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Request For Quotation

And

Call For Participation

in the

FEDERAL AVIATION ADMINISTRATION (FAA) SPECIAL ACTIVITY AIRSPACE (SAA) DISSEMINATION PILOT

(FAA SAA DISSEMINATION PILOT)

RFQ Issuance Date: September 20, 2010

Proposal Due Date: October 18, 2010

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1 Introduction

1.1 Purpose

The purpose of this Request For Quotation and Call for Participation (hereafter referred to as RFQ/CFP) is to solicit your proposal in response to a refined set of requirements for the Federal Aviation Administration (FAA) Special Activity Airspace (SAA) Dissemination OGC Interoperability Pilot. This request is issued as an RFQ/CFP for two reasons:

- The first reason is that the sponsor, the US Federal Aviation Administration (FAA) is providing **cost-sharing** funds to offset expenses uniquely associated with the pilot.
- The second reason is that the sponsor and OGC intend to involve as many participants in the pilot as possible and thus are soliciting contributory proposals that will enhance and/or make use of the initiative outcomes.

1.2 Background

The FAA SAA Dissemination Pilot will extend the benefits of the SAA SWIM services by supporting the automated dissemination and portrayal of SAA information (including updates) to National Airspace System (NAS) stakeholders and other external users via OGC Web Services. Several use cases and supporting workflows are provided to enable understanding of the design of the pilot. The use cases involve the access, filtering and portrayal of SAA information as well as notifications of SAA updates and schedule changes to subscribed users.

The organizational concept of the FAA SAA Dissemination pilot involves coordination assistance from the Open Geospatial Consortium together with NAS stakeholders with an emphasis on airline partners' usage of SAA information for flight dispatch and planning purposes. Stakeholders and partners will be solicited to provide and deploy hardware/software as well as collaborating on the final architecture and technology design of the pilot.

Both architecture and technologies will be developed in a way to accommodate additional capabilities and stakeholders, such as exposing SAA information services to Department of Defense (DoD) systems to automate scheduling and information synchronization. The ultimate goal will be to use international geospatial standards and web services to provide end-to-end information flows from DoD originators of SAA activation requests to airlines and other NAS stakeholders. Achieving that goal will lead to improved compliance, utilization, reporting and efficiency of DoD and FAA cooperation on SAA usage.

As such the objectives of the FAA SAA Dissemination Pilot are three-fold:

1- Provide access to static and dynamic SAA information via OGC Web Services to increase the dissemination potential of SAA information to external users,

2- Expose SAA information services to the NAS stakeholders, particularly airlines, to support flight dispatch and planning,

3- Develop and exercise a standards-based Service-Oriented Architecture (SOA) that can accommodate future requirements related to automated scheduling and information synchronization with the DoD.

1.3 The RFQ/CFP Process

The FAA SAA Dissemination Pilot Initiative Management team (consisting of FAA and OGC personnel) has established a set of sponsor requirements. Those requirements and a Work Breakdown Structure intended to achieve those requirements are presented in Annex A. A Conceptual Architecture is presented in Annex B. A Concept of Operations for the FAA SAA Dissemination OGC Pilot, which includes the

schedule, is attached as Annex C. This Concept of Operations describes the detail needed to understand the planned operation of the initiative for a suitable response to this RFQ. Annex D details the communication plan for the FAA SAA Dissemination OGC Pilot.

This RFQ/CFP requests support for broader OGC interoperability objectives. Specifically, any organization is invited to contribute to the design of the capability identified in the effort and to explore architectural implementation, performance characteristics, and ease of application development as direct input into the technology development activity of OGC.

All organizations interested in participating in the project effort shall respond with a proposal. Instructions for submitting proposals are provided in Section 4. Annex A provides requirements and the WBS to guide the development and structure of responses. The Concept of Operations describes how the proposals will be analyzed, used to revise the project Architecture, the Concept of Operations, a Demonstration Concept for the project effort, and other details associated with the process of determining participants in the project. All participants should recognize that this does not reflect a change in OGC philosophy relative to reimbursing members for their support of OGC initiatives. The funding available is intended to offset costs incurred by participants in support of this effort.

Each organization with a role in the initiative shall sign a Participation Agreement that includes a statement of work (SOW) or a statement of participation (SOP) with OGC / FAA that outlines roles and responsibilities of each participant. By doing so, participants will agree to work together for the realization of the initiative goals and for the benefit of the industry. Draft versions of the SOW and SOP will be made available to all interested parties. Your SOW or SOP shall be signed and submitted no later than November 18, 2010, if you wish to receive funding in the FAA SAA Dissemination OGC Pilot.

1.4 Benefits to Participants

OGC perceives the FAA SAA Dissemination OGC Pilot as a prime opportunity for vendors, users, and other interested parties to mutually refine services, interfaces and protocols in the context of a hands-on engineering experience expected to enable an end-to-end automated SAA information flow using international standards and web services, and to be a tested exemplar for further integration of OGC Web Services in the FAA SWIM environment.

FAA is backing its belief in this vision with funds to offset development costs associated with this capability and interoperable web service demonstrations. This offers OGC members a unique opportunity to recoup a portion of their expenses related to the FAA SAA Dissemination Pilot initiative. Additionally, this effort has well-defined objectives, while providing a significant opportunity to explore alternatives in a unique hands-on engineering context.

2 Context

The initiative sponsor has worked with OGC to outline specific functional requirements that are representative of increasing the dissemination potential of SAA information to external users by leveraging OGC standards for the access, filtering and portrayal of SAA information as well as the support for notifications of SAA updates or schedule changes to subscribed users. Fundamental among these requirements is the basic need for interoperability between software components in multi-vendor settings.

The high-level objectives of this effort are three-fold:

- First, to focus on a scalable and extensible architecture for the FAA SAA Dissemination Pilot (that supports not only the Pilot requirements but also future requirements and stakeholders),
- Second, to harmonize and mature the specifications particularly regarding performance characteristics and appropriate use within the SWIM environment,
- And finally, to support the development of OGC-based implementations within the FAA SAA Dissemination Pilot based on the pilot architecture to meet sponsor application requirements.

Documenting the interfaces and protocols used in the FAA SAA Dissemination Pilot as well as the lessons learned in using them in the construction of tests and demonstrations will be the means to realizing the last two objectives.

2.1 Open Geospatial Consortium Membership

The proposing organization must be an OGC member and familiar with the OGC mission, organization, and process. Proposals from non-members will be considered, if a completed application for OGC membership or a letter of intent to become a member is submitted prior to or along with the proposal.

2.2 FAA SWIM and the SAA SWIM Efforts

The System Wide Information Management (SWIM) program within FAA is a National Airspace System (NAS)-wide information system that supports the Next Generation Air Transportation System (NextGen) goals. SWIM will enable increased common situational awareness and improved NAS agility to deliver the right information to the right users at the right time. The goal of SWIM is to achieve systems interoperability and information management for diverse Air Traffic Management (ATM) systems platforms and software implementations by realizing a Service-Oriented Architecture (SOA).

As part of the FAA SWIM Segment 1 activities, the Aeronautical Information Management (AIM) Community of Interest (COI) is developing the capability to exchange static and dynamic Special Activity Airspace (SAA) information between operational air traffic management systems. SAA refers to both Special Use Airspaces (SUA) and Air Traffic Control Assigned Airspace (ATCAA). A SUA is a region of airspace designated to be used by the military and thus needs to ensure that no other air traffic uses that airspace during scheduled times. An ATCAA is an airspace assigned by Air Traffic Control (ATC) to provide air traffic segregation between the specified activities being conducted within the assigned airspace and other Instrument Flight Rules (IFR) traffic.

The SWIM Segment 1 SAA efforts focus on the electronic process for storage, dissemination and scheduling of SAAs. Future segments will focus on the design, approval, and tracking of SAAs. From a technical perspective, the SAA SWIM web services are SOAP over http web services designed to use the Aeronautical Information Exchange Model (AIXM) version 5.0, the Java Messaging Service (JMS) web services for notification and the SWIM Web Services Interoperability Organization (WS-I) Basic Profile. The AIXM and SOA will provide a consistent data exchange format in an architecture where it is easy to initiate and maintain a connection to the data source.

In conjunction with other initiatives, the pilot will provide an opportunity to better understand and evaluate the concept of using OGC Web Services within the SWIM SOA environment, and to support FAA's efforts in evolving towards a standards-based, Service-Oriented Architecture for systems integration.

2.3 Operational Context

The use cases provided in Annex B describe activities and information exchanges to be realized and demonstrated in the initiative effort. The specific scenarios that will be used in the demonstration effort and persistent pilot capability will be developed according to the plans set forth in the Concept of Operations (Annex C) beginning with a draft Demonstration Concept. Specific FAA SAA Dissemination Pilot functional requirements are provided in Annexes A and B.

2.4 Technical Context

Participants in this initiative will implement the software components in support of the architectural cases provided in Annex B. Other than the architecture described in Annex B, participants will have flexibility in designing the interoperable interfaces and protocols to provide the services not currently defined by OGC and for use in the demonstrations associated with the operational context. All software components developed as part of the FAA SAA Dissemination Pilot shall be SWIM-compliant. In addition, participant organizations shall provide the FAA with demonstration license(s) of their software components as well as

maintain deployed software components for a duration of 1 year beyond the end of the FAA SAA Dissemination Pilot for further testing and demonstration by the FAA. Specific technical requirements are provided in Annexes A and B.

The OGC portal provides a Glossary of Terms at the following URL that may be useful to aid in understanding and interpretation of terms and abbreviations contained throughout this RFQ:

http://www.opengeospatial.org/resources/?page=glossary

2.5 System Context

The architecture presented in Annex B is based on leveraging OGC Web Services and supporting standards to increase the dissemination potential of SAA information to external users.

Figure 1 highlights the FAA SAA Dissemination Pilot approach of building on the SAA SWIM Services (currently under-development at FAA) to access information from both the SAA Static Repository/National Airspace System Resource (NASR) and the SAA Operational Repository/Special Use Airspace Management System (SAMS).

Figure 1 also highlights the three functionalities supported by the OGC Services in the FAA SAA Dissemination Pilot:

- Access to SAA information as AIXM features,
- Access to SAA information as images or maps,
- Notification of relevant updates and schedule changes.

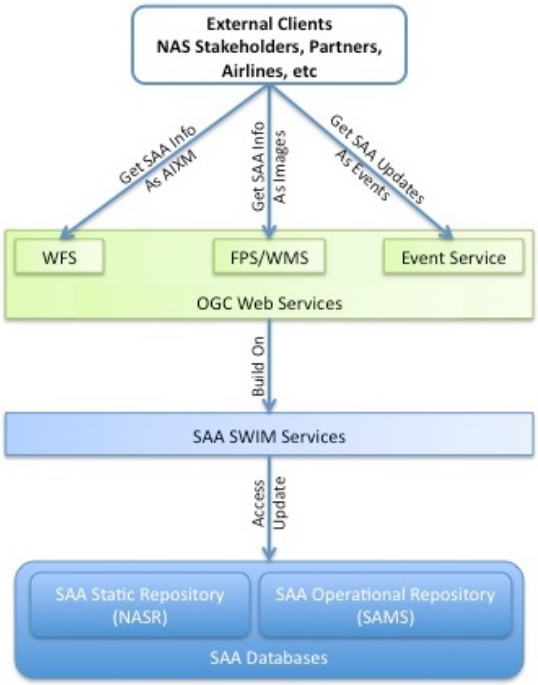

Figure 1 FAA SAA Dissemination Pilot System Context

3 Participant's Role in the Pilot

There are several possible roles that organizations may play in the initiative. These are:

- Developer/provider of one or more software components implementing interfaces and protocols agreed in the early stages of the initiative for one or more of the services described in Annexes A and B,
- Developer of demonstrations and tests of the implemented software components, and/or
- Provider of data, personnel, software, hardware, or facilities that will contribute to the overall success of the initiative.

4 RFQ Submission Information

4.1 General Terms and Conditions

Documentation submitted in response to this RFQ/CFP will be distributed to members of the FAA staff, partners, OGC staff, and assigned IP Team members. Submissions will remain in the control of this group and will not be used for other purposes without prior written consent of the proposing organization. Please note that you will be asked to release the content of your proposal (less financial details) once you agree to participate in the pilot effort. Proprietary and confidential information must not be submitted under this request.

Participants will be selected to receive cost sharing funds on the basis of adherence to the requirements stipulated in this RFQ/CFP and the overall quality of their proposal. Those proposing organizations not selected for cost sharing funds are encouraged to participate in the FAA SAA Dissemination Pilot at their own expense on an in-kind basis.

Each participant, funded or unfunded will be required to enter into a contract with FAA and OGC. This Participation Agreement will include a Statement of Work (SOW) defining the participant's responsibilities. The Participation Agreement also establishes that participants agree to work together towards the common goals of the initiative. Further details on this issue are found in the Concept of Operations (Annex C).

4.2 Response Instructions

To be considered all responses to this request shall be "complete"; i.e., your response must provide all information requested in section 5 to be considered further. Responses shall use the response template provided in the RFQ/CFP package. The response shall consist of a technical volume and a cost volume. An outline with page limits is provided in section 5.1. Reviewers will be instructed to not read or evaluate any materials in excess of the page limits. Each requirement set description shall begin on a new page.

4.3 How to Submit your Response

Submit an electronic copy of your proposal to the OGC Technology Desk (techdesk@opengeospatial.org) at OGC. Microsoft Word® 2000 for Windows, 2001 for Macintosh or higher format is preferred; however, Portable Document Format or Rich Text Format is acceptable.

Proposals must be received at OGC before the date in the FAA SAA Dissemination Pilot Master Schedule (Section 4.6).

4.4 Questions and Clarifications

Questions and requests for clarification should be sent electronically to the OGC Technology Desk (techdesk@opengeospatial.org), or by facsimile transmission (+1 812 961 2053). All clarifications will be

posted to the FAA SAA Dissemination Pilot WWW Site
http://www.opengeospatial.org/standards/requests/72.

Bidder's Conference

OGC will hold a telephonic bidder's conference in the U.S. National Capital Region October 4, 2010. The conference can be attended remotely by dialing +1 (for callers outside of North America) Area Code 512-225-3050. The passcode is 55699#. It will start promptly at 10:00 a.m. Eastern Daylight Time [1400 GMT].

4.5 Reimbursements

The OGC will not reimburse submitters for any costs incurred in connection with preparing proposals in response to this RFQ.

4.6 Master Schedule

The following table details the events and activities associated with this RFQ:

RFQ Issued	20 September 2010
Bidders Conference	4 October 2010
Clarifications Posted	8 October 2010
RFQ Responses Due	18 October 2010
Kickoff Meeting	16-18 November 2010
Demonstration of Pilot Results	AIXM/WXXM Conference, Washington DC May 4-6 2011
Completion of Pilot Activities	31 May 2011

5 RFQ/CFP Format and Content

5.1 Proposal Outline

As part of this RFQ/CFP archive you will find several templates: the response template, the cost sharing request spreadsheet template, and the in-kind contribution spreadsheet template. Proposing organizations shall use these templates in preparing their proposals. The proposal should follow the outline:

Technical Volume

- Cover page
- Overview (Not to exceed two pages; will not contribute to technical evaluation)
- Proposed contribution (Basis for Technical Evaluation; Not to exceed seven pages)
- Proposed contribution cross referenced to WBS (Contributes to Management Evaluation)

Cost Volume (Not to exceed seven pages)

- Level of Effort
- SCOTS or Standards-based Open Source Maturation Plan (Not to exceed 2 pages)
- Cost sharing request (Excel template for reporting costs is available with the RFQ)

- In Kind contributions (Excel template for reporting in-kind contributions is available with the RFQ)

Each of these Sections is described below.

5.2 Cover Page

Provide the name(s) of the proposal submitter(s) and point of contact information. Teams should list all teammates and point of contact information for each. When submitting point of contact information, please provide both a business/financial and technical point of contact.

5.3 Overview

Provide an introduction to the contents of your proposal and its benefits.

5.4 Proposed Contribution

Describe your proposed contribution to the pilot based on your desired role (consistent with the Pilot Architecture (Annex B)). Please organize your description using the categories described in paragraphs 5.4.1 through 5.4.7 below. The emphasis of this initiative is on interoperable solutions to the FAA SAA Dissemination functional requirements. Your RFQ response should be developed from that perspective. Justify your approach.

5.4.1 Specification Development

If you plan to contribute or support the development of interoperability specifications for interfaces, operations, encodings, messages, or other relevant technologies, please include the following in your proposal:

(1) Your views on the FAA SAA Dissemination Pilot Architecture.

(2) Suggested modifications/additions you would recommend for the Pilot to pursue during the course of the Pilot.

(3) A list of personnel and brief summary of their qualifications to carry out these tasks.

(4) Role and Responsibilities of your technical representative e.g., Engineering Report author, schema editor, model designer, or technical contributor. Technical contributors shall write or design subsets of the specification. Everyone is expected to review work in progress.

5.4.2 Component Development

If you plan to contribute to the development of software and / or hardware components within the Pilot Architecture, please include in your proposal as much detail as possible concerning the operating system, hardware, programming language, and proprietary software requirements or constraints that relate to your proposed development effort. Please provide the SCOTS migration path for proposed components. We strongly encourage organizations that are proposing to develop a server component to develop a client component that exercises the functionality of the server(s) being provided.

Extent of component development which may be proposed include:

1. Installation and configuration of software on data provider hardware at data provider site,
2. Installation and configuration of software and hardware at a data provider site,
3. Installation and configuration of software and hardware hosted on behalf of a data provider for the FAA SAA Dissemination Pilot at the vendor's own site.

Any or all of these extents of involvement will be required depending on the contributions to be made by each data provider.

5.4.3 Demonstration or Test Development

If you are proposing to develop demonstrations or tests, please provide as much detail as possible concerning your proposed effort. Delineate aspects of the sponsor scenarios to which you believe you can contribute. In particular explain how your work will show the sponsor's desired level of interoperability as well as provide reliable measures of service performance and appropriate use.

Do not assume a single vendor demonstration; rather the demonstration will be showing how your technology can interoperate with other participant's technology across the FAA SAA Dissemination Pilot.

5.4.4 Data

FAA will provide the actual feature datasets for this pilot, but you may propose to contribute other forms of content including metadata which you feel will be required for a successful initiative operation.

5.4.5 Personnel

If you are proposing to contribute personnel to the initiative, please indicate the capabilities and experience of the personnel, location and mobility information (in other words, will the personnel need to remain at their present location? Will you support travel?). Indicate which personnel would be able to participate in kickoff activities and other pilot activities.

5.4.6 Hardware

If you are proposing to contribute hardware to the effort, please include a complete description of the hardware.

5.4.7 Software

If you are proposing to contribute software to the effort, please include a complete description of the software. You must include information about the operating environments that you intend to support in the context of the pilot.

5.5 Proposed Contribution Cross Referenced To WBS

Review the WBS found in Annex A and map your proposed contribution to the task categories and items found there. Indicate which requirements are being met with your contributions in the descriptions of activities that your organization proposes to undertake.

5.6 Level of Effort Estimate

Please provide an estimate of the value of your proposed contribution, including engineering, management, communications, travel, and so forth. Please begin this section on a new page so that it can be separated from the main body of your proposal.

5.7 SCOTS or Standards-based Open Source Maturation Plan

If you are proposing in the technical volume to provide software components that are either enhancements of your existing product line or entirely new products which exercise the specifications developed or enhanced during the course of this initiative then you must provide a SCOTS maturation plan. This plan shall identify the product in question, the specifications exercised by the product and the anticipated date of public availability of the product.

5.8 Cost-Sharing Request

This section is *required* only from proposing organizations requesting cost sharing funds. Please provide a requested amount of cost-sharing funds (in US Dollars) and provide details of the costs that are being offset (e.g., labor category, number of hours, and hourly rate). Note that the sponsors intend to provide cost-sharing funds for only those activities uniquely attributable to initiative participation; e.g., a recipient should not request funds to offset costs that would have otherwise been incurred and funded through some other source such as internal research and development funding. This section must include a certification that the proposed reimbursable costs would not be otherwise incurred in support of non-Pilot activities. Use the attached cost-sharing template to itemize the costs being offset. This should be included in the section beginning with Level of Effort Estimate.

5.9 In-Kind Contributions

Please provide an indication of the in-kind contributions that your organization will make to the FAA SAA Dissemination Pilot initiative. This should reflect such contributions as labor, equipment, software, or data. Use the attached in-kind contribution template to itemize the contributions being provided. FAA and OGC will use this information in the development of future initiatives. This should be included in the section beginning with Level of Effort Estimate.

6 Evaluation Criteria

The FAA SAA Dissemination Pilot RFQ/CFP responses will be evaluated according to criteria set by FAA and partners. Those criteria can be divided into three areas: Technical, Management, and Cost.

6.1 Technical

The Technical criteria are described below.

- All applicable Requirements in the RFQ are addressed in the proposal
- Proposal provides risk-adjusted technical approach in support of the requirements
- Creativity and originality in the proposed solutions
- Proposed solutions could be executed within available resources
- Proposed solutions are directed to achieve the goals set forth by initiative
- Proposed personnel have the necessary skills and experience to support the proposed contribution

6.2 Management

- Proposal adheres to and addresses all elements of Work Breakdown Structure
- Willingness to share information and work in a collaborative environment
- Achieves Sponsor's goals of enhancing availability of SCOTS or standards-based open source products in the market place
- Previous performance in OGC Interoperability Program Initiatives.

6.3 Cost

- Cost-share request is reasonable for proposed effort
- In-kind contribution is of value to initiative