THUNDERSTORM TECHNOLOGY DEMONSTRATION PROGRAM
Request for Information Pursuant to FAR Part 15.201(e)

RAPID REACTION TECHNOLOGY OFFICE (RRTO)

THUNDERSTORM TECHNOLOGY DEMONSTRATION AND EXPERIMENTATION FOR CONTESTED LOGISTICS

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SYNOPSIS: Technology Demonstration and Experimentation Collaboration

A. INTRODUCTION

The purpose of this request for information (RFI) is to solicit technologies from private industry, government research and development (R&D) organizations, and academia for inclusion in the Thunderstorm Technology Demonstration and Experimentation for Contested Logistics event. The Under Secretary of Defense for Research and Engineering (USD (R&E)), Rapid Reaction Technology Office (RRTO), sponsors this effort. The intent is to accelerate the delivery of innovative capabilities and technologies by demonstrating and experimenting with the capability in an operationally relevant environment. The results of this effort will be used to inform decision makers of emerging and available technology solutions that enhance or improve operational capabilities.

Interested parties are welcome to submit their applications to participate in the demonstration and experimentation event. Technology demonstrations will take place at the unclassified level; as such, proposals must be submitted at the unclassified level. For technologies that have features or applications at higher classification levels, please respond with an unclassified proposal. If the technology is chosen for the demonstration, arrangements can then be made for subsequent discussions at the appropriate level.

This RFI is for the Thunderstorm Technology Demonstration and Experimentation for Contested Logistics event planned for October 2021 in the National Capital Region (NCR) and other CONUS sites (e.g., Camp Roberts, CA; Monterey, CA; Norfolk, VA) as needed. The event will encompass field-based demonstration and experimentation as well as a technology discovery event. Based on selected technologies, additional demonstration and experimentation sites may be added to facilitate specific vendor or stakeholder requirements.

The application deadline is 5:00 PM EDT on 9 July 2021.

This RFI is NOT a solicitation for procurement or other acquisition proposals, proposal abstracts, or quotations. The government does not intend to award a contract on the basis of this RFI or to otherwise pay for the information solicited.

B. BACKGROUND

Thunderstorm provides an opportunity for technology developers to demonstrate and experiment with new and evolving technological capabilities in an operationally relevant environment, as well as to obtain insight into federal technology gaps and emerging needs. The demonstration and experimentation environment enables a collaborative working relationship between government organizations, academia, and industry. This promotes the identification of emerging needs and technology discoveries to the Department of Defense (DoD) and interagency partners. Thunderstorm provides a realistic demonstration environment for technology developers to interact with operational personnel. Technologies brought to the event should be at a technology readiness level (TRL) of 4 or greater (http://www.acqnotes.com/acqnote/tasks/technology-readiness-level) although lower TRL capability will be considered on a case-by-case basis.

The Thunderstorm technology demonstration and experimentation event involves individual or multiple technologies and is conducted with interagency partners. The technology developer

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provides the capability for demonstration and experimentation and personnel for installation and integration into the overall event. The technology developer operates the system during the event and uninstalls the system upon completion. The Thunderstorm staff plans, coordinates, and assists with the associated logistics of the technology demonstration and experimentation, and provides limited assistance for the installation and integration efforts. The Thunderstorm staff will not assist with engineering changes to the demonstrated technology or system.

Industry, academia, and other government organizations are invited to submit demonstration and experimentation applications addressing innovative technologies, potentially leading to follow-on government/industry collaboration and further development of emerging capabilities or fielding of mature capabilities.

C. DESCRIPTION

The Thunderstorm Technology Demonstration and Experimentation for Contested Logistics event will focus on emerging capabilities for addressing the DoD’s Joint Concept for Contested Logistics (JCCL) mission.

Under the direction of the RRTO, the Georgia Tech Research Institute (GTRI) will lead the Thunderstorm demonstration and experimentation event, with support and active partnership from the Applied Research Laboratory at Pennsylvania State University (ARL/PSU), Joint Interagency Field Experimentation (JIFX) Program, Stiletto Maritime Technology Demonstration Program, and the Joint Vulnerability Assessment Branch (JVAB).

The event will support both developmental (TRL 4-6) and mature technologies (TRL 7-9) and is planned for one week in October 2021 in the NCR. The event will encompass field-based demonstration and experimentation as well as a technology discovery event. In addition, precursor or follow-on field demonstration events may also be conducted at other CONUS sites near JIFX (e.g., Camp Roberts, CA; NPS SLAMR aquatic lab in Monterey, CA) and Stiletto (Norfolk, VA) to facilitate specific technology demonstration requirements.

The focus of this demonstration and experimentation event will be to identify technologies that enable rapid capability enhancement for Contested Logistics. Respondents are invited to submit technology demonstration and experimentation applications.

Capabilities of interest include:

- Multi-Capable Distribution Platforms
- Agile delivery platforms for sustainment and replenishment operations across various domains of interest (e.g., ground, rail, maritime, airborne).
- Swarm systems that enable performance improvements through task sharing and attrition resiliency, as well as cost reduction.
- Artificial Intelligence/Machine Learning (AI/ML) for facilitating semi-autonomous and autonomous operations, including vehicle environment perception, obstacle avoidance, sensor fusion, and navigation.

- Resilient Logistics Command and Control (C2)
- Improved analytics, scheduling, and awareness supporting C2 operations. Aggregating sensor and systems data from sources across multiple domains

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to optimize Situational Awareness (SA), communications, and decision-making.
- Data management and information distribution supporting improved analytics, scheduling, and awareness; common operating picture.
- Shared and interoperable logistics support elements from joint and allied forces.

- **Logistics Intelligence**
  - Improved processing for operations of enhanced time sensitive software applications such as AI/ML algorithms, data fusion, advanced analytics, and other “real-time” data collection and processing intense applications.
  - AI/ML for faster and improved decision support, reducing risk to fielded forces and improving readiness.
  - Information distribution with cross-domain, secure, resilient communications.

- **Demand Reduction**
  - Self-contained power production, storage, and delivery technologies with an emphasis on improved efficiencies, renewable sources (e.g., solar, wind, etc.), harvesting and hybrid technologies, rechargeable technologies, power management and delivery methods, and analytics for maximizing power efficiency.
  - Self-sustaining maintenance and repair capabilities allowing for extended independent operations including advanced and additive manufacturing, predictive and proactive maintenance, and repair analytics and support.
  - Synthetic training environments for adaptive, cross-trained workforce.

After a review of the applications, the government may invite candidates to brief their capability to support the selection process and/or invite candidates to demonstrate and experiment with their capability during the Thunderstorm Technology Demonstration and Experimentation for Contested Logistics event. In addition, vendors may be selected for follow-on events at facility specific locations in support of future research and development programs or acquisition activities. Industry participation in the demonstration and experimentation activities does not suggest or imply that the government will endorse, procure, or purchase equipment.

## D. SUBMISSION INSTRUCTIONS

Submit demonstration applications to the Thunderstorm demonstration and experimentation program electronically. Please use the application provided in Appendix I or email thunderstorm@gtri.gatech.edu to request an application template or if you have any questions.

The application submitted under this RFI shall be limited to four pages. The first page must provide an executive summary; three additional pages are allowed for pertinent information. Applications shall be clearly marked with the RFI identifier: RRTO-22-CONLOG-RFI-01.

*Note that the RFI Response template has been modified from that used in previous iterations of the Thunderstorm event. Ensure only the template attached to this RFI is utilized. Any submission not meeting the formatting requirements will be rejected.*

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The application shall be formatted to print as typewritten on single-sided paper with one-inch margins on all sides and 1.5-spaced text. 12-point font or larger with normal (uncondensed) spacing. All applications shall be submitted in the Portable Document Format (PDF) file format.

All applications must be submitted via email to thunderstorm@gtri.gatech.edu and include the following information:

- Subject: Thunderstorm Contested Logistics Application
- Company name/business division/address
- Capability name
- Primary POC: name, email & phone number

You will receive an email within two business days verifying your application was received.

Each application must address only one technology solution; multiple applications addressing multiple systems may be submitted. Thunderstorm will provide venues, supporting infrastructure and personnel for assessment (operational and technical), based on availability of resources. Costs specific to running the technology developer’s equipment, as well as the technology developer’s travel costs will be at the technology developer’s expense. Invited technology developers must be prepared to be self-sufficient during the execution of their demonstration and not dependent on venue resources. If you have questions regarding the submittal, please contact: thunderstorm@gtri.gatech.edu and thunderstorm@arl.psu.edu.

DO NOT SUBMIT CLASSIFIED INFORMATION in the application. The Thunderstorm Technology Demonstration and Experimentation for Contested Logistics event will be held at the unclassified level. Capability applications may be or contain Controlled Unclassified Information (CUI) and may be subject to International Traffic in Arms Regulations (ITAR) restrictions. However, it is incumbent on the demonstrators to ensure that these restrictions are outlined in their application. This will provide the basis for detailed planning discussions with the organizing team to analyze whether the established guidelines can be accommodated during the demonstration event. If there are any special conditions to demonstrating this technology under the declared export restrictions, these must be described in the RFI response.

DO NOT SUBMIT ACQUISITION PROPOSALS. Submit demonstration applications and white papers only. Thunderstorm technology demonstration and experimentation applications must be submitted no later than 5:00 PM EDT on 9 July 2021. No contracts will be awarded based solely on this announcement. Submission of an application does not guarantee an invitation to participate in the demonstration and experimentation event.

E. BASIS FOR SELECTION TO PARTICIPATE

Submissions will be reviewed by the RRTO and appropriate supporting government organizations and support contractors. The RRTO will determine whether a submission will be accepted for invitation at the demonstration.

Selection of respondents to participate shall be based on the extent to which the technology represents a particular class or level of capability that can be provided to interested commands or interagency partners. Other considerations include:

- Relevance to event focus area
- Completeness of application and supporting information

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Technical maturity
Relevance of or adaptability to DoD or interagency partner operations/missions
Relevance to current operational needs

F. ADDITIONAL INFORMATION
Technology developers shall assure that all proprietary information, documentation and equipment are appropriately and clearly marked. Be advised that lessons learned from these demonstrations may be broadly disseminated through official channels within the Federal government and partner government agencies associated with the Thunderstorm program. If selected for participation, technology developers may be requested to provide additional information that will be used in preparation for the event.

G. USE OF INFORMATION
The purpose of this notice is to gain information for potential future use and/or collaboration for development of technology capabilities. All proprietary information contained in the response shall be clearly marked. Any proprietary information contained in response to this request will be properly protected from any unauthorized disclosure. The government will not use proprietary information submitted from any one firm to establish future capability requirements.

H. SPECIAL NOTICE
University affiliated research centers (UARCs), federally funded research and development centers (FFRDCs), and/or contractor consultant/advisors to the government will review and provide support during evaluation of submittals. When appropriate, non-government advisors may be used to objectively review a particular functional area and provide comments and recommendations to the government. All advisors shall comply with procurement integrity laws and shall sign non-disclosure and rules of conduct/conflict of interest statements. The government shall take into consideration requirements for avoiding conflicts of interest and ensure advisors comply with safeguarding proprietary data. Submission in response to this RFI constitutes approval to release the submittal to government support contractors.

I. FEDERAL ACQUISITION REGULATION (FAR) 52.215-3
Per FAR 52.215-3 Request for Information or Solicitation for Planning Purposes (Oct 1997):

1. The government does not intend to award a contract on the basis of this RFI notice or to otherwise pay for the information.

2. Although "proposal" and "technology developer" are used in this RFI, your responses will be treated as information only. It shall not be used as a proposal.

3. In accordance with FAR Clause 52.209(c), the purpose of this RFI is to solicit technology demonstration candidates from R&D organizations, private industry and academia for inclusion in future Thunderstorm technology demonstration and experimentation events sponsored by RRTO.
Appendix I

Application to Demonstrate and Experiment at Thunderstorm for Contested Logistics

Company/Technology: Provide full name of company & name of technology

INSERT PICTURE OR GRAPHIC OF TECHNOLOGY

Technology Description
Please provide a 1-2 paragraph description of your capability. This passage along with a relevant image shall not exceed one (1) page. The following information is recommended for the executive summary:

- Describe why the technology is needed and the problem you are solving.
- Describe how this problem is currently being handled and what is new in your approach.
- Describe the maturity of your technology and if applicable what is needed to take your technology to the next level (e.g., R&D funding, procurement, etc.).
- Describe the “So What” and how your technology will advance the goals of the DoD.
- Describe anticipated performance and any other pertinent details about your technology.

Note: The full application is limited to four pages maximum. The first page shall contain the information in this template, which will serve as an executive summary of the technology. A cover page may be included, which will not be counted toward maximum page count.
RFI POC: Provide name of person submitting application, office and mobile telephone numbers, and email address.

Demonstration POC: Provide name of person who will serve as Primary POC for this effort. This POC will be responsible for all deliverables and RFI(s) leading up to event.

Demonstration Team: Include name, email, phone number, and complete address of key stakeholders / focal point and identify if any are foreign nationals. May include up to two personnel (2) in addition to Demonstration POC. The Demonstration Team is capped at three (3) personnel unless appropriate justification for additional support is provided to the Thunderstorm DaRT team.

Company / Organization:
- Provide full name, address, and other contact information for your organization. Include specific division if applicable.
- Provide brief company description, discussion of company capabilities with respect to the purpose and objective described in this RFI.
- Note if your company is designated as a “Small Business” and/or is “Foreign Owned”.

Objective: Briefly describe demonstration/experimentation objectives and goals.

Capability Technical Description:
- Describe the capability that you plan to demonstrate and how it works.
- Describe past performance, present and future uses – and predicted performance.
- Describe the design outcome of the capability and its intended value to the user.
- Describe the problem that you are solving (current / future) with your capability.
- Describe the capability application for the Department of Defense.
- Describe installation, integration, and operating requirements to include set up, tear down time.
- Describe the level of product maturity. Is it in the commercial marketplace or still under development? If under development, please describe status. Also indicate its technology readiness level (TRL).

Capability Classification: Provide the classification level of the capability proposed for demonstration. (Unclassified, Confidential, Secret, Top Secret). Note: Thunderstorm DaRT will be conducted with systems operating at the UNCLASSIFIED level.

Export Administration Regulations (EAR) and International Traffic in Arms Regulations (ITAR): Identify what (if any) parts of your capability have EAR and/or ITAR restrictions, or if it is the technology in its entirety. If applicable, please describe conditional requirements for your participation (e.g., US Citizens only).

Set-up Requirements: Briefly describe the details of the proposed capability set-up for the demonstration.
- Major System Dimensions:
- Estimated Total Weight:
- Power Requirement:
- Operational Frequency(ies): (if required, see below additional information needed)
- Network Connections: *(if needed)*
- Data Requirement: *(internet connectivity, GPS, etc.)*
- Special Handling: *(crane, forklift, etc.)*
- Restrictions: *(cable length, conditioned space, environmental constraints, etc.)*
- Anticipated Number of Personnel for Demonstration: *(not to exceed 3 total personnel, unless approved by Thunderstorm demonstration team)*
- Set up time to install/uninstall:
- Hazardous Materials:
- On-site Storage:

If applicable, please provide all pertinent information about any transmitter or receiver that you intend to operate as part of this demonstration. Frequency, transmit power, antenna information, required separation from other emitters, etc. Please include a basic system diagram.

**Government Contracts (if applicable):** Identify any government contracts and the supporting agencies that have or are expected to support the system and/or system components.