



SENSOR WEB APPLICATION TO TRANSPORT INFRASTRUCTURES MONITORING

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Outline

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- ISTIMES Project
- System architecture
 - ▣ Brokered SOA
- Future work

The ISTIMES project

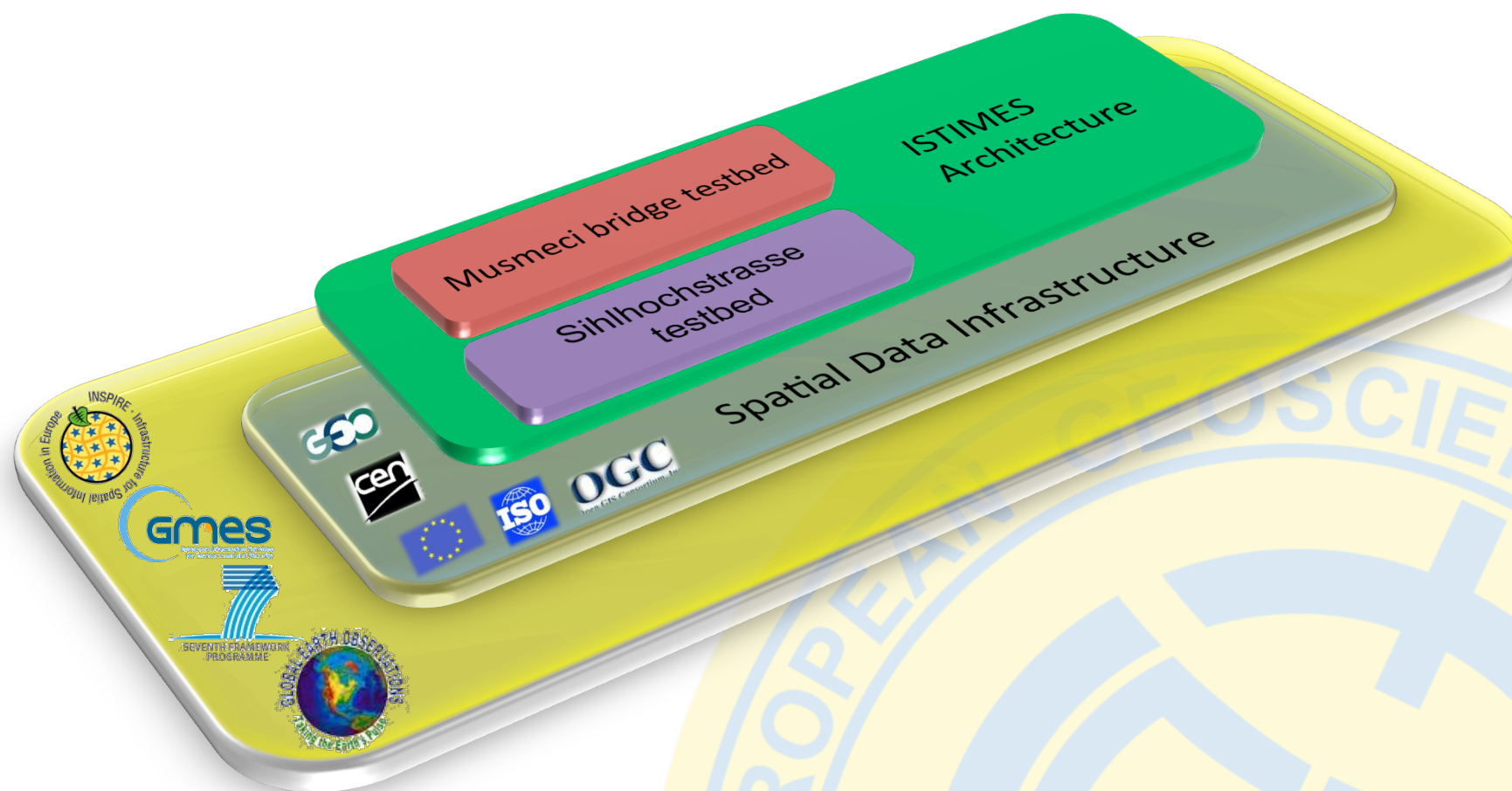
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- Integrated System for Transport Infrastructures Surveillance and Monitoring by Electromagnetic Sensing
- FP7 funded (Grant Agreement 225663)
- Started July 1st 2009
- Duration 36 months
- <http://www.istimes.eu>



Interoperability architecture

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State of the art

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- OGC Sensor Web Enablement (SWE)
 - ▣ Open-source implementation (52North)
- Smart Ocean Sensor Consortium
- FP6 projects
 - ▣ Orchestra, SANY, Osiris
- CNR GIIDA Sensor Web interest group

Our contributions

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- Contribute to the existing standardization initiatives in the field of web services for sensor management and access
 - ▣ OGC SWE
 - ▣ OGC PubSub
- Design the system architecture of the ISTIMES e-infrastructure
 - ▣ Based on RM-ODP (with an extra view on security aspects)

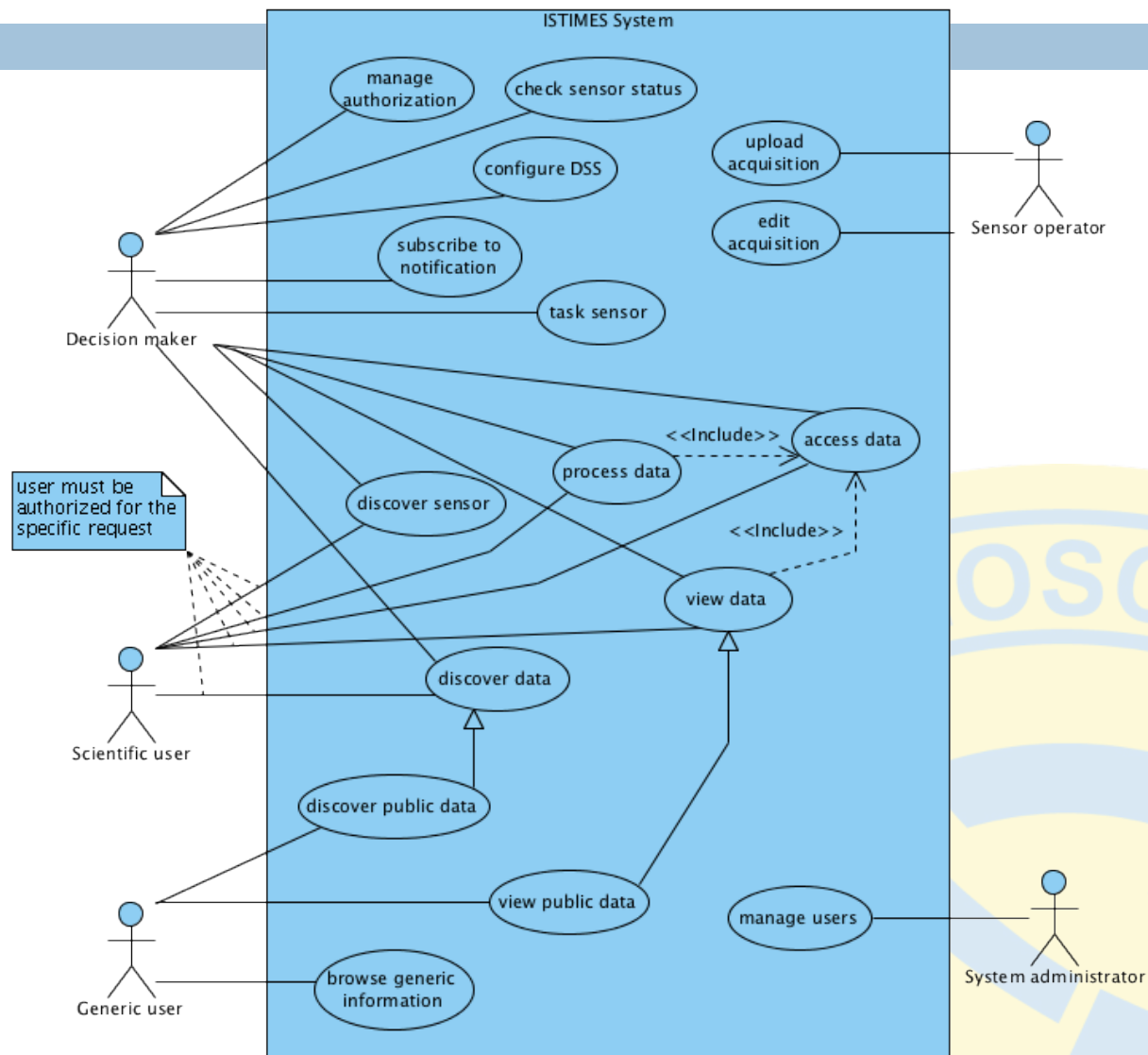
Business view

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- The approach of the interviewed organizations is clearly object-based
 - ▣ The ISTIMES monitoring system should cover single, complete objects (e.g. a single bridge, or tunnel)
- Users are expected to access a web application (i.e. a portal) with reports and synthetic indexes and images

Business view

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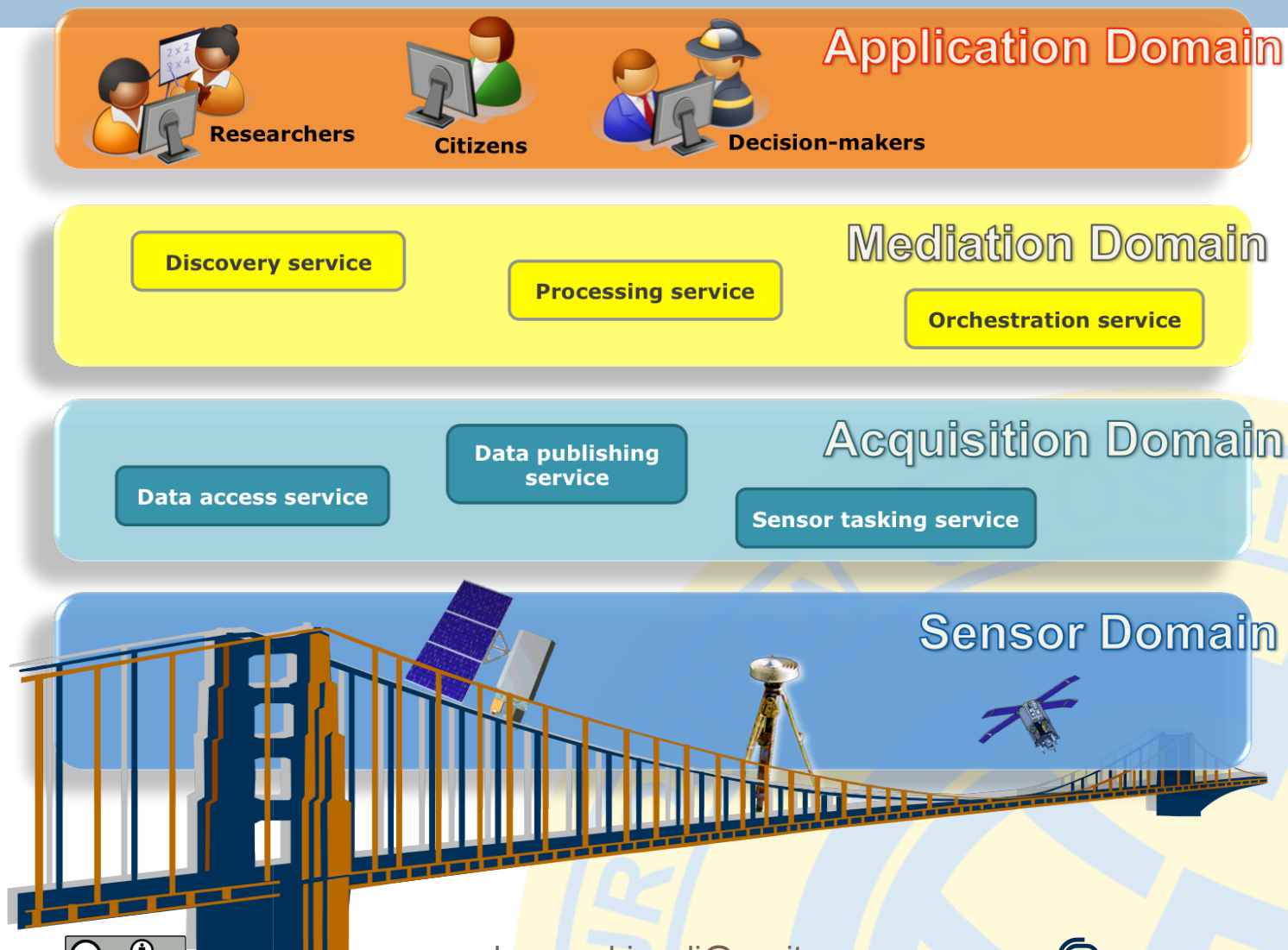
Information view

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- Data and metadata model
 - ▣ ISO 19115 (including part 2)
 - ▣ SensorML 1.0
 - ▣ O&M 1.0
 - ▣ netCDF-CF/GeoTIFF
- Ongoing design of application schemas

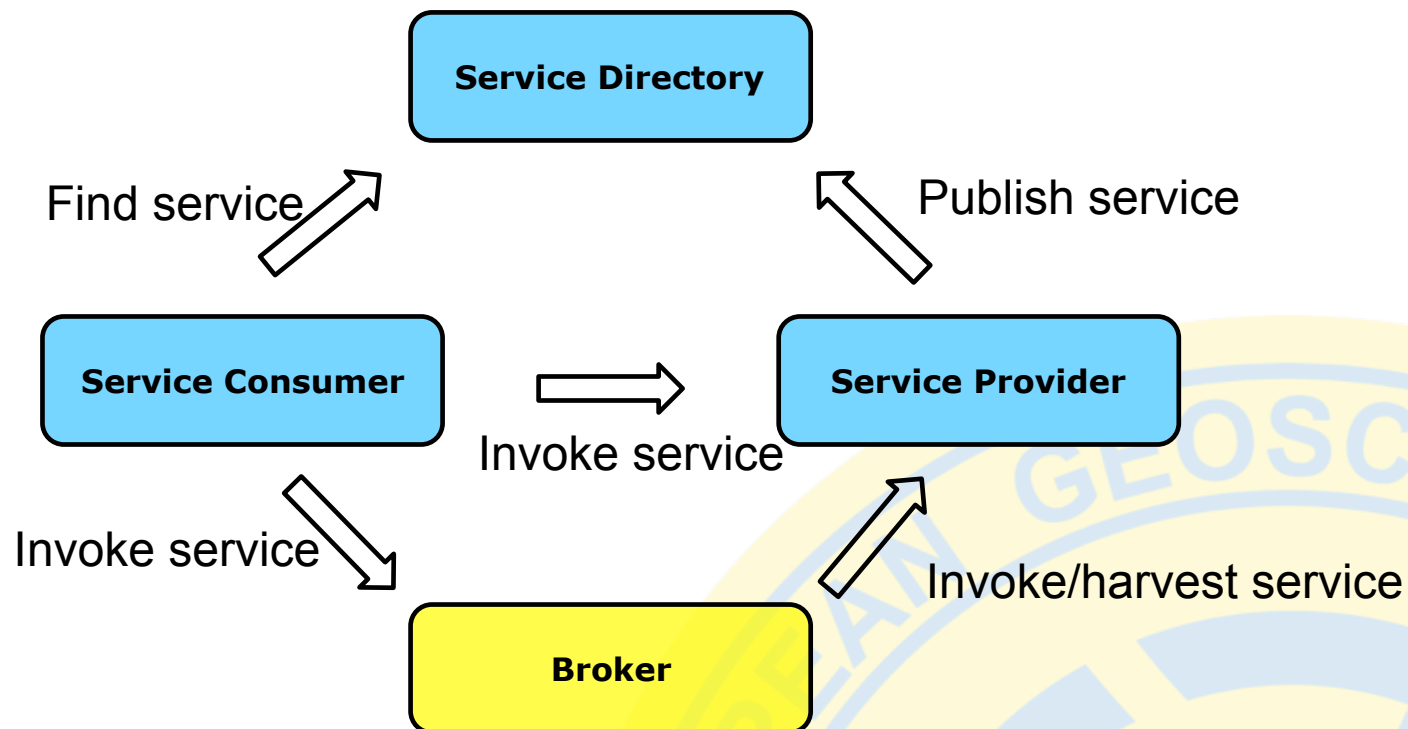
Computational view

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Brokered SOA

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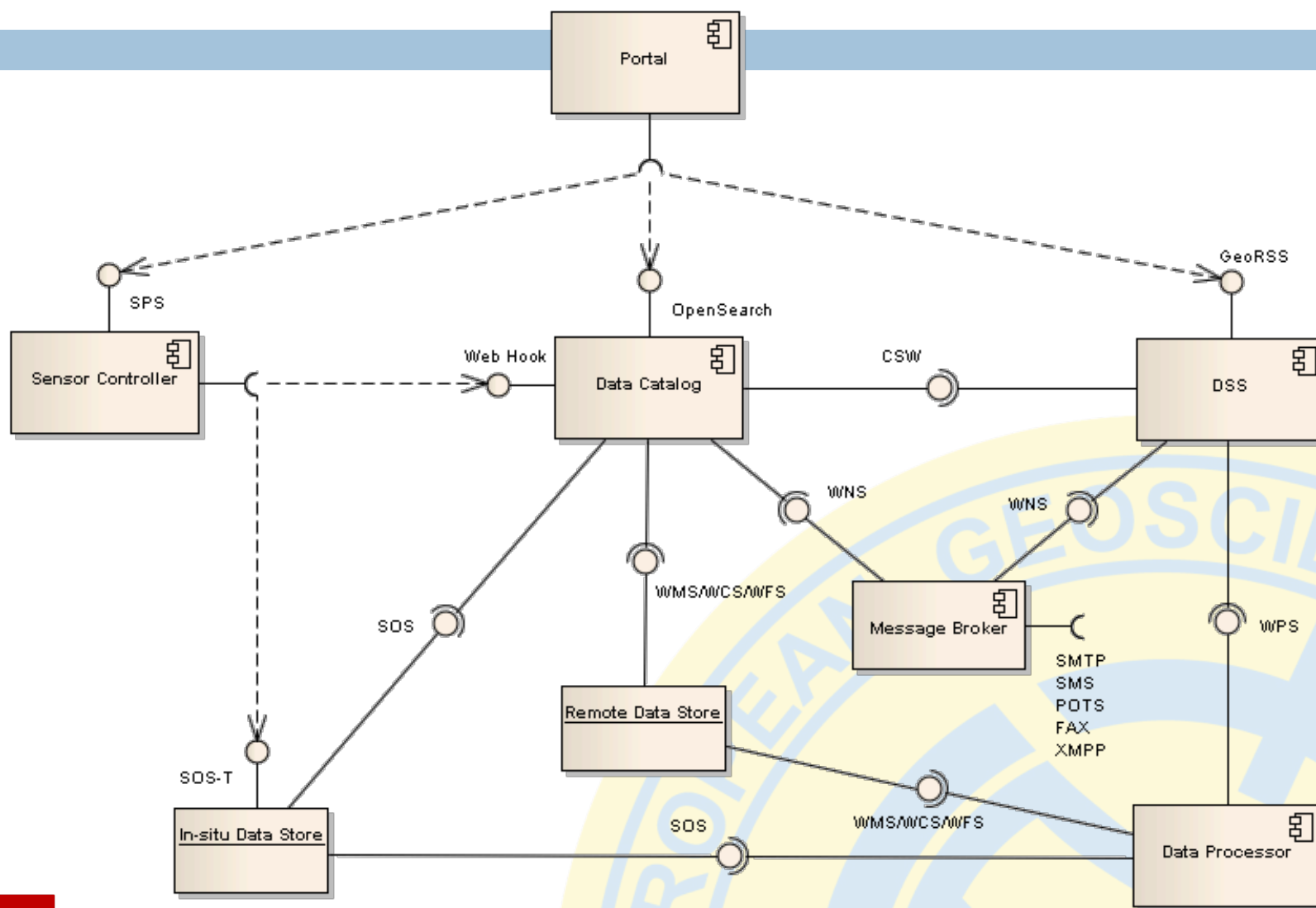
Mediation and processing services

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- Advanced discovery
 - ▣ Catalog broker
- Advanced processing
 - ▣ Access broker
- Advanced notification
 - ▣ Message broker

Engineering view

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Technology view

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- Contributions from partners
 - ▣ GI-cat discovery broker
 - ▣ GI-axe access/process broker
 - ▣ Sensor controller
 - ▣ Security, DSS, portal
 - ▣ High-resolution cartography
- Third-party solutions
 - ▣ 52°North SWE suite

Future work

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- Event Architecture
 - ▣ OWS PubSub standard
- Real-time
 - ▣ Streaming data access
 - ▣ Sensor tasking
- Sensor/Acquisition domain interface
 - ▣ IEEE 1451
 - ▣ MBARI PUCK