A brief history

- WorldMap was developed by Harvard CGA as a branch of GeoNode 1.2 and released in July 2011 as a public space for scholars and the public to upload and share spatial data.
- Before WorldMap, CGA developed several platforms with similar aims: AfricaMap (launched in 2007), Boston Research Map (sociology), VermontMap (geology), ParisMap (history) and ChinaMap.
- Within a year WorldMap had about 12k datasets and 8k users.
- Right now, after 5 years, there are about 20k users, 23k datasets and 7k maps. There are about 1,300 visitors per day and every month more than 400 new datasets are uploaded to the system.
- It is such a popular platform that we have to deal with SEO spam!!!
- It was just deployed in production Hypermap Registry, that will let the users to search and load in their maps a plethora of remote services.
Large range of data categories

Some interesting map applications created on WorldMap
Open Source Stack

- GeoNode (Django)
- PostgreSQL/PostGIS
- GeoServer
- GeoNetwork
- GeoExt
- Solr/Lucene
- Nginx, uwsgi, Tomcat
- RabbitMQ/Celery
External Applications interacting with WorldMap

- Harvard Dataverse: open source web application to share, preserve, cite, explore and analyze research data
- MapWarper: a tool for digitally aligning (geo-rectifying) scanned historical maps
- HHypermap: a platform to manage and search thousands of remote map services
- GeoTweet Archive: a database with millions of geotweets harvested daily since 2012
What is new? HHypermap

- A new powerful search interface has been developed
- The user interface is based on Harvard Hypermap, a system for building and maintaining a comprehensive registry of map services and that enables powerful search for data by time and space as well as by keyword
What is next? WorldMap 2.6

- Migrate the platform to GeoNode 2.6 (including GeoServer to latest version and pycsw to replace GeoNetwork)
- Migrate custom applications (Create Layers, Gazetteer...) to GeoNode 2.6 contrib applications
- Use docker for deployment workflows
- Enhance the test suite
Applications that we will port from WorldMap to GeoNode

- Create Layers
- Gazetteer
- Map Notes
- Table Joins
- CSV import
- GeoServer PostGIS store sharding
- Map snapshots and revisions
- Hypermap Registry
- Feature Level Search (work in progress)
Create Layers

Create a new layer

Create Layer Data

Name: Letters & numbers only, no spaces
Title:
Data Type: Points
Projection: EPSG:4326
Abstract:
Keywords: Use spaces to separate keywords

I agree to the Terms and Conditions

Create

Permissions
Who can view or download this?
- Anyone
- Any registered user
- Harvard Users
- Only users who can edit

Who can edit this?
- Any registered user
- Harvard Users
- Only users who can edit

Who can manage and edit this?
- Add user...
- Add user...

Attributes
- Include in gazetteer

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Display Title</th>
<th>Display Order</th>
<th>Visible?</th>
<th>Searchable?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Name</td>
<td>1</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Description</td>
<td>Description</td>
<td>2</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Start_Date</td>
<td>Start_Date</td>
<td>3</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>End_Date</td>
<td>End_Date</td>
<td>4</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>String_Value_1</td>
<td>String_Value_1</td>
<td>5</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>String_Value_2</td>
<td>String_Value_2</td>
<td>6</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Number_Value_1</td>
<td>Number_Value_1</td>
<td>7</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Number_Value_2</td>
<td>Number_Value_2</td>
<td>8</td>
<td>✓</td>
<td></td>
</tr>
</tbody>
</table>
Table Joins and CSV import
GeoServer PostGIS data store sharding

From a large GeoServer PostGIS data store we had to move to an horizontal partitioning architecture, with a shard data store for every month.
Map Snapshot and Revisions

Map Revision History

<table>
<thead>
<tr>
<th>Revision Date</th>
<th>User</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wed Nov 23 2016 18:38:45 GMT+00:00</td>
<td>capooti</td>
</tr>
<tr>
<td>Wed Nov 23 2016 17:19:57 GMT+00:00</td>
<td>capooti</td>
</tr>
<tr>
<td>Wed Nov 23 2016 17:02:55 GMT+00:00</td>
<td>capooti</td>
</tr>
</tbody>
</table>
Deployed on Amazon AWS

- Scalable servers, right now:
  - Django EC2 m3.large
  - Postgres EC2 r3.xlarge
  - GeoServer EC2 m3.xlarge
  - HHypermap EC2 t2.medium
  - Solr EC2 r3.large
- Moving deployment workflows to Docker
References

- Harvard University CGA: http://gis.harvard.edu/
- WorldMap: http://worldmap.harvard.edu/
- Harvard Hypermap public registry: http://hh.worldmap.harvard.edu/
- HHypermap code repository: https://github.com/cga-harvard/HHypermap