

Introduction to GeoServer

A Platform for Geospatial Web Services

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What is GeoServer?

- Web application used to publish geospatial data
- Transactional Web Feature Service Implementation
- Web Map Service Implementation
- Framework for Geospatial Web Services

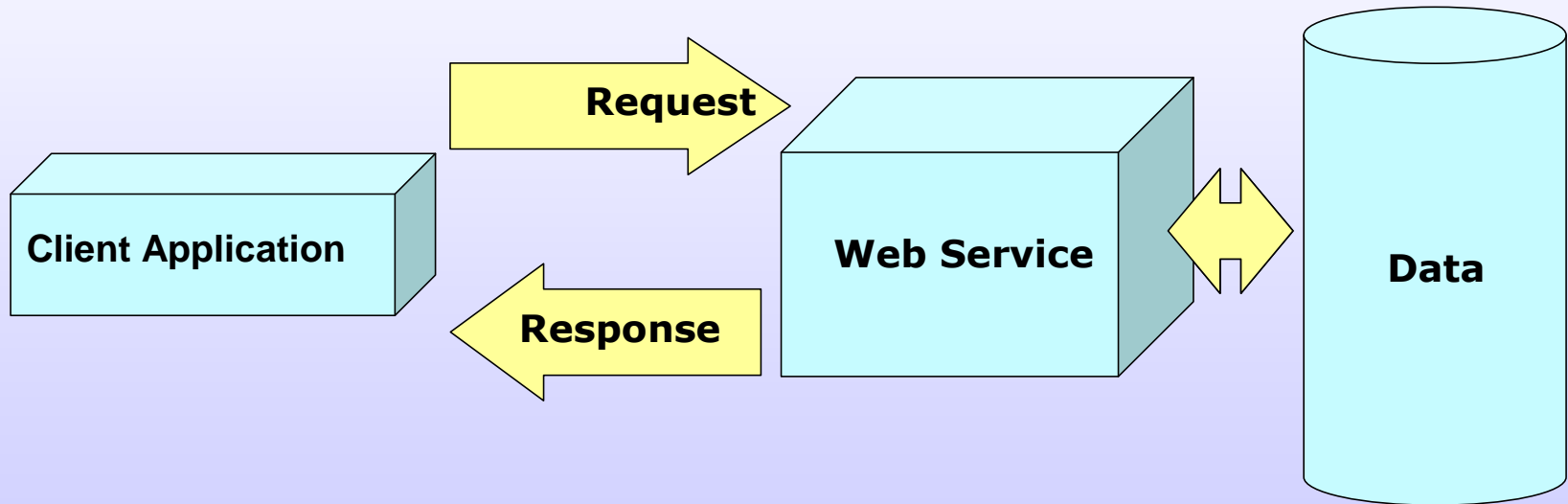
History

- Started in 1998 by Vision for New York
- Originally a WFS implementation
- Contributions:
 - Web Map Service, Axios Engineering
 - Validation Extension, Refrations Research
 - Maintenance and funding, OpenPlans

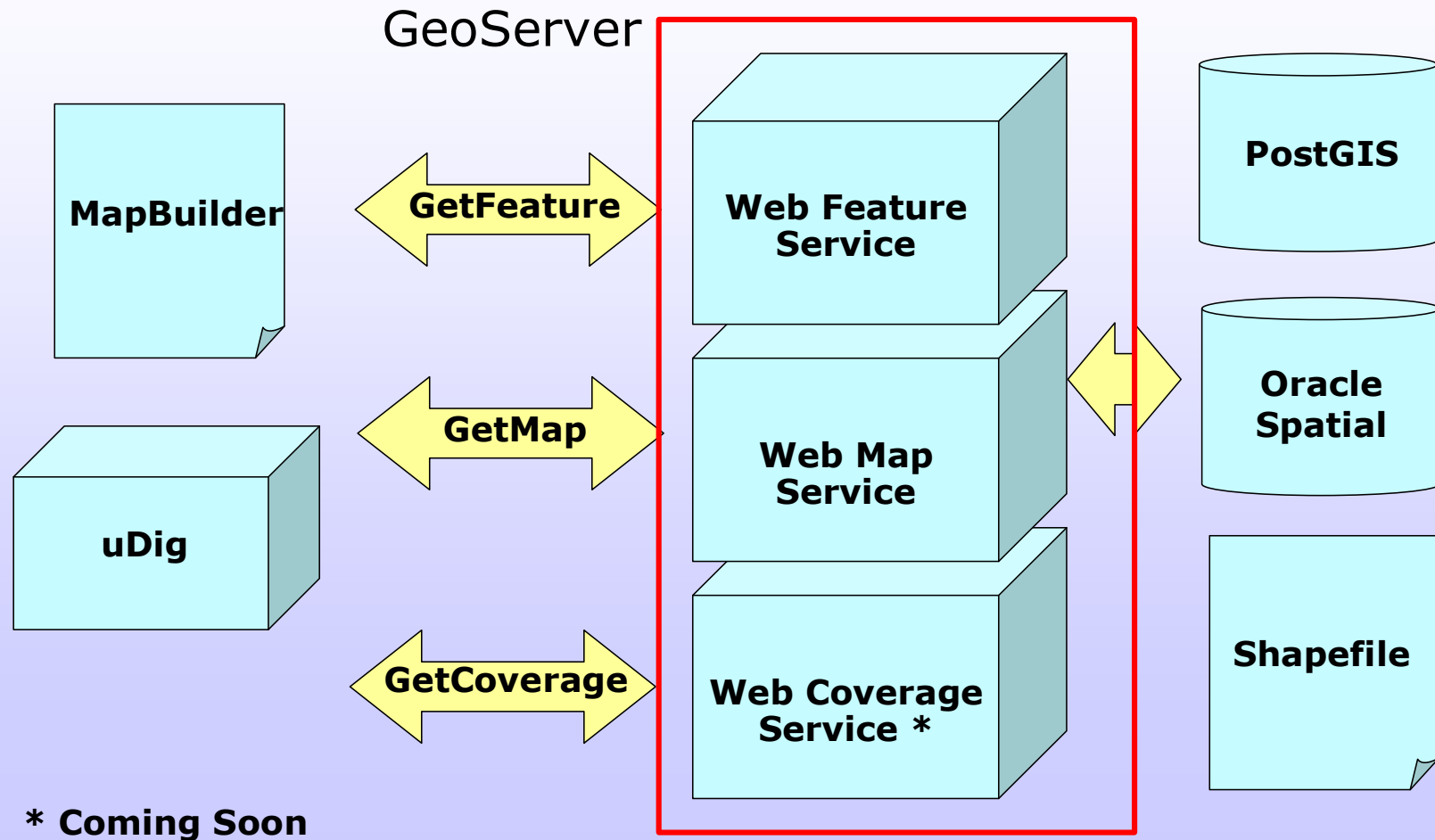
Open Web Services

- Well known Request Format
 - HTTP, XML
- Well known Response Format
 - XML, Image
- Well defined Protocol
 - XML Schema, DTD
- Described by a Specification Document
 - Open Geospatial Consortium

Web Services Architecture



Open Web Services Architecture



Benefit of GeoSpatial Web Services

- Straight forward interface
 - HTTP,XML,SOAP
- Uniform data access
 - Client remains oblivious
- Transactions
 - ACID
- Concurrency
 - Locking

Web Feature Service

- Produces vector data (Features)
- Performs operations on data
- Examples
 - Query
 - Add, Insert, Delete
 - Locking
 - Describe Schema

GetFeature Example

```
<Filter>  
  <Query>  
    SELECT * FROM "countries"  
    WHERE "COUNTRY_NAME" = 'Italy'  
  </Query>  
</Filter>  
</GetFeature>
```

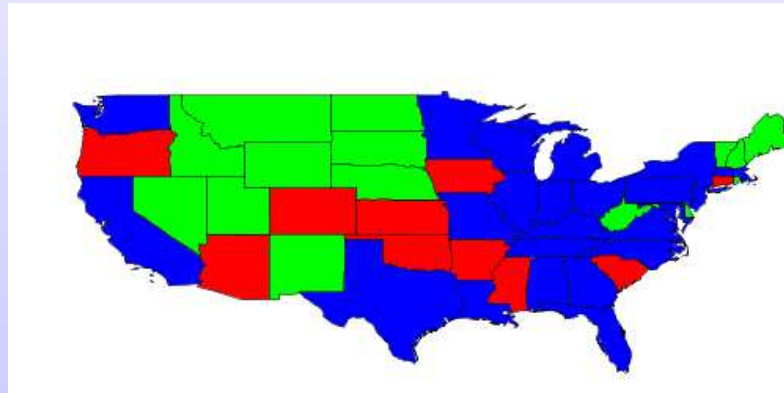
The image shows a portion of an XML request for a GetFeature operation. The main content is a SQL query: `SELECT * FROM "countries" WHERE "COUNTRY_NAME" = 'Italy'`. The query is enclosed in a `<Query>` tag, which is itself inside a `<Filter>` tag. The `<Filter>` tag also includes a `<PropertyName>` tag with the value `"GEOMETRY"`. The entire XML structure is enclosed in `<GetFeature>` tags. Several parts of the XML are highlighted with red boxes: the opening `<Filter>` tag, the `SELECT` statement, the `FROM "countries"` part, the `WHERE "COUNTRY_NAME" = 'Italy'` clause, and the `<PropertyName>` tag with its value.

Web Map Service

- Produces images (Maps)
 - png, jpeg, tiff
- Styling / Rendering
 - Styled Layer Descriptor

GetMap Example

```
http://sigma.openplans.org?service=WMS  
&request=GetMap&layers=topp:states  
&styles=population&bbox=-130,23,-67,57  
&width=500&height=250&format=image/png  
&srs=4326
```



Demonstration