



# net-centric ops

“Constellation Family” overarching concept for warfighting operations

A communications compound is set up during Eagle Flag at Lakehurst Naval Air Station, N.J., for an exercise that integrates Air Force expeditionary specialties into one military operation striving toward a single mission objective.

Staff Sgt. Sarayuth Pinthong / 1st CTCS



**By Lt. Gen. Tom Hobbins**

Deputy Chief of Staff for  
Warfighting Integration

After-action reviews for Operations Iraqi and Enduring Freedom found that our Soldiers, Sailors, Airmen and Marines were more powerful and effective than ever before. This effectiveness was seen in increased precision, speed and lethality. Although reaction time was compressed to double-digit minutes during OIF, future operations will require reaction times in the single digits. To reach this goal we must achieve decision superiority and full-spectrum

dominance in a Joint warfighting environment. The Department of Defense's fundamental approach uses the construct of the Global Information Grid to realize network-centric operations with a net-centric force.

**The C2 Constellation— a component of the GIG**

The Air Force's contribution to the overarching concept for warfighting operations is the C2 Constellation — the Air Force's components to the GIG. The C2 Constellation is a family of C4ISR systems sharing horizontally

and vertically integrated information through machine-to-machine conversations enabled by a peer-based network of sensors, command centers and shooters. Both an operational construct and an architectural framework, it guides our development of people, processes and technology toward network-centric operations.

Key network-centric operation elements of the C2 Constellation include the various platforms and sensors the Air Force provides to the Joint Force Commander and key programs that support command centers such as the ►►

**From  
the Top**



▲ Staff Sgt. Anthony Pillitiere, 49th Communications Squadron, Holloman AFB, N.M., sets up the temporary Command Post during Eagle Flag.

▶ Staff Sgt. Andre Locust sets up an antenna for the local Army's Criminal Investigative Division. Sergeant Locust is a ground-radio technician with the 455th Expeditionary Operations Group at Bagram Air Base, Afghanistan.

Staff Sgt. Vincent Bess / JCCC



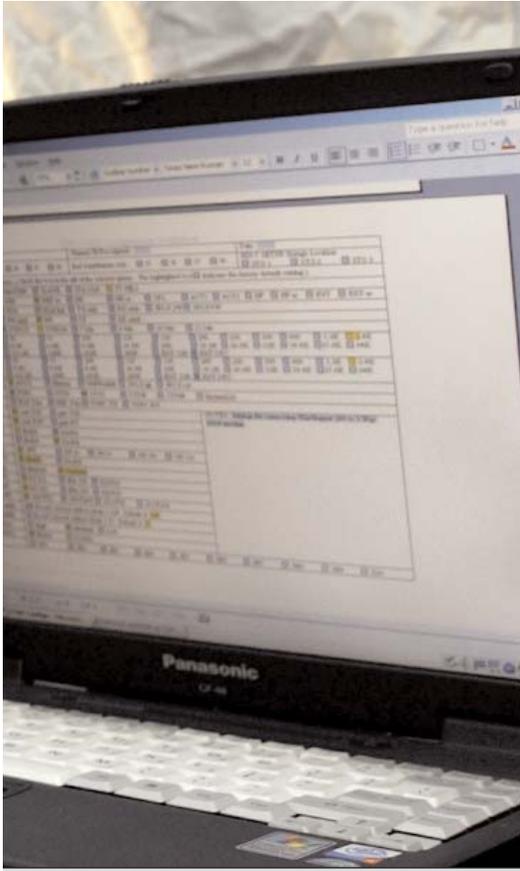
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the Distributed Common Ground Segment. Underpinning programs within the AOC, such as the Theater Battle Management Core System already serve as the joint standard for air operations planning and execution, and we are continuing to migrate these systems to a more modern, Web-enabled architecture.

The Air Force provides transport and computing layer components of the overall DoD GIG through Constellation Net, the communications network — air, space, and terrestrial — that facilitates free flow of information, rapidly accessible to our warfighters.

The Air Force portion of **GIG Bandwidth Expansion** provides expanded terrestrial service at key Air Force bases globally. **The Joint Tactical Radio System** is essential to our vision for an improved airborne network, which expands genuine network operations to the airborne platforms.

With the installation of **Family of**



Staff Sgt. Sarayuth Pinthong / 1st CTCSS

*The Air Force is committed to providing a comprehensive information capability that is global, robust, survivable, interoperable, secure, and reliable.*



Senior Airman Lakisha Croley / 379th ECS

**Airman 1st Class Brenden McGowan, a telephone maintenance technician from the 379th Expeditionary Communications Squadron, rewires more than 100 telephone lines that were recently damaged at a deployed location.**

**Advanced Beyond line of sight Terminals** on additional aircraft, such as AWACS, JSTARS and Global Hawk, we will have the capability to extend our airborne network to all reaches of the globe. Finally, the Air Force is responsible for a large portion of the space segment communication evolution, including deployment of the **Advanced EHF, Wideband Gapfiller System** and the **Transformational Satellite program**.

### Defining the path — Architecture and Standards

In meeting the challenges of the DoD GIG, the Air Force, like the other services, is both contributing to and deriving planning from the architectural frameworks developed under the leadership of OSD and the Joint Staff.

Starting with these joint architecture frameworks, we apply the activity models and technical standards to the components of the DoD system for which the Air Force is accountable.

The Air Force and the other services are taking the architectural and standards guidance issued by the DoD and

applying it to shape decisions about programs and standards even at the service level.

Applying the data standards from DoD, the Services developed and sent to the Joint Staff a message standard, which transforms **Link 16** messaging standard to Extensible Markup Language.

Drawing from lessons learned in the JTRS Cluster 1, and recognizing the benefits of common software and hardware components, the Navy and Air Force acquisition executives proposed combining the JTRS Cluster 3 and 4 development effort into one program. Early discussion of architecture and network-centric requirements are driving early direction and management decisions for key programs at the

DoD level. Facing the need to re-capitalise its aging DCGS, the Air Force is working to eliminate stove-piped intelligence processes and bridge information divides between the Joint operational and intelligence communities through the Block 10.2 Multi-INT (multi-intelligence) Core. As part of this effort, the Air Force approach develops an open-architecture-based DCGS Integrated Backbone for the broader DoD DCGS modernization effort, designed to be inherently joint and interoperable.

The Air Force-led Transformational Satellite program requirements were derived from two years of architecture-based studies that from the outset cast the TSAT as a component of a joint, interagency network architecture. Potential technical approaches balanced industry and commercial solutions with more specialized capability. Designed as one element of a broader transformational communication architecture, the TSAT requirements were driven by consideration of all potential users and other network providers.

#### **BOTTOM LINE**

**Senior leadership continues to define capabilities and responsibilities within the Joint Comm arena. Most modernization efforts are geared toward the joint environment.**