Oceanotron server for marine in-situ observations

Ifremer, French marine institute, is deeply involved in data management for different ocean in-situ observation programs (ARGO, OceanSites, GOSUD, ...) or other European programs aiming at networking ocean in-situ observation data repositories (MyOcean, SeaDataNet, Emodnet). To capitalize the effort for implementing advance data dissemination services (visualization, download with subsetting) for these programs and generally speaking water-column observations repositories, Ifremer decided to develop the oceanotron server. Knowing the diversity of data repository formats (RDBMS, netCDF, ODV, ...) and the temperamental nature of the standard interoperability interface profiles (OGC/WMS, OGC/WFS, OGC/SOS, OpeNDAP, ...), the server is designed to manage plugins:

- StorageUnits : which enable to read specific data repository formats (netCDF/OceanSites, RDBMS schema, ODV binary format).
- FrontDesks : which get external requests and send results for interoperable protocols (OGC/WMS, OGC/SOS, OpenDAP).
- In between a third type of plugin may be inserted, TransformationUnits : which enable ocean business related transformation of the features (for example conversion of vertical coordinates from pressure in dB to meters under sea surface).

The server is released under open-source license so that partners can develop their own plugins. Within MyOcean project, University of Reading has plugged a WMS implementation as an oceanotron frontdesk. The modules are connected together by sharing the same information model for marine observations (or sampling features: vertical profiles, point series and trajectories), dataset metadata and queries. The shared information model is based on OGC/Observation & Measurement and Unidata/Common Data Model initiatives. This inner-interoperability level enables to capitalize ocean business expertise in software development without being indentured to specific data formats or protocols.