DSpace

A new way of handling geolocation based information

iggy & chrono

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Question

If life were a just computer game with awesome sensory input, which standard game features would be missing in our interface in order to play it well, especially when playing in groups?

Interface View

Image Street - boring

Interface View

Image Street - boring Image Street - DSpaced

Talk-Contents

Who we are?

What do we want?

What do we have?

- Basemaps
- Overlays
- Navigation
- DSpace Client

What do we need?

Who we are?

chron0 chrono

JavaScript

elf-pavlik elf Pavlik

https://gitorious.org/~elf-pavlik perpetual-tripper@wwelves.org JavaScript, Ruby, CoffeeScript

yggi Sebastian Steuer

iggy@yggi.de Python, JavaScript, Shell

alice-wl alice

PHP, Shell, Python

nilclass Niklas Cathor

Hamburg JavaScript, Ruby, Shell

What do we want?

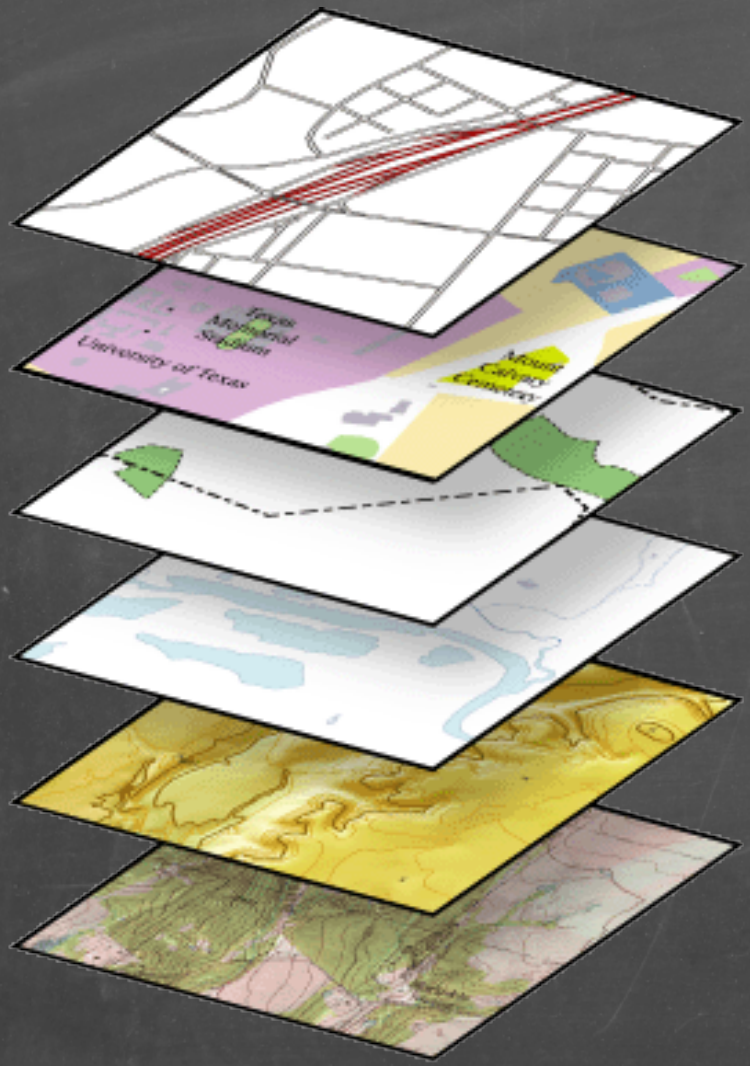
Staging our wants

Something like a standard

Increase the likelyhood and efficiency of adding/sharing information by introducing a standardized framework like the W3c in 1993.

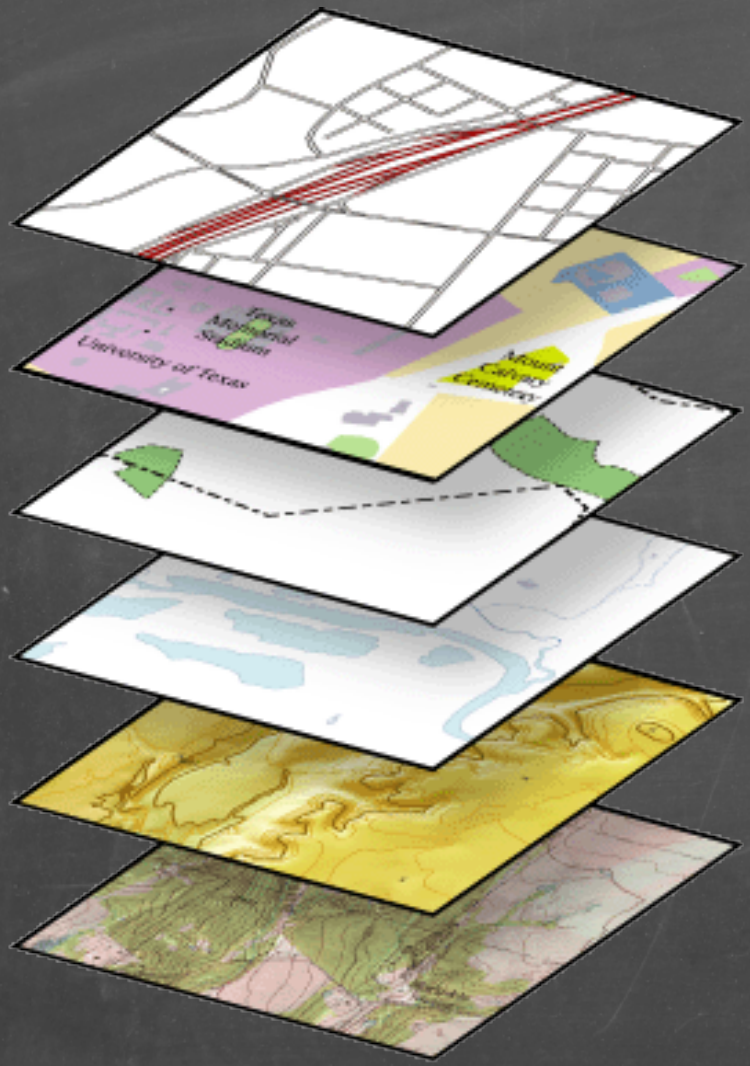
- Federation
- Free
- Open Source
- Lose Bindings
- Modular Extensions

Basemaps



- Roads (OSM)
- Land Usage (OSM)
- Boundaries (OSM)
- Hydrography (OSM/External)
- Topography (NASA/DLR)
- Land Imagery (NASA Blue Marble)

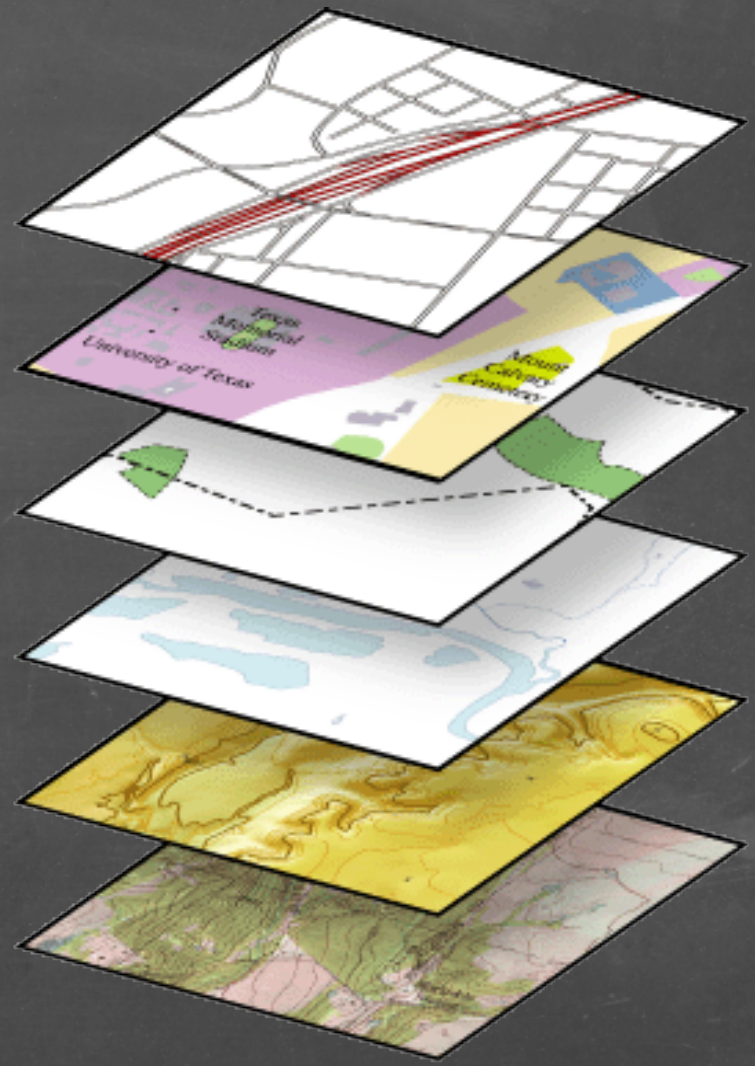
Basemaps II



- Static / Longterm data retention validity
- General interest
- Only one map is visible at a time
- Composition depends on region/application
- Updates are resource intensive (Rendering)

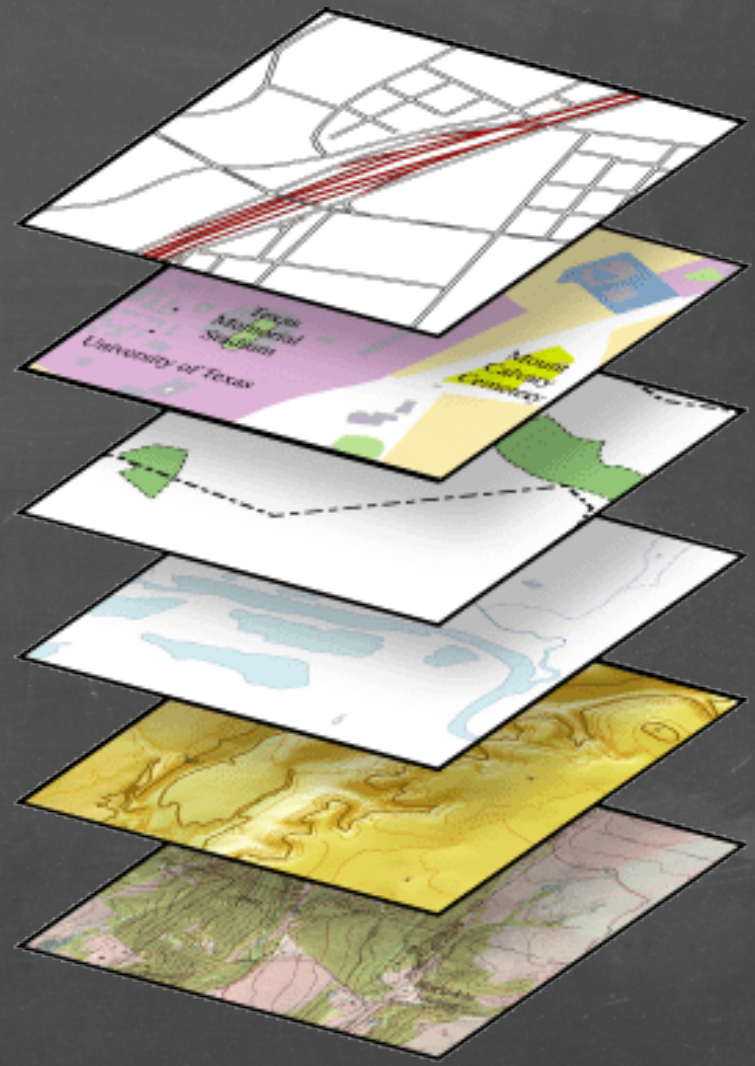
Overlays

- POIs
- Location tracking
- Waypoints on a route
- (Basemap)



Overlays

- collections of things at locations
- public or private
- can be very dynamic (e.g. realtime tracking)
- many can be visible (overlayed) at a time
- can be user-generated and -updated
- Very fast & cheap updates (local browser renders)



Overlay ideas

- Urban Management
  - Emergency Response Management (First Responder Setup)
  - Hitchhiking (linking drivers/hikers in a sector - hitchwiki.org)
  - Real-Time public transportation information
  - Real-Time risk distribution
- Resource Management
  - Food Mapping/Sharing (mundraub/foodshare.org)
  - Dumpster Diving (trashwiki.org)
  - Fleet Management
  - Open Access Mapping (openwifimap.net)
- Organizing Events
  - Public congress/camp Overlay for visitors
  - Private engel Overlays for orga

Even more Overlay ideas

- Realtime Semantic Mapping Heat mapping twitter hashtags (i.e. heatmap #earthquake to find current EQ reports and positions)
- Private group overlays for the area of activity (i.e. MuCCC)
- Drone GCS Interfacing Localization and interactive Mission/WayPoint Management
- Entertainment Geocaching, AR-MMORPGs, AR-MMO-Strategy-Games
- Open Network Access Mapping Access Points (http://openwifimap.net)-http://map.pberg.freifunk.net/ + ham-radio repeater information
- ADS-B Airplane Mapping Overlay
- Use your imagination

Architecture Overview

Image of Architecture TileMill -¿ TileStream -¿ DSpace Client ¡- Directory Server -Remotestorage -feeds -Routino

What do we need?

Staging our haves

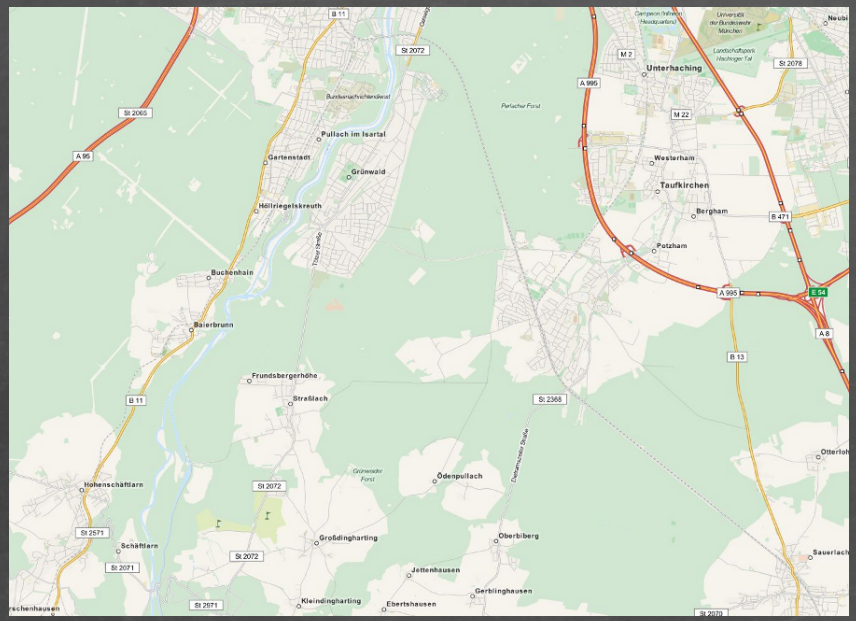
What do we have?

Before we start to re-invent the wheel, let's have a look at what other generous people already have developed and shared with the rest of humankind.

What do we have?

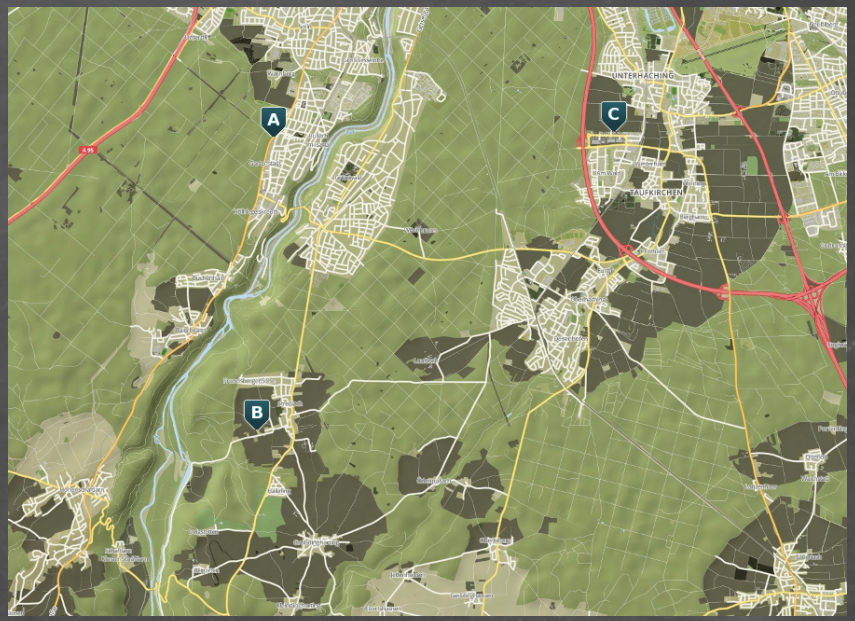
Why not use OpenStreetMap Map-Servers?

Not everything is in OSM:



Topography, Aerial Imagery

Not everything belongs in OSM:



Tracking, Personal/Private POIs

Map Forge

- NodeJS
- Mapnik + TileMill + OSM-Bright
- PostgreSQL + PostGIS + imposm
- OpenStreepMap data
- NASA/CGIAR SRTM SIR-C-Band V41 90m Topo data
- DLR SRTM X-Band SAR 25m Topo data
- TerraSAR-X/TanDEM-X data (Future)

```
1  imposm -U gisuser -d gis -m \
2  /tmp/osm-bright/imposm-mapping.py --overwrite-cache --read --write --optimize \
3  --deploy-production-tables planet-latest.osm.pbf
```

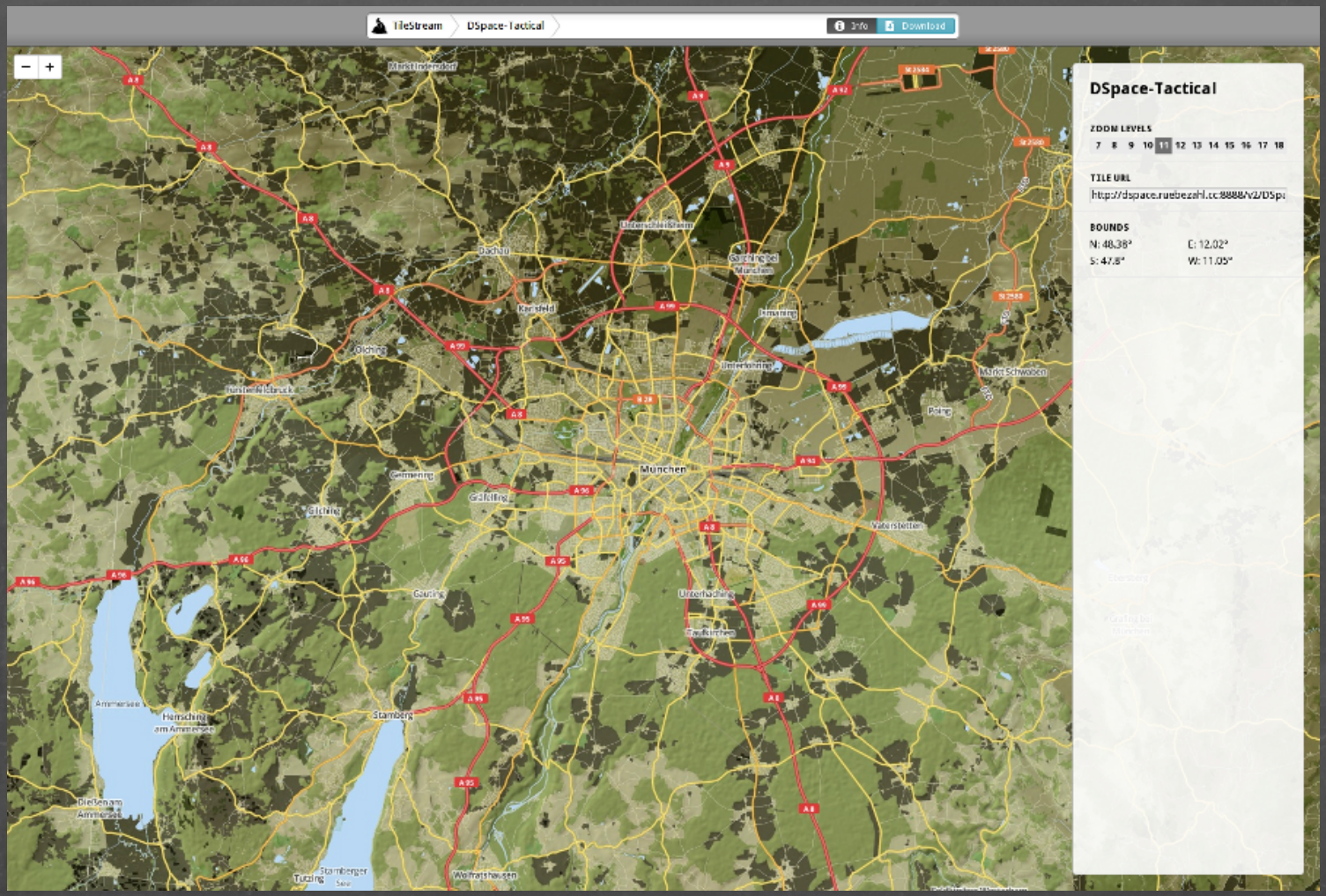
Map Forge Screenshot

Include picture of Map Forge in action

Map Delivery

- NodeJS + TileStream

Live DEMO of the TileStream WebUI



Read-Only Overlays

- Simple HTTP GeoJSON Feed
- SpaceAPI

Read-Write Overlays

- remotestorage.io

Navigation

- Routino
- OpenStreetmap import

DSpace Client

Introduction on the Client now we have nice basemaps and sources for overlays
presentation comes together in the client

Client

Live DEMO

Client

Client-side js assembled, built and packaged in node.js focus on: as lightweight as possible Powerful Plugin-API Mobile Readiness/Integration

NPM Package Overview

```
almond@0.2.4
backbone@0.9.10
bean@1.0.3
bonzo@1.3.5
csso@1.3.7
domready@0.2.11
+ ender@1.1.0
+ ender-js@0.4.4-1 extraneous
handlebars@1.0.8
  optimist@0.3.5
    wordwrap@0.0.2
  uglify-js@1.2.6
morpheus@0.6.7
qwery@3.4.1
requirejs@2.1.4
reqwest@0.6.4
underscore@1.4.4
```

Comfortable Build Process

```
# make init
Rebuilding GIT submodules... [OK]
Building local deps... [OK]
Building AMD Deps... [OK]
Assembling JS components... [OK]

# make deps
Building Ender... [OK]
Building local deps... [OK]
Building AMD Deps... [OK]
Assembling JS components... [OK]

# make build
Building Ender... [OK]
Building local deps... [OK]
Building AMD Deps... [OK]
Assembling JS components... [OK]
Cleaning up build/... [OK]
Build & minify dspace-client.js... [OK]
Copying Assets... [OK]
Copying Plugin Assets... [OK]
Merging and compressing dspace-client.css... [OK]
>>> Client build complete
```

Ops friendly deploy

Taking care of easy and structured deployment to leave flexibility for different setups and potential rewrite issues.

```
+ assets
    + css
    - dspace-client.js
    + icons
    + images
index.html
+ plugins
  + remotestorage
    + assets
      - remoteStorageIcon.svg
      - style.css
  + search
    + assets
```

What do we need?

Staging our needs

Directory Server

Federated searchable ranked, geobounded, tagged list of basemaps and overlay feeds ...

Client

more overlay functionality (polygons, 3D, translated images ...)
mobile integration (ios, android, glass) Overlay browser

Collaboration

People forging and serving basemaps for their area People exposing existing geodata as dspace overlay feeds People helping with docs, bugs, issues, features (mostly on the client for now)

Utopia

Augmented Reality glasses (contact lens FTW!) ...

THEEND

Thanks for your attention.
Discussion