



**BROAD AGENCY ANNOUNCEMENT (BAA)  
Globally Networked Maritime Headquarters with Maritime Operations Center**

**INTRODUCTION**

This publication constitutes a Broad Agency Announcement (BAA) as contemplated in Federal Acquisition Regulation (FAR) 6.102(d)(2). A formal Request for Proposals (RFP), solicitation, and/or additional information regarding this announcement will not be issued.

The Office of Naval Research (ONR) will not issue paper copies of this announcement. The ONR reserves the right to select for award all some or none of the proposals in response to this announcement. The ONR reserves the right to fund all, some or none of the proposals received under this BAA. ONR provides no funding for direct reimbursement of proposal development costs. Technical and cost proposals (or any other material) submitted in response to this BAA will not be returned. It is the policy of ONR to treat all proposals as sensitive competitive information and to disclose their contents only for the purposes of evaluation.

Awards will take the form of contracts. Therefore, proposals submitted as a result of this announcement will fall under the purview of the Federal Acquisition Regulation (FAR).

Potential offerors may obtain information on ONR programs and opportunities by checking the ONR website at <http://www.onr.navy.mil>. Specific information about BAAs along with amendments and updates to this BAA will be found at that site under the heading "BAAs".

**I. GENERAL INFORMATION**

**1. Agency Name -**

Office of Naval Research

**2. Research Opportunity Title -**

Globally Networked Maritime Headquarters with Maritime Operations Center  
(G-N MHQw/MOC)

### **3. Research Opportunity Number -**

BAA 07-021

### **4. Response Date -**

White papers: 23 May 2007 not later than 2:00 PM Eastern Time (ET)

Oral presentations (if selected): Week of 9 July 2007- exact date, time and location TBD

Full proposals: 24 August 2007 not later than 2:00 PM Eastern Time (ET)

### **5. Research Opportunity Description -**

The Office of Naval Research (ONR) is advertising a research opportunity to invite proposals for the development of technology that supports the Globally Networked Maritime Headquarters with Maritime Operations Center (G-N MHQw/MOC) for planning and operational execution of plans. This Naval concept addresses the globally distributed nature of maritime operations and the need for new approaches to the problems this reality presents. Joint doctrine development also addresses some of these issues in the concept of the Joint and Coalition Force Maritime Component Commander (J/CFMCC). These concepts are related, and the J/CFMCC concept is included in the more broadly scoped MHQw/MOC. In fact, the FORCENet Enabling Capability (EC) in support of which this BAA is issued as FNT08-06 Globally Networked Joint & Coalition Force Maritime Component Commander (G-N J/CFMCC). The program to develop needed technologies identified by the EC and addressed in this BAA is entitled: Globally Networked Maritime Headquarters with Maritime Operations Center (G-N MHQw/MOC).

Two concepts of operations are relevant to the research opportunity<sup>1</sup>: (1) MHQw/MOC Concept of Operations (CONOPS), Draft Version 2.4, 31 Oct 2006); and (2) Navy Warfare Development Command (NWDC) TACMEMO 3-32-06 Final Draft June 2006. Offerors and interested parties should consult these documents before responding to the research opportunity described in this Broad Agency Announcement (BAA) Number 07-021. Section VII of this BAA contains information about how to obtain a copy of the documents. Section VII, Subsection 3.0 provides more discussion on the relationship between this research program and the J/CFMCC and MHQw/MOC concept evolution including the capability gaps that have motivated the program thrusts. Potential offerors should read Section VII to understand the context of this research initiative.

Proposed capabilities for the G-N MHQw/MOC should be capable of providing support to the seamless global operation of the Plans, Future Operations, and Current Operations cells. The operations of these cells are described in NWDC TACMEMO 3-32-06, Sections 3.4 and 3.6. Potential offerors should ensure that their white paper, oral presentation (if invited), and full proposal (if invited) address specifically how their technology offering will enhance the capabilities of the Plans, Future Operations, and Current Operations cells.

This ONR research opportunity relates to the operational level of war, focusing on capabilities to enhance naval forces' plans, future operations, and current operations. BAA Number# 07-021 does not focus on tactical level technology capabilities or technologies supporting warfare execution. Neither is BAA Number # 07-021 interested in technologies that will assist in purely administrative tasks, such as managing personnel or logistics, nor those supporting intelligence center operations alone. Certainly tactical, administrative and intelligence data and information are critical to planning and decision making in the MHQw/MOC or J/CFMCC context and must be considered as critical sources of sensor data and information, so reference to such may be made. Technology proposals that focus exclusively on tactical level

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<sup>1</sup> See Section VII for list of references and website information for their location.

execution, administrative tasks, or intelligence functionality and fail to address command, control and planning at the operational level will not be considered responsive to this BAA.

Potential offerors should incorporate experimentation with technology as a significant part of the technology development effort. They should plan for table-top experimentation within six months of contract award to enable warfighters and acquisition program partners to engage in discussion of how the technology development will enhance warfighting. They should plan for limited technology experimentation in twelve to fourteen months after contract award, to demonstrate to acquisition program of record partners how technologies will integrate with existing and planned systems that will support MHQw/MOC and J/CFMCC capabilities. They should plan for limited objective experimentation, including participation in a Sea Trial event, in the last four months of the base period of contract performance to enable warfighters and acquisition program partners to witness that the technology development metrics have been met.

### **5.1 Program Goals and Structure**

The "G-N MHQw/MOC" Program will develop software and potentially middleware technologies to meet program objectives although standards recommendations and Services Oriented Architecture (SOA) characteristics are also expected. Hardware implementations are acceptable for experimentation and engineering purposes, but proprietary solutions are not acceptable. A requirement of the innovative technologies is that they be capable of being implemented or integrated as services in an SOA<sup>2</sup>. The evolution of services architectures is ongoing, and ONR is not seeking proposals for an SOA or competing SOAs. Offerors should understand that technology evolving from the thrusts outlined below must comply with SOA precepts as developed under relevant Defense Information Systems Agency (DISA) and Navy programs, and should address their relationship to SOA implementation issues in their proposals. The relevant programs developing networks, computing, and services infrastructure are DISA's Net-Enabled Command Capability (NECC) and Net-Centric Enterprise Services (NCES), and Navy's Consolidated Afloat Networks and Enterprise Services [CANES].

The Program has three thrusts, which focus on development of innovative new technology to meet program goals. These thrust areas, discussed briefly below and extensively in the detailed thrust descriptions (5.2.1) present a guide to offerors. A continuous fleet-led innovative experimentation process will evolve the CONOPS and will include experimentation with legacy program capabilities and technology articles from this and other research programs. Selected offerors will be expected to work within a team environment geared to develop solutions capable of integration as services within a representative SOA. As such, all of a proposed approach may be of interest "as is", or a portion may be selected for integration with solutions from other performers (teaming or subcontracting). In either case, all awardees will be asked to work within the larger framework as part of a collaborative Government-led team that will be identifying experimentation articles and generating questions and hypotheses for test in the experimentation and Sea Trial process. Toward this end, all performers will provide a means of visualizing their component solutions, at least for engineering and experimentation purposes. Performers will also define appropriate metrics (e.g., performance quantification) and pedigree structures (e.g., process traceability) that carry corroborating evidence for their solution and for eventual system use within an SOA to monitor and confirm and document software behavior.

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<sup>2</sup> This program does not call for SOA development but does require that developed technologies be compatible with available SOAs. Guidance for SOA compliance applicable to this development is the Navy (PEO C4I) and Air Force Electronic Systems Command "Net-centric Enterprise Solutions for Interoperability" (NESI). NESI provides implementation guidance, technical criteria and reusable software components that can facilitate the design, development and usage of information systems that support Net-Centric Warfare. These are available at <http://nesipublic.spawar.navy.mil/>.

Thrust One is the *dynamic distributed data layer* that provides all information necessary to drive consistent visualization and situation awareness based on user defined content and granularity involving either global or local activity. The heart of this thrust is the set of technologies to create and maintain a virtual active data layer that supports Command Control (C2) planning, execution and monitoring. Users need the capability to define a set of data that is consistent with their perspective and mission goals. A "common picture" often does not provide this support, but the goal of developing "consistent" situation awareness can be achieved through a common distributed dynamic data repository, from which multiple users at any command echelon with complementary roles and responsibilities can create or define the picture they need.

Thrust Two is *role relevant representation and visualization*, which provides the technologies to interact with the user to develop a representation of abstract situation and threat elements. This is not a display technology task but a thrust to provide a flexible means of presenting complex information including objects, events, relationships, context, etc. and associated uncertainties through visual or other representational means. Techniques under this thrust should focus on strategies to automate the access and retrieval of relevant material and representation in a form specifically matched to the user's role and technological capability.

Thrust Three is the *adaptive collaboration assistant*, a collection of automated techniques to gather, share, and update fused and contextual information. The technology focus is on means to access and share all mission relevant data and information. This requires automated techniques that support user interaction with the data layer, and other users including sharing of Joint and coalition plans, while ensuring releasability restrictions are followed.

It is expected that there will be multiple awards under each technology thrust. Developers within each technology thrust area (Thrusts 1, 2, 3) will be expected to participate as team members. Annual goals will be developed that provide benchmarks for the progress that each developer must achieve to reach the desired overall capability. In the first year, developers within each technology thrust will focus on concept development and laboratory evaluation of high risk elements of their constituent approach. During this phase and throughout the program the MHQw/MOC CONOPS process will evolve, and a series of experiments will be planned which may have impact on this program's direction. Developers will have the opportunity to interact with this experimentation process and depending on the experimental planning may be able to participate by contributing to the development of scenarios, vignettes and experiment articles. Because of the importance of laboratory and field experimentation over the course of the program, developers should anticipate being part of this process even as an observer. Team sharing will be a strong metric for developer selection in the out-years.

## **5.2 Program Thrusts**

The Globally Netted Maritime Headquarters with Maritime Operations Center Component Commander (G-N MHQw/MOC) is an applied research program which calls for innovative technologies in support of war fighters to be implemented within an SOA environment and refined in an experimentation process ranging from Limited Technical Experiments (LTEs) in laboratory or operational environments to fully operational experiments (Sea Trial) conducted in fleet settings with naval, Joint and potentially coalition personnel. The thrusts have been structured to support the MHQw/MOC and J/CFMCC which are responsible for operational level planning and command control of all naval Warfare Mission Areas (WMA). The dynamism of any particular naval mission is also complicated by the growing spectrum of potential missions that may be assigned to Naval Forces and the speed with which missions may transform. Thus dynamism should encompass missions that may begin as homeland defense missions and transform to humanitarian relief missions. Similarly missions should always be considered to involve Joint forces and very often forces from allies and/or coalition partners. See Sec VII.3 for more complete discussion of Warfare Mission Areas and the operational implications.

The three thrust areas are not independent of each other. To illustrate these relationships a notional functional structure is provided below (Figure 1) with the thrusts identified and the

architectural context applied as layers. Offerors are encouraged to propose alternate approaches which reflect innovative views of the necessary relationships between the thrusts to meet the overall objectives of the G-N MHQw/MOC program.

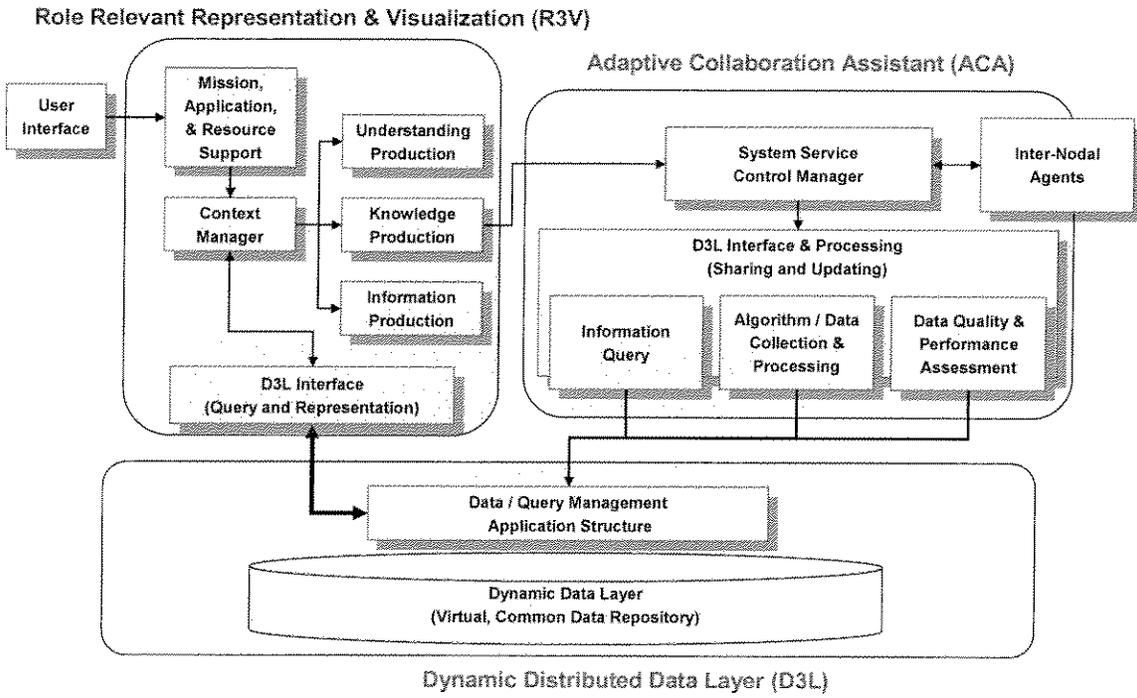


Figure 1: Globally Netted MHQw/ MOC Functional Structure (Notional Approach)

In order to achieve mission relevant visualization for a decision maker, rapid access to data and information “relevant” to the mission must be provided as well as collaboration with other players (human and machine) involved in the mission. ONR anticipates that many technologies offer promise in addressing issues within these broader thrusts and seeks innovative applications of technology that address specific solutions required to achieve MHQw/ MOC and JFMCC CONOPS and TTP goals. The structure of Figure 1 is notional, and ONR is open to proposals in all three of the thrust areas, including alternatives to the notional approach outlined here. To reiterate, offerors may also bid on all three of the thrusts or identify specific approaches to a particular problem within a thrust, which would constitute a contribution to addressing the larger scope general problem. In making their proposals, offerors should carefully specify the role and scope of the proposal in relation to the thrusts and notional structure, or alternative being offered.

### 5.2.1 Detailed Thrust Descriptions and Interrelationships

The following detailed thrust descriptions are provided to give potential offerors insight into the scope of the problem and the technical effort needed to address it. This BAA seeks innovative, but robust solutions. As such, the technologies discussed in each subsection are to be construed as illustrative and not a direct requirement. These thrust areas represent potential groupings of functions or services within a multi-tiered framework that will provide the means to:

1. Store, associate, retrieve, large volumes and diverse types of data and information in a *dynamic distributed data layer* in a way that enables robust, seamless data sharing and facilitates consistent situation awareness for multiple users. The data layer will incorporate management functions to assure data compliance with security policy and

data model requirements (including metadata and pedigree tagging), to support identification and resolution of data redundancy or conflicts, and indexing to support efficient storage and retrieval in response to multiple query types.

2. Develop visualization and representation methods that will interact with the data layer, to provide diverse participants with data, tailored to their mission, role, and technology limitations and operating conditions.
3. Develop automated (and semi-automated) technologies that facilitate effective and relevant collaboration between widely disparate databases for MHQ to MOC, MOC to MOC and other key C2 elements. Such collaboration tools will leverage the data layer to support shared understanding among decision makers, including such functions as execution monitoring, planning, and re-planning.

It is emphasized that all approaches must address issues associated with problems of military and maritime scale, uncertainty, and timeliness, as well as computational limitations, and the need for machine-to-machine, and machine-to-human interaction in forms that are suitable for explanation to, and confirmation by, decision makers.

### **5.2.1.1 Thrust 1: Dynamic Distributed Data Layer (D3L)**

The Dynamic Distributed Data Layer (D3L) is intended to be the net-centric enterprise resource leveraging SOA precepts and providing a virtual repository for observations about objects and events and their context, consistent information derived from fusion algorithms describing activity and behaviors, and resource management plans. The D3L will either contain, or seamlessly link to, data from sensors and sources including data available from legacy databases and newer enterprise databases. D3L content will include: sensor measurements representing real world objects, events and conditions; derived products of exploitation (fusion) processes (e.g., track files, object identification, higher level fusion products such as object relationships); products of planning processes (e.g., asset tasking, schedules, routes); and relevant contextual information (e.g., weather, maps, topology, social/cultural data). Such mission relevant content will either reside in, or be efficiently linked to, the D3L. Legacy databases may include foundational data such as National Geospatial Agency (NGA) products (e.g., Digital Terrain Elevation Database [DTED], Common Imagery Base [CIB], Digital Point Position Database [DPPDB]), archival libraries such as those containing imagery or signatures, and reference data from open sources such as networks (e.g., roadways, electric power, water), or institutions (e.g., type and location of banks, schools, factories), or other physical, informational and cultural data. Newer enterprise databases will have similar content but be constructed in a manner that complies with the intent of DoD Net-centric Data Strategy<sup>3</sup>, as well as more recent developments under the Navy's Joint Track Management – Enterprise Architecture Working Group (JTM-EAWG)<sup>4</sup>.

The D3L provides an active data layer for C2 execution and monitoring, with automated capabilities to manage high volumes of data with assured consistency to support User Defined Operational Picture (UDOP) notions and related processing functions. The D3L is intended to provide a common repository enabling global data consistency and will provide a virtual, common, dynamic data repository for multiple human and machine users at any command echelon, with complementary roles and responsibilities for planning or execution. The D3L data content will have GIG-compliant formats along with metadata, pedigree, algorithm metrics to enable machine and human understanding of the data, algorithms and processes, and products. As fundamental infrastructure relating to information content, the D3L will have a close interaction with the visualization and collaboration services of thrusts 2 and 3 and

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<sup>3</sup> DoD Net-Centric Data Strategy, DoD CIO, May 9 2003

<sup>4</sup> Joint Track Management – Concept Description, February 2007; Program Executive Office, Command, Control, Communications, Computers and Intelligence (C4I)

other enterprise services. The ability to support such service interactions within a SOA should be reflected by offerors in their proposals.

#### General Requirements of Thrust 1 - D3L

ONR is seeking innovative solutions and approaches to create, engineer and implement a D3L. Offerors should consider the guidance and issues outlined herein but not be limited by them in proposing their solutions. Offerors should propose appropriate technologies, provide their understanding of the technical performance implications, and explain their choices and recommendations.

Desired activities and functions of the Thrust 1 - D3L performer and the resulting technology product, includes the following:

- Assess design alternatives and methodologies and make recommendations for building & maintaining large distributed databases;
- Implement a D3L version initially for laboratory technical evaluation (LTE), and after maturation for limited objective experimentation (LOE) potentially as a component of a Sea Trial event. The D3L will operate in an integrated environment with products of thrusts 2 and 3 and other SOA and transport infrastructure to be defined by experimentation management. (See section 5.2.2)
- Key functions of the D3L include:
  - Managing and maintaining large volumes and diverse types of data information;
  - Multi-dimensional indexing of data (e.g., spatial parameters, time, features) for efficient support of multiple query types
  - Rapid data storage;
  - Sorting and association (on the basis of metadata) of like data, across multiple dimensions;
  - Rapid retrieval of all relevant data in response to structured queries
  - Access by multiple simultaneous users;
  - Management functions to assure compliance of data and data operations with security policy;
  - Management functions to identify and resolve redundant and conflicting data;
  - Compliance with core data model requirements including metadata and pedigree tagging;
- Provide performance metrics relevant to the operation of very large databases for: (a.) use in laboratory assessments of performance bounds and dependencies; and (b.) field experimentation in a Sea Trial event with military personnel to enable realistic and appropriate user / machine awareness and evaluation of data base performance;
- Implement GIG-compliant data strategies – including incorporation of a common core data model, such as that described by the JTM-EAWG.
- Mirror or link, integrate and mediate across multiple heterogeneous databases including selected legacy data bases. (e.g., Modernized Intelligence Data Base (MIDB), Image Products Library (IPL), Electronic Order of Battle (EOB), others to be named);
- Provide necessary support and interfaces with core enterprise services (e.g., discovery, security, et al.);
- Identify ambiguities or inconsistencies within or across the databases which would generate requirements for additional processing, information search and retrieval and/or enhanced or supplementary sensing.

Features of the D3L in terms of data content, attributes and performance will be driven by the nominal scope of problems in Maritime Domain Awareness (MDA) which underpin traditional Naval missions in Undersea Warfare (USW), Anti-Surface Warfare (ASuW), as well as Naval missions in Global War on Terrorism (GWOT), Stability Operations, and transition to Major Combat Operations (MCO). Appropriate scenarios for coordinating program experimentation will be provided to performers. As noted above, the D3L must be capable of dealing with

diverse data types, including planning products, data from diverse sensor and source types, processed data products, and all associated metadata / pedigree information.

### **5.2.1.2 Thrust 2: Role Relevant Representation and Visualization (R3V)**

Role Relevant Representation and Visualization (R3V) is intended to utilize the data and information content of the D3L and provide the means to represent and characterize complex situation and threat elements to war fighters and decision makers in multiple MHQw/MOC operational environments. ONR is seeking representation and/or visualization approaches that provide flexible means of presenting complex information including, but not limited to, objects, tracks, events, relationships, and associated uncertainties. Offerors are encouraged to propose innovative and creative mechanisms for representing material to decision makers, and not focus exclusively on visualization or display hardware. A key objective and selection discriminant for this thrust is the automation of user query and discovery processes and techniques that match adaptable processing and display capability to a decision maker or user's role in assigned missions. As such, approaches need to be flexible enough to meet the rapidly changing mission profiles that face war fighters and decision makers in an MHQ or MOC environment.

The intent of R3V is to provide the user with the means to construct and display the evidence necessary to develop a consistent situational awareness of on-going activity. As such, the approach of R3V is to develop technologies to interpret and process user defined information and query responses into an effective, query data search into the D3L to meet mission needs, while operating within constraints of connectivity and equipment limitations. Situational events may include knowledge of platform routes and sensor coverage areas, specific requests to locate and identify objects, tracks of objects, recent activities or events. Information provided to user should be in a form that allows the user to develop relationships between objects, identify links between types of objects and possible dependencies. Additionally, information extracted from the D3L such as information uncertainty, source metadata, process pedigree and other forms of validation should be available for display or support of user functions (e.g., drill down explanation, confidence measures, alternative results) as needed.

#### General Requirements of Thrust 2 – R3V

ONR is seeking proposals that provide these functional visualization and representation capabilities and considers these issues and technologies to be relevant. Offerors should consider these issues and technologies but not be constrained by them in proposing their innovative solutions. Offerors should propose appropriate technologies and explain their choices and recommendations.

Desired activities and functions of the Thrust 2 – R3V performer and the resulting technology products include the following:

- Develop methodologies and technologies to satisfy user's need for understanding battlespace activities by transforming data / information content of the D3L through multiple query and collaboration methods into relevant and effective information representation and display.
  - Key functions of the R3V include:
    - Visualizing data involving multiple of levels of complexity;
    - Interacting with the D3L to extract mission relevant data and information through appropriate collaboration and query mechanisms;
    - Filtering and structuring received data and information including contextual information in ways that that support decision makers in their mission roles;
    - Interpreting and condensing data to support various types and levels of context and object processing;
    - Adapting data to match tool requirements (e.g., fusion, data mining);
    - Prioritizing user queries based on security, urgency, data flow limitations;

- Meeting user constraints such as timeliness, precision, accuracy granularity, and format.
- Implement mission and role related protocols to operate within format and data quality standards, security constraints, releasability requirements, system performance and processing requirements, data granularities, and response times;
- Develop tools to allow the user to represent or visualize situations and their context, and link to specific data, information, and contextual queries;
- Provide methods to facilitate transformation of data and information into formats appropriate for user understanding;

Other possible types of technologies that may be appropriate are:

- Visualization and statistical technologies from the gaming industry to visualize multiple perspectives for predictive operational planning and enabling statistical “what if” approaches to future planning.
- Visualization tools that use 3-D digital, virtual, representation and magnification to develop activity context.
- Ontologies and taxonomies enabling sophisticated syntactic and semantic search and discovery processes.

### **5.2.1.3 Thrust 3 Adaptive Collaboration Assistant (ACA)**

The Adaptive Collaboration Assistant (ACA) is intended to develop automated techniques that support user interaction with the D3L, and to provide processing to allow multiple users to request and share joint and coalition plans, update fusion and contextual information and mission relevant results in a controlled way that provide for forensic analysis of shared information and ensuring that releasability restrictions are not violated. The ACA provides the middleware processing necessary to convert and decompose multiple user data queries into service-oriented utility application tasks for the D3L layer. This includes but is not limited to information management processing to discover relevant data and information as well as manage access and distribution to user nodes. Within this context the ACA will convert user-defined requests into dynamic data-layer queries and will provide refined processing of datasets to insure commonality of units, data compatible granularity, and fine-tune association between target reports, tracks, types, etc. to insure user relevant consistency of results.

The ACA will minimize the need for users to interact with disparate databases or networked data and information sources in order to facilitate dynamic planning and support. The ACA should be capable of keeping a user profile of past requests and anticipate needs based on user’s intent, including cueing database for files, formats and algorithm characteristics to insure consistent representation of data. Processed data should automatically include a description of processing and source characteristics, and provide the control to reformat data structures to match user understanding for such applications as user planning, fusion, and data composability. Additional considerations should include conflict resolution between requests from multiple users.

#### General Requirements of Thrust 3 – ACA

ONR is seeking proposals that provide these collaborative capabilities in innovative ways. ONR anticipates the following technologies or technological capabilities will contribute to the desired capabilities. Offerors should consider these technologies but not be constrained by them in proposing innovative solutions.

Desired activities and functions of the Thrust 3 – ACA performer and the resulting technology product, includes the following:

- Develop tools to interpret and translate user data queries into utility application tasks for the dynamic data layer. Applications should provide the means for sharing and updating of algorithm generated data and management of algorithm parameters and applications.
  - Key functions of the ACA include development of methods for:
    - User query-to-task decomposing services;
    - Automated user alerts in response to 'tripwire' events and activities;
    - Anticipatory preparation of folders as a function of mission roles, activities, and timelines;
    - Collaboration tools to manage data selection, assess data adequacy to meet mission goals and enable user sharing;
    - Identifying process-specific logic and algorithm processing requirements to process datasets;
    - Evaluating data quality and consistency, and adopting revised candidate services as needed.
- Considerations should incorporate database constraints, user requirements, and limitations specific to the implementation environment.
- Implement data compatibility processes to adapt and modify the data into a consistent format, including association algorithms to minimize dataset inconsistencies.

Other possible types of technologies that may be appropriate include:

- Directed graphs to provide the basis for indexing and storing, data modeling and commonality, and conceptual approaches for data clustering;
- Semantic inferencing for orthographic referencing, and developing context cues;
- Discovery techniques to minimize service overlap with other application services;
- Orchestration services for control and flow of data and information;
- Candidate services that address data compatibility and consistency;
- Data consistency services that characterize applicability of data for algorithm processing, such as accuracy, timeliness, precision, granularity, format and context constraints;
- Activity and performance monitoring to allow user service requestors assess to a service while it is being provided for correction and interaction;
- Forensic modeling technologies to aid users in evaluating, analyzing and understanding the success or failure of performance results.

### **5.2.2 Concept of Operations (CONOPS) Development and Experimentation**

One function of all performers selected to participate in the G-N MHQw/MOC program will be to monitor the evolution of the MHQw/MOC concept and participate actively in the experimentation process that will validate and refine the CONOPS and supporting capability requirements definitions. The development of, and experimentation with, CONOPS will occur under the leadership of the Commander Second Fleet (C2F) led Operational Advisory Group (OAG) and stakeholders. Activities will include CONOPS-driven experimentation and Sea Trial events, including appropriate scenarios or vignettes, definition of a net-centric environment for test and demonstration, SOA characterization, determination of appropriate degrees of automation, means for human-system interaction, and collaboration support to users/ decision makers, and additional functions as needed. The ONR S&T program participation will include experiment participation and the integration of S&T experimentation articles synchronized with experiment schedules. S&T participation and technical experimentation will be led by ONR and a consortium of Government laboratories. Operational experimentation and Sea Trial participation will be conducted in conjunction with Navy Warfare Development Command (NWDC), Naval Network Warfare Command (NAVNETWARCOM) and C2F led efforts.

### **5.3 Transition Opportunities**

Two major OSD programs are being developed to support Command and Control affecting all levels of warfare across the Enterprise; the Distributed Common Ground System (DCGS) and the Network Enabled Command Capability (NECC) programs. The MHQ w/ MOC concepts as they evolve will be

operating in the framework of these programs, and automated capabilities in support of MHQ w/ MOC will transition to them as capabilities and services.

The NECC will be the Department of Defense principal command and control system. This new C2 system will give "shared situational awareness, self-synchronization, mobility and composability to rapidly reconfigure" during battle. The Navy's C2 programs are moving to integrate with the NECC.

DCGS is a cooperative effort between the national community and DoD to provide systems capable of automating, coordinating, and correlating, in real time, the reception, processing, exploiting, storing and disseminating Command Control and Intelligence information to support situational awareness for decision making and planning. DCGS utilizes the entire spectrum of available C2 and intelligence data. The Distributed Common Ground System - Navy (DCGS-N) is the Navy's portion of the OSD DCGS effort. The automation/correlation provided by DCGS-N will enable the Navy to quickly target and re-target precision strike weapons, greatly enhancing their effectiveness and lethality. The Navy's existing programs, personnel, facilities and financial resources are aligning with the Joint Distributed Common Ground System to achieve DCGS-N capabilities that will meet Fleet Forces Command requirements.

Other programs of record, more focused or limited in scope, are also transition targets for the results of this ONR research program. In particular, the Distributed Information Operations - Services (DIO-S) program is dealing with data and information from multiple sources and sensors and requires capabilities to filter and manage large volumes of this disparate data in support of information operations decision making, which will be an increasingly important aspect of planning within the evolving MHQ w/ MOC concept. Information domain conflict is becoming as important as traditional warfare disciplines. The DIO-S program and ONR have useful and productive working and transition relationships established which will continue under this research program.

These programs will be using the Global Information Grid (GIG)<sup>5</sup> Enterprise Services (ES) and for the Navy forces afloat the Consolidated Afloat Network Enterprise Service (CANES) will provide the infrastructure for networking, computing and services. CANES is not yet a program of record but is expected to become one early in the life of this ONR research program. Transition of the services components from the ONR program to these infrastructure providing programs is a logical expectation.

## 6. Point(s) of Contact -

### **\*\* Important Notices Regarding Questions\*\***

- All Questions (of general programmatic, thrust specific or business nature) shall be submitted in writing by electronic mail.
- Questions presented by telephone call, fax message, or other means will not be responded to.
- There will be no meetings between potential offerors and ONR personnel.

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<sup>5</sup> GIG is the globally interconnected, secured, end-to-end set of information capabilities, associated processes, and personnel for collecting, processing, storing, disseminating, and managing information on demand to warfighters, policy makers, and support personnel. The GIG will support all U.S. Department of Defense (DoD), national security, and related intelligence community missions and functions. It will provide capabilities from all operating locations and will interface to coalition, allied, and non-DoD users and systems. The GIG as a transformational vision aims at achieving information superiority in a network-centric environment. It will enable various systems to interoperate with each other. For the warfighters, it will bring *power to the edge*. For the business and intelligence communities, it will provide the infrastructure for effective information gathering and collaborative operation.

- It is understood that responses are not binding unless the specific Q&A is posted on the Globally Networked Maritime Headquarters with Maritime Operations Center website.
- Questions regarding **white papers** must be submitted by 2:00 p.m. Eastern Time (ET) on 19 May 2007. Questions after this date and time may not be answered and the due date for submission of the white papers will not be extended.
- If invited to present an oral presentation, questions regarding **oral presentations** must be submitted by 2:00 p.m. Eastern Time one week prior to the scheduled presentation. Questions after this date and time may not be answered and the scheduled date and/or time of the oral presentations will not be changed.
- Questions regarding **full proposals** must be submitted by 2:00 p.m. Eastern Time on Thursday, 22 August 2007. Questions after this date and time may not be answered and the due date for submission of full proposals will not be extended.

Questions of a **general programmatic nature** should be directed to the email addresses specified below:

Science and Technology Point of Contact Information:

Point of Contact Name: Mr. Gary Toth

Point of Contact Occupation Title: Program Officer, Command Control and Combat Systems Programs

Division Title: Mathematics and Computer Science Division

Division Code: 311

Address: 875 North Randolph Street – Suite 1181

Arlington, VA 22203-1995

Telephone Number: (703) 696-4961

Facsimile Number: (703) 696-2611

E-mail Address: [tothg@onr.navy.mil](mailto:tothg@onr.navy.mil)

Questions of a business nature shall be directed to the cognizant Contract Specialist, as specified below:

#### **Primary Point of Contact**

Point of Contact Name: Ms. Kenesha Y. Hargrave

Point of Contact Occupation Title: Senior Contract Specialist

Division Title: Contracts and Grants Awards Management,

Division Code: Code 0251

Address: Office of Naval Research, One Liberty Center, 875 North Randolph Street, Suite 1425,

Arlington, Virginia 22203-1995

Telephone Number: (703)696-5345

Facsimile Number: (703)696-0066

Email Address: [hargrak@onr.navy.mil](mailto:hargrak@onr.navy.mil)

#### **Secondary Point of Contact**

Point of Contact Name: Ms. Vera M. Carroll

Point of Contact Occupation Title: Contracting Officer/Branch Head

Division Title: Contracts and Grants Awards Management,

Division Code: Code 0251

Address: Office of Naval Research, One Liberty Center, 875 North Randolph Street, Suite 1425,

Arlington, Virginia 22203-1995

Telephone Number: (703)696-2910

Facsimile Number: (703)696-0066

Email Address: [carrolv@onr.navy.mil](mailto:carrolv@onr.navy.mil)

## **7. Instrument Type(s) -**

Awards resulting from this solicitation will be in the form of contracts.

## **II. AWARD INFORMATION**

The Office of Naval Research plans to award multiple technology development efforts that represent the best value to the Government in accordance with the evaluation criteria set forth in this announcement. The Office of Naval Research is seeking participants for this Program that are capable of supporting the goals described in this announcement. Offerors have the opportunity to be creative in the selection of the technical processes and approaches to addressing the thrust areas.

The Office of Naval Research plans to fund development contracts with a combination of Applied Research and Advanced Technology Development funds (Budget Category 6.2/6.3). It is anticipated that the average award will typically be in the range of \$500,000-\$1,500,000 per year, although lower and higher proposals will be considered. ONR expects to make multiple awards. The average amount of each award is anticipated to be \$1,000,000 per year. Proposed work should be structured for a one to three year period that shall include a base performance period of twelve months with one or two 12-month options. The estimated planned date for award is on or about 30 November 2007 and is subject to the availability of FY 2008 funds.

ONR has funded related information technology development under numerous programs. Proposals that build on current or previous DoD work are encouraged. Offerors enhancing work performed under other ONR or DoD projects, must clearly identify the point of departure, what existing work will be brought forward, and what new work will be performed under this BAA.

## **III. ELIGIBILITY INFORMATION**

Awards under this BAA will be made only to U.S. owned firms, U.S. based firms and U.S. institutions of higher education. Only United States citizens are permitted to work on this effort due to export control restrictions. Performer access to classified data is anticipated. It is likely that a DD Form 254 (Contract Security Classification and Specification) will be incorporated into each of the contract awards.

Historically Black Colleges Universities (HBCU) and Minority Institutions (MI) are encouraged to submit proposals and join others in submitting proposals. However, no portion of this BAA will be set aside for HBCU and MI participation due to the impracticality of reserving discrete or severable areas of MHQw/MOC along with FORCENet enabling capability in support for exclusive competition among these entities.

Independent organizations and teams are encouraged to submit proposals in any or all areas. However, Offerors must be willing to cooperate and exchange software, data, and other information in an integrated program with contractors, as well as with system integrators, selected by ONR.

Government Entities and Federal Funded Research and Development Centers (FFRDCs) are ineligible to apply under this BAA as prime contractors.

## **IV. APPLICATION AND SUBMISSION INFORMATION**

### **1. Application and Submission Process -**

**(A) Industry Day Briefing:** ONR will conduct an Industry Day Briefing for potential offerors on MONDAY, 9 April 2007. The exact time and location and instructions for sending clearances to ONR for this Industry Day will be posted on the FORCEnet S&T website. The purpose of the briefing is to provide potential offerors with a better understanding of the aforementioned program. Potential offerors should read the MHQ with MOC concept of operations and the JFMCC TACMEMO prior to Industry Day. Interested offerors MUST register for the Industry Day Briefing at the FORCEnet S&T website [http://www.onr.navy.mil/forcenet\\_ec08-06/](http://www.onr.navy.mil/forcenet_ec08-06/). The deadline to register is three days PRIOR to the event. This URL also has details concerning the industry day presentations. All participants for the Industry Day presentation must be a U.S. citizen. No substitutions in the attendee list are allowed after the registration deadline. Because unforeseen circumstances may cause changes to the Industry Day Briefing schedule or venue, it is the offeror's responsibility to check the BAA website at [http://www.onr.navy.mil/forcenet\\_ec08-06/](http://www.onr.navy.mil/forcenet_ec08-06/) for updates and information. All expenses for attendance must be borne by the potential offeror. Those offerors able to attend the briefing should consult the BAA website to review the unclassified briefing slides, unclassified answers to the questions raised during the briefing, as well as directions to the building. Those not able to attend this briefing should consult the [http://www.onr.navy.mil/forcenet\\_ec08-06/](http://www.onr.navy.mil/forcenet_ec08-06/) to see briefing slides and answers to written questions submitted during the event. If requested attendance exceeds capacity, it will be necessary to limit attendance of personnel from each organization, and organizations will be notified. The FORCEnet S&T website [http://www.onr.navy.mil/forcenet\\_ec08-06/](http://www.onr.navy.mil/forcenet_ec08-06/) identified above is dedicated to this BAA and will be the primary means of publicizing all relevant information that is specific to this BAA. All interested parties are encouraged to visit this website regularly. In addition to the above web site, the following web site must be used to register for attending Industry Day. This site will allow access to the ONR Briefing Room. Registration must be completed at least three days before Industry Day. No registration walk-ins will be accepted at the door. Registration details and additional information can be found at:

<http://www.onr.navy.mil/about/events/regdetail.asp?cid=300&code=4>

ONR will accept only unclassified proposals; the proposal shall include a severable, self-standing Statement of Work, which contains only unclassified information and does not include any propriety restrictions as described in Section IV, paragraph 2. In order to facilitate intra-program collaboration and technology transfer, the Government will attempt to enable awardees to work at the unclassified level to the maximum extent possible. However, access to and storage of some classified information will be required under this program. Awardees must be specific as to max level of classification and location of work. If awardees use unclassified data in their deliveries and experimentation regarding a potential classified project, they should use methods and conventions consistent with those used in classified environments. Such conventions will permit the various subsystems and the final system to be more adaptable in accommodating classified data in the transition system.

#### **B. White Papers**

White Papers are required prior to submitting a full proposal. The due date for white papers is due no later than 2:00PM Eastern Time (ET) WEDNESDAY, 23 May 2007. Each unclassified white paper should state that it is submitted in response to this announcement and identify the thrust to which the response is applicable.

White papers will be evaluated to determine whether an offeror is selected to make an oral presentation of its white paper to a panel of government evaluators. The process for oral presentations is described below. Oral presentations will be scheduled for those offerors who have been notified by e-mail that their proposed technologies appear to be of "particular value" to the Navy. Selection of white papers considered as being of "particular value" will be announced on or about 8 June 2007. However, any such encouragement does not assure a

subsequent award. Those white papers not selected for oral presentations will not be considered further under this announcement.

### **C. Oral Presentations**

Offerors whose white papers are selected for oral presentations will be invited by e-mail not less than five (5) working days prior to the commencement of the unclassified oral presentation event. This event is tentatively planned for the week of 9 July 2007. A detailed format for the presentation will be provided in the e-mail invitation. Each presentation will be no longer than thirty (30) minutes in duration. An additional ten (10) minutes will be allowed for questions (if any) from the panel of government reviewers. Those offerors whose technology is still considered as having "particular value" to the Navy will be encouraged to submit detailed technical and cost proposals. However, such encouragement after oral presentations does not assure a subsequent award. Full proposals will not be considered under this BAA unless a white paper was received by the due date specified above and a presentation made during the Oral Presentation event. Encouragement to submit full proposals will be completed by 30 July 2007.

**D. Full Proposals:** The due date for receipt of full proposals is 2:00 PM, Eastern TIME (ET) FRIDAY 24 August 2007. It is anticipated that final selections will be made MONDAY, 17 September 2007. As soon as the final proposal evaluation process is completed, each offeror will be notified via e-mail of its selection or non-selection for an award. Proposals exceeding the page limit may not be evaluated.

## **2. Content and Format of White Papers/Full Proposals -**

The white papers, oral presentations, and full proposals submitted under this solicitation must be unclassified. The proposal submissions will be protected from unauthorized disclosure in accordance with FAR 15.207, applicable law, and DoD/DON regulations. Offerors are expected to appropriately mark each page of their submission that contains proprietary information. The proposal shall include a severable, self-standing Statement of Work, which contains only unclassified information and does not include any propriety restrictions. Contracts awarded under this announcement may be classified.

White paper submission should include those items identified in the paragraph below entitled "White Paper Content" and should not exceed ten (10) pages. White papers exceeding any of the page restrictions may not be reviewed. White papers sent by fax or e-mail will not be considered.

The Full proposals submitted in response to this BAA must be unclassified. The proposal shall include a severable, self-standing Statement of Work which contains only unclassified information and does not include any propriety restrictions. The proposal submissions will be protected from unauthorized disclosure in accordance with FAR 15.207, applicable law, and DoD/DON regulations. Offerors are expected to appropriately mark each page of their submission that contains proprietary information. Full proposals submitted by facsimile or e-mail will not be considered.

### **White Paper Format**

- Paper Size – 8.5 x 11 inch paper
- Margins – 1" inch
- Spacing – single or double-spaced
- Font – Times New Roman, 12 point
- Number of Pages – No more than 10 single-sided pages (excluding cover page and resumes) White Papers exceeding the page limit may not be evaluated.
- Copies – one (1) original, 5 copies, and one electronic copy on a CD-ROM in Microsoft Word® or Adobe PDF format®.

## **Full Proposal Format – Volume 1 - Technical and Volume 2 - Cost Proposal**

- Paper Size – 8.5 x 11 inch paper
- Margins – 1” inch
- Spacing – single or double-spaced
- Font – Times New Roman, 12 point
- Collated copies – each copy and the original should be complete and should be fastened together with binder clips.
- Enclosures -- Each copy and the original should be free of any notebook or other enclosing material.
- Volume 1 is limited to no more than 30 pages. Limitations within sections of the Technical Proposal are indicated in the individual descriptions shown below. The cover page, table of contents, abstract, executive summary, and resumes are excluded from the page limitations. Full Proposals exceeding the page limit may not be evaluated.
- Volume 2 has no page limitations.
- Copies – one (1) original, 5 copies, and one electronic copy on a CD-ROM in either Microsoft compatible or Adobe “.pdf” format. Hard copies are to be fastened with a binder clip. Staples and other forms of binding should not be used. Pages should not be perforated with holes of any kind.

### **White Paper Content**

- **Cover Page:** The Cover Page shall be labeled “PROPOSAL WHITE PAPER” and shall include the BAA number, proposed title, technology interest areas addressed, offeror’s administrative and technical points of contact, with telephone number, facsimile number, and e-mail address. The cover page shall be signed by an authorized officer. This shall be one (1) page only.
- **Abstract:** A very brief description of the technology including goals and objectives, and technology areas to be addressed. This section shall be no more than one (1) page.
- **Technical Concept:** A description of the technology innovation, the Program thrusts addressed (described in Section I paragraph 6.3), and technical risk areas. This section may be six (6) pages or fewer. Include a detailed listing of the technical tasks/subtasks organized by year. Relate the product that results from the task/subtask and briefly state metrics that will be met as a result of the task/subtask. In presenting the technical concept, the paper should explain how the technology proposed is relevant to the operational context described in the unclassified paper described in Section 6.1 of the BAA.
- **Deliverables:** Deliverables to be available for experimentation and final project deliverables shall be specifically described, including a description of proprietary components and an assertion of data rights applicable to the deliverable. This section shall be no more than one (1) page in length.
- **Costs:** A one (1) page summary of costs segregated by both task and year. The task breakout should enable the Government to determine which portion of the technology development costs are attributed to (1) the costs related to attaining the claimed Naval Transformation Objective through development of the proposed technology deliverable, (2) the S&T project costs for technology integration into the NESI service oriented architecture standards posted at <http://nesipublic.spawar.navy.mil/>, and (3)

the costs related to experimentation activities. Within the task summary there should be a top-level segregation of the loaded costs attributed to labor, material, and facilities (if applicable) for each task. A statement should also be made under each task in which the use of government facilities is proposed. This section shall be no more than one page and shall include a table with all costs summarized in thousands of dollars as shown in the following example:

| FY08   | FY09   | FY10   | FY11   | FY12   | Total  |
|--------|--------|--------|--------|--------|--------|
| \$xxxK | \$xxxK | \$xxxK | \$xxxK | \$xxxK | \$yyyK |

## **Full Proposal Content**

### **Volume 1: Technical Proposal**

Volume One of the full proposal shall include the following sections; each starting on a new page. Sections not included in the page limitation are annotated below. Please pay attention to the page limitations for each section as described below. The page limitation for the technical proposal is thirty (30) pages.

- **Cover Page:** *(Not included in page limitations)* This should include the words "Technical Proposal" and the following:
  - 1) BAA number;
  - 2) Title of Proposal;
  - 3) Identity of Prime Offeror and complete list of subcontractors, if applicable;
  - 4) Technical contact (name, address, phone/fax, electronic mail address)
  - 5) Administrative/business contact (name, address, phone/fax, electronic mail address) and;
  - 6) Duration of effort (differentiate basic effort and from any proposed options)
- **Table of Contents:** *(Not included in page limitations)* This should address the contents of the proposal, generally by section.
- **Abstract:** *(Not included in page limitations)* This should address the contents of the proposal including goals and objectives, and technology/thrust areas to be addressed.
- **Statement of Work:** A Statement of Work (SOW) clearly detailing the scope and objectives of the effort and the technical approach. It is anticipated that the proposed SOW will be incorporated as an attachment to the resultant award instrument. To this end, such proposals must include a severable self-standing SOW "**without any proprietary restrictions**", which can be included as an attachment to any resultant contract.
- **Project Schedule and Milestones:** A summary of the schedule of events and milestones.
- **Assertion of Data Rights and/or Rights in Computer Software:** For a contract award an Offeror may provide with its proposal assertions to restrict use, release or disclosure of data and/or computer software that will be provided in the course of contract performance. The rules governing these assertions are prescribed in Defense Federal Acquisition Regulation Supplement (DFARS) clauses 252.227-7013, -7014 and -7017. These clauses may be accessed at the following web address:

<http://farsite.hill.af.mil/VFDFARA.HTM>

The Government may challenge assertions that are provided in improper format or that do not properly acknowledge earlier federal funding of related research by the Offeror.

- **Deliverables:** A detailed description of the results and products to be delivered inclusive of the timeframe in which they are to be delivered.
- **Management Approach:** A discussion of the overall approach to the management of this effort, including brief discussions of the total organization, use of personnel; project/function/subcontractor relationships; government research interfaces; and planning, scheduling and control practice. Identify which personnel and subcontractors (if any) will be involved. Include a description of the facilities that are required for the proposed effort with a description of any Government Furnished Equipment/Hardware/Software/Information required.
- **Technical Approach:** The offeror shall provide a detailed plan that coherently describes the technical approach proposed for contract performance which demonstrates a technical understanding of the proposed Statement of Work (SOW). The technical approach should address each of the numbered task areas delineated in the SOW providing specific or unique techniques to be employed and anything else the offeror considers relevant in performing the SOW. The technical approach should indicate how the work will be performed, including the capabilities and resources which will be applied, what problem areas exist, the proposed solutions and a full explanation of the proposed disciplines, procedures and techniques to be followed. Emphasis should be placed upon the extent that the offeror's technical approach ensures timely delivery and successful completion of the tasks outlined by the SOW submission.
- **Personnel:** The offeror shall provide resumes of proposed key personnel to be utilized by the contractor/subcontractor in the performance of this contract. The offeror shall ensure that the proposed personnel are fully capable of performing in an efficient, reliable and professional manner. Upon review of the resumes, if the Government questions the qualifications or competence of any person performing under this contract, the burden of proof to sustain that person's qualifications shall be upon the offeror.
- **Past Performance:** Past performance will consist of a description of the offeror's Government contracts (both prime and major subcontracts (those involving 25% or more of the effort)) received during the past three (3) years, which are similar to the effort being proposed. The offeror may describe any quality awards or certificates that indicate the offeror possesses a high quality process for providing desired research and development outcomes.

## **VOLUME 2: Cost Proposal**

The Cost Proposal shall consist of a cover page and two parts, Part 1 will provide a detailed cost breakdown of all costs by cost category by calendar or Gov't fiscal year and Part 2 will provide a cost breakdown by task/sub-task corresponding to the task numbers in the proposed Statement of Work. Options must be separately priced.

**Although not required and provided for informational purposes only, detailed instructions, entitled "Instructions for Preparing Cost Proposals for Contracts and Agreements", including a sample template for preparing costs proposals for contracts may be found at ONR's website listed under the 'Acquisition Department – Contracts & Grants Submitting a Proposal' link at: [http://www.onr.navy.mil/02/how\\_to.asp](http://www.onr.navy.mil/02/how_to.asp)**

**Cover Page:** The use of the SF 1411 is optional. The words "Cost Proposal" should appear on the cover page in addition to the following information:

- BAA number
- Title of Proposal
- Identity of prime Offeror and complete list of subcontractors, if applicable
- Technical contact (name, address, phone/fax, electronic mail address)
- Administrative/business contact (name, address, phone/fax, electronic mail address) and
- Duration of effort (separately identify basic effort and any proposed options)

**Part 1:** Detailed breakdown of all costs by cost category by calendar or Government's fiscal year:

- Direct Labor – Individual labor category or person, with associated labor hours and unburdened direct labor rates
- Indirect Costs – Fringe Benefits, Overhead, G&A, COM, etc. (Must show base amount and rate)
- Travel – Number of trips, destination, duration, etc.
- Subcontract – A cost proposal as detailed as the Offeror's cost proposal will be required to be submitted by the subcontractor. The subcontractor's cost proposal can be provided in a sealed envelope with the Offeror's cost proposal or will be obtained from the subcontractor prior to contract award.
- Consultant – Provide consultant agreement or other document which verifies the proposed loaded daily/hourly rate
- Materials should be specifically itemized with costs or estimated costs. An explanation of any estimating factors, including their derivation and application, shall be provided. Include a brief description of the Offeror's procurement method to be used (Competition, engineering estimate, market survey, etc.)
- Other Directs Costs, particularly any proposed items of equipment or facilities. Equipment and facilities generally must be furnished by the contractor/recipient. (Justifications must be provided when Government funding for such items is sought). Include a brief description of the Offeror's procurement method to be used (Competition, engineering estimate, market survey, etc.)
- Proposed fee/profit.

**Part 2:** Cost breakdown by task/sub-task using the same task numbers in the Statement of Work.

### 3. Significant Dates and Times –

| <b>Anticipated Schedule of Events *</b>                  |                                     |                            |
|--|-------------------------------------|----------------------------|
| <b>EVENT</b>   | <b>DATE (MM/DD/YEAR)</b>            | <b>TIME (EASTERN TIME)</b> |
| Pre-Proposal Conference/Industry Day                     | 9 April 2007                        | TBD                        |
| White Papers Due Date                                    | 23 May 2007                         | 2:00 PM ET                 |
| Notification of Initial Navy Evaluations of White Papers | 8 June 2007*                        | N/A                        |
| Oral Presentation of White Papers                        | Week of 9 July 2007, exact date TBD | TBD                        |
| Notification of Navy Evaluations of Oral Presentations   | 30 July 2007*                       | N/A                        |
| Full Proposal Due Date                                   | 24 August 2007                      | 2:00 PM ET                 |
| Notification of Selection for Award                      | 17 September 2007*                  | N/A                        |
| Contract Awards  | 30 November 2007*                   | N/A                        |
| Kickoff Meeting  | 12 December 2007*                   | TBD                        |

\*These dates are estimates as of the date of this announcement. Please review the [http://www.onr.navy.mil/FORCENet\\_EC08-06](http://www.onr.navy.mil/FORCENet_EC08-06) website for dates and times.

ET= Eastern Time  
 TBD= To Be Determined  
 N/A = Not Applicable

### 4. Submission of Late Proposals –

In accordance with FAR Subpart 15.208 any proposal, modification, or revision, that is received at the designated Government office after the exact time specified for receipt of proposals is "late" and will not be considered unless it is received before award is made, the contracting officer determines that accepting the late proposal would not unduly delay the acquisition and:

- (a) If it was transmitted through an electronic commerce method authorized by the announcement, it was received at the initial point of entry to the Government infrastructure not later than 5:00 p.m. one working day prior to the date specified for receipt of proposals; or
- (b) There is acceptable evidence to establish that it was received at the Government installation designated for receipt of proposals and was under the Government's control prior to the time set for receipt of proposals; or
- (c) It was the only proposal received.

However, a late modification of an otherwise timely and successful proposal that makes its terms more favorable to the Government will be considered at any time it is received and may be accepted.

Acceptable evidence to establish the time or receipt at the Government installation includes the time/date stamp of that installation on the proposal wrapper, other documentary evidence of receipt maintained by the installation, or oral testimony or statements of Government personnel.

If an emergency or unanticipated event interrupts normal Government processes so that proposals cannot be received at the Government office designated for receipt of proposals by the exact time specified in the announcement, and urgent Government requirements preclude

amendment of the announcement closing date, the time specified for receipt of proposals will be deemed to be extended to the same time of day specified in the announcement on the first work day on which normal Government processes resume.

The contracting officer must promptly notify any Offeror if its proposal, modifications, or revision was received late and must inform the offeror whether its proposal will be considered.

## **5. Address for the Submission of White Papers, and Full Proposals –**

Office of Naval Research  
One Liberty Center  
875 North Randolph Street, Room 1181  
Attn: Mr. Gary Toth, ONR Code 311  
Arlington, VA 22203-1995  
Telephone Number: (703) 696-4961

*Note: If the Offeror is using US Postal Service, please address the proposal to the Suite 1425 rather than Suite 1181*

*Note: Due to the changes in security procedures since September 11, 2001, the time required for hard-copy written materials to be received at the Office of Naval Research has increased. Thus it is recommended that any hard-copy proposal be mailed several days before the deadline established in the solicitation so that it will not be received late and thus be ineligible for award consideration.*

**NOTE: PROPOSALS SENT BY FAX OR E-MAIL WILL NOT BE CONSIDERED.**

## **V. EVALUATION INFORMATION**

The Office of Naval Research plans to make multiple awards depending in their value to the Government in accordance with the evaluation criteria listed below. The following evaluation criteria apply to the White Papers, Oral Presentations and the Full Proposals.

Proposals will be selected through a technical/scientific/business decision process with technical and scientific considerations being more important than cost. Even though cost is of less importance than the technical factors combined, it will not be ignored. The degree of its importance will increase with the degree of equality of the proposals in relation to the other factors on which selection is to be based, or when the cost is so significantly high as to diminish the value of the technical superiority to the Government. The technical factors A through D are listed in descending order of importance. The sub-criteria within each of the lettered paragraphs are of equal importance.

### *A. Overall scientific and technical merits of the proposal*

1. The degree of innovation and ability to deliver potential groupings of functions or services within a multi-tiered framework that will provide the means to:

- Access a dynamic common but distributed data layer in a consistent way to facilitate consistent situation awareness;
- Develop a situation representation and visualization that is appropriate to the mission and role of the participants; and
- Facilitate effective and relevant collaboration for MHQ to MOC, MOC to MOC and other key mission elements to allow future operations planning, transition to current planning, execution, plan supervision and replanning.

Address issues associated with problems of military and maritime scale, uncertainty, timeliness, potential computational limitations, and the need for representation in forms that are understandable and confirmable by humans.

2. The soundness of technical concept
3. The offeror's awareness of the state of the art and understanding of the scope of the problem and the technical effort needed to address it.
4. The extent to which the government will have full intellectual property rights, or at least government purpose intellectual property rights, in the technical data and computer software received. If the proposal includes proprietary restrictions on government use of intellectual property, the proposal shall show how components with restricted intellectual property rights are modularized within the Service Oriented Architecture (SOA).

B. Naval relevance, anticipated contributions of the proposed technology to the JFMCC TACMEMO and MHQ with MOC Concept of Operations, and transition potential (to the extent possible).

The proposal will also be evaluated on the degree to which it shows the connection between the proposed technology development and the unclassified operational context document described in Reference Footnote – Section I, paragraph 5.1.

C. Offeror's capabilities, related experience, and past performance, including the qualifications, capabilities and experience of the proposed principal personnel.

1. The quality of technical personnel proposed is consistent with the work proposed.
2. The offeror's experience in relevant efforts with similar resources.
3. The ability to manage the proposed effort.

D. Management Plan.

The Management Plan is not required in the white paper. The Management Plan is required for oral presentations and the Full Proposal, and will be evaluated in accordance with the following criteria:

1. Plan is in milestone format with succinct factual description of how achievement of milestones will be managed.
2. Relationship between cost and milestone achievement is defined.
3. Estimate of technical, schedule and cost risk is stated with risk management plan provided.

E. The Realism of the Proposed Cost.

1. Total Cost relative to benefit.
2. Realism of cost levels for facilities and staffing.

Socio-Economic Merits- For proposed awards to be made as contracts to large businesses, the socio-economic merits of each proposal will be evaluated based on the extent of the Offeror's commitment in providing meaningful subcontracting opportunities for small businesses, small disadvantaged businesses, woman-owned small businesses, HUBZone small businesses, veteran-owned small businesses, service disabled veteran-owned small businesses, historically black colleges and universities, and minority institutions."

Industry-Academia Partnering – ONR highly encourages partnering among industry and academia with a view toward speeding the incorporation of new science and technology into

fielded systems. Proposals that utilize industry-academic partnering which enhances the development of novel S&T advances will be given favorable consideration.”

*Industry-Government Partnering* – ONR highly encourages partnering among industry and Government with a view toward speeding the incorporation of new science and technology into fielded systems. Proposals that utilize industry-Government partnering which enhances the development of novel S&T advances will be given favorable consideration.”

*Evaluation Exclusive of Options* – The Government will evaluate for award purposes by adding the total cost for all options to the total cost for the basic requirement. The evaluation of options will not obligate the Government to exercise the option(s)

## **2. Evaluation Panel -**

White Papers, oral presentation materials, and full proposals submitted under this BAA will be protected from unauthorized disclosure in accordance with FAR 3.104-5 and 15.207. Government technical experts drawn from the Naval operational community, Office of Naval Research, the Naval systems commands, Navy warfare centers, the Naval Research Laboratory (NRL), and other Naval and Defense activities/agencies will evaluate the white papers, oral presentations, and full proposals.

The Government may use selected support personnel both as subject-matter expert technical consultants and as administrative support regarding white papers, presentations, and full proposals ensuing from this announcement. Similarly, support contractors may assist in the evaluation of cost proposals. However, proposal selection and award decisions are solely the responsibility of Government personnel. Each support contractor employee having access to technical or cost proposals submitted in response to this BAA will be required to sign a non-disclosure agreement prior to receipt of any proposal submissions to protect proprietary and source-selection information.

## **VI. AWARD ADMINISTRATION INFORMATION**

### **1. Administrative Requirements –**

- The North American Industry Classification System (NAICS) code – The North American Industry Classification System (NAICS) code for this announcement is 54170 with a small business size standard of 500 employees.
- CCR - Successful Offerors not already registered in the Central Contractor Registry (CCR) will be required to register in CCR prior to award of any grant, contract, cooperative agreement, or other transaction agreement. Information on CCR registration is available at <http://www.onr.navy.mil/02/ccr.htm>.
- Certifications – In accordance with FAR 4.1201, prospective contractors shall complete and submit electronic annual representations and certifications at <http://orca.bpn.gov>. The Online Representations and Certifications Application (ORCA) will be supplemented by DFARS contract specific representations and certifications. Proposals should be accompanied by a completed certification package which may be accessed on the ONR Home Page at Contracts & Grants entitled, "Representations and Certifications for Contracts" at [http://www.onr.navy.mil/02/rep\\_cert.asp](http://www.onr.navy.mil/02/rep_cert.asp).
- Subcontracting Plans - Successful contract proposals that exceed \$550,000, submitted by all “but small business concerns”, will be required to submit prior to award a Small Business Subcontracting Plan in accordance with FAR 52.219-9.

## 2. Deliverables

The following sample data deliverables could be required under a typical research effort.

- \* Software
- \* Software source codes
- \* Software executable codes
- \* Application Programming Interface (API)
- \* User manuals
- \* Software functional description document
- \* Software configuration description
- \* Software installation manuals
- \* Executable or binaries complete with software libraries
- \* Execution Plan
- \* Technical Progress reports at regular time intervals (monthly, quarterly, but not both) as specified in the award document, including technical data, algorithms, software (source code, executable code, pseudo code, etc cross referenced to the applicable deliverable.)
- \* Technical and Financial Progress Reports at regular time intervals as specified in the award document.
- \* Presentation Material(s)
- \* Other Documents or Reports
- \* Final Report

Specific data deliverables should be proposed by each offeror and finalized during negotiations. Research performed under contracts may also include the delivery of software, prototypes, and other hardware deliverables.

## **VII. OTHER INFORMATION**

### **1. Government Property/Government Furnished Equipment (GFE) and Facilities**

Each offeror must provide a very specific description of any equipment/hardware that it needs to acquire to perform the work. This description should indicate whether or not each particular piece of equipment/hardware will be included as part of a deliverable item under the resulting award. Also, this description should identify the component, nomenclature, and configuration of the equipment/hardware proposed to be purchased for this effort. It is the Government's desire that contractors purchase the equipment/hardware for deliverable items under their contract. The purchase on a direct reimbursement basis of special test equipment or other equipment that is not included in a deliverable item will be evaluated for allowability on a case-by-case basis.

Offerors are expected to provide all facilities (equipment and/or real property) necessary for the performance of the proposed effort. Any direct charge of facilities, not including deliverable items, must be included in the offeror's proposal and approved in advance by the cognizant Government official. After contract award, requests to use Government integration, test, and experiment facilities will be considered on a case by case basis based on availability and justification of need.

Copies of the following Maritime Headquarters with Maritime Operations Center (MHQ with MOC) Concept of Operations (CONOPS) are available on Fleet Forces Command (FFC)'s website <http://www.cffc.navy.mil/>. Potential offerors should visit the website, register for access, and download this material. Copies of the Joint Force Maritime Component Commander (JFMCC) Planning and Execution, Navy Warfare Development Command, TACMEMO 3-32-06, Final Draft June '06 will be supplied either on Industry Day or by request from qualified requestors.

In addition, the website: <http://www.disa.mil/> section on Enterprise Services contains relevant material regarding Network Centric Enterprise Services (NCES) and Net-Enabled Command Capability (NECC) documents and briefings.

### **2. Security Classification**

ONR will accept only unclassified proposals; the proposal shall include a severable, self-standing Statement of Work, which contains only unclassified information and does not include any propriety restrictions as described in Section IV, paragraph 2.

In order to facilitate intra-program collaboration and technology transfer, the Government will attempt to enable awardees to work at the unclassified level to the maximum extent possible. However, access to and storage of some classified information (including collateral secret, top secret and potentially SCI) will be required under this program. Offerors must specify the maximum level of classification they currently hold, additional accesses they require and location of work.

ONR will not use level of classification as selection criteria but will attempt to provide accesses and partnerships between offerors and/or with Government organizations to facilitate the use of research articles and products in Sea Trial, experimentation and transition processes.

If offerors propose the use unclassified data in their deliveries and experimentation regarding a potentially classified project, they should use methods and conventions consistent with those used in classified environments. Such conventions will permit the various subsystems and the final system to be more adaptable in accommodating classified data in the transition system.

### 3. Warfare Mission Areas

**3.1** The goal of the "Globally Netted Maritime Headquarters with Maritime Operations Centers" Program is to support the FORCENet vision by developing measurable advances in warfighter capabilities at the operational level of warfare. The Joint Coalition Force Maritime Component Commander (J/CFMCC) concept has been incorporated by Navy into the broader concept of the Maritime Headquarters with Maritime Operations Center (MHQw/MOC), an evolving doctrinal concept. The MHQw/MOC concept is becoming a major emphasis and driver for positioning Naval capabilities in the transforming Maritime Domain, an environment characterized by traditional Naval missions, inter alia, Undersea Warfare (USW) including Anti-Submarine Warfare (ASW), Anti Surface Warfare combined with Joint and Coalition operations. Within this domain Naval Forces will be required to support Maritime Security, Humanitarian Operations, GWOT, Homeland Defense (HLD) missions, Stability Operations, and MCO.

**3.2** The MHQw/MOC concepts, while evolving, are embryonic and emphasize the "non-material" aspects at this stage of development. Nevertheless, a consistent theme around which these concepts evolve is the idea of "globally netted" forces, the heart of FORCENet and the key to dynamic, flexible, adaptable command and control processes. Many of these network dependencies have been explored over the last several years through war games, Sea Trial experimentation and analysis of operational experience. The recent experience in experiments, exercises and real world operations has demonstrated that the rapid change is the dominant characteristic of modern naval warfare and the need for dynamic Command and Control (C2) processes is of paramount importance to operational success. The MHQw/MOC and J/CFMCC concepts are attempting to address this from a CONOPS and Tactics, Techniques and Procedures (TTP) perspective.

**3.3** The J/CFMCC and MOC are responsible for operational level planning and command control of all Naval WMA. Potential offerors who wish to focus their technology proposals on a few selected WMA are advised that the following missions are of greatest interest in relation to this BAA: 1) Maritime Interdiction Operations, 2) Enhanced Maritime Interdiction Operations, 3) Theater Anti-Submarine Warfare, and 4) Theater Anti-Surface Warfare. WMA that are of less immediate interest include: 1) Theater Air and Missile Defense, 2) Anti-Air Warfare, and 3) Strike Warfare. However, technology proposals should show how the proposed technology development is extensible and scalable to globally networked MOC and or J/CFMCC conducting multiple WMA in many Areas of Operational Responsibility (AoR).

**3.4** The ONR research program will address the capability gaps that have been identified during the ongoing MHQw/MOC CONOPS development. This evolution is built around an experimentation process involving war-games, laboratory experimentation, and limited and full operational experimentation to wring out all aspects of the DOTMLPF impacts. The ONR research program will be required to participate at various levels in this experimentation continuum and will itself evolve as the concepts evolve and deepen. As a result, the research program will be required to demonstrate the same agility and flexibility that is being required of Naval Forces in the dynamic global maritime environment. The capability advances will be accomplished by developing appropriate technology elements (articulated in Section 5.2 "Program Thrusts") and integrating them into the experimentation program, potentially including Sea Trial events, in a manner that enables proof of principle demonstrations in one or more MHQw/MOC scenarios or vignettes.

This ONR Program addresses current warfighter functionality shortfalls in the following areas:

\* Data, information and knowledge management to provide effective information sharing and decision support within the MHQ w/MOC, between MOCs and between analogous command structures in other services, Joint and coalition organizations (for example Air Force AOCs). Information sharing and collaboration with common operational and tactical pictures, shared situation awareness, and shared insight into current and future plans are recurring themes in the MHQ w/MOC concept evolution. Navy Warfare Development Command (NWDC) has noted that these themes support the value of a Collaborative Information Environment (CIE). Such

a notion, which is an element of FORCENet and other visionary concepts, is motivation for this research program. Achieving an environment of this kind requires research investment. This program will create a distributed dynamic data layer necessary to support the objective vision, no matter how it evolves.

\* The inability to visualize a developing operational situation or visualize network utilization, information flows or future plans hampers current commanders. Future Operational Planning (FOP) and the seamless flow from future into current planning and execution processes is a key element of MHQ and MOC concepts. The ability to visualize situations and plans is essential to this concept. This capability gap is less a problem of display technology, which has historically consumed the bulk of visualization investment, but more an issue of what to display and how to make what is displayed resonate with the necessary decision process and cognition of the commander and supporting subordinates. This program will develop automated techniques and tool to provide visualization and representation that is relevant to commander's, analyst's or other operator's role(s) in a mission context.

\* Collaboration across command structures is currently limited largely to VTC and relatively simple tools capable of operating over local networks and in some cases wider networks. The MHQ w/MOC concept envisions extensive collaboration from future plan development through synchronized execution. Collaboration is expected to be the common MHQ MOC practice across command levels, Joint, multi-service, multi-government agencies, non government organizations, and coalition military/civil partners. Further, full collaboration across functional areas (logistics and intelligence for example) is envisioned. This collaboration is not envisioned as a video/telephone conference framework, though that is not excluded, but rather a full, open sharing of all mission relevant information and collaborative participation in development and sharing of planning, plan supervision, execution, and replanning processes and products. The ONR program will develop automated techniques to share and update fused products and contextual material as well as automated tools to facilitate role based preparation of plans and plan monitoring and supervision functions. This Program will also develop information management capabilities to permit automated discovery, access, sharing and distribution of role and mission relevant data, and information and context.

\* Technology articles resulting from this research will be software that is integrated into emerging net-centric Navy and Marine Corps Command & Control and Intelligence, Surveillance, and Reconnaissance (C2 and ISR) acquisition programs through a SOA<sup>6</sup> such as Composable FORCENet (CFn) 2.0A or DCGS Infrastructure Backbone (DIB) and for the Navy forces afloat, the CANES, in accordance with NCES and Net-Centric Enterprise Solutions for Interoperability (NESI) guidance.

#### **4. Relationship to Net-Enabled Command Capability (NECC) and Net Centric Enterprise Services (NCES)**

The research opportunity that is advertised in this BAA relates to Navy operational level capability for globally networked J/FCMCC. ONR has greatest interest in technologies that will provide measurable improvement in warfighter capability and will transition to Navy acquisition Programs of Record (PoR). Technology proposals should explain how the proposed approach will use NCES at the operational level, particularly in situations where bandwidth is constrained or frequently interrupted by operational measures such as restrictive emission control. Technology proposals should explain how the proposed deliverable will integrate with the Joint NECC program, and use NECC-defined processes for test and evaluation.

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<sup>6</sup> The SOA that is applicable to technology development of the Program is the Navy (PEO C4I and Space) and Air Force Electronic Systems Command Net-centric Enterprise Solutions for Interoperability (NESI). NESI provides implementation guidance, technical criteria and reusable software components that can facilitate the design, development and usage of information systems that support Net-Centric Warfare. These are available at <http://nesipublic.spawar.navy.mil/>.

## **5. Project Meetings & Reviews**

Individual reviews between the ONR sponsor and the performer may be held as necessary. Status reviews may also be held to provide a forum for reviews of the latest results from experiments and any other incremental progress. These meetings will be held at various sites throughout the country. For costing purposes, Offerors should assume that 20% of these meetings will be at or near ONR, Arlington Virginia, and 80% at other contractor or government facilities. Interim meetings are likely, but these will be accomplished via video telephone conferences, telephone conferences, or via web-based collaboration

## **6. Department of Defense High Performance Computing Program**

The DoD High Performance Computing Program (HPCMP) furnishes the DoD S & T and DT & E communities with use-access to very powerful high performance computing systems. Awardees of ONR contracts, grants, and assistance instruments may be eligible to use HPCMP assets in support of their funded activities if ONR Program Officer approval is obtained and if security/screening requirements are favorably completed. Additional information and an application may be found at <http://www.hpcmo.hpc.mil/>.

## **7. FORCenet S&T Website**

The FORCenet S&T website [http://www.onr.navy.mil/forcenet\\_ec08-06/](http://www.onr.navy.mil/forcenet_ec08-06/) will provide additional information related to this BAA, and will be the primary means of publicizing all relevant information concerning this BAA. The registration web site can be found at:

<http://www.onr.navy.mil/about/events/regdetail.asp?cid=300&code=4>

All interested parties are encouraged to visit both websites regularly.