



Big Geo Data Services: From More Bytes to More Barrels

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The data deluge is affecting the oil and gas industry just as much as many other industries. However, aside from the sheer volume there is the challenge of data variety, such as regular and irregular grids, multi-dimensional space/time grids, point clouds, and TINs and other meshes. A uniform conceptualization for modelling and serving them could save substantial effort, such as the proverbial "department of reformatting".

The notion of a coverage actually can accomplish this. Its abstract model in ISO 19123 together with the concrete, interoperable OGC Coverage Implementation Schema (CIS), which is currently under adoption as ISO 19123-2, provides a common platform for representing any n-D grid type, point clouds, and general meshes. This is paired by the OGC Web Coverage Service (WCS) together with its datacube analytics language, the OGC Web Coverage Processing Service (WCPS).

The OGC WCS Core Reference Implementation, rasdaman, relies on Array Database technology, i.e. a NewSQL/NoSQL approach. It supports the grid part of coverages, with installations of 100+ TB known and single queries parallelized across 1,000+ cloud nodes. Recent research attempts to address the point cloud and mesh part through a unified query model. The Holy Grail envisioned is that these approaches can be merged into a single service interface at some time.

We present both grid and point cloud / mesh approaches and discuss status, implementation, standardization, and research perspectives, including a live demo.