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Task Group 4

Interoperable Services

Progress report

Task Group 4 Interoperable Services

Objectives

The Interoperability Services Task Group works on improving access to and interactive use of spatial data to enhance data sharing and support decision-making through international standards and specifications.

Task Group Membership

FAO and UNEP were nominated to manage Task Group 4 at the 5th Plenary Meeting in Geneva. Currently the TG membership, as known to the mailing list, stands as:

Jeroen Ticheler (FAO) -TG Manager

Mick Wilson (UNEP) –TG Manager

Michelle Anthony (USGS)

Paul Bellanger (UN-ECA)

Olivier Cottray (WFP)

Thomas Gurtner (Centre for Development and Environment, Uni. Of Bern)

Ian May (UNEP/World Conservation Monitoring Centre)

Katherine O'Neill (WHO)

Jean-Pierre Pacquette (IAEA)

Membership will need to be further extended to include interest groups and key individuals from UN and other agencies who will be willing and able to be involved in deploying services required within the framework of the UNSDI Reference Architecture.

List of Tasks

Membership rebuilding

Operationalization of Geonetwork/Open-source

Development of the UNSDI Reference Architecture

Activities completed:

Rebuilding of the TG membership commenced during UNGIWG-6 in Addis Ababa, with UN-ECA, WFP and WHO nominating themselves. A number of non-UNGIWG members (USGS, CDE, UNEP/WCMC) have also affirmed or reaffirmed their interest.

This has been a year of transition, from the product-oriented activities of 2004-05 that lead to the release of the GeoNetwork open-source toolkit, to preparing for the services-oriented approach that will be required during realization of the UNSDI.

GeoNetwork open-source continued its development both as a product and a community. A very successful workshop held at FAO in April 2006 brought together a diverse group that included the CGIAR, ESA, FGDC and the EU as well as the expected UN agencies.

The GeoNetwork package has become the metadata authoring and exchange tool of choice in a number of communities -agricultural research (CGIAR-CSI), development assistance (SADC, RCMRD), environmental information (UNEP), humanitarian assistance (UN OCHA and WFP-VAM) and a range of projects related to national SDI developments. The product itself has reached maintenance release 2.0.3 and incorporates and integrated maps-on-demand feature, meaning that GeoNetwork users cannot only discover sources of data but can with - literally - the click of button create and combine maps from these data into sophisticated decision-support products.

FAO also produced and is freely distributing an attractive and informative package describing GeoNetwork open-source and how it can best be used, and also contains a self-

installing copy of the software on DVD. The DVD also contains a wide variety of related Geospatial Free and Open Source Software applications.

A first alpha version of GeoNetwork opensource 2.1 is also released. This version will result in the Open Geospatial Consortium Reference Implementation for the Catalog Services for the Web 2.0 based on the ISO profile. The final version is expected by the end of this year. FAO and others continue to support development and the future GeoNetwork package will include additional standard metadata interfaces such as for the OAI-PMH, support for the Catalog Services for the Web (OGC-CSW), the ESA developed Earth Observation profile for CSW and an ISO-compliant service registry. GeoNetwork will continue to be an important vehicle for delivering the service-oriented components needed by a future UNSDI.

A recent and significant task that has involved many members of TG-4 (and other UNGIWG contributors) has been to develop the reference Architecture for a UNSDI. FAO convened a three-day workshop in September 2006 that brought together a dozen of the world's foremost practitioners in SDI development, including software companies, industry consortia and national and international agencies, who worked with a representative group of UN bodies (FAO, UNEP, UN OCHA) to articulate the organizational and technical principles that would have to underpin a useful UNSDI. The group identified the unique role of the UN as fostering interoperability amongst SDIs, whether national, regional, sectoral or organizational. This role further exposed the need for the UN to broker the creation of user-to-access-and-reuse components, based on stable and predictable standards, which can confidently be fitted into business processes. Governance of the standards and components - whether software, data supplies, or the standards themselves such as shared vocabularies- would give adopters the knowledge and confidence that their investment would yield suitable return. The draft architecture has been circulated for review prior to being incorporated into the larger UNSDI proposal. The reference architecture provides clear guidance for the upcoming work of TG-4. Its service-oriented approach provides a model readily applied within UN agencies. Developing componentized modules and capabilities in an incremental manner, and delivering them through a shared common pool along an internet bus, should scale well from single agencies' applications to the broader UN-wide applications.

Groups of agencies sharing a common requirement - say, for example, uniform map symbologies and map styling definitions - are looking to establishing shared standards-based services on the web. This evolution would likely continue even if a UNSDI failed to eventuate. A UNSDI will, however, provide the discovery services and governance 'glue' to maintain cohesion amongst service providers. One crucial element of this will be ensuring that providers of data and services will have access to common domain vocabularies so that their offerings can be meaningfully combined. Two of the UN's strongest and most unique contributions to global SDI developments will, therefore, be to establish operational feature-type catalogues that meet domains-specific requirements, and establishing governance mechanisms for metadata that ensure that these vocabularies are usable while also ensuring that the authority of the metadata itself is always apparent to the user.

Conclusions:

On this basis, and building on the success of GeoNetwork at exposing mappable data sources, we can identify priorities for TG-4 member activities during 2006-07:

- a shared (federated?) registry of service descriptions: FAO, UNEP and others are already making agency-level investments then can and should be elevated to UNGIWG

- a shared (federated?) registry of map portrayal templates and rules such as style layer descriptors: WFP, UNEP, UN OCHA and others share interest here

- a shared (federated?) registry of feature type descriptions: FAO and WFP have already commenced investigations- implementation and adoption of shared feature-level reference services e.g. national and bounding boxes and polygons: these can be simple, numerous and useful
- implementing mechanisms for shared usage reporting
- a shared service providing a reference registry of permanent universally
- unique identifiers.

This last item is a strategic necessity. Governance of a UNSDI will be nigh-on impossible until there is a functional answer to the questions "Who owns the metadata?" and "Are these metadata describing the same thing?" Metadata are, presently, harvested and replicated so as to increase their chances of discovery. It also means that searchers discover the same metadata many times from many sources. Which are the authoritative metadata? When might a system reasonably suppress the repetitious display of similar metadata? If repeats are suppressed, which one is chosen for display? How are differences or conflicts amongst similar metadata to be resolved?

Until we can answer these types of questions the UN is at risk of promoting metadata anarchy. TG-4 could, rightly, begin addressing the operational means for addressing these questions as a direct contribution to the governance of a UNSDI. On a broader scale, TG-4 and other task groups will need to start considering the operational ramifications of digital rights description and management. These issues are already exposed via, for example, the distribution restrictions on the UN international boundaries data. However, the evolution away from products to service orientation will accelerate the need for finding and implementing practical means for describing and honouring custodians' rights and obligations in automatable ways.