Program Solicitation

Strategic Technology Office (STO)

FLexible networking Using Intelligent Dialecting

(FLUID)

DARPA-PS-25-14

March 28, 2025

PROGRAM SOLICITATION OVERVIEW INFORMATION

- **Federal Agency Name** – Defense Advanced Research Projects Agency (DARPA), Strategic Technology Office (STO)
- **Funding Opportunity Title** – FLexible networking Using Intelligent Dialecting (FLUID)
- **Announcement Type** – Initial Announcement
- **Funding Opportunity Number** – DARPA-PS-25-14
- **Dates**
  - Posting Date: 28 March 2025
  - Questions Due Date: 11 April 2025, not later than 5:00 PM Eastern Time (ET)
  - FLUID Virtual Proposers Day: Anticipated Posting Date 1 April 2025
  - FLUID Proposer's Day Q&A Session: Anticipated 8 April 2025
  - Abstracts Gate 1 Written Abstract Due Date and Time: 21 April 2025, not later than 5:00 PM Eastern Time (ET)
  - Abstracts Gate 2 Virtual Abstract Presentation Dates: By Invitation Only; estimated 30 April 2025
  - Written Proposals Due Date and Time: By government request, estimated 13 June 2025, not later than 5:00 PM Eastern Time (ET) *(due date/time subject to change at Government Discretion)*
- The Defense Advanced Research Projects Agency (DARPA) is soliciting innovative approaches to address challenges in the following technical areas: technologies to allow Command, Control, Computing, Communications, Cyber, Intelligence, Surveillance, Reconnaissance and Targeting (C5ISRT) systems (applications and network services) to function without sacrificing application or network utility, while operating under disrupted and degraded conditions.

- **Multiple awards are anticipated**
- **Types of instruments that may be awarded** – Other Transaction for Prototype
- **Agency Contact**

  The Solicitation Coordinator for this effort can be reached at:
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  Arlington, VA 22203-2114

- **Appendices**
  - Appendix (1): Model OT for Prototypes Agreement
  - Appendix (2): Task Description Document
  - Appendix (3): Cost Volume
  - Appendix (4): Schedule of Milestones and Payments
  - Appendix (5): Intellectual Property Assertions
  - Appendix (6): Property
  - Appendix (7): OT Certifications
  - Appendix (8): Value-Based Questions
  - Appendix (9): Non-traditional Attestation

PROGRAM SOLICITATION
Defense Advanced Research Projects Agency (DARPA)
FLexible networking Using Intelligent Dialecting
(FLUID)

1. PROGRAM SOLICITATION (PS) AUTHORITY

This PS may result in the award of an Other Transaction (OT) for Prototypes agreement, which can include not only commercially available technologies fueled by commercial or strategic investment but also concept demonstrations, pilots, and agile development activities that can incrementally improve commercial technologies, existing government-owned capabilities, and/or concepts for broad defense and/or public application(s). The government reserves the right to award an OT for Prototypes under 10 U.S.C. § 4022 or make no award at all. In all cases, the government agreements officer shall have sole discretion to negotiate all agreement terms and conditions with selected proposers. The OT for Prototypes agreement will not require cost sharing <u>unless</u> the proposer is a traditional defense contractor who is not working with a nontraditional defense contractor participating in the program to a significant extent.

1.1. Program Overview

The goal of the FLUID program is to enable Command, Control, Computing, Communications, Cyber, Intelligence, Surveillance, Reconnaissance and Targeting (C5ISRT) systems to operate under Degraded, Disrupted, Intermittent, and Limited (DDIL) network conditions. The specific objective of FLUID is to reduce the load (consumed communication capacity) of a C5ISRT system (applications and network services), without sacrificing the overall system utility, so it can continue to operate under extreme capacity degradation: up to 30dB (i.e., 3 orders of magnitude) degradation compared to normal conditions. The FLUID program consists of a single Technical Area, divided into Phase 1A and Phase 1B.

1.2. Background and Motivation

Today's C5ISRT systems rely heavily on commercial off-the-shelf (COTS) applications and network services. COTS applications and network services are built to ensure functionality and interoperability across the maximum number of use cases. However, under DDIL conditions, these applications and network services consume a disproportionate amount of communications capacity (i.e., bandwidth) challenging the ability of C5ISRT systems to converge. The Department of Defense's (DOD) current research focuses on a more resilient physical layer and/or using software-defined networking (SDN) principles to tune network parameters to cope with DDIL challenges. These approaches do not allow for the flexibility required to effectively communicate in today's warfighting environment under extremely limited communication capacity.
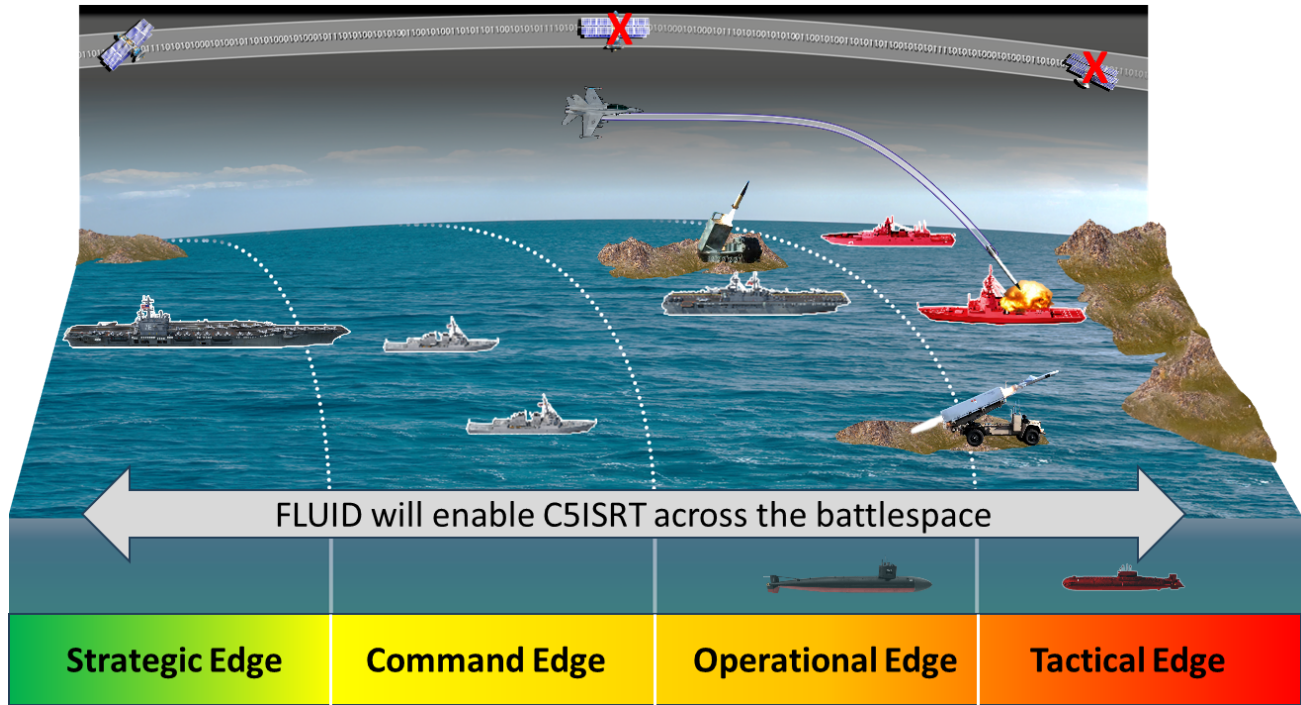
Figure 1: FLUID enables C5ISRT under a dynamic range of constrained communication capacities.
Color code reflects the degradation in network capacity (green is unconstrained, red is extremely constrained).
Graphic Source: DARPAProgram Scope

FLUID research will focus on dynamic reduction of load (consumed capacity) of C5ISRT applications and network services to operate under a wide range of constrained communication capacities (a characteristic of DDIL conditions), without sacrificing functionalities or limiting utility. As seen in Figure 1, FLUID aims to operate across the battlespace, supporting C5ISRT missions from the strategic edge to the tactical edge, coping with communication capacities that range from megabits per second all the way down to single digit kilobits per second.

This announcement solicits for the complete FLUID program. Performers are encouraged to form teams, as required, to achieve all program goals and objectives. The OT for Prototypes allows for follow-on awards without competition.

1.3. Program Structure

The FLUID program structure and schedule are outlined in Figure 2. The program is 18-months executed over Phase 1A (9 months) with a down-select for Phase 1B (9 months). Both phases are focused on the dynamic and seamless reduction of load (consumed capacity) of C5ISRT applications and network services under DDIL conditions. Performers will be required to demonstrate progress across four test events (TE), with communication capacity reduced and network scale increased at each TE, over the course of the program. The program also includes an operational demo with an Army or Navy candidate system.

DARPA will provide scenarios for performers to use in developing the FLUID capabilities and the government team will evaluate performers during the TE to determine performer progress against the program metrics and program objectives. The 18-month program execution is shown in Figure 2.
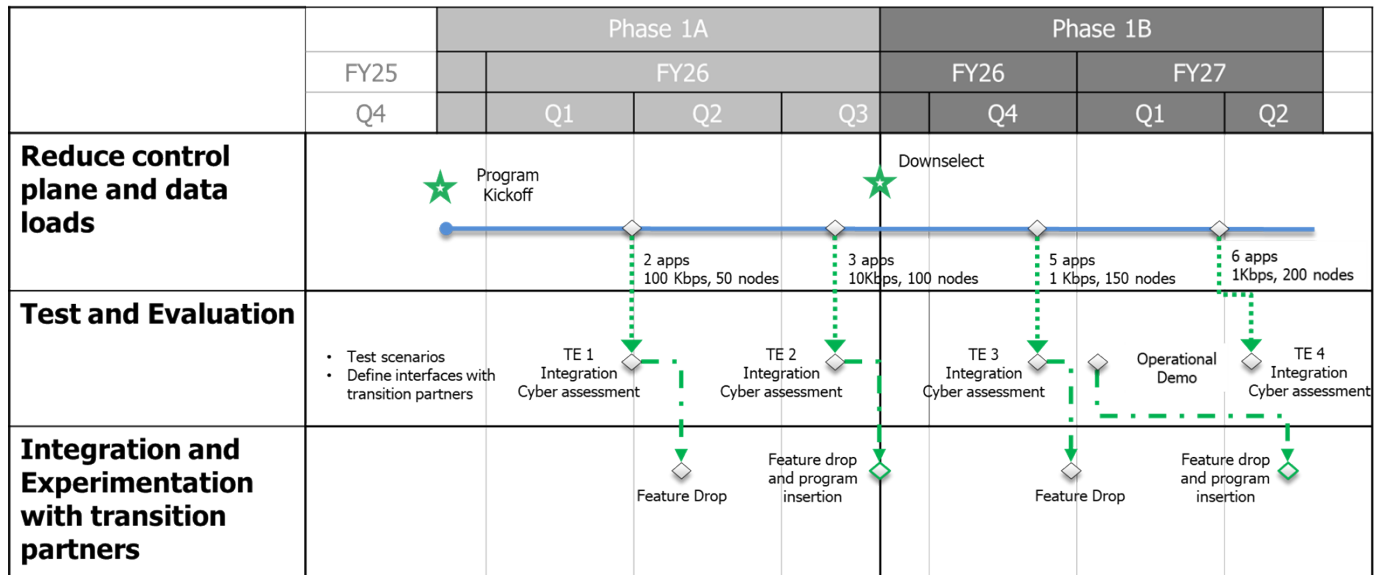
		Phase 1A			Phase 1B		
	FY25	FY26			FY26	FY27	
	Q4	Q1	Q2	Q3	Q4	Q1	Q2
Reduce control plane and data loads		Program Kickoff	2 apps 100 Kbps, 50 nodes	3 apps 10Kbps, 100 nodes	Downselect 5 apps 1 Kbps, 150 nodes	6 apps 1Kbps, 200 nodes	
Test and Evaluation	• Test scenarios • Define interfaces with transition partners	TE 1 Integration Cyber assessment		TE 2 Integration Cyber assessment	TE 3 Integration Cyber assessment	Operational Demo	TE 4 Integration Cyber assessment
Integration and Experimentation with transition partners			Feature Drop	Feature drop and program insertion		Feature Drop	Feature drop and program insertion

Figure 2: FLUID Program Schedule

Following program kickoff, performers will have four (4) months to develop and integrate their initial capabilities within a government-provided test environment, in support of TE 1. After TEs 1 & 3, performers will package their technologies as feature drops for use by the transition partners. Feature drops are intended to be software components packaged by performers and given to transition partners for testing and use in their existing systems. An operational demo with a candidate Army or Navy system will occur in Phase 1B of the program. After TEs 2 & 4, and the operational demo, a feature drop and program insertion into the transition partners' system(s) of interest will occur.

1.4. Program Overview and Description

C5ISRT systems are often Internet Protocol (IP) networked systems that are typically composed of two logical planes: control plane (i.e., network services)[1] and data plane (i.e., applications)[2]. The control plane sustains network connectivity and reachability while the data plane processes and moves data across the network (between senders and receivers). For both planes, these systems often leverage COTS applications, services, and protocols that are engineered to support a wide variety of use cases. For instance, a COTS chat application that is based on the Extensible Messaging and Presence Protocol (XMPP) might be used in the data plane to enable situational awareness between mission operators. A COTS dynamic routing daemon using the Open Shortest Path First (OSPF) protocol might discover and form routes across the network. Both rely on the standardized Transmission Control Protocol/Internet Protocol (TCP/IP) protocol suite to move their data across the network and between corresponding processes. These applications, network services, and protocols are often customized through configuration to their specific use case and the constraints of their operating conditions. However, customization though configuration is not enough to sustain the system operations. Control plane and data plane functions often contend with one another for capacity under DDIL conditions causing a C5ISRT system to fail (i.e., functions cannot converge) when their combined load exceeds available capacity.

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[1] "Control plane" and "network services" are used interchangeably throughout this document
[2] "Data plane" and "applications" are used interchangeably throughout this document

5

Figure 3 shows an example scenario where data plane load (combined capacity of user data, application overhead, and TCP/IP protocol overhead) overburdens the network. The scenario considers two C5ISRT applications: chat over XMPP and tracking using Cursor on Target (CoT). Due to various layers of overhead, a 5-byte chat message increases to 247 bytes by the time it is transmitted over the Tactical Data Link (TDL). It takes 2 seconds to transmit this message at 1Kbps TDL transmission rate. Each CoT message will grow to 784 bytes, which takes 6 seconds to transmit at 1Kbps TDL transmission rate. If CoT messages are sent every 5 seconds (even if redundant), they will consume all the network's capacity. Today, we cope with capacity constraints by dropping application messages and sacrificing network services in reverse order of priority.
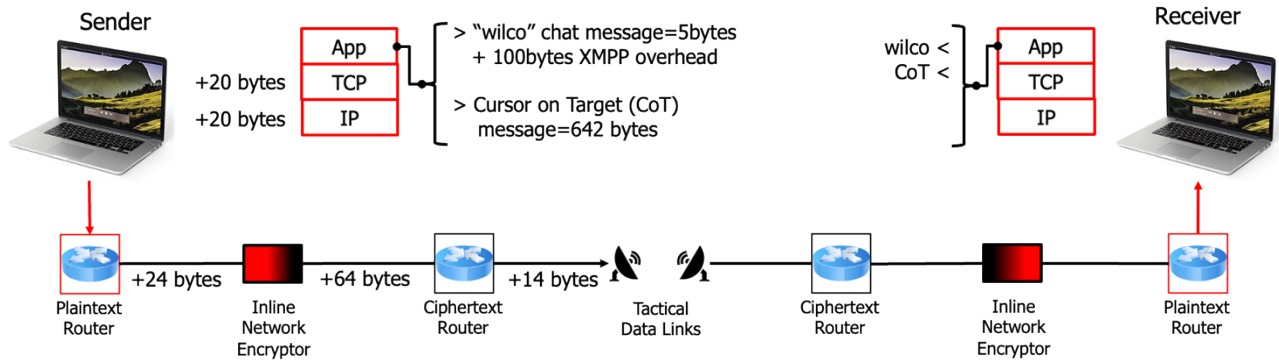

Figure 3: Notional scenario depicting the data plane load (consumed capacity) consumed by two types of C5ISRT applications: Chat over XMPP and tracking using Cursor on Target (CoT). Graphic Source: DARPA

The goal of the FLUID program is to significantly reduce control plane and data plane loads (consumed capacity) of a given C5ISRT system under DDIL conditions, while preserving the system's utility. FLUID does not seek to replace existing applications, network services, or protocols nor does it seek to develop mechanisms to prioritize message delivery or adapt system configurations[3]. Rather, FLUID seeks to integrate dynamically and seamlessly into C5ISRT systems with the freedom to intercept, reason over, and manipulate both control plane (network services) and data plane (application) messages, including any associated overhead (e.g., TCP/IP encapsulation), to reduce their load (consumed capacity) while not impacting the system utility. Table 1 describes the operational boundaries of the FLUID technology.

Table 1: FLUID technology solution operational bounds

Allowed	Not Allowed
Modify or suppress control and data plane messages (e.g., modify or suppress chat messages or dynamic routing protocol messages, including TCP/IP protocol encapsulations).	Modify or suppress control plane services and data plane application instances (e.g., modify source code or stop the running instance of a chat application or dynamic routing service).
Deploy FLUID service instances or generate FLUID control plane messages (e.g., can run FLUID services that talk to each other).	Replace existing control plane services and/or data plane applications with FLUID instances (e.g., stop the running instance of a chat application or routing service and replace with

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[3] Modifying some system configuration parameters is possible if justified and if within reasonable bounds, at DARPA's discretion.

	a FLUID equivalent).
Distribute FLUID service instances across the network (e.g., FLUID service instances running seamlessly and independently in the ciphertext and plaintext networks).	Reconfigure control plane services or data plane application instances (e.g., reconfiguring chat application, routing protocol instance, or Quality of Service (QoS) parameters is needed for FLUID to operate).
Deploy Performance Enhancing Proxy (PEP) or middleware components that operate on protocols used by applications (e.g., TCP, Quick UDP Internet Connection (QUIC) or User Datagram Protocol (UDP)).	Replace application or network protocol stack.

1.4.1. Technical Challenges

FLUID seeks to reduce the load of C5ISRT applications and network services to operate within the bounds of the available network capacity. The challenge is doing so without changing the applications or network services, and without affecting the utility of either. In other words, FLUID will have access to messages flowing across the C5ISRT system but not application or network service instances. FLUID must be seamlessly integrated into the C5ISRT system (i.e., inserting or removing FLUID does not disrupt the system, require a reconfiguration, or a restart).

Solutions can apply a pipeline of message transformations (example shown in Figure 4) that exploit: (1) spatial overhead and redundancy in messages by using standard compression (headers and/or payloads) and codebook techniques, (2) temporal redundancies in messages through codebook and differential encoding, (3) predictability of message elements using small and large language models, (4) message transformation from one application context to another (e.g., transcode voice to text), (5) transformation of TCP/IP header encapsulations or standard messaging formats (e.g., XMPP), and (6) any other transformation. These transformations should not break machine-to-machine protocols and should not change the semantics of message data. Any transformation done on egress of a system endpoint must be reversed on ingress on the corresponding system endpoint.
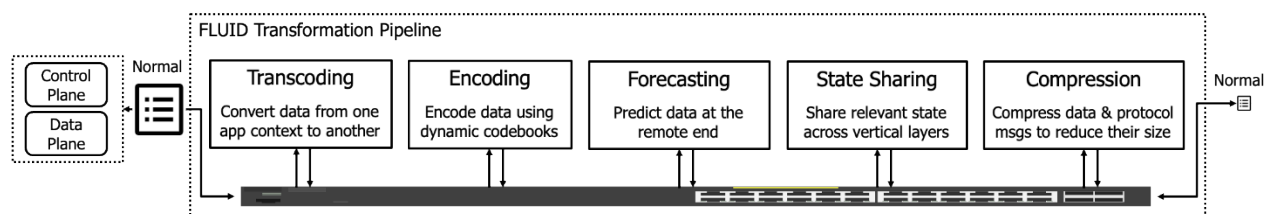

Figure 4: Each box defines a bidirectional transformation that reduces/recovers control plane and data plane messages. FLUID will reason the dynamics of its operating conditions (DDIL) and activate the appropriate subset of transformations (i.e., transformation pipeline) accordingly.

Another challenge is to apply the appropriate transformation to the right message given its data type and the constraints of the operating environment. Solutions must be able to quickly adapt to the dynamics of the operating environment.

FLUID must also cope with the challenges of operating across network segments (e.g., cryptographic boundaries). The FLUID architecture should support logical and/or physical distribution, enabling components of the transformation pipeline to be inserted at different points within a C5ISRT system. We envision three logical components of a FLUID solution:

- FLUID app: Includes transformation functions that reduce and recover a specific application or a set of applications data plane messages (e.g., CoT messages) and any associated overhead (e.g., TCP/IP encapsulation)

- FLUID network: Includes transformation functions that reduce and recover a specific network service or set of network services control plane messages (e.g., OSPF protocol messages) and any associated overhead (e.g., TCP/IP encapsulation)

- FLUID link: Includes transformation functions that reduce and recover messages bound to specific communication links (e.g., Link16 J Series messages).

1.4.2. FLUID Objectives

To address the challenges listed in 1.4.1, the objectives of the FLUID program include:

- Reduce control plane load (consumed capacity) to fit within extreme capacity constraints, ones where network capacity at DDIL conditions is reduced by up to 40dB compared to normal conditions

- Reduce data plane load (consumed capacity) to fit within extreme capacity constraints, ones where network capacity at DDIL conditions is reduced by up to 30dB compared to normal conditions

- Retain the same utility of control plane and data plane functions and services under the spectrum of favorable[4] and DDIL conditions

- Retain appropriate semantic similarity between original and delivered message data[5]

- Retain the security of the system (no cybersecurity vulnerabilities introduced by the message transformation pipeline)

- Develop an architecture for message transformation that is resilient (e.g., no single point of failure), modular, extensible, and secure

1.4.3. Program Metrics and Objectives

The government team will evaluate the performer-developed FLUID prototypes by comparing program required metrics against program objectives (both discussed below). These objectives will be used to evaluate each performer's prototype during each test event (TE). Each TE will increase technical complexity to ensure performers are making progress towards the program objectives. Transition partner(s) will be involved from the program start to help reduce risk and the program includes an operational demo with those partner(s). In addition to the required metrics, proposers are welcome to suggest additional metrics that may help the government team more completely evaluate their proposed solutions or approaches. Any additional proposed metrics will be evaluated by the government team and refined as necessary before being tested during the program.

TEs will be conducted on a government testbed, and each is expected to be one week in duration, with the week prior available for preparation and sampling of evaluation data. TEs will be designed to incrementally allow performers to demonstrate performance improvements, and each test will expand on the previous test(s). The government team will work with the transition partner to identify

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[4] See notes following Table 2
[5] Defined in section 1.4.3

any hardware constraints likely to occur on candidate systems and performers will be limited to working within those specified constraints. The ability to create and execute test plans will be demonstrated at all TEs. The performer should demonstrate the ability to adapt to the required objectives depending on the network environment.

The types of applications that will be used during the program are chat, voice, intelligence, surveillance, and reconnaissance (ISR) image/video, and target tracking. The government team will work with the transition partner(s) to identify two additional applications of interest and to define specific application instances to be tested during each TE.
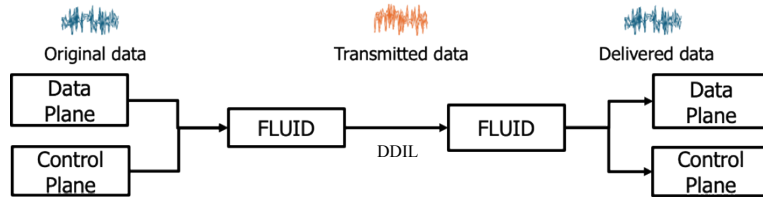

Figure 5: Illustration of different states of data (i.e., control plane or data plane message) used by the FLUID metrics and objectives

The required FLUID metrics are defined below:

- **Load Reduction (LR)** measures the reduction in transmitted data compared to original data (illustrated in Figure 5), per application/network service.
    - Transmitted data (bits) / original data (bits)
    - Defined LR program objective for each application/network service is shown in Table 2
- **Semantic Similarity (SS)** measures the similarity between delivered data to original data (illustrated in Figure 5), per application.
    - Delivered data ~ original data, measured differently for each application
    - Defined SS program objective for each application is shown in Table 2. SS objectives will be refined with transition and mission experts/operators

The program objectives for each application and for control plane services are shown in Table 2.

Table 2: Program Objectives at each Test Event

Application/Network Service	Test Event 1 (TE1) Network capacity reduced to 100Kbps		Test Event 2 (TE2) Network capacity reduced to 10Kbps		Test Event 3/4 (TE3/4) Network capacity reduced to 1Kbps	
Program Objective	SS	LR	SS	LR	SS	LR
Chat	100%	10dB	100%	20dB	100%	30dB
Voice	≥ 95%	10dB	≥ 90%	20dB	≥ 90%	30dB
ISR Image/Video	≥ 95%	10dB	≥ 90%	20dB	≥ 90%	30dB
Targeting	≥ 95%	10dB	≥ 90%	20dB	≥ 90%	30dB
All control plane services	N/A	20dB	N/A	30dB	N/A	40dB

Notes on the schedule in Figure 2 and the objectives in Table 2:

- The *original data* per application is baselined using a *fully functioning* system that consumes 1Mbps of network capacity between control plane and data plane.

- Test scenarios used at each TE will be made available to performers at least one (1) month prior to the test. The government team will be executing at least one scenario in each TE that will not be made available to the performers in advance.

- Refer to the schedule in Figure 2 for when TEs will occur.

- A downselect will occur after TE 2 based on performance in TE 1 and 2.

- Test events will occur at a government testbed on the East Coast, similar to the Combined Joint System Integration Laboratory (CJSIL) in Aberdeen Proving Ground, MD.

- **(Phase 1A) TE 1:**
  - Uses two (2) applications, 50 nodes
  - Both control and data plane will be assessed at network capacity reduced to 100Kbps (10dB lower than the baseline *fully functioning* system)
  - Control plane will be assessed at network capacity reduced to 10Kbps (20dB lower than the baseline *fully functioning* system)
- **(Phase 1A) TE 2:**
  - Uses three (3) applications, 100 nodes
  - Both control and data plane will be assessed at network capacity reduced to 10Kbps (20dB lower than the baseline *fully functioning* system)
  - Control plane will be assessed at network capacity reduced to 1Kbps (30dB lower than the baseline *fully functioning* system)
- **(Phase 1B) TE 3:**
  - Uses five (5) applications, 150 nodes
  - Both control and data plane will be assessed at network capacity reduced to 1Kbps (30dB lower than the baseline *fully functioning* system)
  - Control plane will be assessed at network capacity reduced to 0.1Kbps (40dB lower than the baseline *fully functioning* system)
- **(Phase 1B) TE 4:**
  - Uses six (6) applications, 200 nodes
  - Both control and data plane will be assessed at network capacity reduced to 1Kbps (30dB lower than the baseline *fully functioning* system).
  - Control plane will be assessed at network capacity reduced to 0.1Kbps (40dB lower than the baseline *fully functioning* system)
- **(Phase 1B) Operational Demonstration:**
  - Uses up to six (6) applications on up to 50 nodes; exact configuration will be defined by transition partner
  - Will be tested on an Army or Navy operational system of interest
  - Interface Control Documents (ICDs) and information on the test environment will be provided to the performers in advance of the demo
  - Performers will work with the government team to execute the demonstration

1.4.3.1. Data plane evaluation

The government team will orchestrate the testbed to properly test the semantic similarity metric for each application. **Error! Reference source not found.Error! Reference source not found.** shows

a high-level description of the measurement of semantic similarity for the four applications listed above.

Table 3 Overview of approach to measuring semantic similarity

Application	How to measure Semantic Similarity
Chat	• Compare the similarity between "original Chat Msg" and "delivered Chat Msg", word for word • Measure is "percent word similarity"
Voice	• Compare the similarity between words in "original voice Msg" and words in "delivered voice Msg" • Measure is "percent word similarity"
ISR Image and Video	• Compare the similarity between objects classified in "original" content vs. objects classified in "delivered" content • Measure uses "precision-recall curves" to compare accuracy of classification given original vs. delivered
Targeting	• Compare the similarity between "original msg" and "delivered msg", track for track • Measure is "percent track similarity"

To give additional insight on how the testing might occur, see Figure 6 for an example of how the government team plans to test semantic similarity for the chat application. The initial objective for chat semantic similarity is a 100% match (objective will be refined during program execution working with transition partners) given any level of load reduction put on the network by the four TEs. The government team will provide an input test message, Chat Msg A, to the performer who will then transmit the message over the constrained link with their FLUID solution on either side of that link. The message that is recovered on the other side, Chat Msg B, will then be given to the government team and compared to the original, Chat Msg A, and measured for semantic similarity.
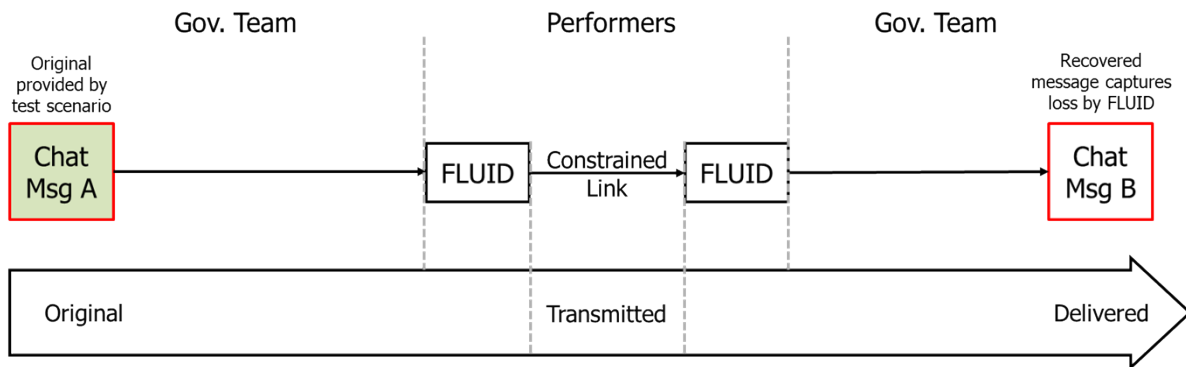

Figure 6: Approach to measuring chat semantic similarity

To provide another example, Figure 7 shows how the government team plans to test semantic similarity for the voice application. In this case, the initial objective for semantic similarity is $\geq 95\%$ for TE 1 and $\geq 90\%$ for TE 2-4 (objectives will be refined working with transition partners) with load reduction increasing from 10dB to 30dB. To provide a means to automate the testing, the government team will start with a text message, Text Msg A, and use a government text-to-voice model to convert into voice. The resulting voice file will be given to the performers who will then transmit the voice

message over the constrained link with their FLUID solution on either side of that link. The government will use a "gold standard" voice-to-text model to convert: 1) the original voice into Text Msg B on the transmit side (to capture error/loss by the "gold standard" model), and 2) the received voice into Text Msg C on the receive side (to capture combined error/loss by the "gold standard" model and the FLUID solution). Text Msg C will then be compared to Text Msg A and measured for semantic similarity, while accounting for the error/loss from the "gold standard" voice-to-text model.
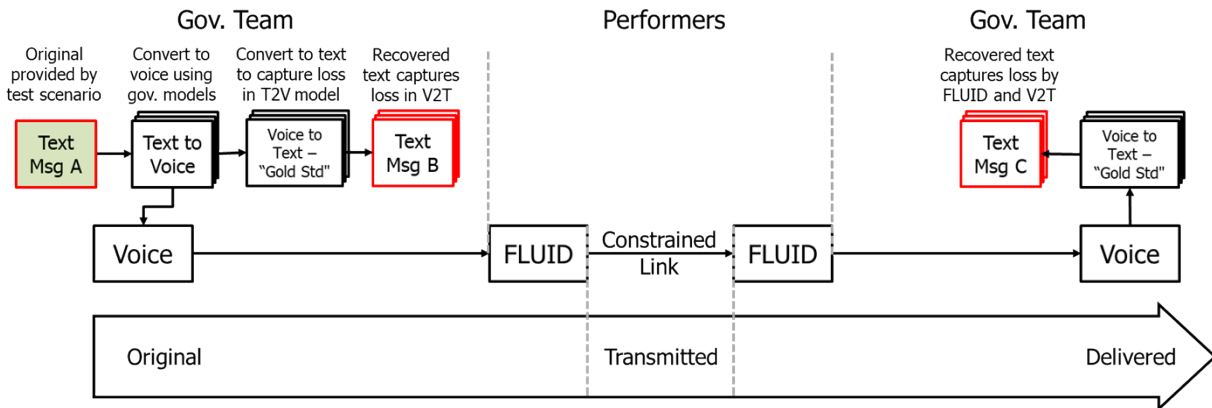

Figure 7: Approach to measuring voice semantic similarity

Similar methods to measuring semantic similarity will occur for the other applications. Specific technical details of how testing will occur will be determined during the program and will be discussed with transition partners to ensure operational relevance for these four applications and the two additional applications chosen by the partner(s).

1.4.3.2.   Control plane evaluation

Control plane evaluation will assess control plane convergence (e.g., route formation and stability). At each TE, the control plane will be assessed separately under the capacity constraint of the following TE. The intent is to identify the system breaking point: where the core network services begin to fail (without a *fully* functioning control plane, all C5ISRT data plane applications will also fail).

1.4.3.3.   Cybersecurity evaluation

At each TE, a cyber assessment will be conducted. The government team will analyze "transmitted data" to assess potential violations of confidentiality or integrity of control plane and data plane messages resulting from the transformation pipeline. The cyber assessment will also conduct static and dynamic code analysis on the performers' codebase. Performers are highly encouraged to use memory safe languages (e.g., Rust) in their solutions as that will be factored in as part of the cyber assessment. Cyber assessments will be used to convey risk of the solution to transition partners and will not exclusively be considered in determining a downselect.

Performers should clearly describe their approach to solving both the control plane and data plane challenges including a thorough description of any techniques they plan to create or use to meet objective load reduction. Performers should also explain how they plan to meet the scaling and increasing communication capacity constraints as the program progresses.

1.5. Program Events and Milestones

Appendix 4 lists the program events and milestones of the FLUID program. See the appendix for additional details on deliverables and exit criteria for each milestone. In addition to the program

milestones in Appendix 4, the program will hold various Integrated Product Team (IPT) calls to help performers and the government team track and discuss progress on experimentation, technical progress, interfaces, and transition. Performers will be expected to have at least one person attend these calls as required.

1.6. Government Furnished Information (GFI)

The government plans to supply the following as GFI:

Table 4: GFI

Item #	Item	Supplied By Date
1	Scenarios	At least 1 month prior to each TE
2	Applications of Interest	May be made available upon request
3	Information on partner environment for operational demo	2 months prior to operational demo

Additional requests for GFI will be considered.

1.7. Kickoff Meeting

The program's first event will be a full-day kickoff meeting. An introductory and instructional brief from the DARPA program manager (PM) on the technical and administrative details of the program will be given as well as briefs from government team members. Each performer will present their own program plan in individual meetings with the government team and discuss their plans to achieve program goals and objectives.

1.8. Test Events

There will be a series of TEs used to determine whether performers have met program objectives and metrics. It is the government's intent that these will utilize existing or surrogate hardware that reflect deployed program of record systems. There will be four TEs of increasing communication capacity constraints to assess performer progress on FLUID objectives. government team members will use performer provided software to assess the performer's system and performance against the program objectives. The government team will provide feedback on the performer's results against the program objectives after each TE.

1.9. Monthly Reports

Each performer will submit monthly reports consisting of a summary of technical accomplishments and financial reports in sufficient detail to allow the government to determine what progress the performer has made that month.

1.10. Final Report

The performer will deliver a final report that includes all software and documentation developed under the program to a government repository, a technical data package for the software, and a final test report detailing the completed TEs. The final report is required regardless of duration of execution on the program.

1.11. Acquisition Strategy

The government's aim is to lower the administrative burden to entry, reduce program risk, foster competition, and have performing teams begin their work faster. To facilitate this objective, the

government will use the following acquisition process for FLUID:

1. **Abstract Gate 1: Written Abstract and Presentation Slides (***Classification: Controlled Unclassified Information (CUI)***)**
   Written Abstracts are no more than 3 pages. Written Abstract and Presentation Slides will be submitted at the CUI level. See Section 3.1 for more information on how to request the SCG. The government will review all submitted Written Abstracts for technical comprehension and ability (see Section 3.3).

2. **Abstract Gate 2: Virtual Abstract Presentations** *(Classification: CUI)*
   Virtual Abstract Presentations are by invitation only; only selected, Written Abstracts will be invited to provide a Virtual Abstract Presentation. Virtual Abstract Presentations are no longer than 10 minutes with a 20-minute Question and Answer period (see Section 3.2). Virtual Abstracts Presentations meeting the criteria in Section 3.3 may be invited to provide a Written Proposal (see Section 3.4) to the government.

3. **Written Proposals** *(Classification: CUI):* Upon the government's request, proposers may have the opportunity to submit a proposal for the FLUID program. The government will evaluate all Written Proposals. The government anticipates OT for Prototypes awards to the selected performers subject to the availability of funds.

In response to this PS, Written Abstracts, Virtual Abstracts Presentations, and Written Proposals submitted after the due date may not be considered by DARPA. The process and requirements for Written Abstracts, Virtual Abstract Presentations and Written Proposal submissions are detailed in Section 3 of this PS.

1.12. Eligibility

DARPA encourages technical solutions from all responsible sources capable of satisfying the government's needs. To ensure fair competition across the ecosystem, DARPA prohibits contractors/performers from concurrently providing Systems Engineering Technical Assistance (SETA), Advisory and Assistance Services (A&AS), or similar support services and being a technical performer. DARPA extends this prohibition to University-Affiliated Research Centers (UARCs) and Federally Funded Research and Development Centers (FFRDCs) including National Labs, who, as a result of their specialized expertise and areas of competencies, are able to accomplish integral tasks that cannot be met by government or contractor resources. Therefore, these entities are highly discouraged from proposing against this solicitation as award to a UARC or FFRDC. UARCs and FFRDCs interested in this solicitation, either as a prime or a subcontractor, should contact the Agency Point of Contact (POC) listed in the Overview section prior to the proposal (or abstract) due date to discuss potential participation as part of the government team.

1.13. Intellectual Property (IP)/Data Rights

The government assumes unlimited rights, as defined in Section 5 of this PS, to intellectual property (IP) developed under the program unless otherwise specified by the proposer's asserted restrictions. Rights may be negotiated if appropriate consideration is reached. This applies to all mission-systems software developed under the program. The government expects the delivery of technical data packages for all software developed under the program.

For IP developed prior to the start of the agreement that will be directly utilized during program activities, proposers must certify during proposal submission, via Appendix 5 of this PS, what rights are being offered to the government. Where software is matured under this effort, the government will receive "Government Purpose Rights" (GPR) over all deliverable software source code that

includes these IP products and list all third-party licenses, if any. Interfaces between GPR software and licensed software will have fully defined interfaces delivered with GPR. In other words, GPR will be applied broadly to ensure that the software developed under this effort is accessible and meaningful to the government.

2. PS AUTHORITY

This PS may result in the award of an Other Transaction (OT) for Prototype agreement, which can include not only commercially available technologies fueled by commercial or strategic investment, but also concept demonstrations, pilots, and agile development activities that can incrementally improve commercial technologies, existing government-owned capabilities, and/or concepts for broad defense and/or public application(s). The government reserves the right to award an OT for Prototypes under 10 U.S.C. § 4022 or make no award at all. In all cases, the government agreements officer shall have sole discretion to negotiate all agreement terms and conditions with selected proposers. The OT agreement will not require cost sharing unless the proposer is a traditional defense contractor who is not working with a non-traditional defense contractor participating in the program to a significant extent.

2.1. PS Procedure

The two-gate approach to Abstracts including Abstracts Gate 1: Written Abstracts and Abstracts Gate 2: Virtual Abstract Presentations allow DARPA to ascertain whether the proposers understand the key challenges of the FLUID program and whether Proposers will successfully execute a proposed concept. Specific evaluation criteria used to make the assessment of each Abstracts Gate can be found in Section 3.3.

Table 6: PS Procedure
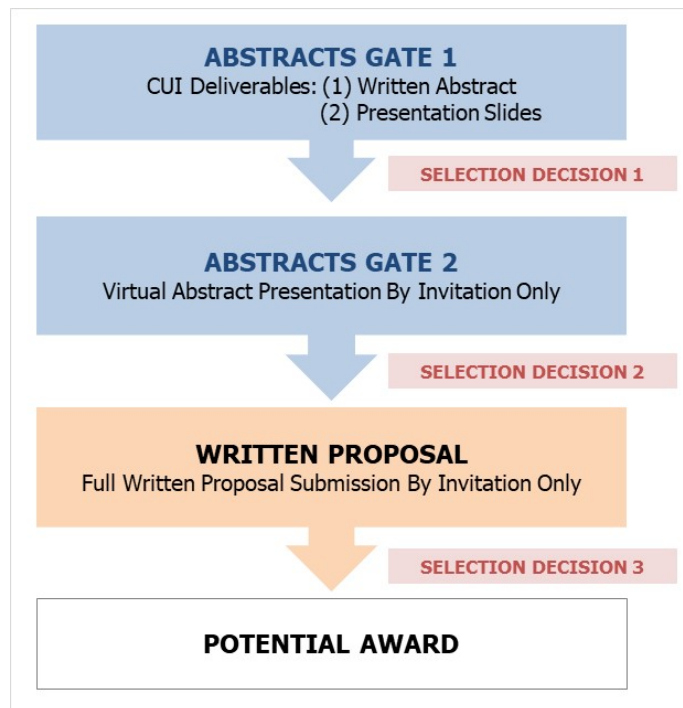
Abstracts Gate 1: Written Abstract and Presentation Slides (result if successful: invitation to Virtual Abstract Presentation):

It is important to note that proposers *must submit a Written Abstract and Presentation Slides (Abstracts Gate 1) in response to this solicitation to be considered for participation in the FLUID program*. Proposers will not be invited to provide a Virtual Abstract Presentation, submit a Written Proposal or be included in any further progression of the program without participating in Abstracts Gate 1 of the solicitation.

Abstracts Gate 2: Virtual Abstract Presentation (result if successful: invitation to submit Written Proposal)

If the proposer is assessed as selectable in Abstracts Gate 1, the government will request the proposer provide a Virtual Abstract Presentation (Abstracts Gate 2), as described in Section 3.3, where the proposed technical solution will be evaluated.

Written Proposals:

If the proposer is assessed as selectable in the Abstracts Gate 2, the government will request the proposer provide a Written Proposal, as described in Section 3.4, where the proposed technical solution will be evaluated. Specific evaluation criteria used to make the assessment can be found in Section 3.5.

Awards

Upon favorable review, and subject to the availability of funds, the government may award an OT for Prototypes under 10 U.S.C. § 4022. DARPA reserved the right to cease negotiations if they are not timely.

The government will not pay proposers responding to this PS for the costs associated with abstract submissions or Written Proposals.

3. GUIDELINES FOR ABSTRACTS AND WRITTEN PROPOSALS

3.1. General Guidelines

a. Do not include elaborate brochures or marketing materials; only include information relevant to the submission requirements or evaluation criteria.

b. Use of a diagram(s) or figure(s) to depict the essence of the proposed solution is encouraged.

c. All Written Abstracts, Virtual Abstract Presentations, and Written Proposals shall be CUI.

d. The program Security Classification Guide (SCG), at the CUI level, will be provided upon request. Please send an email to FLUID@darpa.mil to request the SCG and a DOD SAFE link will be provided to download the SCG.

e. Proposers are responsible for clearly identifying proprietary information. Submissions containing proprietary information must have the cover page and each page containing such information clearly marked with a label such as "Proprietary" or "Company Proprietary." NOTE: "Confidential" is a classification marking used to control the dissemination of U.S. Government National Security Information as dictated in

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Executive Order 13526 and should not be used to identify proprietary business information.

f. Questions can be sent to FLUID@darpa.milmil by the due date on Page 3. A comprehensive list of questions and answers will be compiled, updated, and available online at http://www.darpa.mil/work-with-us/opportunities, with this program solicitation on www.sam.gov or disseminated in accordance with appropriate CUI handling requirements.

g. Abstracts Gate 1: Written Abstracts, Abstracts Gate 2: Virtual Abstract Presentations, and Written Proposals sent in response to this PS may be submitted via DARPA's BAA Website (https://baa.darpa.mil). Note: If an account has already been created for the DARPA BAA Website, this account may be reused. If no account currently exists for the DARPA BAA Website, visit the website to complete the two-step registration process. Submitters will need to register for an Extranet account (via the form at the URL listed above) and wait for two separate e-mails containing a username and temporary password. After accessing the Extranet, submitters may then create an account for the DARPA BAA website (via the "Register your Organization" link along the left side of the homepage), view submission instructions, and upload/finalize the proposal. Proposers using the DARPA BAA Website may encounter heavy traffic on the submission deadline date; proposers should start this process as early as possible. All documentation submitted electronically through DARPA's BAA Website must be uploaded as zip files (.zip or .zipx extension). The final zip file should be no greater than 50 MB in size. Only one zip file will be accepted per submission, and submissions not uploaded as zip files will be rejected by DARPA. Technical support for DARPA's BAA Website may be reached at BAAT_Support@darpa.mil, and is typically available during regular business hours (9:00 AM – 5:00 PM Eastern Time).

h. Submissions sent through other mediums or channels not described above or after the prescribed PS deadline will not be considered, reviewed, nor evaluated.

i. Proposers providing 'Abstracts Gate 1: Written Abstracts' that are not invited to provide a 'Abstracts Gate 2: Virtual Abstract Presentation' will be notified in writing as soon as practicable. Proposers presenting 'Abstracts Gate 2: Virtual Abstract Presentation' that are not invited to submit a Written Proposal will be notified in writing as soon as practicable.

j. A delta solicitation at the CUI level with CUI content will be provided upon selection to submit a Written Proposal.

3.2. Abstracts Gate 1 and Gate 2 Content

a. (Abstracts Gate 1) Written Abstracts and Presentation Slides. Written Abstracts and supporting Presentation Slides are due at Abstracts Gate 1. All Written Abstracts and supporting Presentations Slides shall be CUI.

b. (Abstracts Gate 1)
Written Abstracts should not exceed three (3) single-sided 8.5" by 11" written pages using 12-point Times New Roman font with 1" margins all around. The written part of the abstract must include the following clearly labeled sections:

1. ***Title page***: Proposer Name, Abstract Title, Date, Point of Contact Name, E-Mail Address, Phone, Address, and CAGE Code. (The Title Page does not count against page limits).

   - The proposer shall include a statement that no people on the proposer's team are also working for DARPA as Systems Engineering Technical Assistance (SETA), Advisory and Assistance Services (A&AS), or similar support services, as DARPA has a policy prohibiting such people from working as a technical performer. Include this statement on the title page; it will NOT count as part of the written page limit. Refer to Section 1.14 for additional eligibility requirements.
   - Cost Rough Order of Magnitude (ROM): Provide a ROM for the total cost of the proposed solution with minimal, high-level instantiations of said cost. This cost can be given as a range. The ROM should not be more than ½ page and does not count against the page limit.

2. ***Technical Understanding***: Provide a summary of the technical goals of FLUID. This summary shall be stated in the proposer's own words without any "copy and paste" of this solicitation. The goal is for the proposer to demonstrate clear understanding of FLUID's purpose and goals. The summary shall be no more than 1 page and is included in the three (3) written pages limit.

3. ***Technical Ability***: Detail the proposer's team and organization and explain the ability to be successful at achieving the goals, if selected, for FLUID. The proposer may include past experience, organizational capabilities, team members' qualifications, or anything else that demonstrates competence in designing and executing the FLUID program. The composition of the team including relevant expertise should be included. The summary shall be no more than 1 page and is included in the three (3) written pages limit.

4. ***Technical Approach***: Identify specific technical challenges faced in FLUID. The proposer should include what they think the primary risks are to successful development of the FLUID program. The proposer should provide details of the anticipated work to achieve FLUID objectives. The proposer should not include previously achieved capabilities in this section. The summary shall be no more than 1 page and is included in the three (3) written pages limit.

Virtual Abstract presentation slides are subject to the following constraints:

1. There should be no more than 5 slides (classified as CUI).

2. No smaller than 12-point font

3. Video demonstrations are allowed

4. All presented material and additional required artifacts are to be submitted to DARPA's BAA website by the due date on page 3. Files containing CUI must be encrypted when sending over the Internet. The final zip file should be no greater than 50 mb in size. Only one zip file will be accepted per submission, and submissions not uploaded as zip files will be rejected by DARPA.

c. (Abstracts Gate 2) The Virtual Abstract Presentation will occur on/about the dates given on page 3 of this program solicitation. The invitation to provide a Virtual Abstract Presentation will include the presentation time and date.

- Proposers should expect to have approximately 10 minutes for presentation and approximately 20 minutes to address any questions from the government panel. The government has the discretion to adjust the presentation date as needed.

- No materials may be submitted at Abstracts Gate 2; all written materials including the presentation slides must be submitted at Abstracts Gate 1.

3.3. Abstracts Gate 1 and Gate 2 – Process and Basis of Evaluation

Abstract evaluation criteria are listed in order of importance. Gate 1 Written Abstracts and Gate 2 Virtual Abstract Presentations will be evaluated against the evaluation criteria described below:

a. **Technical Comprehension**: The proposed technical understanding is accurate, and key technical challenges and risks are identified.

b. **Technical Ability:** The proposer demonstrates an ability, if selected, to achieve the goals of the FLUID program and the team comprises the expertise requires to achieve program goals

c. **Technical Approach:** The proposer demonstrates an approach likely to achieve FLUID program goals.

DARPA will respond to the Gate 1 Written Abstract with a statement as to whether DARPA is interested in receiving a Gate 2 Virtual Abstract Presentation. Upon review of Gate 1 Written Abstracts, the government may elect to invite all, some, or none of the proposers to Gate 2 Virtual Abstract Presentations. ***Only Gate 1 Written Abstract proposers invited by DARPA to participate in Gate 2 Virtual Abstract Presentations are eligible to provide one.***

DARPA will respond to the Gate 2 Virtual Abstract Presentation with a statement as to whether DARPA is interested in receiving a Written Proposal. Upon review of Gate 1 Written Abstracts and Gate 2 Virtual Abstract Presentations, the government may elect to invite all, some, or none of the proposers to submit Written Proposals. The government reserves the right to record Virtual Abstract Presentations. The government's evaluation of Gate 2 Virtual Abstract Presentations includes all information provided in the Gate 1 Written Abstract and the Gate 2 Virtual Abstract Presentation Content in its entirety (including Q&A session content) as the basis for evaluation. ***Only Gate 2 Virtual Abstract Presentation proposers invited by DARPA to participate in Written Proposals are eligible to provide one.***

3.4. Written Proposals Content

If DARPA expresses interest in a Written Proposal, the proposer will be asked to provide further details on its proposed solution. Specific instructions (including content submission guidelines) will be provided in the invitation to participate. If selected, proposers can be expected to be asked to provide the following information. Specific page limits for each section are given in {} with the overall page limit being 20 pages.

a. Company introduction/overview: Provide information regarding company and key personnel dedicated to the program and how their past performance and qualifications will contribute to the technical approach. Identify and explain efforts of similar scope and complexity. {2}

b. Technical Approach: Provide a technical approach to accomplish the objectives and scope laid out in this solicitation. This should include at least the following elements: {15}

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1. Description of the proposer's approach to reducing both control plane and data plane load, including overall approach and specific techniques to be created (e.g., specific examples for reducing load of an application, network service, or protocol overhead).

2. Description of the modularity, extensibility, and security of the architecture. Specific examples that reflect on the logical components described in section 1.4.1 are encouraged.

3. Description of the proposer's approach to in-house testing, government laboratory testing, additional proposed metrics (if any), operational field testing, and in-house DevSecOps (if any).

4. Description of the proposer's approach to transition, including any applicable commercial opportunities

c. Teaming/subcontractors: Identify any teammates or subcontractors expected to comprise the team. Identify their roles, any key personnel, and how their past performance and qualifications will contribute to the technical approach. DARPA expects the team to include experts in areas such as computer network architectures and protocols, software engineering, systems engineering, DOD C5ISRT systems, deep packet inspection, wide area network (WAN) optimization, and machine learning. {2}

d. Data Rights: Identify the proposed patent or data rights to be given to the government under this agreement for the components of the proposed solution. For Intellectual Property (IP) developed prior to the start of the agreement that will be utilized during program activities, clearly identify that IP and the anticipated level of IP rights that will be given to the government. {1}

e. Budget estimation for the effort including a resource loaded Integrated Master Schedule (IMS). For pricing purposes, assume a single government lab on the East Coast for the Test Events. The price breakdown should be loaded across major milestone events as a resource loaded IMS. The full details of the price breakdown should be included as a separate cost volume (Appendix 3) to be submitted with the written presentation. Discuss any cost share. There is no page limit on the cost volume.

In the invitation to submit a Written Proposal, proposers will also be provided Appendices (1-9). All appendices must be submitted with the proposal, with the Model OT in Appendix (1) completed. All requested red lines to agreement are expected at this time to accelerate future negotiations.

The required Appendices are detailed below:

APPENDIX	DESCRIPTION
Appendix (1) Model OT Agreement	Proposers will be asked to review content and fill-in the highlighted sections. Proposers must complete and submit the Model OT for Prototypes Agreement provided as Appendix (1) as part of the written proposal package. The model OT is representative of the terms and conditions that DARPA intends to award and is intended to expedite the negotiation and award process. Proposers may suggest

	edits to the model OT for consideration by DARPA. Please note that suggested edits may not be accepted by DARPA.
Appendix (2) Task Description Document	Proposers should provide a detailed Task Description Document for their proposed activities, not to exceed 6 pages.
Appendix (3) Cost Volume	Cost Proposal may include DARPA standard form or request certain information in a form created by the proposer.
Appendix (4) Schedule of Milestones	Proposers should fill out the table for the milestone, proposed payments and exit criteria.
Appendix (5) Property	Proposer should fill out table if applicable. See Appendix 6 for specific guidelines.
Appendix (6) WAWF Instructions	Instructions for using Wide Area Work Flow (WAWF) to submit invoices
Appendix (7) Data Rights Assertions	Intellectual Property, if relevant. If all unlimited rights apply, mark as N/A. The performer shall propose right of use or license terms here for evaluation.
Appendix (8) Value Based Questions	Proposers are encouraged, but not required to provide answers to some, all, or none of the questions as part of the written proposal
Appendix (9) Nontraditional Attestation	If the proposer represents that it is eligible for the award of an OT under 10 U.S.C. § 4022(d)(1)(A) because at least one nontraditional defense contractor or nonprofit research institution is participating to a significant extent, an attestation must be provided. See Appendix 9 for specific instructions.

3.5. Written Proposals – Process and Basis of Evaluation

Oral presentation evaluation criteria are listed in order of importance. Individual presentations will be evaluated against the evaluation criteria described below:

a) **Technical Approach:** The proposal demonstrates an innovative yet feasible approach to address the identified technical risks and challenges, meet program objectives, and includes clear approaches to solving both the control plane and data plane challenges including a thorough description of solution architecture and any techniques they plan to create or use to meet program objectives. The government will also consider the structure, clarity and responsiveness of the Task Description Document (TDD), costs, and approach to risks and any mitigations proposed.

b) **Relevant Qualifications:** Personnel and/or company experience and qualifications are accurate, relevant, and demonstrate the ability of the proposer to meet the technical goals of the program.

c) **Budget and Cost:** The proposed schedule and budget are realistic for the proposed

approach and accurately reflect the technical goals and objectives of the solicitation. All costs are consistent with the proposer's technical description and reflect a sufficient understanding of the level of effort needed to successfully accomplish the proposed technical approach.

    d) **Data Rights:** Extent to which data assertions allow the government to realize the objectives of the FLUID program.

The government will evaluate information provided in the written proposal as basis for evaluation. Proposals will be evaluated by the FLUID program manager with support from a panel composed of government subject matter experts (SMEs).

After completing evaluation of Written Proposals, DARPA will: 1) inform the proposer of selection for negotiation, or 2) inform the proposer that its proposed concept/technology/solution is not selected and is no longer considered for participation in this program. If DARPA does not intend to issue an award for the effort to a proposer, DARPA may provide brief feedback to the proposer regarding the rationale for the decision.

4. AWARDS

4.1. General Guidelines

Upon favorable review of the proposal and subject to the availability of funds, the government may choose to award an OT for Prototypes agreement for Phase 1A with a downselect for Phase 1B.

The Agreements Officer reserves the right to negotiate directly with the proposer on the terms and conditions prior to execution of the resulting OT agreement, including payment terms, and will execute the agreement on behalf of the government. A copy of the draft OT agreement is attached to this PS for review. In order to speed up negotiations, proposers selected for Written Proposals will be required to either attest to compliance of all OT agreement articles or note those they take exception to. Be advised, only a government Agreements Officer has the authority to enter into, or modify, a binding agreement on behalf of the United States government.

In order to receive an award:

    a. Proposers must have a Unique Identity ID number and must register in the System for Award Management (SAM). Proposers are advised to commence SAM registration upon notification of entry to Phase 1A of the competition.

    b. Proposers must also register in the prescribed government invoicing system (Wide Area Workflow: https://wawf.eb.mil/xhtml/unauth/registration/notice.xhtml). DARPA Contracts Management Office (CMO) personnel will provide assistance to those proposers from whom a proposal is requested.

    c. Proposers must be determined to be responsible by the Agreements Officer and must not be suspended or debarred from award by the Federal Government nor be prohibited by Presidential Executive Order and/or law from receiving an award.

    d. Being asked to submit a proposal does not guarantee that a proposer will receive an award. The government reserves the right not to make an award.

4.2. Controlled Unclassified Information (CUI) and Controlled Technical Information (CTI) on Non-DOD Information Systems

Further information on Controlled Unclassified Information identification, marking, protecting and control, to include processing on Non-DOD Information Systems, is incorporated herein and can be found at www.darpa.mil/work-with-us/additional-baa. A program-specific Security Classification Guide (SCG) has been established to help proposers determine classification thresholds for information relevant to, and technologies developed under the program. As CUI (with the possibility for CTI) is anticipated for this program, foreign proposers are encouraged to understand U.S. export law and have a plan in place to obtain export licenses when necessary. Possible methods include teaming with a U.S. prime and/or having a U.S. subsidiary/parent company. Dependent upon selection for Written Proposals, the program specific SCG will be provided to the performer to observe and follow.

4.3. Representations and Certifications

All proposers are required to submit DARPA-specific representations and certifications for Prototype OT awards in order to be eligible to receive an OT award. See https://www.darpa.mil/research/opportunities/reps-certs further information on required representations and certifications for Prototype OT awards.

4.4. Competition Sensitive Information

DARPA policy is to treat all submissions as competition sensitive, and to disclose their contents only for the purpose of evaluation. Restrictive notices notwithstanding, during the evaluation process, submissions may be handled by support contractors for administrative purposes and/or to assist with technical evaluation. All DARPA support contractors performing this role are expressly prohibited from performing DARPA sponsored technical research and are bound by appropriate nondisclosure agreements. Input on technical aspects of the proposals may be solicited by DARPA from non-government consultants/experts who are strictly bound by the appropriate non-disclosure requirements.

4.5. Intellectual Property / Data Rights

The government assumes unlimited rights, as defined in Section 5 of this PS, to intellectual property (IP) developed under the program unless otherwise specified by the proposer's asserted restrictions. Rights may be negotiated if appropriate consideration is reached. This applies to all mission-systems software developed under the program. The government expects the delivery of technical data packages for all software developed under the program.

For IP developed prior to the start of the agreement that will be directly utilized during program activities, proposers must certify during proposal submission, via Appendix 5 of this PS, what rights are being offered to the government. Where software is matured under this effort, the government will receive "Government Purpose Rights" (GPR) over all deliverable software source code that includes these IP products and list all third-party licenses, if any. Interfaces between GPR software and licensed software will have fully defined interfaces delivered with GPR. In other words, GPR will be applied broadly to ensure that the software developed under this effort is accessible and meaningful to the government.

4.6. Procurement Integrity Act (PIA)

All awards under this PS shall be treated as Federal Agency procurements for purposes of 41 U.S.C. Chapter 21. Accordingly, the PS competitive solicitation process and awards made thereof must adhere to the ethical standards required by the PIA.

5. PS DEFINITIONS

"Data" refers to recorded information, regardless of form or method of recording, which includes but is not limited to, technical data, software, mask works and trade secrets. The term does not include financial, administrative, cost, pricing or management information and does not include inventions.

"Government Purpose" means any activity in which the United States Government is a party, including cooperative agreements with international or multi-national defense organizations, or sales or transfers by the United States Government to foreign governments or international organizations. Government purposes do not include the rights to use, modify, reproduce, release, perform, display, or disclose technical data for commercial purposes or authorize others to do so.

"Government Purpose Rights" means the rights to use, duplicate, or disclose Data, in whole or in part and in any manner, for Government Purposes only, and to have or permit others to do so for Government Purposes only.

"Nontraditional Defense Contractor" is defined in 10 U.S.C. § 3014 as an entity that is not currently performing and has not performed, for at least the one-year period preceding the solicitation of sources by the DOD for the procurement or transaction, any contract or subcontract for the DOD that is subject to full coverage under the cost accounting standards prescribed pursuant to 41 U.S.C. § 1502 and the regulations implementing such section. This includes all small business concerns under the criteria and size standards in 15 U.S.C. § 632 and 13 C.F.R. Part 121.**.**

"Other Transaction" refers to the type of OT that may be awarded as a result of this PS. This type of OT is authorized by 10 U.S.C. § 4022 for prototype projects directly relevant to enhancing the mission effectiveness of military personnel and the supporting platforms, systems, components, or materials proposed to be acquired or developed by the DOD, or for the improvement of platforms, systems, components, or materials in use by the armed forces.

"Prototype Project" is described in the DOD Other Transactions Guide (Version 2, Jul. 2023) issued by the Office of the Under Secretary of Defense for Acquisition and Sustainment: https://www.acq.osd.mil/asda/dpc/cp/policy/docs/guidebook/TAB%20A1%20-%20DoD%20OT%20Guide%20JUL%202023_final.pdf.

"Restricted Rights" applies only to noncommercial computer software and means the government's right to use, modify, reproduce, perform, display, release disclose or transfer computer software are restricted, except that the government may use a computer program on a limited number of computers and make the minimum number of copies of the computer software required for safekeeping (archive), backup, or modification purposes. The government will not transfer the software outside of the government or for any purpose other than the FLUID program, except that the government may allow the use of the noncommercial computer software outside of the government under a limited set of circumstances, including use by a covered government support contractor in performance of its covered government support contract (management and administrative support), and after the contractor or subcontractor asserting the restriction is notified in writing as far in advance as practicable that a release or disclosure to particular contractors or subcontractor is planned to be made.

"Small Business Concerns" is defined in the Small Business Act (15 U.S.C. § 632).

6. ACRONYMS

AA&S	Advisory and Assistance Services
C5ISRT	Command, Control, Computing, Communications, Cyber, Intelligence, Surveillance, Reconnaissance and

	Targeting
CJSIL	Combined Joint Systems Integration Laboratory
CMO	Contracts Management Office
CoT	Cursor on Target
COTS	Commercial off-the-shelf
CTI	Controlled Technical Information
CUI	Controlled Unclassified Information
DARPA	Defense Advanced Research Projects Agency
dB	Decibels
DDIL	Degraded, Disrupted, Intermittent, Limited
FFRDC	Federally Funded Research & Development Center
FLUID	FLexible networking Using Intelligent Dialecting
GFI	Government Furnished Information
GPR	Government Purpose Rights
IP	Intellectual Property
IP	Internet Protocol
IPT	Integrated Product Team
ICD	Interface Control Document
ISR	Intelligence, Surveillance, Reconnaissance
LR	Load Reduction
OSPF	Open Shortest Path First
OT	Other Transaction
PIA	Procurement Integrity Act
PM	Program Manager
POC	Point of Contact
PS	Program Solicitation
QoS	Quality of Service
QUIC	Quick UDP Internet Connection
UDP	User Datagram Protocol
SCG	Security Classification Guide
SDN	Software Defined Networking
SETA	Scientific Engineering Technical Assistance
SS	Semantic Similarity
STO	Strategic Technology Office
TA	Technical Area
TCP/IP	Transmission Control Protocol/Internet Protocol
TE	Test Event
UARC	University Affiliated Research Center
XMPP	Extensible Messaging and Presence Protocol