Introducing
OwnTracks

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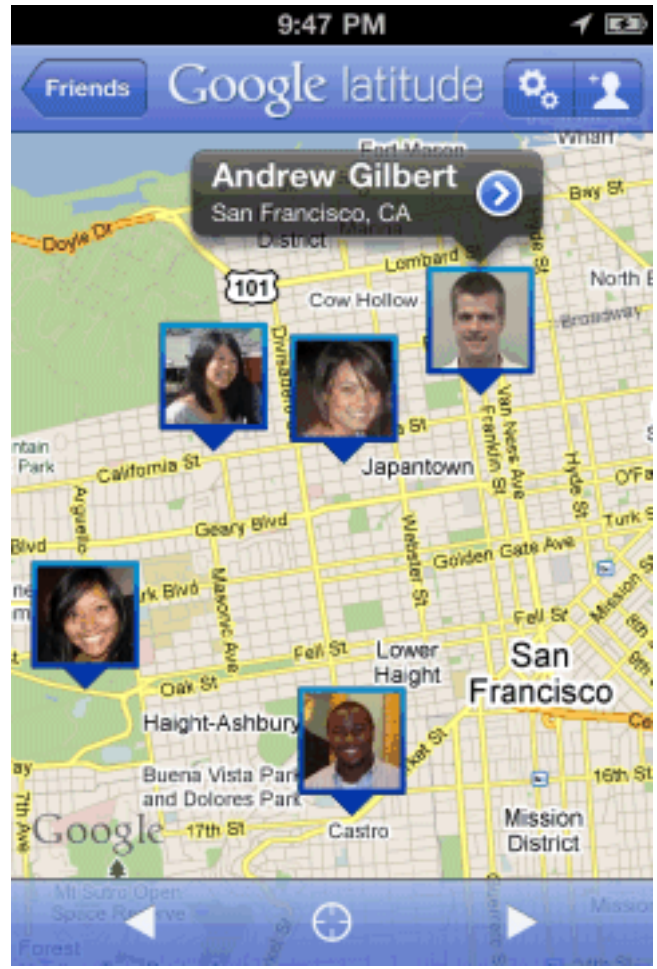
January 2021
@jpmens

Columbia-Area
Linux Users Group

OwnTracks ?

Once upon a time …

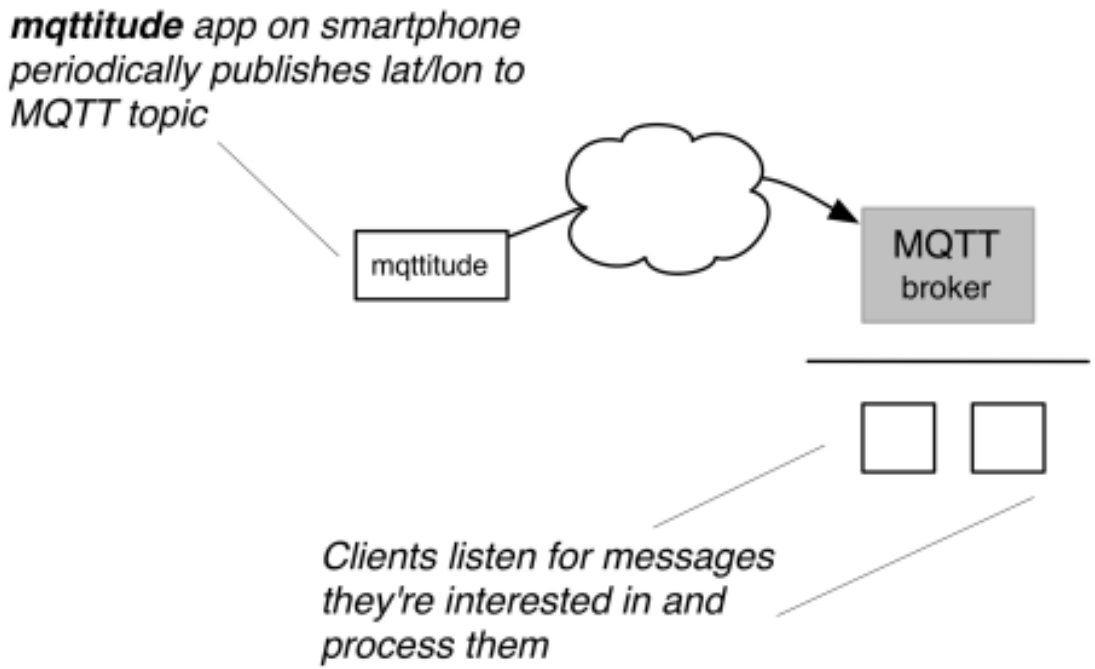


http://googlesystem.blogspot.de/2010/12/google-latitude-app-for-iphone.html

Their **big** data


```
{
  "features": [
    {
      "properties": {
        "placardHeight": 59,
        "placardWidth": 56,
        "id": "-8307528510653225244",
        "accuracyInMeters": 1414,
        "timeStamp": 1338351805,
        "reverseGeocode": "Friedrichsdorf, Germany",
        "photoUrl": "http://www.google.com/latitude/apps/badge/api?type=photo&photo=nkj-
mzcBAAA.dxs397bzbO1k\nl-Dgy0qFIg.vWW5zvcxLgY3uaJrvEZnJA",
        "photoWidth": 96,
        "photoHeight": 96,
        "placardUrl": "http://www.google.com/latitude/apps/badge/api?type=photo_placard&photo=nkj-
mzcBAAA.dx\ns397bzbO1kl-Dgy0qFIg.vWW5zvcxLgY3uaJrvEZnJA&moving=true&stale=true&lod=1&format=png"
      },
      "geometry": {
        "coordinates": [
          8.65486,
          50.238862
        ],
        "type": "Point"
      },
      "type": "Feature"
    }
  ],
  "type": "FeatureCollection"
}
```

A crazy idea …

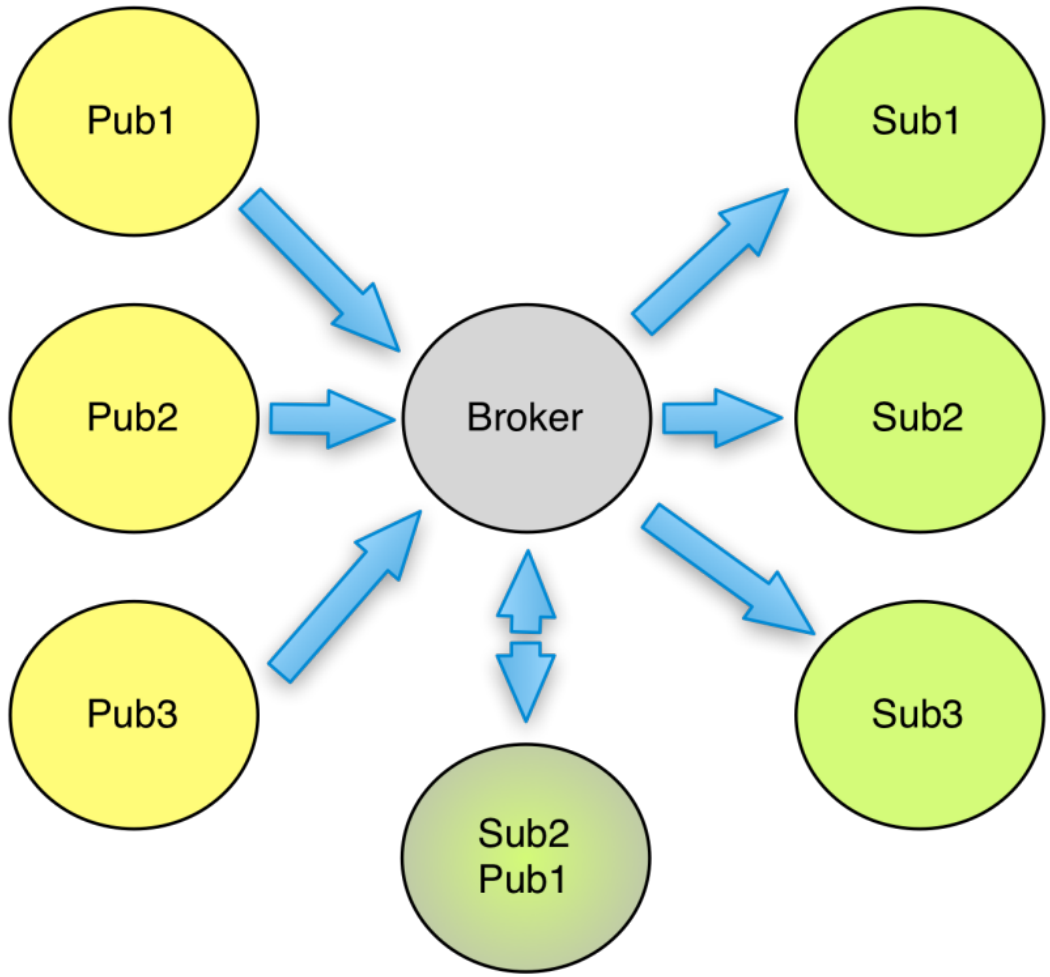


Privacy, Security, Easy data

MQTT is

MQTT is a standard, a transport, for **PUB/SUB** messaging, designed for unreliable networks, **binary** payloads up to 256MB, (+2 bytes), fast, **lightweight**, ideal for low-bandwith, high-latency networks, **TLS**, authentication, **ACLs**, TLS-PSK, (payload encryption), keepalive, **last will & testament**, UTF-8 hierarchical **topics**, wildcards

the **landscape**

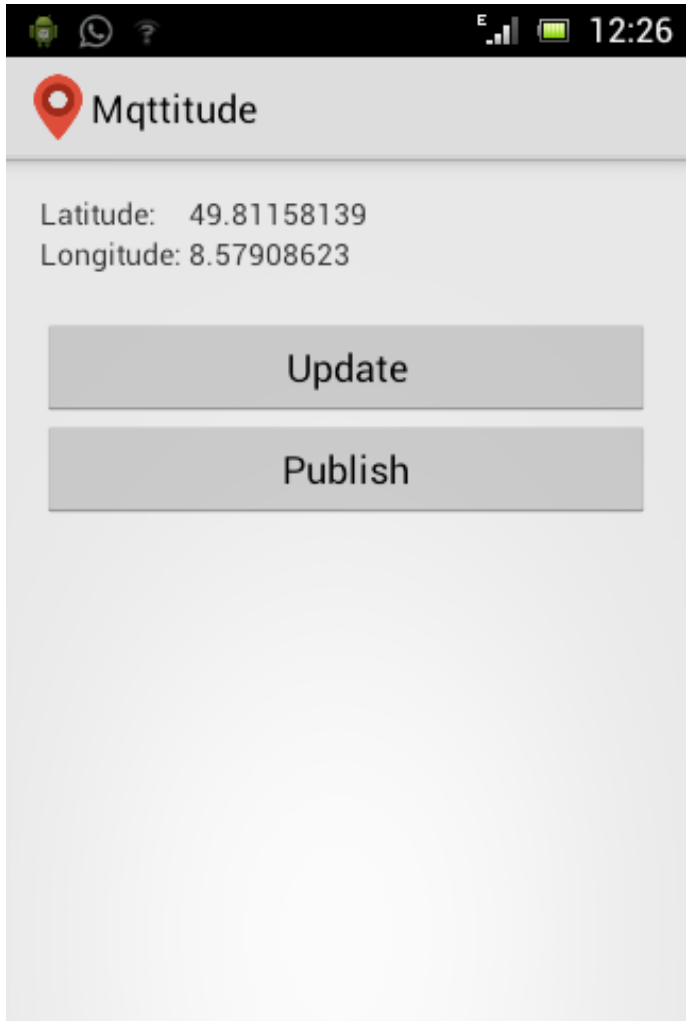


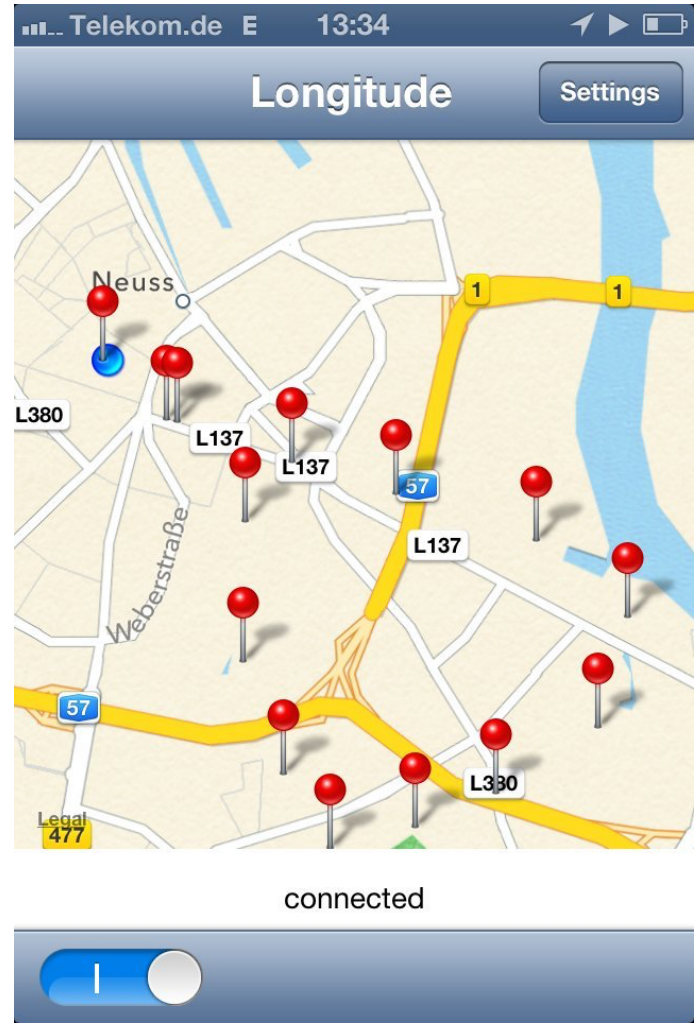
and the **apps**?

Christoph Krey

Alexander Rust
Andrew Rowson

… MQTTitude


12:26
Mqttitude
Latitude: 49.81158139
Longitude: 8.57908623
Update
Publish


Telekom.de E 13:34
Longitude
Settings
Neuss
L380
L137
L137
L137
57
57
1
1
Weberstraße
L380
Legal
477
connected

#getrichfast

MQTT **what?!**

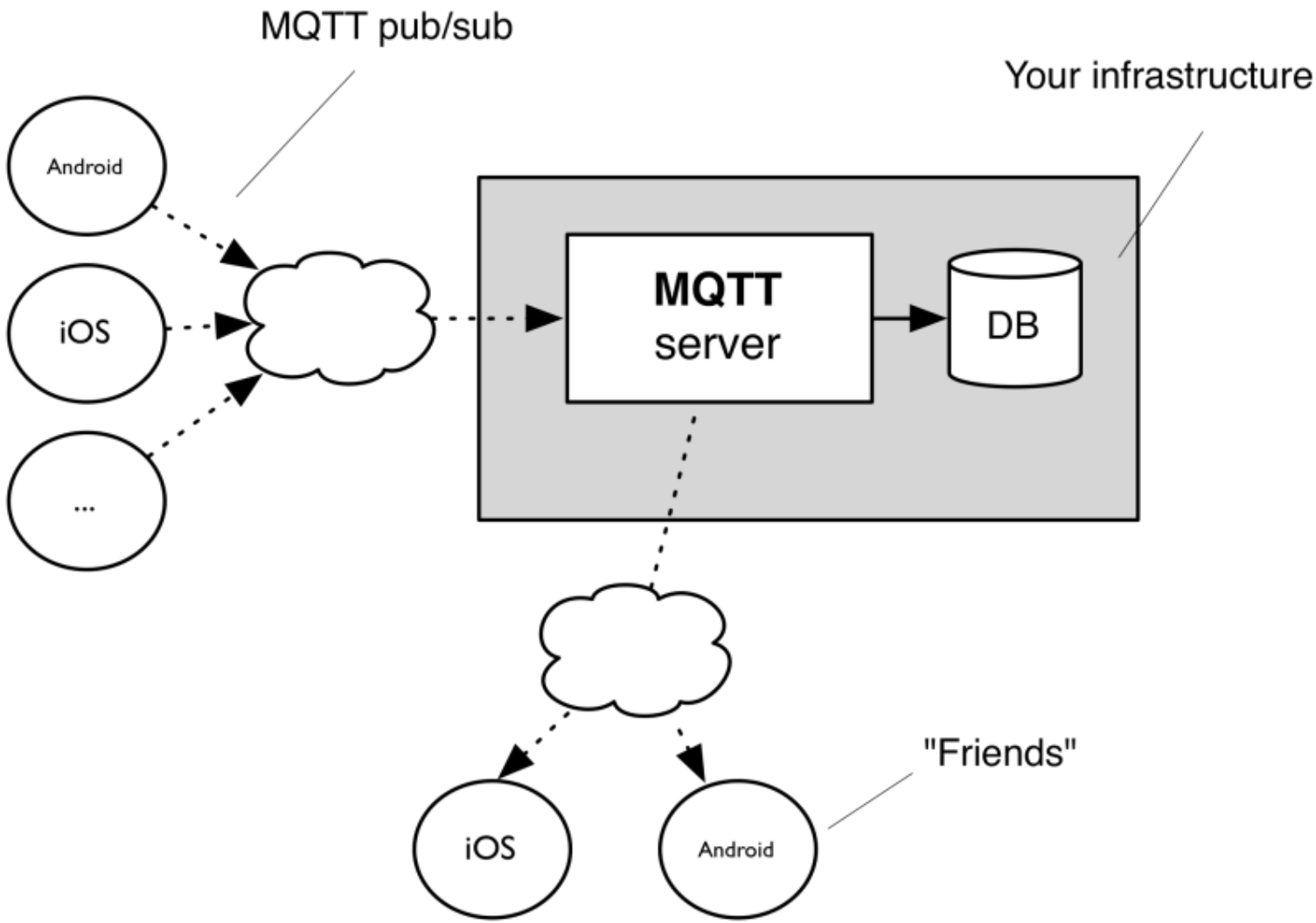
We've decided to opt for a less geeky name. MQTTitude becomes OwnTracks. // You don't have to re-follow us -- you're doing that already. :-)

@OwnTracks sigh. The geeky name had attitude. This one is bland. Please revert commit…

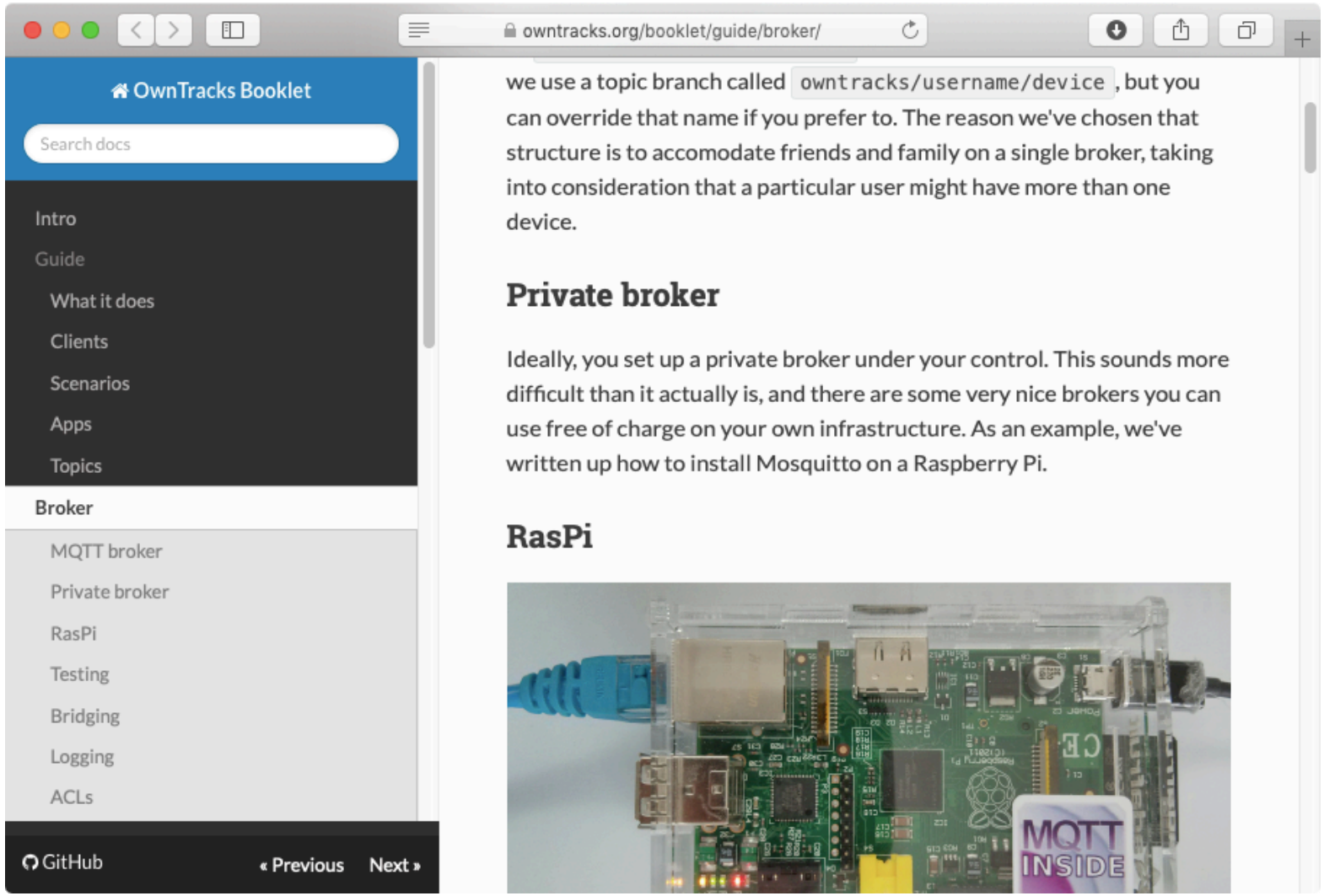
@OwnTracks I don't know if a latitude-type service can ever be... less geeky :-) love the name!

@OwnTracks Like the new name ...

Your own infra



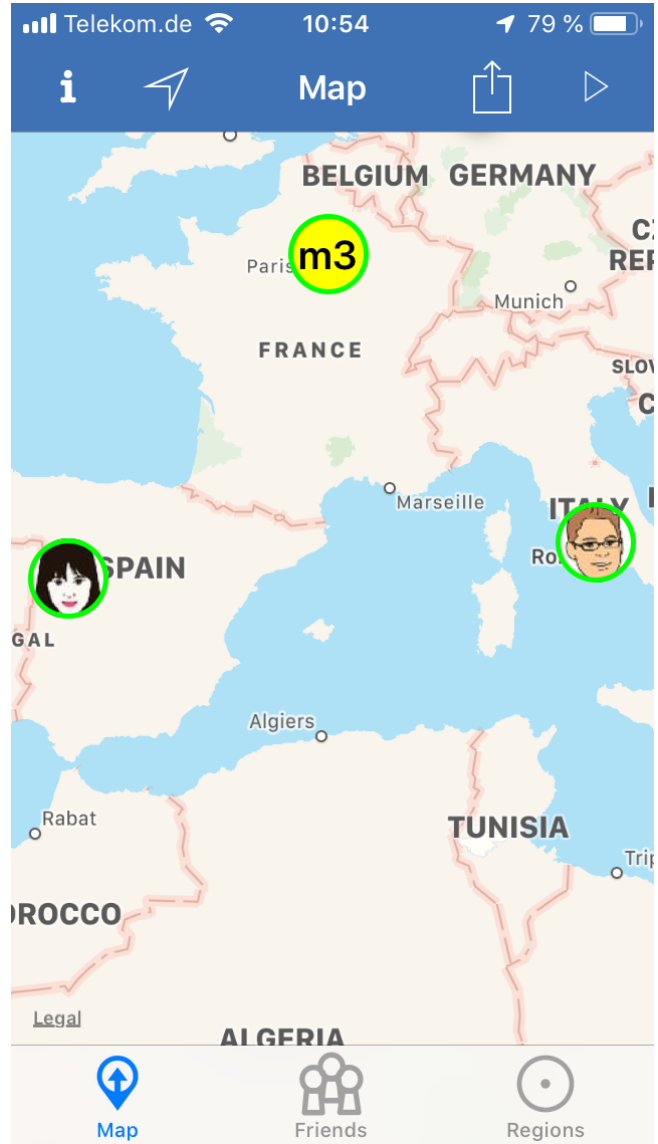
The **booklet**


owntracks.org/booklet/guide/broker/
OwnTracks Booklet
Search docs
Intro
Guide
What it does
Clients
Scenarios
Apps
Topics
Broker
MQTT broker
Private broker
RasPi
Testing
Bridging
Logging
ACLs
GitHub
« Previous
Next »
we use a topic branch called owntracks/username/device, but you can override that name if you prefer to. The reason we've chosen that structure is to accomodate friends and family on a single broker, taking into consideration that a particular user might have more than one device.
Private broker
Ideally, you set up a private broker under your control. This sounds more difficult than it actually is, and there are some very nice brokers you can use free of charge on your own infrastructure. As an example, we've written up how to install Mosquitto on a Raspberry Pi.
RasPi
MQTT
INSIDE

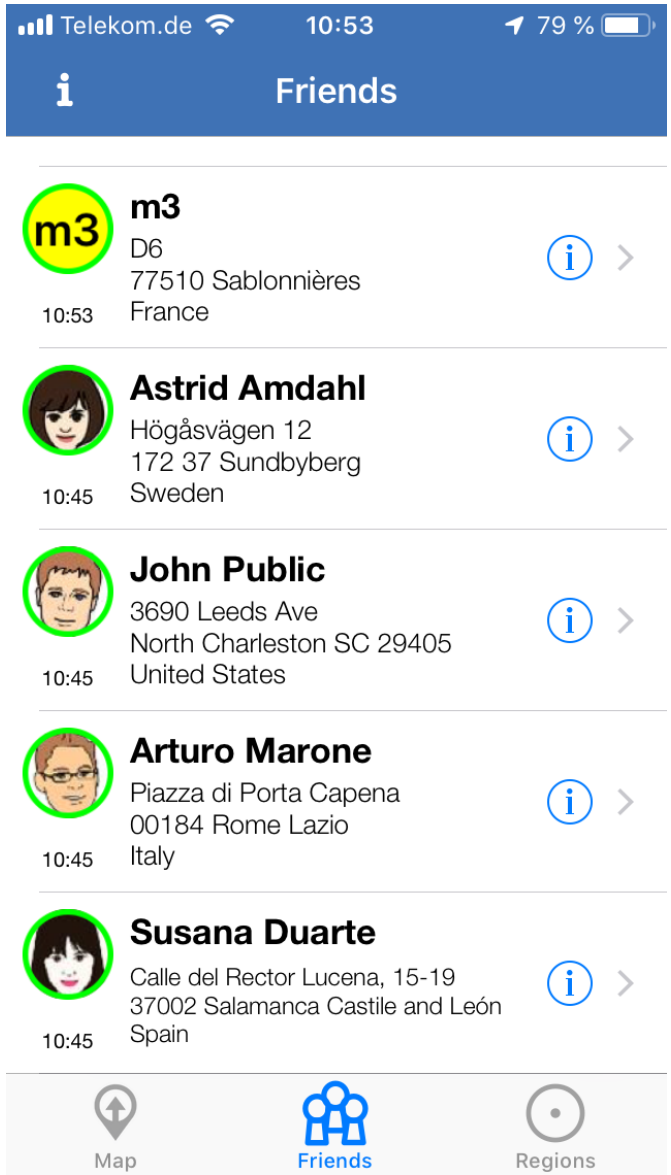
Your data: **JSON**

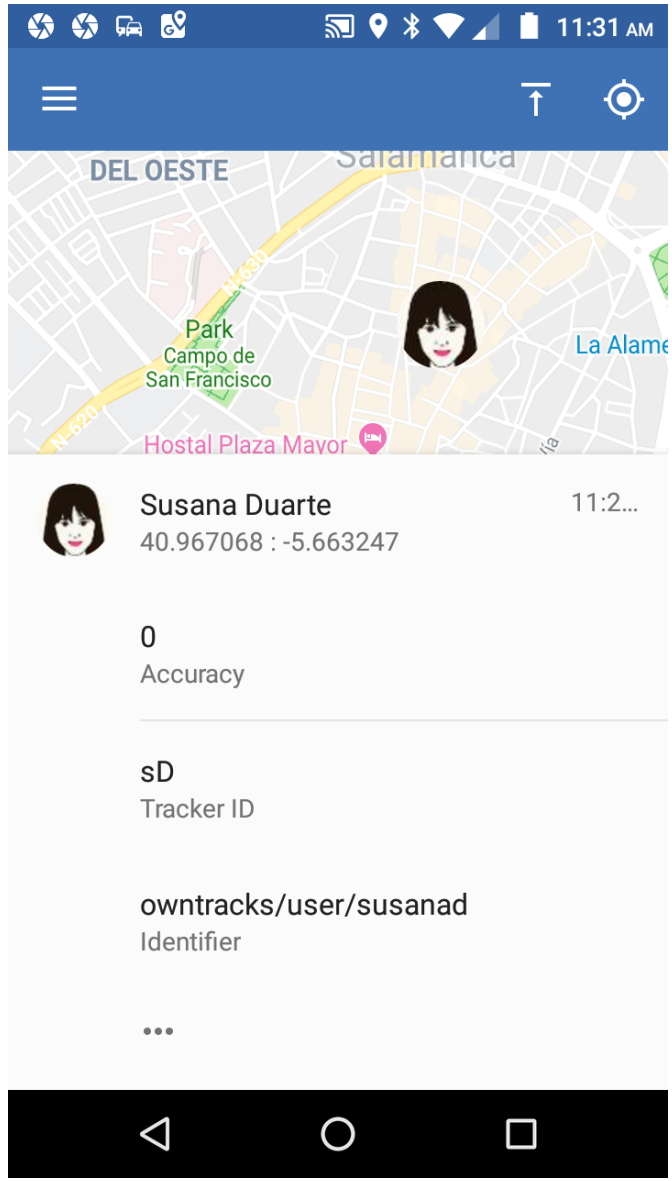

```
{
  "_type": "location",
  "batt": 21,
  "lat": 48.85833,
  "t": "m",
  "lon": 3.29513,
  "acc": 5,
  "tid": "JJ",
  "vel": 8,
  "cog": 143,
  "alt": 143,
  "tst": 1540285680
}
```

Our apps today



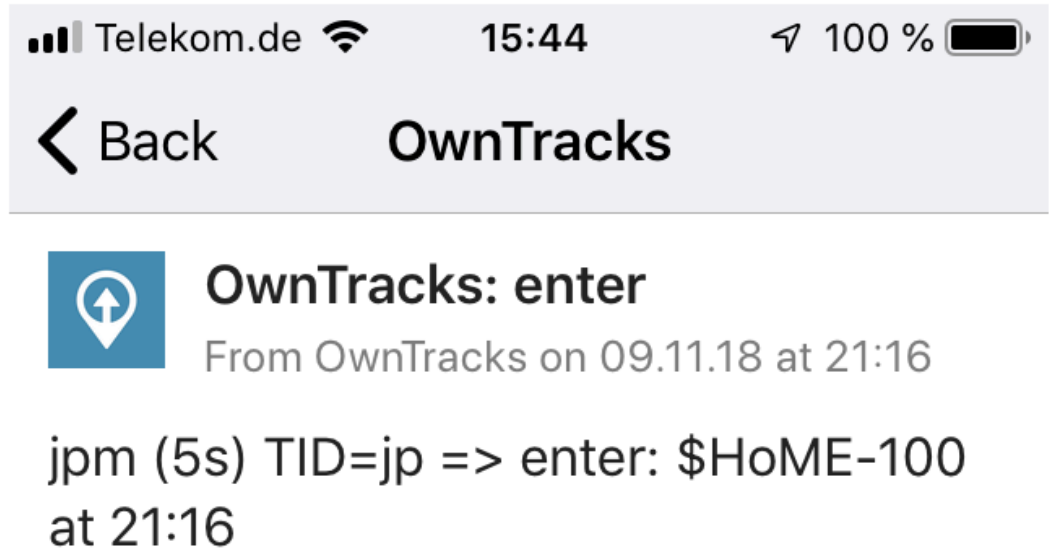
Los **amigos**


Telekom.de
10:53
79 %
Friends
m3
D6
77510 Sablonnières
France
10:53
Astrid Amdahl
Högåsvägen 12
172 37 Sundbyberg
Sweden
10:45
John Public
3690 Leeds Ave
North Charleston SC 29405
United States
10:45
Arturo Marone
Piazza di Porta Capena
00184 Rome Lazio
Italy
10:45
Susana Duarte
Calle del Rector Lucena, 15-19
37002 Salamanca Castile and León
Spain
10:45
Map
Friends
Regions


11:31 AM
DEL OESTE
Park
Campo de
San Francisco
Hostal Plaza Mayor
Susana Duarte
11:2...
40.967068 : -5.663247
0
Accuracy
sD
Tracker ID
owntracks/user/susanad
Identifier

Transition **events**

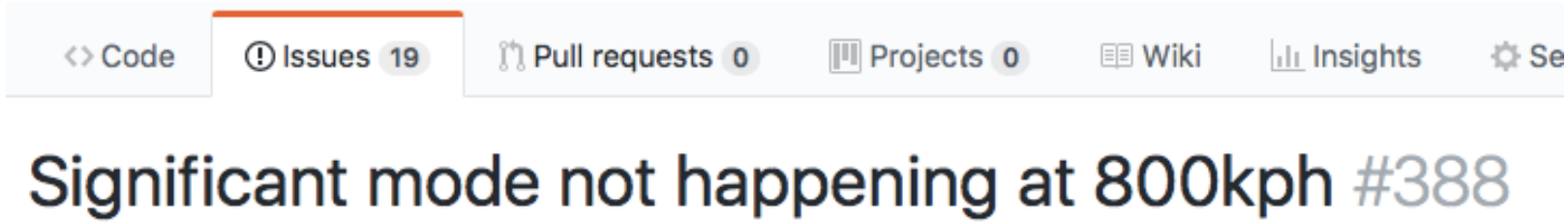

```
{
   "t": "c",
   "tst": 1541794597,
   "acc": 65,
   "_type": "transition",
   "event": "enter",
   "lon": 3.29513,
   "lat": 48.85833,
   "wtst": 1539794983,
   "tid": "jp",
   "desc": "$HoME-100"
}
```

HTT-what?

```php
<?php
    # Obtain the JSON payload from an OwnTracks app POSTed via HTTP
    # and insert into database table.

    header("Content-type: application/json");

    $payload = file_get_contents("php://input");
    $data =  @json_decode($payload, true);

    if ($data['_type'] == 'location') {

        # CREATE TABLE locations (dt TIMESTAMP, tid CHAR(2), lat DECIMAL(9,6), lon DECIMAL
        $mysqli = new mysqli("127.0.0.1", "user", "password", "database");

        $tst = $data['tst'];
        $lat = $data['lat'];
        $lon = $data['lon'];
        $tid = $data['tid'];

        # Convert timestamp to a format suitable for mysql
        $dt = date('Y-m-d H:i:s', $tst);

        $sql = "INSERT INTO locations (dt, tid, lat, lon) VALUES (?, ?, ?, ?)";
        $stmt = $mysqli->prepare($sql);
        # bind parameters (s = string, i = integer, d = double,  b = blob)
        $stmt->bind_param('ssdd', $dt, $tid, $lat, $lon);
        $stmt->execute();
        $stmt->close();
    }

    $response = array();
    # optionally add objects to return to the app (e.g.
    # friends or cards)
    print json_encode($response);
?>
```

Bugs, bugs, **more** bugs



As anybody who does so can attest to, Open Source can be fun and *interesting*.

Statistics

-
-
-
-
-
-

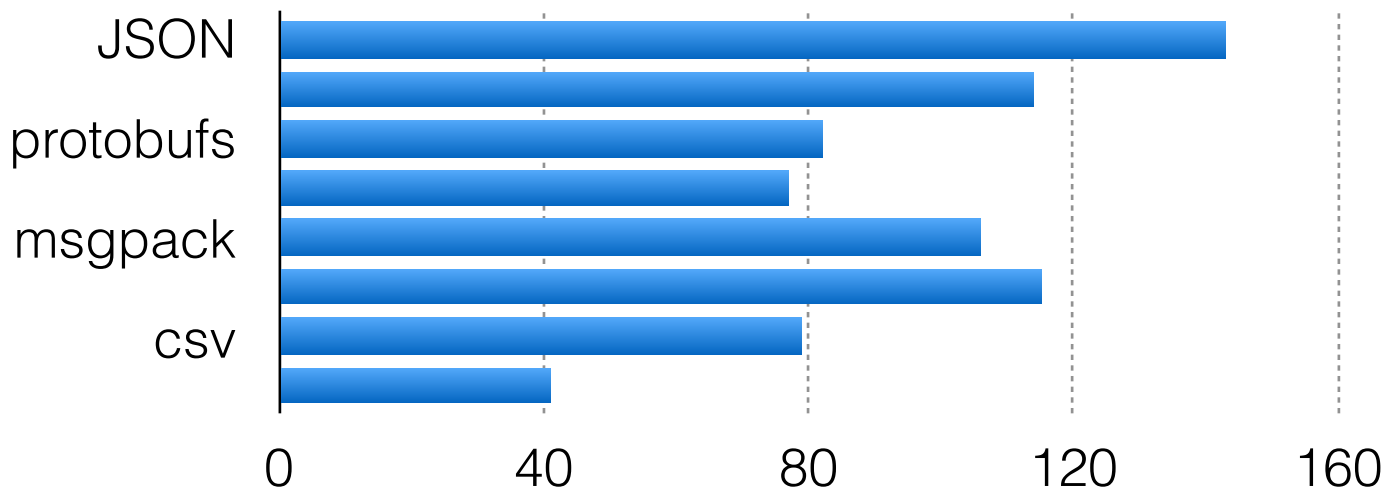
In a **vehicle**?

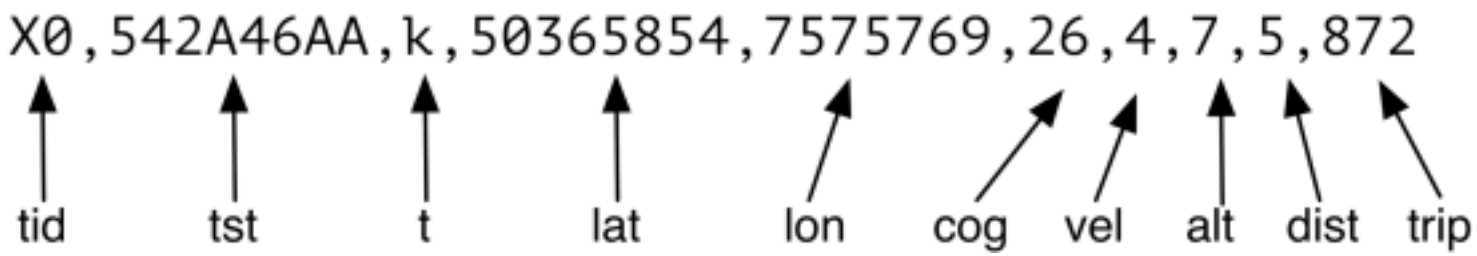
Ha, ha, ha, ha. **No**.

For **vehicles**!

to pack or not to pack


```
{„_type":"location","t":"L","tid":"C2","tst":"1413805066","lon":"13.5
32628","lat":"52.432363","cog":0,"vel":0,"alt":30,"dist":0,"trip":0}
```

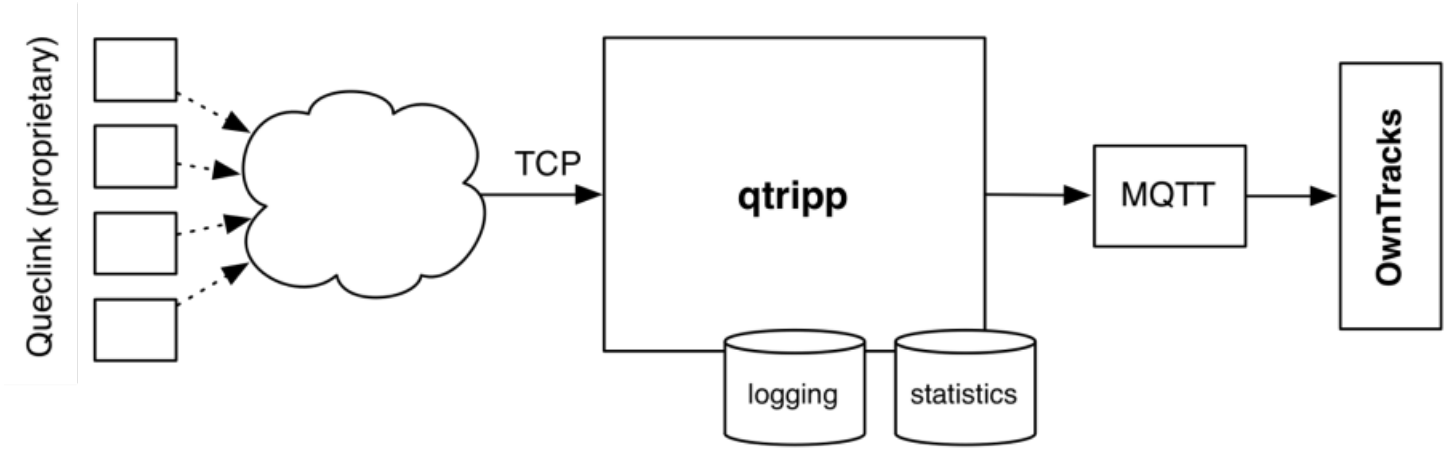


SIM **cards**

Roaming
Roaming
Roaming

Did I say "**roaming**"?

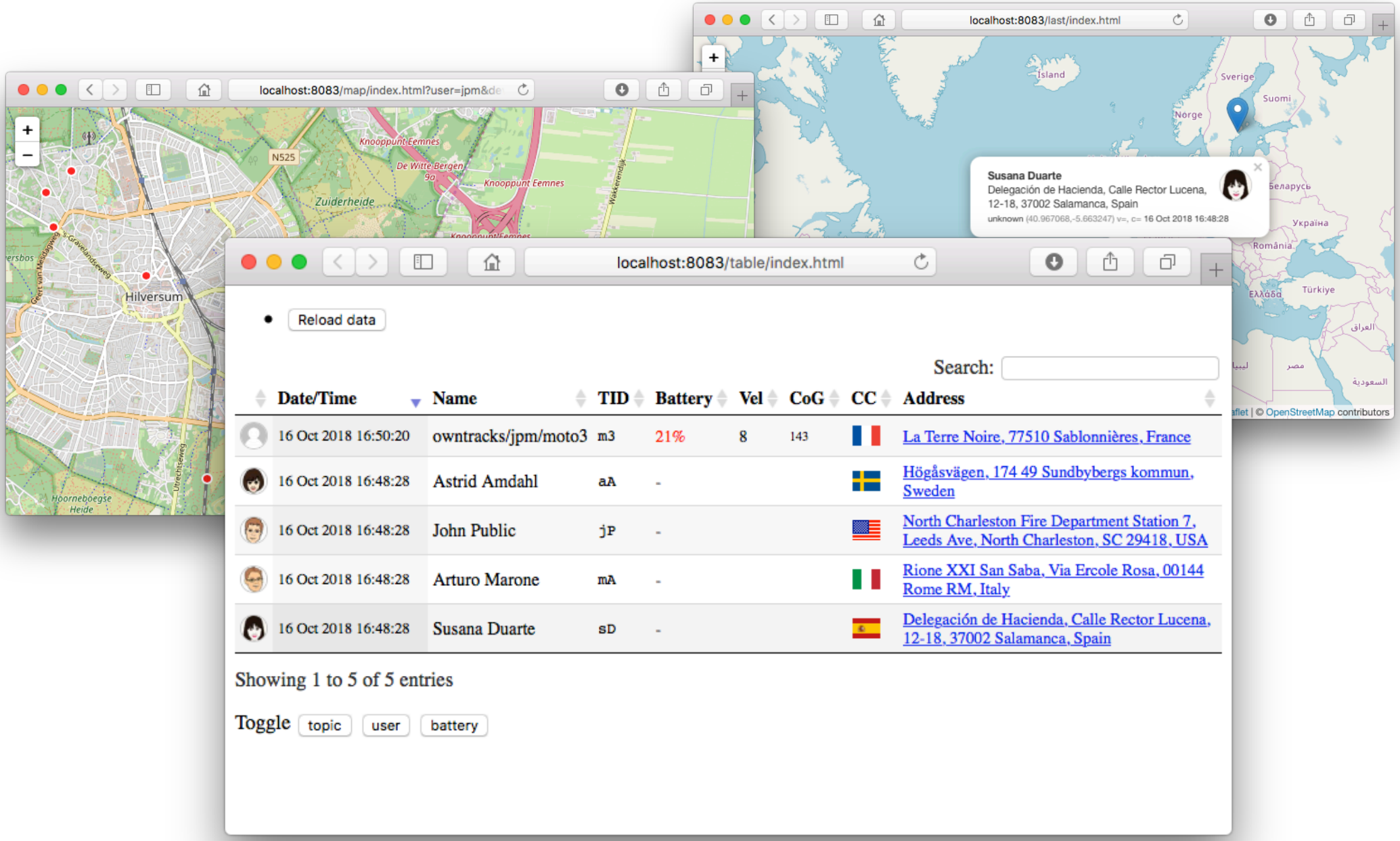
Own **vehicles**



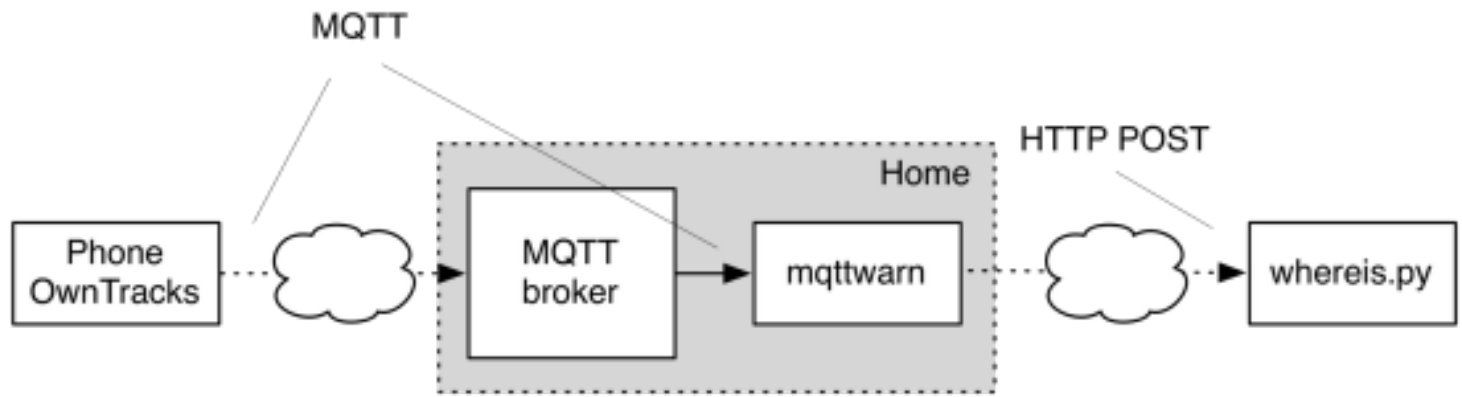
Smaller
Cheaper
More Reliable

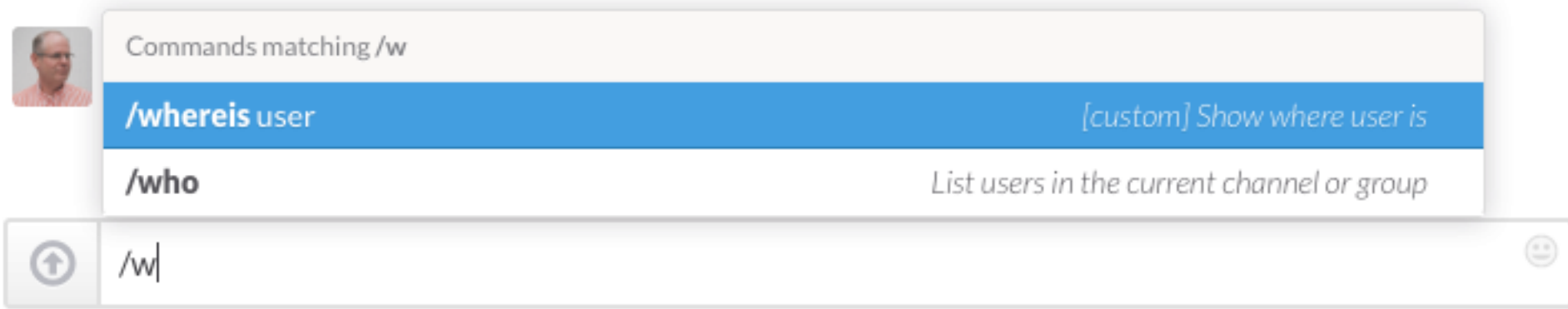
our code is FLOSS

Recorder


localhost:8083/last/index.html
Susana Duarte
Delegación de Hacienda, Calle Rector Lucena, 12-18, 37002 Salamanca, Spain
unknown (40.967068,-5.663247) v=, c= 16 Oct 2018 16:48:28
localhost:8083/map/index.html?user=jpm&de
Hilversum
Zuiderheide
localhost:8083/table/index.html
Reload data
Search:
Date/Time
Name
TID
Battery
Vel
CoG
CC
Address
16 Oct 2018 16:50:20
owntracks/jpm/moto3
m3
21%
8
143
La Terre Noire, 77510 Sablonnières, France
16 Oct 2018 16:48:28
Astrid Amdahl
aA
-
Högåsvägen, 174 49 Sundbybergs kommun, Sweden
16 Oct 2018 16:48:28
John Public
jP
-
North Charleston Fire Department Station 7, Leeds Ave, North Charleston, SC 29418, USA
16 Oct 2018 16:48:28
Arturo Marone
mA
-
Rione XXI San Saba, Via Ercole Rosa, 00144 Rome RM, Italy
16 Oct 2018 16:48:28
Susana Duarte
sD
-
Delegación de Hacienda, Calle Rector Lucena, 12-18, 37002 Salamanca, Spain
Showing 1 to 5 of 5 entries
Toggle
topic
user
battery

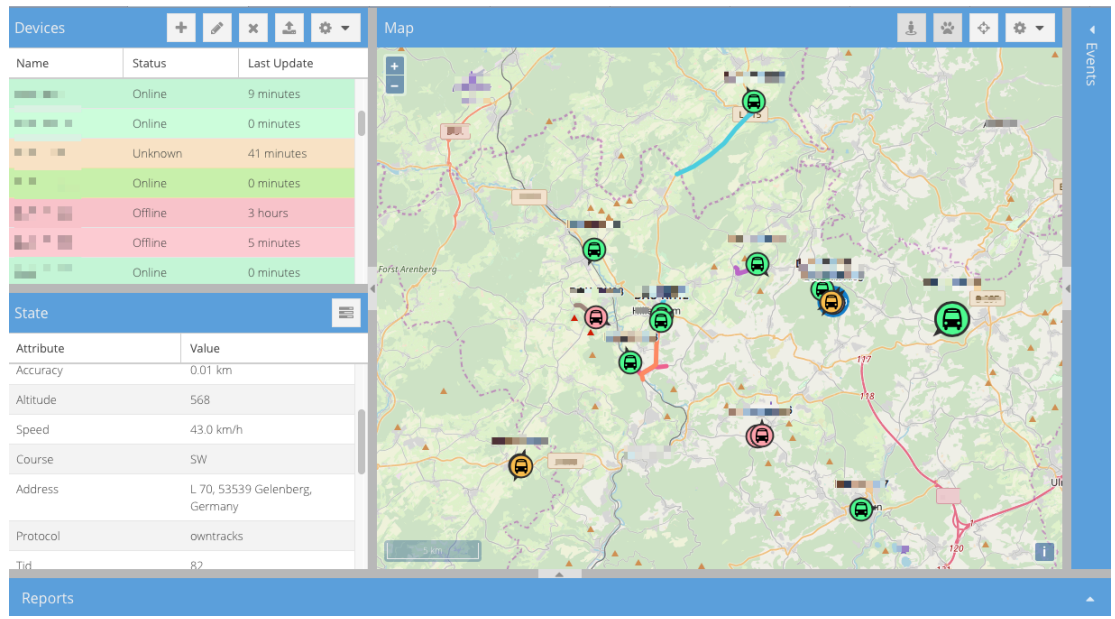
Own ideas


MQTT
HTTP POST
Home
Phone
OwnTracks
MQTT
broker
mqttwarn
whereis.py

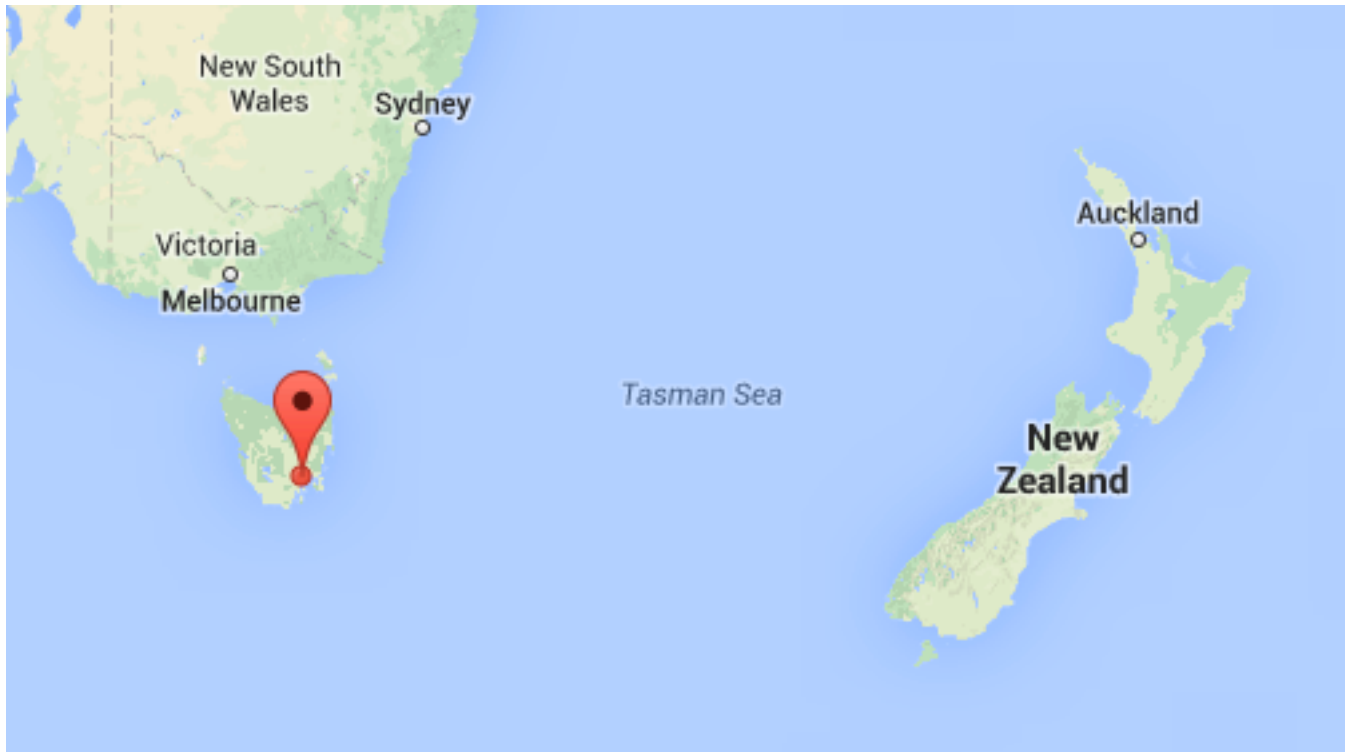

Commands matching /w
/whereis user
[custom] Show where user is
/who
List users in the current channel or group
/w

Ecosystem

openHAB
Home Assistant
Traccar
Zanzito
...



World wide



I once blogged that that was the farthest away OwnTracks user; wrong: it's Ben in NZ of course.

it **glows**

Andy Stanford-Clark
@andysc
I use @OwnTracks with an #IoW geofence for my On-Island/Off-Island status #gloworb (inspired by #stargate on/off-world!) /@ChristophKrey @jpmens
Andy On/Off-Island

owntracks.org

@owntracks