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Request for Quotation (RFQ)

And

Call for Participation (CFP)

OGC Web Services Initiative - Phase 8 (OWS-8)

Annex A

OWS-8 Work Breakdown Structure and Work Items

RFQ Issuance Date: 22 November 2010

Proposal Due Date: 14 January 2011

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1 Introduction

This Annex A document is an integral part of the OWS-8 RFQ/CFP. It describes the Work Breakdown Structure (WBS) and the work items for the OGC Web Services Initiative – Phase 8 (OWS-8) Initiative. The Work Items are segregated into five threads. Each thread classifies work items as funded or unfunded items, depending on current sponsorships.

2 Sponsor Priorities

Table 1 shows the OWS-8 Work Items in each of the three threads. Work items that are designated with an "F" are work items that are currently funded. Those that have a "U" are within scope of this RFQ but may not be funded.

Those who are responding to the OWS-8 RFQ fall in two categories: (a) Proposing Organizations, or (b) Participants. Proposing organizations can provide proposals for any work items that are funded. Participants are those organizations who wish to provide "In-Kind Contribution" for any of the work items. For cost sharing funds, Proposing Organizations should focus on funded work items only. Any submission (or relevant section thereof) that addresses unfunded work items will be viewed and treated as a proposal for In-Kind Contribution.

Note that certain draft deliverables will be required by the Interim Milestone at the date shown in the Master Schedule (Main Body, Section 4.6), for use in cross-thread development. These early deliverables will be designated and handled on a thread-by-thread basis.

2.1 Observation Fusion Thread Deliverables

	Funded / Unfunded
Documents: Engineering Reports (ER), Information Models (IM), Encodings (EN), Change Requests (CR)	
1) OWS-8 Moving Target Indicator and Moving Object Bookmark Implementation with OGC Standards (ER/EN). Investigate, evaluate and recommend areas of harmonization between OGC specifications, to support GMTI, VMTI, and ISR Tracking Document architectural viewpoints showing the use of SWE and other OGC standards to implement the TCPED-based VMTI concept of operations. Document an information model and associated encoding for capturing the track of a moving object and bookmarking that track in motion imagery based on tracks as defined by NITS, and video data as defined by MISB EG 0903.0.	F
2) OWS-8 SWE CRs for NITS and GMTI/VMTI. Develop Change Requests as required to the OGC SWE 2.0 suite of standards in order to support STANAG 4607 GMTIF, STANAG 4609, EG0903.0, and NATO Study 4676 NITS.	F
3) OWS-8 WCS 2.0 Earth Observation Application Profile (EO-AP) (ER)	F
4) OWS-8 WCS 2.0 EO-AP Compliance Test (ER) Report on developing the test scripts.	F
5) OWS-8 ETS for WCS 2.0 EO-AP (EN) Executable test scripts for WCS 2.0	F
6) OWS-8 Geoprocessing of Earth Observations (ER) Report on usage and lessons learned with WPS and WCPS extension for WCS 2.0 EO-AP.	F
Implementations: Services, Clients, Tools	
1) SOS server for Motion Imagery. SOS serving motion imagery and moving objects detections. It also responds to requests for "bookmarked" motion imagery.	F
2) WPS server for Moving Objects Tracks Generation. Inputs motion imagery detections from an SOS and outputs moving object tracks in the encoding format defined in the ER	F

above.	
3) <u>Tracking and notification service</u>. The RFQ seeks innovative proposals for how to meet the function of dynamic tracking and notification functions. Service should include a notification mechanism that implements the GeoSMS draft specification. Given the high volume of sensor position updates and the need for rapid notification to users, the specific name for this service will be identified based upon RFQ proposals.	F
4) <u>CSW for SWE and Motion Imagery Bookmarks</u>. CSW ebRIM with support for describing, storing and querying SWE services and motion imagery bookmarks. ***Note: The catalog service is a possible cross-thread topic with all other threads.***	F
5) <u>SFE Client</u>. Client component that can exercise all the motion-imagery related services above.	F
6) <u>Moving Object Mobile Client</u>. The focus for this client is on receiving GeoSMS notifications. The ability to exercise moving object bookmarks is optional.	F
7) <u>Client for WCS access and geoprocessing</u>. Client for WCS EO-AP, WCPS and WPS.	F
8) <u>WCS 2.0 EO-AP Reference Implementation</u>. Server hosting EO data, to be furnished by EOX in the context of HMA-FO Project Task 3.	F
9) <u>WCPS for EO-AP</u>. Server hosting EO data: WCPS Extension on WCS 2.0 EO-AP.	F
10) <u>WPS for EO data analysis.</u> WPS-EO component composed of Server and Client; with EO Algorithms.	F

2.2   Geosynchronization (Gsync) Thread Deliverables

	Funded / Unfunded
Documents: Engineering Reports (ER), Information Models (IM), Encodings (EN), Change Requests (CR)	
1) <u>OWS-8 Geodata Bulk Data Transfer </u>(ER) Method for distributing/sharing geospatial data over a variety of networks and via hard media; including container format; including a standardized topology level based on the DGIWG profile of ISO 19107 and embedded ISO 19115 (and ISO 19139 where applicable) metadata; evaluation of compression options. ***Note: This is a possible cross-thread topic with the Aviation Performance Assessment.***	F
2) <u>OWS-8 Best Practices for Use of Geosynchronization</u> (ER) Report on validation of data from trusted source, and use of timestamped and time sliced data.	F
3) <u>OWS-8 Change Request to WFS-T 2.0</u>: for Schema and Data Initialization	F
Implementations: Services, Clients, Tools	
1) <u>Geodata Bulk Data Transfer Export Component.</u> ***Note: This is a possible cross-thread topic with the Aviation Performance Assessment.***	F
2) <u>WFS 2.0 service,</u> for Schema and Data Initialization, to enable creation of new source or target feature types created in the WFS, to support geosynchronization.	F
3) <u>Geosynchronization Service (GSS)</u> for Time Stamped and Time Sliced Data	F
4) <u>Geosynchronization Client</u>: Interfaces with all of the services above, including support for WFS 2.0 and the GSS.	F

2.3   Cross-Community Interoperability (CCI) Thread Deliverables

	Funded / Unfunded
Documents: Engineering Reports (ER), Information Models (IM), Encodings (EN), Change Requests (CR)	
Semantic Mediation subthread	
1) OWS-8 CCI Semantic Mediation (ER) Findings of the investigation about developing the Mediation Component and using ontologies for semantic mediation; description of the architecture for semantic mediation; lessons learned from implementing the mediation client; approaches for encoding models in RDF; rules and mappings used and lesson learned to map community data models, including mapping of CRS systems.	F
2) OWS-8 CCI Data Model Encodings in RDF (IM/EN) Including the core model (RMM), and critical components of the NGA and USGS Data Models, mappings and rules.	F
3) OWS-8 CRS Encodings in RDF (EN) including mappings among CRS's.	F
4) OWS-8 WFS 2.0 Change Requests as needed.	F
Portrayal Services subthread	
5) OWS-8 SLD Portrayal with Registries (ER) including discussion of the following developments, with lessons learned: a. Registry for CSW ebRIM Profile for Portrayal; Extension Points for military symbology; evaluation of the use of portrayal services and registries. b. Symbology Encoding: LTDS Symbol Encodings stored in the DGIWG Registry and Portrayal rules. c. Harmonization with OGC portrayal services; KML portrayal registries; encoding rule improvements to support fine-grained styles; feasibility of supporting the concept of layers and styles associated with layers; BalloonStyle child elements such as styles and scripts; NSG Application Schema support. *Note: This is a possible cross-thread topic with the Aviation Thread. However, the portrayal tasks in CCI thread are more experimental than is suitable for Aviation thread.*	F
Schema Automation subthread	
6) OWS-8 Schema Automation (ER) Summary of changes and update of the ShapeChange tool: summary of OCL/Schematron use for Schema development to support codelist, expressions like "let ..in" and others, and formal encoding rules for SWE-associated Schema (e.g., O&M) Automation.	F
Implementations: Services, Clients, Tools	
Semantic Mediation subthread	
1) CCI Mediation Component: for translating between instances of domain models in GML and RDF; performing semantic queries over a knowledge base (Common ontology + domain ontologies + rules + mappings); providing WMS and WFS interfaces to retrieve results (maps and feature data) to the CCI mediation client. The WMS service includes an FPS interface, able to assigning styles to layers and retrieving maps; invoking queries to a Catalog via CSW for discovering services and style sets.	F

2) WFS 2.0 server that provides data based on the NGA Data Model (Note: NGA data will employ CRS specifications maintained in the DoD/IC Coordinate Reference Systems Dictionary).	F
3) WFS 2.0 server that provides data based on the USGS Data Model	F
Semantic Mediation and Portrayal Services subthreads	
4) Mediation / Portrayal client for SLD, SE and KML. Client capable of: requesting and consuming data through a user specified Data Model and; applying a symbol set such as GeoSym, MILSTD 2525, or a machine dependent symbols to the data. Client must address the requirement detailed in the Portrayal Services Requirements, including: Advance the use of SLD documents by creating a link between a SLD document in a Get Map Request and SE from the portrayal registry CSW ebRIM interface; demonstrate if the same style resources could be used for OGC Portrayal Services and KML data; evaluate the use of portrayal registries within KML; help identify the need for extension points to support military Symbology, including MIL-DTL-89045A, GeoSym and MIL-STD-2525C, and Common Military Symbology.	F
Portrayal Services subthread	
5) CSW ebRIM service interface to the DGIWG Portrayal Registry. *Note: This is a possible cross-thread topic with all OWS-8 threads.*	F
6) Feature Portrayal Service: for Symbology Encoding and KML; to support use of a URL with a fragment identifier to reference the particular Style/StyleMap element in the KML document. This can be part of the mediation component.	F
Schema Automation subthread	
7) ShapeChange UML-to-GML Application Schema (UGAS) (tool) enhancements	F

2.4 Aviation Thread Deliverables

	Funded / Unfunded
Documents: Engineering Reports (ER), Information Models (IM), Encodings (EN), Change Requests (CR)	
1) OWS-8 Aviation Architecture (ER) covering the detailed technical architecture (including Event Notification architecture, Authoritative AIXM Data Source architecture, Datalink recommendations) and final Aviation scenarios and use cases. *Note: The event architecture is a possible cross-thread topic with the Gsync thread and the Observation Fusion – Moving Object tracking and notification service.*	F
2) OWS-8 AIXM 5.1 Metadata (ER) refinements made, and recommendations	F
3) OWS-8 AIXM Performance Assessment (ER) report on compression and binary encodings performance assessment and benchmarking. *Note: This is a possible cross-thread topic with the Gsync bulk data compression evaluation.*	F
4) OWS-8 ICAO guidance for SLD (ER/EN) including symbol libraries based on ICAO Annexes 3 and 4. *Note: This is a possible cross-thread topic with the CCI Portrayal subthread*	F

5)	OWS-8 Report on Digital NOTAM Event Specification (ER/EN) with recommendations and associated Schematron business rules	F
6)	OWS-8 WXXM and Weather Findings (ER/IM/EN) with recommendations for encoding representative weather forecasts in coverage datasets; CRS conversion alternatives; distributed Units of Measure (UoM) management architecture recommendations; WXXM validation results; and results of using probabilistic TAF data in decision-support applications.	F
7)	(CR/IM/EN) Change requests/recommendations for extensions and adaptations, as needed, to: a) AIXM 5.1 (including ISO 19139 metadata schema) b) WXXM 1.1 c) GML profile for AIXM 5.1 d) OGC Web Services (such as WFS, WCS, Filter Encoding, Event Service, etc) e) Digital NOTAM Event Specification and AIXM Event Schema	F
8)	AIXM 5.1 datasets for Digital NOTAM Events (EN) corresponding to specified scenarios (Note: sponsor will provide primary AIXM datasets; this is just the Digital NOTAM events data)	F
Implementations: Services, Clients, Tools		
1)	AIXM 5.1 WFS-T 2.0 with Filter Encoding FE 2.0 Support (2 instances) to serve AIXM 5.1 data (including implementation of the AIXM metadata and GML profiles), support the posting of events to the AIXM datastore, support the Authoritative AIXM Data Source requirements, and support compression/binary GML experimentation and benchmarking. ***Note: This is a possible cross-thread topic with the Gsync bulk data compression evaluation.***	F
2)	Authentication (PDP), Authorization (PIP), and Gatekeeper (PEP) Services (1 instance of each **as needed)** to support the Authoritative AIXM Data Source requirements	F
3)	WXXM 1.1 WCS 2.0 (2 instances) to serve WXXM 1.1 data, and support on-demand CRS conversion. At least one of the WCS 2.0 should be able to securely ingest weather radar data supplied by a major airline and convert it to WXXM 1.1	F
4)	Feature Portrayal Service (FPS) for AIXM, WXXM (2 instances)	F
5)	Event Service (2 or more instances; stand-alone or as OWS extension) to satisfy the Event Notification requirements. ***Note: The event architecture is a possible cross-thread topic with the Gsync thread and the Observation Fusion – Moving Object tracking and notification service.***	F
6)	Registry Service for symbols, styles, code lists and/or UoMs for AIXM and WXXM ***Note: This is a possible cross-thread topic with the CCI Portrayal subthread***	F
7)	Aviation Client (2 instances) representing EFB Class 2 and/or Class 3 applications and/or hand-held electronic display device components as well as Dispatch applications, to support a) OGC Web Services described above (WFS-T, WCS, WMS, FPS, Event Architecture and/or CSW) and Authentication/Authorization services to retrieve, integrate and portray aeronautical and weather information (including probabilistic TAFs and demonstration of increased situational awareness) and events affecting certain designated areas within given time intervals meeting certain user-defined filters	F

b) One or more Aviation Thread scenarios	
8) <u>AIXM handling components/tools and associated documentation</u> for validating, parsing and converting AIXM data and for generating/mapping AIXM/EXI schemas including the Digital NOTAM Event Specification.	F

3   Interoperability Initiative Process Framework

This section describes a flexible framework of standards, repeatable processes, which can be combined and adapted as necessary to address the requirements of each Interoperability Initiative. These tasks are executed with a Virtual Team Infrastructure. This Process Framework forms the basis for the OWS-8 Initiative Work Breakdown Structure. Figure 1 shows Interoperability Initiative Process Framework.
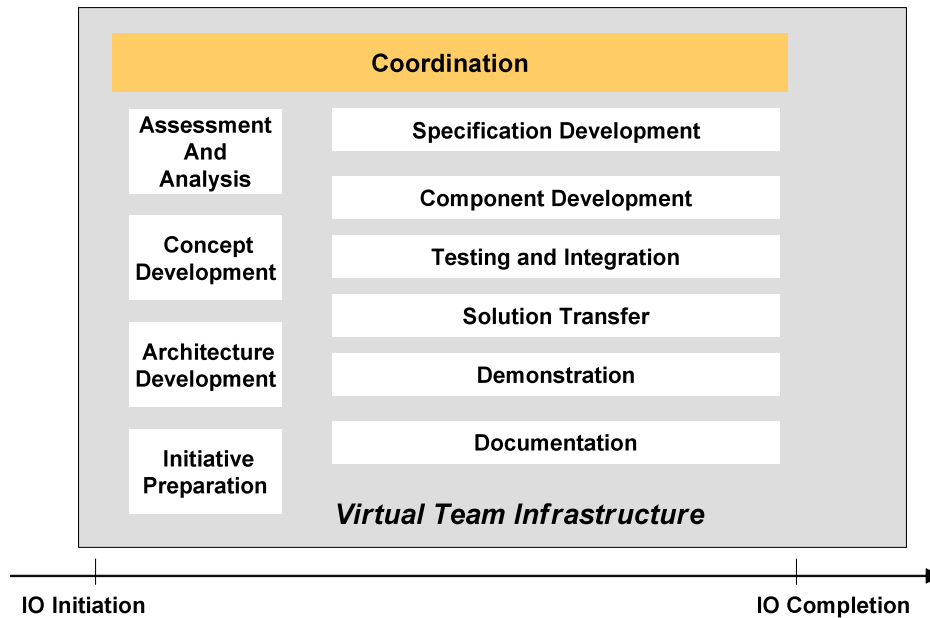
Figure 1: Interoperability Initiative Process Framework.

3.1   Tasks

3.1.1   Coordination

This task enables overall coordination among assigned OGC Staff, OGC Interoperability Program (IP) Team, Sponsors, selected organizations, and other TC/PC Members as needed to perform the following Subtasks:

- **Collaborative Environment -** OGC IP Team provides synchronous and asynchronous collaboration environments for cross organizational, globally distributed, virtual teams working interdependently to execute Initiative Orders Activities under this subtask include reading email, engaging in collaborative discussions and attending teleconferences.

- **Initiative Plan Development** – Support development of Project Plans, Project Schedules and Work Breakdown Structures (Work Package). Input may include technical and project management approach, tasks/schedules, communications plan, resource plans, risk and mitigation strategies, and definition of the specifications, standards, component development and integration tasks necessary to realize the Enterprise, Computational, and Information Architecture views.

- **Management** – Project management services include requirement, cost, schedule and performance monitoring and status reporting. The PM must ensure that assigned project tasks are performed within the budgets, the work is progressing according to the agreed schedule, and any changes to requirements or personnel are managed to reduce the risk of cost overrun and schedule delay.

- **Communication** – Includes communicating status and issues of concern for ongoing Project related activities and planned Initiative to OGC and other organizations e.g. ISO. This task does not include IP Business Development functions.

3.1.2   Assessment and Analysis

This task requires assessment/evaluation and analysis of issues and documentation of an organization's or domains existing capabilities, and assessment of requirements for OGC compliant technology. This task is implemented during Planning Studies. .

3.1.3   Concept Development

This task conducts a Feasibility Study that assesses emerging technologies and architectures capable of supporting eventual Interoperability Initiatives (e.g. Testbed). Part of the concept development process is the use of a Request for Technology (RFT) to gain a better understanding of the current state of a potential technology thrust and the architecture(s) used in support of that technology. The feasibility study examines alternative prototype mechanisms that enable commercial web-services technology to interoperate. The study may also assess the costs and benefits of the architectural approaches, technologies, and candidate components to be utilized in a testbed and potential demonstration. This task also collates Sponsor requirements and assesses the applicability of current specifications.

3.1.4   Architecture Development

This task defines the architectural views for any given Initiative. In the context of the OGC Interoperability Program, there are three–and perhaps more - architectural views for any given effort. These views are the Enterprise View, Information View and Computational View (based on RM-ODP, ISO 10746). Part of the Architecture Development task may be the use of an RFQ to industry to enable organizations interested in participating in an Interoperability Initiative to respond with a proposal. This task may also be implemented during Planning Studies.

3.1.5   Initiative Preparation

This task defines the participant budget (if any), develops and executes agreements and contracts that outline roles and responsibilities of each participant. This task may refine the Work Package.

3.1.6   Specification Development

This task defines and develops models, schemas, encodings, and interfaces necessary to realize required Architectures. It includes specification Pre-design and Design tasks. This task may include activities to coordinate ongoing Initiatives with Specification Program activities.

3.1.7   Component Development

This task develops prototype interoperable commercial software components based on draft candidate implementation specifications or adopted specifications necessary to realize the required Architecture.

3.1.8   Testing and Integration

This task integrates, documents and tests functioning interoperable components and infrastructures that execute operational elements, assigned tasks, and information flows required to fulfill a set of user requirements. It includes Technology Integration Experiments (TIEs).

3.1.9   Solution Transfer

This task prepares prototypical interoperable components so that they can be assembled at required sites.

3.1.10   Demonstration

This task defines, develops and deploys functioning interoperable components and infrastructures that execute operational elements, assigned tasks, and information flows required to fulfill a set of user requirements.

3.1.11   Documentation

This Task ensures development and maintenance of the pre-specification, pre-conformant interoperable OpenGIS technologies (including draft and final Engineering Reports) and the systems level documentation (example user documentation, etc.) necessary to execute the Initiative. This task may include coordination with OGC Specification Program activities including the Documentation Team.

3.1.12   Compliance Testing

This Task ensures development of draft compliance test guidelines (at a minimum) and test suites for engineering specifications detailed in Engineering Reports. This task includes coordination with OGC Specification Program activities including the CITE Subcommittee.

4   OWS-8 Work Breakdown Structure (WBS)

The following Work Breakdown Structure (WBS) is derived from the OGC Interoperability Initiative Process Framework. This WBS should be interpreted in the following manner:

- Items that are grayed out are either IP Team tasks, have already been completed, or are not required for the OWS-8 Initiative.

- Bold text is a task grouping or subtask grouping.

- Plain text indicates tasks against which proposing organizations should respond.

- Italic text indicates the task explanation (These task explanations are valid only for OWS-8; subsequent initiatives will issue appropriate task explanations).

A proposing organization does not have to respond to all tasks below. However bold italic text in the task explanation indicates which tasks are mandatory or conditional. Conditional tasks are those that are mandatory if a selected organization takes on certain non-mandatory tasks. All responses shall use this WBS to structure their responses. Evaluations of responses will be based on whether a proposal addresses the work items within the WBS. This is a mandatory requirement. The OWS-8 project management plan and schedule will use the WBS during the contract performance period. .

5 Coordination

5.1 Collaborative Environment

The following tasks are mandatory for selected organizations.

5.1.1 Routine and ad hoc telecons as assigned

The selected organization shall provide a technical representative and an alternate to participate in regularly scheduled telecoms or an ad hoc telecom.

5.1.2 E-mail review and comment

Selected organization shall provide technical representatives to participate in specification and prototypical component development discussions via the OWS-8 mail list.

5.1.3 Action Item status reporting

Selected organizations shall report the status of their work in response to any action item accepted by them in whole or part. Action Items will be assigned to relevant work groups with an identified work group leader. Action item status shall be reported to the relevant work group leader.

5.2 Initiative Plan Development

5.2.1 Project Plan Development

5.2.2 Project Schedule Development

5.2.3 WBS Development

5.2.4 Concept of Operations Development

5.3 Management

The following tasks are mandatory for selected organizations.

5.3.1 Status Reporting

All status reporting will be conducted within the OGC portal. Business/contract representatives for selected organizations shall report the progress and status of their work as assigned to and accepted by them in their SOW following the structure of this WBS. Status reports will reflect the WBS item number and name, the "health" of the effort with green indicating optimal; yellow indicating issues have arisen that appear resolvable; and red indicating that issues have arisen that require immediate resolution or the effort will not succeed, and finally the report will describe the work done to fulfill the WBS item.

A one-time Kickoff status report shall be provided that includes a list of personnel assigned to support the OWS-8 initiative. The kickoff status report shall be submitted to the portal and the OWS-8 Initiative Manager <u>no later than the first day of the OWS-8 kickoff</u> in soft copy format only.

Weekly or biweekly thread-level teleconferences will be conducted and recorded in minutes posted on the portal, beginning after the Kickoff. These are for verbal updates and additions of tasks and actions listed on the portal, and to respond to requests for status by the IP Team and Sponsors.

Formal status reports will be submitted on a <u>Monthly</u> basis on the portal for compilation to an overall thread and initiative status. These reports will be due by <u>the tenth of the month or the first Monday thereafter</u>. Two kinds of status reports are required (report templates will be provided):

- *   **Monthly Technical Report***: Word document posted on portal, and the Thread Architect notified*

    - o   *Narrative to describe work accomplished during this reporting period by the participant's technical team*

    - o   *Show % Complete on assigned subtasks within a Participant's SOW (no cost or labor figures)*

    - o   *Thread Architect will compile these reports into a **Monthly Thread Summary Report**, due by the 15th of each month after the kickoff, and notify the Initiative Manager*

- *   **Monthly Business Report***: Word document posted on portal, then the IP Executive Director, Initiative Manager, and OGC Business Manager notified*

    - o   *Work status overview, by WBS element and name, with Green-Yellow-Red indicators*

    - o   *Accomplishments (% completion in work and dollars)*

    - o   *Expenditures, such as labor and Other Direct Costs – budgeted, actual, projected, and cumulative totals*

    - o   *Identification of potential technical performance and/or cost issues and risk mitigation*

    - o   *Summary of work expected to be performed during the next period*

    - o   *The final monthly report shall be an overall **Participant Summary Report**, summarizing the Participant's overall contribution to the project*

5.3.2   Initiative Accounting

Cost-share compensation to selected organizations is typically invoiced and paid in three bi-monthly installments. The dates of these installments for OWS-8 will be identified in the Participant Agreement.

Business/contract representatives for selected organizations shall submit an invoice to the OGC Business Office at OGC Headquarters. The invoice shall include the OGC Accounting Job Code provided in the contract, the work completed during the prior period, and itemized list of Deliverables. The invoice shall include the budgetary not to exceed amount.

5.4   Communication

5.4.1   OGC Internal IP Status Briefings

5.4.2   OGC External IP Status Briefings

6   Assessments and Analysis

6.1   Organizational Capability Review

6.2   Organizational OGC Requirements Review

7   Concept Development

7.1   Sponsor Feasibility Study Review

7.2   RFT Development

7.3   RFT Response Analysis

7.4   RFT Response Review

8   Architecture Development

8.1   Enterprise View Development

8.2   Information View Development

8.3   Computational View Development

9   Initiative Preparation

9.1   Sponsor Planning TEMs

9.2   RFQ Development

9.3   Participant Budget Development

9.4   Contract Development

9.5   SOW/SOP Development

10 Specification Development

The proposal shall include brief resume(s) or qualifications of technical representative(s) to lead Specification Development effort for each or applicable tasks listed below. All selected organizations shall send technical representatives to the OWS-8 Kickoff meeting. Attendance at this meeting is mandatory for all selected organizations.

10.1 Model Development

Technical representatives of selected organizations shall develop or support the development of models that represent a service, interface, operation, message, or encoding that is being developed for the OWS-8

initiative. These models may be in UML or some other appropriate modeling language. All models developed in the initiative will be posted to OGC Network^{TM}.

10.2 Schema Development

Technical representatives of selected organizations shall develop or support the development of schemas that specify an interface that is being developed for the OWS-8 initiative. These schemas will be written in XML Schema or some other appropriate language. All schemas developed in the initiative will be posted to OGC Network^{TM}.

10.3 Encoding Development

Technical representatives of selected organizations shall develop or support the development of encodings that specify an interface that is being developed for the OWS-8 initiative. These encodings will be specified in XML Schema or some other appropriate language. As applicable, all encodings developed in the initiative will be posted to OGC Network^{TM}.

10.4 Interface Development

Technical representatives of selected organizations shall develop or support the development of interfaces that specify operations, encodings or messages that are being developed for the OWS-8 initiative. These interfaces will be specified in XML Schema or some other appropriate language. As applicable, all interfaces developed in the initiative will be posted to OGC Network^{TM}.

10.5 Specification Program Coordination

Technical representatives of selected organizations shall submit Engineering Reports (ER's) pertaining to interface developments for OWS-8 to the OGC Technical Committee for review. Those representatives shall present said Reports to relevant OGC TC groups and work with members to resolve issues that the members may raise with regard to the ER and the interface(s) described therein.

11 Component Development

The proposal shall include brief resume(s) or qualifications of technical representative(s) to lead Component Development effort for each or applicable tasks listed below.

11.1 Prototypical Interoperable Software Development

The proposal shall include the resume(s) of technical representative(s) to lead Prototypical Interoperable Software Development effort outlined below.

11.1.1 Server software development

Selected organizations shall develop server software or modify existing product server software to exercise the interfaces developed under the Specification Development tasks in item 6 above. The selected organizations will make this server software available for sponsor review and input during the initial period of the OWS-7 initiative.

11.1.2 Client software development

Selected organizations shall develop client software or modify existing product client software to exercise the servers developed under the Component Development tasks of OWS-8. The selected organizations will make this client software available for sponsor review and input during the initial period of the OWS-8 initiative. Selected organizations shall develop client software to support their server software or make

arrangements with other participants to use their client software to exercise their server during the course of the initiative. This is subject to approval by the sponsors and IP Team to ensure that the third party client is appropriate for exercising the functionality of the relevant server. If the proposing organization is developing server software and client software, then the client software shall exercise all OWS-8 or other OGC services provided by their server.

11.2 Special Adaptation Development

Selected organizations shall adapt client or server software to exercise relevant mainstream IT technology and standards such as PKI and e-commerce technologies.

12 Testing and Integration

12.1 Configuration Management

12.1.1 CM Plan Development

Selected organization shall provide a representative to develop a configuration management plan for interfaces and components developed during the OWS-8 initiative.

12.1.2 Initiative CM

Selected organization shall provide a representative to exercise the configuration management plan for interfaces and components developed during the OWS-8 initiative.

12.2 Infrastructure Setup

12.2.1 Operating Systems

12.2.2 Networks

12.2.3 Web Server

12.2.4 Database Server

12.2.5 Web Browsers

12.2.6 SW Installation & Integration

12.2.7 Data Loading

12.3 Technology Integration Experiments

12.3.1 Iterations 1-N

12.3.1.1 Component Interface Test

Task Explanation-The Proposing organization shall provide a technical representative to conduct formal Technology Integration experiments that exercise server and/or client component software's ability to properly implement the interfaces, operations, encodings, and messages developed during OWS-8. There will be multiple TIEs during the course of OWS-8 that will exercise various interfaces, operations,

*encodings, and messages developed during OWS-8. There may also be multiple iterations of a particular TIE or set thereof. **This item is mandatory for all organizations proposing to deploy server interfaces for OWS-8.***

12.3.1.2 Test Result Analysis

*Task Explanation-The Proposing organization shall provide a technical representative to report the outcome and relevant software reporting messages from TIEs in which the proposing organization participates. These TIE results shall be submitted to the OWS-8 email list and within Monthly Status Report to be courtesy copied to the initiative architect. **This item is mandatory for all organizations proposing to develop deploy server interfaces for OWS-8.***

12.4 System Tests

12.4.1 Functional Test

12.4.2 Interface Test

12.4.3 Performance Test

13 Solution Transfer

13.1 Software Installation

*Selected organization shall provide a licensed copy of OWS-8 relevant software components for installation/integration onto the OGC Network. This could be accomplished by making the software component(s) available from an open site on their network OR by installing it on a sponsor or other host machine on the OGC Network. If the latter option is taken, then the selected organization shall provide a technical representative to install the software component(s). **This is mandatory for all organizations proposing to develop software components for OWS-8.***

13.2 Software Integration

13.3 Data Loading

*Selected organization shall provide a technical representative to load data to any server components the proposing organization may develop. This task includes data loading to OGC Network based servers. **This item is mandatory for all organizations proposing to develop server components for OWS-8.***

14 Demonstration

14.1 Use Case Development

Selected organization shall provide a technical representative to develop or support the development of use cases that define and explain the utility of the interfaces developed during OWS-8. These use cases shall be used to provide a basis for demonstration storyboards and the demonstration itself.

14.2 Storyboard Development

Selected organization shall provide a technical or business representative to develop or support the development of the demonstration storyboards that will define the structure and content of the demonstration.

14.3 Venue Access

14.4 Data Requirements Assessment

14.5 Data Acquisition and Distribution

14.6 Demonstration Preparation and Delivery

Selected organization shall provide a technical and/or business representative to develop or support the development of demonstration that will exercise the functionality of the interfaces developed during OWS-8. The representative(s) will also support the demonstration event(s) as required. Selected organization will maintain server and client software for a period of no less than one year after the completion of the OWS-8 demonstration. ***This item is mandatory for all organizations proposing to develop software components for OWS-8.***

15 Documentation

15.1 ER Development

Selected organization shall provide a technical representative to serve as editor of a relevant Engineering Report (ER). Not all organizations responding to this item will be required to provide an editor; alternatively however they shall support the editor by providing authors for sections of the ER and for reviews of the Draft ER. The ER is the deliverable of the work items within OWS-8 WBS.

Participants shall use the appropriate Document template posted on the OGC portal at the following location when preparing IP reports for submittal as part of this testbed initiative:

http://portal.opengeospatial.org/index.php?m=projects&a=view&project_id=147&tab=2&artifact_id=10 533)

In some cases, the documentation required is a Change Request to an existing OGC standard. All Change Requests are to be entered into the public, online CR system, found here:
http://www.opengeospatial.org/standards/cr

15.2 System Documentation Development

15.2.1 Functional Specification

15.2.1.1 Architectural Overview

Selected organization shall provide a technical representative to develop an architectural overview of their software component(s) relevant to the OWS-8 architecture. ***This item is mandatory for all organizations proposing to deploy server interfaces for OWS-8.***

15.2.1.2 Use Cases

Selected organization shall provide a technical representative to develop use cases to show the functionality of their software components in the context of the OWS-8 architecture. ***This item is mandatory for all organizations proposing to deploy server interfaces for OWS-8.***

15.2.1.3   UML System Models

Selected organization shall provide a technical representative to develop valid UML documents describing information models and architectures involved in their contribution to OWS-8. This item is mandatory for all organizations proposing to develop schema automation components for OWS-8 to be installed at sponsor or other host sites connected to the OGC Network.

15.2.1.4   System Configuration

Selected organization shall provide a technical representative to develop a detailed document describing the combined environment of hardware and software component(s) that compose their contribution to OWS-8. This item is mandatory for all organizations proposing to develop software components for OWS-8 to be installed at sponsor or other host sites connected to the OGC Network.

15.2.2   Installation Guide

Selected organization shall provide a technical representative to develop an installation guide for their software component(s). This item is mandatory for all organizations proposing to develop software components for OWS-8 to be installed at sponsor or other host sites connected to the OGC Network.

15.2.3   Training Material & Users Guide

Selected organization shall provide a technical representative to develop a User's Guide and Training Materials pertaining to their software component(s) developed or modified for OWS-8. The documents shall be provided to sponsors and IP Team to support their ability to demonstrate the proposing organization's contributions to the OWS-8 initiative. **This item is mandatory for all organizations proposing to develop software components for OWS-8***.*

15.3 Planning Study Report

16 Compliance Test Development

Technical representatives of selected organizations shall develop draft compliance test documentation pertaining to an interface developed or enhanced for OWS-8. For candidate specifications, this test documentation shall, at a minimum, consist of test guidelines that would form the basis for development of more detailed and complete test scripts as the specification matures toward an approved specification. For mature candidate specifications, that are believed to be ready for vote to become approved specifications, participants shall evolve existing or prepare test scripts to form a complete set of tests to fully test an implementation of a specification for compliance with its requirements. Compliance test documentation shall be included in an Engineering Report. This task includes coordination with OGC Specification Program activities including the Compliance Testing and Interoperability Evaluation Subcommittee. Proposals shall address this task along with Task 6, Specification Development and Task 11, Documentation in this Annex.

16.1 Summarize TIEs, demo results and data issues

Technical representatives of selected organizations shall include information detailing progress pertaining to the implementation of the interface by including TIE results, lessons-learned from the demo, and particular data issues.

16.2 Compliance Test

Technical representatives of selected organizations shall outline all of the necessary information to conduct a valid compliance test of the interface, including the sub items below

16.2.1 Test Cases

Technical representatives of selected organizations shall outline a valid compliance test for the interface. A valid compliance test will include identification of all required and optional server requests in the interface, the acceptable results for testing servers, the syntax checks to perform for testing client requests; an explanation of an acceptable verification of the results (machine, human, etc); a list of expected/valid warnings or exceptions to interface behavior; a matrix of test dependencies and explanation of ordering tests appropriately for inherent tests and dependencies.

16.2.2 Data

Technical representatives of selected organizations shall identify appropriate data sets for use in conducting a compliance test for an interface.

16.2.3 Recommendations

Technical representatives of selected organizations shall document recommendations to resolve issues with the current state of the interface, or with the compliance tests.