Call 001 - Initial Connectivity Experiments

Defense Experimentation Using Commercial Space Internet (DEUCSI)

Proposal Due Date and Time: 1 December 2017, no later than 4:00pm Dayton, OH local time.

Anticipated Award Date: Late January 2018

Anticipated Number of Awards: Estimate 2-5 awards

Anticipated Funding: See below, Section 6 Cost Objective/Funding Constraint

Agreement/Contract Number: TBD (FA8650-18-X-XXXX)

1. Statement of Objectives (SOO)/Description of Technical Areas:

Background/Scope:

Consistent with the overall approach for establishing path agnostic communications using the commercial space internet, which is described in the Advanced Research Announcement (ARA) with Calls FA8650-17-S-9300, this Call seeks to establish connectivity between commercial space internet spacecraft and Air Force assets. For the purpose of this Call, Air Force Assets will include at least 2 ground sites and 2 aircraft. The Government is interested in establishing connectivity between any pair of these Air Force assets through commercial space internet spacecraft and data links and measuring the performance of these connections in transferring typical data files or data streams between Air Force operating locations and platforms. In addition, the government is seeking appropriate technical detail on offerors' commercial space internet approaches to allow government assessment of applicability for transmitting and receiving classified information via the commercial space internet. The government intends to provide access to Air Force operating locations, selected aircraft, and, as applicable and necessary, special test equipment as government furnished equipment (GFE).

Technical Objectives:

The Government seeks innovative development and experimentation to meet the following technical objectives:

A. Establish broadband connectivity between the following pairs of Air Force operating locations by passing data to and from the following combination of locations via one or more commercial space internet spacecraft:

a. Ground-to-Ground: Two fixed operating locations within the continental United States (CONUS)
b. Ground-to-Air: One fixed operating location within CONUS and one airborne aircraft flying over CONUS
c. Air-to-Air: Two airborne aircraft flying over CONUS

B. Measure technical performance parameters to quantify the data transfer performance of the connections between Air Force operating locations using the commercial space internet spacecraft. At a minimum, measurands should include:
    a. Data transfer rate (bandwidth)
    b. Latency
    c. Bit error rate
    d. Link margin

C. Provide sufficient information regarding experimental commercial space internet data paths and network security approaches to enable the Government to assess issues related to data security. Note that the information required to make this assessment is expected to be highly dependent on the offeror's proposed technical approach. The intent is for the Government to determine what measures are necessary, in addition to the offerors' standard offerings, in order to securely transfer data of any security level via the commercial space internet.

2. Deliverable Items:

a. Data Items: Test data for ground-ground, ground-air, and air-air experiments.
b. Software: Not Applicable.
c. Hardware: Two or more user terminals for interfacing with commercial space internet spacecraft.
d. Other: Interface control document(s) for user terminals.
e. Final Report and Technical report describing commercial space internet data paths and security approaches.

3. Data Rights Desired:

The government desires Unlimited Rights for all technical data, non-commercial software (NCS), and NCS documentation developed using government funds, however due to the desired use of commercially-developed space internet technologies in this program more restrictive data rights are anticipated and will be considered where appropriate. The desired, but negotiable, data rights are:

(1) Technical Data: Unlimited Rights
(2) Non-Commercial Software (NCS): Unlimited Rights
(3) NCS Documentation: Unlimited Rights
(4) Commercial Computer Software Rights: Customary License

4. Schedule/Period of Performance:

The ability of the Government to experiment with the use of the commercial space internet is dependent on the development and launch of commercial spacecraft using non-government funding. As such, the government intends to be flexible on the start date and duration of awards under this solicitation in order to maximize the probability of success of each individual effort. Although start date is a secondary consideration, the technical period of performance for any individual effort under this solicitation is estimated to be approximately 12 months. Three (3) months are allocated for preparation and review of the final report, resulting in an overall estimated period of performance of approximately 15 months. This period of performance is provided as an estimate only. Offerors should propose a schedule that is executable and maximizes the probability of achieving the technical objectives of this Call.

The following dates represent desired limits on the earliest start date and latest end date for technical efforts under this Call.

Project Kickoff: No earlier than February 2018
End of Technical PoP: No later than December 2019

5. Government Furnished Property/Equipment:

The Government will make available, at no cost to the offeror, the following items:

A. Up to two surrogate government ground sites: The government will provide access to up to two fixed ground sites, which will include 115VAC, 60 Hz power and the ability to affix antennas for communicating with commercial spacecraft. Offerors may request appropriate geographic locations within the continental United States (CONUS) to facilitate effective experimentation with partially-populated commercial space internet constellations.

B. Up to two aircraft: The government will provide operation of up to two test aircraft for experimentation with commercial space internet spacecraft. The specific aircraft selected will be at the Government's discretion, but will have the following characteristics and capabilities available for use:

    a. 28 VDC electrical power, up to 400 Amps
    b. 115VAC, 60 Hz electrical power, up to 20 Amps
    c. The ability to affix an offeror's antenna(s) in a sky-facing orientation. Any necessary antenna will be either externally affixed to the aircraft or internally affixed beneath an RF transparent window. Mounting approaches and locations will be at the government's discretion, but all reasonable efforts will be made to adhere to an offeror's interface and field of view requests.
    d. The ability to host rack-mounted computer and electrical equipment internal to the aircraft.

Note that offerors may request that GFP aircraft be operated at appropriate geographic locations above CONUS to facilitate effective experimentation with partially-populated commercial space internet constellations.

The locations at which these items will be available, and the durations for which they will be available, will be determined based on availability as well as the offeror's request. Offerors should note in their proposal the anticipated timeframe when access to GFP will be desired.

6. Cost Objective / Funding Constraint:

The government anticipates multiple (2-5) awards, each with a value of approximately $2M, although deviations from this range are possible if in the best interest of the government.

A sample funding profile, per award is shown below. Note that deviations from this example profile are anticipated and acceptable. Offerors should propose desired funding profiles that best meet the solicitation objectives.

	FY18	FY19	TOTAL
AFRL/SDPE	$800,000	$1,200,000	$2,000,000
TOTAL	$800,000	$1,200,000	$2,000,000

**Please Note: This funding profile is an estimate only and not a contractual obligation for funding. All funding is subject to change due to Government discretion and availability. Potential offerors should be aware that due to unanticipated budget fluctuations funding in any or all areas may change with little or no notice.*

7. Management Objective:

Allow the selected contractors flexibility to manage cost, schedule, and performance of this contracted effort.

8. OPSEC / Safety / Classification:

a. OPSEC: General Operations Security (OPSEC) procedures, policies and awareness are required in an effort to reduce program vulnerability from successful adversary collection and exploitation of critical information. OPSEC will be applied throughout the life cycle of any award.

b. SAFETY**:** The following requirements must be incorporated into all awards resulting from this Call:

1. Must comply with all federal, state, local, and Air Force safety and environmental regulations.
2. Must comply with system safety requirements contained in MIL-STD 882E, Section 4 “General Requirements” for any deliverable systems or hardware. Must identify safety-critical components of those systems or hardware, and software interfaces with those components. Must test and verify the safety-critical hardware and software for safety acceptance.

c. PROGRAM SECURITY CLASSIFICATION: Activities under this Call are expected to be unclassified.

9. Proposal Submission:

a. Content and Form of Proposal Submission: Reference ARA with Calls, FA8650-17-S-9300.

b. General Instructions:
Number of Proposal Copies: Offerors must submit one (1) electronic and two (2) hard copies of their proposals. One (1) CD of your technical proposal, SOW, and cost proposal must be submitted with the hard copy of the proposals and must match the hard copy. The CD of your technical proposal and SOW must be submitted in Microsoft WORD. It is recommended that the CD of your cost proposal be submitted in Microsoft EXCEL.

c. Technical/Management Proposal:
Page Limitations: The technical proposal shall not exceed a total of **20 pages**, inclusive of all text, tables, charts, illustrations, flowcharts, drawings, diagrams, indices, photographs, foldouts, appendices, attachments, resumes, etc. The technical proposal should be formatted in accordance to overarching ARA with Calls instructions. The cost proposal has no page limitation.

d. Technical and Contracting Points of Contact:

Address technical questions to:
Dr. Brian Beal, AFRL/RQ
Phone: (937) 904-4004
Email: brian.beal.1@us.af.mil

Address contracting questions to:
Mr. Michael Wafzig, AFRL/RQKDA (Primary)
Phone: (937) 713-9979
Email: michael.wafzig@us.af.mil
Or
Mr. Joel Watson, AFRL/RQKD (Secondary)
Phone: (937) 713-9813
Email: joel.watson@us.af.mil

10. Proposal Review Information:

a. Evaluation Criteria:

Technical:

(1) Soundness of the offeror's technical approach including whether the proposal identifies major technical risks, clearly defines feasible mitigation efforts, and demonstrates related experience and qualifications of technical personnel. Soundness of the offeror's technical approach includes the offeror's understanding of the commercial space internet marketplace, technologies, and trends influencing the viability of the proposed approach.

(2) Relevance and impact of the proposed technical effort on the overall goals and objectives stated in the ARA with Calls.

(3) The offeror's understanding of the scope of the technical effort.

(4) The potential to transition the results of the technical effort to future Government needs.

Cost / Price: The cost evaluation includes the realism of the proposed cost. Cost/Price is a substantial factor, but ranked as the second order of priority. (If an offeror proposes the use of GFP other than any GFP identified in the ARA, and that proposed GFP provides the offeror an unfair competitive advantage, then FAR 45.202 requires rental equivalent be applied to the Cost Factor for evaluation purposes only).

b. Review and Selection Process:

Based on the evaluation, proposals will be categorized as Selectable, or Not Selectable (see definitions below). The selection of one or more sources for award will be based on the evaluation, as well as importance to agency programs and funding availability.

(1) **Selectable:** Proposals are recommended for acceptance if sufficient funding is available. May require additional development.

(2) **Not Selectable:** Even if sufficient funding existed, the proposal should not be funded.

Note: The Government reserves the right to award some, all, or none of proposals. When the Government elects to award only a part of a proposal, the selected part may be categorized as Selectable, though the proposal as a whole may not merit such a categorization.

No other evaluation criteria will be used.

Prior to award of a potentially successful offer, the Contracting Officer will make a determination regarding price reasonableness.

11. Award Administration Information

a. Award Notices: Offerors will be notified whether their proposal is recommended for award on or about 30 working days from date of proposal submission. The notification is not to be construed to mean the award is assured, as availability of funds and successful negotiations are prerequisites to any award.

b. Administrative and National Policy Requirements: Refer to Section 12.

c. Reporting: For reporting requirements and frequency, refer to Section 2.

12. Additional Information:

a. Export Control: Information involved in this effort is subject to Export Control (International Traffic in Arms Regulation (ITAR) 22 CFR 120-131, or Export Administration Regulations (EAR) 15 CFR 710-774). A Certified DD Form 2345, Militarily Critical Technical Data Agreement, is required to be submitted with proposal.

b. Export-Controlled Items: As prescribed by DFARS 225.7901-4, DFARS 252.225-7048, “Export-Controlled Item (JUN 2013)” is contained in this solicitation. This clause shall be contained in ALL resulting contracts.

c. Foreign Participation: Foreign participation is not authorized. Foreign Nationals (FNs) can be employed by the US Prime Contractor or Sub-Contractor; however, FNs will be limited to Public Domain information unless the contractor has obtained the proper License or Technical Assistance Agreement that authorizes disclosure of CMI and/or CUI to foreign entities pursuant to the Department of State’s ITAR or Department of Commerce’s EAR. Public Domain information is defined as information that is releasable to the general public and sometimes referred to as open source material. Examples include but are not limited to newspapers, magazines and information posted on the internet. Any proprietary information will have to be appropriately protected.