

---

THE OPEN GEOSPATIAL CONSORTIUM (OGC®)



AND



---

REQUEST FOR QUOTATION & CALL FOR PARTICIPATION

FOR THE

ARCTIC SPATIAL DATA PILOT PHASE 2

## Annex C

## Table of Contents

<b>1</b>	<b>Participation in the Pilot .....</b>	<b>3</b>
1.1	Intellectual Property in the Pilot .....	3
1.2	Principles of Conduct .....	3
1.3	OGC Membership .....	4
<b>2</b>	<b>Initiative Activities and Roles.....</b>	<b>4</b>
2.1	Roles .....	4
2.2	Activities .....	4
<b>3</b>	<b>Proposal Submission Instructions .....</b>	<b>5</b>
3.1	General Requirements .....	5
3.2	Requirements for Proposing Technical Activities.....	6
3.2.1	Component Development Activity Types.....	6
3.2.2	Solution Transfer Activity Types.....	7
3.2.3	Demonstration Activity Types .....	7
3.2.4	Documentation Activity Types .....	8
3.3	How to Transmit Your Response .....	8
3.4	Questions and Clarifications .....	9
3.5	Reimbursements .....	9
3.6	Proposal Format and Content .....	9
3.7	Technical Proposal.....	9
3.8	Cost Proposal.....	10
<b>4</b>	<b>Evaluation Process &amp; Criteria.....</b>	<b>10</b>
4.1	Technical Criteria.....	11
4.2	Management Criteria.....	11
4.3	Cost Criteria.....	11
<b>5</b>	<b>Kick-off and Demonstration Workshop Requirements .....</b>	<b>11</b>
<b>6</b>	<b>Communication and Reporting Requirements .....</b>	<b>12</b>
6.1	Pilot participant Points of Contact .....	12
6.2	Monthly Progress Reporting .....	12
6.3	Regular and Ad Hoc Web Meetings and Teleconferences .....	12
6.4	Email Correspondence .....	13
6.5	Action Item Status Reporting .....	13
6.6	Communication Tools .....	13

## 1 PARTICIPATION IN THE PILOT

The limited cost-share funding available is intended to partially offset costs incurred by pilot participants in support of this effort. **No funds shall be used to procure any proprietary hardware or software associated with this effort.**

**Each organization with a role in the initiative shall sign a Participation Agreement that includes a Statement of Work (SOW) with OGC that outlines roles and responsibilities of each pilot participant in the Initiative.** By doing so, pilot participants will agree to work together for the realization of the initiative goals and for the benefit of the industry. Pilot participants SOW and related roles and responsibilities will be made available to interested parties (minus any financial information).

### 1.1 INTELLECTUAL PROPERTY IN THE PILOT

This Arctic Spatial Data Pilot project will be conducted in accordance with the OGC Intellectual Property Rights Policy and Procedures that can be found online at:  
<http://www.opengeospatial.org/about/ipr>.

Pilot participants in this project will be required to allow OGC to publish documents based in whole or in part upon any intellectual property contributed by Pilot participant (“Pilot participant IP”) in connection with this project. OGC shall be the owner of the copyright of any documentation developed as a part of this project. The Pilot participant will be required to grant OGC a perpetual, non-exclusive, royalty-free license, with right to sublicense, to the patent rights in any Pilot participant IP to the extent incorporated in, and necessary for the use of, a Specification that may be developed in this initiative. Beyond these requirements, The Pilot participant retains ownership in all Pilot participant IP, including all patent, trade secret, copyright and other intellectual property rights in the Pilot participant IP. Unless otherwise stated in pilot participant’s statement of work, a pilot participant is not required to deliver software to OGC that may be developed or modified during this project.

If, during the course of this Project, any modifications to an existing OGC standard that may be found necessary, then a Change Request (CR) must be developed that documents the change. This CR will not be adopted by OGC during the initiative; rather it is intended to serve as documentation of both the change and the requirement that led to the change request. The CR must be submitted to OGC Change Request Log (<http://www.opengeospatial.org/standards/cr/>). The TC Chair will assign the CR to the appropriate Standards Working Group.

### 1.2 PRINCIPLES OF CONDUCT

The *OGC Principles of Conduct* document, available at <http://www.opengeospatial.org/ogc/policies/conduct> together with the Interoperability Program policies, processes, and procedures, available at <http://www.opengeospatial.org/ogc/policies/ipp> will govern all personal and public interactions in this initiative.

### 1.3 OGC MEMBERSHIP

Proposing organizations 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 if selected for funding is submitted prior to or along with the proposal. If you are in doubt about membership, please contact OGC at [techdesk@opengeospatial.org](mailto:techdesk@opengeospatial.org).

## 2 INITIATIVE ACTIVITIES AND ROLES

### 2.1 ROLES

The roles generally played in any OGC Interoperability Program initiative are defined in *The OGC Interoperability Program (05-127r8)* (<http://www.opengeospatial.org/ogc/policies/ippip>). The following role definitions are derived from that document with added detail to clarify how the roles will be played in this particular pilot initiative.

- Sponsors are OGC member organizations that contribute financial resources in support of the pilot. They pilot requirements, technical scope & agenda, and demonstration form & content. *Sponsor Representatives* are assigned by the Sponsor to represent the Sponsor's interests and position to OGC throughout the pilot duration.
- Pilot participants are OGC member organizations that contribute to the definition of interfaces, implementations, and other engineering support for the pilot. Pilot participants typically commit to making a substantial in-kind contribution to an initiative. Pilot participants will be represented in the pilot by assigned business and technical representatives.
- Observers are OGC member organizations that have agreed to the initiative's intellectual property requirements. Observers do not have a vote in an initiative, but they are afforded the privilege of access to initiative email lists, web sites and periodic initiative-wide teleconferences. Observers may make recommendations and comments to the pilot participants via any of these fora. The Initiative Manager has the authority to table any comments, recommendations or other discussions raised by observers at any point without prior warning. Failure of an observer to comply may result in suspension of privileges.
- The Interoperability Project Team (IP Team) is the engineering and management team that will oversee and coordinate the initiative. This team is comprised of OGC staff, representatives from member organizations, and OGC consultants. It facilitates architectural discussions, synthesizes technology threads, supports the video productions, and supports the specification editorial process.

The IP Team for this pilot will include an Initiative Manager, who will serve as the OGC primary point of contact ("OGC POC").

### 2.2 ACTIVITIES

Pilot program management activity requirements on Bidders and Pilot participants are presented below. These requirements govern what obligations Bidders must meet to properly propose and what obligations selected Pilot participants must meet to properly perform during pilot execution.

In general, these requirements are expressed as various technical *activities* that may be proposed in a bid. Additional activities may be considered during bid evaluation based on cost (i.e., in-kind vs. cost-share) and the extent to which the proposed activity meets pilot requirements and conforms to the pilot architecture.

To avoid potential confusion, the RFQ avoids use of term *Work Breakdown Structure* (WBS). Instead, the term *activity* (see section 3.2) describes work to be performed and *deliverable* (see Annex B, section 3) describes work to be delivered.

In the requirements listed below, ***bold italic*** text indicates that the work described is mandatory. Just as a Bidder is not required to propose all deliverables in Annex B section 3 *Deliverables*, a Bidder is not required to propose to perform all listed activities. For example, a Bidder that is already a member of the OGC should forego the activity of submitting a membership application with its proposal. Some activities are absolutely required, however, and a Bidder has no choice but to propose performing it. For example, every Bidder must use the supplied templates in its proposal.

## 3 PROPOSAL SUBMISSION INSTRUCTIONS

### 3.1 GENERAL REQUIREMENTS

The following requirements apply to the proposal development process and activities.

Selected Pilot participants must be OGC members. Any Bidder who is not already a member of the OGC ***must submit an application for membership if selected for funding***. If your organization is not a member, please see section 1.3.

Bidders should identify any relationships between the proposed work and relevant OGC standards.

No work facilities will be provided by OGC. Selected Pilot participants will perform all awarded work at their own facilities. Some work, particularly servers in *Technical Interoperability Experiments*, also known as *Technology Integration Experiments* (TIEs), will require Pilot participants to provide access via the public Internet.

Proposals may address selected portions of the pilot requirements and architecture as long as the solution ultimately fits into the overall pilot architecture.

A single proposal may address multiple requirements and deliverables. To ensure that Sponsor priorities are met, the OGC may negotiate with individual Bidders to drop, add, or change some of the proposed work.

Bidders proposing to build interoperable components ***must be prepared to test and demonstrate interoperability with components supplied by other Pilot participants***.

Bidders proposing to build interoperable components ***must be prepared to load externally provided data on their components***.

Bidders proposing to build interoperable components ***must be prepared to develop metadata that matches the offered resources.***

Components proposed as in-kind contributions should be publicly or commercially available products or services or prototype/pre-release versions intended to be made available. Exceptions may include products/services which are internally used by government/sponsor agencies.

- Selected Pilot participants who will be delivering components (vs. mere documents) ***must participate in the full course*** of interface and component development, test and integration experiments, and other activities throughout the initiative in order to have access to and participate in demonstration exercises. Selected Pilot participants who will be delivering documents that depend on these delivered components ***must also participate in the full course*** of interface and component development, test and integration experiments, and other activities throughout the initiative.
- Bidders are welcome to suggest alternatives to the initial pilot architecture. However, it should be noted that proposals will be selected on the basis of how successfully the various components from all Pilot participants interoperate. A radically divergent architecture that would require intensive rework on the part of a significant number of other Pilot participants ***must be supported by a substantial benefit-to-cost rationale.*** In such a case, advance coordination with other potential Pilot participants to present a coherent, realistic, and reasonable approach acceptable to all involved Pilot participants could improve the likelihood of acceptance.
- In general, a proposal including a product that has earned OGC Certification will be evaluated more favorably than that same proposal without OGC Certification.
- All Bidders ***must use the supplied templates*** in their proposals.
- All Selected Pilot participants receiving cost-sharing funding ***must send at least one technical representative to the Kickoff Workshop.*** Pilot participants providing *only* in-kind contributions may forego this requirement with prior permission.

## 3.2 REQUIREMENTS FOR PROPOSING TECHNICAL ACTIVITIES

Each work item in a labor funding request or in-kind labor contribution declaration (1) ***must identify the particular Deliverable*** from the list of *Deliverables* to which the work item applies and (2) ***must identify the particular Technical Activity Type*** for the proposed activity to perform the work item. The mandatory *Response Template* and *Finance Spreadsheet* template provided in this RFQ will assist Bidders in meeting these requirements.

An extended outline of predefined Technical Activity Types is provided below. Each work item that a Bidder proposes or declares ***must either match (approximately) one of these types or provide an explanation and justification for why the proposed work item does not match*** anything from the list.

### 3.2.1 COMPONENT DEVELOPMENT ACTIVITY TYPES

This type of activity would develop interoperable software components based on draft candidate implementation specifications or adopted specifications necessary to realize the pilot architecture and use cases. Particular Component Development Activity Types that may be specified in the Proposal include the following:

- Server Software Development: development of new server software or modification of existing server software to exercise the interfaces developed for this pilot. Selected Pilot participants **must make this server software available for sponsor review and input during the initiative.**
- Client Software Development: development of new client software or modification of existing client software to exercise the servers being developed or externally provided.

### 3.2.2 SOLUTION TRANSFER ACTIVITY TYPES

This type of activity would prepare prototype interoperable components to enable them to be assembled at another site. Particular Solution Transfer Activity Types that may be specified in the Proposal include the following:

- Software Installation: Pilot participants selected to deploy any pilot components **must provide a licensed copy of pilot-relevant software components** for integration onto the OGC Network. This could be accomplished by making the software components available from an open site on their network OR by installing it (and ensuring stability) on a sponsor or other host machine on the OGC Network. If the latter option is taken, then the Pilot participant **must provide a technical representative to support installation** of the software components.
- Data Loading: Pilot participants selected to deploy any server **must provide a technical representative to load data to any server components the Pilot participant develops.**

### 3.2.3 DEMONSTRATION ACTIVITY TYPES

The pilot Demonstration will build upon the initiative characteristics developed during Kick-off demonstration use case design and creation discussions. The goal is for Pilot participants to build and implement components that clearly demonstrate the capabilities of an SDI for the Arctic. All Demonstrations **must be made available to Sponsors via the Internet, either for presentation purposes, or for use in their internal labs.**

Demonstration activities (instances of the Activity Types listed below) would define, develop, and deploy functioning interoperable components that execute operational elements, assigned tasks, and information flows required to fulfill a set of pilot requirements. Demonstration activities are intended primarily to support demonstration of enabled end-user capabilities. Particular Demonstration Activity Types that may be specified in the Proposal include the following:

- Demonstration Use Case Development: provision of a technical representative to develop or support the development of use cases initially described in this RFQ. These use cases will be used to provide a basis for Demonstration storyboards and for the Demonstration itself.
- Demonstration Storyboard Development: provision of a technical representative to develop or support the development of the storyboards that will define the structure and content of the Demonstration.
- Demonstration Preparation and Delivery: **Pilot participants selected to deploy any pilot components must provide a technical representative to develop or support the development of the Demonstration** that will exercise the functionality of the interfaces that are part of the Demonstration. This representative **must also be available to support the Demonstration event itself.** Pilot participants **must perform four sub-activities: design, build, and test the Pilot participant's demonstrated components, and then package these for public sharing.** This activity could also include the identification of other relevant data providers and incorporation of their data sources. Primary language of the demonstration event is English.

### 3.2.4 DOCUMENTATION ACTIVITY TYPES

This type of activity would ensure development and maintenance of the Engineering Report and the system-level documentation (sample user documentation, etc.) necessary to execute the pilot. This type of activity may include coordination with the OGC Standards Program.

Particular Documentation Activity Types that may be specified in the Proposal include the following:

- Engineering Report Development: Pilot participants selected to perform engineering report development **must provide a technical representative to serve as editor of, reviewer of, or contributor to the relevant Engineering Report (ER) (or subsection thereof)**. Engineering reports **must include all relevant items from the following list as applicable**:
  - Findings
  - Recommendations
  - Change Request(s)
  - Use Case(s)
  - Architectural Overview
  - Relevant UML Model(s)
  - XML Schema Document(s)
  - Abstract Test Suite(s)
  - Future work items
- All Pilot participants in the Pilot will be expected to contribute to the Engineering Report.
- Independent Use Case Development (not included as part of an ER): Pilot participants selected to deploy any (server or client) pilot components **must provide a technical representative to develop use cases to show the functionality of their software components** in the context of the pilot use cases and architecture.
- Independent Architectural Overview Development (not included as part of an ER): Pilot participants selected to deploy any (server or client) pilot components **must provide a technical representative to develop an architectural overview** of their software components as relevant to the pilot architecture.
- System Configuration Development: Pilot participants selected to deploy any pilot components to be installed at sponsor or other host sites connected to the OGC Network **must provide a technical representative to develop a detailed document describing the combined environment of hardware and software components that compose their contribution** to the pilot.
- Installation Guide Development: Pilot participants selected to deploy any pilot components to be installed at sponsor or other host sites connected to the OGC Network **must provide a technical representative to develop an installation guide for their software components**.

### 3.3 HOW TO TRANSMIT YOUR RESPONSE

Transmit an electronic copy of your proposal, based on the to the OGC Technology Desk ([techdesk@opengeospatial.org](mailto:techdesk@opengeospatial.org)). Microsoft Word® 2003 for Windows, 2004 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 appropriate response due date indicated in the **Master Schedule** (see RFQ Main Document).



### 3.4 QUESTIONS AND CLARIFICATIONS

Questions and requests for clarification should be sent electronically to the OGC Technology Desk ([techdesk@opengeospatial.org](mailto:techdesk@opengeospatial.org)). All clarifications will be posted anonymously to a pilot RFQ announcement web page (<http://www.opengeospatial.org/projects/initiatives/arcticsdp>). Questions must be received at OGC at latest one week after RFQ release.

### 3.5 REIMBURSEMENTS

The OGC will not reimburse organizations for any of the following:

- Costs incurred in procuring any hardware or software
- Costs incurred in connection with preparing proposals in response to this RFQ
- Costs incurred for travel to or from the Kickoff or demonstrations

### 3.6 PROPOSAL FORMAT AND CONTENT

For a Bidder's response to qualify for consideration, the response must provide all required information in accordance with RFQ instructions, including those contained in annexes and templates.

Two templates are provided as part of this RFQ: A **Response Template** and a **Finance Spreadsheet** containing one worksheet template for a cost-sharing request and another worksheet template for in-kind contributions. **Bidders must use these templates in preparing their proposals.**

Reviewers will be instructed to avoid reading or evaluating any material in excess of the stated page limits.

### 3.7 TECHNICAL PROPOSAL

Each *Technical Proposal* should be based on the *Response Template* and must include the following:

- Cover page
- Overview (Not to exceed two pages)
- Proposed contribution (Basis for Technical Evaluation; not to exceed 5 pages)
  - Understanding of interoperability issues, understanding of technical requirements and architecture, and potential enhancements to OGC and related industry architectures and standards
  - Recommendations to enhance Information Interoperability through industry-proven best practices, or modifications to the software architecture defined in RFQ Annex B
  - Knowledge of and access to geospatial data sets for the Arctic by providing references to data sets or data services
  - Ideas for improving the outlined use cases in Annex A and for the development of videos and presentation material
- Proposed work organized by technical activity type (this section will be considered in making the management evaluation of the proposal)

Additional instructions are contained in the template itself.

### 3.8 COST PROPOSAL

The *Cost Proposal* should be based on the two worksheet templates contained in the *Finance Spreadsheet* and must include the following:

- Completed *Pilot Cost-Sharing Funds Request Form*
- Completed *Pilot In-Kind Contribution Declaration Form*

Additional instructions are contained in the templates themselves.

## 4 EVALUATION PROCESS & CRITERIA

Proposals will be evaluated according to criteria that can be divided into three areas: Technical, Management, and Cost as defined in section 4.3. Each review will commence by analyzing the proposed deliverables in the context of the Sponsor Priorities, examining viability in light of the requirements and assessing feasibility against the use cases.

The review team will then create a draft Initiative System Architecture from tentatively selected Proposals. This architecture will include the proposed components and relate them to available hardware, software, and data. Any candidate interface and protocol specification received from a Bidder will be included.

The review team will then create a draft Demonstration Concept document that will explain the ability of proposed software components (from tentatively selected Proposals) to work together in a demonstration context. It will also identify any remaining gaps. The Demonstration Concept document may include references to existing and emerging resources on OGC Network or externally provided.

At the *Decision Technical Evaluation Meeting 1* (TEM-1), the IP Team will present Sponsors with draft versions of the Initiative System Architecture, the Demonstration Concept, and program management approach. The team will also present draft recommendations regarding which parts of which proposals should be offered cost-sharing funding (and at what level). Sponsors will decide whether and how draft recommendations in all these areas should be modified.

Immediately following TEM 1, the IP Team will begin to notify Bidders of their selection to enter negotiations for potentially becoming Pilot participants. Selected Bidders **must be available for these contacts to be made** to enable confirmation of continued interest.

A *Decision Technical Evaluation Meeting 2* (TEM-2) meeting will be conducted where the IP Team will present to Sponsors the revised artifacts and Pilot participant recommendations. In addition to confirming the modifications decided in TEM 1, Sponsors will have a final opportunity to decide whether the proposed Pilot participant recommendations are proper and affordable.

Following TEM-2, the IP Team will finalize the Initiative System Architecture, Demonstration Concept, and program management approach. It will also develop the *Statement of Work* (SOW) being part of the *Pilot participant Agreement* for each selected Bidder and notify this organization of its selection to enter final negotiations for becoming an initiative Pilot participant. Selected Bidders **must be available for these contacts to be made** to enable ongoing negotiation of a contract.

## 4.1 TECHNICAL CRITERIA

- How well applicable requirements in the RFQ are addressed
- Provision of a 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 support and promote the Initiative system architecture and demonstration concept
- Where applicable, proposed solutions are OGC-compliant

## 4.2 MANAGEMENT CRITERIA

- Adequate, concise descriptions of all proposed activities, including how each activity contributes to achievement of particular requirements and deliverables. To the extent possible, it is recommended that Bidders utilize the language from the RFQ itself to help trace these descriptions back to requirements and deliverables.
- Willingness to share information and work in a collaborative environment
- Contribution toward Sponsor goals of enhancing availability of standards-based offerings in the marketplace

## 4.3 COST CRITERIA

- Cost-share compensation request is reasonable for proposed effort

# 5 KICK-OFF AND DEMONSTRATION WORKSHOP REQUIREMENTS

Performance of pilot execution commences with a Kickoff Workshop event (“Kick-off”). Refer to the *Master Schedule* for the target date(s). Each Pilot participant receiving cost sharing funds ***must attend the Kick-off***. The kick-off takes place in Yellowknife, Canada.

Prior to Kick-off, each Pilot participant ***must sign a Participation Agreement contract*** that will include a description of all assigned deliverables with the understanding this may undergo minor modification during Kick-off, where deeper understandings of project scope, architecture, and implementation are reached. Any mutually agreed modifications will be added to the Participation Agreement contract as after the kick-off.

Kick-off activities will include the following (note that there could be multiple iterations of interface definition and scenario development breakouts, and these may be interleaved):

- *Use case refinement*: The use cases described in the RFQ will be refined based on actually available data. Goal is to develop initial workflows with identified service resources.
- *Interface and service integration architecture*: Based on services and interfaces being available for the pilot, the overall architecture will be modified and discussed.
- *Video and presentation material*: The video and presentation material development strategy will be refined.

One of the Kick-off work products will be a development schedule that includes specific milestones for the service setup, metadata availability, service registration, and video and presentation material development.

The demonstration meeting is scheduled for the week of March 13-17. Participation at the final demonstration meeting is optional. The exact type and form of the final demonstration meeting will be decided upon towards end of 2016.

## 6 COMMUNICATION AND REPORTING REQUIREMENTS

### 6.1 PILOT PARTICIPANT POINTS OF CONTACT

Each selected Pilot participant, regardless of any teaming arrangement, ***must designate a primary point of contact (“Primary POC”) who shall remain available throughout pilot execution for communications regarding status.*** The POC ***must identify at least one alternative point of contact*** to support the Primary POC as needed. The POCs shall provide contact information including their e-mail addresses and phone numbers.

All proposals ***must include a statement attesting to the POCs’ understanding and acceptance of the duties described herein.***

### 6.2 MONTHLY PROGRESS REPORTING

Pilot participant business/contract representatives ***are required*** (per a term in the *Participation Agreement* contract) to report the progress and status of the Pilot participant’s work. Detailed requirements for this reporting will be provided during contract negotiation. Initiative accounting requirements (e.g., invoicing) will also be described in the contract.

The IP Team will provide monthly progress reports to Sponsors. Ad hoc notifications may also occasionally be provided for urgent matters.

To support this reporting, each Pilot participant ***must submit (1) a Monthly Technical Progress Report and (2) a Monthly Business Progress Report by the first working day on or after the 10<sup>th</sup> of each month.***

Templates for both of these report types will be provided and ***must be followed.***

The purpose of the *Monthly Business Progress Report* is to provide initiative management with a quick indicator of project health from the perspective of each Pilot participant.

The IP Team will review action item status on a weekly basis with Pilot participants assigned to complete those actions. Pilot participants ***must be available for these contacts to be made.*** Action item status reports will be posted to pilot web sites each week.

### 6.3 REGULAR AND AD HOC WEB MEETINGS AND TELECONFERENCES

At least one of the Pilot participants POCs ***must be available for both regularly scheduled and ad hoc*** web meetings and teleconferences.

In particular, weekly (or biweekly at IP Team discretion) web meetings will be conducted and recorded in minutes posted on the portal. These meetings are intended to accelerate understanding and action regarding all relevant pilot activities, particularly Pilot participant work assignments and responses to requests for additional status by the IP Team.

In addition to a Pilot participant POC, a knowledgeable engineer who has been (or will be) working on an activity to be discussed during a meeting would likely be a valuable attendee. Pilot participants are strongly urged to invite such an individual to join the meeting.

#### 6.4 EMAIL CORRESPONDENCE

At least one of the Pilot participants POCs ***must be available to participate in specification and prototype component development via the pilot email lists.***

#### 6.5 ACTION ITEM STATUS REPORTING

At least one of the Pilot participants POCs ***must be available to report the status of the Pilot participant's work to the relevant thread architect in response to assigned actions.***

#### 6.6 COMMUNICATION TOOLS

The following tools will be implemented for use during the pilot:

- A pilot-wide email reflector, primarily for all communication and accessible will be created.
- The reflectors are not intended for exchanging files. Instead, the *Portal* or OGC Wiki should be used to upload files, followed by notification via reflector to others
- Wiki sites for collaboration
- Web meeting tools such as GoToMeeting, and teleconferences
- The OGC Web Portal (<http://portal.opengeospatial.org/>) with modules for calendaring, contact lists, file upload (with version control), timeline, action items, and meeting scheduling