Geophysical Research Abstracts
Vol. 14, EGU2012-13346, 2012
EGU General Assembly 2012

Oceans 2.0: a Data Management Infrastructure as a Platform

B. Pirenne (1) and E. Guillemot (2)

(1) Ocean Networks Canada, University of Victoria, Victoria, BC, Canada (bpirenne@uvic.ca), (2) Ocean Networks Canada, University of Victoria, Victoria, BC, Canada (eguillem@uvic.ca)

Oceans 2.0: a Data Management Infrastructure as a Platform

Benoît Pirenne, Associate Director, IT, NEPTUNE Canada
Eric Guillemot, Manager, Software Development, NEPTUNE Canada

The Data Management and Archiving System (DMAS) serving the needs of a number of undersea observing networks such as VENUS and NEPTUNE Canada was conceived from the beginning as a Service-Oriented Infrastructure. Its core functional elements (data acquisition, transport, archiving, retrieval and processing) can interact with the outside world using Web Services. Those Web Services can be exploited by a variety of higher level applications.
Over the years, DMAS has developed Oceans 2.0: an environment where these techniques are implemented. The environment thereby becomes a platform in that it allows for easy addition of new and advanced features that build upon the tools at the core of the system.

The applications that have been developed include:

data search and retrieval, including options such as data product generation, data decimation or averaging, etc.
dynamic infrastructure description (search all observatory metadata) and visualization
data visualization, including dynamic scalar data plots, integrated fast video segment search and viewing

Building upon these basic applications are new concepts, coming from the Web 2.0 world that DMAS has added: They allow people equipped only with a web browser to collaborate and contribute their findings or work results to the wider community. Examples include:

addition of metadata tags to any part of the infrastructure or to any data item (annotations)
ability to edit and execute, share and distribute Matlab code on-line, from a simple web browser, with specific calls within the code to access data
ability to interactively and graphically build pipeline processing jobs that can be executed on the cloud
web-based, interactive instrument control tools that allow users to truly share the use of the instruments and communicate with each other
and last but not least: a public tool in the form of a game, that crowd-sources the inventory of the underwater video archive content, thereby adding tremendous amounts of metadata

Beyond those tools that represent the functionality presently available to users, a number of the Web Services dedicated to data access are being exposed for anyone to use. This allows not only for ad hoc data access by individuals who need non-interactive access, but will foster the development of new applications in a variety of areas.