THIS IS NOT A PRESENTATION

IT IS AN INVITATION

The OneMap Project

- Background
- Objectives
- Project Profile
- Distributed Geodata Management
- Current Status
- Remarks

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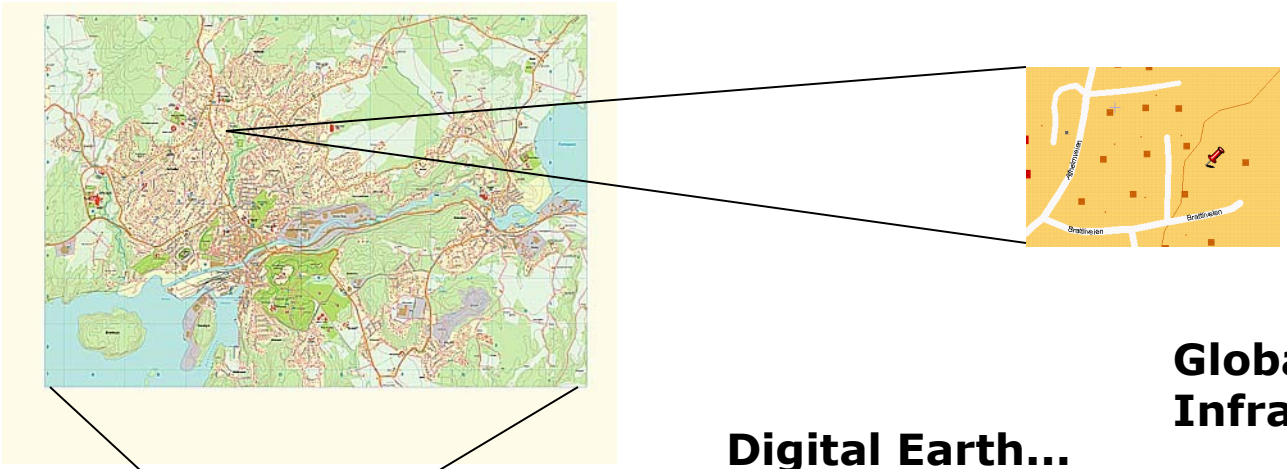
Global Online Maps



Global Spatial Data Infrastructure…

Digital Earth…

WMS/WFS…

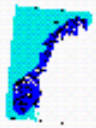
GPS…

OGC…

Location based services…

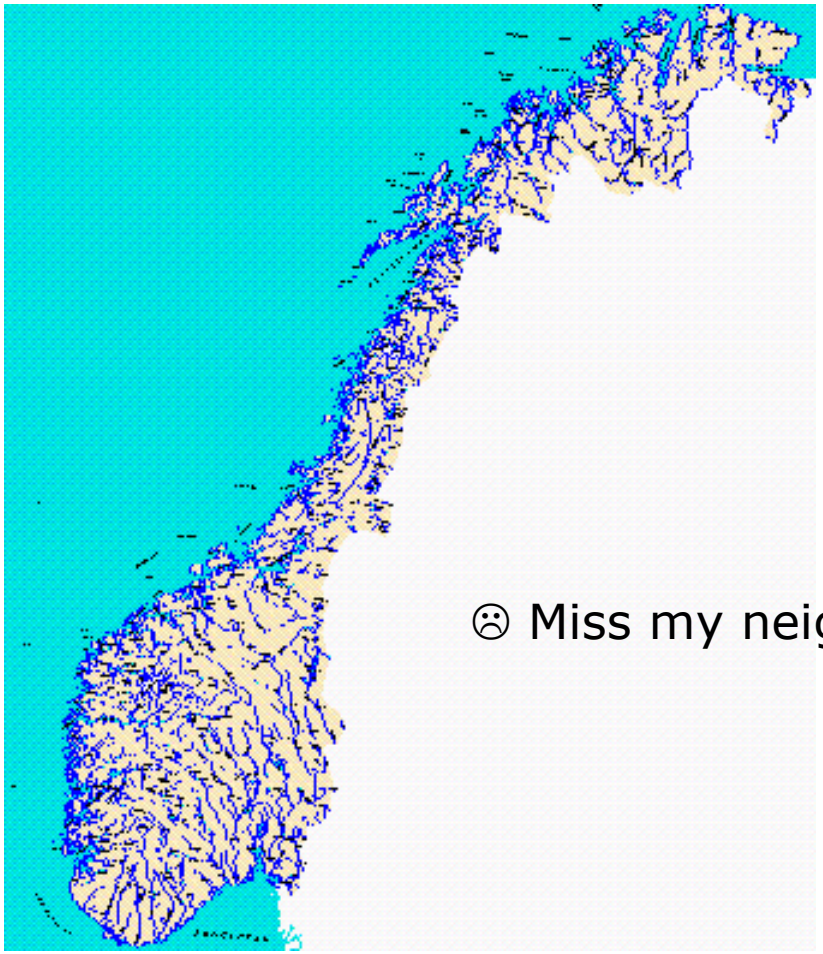
NorgesGlasset – Global

☹ A small world...



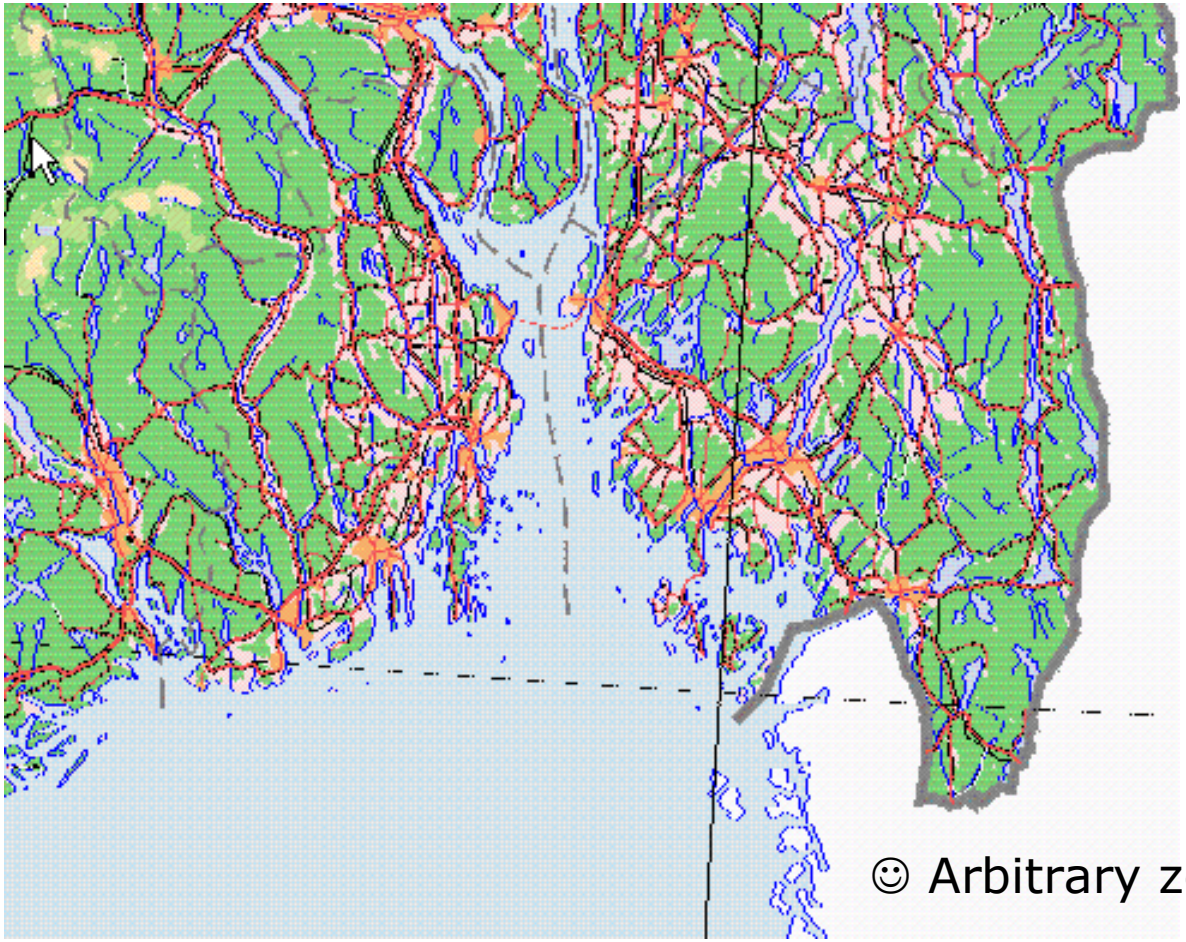
☹ Have to use a screen grabber...no download available, even ”save picture as” is not an option...

NorgesGlasset - National



☹ Miss my neighbours...

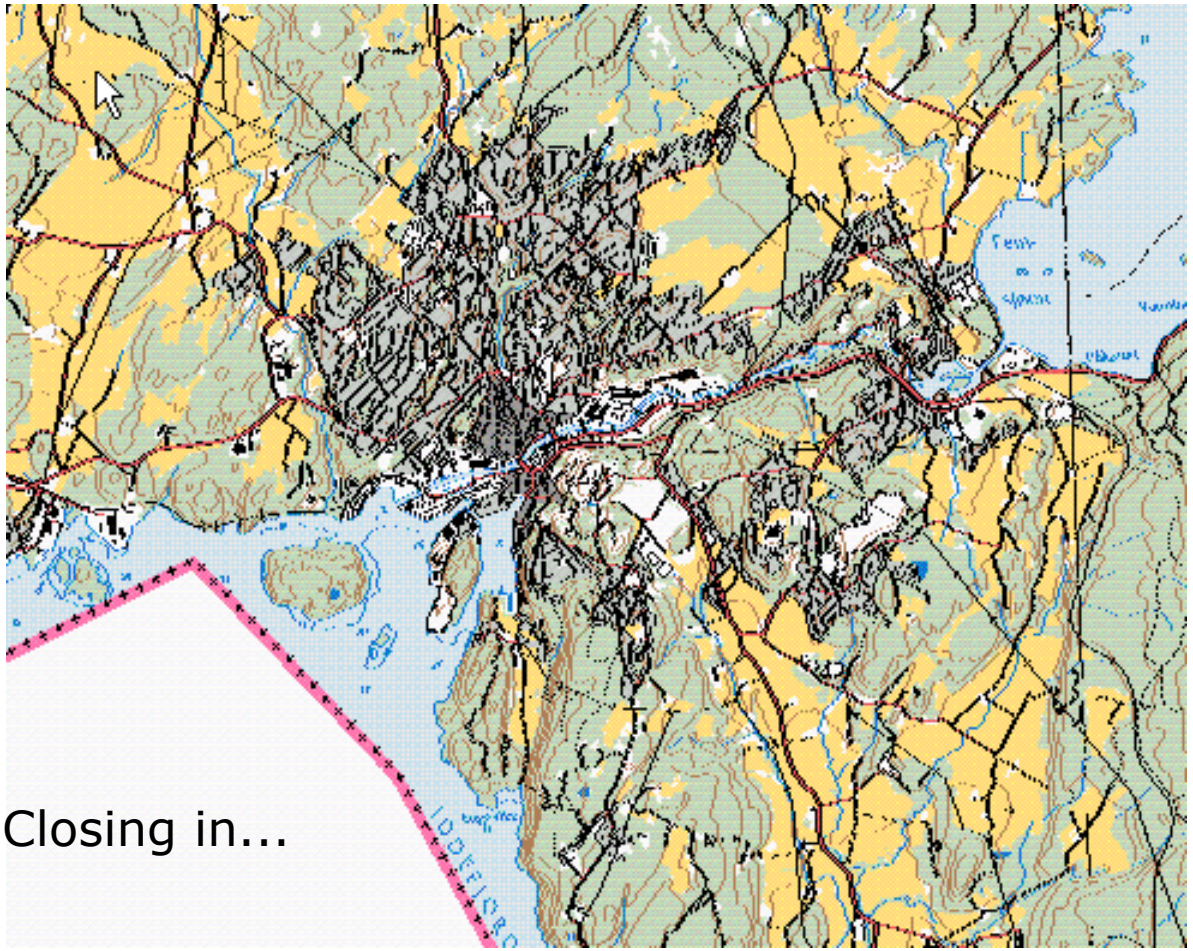
NorgesGlasset - Regional



☹ Looks as scanned good old paper maps...

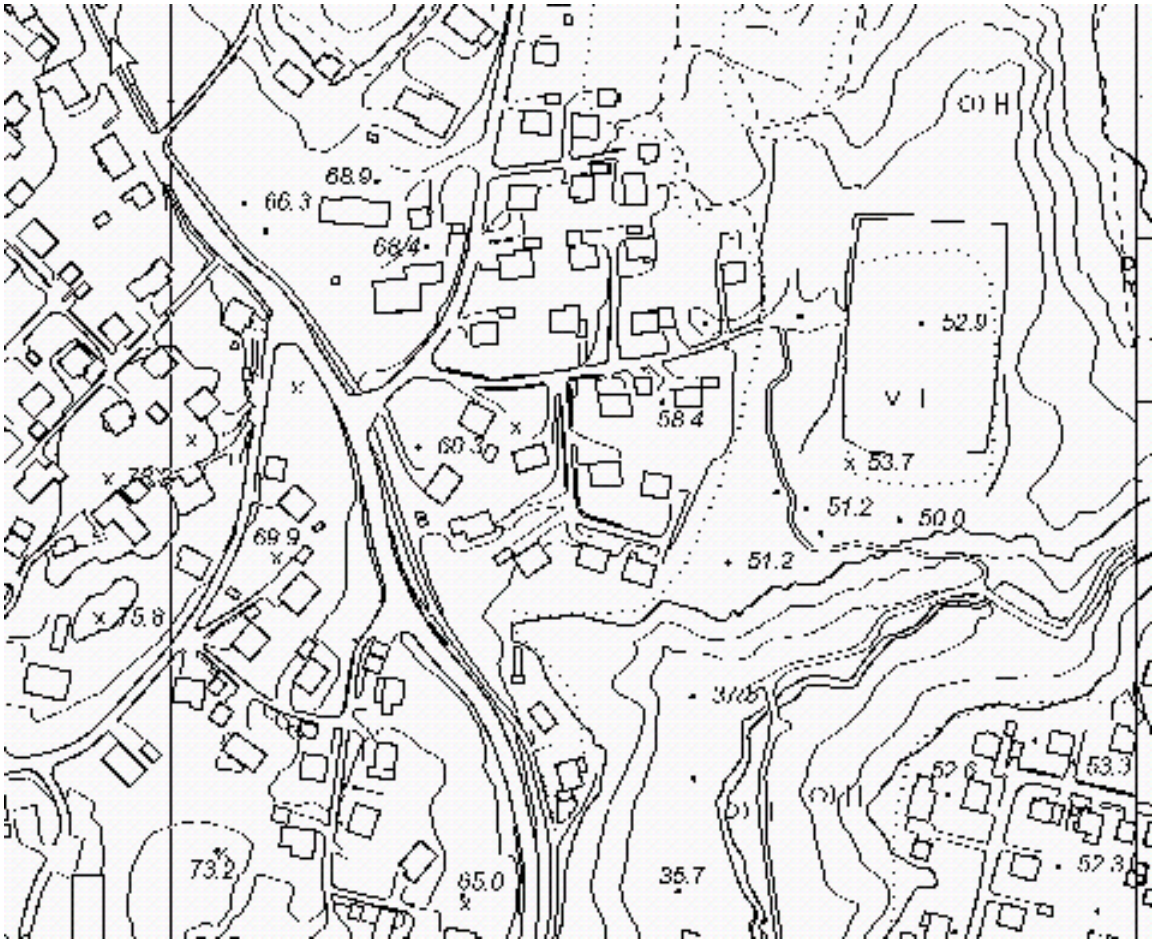
☺ Arbitrary zooming...and fast

NorgesGlasset - Town



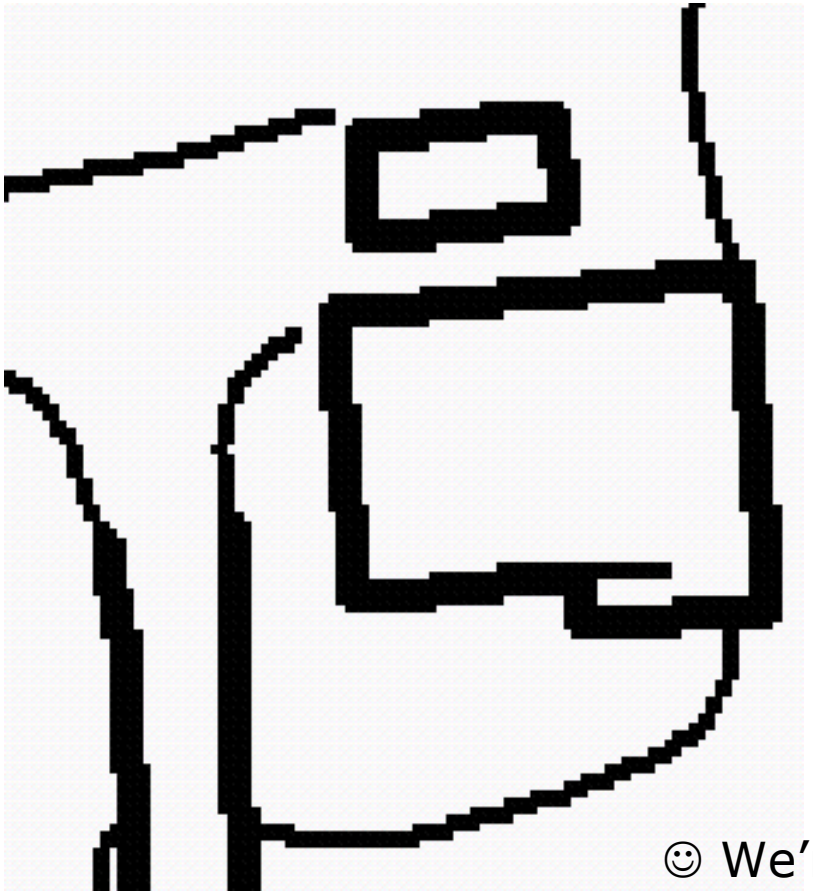
☺ Closing in...

NorgesGlasset - Neighbourhood



☺ Can see the forest track I'm usin when walking to the office

NorgesGlasset - House



☹ Definitly scanned paper map

☺ We’re ready to knock on my door...

MapQuest – Global

☹ Where's the rest of the world?

MapQuest – National

☹ Only fixed set of detail levels

☺ ...but it's fast...and they serve tens of millons of map requests per day!

MapQuest - Regional

☺ Lots of detail

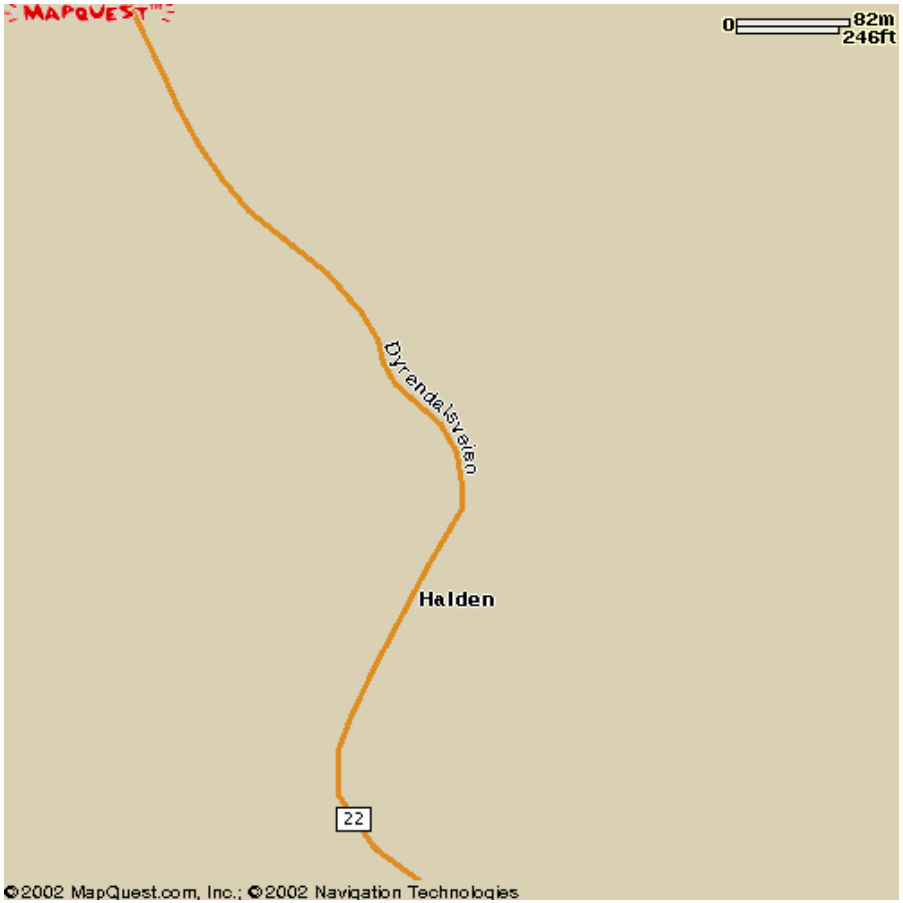
MapQuest - Town

☺ We can see Sweden

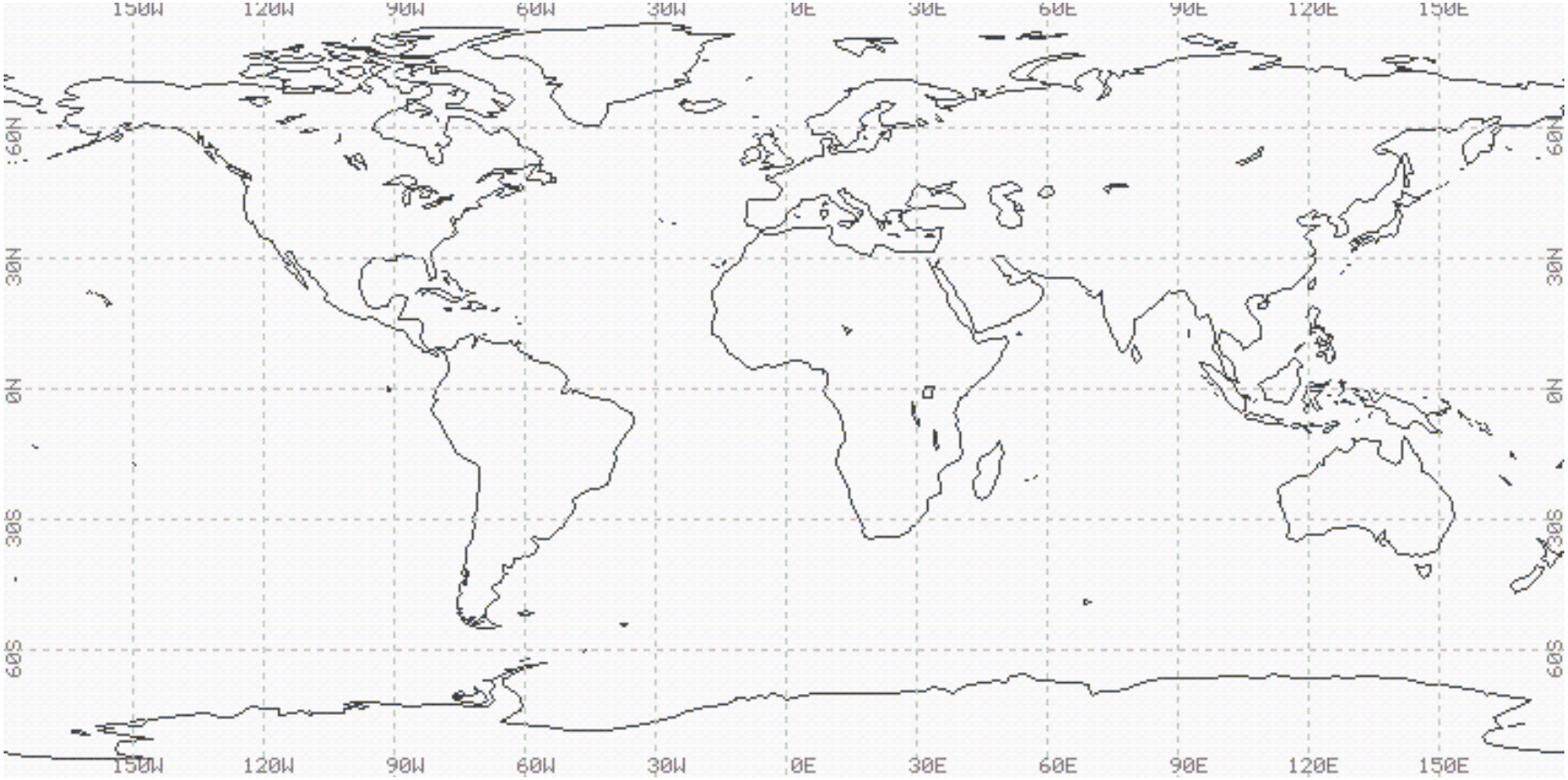
☺ Even got the right names on the roads, withNorwegian letters...

MapQuest – Neighbourhood

☹ Got the main road at least...



Coastline Extractor – Global



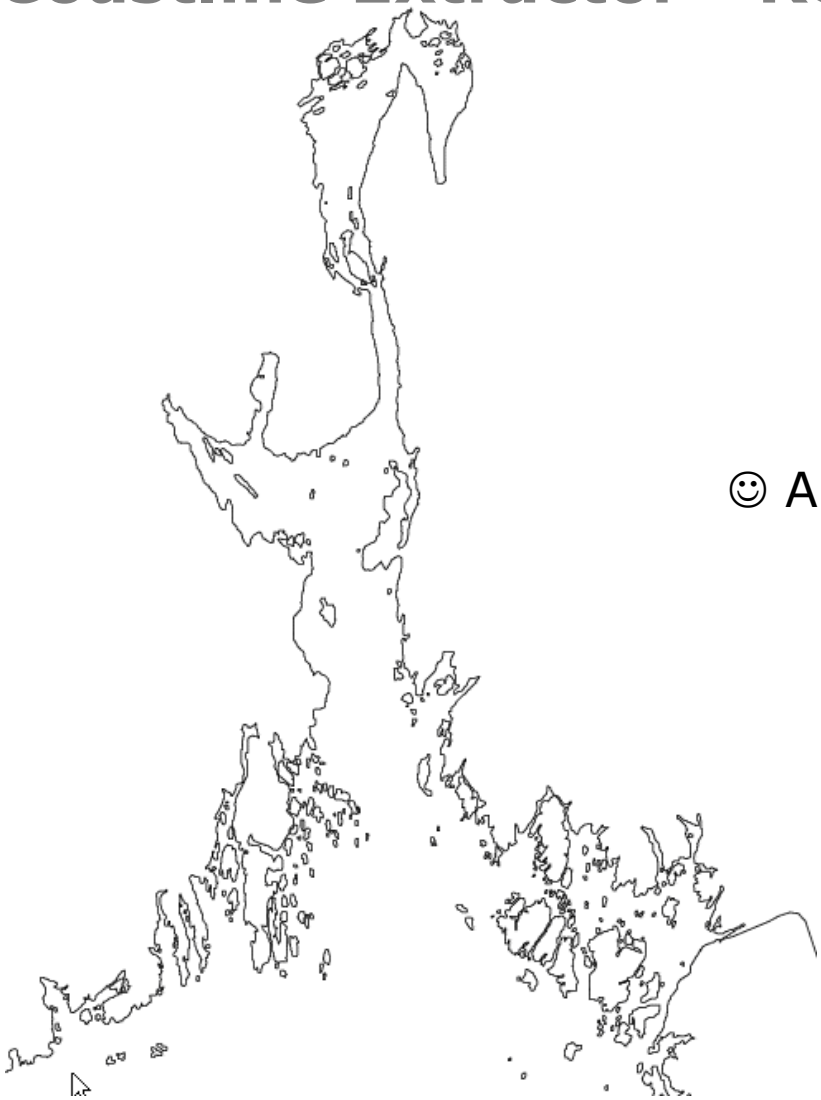
☺ Here we have ”real” geodata...

Coastline Extractor - National

☹ But no topology,
and obvious inconsistencies

☹ Only 3 (4) levels of detail

Coastline Extractor - Regional

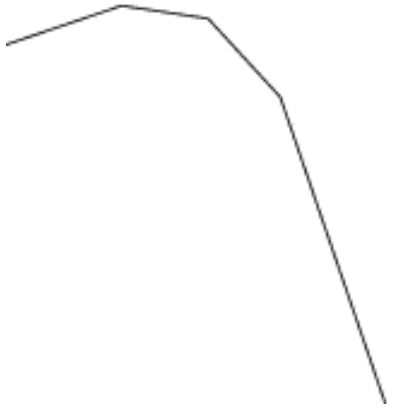


☺ Arbitrary zooming

☺ Fast server

Coastline Extractor– Town

☹ Not much to see
in Halden, today...



Existing Online Global Map Servers

- Huge number of web map sites
- Mostly with limited geographical and thematic scope
- Very rarely ”real” geodata
  - ...and most of these servers are
    - commercial, and/or requires use of
    - expencive software
- Most often picture maps
- Little metadata information
- Difficult to find the right server

Future(?) Online Global Map Servers

- Easy online access to maps and geodata
- Easy zooming and navigation, both geographically and thematically
- A rich set of featuretypes, and good coverage down to house level (or better) precision
- Free usage of dowloaded data
- Geodata on a few standard formats
- Free software for presentation and analysis
- Sufficient metadata supply

The Web Feature Server Approach

- Very promising
- One obvious limitation: Integration of heterogenous sources:
  - Talking the same language don’t nescessarily mean that we understand each other!
  - Geometric inconsistencies:
    - Overlapping data
    - Gaps
    - Broken topology
  - Thematic inconsistencies (different Information Communities)
    - Halden Nuclear Reactor: ”powerplant” or ”environmental hazard”?
- Need for Clearinghouse functions!

OneMap Gateway Alpha

Single Server

Dispathcer +
Distributed Storage Nodes

Dispatcher +
Distributed Assisted Storage Nodes

The OneMap Project: Profile

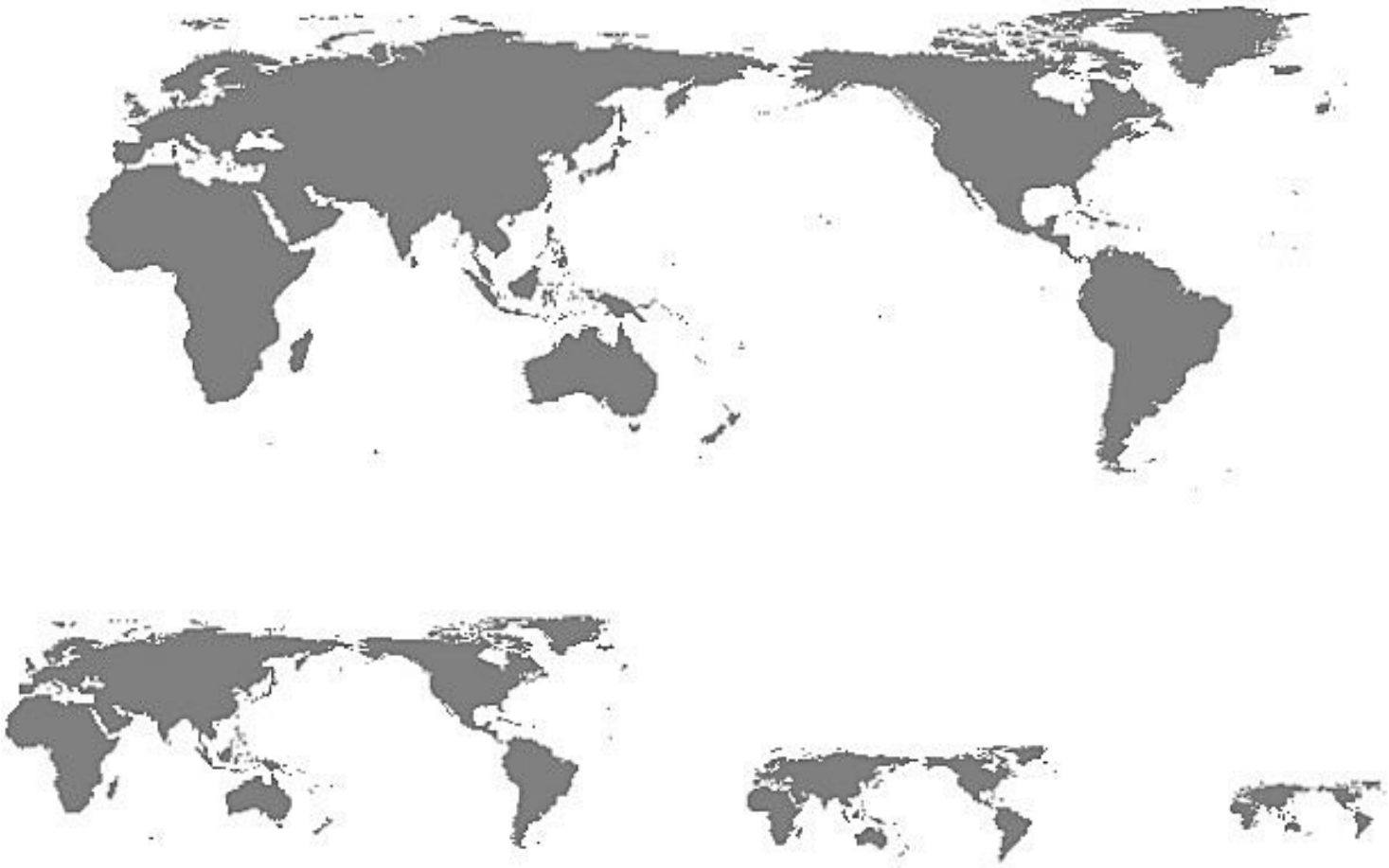
- Open/free source
- Open/free content
- Open managment
- Open standards/formats

Objectives

- Provide public access to free-of-charge geodata with global, consistent coverage of high detail by
  - Building a large, global map, rich with feature types and detail
  - Implementing a scalable, redundant and distributed architecture, both for storage and processing
  - Compiling the map incrementally and uncoordinated by many submissions
  - Combining efforts from several contributing parties
- Offer a testbed and focalpoint for further development of methods and tools needed for reaching the primary goal
- Offer an environment for education and training in the construction, maintainance, management and use of the GeoWeb
- Have fun ☺

...piece of cake, eh?

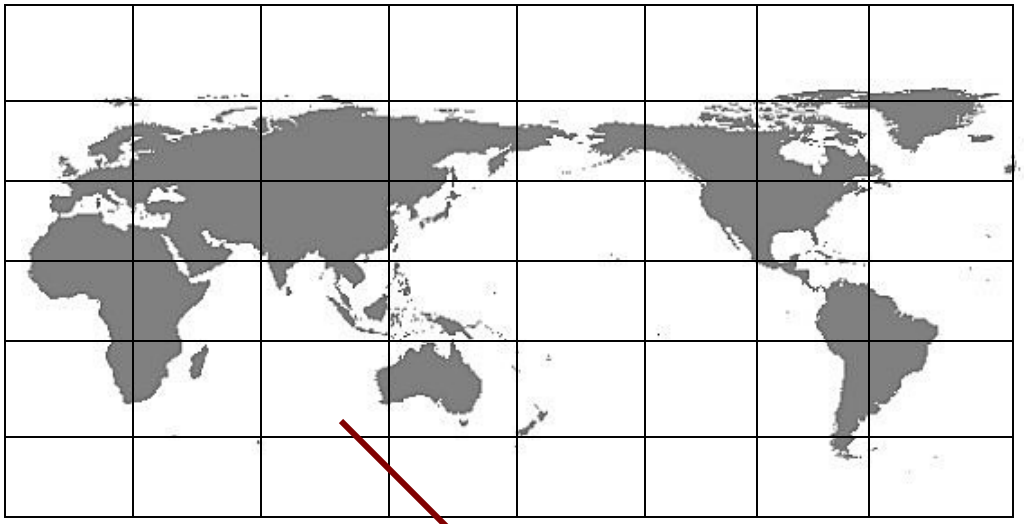
Extreme Generalization I



Extreme Generalization II

Computers have finite precision

Displays have finite precision



Naive method?

Yes, but:

It's fast

It is local

Invariant with respect to certain parameters

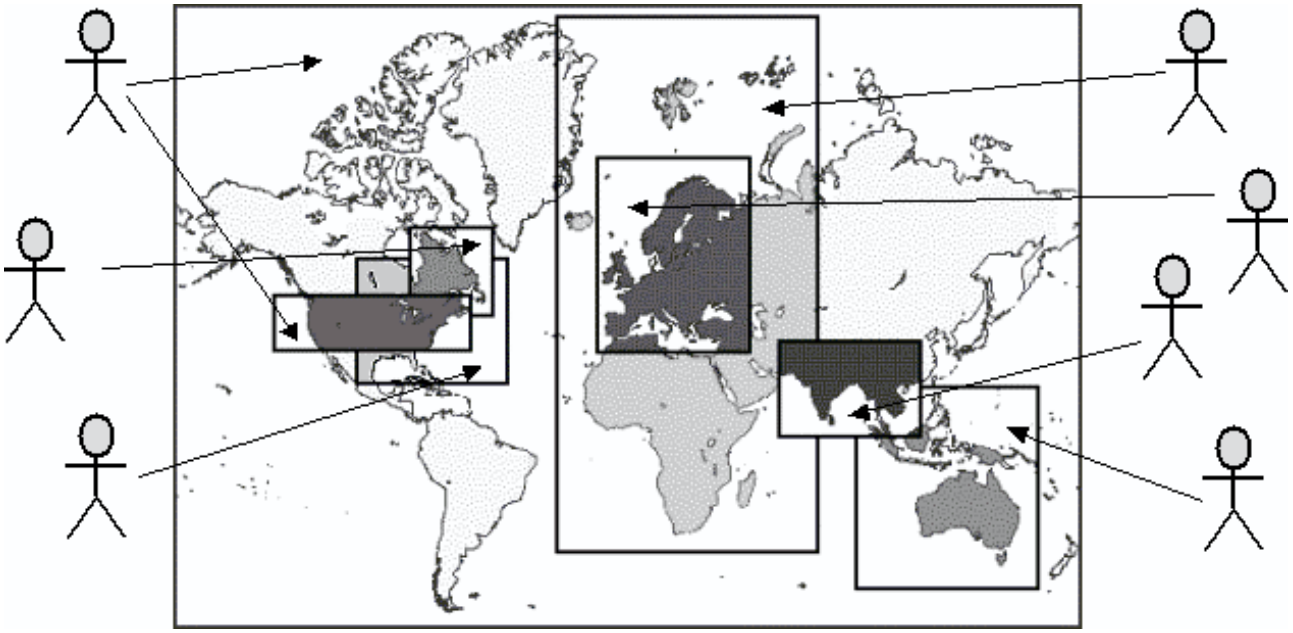
Automatic feature selection

Preservation of topology (in a specific sense)

5 Best Levels in OneMap (so far)

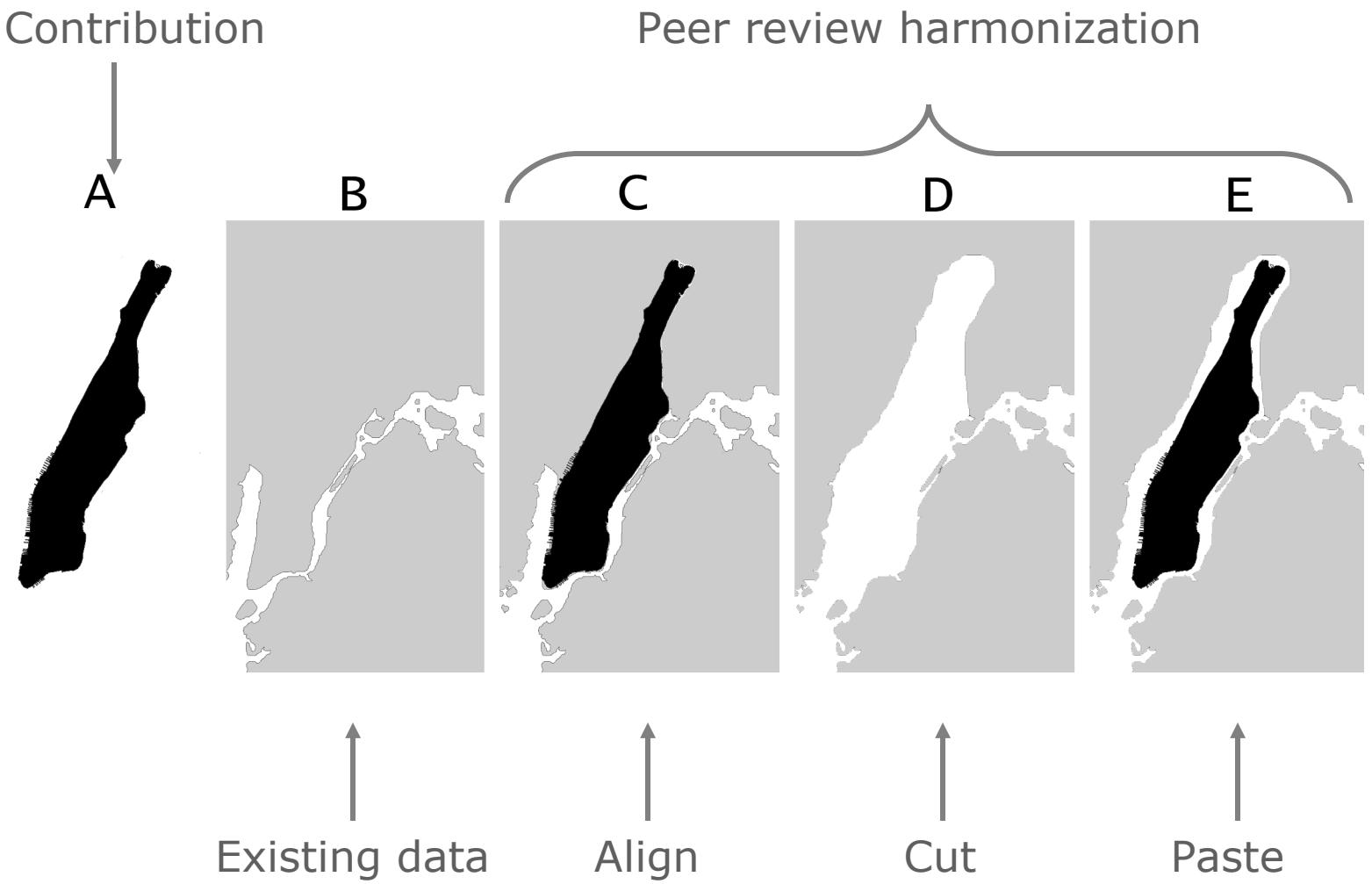
Incremental Map Construction - I

Submissions will be harmonized and accepted/rejected in peer review processes.

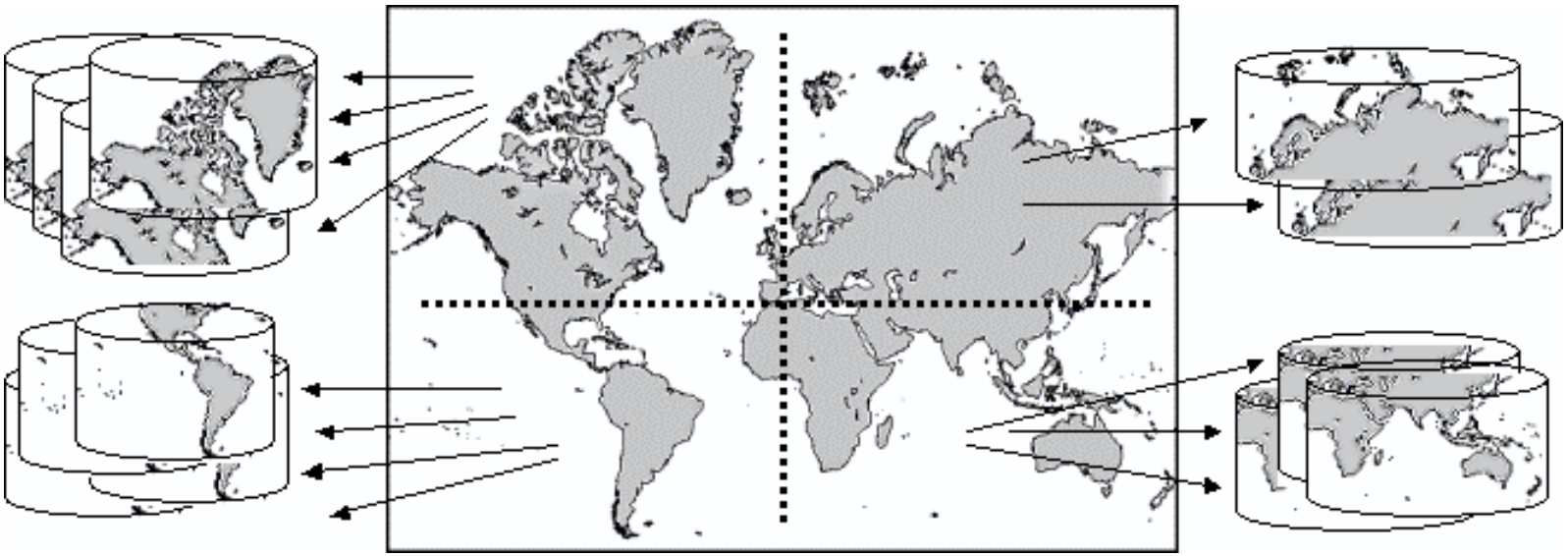


The Feature Catalog will be dynamically constructed and maintained...also by peer review processes.

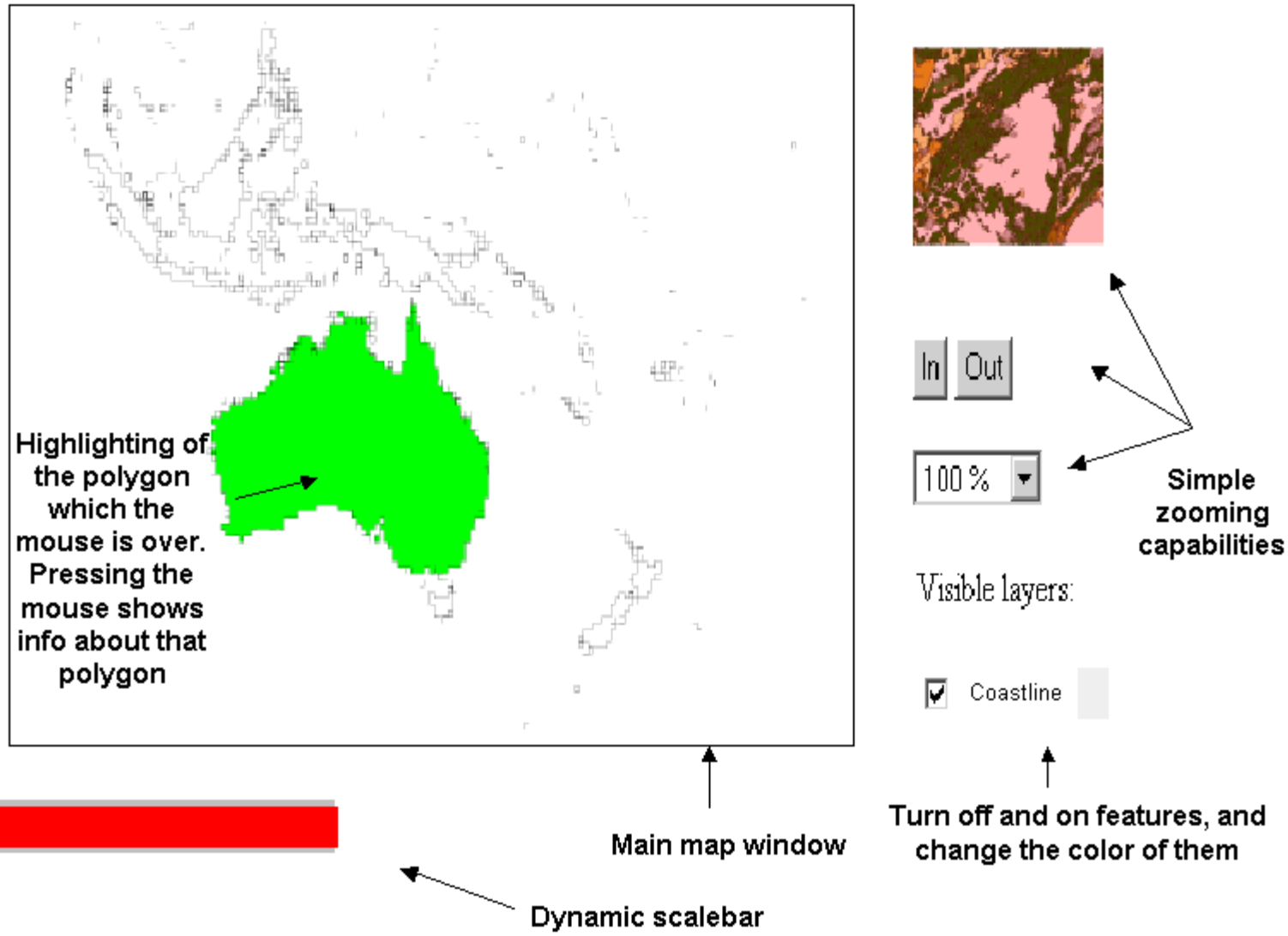
Incremental Map Construction - II



Redundant Storage and Processing

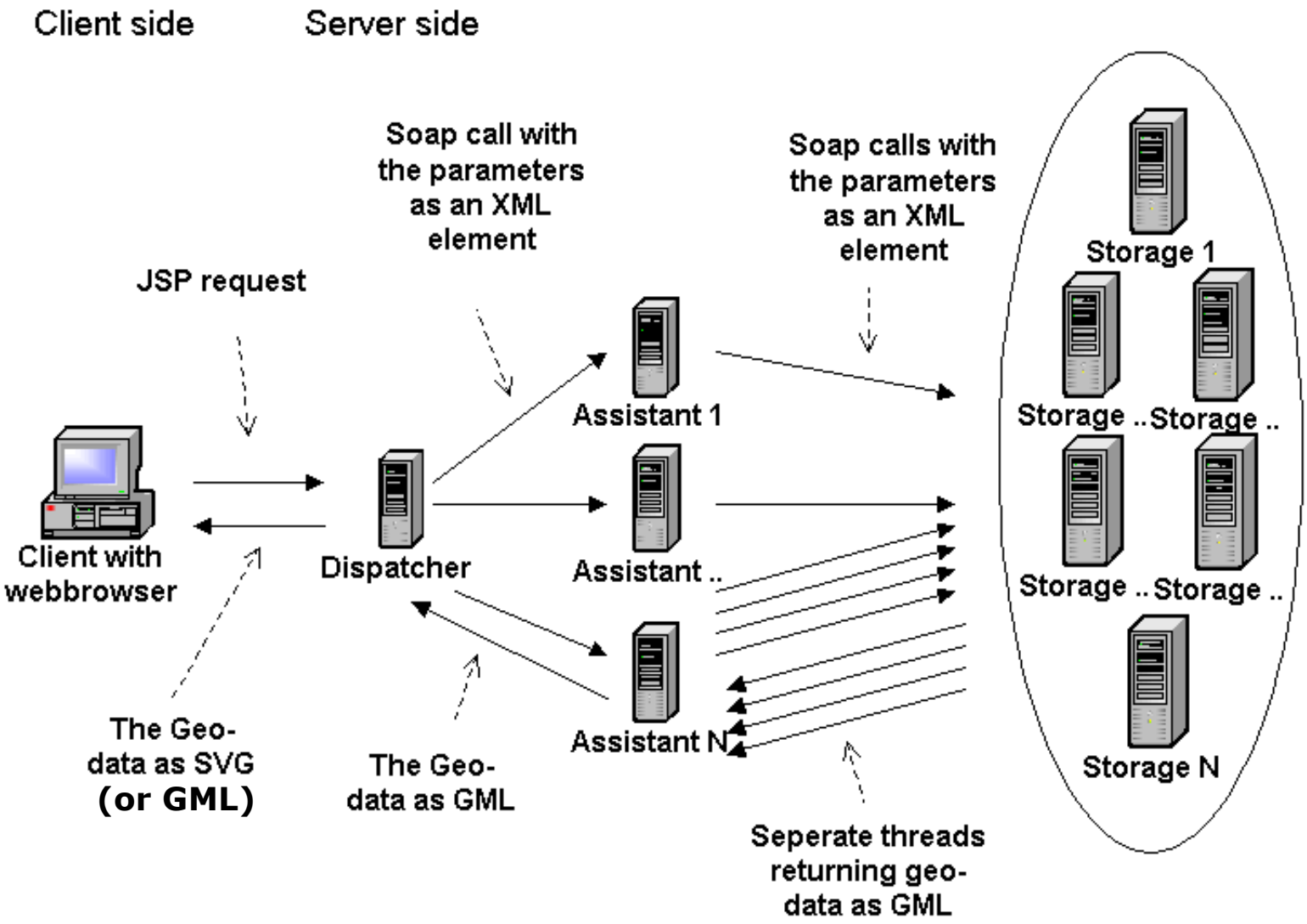


GateWay


Highlighting of the polygon which the mouse is over. Pressing the mouse shows info about that polygon
In
Out
100 %
Simple zooming capabilities
Visible layers:
Coastline
Turn off and on features, and change the color of them
Main map window
Dynamic scalebar

Repository

Repository


Client side
Server side
Soap call with the parameters as an XML element
Soap calls with the parameters as an XML element
JSP request
Storage 1
Storage ..
Storage ..
Assistant 1
Client with webbrowser
Dispatcher
Assistant ..
Storage ..
Storage ..
The Geo-data as SVG (or GML)
The Geo-data as GML
Assistant N
Storage N
Seperate threads returning geo-data as GML

Remarks

- Adopting XML and related technologies has been significantly speeding up the OneMap development process.
  - We use the same tools and patterns for a multitude of different purposes, from data parsing and conversion to user interfaces. It also makes it easier to reuse software, both home made and public domain.
- The XML performance issue must be dealt with seriously, through the whole process from design to runtime environments.
  - The OneMap distributed storage strategy is one way to deal with the volume problem. By releasing the parallel potential in the distributed retrieval and processing we also are able to speed up processing.
- All tools used, from editors to server software are open source and/or free.
- Databases are not used.

DO YOU…

- Have some free geodata?
- Have some free, open software?
- Have some ideas?
- Have some students in need of interesting topics for their projects and thesises?
- Have a spare server or two?
- Want to have some fun?

THEN: WE NEED YOU!

OneMap will be officially launched later this autumn.
Until then, please contact:

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