

**Charter**  
**Global Information Grid (GIG)**  
**End-to-End (E2E) System Engineering (SE)**  
**Advisory Activity**

**1. PURPOSE**

This charter establishes the Global Information Grid (GIG) End-to-End (E2E) Systems Engineering (SE) Advisory Activity (hereafter referred to as “the Activity”) and describes its scope, key interfaces, membership, organizational structure and responsibilities. The Activity will work on a collaborative basis to facilitate the resolution of interoperability and other issues related to interfaces, standards, and protocols critical to the E2E operation of the GIG. The Activity sets up a cross-program technical forum to address systems engineering challenges in an environment of independently funded, managed, and executed programs. The Activity will address systems engineering challenges faced by GIG programs that must operate together in a seamless and integrated fashion but are being independently designed, funded, managed, and executed.

**2. BACKGROUND**

The GIG is the organizing construct for achieving net-centric operations and warfare in the Department of Defense (DoD). Specifically, the GIG is defined as a globally interconnected, E2E set of information capabilities, associated processes and personnel for collecting, processing, storing, disseminating, and managing information on demand for warfighters, policy makers, and support personnel. The GIG is a vision, an entity, and an architecture.

As a vision, the GIG establishes the conceptual framework for a “to be” information environment for the DoD. As an entity, the GIG comprises many systems that interoperate to provide the right information to the right places when needed. As an architecture, the GIG is well established, documented, and integrated. It is the DoD’s “Enterprise Architecture” that defines the enterprise level information environment blueprint.

The GIG Architecture comprises three perspectives or views: operational; systems; and technical. As such, the architecture represents the structure of GIG components, their relationships, and the principles and guidelines governing their design, operation, and evolution over time. There is no single program that encompasses the entire GIG. Many programs and systems will deliver the information capabilities and services available to users on the GIG. Likewise, there are many organizations that are contributing to the architectural definition and component acquisition of the GIG.

**3. SCOPE**

The Activity supports all programs in all mission areas that operate, or plan to operate, as part of the GIG. This includes all programs of the DoD (Business, Warfighter, Enterprise

Information Environment, and National Intelligence Mission Areas). The Activity is essential for ensuring that there is a strong technical foundation for the interface and protocol decisions made by individual GIG programs and that these decisions are consistent with the E2E interoperable enterprise-wide information grid. The participation of systems engineering personnel representing command and control programs, transport programs, and data services programs in meetings, working groups and tiger teams will enable the needs of the individual programs to be addressed in the context of a GIG enterprise wide perspective.

The Activity does not circumvent the authorities or responsibilities of existing management structures, acquisition processes, or any other program organizational relationships and has no authority to directly task the Services, Agencies, organizations or programs.

#### 4. KEY RELATIONSHIPS

The Activity will be involved in the process to identify and address cross-GIG systems engineering issues to facilitate their resolution as early as possible in the development cycle of GIG-related programs and activities. The Activity will interface with the Department's key processes, as reflected in Figure 1, including the DoD Chief Information Officer (CIO) Executive Board. In coordination with the Service and Agency Board representatives, the Activity will interface with individual program personnel to develop common and interoperable solutions to E2E issues as discussed below

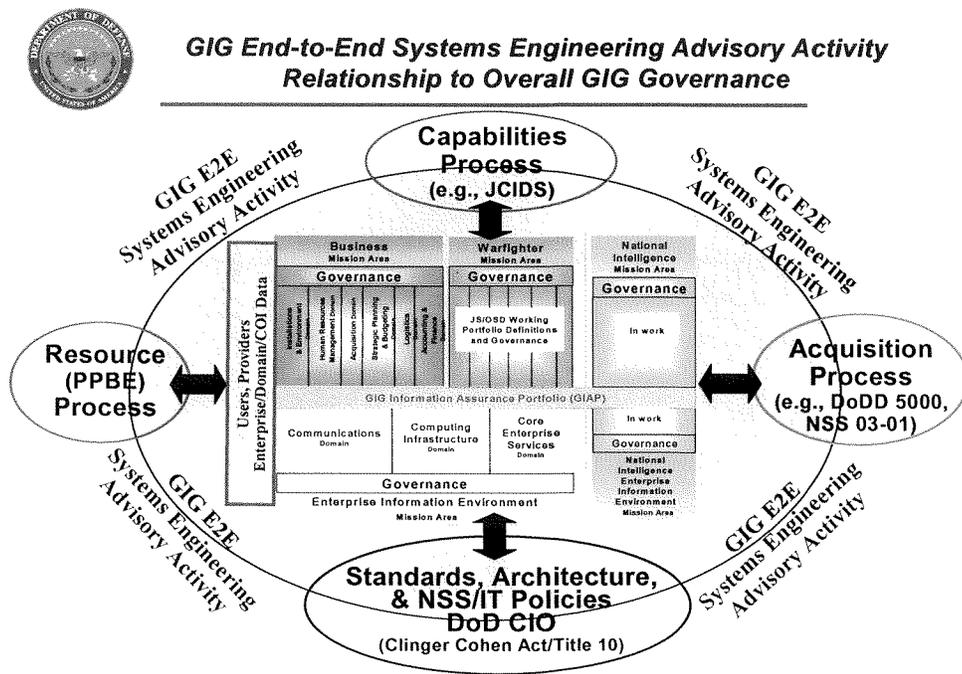


Figure 1

#### **4.1 Resource Process:**

The Activity will be involved in the process to address the effectiveness and scope of alternative solutions to issues based on E2E and enterprise considerations as contrasted to solutions that are centered on any one individual program perspective. The Activity will also advance recommendations based on GIG-wide related resource priorities and allocations and will do so in the context of the Planning, Programming, Budgeting and Executing (PPBE) process.

#### **4.2 Capabilities Process:**

The Activity will be involved in the process to provide SE advisory support to the Joint Capabilities Integration and Development System (JCIDS) processes following the guidelines of Chairman of the Joint Chiefs of Staff Instruction (CJCSI) 3170.01 Series, CJCSI 6212.01C series, DoD 5000 Series, and National Security Systems (NSS) 03-01 National Security Space Acquisition Policy. It will participate as needed in the Functional Capabilities Board (FCB) process and support systems engineering analysis for Functional Area Analysis (FAA), Functional Needs Analysis (FNA), Functional Solution Analysis (FSA), Initial Capabilities Documents (ICD), Capability Development Documents (CDDs), Capability Production Documents (CPDs), Integrated Architectures, Joint Integrating Concepts, Concept of Operations (CONOPS) and other activities as appropriate. Net Ready Key Performance Parameters (NR KPP's), Key Interface Profiles (KIPs), Measures of Performance (MOPs) and Measures of Effectiveness (MOEs) also will be reviewed with respect to net-centric attributes.

#### **4.3 Acquisition Process:**

The Activity will be involved in the process to make recommendations to appropriate acquisition authorities related to cross-program issues and alternative solutions. These recommendations will be based on program assessments developed using the SE Net-Centric Checklist, the Joint Technical Architecture (JTA), the Net-Centric Operations and Warfare Reference Model (NCOW-RM), the DoD Data Strategy, and other tools as appropriate to facilitate GIG interoperability. The results of the Activity will be shared with appropriate Integrating Integrated Product Teams (IIPTs), Working Integrated Product Teams (WIPTs), Independent Program Assessments (IPAs), Overarching Integrated Product Teams (OIPTs), the Defense Acquisition Board (DAB), the Information Technology Acquisition Board (ITAB), and the Defense Space Acquisition Board (DSAB).

#### **4.4 Standards and Architecture Process:**

The Activity will be involved in the process to coordinate with applicable DoD standards and architecture decision-making processes to facilitate GIG program synchronization with mission area architectures and the GIG Integrated Architecture. This includes identifying opportunities to apply existing standards and contributing to the development of new standards as necessary. After the Program Manager selects standards, the Activity may conduct interface, interoperability, and cross network analyses as necessary and provide the results of the analyses to the Program Manager and the DoD CIO as appropriate. If necessary, the Activity may lead the development of a new standard for inclusion in the IT Standards Registry.

## 5. ORGANIZATIONAL STRUCTURE AND RESPONSIBILITIES

The organizational structure of the Activity is depicted in Figure 2 and described in the following paragraphs.

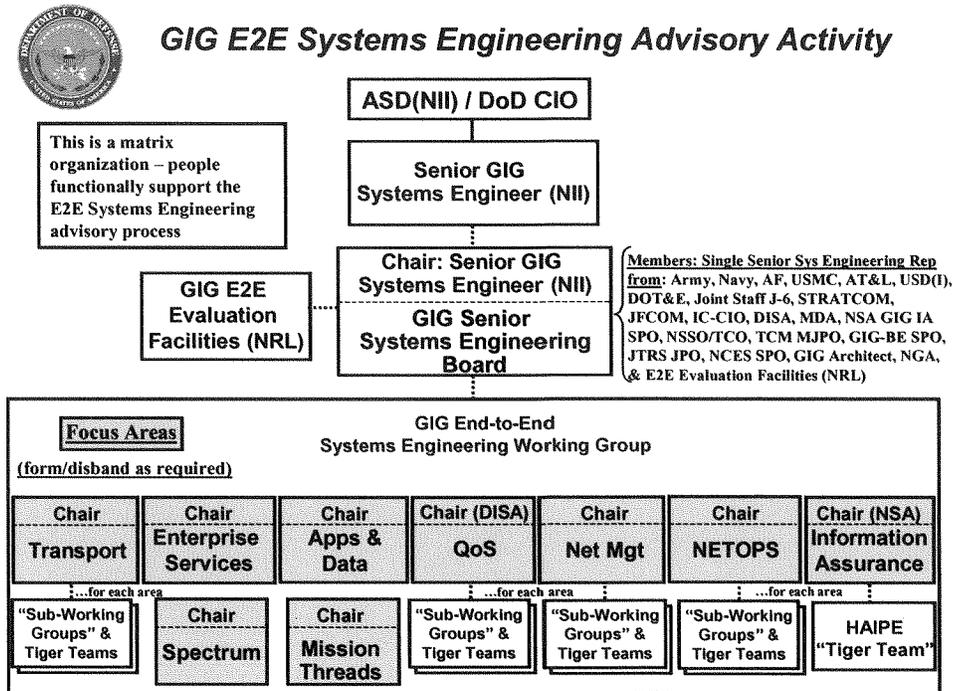


Figure 2

### 5.1 The GIG Senior Systems Engineer

The Senior GIG Systems Engineer is the Chair of the Global Information Grid (GIG) E2E Systems Engineering (SE) Advisory Activity and is supported by a technical and administrative staff. This individual convenes the GIG Senior SE Board, sets board agendas in consultation with GIG Senior SE Board members, and assigns actions. This individual is also responsible for dissemination of board decisions and recommendations and will provide the technical advice and analysis to ASD(NII)/DoD CIO and other senior DoD officials.

### 5.2 The GIG Senior SE Board

The GIG Senior SE Board is the senior coordinating body that includes senior systems engineers responsible for GIG-related programs and activities. The current composition of Board is as shown in Figure #2, but this composition may change as required by Board members. A GIG E2E Evaluation Facilities representative is also a Board member.

The Board identifies, prioritizes, and synchronizes the activities of the Working Group, Focus Areas and Tigers Teams, as well as the appropriate representation from their commands, necessary to develop an enterprise-wide technical view for the GIG. This Board will review proposed recommendations, draft policies, draft standards, and system assessments developed by

the Activity before they are promulgated to other decision bodies. The Board sets the schedules and establishes deliverables for the Working Group. The Board also reviews the work of the Working Group and determines issues to be forwarded from the Working Group to others. Board members are responsible for taking the Board recommendations back to parent organizations and work for their consideration.

### **5.3 The GIG E2E SE Working Group (WG)**

The GIG SE E2E Working Group (WG) is the key working component for the Activity. It consists of a number of Focus Areas, Sub-WGs and Tiger Teams. These units will be formed and disbanded on an as needed-basis.

The GIG SE E2E WG provides a collaborative environment to:

- Monitor/arbitrate/track inter-system interfaces.
- Provide cross-GIG risk management.
- Agree on standards in a form similar to Internet Engineering Task Force
- Monitor and report technical issues impacting end-to-end performance.
- Enable the development of end-to-end products such as the information assurance architecture, quality of service framework, and JTRS “Above 2 GHz” roadmap.
- Facilitate buy-in across GIG Programs.
- Work with the various GIG-related roadmap activities to develop a common view of GIG synchronization, highlighting disconnects for focused attention.
- Support FCB functional area analysis of systems engineering, systems integration and interoperability requirements.

Systems engineering representatives from participating GIG programs are members of the GIG E2E SE WG. All members of the GIG community are invited to participate in WG meetings. However, due to space limitations, attendance from the participating organizations may have to be limited to the primary organization representative plus one assistant to allow space for all interested members to attend.

WG meetings shall be informal and flexible to facilitate a full and open exchange of information and potential solutions. WG meetings shall occur bi-weekly, or as required. An OASD(NII) representative named by the Senior GIG Systems Engineer shall chairs these meetings and set the agenda with input from the GIG E2E Advisory Activity membership.

Focus Areas will be formed at the direction of the Board or the Working Group. Meetings take place as often as required to allow GIG programs within a given Focus Area to be able to participate productively in the WG, sub-WG and Tiger Team meetings. Focus Areas will be formed and disbanded on an as-needed basis. Initial Focus Areas (as shown in Figure 2) include Transport, Enterprise Services, Applications and Data, Quality of Service, Net Management, Net Operations (NETOPS), Information Assurance, Spectrum and Mission

Threads. Focus Area leads will be named by the Senior GIG Systems Engineer and approved by majority vote of the GIG Senior SE Board.

Sub-Working Groups will be formed at the direction of the Board or WG. Meetings will take place as often as required to meet taskings of the WG and Focus Area. These activities may be formed and disbanded on an as-needed basis

Tiger Teams will be formed at the direction of the Board or WG and operate as long as required to meet the tasking assigned. The Board or WG chair will designate a Tiger Team lead. The Tiger team formed by OSD/NII to address the High Assurance Internet Protocol Encryption Version 2 (HAIPEv2) specification is a good example of how the process worked not only for the HAIPE program, but also for the benefit of the all GIG programs and service networks.

The Tiger Team was comprised of key systems engineers and technical experts from each service, GIG Program Management Offices (PMOs), National Security Agency (NSA), Defense and Intelligence Agencies, and OASD(NII). They were asked to identify the key core requirements required by all HAIPE products and determine timeline and path forward for maturing requirement for incorporation into the High Assurance Internet Protocol Interoperability Specification (HAIPIS). As part of this process, the team developed GIG Routing Architecture & CONOP documents; gathered/prioritized/specified GIG routing requirements; developed a capability roadmap; developed interoperable mechanism specifications; interfaced with Government working groups and program Integrated Product Teams (IPTs); then finally generated the derived requirements for HAIPIS.

## **6. REFERENCES**

- a) DoDD 8100.1, Global Information Grid (GIG) Overarching Policy, September 19, 2002
- b) DoDD 5000.1, The Defense Acquisition System, May 12, 2003
- c) DoDI 5000.2, Operation of the Defense Acquisition System, May 12, 2003
- d) CJCSM 3170.01A, Operation of the Joint Capabilities Integration and Development System (JCIDS), 12 March 2004
- e) CJCSI 3170.01D, Joint Capabilities Integration and Development System (JCIDS), 12 March 2004
- f) CJCSI 6212.01C, Interoperability and Supportability of Information Technology and National Security Systems, 20 November 2003
- g) AT&L Policy for Systems Engineering in DoD, dated February 20, 2004

## **7. CHANGES AND AMENDMENTS**

This Charter will be effective immediately upon signature. This Charter will be reviewed and updated as required.

**8. SIGNATURES:**

_____ OASD(NII)	_____ Date	_____ Joint Staff – J-6	_____ Date	_____ USD(AT&L)DS	_____ Date
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_____ OUSD(I)	_____ Date	_____ NGA	_____ Date	_____ DOT&E	_____ Date
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_____ Army	_____ Date	_____ Navy	_____ Date	_____ Air Force	_____ Date
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_____ Marine Corps	_____ Date	_____ DISA	_____ Date	_____ NSA (GIG IA SPO)	_____ Date
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_____ JFCOM	_____ Date	_____ STRATCOM	_____ Date	_____ GIG EF (NRL)	_____ Date
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_____ MJPO/TSAT	_____ Date	_____ IC/CIO	_____ Date	_____ JTRS JPO	_____ Date
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_____ SAF/USI(NSSO)	_____ Date
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8. SIGNATURES:

[Signature] 9/10/04 James V. Lawrence 30 Aug 04 Robert F. Stedman  
OASD(NII)/DoD CIO Date Joint Staff J-6 Date for Mark Schaeffer 6/20/04  
USD(AT&L)BSSB Date

Ken P. Mc... 8/5/04 W. P. ... 7/15/04 J. P. ... 6/22/04  
OUSD(I) DIR, ISAT Date NGA Date DOT&E Date

B. Blount  
MG Buford C. Blount, III  
ADCS, G-3  
Army 8/2/04 Dei ... 7/29/04 Charlie ... 9/08/04  
Date Navy Date Air Force Date

R. Hobart 9/1/04 Michael ... 6/2/04 Vic ... 1 Jul 04  
Marine Corps Date DISA Date NSA Date  
(GIG IA SPO)

Mark Vanous 30 Jun 04 Michael ... 2 Jun 04 R. ... 2/26/04  
JFCOM Date STRATCOM Date GIGEF (AFL) Date  
MARK VANOUS  
Colonel, USMC M  
Dep CoS, USJFCOM

Ch ... 23 Jun 04 John ... 24 Aug 04 Alex ... 17 Jun 04  
MJPO/TSAT Date IC CIO/Comms Date JTRS JPO Date w/ comment

R. Keller 30 Jun 04  
NSSO Date  
w/ comment