# OOSTethys

Luis Bermudez, et. al.

3rd Interoperability Workshop on Automated Harvesting of Data and Metadata, San Diego, CA.
Nov 14-15, 2006

<MMI />

SURA
Southeastern Universities Research Association

# Participants

- Philip Bogden, GoMOOS & SURA
- Eric Bridger, GoMOOS
- David Forrest, VIMS
- Gerald Creager, Texas A&M
- John Graybeal , MBARI
- Jeremy Cothran, SEACOOS
- Helen Conover, UAH
- Bruce Beaumont, UAH
- Tony Cook, UAH
- Donna Cote, Texas A&M
- Luis Bermudez, MBARI

# In the beginning...

there were two

Interoperability Test Beds,

then

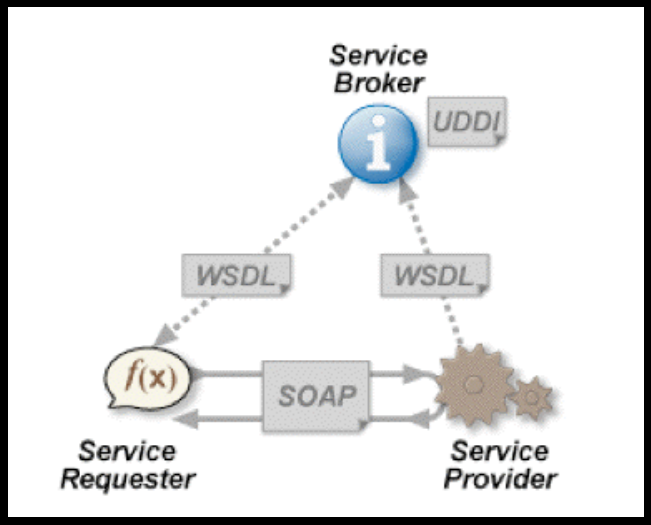
OpenIOOS met MMI

and

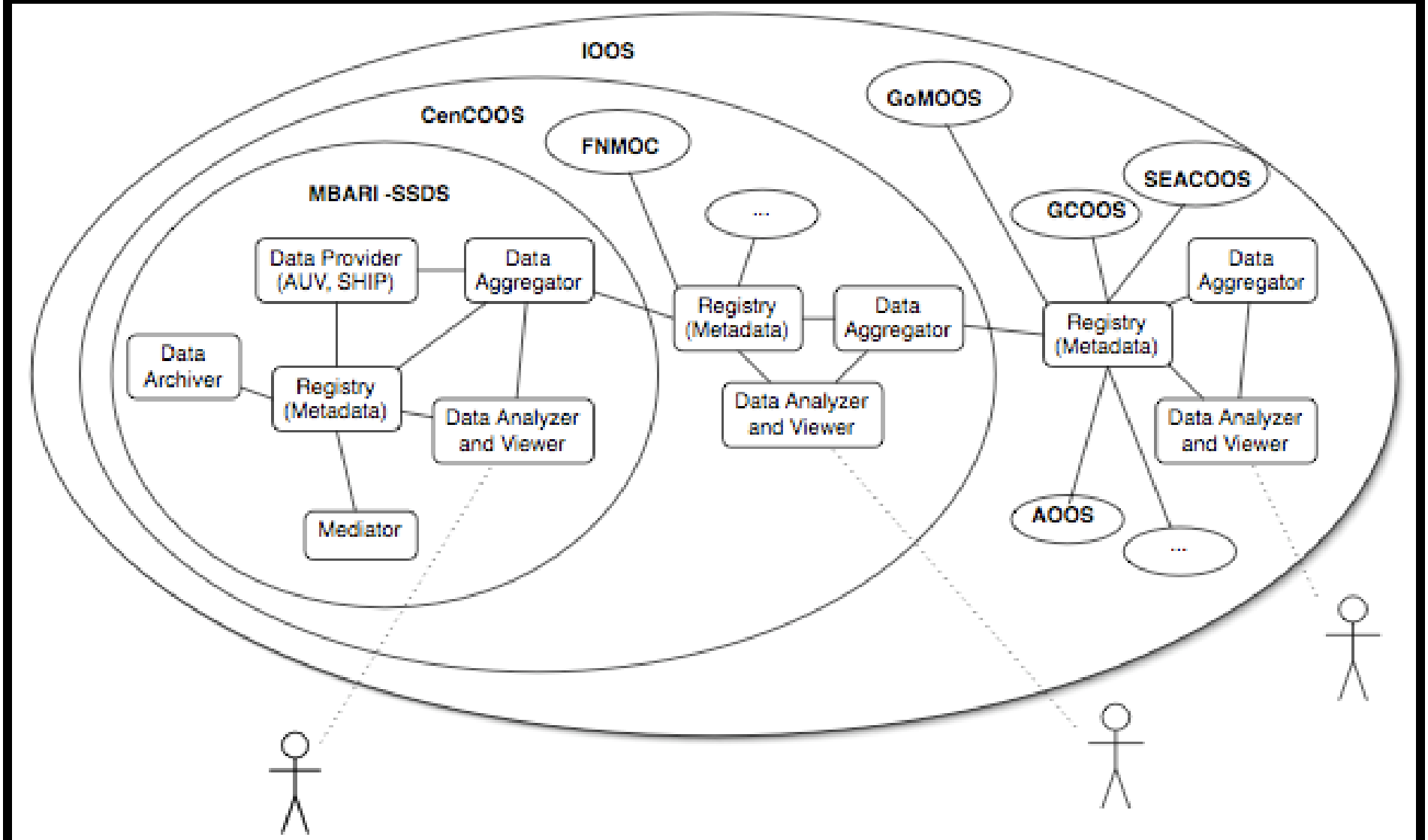
**OOSTethys** was born.

# Tethys

| Method Summary | |
|---|---|
| java.lang.String | **getASCII**(java.lang.String URIDataset,<br>java.lang.String start,<br>java.lang.String end,<br>java.lang.String downLimit,<br>java.lang.String upLimit,<br>java.lang.String northLimit,<br>java.lang.String westLimit,<br>java.lang.String southLimit,<br>java.lang.String eastLimit,<br>java.lang.String verticalPositive)<br>Answers a String that encapsulates the Data in ASCII format. |
| java.lang.String[] | **getMetadata**(java.lang.String parameter,<br>java.lang.String source,<br>java.lang.String start,<br>java.lang.String end,<br>java.lang.String downLimit,<br>java.lang.String upLimit,<br>java.lang.String northLimit,<br>java.lang.String westLimit,<br>java.lang.String southLimit,<br>java.lang.String eastLimit,<br>java.lang.String verticalPositive)<br>Answers a String[] of metadata records in XML based on RDF-Dublin Core format. |



# Matryoshka


IOOS
CenCOOS
MBARI -SSDS
Data Provider (AUV, SHIP)
Data Aggregator
Data Archiver
Registry (Metadata)
Data Analyzer and Viewer
Mediator
FNMOC
...
Registry (Metadata)
Data Aggregator
Data Analyzer and Viewer
GoMOOS
SEACOOS
GCOOS
Data Aggregator
Registry (Metadata)
Data Analyzer and Viewer
AOOS
...

# OOSTethys

OOSTethys is an attempt to prototype a provider-to-user data systems framework, using interoperable standards, enabling discovery and use of data. Standards are selected for web services, semantic mediation, content specification, and a system registry. The framework uses the Service Oriented Architecture paradigm.

# Vocabularies Agreement

Namespaces:

- cf = http://marinemetadata.org/cf#
- gcmd = http://marinemetadata.org/gcmd#

## Observed Properties

Component definitions and units of measurement

| Common terms | Data producers terms (components definition) | Units of measure | Portal terms (discovery – qualifiers) |
|---|---|---|---|
| time | urn:ogc:phenomenon:time:iso8601 | not necessary | urn:ogc:phenomenon:time:iso8601 |
| latitude | urn:ogc:phenomenon:latitude:wgs84 | urn:ogc:unit:degree | urn:ogc:phenomenon:latitude:wgs84 |
| longitude | urn:ogc:phenomenon:longitude:wgs84 | urn:ogc:unit:degree | urn:ogc:phenomenon:longitude:wgs84 |
| salinity, SSS, sea water salinity, sea surface salinity | cf:sea_water_salinity, cf:sea_surface_salinity | urn:mmi.def:units#psu | gcmd:Oceans--Salinity_Density--Salinity |
| depth | cf:depth | urn:ogc:unit:meter | gcmd:Oceans--Surface_Water--Water_Depth |

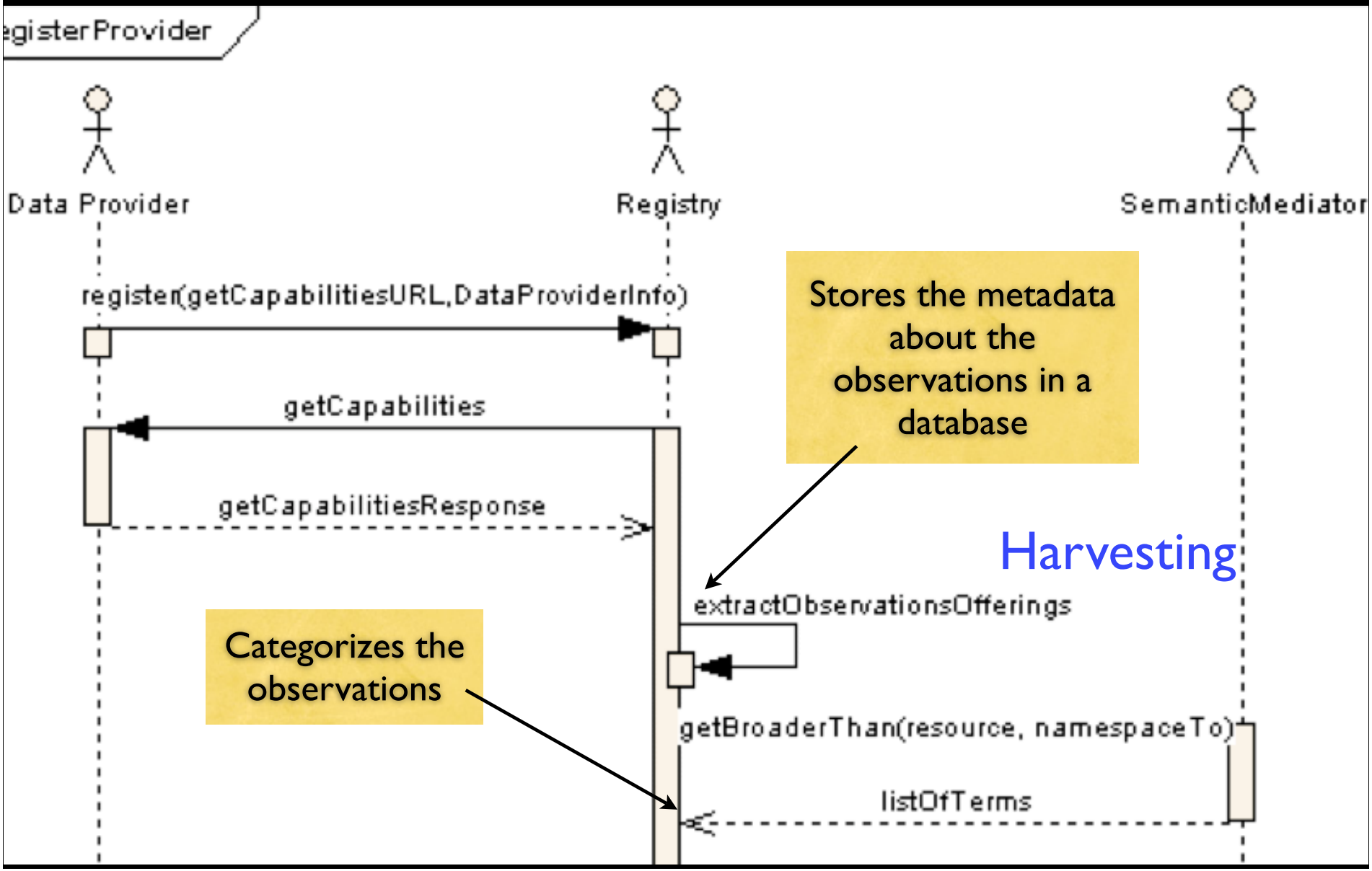
# Open Geospatial Consortium

Sensor Web Enablement (SWE) is intended to be a revolutionary approach for exploiting Web - connected sensors such as flood gauges, air pollution monitors, satellite-borne earth imaging devices etc.

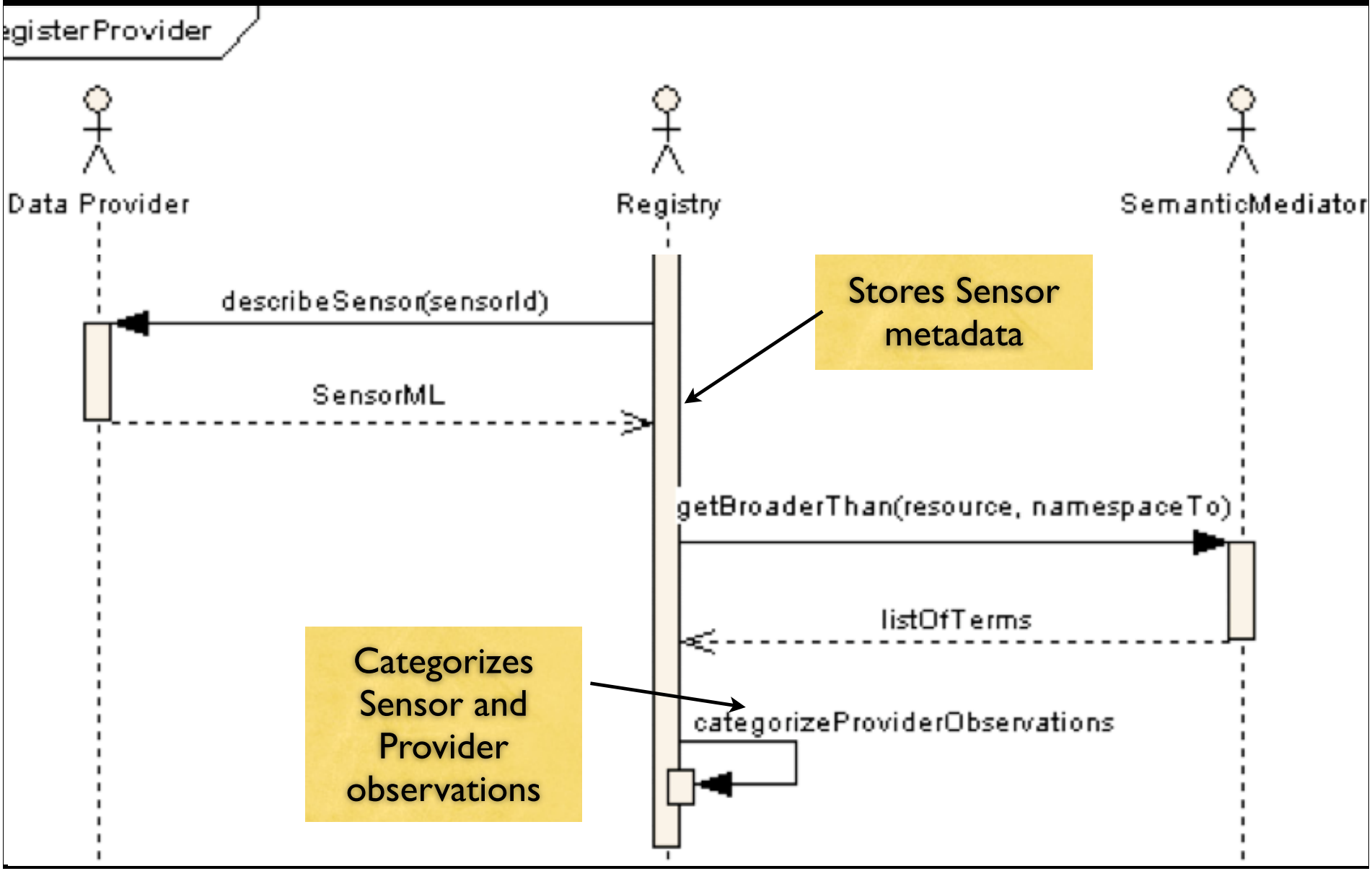
# Sensor Observation Service (SOS) Main Interfaces

| | | |
|---|---|---|
| getCapabilities | → | list of Sensors (Sensor ID)<br>list of Observation Offerings (OOId) |
| describeSensor (Sensor ID) | → | Description, keywords, identifiers, classifiers, physical characteristics, capabilities, contacts, interfaces, inputs, outputs, components, lineage, constraints, calibration and accuracy. |
| getObservation (OOId) | → | Data |

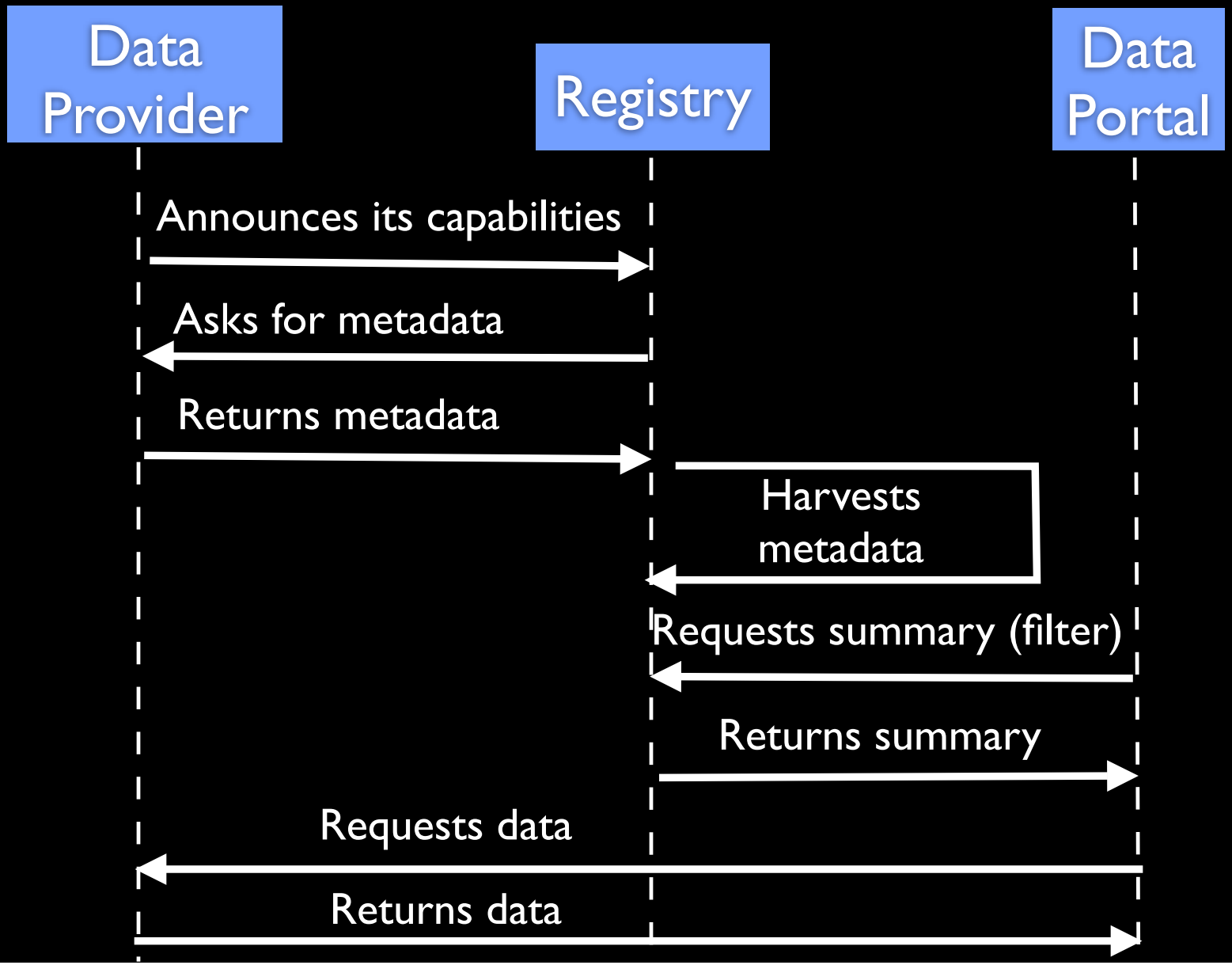
# Registry


egisterProvider
Data Provider
Registry
SemanticMediator
register(getCapabilitiesURL,DataProviderInfo)
getCapabilities
getCapabilitiesResponse
Stores the metadata about the observations in a database
Harvesting
extractObservationsOfferings
Categorizes the observations
getBroaderThan(resource, namespaceTo)
listOfTerms

# Registry


egisterProvider
Data Provider
Registry
SemanticMediator
describeSensor(sensorId)
SensorML
Stores Sensor metadata
getBroaderThan(resource, namespaceTo)
listOfTerms
Categorizes Sensor and Provider observations
categorizeProviderObservations

# Generalizing



http://www.oostethys.org

Luis Bermudez
bermudez@mbari.org