

# Open Source Geo Professional @ justobjects.nl



Voorzitter

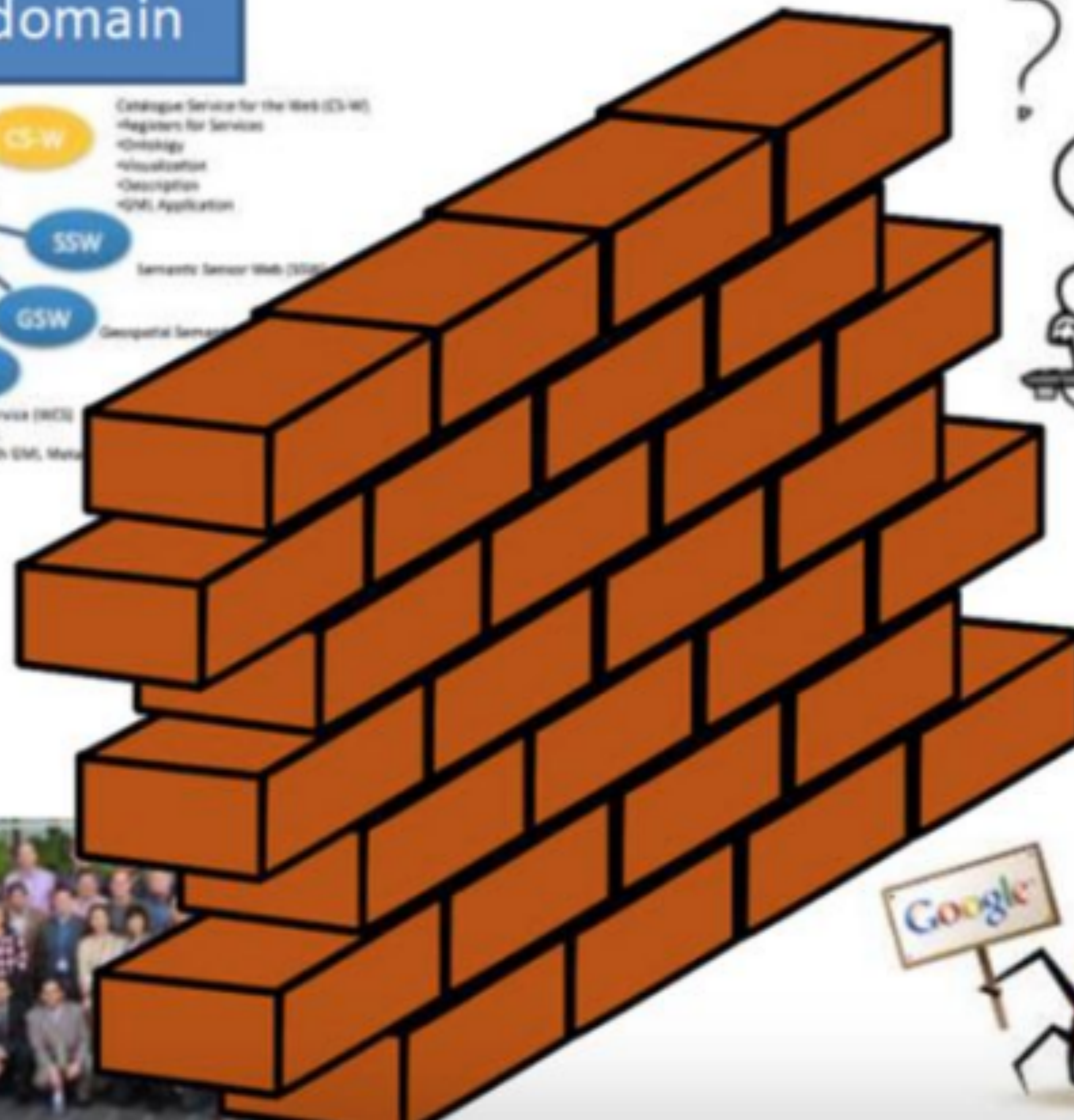
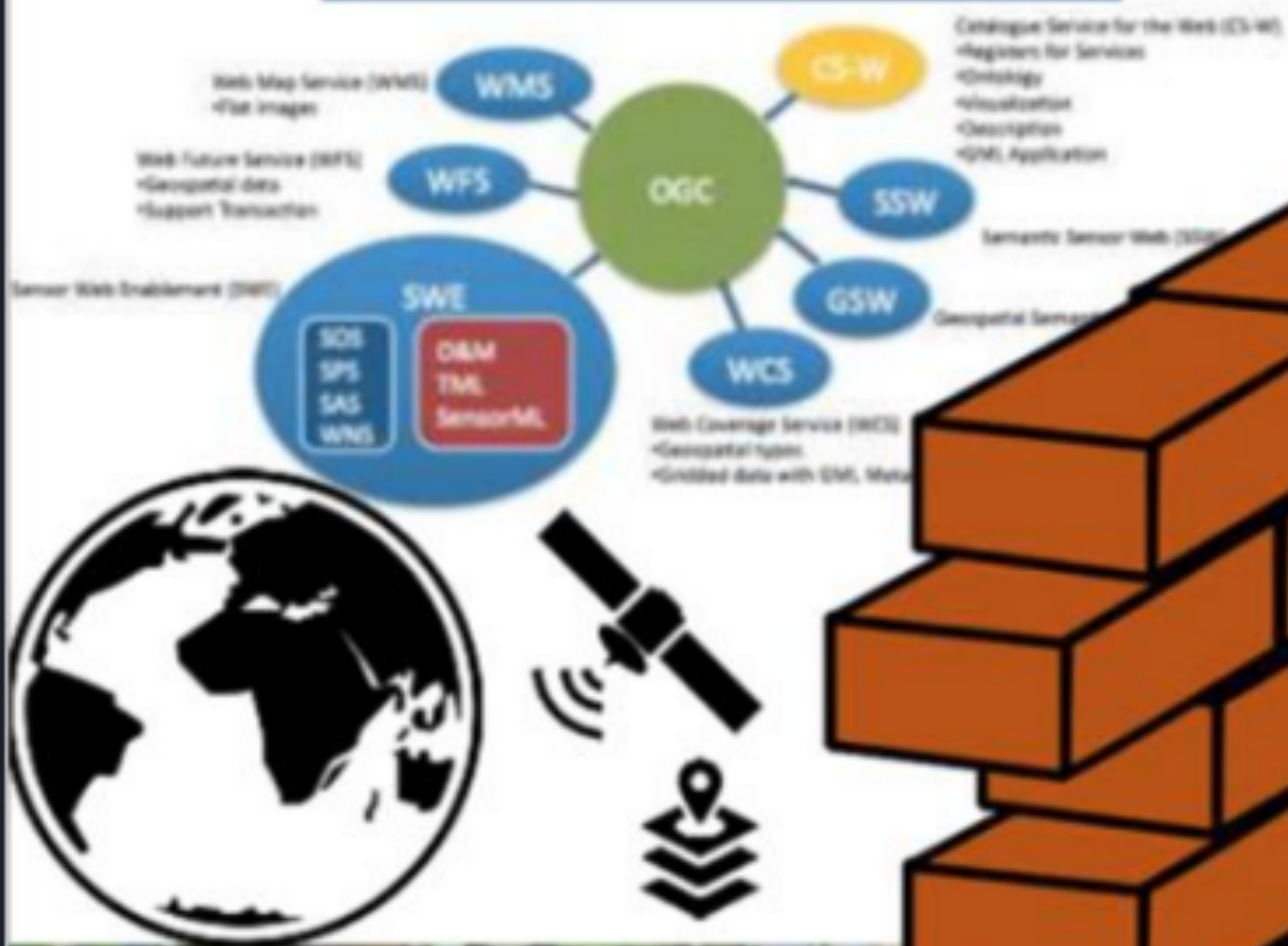


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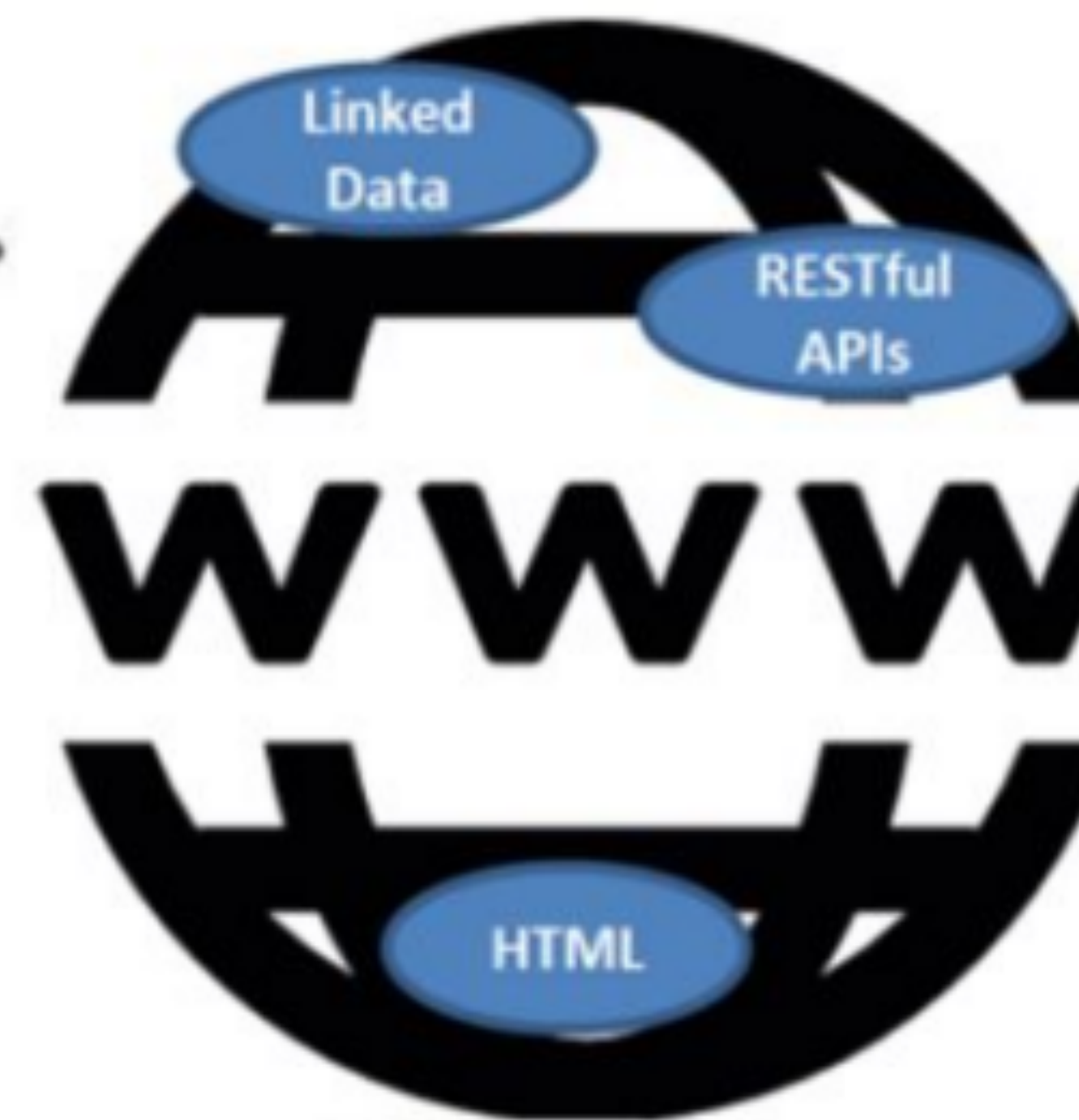


Just van den Broecke  
Demo OGC APIs  
7 sept 2021, DiS Online

# Geospatial domain



# Rest of the world



# Geospatial API Evolution

## 1990s:

- Spirit of XML-RPC/CORBA
- SOAP/WSDL/UDDI
- Service Oriented Architecture (SOA)
- Strong concept of RDBMS as the backend
- OGC WMS (1999)

## 2000s:

- Web 2.0
- JavaScript/AJAX
- Google Maps, Slippy maps, tiles
- OGC WFS (2002), WCS (2003), WPS (2005), CSW (2007)

## 2020s:

- Web 3.0
- Structured data
- Machine learning / Artificial intelligence
- Democratising software development
- OGC API's



# Challenges in traditional OGC services

OGC+W3C spatial data on the web interest group

- Hard to access by non-specialised user
- Search engine can not access records/features
- No use of URI's and HTTP verbs

Our overarching goal is to enable **spatial data** to be integrated within the wider Web of data; providing standard patterns and solutions that help solve problems

[Spatial data on the web best practice](#) on top of W3C [data on the web best practice](#)



# OGC-API - Common

OGC API - Features was the first activity in this new generation of OGC Standards

OGC API - Common was defined as a basis new developments

OGC API - Records, OGC API - Maps, OGC API - Coverages, OGC API - Processes are other initiatives

OGC API - Common implements spatial specialisation on top of common web standards

- HTTP verbs, content negotiation
- OpenAPI specification
- HTML, GeoJSON as encodings
- Specifications developed on GitHub (Issue tracking/discussion/collaboration)

# OGC API Testbed door Geonovum

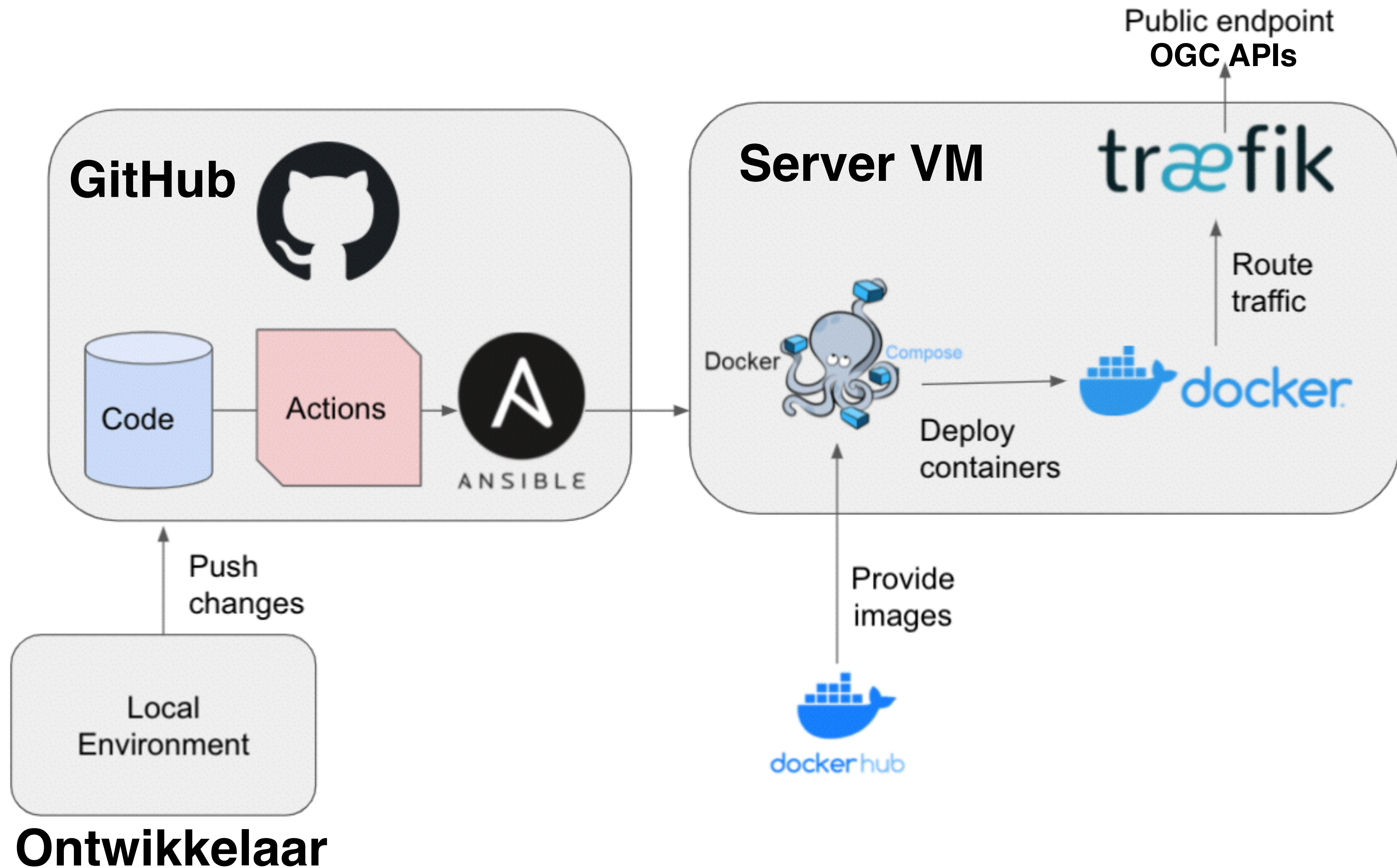
- Juni/Juli 2021
- Friso Penninga (lead), Thijs Brentjens (lead/dev), Paul van Genuchten (dev), Just van den Broecke (dev)
- Doel: experimenteer/evalueer implementaties OGC API Features
- Toegankelijk voor derden (Tender!) om verder op te bouwen
- Experimenteer- (Sandbox) en productie- (Stabiel) omgeving
- Home: <https://apitestdocs.geonovum.nl/>

# OGC API Testbed

## Technisch

- Open Source via GitHub
- Moderne “DevOps/Cloud” technieken:
  - GitHub (versie beheer)
  - Docker (runtime)
  - Ansible (uitrol)
  - GitHub Workflows (CI/CD via Ansible)
- Continue uitrol, trigger door GitHub “commits”
- “GitOps” state of the art - <https://www.gitops.tech/>

# OGC API Testbed - Technisch

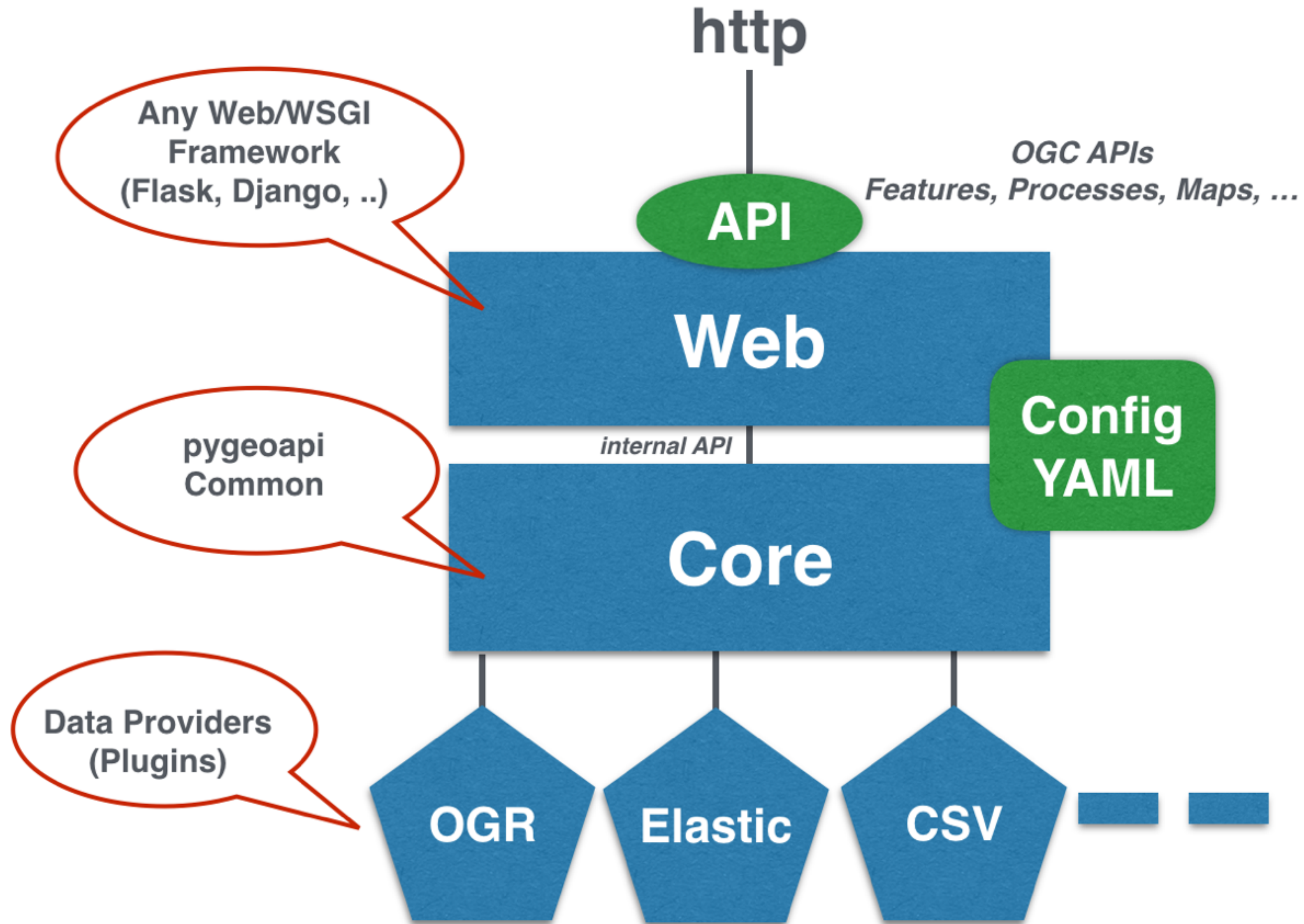




# OGC API Testbed Services

- OGC API Features:  
pygeoapi - GeoServer - Idproxy - QGIS Server - GOAF (PDOK)
- Ondersteunend:  
PostGIS met PGAdmin4 (UI)
- Monitoring en Control  
GeoHealthCheck (OGC Service Mon) - Portainer (Docker Mon)

# pygeoapi - Architecture



# FEATURE DATA PROVIDERS - GDAL/OGR



<https://pygeoapi.io/presentations/default/>

- Via OGR-Python bindings
- Unleashes **~100 Vector Formats!** (WFS 1/2, GeoPackage, Shapefile, GeoJSON, PostGIS, ...)
- Paging, reprojection, spatial/attribute query
- Unlock existing WFS 1/2s! and ESRI Feature Servers

# Links

- Geonovum “OGC API Testbed - Documentatie”  
<https://apitestdocs.geonovum.nl/>
- Geonovum “OGC API Testbed - Live Server”  
<https://apitestbed.geonovum.nl/>
- pygeoapi Home - <https://pygeoapi.io>
- pygeoapi - INSPIRE Conf 2020 Presentation:  
<https://inspire.ec.europa.eu/sites/default/files/oarec-pygeoapi-inspire.pdf>