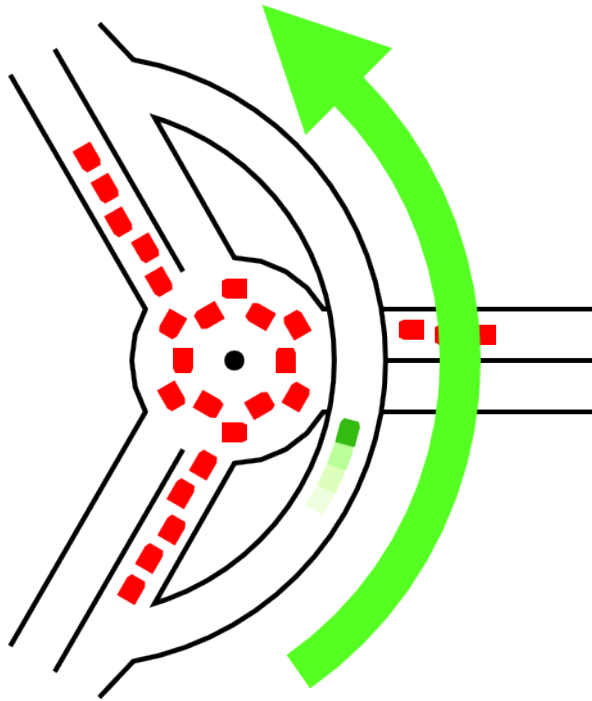
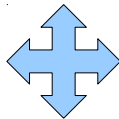




Overpass API

Versatile and extensible
query language



Fast responses
Minutely on time



Reasonable hardware
requirements



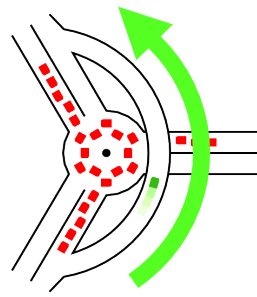
Simple installation and
little maintenance



1. Problem to Solve

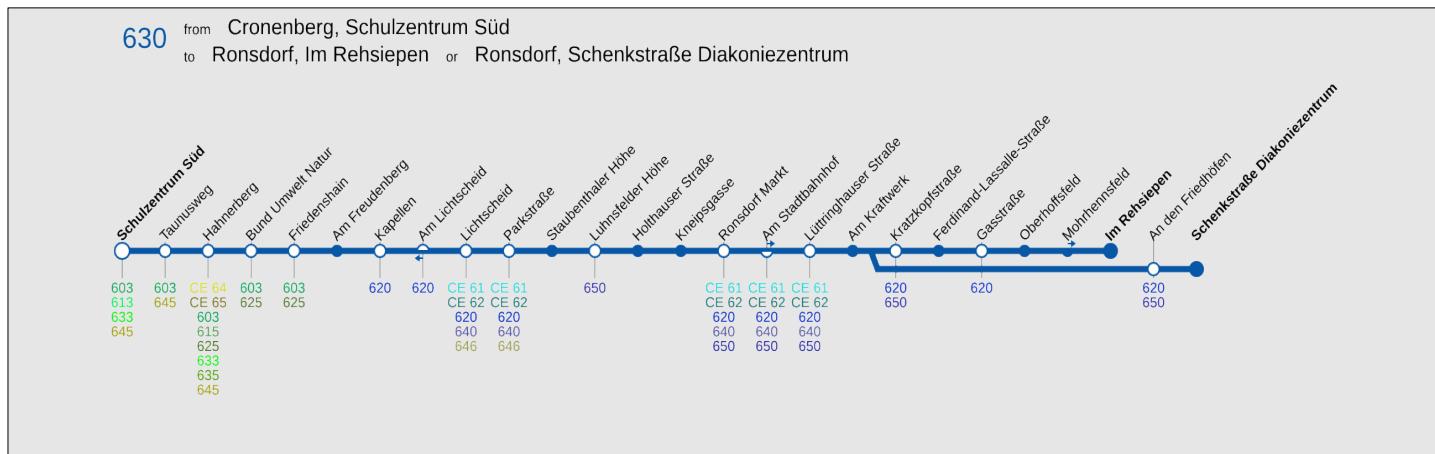
Supply Tools with Data





Overpass API

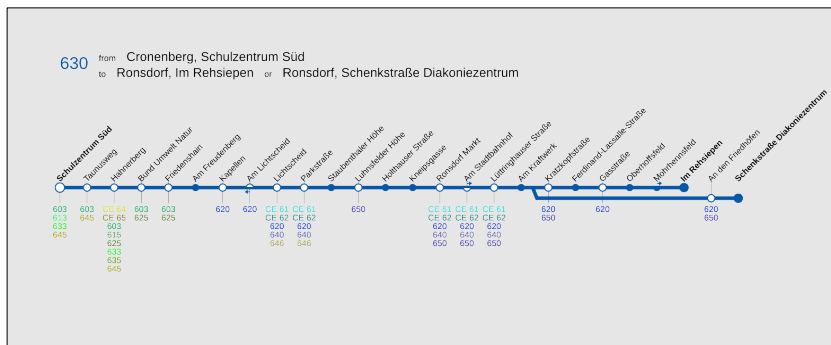
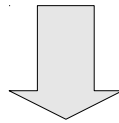
Problem to Solve: Supply Tools with Data



Running a service: How to extract data?



2 billion items

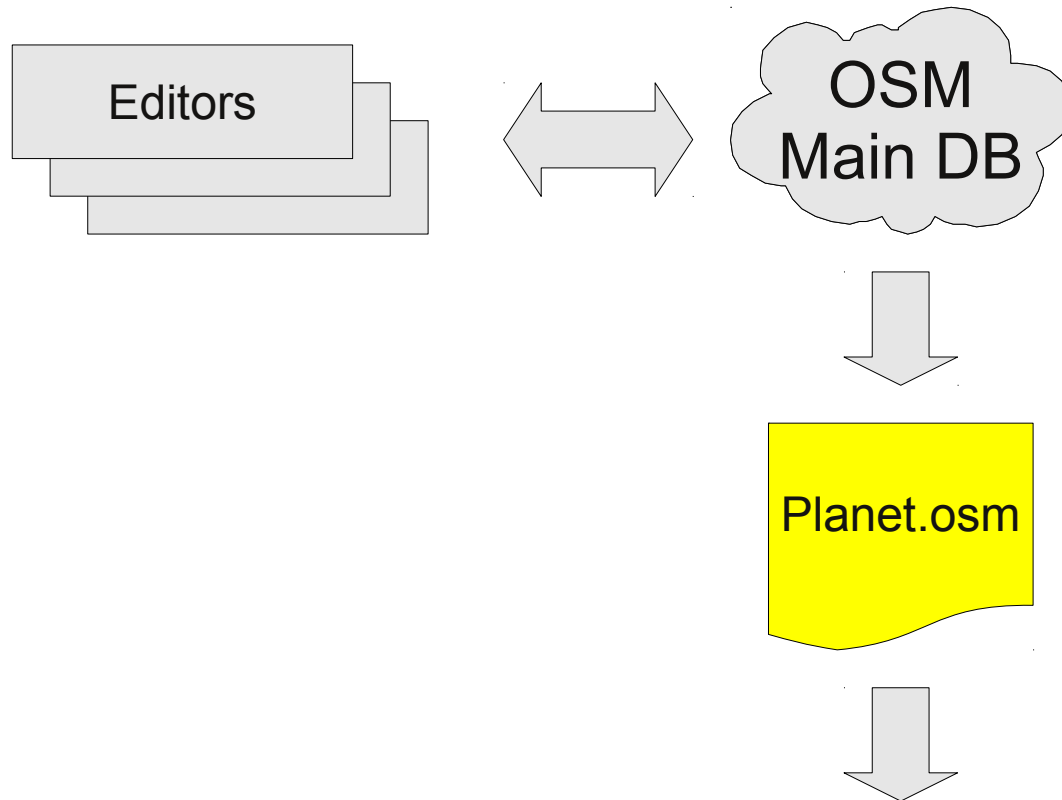


Tool can only handle
few items

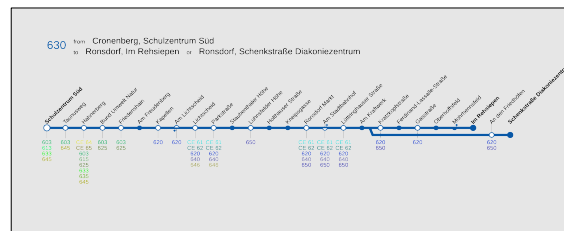
Select a/the relation(s) with
network=?, ref=?

- and the corresponding nodes
- and **all nearby nodes** that are relevant for public transport
- and **all relations referring** to these nodes.

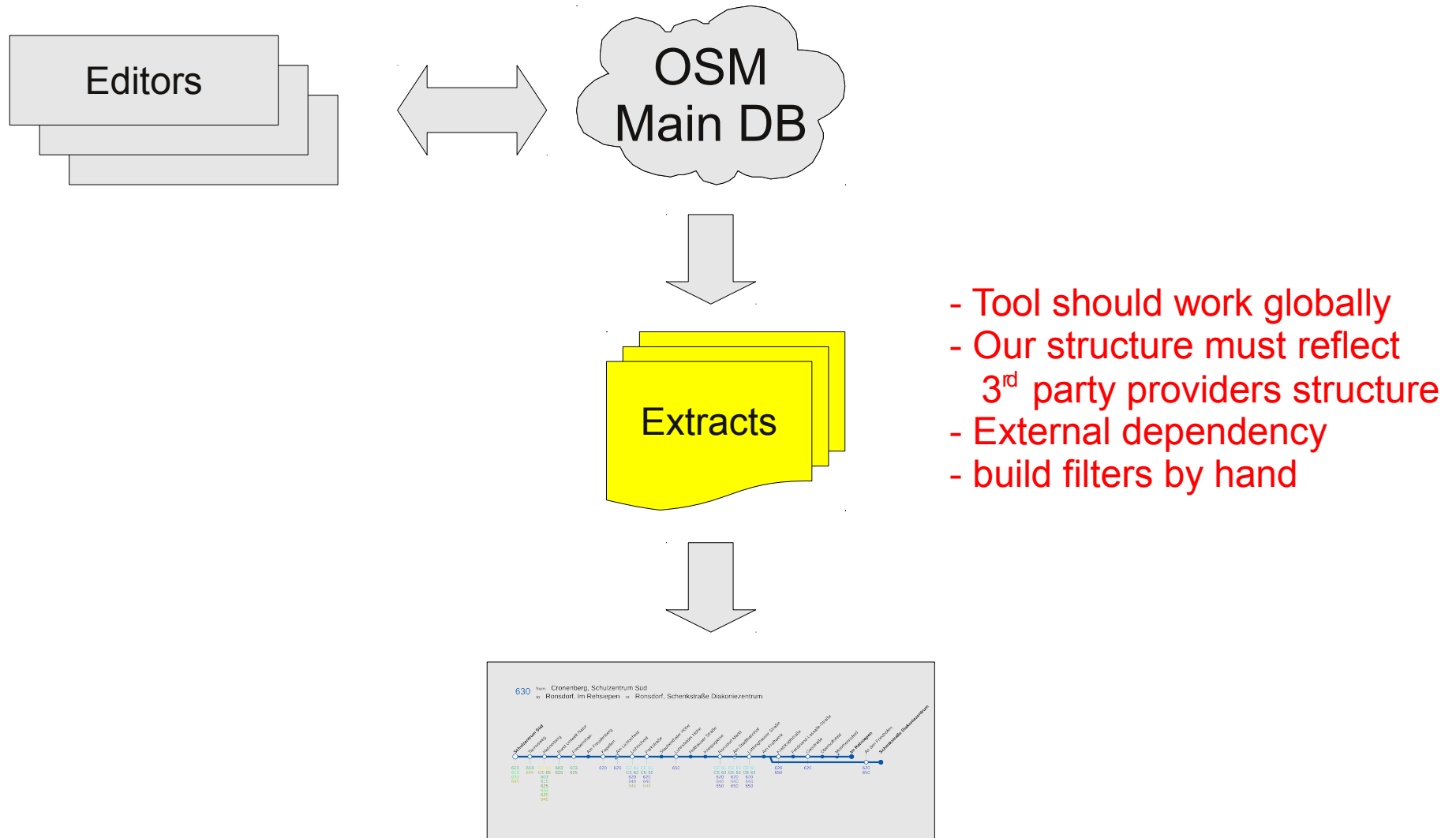
Option 1: Process Planet.osm?



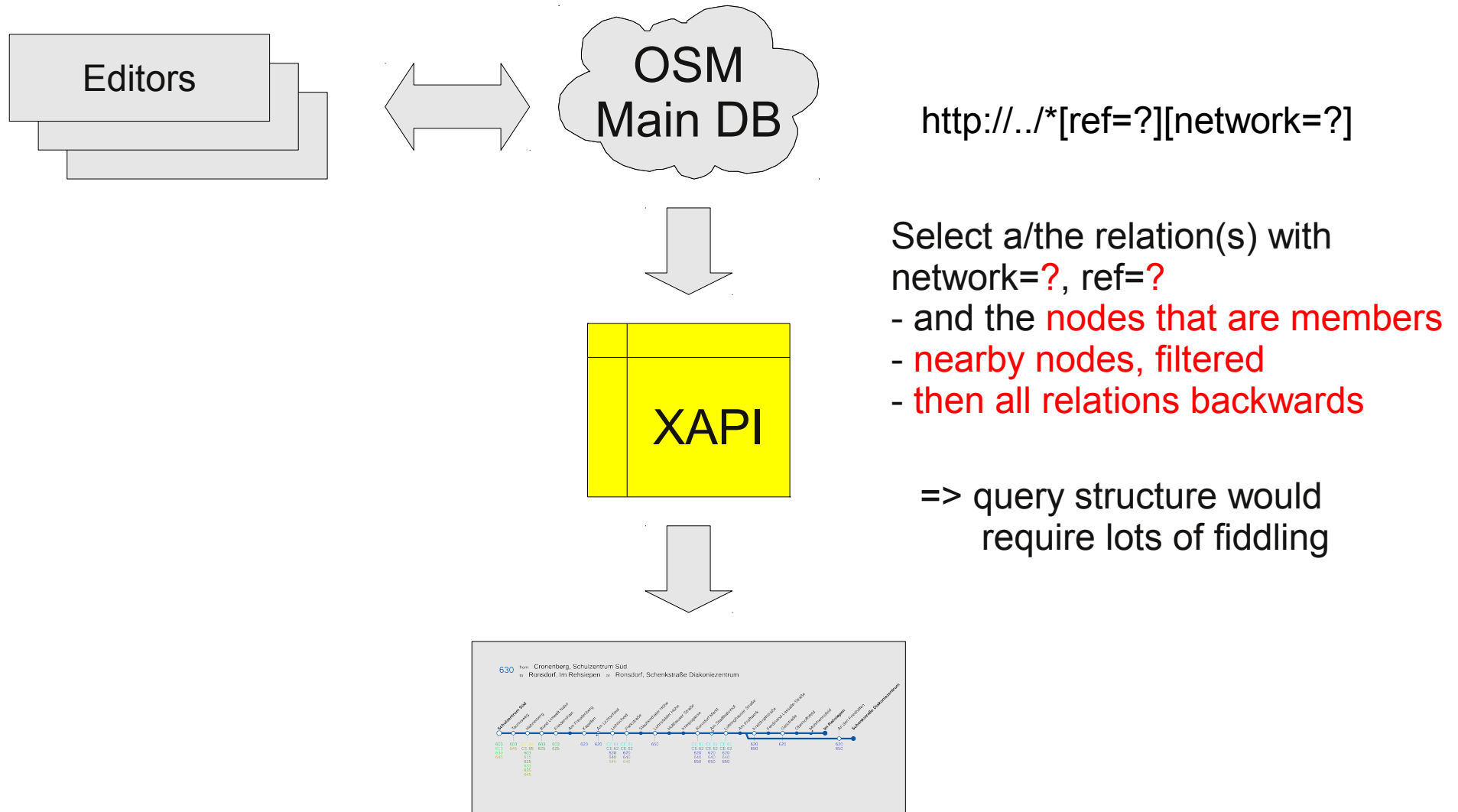
- only weekly available
- 2 days delay
- build filters by hand
- several hours processing time
- 15-20 GB download each



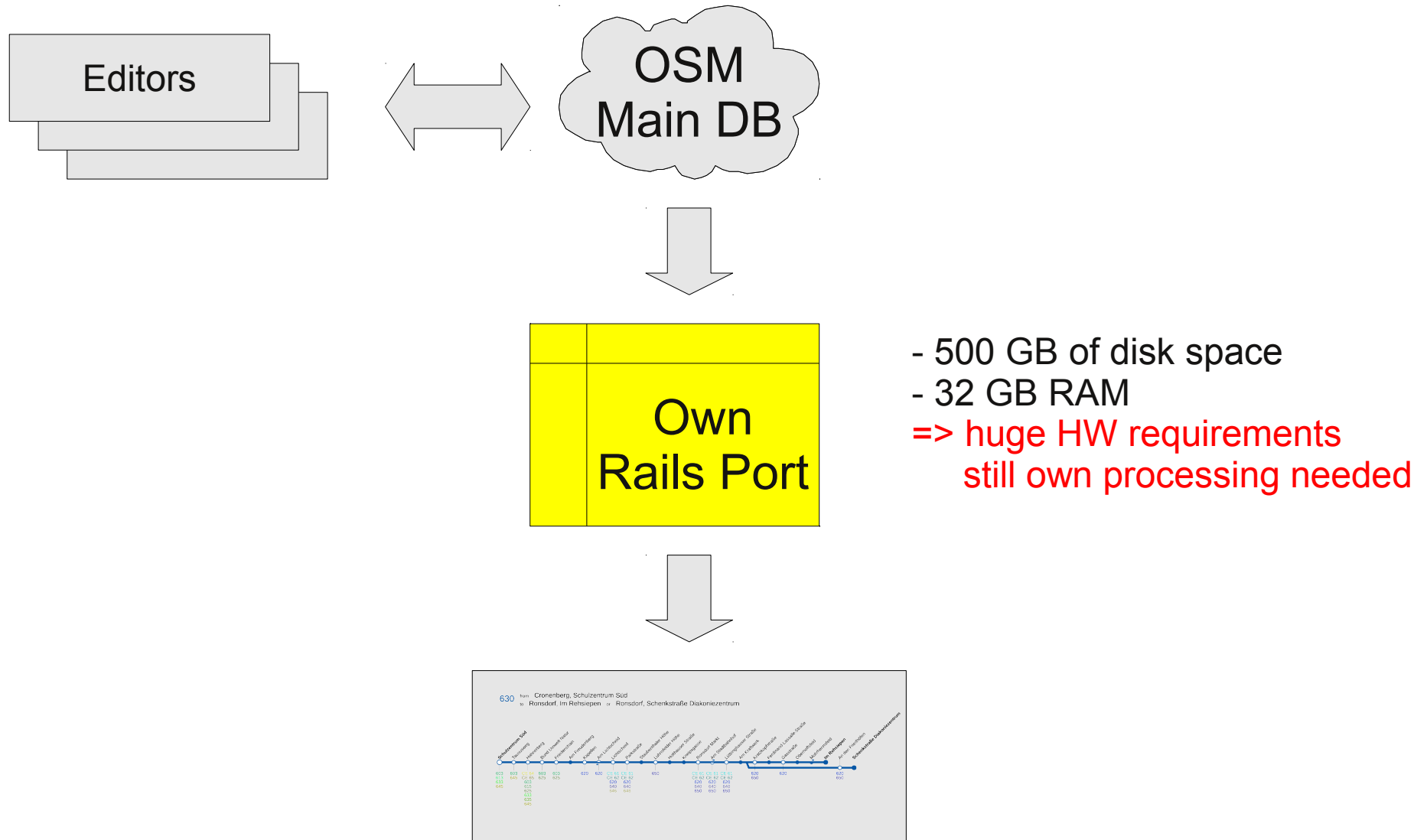
Option 2: Use Extracts?



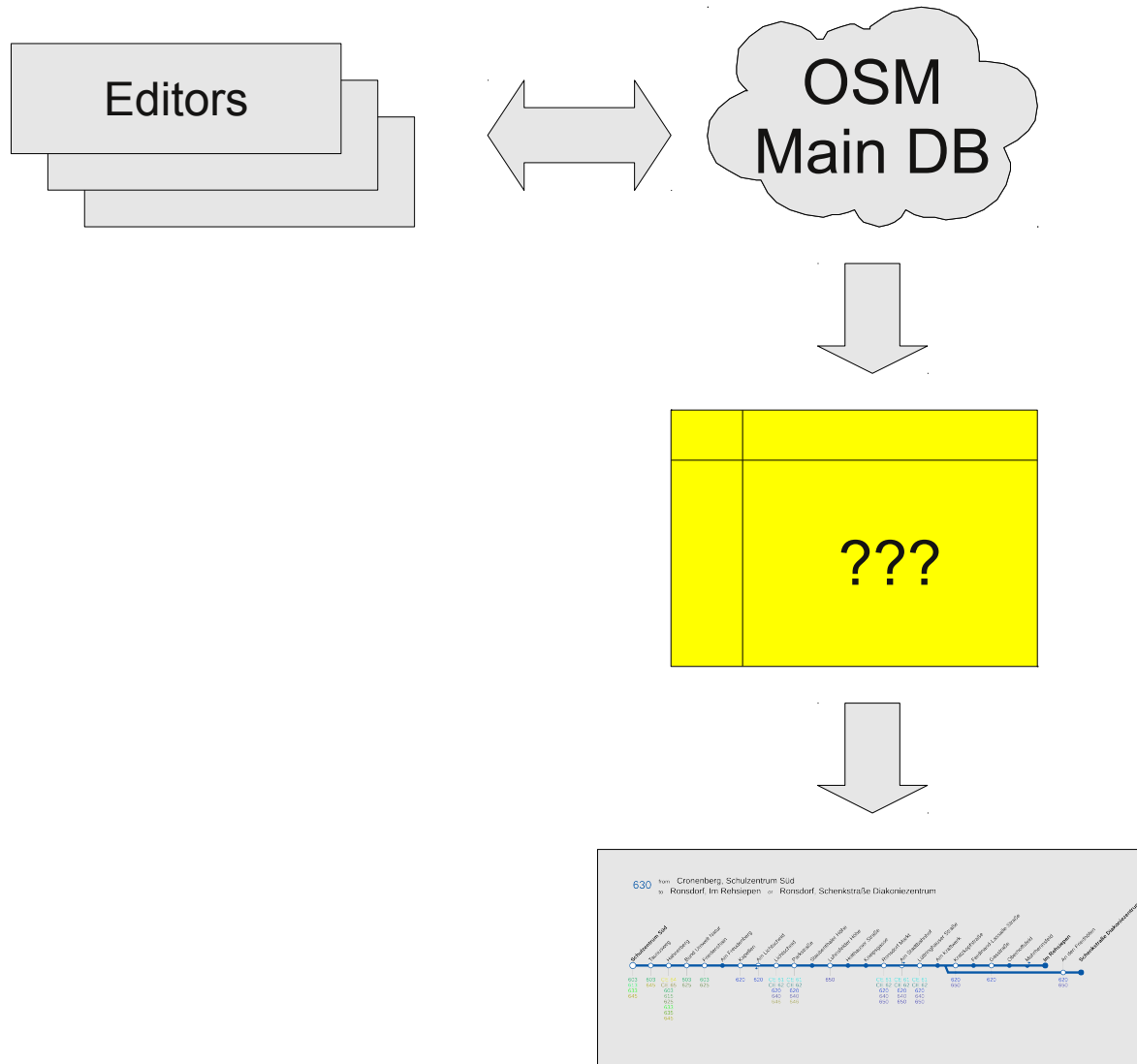
Option 3: Use XAPI?



Option 4: Own „The Rails Port“?



Requirements for a suitable server



- Query syntax must

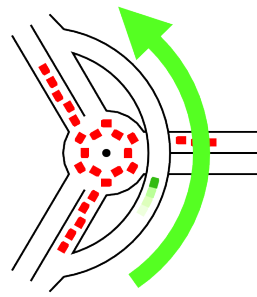
- => make „nearby nodes“, „descend up-/downward“ easy
- => simple and clear, e.g. on escaping special characters

- Encourage multiple instances:

- => make HW requirements reasonable
- => make the least possible platform requirements
- => make installation simple

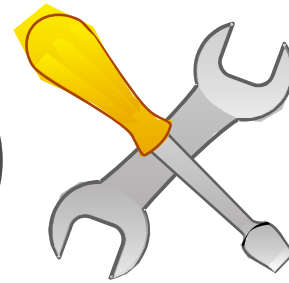
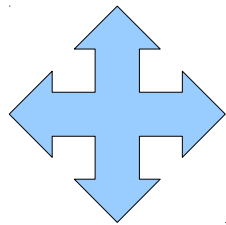
- Software must

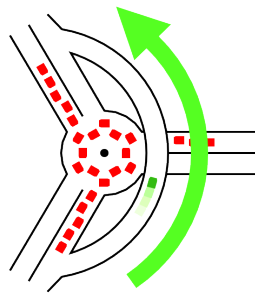
- => work reliable, with the least maintenance possible
- => run appropriately fast, especially for local datasets



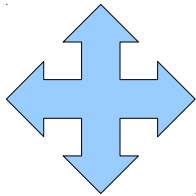
Overpass API

The Read-only Mirror What's already Established





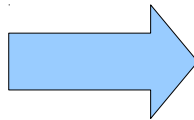
Overpass API



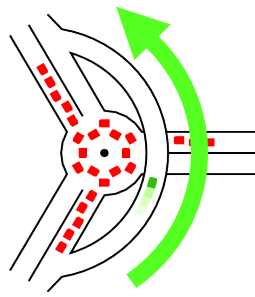
Versatile and extensible query language

Select a/the relation(s) with
network=?, ref=?

- and the corresponding nodes
- and **all nearby nodes**
that are relevant
for public transport
- and **all relations referring**
to these nodes.



```
<query type="relation">  
  <has-kv k="network" v="?"/>  
  <has-kv k="ref" v="?"/>  
</query>  
<recurse type="relation-node" into="stops"/>  
<print from="stops"/>  
<union>  
  <query type="node"><around from="stops"/>  
    <has-kv k="highway" v="bus_stop"/>  
  </query>  
  <query type="node"><around from="stops"/>  
    <has-kv k="railway"/>  
  </query>  
</union>  
<print/>  
<recurse type="node-relation"/>  
<print/>
```



Overpass API

XAPI

/api/0.6/node[bbox=left,bottom,right,top]

/api/0.6/*[bbox=left,bottom,right,top]

Map query

/api/0.6/node[key=value]

/api/0.6/node[key1=value1][key2=value2]
[bbox=left,bottom,right,top]
(not possible in XAPI)

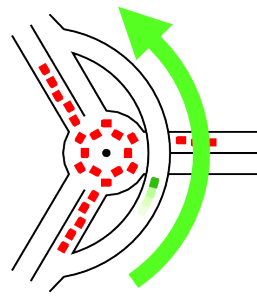
Overpass API

```
<bbox-query s="bottom" n="top" w="left" e="right"/><print/>
```

```
<union>  
  <bbox-query s="bottom" n="top" w="left" e="right"/>  
  <recurse type="node-relation" into="rels"/>  
  <recurse type="node-way"/>  
  <recurse type="way-relation"/>  
</union><print/>
```

```
<query type="node">  
  <has-kv k="key" v="value"/>  
</query><print/>
```

```
<query type="node">  
  <has-kv k="key1" v="value1"/>  
  <has-kv k="key2" v="value2"/>  
  <bbox-query s="bottom" n="top" w="left" e="right"/>  
</query><print/>
```



Overpass API



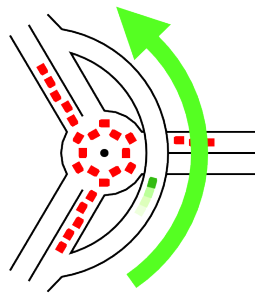
Fast responses

Map query (average over 100 runs, 1/100 square degree)
(on Thursday, 08.07.2011, 23h, low load on both servers)

Overpass API 2.2 sec ■

XAPI 39.7 sec ■

PT-Query on Overpass API: 3 sec – 10 sec



Overpass
API



Modest hardware requirements

Minimum
requirements

RAM: 1 GB



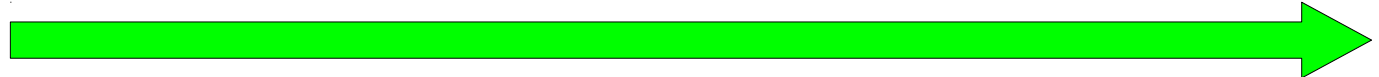
Disk: 50 GB



Small 4 GB



Server >100 GB

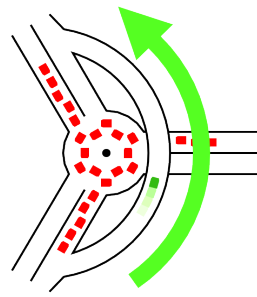


Large 16 GB



Server >1 TB





Overpass
API



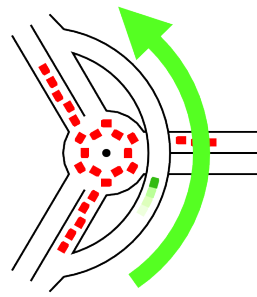
**Simple installation and
little maintenance**

Installation:

```
../src/configure prefix=YOUR_EXEC_DIR  
make install
```

Startup:

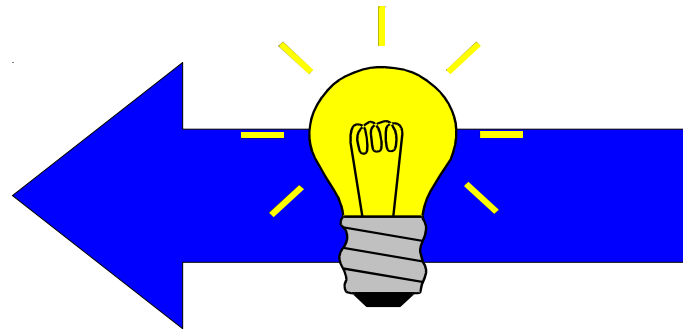
```
bunzip2 <YOUR_PLANETFILE | ./update_database --db-dir=YOUR_DB_DIR/  
nohup ./dispatcher --osm-base --db-dir=YOUR_DB_DIR &
```



Overpass
API

Living Specs

Making Tag Central Real and Productive



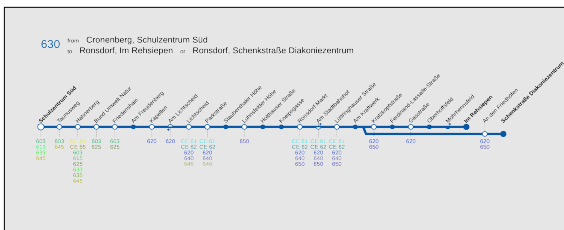


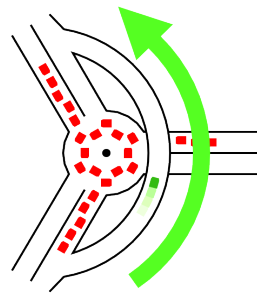
Living Specs



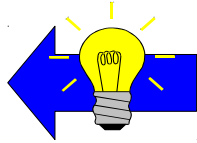
Order is relevant on bus stops

Bus relations must be continuous





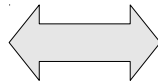
Overpass API



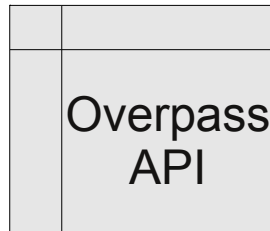
Living Specs



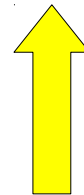
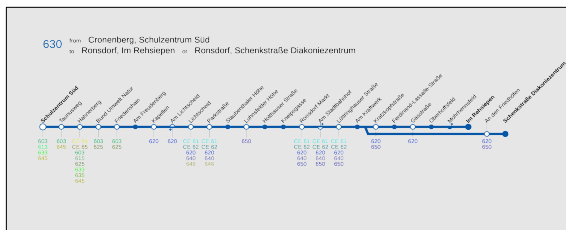
OSM
Main DB



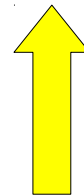
Editors



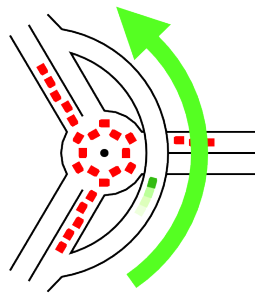
Overpass
API



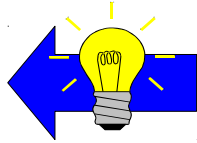
<has-kv k="highway" v="bus_stop"/>



Tool considers highway=bus_stop

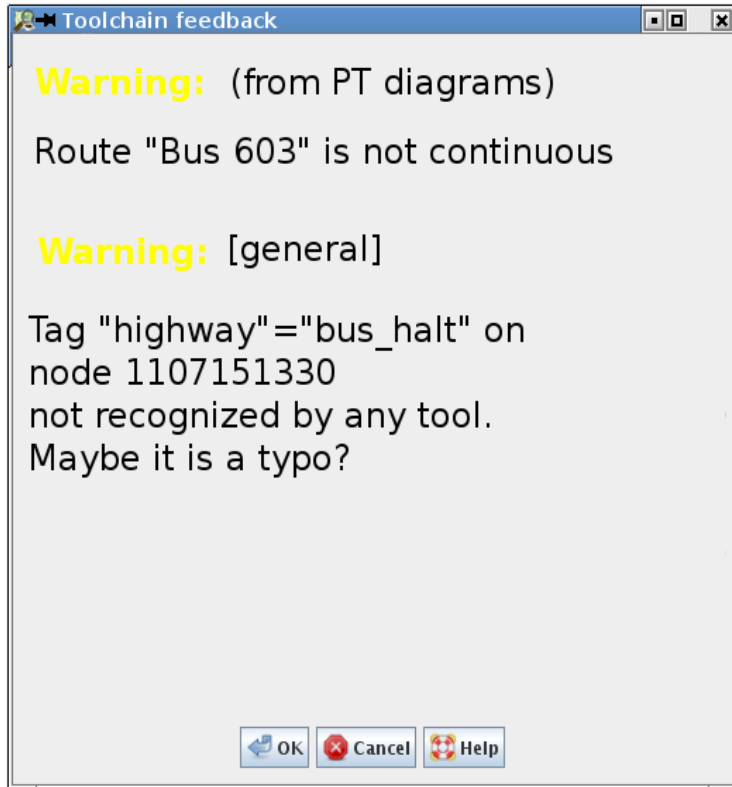


Overpass API

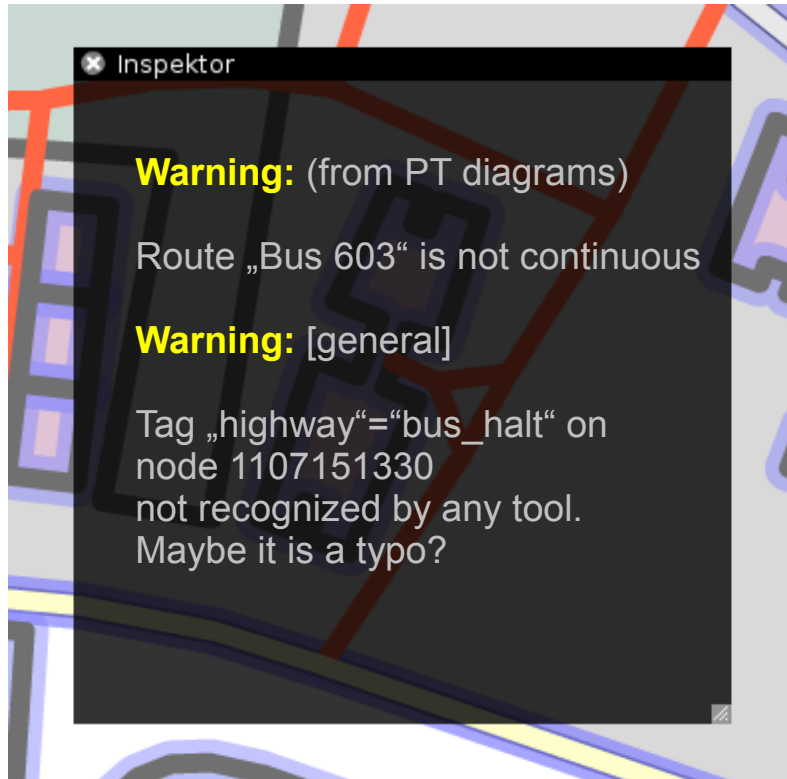


Living Specs

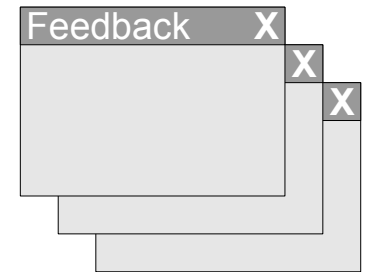
JOSM

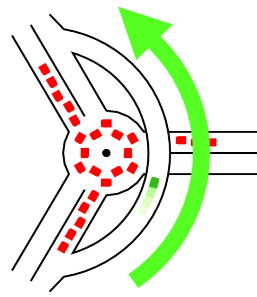


Potlatch



(also
other)

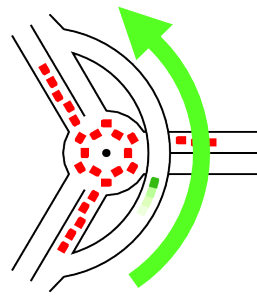




Overpass
API

What's In for You
Take the Opportunity to Participate

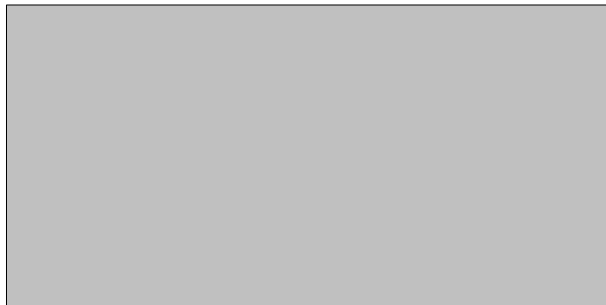
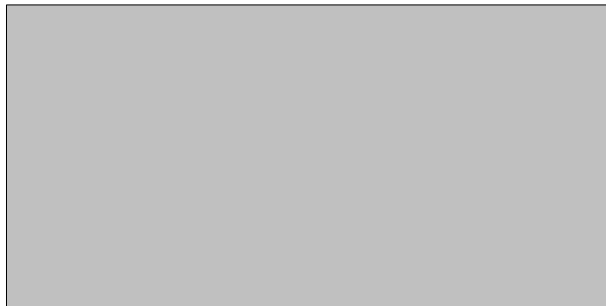




Overpass
API

Take the Opportunity to Participate

Your ideas



Production server ?

Living Specs

Your projects:
Write specification for

Extend query syntax

Enable
JOSM

Enable
Potlatch

...

Spec mgmt interface

Other plans

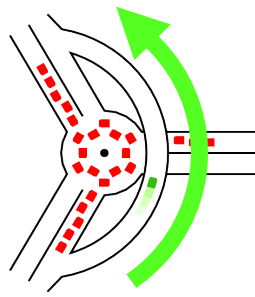
Meta Query Toolset:
Predict runtime, result size

Semantic Extensions:
Bbox on ways, Regular expressions

Multi Source Support

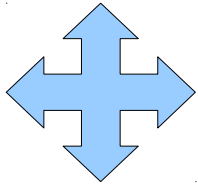
Social Data

Gzip on the fly



Overpass
API

Resumee



Versatile query language?

Yes: PT-Diagrams, XAPI semantics possible



Reasonable hardware requirements?

Yes: 1 GB RAM, 50 GB disk space



Good performance?

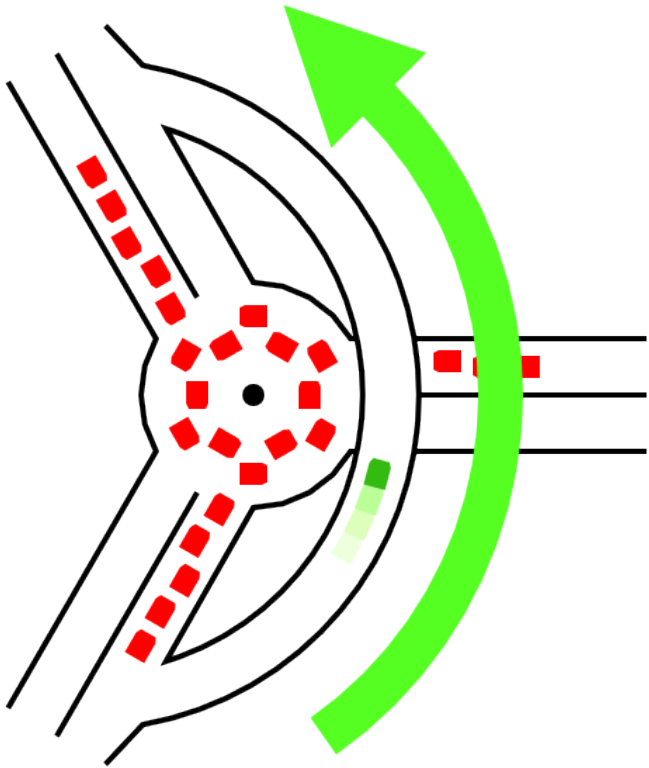
Yes: several times faster than XAPI for bounding box



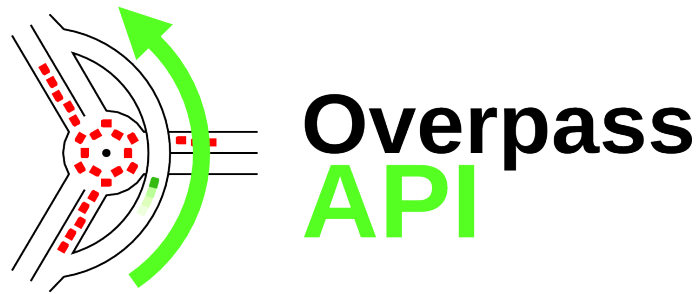
Easy installation?

Yes: configure – make – make install

Thank you for listening.



Overpass
API



http://www.overpass-api.de/query_form.html

`wget --post-file="foo" http://www.overpass-api.de/api/interpreter`

<http://wiki.openstreetmap.org/wiki/OSM3S>