

**SECTION C
DESCRIPTION/SPECIFICATIONS/STATEMENT OF WORK**

C.1 OVERVIEW

C.1.1 CONTRACT OBJECTIVE

Contractors are sought who will provide worldwide commercial satellite communications (COMSATCOM) End-to-End Solutions. End-to-End Solutions comprise complete, customized engineered solutions to meet customers' unique COMSATCOM needs. These solutions may include any combination of fixed satellite services and/or mobile satellite services, components, and/or service enabling components and ancillary equipment such as terminals, teleports, terrestrial tail circuits, Subscriber Identity Module (SIM) cards, and peripherals. End-to-End Solutions may also include, but are not limited to, licensing, integration, installation, testing, network management, engineering and training. Examples of the types of COMSATCOM solutions the Contractor shall have the capability to deliver are included in this section; however, the specific COMSATCOM solutions to be procured will be defined in subsequent Task Orders.

C.2 SUMMARY OF REQUIREMENTS

Unless otherwise stated, the Contractor is solely responsible for all requirements stated herein.

C.2.1 MANAGEMENT

- C.2.1.1** The Contractor shall furnish the project management processes and resources needed to plan, direct, coordinate, and implement the contract as well as control the requirements contained in the contract and priced Task Orders.
- C.2.1.2** The Contractor shall have the capability to manage multiple simultaneous Task Orders of varying complexity at worldwide locations.
- C.2.1.3** The Contractor shall have the capability to develop a Service Plan for each Task Order as part of the Task Order proposal, outlining what is necessary to successfully execute the Task Order. For each Service Plan, the Contractor shall:

- C.2.1.3.1** Develop and document an engineered solution that addresses all requirements as outlined in this contract and the specific Task Order.
- C.2.1.3.2** Develop and document an engineered solution that identifies all equipment and resources proposed to satisfy the Task Order.
- C.2.1.3.3** Develop and document an engineered solution that provides the Contractor's recommended plans to replace equipment and resources in case of failure, except in those cases where the Government has specific sparing requirements.
- C.2.1.3.4** Develop and document an engineered solution that addresses the use of Government furnished materials and resources as specified in the Task Order.
- C.2.1.3.5** Develop and document an engineered solution that identifies the applicable performance standards, specifies the set of performance metrics for the services the Contractor proposes to use, and describes in detail the methods and measurements with which the Contractor proposes to establish compliance with the performance standards. The Government reserves the right, on a Task Order basis, to identify the performance standards, specify the performance metrics, and describe the methods and measurements to establish compliance with the performance standards.
- C.2.1.3.6** Update the Service Plan to reflect all Task Order modifications as required.
- C.2.1.4** The Contractor shall have the capability to manage the operations of each proposed subcontractor.
- C.2.1.5** The Contractor shall have the capability to provide customers with timely and accurate invoicing, and provide account information as defined in subsequent Task Orders to the Ordering Contracting Officer, Contracting Officers Representative, and Task Monitors.

C.2.2 GENERAL TECHNICAL REQUIREMENTS

- C.2.2.1** The Contractor shall provide complete, customized engineered COMSATCOM End-to-End Solutions to meet customers' unique satellite communications needs. These solutions may include any combination of fixed satellite services or mobile satellite services components, and/or service enabling components such as terminals, teleport, and terrestrial interface tail circuits. The Contractor shall also have the ability to supply licensing, integration, network management and engineering services.

- C.2.2.2** The Contractor shall provide the COMSATCOM system engineering design, configuration, installation, implementation, training, and on-going maintenance and operational support necessary to deliver a COMSATCOM solution. The Contractor shall have the ability to provide at least, but not limited to, the services identified below:
- C.2.2.2.1** Design and Engineering Services including, but not limited to, site surveys, developing specifications, drawings, reports, schedules and other related work products, configuration, implementation and installation;
 - C.2.2.2.2** Ongoing Maintenance and Operational Support Services including, but not limited to, operations support, maintenance plans, and repair services;
 - C.2.2.2.3** Customer Care and Helpdesk Support including, but not limited to, identifying the methods of customer access and hours of operation. The Contractor shall have the capability to respond to trouble calls and complaints, with identified points of contact, availability, and procedures for problem resolution, information flow, and escalation;
 - C.2.2.2.4** Training, including, but not limited to, equipment operations and maintenance training.

C.2.3 REQUIRED COMSATCOM END-TO-END SOLUTION TYPES

- C.2.3.1** COMSATCOM End-to-End Solutions include, but are not limited to, any combination of bandwidth, throughput, terminals, other user equipment, teleports, tail circuits, networks, other terrestrial infrastructure, integration and engineering services, and installation, operations, and maintenance.
- C.2.3.2** The Contractor's solutions shall meet the Information Assurance, Responsiveness, Portability, Flexibility/Optimization, Capacity, Coverage, Net Ready (Interoperability), Network Monitoring (Net Ops), Electro Magnetic Interference (EMI) / Radio Frequency Interference (RFI) Identification, Characterization, and Geo-location, and Security requirements outlined in Section C.2.4 as assigned by the Ordering Activity on a Task Order basis.
- C.2.3.3** The Contractor shall have the capability to deploy the necessary terminals, teleports, tail circuits, networks, Integration Services, Engineering Services, Licensing, Certification & Accreditation, Network Management, Operations & Maintenance, and Training required by the Ordering Activity.

C.2.3.4 The Contractor shall have the capability to deliver COMSATCOM End-to-End Solutions within each Solution Type meeting or exceeding the following parameters:

C.2.3.4.1 Coverage: COMSATCOM end-to-end solutions delivered to coverage areas involving multiple satellites and associated ground stations and terrestrial infrastructure.

C.2.3.4.2 User/Network Size: COMSATCOM end-to-end solutions comprised of at least 500 end-user locations or points of presence.

C.2.3.4.3 Capacity: COMSATCOM end-to-end solutions requiring at least a total of 3 Transponder Equivalent (TPE) of bandwidth or 100 Mbps committed information rate (CIR) over the satellite links.

C.2.3.4.4 Terminal Types: COMSATCOM end-to-end solutions with terminal populations consisting of multiple variants of fixed land, mobile land, maritime, and/or airborne terminals.

C.2.3.4.5 Network Management: COMSATCOM end-to-end solutions with network management tailored to capture and deliver data elements most relevant to the customer's requirements.

C.2.3.5 The Contractor shall demonstrate its capability to provide solutions of the scope herein, in response to requirements aligning with each of the following COMSATCOM End-to-End Solution types:

C.2.3.5.1 Interactive Services. The Contractor shall have the capability to provide complete, customized engineering solutions to support 24x7 Interactive Services requirements. Interactive Services involve the ability to connect multiple locations into a real-time two-way interactive network, mostly involving audio and video. Interactive Services includes Distance Learning and Telemedicine type requirements. Interactive Services are often characterized by distribution of a common information stream to multiple locations, scheduling components and conditional access management, changes to the information stream, distribution locations, and network configurations based upon parameters both known and scheduled in advance and in reaction to changing circumstances, integration with terrestrial communication components and systems, and customer tolerance for latency, delay, jitter, and packet loss.

C.2.3.5.2 Continuity of Operations (COOP). The Contractor shall have the capability to provide complete, customized engineering solutions to support COOP requirements. COOP involves the pre-planned establishment and deployment of a backup or alternative communications infrastructure in anticipation that a natural or

human caused event disables or destroys the normal, primary communications infrastructure and is focused on reconstitution of the critical communications functionality to continue minimal essential and/or normal operations. When the COOP capability is required, activation is required immediately, often 24 hours or less. COOP includes developing an alternative for portions of, or the entirety of, the normal, primary communications infrastructure, and can be as simple as a set of new Internet Protocol addresses or as complex as replicating the functionality of the entire primary, terrestrial infrastructure. COOP can include requiring a completely different set of hardware, personnel, and network paths, and associated terrestrial infrastructure as an ancillary component of the COMSATCOM based solution.

- C.2.3.5.3** Broadcast Satellite Service (BSS). The Contractor shall have the capability to provide complete, customized engineering solutions to support BSS requirements. Broadcast Satellite Services (BSS) involves the collection of voice, video, and/or data into one central site and distribution of that information typically one-way to multiple fixed and/or mobile locations. BSS includes Streaming Media type requirements. BSS is often characterized by high bandwidth requirements, dedicated, fully utilized data streams for the duration of the broadcast, live or real-time distribution, access control for different portions of the information stream, and minimum customer tolerance for latency, delay, and jitter.
- C.2.3.5.4** Emergency Responder Operations. The Contractor shall have the capability to provide complete, customized engineering solutions to support Emergency Responder Operations. Emergency Responder Operations involve reconstituting a communications infrastructure in response to a natural or human caused event that disrupts or destroys the normal, pre-existing communications infrastructure. Emergency Responder Operations involves an ad-hoc, immediate need communications requirement that eventually reverts back to communications infrastructure previously used, quick responsiveness requirement of a few hours to a few days, desire for interoperability among different types of responders, transportability, quick design, implementation, and activation, and the ability to reach back into headquarters and shared information sources. Additionally, it is not uncommon for the requirement to grow significantly from a small number of users (e.g., initial responders) to a large number (e.g., coordinated large-scale humanitarian effort) within a moderate period of time (e.g., 30 days).
- C.2.3.5.5** Direct Customer Operations. The Contractor shall have the capability to provide complete, customized engineering solutions to

support Direct Customer Operations requirements. Direct Customer Operations involve the creation of an often preplanned, enabling communications infrastructure to support specific Customer operations, typically because no pre-existing communications infrastructure is available. Direct Customer Operations include the ability to collaborate among various types of Customers, connecting Customers operating on the tactical edge back to headquarters and shared information sources, transportability and mobility requirements, personnel and facility security, information assurance, ability to reconfigure and/or reconstitute quickly in response to changing situations during prosecution of the mission, real-time insight into communications networks status, and moderate to quick responsiveness requirements with deployment required in several hours to several days. These communications solutions are typically for a short duration and mission focused, high priority with the ability to pre-empt other uses of the same communications resources, and cost of the solution as a much lower priority than the ability to utilize the solution as part of executing the mission. Additionally, it is not uncommon for the requirement to grow significantly from a small number of users (e.g., battalion) to a large number within a moderate period of time (e.g., 30 days).

C.2.3.5.6 Steady State Operations. The Contractor shall have the capability to provide complete, customized engineering solutions to support Steady State Operations requirements. Steady State Operations involve long duration, baseline communications services and infrastructure to support enduring user requirements. Steady State Operations include significant pre-planning with more time allowed for design, configuration, implementation, and activation times, ubiquitous access to collaborative and integrated users, fixed infrastructure that responds more slowly to changes, lower priority with the ability to be pre-empted by a higher priority, short term need for the same communications resources, and strong sensitivity to cost of the solution as compared to the technical capability delivered.

C.2.3.5.7 The Government reserves the right to issue requirements aligned with COMSATCOM End-to-End Solution types not included in the list above.

C.2.4 REQUIRED COMSATCOM END-TO-END SOLUTION ATTRIBUTES

C.2.4.1 Information Assurance

C.2.4.1.1 The Contractor shall comply, to the maximum extent practicable, with: The Committee on National Security Systems Policy (CNSSP)

12, “*National Information Assurance Policy for Space Systems used to Support National Security Missions*,” or Department of Defense Directive (DoDD) 8581.1, “*Information Assurance (IA) Policy for Space Systems Used by the Department of Defense*.”

- C.2.4.1.2** The Contractor shall comply with the Federal Information Security Management Act of 2002 as implemented by Federal Information Processing Standards Publication 200 (FIPS 200), “*Minimum Security Requirements for Federal Information and Information Systems*.” In response to Ordering Activity requirements, at a minimum, all Contractor solutions shall meet the requirements assigned against: A low-impact information system (per FIPS 200) that is described in the current revision of National Institute of Standards and Technology (NIST) Special Publication (SP) 800-53, “*Recommended Security Controls for Federal Information Systems and Organizations*,” or a Mission Assurance Category (MAC) III system that is described in the current revision of DoD Instruction (DoDI) 8500.2, “*Information Assurance Implementation*.”
- C.2.4.1.3** On a Task Order basis, the Ordering Activity shall assign an impact level (per FIPS 200 and NIST SP 800-53), or MAC level (per DoDI 8500.2) prior to issuing the initial statement of work. Task Order evaluations shall consider the extent to which the Contractor’s solutions accommodates the necessary security controls based upon the assigned impact level or MAC, command encryption/authentication, and other requirements in CNSSP 12 or DoDD 8581.1.
- C.2.4.1.4** The Contractor’s information assurance boundary is where the Contractor’s services connect to the user terminals/equipment (i.e., includes satellite command encryption (ground and space); systems used in the Satellite Operations Centers (SOCs), Network Operations Centers (NOCs) and teleport; and terrestrial infrastructure required for service delivery).
- C.2.4.1.5** Ordering Activity reserves the right to independently evaluate, audit, and verify the IA compliance for any proposed or awarded COMSATCOM services. All IA certification, accreditation, and evaluation activities are the responsibility of the ordering activity.

C.2.4.2 Responsiveness

- C.2.4.2.1** As specified on a Task Order basis, the Contractor shall deliver solutions in one of the following timeframes after Task Order award:
 - C.2.4.2.1.1** Standard Service Delivery (30 calendar days or less).
Standard Service Delivery is the time required under

normal conditions for COMSATCOM services to be available.

C.2.4.2.1.2 Accelerated Service Delivery (7 calendar days or less). Under Accelerated Service Task Orders, service acceptance testing unless otherwise required by the satellite provider or host nation shall be deferred until operations permit.

C.2.4.2.1.3 Time-Critical Service Delivery (4 hours or less). Under Time-Critical Service Task Orders, service acceptance testing unless otherwise required by the satellite provider or host nation shall be deferred until operations permit. Time-Critical Delivery shall be predicated on the availability of pre-planned engineering solutions, pre-planned line-up messages and transmission plans, pre-arranged Host Nation Agreements, terrestrial connectivity (if applicable), and frequency clearance, and the availability of contracted bandwidth.

C.2.4.2.1.4 Extended Service Delivery. The time required under extenuating circumstances to implement a Task Order after order award. Such extenuating circumstances may include extended time required for host nation agreements or landing rights, long-lead terrestrial connectivity, or other time intensive service delivery requirements as defined in the individual Task Order. Any such extended delivery times will be negotiated between the Ordering Activity and Contractor.

C.2.4.3 Portability

C.2.4.3.1 The Contractor shall have the capability to redeploy COMSATCOM services, subject to availability. Portability shall be provided within the COMSATCOM Contractor's resources at any time as requested by the Ordering Activity. When portability is exercised, evidence of equivalent net present value (NPV¹) shall be provided by the Contractor. Alternatively, prior to Task Order award, specific pre-defined terms and conditions for portability and related services including pricing and/or other contract terms may be negotiated and defined in the individual Task Order. Portability may include moving from one transponder/satellite to another, one managed service area to another, transponded capacity redeployment between beams or transponders on a single satellite, redeployment from one frequency band to another, physical

¹ For example, one-year of service for a transponder valued at \$1M/year is traded for six-months of service on a transponder valued at \$2M/year.

relocation of a satellite to a new orbital position, re-routing of teleport services from one teleport to another pre-defined teleport, re-routing of traffic from one terrestrial infrastructure to another pre-defined infrastructure, and movement of Network Operations Center (NOC) services from one NOC to another NOC.

C.2.4.4 Flexibility/Optimization

C.2.4.4.1 The Contractor shall have the capability to re-groom resources for spectral, operational, or price efficiencies. Flexibility/optimization shall be provided within the COMSATCOM Contractor's resources at any time as requested by the Ordering Activity. When flexibility/optimization is exercised, evidence of equivalent net present value (NPV)² shall be provided by the Contractor. The Contractor is encouraged to submit re-grooming approaches for Ordering Activity consideration that may increase efficiencies for existing COMSATCOM services. Alternatively, prior to Task Order award, specific pre-defined terms and conditions for re-grooming including pricing and/or other contract terms may be negotiated and defined in the individual Task Order. Re-grooming may include, but is not limited to, analysis of space segment, teleport, and network resource utilization in order to increase the number of carriers on existing allocated bandwidth and/or terminals and/or increasing the data rates on individual Task Orders through the implementation of advanced coding, modulation, and/or hardware upgrades.

C.2.4.5 Capacity

C.2.4.5.1 The Government has requirements for scalable COMSATCOM capacity in any COMSATCOM frequency band. The Contractor must be able to provide scalable capacity in any available COMSATCOM frequency band in support of US Government COMSATCOM requirements. This requirement is subject to the availability of satellite resources.

C.2.4.6 Coverage

C.2.4.6.1 The Government has requirements for COMSATCOM coverage anywhere in the world and in any COMSATCOM frequency band. The Contractor must be able to provide coverage anywhere worldwide in any available COMSATCOM frequency band, including, but not limited to, L-, S-, C-, X-, Ku-, extended Ku-, Ka-, and UHF. Specific pre-defined coverage may be negotiated and

² For example, one-year of service on a less efficient arrangement of contractor resources is traded for nine-months of services on a more efficient arrangement of contractor resources that provides an operational efficiency to the Ordering Activity's customers.

defined in the individual Task Order. This requirement is subject to the availability of satellite resources.

C.2.4.7 Network Monitoring (NET OPS)

C.2.4.7.1 The Contractor shall have the capability to electronically collect and deliver near real-time monitoring, fault/incident/outage reporting, and information access to ensure effective and efficient operations, performance, and availability, consistent with commercial practices. Consistent with the Contractor's standard management practices, the Net Ops information will be provided on a frequency (example: every 6 hours, daily) and format (example: SNMP, XML) as defined in a requirement to a location/entity/electronic interface defined by the Ordering Activity. Prior to Task Order award, specific pre-defined terms and conditions for Net Ops collection and delivery may be negotiated and defined in the individual Task Order.

C.2.4.8 EMI/RFI Identification, Characterization, and Geo-Location

C.2.4.8.1 The Contractor shall have the capability to collect and electronically report in near real-time Electro Magnetic Interference (EMI) / Radio Frequency Interference (RFI) identification, characterization, and geo-location, including the ability to identify and characterize sub-carrier EMI/RFI being transmitted underneath an authorized carrier, and the ability to geo-locate the source of any and all EMI/RFI. The Contractor shall establish and use with the Ordering Activity a mutually agreed upon media and voice communications capability capable of protecting "Sensitive, but Unclassified" data.

C.2.4.9 Security

C.2.4.9.1 The Contractor may be required to obtain/possess varying levels of personnel and facility security clearances up to U.S. Government TOP SECRET/Sensitive Compartmented Information (TS/SCI) or equivalent clearances assigned by the National Security Authority of a NATO Member State or Major Non-NATO Ally.

C.2.4.9.2 The Contractor may be required to provide physical security (e.g., personnel or equipment protection).

C.2.4.9.3 For incident resolution involving classified matters, the Contractor shall provide appropriately cleared staff who can affect COMSATCOM services operations (example: satellite payload operations, network operations). The Contractor shall provide a minimum of one operations staff member AND a minimum of one person with the authority to commit the company if resolution requires business impacting decisions (example: Chief Executive Officer, Chief Operations Officer, etc.).

- C.2.4.9.4** When Communications Security or Transmission Security equipment or keying material is placed in the equipment/terminal shelter, the Contractor shall ensure compliance with applicable physical security directives/guidelines and that all deployed equipment/terminal operations and maintenance personnel shall possess the appropriate clearances, equal to or higher than the classification level of the data being transmitted. Where local regulations require use of foreign personnel for terminal operations and maintenance, then the Contractor shall ensure compliance with applicable security directives/guidelines and document to the U.S. Government's satisfaction that protective measures are in place and such individuals have equivalent clearances granted by the local host nation.
- C.2.4.9.5** For classified operations security (OPSEC), the Contractor shall ensure that all personnel in direct contact with classified OPSEC indicators (example: the unit, location, and time of operations) have U.S. SECRET or higher personnel security clearances, or, as appropriate, equivalent clearances assigned by the National Security Authority of a NATO Member State or Major Non-NATO Ally, in accordance with applicable security directives and guidelines.
- C.2.4.9.6** For classified requirements, cleared satellite operator staff must have access to secure voice communications for emergency purposes. Communications security equipment certified by the National Security Agency (NSA) to secure unclassified and up to and including SECRET communication transmissions at all operations centers is preferred. If a Contractor is unable to have access to NSA-approved communications security equipment at its operations centers, then a combination of a "Sensitive but Unclassified" (SBU) cryptographic module approved by the U.S. National Institute for Standards and Technology and pre-arranged access to NSA-approved communications security equipment at an agreed alternate facility is acceptable.
- C.2.4.9.7** The Contractor shall have the capability to "mask" or "protect" users against unauthorized release of identifying information to any entity that could compromise operations security. Identifying information includes but is not limited to personal user and/or unit information including tail numbers, unit names, unit numbers, individual names, individual contact numbers, street addresses, etc.
- C.2.4.10** Net Ready (Interoperability)

The Contractor shall deliver solutions that are consistent with commercial standards and practices. Contractor solutions shall have the capability to

access and/or interoperate with Government or other Commercial teleports/gateways and provide enterprise service access to or among networks or enclaves. Interfaces may be identified as interoperable on the basis of participation in a sponsored interoperability program. Any such access and/or interoperability with teleports/gateways and provisioning of enterprise service access will be defined in the individual Task Order requirement.

(END OF SECTION C)