The Sensor Bus

Towards an Easy Integration of Geosensors into the Sensor Web

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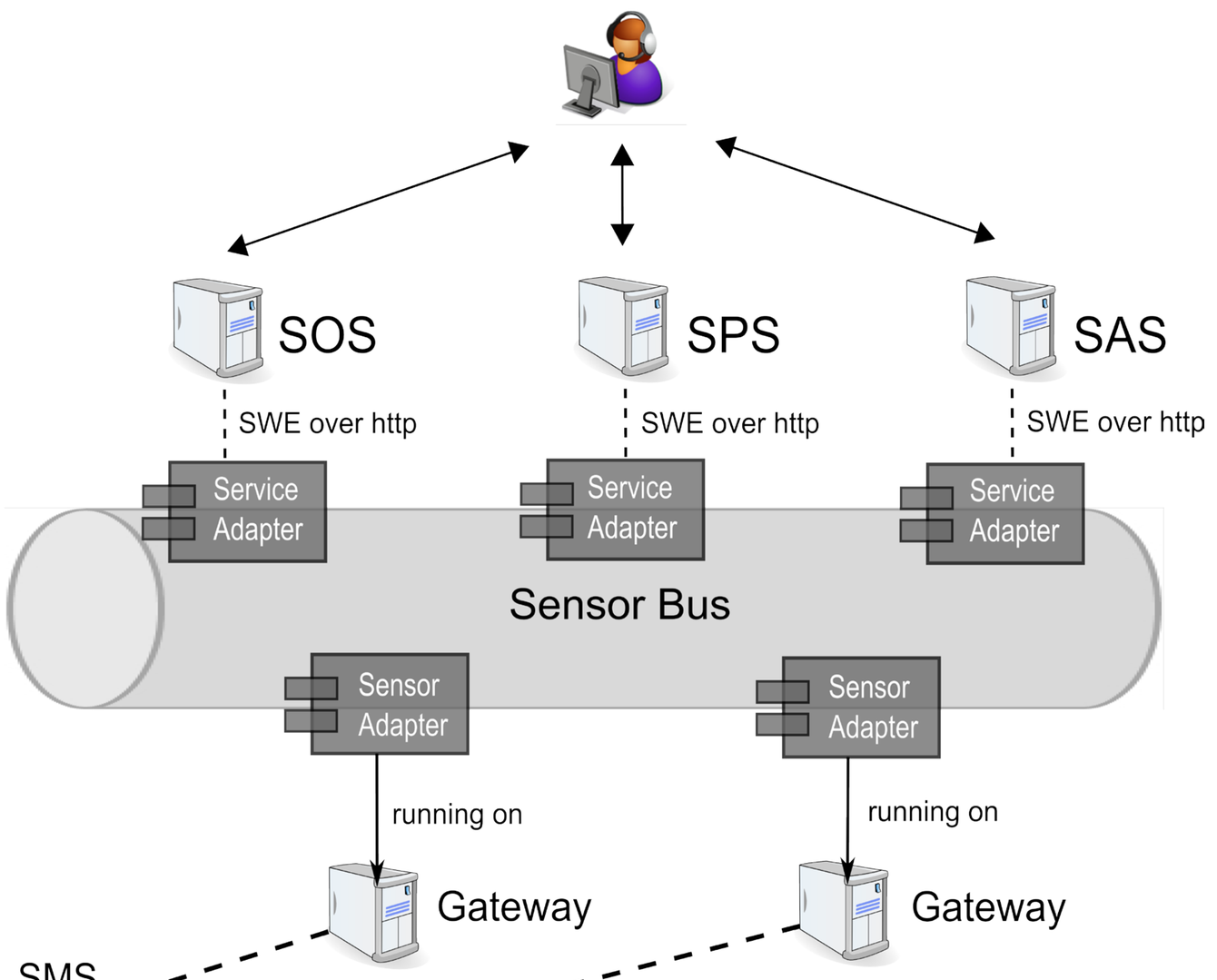
Motivation

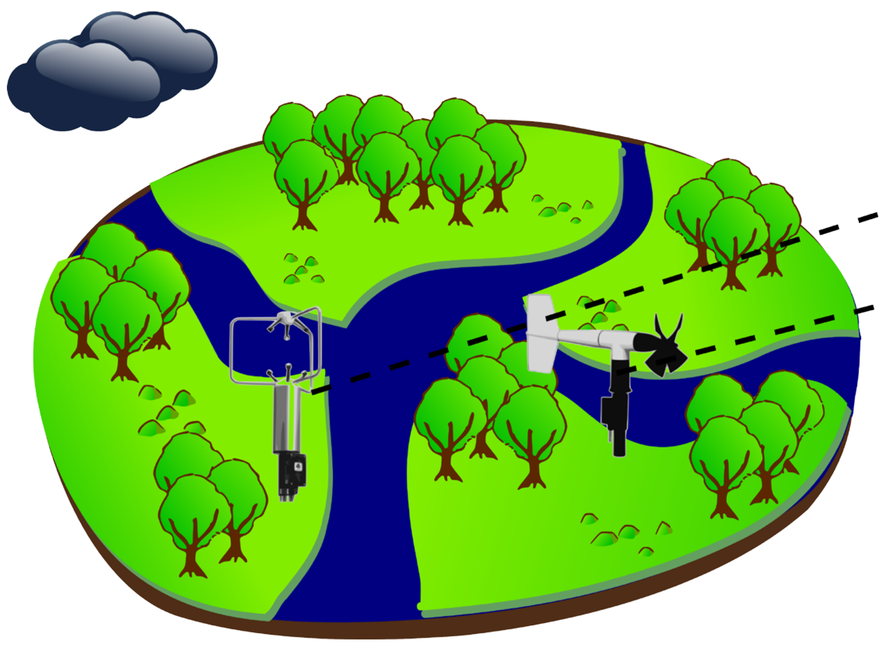
OGC's Sensor Web Enablement (SWE) standards encapsulate geosensors for web-based discovery, access, tasking, and alerting. The geosensors need to be integrated manually with each node of the Sensor Web. This leads to an extensive integration effort. The aim of this work is to facilitate the integration of geosensors and the Sensor Web by introducing an intermediary layer, the Sensor Bus.

Architecture

A client invokes a SWE service for a specific functionality. The Sensor Bus establishes the connection between these services and the geosensors (or sensor gateways). Communication is established through a pub/sub mechanism based on the underlying messaging technology. The Sensor Bus is adaptable to different messaging technologies (e.g., JMS, IRC, XMPP, or Twitter).

For geosensors and SWE services adapters can be developed. They convert the service or sensor specific communication protocol to the internal bus protocol. The underlying messaging technology takes care of forwarding the posted messages to the subscribed components.





Outlook

The future aim is to use the Sensor Bus for enabling plug & play of geosensors. This will allow sensor vendors to easily plug-in sensors so that they are subsequently available on the Sensor Web. Service providers benefit since they can support a wide variety of sensors by adapting their services to the Sensor Bus.

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