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# **Integrating the OGC Sensor Web Enablement Framework into the OGC Catalogue**

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# Overview

- Introduction
- Sensor Discovery
  - Elements
  - Architecture
- SensorML Discovery Profile
- SensorML-ebRIM Mapping
- Catalogue Link
- Outlook and Conclusion



# Introduction

- Sensor networks are used in a broad range of applications
- OGC Sensor Web Enablement: Integration of sensors into SDIs
- Discovery functionality currently missing in the SWE framework
- Full integration into SDI needs Catalogue support for SWE



# Sensor Discovery

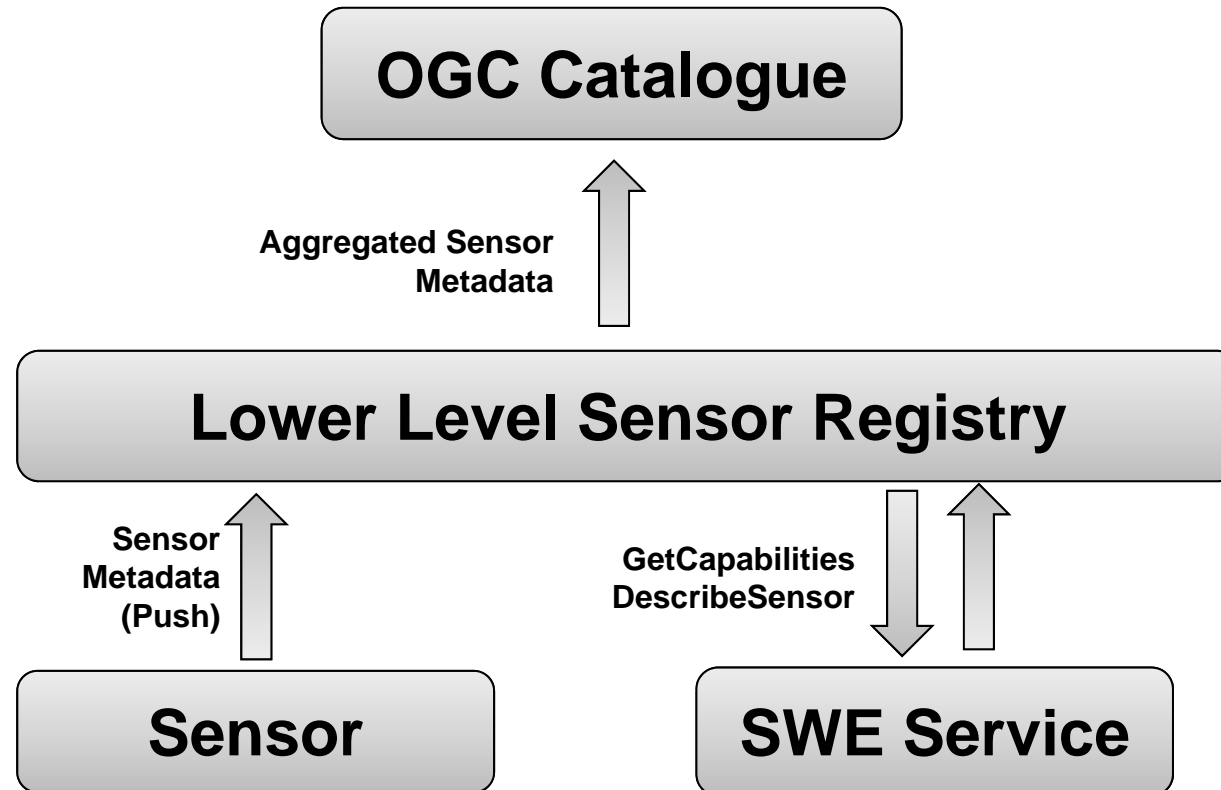
- Sensor discovery comprises
  - Searching for sensors
  - Searching for sensor data
  - Searching for Sensor Web services
- Most important search criteria
  - Time
  - Space
  - Observed property



# Sensor Discovery - Elements

- Describe the metadata of sensors
  - SensorML Discovery Profile
- (Automatically) collect metadata of sensors
  - Harvesting metadata from SWE services
- Support the dynamic structure of sensor networks
  - Handling of sensor status information
- OGC Catalogue integration
  - Transform SensorML into Catalogue Data Models

# Sensor Discovery Architecture

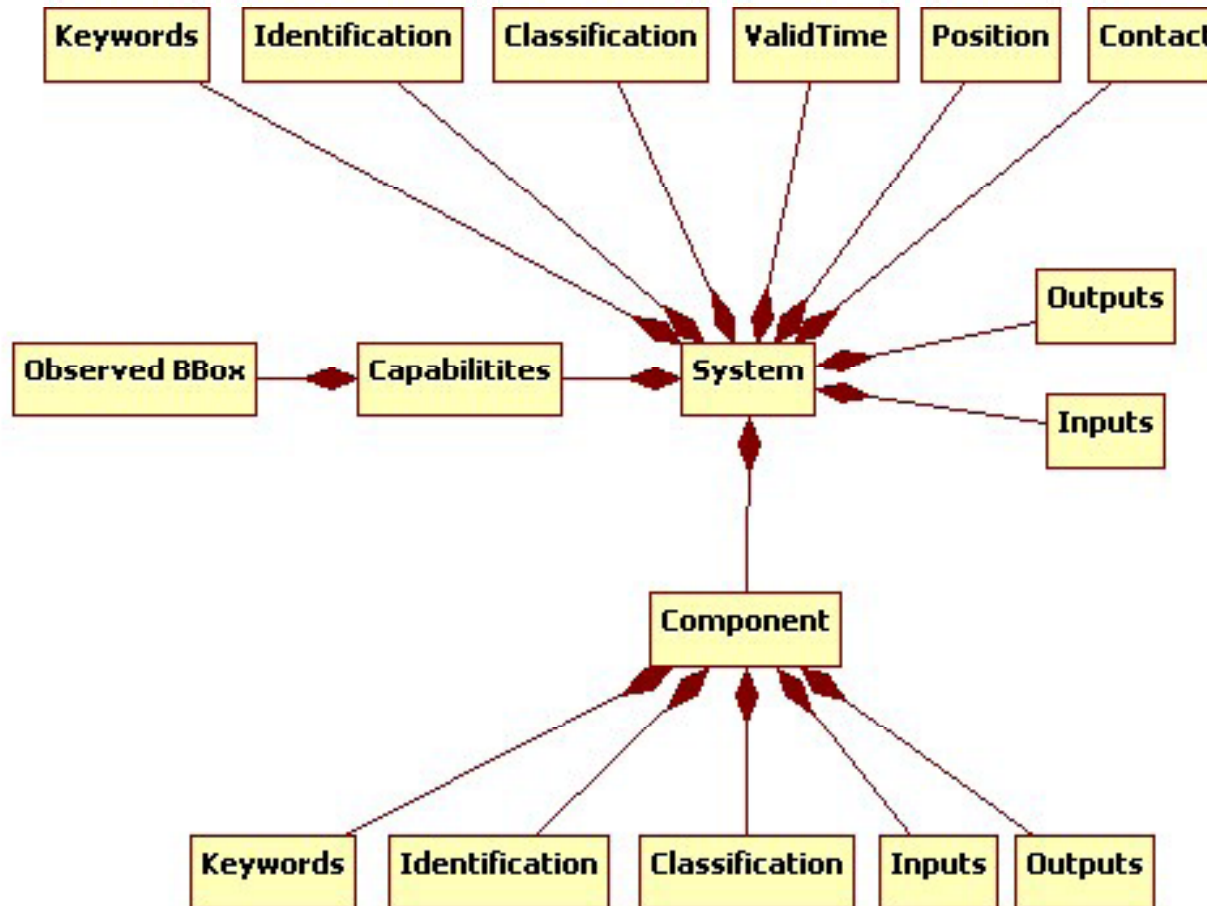




# SensorML Discovery Profile

- Need for a common metadata encoding for sensor metadata
- SensorML is the relevant OGC standard for describing sensors
- Due to the generic character of SensorML a profile is needed that defines
  - a minimum set of metadata
  - a structure how to provide the minimum set of metadata
- Formal definition using Schematron

# SensorML Discovery Profile







# SensorML-ebRIM Mapping

- SensorML is not supported as a data model for OGC Catalogues
- Approach: Provide an according Catalogue extension
- Mapping of SensorML to the ebRIM Catalogue Information Model
- Definition of object types, associations, attributes
- OGC Discussion Paper



# Catalogue Link

- Lower level registry
  - Harvesting of sensor metadata
  - Management of sensor status data
- Metadata within the lower level registry too detailed for Catalogues → aggregation
- Conversion of sensor metadata to ebRIM → XSLT
- Lower level registry pushes (aggregated and) converted metadata into the Catalogue

# Catalogue Link

**Input**

Service : Sensor Catalogue

Sensor:

Star Date: 2010-01-01

End Date: 2010-04-19

Keywords:

Service: weather

Phenomenon: temperature

**Map Viewer**

**Search Results**

Loaded 1 records out of 1

	Name	Date	Abstract	Format	File Name
<input type="checkbox"/>	ID <a href="#">Show Metadata</a> Name Weather station 123 on top of the IFGI building	2010-01-15 2010-01-30	Weather station located on the roof of the Institute for Geoinformatics of the University Münster, Germany.		



# Outlook and Conclusion

- Prototype available
- Ongoing specification process
  - SensorML Discovery Profile
  - SensorML-ebRIM Mapping
- Work will be continued: EO2HEAVEN
- Closing one of the last gaps for fully integrating SWE into SDIs



# Thank you for your attention!

More information:

<http://sensorweb.uni-muenster.de>

<http://52north.org/swe>

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