



RDA Brokering Governance WG

WG Charter

To address the Governance of the brokering framework middleware and interconnect existing international e-infrastructures. The Working Group will address the following:

1. Brokering configuration and strategies;
2. Brokering governance and agreements;
3. Publications and transparency;
4. Community adoption and sustainability.

Value Proposition

Middleware significantly simplifies distributed system construction, as well as providing a much more efficient means of integrating legacy systems with new technology. Brokering middleware provides mediation and transformation services to simplify data discovery, evaluation, access, and use. Brokering was conceived to work as a third-party tier in a three-tier architecture (extending the Client-Server paradigm). This introduces the clear need to govern and manage the new brokering tier. This is particularly important when brokering middleware is used to interconnect existing large e-infrastructures in a way that is sustainable. Given the brokering middleware's importance in the integration of disparate information and data systems, continued access to and availability to these middleware components is vital to supporting long-term development and continued use of integrated data systems. It is important also as brokering should be transparent to most users, thus lacking high-level visibility of its impacts.

Effective middleware governance has the potential to support longer-term development under a variety of funding models, to simplify and standardize access models, and establish a basis for the continued value of brokered systems. It is not, however, clear what the best practices for this governance are, and how those practices shift in response to different funding and property models, under different architectures or as standards change. To ensure sustainable, stable development and effectiveness in an operational environment of brokering systems reliant on middleware service architectures, an effective model for the governance and reuse of that middleware must be agreed upon.

We propose to consider and recommend a set of best practices for governing and managing brokering middleware. These practices will work to ensure future interoperability, access, and use to brokering middleware independent or in light of various development and funding models to support long-term planning of brokered, integrated systems. These will be of value not only to interoperability architects and to developers (who can plan integrated systems assuming the continued use and support of brokering middleware) but also to system managers and end users. The potential for scaling and expansion of integrated data resources and



systems in brokering middleware is of value to increasingly interdisciplinary research work as well as in managing growing big data sets.

The expected outcomes of the Brokering Governance WG will be:

- A Position Paper including guidelines, best practices and recommendations for the management and support of an international brokering capability to interconnect existing and future multidisciplinary data systems and infrastructures. This will include a consensus recommendation of a path for adoption of this capability at the international level.
- A set of use cases to assess options and best practices for governance recommendations in three diverse areas:
 - Global Changes: GEO-BON;
 - Environmental sciences: European Commission Danube SDI;
 - International repositories: ICSU WDS.

Engagement with existing work in the area

The working group will engage with significant international programmes, including:

- NSF BCUBE project;
- GEO GEOSS and in particular its Infrastructure Implementation Board (IIB);
- European Commission GEOWOW project;
- Transatlantic ODIP project;
- ICSU WDS.

These projects are part of the brokering technology development, which has been going on for the last decade. They have addressed the areas of: discovery, access, semantic harmonization, and use for facilitating multidisciplinary and organizational science research (see the Useful References section).

An operational capability for discovery and access brokering: the GEO DAB (Discovery and Access Brokering framework) has been implemented by GEO (Group on Earth Observation) in the GEOSS (Global Earth Observation System of Systems). Presently, GEO DAB interconnects more than 20 diverse research infrastructures sharing more than 65 Millions of resources. This experience showed the technical scalability of brokering, as far as resources and service performances.

Operational capability in GEOSS works on a GEO unique governance model of country contributions. While this works, the growth and sustainability of international broker service needs to address a broader and open governance modality, which offers a strategic and practical process to sustainability and operations.

Work Plan

The work plan considers the following main tasks:

- TB1: Brokering process definition and definition of terms;
- TB2: Scoping of a “brokering agreement” and stakeholders roles;



- TB3: Examination of framework governance approaches;
- TB4: Evaluation of the governance approaches through the three use cases;
- TB5: Stakeholders review of use case outcomes;
- TB6: Analysis of sustainability models;
- TB7: Develop recommendations for a brokering framework governance;
- TB8: Review recommendation with a broad stakeholder and RDA Communities;
- TB9: Report writing.

Task	Timeframe (months)	Expected outcome
TB1	M1-M3	Process definition and definition of terms
TB2	M3-M5	Guidelines for “brokering agreement” and stakeholders roles
TB3	M5-M8	Options for framework governance approaches
TB4	M8-M13	Assessments of the framework governance approaches
TB5	M13-M14	Stakeholders review
TB6	M13-M14	Options for sustainability models
TB7	M14-M16	Recommendations for a brokering framework governance
TB8	M16-M17	Stakeholders review
TB9	M17-M18	Final report

Adoption Plan

The first step of Community adoption are done in the formation of the recommendations, stakeholders reviews starting at M13 is part of the adoption plan and will encourage the ownerships of the outcomes by the broader Community.

An initial set of significant Stakeholders agreed to participate and support the use cases.

WG activities and outcomes will be presented at the major conferences and workshops dealing with research infrastructures and interoperability.

Initial Membership

There will be an open call for membership upon the approval of the WG. Initial members of the WG are (alphabetically):

- Bente Lilya Bye (BLB, Norway)
- Max Craglia (European Commission – JRC)
- Michael Diepenbroek (PANGEA/ICSU-WDS, Germany)
- Guiseppi Fiamoni (CINECA, Italy)
- Milena Lic Fuchs (Univestity of Zagreb, Croatia).
- Wim Hugo (SAEON/ICSU WDS, South Africa)
- Mustapha Mokrane (ICSU-WDS)
- Stefano Nativi (CNR-IIA, Italy)
- Francoise Pearlman (J&F Enterprise, USA)



- Jay Pearlman (J&F Enterprise, USA)
- Roger Proctor (IMOS, Australia)
- Tobias Spears (Fisheries and Oceans, Canada)

The WG will be initially chaired by (alphabetically):

- Max Craglia (European Commission –Joint Research Centre);
- Stefano Nativi (Italian National Research Council);
- Jay Pearlman (J&FE).

Useful References

- The EarthCube Brokering Concept Award Team, "**Brokering for EarthCube Communities: A Road Map**", 2012 [Online]. Available: http://api.ning.com/files/e1f7JW76fC4atLM7lc-wdrsh4bpyUb9knJhLXfEtBqjhhF*rgAdvZNTwzvtnWsqVSXA4EBbE6pNrBO*vpLKR1EiwePSjtjpnL/BrokeringRoadmapAug171.pdf
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- S. Nativi, S. J. Khalsa, B. Domenico, M. Craglia, J. Pearlman, P. Mazzetti, and R. Rew, "**The Brokering Approach for Earth Science Cyberinfrastructure**", EarthCube White Paper. U.S. NSF [Online]. Available: http://semanticcommunity.info/@api/deki/files/13798/=010_Domenico.pdf
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