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Request For Quotation

And

Call For Participation

In the

EMPIRE CHALLENGE 08 PILOT (EC09 OGC PILOT)

Annex C—EC09 OGC Pilot Concept of Operations

RFQ Issuance Date: December 22, 2008

Proposal Due Date: January 14, 2009

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Annex C: EC09 OGC Pilot Concept of Operations

1   Introduction

This Annex describes the Concept of Operations for the EC09 OGC Pilot. This document is organized around nine particular time frames or phases. The phases are:

1. Proposal Development, **Week -3** (January 6, 2009 – January 14, 2009)—the time during which RFQ respondent proposals will be developed. This time will also be used by the OGC to develop draft management and communication plans for the initiative operational phases.

2. Initiative Design Analysis, **Week -2** (January 14, 2009 – January 19, 2009)—the time that responses will be analysed, the initiative design will be solidified, the initiative architecture[1] will be refined, the initial System Architecture will be revised and a demonstration concept will be determined.

3. Participant Negotiations, **Week -1 to Week 3** (January 19, 2009 – February 27, 2009):—the time will also be used to communicate with RFQ respondents concerning their proposals, to negotiate with them on their initiative participation, and to communicate the status of the EC09 OGC Pilot to NGA partners as well as the OGC Technical and Planning Committees. During this time, purchase orders for targeted participants and Memoranda of Understanding will be signed.

4. Initiative Kick-off, **Week 1** (February 10-12, 2009):— the time that starts the initiative operation. This meeting will be held in the DC area and will last approximately two days. During the Kick-off, the participants will 1) agree upon generic interfaces and protocols to be used as the starting place for software components, 2) finalize the initial System Architecture, and 3) refine the Demonstration Concept. This phase is covered specifically during the period of performance of this RFQ.

5. Implementation, **Week 1 to Week 52** (February 10, 2009 – February 9, 2010):—the time of designing and creating GUI pages, installing software, testing and verifying system functionality on OGC Network. This phase is covered specifically during the period of performance of this RFQ.

6. First Network Integration/Solution Transfer, **Week 4 to Week 8** (March cycle): —The EC09 OGC Pilot Network Integration occurs when the interfaces and demonstrations developed during the Interface Development and Demonstration Development are tested in standard OGC Interoperability Experiments. The first cycle will be conducted only in the unclassified environment.

7. Second Network Integration/Solution Transfer, **Week 13 to Week 16** (May cycle): —The EC09 OGC Pilot Network Integration occurs when the interfaces and demonstrations developed during the Interface Development and Demonstration Development are transferred to Sponsor environments. The second cycle will may be conducted in both the unclassified and classified environments if any software or hardware has been selected and installed in the classified environment at that time.

8. Third Network Integration/Solution Transfer, **Week 17 to Week 20** (June cycle): —The EC09 OGC Pilot Network Integration occurs when the interfaces and demonstrations developed during the Interface Development and Demonstration Development are transferred to Sponsor environments. The third cycle will may be conducted in both the unclassified and classified environments.

9. EC09 Live Demonstration – Finished system is demonstrated, **Week 22 to Week 24** (July 13, 2009 – July 31, 2009).

10. EC09 Support, **Week 29 to Week 52** – Sponsor may request maintenance of some components.

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[1] The testbed architecture consists of the operational, technical, and system architectures as described in Annex B.

2   EC09 OGC Pilot Lifecycle Phases

2.1   Proposal Development

The RFQ and Responses—The primary activity during this period is the development of proposals. Proposals should reflect an understanding of the following:

- Proposing organizations must be members of OGC, or must submit an application for membership and join if their proposals are accepted.

- The OpenGIS® Abstract Specification, as well as OpenGIS Standards, will cover the technology areas under consideration in the RFQ. The relationship between the content of the proposal and the relevant OpenGIS Standards should be noted by the Proposing organizations.

- Proposing organizations should plan on performing all development work at their own facilities. These facilities should include a server (where applicable) that is accessible to other participants via the Internet. TIEs will be carried out among the participants based on these Internet-accessible servers.

- Proposing organizations shall plan to install their components at any of their own facilities for the OGC Network based pilot activities

- Proposing organizations selected for participation in the EC09 demonstration classified environment shall plan to install their components in facilities that have access to the appropriate networks. Arrangements have been made to place servers at Reston, VA and clients may be deployed there as well or at China Lake, NAWC, the Joint Systems Integration Command in Suffolk, VA. Respondents from other companies with network access can arrange on their own to locate equipment there if they desire.

- The desired outcome of the Pilot includes an implementation that becomes part of the OGC Network for the performance period. Proposals covering technologies requiring specific hardware or software environments should indicate what these are.

- Proposals need not address the full spectrum of the EC09 OGC Pilot architecture as outlined in Annex B. Proposals can focus on specific portions of that architecture.

- Proposing organizations should be prepared to provide interoperable components and thus should be prepared to cooperate with all selected development teams, regardless of whether individual proposals covered the full EC09 OGC Pilot architecture or portions of it.

- Software components developed in the EC09 OGC Pilot initiative should either be based upon currently shipping products, or should be prototypes or pre-release versions of products that the responding organization intends to sell or otherwise distribute for ultimate deployment.

- Responding organizations must participate in the full course of test and integration experiments, and other essential activities throughout the initiative.

- Proposal selection and funding may be on the basis of portions of the proposal deemed most likely to lead to a successful EC09 OGC Pilot demonstration.

- Proposing organizations are free to provide alternatives to the EC09 OGC Pilot architecture so long as it fits with the Conceptual Architecture in Annex B. The Concept Architecture in Appendix B will be the basis for the pilot implementation.

- Proposing organizations should be familiar with the existing OGC Network infrastructure. OGC Network provides a set of services, datasets, components, toolkits, and reference materials that can and should be used to leverage the EC09 OGC Pilot.

- Proposing organizations shall use the supplied template and forms to complete to their proposals.

The primary activity during this period is the development of proposals by potential participants.

During this period, there will be a bidder's meeting, so that respondents can ask questions, request clarifications, and advise the EC09 OGC Pilot Team of issues.

Those organizations or companies choosing to respond are expected to have representatives available to attend this meeting in person or by phone on January 6, 2009.

Please note that this meeting will be used to clarify your questions concerning this Pilot.

Furthermore, respondents should plan to send at least one engineer to the Kickoff meeting.

2.1.1   Management Approach and Communications Plan

The EC09 OGC Pilot Team will apply the standard OGC Pilot Initiative management approach, and initiate its communication plan during the period between the release of the RFQ and the submission of the responses. These activities will provide guidance to the EC09 OGC Pilot Team and participants for the conduct of EC09 OGC Pilot.

The management approach for EC09 OGC Pilot, as for other OGC IP initiatives, is outlined in the Interoperability Program Standards Operating Policy, Processes and Procedures (IPSOP[3]). This document details the following roles and responsibilities of individuals providing management support to OGC initiatives a[3]:

1. Sponsor Team—representatives from the organizations that have provided sponsorship for the Pilot initiative.
2. OGC Initiative Liaison—the OGC staff person responsible for the oversight of the initiative.
3. Operations—the individual responsible for the day-to-day operation of the initiative.
4. Architecture—the individuals responsible for the overall initiative architecture during the course of the initiative.
5. Marketing—the individual responsible for the marketing aspects of the initiative.
6. Interface Team—a team of individuals representing all of the participants that are engaged in component development and representing sponsor organizations. The primary task of this team is to develop component interface and protocol definitions, implement components, revise interface and protocol definitions, and evolve the Initiative Architecture.
7. Operation Team—a team of individuals representing all of the participants and sponsoring organizations that are engaged in demonstration, testing, or data provision. The primary task of this team is to prepare scenarios for demonstrations, design tests that exercise the components, perform data development in support of these scenarios, build demonstrations and tests, and evolve the Demonstration Concept.
8. EC09 OGC Pilot Team—a group composed of the EC09team members, OGC Initiative Manager, Architecture, Operations, and Marketing.

The Communications Plan, included in this RFQ as Annex D, details resources and procedures for reporting and exchanging information with participants, relevant WGs, TC, PC, and sponsors. This plan includes the development of a Web page with appropriate documents and regular updates to EC09 OGC Pilot information. The EC09 OGC Pilot Team will provide a list server for participants to exchange project-relevant e-mail. A teleconferencing plan and online collaboration plan will be developed to further support communications among participants.

2.1.2 Letter of Intent and Contract Execution

Respondents to this RFQ must include a signed letter of intent (LOI) with their submittal. The LOI must state that if they are selected for inclusion in the EC09 OGC Pilot Initiative, and they elect to participate, then they will sign a Statement of Work (SOW) or a Statement of Participation (SOP) by the end of the Negotiation Period. These contracts, also to be signed by OGC, will contain common vision and goal statements, will be an agreement to work toward these goals, and will define the roles and responsibilities of the participants. Respondents who do not submit a signed SOW or SOP by the end of the Negotiation Period will not have access to the project.

2.2 Initiative Design, Response Analysis, Selection and Negotiations

Figure 2 depicts the processes involved in the Initiative Design phase. Each of these processes, their inputs and outputs, and other aspects are detailed in this section.
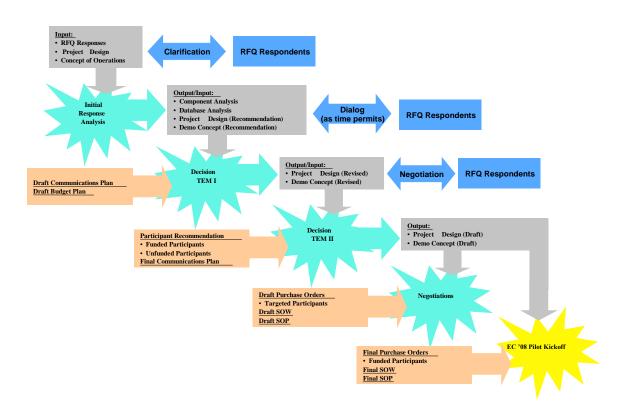
Figure 2: Processes Leading up to the EC09 OGC Pilot Initiative Kickoff Meeting

The EC09 OGC Pilot Team and partners will review the RFQ responses beginning immediately after they are received. During the analysis process the IP Team may need to contact respondents for clarification; thus respondents should prepare for this eventuality. Time permitting the Team may also communicate with RFQ respondents about details of the recommended Initiative Design and Demonstration Concept. Early submission will not be used as an evaluation criterion, but it is encouraged as timelines are very tight for the pilot.

2.2.1   Component and Requirement Analysis

The review team will accomplish three tasks:

1. Analyze the components proposed in the RFQ responses in the context of the Pilot WBS found in Annex A.
2. Compare the proposed efforts with the requirements of the initiative and determine viability.
3. Assess the feasibility of the RFQ responses against the use cases.
4. Analyze proposed specification development
5. Analyze proposed testing methodologies, including but not limited to performance testing methodologies.

2.2.2   Initiative (System) Architecture

The proposal review team will then update the EC08 As-Built Architecture with the selected components, for deployment within the initiative, and relate them to the hardware and software available.

2.2.3   Demonstration Concept

The high level demonstration concept is to integrate with the EC09 Multi-Domain Awareness Joint Capability Thread (MDA-JCT) and provide OGC Pilot services to the actors in that thread. IP Team will incorporate the preliminary analysis of responses into a demonstration concept recommendation. This document will discuss the ability of proposed software components to work together in a demonstration context, and will identify gaps. Information on this JCT will be provided to the participants as it becomes available.

In the case of proposals for demonstration and database development tasks, proposed databases that are applicable to the project, and the details of their contents, will be listed. The review team will evaluate the ability of the proposed databases to support anticipated scenarios, and will develop an estimate of the effort required to develop metadata for the proposed data sets. Respondents are encouraged to provide as much information in this regard as they have available.

The team will also construct a listing of database compatibility and related issues (accuracy, scale, coordinate system, data type), to inform the scenario development process, and will develop early recommendations regarding the applicability of the databases with respect to demonstration scenario support.

The demonstration concept document will include references to existing and emerging resources on OGC Network, including the resources under development in this project.

2.2.4   Decision TEM I – IP Team and Sponsors only (16 January 2009)

At Decision Technical Evaluation Meeting I, EC09 OGC Pilot Team will present (with the Component and Database Analyses as background):

- The Initiative (System) Architecture Recommendation, and
- The Demonstration Concept Recommendation.

This presentation will be made in the context of first drafts of the plans described above:

- Communications Plan

The primary decisions to be made by the sponsors at this TEM are:

- Is the recommended Initiative Architecture workable? If not, how to make it workable.

- Which RFQ responses, or subset thereof, should be provided cost-sharing funds and at what level given all inputs?

- Is the Demonstration Concept workable? If not, how to make it workable.

- Are the management approach and the Communications Plan reasonable and complete?

Immediately following Decision TEM I, Initiative staff will begin to evaluate recommendations to the various plans and will revise the plans and concepts accordingly. It will also make budgetary adjustments based on sponsor inputs.

2.2.5   Decision TEM II – IP Team and sponsors only (20 January 2009)

At Decision Technical Evaluation Meeting II, the EC09 OGC Pilot Team will present:

- The Initiative (System) Architecture Revision, and

- The Demonstration Concept Revision.

- The Participant Recommendation

The primary decisions to be made by the sponsors at this TEM are:

- Is the revised Initiative Architecture workable? If not, how to make it workable.

- Is the Participant Recommendation correct and affordable?

- Is the Demonstration Concept workable? If not, how to make it workable.

- Are the management approach and Communications Plans reasonable and complete?

Immediately following Decision TEM II, the Team will 1) finalize the Initiative Architecture and Concept of Operation (now including the Demonstration Concept), 2) begin to insert specific information into the existing purchase order template for each targeted participant organization, and 3) make the insertions of specifics for all participants into a contract template. Each targeted respondent POC should be available or make arrangements for alternates during this period. The output of Decision TEM II will be a final Initiative Architecture and Demonstration Concept. Proposing organizations that have been selected for funding will be notified after the completion of Decision TEM II.

2.3   Initiative Kickoff (10-12 February 2009)

The EC09 OGC Pilot project will be launched officially with a Kickoff meeting in the Washington, DC, Northern Virginia area (exact location to be announced). Prior to the Kickoff meeting all the participants will sign a Contract, as indicated above, that includes a description of the aspect of EC09 OGC Pilot in which they will participate.

The Kickoff meeting will address three development activities in the EC09 OGC Pilot process: 1) component interface and protocol confirmations, 2) best practices for component network operations, and 2) demonstration scenario development. The demonstration scenarios used in EC09 OGC Pilot will be derived from the work of the EC09 MDA-JCT.

2.4   EC09 OGC Pilot Interface and Demonstration Development

This section defines an initial concept for the conduct of development activities in EC09 OGC Pilot. The actual schedule and further information will be provided at the Initiative Kickoff.

2.4.1   Interface Confirmation and Project Testing

This section defines the phase called Interface Confirmation (IC) and Project Testing Phase. The schedule and further information will be developed and provided at the Testbed Kickoff. This phase corresponds with WBS Tasks 3.6 to 3.8 and their related sub-tasks.

During the ID phase, the Technical Architecture (System Architecture) will be refined while groups of participants work on development of specific components. This work will be shaped by the Scenario and Data Development tasks as guided by Annex B. This mutual interaction will allow problems and successes to surface early, and will guide early TIEs, without waiting until Demonstration Integration and Testing time. Demonstration Integration and Testing will then become a matter of integrating already tested interfaces into a larger, cohesive unit capable of supporting the end-to-end nature of the scenarios.

Technology Integration Experiments (TIEs) will be conducted on a regular basis, in an iterative manner, as outlined by the initiative architects in the development schedule. During identified TIE phases of the initiative, participants developing components within the Architecture shall test interfaces for component accessibility, behavior, and most important, interoperability. The IP Team will develop a TIE matrix defining the nature of TIEs that shall be conducted and their scheduled occurrence within the initiative. Participants will report the outcome of each TIE following the TIE reporting template provided by IP Team.   The OGC Network based TIEs will be scheduled such that software chosen by the NGA for insertion can be included in the next available EC09 spiral as defined in the overall schedule.

TIEs will be conducted within the development cycle of the Initiative. TIEs will follow initial interface selection, interface construction, component creation, and integration of the interface with application logic. During each TIE iteration, server components under test shall have data loaded to allow client software to exercise the current functionality. Participants working behind firewalls shall take any necessary steps to allow the test to be conducted through the firewall or outside of the firewall. All participants are expected to provide appropriate documentation to allow the successful conduct of these experiments. All participants are expected to upload a reference to their components to the Initiative web site, for each TIE iteration. Participants shall report the outcome of TIEs to the OWS list and the Initiative Architecture Team.

To the extent possible in an initiative of this duration, interface selection, software development, and test will follow the spiral development paradigm. In particular, issues exposed in each round of TIEs will drive requirements for the following round of specification (interface definition) refinement, coding, and test. The development cycle may also proceed incrementally, with primary attention on a limited set of operations at each turn of the cycle. This approach may require more closely coordinated interactions among participants than in previous OGC initiatives.

Annex B, the Technical Architecture, describes an initial set of services and interface mechanisms. It also contains EC08 As-Built System Architecture. Individual items in that EC08 As-Built System Architecture may be refined during the Kickoff meeting and will be further refined during the ID phase. Consistent with the spiral development paradigm, it is intended that there be periods of development followed by periods of synchronization between the various component developers. This will allow for issues to be resolved and documented before divergence begins to occur between individual component developers (i.e., two server developers) and between dependent component developers (i.e., server and client developers).

2.4.2   Demonstrations

This section builds upon the initiative characteristics developed during the Kickoff demonstration scenario design and creation discussions. To be successful, participants must execute four activities—designing support for the MDA-JCT demonstration, building a demonstration, testing the demonstration, and executing the demonstration on portable media.

Capitalizing on the Use Case work performed at the Kickoff, participants need to expand these initiatives in three design areas—providing input to the MDA-JCT, evaluating support data and incorporating support databases.

- Providing Input to the MDA-JCT—participants identify the relationships between the data, the MDA scenarios, and the components.

- Evaluate supporting data—access to the appropriate data is essential to exercising the initiative architecture and capturing a representative demonstration. Participants clearly must assure that the appropriate data exist and are available.

  - Determine Nature and Extent of Holdings—As mentioned previously, OGC Implementation Specification conformant data sources are preferred. Other important issues are the quality, availability, schema, and interoperability of the datasets.

  - Manage Supporting Data—On-line supporting data require that the participants identify the data stores, availability, throughput limitations, and ingestion process.

- Incorporate Supporting Data—Based on the data plan, participants must identify how data will migrate through initiative components to be exercised for the demonstration.

The design activities will be used by the participants to build and implement prototypes that clearly demonstrate the capabilities of the components by exercising the sponsors' scenarios. The component elements of the demonstrations include but are not limited to the following:

1. All Executables
2. All Necessary Links and Datasets
3. Supporting Documentation, Installation Instructions, Scripts, etc.

Participation in demonstration exercises is predicated upon full engagement with development, testing, and planning activities throughout the EC09 OGC Pilot initiative.

2.5   EC09 OGC Pilot Network Integration and Solution Transfer

The EC09 OGC Pilot Network Integration will be complete when the interfaces and demonstrations developed during the Interface Development and Demonstration Development have been integrated into the classified facility network (s). This activity will result in configuration-controlled components that are considered stable enough to use on a pilot basis.

Solution Transfer to the classified environment entails the installation of software components provided during the pilot at Reston, China Lake NAWC, JSIC facility unless other arrangements have been proposed and agreed upon. This task will be complete when sufficient documentation or instruction has been provided, and adequate licensing procedures completed, to allow the Sponsor organizations to exercise and evaluate and deploy these products or product prototypes during the performance period.

Software will be submitted for approval to use in the classified environment as it is selected by the sponsor. OGC and NGA will work with the owner of the software to complete the process as expeditiously as possible. Participants will be expected to run the DISA Gold Disk scan monthly and provide the exceptions to the Platinum Report. This report and an inventory of all software on the machine along with hardware characteristics and identification form the basis for the security accreditation that will be managed by IP Team for all of the participants.

If software has been selected and accredited and your company does not have personnel cleared for access to the networks an escort will be provided to allow installation and testing in that environment. If access is not possible for your personnel, IP Team will provide technical assistance to perform loading activities.

Companies resident in several countries, mostly those with membership in NATO, Australia, an New Zealand may be allowed to install their software on nodes in those countries. The selection of a network for use in the classified environment has not yet been made and the OGC network recommendation will be based on offering this opportunity to as many respondents as possible.

The three Dell Edge Servers provided to Reston for use during EC08 are available for use during EC09. Respondents may propose use of no more than one of those servers all for their services.

3   Progress Reporting

The EC09 OGC Pilot Team will provide regular (monthly) progress reports pertaining to progress of the Pilot to the sponsors (See WBS task item 1.3.1). The OGC IP Team and the sponsors intend to provide committee. Currently the EC09 OGC Pilot lead up activities and development phase will coincide with two OGC Technical Committee and Planning Committee meetings. At that time the participants will present specification and Best Practice feedback to the TC and MC. Demonstration scenarios and the architecture to support those demonstrations will be included in the presentation.

4   Integrated Initiatives

Other ongoing IP activities may present opportunities to support EC09 OGC Pilot and be coordinated with the activities within EC09 OGC Pilot. Any such resources and related activities may be integrated with those of EC09 OGC Pilot in order to take advantage of economies of scale, and possibly to explore the deployment of innovations coming from EC09 OGC Pilot.

5   EC09 OGC Pilot RFQ Scope

The purpose of this Request For Quotation is to solicit your proposal in response to a refined set of requirements for the Open Geospatial Consortium (OGC) EC09 OGC Pilot project. Using the attached template and forms, please submit your technical proposal, your cost sharing request, and your in-kind contribution declaration. Please limit your response to only those elements defined as and associated with EC09 OGC Pilot.