

Broad Agency Announcement

Dispersed Computing

DARPA-BAA-16-41

June 24, 2016



Defense Advanced Research Projects Agency

Information Innovation Office

675 North Randolph Street

Arlington, VA 22203-2114

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PART I: OVERVIEW INFORMATION

- **Federal Agency Name:** Defense Advanced Research Projects Agency (DARPA), Information Innovation Office (I2O)
- **Funding Opportunity Title:** Dispersed Computing
- **Announcement Type:** Initial Announcement
- **Funding Opportunity Number:** DARPA-BAA-16-41
- **Catalog of Federal Domestic Assistance Numbers (CFDA):** 12.910 Research and Technology Development
- **Dates**
 - Posting Date: June 24, 2016
 - Proposers' Day: June 30, 2016
 - Proposal Due Date: September 7, 2016, 12:00 noon (ET)
 - BAA Closing Date: September 7, 2016, 12:00 noon (ET)
- **Anticipated Individual Awards:** DARPA anticipates multiple awards for Technical Areas 1 and 2. Technical Area 3 awards (via option exercise), if any, will occur in Phase 2 of the program.
- **Types of Instruments that May be Awarded:** Procurement contracts, cooperative agreements or Other Transactions (OTs). No grants will be awarded under this solicitation.
- **Agency Contacts**
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 - **I2O Solicitation Website:** <http://www.darpa.mil/work-with-us/opportunities>

PART II: FULL TEXT OF ANNOUNCEMENT

I. Funding Opportunity Description

DARPA is soliciting innovative research proposals in the area of algorithms and protocols for mission-aware computation and communication across broad-scale, physically dispersed computing infrastructure. Proposed research should investigate innovative approaches that enable revolutionary advances in science, devices, or systems. Specifically excluded is research that primarily results in evolutionary improvements to the existing state of practice.

This BAA is being issued, and any resultant selection will be made, using procedures under Federal Acquisition Regulation (FAR) 35.016. Any negotiations and/or FAR based contract awards will use procedures under FAR 15.4 (or 32 CFR 22 for cooperative agreements). Proposals received as a result of this BAA shall be evaluated in accordance with evaluation criteria specified herein through a scientific review process.

DARPA BAAs are posted on the Federal Business Opportunities (FBO) website (<https://www.fbo.gov/>) and, as applicable, the Grants.gov website (<http://www.grants.gov/>).

The following information is for those wishing to respond to this BAA.

A. Introduction and Background

Research within the Dispersed Computing program will produce software instantiations of algorithms and protocol stacks that leverage pervasive, physically dispersed computing platforms to boost application and network performance by orders of magnitude. Examples of such platforms include (but are not limited to) network elements, radios, smart phones, or sensors containing or collocated with programmable execution environments; and portable micro-clouds of various form factors that are installed within structures of opportunity. Note the design and production of hardware for these platforms is not in scope for this program.

In the current art, users with significant computing requirements have typically depended on access to large, highly shared data centers to which they backhaul their data (e.g., images, video, or network log files) for processing. However, in many operational scenarios, the cost and latency of this backhaul can be problematic, especially when network throughput is severely limited or when the user application requires a near real-time response. In such cases, users' ability to leverage taskable computing power that is available "locally" (in the sense of latency, available throughput, or similar measures that are relevant to the user or mission) could substantially improve application performance while reducing the risk to missions. The Dispersed Computing program seeks scalable, robust decision systems that enable secure, collective tasking of computing assets in a mission-aware fashion by users with competing demands, and across large numbers of heterogeneous computing platforms. These systems must be able to operate in environments where network connectivity is highly variable and degraded. The envisioned computing paradigm would enable the strategic, opportunistic movement of code to data, and data to code, in a fashion that best suits user, application, and mission needs.

The Dispersed Computing program also seeks innovation in network protocols. The lack of programmable computing capabilities *within* data networks, together with the "end to end"

design principle¹ that has guided Internet architecture from its beginnings, have resulted in application-layer and transport-layer protocol logic largely being confined to the end points that act as sources and sinks of the data. However, in the decades since the Internet architecture and its main protocols were first defined (such as the initial description of the Transmission Control Protocol (TCP) in 1981²), network transmission capacities have grown by many orders of magnitude, users' application requirements have changed enormously, and programmable, secure high-speed information processing within the network is now technically feasible. These advances warrant a fundamental reconsideration of how one might leverage programmable execution environments that are located along the path between end-points to boost performance through, e.g., dynamic modification of protocol logic, or localized in-path analytics to facilitate efficient diagnostics and corrective actions.

Programmable platforms incorporating Dispersed Computing software will be referred to as Networked Computation Points, or NCPs. A given NCP could execute functions in support of user applications, network protocol stacks, or both.

B. Program Description

Dispersed Computing concepts have broad applicability to a variety of scenarios of interest to the United States military and to the broader community. Accordingly, responses to this BAA may consider a wide range of possible network and service contexts. However, *proposers must be clear* about the specific context(s) in which their solutions are applicable, the assumptions underlying the chosen context and technical approach, and the potential limitations of the approach. Solutions that have relatively broad applicability will be viewed favorably.

Performers will be responsible for devising and implementing their own project-specific experimentation and demonstration capabilities. Proposers must include the following information in their submissions:

- A description of the planned testing environment and how it will illuminate advances in computation and/or networking capabilities relevant to their chosen contexts during the course of the program.
- A plan for conducting periodic demonstrations consistent with the notional program schedule shown in Section I.E.
- A description of metrics to be used to assess the performance of their systems, along with a timetable and methodology for such assessments.

To support plans for periodic demonstrations, projects may include the development of novel applications whose features help to showcase the unique value of the dispersed computing architectures.

The Dispersed Computing program seeks truly innovative, revolutionary approaches to mission-aware computation and networked communication, as opposed to incremental or evolutionary advances to current art. Proposals must clearly articulate why their solutions represent a major advance over existing techniques.

¹ J. H. Salzer, D. P. Reed and D. D. Clark, "End-to-End Arguments in System Design," *ACM Transactions in Computer Systems*, Vol. 2, November 1984, pp. 277-288.

² Transmission Control Protocol, RFC 793, September 1981.

C. Program Structure and Technical Areas

Dispersed Computing is a four-year program with two 24-month phases. The program comprises the three technical areas (TAs) as follows, and described in more detail below.

- TA1 - Algorithms for Dispersed Mission-Aware Computation
- TA2 - Programmable Nodes and Protocol Stacks
- TA3 - Technology Integration

Proposals for TA1 and TA2 should reflect a four-year base program effort and a nominal start date of February 1, 2017. Proposals should provide plans for iteratively developing, testing, and refining their TA1 and TA2 technologies throughout the entire four-year program.

Each proposal may address either TA1 or TA2, but not both. Organizations may submit multiple proposals, including separate proposals to TA1 and TA2. In addition, *all proposals must include two separate options within their Statements of Work and cost proposals:*

- An optional TA3 effort, to be confined to Phase 2 (the final 24 months of the program).
- An option for two field exercises, one at the end of Phase 1 and one at the end of Phase 2.

Further details on anticipated TA3 activities and field exercises are provided below. Proposals for TA3 alone will not be accepted.

The overriding objective of the Dispersed Computing program is to produce the best possible technologies for distributed mission-aware computing and networked communication. To this end, the Government intends this program to be a collaborative effort in which all performers (both within and across TAs) constructively interact with one another. To facilitate the open exchange of information, performers may have an Associate Contractor Agreement (ACA) clause included in their award (see Section VIII.D). This clause is intended to ensure appropriate coordination and potential integration of work done by program performers. Once selections have been made, selectees should have their ACAs in place prior to the program kick-off meeting.

Prospective proposers are strongly encouraged to read the descriptions of all TAs, to ensure a full understanding of the program context, structure, and anticipated relationships among performers.

No forced down-selects are anticipated. Individual performer efforts will be evaluated in terms of the viability of their technical approaches, the trend in the performance of their systems over time, and their overall progress toward Dispersed Computing program objectives.

Strong proposals will include a high-level concept of operations (CONOPS) for the envisioned system. A CONOPS describes the characteristics and operation of proposed system from the standpoint of an individual who will utilize or manage (e.g., configure or monitor) the system. Although it is understood that initial research prototypes may require hands-on tuning and management, the practical application of Dispersed Computing techniques will depend on system operation being highly automated, to minimize additional training requirements or cognitive burdens on operators. Proposals should indicate the degree of automation that is possible for their solutions.

Strong proposals will also include one or more basic use cases illustrating how solution components would interact with each other to achieve project and program goals.

Ensuring adequate cyber security will be essential in the deployment of Dispersed Computing technologies. Prior art has made considerable advances in relevant areas of cyber security, such as authentication, authorization, user isolation and resource sharing within virtualized environments, secure code and data transfer, node integrity and code safety. Accordingly, these aspects of cyber security are not intended to be a major focus of research within this program, but proposals that account for such security provisions during their prototyping efforts will be viewed favorably.

Technical Area 1 (TA1): Algorithms for Dispersed Mission-Aware Computation

TA1 will develop algorithms and control mechanisms to enable efficient use of networked, geographically dispersed, heterogeneous computing capabilities in a manner consistent with user, application, and mission requirements. Examples of potential scenarios include, but are not limited to, support for the following:

- User applications whose tight constraints on latency make interactions with distant data centers difficult, and whose computational complexity may preclude sole reliance on the user's end device. In such cases, opportunistic use of computing power from nearby NCPs may provide significant performance advantages from the user's standpoint, depending on the NCPs' loadings, computing capabilities, and network path characteristics.
- Processing of sensor data either partially or wholly "in-situ," that is, via computing capabilities collocated with or in the vicinity of the sensor(s), to reduce the need for high-volume back-haul of unprocessed information to distant data centers. The term sensor should be interpreted broadly and could include, for example, users' mobile devices, tactical battlefield devices, network elements that collect data for diagnostic or security purposes, or performance monitoring devices within cyber physical systems.

The nature of the computing platforms in the above scenarios can vary widely depending on the problem contexts that proposers choose to address. For contexts that envision computation on end user devices, including cases in which this computing capability could be shared among users, the end user devices themselves could be regarded as NCP instances. In any case, user end devices (or their proxies) could incorporate additional software to facilitate interaction with NCPs, including their discovery, selection, monitoring, and subsequent movement of code and/or data.

The capabilities that Dispersed Computing TA1 seeks to develop differ significantly from current practice and will require innovative solutions to major technical challenges that proposers should consider in their submissions:

- Leveraging available computing power across heterogeneous, physically dispersed platforms may benefit from selective, opportunistic movement of both code and data, as well as efficient apportionment of computing tasks across the platforms. Overall task completion time will then depend on processing latency, network latency and network throughput, all of which may vary widely and unpredictably. The resulting multi-

dimensional optimization under dynamic, uncertain conditions poses significant complexities.

- Reliance on computing platforms located outside protected data centers can increase the risk of platform failure due to, e.g., physical damage, network connectivity failure, or power outage. Algorithms should include the capability to sense and recover from failure, and also to incorporate the risk of failure into decisions concerning job (and data) placement and replication.
- Algorithms must be able to prioritize the allocation of resources among competing tasks and users in a fashion that collectively best serves the overall needs of the mission or enterprise. Of particular interest are approaches that can recognize and (where feasible) meet deadlines for completion of mission-critical tasks.
- For applications that benefit from parallelized execution, the placement and tracking of computation across machines within data centers is typically handled by physically or logically centralized controllers. In contrast, *of particular interest in TA1 are techniques that can control the physically dispersed computing environment in a distributed fashion.*
- Where applicable, systems should ideally scale to thousands of simultaneous users and computing locations in a robust fashion (see TA1 metrics below). Proposals should provide estimates of the scalability of their envisioned solutions.
- Users, applications, and missions may impose security-related constraints on where data may be accessed and where computation may be performed. These constraints may be either hard or soft (for example, potential location(s) of computation could be weighted preferentially and factored into an overall utility measure for task execution). In either case, algorithms should ideally permit policy-related restrictions on the placement of computation and data among NCPs.

The Dispersed Computing program aims to develop technologies that anticipate realistic operating conditions. Examples of assumptions that are *not realistic* include: (1) network transport characteristics (including latency, packet loss and congestion) that are known in advance and that do not substantially change; (2) computing loads that are confined to a single user or application; (3) centralized control systems that have uninterrupted connectivity to users and/or to the NCPs; and (4) computing loads that are undifferentiated from the standpoint of priority or temporal constraints on completion time.

TA1 proposals should clearly state metrics that performers will use to quantify the performance of their technologies over the course of the four-year program. Strong proposals will include target values for these metrics, evidence of feasibility for meeting these values, and a methodology and timeline for testing performance against these values. Examples of metrics of interest to TA1 are shown in Table 1.

TA1 Metric	Phase 1 Goal	Phase 2 Goal
Architectural Scale	100 NCPs, 500 simultaneous users	1500 NCPs, 5000 simultaneous users
Bandwidth Consumption	50% reduction w/r to backhaul approach	90% reduction w/r to backhaul approach
Mission-Aware Computation	20x avg., 50x worst-case improvement in aggregate utility	50x avg., 100x worst-case improvement in aggregate utility, inc. deadlines

Table 1. Example metrics for TA1 technologies.

Given the relatively broad scope of contexts and scenarios that TA1 may consider, DARPA recognizes that different sets of metrics may be relevant to proposers' technical plans. For example, a context involving the use of wireless, battery-powered devices could usefully include energy consumption impacts (i.e., battery drain) in assessing effectiveness of NCPs' decisions on code and data movement.

Technical Area 2 (TA2): Programmable Nodes and Protocol Stacks

Successful TA2 projects will demonstrate the unique value that accrues from the presence of programmable protocol logic within the network, primarily at the transport and application layers (but also potentially at the network layer) of the five-layer protocol stack model. TA2 systems may include new functions on users' end devices that interact with NCPs in the network to optimize overall performance. Examples of possible NCP TA2 functions include, but are not limited to, the following:

- Localized NCP-initiated probing, measurement and analytics to inform in-path or endpoint protocol modifications, or to facilitate effective network diagnostics,
- On-the-fly synthesis and instantiation of protocol logic on NCPs, adapted to address observed path or per-hop conditions,
- Dynamic modifications of NCP platform resource allocation (e.g., CPU, memory) to ensure fairness or maximization of collective utility across multiple flows utilizing a given NCP, and
- Adaptive packet or flow manipulation (such as replication, coding, or redirection) at NCPs over portions of the path to meet mission and application performance requirements as network conditions change.

The effective use of programmable execution environments within networks poses unique technical challenges that TA2 submissions should address. The handling of flows, measurements, and protocol modifications must not be so resource-intensive that it interferes with data-plane throughput or with NCPs' ability to respond to dynamically changing conditions within the network. Overheads associated with probing or messaging among NCPs must not significantly degrade throughput. In addition, means of coordinating NCP actions via distributed control and optimization techniques are preferred over purely centralized means to support scalable, robust operation. Proposers may include forms of centralized control but should justify their approaches from the standpoint of fault tolerance, scalability and performance.

Proposals that address the practical need for both node-safe and network-safe programming of NCPs will be viewed favorably. Node safety refers to, e.g., safeguards that allow only authorized entities to place code within NCPs. Network safety refers to the preservation of fairness and stability in cases where changes in protocol logic for some flows may adversely affect other flows. These changes must not trigger destructive feature interactions across flows or between modifications made by different NCPs.

TA2 proposals should clearly state metrics that performers will use to quantify the performance of their technologies over the course of the four-year program. Strong proposals will include target values for these metrics, evidence of feasibility for meeting these values, and a methodology and timeline for testing performance against these values. Examples of metrics of interest to TA2 are shown in Table 2. Measures of aggregate utility are of particular interest to TA2, to ensure that NCPs’ actions effectively serve the overall collective benefit of users and missions leveraging NCP resources.

TA2 Metric	Phase 1 Goal	Phase 2 Goal
App Performance Improvement	20x aggregate gain in application utility	50x aggregate gain in application utility, or within 10% of path capacity
Response Time to Network Events	1 sec	100 msec

Table 2. Example metrics for TA2 technologies.

The TA2 vision implicitly encompasses numerous possible CONOPS. TA2 proposers should be clear about how their systems would work and what functionality they would include. For example, code could be instantiated on NCPs in advance of operation and then invoked as needed, or it could be instantiated on the fly by authorized entities in response to conditions observed at path end points. NCPs could handle all network traffic or only designated subsets of traffic.

An earlier DARPA effort in Active Networks³ explored architectures for programmable network nodes, with major goals including not only programmability of the node, but also node programming by users and programming via code encapsulated within packets. Dispersed Computing, in contrast, is focused on the implications of programmability for structuring future distributed systems, and thus assumes that only designated entities (e.g., administrators or automated border controllers) will compose and install code, and that code will be installed in NCPs via secure channels specialized to this role. Node programmability via code encapsulated within packets is out of scope for the Dispersed Computing program.

³ D. L. Tennenhouse and D. J. Wetherall, “Towards an Active Network Architecture,” *Proc. ACM SIGCOMM Computer Communication Review*, vol. 37, October 2007, pp. 81-94.

Technical Area 3 (TA3): Technology Integration (Required Option)

During Phase 1, the Government will identify potentially synergistic technologies from performers in both TA1 and TA2 for possible integration activities during Phase 2. The program will refer to these Phase 2 activities collectively as TA3. All proposers must include a TA3 Integration Concept in their proposals (see Section IV.B). This description should provide a vision for how the technology being proposed for TA1 might synergistically work with technologies and concepts from TA2, or vice versa. The Government recognizes that this initial vision will be hypothetical due to the inability to predict the specific technologies that other performers will produce. Examples of possible synergies might include the following:

- The use of NCPs, potentially including collaborative end points, to parallelize and accelerate complex computation or simulation of protocol variants, or analysis of network measurements,
- The adaptation of TA2 protocol characteristics to meet data-transfer throughput or latency requirements arising from mission-critical TA1 computation across a collection of NCPs, or
- The re-direction of TA1 computing loads to alternative sets of NCPs based on adverse estimates of network health from TA2 NCP-based measurements and analytics.

Proposers are encouraged to consider a broad set of possible integration opportunities that leverage unique characteristics of their envisioned technologies and operational concepts.

All proposals must also include an optional effort for TA3 in their statements of work and cost proposals, consistent with their TA3 Integration Concept descriptions. Note, however, that this optional TA3 effort will occur only in Phase 2 (the final two years of the program), while the base program effort will cover both Phase 1 and Phase 2 (a total of four years); hence, TA3 activities will run concurrently with Phase 2 of the base program. The required TA3 option should be a maximum 24-month effort, but could be shorter as proposers deem appropriate.

D. Program Field Exercises (Required Option)

The program schedule (see Section II.E) includes field exercises near the end of Phase 1 and Phase 2. The purpose of these exercises is to showcase promising Dispersed Computing technologies to potential transition partners, and to elicit feedback from these partners concerning features and capabilities that are under development. During both program phases, the Government will identify candidate performers to participate in these exercises based on the technical progress of their respective projects and the degree of interest from transition partners.

All proposals must include a separate, optional effort associated with possible participation in program field exercises. The exact nature, dates and locations of these exercises will not be determined until after program commencement. Given this uncertainty, proposals should reflect a nominal two-week effort by two personnel, along with associated travel, to Arlington, VA.

E. Program Schedule and Milestones

The table below provides a notional program schedule and milestones.

	Phase 1										Phase 2													
Fiscal Year	17				18						19				20				21					
Program Month	2	4	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42	44	46	48
Kickoff and PI Meetings	◆		◆			◆			◆			◆			◆			◆			◆			◆
Proposed Test Plans		◆					◆						◆						◆					
Project Demonstrations				◆				◆					◆			◆				◆				◆
Integration Plan										◆						◆				◆				
Multi-Project Demos																◆				◆				◆
Field Exercise Proposal						◆													◆					
Range Testing									◆												◆			
Field Exercises													◆											◆

Proposals should reflect a four-year base program effort with a nominal start date of February 1, 2017. For planning purposes, proposers may assume that the program kickoff meeting and all principal investigator meetings will be held in the Washington, DC area, with meetings alternating between one-day and two-day events. It is possible that some meeting venues may be moved to other locations once the program begins, depending on physical locations of performers.

F. Intellectual Property

The program will emphasize creating and leveraging open source technology and architecture. Intellectual property rights asserted by proposers are strongly encouraged to be aligned with open source regimes.

A key goal of the program is to establish an open, standards-based, multi-source, plug-and-play architecture that allows for interoperability and integration. This includes the ability to easily add, remove, substitute, and modify software and hardware components. This will facilitate rapid innovation by providing a base for future users or developers of program technologies and deliverables. Therefore, it is desired that all noncommercial software (including source code), software documentation, hardware designs and documentation, and technical data generated by the program be provided as deliverables to the Government, with a minimum of Government Purpose Rights (GPR), as lesser rights may adversely impact the lifecycle costs of affected items, components, or processes. See Section VI.B.1 for more details on intellectual property.

II. Award Information

A. Awards

Multiple awards are anticipated. The level of funding for individual awards made under this solicitation has not been predetermined and will depend on the quality of the proposals received and the availability of funds. Awards will be made to proposers whose proposals are determined to be the most advantageous and provide the best value to the Government, all factors considered, including the potential contributions of the proposed work, overall funding strategy, and availability of funding. See Section V for further information.

The Government reserves the right to:

- select for negotiation all, some, one, or none of the proposals received in response to this solicitation;
- make awards without discussions with proposers;
- conduct discussions with proposers if it is later determined to be necessary;
- segregate portions of resulting awards into pre-priced options;
- accept proposals in their entirety or to select only portions of proposals for award;
- fund proposals in increments and/or with options for continued work at the end of one or more phases;
- request additional documentation once the award instrument has been determined (e.g., representations and certifications); and
- remove proposers from award consideration should the parties fail to reach agreement on award terms within a reasonable time or the proposer fails to provide requested additional information in a timely manner.

Proposals selected for award negotiation may result in a procurement contract, cooperative agreement or Other Transaction (OT), depending upon the nature of the work proposed, the required degree of interaction between parties, and other factors.

In all cases, the Government contracting officer shall have sole discretion to select award instrument type and to negotiate all instrument terms and conditions with selectees. Proposers are advised that regardless of the instrument type proposed, DARPA may select other award instruments, as it deems appropriate. DARPA will apply publication or other restrictions, as necessary, if it determines that the research resulting from the proposed effort will present a high likelihood of disclosing performance characteristics of military systems or manufacturing technologies that are unique and critical to defense. Any award resulting from such a determination will include a requirement for DARPA permission before publishing any information or results on the program. For more information on publication restrictions, see the section below on Fundamental Research.

B. Fundamental Research

It is DoD policy that the publication of products of fundamental research will remain unrestricted to the maximum extent possible. National Security Decision Directive (NSDD) 189 established the national policy for controlling the flow of scientific, technical, and engineering information produced in federally funded fundamental research at colleges, universities, and laboratories. The Directive defines fundamental research as follows:

'Fundamental research' means basic and applied research in science and engineering, the results of which ordinarily are published and shared broadly within the scientific community, as distinguished from proprietary research and from industrial development, design, production, and product utilization, the results of which ordinarily are restricted for proprietary or national security reasons.

As of the date of publication of this BAA, the Government expects that program goals as described herein may be met by proposers intending to perform fundamental research. The Government does not anticipate applying publication restrictions of any kind to individual awards for fundamental research that may result from this BAA. Notwithstanding this statement of expectation, the Government is not prohibited from considering and selecting research proposals that, while perhaps not qualifying as fundamental research under the foregoing definition, still meet the BAA criteria for submissions. If proposals are selected for award that offer other than a fundamental research solution, the Government will either work with the proposer to modify the proposed statement of work to bring the research back into line with fundamental research or else the proposer will agree to restrictions in order to receive an award.

Proposers should indicate in their proposal whether they believe the scope of the research included in their proposal is fundamental or not. While proposers should clearly explain the intended results of their research, the Government shall have sole discretion to select award instrument type and to negotiate all instrument terms and conditions with selectees. Appropriate clauses will be included in resultant awards for non-fundamental research to prescribe publication requirements and other restrictions, as appropriate.

For certain research projects, it may be possible that although the research being performed by the prime contractor is restricted research, a subawardee may be conducting fundamental research. In those cases, it is the prime contractor's responsibility to explain in its proposal why its subawardee's effort is fundamental research.

The following statement or similar provision will be incorporated into any resultant non-fundamental research procurement contract or other transaction:

There shall be no dissemination or publication, except within and between the contractor and any subawardees, of information developed under this contract or contained in the reports to be furnished pursuant to this contract without prior written approval of DARPA's Public Release Center (DARPA/PRC). All technical reports will be given proper review by appropriate authority to determine which Distribution Statement is to be applied prior to the initial distribution of these reports by the contractor. With regard to subawardee proposals for Fundamental Research, papers resulting from unclassified fundamental research are exempt from prepublication controls and this review requirement, pursuant to DoD Instruction 5230.27 dated October 6, 1987.

When submitting material for written approval for open publication, the contractor/awardee must submit a request for public release to the DARPA/PRC and include the following information: (1) Document Information: document title, document author, short plain-language description of technology discussed in the material (approx. 30 words), number of pages (or minutes of video) and document type (e.g., briefing, report, abstract, article, or paper); (2) Event Information: event type (conference,

principal investigator meeting, article or paper), event date, desired date for DARPA's approval; (3) DARPA Sponsor: DARPA Program Manager, DARPA office, and contract number; and (4) Contractor/Awardee's Information: POC name, email and phone. Allow four weeks for processing; due dates under four weeks require a justification. Unusual electronic file formats may require additional processing time. Requests may be sent either via email to public_release_center@darpa.mil or by mail at 675 North Randolph Street, Arlington VA 22203-2114, telephone (571) 218-4235. Refer to the following for link for information about DARPA's public release process: <http://www.darpa.mil/work-with-us/contract-management/public-release>.”

III. Eligibility Information

A. Eligible Applicants

All responsible sources capable of satisfying the Government's needs may submit a proposal that shall be considered by DARPA.

1. Federally Funded Research and Development Centers (FFRDCs) and Government Entities

Federally Funded Research and Development Centers (FFRDCs) and Government entities (e.g., Government/National laboratories, military educational institutions, etc.) are subject to applicable direct competition limitations and cannot propose to this BAA in any capacity unless they meet the following conditions: (1) FFRDCs must clearly demonstrate that the proposed work is not otherwise available from the private sector; and (2) FFRDCs must provide a letter on official letterhead from their sponsoring organization citing the specific authority establishing their eligibility to propose to Government solicitations and compete with industry, and their compliance with the associated FFRDC sponsor agreement's terms and conditions. This information is required for FFRDCs proposing to be prime contractors or subawardees. Government entities must clearly demonstrate that the work is not otherwise available from the private sector and provide written documentation citing the specific statutory authority and contractual authority, if relevant, establishing their ability to propose to Government solicitations. At the present time, DARPA does not consider 15 U.S.C. § 3710a to be sufficient legal authority to show eligibility. While 10 U.S.C. § 2539b may be the appropriate statutory starting point for some entities, specific supporting regulatory guidance, together with evidence of agency approval, will still be required to fully establish eligibility. DARPA will consider FFRDC and Government entity eligibility submissions on a case-by-case basis; however, the burden to prove eligibility for all team members rests solely with the proposer.

2. Foreign Participation

Non-U.S. organizations and/or individuals may participate to the extent that such participants comply with any necessary nondisclosure agreements, security regulations, export control laws, and other governing statutes applicable under the circumstances.

B. Procurement Integrity, Standards of Conduct, Ethical Considerations, and Organizational Conflicts of Interest

Current federal employees are prohibited from participating in particular matters involving conflicting financial, employment, and representational interests (18 U.S.C. §§ 203, 205, and 208). Once the proposals have been received, and prior to the start of proposal evaluations, the Government will assess potential conflicts of interest and will promptly notify the proposer if any appear to exist. The Government assessment does NOT affect, offset, or mitigate the proposer's responsibility to give full notice and planned mitigation for all potential organizational conflicts, as discussed below.

Without prior approval or a waiver from the DARPA Director, in accordance with FAR 9.503, a contractor cannot simultaneously provide scientific, engineering, technical assistance (SETA) or similar support and also be a technical performer. As part of the proposal submission, all

members of the proposed team (prime proposers, proposed subawardees, and consultants) must affirm whether they (their organizations and individual team members) are providing SETA or similar support to any DARPA technical office(s) through an active contract or subcontract. All affirmations must state which office(s) the proposer, subawardees, consultant, or individual supports and identify the prime contract number(s). All facts relevant to the existence or potential existence of organizational conflicts of interest (FAR 9.5) must be disclosed. The disclosure must include a description of the action the proposer has taken or proposes to take to avoid, neutralize, or mitigate such conflict. If in the sole opinion of the Government after full consideration of the circumstances, a proposal fails to fully disclose potential conflicts of interest and/or any identified conflict situation cannot be effectively mitigated, the proposal will be rejected without technical evaluation and withdrawn from further consideration for award.

If a prospective proposer believes a conflict of interest exists or may exist (whether organizational or otherwise) or has questions on what constitutes a conflict of interest, the proposer should send his/her contact information and a summary of the potential conflict via email to the BAA email address before time and effort are expended in preparing a proposal and mitigation plan.

C. Cost Sharing/Matching

Cost sharing is not required; however, it will be carefully considered where there is an applicable statutory condition relating to the selected funding instrument (e.g., OTs under the authority of 10 U.S.C. § 2371).

D. Other Eligibility Requirements

Ability to Support Classified Testing and Evaluation

Proposers are not required to hold or obtain security clearances, but may require personnel with a SECRET clearance to participate in field exercises. Proposers who wish to have access to classified data in support of field exercises (should they be selected to participate in such exercises) must have personnel and access to facilities with a minimum classification level of SECRET at the time of award, and must provide their CAGE code and security point(s) of contact in their proposals.

IV. Application and Submission Information

A. Address to Request Application Package

This document contains all information required to submit a response to this solicitation. No additional forms, kits, or other materials are needed except as referenced herein. No request for proposal (RFP) or additional solicitation regarding this opportunity will be issued, nor is additional information available except as provided at the Federal Business Opportunities website (<https://www.fbo.gov>), the Grants.gov website (<http://www.grants.gov/>), or referenced herein.

B. Content and Form of Application Submission

1. Proposals

Proposals consist of Volume 1: Technical and Management Proposal (including mandatory Appendix A, and optional Appendix B) and Volume 2: Cost Proposal.

All pages shall be formatted for printing on 8-1/2 by 11-inch paper with 1-inch margins, single-line spacing, and a font size not smaller than 12 point. Font sizes of 8 or 10 point may be used for figures, tables, and charts. Document files must be in .pdf, .odx, .doc, .docx, .xls, or .xlsx formats. Submissions must be written in English.

Proposals not meeting the format prescribed herein may not be reviewed.

a. Volume 1: Technical and Management Proposal

The maximum page count for Volume 1 is 32 pages, including all figures, tables and charts but not including the cover sheet, table of contents or Appendices A and B. A submission letter is optional and is not included in the page count. Appendix A does not count against the page limit and is mandatory. Appendix B does not count against the page limit and is optional. Additional information not explicitly called for here must not be submitted with the proposal, but may be included as links in the bibliography in Appendix B. Such materials will be considered for the reviewers' convenience only and not evaluated as part of the proposal. Proposals should be self-contained and not rely on the referencing of other materials to explain or justify their technical approaches. *Volume 1 submissions should strive for brevity and clarity.*

Volume 1 must include the following components:

i. Cover Sheet: Include the following information.

- Label: "Proposal: Volume 1"
- BAA number (DARPA-BAA-16-41)
- Technical area(s)
- Proposal title
- Lead organization (prime contractor) name
- Type of organization, selected from the following categories: Large Business, Small Disadvantaged Business, Other Small Business, HBCU, MI, Other Educational, or Other Nonprofit

- Technical point of contact (POC) including name, mailing address, telephone, and email
- Administrative POC including name, mailing address, telephone number, and email address
- Award instrument requested: procurement contract (specify type) or OT.⁴
- Total amount of the proposed effort.
- Place(s) and period(s) of performance
- Other team member (subcontractors and consultants) information (for each, include Technical POC name, organization, type of organization, mailing address, telephone number, and email address)
- Proposal validity period (minimum 120 days)
- Data Universal Numbering System (DUNS) number⁵
- Taxpayer identification number⁶
- Commercial and Government Entity (CAGE) code⁷
- Security POC including name, mailing address, telephone number, and email address, if applicable
- Proposer's reference number (if any)

ii. Table of Contents

iii. Executive Summary: Provide a synopsis of the proposed project, including answers to the following questions:

- What is the proposed work attempting to accomplish or do?
- How is it done today, and what are the limitations?
- Who or what will be affected and what will be the impact if the work is successful?
- How much will it cost, and how long will it take?

The executive summary should include a description of the key technical challenges, a concise review of the technologies proposed to overcome these challenges and achieve the project's goal, and a clear statement of the novelty and uniqueness of the proposed work.

iv. Innovative Claims and Deliverables: Describe the innovative aspects of the project in the context of existing capabilities and approaches, clearly delineating the uniqueness and benefits of this project in the context of the state of the art, alternative approaches, and other projects from the past and present. Describe how the proposed project is revolutionary and how it significantly rises above the current state of the art.

⁴ Information on award instruments can be found at <http://www.darpa.mil/work-with-us/contract-management>.

⁵ The DUNS number is used as the Government's contractor identification code for all procurement-related activities. Go to <http://fedgov.dnb.com/webform/index.jsp> to request a DUNS number (may take at least one business day). See Section VI.B.8 for further information.

⁶ See <http://www.irs.gov/businesses/small/international/article/0,,id=96696,00.html> for information on requesting a TIN. Note, requests may take from 1 business day to 1 month depending on the method (online, fax, mail).

⁷ A CAGE Code identifies companies doing or wishing to do business with the Federal Government. See Section VI.B.8 for further information.

Describe the deliverables associated with the proposed project and any plans to commercialize the technology, transition it to a customer, or further the work. Discuss the mitigation of any issues related to sustainment of the technology over its entire lifecycle, assuming the technology transition plan is successful.

v. Technical Plan: Outline and address technical challenges inherent in the approach and possible solutions for overcoming potential problems. Demonstrate a deep understanding of the technical challenges and present a credible (even if risky) plan to achieve the project's goal. Describe the testbed and test plan for their envisioned technologies, as well as metrics for assessing performance and progress during the course of the program. Identify technical risks (components of the technical plan that are speculative and may not work as envisioned) and mitigation plans that will enable the project to succeed if such obstacles are encountered. Provide appropriate measurable milestones (quantitative if possible) at intermediate stages of the project to demonstrate progress, and a plan for achieving the milestones.

vi. TA3 Integration Concept: Describe how the proposed effort could be synergistically combined with potential technologies that implement concepts across Dispersed Computing TA1 and TA2. Describe a high-level operational concept for how such a combined system might operate and what value would accrue from the combination of technologies.

vii. Management Plan: Provide a summary of expertise of the proposed team, including any subcontractors/consultants and key personnel who will be executing the work. Identify a principal investigator (PI) for the project. Provide a clear description of the team's organization including an organization chart that includes, as applicable, the relationship of team members; unique capabilities of team members; task responsibilities of team members; teaming strategy among the team members; and key personnel with the amount of effort to be expended by each person during the project. Provide a detailed plan for coordination including explicit guidelines for interaction among collaborators/subcontractors of the proposed project, and how the team will integrate and test system components. Include approaches to managing cost and schedule risks. Describe any formal teaming agreements that are required to execute this project. List Government-furnished materials or data assumed to be available.

viii. Personnel, Qualifications, and Commitments: List key personnel (no more than one page per person), showing a concise summary of their qualifications, discussion of previous accomplishments, and work in this or closely related research areas. Indicate the level of effort in terms of hours to be expended by each person during each contract phase and other (current and proposed) major sources of support for them and/or commitments of their efforts. DARPA expects all key personnel associated with a proposal to make substantial time commitment to the proposed activity and the proposal will be evaluated accordingly. It is DARPA's intention to put key personnel conditions into the awards, so proposers should not propose personnel that are not anticipated to execute the award.

Include a table of key individual time commitments as follows:

Key Individual	Project	Status (Current, Pending, Proposed)	Hours on Project (by FY)				
			2017	2018	2019	2020	2021
Individual Name 1	Dispersed Computing	Proposed					
	Project 1	Current					
	Project 2	Pending					
Individual Name 2	Dispersed Computing	Proposed					
	Project 3	Current					

ix. Capabilities: Describe organizational experience in relevant subject area(s), existing intellectual property, or specialized facilities. Discuss any work in closely related research areas and previous accomplishments.

x. Statement of Work (SOW): The SOW must provide a detailed task breakdown, citing specific tasks and their connection to the interim milestones and metrics, as applicable. Each phase of the project should be separately defined. The SOW must also cover support for field exercises. The SOW must not include proprietary information. For each defined task/subtask, provide:

- A general description of the objective.
- A detailed description of the approach to be taken to accomplish each defined task/subtask.
- Identification of the primary organization responsible for task execution (prime contractor, subcontractor(s), consultant(s)), by name.
- A measurable milestone, (e.g., a deliverable, demonstration, or other event/activity that marks task completion).
- A definition of all deliverables (e.g., data, reports, software) to be provided to the Government in support of the proposed tasks/subtasks.
- Identify any tasks/subtasks (by the prime or subcontractor) that will be accomplished at a university.

xi. Schedule and Milestones: Provide a detailed schedule showing tasks (task name, duration, work breakdown structure element as applicable, performing organization), milestones, and the interrelationships among tasks. The task structure must be consistent with that in the SOW. Measurable milestones should be clearly articulated and defined in time relative to the start of the project.

xii. Level of Effort Summary by Task: Provide a one-page table summarizing estimated level of effort per task (in hours) *for the base program only*, broken out by senior, mid-level and junior personnel, in the format shown below in Figure 2. Also include dollar-denominated estimates of travel, materials and equipment. For this table, consider materials to include the cost of any data sets or software licenses proposed. For convenience, an Excel template is available for download along with the BAA.

SOW Task	Duration (months)	Intensity (hrs/mo)	Labor Hours						
			Sr	Mid	Jr	Total	SubC	Conslt	Total
1.1.0 <Phase 1 Task 1 name>	7	135	240	680	24	944	-	200	1,144
1.1.1 <Subtask 1.1.1 name>	4	90	80	280	-	360	-	200	560
1.1.2 <Subtask 1.1.2 name>	3	195	160	400	24	584	-	-	584
1.2.0 <Phase 1 Task 2 name>	6	385	108	400	1,800	2,308	1,400	-	3,708
1.2.1 <Subtask 1.2.1 name>	3	656	48	320	1,600	1,968	600	-	2,568
1.2.2 <Subtask 1.2.2 name>	3	113	60	80	200	340	800	-	1,140
:	:	:	:	:	:	:	:	:	:
Phase 1 Total Hours			348	1,080	1,824	3,252	1,400	200	4,652
Phase 1 Costs <i>First column is prime, second is total subcontractor, third is total consultant, fourth is total</i>			Travel			\$ 44,000	\$ 12,000	\$ 2,000	\$ 58,000
			Materials & Equipment			\$ 8,000	\$ -	\$ -	\$ 8,000
2.1.0 <Phase 2 Task 1 name>	8	100	176	560	64	800	100	100	1,000
2.1.1 <Subtask 2.1.1 name>	7	51	96	240	24	360	100	100	560
2.1.2 <Subtask 2.1.2 name>	4	110	80	320	40	440	-	-	440
2.2.0 <Phase 2 Task 2 name>	6	417	180	520	1,800	2,500	1,240	-	3,740
2.2.1 <Subtask 2.2.1 name>	4	435	140	400	1,200	1,740	400	-	2,140
2.2.2 <Subtask 2.2.2 name>	4	190	40	120	600	760	840	-	1,600
:	:	:	:	:	:	:	:	:	:
Phase 2 Total Hours			356	1,080	1,864	3,300	1,340	100	4,640
Phase 2 Costs <i>First column is prime, second is total subcontractor, third is total consultant, fourth is total</i>			Travel			\$ 47,000	\$ 12,000	\$ 2,000	\$ 61,000
			Materials & Equipment			\$ 4,000	\$ -	\$ -	\$ 4,000
Project Total Hours			704	2,160	3,688	6,552	2,740	300	9,292
Total Project Costs <i>First column is prime, second is total subcontractor, third is total consultant, fourth is total</i>			Travel			\$ 91,000	\$ 24,000	\$ 4,000	\$ 119,000
			Materials & Equipment			\$ 12,000	\$ -	\$ -	\$ 12,000

Figure 1: Example level-of-effort summary table. Numbers illustrate roll-ups and subtotals. The SubC column captures all subcontractor hours and the Conslt column captures all consultant hours.

xiii. Appendix A: This section is mandatory and must include all of the following components. If a particular subsection is not applicable, state “NONE”.

(1). Team Member Identification: Provide a list of all team members including the prime, subcontractor(s), and consultant(s), as applicable. Identify specifically whether any are a non-US organization or individual, FFRDC and/or Government entity. Use the following format for this list:

Individual Name	Role (Prime, Subcontractor or Consultant)	Organization	Non-US?		FFRDC or Govt?
			Org	Ind.	

(2). Government or FFRDC Team Member Proof of Eligibility to Propose: If none of the team member organizations (prime or subcontractor) are a Government entity or FFRDC, state “NONE”.

If any of the team member organizations are a Government entity or FFRDC, provide documentation (per Section III.A.1) citing the specific authority that

establishes the applicable team member’s eligibility to propose to Government solicitations to include: 1) statutory authority; 2) contractual authority; 3) supporting regulatory guidance; and 4) evidence of agency approval for applicable team member participation.

- (3). Government or FFRDC Team Member Statement of Unique Capability:** If none of the team member organizations (prime or subcontractor) are a Government entity or FFRDC, state “NONE”.

If any of the team member organizations are a Government entity or FFRDC, provide a statement (per Section III.A.1) that demonstrates the work to be performed by the Government entity or FFRDC team member is not otherwise available from the private sector.

- (4). Organizational Conflict of Interest Affirmations and Disclosure:** If none of the proposed team members is currently providing SETA or similar support as described in Section III.B, state “NONE”.

If any of the proposed team members (individual or organization) is currently performing SETA or similar support, furnish the following information:

Prime Contract Number	DARPA Technical Office supported	A description of the action the proposer has taken or proposes to take to avoid, neutralize, or mitigate the conflict

- (5). Intellectual Property (IP):** If no IP restrictions are intended, state “NONE”. The Government will assume unlimited rights to all IP not explicitly identified as having less than unlimited rights in the proposal.

For all technical data or computer software that will be furnished to the Government with other than unlimited rights, provide (per Section VI.B.1) a list describing all proprietary claims to results, prototypes, deliverables or systems supporting and/or necessary for the use of the research, results, prototypes and/or deliverables. Provide documentation proving ownership or possession of appropriate licensing rights to all patented inventions (or inventions for which a patent application has been filed) to be used for the proposed project. Use the following format for these lists:

NONCOMMERCIAL				
Technical Data and/or Computer Software To be Furnished With Restrictions	Summary of Intended Use in the Conduct of the Research	Basis for Assertion	Asserted Rights Category	Name of Person Asserting Restrictions
(List)	(Narrative)	(List)	(List)	(List)
(List)	(Narrative)	(List)	(List)	(List)

COMMERCIAL				
Technical Data and/or Computer Software To be Furnished With Restrictions	Summary of Intended Use in the Conduct of the Research	Basis for Assertion	Asserted Rights Category	Name of Person Asserting Restrictions
(List)	(Narrative)	(List)	(List)	(List)
(List)	(Narrative)	(List)	(List)	(List)

- (6). **Human Subjects Research (HSR):** If HSR is not a factor in the proposal, state “NONE”.

If the proposed work will involve human subjects, provide evidence of or a plan for review by an institutional review board (IRB). For further information on this subject, see Section VI.B.2.

- (7). **Animal Use:** If animal use is not a factor in the proposal, state “NONE”.

If the proposed research will involve animal use, provide a brief description of the plan for Institutional Animal Care and Use Committee (IACUC) review and approval. For further information on this subject, see Section VI.B.3.

- (8). **Representations Regarding Unpaid Delinquent Tax Liability or a Felony Conviction under Any Federal Law:** Per Section VI.B.10, complete the following statements.

(1) The proposer is [] is not [] a corporation that has any unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability,

(2) The proposer is [] is not [] a corporation that was convicted of a felony criminal violation under a Federal law within the preceding 24 months.

- (9). **Cost Accounting Standards (CAS) Notices and Certification:** Per Section VI.B.11, any proposer who submits a proposal which, if accepted, will result in a CAS-compliant contract, must include a Disclosure Statement as required by 48 CFR 9903.202. The disclosure forms may be found at http://www.whitehouse.gov/omb/procurement_casb.

If this section is not applicable, state “NONE”.

xiv. Appendix B: If desired, include a brief bibliography to relevant papers, reports, or resumes. Do not include technical papers. This section is optional, and the materials will not be evaluated as part of the proposal review.

b. Volume 2 - Cost Proposal

This volume is mandatory and must include all the listed components. No page limit is specified for this volume.

The cost proposal should include a working spreadsheet file (.xls or equivalent format) that provides formula traceability among all components of the cost proposal. The spreadsheet file should be included as a separate component of the full proposal package. Costs must be traceable between the prime and subcontractors/consultants, as well as between the cost proposal and the SOW.

Pre-award costs will not be reimbursed unless a pre-award cost agreement is negotiated prior to award.

i. Cover Sheet: Include the same information as the cover sheet for Volume 1, but with the label “Proposal: Volume 2.”

ii. Cost Summary Tables: Provide a single-page summary table, per TA and option proposed, broken down by fiscal year listing cost totals for labor, materials, other direct charges (ODCs), indirect costs (overhead, fringe, general and administrative (G&A)), and any proposed fee for the project. Include costs for each task in each fiscal year of the project by prime and major subcontractors, total cost and proposed cost share, if applicable. Provide a second table containing the same information broken down by project phase.

iii. Cost Details: For each task, provide the following cost details by month. Include supporting documentation describing the method used to estimate costs. Identify any cost sharing.

(1) Direct Labor: Provide labor categories, rates and hours. Justify rates by providing examples of equivalent rates for equivalent talent, past commercial or Government rates or Defense Contract Audit Agency (DCAA) approved rates.

(2) Indirect Costs: Identify all indirect cost rates (such as fringe benefits, labor overhead, material overhead, G&A, etc.) and the basis for each.

(3) Materials: Provide an itemized list of all proposed materials, equipment, and supplies for each year including quantities, unit prices, proposed vendors (if known), and the basis of estimate (e.g., quotes, prior purchases, catalog price lists, etc.). For proposed equipment/information technology (as defined in FAR 2.101) purchases equal to or greater than \$50,000, include a letter justifying the purchase. Include any requests for Government-furnished equipment or information with cost estimates (if applicable) and delivery dates.

(4) Travel: Provide a breakout of travel costs including the purpose and number of trips, origin and destination(s), duration, and travelers per trip.

(5) Subcontractor/Consultant Costs: Provide above info for each proposed subcontractor/consultant. Subcontractor cost proposals must include interdivisional work transfer agreements or similar arrangements. If the proposer has conducted a cost or price analysis to determine reasonableness, submit a copy of this along with the subcontractor proposal.

The proposer is responsible for the compilation and submission of all subcontractor/consultant cost proposals. Proposal submissions will not be considered complete until the Government has received all subcontractor/consultant cost proposals.

Proprietary subcontractor/consultant cost proposals may be included as part of Volume 2 or emailed separately to DCOMP@darpa.mil. Email messages must include “Subcontractor Cost Proposal” in the subject line and identify the principal investigator, prime proposer organization and proposal title in the body of the message.

Please note that a Rough Order of Magnitude (ROM), or similar budgetary estimate, is not considered a fully qualified subcontract cost proposal submission. Inclusion of a ROM, or similar budgetary estimate, or failure to provide a subcontract proposal, will result in the full proposal being deemed non-compliant.

(6) ODCs: Provide an itemized breakout and explanation of all other anticipated direct costs.

iv. Proposals Requesting a Procurement Contract: Provide the following information where applicable.

(1) Proposals for \$750,000 or more: Provide “certified cost or pricing data” (as defined in FAR 2.101) or a request for exception in accordance with FAR 15.403.

(2) Proposals for \$700,000 or more: Pursuant to Section 8(d) of the Small Business Act (15 U.S.C. § 637(d)), it is Government policy to enable small business and small disadvantaged business concerns to be considered fairly as subcontractors to organizations performing work as prime contractors or subcontractors under Government contracts, and to ensure that prime contractors and subcontractors carry out this policy. In accordance with FAR 19.702(a)(1) and 19.702(b), prepare a subcontractor plan, if applicable. The plan format is outlined in FAR 19.704.

(3) Proposers without an adequate cost accounting system: If requesting a cost-type contract, provide the DCAA Pre-award Accounting System Adequacy Checklist to facilitate DCAA’s completion of an SF 1408. Proposers without an accounting system considered adequate for determining accurate costs must complete an SF 1408 if a cost type contract is to be negotiated. To facilitate this process, proposers should complete the SF 1408 found at <http://www.gsa.gov/portal/forms/download/115778> and submit the completed form with the proposal. To complete the form, check the boxes on the second page, then provide a narrative explanation of your accounting system to supplement the checklist on page one. For more information, please see http://www.dcaa.mil/preaward_accounting_system_adequacy_checklist.html.

v. Proposals Requesting an Other Transaction for Prototypes Agreement: Proposers must indicate whether they qualify as a nontraditional Defense contractor⁸, have teamed with a nontraditional Defense contractor, or are providing a one-third cost share for this effort. Provide information to support the claims. See 10 U.S.C. § 2371b.

Provide a detailed list of milestones including: description, completion criteria, due date, and payment/funding schedule (to include, if cost share is proposed, contractor and Government share amounts). Milestones must relate directly to accomplishment of technical metrics as defined in the solicitation and/or the proposal. While agreement type (fixed price or expenditure based) will be subject to negotiation, the use of fixed price milestones with a payment/funding schedule is preferred. Proprietary information must not be included as part of the milestones.

2. Proprietary and Classified Information

DARPA policy is to treat all submissions as source selection information (see FAR 2.101 and 3.104) and to disclose the 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.

a. Proprietary Information

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.

b. Classified Information

The Classified submissions (classified technical proposals or classified appendices to unclassified proposals) WILL NOT be accepted under this solicitation.

If a determination is made that the award instrument may result in access to classified information, a DD Form 254, "DoD Contract Security Classification Specification," will be issued by DARPA and attached as part of the award. A DD Form 254 will not be provided to proposers at the time of submission. For reference, the DD Form 254 template is available at <http://www.dtic.mil/dtic/pdf/formsNguides/dd0254.pdf>.

C. Submission Dates and Times

Proposers are warned that submission deadlines as outlined herein are strictly enforced. Note: some proposal requirements may take from 1 business day to 1 month to complete. See the proposal checklist in Section VIII.C for further information.

When utilizing the DARPA BAA Submission Website, as described below in Section IV.E.1 below, a control number will be provided at the conclusion of the submission process. This

⁸ For definitions and information on an OTs for Prototypes agreement see <http://www.darpa.mil/work-with-us/contract-management> and "Other Transactions (OT) Guide For Prototype Projects," dated January 2001 (as amended) at <http://www.acq.osd.mil/dpap/Docs/otguide.doc>.

control number should be used in all further correspondence regarding your proposal submission.

Because cooperative agreement proposal submissions (Section IV.E.1.b) will be utilizing the Grants.gov website, a control number will be created by DARPA following the proposal due date. To request this control number, which will be used in all further correspondence regarding your proposal submission, please send an email to DCOMP@darpa.mil after the proposal due date.

Failure to comply with the submission procedures outlined herein may result in the submission not being evaluated.

Proposals

The proposal package -- full proposal (Volume 1 and 2) and, as applicable, proprietary subcontractor cost proposals -- must be submitted per the instructions outlined herein and received by DARPA no later than **September 7, 2016 at 12:00 noon (ET)**.

Submissions received after this date and time will not be reviewed. Proposers are warned that submission deadlines as outlined herein are strictly enforced. **DO NOT WAIT UNTIL THE LAST MINUTE TO FINALIZE AND COMPLETE YOUR SUBMISSION.**

D. Funding Restrictions

Not applicable.

E. Other Submission Requirements

1. Unclassified Submission Instructions

Proposers must submit all parts of their submission package using the same method; submissions cannot be sent in part by one method and in part by another method nor should duplicate submissions be sent by multiple methods. Email submissions will not be accepted.

a. Proposals Requesting a Procurement Contract or Other Transaction

DARPA/I2O will employ an electronic upload submission system (<https://baa.darpa.mil/>) for UNCLASSIFIED proposals requesting award of a procurement contract or Other Transaction under this solicitation.

First time users of the DARPA BAA Submission Website must complete a two-step account creation process at <https://baa.darpa.mil/>. The first step consists of registering for an Extranet account by going to the above URL and selecting the "Account Request" link. Upon completion of the online form, proposers will receive two separate emails; one will contain a user name and the second will provide a temporary password. Once both emails have been received, proposers must go back to the submission website and log in using that user name and password. After accessing the Extranet, proposers must create a user account for the DARPA BAA Submission Website by selecting the "Register Your Organization" link at the top of the page. The DARPA BAA Submission Website will display a list of solicitations open for submissions. Once a proposer's user account is created, they may view instructions on uploading their proposal.

Proposers who already have an account on the DARPA BAA Submission Website may simply log in at <https://baa.darpa.mil/>, select this solicitation from the list of open DARPA solicitations and proceed with their proposal submission. Note: Proposers who have created a DARPA BAA Submission Website account to submit to another DARPA Technical Office's solicitations do not need to create a new account to submit to this solicitation.

All submissions submitted electronically through DARPA's BAA website must be uploaded as zip files (.zip or .zipx extension). The final zip file should contain only the files requested herein and must not exceed 50 MB in size. Only one zip file will be accepted per submission. Note: Submissions not uploaded as zip files will be rejected by DARPA.

Please note that all submissions MUST be finalized, meaning that no further editing will be possible, when submitting through the DARPA BAA Submission Website in order for DARPA to be able to review your submission. If a submission is not finalized, the submission will not be deemed acceptable and will not be reviewed.

Website technical support may be reached at Action@darpa.mil and is typically available during regular business hours (9:00 AM – 5:00 PM ET, Monday-Friday). Questions regarding submission contents, format, deadlines, etc. should be emailed to DCOMP@darpa.mil.

Since proposers may encounter heavy traffic on the web server, they should not wait until the day proposals are due to request an account and/or upload the submission.

Proposers are warned that submission deadlines as outlined herein are strictly enforced. DO NOT WAIT UNTIL THE LAST MINUTE TO FINALIZE AND COMPLETE YOUR SUBMISSION.

b. Proposals Requesting a Cooperative Agreement

Proposers requesting grants or cooperative agreements may submit proposals through one of the following methods: (1) hard copy mailed directly to DARPA; or (2) electronic upload per the instructions at <http://www.grants.gov/applicants/apply-for-grants.html>. Grant or cooperative agreement proposals may not be submitted through any other means. If proposers intend to use Grants.gov as their means of submission, then they must submit their entire proposal through Grants.gov; applications cannot be submitted in part to Grants.gov and in part as a hard copy. Proposers using Grants.gov do not submit hard copy proposals in addition to the Grants.gov electronic submission.

Proposers choosing to mail hard copy proposals to DARPA must include one paper copy and one electronic copy (e.g., CD/DVD) of the full proposal package.

Grants.gov requires proposers to complete a one-time registration process before a proposal can be electronically submitted. If proposers have not previously registered, this process can take between three business days and four weeks if all steps are not completed in a timely manner. See the Grants.gov user guides and checklists at <http://www.grants.gov/web/grants/applicants/applicant-resources.html> for further information.

Once Grants.gov has received an uploaded proposal submission, Grants.gov will send two email messages to notify proposers that: (1) their submission has been received by Grants.gov; and (2) the submission has been either validated or rejected by the system. It may take up to two business days to receive these emails. If the proposal is rejected by Grants.gov, it must be corrected and re-submitted before DARPA can retrieve it (assuming the solicitation has not expired). If the proposal is validated, then the proposer has successfully submitted their proposal and Grants.gov will notify DARPA. Once the proposal is retrieved by DARPA, Grants.gov will send a third email to notify the proposer. The proposer will then receive an email from DARPA acknowledging receipt and providing a control number. For more information on submitting proposals to Grants.gov, visit the Grants.gov submissions page at: <http://www.grants.gov/web/grants/applicants/apply-for-grants.html>.

To avoid missing deadlines, proposers should submit their proposals to Grants.gov in advance of the proposal due date, with sufficient time to complete the registration and submission processes, receive email notifications and correct errors, as applicable.

Proposers are warned that submission deadlines as outlined herein are strictly enforced. **DO NOT WAIT UNTIL THE LAST MINUTE TO FINALIZE AND COMPLETE YOUR SUBMISSION.**

Technical support for the Grants.gov website may be reached at 1-800-518-4726 and support@grants.gov. Questions regarding submission contents, format, deadlines, etc. should be emailed to DCOMP@darpa.mil.

V. Application Review Information

A. Evaluation Criteria

Proposals will be evaluated using the following criteria listed in descending order of importance: Overall Scientific and Technical Merit; Potential Contribution and Relevance to the DARPA Mission; and Cost Realism.

- *Overall Scientific and Technical Merit:*

The proposed technical approach is feasible, achievable, complete and supported by a proposed technical team that has the expertise and experience to accomplish the proposed tasks.

The task descriptions and associated technical elements are complete and in a logical sequence, with all proposed deliverables clearly defined such that a viable attempt to achieve project goals is likely as a result of award. The proposal identifies major technical risks and clearly defines feasible mitigation efforts. The proposal contains a discussion of project metrics, including proposer defined metrics (as appropriate), or the planned effort.

- *Potential Contribution and Relevance to the DARPA Mission:*

The potential contributions of the proposed effort are relevant to the national technology base. Specifically, DARPA's mission is to maintain the technological superiority of the U.S. military and prevent technological surprise from harming our national security by sponsoring revolutionary, high-payoff research that bridges the gap between fundamental discoveries and their application.

This includes considering the extent to which any proposed intellectual property restrictions will potentially impact the Government's ability to transition the technology.

- *Cost Realism:*

The proposed costs are realistic for the technical and management approach and accurately reflect the technical goals and objectives of the solicitation. The proposed costs are consistent with the proposer's Statement of Work and reflect a sufficient understanding of the costs and level of effort needed to successfully accomplish the proposed technical approach. The costs for the prime proposer and proposed subawardees are substantiated by the details provided in the proposal (e.g., the type and number of labor hours proposed per task, the types and quantities of materials, equipment and fabrication costs, travel and any other applicable costs).

B. Review and Selection Process

The review process identifies proposals that meet the evaluation criteria described above and are, therefore, selectable for negotiation of awards by the Government. DARPA policy is to ensure impartial, equitable, comprehensive proposal evaluations and to select proposals that meet DARPA technical, policy, and programmatic goals. If necessary, panels of experts in the appropriate areas will be convened. As described in Section IV, proposals must be deemed conforming to the solicitation to receive a full technical review against the evaluation criteria; proposals deemed non-conforming will be removed from consideration.

DARPA will conduct a scientific/technical review of each conforming proposal. Proposals will not be evaluated against each other since they are not submitted in accordance with a common work statement. DARPA's intent is to review proposals as soon as possible after they arrive; however, proposals may be reviewed periodically for administrative reasons.

Selections may be made at any time during the period of solicitation. Pursuant to FAR 35.016, the primary basis for selecting proposals for award negotiation shall be technical, importance to agency programs, and fund availability. Proposals that are determined selectable will not necessarily receive awards.

For evaluation purposes, a proposal is defined to be the document and supporting materials as described in Section IV.B. Subject to the restrictions set forth in FAR 37.203(d), 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. No submissions will be returned.

VI. Award Administration Information

A. Selection Notices

After proposal evaluations are complete, proposers will be notified as to whether their proposal was selected for award negotiation as a result of the review process. Notification will be sent by email to the technical and administrative POCs identified on the proposal cover sheet. If a proposal has been selected for award negotiation, the Government will initiate those negotiations following the notification.

B. Administrative and National Policy Requirements

1. Intellectual Property

Proposers should note that the Government does not own the intellectual property of technical data/computer software developed under Government contracts; it acquires the right to use the technical data/computer software. Regardless of the scope of the Government's rights, performers may freely use their same data/software for their own commercial purposes (unless restricted by U.S. export control laws or security classification). Therefore, technical data and computer software developed under this solicitation will remain the property of the performers, though DARPA desires to have a minimum of Government Purpose Rights (GPR) to software developed through DARPA sponsorship.

If proposers desire to use proprietary software or technical data or both as the basis of their proposed approach, in whole or in part, they should: (1) clearly identify such software/data and its proposed particular use(s); (2) explain how the Government will be able to reach its program goals (including transition) within the proprietary model offered; and (3) provide possible nonproprietary alternatives in any area that might present transition difficulties or increased risk or cost to the Government under the proposed proprietary solution.

Proposers expecting to use, but not to deliver, commercial open source tools or other materials in implementing their approach may be required to indemnify the Government against legal liability arising from such use.

All references to "Unlimited Rights" or "Government Purpose Rights" are intended to refer to the definitions of those terms as set forth in the Defense Federal Acquisition Regulation Supplement (DFARS) Part 227.

a. Intellectual Property Representations

All proposers must provide a good faith representation of either ownership or possession of appropriate licensing rights to all other intellectual property to be used for the proposed project. Proposers must provide a short summary for each item asserted with less than unlimited rights that describes the nature of the restriction and the intended use of the intellectual property in the conduct of the proposed research.

b. Patents

All proposers must include documentation proving ownership or possession of appropriate licensing rights to all patented inventions to be used for the proposed project. If a patent application has been filed for an invention, but it includes proprietary information and is not publicly available, a proposer must provide documentation that includes: the patent number, inventor name(s), assignee names (if any), filing date, filing date of any related provisional application, and summary of the patent title, with either: (1) a representation of invention ownership, or (2) proof of possession of appropriate licensing rights in the invention (i.e., an agreement from the owner of the patent granting license to the proposer).

c. Procurement Contracts

- **Noncommercial Items (Technical Data and Computer Software):** Proposers requesting a procurement contract must list all noncommercial technical data and computer software that it plans to generate, develop, and/or deliver, in which the Government will acquire less than unlimited rights and to assert specific restrictions on those deliverables. In the event a proposer does not submit the list, the Government will assume that it has unlimited rights to all noncommercial technical data and computer software generated, developed, and/or delivered, unless it is substantiated that development of the noncommercial technical data and computer software occurred with mixed funding. If mixed funding is anticipated in the development of noncommercial technical data and computer software generated, developed, and/or delivered, proposers should identify the data and software in question as subject to GPR. In accordance with DFARS 252.227-7013, “Rights in Technical Data - Noncommercial Items,” and DFARS 252.227-7014, “Rights in Noncommercial Computer Software and Noncommercial Computer Software Documentation,” the Government will automatically assume that any such GPR restriction is limited to a period of 5 years, at which time the Government will acquire unlimited rights unless the parties agree otherwise. The Government may use the list during the evaluation process to evaluate the impact of any identified restrictions and may request additional information from the proposer, as may be necessary, to evaluate the proposer’s assertions. Failure to provide full information may result in a determination that the proposal is not compliant with the solicitation. A template for complying with this request is provided in Section IV.B.1.a.xiii.(5).
- **Commercial Items (Technical Data and Computer Software):** Proposers requesting a procurement contract must list all commercial technical data and commercial computer software that may be included in any noncommercial deliverables contemplated under the research project, and assert any applicable restrictions on the Government’s use of such commercial technical data and/or computer software. In the event a proposer does not submit the list, the Government will assume there are no restrictions on the Government’s use of such commercial items. The Government may use the list during the evaluation process to evaluate the impact of any identified restrictions and may request additional information from the proposer to evaluate the proposer’s assertions. Failure to provide full information may result in a determination that the proposal is not compliant with the solicitation. A template for complying with this request

is provided in Section IV.B.1.a.xiii.(5).

d. Other Types of Awards

Proposers responding to this solicitation requesting an award instrument other than a procurement contract shall follow the applicable rules and regulations governing those award instruments, but in all cases should appropriately identify any potential restrictions on the Government's use of any intellectual property contemplated under those award instruments in question. This includes both noncommercial items and commercial items. The Government may use the list as part of the evaluation process to assess the impact of any identified restrictions, and may request additional information from the proposer, to evaluate the proposer's assertions. Failure to provide full information may result in a determination that the proposal is not compliant with the solicitation. A template for complying with this request is provided in Section IV.B.1.a.xiii.(5).

2. Human Subjects Research

All research selected for funding involving human subjects, to include use of human biological specimens and human data, must comply with the federal regulations for human subjects protection. Further, research involving human subjects that is conducted or supported by the DoD must comply with 32 CFR 219, Protection of Human Subjects (and DoD Instruction 3216.02, Protection of Human Subjects and Adherence to Ethical Standards in DoD-Supported Research (<http://www.dtic.mil/whs/directives/corres/pdf/321602p.pdf>)).

Institutions awarded funding for research involving human subjects must provide documentation of a current Assurance of Compliance with Federal regulations for human subjects protection, such as a Department of Health and Human Services, Office of Human Research Protection Federal Wide Assurance (<http://www.hhs.gov/ohrp>). All institutions engaged in human subjects research, to include subawardees, must also hold a valid Assurance. In addition, all personnel involved in human subjects research must provide documentation of completion of human subjects research training.

For all proposed research that will involve human subjects in the first year or phase of the project, the institution must provide evidence of or a plan for review by an Institutional Review Board (IRB) upon final proposal submission to DARPA as part of their proposal, prior to being selected for funding. The IRB conducting the review must be the IRB identified on the institution's Assurance of Compliance with human subjects protection regulations. The protocol, separate from the proposal, must include a detailed description of the research plan, study population, risks and benefits of study participation, recruitment and consent process, data collection, and data analysis. It is recommended that you consult the designated IRB for guidance on writing the protocol. The informed consent document must comply with federal regulations (32 CFR 219.116). A valid Assurance of Compliance with human subjects protection regulations along with evidence of completion of appropriate human subjects research training by all investigators and personnel involved with human subjects research should accompany the protocol for review by the IRB.

In addition to a local IRB approval, a headquarters-level human subjects administrative review and approval is required for all research conducted or supported by the DoD. The Army, Navy, or Air Force office responsible for managing the award can provide guidance and information about their component's headquarters-level review process. Note that

confirmation of a current Assurance of Compliance with human subjects protection regulations and appropriate human subjects research training is required before headquarters-level approval can be issued.

The time required to complete the IRB review/approval process varies depending on the complexity of the research and the level of risk involved with the study. The IRB approval process can last between one and three months, followed by a DoD review that could last between three and six months. Ample time should be allotted to complete the approval process. DoD/DARPA funding cannot be used towards human subjects research until ALL approvals are granted.

3. Animal Use

Award recipients performing research, experimentation, or testing involving the use of animals shall comply with the rules on animal acquisition, transport, care, handling, and use as outlined in: (i) 9 CFR parts 1-4, Department of Agriculture rules that implement the Animal Welfare Act of 1966, as amended, (7 U.S.C. § 2131-2159); (ii) National Institutes of Health Publication No. 86-23, "Guide for the Care and Use of Laboratory Animals" (8th Edition); and (iii) DoD Instruction 3216.01, "Use of Animals in DoD Programs."

For projects anticipating animal use, proposals should briefly describe plans for Institutional Animal Care and Use Committee (IACUC) review and approval. Animal studies in the program will be expected to comply with the Public Health Service (PHS) Policy on Humane Care and Use of Laboratory Animals, available at <http://grants.nih.gov/grants/olaw/olaw.htm>.

All award recipients must receive approval by a DoD-certified veterinarian, in addition to an IACUC approval. No animal studies may be conducted using DoD/DARPA funding until the United States Army Medical Research and Materiel Command (USAMRMC) Animal Care and Use Review Office (ACURO) or other appropriate DoD veterinary office(s) grant approval. As a part of this secondary review process, the award recipient will be required to complete and submit an ACURO Animal Use Appendix, which may be found at https://mrmc-www.army.mil/index.cfm?pageid=Research_Protections.acuro&rn=1.

4. Export Control

Per DFARS 225.7901-4, all procurement contracts, other transactions and other awards, as deemed appropriate, resultant from this solicitation will include the DFARS Export Control clause (252.225-7048).

5. Electronic and Information Technology

All electronic and information technology acquired through this solicitation must satisfy the accessibility requirements of Section 508 of the Rehabilitation Act (29 U.S.C. § 794d) and FAR 39.2. Each project involving the creation or inclusion of electronic and information technology must ensure that: (1) Federal employees with disabilities will have access to and use of information that is comparable to the access and use by Federal employees who are not individuals with disabilities; and (2) members of the public with disabilities seeking information or services from DARPA will have access to and use of information and data that is comparable to the access and use of information and data by members of the public who are not individuals with disabilities.

6. Employment Eligibility Verification

As per FAR 22.1802, recipients of FAR-based procurement contracts must enroll as federal contractors in E-verify and use the system to verify employment eligibility of all employees assigned to the award. All resultant contracts from this solicitation will include FAR 52.222-54, "Employment Eligibility Verification." This clause will not be included in grants, cooperative agreements, or Other Transactions.

7. System for Award Management (SAM) and Universal Identifier Requirements

Unless the proposer is exempt from this requirement, as per FAR 4.1102 or 2 CFR 25.110 as applicable, all proposers must be registered in the System for Award Management (SAM) and have a valid Data Universal Numbering System (DUNS) number prior to submitting a proposal. All proposers must maintain an active registration in SAM with current information at all times during which they have an active Federal award or proposal under consideration by DARPA. All proposers must provide the DUNS number in each proposal they submit.

Information on SAM registration is available at www.sam.gov.

Note that new registrations can take an average of 7-10 business days to process in SAM. SAM registration requires the following information:

- DUNS number
- TIN
- CAGE Code. If a proposer does not already have a CAGE code, one will be assigned during SAM registration.
- Electronic Funds Transfer information (e.g., proposer's bank account number, routing number, and bank phone or fax number).

8. Reporting Executive Compensation and First-Tier Subcontract Awards

FAR clause 52.204-10, "Reporting Executive Compensation and First-Tier Subcontract Awards," will be used in all procurement contracts valued at \$30,000 or more. A similar award term will be used in all grants and cooperative agreements.

9. Updates of Information Regarding Responsibility Matters

Per FAR 9.104-7(c), FAR clause 52.209-9, Updates of Publicly Available Information Regarding Responsibility Matters, will be included in all contracts valued at \$550,000 or more where the contractor has current active Federal contracts and grants with total value greater than \$10,000,000.

10. Representations by Corporations Regarding an Unpaid Delinquent Tax Liability or a Felony Conviction under any Federal Law

The following representation will be included in all awards:

(a) In accordance with section 101(a) of the Continuing Appropriations Act, 2016 (Pub. L. 114-53) and any subsequent FY 2016 appropriations act that extends to FY 2016 funds the same restrictions as are contained in sections 744 and 745 of division E, title VII, of the Consolidated and Further Continuing Appropriations Act, 2015 (Pub. L. 113-235), none of

the funds made available by this or any other Act may be used to enter into a contract with any corporation that —

(1) Has any unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability, where the awarding agency is aware of the unpaid tax liability, unless the agency has considered suspension or debarment of the corporation and made a determination that this further action is not necessary to protect the interests of the Government; or

(2) Was convicted of a felony criminal violation under any Federal law within the preceding 24 months, where the awarding agency is aware of the conviction, unless the agency has considered suspension or debarment of the corporation and made a determination that this action is not necessary to protect the interests of the Government.

(b) The Offeror represents that –

(1) It is [] is not [] a corporation that has any unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability,

(2) It is [] is not [] a corporation that was convicted of a felony criminal violation under a Federal law within the preceding 24 months.

Each proposer must complete and return the representations outlined in IV.B.1.a.xii.(8) with their proposal submission.

11. Cost Accounting Standards (CAS) Notices and Certification

As per FAR 52.230-2, any procurement contract in excess of the referenced threshold resulting from this solicitation will be subject to the requirements of the Cost Accounting Standards Board (48 CFR 99), except those contracts which are exempt as specified in 48 CFR 9903.201-1. Any proposer submitting a proposal which, if accepted, will result in a CAS compliant contract, must submit representations and a Disclosure Statement as required by 48 CFR 9903.202 detailed in FAR 52.230-2. The disclosure forms may be found at http://www.whitehouse.gov/omb/procurement_casb.

12. Controlled Unclassified Information (CUI) on Non-DoD Information Systems

Controlled Unclassified Information (CUI) refers to unclassified information that does not meet the standards for National Security Classification but is pertinent to the national interests of the United States or to the important interests of entities outside the Federal Government and under law or policy requires protection from unauthorized disclosure, special handling safeguards, or prescribed limits on exchange or dissemination. All non-DoD entities doing business with DARPA are expected to adhere to the following procedural safeguards, in addition to any other relevant Federal or DoD specific procedures,

for submission of any proposals to DARPA and any potential business with DARPA:

- Do not process DARPA CUI on publicly available computers or post DARPA CUI to publicly available webpages or websites that have access limited only by domain or Internet protocol restriction.
- Ensure that all DARPA CUI is protected by a physical or electronic barrier when not under direct individual control of an authorized user and limit the transfer of DARPA CUI to subawardees or teaming partners with a need to know and commitment to this level of protection.
- Ensure that DARPA CUI on mobile computing devices is identified and encrypted and all communications on mobile devices or through wireless connections are protected and encrypted.
- Overwrite media that has been used to process DARPA CUI before external release or disposal.

13. Safeguarding of Covered Defense Information and Cyber Incident Reporting

Per DFARS 204.7304, DFARS 252.204-7012, “Safeguarding of Covered Defense Information and Cyber Incident Reporting,” applies to this solicitation and all FAR-based awards resulting from this solicitation.

14. Prohibition on Contracting with Entities that Require Certain Internal Confidentiality Agreements

(a) In accordance with section 101(a) of the Continuing Appropriations Act, 2016 (Pub. L. 114-53) and any subsequent FY 2016 appropriations act that extends to FY 2016 funds the same restrictions as are contained in section 743 of division E, title VII, of the Consolidated and Further Continuing Appropriations Act, 2015 (Pub. L. 113-235), none of the funds appropriated (or otherwise made available) by this or any other Act may be used for a contract with an entity that requires employees or subcontractors of such entity seeking to report fraud, waste, or abuse to sign internal confidentiality agreements or statements prohibiting or otherwise restricting such employees or contractors from lawfully reporting such waste, fraud, or abuse to a designated investigative or law enforcement representative of a Federal department or agency authorized to receive such information.

(b) The prohibition in paragraph (a) of this provision does not contravene requirements applicable to Standard Form 312, Form 4414, or any other form issued by a Federal department or agency governing the nondisclosure of classified information.

(c) *Representation.* By submission of its offer, the Offeror represents that it does not require employees or subcontractors of such entity seeking to report fraud, waste, or abuse to sign or comply with internal confidentiality agreements or statements prohibiting or otherwise restricting such employees or contractors from lawfully reporting such waste, fraud, or abuse to a designated investigative or law enforcement representative of a Federal department or agency authorized to receive such information.

C. Reporting

1. Technical and Financial Reports

The number and types of technical and financial reports required under the contracted project will be specified in the award document, and will include, as a minimum, monthly financial status reports and a yearly status summary. A final report that summarizes the project and tasks will be required at the conclusion of the performance period for the award. The reports shall be prepared and submitted in accordance with the procedures contained in the award document.

2. Representations and Certifications

In accordance with FAR 4.1201, prospective proposers shall complete electronic annual representations and certifications at <http://www.sam.gov>.

3. Wide Area Work Flow (WAWF)

Unless using another means of invoicing, performers will be required to submit invoices for payment directly at <https://wawf.eb.mil>. If applicable, WAWF registration is required prior to any award under this solicitation.

4. i-Edison

Award documents will contain a requirement for patent reports and notifications to be submitted electronically through the i-Edison Federal patent reporting system at <http://s-edison.info.nih.gov/iEdison>.

VII. Agency Contacts

DARPA will use email for all technical and administrative correspondence regarding this solicitation.

- **Technical POC:** Dr. Stuart Wagner, Program Manager, DARPA/I2O
- **Email:** DCOMP@darpa.mil
- **Mailing address:**
DARPA/I2O
ATTN: DARPA-BAA-16-41
675 North Randolph Street
Arlington, VA 22203-2114
- **I2O Solicitation Website:**
http://www.darpa.mil/Opportunities/Solicitations/I2O_Solicitations.aspx

VIII. Other Information

A. Frequently Asked Questions (FAQs)

Administrative, technical, and contractual questions should be sent via email to DCOMP@darpa.mil. All questions must be in English and must include the name, email address, and the telephone number of a point of contact.

DARPA will attempt to answer questions in a timely manner; however, questions submitted within 7 days of closing may not be answered. If applicable, DARPA will post FAQs to http://www.darpa.mil/Opportunities/Solicitations/I2O_Solicitations.aspx.

B. Proposers Day

The Proposers Day will be held on June 30, 2016, in Arlington, VA.

For further information regarding the Dispersed Computing Proposers Day, please see DARPA-SN-16-41, which is the Special Notice announcing the event, https://www.fbo.gov/index?s=opportunity&mode=form&id=6f2f9a837dc158f7f9d8b5b377c6af06&tab=core&_cvview=0.

C. Submission Checklist

The following items apply prior to proposal submission. Note: some items may take up to 1 month to complete.

✓	Item	BAA Section	Applicability	Comment
	Obtain DUNS number	IV.B.1.a.i	Required of all proposers	The DUNS Number is the Federal Government's contractor identification code for all procurement-related activities. See http://fedgov.dnb.com/webform/index.jsp to request a DUNS number. Note: requests may take at least one business day.
	Obtain Taxpayer Identification Number (TIN)	IV.B.1.a.i	Required of all proposers	A TIN is used by the Internal Revenue Service in the administration of tax laws. See http://www.irs.gov/businesses/small/international/article/0,,id=96696,00.html for information on requesting a TIN. Note: requests may take from 1 business day to 1 month depending on the method (online, fax, mail).
	Register in the System for Award Management (SAM)	VI.B.7	Required of all proposers	The SAM combines Federal procurement systems and the Catalog of Federal Domestic Assistance into one system. See www.sam.gov for information and registration. Note: new registrations can take an average of 7-10 business days. SAM registration requires the following information: -DUNS number -TIN -CAGE Code. A CAGE Code identifies companies doing or wishing to do business with the Federal Government. If a proposer does not already have a CAGE code, one will be assigned during SAM registration. -Electronic Funds Transfer information (e.g., proposer's bank account number, routing number, and bank phone or fax number).
	Register in E-Verify	VI.B.6	Required for proposers requesting procurement	E-Verify is a web-based system that allows businesses to determine the eligibility of their employees to work in the United States. See http://www.uscis.gov/e-verify for information and registration.

			contracts	
	Ensure representations and certifications are up to date	VI.C.2	Required of all proposers	Federal provisions require entities to represent/certify to a variety of statements ranging from environmental rules compliance to entity size representation. See http://www.sam.gov for information.
	Ensure eligibility of all team members	III	Required of all proposers	Verify eligibility, as applicable, for in accordance with requirements outlined in Section III.
	Register at Grants.gov	IV.E.1.b	Required for proposers requesting cooperative agreements	Grants.gov requires proposers to complete a one-time registration process before a proposal can be electronically submitted. If proposers have not previously registered, this process can take between three business days and four weeks if all steps are not completed in a timely manner. See the Grants.gov user guides and checklists at http://www.grants.gov/web/grants/applicants/applicant-resources.html for further information.

The following items apply as part of the submission package:

✓	Item	BAA Section	Applicability	Comment
	Volume 1 (Technical and Management Proposal)	IV.B.1.a	Required of all proposers	Conform to stated page limits and formatting requirements. Include all requested information.
	Appendix A	IV.B.1.a.xiii	Required of all proposers	<ul style="list-style-type: none"> - Team member identification - Government/FFRDC team member proof of eligibility - Organizational conflict of interest affirmations - Intellectual property assertions - Human subjects research - Animal use - Unpaid delinquent tax liability/felony conviction representations - CASB disclosure, if applicable
	Volume 2 (Cost Proposal)	IV.B.1.b	Required of all proposers	<ul style="list-style-type: none"> - Cover Sheet - Cost summary - Detailed cost information including justifications for direct labor, indirect costs/rates, materials/equipment, subcontractors/consultants, travel, ODCs - Cost spreadsheet file (.xls or equivalent format) - If applicable, list of milestones for 845 OTs - Subcontractor plan, if applicable - Subcontractor cost proposals - Itemized list of material and equipment items to be purchased with vendor quotes or engineering estimates for material and equipment more than \$50,000 - Travel purpose, departure/arrival destinations, and sample airfare

D. Associate Contractor Agreement Clause (ACA)

This same or similar clause will be included in contract awards against DARPA-BAA-16-34. Awards other than FAR based contracts will contain similar agreement language:

(a) It is recognized that success of the Dispersed Computing research effort depends in part upon the open exchange of information between the various Associate Contractors involved in the effort. This clause is intended to insure that there will be appropriate coordination and integration of work by the

Associate Contractors to achieve complete compatibility and to prevent unnecessary duplication of effort. By executing this contract, the Contractor assumes the responsibilities of an Associate Contractor. For the purpose of this clause, the term Contractor includes subsidiaries, affiliates, and organizations under the control of the contractor (e.g. subcontractors).

(b) Work under this contract may involve access to proprietary or confidential data from an Associate Contractor. To the extent that such data is received by the Contractor from any Associate Contractor for the performance of this contract, the Contractor hereby agrees that any proprietary information received shall remain the property of the Associate Contractor and shall be used solely for the purpose of the Dispersed Computing research effort. Only that information which is received from another contractor in writing and which is clearly identified as proprietary or confidential shall be protected in accordance with this provision. The obligation to retain such information in confidence will be satisfied if the Contractor receiving such information utilizes the same controls as it employs to avoid disclosure, publication, or dissemination of its own proprietary information. The receiving Contractor agrees to hold such information in confidence as provided herein so long as such information is of a proprietary/confidential or limited rights nature.

(c) The Contractor hereby agrees to closely cooperate as an Associate Contractor with the other Associate Contractors on this research effort. This involves as a minimum:

- (1) maintenance of a close liaison and working relationship;
- (2) maintenance of a free and open information network with all Government-identified associate Contractors;
- (3) delineation of detailed interface responsibilities;
- (4) entering into a written agreement with the other Associate Contractors setting forth the substance and procedures relating to the foregoing, and promptly providing the Agreements Officer/Procuring Contracting Officer with a copy of same; and,
- (5) receipt of proprietary information from the Associate Contractor and transmittal of Contractor proprietary information to the Associate Contractors subject to any applicable proprietary information exchange agreements between associate contractors when, in either case, those actions are necessary for the performance of either.

(d) In the event that the Contractor and the Associate Contractor are unable to agree upon any such interface matter of substance, or if the technical data identified is not provided as scheduled, the Contractor shall promptly notify the DARPA Dispersed Computing Program Manager. The Government will determine the appropriate corrective action and will issue guidance to the affected Contractor.

(e) The Contractor agrees to insert in all subcontracts hereunder which require access to proprietary information belonging to the Associate Contractor, a provision which shall conform substantially to the language of this clause, including this paragraph (e).

(f) Associate Contractors for the Dispersed Computing research effort include:

Contractor

Technical Area