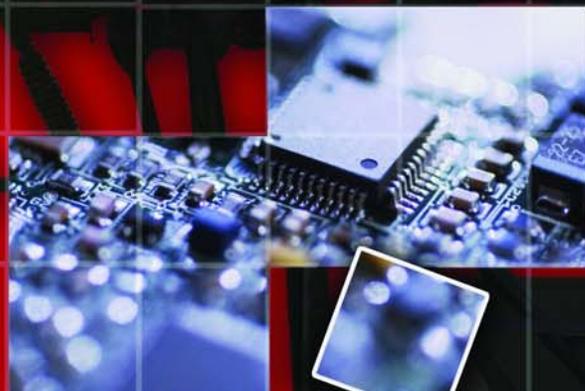
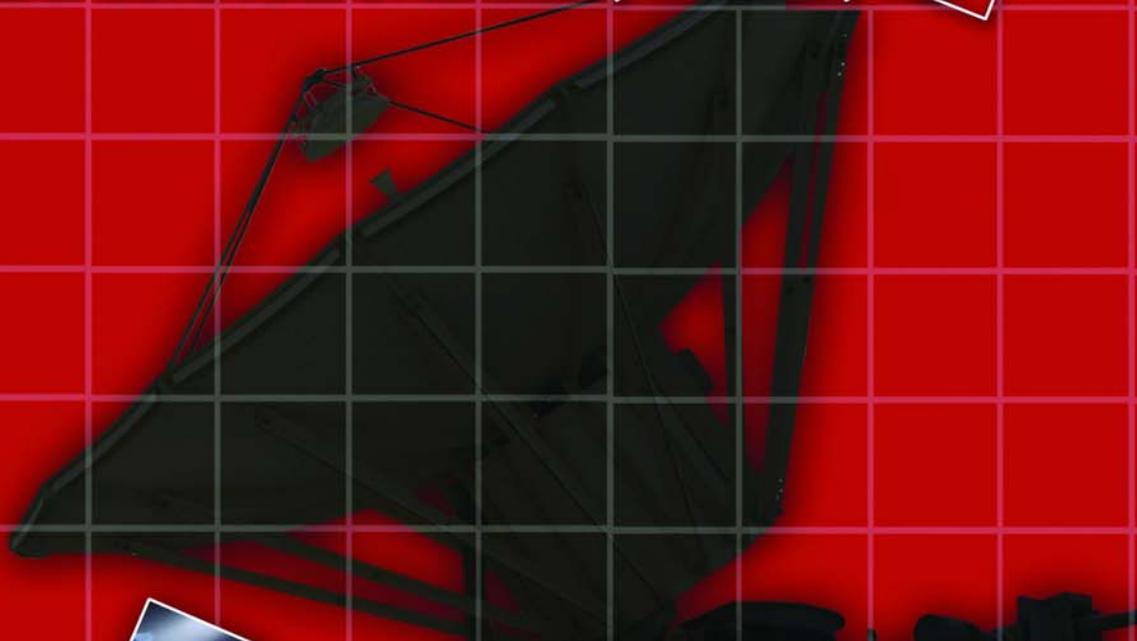


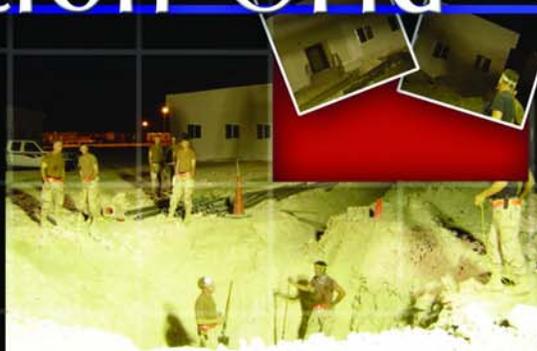
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Journal of the Air Force C4 community ★ February 2004



Global Information Grid

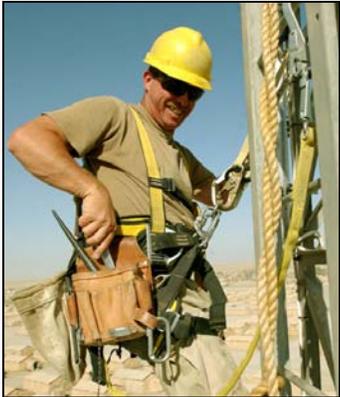
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- ▶▶ An evolution in information
- ▶▶ GIG-BE: USAFE extends capability
- ▶▶ The changing face of network operations



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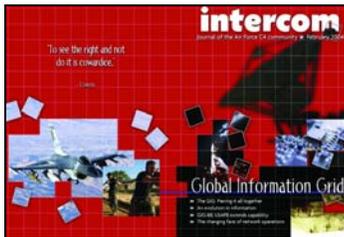
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Timothy Wilkins



This month's cover, themed "Global Information Grid" is designed by Tech. Sgt. Jim Verchio, Intercom Editor.

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THE JOURNAL OF THE AIR FORCE C4 COMMUNITY

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Air Force Chief of Staff

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<http://usaf.smartforce.com>

From the editorial desk



Day-in-the-Life showcases your work

By Master Sgt. Karen Petitt
Intercom Managing Editor

Whether you're drawing a graphic at a multimedia shop, sorting mail at an APO, troubleshooting the network, coaching a basketball team, or volunteering in the community, we want to illustrate your efforts! We've chosen March 12 as the day for you to capture your "Life," from morning until night. All you have to do is grab a camera and start taking pictures. Send us your photos with outline information and photo credit, no smaller than 5x7 at 200 DPI by April 15 for inclusion into the June magazine.

Day-in-the-life themes are usually popular, but can only be so if there are submissions. If you'd like to submit a short story to explain the photo or give additional details that'd be great, too. If you're not quite sure you're up to taking the photos, just ask your VI shops to help you with this or contact your local Public Affairs office as they may be able to offer suggestions or provide assistance. It might make a good photo page for your base newspaper as well as contributing to the *intercom*.

And, as a reminder, the other themes can be found on our homepage, and if you have any questions, just call or e-mail. Happy picture taking!



Letters to the editor

BDUs for the CAPs

I just read your tid-bit on "Just For Fun: What to do with your old BDUs." I'm hoping you can add a short follow-up note in your next issue of what could be done in a serious way.

There are about 60,000 members of the Air Force Auxilliary (Civil Air Patrol) that have to continually purchase (if unable to beg, borrow or plead) for BDUs, especially field jackets and other gear needed for missions. There are also thousands of cadets aged 12 to 19 who need them as well. Although the Air Force attempts to issue blues, BDUs have never been issued to our members—it has always been a personal or parental expense.

Maybe you could suggest finding a local unit or wing headquarters, there's one for each state. Often their logistics officers would be overjoyed to "come to you" for collected BDUs.

— Maj. Dave Mullins

Civil Air Patrol, Youngstown AFRS

Good show

I wanted to take a minute and congratulate the staff on the December 2003 *intercom* and Combat Camera Portfolio. I received both magazines this morning, and they are absolutely outstanding. These were, by far, the best examples of military photojournalism I've seen in my 19 years in the Public Affairs career field.

— Tech. Sgt. Brian Orban

Minot AFB, ND

Can't get enough

After seeing your magazine, I realized I gotta get this every month!

— Tech. Sgt. Jay Vitela

League City, Texas

***Extra copies:** The intercom staff is determining the need for additional copies of the December issue's Combat Camera portfolio. Please have all requests into the staff by March 1.

JAG
in a Box

Fritz Mihelcic
AFCA Deputy
Chief Counsel



Peaceful SATCOM

Does the use of commercial SATCOM to support combat operations violate the Peaceful Purposes provision of the Outer Space Treaty of 1967?

No. "Peaceful Purposes" has been interpreted by the United States since the late 1950's to mean non-aggressive or non-hostile. It does not mean non-military, as the former Soviet Union advocated. The 1996 U.S. National Space Policy allows the Defense Department to use these satellites in the pursuit of national security and other goals. Following this reasoning, non-aggressive military use such as combat communications support is still considered a peaceful use of outer space and does not violate the treaty. This viewpoint has also been adopted by the United Nations.

There is also a side issue of whether the military use of commercial satellites for combat support makes these satellites lawful targets under the Law of Armed Conflict. If they are considered lawful targets, the cost of insuring them may become prohibitive. This could drive a decision by the satellite owners to protect their investments by stopping military use altogether. If you encounter these issues, be sure to check with your local JA as well.

Send in your question to:

AFCA-JA@scott.af.mil
or call DSN: 779-6060

GLOBAL INFORMATION GRID

Piecing it all together

By Maj. Gen. Charles E. Croom Jr.

Director, C4ISR Infostructure DCS for Warfighting Integration

PENTAGON — A net-enabled force is the key to the Air Force's future Net-Centric Warfare capability.

From
the Top

We've learned in Afghanistan and Iraq the Air Force must be able to strike swiftly emerging targets within minutes of receiving target information. Our adversaries are aware it takes reaction time for our operators to complete the kill chain—the six-stage cycle that finds, fixes, tracks, targets, engages, and assesses—and at times they're able to exploit this delay by adapting tactics that improve their survivability.

Just a few years ago, reaction times for time-critical targets were nominally measured in hours. Although by Operation Iraqi Freedom, kill chain reaction time had compressed to double-digit minutes. It's clear future operations will require reaction times of single-digit minutes.

To accomplish this goal, Chief of Staff Gen. John Jumper challenged us to close the seams in the kill chain by integrating manned, unmanned and space systems, and terrestrial, air and space C4ISR networks, thus improving a commander's operational effects. The key to achieving this is to transition to a net-enabled force.

Combined Forces Air Component Commander for OIF, General Michael Moseley said, "We need to think of communications as a tool that links the individual elements of the kill chain, a tool just as important as the elements themselves. To successfully prosecute OIF, every service needed

an exponential increase in comm capabilities."

Our biggest challenge is to transform the current communications capability. Our legacy systems are platform-centric, with a single mission perspective and lack sufficient interoperability with our coalition partners. Data is routed through stovepipes in a sequential, hierarchical decision path over bandwidth constrained links, which builds latency into the decision cycle. This results in a decrease in operational advantage.

The Air Force goal is to build a joint warfighting infostructure that improves decision quality information for decision-makers. Essential is a warfighting network that allows parallel processing and delivery of information. This net maximizes machine-to-machine interfaces in which machines communicate directly with each other. It's seamless, efficient, self-forming and self-healing, allowing commanders a free flow of information that is rapidly accessible.

Net-Centric Warfare invokes changes in tactics, techniques and procedures that are used to produce synergistic effects throughout warfighting operations. A robust, joint networked force improves shared situational awareness.

A robust Global Information Grid and dynamic Information Management are two major components in building the necessary warfighting infostructure needed to reduce kill chain latency.

The GIG is a globally interconnected, end-to-end set of information capabilities enabling the collection, processing, storage, dissemination and management of information. Today, the GIG is often thought of in terms of terrestrial-based network transport capabilities. However, to close



seams, the GIG must be thought of and transformed into a truly global, three-dimensional information processing network by developing and integrating airborne and space-based platform networking and information transport capacity. As we extend the IP-based, high-speed network to our airborne and space based platforms, this enables us to leverage the advantages of a fully networked force.

GIG-Bandwidth Expansion, GIG-Enterprise Services, Joint Tactical Radio System and Transformational Communications System are several IP-based transformational initiatives. The vision is to provide diverse transmission paths and information services between our fixed and deployed operating locations. These capabilities will allow the warfighter to exchange unprecedented levels of information.

Important to an effective IP-based transport is adoption of the new **IPv6 addressing standards** mandated by fiscal year 2008. During the next few years, Air Force systems and applications will require IPv6 capability that will give us needed improvements in IP address space, mobile networking, multicasting and end-to-end data security while meeting the requirement to network everything the warfighter needs to make a timely decision.

Managing information itself is a capability and an emerging domain that we must master. Our leader, Lt. Gen. Tom Hobbins, said, "The issue is not moving data faster so much as it is moving the right data to the right people to include our coalition partners. Information flow needs to be honed to decision quality for the command chain. Future conflicts will require the Air Force to employ capabilities that rapidly process time-critical information driven by an architecture that is street smart ... a commander doesn't want to be

spammed, he wants to be astonished and impressed."

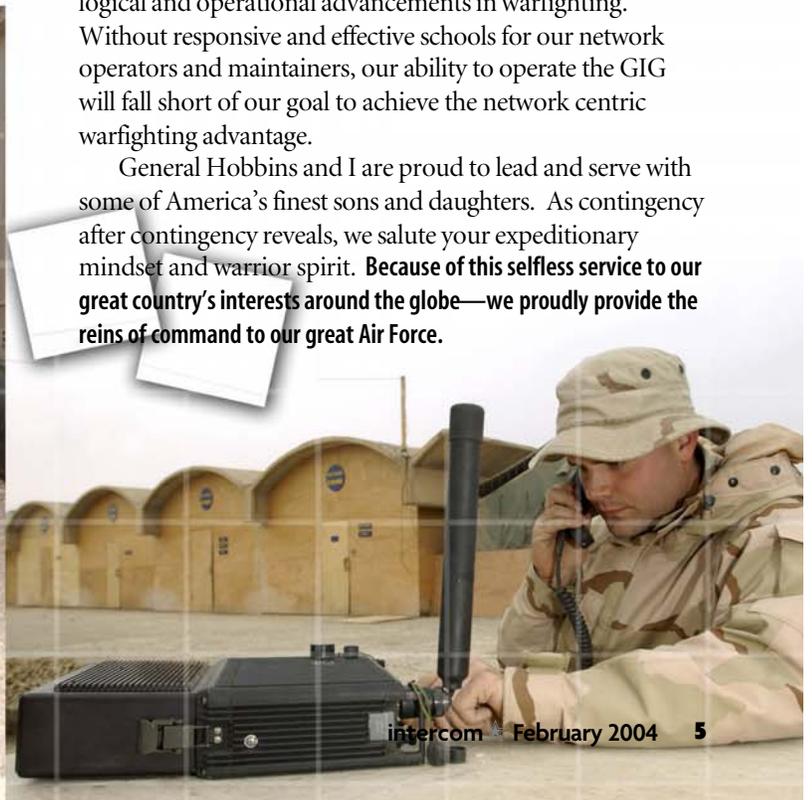
We're seeking to transform the Air Operations Center into an intelligent display through the use of tools that integrate and distill vast amounts of information. Specifically, commanders need consolidated information that is presented rapidly via knowledge walls, visual displays or the various capabilities of the Air Force Global Command and Control System. These displays will present not only a picture of what is, but also a predictive picture of what might happen next in the battlespace.

A difficult first step to effective information management is agreeing on the data elements intended for use and their exact definitions. This problem must be solved if we can ever hope to fully interoperate among ourselves, our sister services and our coalition partners. Pivotal to our success in this area will be our ability to maintain and control the integrity of these universally applied data elements through the use of technologies such as XML.

Network operations is the operational capability focused on getting the right information to the right place at the right time. Given the critical demands on our warrior net, it must operate at optimum performance, and it must guarantee information delivery. We must continue to evolve training, doctrine, and tactics, techniques, and procedures, to keep pace with our technologically driven leaps in warfighting operations and adversary threats.

The Global Information Grid can not happen without a highly trained and motivated communications and information warrior force. Today's airmen are the smartest and most technically savvy expeditionary communication warriors ever. With the rapid, quantum level changes in information technology, our current and future warriors must keep pace with the technological and operational advancements in warfighting. Without responsive and effective schools for our network operators and maintainers, our ability to operate the GIG will fall short of our goal to achieve the network centric warfighting advantage.

General Hobbins and I are proud to lead and serve with some of America's finest sons and daughters. As contingency after contingency reveals, we salute your expeditionary mindset and warrior spirit. **Because of this selfless service to our great country's interests around the globe—we proudly provide the reins of command to our great Air Force.**



GLOBAL INFORMATION GRID

An evolution in information

By Mr. John Gilligan

Air Force Chief Information Officer

PENTAGON — A quick after-action review for Operation Iraqi Freedom found our soldiers and airmen were more powerful and effective than ever before.

This effectiveness was seen in increased precision, speed, and lethality. Warfighters' growing demands for decision-quality information are resulting in a move to recognize information not just as an enabler for combat, but also as a fundamental capability for supporting modern warfare.

As a capability, it's being recognized that information should be managed similar to other capabilities provided by air or space or munitions assets. This shift toward projecting information as a capability means that warfighters are focusing on how information and the supporting information technology programs that manage and manipulate information can contribute to producing warfighting effects.

Information to be recognized as a capability must have the following characteristics: be authoritative (able to be relied upon); be integrated to support dynamic decision-making; and be available where and when needed.

Within the Department of Defense and the Air Force we have been working hard to support the objective of managing information as a capability. The following is a brief description of the Air Force's strategy to provide the necessary foundation and processes to support information as a warfighting and operations support capability.

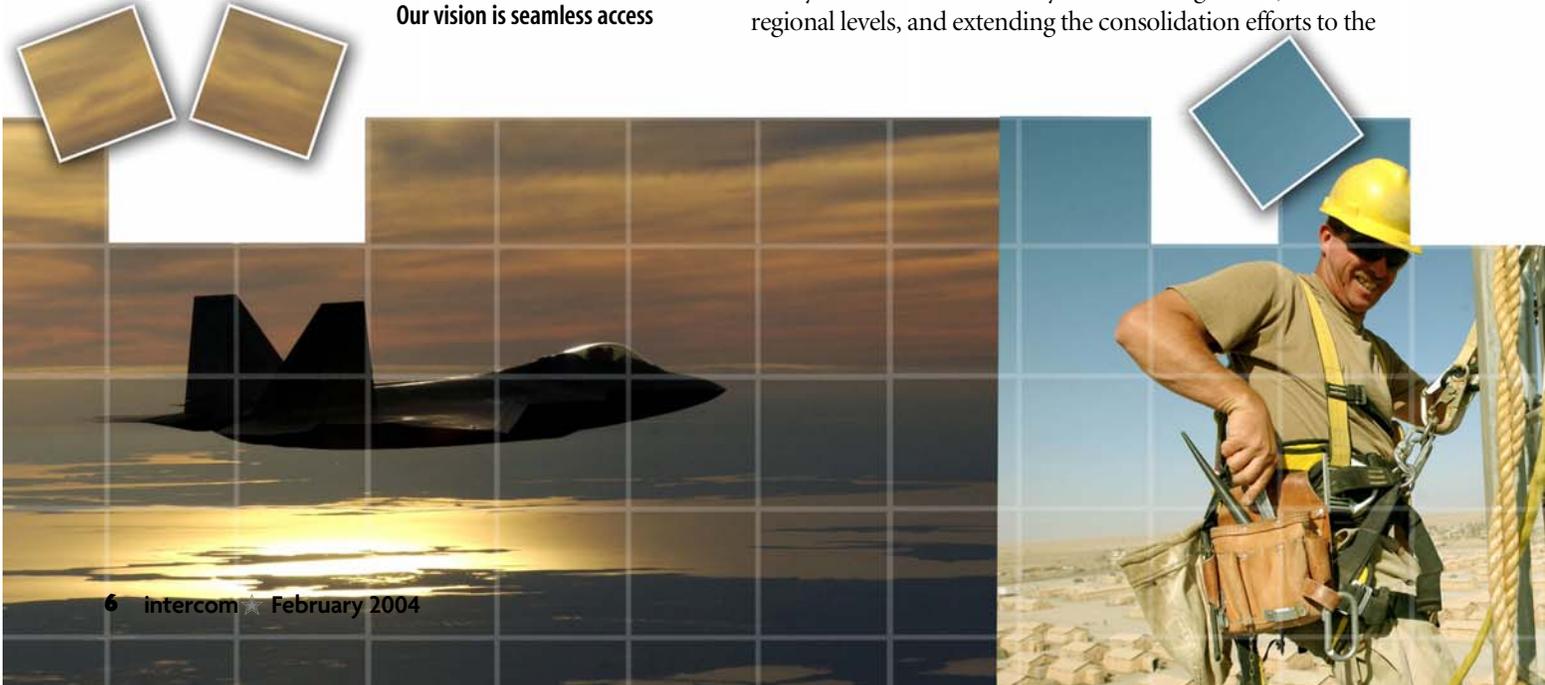
Our vision is seamless access

through a single global network or the Global Information Grid. This grid interconnects all people involved with the military and support operations, as well as its platforms and facilities. The objective is to populate the GIG with authoritative, relevant and sufficient information and deliver this decision-ready information across the entire spectrum of military operations leveraging a large number of enterprise services that will combine, transform and analyze this authoritative data.

The GIG is built on the foundation of a consolidated communications and computing infrastructure and a common platform upon which data and services are supported. These elements of the GIG are the necessary foundations and prerequisites to being able to manage information as a capability.

The target within the Air Force has been to manage our network and computing infrastructure as an enterprise-wide consolidated infrastructure with common architecture and consistent levels of service. This consolidated infrastructure provides common, centrally managed networking interconnectivity, core infrastructure services across the enterprise and configuration controlled end user devices, including desktop computers and other devices such as Personal Digital Assistants or even cockpit displays.

Base infrastructure consolidation is nearly complete due to the outstanding efforts of our MAJCOM and base communications and information teams. The next steps include ensuring consistent standards across all bases, improving effectiveness and efficiency of the infrastructure by consolidating at MAJCOM or regional levels, and extending the consolidation efforts to the



SIPRNET. In the long term, the plan is to extend the seamless infrastructure to air and space platforms through programs like the joint tactical radio.

The next building block of the GIG is providing a common platform that consists of a standard set of underlying functions for data storage, exchange and presentation. The vision in the Air Force and across the Department of Defense is to provide this common platform for all NIPRNET and SIPRNET users and in the future possibly even to users on weapons platforms. The common platform fundamentally leverages commercially available technology. The Air Force Portal, based on commercial portal technology, becomes the visible part of the common platform as well as the single user interface to information. Commercial data warehouse and storage capabilities support information storage and retrieval. In addition, so-called middleware products, or integration frameworks, provide support for data exchange, application linkage and provide security features such as role based access controls and support for single sign-on.

The Air Force Portal and the supporting integration framework and data warehouse developed under the Air Force Global Combat Support System program are delivering a common platform for the NIPRNET today. The plan is to extend the concept to support combat related information available on the SIPRNET.

As we progress toward meeting the warfighter expecta-



Staff Sgt. Verlin Levi Collins / 1st CTCS

MAINTAINING PART OF THE GIG: Senior Airman Jacob Weidinger, 447th ECS, maintains a VOR antenna at Baghdad Airport in Iraq.

tions of fully integrated information capabilities, we see that the Air Force has made significant progress. However, there is a good bit of work left ahead.

The GIG framework provides a structure that helps guide our systematic approach to evolving the emerging information capabilities. **It's our challenge to dedicate ourselves to passionately drive toward the vision of equipping our forces with information as a capability**—just as the air and space visionaries zealously pursued their commitment to providing exceptional and extraordinary support to the warfighters.

IMPLEMENTING THE GRID

From the cockpit to the computer help desk, total control of the Global Information Grid is the goal for Gen. John Jumper, the Air Force Chief of Staff.

The GIG will arm modern warfighters with the information they need when they need it. In doing so, the time to find, fix, track, target and engage the enemy will be greatly reduced. By extending the IP-based, high-speed network to Air Force airborne and space based platforms, the Air Force will leverage the advantages of a fully networked force.

GIG BANDWIDTH EXPANSION

USAFE extends capability

By Tech. Sgt. Paul Le Blanc
USAFE Long Haul Communications

RAMSTEIN AIR BASE, Germany — The Department of Defense GIG-BE program charter is to interconnect key locations around the world providing expanded optical transport capabilities well above those available today.

Five architectural tenets drive the program's development. These tenets are handling information once, posting information before processing, pooling user data, using collaborative technologies within the network, and finally, making the system reliable.

"What we're all about is building this trusted, reliable network," said Army Col. Robert Horback, GIG-BE program manager. "Our basic objectives are increasing bandwidth to critical Defense Department and intelligence community customers and also providing diversity within this network [which is] something we do not have today within many of our government networks."

These capabilities include unprecedented bandwidth,

increased redundancy and survivability while significantly reducing provisioning times across the GIG.

USAFE recognizes two challenges associated with leveraging this capability and has launched the USAFE Technical Control Facility upgrade to answer the call.

The first challenge is to extend these new bandwidth capabilities from the service delivery node to the customer. The current on-base distribution network is not designed to accommodate activating new services on demand without significant equipment installation and provisioning times.

The TCF upgrade will install the intermediate nodes and edge devices needed to allow expanding services by either electronic provisioning of existing capacity or installing a new card into an existing system. These new nodes and edge devices will enable greater flexibility for key customers, setting the standard for on-base transport.

The second challenge is that GIG-BE only impacts a few, key locations. USAFE's vision is to extend GIG-BE capabilities to all USAFE customer locations dur-

ing the next several years. The TCF upgrade will initially modernize 14 locations from fiscal year 2004 through fiscal year 2007 culminating with modernizing smaller geographically separated units by the end of fiscal year 2009.

In conjunction with the GIG-BE program, we are engaged in an aggressive microwave radio upgrade program. This program is known as the Digital European Backbone or DEB.

The DEB provides military connectivity that is completely independent of any commercial bandwidth. The current DEB equipment is mid-1980's technology and USAFE is upgrading to a more robust and higher bandwidth capable system across the European theater.

Upon completion, DEB bandwidth capability will increase almost six times, from 26 Mbps to 155 Mbps.

By leveraging new capabilities offered by the GIG-BE and DEB expansion initiatives, USAFE remains ready to meet the communication needs of today's warfighter. (Tech. Sgt. Larry Berzel contributed to this article.)





GIG line

(L to R) Senior Airman Kris Hemberger, Airman 1st Class Gordon Lam and Staff Sgt. Juan Lara install an antenna mast and cable on the new Operations Group building at a forward location. All three airmen are ground radio technicians assigned to the 379th Expeditionary Communications Squadron.

Airman 1st Class Nichole Adamowicz /JCCC

GLOBAL INFORMATION GRID

the changing face of

Network operations

By Maj. Larry Cox
U.S. Pacific Command

CAMP H.M. SMITH, Hawaii — Today's joint warfighters rely on a variety of network-enabled capabilities to dominate the battlespace.

Joint force commanders employ networked forces to conduct distributed operations with a level of fidelity never before known. To fully support this developing construct of network-centric warfare, Joint Vision 2020 demands continued evolution of the Global Information Grid, including appropriate technology and organizational doctrine to support networked joint forces.

New construct for NetOps

In the face of growing reliance on network-centric warfare, the GIG must be optimized to provide dependable, flexible support for the full-range of military operations.

In the past, the GIG had been managed as a loose confederation of networks with no central authority. The most recent unified command plan changed all that, assigning United States Strategic Command operational control of the GIG and the global NetOps mission.

Soon thereafter, USSTRATCOM engaged other combatant commanders to define organizational and operational constructs for responsive management of the GIG to meet warfighter needs.

The Joint Concept of Operations for Global Information Grid Network Operations outlines this way ahead.

Global NetOps

Essentially, NetOps will be divided into a global mission under the control of USSTRATCOM and regional missions under the control of the regional combatant commanders.

Within the global construct, USSTRATCOM will establish Joint Task Force – Global Network Operations to execute its joint mission essential tasks of system and network management, information assurance and content staging/information dissemination management.

JTF-GNO will exercise operational control of the GIG for NetOps issues, which are those issues that affect or potentially affect availability, protection or delivery of infor-

mation for multiple combatant commands, services or agencies.

JTF-GNO will implement control practices to ensure GIG services are always available to the warfighter. It will merge with the Global Network Operations and Security Center, the DoD Computer Emergency Response Team and the Global SAT-COM Support Center into a single entity called the Global NetOps Center. The GNC will be the technical implementation arm of JTF-GNO and serve as the nerve center for global NetOps.

Regional NetOps

For regional NetOps issues, each regional combatant command will establish a theater NetOps hierarchy. Regional NetOps will center on the Theater C4ISR Control Center, or TCCC. The TCCC is the organization through which combatant commands maintain situational awareness and exercise operational control over apportioned, allocated and assigned system and network resources. These resources are collectively known as the Theater Information Grid.

PACAF and NetOps

United States Pacific Command has taken a leading role in the development of joint NetOps. The PACOM TCCC was designated as lead for the TCCC and NetOps pilot programs for both the Assistant Secretary of Defense for C3I and the Joint Staff J6. The United States Pacific Command Network Operations Concept of Operations, published in 2001, provided one of the first true joint concepts for NetOps. The joint community is working hard to evolve its NetOps concepts to better support network-centric warfare. With USSTRATCOM in command of the GIG and regional combatant commanders like USPACOM in control of their TIGs, joint leadership of NetOps is focused on making responsive warfighter support a reality. (Maj. Jeff Smith and Mr. Alexander Pura contributed to this article.)



SATCOM keeps comm open

By 2nd Lt. Jon Wilbur
755th Communications Squadron

OFFUTT AIR FORCE BASE, Neb. — Ensuring reliable communications for the United States Strategic Command and the 55th Wing in the event of a nuclear war is the job of the 755th Communications Squadron Satellite Communications Systems Flight.

The Satellite Communications Flight is the largest, fixed SATCOM facility in Air Combat Command. Its diversity lies in the number of command authorities and agencies it supports.

The SATCOM facility offers communications via two satellite networks: the Defense Satellite Communications System network and the Milstar network. The DSCS, which is the primary system, supports the president, the Secretary of Defense, the Joint Chiefs of Staff, the United States Strategic Command, the National Airborne Operations Center and the 55th Wing.

The DSCS facility has been the Department of Defense's primary communications network for more than 25 years.

Using super High Frequency wavelengths and offering anti-jam capabilities, the DSCS facility provides voice and data hotline capabilities to command authorities.

This capability gives DSCS the ability to operate through a high altitude electromagnetic pulse caused by a nuclear

detonation. The DSCS facility consists of one heavy earth terminal, commonly referred to as the Eastern Pacific Satellite terminal, and one medium earth terminal commonly referred to as the Western Atlantic Satellite terminal. Each terminal contains two spread spectrum multiple access systems making it virtually impossible for foreign aggression to interrupt their services.

Additionally, the DSCS facility houses two Single Channel Transponder Injection Systems. Both systems are used by United States Strategic Command for emergency action message dissemination to United States nuclear forces.

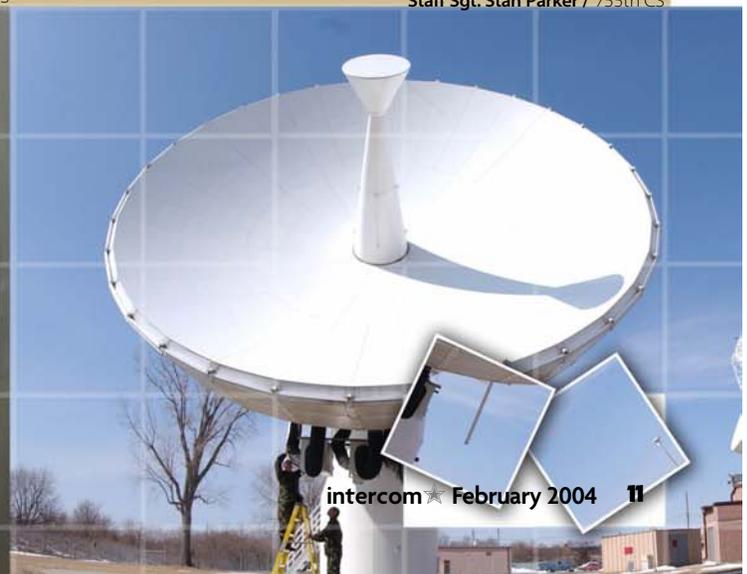
One of the most important missions the DSCS satellite terminals support is the Integrated Tactical Warning/Attack Assessment network. Early warning data comes from the ballistic missile warning system radar stations, the defense support program infrared satellites and also from the Solid State Phased Array Warning System facility known as PAVE PAWS.

PAVE is a program name for electronic systems, while PAWS stands for Phased Array Warning System. Information is passed to the Alternate Missile Warning Center where it's correlated into an operational warning picture in real time, which we then broadcast to agencies such as the National Military Command Center, United States Strategic Command.

Left: Senior Airmen Louis Vigil and Ronald Peterson work on the Spread Spectrum Multiple Access system. Right: DSCS personnel work on the AN/GSC-52 and AN/FSC-78.

Staff Sgt. Benjamin Andera / 755th CS

Staff Sgt. Stan Parker / 755th CS





GLOBAL INFORMATION GRID

Defending the network

By Mr. Timothy Wilkins
Air Force Information Warfare Center

LACKLAND AIR FORCE BASE, Texas — The Air Force Information Warfare Center/Defensive Counterinformation Division is the focal point for: analyzing information operations vulnerabilities; exploring leading edge technologies; migrating information capabilities to the warfighter; and leading the way in protecting Air Force, Department of Defense and other government agencies' computer networks from hostile activities.

The complexity of the Internet infrastructure of personal computers and networks creates vulnerabilities within the United States' business, educational and military organizations worldwide.

These vulnerabilities provide opportunities for unauthorized users to gain access to critical systems and sensitive information without the knowledge of either the legitimate users or the system administrators. These unauthorized users can be either internal employees or

external hackers armed with the tools to disrupt and destroy the victims' networks. There are many advantages to having networked systems, such as information flow, information collaboration and information sharing. The difficulty is these advantages can be rendered moot by the inherent weaknesses of networked systems and connectivity to networks via physical hardwires or virtual wireless technologies. Consider that an Integrated Air Defense System provides a unified picture of air activity allowing commanders to make and execute instant decisions. It's critical these commanders be able to direct combat operations immediately and decisively. Consequently, the networks they use to disseminate these decisions must be active, interoperable and secure. An Integrated Network Defense System is the answer to this need.

The warfare center is spearheading the development and fielding of an INDS that incorporates a Computer Network Defense System, and in the future, systems that protect both Private Branch Exchange telecommunications and wireless networks.

network defense tools

▶▶ **The Automated Security Incident Measurement sensor**, which is deployed at 108 Air Force installations worldwide, is a software product that enhances network security by logging and analyzing network traffic in order to identify suspicious activity. It monitors network Transfer Control Protocol, User Datagram Protocol and Internet Control Message Protocol traffic, and uses numerous techniques of intrusion detection for its analysis. From May to December 2003, ASIM sensors reported **7,785,105** real-time events.

▶▶ **The Common Intrusion Detection Director System**, which is deployed at all eight major commands and the Air Force Computer Emergency Response Team, is a dedicated hardware and software platform designed to receive near real-time connections data and associat-

ed transcripts from ASIM sensor host machines. It stores this data for later detailed correlation and analysis by both human analysts and automated tools.

▶▶ **The Computer Security Assistance Program Database System** is a centralized enterprise-class database, analysis and reporting system specifically developed to support the Air Force CND mission and designed to compliment the ASIM and CIDDS intrusion detection and reporting tools.

The CDS serves as an advanced Air Force decision support system that collects, stores, processes, analyzes and reports computer and network information protection and intrusion detection related information.

It contains centralized data retrieved from the ASIM sensors and the CIDDS and manually entered by analysts.

This data is stored and displayed for rapid analysis and application of countermeasures,

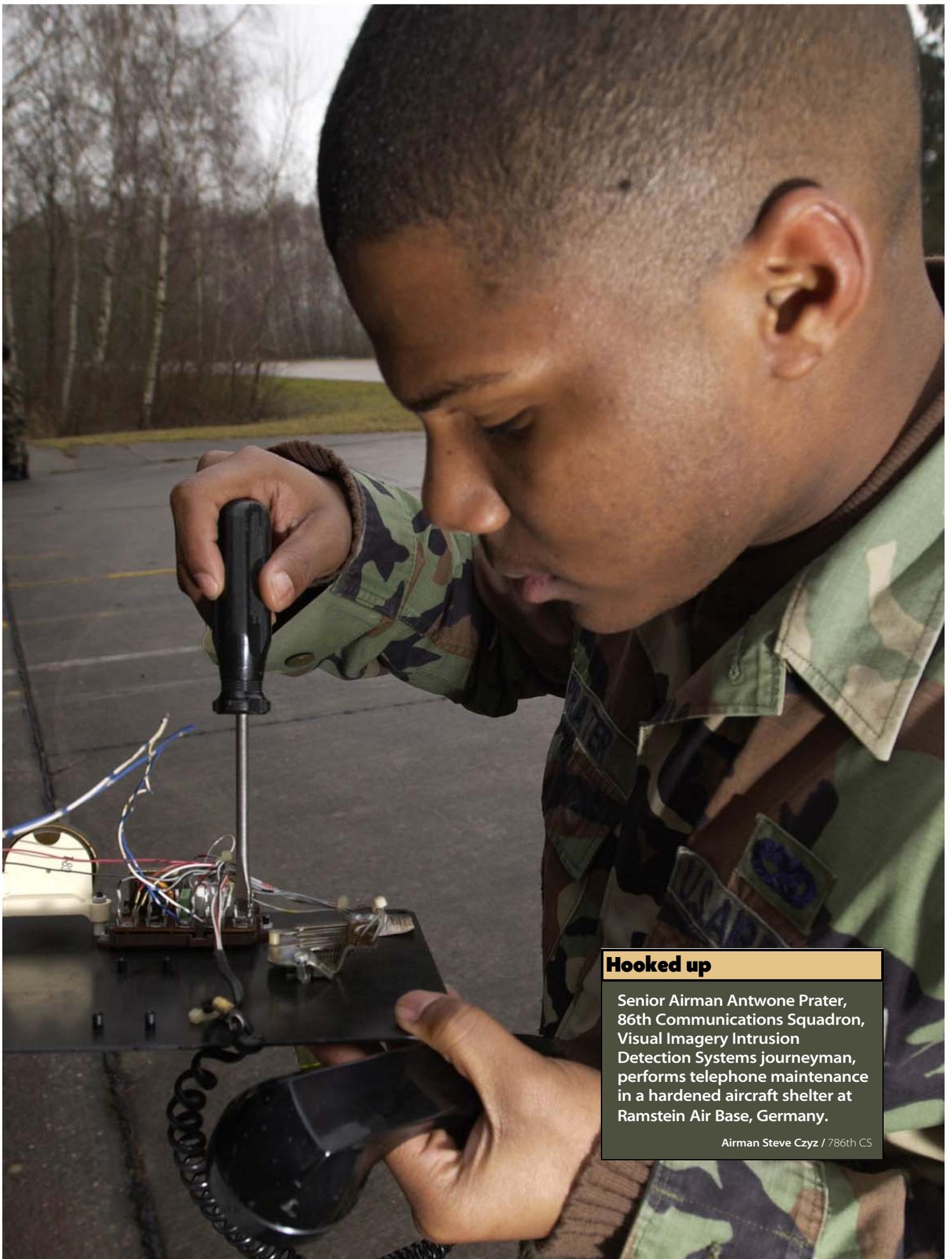
and for detailed human correlation and processing.

To date, the CDS has tracked **150 incidents** within the Air Force, and has recorded and provided more than **35,000 suspicious event reports** to the Joint Task Force-Global Network Operations for global correlation between the armed services.

The Information Warfare Visualization tool, deployed to the MAJCOMs, AFCERT and Air Force Network Operations and Security Center, supports a worldwide global situation awareness of Air Force networks and provides a viable 3D display that is viewed on a large plasma screen display or personal computer monitor.

The CNDS provides analysts and commanders with the capability to protect and defend Air Force networks, thus ensuring the swift, secure flow of mission-critical information.

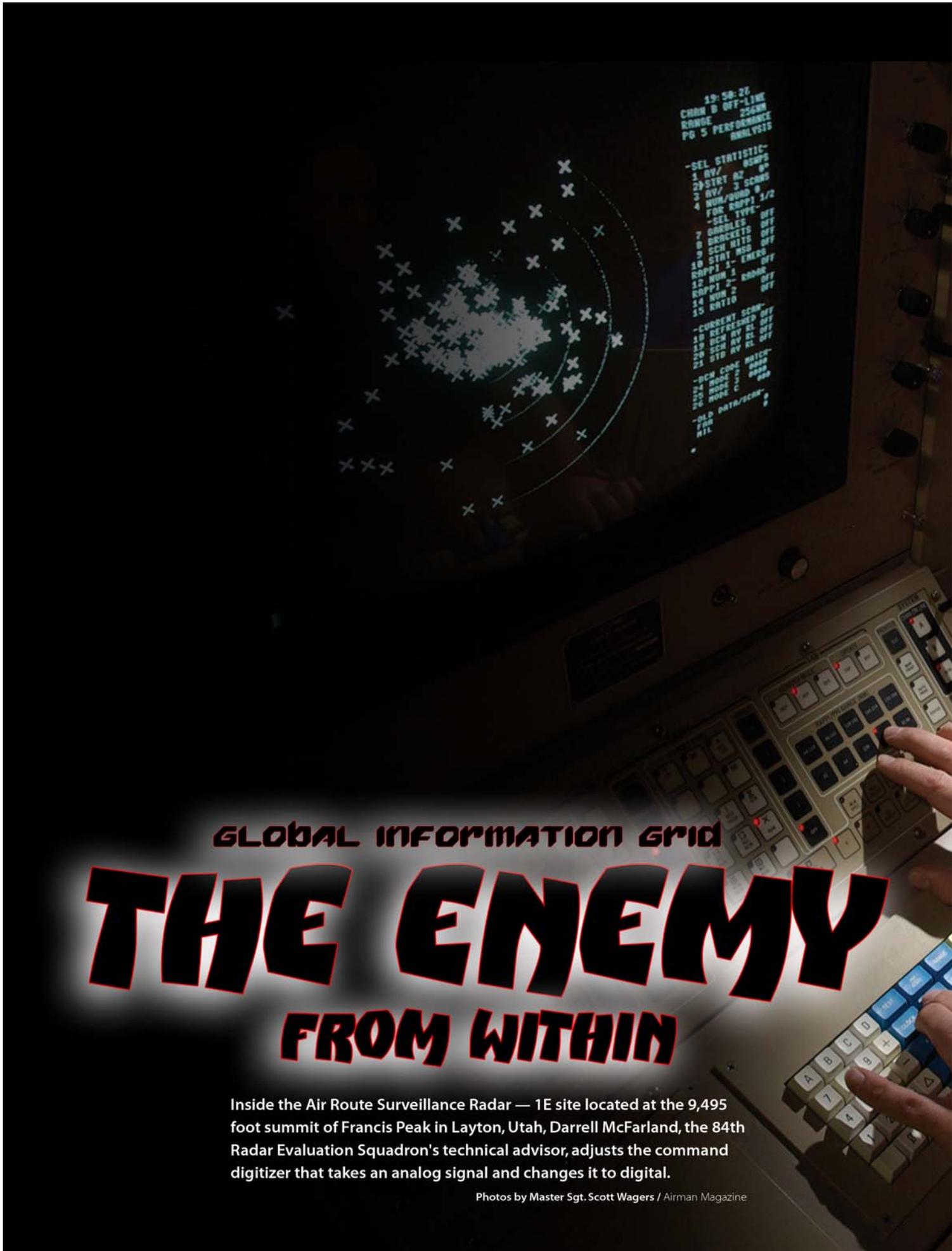




Hooked up

Senior Airman Antwone Prater, 86th Communications Squadron, Visual Imagery Intrusion Detection Systems journeyman, performs telephone maintenance in a hardened aircraft shelter at Ramstein Air Base, Germany.

Airman Steve Czyz / 786th CS



```
19:58:26  
CHAN B OFF-LINE  
RANGE 256NM  
PG 5 PERFORMANCE  
ANALYSIS  
-SEL STATISTIC-  
1 AVZ 0000  
2)STAT AZ 90  
3 AVZ 3 SCANS  
4 NUM/WORD 9  
FOR RAPP1 1/2  
-SEL TYPE-  
7 BRACKETS OFF  
8 BRACKETS OFF  
9 SCH HITS OFF  
10 STAT MSG OFF  
RAPP1 1- EMERG  
12 NUM 1  
RAPP1 2- RDRG  
14 NUM 2  
15 RATIO  
-CURRENT SCAN-  
18 REFRESHED OFF  
19 SCH AV KL OFF  
20 SCH AV KL OFF  
21 STD AV KL OFF  
-SCH CODE MATCH-  
24 MODE 1  
25 MODE 2  
26 MODE C  
-OLD DATA/SCH-  
FOR  
NIL
```

GLOBAL INFORMATION GRID

THE ENEMY

FROM WITHIN

Inside the Air Route Surveillance Radar — 1E site located at the 9,495 foot summit of Francis Peak in Layton, Utah, Darrell McFarland, the 84th Radar Evaluation Squadron's technical advisor, adjusts the command digitizer that takes an analog signal and changes it to digital.

Photos by Master Sgt. Scott Wagers / Airman Magazine



The enemy within

Hill AFB provides electronic security blanket for America



Following a 45-minute drive from Hill, radar technicians arrive at the Air Route Surveillance Radar.

By Tech. Sgt. Orville Desjarlais Jr.
Airman Magazine

While smoke still billowed from the World Trade Center and the Pentagon after the Sept. 11, 2001, terrorist attacks, Pentagon officials turned to the 84th Radar Evaluation Squadron to learn exactly what happened.

Within two hours, the unit from Hill AFB, Utah, had reviewed the radar trails of the four aircraft commandeered by terrorists. Using software the unit developed, evaluators created what's called a track of interest analysis on each hijacked civilian aircraft. Their software eliminated the clutter of all other traffic flying above the United States that fateful day. Imagine looking at the blips on the monitor of an air traffic controller in Los Angeles, multiplying those radar blips by 100—then zooming in on the flight path of a sin-

gle aircraft. Nobody else in the Department of Defense has that capability.

The good news was the Hill unit captured the data on most of the flights of all four aircraft and sent that information up the chain of command. The bad news was they had lost sight of United Airlines Flight 93 that crashed in western Pennsylvania. When the hijackers switched off the aircraft transponders — a radio signal that allows air traffic controllers to track each aircraft — the civilian airliners were virtually “invisible” to the Federal Aviation Administration.

“We could show the hijackers when they were near the eastern coast, but the hijacked planes went so far interior that we lost sight of them,” said Master Sgt. Rob Freedman, a squadron superintendent.

Before Sept. 11, the unit focused attention on radars located around the

nation's borders. Like wagons in a circle, these sites were used to protect America from outside threats. There were many more radar sites in the country's interior, but they were only being used by the FAA. After 9/11, that all changed.

“Our aerospace control and air defense missions have traditionally been oriented to detect and identify all aircraft entering North American airspace, and, if necessary, intercept potentially threatening inbound air traffic,” said Gen. Ralph Eberhart, commander of the North American Aerospace Defense Command and the U.S. Northern Command. He's also the 84th's main customer. “We are now also focused on threats originating within domestic airspace, such as hijacked aircraft,” the general said.

Immediately after the attack, the 84th was determined to come up with a plan to help keep Americans safe. The



Tech. Sgt. Carl DeWitt and Staff Sgt. James Furnish use an oscilloscope to measure sensitivity time codes on a receiver that evaluates the return signal strength and movement generated by the site's transmitter.

unit's idea was to optimize all the radar sites so the Air Force and FAA could work hand in hand in securing the sky.

There are two radars at every site. The FAA primarily uses beacon radar, which captures aircraft transponder signals. The other radar, known as search radar—the one the Air Force is interested in using—transmits 4 million watts of power to beam signals 200 miles in all directions. It reflects and captures radar signals off aircraft. Before Sept. 11, search radars were used at sites in America's interior, but only fed the FAA Air Traffic Control Centers. The Air Force is now interested in using this capability at all sites. If an aircraft's beacon is turned off, the Air Force can now use search radars to still keep tabs on it.

However, these search radars are not typically pointed at an optimal angle for the Air Force mission, so the radar unit is sending teams of engineers, radar maintainers and civil engineers across America to make adjustments.

"We evaluate the tilt of the FAA radar," said Staff Sgt. John Dixon, an 84th radar sensor evaluator. "We determine the optimal tilt and adjust it accordingly. We work with the FAA to achieve the best radar picture possible."

This means not only ensuring the FAA's 50-year-old equipment is work-

ing properly, but also that after analysis and adjustments, the equipment's performance improves by 10 to 20 percent. The team expects to have all the sites optimized by 2006.

The team also makes sure the data from each radar site is recorded. It's like hooking up a video cassette recorder to each system. This will give the squadron the capability to record and play back radar data from any of the interior sites and remotely monitor each radar's performance. The data identifies not only the specific aircraft involved, but also its altitude and location at any given moment.

"We check out every little detail, from antenna to transmitters and receivers," said Darrell McFarland, a technical advisor and team chief. "We balance FAA and Air Force needs."

The radar sites are scattered across America, and they're located at the highest points in the regions, usually atop remote mountains. Optimizing all the radar sites means a lot of temporary duty.

Tech. Sgt. Lanis Williams, a radar system evaluator, spends about 180 days a year on such trips.

"What we do is unique," Williams said. "It's challenging to work on radars that were made in the 1950s. It's also good to be on a team that helps

America have a good defensive system."

Once all radars are connected to a recorder, 84th radar experts like Master Sgt. John Henderson can keep an eye on possible threats over their sectors of the United States.

"If someone reported they saw a missile overhead, we'd be able to detect it moments later," Henderson said. He and two other team members are stationed at McChord Air Force Base, Wash. They're responsible for analyzing data gathered in the western sector, which covers about half of the continental United States. The unit has operating locations in each of the air defense sectors, including Alaska.

The threat of future terrorist attacks is real. They may come in the form of another hijacked aircraft, a missile launched from a civilian ship or even an unmanned remotely piloted helicopter. The helicopter scenario was actually detailed in a manual found in an al Qaeda safe house in Afghanistan in the early days of Operation Enduring Freedom.

Like everyone else, Tech. Sgt. Kevin Powell watched in horror as aircraft plunged into the World Trade Center and the Pentagon. Unlike everybody else, the radar analysis chief could also study a computer monitor to see what was being captured by radar. But the radar signals became more than just bright dots on a screen.

"Once you get to the point where you can see past the process, past the blips on the screen, it was pretty sobering," Powell said. "Looking at the TV and watching my monitor brought the human factor right to the front. I really felt the impact. It made me feel sad to know that my job is driven by tragedy."

BOTTOM LINE

Comm teams work to ensure radar sites are able to track aircraft data as part of America's Homeland Defense.

DoD Network Centric Data Strategy

New focus puts emphasis on satisfying the end-user not just the techies

By Capt. Kim Andersson
HQ USAF/XIWA

PENTAGON — With the release of the Department of Defense's Net-Centric Data Strategy in May of 2003, and the creation of several data working groups, the Department of Defense is getting serious about data and information management in a net-centric environment.

This new strategy puts more emphasis on satisfying the requirements of the end-user, not just the techies.

The Network Centric Enterprise Services program is part of the strategy and provides the infrastructure services needed to combine leading-edge concepts of data and network management to make tactical and intelligence data visible and accessible to warfighters, according to Priscilla Guthrie, DoD's deputy chief information officer.

The strategy defines a modified paradigm for data management within the department, and it expands the focus to visibility and accessibility of data rather than just standardization. It also recognizes the need for data to be usable for unanticipated users and

applications, as well as for those that have been predefined. The strategy identifies approaches that will improve flexibility in data exchange, supporting interoperability between systems without requiring predefined, pair-wise interfaces between them. Information portability will be improved through the use of metadata, which will permit loose coupling of systems and facilitate data exchanges among systems and also facilitate information discovery. This flexibility will be essential in the many-to-many exchanges of a net-centric environment. While tightly engineered, predefined interfaces between systems will continue to exist, the objective in a net-centric environment is to increase the potential for many other systems to leverage the same data without having to anticipate a new use in the development cycle.

PROVIDING GUIDANCE: The Air Force is working diligently to implement the principles of the DoD Net-Centric Data Strategy. The Air Force Chief Information Officer and Deputy Chief of Staff for Warfighting Integration are collaborating on an Air Force-wide information and data management strategy that will provide guidance to the field on defining and setting up communities of interest and will establish roles and responsibilities for Air Force data producers.

NEW TERM: A COI is a term to describe collaborative groups of users

who must exchange information in pursuit of their shared goals, interests, missions or business processes and who therefore must have a shared vocabulary for the information they exchange. A COI will establish the commander's information management policy, define a shared information space, establish member roles with publication and subscription authority, pick authoritative data sources and define IM prioritization for the COI.

ADAPT AND OVERCOME: People will need to adapt to the new emphasis on the end-user and the switch from a need-to-know to a need-to-hide philosophy when dealing with data and information visibility.

The strategy appears to entail large amounts of up-front work, particularly by the COIs and data producers who will need to define vocabularies and catalog data so that it is meaningful and useful to the end-user. However, this is not all new work. Data producers are already doing some related tasks that can be reorganized or reused in the strategy.

Operators and technical staff will need to work hand-in-hand to ensure the success of the new strategy. The cultural changes will not be easy, but the rewards for the warfighter will be well worth the effort.

A policy memorandum implementing this strategy is expected early this year.

The key attributes of the strategy include:



▶ Introducing management of data within communities of interest rather than attempting to standardize data elements across the department.

▶ Moving away from implementing interoperability through point-to-point interfaces to enabling the many-to-many exchanges typical of a net-centric data environment.

▶ Posting of all data to shared spaces to provide access to all users except when limited by security, policy or regulations.

▶ Ensuring data is visible, available and usable when needed and where needed to accelerate decision-making.

▶ The Network Centric Enterprise Services program is an integral part of the DoD Net-Centric Data Strategy.

▶ Tagging of all data with descriptive metadata to enable discovery of data by users.

dynamic network analysis

AFCA team models, analyzes, executes reliable networks

By Mr. Anthony Pettiford
Air Force Communications Agency

SCOTT AIR FORCE BASE, Ill. — High above the parched landscape, unseen and unheard below, Air Force F-16s armed with high-tech communications, navigation and threat warning gear streak toward their objective at more than 800 mph.

Preloaded with digitized terrain-following information, flight lead makes a minor course correction and releases one, then another, Joint Direct Attack Munition precision-guided 2,000-pound bomb. Moments later, a second F-16 follows suit.

Ten miles from their objective, the JDAMs' three-axis inertial navigational system and global positioning system take over, electronically guiding the aircraft to their target: an Iraqi underground command post.

The four bombs hit their mark in rapid succession with deadly accuracy, instantly catapulting tons of fragmented concrete, glass and steel into the air.

A few minutes later, a small unmanned Predator observation aircraft flies over the scene, relaying real-time video back to the Combined Air Operations Center to confirm total destruction of the facility.

Similar real-world scenarios were repeated with equal success in Operation Iraqi Freedom. But how was this level

of precision and coordination made possible?

The primary contributors were the data-driven technologies guiding delivery of the high-tech weaponry. It's also the result of information warriors who skillfully controlled the intricate satellite and terrestrial communications lifelines, and the network routing and switching equipment responsible for delivering warfighting voice, video and data to the desert, and ultimately putting the weapons on target.

Backing up the whole operation by providing quality control of integrated network data resources was the Air Force Communications Agency's Dynamic Network Analysis team.

The DNA team gives Air Force warriors a full range of network and systems analysis support over many functional and operational areas. It contributes to architecture-based decisions that guide engineering and implementation of networks to achieve information superiority, and it helps chart the course for a transformed network-centric Air Force.

Lt. Gen. Tom. Hobbins, Air Force Deputy Chief of Staff for Warfighting Integration, said, "AFCA provides Dynamic Network Analysis – a performance analysis capability for terrestrial, airborne and space networks. (DNA) allows OEF/OIF network integration, OPLAN communication analysis, war game network assessments and MAJCOM architecture planning." Here are some examples of the teams' successes.



Operation Enduring Freedom

DNA supported the Air Force Crisis Action Team by modeling the area of responsibility network, generating traffic and performing what-if analysis based on operational scenarios.

The team directly affected several network design decisions based on bandwidth availability, analyzed the impact of troop movements and force structure changes on the network's capability to provide critical information flow to the warfighter, verified network response delays to the user as a result of an application's architecture design, and provided multiple what-if analyses that addressed several contingencies.

Operation Iraqi Freedom

As beddown commenced for what was to become Operation Iraqi Freedom, an AFCA DNA team deployed to the Southwest Asia Network Operation Security Center-Deployed, at Shaw AFB, S.C.

The team partnered with NOSC-D warriors to plan, analyze and execute a reliable, survivable and secure network architecture for the OIF warfighter.

The ability to model a dynamically changing network architecture in near-real time, and to capture and import information flow into the model, provided a zero risk decision environment for senior Air Force leaders. The team's what-if analysis addressed bandwidth requirements, network survivability and network response times due to application traffic insertion.

The team gave decision-makers network recommendations for base stand-ups and beddowns.

Network survivability was a key concern with constant attention placed on analyzing network configurations to ensure critical C4ISR information was always delivered to the right place at the right time.

The work forged by AFCA's DNA team was so successful that the NOSC-D stood up a network analysis cell as part of its daily operations. Bill Strickland, NOSC-D chief network engineer, said the OEF contingency ended with no network outages, due in large part to AFCA's DNA team.



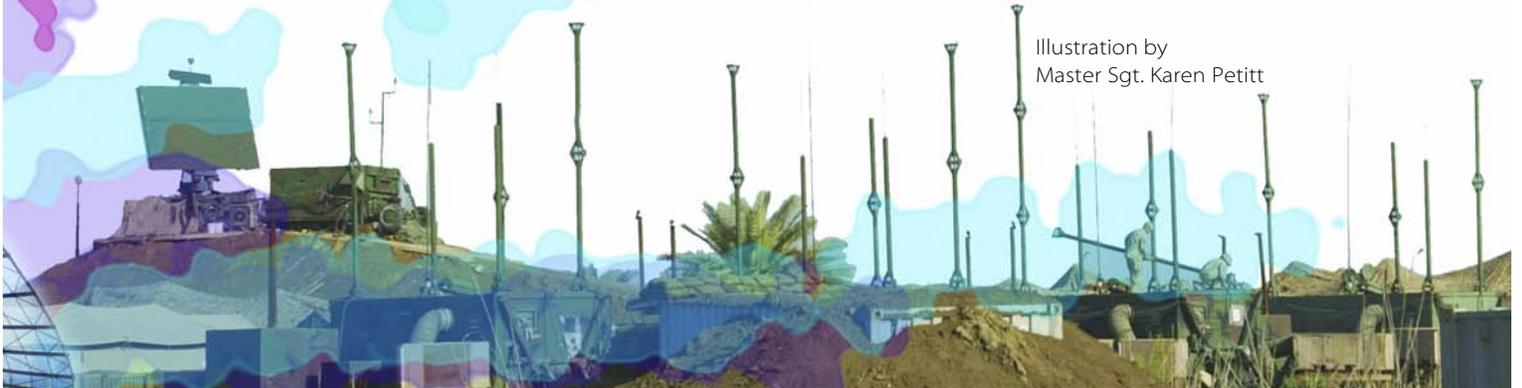
Information superiority through net-centric operations is an Air Force goal – and AFCA's DNA team is aiming high to achieve it.

War Games

AFCA's DNA team also provided the first-ever analysis of future network architectures at Future Games 2001, an Air Force-sponsored war game, and now supports other war games such as Global Engagement, Schriever and Thor's Hammer. During an exercise, the DNA team builds models from the network architecture and provides bandwidth analysis.

Networks are configured based on a concept of operations that includes architectures, technologies and systems typically five to 20 years in the future. The team provides analysis results based on operational scenarios that depict the game's environment. This quick-turn analysis gives war-game commanders an accurate picture of the impact future technologies, architectures and concepts of operations will have on network-centric operations supporting tomorrow's battlefield.

Illustration by
Master Sgt. Karen Pettitt



Within 10 years, U.S. forces around the world will enjoy greater combat effectiveness as a result of network-centric operations. That's a vision Mr. John Stenbit has pursued for the past two years, and it's bad news for America's enemies.

Mr. Stenbit is the assistant secretary of defense for networks and information integration, and DOD's chief information officer.

The term network-centric warfare broadly describes the combination of tactics, techniques and procedures that a fully or even partially networked force can employ to create a decisive warfighting advantage.

NCW increases combat power by networking friendly forces to achieve shared situation awareness, increased speed of command, high tempo of operations, greater lethality, increased survivability and a degree of self-synchronization.

"Up through the mid-1970s, the (pri-

mary means) of command and control and information exchange was the telephone," he said. "I knew your phone number, and when I wanted to call you, I did. In that kind of (system) you're stuck in place and you're stuck in time.

Wherever you happened to be, if you moved, the phone number didn't go with you. If somebody called you and you weren't there, there wasn't even an answering machine."

Since that time, Mr. Stenbit said DOD now has moved into what he likes to refer to as "the direct broadcast TV paradigm" in which there are multiple channels of information received simultaneously among many places around the world. He used the example of the spe-

cial forces soldier in Afghanistan, who, while riding a horse with Northern Alliance forces, was calling in air support.

"So what you had was a B-2 or B-52 pilot—who didn't know this guy, didn't know his frequency, had no knowledge of how that guy was operating—getting the word he wanted a bomb, and (making it) happen," Mr. Stenbit said. "That's an enormous change."

He refers to this type of operating mode as Smart Push—the ability to gather data from a lot of sources, put it together and make decisions based on the data.

He said Smart Push was used effectively in both Afghanistan and Iraq.

By Mr. Paul Stone American Forces Press Service

NETWORK-CENTRIC

Telephone

Primary means of communication in the '70s.

Direct Broadcast TV

DOD's current paradigm of information.

Internet

DOD's base of information in 10 years.

► DOD plans to build a base network connecting 100 locations throughout the world, involving mostly major headquarters, intelligence centers and some support organizations.



During a visit to Afghanistan, Mr. Stenbit said he got a first-hand look at Smart Push in action.

“At one base, there were about 1,000 people with a large area network, including about 10 satellite dishes all looking in different directions and taking data from those broadcasts, putting it together, and then working the problem of what the data meant to what they were facing that day.”

In Iraq, Mr. Stenbit said the Smart Push concept was even more evident.

“For example, the ability of the Marines and the Army and the Air Force to all know something about the same target was no longer a question of whose sensor it was, because they all had the same data,” Mr. Stenbit said.

“So the good news is we were free in space, and able, with the same information, to attack from the north, the south, the east and the west. We were coming at them from all directions, and that’s not a good place to be. If you stood still you

were dead, and if you moved you were dead.”

Mr. Stenbit said the goal now is to get from Smart Push to what he calls Smart Pull—the ability to give warfighters the freedom not to be locked into either time or space, so they can obtain the information they need at the moment they need it, regardless of where they are.

And that is where the concept of NCW comes into play. He said it involves moving from the broadcast TV paradigm to the paradigm of the Internet.

“Today, if you want all the information you need, you have to carry around 10 satellite dishes and a thousand people to pull it all together,” Mr. Stenbit said. “What we have to do is go to the paradigm of the Internet. If you do that, you erase both the barriers of time and space.”

He said this would allow warfighters on the battlefield to have the information they need, when they need it, and give

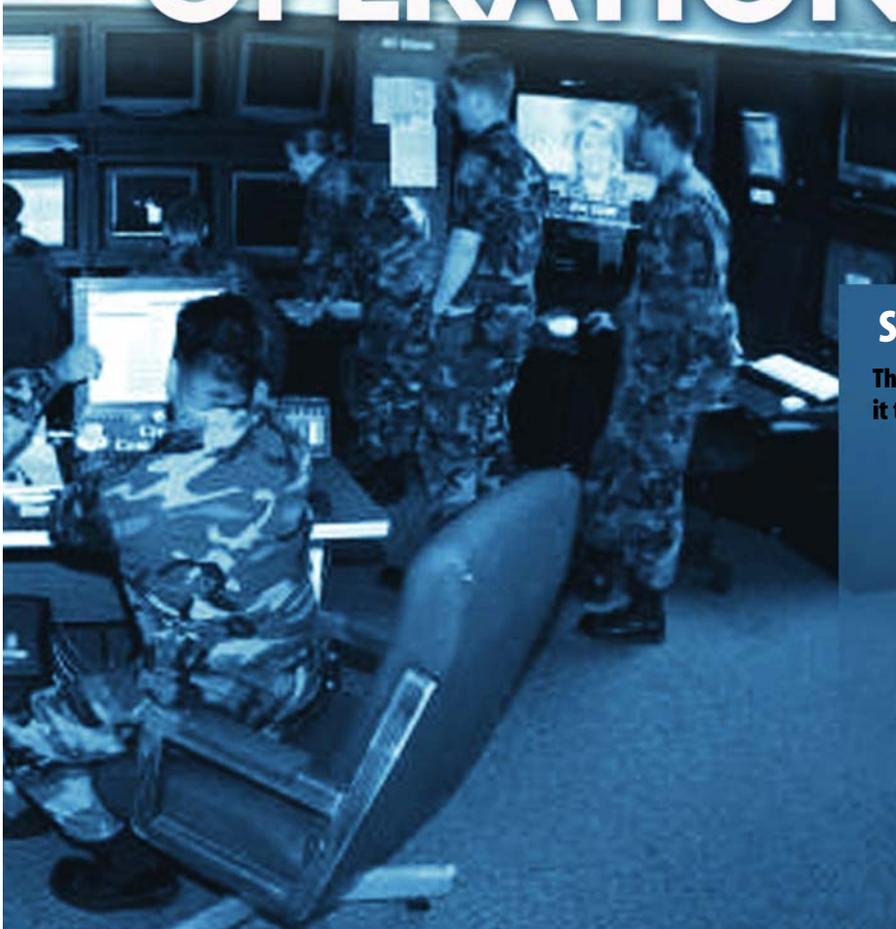
them the ability to tailor the information to their own needs, instead of relying on command and control staffs to feed them the information.

This, he said, is heart and soul of NCW. However, the primary barrier to achieving the Internet paradigm is bandwidth.

“We have to have an infrastructure of communications which has enough bandwidth in it to allow, for instance, three people to pull the same data at the same time, because if you’re going to Smart Pull, you need more communications or it won’t work. Then you need to put the data and applications on the network, not in a way that’s pre-aligned against a task, but much more openly, so that it’s more like the Internet.”

He said by the end of next year, DOD plans to build a base network connecting 100 locations throughout the world, involving mostly major headquarters, intelligence centers and some support organizations.

OPERATIONS



Smart push

The ability to gather data from a lot of sources, put it together and make decisions based on the data.

Smart pull

The ability to give warfighters the freedom not to be locked into either time or space, so they can obtain the information they need at the moment they need it, regardless of where they are.

Then
and Now

Then Capt. Dempsey (center) with fellow 1866th Facility Checking Squadron members on the flightline at Scott AFB, Ill., circa 1964.



Colonel Dempsey is now a full-time caregiver for his wife, yet in his spare time he likes to research his genealogy of Irish descent.

Col. Derrel L. Dempsey

By Don Gasper
AFCA Staff Historian

A truly distinctive career is evident when an Air Force-wide award is named for a “blue suiter.” However, typically the honoree has passed on by the time this distinction occurs; living to receive such recognition is all the more exceptional. One such “living legend” is retired Col. Derrel L. Dempsey, who during his 30-year career greatly contributed to the advancement of air traffic services in various notable positions.

He significantly enhanced flight navigation and safety even beyond the Air Force, and today he still goes above and beyond in helping others ... in essence, a caretaker of people.

Entering the Air Force in 1954 with a ROTC commission, he earned his wings by 1955 and completed the Air Traffic Control Officer Course at the Federal Aviation Administration Academy in Oklahoma City. During his subsequent assignments as a pilot and in air traffic services, he achieved command pilot status, accumulating more than 5,600 flying hours in a wide variety of aircraft including trainers, fighters, and transports, as well as helicopters. While in the Philippines as a flight commander with the 1867th Facility Checking Squadron (1967-1969), he logged more than 1,700

hours in the C-140, of which 1,000 were combat-coded during deployments to Thailand and Vietnam, and he earned the Distinguished Flying Cross.

Rising in responsibility to become the Air Force Communications Command deputy chief of staff for Air Traffic Services (1979-1984), he deployed more than 600 combat-ready Air Force air traffic controllers to support 75 FAA facilities during the 1981 air traffic controller strike. In facing this emergent and sizable challenge, he said, “I affectionately called this my own private war [in being the] focal point for execution of orders from the AFCC commander and the Pentagon. The air traffic controllers deployed did an admirable job of providing the necessary services demanded by the aviation community in a time of national emergency.”

After retiring from the Air Force in 1984, he became a consultant for several companies on ground/airborne air traffic control and navigation support systems. He provided guidance on

operational requirements and equipment specifications for development of flat panel plasma radar display technology, mobile microwave landing systems, a solid state instrument landing system, and other advancements in air traffic technology. In 1996, in view of his legendary service and contributions in the field, the United States Air Force Air Traffic Control Manager of the Year Award was named after him.

“The biggest lesson [I] learned was that if ‘You take care of your people, they will take care of you!’ – ‘Management by walking around’ was a philosophy that worked. Get out among the professionals. You must know your people and their problems and stand ready to support their training and career development needs, solve personal problems, and become involved intimately in the daily work process as a team. This philosophy worked during a troubled era—the Cuban [Missile Crisis], Vietnam, and the Cold War.”

Colonel Dempsey’s post-Air Force activities continue to take care of people on the homefront and in his community in O’Fallon, Ill., (near Scott AFB). In 1996, he retired from consulting to become a full-time caregiver for his wife, Gracie, due to advanced Parkinson Disease. This year the couple (along with their five children) celebrated their 50th wedding anniversary.

“Management by walking around was a philosophy that worked. Get out among the professionals. You must know your people and their [needs].”

TALE OF THE TOWER

BY OWEN HYAMS

My pal Frank and I turned 17 and enlisted in the Air Force on the “buddy plan” Halloween night 1960. Frank went to Germany to ride a hospital train and my journey started at Keesler Air Traffic Control school. Soon I was off to the 1st Mobile Communications Group in the Philippines.

One night while playing cards in the day room, I got orders to draw weapons and report to the flightline where I soon found myself with a machine gun and a seat on the Ambassador’s flight to Saigon.

The mobile unit we were supposed to man in the Delta got sunk, so I became a replacement for a mobile tower unit at Quang Ngai in the northern coastal region. There wasn’t much there in 1963.

The tower was a tiny affair, barely big enough for my 6-foot frame. The radios were hardly adequate, but we did have a direction finder, which along with a good set of ears came in handy during the rainy season. After a bout with malaria, the 1st MOB put me back in Vietnam at Bien Hoa, which in 1964 was really starting to hop.

As more jets entered the war, the work load increased to a hectic pace. The Vietnamese had a hard time mixing the jets with the different types of prop-driven aircraft, not to mention helicopters, and of course there were a pair of U-2’s that landed all frosted up. I guess I got pretty good at my job

because when my enlistment was almost up they told me I wasn’t going anywhere. On Halloween of ’64 my buddy Frank got discharged, and I drew the midnight shift at Bien Hoa tower.

We were just settling in when the first shells started landing on us. I guess they were trying to knock our communications out, and they did a pretty good job. One shell blew me halfway down to the next level where the radio and high voltage Nav-Aids were knocked out of their cages and sparks were flying all over. The rescue unit took a direct hit in their tent and killed them all ... except one who managed to get in the tower with his machine gun. There were stacks of bombs that started exploding as they were hit or set afire from the jet fuel. We were cut by the flying glass of the windows, but we were alive and trying to function. I couldn’t get anyone on the radios until I overheard an Air France talking to Saigon. The French pilot got the message through. Soon I heard the sweetest radio message of my career from call sign Red Dragon who told us to hang in there ... “they were on the way with the whole squadron of armed Hueys.”

Soon the call

came in they could see our flares and then said, “Where do you want it?” It took a minute to realize they were asking where to fire.

I don’t know how much good I did, but it was sure better than getting pounded doing nothing. Soon some fighters arrived and a few of our A-1’s got off. The Hueys came down and we loaded our dead.

I stayed in Vietnam another 4 1/2 months. They were picking glass out of me for weeks, and sometimes I think there’s still some in there. I didn’t know it at the time but I was all done being an air traffic controller because the doctors determined I lost my depth perception.

The Air Force retrained me as a loadmaster, and I went back to Vietnam in ’67-68 with the 310th Air Commandos and flew 1,144 sorties in a twin engine C-123. It was strange flying into Quang Ngai and Bien Hoa, seeing the controllers in the tower and thinking: “That used to be me.”

I miss being an air traffic controller.

I was good at it and enjoyed doing it, but I realize every day how lucky I am to have survived and had the chance to have a life and a family, especially on Halloween. *(Editor’s note: He earned a Bronze Star for his actions that night.)*

Time Machine

Airman 1st Class Owen Hyams



Quang Ngai Tower
“LONELY ACRES”

Bien Hoa Tower Crew



1964

ARE YOUR INTERVIEWING SKILLS MAKING THE GRADE?



By Mr. Steve Lewis
Air Force Personnel Center

At the Communications and Information Career Program we observe and participate in the interview process on a regular basis.

What we see and hear from selecting supervisors concerns us, which is that too many registrants with outstanding records are not able to convey their abilities during an interview.

If you're one of those registrants who has done all the "right" things, yet just can't seem to get that elusive promotion, perhaps you need to review your interview strategy to increase your competitiveness.

If you start "studying" for interviews, you might even ace one.

Here are some simple, yet effective, ideas to get you started on your homework:

▶▶ **Seek out information.** Between the library, bookstore and internet there is ample information available on preparing for interviews. Here are just a few Web sites to get you started:

www.collegegrad.com/book

www.gradlink.edu.au/content/view/full/33

www.alec.co.uk/interview

www.job-interview.net

▶▶ **Practice speaking.** If you are uncomfortable speaking in front of a group (many interviews are panel interviews), take a speech class, practice briefing, or join Toastmasters.

▶▶ **Practice interviewing.** Hold mock interviews with family, friends or colleagues; encourage feedback.

▶▶ **Keep your resume current.** Update your resume every time you accomplish something noteworthy.

▶▶ **Develop Qs and As.** Typically,

every interview will include some questions of a general nature such as "what are your long term career goals?" or "what do you consider your strengths?" Develop answers now that can be modified for specific interviews later. You might actually learn something about yourself in the process.

▶▶ **Sign up for an interview class.** Most bases offer classes to develop interview skills as part of the transition assistance program for retiring military members. According to Charlotte Noll, Career Focus Program Manager for the Family Support Center at Randolph AFB Texas, career civil servants are encouraged to attend so they can improve their chances to succeed in their Air Force careers.

Once you are contacted for an interview, you may only have a few days, a few hours or maybe even just a few minutes to prepare for a specific interview. As time permits, consider refining your "presentation" by doing the following:

▶▶ **Familiarize yourself with the organization.** Most organizations have information available in either literature or on the Web to include mission and organization structure.

▶▶ **Review job requirements.** Air Force civilian jobs all have position descriptions. Request one through the selecting supervisor or the career program and review it to make sure you are familiar with the job requirements.

▶▶ **Update and review your resume.** Compare your resume to the duties of the position and try to cor-

relate your experience to the requirements of the job. Develop brief examples linking your skills and experience to the position.

▶▶ **Develop specific Qs and As.** Now that you know more about the position, try to anticipate specific job-related questions and develop potential answers. Use your resume as a starting point to draw in your experience.

▶▶ **Prepare for the interview forum.** If the position being filled is at a different geographical location, be prepared for a telephone interview. Provide the selecting supervisor a good duty phone number in a quiet office that will provide you privacy. Ensure the phone is not busy at the time the interview is to occur.

Finally, the day of your final presentation consider these hints:

- ▶▶ **Dress appropriately.**
- ▶▶ **Be punctual.**
- ▶▶ **Have resume ready.**
- ▶▶ **Be positive, show enthusiasm.**
- ▶▶ **Speak clearly and concisely.**
- ▶▶ **Listen carefully before responding.**
- ▶▶ **Formulate your response.**
- ▶▶ **Organize thoughts logically.**
- ▶▶ **Answer the complete question.**
- ▶▶ **Demonstrate strategic thinking, i.e., mission impact.**
- ▶▶ **Include appropriate examples that relate to the position, be specific.**
- ▶▶ **Keep answers short, no more than two minutes.**

If you want to ace that presentation and increase your chances for promotion to the next grade, you need to do more than just show up to class, you must do your homework!

News Briefs

Upcoming Events

EMSEC SYMPOSIUM: The Air Force Emission Security Office is hosting a Symposium on Air Force EMSEC issues March 2-3, at Scott AFB, Ill. The objective of the symposium is to bring representatives from the major commands, field operating agencies and direct reporting units together with the Air Force Certified TEMPEST technical authorities to discuss EMSEC and TEMPEST issues, problems and challenges. Some of the items covered will be the current EMSEC/TEMPEST focus at the National Security Agency, the status of wireless devices and current wireless policy in the EMSEC environment, EMSEC testing requirements, EMSEC training at the field-level and protective distribution system issues. Additionally, there will be sessions to cover questions about forms, EMSEC publications and other concerns from the field.

Contact Cy Prikazsky at DSN 779-5588, or Dennis Peek, DSN 779-5614, for EMSEC Symposium discussion topics and reservations. Send e-mail to AFCA/CTTA@scott.af.mil with any EMSEC symposium related questions or comments. (Cy Prikazsky, AFCA)

MID-AMERICA TECHNET: This year Americans will remember the Lewis and Clark Expedition of 1803-1806, which shaped the boundaries and much of the future of the United States. In some respects, the building of the "information superhighway" has been just as significant.

These two events come together in this year's MidAmerica TechNet 2004, which will be held July 20-21, at the Gateway Convention Center in Collinsville, Ill.

Just outside of St. Louis, MidAmerica TechNet is combining the bicentennial commemoration of the expedition with the forward looking expansion of communications to produce the theme, "Tech Force: Enhancing Joint Communications for the New IT Frontier."

The event will use this year's theme to compare and contrast the



Senior Airman James Dillard / AFNS

Intrusion detection

Staff Sgt. Jose Delgado tests the tactical automated security system at a forward-deployed location. The system helps protect the base from unauthorized entry. When an intruder passes by a sensor, a silent alarm sounds alerting security forces to the location. Delgado is assigned to the 386th Expeditionary Security Forces Squadron.

experiences of the explorers and the functions of IT that exist today.

It will also explore how Information Technology can be enhanced to expand joint communications and decrease any boundaries that exist between U.S. forces. It's an event that will promote educational programs to clarify the roles of technology forces within the joint community. For information on MidAmerica TechNet 2004, send e-mail to rhonda.campos@hq.transom.mil, or tresa.chastain@scott.af.mil. (Rhonda Campos & Tresa Chastain, AFCA)

In the know

IM CONFERENCE: Air Combat Command hosted an Information Management Functional Managers' Conference at Langley AFB, Va., designed to provide critical training to more than 30 senior information managers from every ACC location and numbered Air Force activity.

ACC leaders used the conference to discuss IM issues and help others

learn from more experienced experts. This initiative helped provide IM managers with the direction necessary to address IM and training issues.

Participants were also provided with comprehensive training related to their duties as functional managers. Key ACC staff and Langley AFB IM experts delivered these briefings to address personnel, contingency planning, AEF, workgroup management and core IM process issues. Attendees also discussed IM training shortfalls, ACC/IG inspection criteria and feedback, AEF rules of engagement and posturing concerns, Air Operations Center support and core IM training requirements.

Briefings from the conference can be viewed from the ACC IM Functional Manager's web site (<https://www.mil.acc.af.mil/sc/functional/3Axxx/agency.htm>). (Chief Master Sgt. Chris Hedge, ACC)

New Developments

AUTOMATED TESTING: The Freeman Computer Sciences Center at Eglin

AFB, Fla., has expanded its capability to perform automated developmental and performance testing on Web-based computerized command and control systems applications to include Automated Operational Testing and Automated Regression Testing.

These applications are powered by Web-based relational databases such as Oracle and Sybase.

The Automated Operational Testing follows the same process as Automated Developmental Testing, but AOT has more complex test scripts. The additional complexity occurs as a result of programming in quality control checks through the automated test scripts. These quality control checks mimic the same checks a person would perform in an operational test, but they occur with speed and precision of a computer.

By using advanced scripting techniques, commands can be embedded that perform quality control checks on each user screen and detailed checks on database tables

with speed and accuracy. Traditionally, 15 percent of all software errors are found during regression testing. With Automated Regression Testing, the same process is used as AOT. ART can be run at anytime without having to bring in and train testers from all over the world to perform controlled tests. This works well because the test plan and scripts are automated.

Every time a computerized command and control system is corrected with a patch, it is assumed that the patch fixes problems without creating new ones. The automated regression test can ensure this. ART takes just a few hours, and reports can be finished within two hours after completion of the test.

Automated testing is considered by many as the most effective way to perform developmental, operational, regression and performance testing. A system is now in development to create a system monitoring 24 hours a day,



Presidential VIP

Thanking Staff Sgt. Kimberly Marshall for helping keep America safe, Vice President Dick Cheney stood in for the president as he made phone calls to deployed members around the world on Thanksgiving, a big morale boost for those who are away from loved ones. She's a comm troop assigned to Air Education and Training Command, Randolph AFB, Texas, deployed since October.

which will provide early warning and identification of system problems.

(Dr. Jim O'Connor, 96th CG)

Teamwork

EXPEDITIONARY VILLAGE: Members of five Air National Guard Engineering Installation Squadrons deployed to Southwest Asia in support of Central Command's efforts to establish a communications backbone there.

This expeditionary village communications team is made up of people from the 202nd EIS, Macon, Ga.; the 205th EIS, Oklahoma City, Okla.; the 212th EIS, Milford, Mass.; the 220th EIS, Zanesville, Ohio; and the 272nd EIS, LaPorte AGS, Texas.

The team is making use of its combined civilian and military experience, as well as available materials to install underground duct banks and manholes and establish a communications system architecture for eventual long-term use.

Working in three shifts of eight hours, the team will complete the work in three phases. The first is construction using heavy equipment, which is complete. The second involves installing fiber optic, telephone and coaxial cable into the network ducts. Finally, the installation specialists will splice the cables together, terminate circuits at each building and test the circuits for quality as a final phase of installation.

"We are making it happen," said Master Sgt. David Kitsmiller, 220th EIS. "I am really impressed with the way the cable and electronics technicians have learned to operate this equipment. In six weeks, they have installed more than 3 1/2 miles of conduit and moved more than 2,000 tons of soil." (Maj. Timothy Kern, 379th ECS)

Tools

ECATS: The Enterprise Corporate Analysis - Time Saver provides an interactive Web-based Knowledge Exchange to upload and share information, as well as research enterprise projects, programs, work groups, policies to corporately resolve issues. It's a comprehensive approach for bringing AF communities together to effective-

ly exchange knowledge.

The tool is designed to help when someone has been tasked to staff a document for review with members at several bases or set up a work group to develop new policies.

It can also be used to disseminate notices and information to companion functional offices throughout a command, or if a commander wants to know the status of a project.

Its goal is to put the user in control. The system is available Air Force wide, and program managers, work group members and staff officers rely on ECATS capabilities daily to resolve issues like reviewing and developing Air Force publications and directives, sharing technical studies, analyzing requirements for programs and broadcasting technical information.

All POCs, discussions, URL resources and documents for a project are available with a single URL link that can be accessed anywhere on .mil or .gov domains 24 hours a day. Visit the ECATS Web site at <https://ecats.amc.af.mil/ecats/>. ECATS is also available on the Air Force Portal using Reduced Sign-On. RSO consolidates all login information for compliant systems to streamline application authentication into one login. See <https://www.my.af.mil>.

For information, contact Richard Jolly, AFCA/ITCM, at DSN 779-6711, (618) 229-6711, or send an e-mail to afca.itcm@scott.af.mil. (Cheryl Kampwerth, AFCA)

EVENT PLANNING SYSTEM: The Air Force Event Planning System is a Web-based resource-scheduling tool allowing event planners to systematically search and schedule resources from training centers around the globe. Originally developed to be useful in planning and scheduling Air Force modeling and simulation events supporting the Joint Synthetic Battlespace, EPS has expanded beyond that initial effort to support the Distributed Mission Operations program and Air Force participation in the Joint National Training Capability.

The DMO program is a Chief of



Staff of the Air Force directed program to model the operational planning and execution cycle by integrating and exploiting live, virtual and constructive simulations. DMO ties command and control and intelligence, surveillance and reconnaissance to the shooters and is the only training venue that has actual warfighters in the chain. EPS can manage all of these assets, as well as integrate them with facilities, equipment, communication links, and personnel to create an effective exercise plan to support warfighter global training and mission rehearsal requirements. EPS is online and supporting large-scale training.

EPS is a powerful resource scheduler that allows you to schedule resources at multiple levels of detail. The current version is capable of scheduling facilities, equipment, meetings and personnel.

Check out the complete functionality of EPS by selecting this link - <https://www2.afams.af.mil/eps>. An on-line tutorial is available. For more information, contact Cathy DiPlacido at cathy.diplacido@afams.af.mil, or (407) 208-5756. (Cathy DiPlacido, AFAMS)

IT LEAN REENGINEERING: Early last year, an Interoperability and Supportability Steering Group, led by David Tillotson, Director of Air Force C4ISR Architecture and Assessment, was launched to ensure Information Technology systems were secure, interoperable, sustainable, supportable and usable.

In addition, its mission was to develop an integrated framework system, an information-based collaborative tool allowing program managers, developers and testers to share program information throughout a system's life cycle. Part of the plan called for capturing critical information earli-

er and eliminating the serial or overlapping processes and redundant documents such as Certificates to Operate, and C4I Support plans that slow down the delivery of warfighting capabilities.

In September, Tillotson joined forces with John Gilligan, Air Force Chief Information Officer, other team members and a transformation consulting firm, to lead a cross-functional team of IT acquisition process owners through an intense three-day value stream analysis. This was the first of several planned rapid improvement events designed to establish a baseline, identify and eliminate waste, and move toward developing a single, Air Force IT acquisition process.

The effort is now called the Air Force IT Lean Reengineering Initiative, and a team now watches over the daily operations and progress of the initiative, coordinating all associated events Air Force-wide. Other events have been held at AFCA at Scott AFB, Ill., in December and the Standard Systems Group at Maxwell AFB, Ala.

As the initiative evolves, process owners and stakeholders agree the project could easily take several months, due to the unlimited opportunities for process improvement.

"Given the speed at which technology is advancing, it is critical that this project be embraced as an Air Force community effort," said Mr. Gilligan.

"As the level of participation and understanding grows, the Air Force seems to be enthusiastically welcoming what I believe to be a critical step in supplying new technology to the warfighter while it is still new."

To learn more, visit the AF-CIO website at <http://www.cio.hq.af.mil>, and select "IT initiatives," or go to the AF/XIWI website at https://www.xi.hq.af.mil/xiw/xiws/Lean_Reeng/. For questions or input, contact Maj. Arthur Garcia, DSN 588-7102/Comm (703) 425-7102, Sondra Harrington, DSN 425-6451/Comm (703) 588-6451, or Capt. Lynne Bayley, DSN 664-1322/Comm (703) 604-1322. (Capt. Lynne Bayley, Office of the AFCIO)



Mysti Cabasug / 15th CS

Anti jamming

At the Satellite Control Facility Airmen 1st Class Benjamin Stolz and Phil Cunningham work on a Secure Mobile Anti-Jam Reliable Tactical Terminal. This generator is an auxiliary power source for equipment that transmits data through a satellite. The airmen are members of the 15th Communications Squadron, Hickam AFB, Hawaii.

Kudos

BRONZE STAR: An Air Education and Training Command Senior NCO at Randolph AFB, Texas was awarded the Bronze Star for his efforts in support of Operation Iraqi Freedom.

Senior Master Sgt. Salvador Orozpe, AETC's superintendent of administrative communications, directorate of communications and information, didn't want to sit and watch the action in Iraq from afar. Sergeant Orozpe used his secondary AFSC as an 8M mail manager to fill a postal deployment in Kuwait to stand up the Kuwait Mail Control Activity at the Kuwait International Airport.

Sergeant Orozpe and his three-person team arrived at a barebones MCA, which they quickly began turning into the busiest MCA in the world. "There wasn't any transportation, communication, billeting and no one in the area had any idea as to where to set up this operation or who to talk to," said Sergeant Orozpe.

During the next six months,

Sergeant Orozpe built a team of 26 Air Force, two Marines and 58 soldiers that moved more than 35 million pounds of incoming mail and six million pounds of outgoing mail. He also helped increase daily charter flights from two to 210, serving 50 destinations worldwide.

Sergeant Orozpe focused on the 300,000 troops he was serving. He knew they relied on letters from home to keep their morale high and to have a little piece of home with them.

"One person even showed me pictures of his daughter's birthday party. That's the reason I loved what I was doing," said Sergeant Orozpe. "When I wear this medal, I see the faces of my folks handling that mountains of mail. They are the true representatives of this medal. I am honored and will wear it proudly."

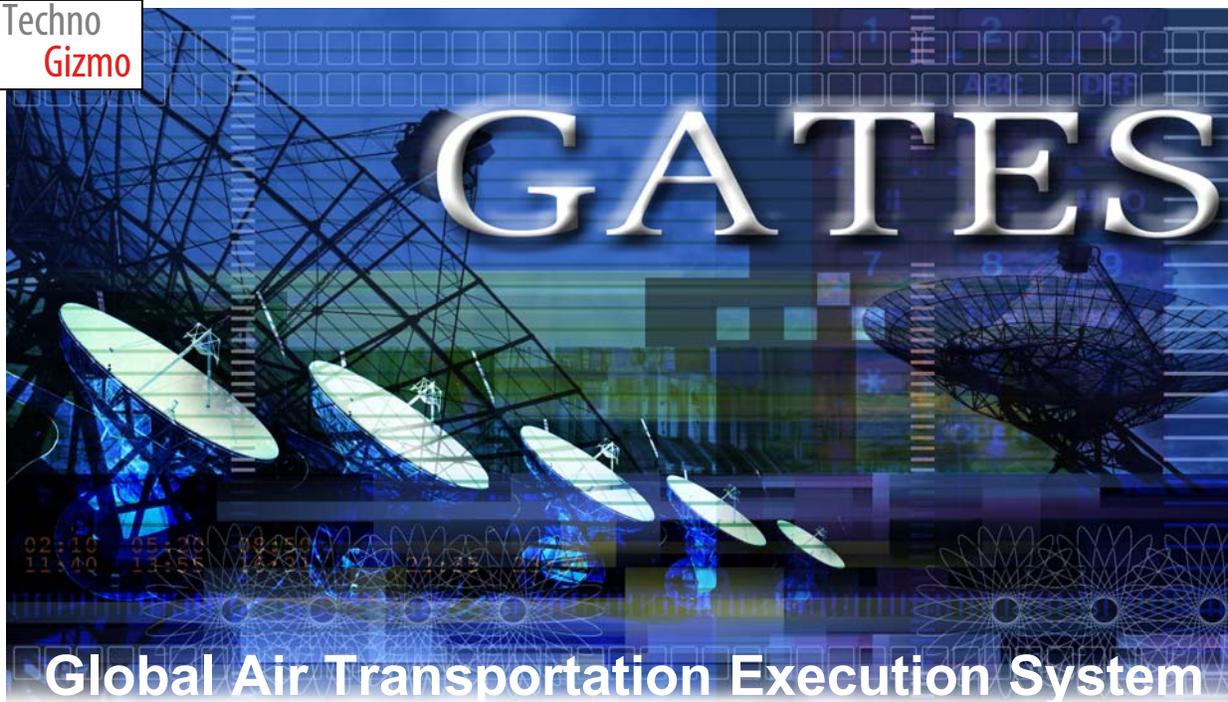
UPDATED COMM: In 2003, the 212th Engineering Installation Squadron from Milford, Mass., near Boston, traveled to Otis ANG Base, Mass., off of the

coastline, beaches and quaint towns of Nantucket Sound. Their mission was to complete 2,034 hours of work for an exercise that updated communications for the 102nd Fighter Wing at Otis.

With safety always in mind, the exercise was unique in that squadron members, in unrelated job skills, helped with the installation.

Information Management and Supply personnel pulled mule tape through ducts and manholes, while others helped complete projects including a 12-mile installation of pull tape (grounding) in conduits, fiber optic cable runs, tests and inspections of telephone grounds and more.

"It's important that everyone in the unit is aware of what is involved with the other person's job. This created good morale," said Lt. Col. Mark Kelley, 212th commander. "At a time when we are looking at retaining our personnel, what better way than to be working as a unit." (Master Sgt. Michael Perna, 212th EIS)



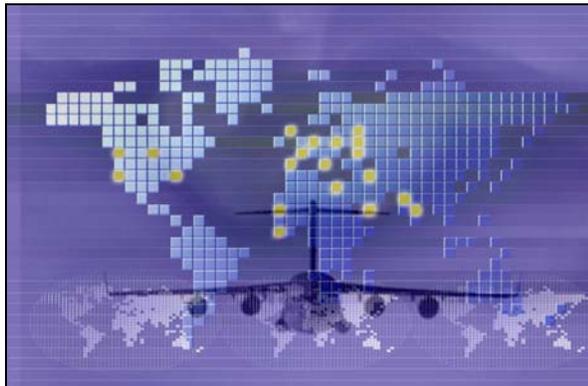
Global Air Transportation Execution System

Why GATES?

GATES allows the Air Force to keep track of passengers and cargo airlift. It is a fully integrated transportation system for Air Mobility Command and was developed and implemented by AMC to automate cargo and passenger processing operations. GATES also supports management of resources, provides logistical support information, generates standard and ad hoc reports, supports scheduling and forecasting, and provides message routing and delivery service for virtually all airlift data. Its primary purpose is to support the AMC and Defense Transportation System mission of rapid, global mobility and sustainment for America's armed forces.

How it works

The GATES network architecture consists of Aerial Port Servers, Remote GATES servers and Deployable GATES servers with the main central server at Scott AFB, Ill. GATES data is widely used by transportation personnel and com-



manders at all levels.

GATES uses an open systems infrastructure based on a distributed Sun architecture and a replicated Sybase relational database allowing new requirements to be easily incorporated into the baseline application. Its worldwide network consists of more than 100 sites. Aerial Port Servers are the main hubs for the GATES network link, and 20 of them are strategically located in sites around the world. They interconnect in a mesh topology that allows for a redundant, more robust, communication link back to the Scott AFB GATES central server. These servers run on a UNIX Sun platform with a SYBASE database.

Most APS locations host "child sites" called RGATES that use their SYBASE database servers to replicate passenger and cargo information back to GATES-C. RGATES servers have the same functional software as APS except that they run on a personal computer workstation platform that makes it easier to use in a variety of operational environments not suited to the UNIX servers. The flexibility of RGATES provides 100 percent APS mission support, identical to the GATES server locations, without requiring a computer room environment or dedicated Non-Secure Internet Protocol Router Network communications capability. If NIPRNET fails, RGATES can be easily switched to replicate using an analog phone line.

How is this system significant?

This system provides the U.S. Transportation Command Global Transportation Network with near real time passenger and cargo data, as well as support to many other government and nongovernmental organizations. Its capability was tested with Operation Enduring Freedom and, most recently, Operation Iraqi Freedom.

Reputation is what others know about you.

HONOR

is what you know about yourself.



Photo by Senior Airman Bradley Church

"To see the right and not
do it is cowardice."

- CONFUCIUS

