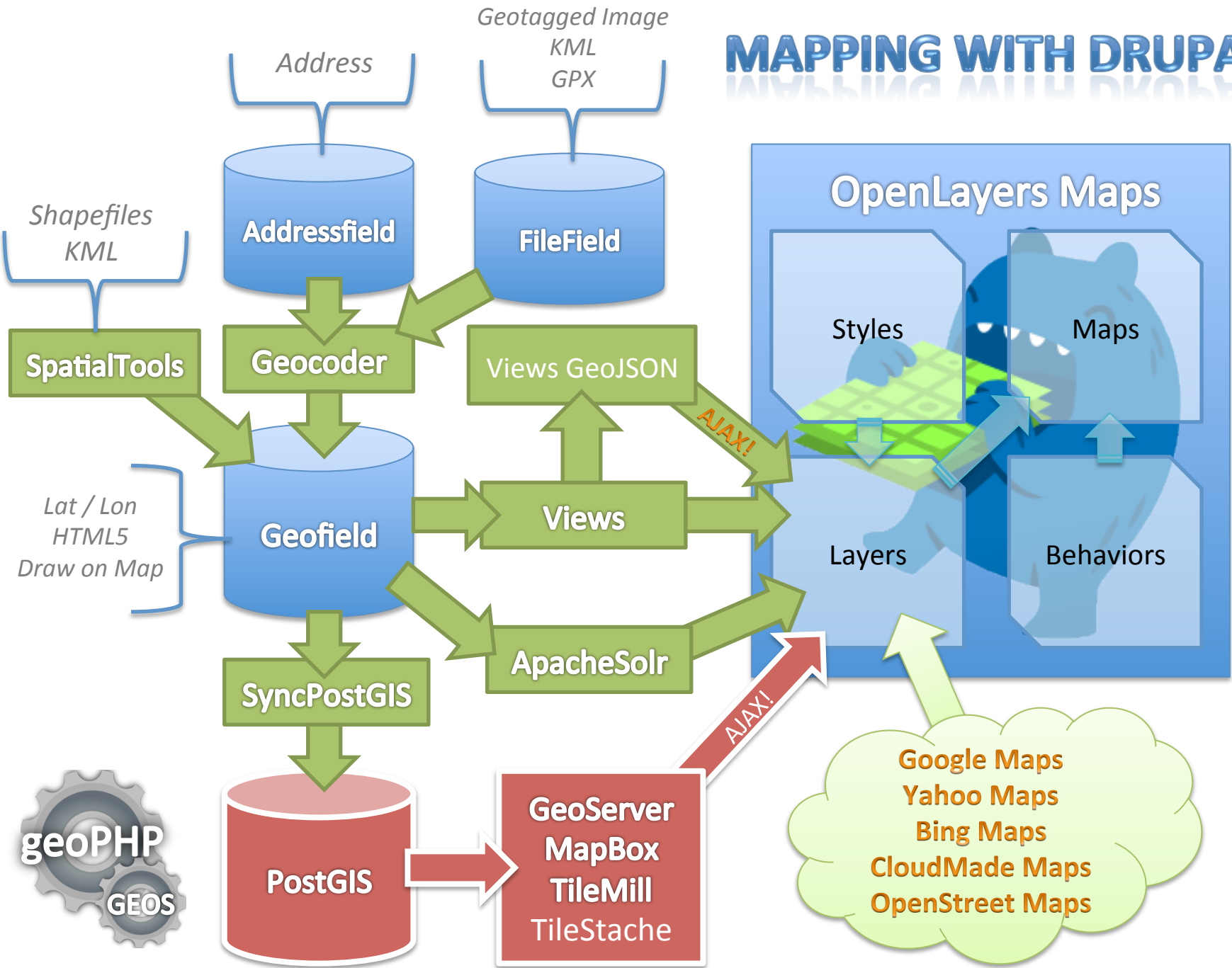


# Mapping With Drupal

# MAPPING WITH DRUPAL

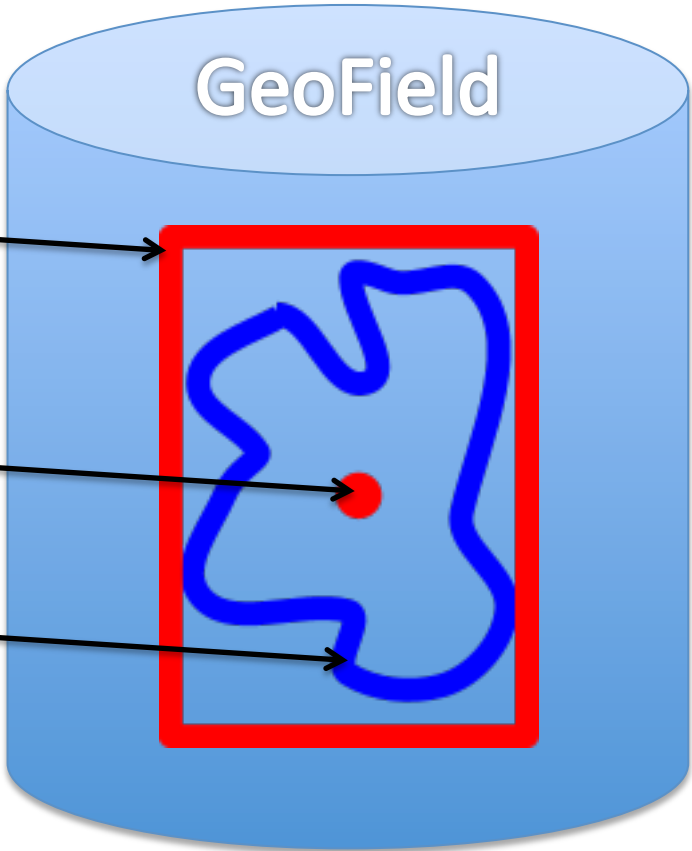


**Bounding Box**  
Top  
Bottom  
Left  
Right

**Centroid**  
Lat  
Lon

**Geometry**  
Stored in **WKT** Format  
Soon will be WKB  
WKT Example:  

```
POLYGON ((30 10, 10  
20, 20 40, 40 40, 30  
10))
```



Query-able and indexable



Not Query-able. SELECTs only.



**GeoPHP** is used to calculate the **Bounding Box** and **Centroid** from the **Geometry**.

**Geometry Types:**

- Point
- LineString
- Polygon
- MultiPoint
- MultiLineString
- MultiPolygon
- GeometryCollection

## Address Field

- User enters an address
- Address is stored independently
- Does not store lat / lon

## File Upload Field

- KML (Google Earth)
- GPX (Hand-held GPS)
- Geo-tagged Image (smart-phone)

Handlers call service

- Google
- Yahoo
- Yandex
- MapQuest

## Geocoder



Handlers parse uploaded file into a geoPHP geometry object

## Geofield

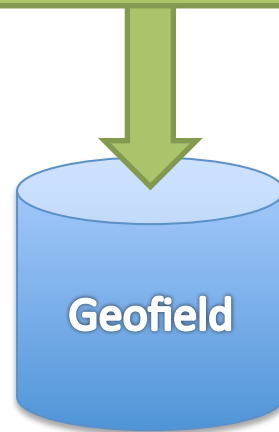
*Direct user input  
Is also supported*

*Lat / Lon  
HTML5  
Draw on Map  
More!*

# Spatial Tools

ESRI Shapefiles can be imported into geofields using OSGeo's GDAL ogr2ogr library

Requires download and installation of ogr2ogr



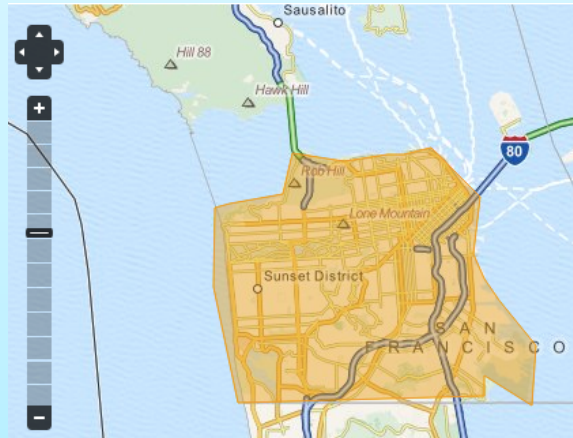
# GeoField Formatters

**Latitude, Longitude** 127 24' 66" N, 23 23' 56" W

**GeoJSON** {"type":"Point","coordinates":[-123.3,30.78]}

**WKT** POLYGON ((30 10, 10 20, 20 40, 40 40, 30 10))

**OpenLayers Map**

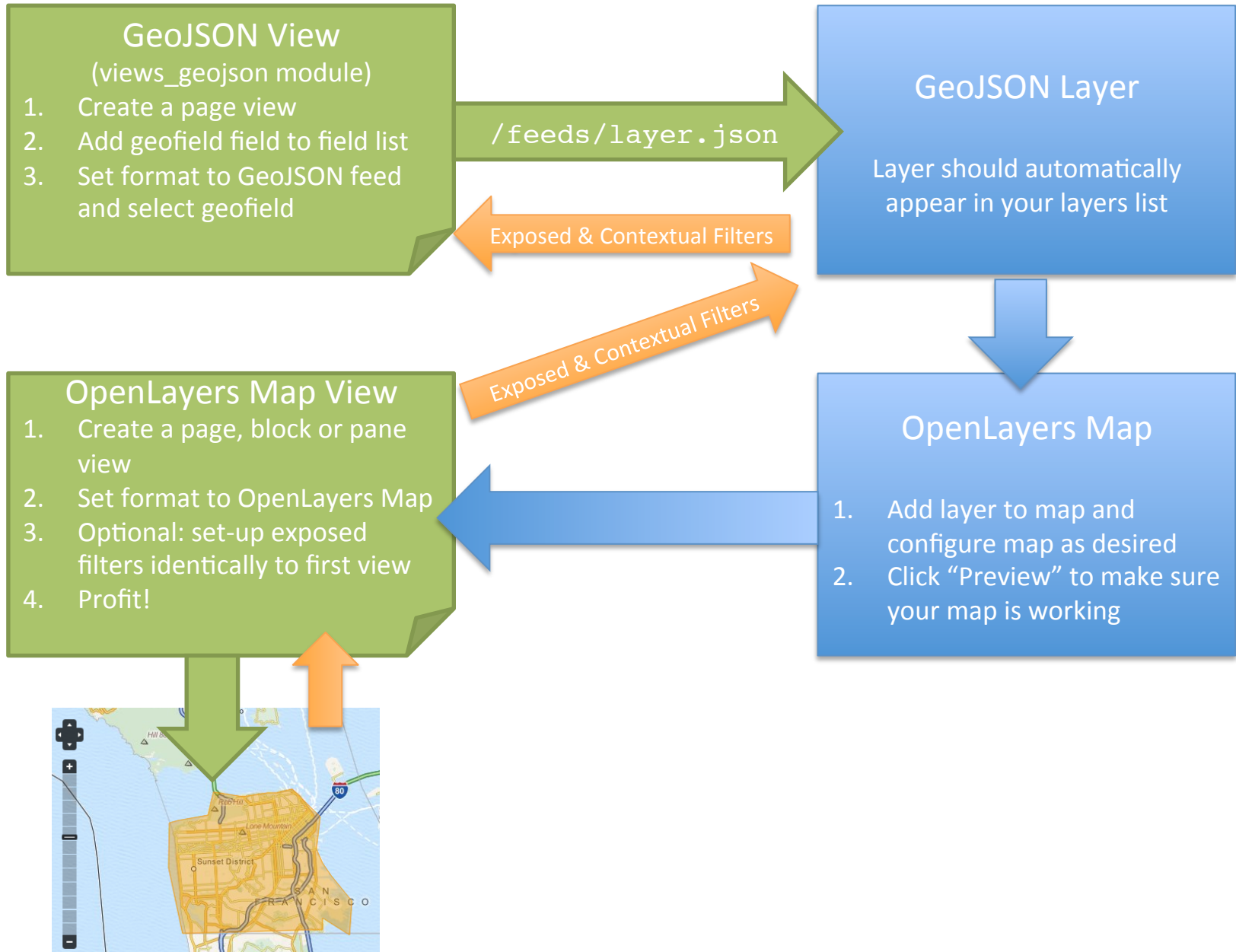


Geofield

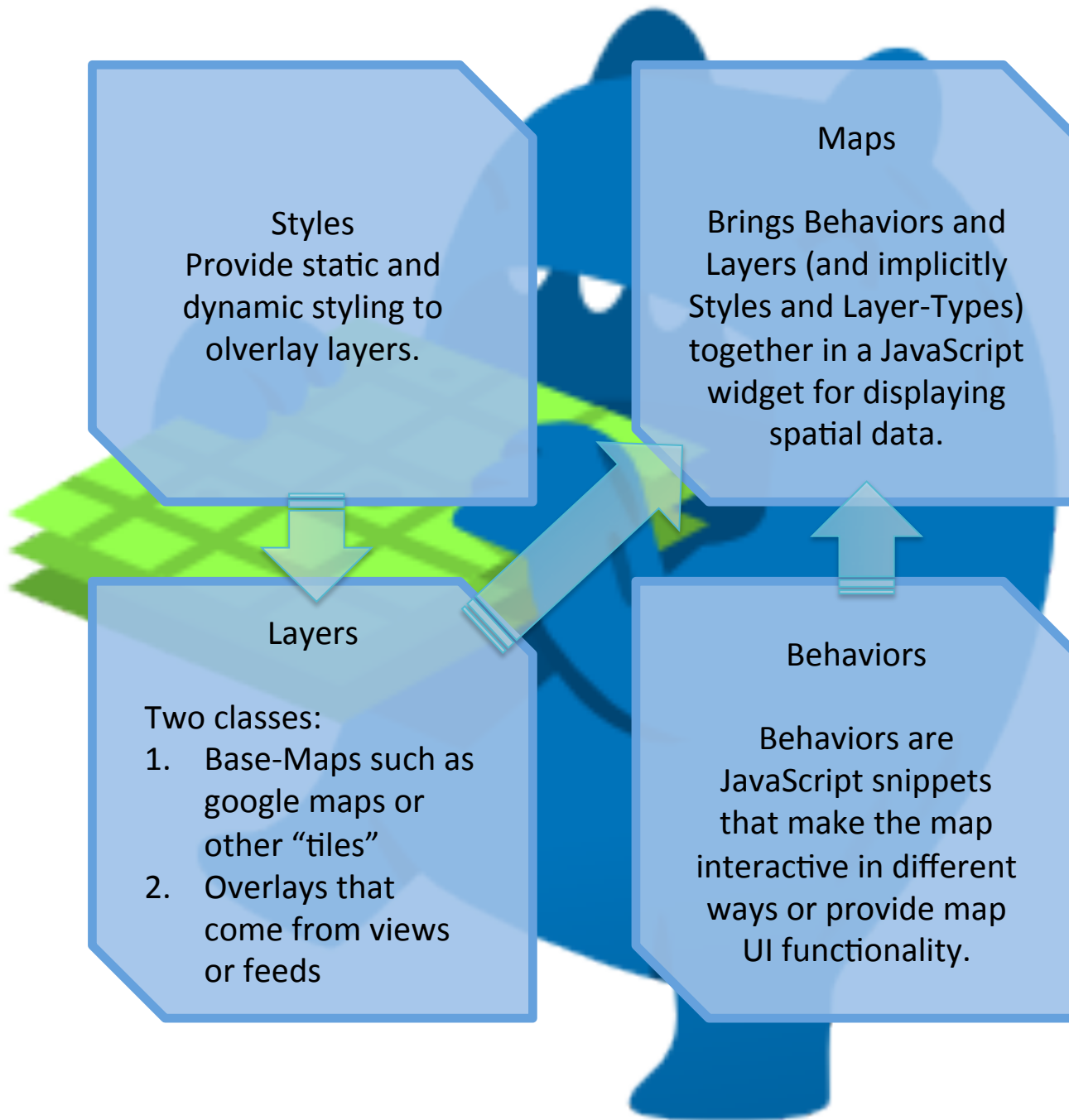
# OpenLayers and Views

Repeat after me

*“I need to create two views. One view hold the layer. The other view holds the map.”*







## Maps

Brings Behaviors and Layers (and implicitly Styles and Layer-Types) together in a JavaScript widget for displaying spatial data.

**Styles**  
Provide static and dynamic styling to overlay layers.

## Layers

- Two classes:
1. Base-Maps such as google maps or other "tiles"
  2. Overlays that come from views or feeds

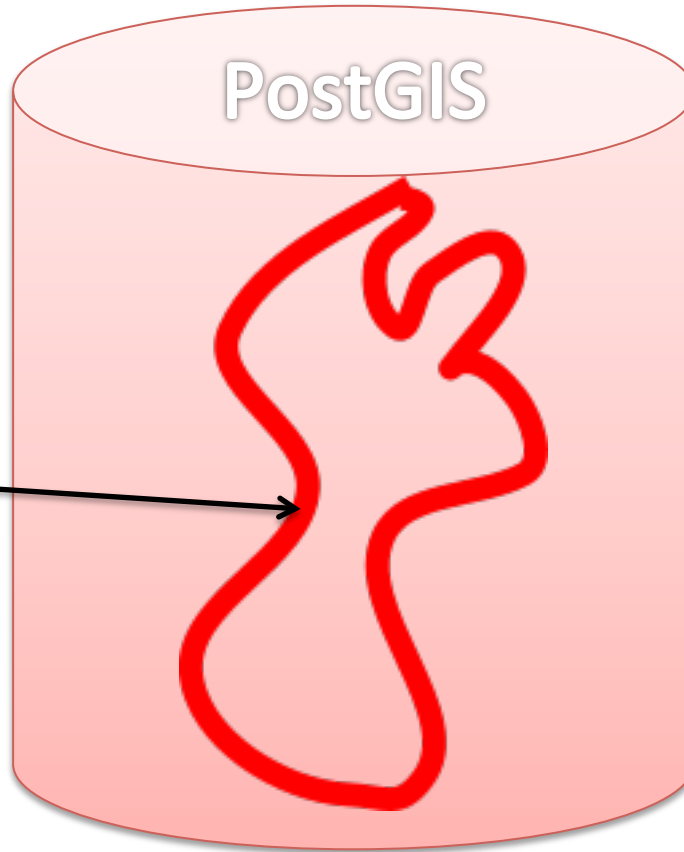
## Behaviors

Behaviors are JavaScript snippets that make the map interactive in different ways or provide map UI functionality.

PostGIS

**Geometry**

Stored in **WKB** Format



Query-able and indexable



-- Find all pubs located within 250 meters of a hospital.

```
SELECT h.name, p.name FROM bc_hospitals h, bc_pubs p WHERE ST_DWithin(h.geom,  
p.geom, 250);
```

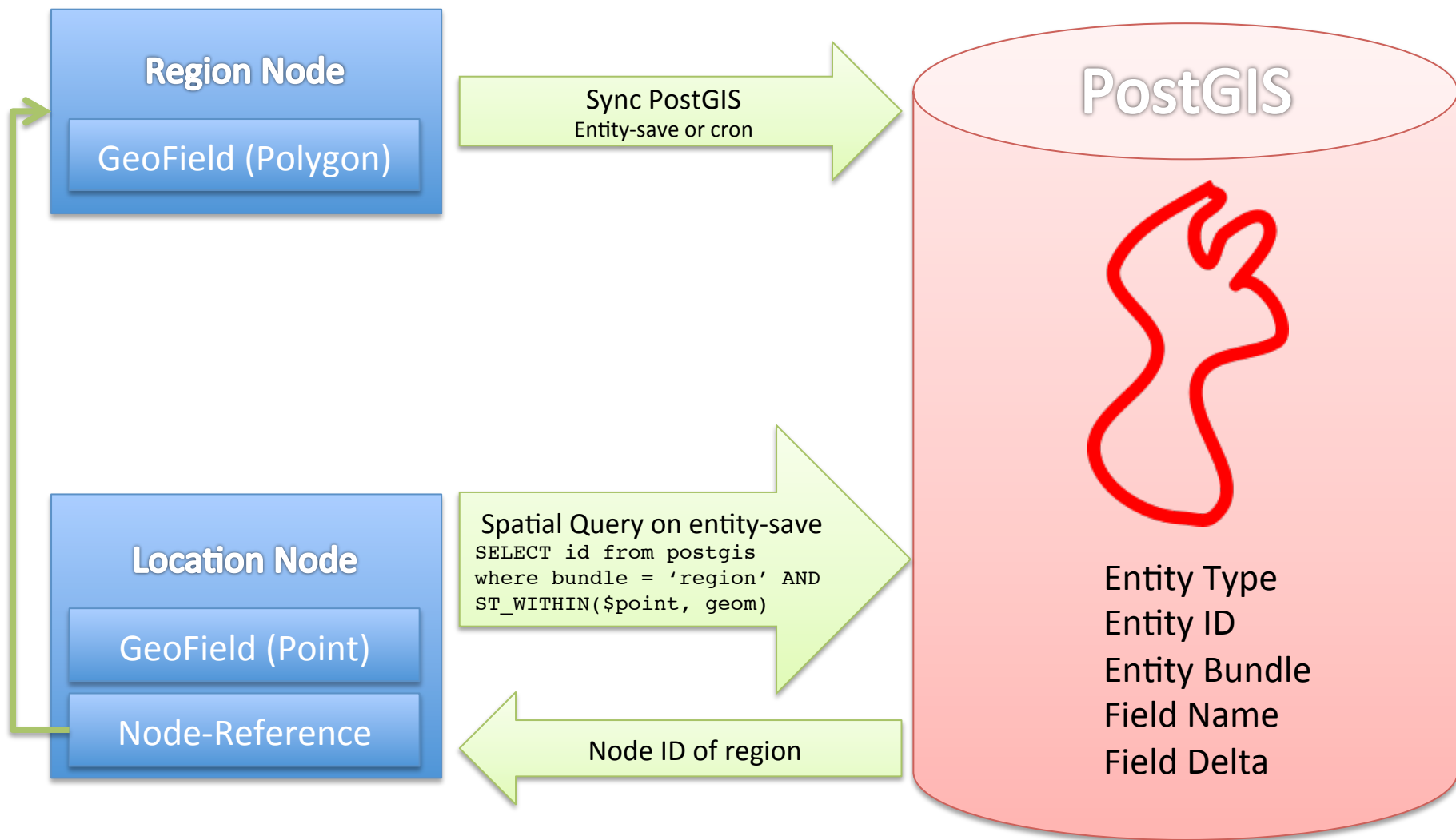
-- What is the largest municipality in British Columbia, by area?

```
SELECT name, ST_Area(geom) as area FROM bc_municipality order by area limit 1;
```

-- What is the total length of all roads in BC, in kilometers?

```
SELECT sum(ST_Length(geom))/1000 as km_roads from bc_roads;
```

PostGIS can be used as a spatial-query service in the same way that solr is used as a search-query service. This example show us associating “Location” nodes with “Region” nodes using Geofield, node-references, and SyncPostGIS.



PostGIS  
ShapeFiles  
GeoTIFF  
KML  
More!



TileMill



*GeoServer*

