

Serve vector Tiles

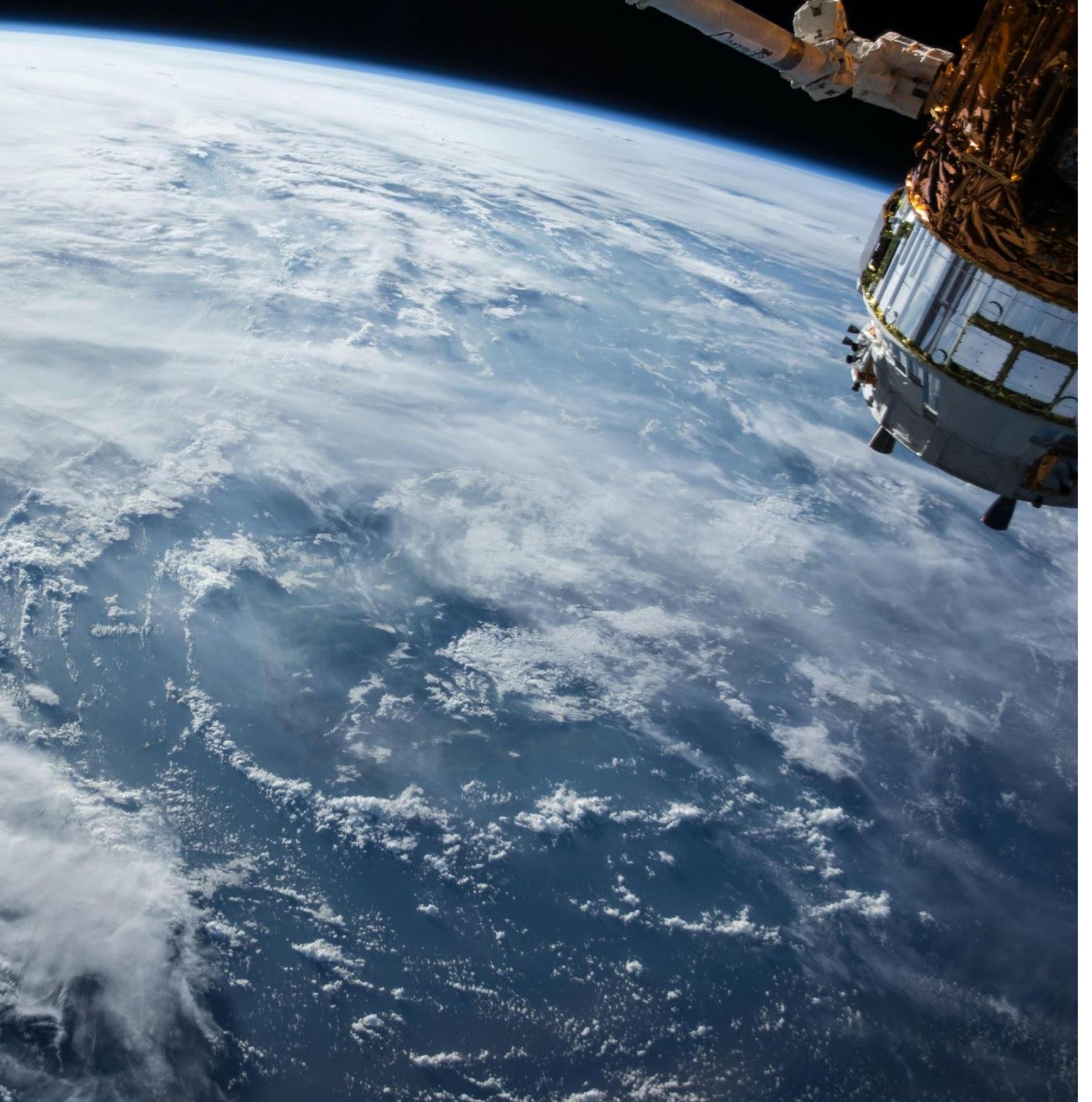
with OGC API - Tiles



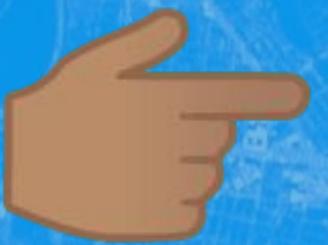
12th June, 2023

Agenda

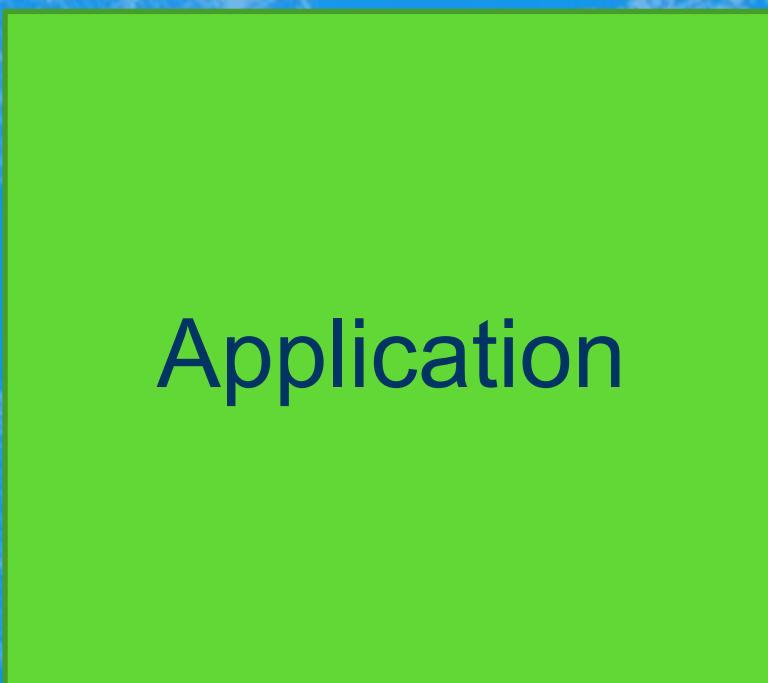
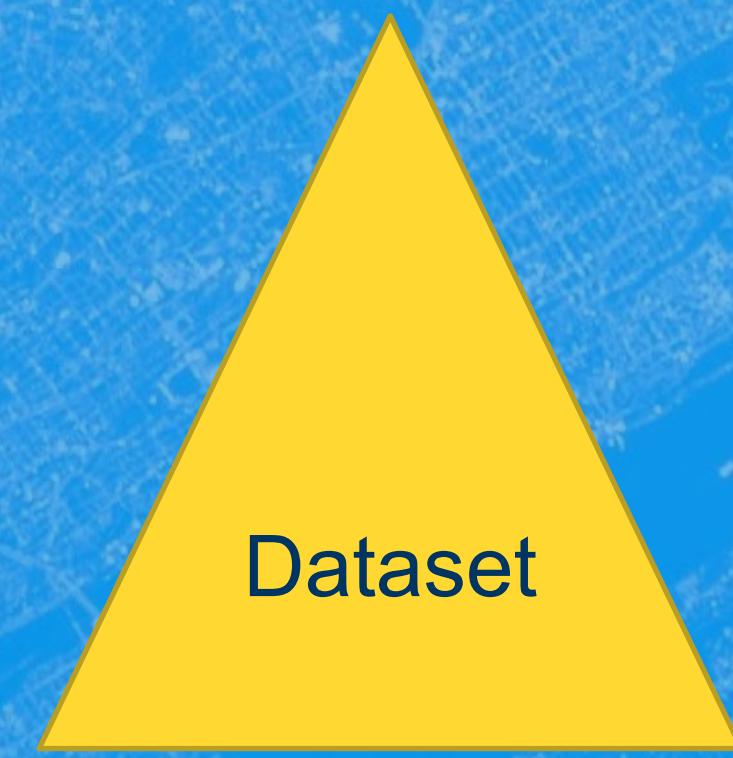
- Introduction
- OGC API Tiles
- Prepare dataset
- Launch System
- Test/explore API



Goal



Serve vector tiles, so that others (or ourselves) can access it through the web.



Dataset

Local shops and products in the city of
Barcelona.



<https://www.sawcer.com/>

Example

```
1  {
2      _id: ObjectId('618ba81086ba7ccd05b9e384'),
3      type: 'Feature',
4      properties: {
5          field_1: 8,
6          'Shop name': 'Amiette Gluten Free Bakery',
7          Products: 'Bread rolls multigrain,Gluten free bread,Gluten free croissant,Gluten free donut',
8          'Shop GPS': '41.3779474,2.157073500000024',
9          Address: 'Carrer de Calàbria, 65, 08015 Barcelona',
10         CP: 8015,
11         Country: 'Spain',
12         Telephone: '972 18 32 57',
13         Website: 'http://www.amiette.com/',
14         'Shop description': 'Amiette les ofrece sus panes y otros dulces libres de gluten elaborados con recetas sencillas y deliciosa',
15         'Shop description using hashtags #': 'Glutenfree,Bakery,Sweets,Bread,Cakes,CakeShop',
16         'Email address': 'info@amiette.com',
17         'Opening times': 'L-V 8.30-14.00, 16.00-20.00, S 8.30-14.00',
18         'Map block': 'eyJpIjoiNDEuMzc3OTQ3NCwyLjE1NzA3MzUwMDAwMDAyNCIsIm8iOnsic3RhdHVzIjoiT0siLCJsYXQiOjQxLjM3Nzk0NywibG5nIjoyLj',
19         Notes: null,
20         lat: 41.3779474,
21         lon: 2.1570735
22     },
23     geometry: {
24         type: 'Point',
25         coordinates: [
26             2.157073500000024,
27             41.3779474
28         ]
29     }
30 }
```

Standard

OGC API - Tiles

Provides tiles of geospatial information:

- Modular
- RESTfull
- Recommended encodings (e.g.: GeoJSON, HTML).
- Use of OpenAPI

<https://github.com/opengeospatial/ogcapi-tiles>

APPROVED

Tile

Different tiles of geospatial information are supported:

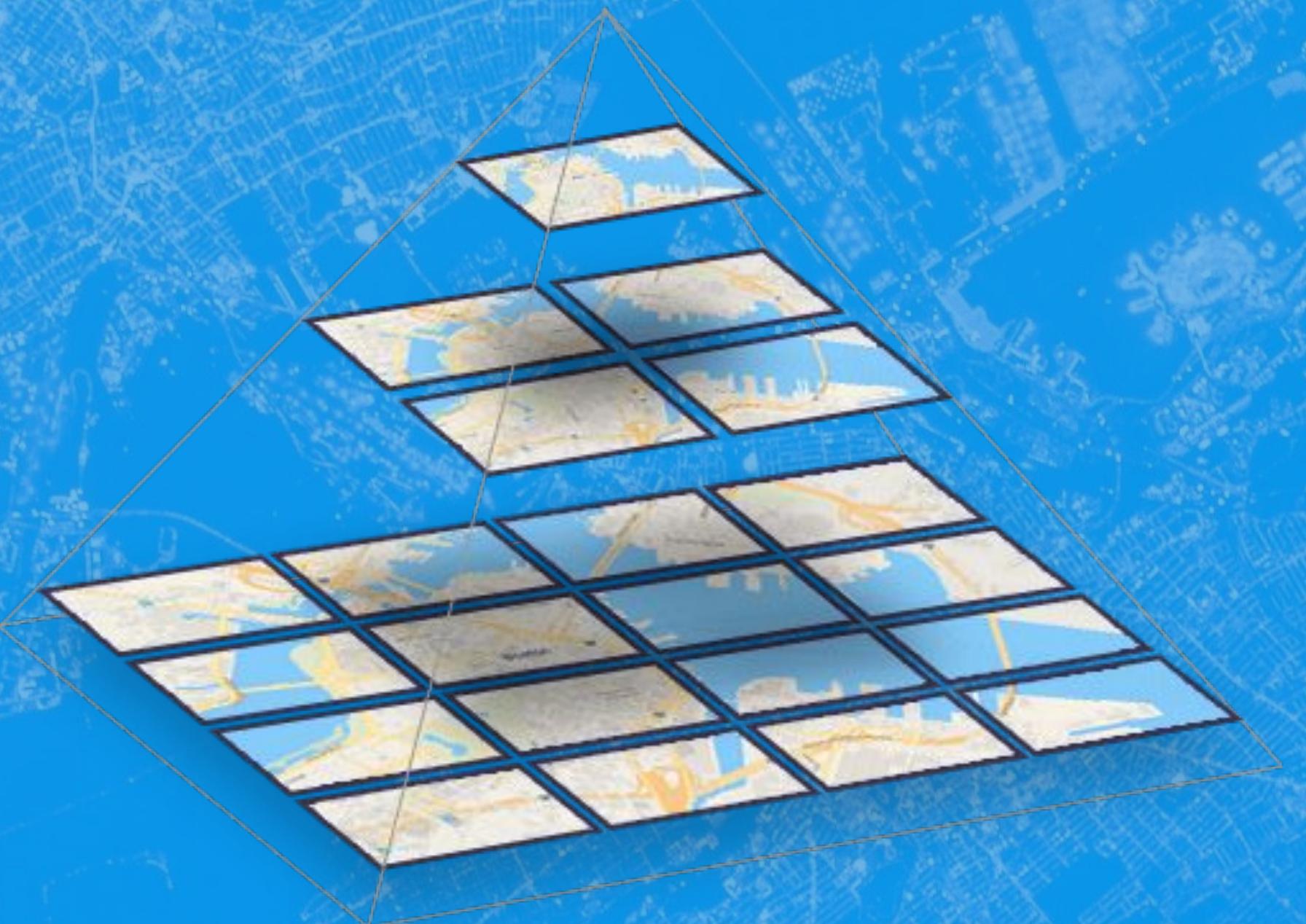
- Vector (e.g.: mvt)
- Map (e.g.: EO imagery)
- Coverage (e.g.: data cubes)



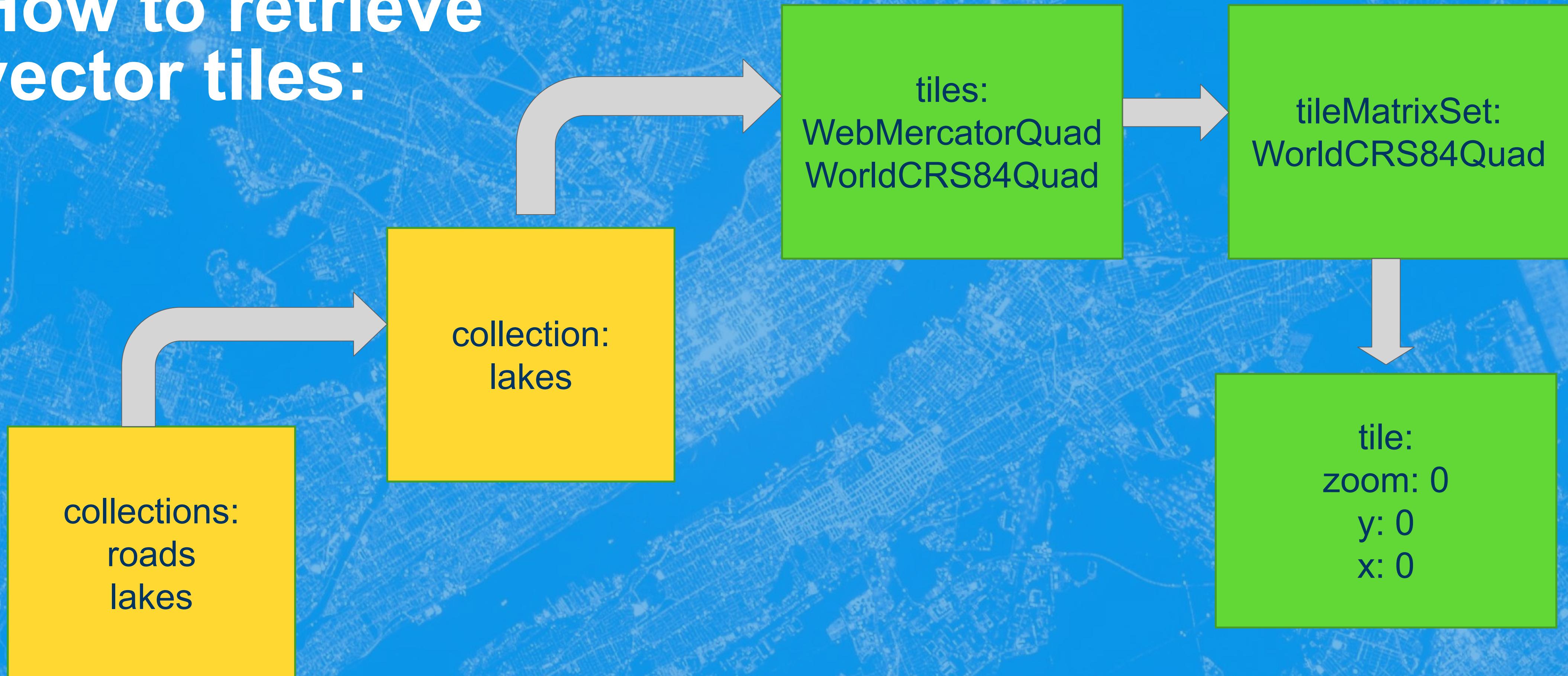
Vector Tiles

Geographic data, packaged into pre-defined roughly-square shaped "tiles" for transfer over the web.

- Fast delivery.
- Design flexibility.
- Protobuf/MVT (vector-tile-spec)

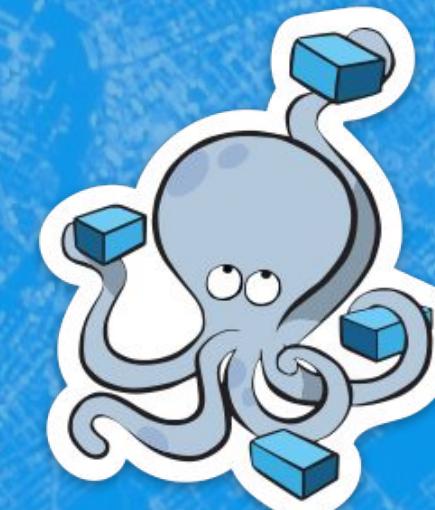
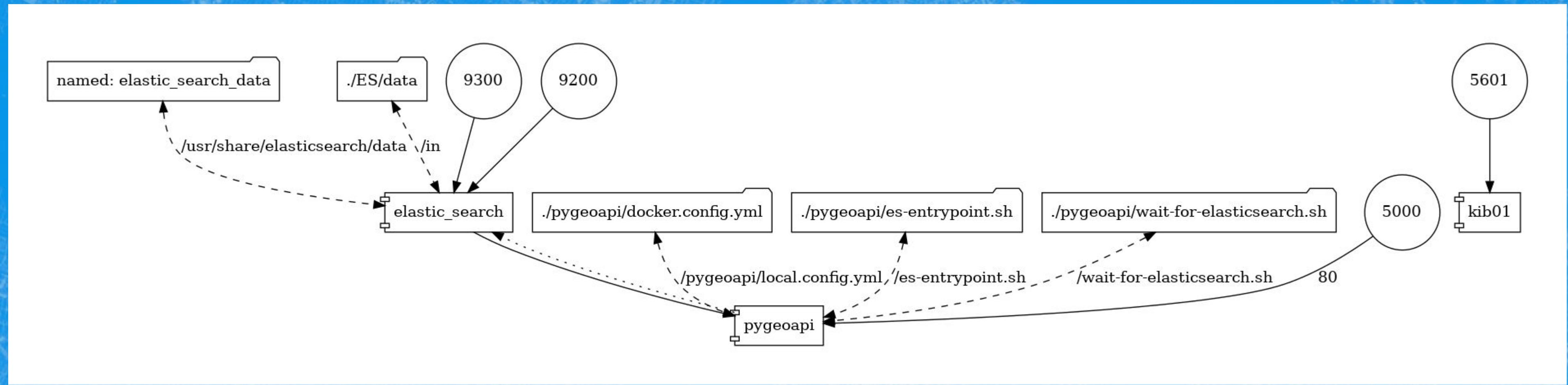


How to retrieve vector tiles:



<http://localhost/collections/lakes/tiles/WorldCRS84Quad/0/0/0.pbf>

Application Stack



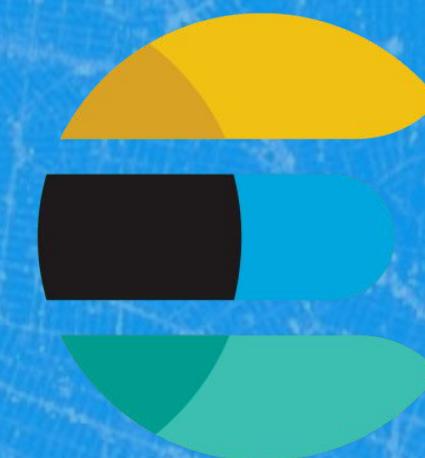


pygeoapi

- Python server implementation of the OGC API suite of standards.
- FOSS (MIT).
- Certified OGC compliant, reference implementation.

<https://pygeoapi.io/>

<https://github.com/geopython/pygeoapi>



elasticsearch

- Search engine based on the Lucene library.
- Dual licensed.
- Fast and scalable.

<https://www.elastic.co/elasticsearch/>

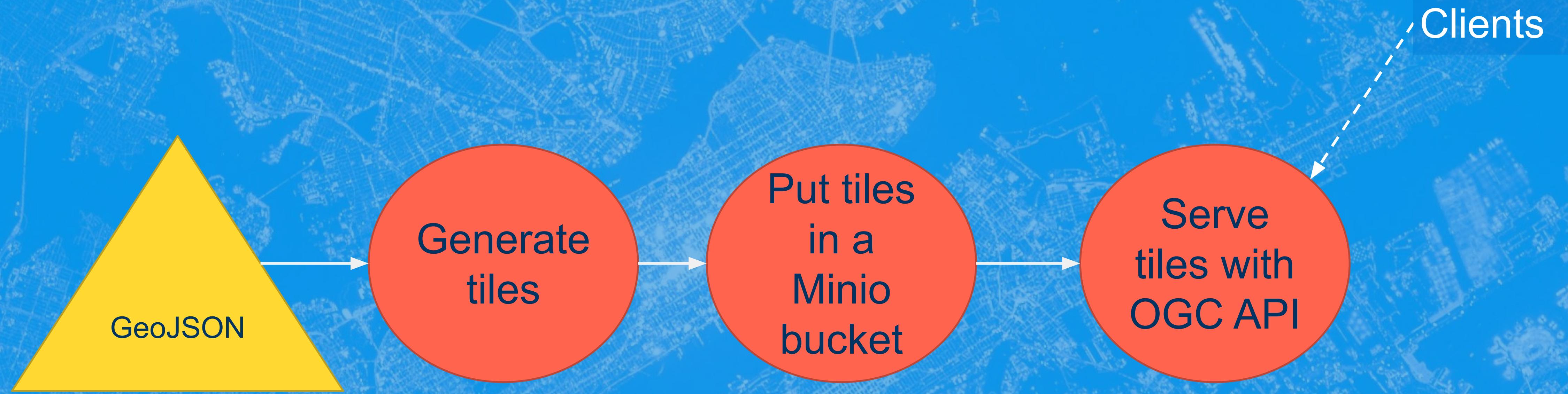
<https://github.com/elastic/elasticsearch>

Introducing the Elasticsearch vector tile search API

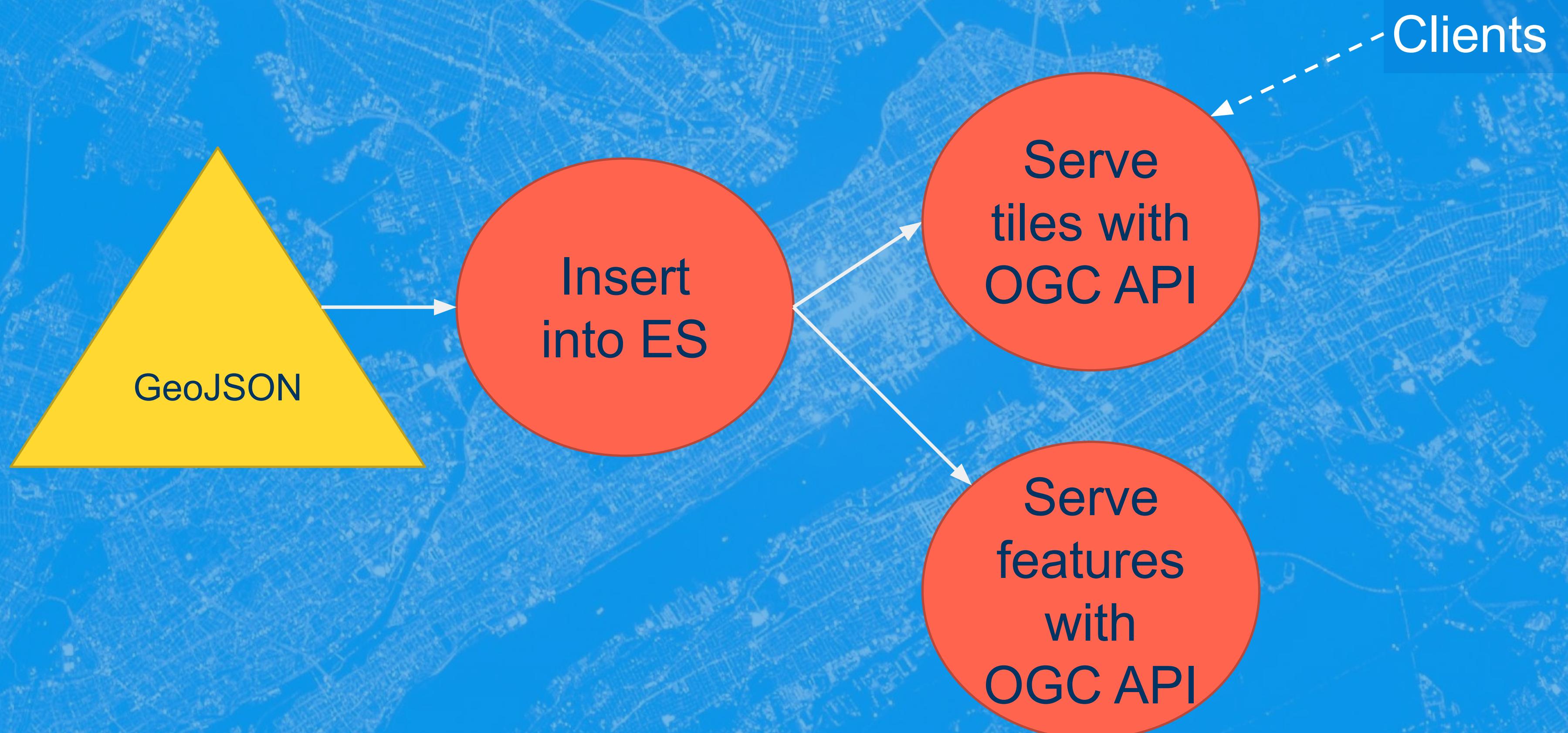
By **Ignacio Vera Sequeiros, Thomas Neirynck**
24 January 2022

<https://www.elastic.co/blog/introducing-elasticsearch-vector-tile-search-api-for-geospatial>

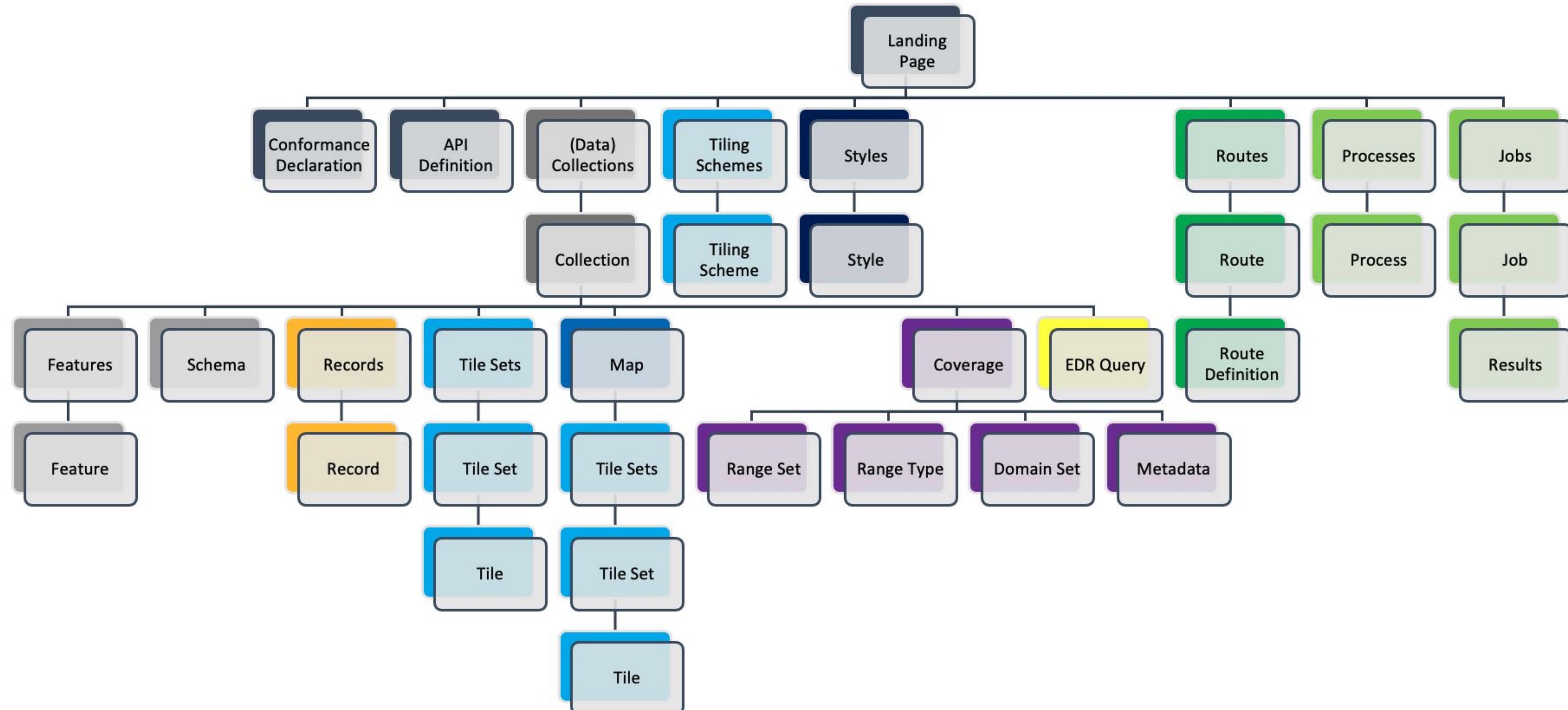
Workflow - before pygeoapi 0.14.0/ elastic 8 ➡



Workflow - Now



Resources in OGC API Standards



References

Mapbox vector tile spec on GitHub:

<https://github.com/mapbox/vector-tile-spec>

OGC API - Tiles - P1 (core):

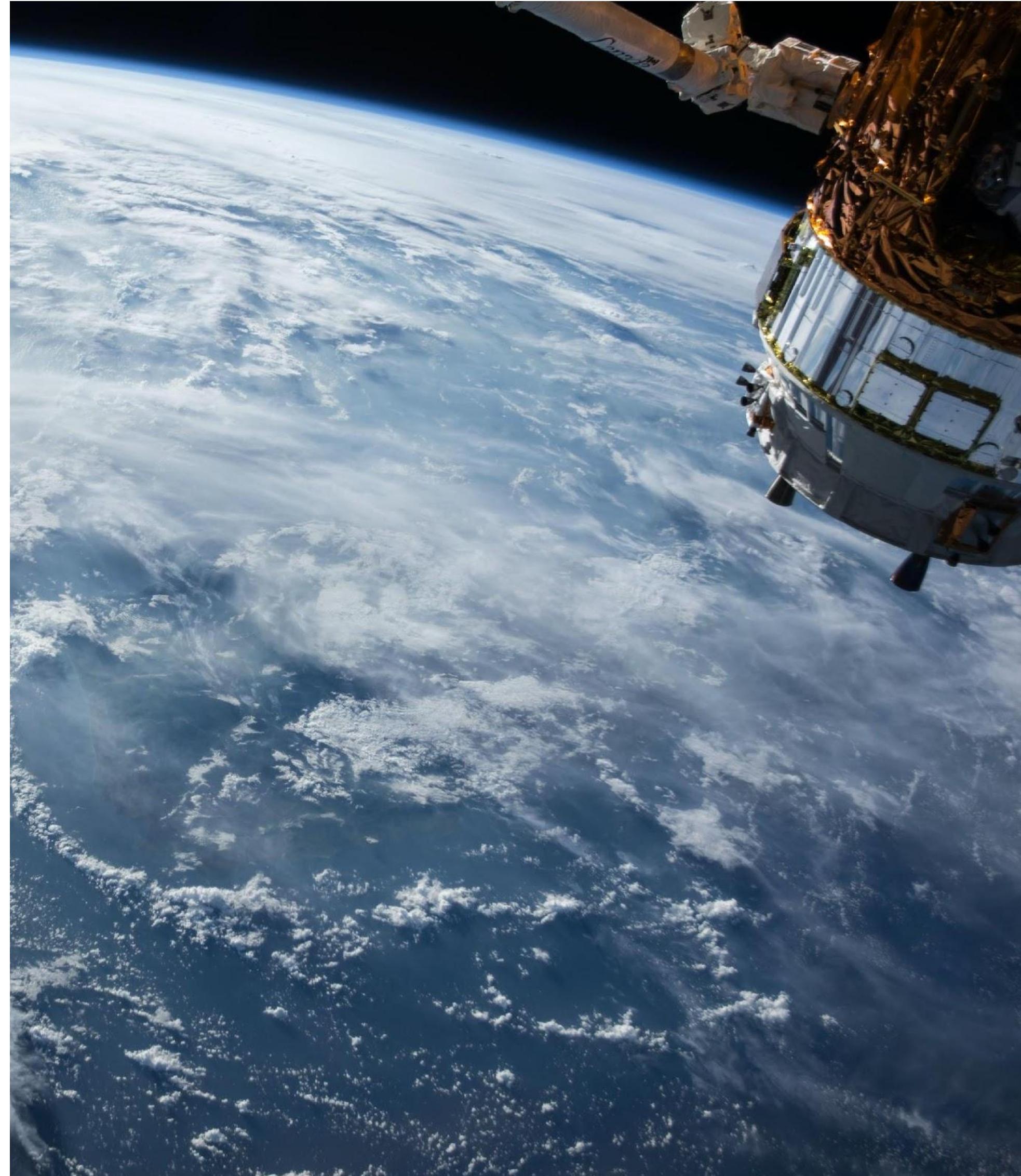
<https://docs.ogc.org/is/20-057/20-057.html>

PR which adds support for a generic url template, for publishing vector tiles as OGC API Tiles:

<https://github.com/geopython/pygeoapi/pull/1050>

Publishing tiles to OGC API - Tiles:

<https://docs.pygeoapi.io/en/latest/data-publishing/ogcapi-tiles.html>



Thank You

Community

500+ International Members
110+ Member Meetings
60+ Alliance and Liaison partners
50+ Standards Working Groups
45+ Domain Working Groups
25+ Years of Not for Profit Work
10+ Regional and Country Forums

Innovation

120+ Innovation Initiatives
380+ Technical reports
Quarterly Tech Trends monitoring

Standards

65+ Adopted Standards
300+ products with 1000+ certified implementations
1,700,000+ Operational Data Sets
Using OGC Standards

