AINetANTX Networks Prize Challenge Q&A

Updated 25 June 2021

1. **Where can I find the White Paper and Quad Chart Template?**
    a. Please see **White Paper Submission Guidelines** and **Quad Chart Submission Guidelines**. They are hyperlinked at "Appendix A" and "Appendix B."
2. **We would like to register for the challenge and virtual Q&A Session. How do we register?**
    a. We appreciate your interest in this challenge and are excited to have you onboard! The Naval Information Warfare Systems Command (NAVWAR) will be hosting a question and answer (Q&A) session for two recently posted Networks and Artificial Intelligence Prize Challenges on https://challenge.gov. The Q&A session will be held in a virtual environment on 30 June 2021 and is open to all. The morning agenda will include a brief overview of the Network prize challenge, followed by a Q&A session. The afternoon agenda will include an overview of the AI prize challenge, followed by a Q&A session. All information being presented and all discussions will be held at the unclassified level and is releasable to the public.

    To register for the Q&A session, please visit: https://einvitations.afit.edu/inv/anim.cfm?i=605952&k=046147007E55.

    This announcement for registration will also be promulgated widely via SAM.gov, NavalX Tech Bridges, and other venues.
3. **Do we need to have a SECRET clearance to attend or participate?**
    a. No, you do not need a clearance to participate! The competition is UNCLASSIFIED.
4. **Does the "Naval Force" refer to only traditionally associated Naval assets such as ships and submarines? Does it include elements for other Services or expeditionary forces? I.e., does my submission need to be specific to only traditional Naval Force use cases?**
    a. Great question! The test scenarios will encompass platforms for land, surface, sub-surface, and air. However, we are looking for general-use protocols that are radio-independent. Note that the solution needs to work in existing networks. Radios and hardware are beyond the scope of this competition.
5. **We have technology that may be applicable to this competition, but it is tied to our hardware. There may be an issue in compatibility with a virtual environment, which may not accurately portray the results our system is capable of achieving. Can we still participate, and what allowances are provided in the challenge for unique solutions?**
    a. Great question! We are seeking technologies that can be deployed in existing Navy networks rather than field new hardware, and therefore evaluating new radios are beyond the scope of this competition.

We are using a network simulator to approximate interference and other channel effects on transmissions. If the radio can output via ethernet, rather than RF, it can be evaluated in the simulator, however, that is beyond scope.

We are interested in algorithms and protocols that would work well in a system-of-systems environment, and if you can extract the routing protocol, that might be more applicable to this challenge.

While we are looking for a purely software solution for this challenge, we understand the complexity of moving your software to a new environment in a short time-frame. We will be allowing participants a choice between CentOS or Android docker solutions. However, we cannot allow the use of out of band information (e.g. GPS location information).

These requirements are driven by our desire to potentially field the solution in legacy Navy systems in the near term, where adding new hardware will be infeasible for many reasons. We do appreciate your enthusiasm for the challenge and hope you can participate.

6. **We are an international company. Is this challenge open to non-U.S. companies?**
    a. Thank you for your interest, but per the Prize Challenge eligibility requirements, participant entities must be incorporated in and maintain its primary place of business in the United States.
7. **What Technical Readiness Levels are required for this Challenge?**
    a. It should be at least TRL 4. We are looking for effective solutions that needs to be at the point where it can be evaluated. In this case, that means that it must run as a system in Linux containers in a simulated network.

    NAVWAR may award, pursuant to Title 10 U.S.C. § 2371b, a follow-on prototype agreement or transaction, or Limited Procurement for Experimentation Title 10 U.S.C. § 2373 to one or more participants who successfully demonstrate an operationally relevant networking technology during the Challenge. If the selected technologies are not yet mature enough for prototype awards, other agreements such as Cooperative Research and Development Agreement (CRADA) may be utilized. This Challenge, however, does not in any way obligate NAVWAR to procure any of the items within the scope of this challenge from the winners. For full language, please see **Agreements**.
8. **Does our product have to be FedRamp Certified prior to the submission?**
    a. No, it does not have to be FedRamp Certified.
9. **Can we reuse and update open source code and technology to use as part of our submission?**
    a. Yes, as long as you have the rights to do so according to the licensing of the software. However, one of the requirements of the challenge is no dependency

on the MAC or PHY layer, therefore DLEP interface to the radio will not be allowed.

10. **Does our product need to be compatible with any existing fielded GOTS / COTS software?**
    a. It does not need to be compatible with any existing software. It must route packets generated in a Linux container out to the determined interface.
11. **What are the threshold and objective requirements for latency?**
    a. No threshold objective on latency, but lower is better. Longer latency will probably result in lower goodput, which will also have a negative impact.
12. **As an academic institute, we have several departments and schools. Would a submission from us be considered as a single academic entity or does the department or school constitute an academic entity?**
    a. Individual academic departments may submit one entry.
13. **Are you looking for a means of connecting end point to the network or are you looking at securing that communication once already established?**
    a. Consider a multi-hop radio network, where the radios can communicate if they are within range. They are already "connected" to the network in this sense. We are looking for an efficient means of setting up routes so that packets from applications connected to any of the radios will show up the right destination radio.
14. **What do you mean regarding "low kilobit per second data rate links?" What qualifies as "low?"**
    a. We are targeting links/networks that are 10kbps – 500 kbps.
15. **Please clarify "dynamic and unpredictable connectivity based on locations and radio frequency (RF) channel effects," i.e., are you looking to make your communications more dynamic and unpredictable (thus LPI/LPD) or are you describing the constraints in which our solution needs to operate?**
    a. This describes the constraints. LPI/LPD is relevant, but not a consideration for this challenge. Specifically, "dynamic and unpredictable connectivity..." describes the operating environment in which the solution should work.
16. **Is there a formal Performance Work Statement (PWS) that we can get in order to submit to the challenge?**
    a. All information pertaining to the challenge is located at the challenge.gov postings for the AI and Networks AINet ANTX Challenges. There is no Performance Work Statement (PWS) connected to this challenge as this is not a procurement; however, NAVWAR may award, pursuant to Title 10 U.S.C. § 2371b, a follow-on prototype contract or transaction to one or more participants who successfully demonstrate an operationally relevant networking technology during the Challenge.
17. **In the Challenge announcement, it states "Team entries or commercial entity entries must have an individual identified as the primary point of contact and prize recipient. By submitting an entry, a participant authorizes his or her name and organization to**

be released to the media if the participant wins the prize." Is it possible for multiple such entities to comprise a single team?

a. Yes, a team can consist of members from different entities.

18. Will efforts for undersea acoustic comms also be of interest?

a. The scope of this challenge includes RF comms. However, acoustic comms is of general interest to us and there may be a future challenge that includes this.