Open Geospatial Consortium

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Call For Participation

in the

CLIMATE CHALLENGE INTEGRATION PLUGFEST (CCIP)

RFQ Issuance Date: July 10, 2009
Proposal Due Date: July 30, 2009

Revision History:

Date	Paragraph	Description
07 July, 2009		First draft

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1 Overview

1.1 Purpose

The purpose of this Call for Participation (hereafter referred to as CFP) is to solicit your proposal in response to a refined set of requirements for the Climate Challenge Integration Plugfest (CCIP). This request is issued as a CFP as the Plugfest sponsors and OGC intend to involve as many participants in the initiative as possible and thus are soliciting contributory proposals that will enhance and/or make use of the initiative outcomes.

The CCIP is intended to demonstrate the benefits of standards-based interoperable geospatial applications to support better delineation of the types of climate-related changes that societies will face. FOSS4G 2009 will be the first in a series of Climate Challenge Plugfests – live events to test software that implements certain OGC specifications as defined by a test plan covering topics such as data collection, content management and analysis.

1.2 Work Plan

CCIP Participants are expected to implement OGC services, or clients for OGC services, that support the sponsors scenario listed on the CCIP wiki at http://external.opengis.org/twiki_public/bin/view/ClimateChallenge2009/ScenarioAusBOM. Shown on that page are a number of raster and vector data sets that should be made available as OGC web services, and a number of questions that clients to those web services should make easy to answer. It is expected that CCIP Participants will implement one or more of the following services: CSW, WMS, WCS, WFS, WPS, SOS, and SAS. More details on these services can be found in Appendix A and at http://www.opengeospatial.org/standards/.

Participants will make their services available on the public Internet at least until FOSS4G 2010. In addition to this publicly available persistent network of available services, a number of implementations will be chosen for deployment on a standalone server, which will travel to various conferences and serve as a demonstration vehicle when the Internet is either unavailable or impractical to use. These implementations will be chosen using the metrics at http://external.opengis.org/twiki_public/bin/view/ClimateChallenge2009/CompetitiveProcess.

1.3 Benefits to Participants

[add more]

OGC perceives the CCIP 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 shape the future of geospatial and imagery related Web Services software development and Web data publication. Another benefit is that this effort has well-defined objectives, while providing a significant opportunity to explore alternatives in a unique hands-on engineering context. The CCIP initiative is expected to add to a significant core capability that continues to be the basis for a continued long-term interoperability effort.

1.4 The CFP Process

The CCIP has established an initial Architecture and a set of sponsor requirements attached as

Appendix A. A Concept of Operations for the CCIP is attached as Appendix B. This Concept of Operations describes the detail needed to understand the planned operation of the initiative for a suitable response to this CFP. Appendix B also contains an assignment of CCIP week numbers to calendar weeks to allow for common communication of timeframes. Appendix C details the communication plan for CCIP.

This 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 explore architectural alternatives, 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.

2 Context

The initiative sponsors have worked with OGC to outline specific functional requirements that are representative of web service requirements. Fundamental among these requirements is the basic need for interoperability. This includes interoperability between software components in multi-vendor settings. It also includes information and operational interoperability between data partners across a distributed federation of Open Web Services. The high-level objectives of this effort are two-fold: first, to focus on common architecture for the CCIP Web Services Network; second, to support the development of OGC-based implementations within the CCIP architecture to meet sponsor application requirements. Documenting the interfaces and protocols used in the CCIP as well as the performance obtained and lessons learned in using them in the construction of tests and demonstrations will be the means to realizing these objectives.

2.1 Open Geospatial Consortium

This RFQ assumes the recipient is familiar with the OGC mission, organization, and process.

2.2 Climate Science

[MORE here]

2.3 Technical Context

The CCIP is a platform with a number of different geospatial Web services that can work together with climate change data via their implementation of the OGC's open interface and encoding standards. Once the platform is up it will be available to demonstrate open Web-based geoprocessing at conference, classroom and other settings around the world. Geospatial users regularly ask how to integrate Open Source, COTS and proprietary software. At FOSS4G, climate change specialists will see the major geospatial applications working together and talk with implementers about what really works.

CCIP provides organizations that participated in the recent Bali meetings and those planning on attending the UNFCCC December 2009 meetings - where the Kyoto Protocol and its related procedures will be updated - mechanisms to demonstrate enhanced understanding of the

Earth's climate sensitivity and variability, as well as the forcing and feedback mechanisms that control them, and aspects of the climate system that have the potential to impact economies, human populations and environmental stability.

Participants in this initiative will implement the software components in the architectural cases provided in Appendix A. Other than the architecture described in Appendix A, 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.

3   CFP Submission Information

3.1   General Terms and Conditions

Documentation submitted in response to this RFQ will be distributed to Sponsors, OGC staff, and FOSS4G organizers. 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 once you agree to participate in the Plugfest. Proprietary and confidential information must not be submitted under this request.

3.2   How to Submit

Submit an electronic copy of your proposal to the Open Geospatial Technology Desk (techdesk@opengeospatial.org) at OGC. Portable Document Format 5.0 or higher format is preferred; however, HTML or Rich Text Format is acceptable.

Please assure that "CCIP response" is in the subject of your email.

Proposals must be received at OGC no later than 1700 EDT (2100 UTC) July 30, 2009.

3.3   Questions and Clarifications

Questions and requests for clarification should be sent electronically to the Open Geospatial Technology Desk: techdesk@opengeospatial.org.

All clarifications will be posted to the CCIP wiki:
http://external.opengis.org/twiki_public/bin/view/ClimateChallenge2009/WebHome and to the OGC Technical Committee electronic mail reflector.

3.4   Schedule

The following table details the events and activities associated with this RFQ (more details can be found in Annex C):

Call for Sponsors Issued... 01 July 2009

Call for Participation Issued...10 July 2009

CFP Responses Due...30 July 2009

Kickoff..02 August 2009

Completion of Plugfest Activities...01 October 2009

4 CFP Format and Content

4.1 Proposal Outline

The proposal should follow the outline:
- Cover page
- Overview
- Proposed contribution (Basis for Technical Evaluation)
  - Common Architecture
  - Component Implementation
  - Demonstration and Test Plan Development
  - Data
  - Information Interoperability
- Personnel
- Hardware
- Software
- Level of Effort

Each of these Sections is described below.

4.2 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.

4.3 Overview

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

4.4 Proposed Contribution

Describe your proposed contribution to each thread of the initiative based on your desired role (consistent with the Testbed Architecture (Annex B). Please organize your description using the categories described in paragraphs 5.4.1 through 5.4.8 below. The emphasis of this initiative is on interoperable solutions to the CGDI functional requirements. Your RFQ response should be developed from that perspective. Justify your approach.

4.4.1 Component Implementation

If you are proposing to contribute to the implementation of 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. 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.

Extents of component development which may be proposed include:

1. Installation and configuration of software on data provider hardware at their site,
2. Installation and configuration of software and hardware at a data provider site, or
3. Installation and configuration of software and hardware hosted on behalf of a data provider for the CCIP 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.

4.4.2 Demonstration and Test Plan Development

If you are proposing to develop demonstrations or test plans, 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 CCIP network.

4.4.3 Data

to support in the context of the testbed.

4.5 *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.

Appendix A: CCIP Architecture

5 Enterprise Viewpoint

The enterprise viewpoint describes the business perspective, purpose, scope and policies that are the impetus behind CCIP.

For decades the user community has used historical climate data to make assessments of current and future climate risk in order to maximize profits and to help ensure the safety of life and property. However, climate change is changing those rules, and the past is no longer a good guide to the future. Users now require that future climate data and related information be just as accessible and as easy to use as historical data so that they may accurately assess future climate risks.

The long-term goal of interoperability in this area is to enable climate scientists to seamlessly and efficiently share data sets and analyses, thereby leading to more robust science. The short-term goal of the 2009 CCIP project is not so ambitious. At this stage we work to make accessible the high-quality climate data that exists, and perform queries and calculations that are supported by existing OGC web services.

6 Information Viewpoint

The information viewpoint is concerned with the semantics of information and information processing. It defines conceptual schemas for geospatial information and methods for defining application schemas. The conceptual, or base, schemas are formal descriptions of the model of any geospatial information. Application schemas are information models for a specific information community. Applications schemas are built from the conceptual schemas.

[insert relevant concrete and conceptual schemas]

7 Computational Viewpoint

The computational viewpoint is concerned with the functional decomposition of the system into a set of services which allow clients and servers to interact at interfaces. This viewpoint captures the details of these components and interfaces without regard to actual distribution.

7.1 Service Interfaces

7.1.1 Web Coverage Service

The OpenGIS® Web Coverage Service Interface Standard (WCS) defines a standard interface and operations that enables interoperable access to geospatial "coverages". The term "grid coverages" typically refers to content such as satellite images, digital aerial photos, digital elevation data, and other phenomena represented by values at each measurement point.

7.1.2 Catalog Service for the Web (CS/W)

The OpenGIS® Catalogue Service Implementation Specification defines a common interface that enables diverse but conformant applications to perform discovery, browse and query operations against distributed heterogeneous catalog servers.

Catalogue services support the ability to publish and search collections of descriptive information (metadata) for data, services, and related information objects. Metadata in catalogues describe resource characteristics that can be queried and presented for evaluation and further processing by both humans and software. Catalogue services are required to support the discovery and binding to registered information resources within an information community.

The document specifies the interfaces, bindings, and a framework for defining application profiles required to publish and access digital catalogues of metadata for geospatial data, services, and related resources. Metadata act as generalized properties that can be queried and returned through catalogue services for resource evaluation and, in many cases, invocation or retrieval of the referenced resource. Catalogue services support the use of one of several identified query languages to find and return results using well-known content models (metadata schemas) and encodings.

7.1.3 Web Processing Service

The OpenGIS® Web Processing Service (WPS) Interface Standard provides rules for standardizing how inputs and outputs (requests and responses) for geospatial processing services, such as polygon overlay. The standard also defines how a client can request the execution of a process, and how the output from the process is handled. It defines an interface that facilitates the publishing of geospatial processes and clients' discovery of and binding to those processes. The data required by the WPS can be delivered across a network or they can be available at the server.

7.1.4 Web Mapping Service (WMS)

The OpenGIS® Web Map Service (WMS) Implementation Specification enables the creation and display of registered and superimposed map-like views of information that come simultaneously from multiple remote and heterogeneous sources.

When client and server software implements WMS, any client can access maps from any server. Any client can combine maps (overlay them like clear acetate sheets) from one or more servers. Any client can query information from a map provided by any server.

In particular WMS defines:

- How to request and provide a map as a picture or set of features (GetMap)
- How to get and provide information about the content of a map such as the value of a feature at a location (GetFeatureInfo)
- How to get and provide information about what types of maps a server can deliver (GetCapabilities)

7.1.5 Web Feature Service (WFS)

The OpenGIS® Web Feature Service (WFS) Implementation Specification allows a client to retrieve geospatial data encoded in Geography Markup Language (GML) from multiple Web

Feature Services. The specification defines interfaces for data access and manipulation operations on geographic features, using HTTP as the distributed computing platform. Via these interfaces, a Web user or service can combine, use and manage geodata -- the feature information behind a map image -- from different sources.

7.1.6 Sensor Observation Service

The OpenGIS® Sensor Observation Service Interface Standard (SOS) provides an API for managing deployed sensors and retrieving sensor data and specifically "observation" data. Whether from in-situ sensors (e.g., water monitoring) or dynamic sensors (e.g., satellite imaging), measurements made from sensor systems contribute most of the geospatial data by volume used in geospatial systems today. This is one of the OGC Sensor Web Enablement (SWE) [http://www.opengeospatial.org/ogc/markets-technologies/swe] suite of standards.

7.1.7 Sensor Alert Service

The Sensor Alert Service (SAS) can be compared with an event notification system. The sensor node is the object of interest. Each node has to advertise its publications at a SAS (advertise).

Appendix B: Concept of Operations

8 Planning

8.1 Plugfest Kickoff

8.2 Architecture Refinement

8.3 Test Plan

9 Execution

9.1 Component Development

9.2 Demonstration

10   Timeline

Appendix C: Communications Plan

11   Overview

This document describes the Communications Plan for CCIP. It defines the approach, including policies and procedures, which OGC will use in providing for effective communications between and among plugfest Participants, Sponsor, and OGC/FOSS4G Staff.

Each participating organization, regardless of any teaming arrangement, shall provide a designated Point of Contact (POC) who will be available for scheduled communications about CCIP status. That POC shall provide backups or alternatives for ad hoc discussions of issues that may arise. They will provide various means for contacting either themselves or their alternates. Participants shall provide documentation of their understanding, acceptance, and handling of the communications plan with their proposal.

12   Communications Plan

There are several elements in this communications plan, all of which are directed to some requirement. The communications requirements are:

- The need to alert participants of events, deadlines, and decisions that affect them,
- The need to keep participants apprised of the status of all participants to ensure coordination of efforts,
- The need for participants to post items of interest, status reports, and software for distribution amongst the participants,
- The need for participants who are in remote locations to provide to OGC Staff or other participants with software for installation at various support sites, and
- The need for groups of participants to communicate about and discuss ongoing definitional and development issues and solutions.

The above requirements have led to the implementation of the following tools to be used during the initiative:

- Interoperability Program email reflector: ccip-2009@lists.opengeospatial.org (sign up at https://lists.opengeospatial.org/mailman/listinfo/ccip-2009)
- Public project web site: http://external.opengis.org/twiki_public/bin/view/ClimateChallenge2009/WebHome

Each of these solution elements is described below.

12.1   CCIP Email Reflector

Electronic mail communications should be sent to the single email reflector for the CCIP program. This email list is ccip-2009@lists.opengeospatial.org. There may be heavy traffic on this e-mail list, so to make it easier to follow pertinent threads and to avoid back channel communications, please follow the guidelines listed below. All technical discussions will take place on the email list. Reminders will be issued if the guidelines are not used.

Participants should carefully consider the subject of email. To facilitate sorting, email to this list will automatically contain the Prefix in the Subject line of each message: [CCIP-2009].

The OGC lists get heavy traffic. In order to facilitate efficient handling of that traffic and to reduce

redundancy, all replies will go to the list not the sender. OGC is currently using the Mailman Software package to manage and maintain our lists. Mailman allows CCIP users to customize many preferences, for example, you can change your settings to allow for Mailman to digest the messages per day, to receive "no mail" when you are on vacation, etc.

PLEASE NOTE: the email reflector is not intended for exchanging files with others. A procedure for uploading files to the wiki is described below.

12.2   CCIP Public Wiki

[description]

12.3   Teleconference Procedure

[description]

All participants will execute the teleconference by calling at the appointed date and time.

Teleconferences should not be extended without ensuring the resources remain available, and prior coordination. This requires that the designated discussion leader keep the teleconference on schedule with the agenda. Obviously, this means that vital agenda items should be covered first in the agenda and, if agenda items run over the time allotted, the discussion leader will need to adjust the agenda by deleting or shortening later topics.

The designated discussion leader will keep notes of the teleconference and forward a summary to the Initiative Manager and the IP Executive Director. The notes should contain documentation of decisions reached, action items (including a description and action item holder), and issues for resolution by IP Staff. The meeting minutes will be posted on the CCIP wiki.

12.4   Progress Reporting

The OGC IP staff will provide regular progress reports pertaining to progress of CCIP to the sponsors. To do this, participants shall submit monthly progress reports to the Program Manager.

The status report for each month is due to the Initiative Manager no later than 5 business days after the month's end. These reports will be consolidated into the progress reports submitted to the sponsors.

OGC IP staff will regularly review action item status with participants that are responsible for the completion of those actions. Action item status reports will be posted to the CCIP wiki. Email will be used to notify responsible parties of pending actions for a given week.

13   Interoperability Program Code of Conduct

This section outlines the Principles of Conduct that shall govern personal and public interactions in any OGC activity. The Principles recognize the diversity of OGC process participants, emphasize the value of mutual respect, and stress the broad applicability of our work. A separate section of the Policies and Procedures details consequences that may occur if the Principles of Conduct are violated.

13.1   Introduction

The work of the OGC relies on cooperation among a broad cultural diversity of peoples, ideas,

and communication styles. The Principles for Conduct guide our interactions as we work together to develop multiple, interoperable technologies for the Internet. All OGC process participants aim to abide by these Principles as we build consensus in person, at OGC meetings, in teleconferences, and in e-mail. If conflicts arise, we resolve them according to the procedures outlined in the OGC TC and IP Policies and Procedures.

13.2   Principles of Conduct

1. **OGC process participants extend respect and courtesy to their colleagues at all times.**
   OGC process participants come from diverse origins and backgrounds and are equipped with multiple capabilities and ideals. Regardless of these individual differences, participants treat their colleagues with respect as persons--especially when it is difficult to agree with them. Seeing from another's point of view is often revealing, even when it fails to be compelling.
   English is the de facto language of the OGC process, but it is not the native language of many OGC process participants. Native English speakers attempt to speak clearly and a bit slowly and to limit the use of slang in order to accommodate the needs of all listeners.

2. **OGC process participants develop and test ideas impartially, without finding fault with the colleague proposing the idea.**
   We dispute ideas by using reasoned argument, rather than through intimidation or *ad hominem* attack. Or, said in a somewhat more consensus-like way: "Reduce the heat and increase the light".

3. **OGC process participants think globally, devising solutions that meet the needs of diverse technical and operational environments.**
   The goal of the OGC is to maintain and enhance a working, viable, scalable, global set of interfaces and protocols that provide a framework for interoperability in the geospatial domain. Many of the problems we encounter are genuinely very difficult. OGC participants use their best engineering judgment to find the best solution for the whole domain of geospatial interoperability, not just the best solution for any particular network, technology, vendor, or user. We follow the intellectual property Principles outlined in http://www.opengis.org/legal/ipr.htm.

4. **Individuals who attend OGC facilitated meetings are prepared to contribute to the ongoing work of the membership and the organization.**
   OGC participants who attend OGC meetings read the relevant Pending Documents, RFCs, and e-mail archives beforehand, in order to familiarize themselves with the technology under discussion. This may represent a challenge for newcomers, as e-mail archives can be difficult to locate and search, and it may not be easy to trace the history of longstanding Working Group, Revision Working Group, SIG, or Initiative debates. With that in mind, newcomers who attend OGC meetings are encouraged to observe and absorb whatever material they can, but should not interfere with the ongoing process of the group. OGC meetings run on a very limited time schedule, and are not intended for the education of individuals. The work of the group will continue on the mailing list, and many questions would be better expressed on the list in the months that follow.

13.3 Acknowledgements

OGC acknowledges the work done by the IETF on a code of conduct (specifically RFC 3184). These principles of conduct are modeled on their work.