least cost of ownership,” said Ken Becker, the facilitator for the GIG sessions.

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munication system within an in-garrison building or deployed tent that provides voice, video, or data is part of the Last 400 Feet.

The final portion, Information Appliances, is the end-user domain. It encompasses any utility enabling AF warriors to collect, process, and distribute voice, video, or data to all AF and DOD locations: fixed, deployed, or airborne. Examples are workstations, shared devices and peripherals, office automation software, and telecommunications systems that provide an information interface to the end-user. Standardization of Information Appliances allows for improved interoperability and better cost of ownership through procurement, sustainment, and training. It is the first and last piece of the GG infrastructure, providing vital information to warfighters in the various information media available. The draft ORDs can be viewed at <http://www.afca.scott.af.mil/ia/>

GG-AF is a high capacity, protected, global communications infrastructure that transports the information the warfighters need, when they want it, where they need it.

The next time you send voice, video, data, multimedia, or sensor information to a warfighter anywhere in the world in a secure and timely fashion, it is due to the implementation of the GG-AF. GG-AF gives the ability for a faster decision cycle, more precision, and less of a forward “footprint.” The end result is a greater synergy, range, and lethality. In our world of shrinking defense budgets, GG-AF allows us to meet Air Force and DOD needs.

Global Information Grid and the Air Force Network Test Center

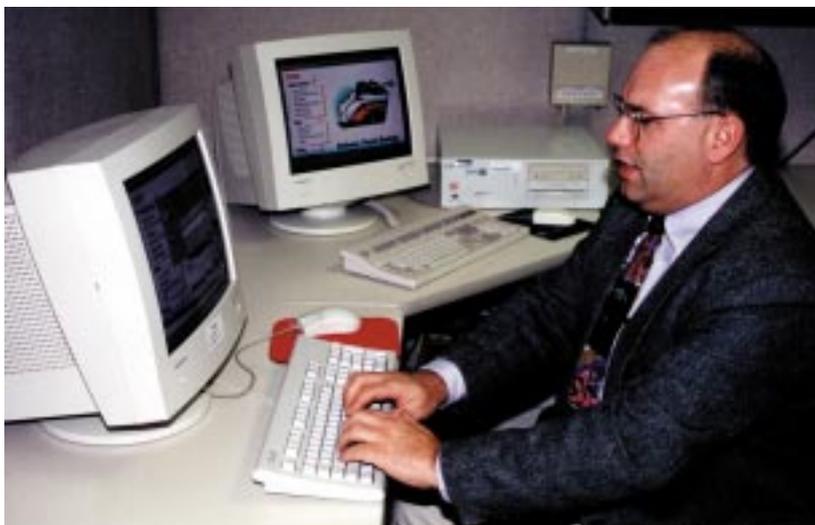
By Joseph K. Tsai

Air Force Communications Agency

SCOTT AIR FORCE BASE, III. — The Global Information Grid lays the groundwork for the communications and computer systems within the Air Force. Computer networks comprise a major portion of the Global Information Grid and commanders rely on the smooth operation of these networks to make critical decisions. Any breakdown within the system poses a serious problem, especially during contingencies.

Adding new systems (hardware and/or software), network components, or communications equipment to an operational network poses a risk to that network. The risk ranges from inconsequential to catastrophic disruption of network operations. The Air Force Network Test Center will test products and systems before they are implemented on Air Force networks to reduce these risks.

“The Air Force needs this unique tool to assess and manage risks associated with fielding new network components and information systems,” said Lt. Gen. William Donahue, Air Force director of communications and information at the opening ceremony for the Air Force Network Test Center. “The impact that new equipment will have on network operations can be measured in a



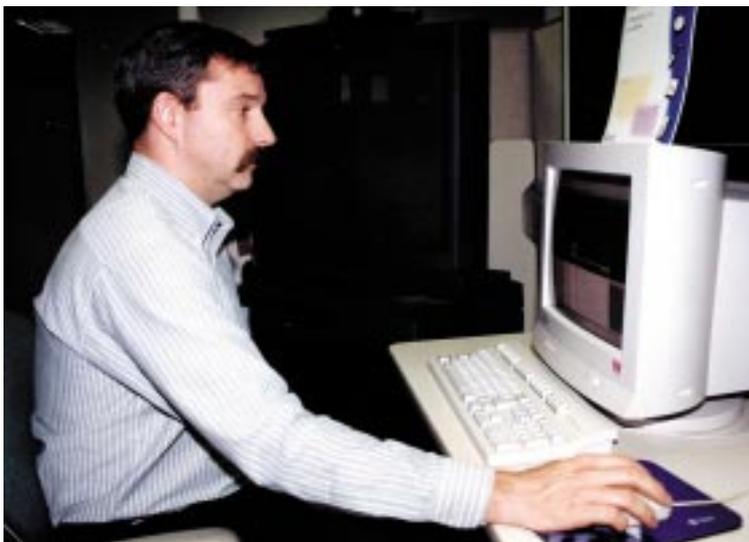
Photos by Master Sgt. Ed Ferguson

Raino Trifonoff tests client software for the Defense Travel System.

realistic network environment before it is fielded.”

The Air Force Network Test Center consists of a physical infrastructure and the people who manage, operate and perform tests with that infrastructure. The Center’s physical infrastructure is located in the Air Force Communications Agency Technology Interoperability Facility. People assigned to the Technology directorate will operate and maintain this infrastructure, as well as manage and perform tests within the Center.

The primary mission of the Center is to accomplish network risk assessment testing in support of AFCA’s overall “networkiness” certification recommendations. The term networkiness is used to describe the suitability of a system (hardware or software) to be implemented, operated, and maintained in a specified environment. A networky system will not degrade the environment beyond specified limits or introduce unacceptable security risks. The criteria for determining networkiness include compatibility with the Air Force’s network infrastructure; compliance with architectural standards; logistic support; user training requirements; and network specific parameters. Networkiness is defined in the Command, Control, Communications, Computers, and Intelligence Support Plan Prepara-



Tim Maas uses Net X-Ray protocol analyzer software to monitor network traffic.

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Architectures lay foundation for GIG

By **Thao McLeland**

Air Force

Communications Agency

SCOTT AIR FORCE BASE, Ill. — New technology is coming into the market more quickly than most people, systems, and organizations can adapt. With this rapidly changing technology, system developers and maintainers are struggling to keep up with the need for a trouble-free system. The customers, whether it's commercial or government, all ask for the same thing -- a seamless, flawless, integratable world. The Department of Defense has developed a concept, the Global Information Grid, to help manage information technology, services, and processes.

DOD's vision for the GIG is "a single, integrated communication and information infrastructure providing warfighters worldwide with the right information at the right time." It's defined as:

"The globally interconnected, end-to-end set of information capabilities, associated processes and personnel for collecting, processing, storing, disseminating and managing information on demand to warfighters, policy makers, and support personnel. The GIG includes all owned and leased communications and computing systems and services, software (including applications), data, security services and other associated services necessary to achieve Information Superiority. It also includes National Security Systems as defined in section 5142 of the Clinger-Cohen Act of 1996. The GIG supports all DOD, National Security, and related Intelligence Community missions and functions (strategic, operational, tactical and business), in war and in peace. The GIG provides capabilities from all operating locations (bases, posts, camps, stations, facilities, mobile platforms and deployed sites). The GIG provides interfaces to coalition, allied, and non-DOD users and systems."

So what does this all really mean? Simply that we are steering ourselves to an environment where space, air, and land components integrate into one seamless

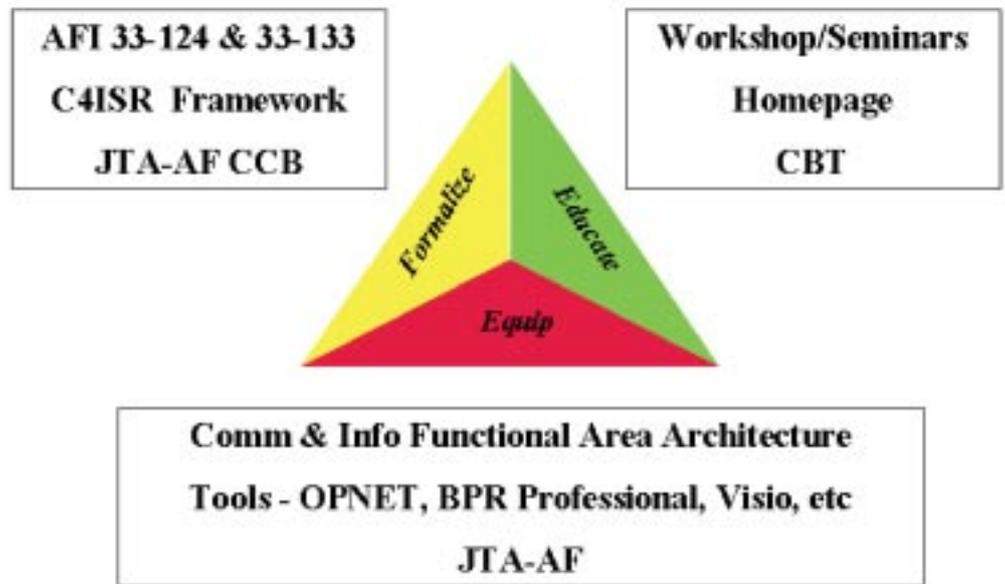
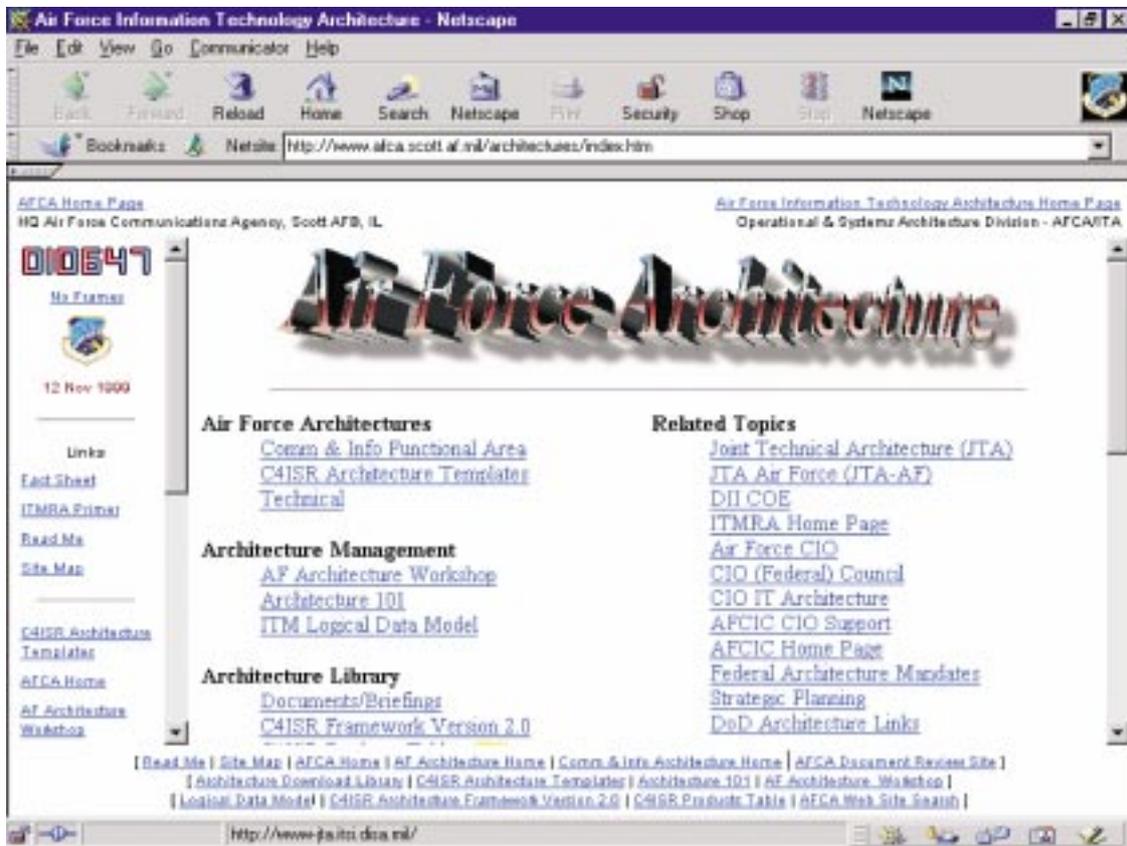


Figure 1. AFCA Architectures Mission

warfighting network. To accomplish this goal we must build toward a common operating environment, data elements and communications protocol. To help us get to this "common ground" the GIG embraces architectures as a foundation activity. Developing architecture ensures the development and migration of systems towards the GIG concept.

The Clinger-Cohen Act of 1996, also known as the Information Technology Management Reform Act, is the doctrine that mandates architecture development. The Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance Architecture Framework, version 2.0, Dec. 18, 1997, provides the rules, guidance, and product descriptions for developing and presenting architectures that ensure a common denominator for understanding, comparing, and integrating architectures. The intent of the Framework is to ensure that the architectures developed by the geographic and functional unified commands, military services, and defense agencies are integratable between and among the organizations' operational, systems and technical architecture views, and are comparable and integratable across Joint and multi-national organizational boundaries.

The Air Force Communications Agency serves as the chief architect for the Air Force Communications and Information Center. AFCA is charged with for-



malizing the architecture process, educating and equipping AF architects in the development of DOD compliant architectures, and the development and sustainment of the Air Force Technical Architecture. Figure 1 shows some of the products and services AFCA provides.

Air Force Instruction 33-124, Enterprise Information Technology Architectures, states that essential products from the Framework must be developed for all Air Force Tasks (AFT). In addition to the DOD essential products, AFI 33-124 mandates the development of an Activity Model (OV-5) and Logical Data Model (OV-7). AFI 33-124 also identifies roles and responsibilities for the development of architectures throughout the Air Force.

The Air Force Communications and Information Functional Area Architecture (Wing-level Unit), developed by AFCA, provides a “How-To” guide to other Air Force architects. It provides a template for applying functional process improvement techniques to architecture development that can, with modification, be used by any Air Force agency. AFCA partnered with several other organizations to obtain and validate its baseline templates for a functional area wing-level unit.

AFCA is developing the AF Enterprise Architectures Computer Based Training. The CBT presents C4ISR Architecture Framework policy and guidance

using the AF C&I Functional Area Architecture as a case study. The Framework architecture products and basic FPI methodology and processes are described. Combined with the CBT on the JTA-AF, the two-volume set will provide AF personnel with the understanding and expertise needed to develop DOD compliant architectures.

Ptech Framework was added to the Joint Technical Architecture-Air Force recommended products list as an enterprise architectures development tool. Ptech Framework provides the capability to create C4ISR Architecture Framework products. The DOD has implemented the Joint C4ISR Architecture Planning/Analysis System to serve as the repository for all DOD architectures. JCAPS will help expedite architecture development and execution through the reuse of information gathered from previous architecture efforts.

Architecture-related information may be found on the Air Force Architecture Homepage at <http://www.afca.scott.af.mil/architectures/index.htm>. Here you can get an electronic copy of the C4ISR Architecture Framework, the C&I Functional Area Architecture and templates, and review information on the annual AF Architecture Workshop. If you have any questions about architectures or wish to contact us, please visit our homepage.

NETWARS modeling tool extends GIG into contingency environment

By **Emil Tejkowski**
*Air Force
Communications Agency*

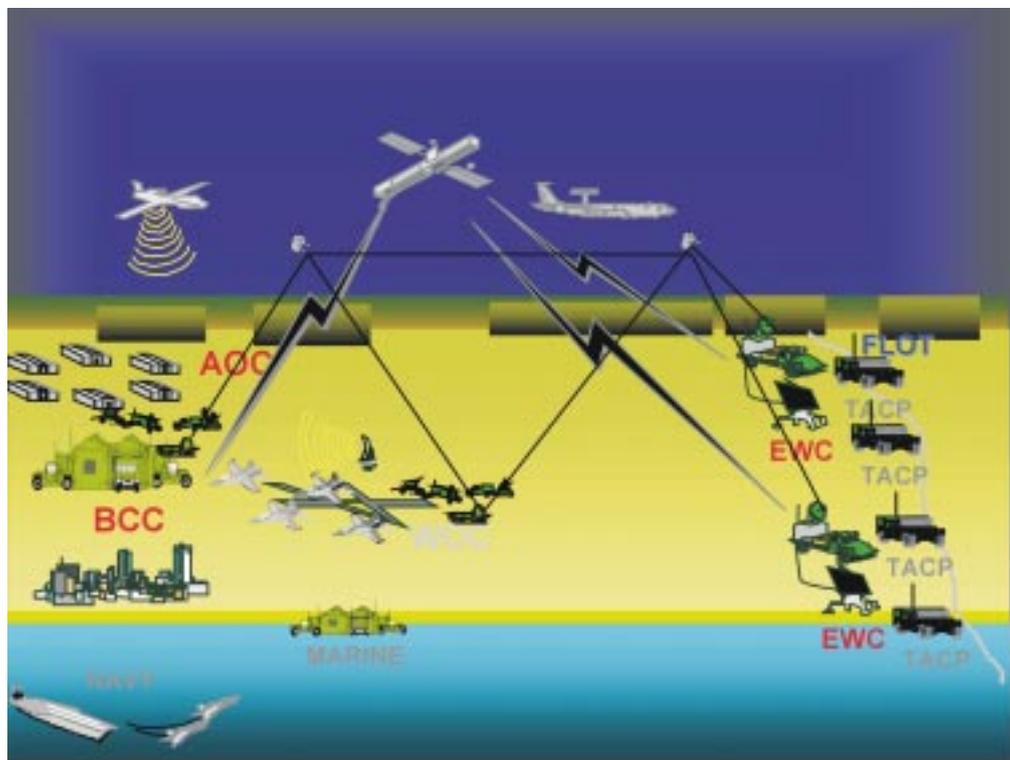
SCOTT AIR FORCE BASE, Ill. — The Global Information Grid is the communications and information infrastructure providing seamless connectivity supporting all joint operations, command and control, and mission support functions.

Network Warfare Simulation is an initiative of the Director for Command, Control, Communications, and Computer Systems, J6 at the Joint Staff. The goal of NETWARS is to provide users with the capability to build, simulate, and analyze scenarios for answering communications burden issues of the Global Information Grid within the Joint Task Force environment.

NETWARS models the tactical communications networks supporting the JTF commander. It is an enabler for planners extending the Global Information Grid into the contingency environment. NETWARS allows planners to analyze the burden or loading on a proposed communications network, and to do “what if” analysis based on different network configurations or equipment.

Within the Air Force, NETWARS enables Air Component Commands’ planning staffs to plan and assess adequacy of their communications to support CINC-assigned missions. With NETWARS, planners can evaluate operational plans, define communications related to operational requirements, and perform communications burden analysis for contingency situations, with a variety of different contingency plans. Since NETWARS is a joint initiative, populated with joint mission scenarios, it allows for common simulation and modeling support across component commands at the JTF level.

The NETWARS initiative includes two different thrusts: the NETWARS toolkit and a series of studies. The NETWARS toolkit serves as a front end to the commercial-off-the-shelf OPNET simulation engine, and is



Extending the Global Information Grid into the Battlefield

intended to allow the user to readily build operational scenarios, assigning supporting communications systems to forces.

The toolkit includes: a Generic Organization Editor that allows the scenario builder to insert classes or types of organizations, such as Tanker, Bomber, or Fighter units, and an Order of Battle Editor that allows insertion of specific organizations, such as a Numbered Air Force, an Air Expeditionary Wing, or a Fighter Squadron. The OBE is used to specify relationships between units, specify tasks, and assign networks and links. Finally, the Force Deployment Editor is used to place forces on maps and assign movement.

Once the three editors have been used to build the mission scenario, the NETWARS user is able to execute the simulation, and transfer the entire network configuration to the OPNET software. OPNET then simulates the movement of assigned forces, predicting performance based on terrain and line-of-sight considerations, and simulates loading of the communications networks. It then presents the user with a detailed view of system performance, allowing analysis of

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Global Information Grid

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throughput and the capability of the network to support mission operations.

The NETWARS long-range study plan provides for the construction and execution of several JTF network studies over the next two years. The studies become larger, more sophisticated, and more realistic over the duration of the study period. The study plan calls for a series of JTF communications burden studies based on real-world scenarios. The NETWARS studies actually serve three distinct purposes. First, they bring together, and make available to the toolkit user, the various operational entities, known as operational facilities or OPFACs. Secondly, they provide an increasingly sophisticated collection of modeling data that can be used to create additional modeling scenarios, and finally, they provide validation of the NETWARS toolkit and data.

As Air Force lead, AFCA has been fully engaged with the Joint Staff, and has been supporting the initiative with data to populate the toolkit and to develop operational scenarios for the studies. To date, AFCA has produced Information Exchange Requirements detailing the AWACS (E-3), ABCCC (EC-130), and JSTARS (E-8). IERs identify *who* exchanges *what* information with *whom*, *why* the information is necessary, and in *what* manner it is exchanged.

While the OPNET tool includes an extensive suite of models for specific communications equipment, it does not include models of military-

specific equipment. To overcome this deficiency in modeling Air Force operations in the JTF environment, AFCA has produced models for the AN/TRC-170, AN/ARC-230, AN/ARC-114, and AN/ARC-210. Additional models for the AN/TSC-94, AN/TSC-129, AN/ARC-190, AN/TRC-187, and AN/ARC-204 are planned for the near future.

For the long term, AFCA intends to continue to collect and develop IERs for Air Force entities in the JTF. Also, they intend to pursue the modeling of a Theater Air Base, to represent the terrestrial operations that are a large portion of Air Force loading of communications networks in a JTF. As the NETWARS toolkit matures, AFCA intends to place the tools into the hands of the Air Force Component Commands.

Version 1.0 of the NETWARS toolkit was delivered in December 1999. A limited number of Air Force Component Command users attended the training and received a copy of the toolkit, which requires OPNET to use. As the toolkit increases in scope and sophistication, later releases will be available, accompanied by appropriate training.

The evolving Expeditionary Air Force Command and Control concept places ever-expanding emphasis on the Global Information Grid to support distributed operations, giving the commander eyes and ears to monitor, assess, plan, and execute mission operations. The NETWARS initiative promises to deliver to communications and information professionals an enabler to help satisfy the ever-increasing need for rapid, do-it-right-the-first-time planning for JTF supporting communications.

TEST CENTER

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tion Guide which is being prepared by the CIO support directorate within AFCA (AFCA/IT).

The Air Force Chief Information Officer or a MAJCOM CIO grants a Certificate of Networthiness to qualified systems. A CoN represents approval to proceed from developmental testing to operational testing on Air Force operational networks. The process for granting a CoN is defined in the C4ISP Preparation Guide.

Before AFCA can recommend a system to the AF CIO for certification, the system will be tested by the Air Force Network Test Center for network impact, compatibility with the infrastructure, and network security. Questions to test for these three objectives may take the following forms: Does the system unreasonably burden the target network environment? Is the system capable of functioning with the existing network infrastructure and operate in accordance with Air Force standards and policies? Does the system increase the security risk to the operational network beyond acceptable levels?

Testing at the Center will help reduce the risks of adding new systems to the Global Information Grid. With regards to the Center's future, Donahue commented, "We have made enormous progress building world-class networks, fielding the best information technology, and training our people to smartly use information to achieve success. The [Air Force] Network Test Center will ensure we continue to build upon that success. We will continue to examine emerging tools to protect our networks and the information in them."

Air Force is on-target with DOD's Global Information Grid

By Ken Becker
Air Force

Communications Agency

SCOTT AIR FORCE BASE, Ill. – Sept. 22, 1999, Arthur L. Money, DOD's Chief Information Office issued a memorandum focused on implementing an enterprise solution for DOD's and Intelligence Community's Information Technology activities.

"We will call this enterprise solution the 'Global Information Grid.' This new term aligns with the Joint Staff term for the Capstone Requirements Document under development and defined as follows: *The globally interconnected, end-to-end integrated set of information technology capabilities, associated processes, and personnel, for collecting, processing, storing, disseminating and managing information on demand to warfighters, policy makers and support personnel.*' As an outcome, the GIG provides Information Superiority and underpins Joint Vision 2010 and the Agile Enterprise.

The GIG supports all Department of Defense, National Security and related Intelligence Community missions and functions (strategic, operational, tactical and business), in war and in peace. The GIG provides Information Superiority from all operating locations (bases, posts, camps, stations, facilities, mobile platforms and deployed sites) and enables operations with coalition, allied and non-DOD users by providing interoperability at key interfaces.

The GIG includes all purchased or leased communications and computing networks, systems and services, software, data, security services, and the information technology contained within sensor and weapon systems." (<http://www.c3i.osd.mil/org/cio>)

DOD's model of the GIG



Figure 1. DOD Global Information Grid Systems Reference Model

architecturally ties warfighter operations to C4ISR systems. Figure 1 shows the relationship between DOD's model and the Air Force Enterprise.

WARFIGHTER OPERATIONS - CORE COMPETENCIES

The GIG is a mission enabler. Air Force commanders cannot successfully perform the six tasks that comprise the Air Force's core competencies (see Figure 2) without it. The Air Force warriors need the right information at the right place at the right time. The GIG must be flexible to support global operations, reliable, assured, and affordable, and adaptable for use by the Expeditionary Aerospace Force



Figure 2. Air Force Core Competencies

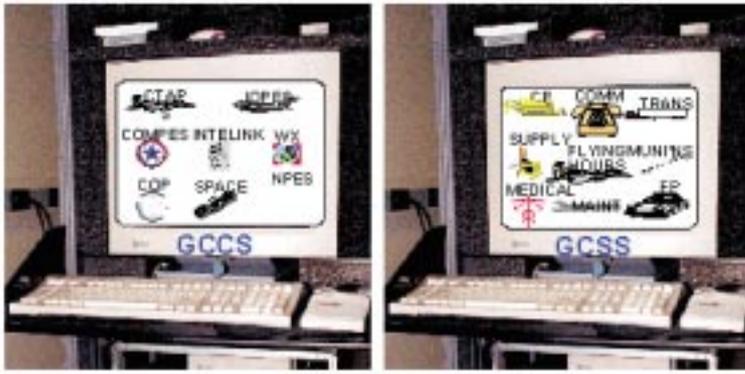


Figure 3. Warrior Applications

WARFIGHTER OPERATIONS - C4ISR APPLICATIONS

The automated information systems and associated software programs processes, stores, analyzes, and distributes information critical to the business functions that support the six core mission areas. Information management functions ensure full interoperability and data sharing between the applications in an open, secure environment so the right information is delivered where it's needed and when it's needed. A decade ago applications resided on separate platforms creating a "swivel chair" operation for the warrior. Today, those same applications ride on two separate platforms, GCCS and GCSS (see Figure 3). Data is still not uniformly shared. However, efforts are ongoing to integrate all applications on one platform and to share data universally. A goal the Air Force will achieve within DOD's GIG structure.

GLOBAL GRID-AIR FORCE

At SCOPE WARRIOR '98, the Air Force Communication Agency Commander, Col. Gil Hawk, presented a concept for a single, integrated communication & information infrastructure. This one warfighting information network became the Air Force's Global Grid. The Global Grid is the Air Force Chief Information Officer's business area, and it's the CIO's business to bring to the Air Force commanders the quality of service needed and expected at the least cost of ownership. The Global Grid shown in Figure 4 is divided into



Figure 4. Air Force Global Grid

the Expeditionary Air Force providing the required services at the least cost of ownership.

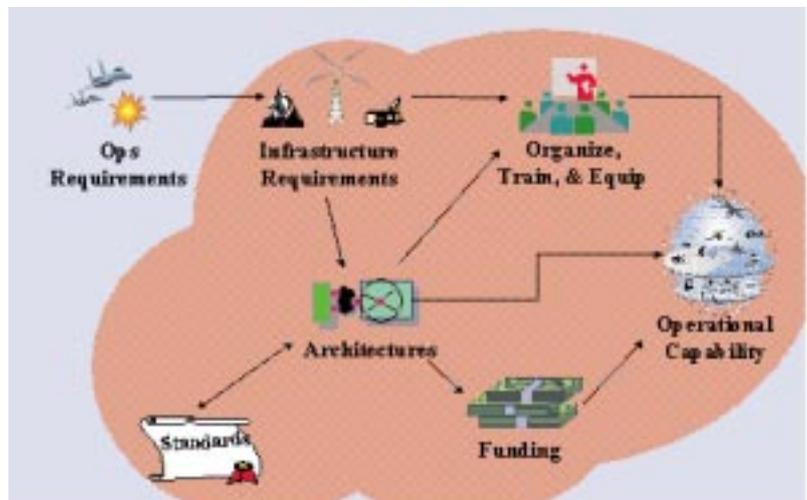


Figure 5. Concepts to Reality, The Process

four areas. AFCA has developed Operational Requirement Documents for each segment that will totally support and integrate into DOD's Capstone ORD for the GIG. See article, *Global Grid - Air Force*.

CONCEPT TO REALITY

Bringing the GIG concepts to reality is a tough challenge. The communication and information professional must:

- * understand the warfighters' environment and operational requirements
- * translate those requirements into system solutions in a well prepared C4ISR Architecture that adheres to industry and DOD approved standards
- * Organize, train and equip to operate and maintain a single, unified global network
- * obtain the funds to modernize and life-cycle manage the Global Grid.

These functions and the process is shown in Figure 5. This process will ensure the right information at the right time is disseminated and displayed in the right way so commanders and warfighters can do the right things at the right time in the right way. The Global Information Grid is and will continue to be the key mission enabler for

Global Grid: Connecting the future

Key Components of the Global Grid

By Roy Heitman

ESC Public Affairs, Hanscom
AFB, Mass.

“Global Grid is the glue that will fasten all command and control systems together,” said Product Area Director Joe Mardo to describe how the joint activities will fit into Department of Defense command and control infrastructures.

Global Grid is a concept that will allow military users to connect to the network generically and communicate between two or more points anywhere in the world. This will happen seamlessly without having to do manual or off-line information transformations

“Global Grid is a major enabler for all the command and control systems that will allow information, as well as data, to be moved,” Mardo said. Among other things, it would help prevent problems that arose in the past when services could not communicate with each other in a battle zone.

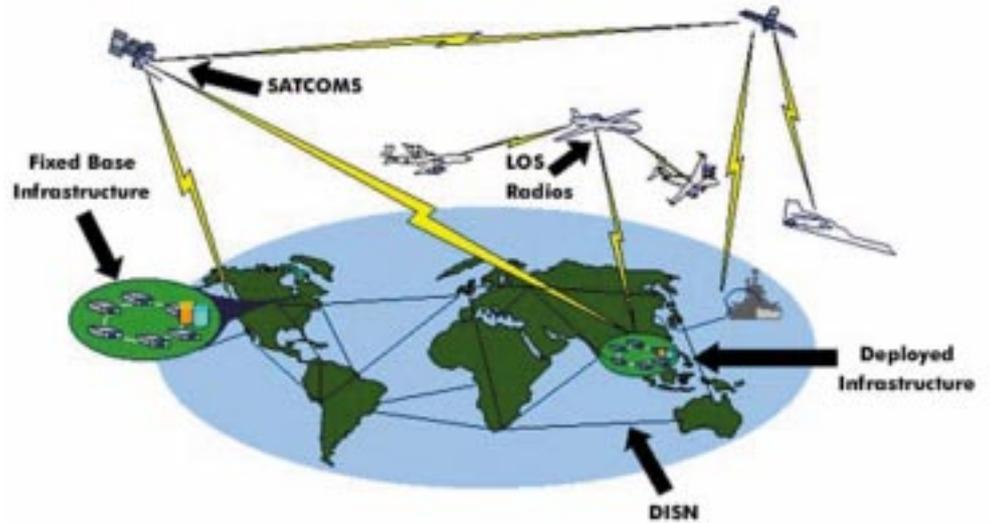
At the Department of Defense level, the program is called the Global Information Grid, but is conceptually the same.

“Global Grid figures prominently into Joint Vision 2010,” said Harry Gong, a MITRE employee who is chief engineer for the Global Grid Product Area Directorate. “Joint Vision 2010 was created as a DOD vision of how the services will wage war in the 2010 era and what all the supporting command and control elements need to be.”

But there are a number of potholes in the road to seamless communications. Among the obstacles are the many disparate, mission-specific communication links used that have little interconnectivity and ad-hoc security approaches. In other cases, some airborne platforms have insufficient communications. These include limited beyond line-of-sight communications, voice line-of-site radios, or closed data links that limit the amount of information that can be seamlessly transferred to or from aircraft from ground command centers.

Also causing problems is a communications infrastructure that cannot adapt to changes in missions in a timely fashion by allowing for technology changes to be incorporated easily.

To counter these and other problems, Global Grid must connect all command centers and airborne platforms, making them “addressees” on the net. “The sys-



tem will be affordability-driven,” Mardo said. “It will give us as much capacity as we can afford.”

The network will also be modular and reconfigurable to meet changing user needs or battlefield conditions and provide for rapid technology insertions.

It will also provide security protection matched to the threat.

“To build Global Grid we need a set of ground rules or an architecture,” said Mardo. “We’re building one now to define how we create this Vision.

“Another major piece is technology that we’ll need to bridge those gaps that exist now. We’ll also need to manage our programs to insert those needed technologies over a period of time,” Mardo said.

“We have an architecture for Global Grid that is available to program offices at Electronic Systems Center as a guidance document. We apply it to ourselves and use it as we work with other organizations such as the Air Force Communications Agency and the Aerospace Command, Control, Intelligence, Surveillance and Reconnaissance Center.”

The program offices will build their investment strategies and future “road maps” to be compliant with the architecture, and produce the integrated and interconnected systems needed to achieve the seamless communications network known as Global Grid.

“We will use commercial systems when it is appropriate,” Gong said. “Military type systems will be used when there is no alternative but we’ll include advanced commercial technologies.”

“Whenever we build a system it will be built to stan-

See ESC Page 18

ITIAs impart guidance, imply standards, recommend products for implementation

By Tom Sapienza
Air Force Communications
Agency

SCOTT AIR FORCE BASE, Ill. — The Global Information Grid — Air Force encompasses four communications and information elements: Outside the Gate, Inside the Gate, Last 400 Feet, and Information Appliances. The goal of the GIG-AF is to provide seamless and transparent communications capability for both in-garrison and deployed environments.

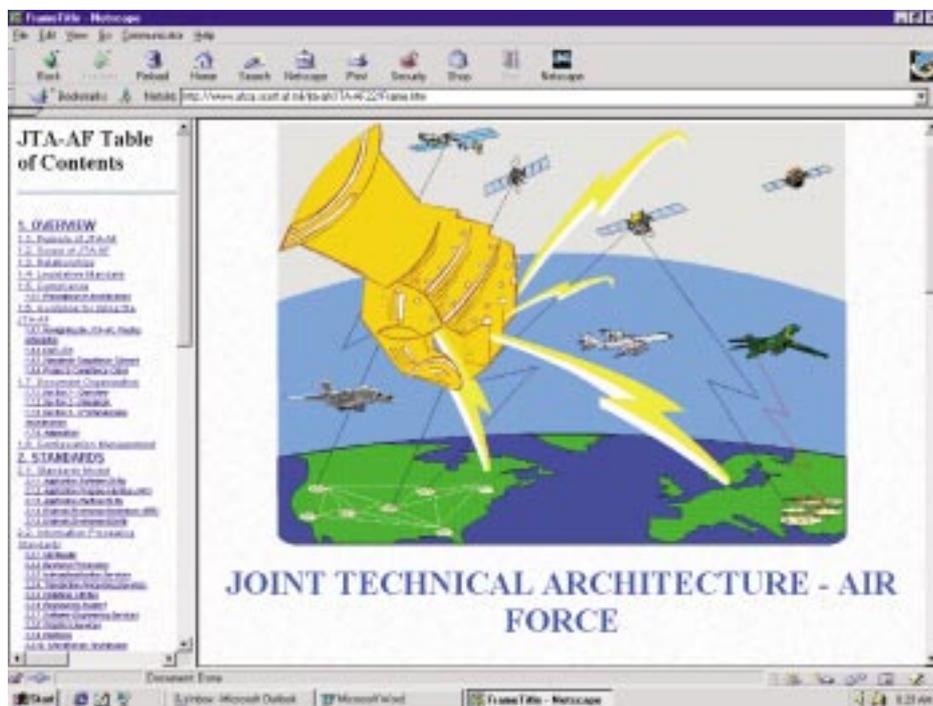
Interoperability for the GIG-AF will be ensured by meeting industry and DOD standards referenced in the Joint Technical Architecture-Air Force, and will provide the warfighter with the latest technology to perform the Expeditionary Aerospace Force mission. Within the GIG-AF are 13 IT Infrastructure Architectures that basically correlate to the computer and communications layers of the DOD GIG. These architectures are intended to impart definitive guidance, denote salient standards and policy, and recommend products for implementation.

The Information Protection ITIA was the first of its kind and essentially steered the course for the remaining 12 ITIAs. Initially, this document was limited to IP in the context of Air Force gateway functionality, i.e., boundary protection serviced by the base Network Control Center.

The first iteration, which was approved by the JTA-AF CCB in December 1999, covered only the unclassified traffic for the Inside the Gate portion of dealing with Air Force networks in the “Now” (current budget FY00-01) and “Future” (FY 02-07 POM) time frames. (See Figure 1 for the relationship of the IP Architecture (Version 1) to the GIG-AF, as well as its intended scope.) Note that future iterations, now in the works, will expand coverage to classified traffic (SIPRNET), Virtual Private Networks (VPNs), and deployed IP.

The remaining 12 ITIAs cover the gamut of infrastructure areas from the computer and communications layers of the GIG-AF. These ITIAs are delineated below:

* Commercial Satellite Services, including Iridium, Globalstar, etc.



- * High Frequency, including Global HF (fixed), deployed, and airborne
- * WANs (typically DISN services – DSN, DRSN, NIPRNET, SIPRNET, DCS-Overseas, and DVS-G)
- * Network Management, primarily CITS-based
- * Metropolitan Area Network (i.e., the base network), also primarily CITS-based
- * Voice Switching Systems, including End Office switches and PBXes
- * Electronic Messaging, including DMS-AF
- * Mission Systems, C2 and combat support (GCCS-AF, GCSS-AF)
- * Local Area Network (servers, hubs, switches, etc.)
- * Personal Wireless Communications Systems, including LMRs, cellular, and Personal Communications System
- * Multimedia, including VTC
- * Enterprise Information Management

All of the architectures are in various stages of development. The Network Management Architecture is next in line with an expected JTA-AF CCB vote of March 00.

Every ITIA has an AFCA developer, as well as JTA-AF steward. In addition, working groups are formed to either develop or review the respective architecture.

See ITIAs Page 18

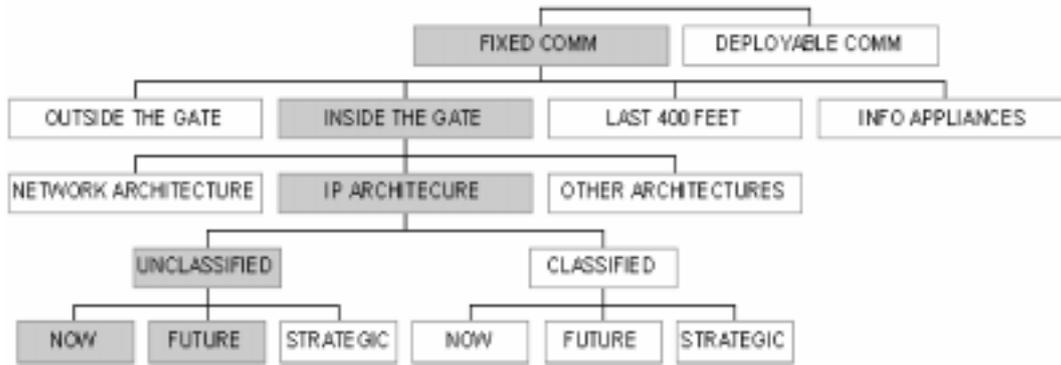


Figure 1. IP Architecture Drill-down and Relationship with GIG-AF

ITIAs

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Working group members will differ from one ITIA to another. For instance, AFCA, ESC, AFCIC, SSG, and 38 EIG will typically comprise architecture working groups, such as IP and Network Management, that have a strong PMO influence.

Other ITIAs, without the benefit of such an influence might have working group membership to include MAJCOM and base-level personnel with required expertise, as well as the aforementioned units. These working groups provide a forum for these ITIAs to receive corporate buy-in, before they progress to the JTA-

AF Request for Change process for technical review prior to CCB vote.

ITIAs are an essential part of the JTA-AF (*See Section 3 of the JTA-AF, version 2.2, at http://www.afca.scott.af.mil/jta-af/JTA-AF22/JTA-AFV22%20ACeh-59.htm#P9179_569826*)

These ITIAs are referred to as annexes, since they are linked to the JTA-AF, rather than embedded in it. Every six months or so, these ITIAs will be revised to account for necessary updates (e.g., program implementation changes, new standards adoption, etc.). In summary, these ITIAs are just the “right” stuff needed, from an architectural view, for the Air Force to be at the forefront of JV2010.

ESC

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standards that will allow interconnectivity. To do this, we’ll define the architecture in ‘layers,’” Gong said. “When a change is needed, for new technology for instance, we can change a layer without impacting any other layer. In the past, we often needed to change the whole system to take advantage of new technology.

“We are going to have to fundamentally change our way of thinking, across ESC, to a layered concept of architecture. Commercial folks have been doing this for years and we are going to leverage that.”

Doing this on all programs will take time, mostly because of funding constraints. Program officials expect the ground networks will move relatively quickly because of the rich availability of commercial technology, but for airborne systems it could be 10 years or more.

“When Joint Vision 2010 was

created, the Air Force decided it needed to build not individual systems, such as Joint STARS or AWACS, but an integrated command and control system,” Gong said, “taking all these pieces and make them work together as a single weapons system.”

Global Grid is a fundamental enabler of this integrated command and control system.

“At ESC, one of the big drivers is to integrate our programs to produce this single weapons system. “Even though we’re still implementing individual programs, we have to find ways of linking them together to create this integrated command and control system,” Gong said. “Global Grid is the fundamental underpinning that will enable these systems to talk to one another.

“There’s a lot more to interoperability of these systems than just the communications, but if you don’t have the communications, then you don’t need to worry about whether or not two systems

are talking to each other compatibly.”

A fundamental tenet of the directorate is using the commercial model of layering that will allow it to fit commercial products in and out easily. “When we need to upgrade we can do so more cheaply because the layers can be upgraded more cheaply than the entire system or subsystem,” Mardo said.

“By using as many commercial applications as we can, we will be able to put our investment dollars into military unique items and buy as much bandwidth as we can afford,” Mardo said.

Bandwidth is expected to be plentiful on the commercial side in the foreseeable future. This was not true in the past as fundamental technology issues limited satellite communications. The limiting factor will be dollars.

The Global Grid directorate is part of the Defense Information Infrastructure Program Office, headed by Matt Mleziva.

Communications and Information Career Program

Lights, Camera, Action for PALACE Acquire

By Mark Davidson

Communications and Information Career Program

In five, four, three, cue talent. The Communications and Information Career Program teamed up with the Air Force Intern Recruiting Division to produce a recruiting video for the PALACE Acquire Program. The Air Force television production, *The Key to Your Future – Civilian Careers with the Air Force*, is designed to increase interest in more than 20 PALACE Acquire programs in the Civilian Career Management Directorate.

Cut, let's try it again. Many people at the Air Force Personnel Center gained their first acting experience in a television production. Chrissy Ayers, a Personnel Staffing Specialist for the Recruiting Division, commented "I had no idea the amount of planning and preparation needed to videotape one scene." Ayers learned the fine art of casting talent for numerous scenes at Randolph and Lackland Air Force Bases in Texas. As a former PALACE Acquire intern, she also provided her first acting debut in television.

Give me an establishing shot of the computer room. The original PALACE Acquire television production was produced over nine years ago. As you can imagine, computer equipment scenes in the original video hardly portray today's technology. Scenes of old reel-to-reel tape databases and desktop PCs with 2 ½" floppy disk drives made it difficult to recruit college graduates with education in the latest computer technology. Today, the technology used by the 12th Communications Squadron Multimedia Center to produce the new production is as modern as the new computer equipment shown in the video. In the editing bay, changing

a scene is as easy now as cutting and pasting text on your computer. And the event of using digital cameras of broadcast quality to record scenes and eliminate videotape altogether is now becoming more commonplace at multimedia centers in the Air Force.

Just one more edit. Along with new technology, the 12th CS/SCSV staff stays current on the latest multimedia techniques. Computer graphics artists now produce 3-dimensional animated images in a matter of minutes. Of course, complex animations still require time and may take several days to create and render. Often the hardest challenge is being able to effectively communicate your idea to the graphics artist in order for the artist to create what you want.



Fade to black and bring up the credits. Upon completion, the master videotape will be reproduced onto 2,500 VHS tapes and 2,500 CDs. The production will be distributed to major colleges and universities throughout the United States and provided to PALACE Acquire field recruiters. Field recruiters will use the production to host informational briefings at colleges and job fairs. When

the production is released for distribution, you can request a copy of it by using the title or production identification number, 613964, in the Defense Automated Visual Information System at <http://dodimagery.afis.osd.mil/dodimagery/davis>

That's a wrap! Of course, the new production is just a marketing tool. Our best marketing tool is you, the civilian and military voice in the field. If you are interested in applying for the PALACE Acquire Program or hosting a PALACE Acquire intern, find out more at <http://www.afpc.randolph.af.mil/cp/recruit> The CICP web site for PALACE Acquire is at <http://www.afpc.randolph.af.mil/cp/cicp/paql.htm> Help us to renew the workforce.

Incremental improvement: USAFE'S Air Operations Center reaches another milestone

By Maj. Timothy Williams
32nd Air Operations Squadron
Ramstein AB, Germany

The U.S. Air Forces in Europe air operations center reached another milestone the first week of February 2000 when the AOC communications team deployed on Exercise FROZEN ASSETS, an operational readiness exercise. This was the first time the USAFE AOC has deployed in a totally tactical environment.

The 32nd Air Operations Group—the unit responsible for USAFE's AOC—was formed in 1994. Its mission is to provide the capability to plan, task, and direct contingency air operations anywhere in the European Command area of operations. Since that time, it has progressed far from very humble beginnings. The first step was to develop a garrisoned AOC with appropriate networks and theater battle management systems. The next step was to create a deployable AOC communications capability; this deployed capability has been tested and proven, culminating in the successful Exercise UNION FLASH '98.

The AOC again validated its deployed capability during Operation ALLIED FORCE, the recent air campaign against the former Republic of Yugoslavia. During that deployment, the AOC both augmented the Balkans Combined Air Operations Center and maintained a small U.S.-only AOC in Italy. However, until Exercise FROZEN ASSETS, the USAFE AOC had deployed only to areas with an established communications infrastructure.

The 32nd AOS' communications systems division (the core of



U.S. Air Forces in Europe Air Operations Center personnel look on as Senior Airman Chad Hicks demonstrates how to transmit an air tasking order.

USAFE's AOC communications team) and members of the 1st Combat Communications Squadron (who provide the long-haul communications for USAFE's AOC) deployed to Miesau, Germany, from Jan. 31 to Feb. 4, 2000. There, they set up a small version of a tactical AOC. The site primarily consisted of a TSC-100A satellite van, a portable technical control facility, deployed local area networks (classified and unclassified), a theater battle management suite, and a tactical analog switchboard... all powered by a tactical power plant. The team established connectivity with a remote Contingency Theater Automated Planning System terminal at the 603rd Air Control Squadron at Aviano Air Base, Italy. The exercise culminated in successfully configuring the remote terminal and building/transmitting an air tasking

order. Of course, the troops also made time for some good-natured "steal the flag" competitions among the deployed teams.

"This is not really anything new for us," said Capt Zachary Mann, the 1st Combat Communications Squadron site commander. "What we set up for the AOC is pretty much the same as what we do for our other missions, like a Joint Task Force headquarters or a theater air base. Only the customers are different." The AOC mission is just one of five missions assigned to 1st CCSQ.

However, for 32nd AOS, this was another milestone in a series of constant improvements to USAFE's AOC. According to Capt. Mark Miller, the mission systems branch chief in 32nd AOS: "We proved we could deploy our AOC on exercises

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Software technology will advance imagery exploitation

ROME, N.Y. (AFPN) — A software “toolkit” to assist intelligence analysts tailor advanced imagery to uncover specific targets is the goal of an Air Force Research Laboratory Information Directorate contract with PAR Government Systems Corp.

Technology developed under the two-year, \$653,031 program — “Hyperspectral Imagery Exploitation Tools” — is expected to benefit both military intelligence analysts and a host of civilian agencies and researchers.

“Hyperspectral imagery uses multiple, narrow bands in the visible and infrared bands of the electromagnetic spectrum,” said Frederick W. Rahrig, program manager in the directorate’s Information and Intelligence Exploitation Division. “There are hundreds of these bands and, by selecting specific ones, you can distinguish between different types of features, such as natural formations and man-made objects.

“A television display uses only three channels — red, green and blue — to produce its image,” said Rahrig. “Today’s advanced sensors collect hundreds of bands simultaneously, and the purpose of the PAR research will be to decide which bands to use and how to process them.”

“Deciding which bands to use out of those hundreds is critical,” he said.

“All features give off a unique electromagnetic ‘signature,’ which will allow us to tailor image processing

AFRL Information Directorate



for very specific purposes.”

Using the projected technology, military analysts will be able to differentiate between natural growth and camouflage. Civilian applications include forestry, agriculture and infrastructure planning based on soil content. Law enforcement personnel may even be able to detect plots of illegal drugs from aerial imagery.” (Courtesy of AFRL Public Affairs)

AOC

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like UNION FLASH. Then we proved we could fight a war with the AOC. Now we’re proving we can go tactical. We’re doing this one step at a time.”

The USAFE AOC team isn’t going to rest on its laurels, though. They’ve plotted a course for the future and are incrementally reaching each goal. With at least two larger communications exercises planned over the next four months, they will integrate air pictures, air mobility systems, and alternate air tasking order transmission capabilities into their tactical setup, as well as practice establishing tactical communications links with both USAFE air control squadrons and wing expeditionary communications packages. On the heels of that will come the



Members of the 32nd Air Operations Squadron's communications team set up USAFE's deployable air operations center.

new Theater Battle Management Core System, the replacement for CTAPS, along with more such exercises.

Gradually progressing from one

milestone to the next, USAFE’s AOC communications team continues to chart a path to successful deployed communications.

Enterprise Management and the medieval castle

By Lt. Col. Michael W. Steffan
Air Mobility Command CSS/CD

SCOTT AIR FORCE BASE, Ill. — How do you get into a castle if the drawbridge is up? Or, what if you're defending the castle and you notice an army rolling up with cannons in tow? What should you do? Is it too late? Similar questions can and are being discussed regarding the worldwide network of computers we, in Air Mobility Command, call the enterprise.

Our purpose is not to propose an on-the-spot solution to all of our enterprise management and information assurance problems. But to offer our command, the Air Force, and perhaps even DOD and private enterprise a means to effectively focus on our future through a common understanding of the following key issues:

1) How do we allow new systems onto our network while maintaining security and quick, quality service to our new customers?

2) Are we able to sustain the expense required to defend this large, growing fixed target we call our enterprise?

First, how do we allow new systems on the enterprise without sacrificing IA and without creating a bureaucratic nightmare for the folks who want to bring on the new system? This situation is just like the one that existed in Europe when castles covered the landscape.

The purpose of the castle was to allow the noble who owned the surrounding region, and his vassals, to live in peace and security. All the different tradesmen could carry on the business of the feudal lord within the protective walls of the castle. However, there were always more and more people who wanted to get into castles. Some were good and some were bad.

The method the lord used to keep the bad guys out was having the outer wall, gate guards, a drawbridge and a moat. If the drawbridge was up, no one could get in. If the drawbridge was down, only those recognized by and with permission of the gate guards could enter.

So, essentially entrance to the castle boiled down to one of two means: either you arrived at the castle with your "gate pass" or you showed up with siege ramps and battering rams.

How does this apply to current events? Without an effective gate pass process, our customers, who are wanting to get on the enterprise, feel like they traveled all the way to the castle, and just because they didn't have the magic gate pass handy, the gate guard told them to get lost. When the customer is a Program Management Office, guess what? They come back with siege ramps! They say, "Wait a second! We're good guys. So you have to let us on the network! We're on the same team!" We say, "Yeah, but how were we supposed to know you're good guys when you showed up at the gate with no notice and no pass?" We need to get away from this circular argument. We need a process that seeks out the folks who are headed towards the castle, checks them out in advance and provides them with a gate pass before they arrive at the edge of the moat.

Fortunately, we have just such a process in the works: it's called the Command, Control, Communications, Computers and Intelligence Support Plan. The C4ISP is going to institutionalize proper development of new systems destined to ride the net.

How is the C4ISP different than the way we used to do business? In the past, the Info Technology community was guilty of waiting until folks arrived at the moat. Those folks would call up to the top of the imposing wall and say, "We want on the net!" But, we had a policy of not letting unfamiliar people in the castle, and we knew our policy was right. So, self-righteously standing behind our correct policy, we hollered back down, "We ain't lettin' you in 'cause if we knew you, you'd have a gate pass."

The more correct way would've been to let people know how to get a gate pass before they ever got to the



Neuschwanstein shows some difficulties of getting into a well-situated castle.

See **MEDIEVAL** next page

April 2000

MEDIEVAL

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castle. Or to refer them to our helpful gate pass consultants (IT functional liaisons) in the kiosk “right down there in front of the moat.” That’s exactly what we’re doing with the C4ISP process.

Because C4ISP will be built into the acquisition process, new systems will be networthy and security accredited *before* they ever approach the keepers of the net with their new system. And furthermore, the final product of the C4ISP process will be issuance of a Certificate to Operate by the gate guards.

In our case, the gate guards will be at each MAJCOM in the MAJCOM’s Communication and Information Directorate—and they won’t wait until you arrive at the castle, they’ll mail the gate pass to your house. Consequently, when you show up at the AMC enterprise, asking to come on the net, all you’ll have to do is flash your CTO and we’ll lower the drawbridge. No more siege ramps to get in. Quick and easy. However, as was the case in medieval Europe, a growing castle becomes an increasingly lucrative target. And everyone knows exactly where it is too.

That brings us to the second issue, “Are we able to sustain the expense required to defend this ever expanding, fixed target—the enterprise?” While the first issue dealt with letting new good guys in quickly, this one deals with keeping the bad guys out permanently. Back in the late 17th century, the Germans had castles all over the place designed to keep the French (and other ill-tempered folks) out.

Louis XIV took this as an affront and proceeded to wipe out every German castle he could find (he wiped out the family fortune in the process). To this day, you can visit many German castles and read how they were rebuilt (at great expense) from the ground up after Louis XIV dropped in to say “Bonjour!” “How could Louis pull this off?” you might ask. Well, let’s back up in history



Situated northeast of Nurnberg at Neuhaus, Veldenstein sits on a finger of land that is steep on all sides.

just a smidge.

Living inside a castle was great (peace and security wise) until the invention of the cannon. Now, all of a sudden, those 20-30 foot thick stone walls, so impenetrable to man and arrow, were sitting ducks. When stone and cannon ball collided, the cannon ball always won. And you couldn’t just pick up the castle and go hide in the woods.

European castles took hundreds of years to build and expand. They weren’t going anywhere. And the trouble with these older, well-developed castles was that it wasn’t as simple as defending one drawbridge anymore. Sometimes they had multiple entrances, secret entrances (had any insiders given the location away?) and weaknesses in the walls like solid waste chutes from bathrooms located on the outside wall. Some attacking armies were famous for trying to get on the inside of the castle by sending a skinny teenager up the sewer chute. So, the castle lords had to figure a way to defend their immovable targets or to attack the enemy at his place.

That’s exactly where we are today with our enterprise. We have a large, fixed target. We have to ask ourselves if there are any new weapons out there that could make our firewalls obsolete or exploit our guarded entrances or back doors.

For instance, the recent attacks on some well-known e-biz sites were simple in execution but devastating in impact. Is this a cannon rolling up to our castle wall? And how are we going to defend ourselves?

If we assume that our castle is immovable, then the expense for defense will likely grow. Can we afford it? Perhaps there is another way. There might be some smart young occupant of the castle who’s thinking, “Hey, we don’t have to sit here behind these walls and take potshots from crackpots. I’ve figured out a way to make our castle mobile.” Don’t laugh. Necessity is the mother of invention. And I know my technicians working in the “keep” of AMC’s castle (the Network Operations and Security Center) are looking for a way to make our enterprise a hard-to-hit, moving target.

There you have it: a word picture to facilitate discussion of two of the biggest concerns on the military radar scope right now: getting new systems on the enterprise quickly but securely and keeping the bad guys out without selling the castle in the process. So, when you’re standing around the water cooler and talking about EM and IA, don’t forget this article. Issue the gate passes before they get to the moat and let’s figure out a way to make our castle mobile.

Competitive Sourcing and Privatization: Focus on mission success

By Maj. Paula Lane

Deputy Chief, Force Management Branch
Air Force Space Command, Peterson AFB, Colo.

As a functional community, we get bombarded with terms like “Acquisition Reform,” “Cost Comparison,” “Most Efficient Organization,” and “Direct Conversion.” Even worse, decisions will be made that will affect your organization—both short-term and long—that you need to be able to advise and agree to: “Acquisition Strategy” and “Contract Type,” to name a few. Do you know what you’re doing?

The good news is that you already have a Congressional suspense: 24 months from when the CS&P Study was announced (single function). So ... now, all you have to do is follow a few simple steps to decide if you’re going to award a contract or MEO. Sounds simple enough, doesn’t it? Do you know what you’re doing?

The CS&P Study Flow Chart (Figure 1) is our attempt to look at the process holistically. It is a 98 percent solution in a full and open competitive environment. Laws allow modification, and local contracting squadrons are the experts. However, the chart presents the basic elements of the CS&P process and how the various steps relate to one another.

So what kinds of risk are involved? How tough can this be? The risk associated with the requirement itself is a driving force of contract type selection. The risk of selecting the best contractor to support the mission for the ‘right’ price is dependent upon the evaluation methodology chosen. The risk of maintaining military strength through successful transition is dependent upon completing the process on time. The burden of “performance risk” is assumed by the winner: the government for the MEO, and the contractor upon contract award. Do you know what you’re doing?

Regardless of which path is chosen—MEO or DC—the requirement must be documented in clear and simple terms. Mission success must be captured adequately in performance requirements that are measurable. These are made up of performance objectives and their appropriate threshold(s). The government needs to measure the performance objective(s) and compare the results to the established threshold to determine contract or MEO compliance. When you are developing your requirements document, there are a few rules you need to remember.

1. Don’t ask for a higher level of service than currently provided.
 2. Don’t include functions that are not part of the study.
 3. Be sure to tell them what you want; not how to do it.
- Do you know what you’re doing?

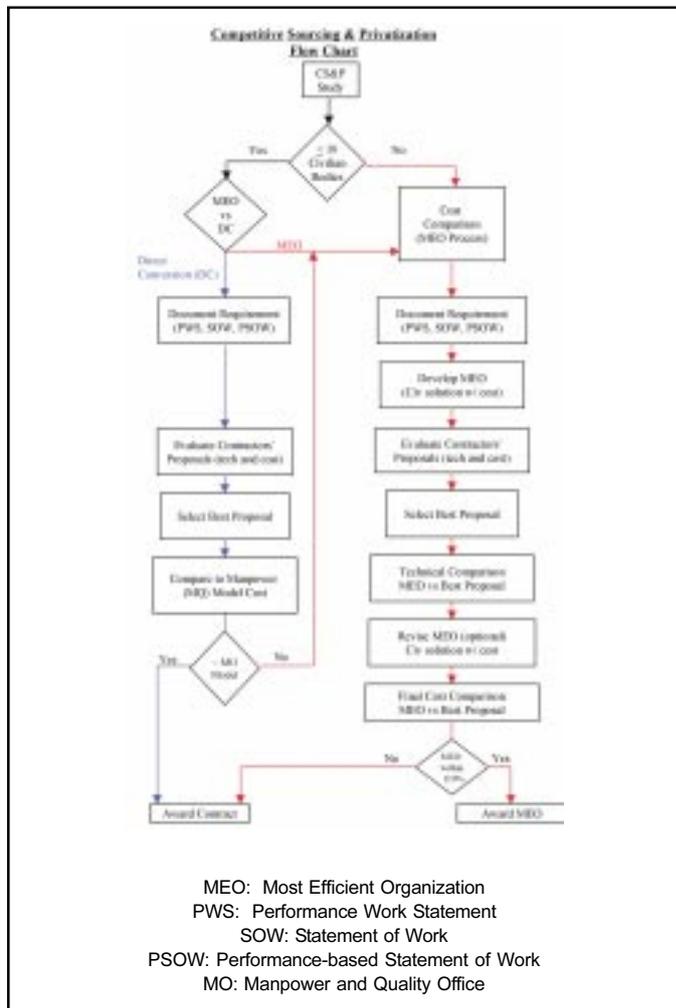


Figure 1

The good news is that a large industry base exists for most communications-computer functions; industry is interested in being involved in the process; and we can learn a lot from industry to improve our products and processes as we proceed down this CS&P path. Once the decision has been made to outsource, all efforts from the functional community need to be focused on achieving mission success. We need our functional experts to understand the acquisition process and team with the local contracting office. This process needs our best and brightest to ensure the mission is supported in the future. Resources are tight and it is difficult to absorb the workload this process generates. However, we can ill afford to do this haphazardly. The Department of Defense has too much riding on the outcome.

Do you know what you’re doing? Do you have your best people working it?

IT shopping made easy **CIT-PAD saves big bucks, valuable time**



By Staff Sgt. Beverly Isik
SSG Public Affairs Maxwell AFB-Genter Annex, Ala.
and 1st Lt. David L. Englin
ESC Public Affairs, Hanscom AFB, Mass.

Have you done any on-line shopping recently? If so, you know there are dozens of web sites selling just about everything under the sun. One of those web sites is selling the latest information technology to Air Force units at rock-bottom prices.

Combining innovative contracts with the power of e-commerce, Electronic Systems Center's Commercial Information Technology Product Area Directorate, or CIT-PAD, is the largest information technology superstore in the federal government with more than \$500 million in annual sales.

Located at Standard Systems Group, the Air Force's information technology superstore is spreading standardized, interoperable equipment throughout the force.

The CIT-PAD uses new kinds of contracts to buy name-brand equipment in bulk, according to Matt Mleziva, director of the Defense Information Infrastructure program office.

Most of today's sales, explained CIT-PAD Director Lt. Col. Glenn Taylor, come from the successful continuing series of information technology contracts that include desktops, laptops, servers, printers and ruggedized portables.

In the next six months, Taylor said the CIT-PAD will launch new information technology initiatives covering network equipment, network services, hi-end workstations and software.

The CIT-PAD manages a variety of contracts including Global Combat Support System – Air Force, Unified Local Area Network Architecture, and Integrated Computer Aided Software Engineering.

Purchased with leveraged buying power, desktops, laptops, servers, peripheral devices, software and services from industry giants are available to Air Force customers at rock bottom prices, Taylor explained.

"The proof is in the pudding," he said. "By leveraging Air Force buying power across a small number of contractors, total ownership cost was reduced 10-30 percent for hardware and up to 70 percent for software products. We estimate savings in excess of \$200 million last year alone."

The CIT-PAD web site <http://www.ssg.gunter.af.mil/CIT-PAD> provides information on 33 contracts covering nine programs with total contract values exceeding \$9 billion. The site offers information on all CIT-PAD contracts and agreements and provides links to eight vendors for immediate on-line IMPAC card ordering.

Conducting more than \$100 million in electronic commerce sales during fiscal year 1999, the CIT-PAD used web technology to improve customer deliveries to a few days instead of weeks.

"We have more than 10,000 visits to the site each month," Taylor said. "Customers already seem to like it, but we have some exciting new capabilities coming online in the next three months that will really simplify the entire buying process – making it more user friendly with features such as side-by-side product comparisons."

The CIT-PAD is also a key sponsor of the annual Air Force Information Technology Conference, striving to acquaint users with the latest commercial technology while gathering customer feedback.

The 1999 AFITC drew nearly 3,500 Department of Defense military and civilian employees and about 1,000 vendors. The conference showcased such keynote speakers as Microsoft, Inc. President Steve Balmer and Micron Electronics Chairman and CEO Joel Kocher.



SMSgt. Wood

(Editor's Note: Communications and information people have always been Air Force "shining stars". This series will spotlight some of our community's past Air Force-level award winners and follow their paths since earning top recognition.)



Chief Master Sgt. William A. Wood

Retired Chief Master Sgt. William A. Wood, 69, was the first communicator to be selected as an Air Force Outstanding Airman of the Year. Wood, then a technical sergeant, was selected in 1961 while he was assigned to the Air Force Communications Service. Gen. Curtis LeMay, the Air Force Chief of Staff at the time, congratulated Wood and the other winners at the Air Force Association's annual meeting in Philadelphia. Wood retired from the Air Force in June 1972.

Wood, who was born in 1930, first enlisted in the U.S. Army in 1944 at the age of 14 – he was discharged in October 1946 when it was discovered he was under age. He reenlisted in the Army Air Corps in 1947, still a few month's shy of the legal age, but received a waiver from a captain who understood Wood's strong desire to serve.

Following his second enlistment he went to radio school at Keesler AFB, Miss. Upon graduating techni-



Korea: SMSgt. Wood poses with one of his troops, SSgt. Bill Andersen, a radio operator.

cal school he was selected to be a radio operator instructor.

His accomplishments are varied within the electronic and radio fields but also include being an accomplished diver, and was called upon to help bring up aircraft lost at sea. One such aircraft was located off the coast of Africa. He was charged with recovering the hull of a downed fighter plane resting 65 feet below the surface as well as the body of the pilot, which had been thrown clear of the plane on impact. Making the mission even more treacherous was the presence of live and armed sidewinder missiles disengaged in the crash, but still entangled in the wires and airframe.

Wood established himself time and again as a key member of the communications community throughout the world including locations in Turkey, Greece, North Africa, Portugal, the Azores, Korea, Panama, England and various locations within the United States.

He also worked with and was honored by the other services. He received the Navy's Order of the Decibel (rarely given to someone outside the Navy), the Navy



Wood and his wife, Maja, talk with Maj. Gen. Benjamin Foulois at a convention. Foulois is one of the first military pilots and is credited as the first to build, install and operate a radio transmitter from a military aircraft.

Achievement Medal, the Army's Certificate of Achievement, as well as letters of commendation from the Marines and Coast Guard. In 1959, as a technical sergeant, Wood was one of just two men in the Air Force to be nominated for the annual U.S. Chamber of Commerce's selections as "The Nation's 10 Outstanding Young Men."

In what was surely one of the rarest opportunities for an Air Force NCO, then Tech. Sgt. Wood was appointed as Skipper of a J-Boat in 1960, under official orders. Wood was in charge of transferring accountability of the boat from one unit to another, which required him to navigate the vessel from Istanbul, Turkey to Athens, Greece. Adding to the unusual mission was that two lieutenants as well as an airman first class were assigned as crewmembers. In 1968, while at Lajes Field, Azores, the chief was instrumental in obtaining parts and repairing communications equipment aboard the U.S.S. Exbrook, which was damaged by rough seas. Also while at Lajes, Wood helped

provide the U.S.S. White Sands, which was operating in the area, with essential communications between the ship and local operating agencies.

As a senior master sergeant, Woods was tasked by General LeMay to develop a backup communications system for Andrews AFB, Md. His efforts were directly tied to improving the morale of those assigned to South Korea as he established a Military Affiliate Radio System which enabled deployed members to communicate with loved ones back home.

Aside from scuba diving, Wood's favorite recreational activity is at his microphone with his call sign CT2AA radiating out to faraway places — no telling who might be responding. One evening, while stationed in the Azores, he was engaged in some amateur radio talk with Mary Crider, a prolific ham radio operator at Camp Hill, Pa., when the call sign JY1 broke in, as is customary among ham operators. Wood acknowledged the call and asked where he was from. It turned out to be from Jordan, and was none other than King Hussein, who was also an avid ham radio operator. It turned out to be the first of many conversations the two shared.

Wood's reputation as a diver was well known enough that while he was stationed in Greece he was asked to help on a Smithsonian Institute-sponsored mission to recover ancient Greek relics and artifacts from the sea bottom. He was allowed, under orders through the State Department, to help in the effort. For two months he helped the Greek government recover many mementos



Maj. Gen. Harold Grant, left, with SMSgt. Wood, the president of IBM, and Wood's wife, Maja, at the 1961 AFA convention.

of the ancient Greek culture.

Answering the call to duty didn't end when he retired from the Air Force, as he was called upon in his retirement to help restore communications following a massive tidal wave (produced by Hurricane Fifi in 1974) that ravaged Honduras. Wood helped establish a communication system with the mainland, organized the acquisition of materials for rebuilding, coordinated the contribution of food and clothing from relief agencies in America and supervised the building of four large greenhouses for production of food.

"When I went into the military I was a baby ... it raised me," said Wood. "For my wife and I being in the Air Force was the most enjoyable part of our life. We made the best of wherever we were stationed. It was nice to move around and meet new people. And being selected as an Outstanding Airman of the Year was one of the biggest highlights — we got to meet people like Gen. (James H.) Doolittle and Gen. (Curtis E.) LeMay, as well as Bob Hope, Rudy Vallee, Louis Armstrong and Joe E. Brown."

Wood and his wife, Maja, who is from Copenhagen, Denmark, have two sons and two daughters. They live in Panama City, Fla.

(Information in this article was obtained from a manuscript written by retired Lt. Col. Edward A. Walsh and an interview with Chief Wood.)



Wood, a diver, was called upon to help recover the hull of a downed plane off the coast of Africa as well as recover the pilot's body.

Editor's note: As the years go by, people come and go, but a few make an indelible mark on the Air Force. Their extraordinary service touches many people and leaves a lasting legacy. This is the first of a new series, entitled "comm legends", which spotlights people who have dedicated a long and distinguished career to the comm and info mission area and established a record of achievements that few can match.

Please e-mail your own "comm legends" features to intercom@scott.af.mil.



Joe Collaso

By Tech. Sgt. Michael Leonard
intercom editor

With the never-ending search for the fountain of youth, an 81-year-old man may have found the answer in a not so obvious place – the Air Force. Joe Collaso, a photographer assigned to the Air Staff in the Pentagon for the past 23 years, does not need a cane to get around the massive five-sided building. He doesn't need to take breaks on the way to his next photo assignment. The youthful man walks mile after mile through the halls of the Pentagon and never complains.

"I love the work I am doing and who I work with ... and furthermore the people I work for show an interest in me — that they really care," said Collaso.

A proud Manuel A. "Joe" Collaso started his long love affair with the Air Force when he enlisted in the Army Air Corps on March 15, 1941, just prior to World War II.

When the Port Arthur, Texas, native joined up, he was only making \$21 a month ... now he makes more than that an hour. He started taking photos for the Air Force with a 4x5 Speedographic camera, now he uses a 35mm Nikon.

Although technology has changed over the years, his supervisor says that Collaso hasn't.

"He sets very high standards for himself and ensures he meets them daily," said Ronald C. Hall, Director of Air Force photography and Collaso's supervisor. "It's a pleasure working with him. I don't have to set any standards for him; he does that himself. He's a very conscientious guy to work with and he's always there when you need him."

As the world moves forward into digital photogra-



Master Sgt. Collaso



On the job in 1980s.

phy, Collaso is not stepping back from the challenge. He is right in there consulting with coworkers and showing he is willing to learn.

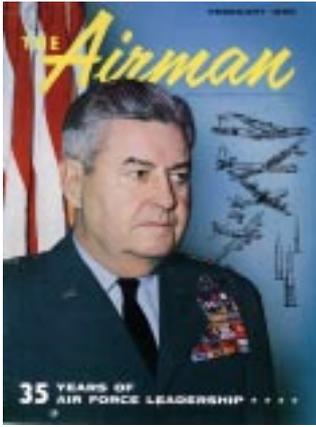
The unassuming photographer continuously passes on his knowledge to coworkers any chance he gets. He says he has a responsibility to his fellow workers and subordinates.

"He has so much knowledge, and not just about photography," said coworker Larry McTighe. "You can learn a lot about photography and about life when you work with Joe. He has been in almost every photo situation and doesn't have a problem with sharing that knowledge with anyone. If you have a question, he never makes you feel small when you ask it, he just tries his best to answer it," McTighe said.

He has been said to be the Air Force's role model but coworkers believe that he is a great role model for everybody he comes into contact with.

"I feel that I have what the Air Force needs," Collaso said. "I am 100 percent reliable, I love what I do, I am still healthy and I am dedicated."

Collaso has seen it all and done it all. A few of his accomplishments include: two trips to Vietnam, flying in three simulated dogfights, taking photos while breaking the sound barrier, working for six years on *The Airman* magazine staff, photographing all 15 Air Force



Collaso's Gen. LeMay cover

Chiefs of Staff, promoted from staff sergeant to master in one year, recommended for promotion to warrant officer, serving 27 years in the Air Force, and taking photos of the only American Polyamide Gold Medal winner in Innsbruck, Austria.

"Joe means much more to the Air Force than a photographer who has literally covered thousands of events and taken tens of thousands of pictures," said Hall. "His performance will affect the future because of the legacy that he is leaving. Even after all of these years, he still puts the mission first at the expense of his own self interests."

In a letter recognizing Collaso for some of his achievements, former Air Force Vice Chief of Staff Gen. Ralph E. Eberhart, wrote that Mr. Collaso is a significant part of Air Force history. He has recorded virtually every major event on film for posterity in support of the SECAF, CSAF, Vice CSAF and other senior leaders. In short, he loves the Air Force and the total volume of his work provides the ultimate testimony to his professionalism, dedication, and humble sense of pride.

He received the Air Force Meritorious Civilian Service Award in October of 1998.

When he received his award in 1998, he and his wife, Nellie, also celebrated their 56th wedding anniversary, and his 80th birthday. President Clinton sent him a note congratulating and thanking him.

The Collasos have two sons, Joe Harrell and Henry James. His boys didn't exactly follow in their father's footsteps. They chose to serve their country in a different capacity. Both

are now retired U.S. Deputy Marshals from Texas.

He feels the Air Force is his fountain of youth -- enjoying what you do on a daily basis.

"You have to know what you want to do for a living," he said. "Then once you get into that job, you have to do research in your career, take courses in your career field, take any type of (professional development) courses to further your knowledge of your job and to better yourself.

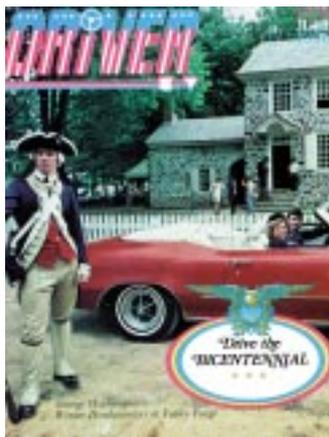
Collaso likes taking photos because he feels they provide a certain reality of life. He also believes they can have an impact on someone's decision to stay with an occupation for life.

The Air Force echoed those thoughts and had him update their recruiting materials with newer photos.

"I tried to capture a true representation of airmen doing their jobs," he said. "That way, potential recruits could look at the recruiting pamphlets and see their peers performing jobs that they may be interested in joining the Air Force to do. Collaso also wanted the photos to depict what the kids of that time period look like, not kids with flattops, crewcuts and other older style haircuts.

The young man has a lifetime of accomplishments but isn't ready to throw in the towel just yet.

"I see myself retiring eventually," he said. "But I'm totally aware of how lucky I am. I am healthy, I have the job I love to do, and I have my family."



A Collaso cover.

At a glance

March 1941—enlisted in Army Air Corps

June 1946-1949—public relations photographer at Randolph AFB, Texas. Took thousands of aviation cadets' photos to include Glenn Daves and Doc Blanchard, Army Academy football players who played with former CSAF Gen. Charles A. Gabriel.

1949-1954—HQ Air Training Command photographer. Served as the Photographic Editorial Director for *Air Training*, official magazine of USAF Training Command. Shot 18 covers Supervised still and motion picture coverage of President Harry Truman's visit to Scott AFB, Ill.

1954—transferred to Tokyo, Japan. NCOIC of the base photo lab.

1957—transferred to Lincoln AFB, Neb. NCOIC of base photo lab. Took photos of missile sites under construction.

1961—transferred to Washington D.C. Photographic Director for *The Airman* magazine. Took two trips to Vietnam where his efforts produced 16 Air Force lithographs. Flew on B-52 combat mission behind enemy lines. Traveled to Ethiopia and remote sites within the country documenting airmen doing their jobs.

1965—Photographed Gen. LeMay prior to his retirement as the Air Force Chief of Staff. Photo used as the cover of *The Airman*.

1964—Photographed only American to win a Gold Medal at Olympics in Innsbruck, Austria.

1967—Retired from active duty. Later was selected as the Official Air Force advertising and recruiting photographer.

June 1968 - October 1976—Photographed military members performing their jobs specifically to update Air Force recruiting and publicity products.

1976-present—Air Staff photographer in the Pentagon.



Promotions

A1C

Tawnie M. Droddy
374th CS, Yokota AB, Japan

SrA

Nathaniel D. Kowalski
Kris V. Robinson
Demario S. Vance
Kanesha A. Webber
Jason A. Zarudny
374th CS, Yokota AB, Japan

SSgt

Matthew J. Swift
Jessica J. Whitman
Elizabeth A. Wilson
Sean M. Pullman
William Greer
Randall S. Simpson
374th CS, Yokota AB, Japan

TSgt

Howard D. Hollister

Keith L. Rogers
Gwinn A. Aguilar
Timothy A. Schmidt
Zachary L. Wilson
374th CS, Yokota AB, Japan

MSgt

Glen A. Saxon
374th CS, Yokota AB, Japan
Troy Deaton (STEP)
39th CS, Incirlik AB, Turkey

SMSgt

Bradley H. Gildea
374th CS, Yokota AB, Japan

Medals

Meritorious Service

MSgt. Paul A. Millner
374th CS, Yokota AB, Japan

Joint Service Commendation

SSgt. Joplin Cox
374th CS, Yokota AB, Japan

AF Commendation

TSgt. Robert S. Kirksey (3OLC)
SSgt. Gwinn A. Aguilar (1OLC)
SSgt Carter A. Cort (1OLC)
SSgt Valda G. Wilson (1OLC)
374th CS, Yokota AB, Japan

Awards

Lt. Gen. Leo Marquez Comm maintainers:

Supervisor-Manager

SMSgt. Jessie Showers
375th CG, Scott AFB, Ill.

Technician-Supervisor

SSgt James Kent
375th CG, Scott AFB, Ill.

Technician

SrA Scott Case
375th CG, Scott AFB, Ill.

Civilian Manager

Steven Bommarito
375th CG, Scott AFB, Ill.

Annual awards

Airman

SrA Corey Voorhees
86th CS, Ramstein AB, Germany
SSgt Richard Meyers
AFCA, Scott AFB, Ill.

NCO

SSgt. Joe Navarro
86th CS, Ramstein AB, Germany
SSgt. Sam Moore
AFCA, Scott AFB, Ill.

Senior NCO

SMSgt. Darren Kincaid
86th CS, Ramstein AB, Germany
MSgt. Andy Kaiser
AFCA, Scott AFB, Ill.

CGO

Capt. Tony Gamboa
86th CS, Ramstein AB, Germany
Capt. Joe Scherrer
AFCA, Scott AFB, Ill.

Civilian Cat I

Kris Porterfield
86th CS, Ramstein AB, Germany
Carmen Hensley
AFCA, Scott AFB, Ill.

continued next page

Valor & Recognition

If you've received an award, promotion, or some other newsworthy event, tell the rest of the Communications and Information community. Send an e-mail to intercom@scott.af.mil or mail it to AFCA/XPPA (*intercom*), 203 W. Losey St., Room 1060, Scott AFB IL 62225-5222

ABS	Air Base Squadron
ACOMS	Air Communications Squadron
AFCA	Air Force Communications Agency
AFFMA	Air Force Frequency Management Agency
AFCQMI	Air Force Center for Quality and Management Innovation
AFPCA	AF Pentagon Communications Agency
AFSOC	AF Special Operations Command
AFTAC	AF Technical Applications Center

AFWA	Air Force Weather Agency
ASOS	Air Support Operations Squadron
CCS	Combat Communications Sq
CG/Comm Gp	Communications Group
CLSS	Computer Logistics Support Sq
CS	Communications Squadron
CSG	Computer Systems Group
CSO	Computer Support Office
CPSS or CSS	Computer Systems Squadron
DISA	Defense Information Systems Agency
EIG	Engineering Installation Group
EIS	Electronics/Engineering Installation Squadron
JCSE	Joint Communications Support Element
MSG	Materiel Systems Group
RSG	Regional Support Group
SSG	Standard Systems Group

Help Wanted

Oklahoma City

The 1st Aviation Standards Flight in Oklahoma City, Okla., has traditional Reservist positions available in the 2E152 and 2E172 METNAV AFSCs. These are aircrew positions performing flight inspection duties and involve interviewing and passing a flying physical. Call Tech. Sgt. Rob Uzzle or Maj. Randall Peterson at DSN 940-2855 or (405) 954-1955 for more information.

Wyoming ANG

The Wyoming ANG is accepting applications for full-time active-duty Guard slots in the following AFSCs: 2E1X1, 2E1X3, 3A0X1, 3C2X1, 3C0X1, 3C1X1, 2E2X1, and 2E3X1. The ranks affiliated with these positions range from E-5 to E-9. For more information on full-time or part-time opportunities please call Master Sgt. Lopez or Staff Sgt. Beeman at DSN 943-6334 or 1-800-742-9993.

North Carolina ANG

The 263rd Combat Communications Squadron in Badin, N.C., has the following part-time positions available: 2E1X1 and 2E2X1. Retraining is available. Ask about N.C.'s tuition assistance and state retirement programs. The unit is located about one hour from Charlotte and less than three hours from Raleigh/Durham, home of the Research Triangle. For more information, call Master Sgt. Michael Gilding at 1-800-354-6943 Ext. 2467. Visit their web site at <http://www.ncchar.ang.af.mil/> or e-mail: michael.gilding@ncchar.ang.af.mil.

Illinois ANG

The 182nd AW, Peoria, Ill., has vacancies in the following AFSCs: 2A1X3, 2E1X1, 2E1X3, 2E2X1, and 2E6X3.

Contact Tech. Sgt. Brian J. Benders at DSN 724-5543 or (800)241-1331 for more information.

continued from previous page

Civilian Cat II

Dave Olson
86th CS, Ramstein AB, Germany
Cathy Kennedy
AFCA, Scott AFB, Ill.

AFCA's Team of the Year

HAMMER ACE,

Special Purpose Communications
SMSgt. John Shipley, MSgt.
Randy Weiss, TSgt. Paul Kester,
TSgt. Thomas Kinney, SSgt.
James Boggio, SSgt. Paul Donnell,
SSgt. James Miller, SSgt. Mark
Willis, SSgt. Mark Provo, SSgt.
Robert Rose, SSgt. Alfred Moore

Airman of 4th Quarter

SrA Dolores Rocha
375th CG, Scott AFB, Ill.
A1C Garret Swanberg
86th CS, Ramstein AB, Germany
A1C Jimmy Blakely
42nd CS, Maxwell AFB, Ala.

NCO of 4th Quarter

TSgt. James Leblanc
375th CG, Scott AFB, Ill.
TSgt Darren Nelson
86th CS, Ramstein AB, Germany
SSgt. Marcus Martin
42nd CS, Maxwell AFB, Ala.

Senior NCO of 4th Quarter

MSgt. Christopher Calkins
375th CG, Scott AFB, Ill.
MSgt. Andy Cederle
86th CS, Ramstein AB, Germany
SNCO – MSgt. Joseph Carena
42nd CS, Maxwell AFB, Ala.

CGO of 4th Quarter

1st Lt. David Pena
375th CG, Scott AFB, Ill.
Capt. Tony Gamboa
86th CS, Ramstein AB, Germany
CGO - Capt. Terrence Adams
42nd CS, Maxwell AFB, Ala.

Civilian of 4th Quarter Cat I

Pam Gregory
375th CG, Scott AFB, Ill.
Kris Porterfield
86th CS, Ramstein AB, Germany
James Smith
42nd CS, Maxwell AFB, Ala.

Civilian of 4th Quarter Cat II

Steven Bommarito
375th CG, Scott AFB, Ill.
Sidney Combs
42nd CS, Maxwell AFB, Ala.

Civilian of 4th Quarter Cat III

Eulon Lee
42nd CS, Maxwell AFB, Ala.

intercom special focus issues

The following is a schedule of upcoming *intercom* issues. If you would like to submit an article/photos for any issue, please contact Tech. Sgt. Michael Leonard at DSN 576-4396 or send an e-mail to intercom@scott.af.mil.

June 2000 *intercom*

People First

Deadline is April 28

July 2000 *intercom*

*Better Ways of Doing Business
in Comm and Info Operations*

Deadline is May 30

Aug 2000 *intercom*

*Competitive Sourcing &
Privatization*

Deadline is June 30

Sept 2000 *intercom*

Deployable Comm

Deadline is July 31

Oct 2000 *intercom*

Almanac issue

Deadline is Aug. 31

Nov 2000 *intercom*

Information Operations

Deadline is Sept. 29

Dec 2000 *intercom*

*Closing the book
on 20th Century*

Deadline is Oct. 31

**“The Global Information Grid
is a weapon system and delivers
enhanced combat power through assured,
protected information delivery
and efficient/effective information services.”**

*Lt. Gen. John L. Woodward Jr.
Director of the Command, Control, Communications
and Computer Systems Directorate, the Joint Staff*