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CDI/THREDDS Interoperability in the SeaDataNet Framework

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SeaDataNet is an EU funded project aiming to create and operate a pan-European, marine data management infrastructure, accessible online through a unique portal. The primary goal of SeaDataNet is to develop a system which provides transparent access to marine data sets and data products from 36 countries in and around Europe. Therefore, the SeaDataNet infrastructure must develop a standardized distributed system for managing the large and diverse datasets collected by the oceanographic fleets and the new automatic observation systems –i.e. temperature, salinity current, sea level, chemical, physical and biological properties.
The middleware solution adopted by SeaDataNet for datasets documentation, discovery and query is called CDI –Common Data Index. However, the collaboration with other meteo-ocean data management systems based on THREDDS/OPeNDAP (Thematic Realtime Environmental Distributed Data Services / Open-source Project for a Network Data Access Protocol) required the construction of a 'bridge' between the two technologies in order to achieve transparent interoperability.
The developed and adopted interoperability solution consists of mapping each of them onto a more general and standard geospatial data model. Thus, the general model harmonizes the two technology, while the two mappings acts as effective mediations in the two directions. This approach worked out a flexible and extensible solution which allows to add new mappings and mediations components dealing with heterogeneous technologies. Besides, adopting an international standard, this harmonization approach allowed the implementation of standard discovery and query interfaces/services which are used in international initiatives, such as INSPIRE and GEOSS.
The harmonization approach was implemented in the framework of a distributed catalog service, namely GI-cat. It is based on an extension of the OGC CS-W General Catalogue Interface Model for geospatial information and implement distribution and mediation capabilities . In addition to the mediation capabilities for CDI and THREDDS, this solution presents other following assets: a) it implements and publishes the OGC CS-W standard catalog interface for resources discovery and access; b) it is flexible since it allows to federate and mediate other international standards and disciplinary interoperability specifications, such as OGC access services (i.e. WMS, WCS) and Biodiversity information systems protocols (i.e. the GBIF services).
GI-cat supports caching and mediation capabilities and can act as a broker towards disparate resources, transforming multiple query results into a uniform and consistent interface. In fact, GI-cat implements a framework to federate international standards and well-accepted special arrangement interoperability services.
Therefore, in the framework of the SeaDataNet project, GI-cat is used to federate THREDDS and CDI resources, mediating and exposing them through standard catalog interfaces –e.g. OGC CS-W/ISO and CS-W/Core profile; the OGC CS-W/ebRIM application profile is under test. A significant use scenario will be presented and discussed.