

Cartography from Code...?

Barend Köbben

ITC – Universiteit Twente

b.j.kobben@utwente.nl – @barendkobben

Cartography from Code...?

or

*“how I learned to stop
worrying and love coding in
cartography”*

Barend Köbben

ITC – Universiteit Twente

b.j.kobben@utwente.nl – @barendkobben

A change in my world

My tools once were these:



A change in my world

...but now look like this:

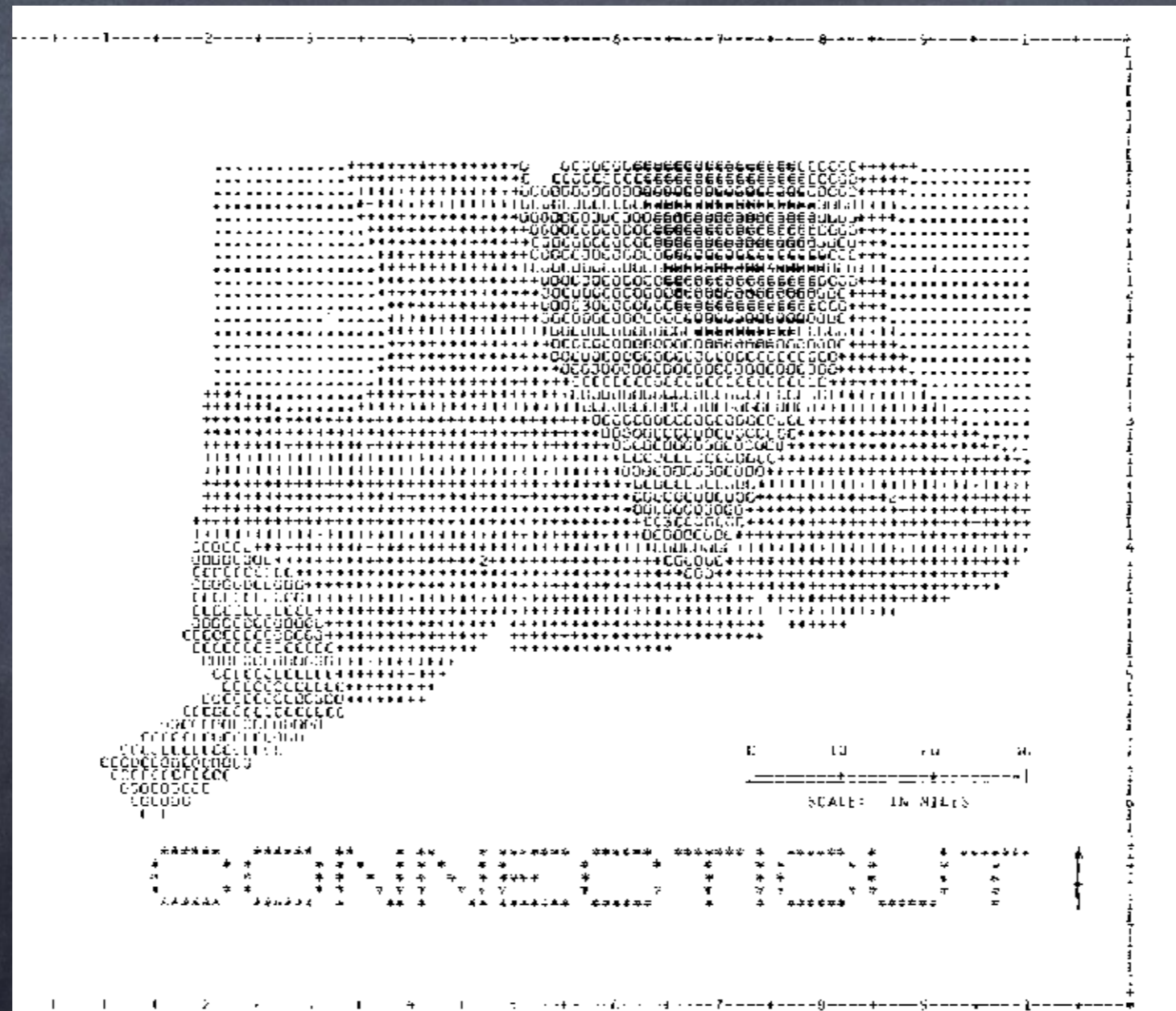
The image shows a web browser window displaying a D3.js visualization of a timeline. The browser's address bar shows the URL `localhost/D3tests/tracksViewer/napoleon.html`. The code editor in the foreground shows the following JavaScript code:

```
54 d3.selectAll("#Timeline").append("chart");
55
56 // define variables
57 var margin = {top: 0, right: 0, bottom: 0, left: 0};
58 width = 510;
59 height = 330;
60
61
62 var centered;
63
64 // define projection parameters
65 var projection = d3.geo.mercator()
66   .center([28.88034, 54.260112])
67   .rotate([0,0])
68   .scale(39000);
69
70 // create svg canvas to draw map on
71 var svg = d3.select("#Map").append("svg")
72   .attr("width", width)
73   .attr("height", height)
74   .attr("border", 3)
75   .attr("class", "canvas");
76
77 // create path object
78 var path = d3.geo.path().projection(projection);
79
80 // create group object g
81 var g = svg.append("g");
82
83 // create div object to use for dynamic tooltip
84 var div = d3.select("body")
85   .append("div")
86   .attr("class", "tooltip")
87   .style("opacity", 0);
```

The visualization on the right side of the browser shows a timeline from October to December. The timeline is represented by a horizontal axis with vertical lines indicating specific dates. The dates shown are 1717.5, 20, 22.5, 24, 25, and 30. The timeline is divided into three segments: October, November, and December. The visualization is a D3.js chart showing a timeline with data points and a map projection.

A change in my world

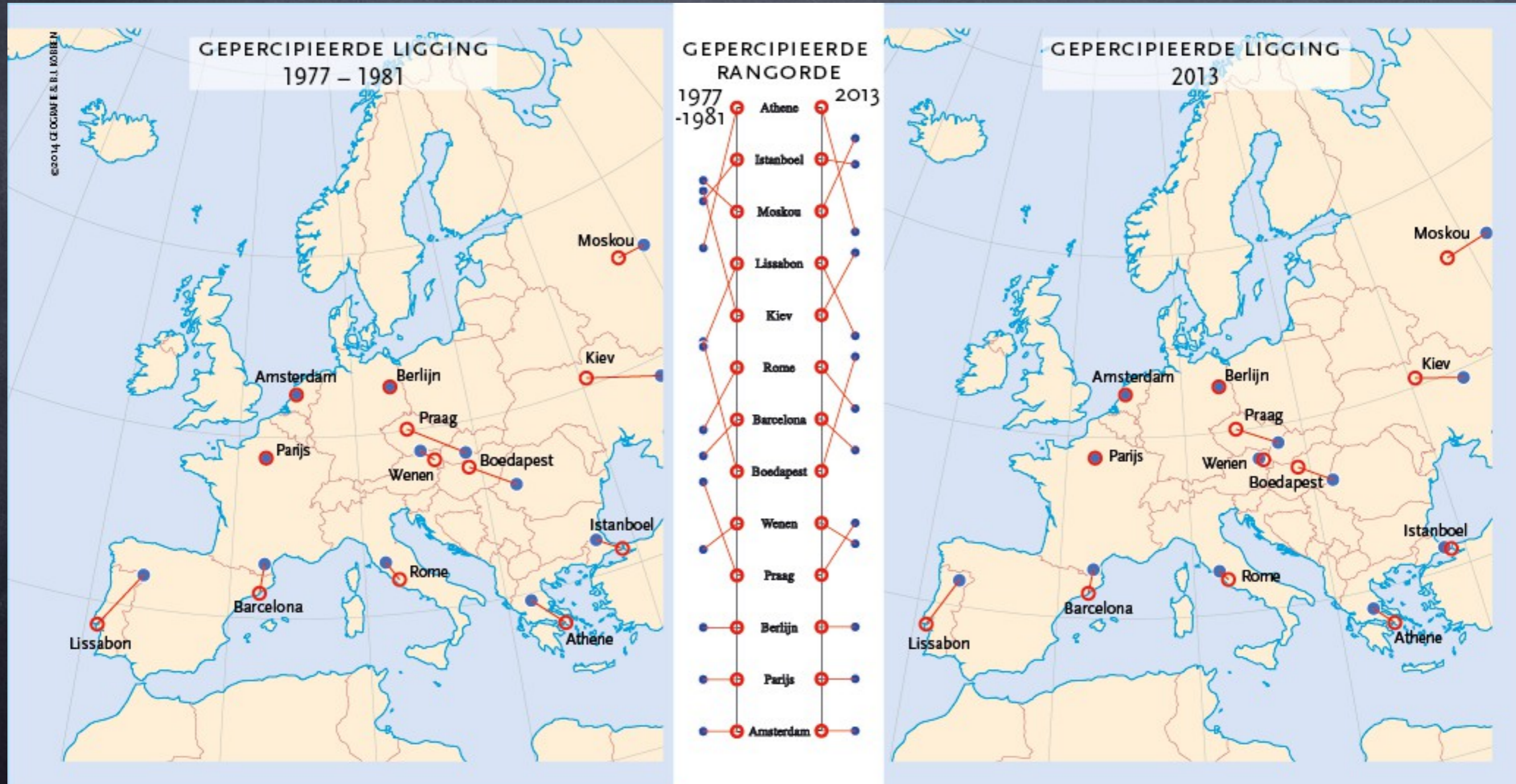
Computers gave me this at first:



SYMAP line printer output (1965, by Howard Fisher)

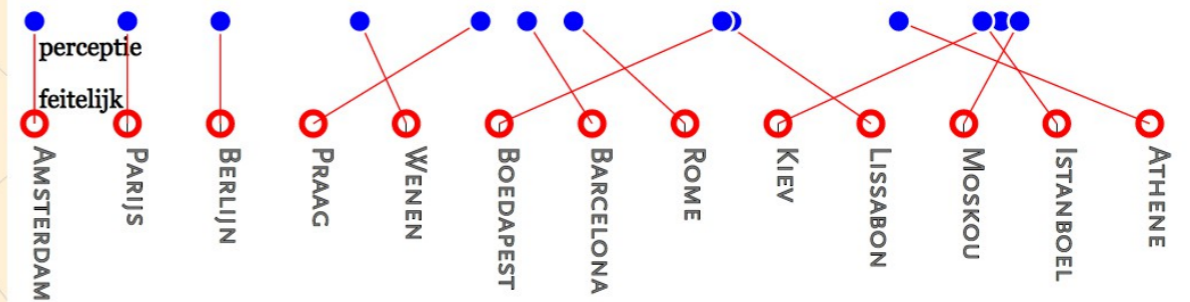
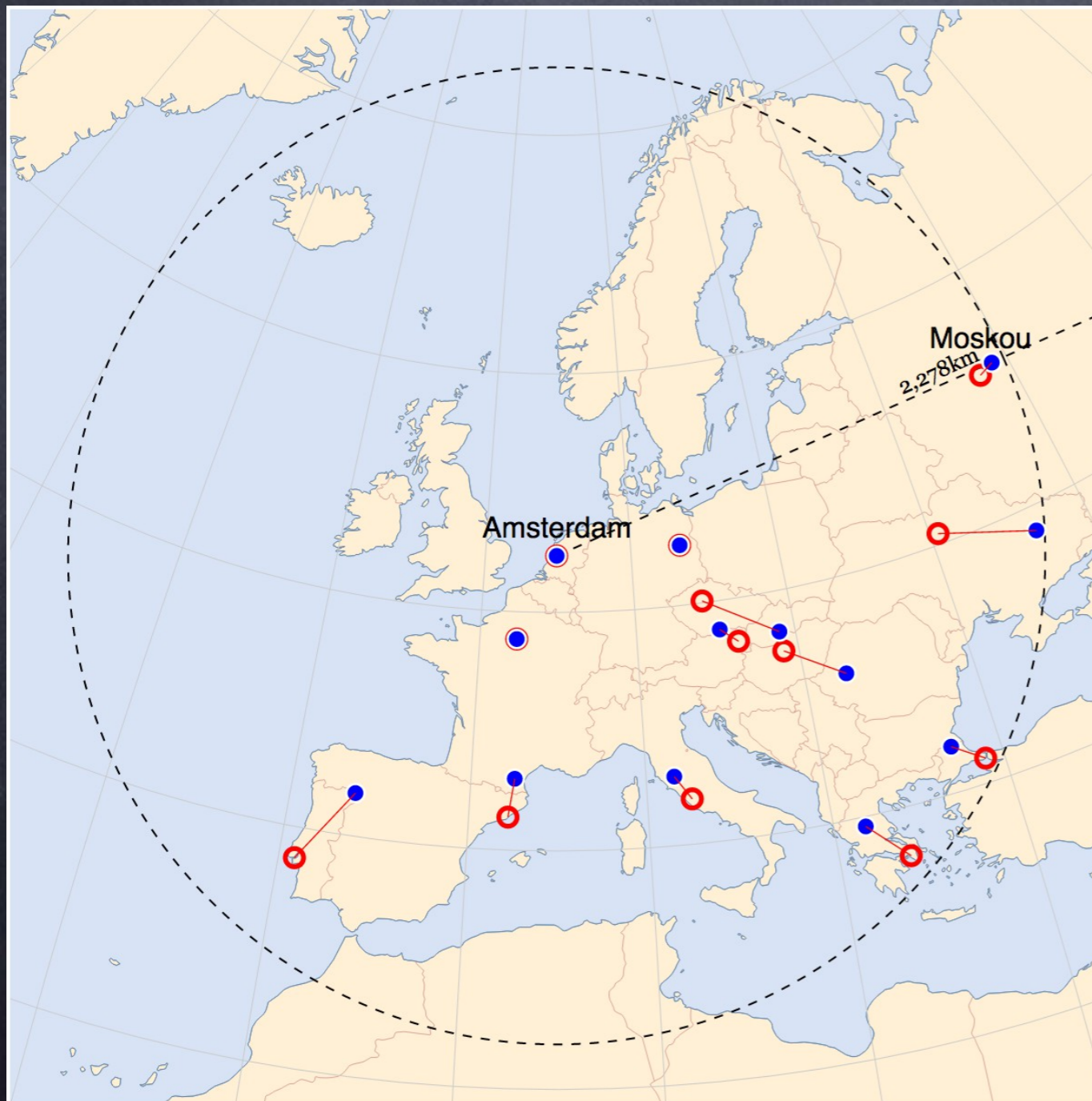
A change in my world

...but have been improving since:



A change in my world

...and now allow me to do really nifty things:



FACTUAL PERCEPTION 1977-1981 PERCEPTION 2013

Perceived distances 1977-1981 and 2013

Students situate Eastern-European cities too far and Southern-European to close.

Click the buttons to see the differences between factual locations (and order) and how they were perceived by Geography students...

Works in modern browsers supporting HTML5 (not IE Explorer 8 and lower)

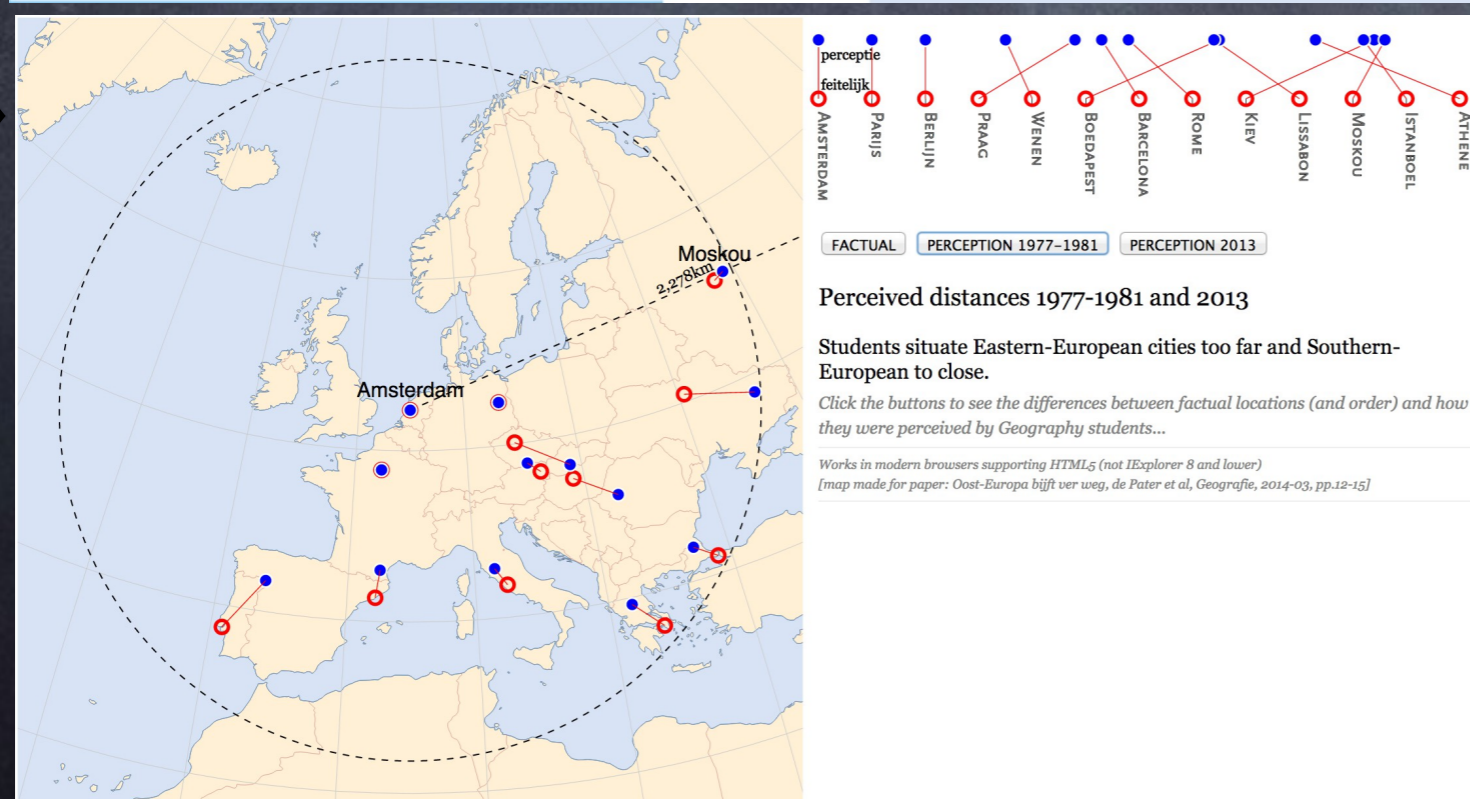
[map made for paper: Oost-Europa blijft ver weg, de Pater et al, Geografie, 2014-03, pp.12-15]

A change in my world

Both were constructed using software



this one was
digitally drawn



this one was
coded (programmed)

CARTOGRAPHY FROM CODE **possible...?**

CARTOGRAPHY FROM CODE ...or an oxymoron?



CARTOGRAPHY FROM CODE

Can coders be cartographers...

...or should
cartographers become coders?

TRENDS

Technology influences cartography

TRENDS

Technology influences cartography

but

Cartography \neq Technology

TRENDS

Technology influences cartography
(or at least its tools)

Cartography \neq Technology

TRENDS

Technology influences cartography
(or at least its tools)

Cartography \neq Technology

publishing maps:

manuscript \rightarrow print \rightarrow digital \rightarrow web

TRENDS

Technology influences cartography
(or at least its tools)

Cartography \neq Technology

drawing maps:

hand drawing \rightarrow digital drawing

\rightarrow digital construction (coding)

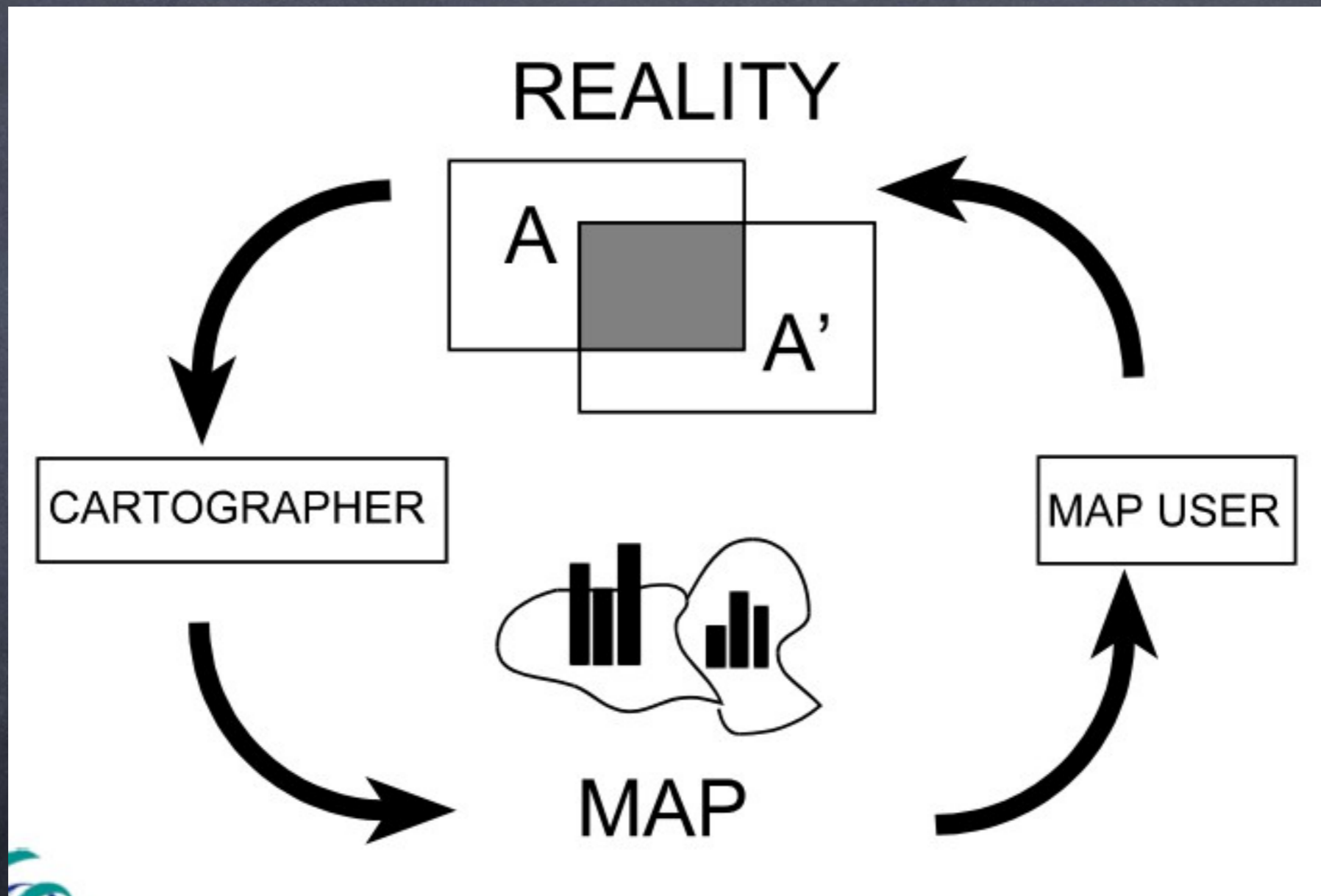
TRENDS

Technology influences cartography
(or at least its tools)

Cartography \neq Technology

Cartography = visualising spatial data
with a certain INTENT

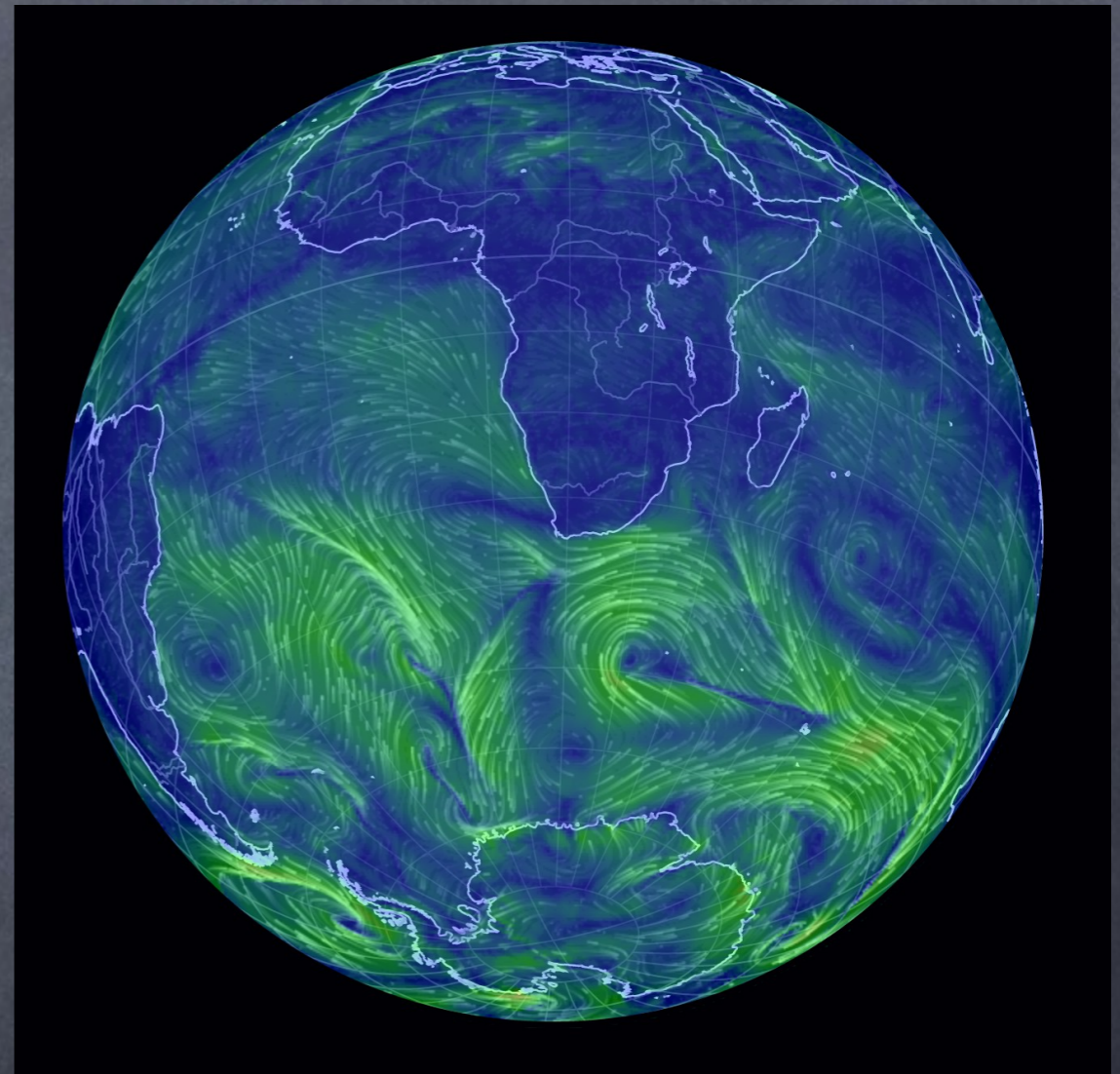
Cartography = Communication



The right tool for the job



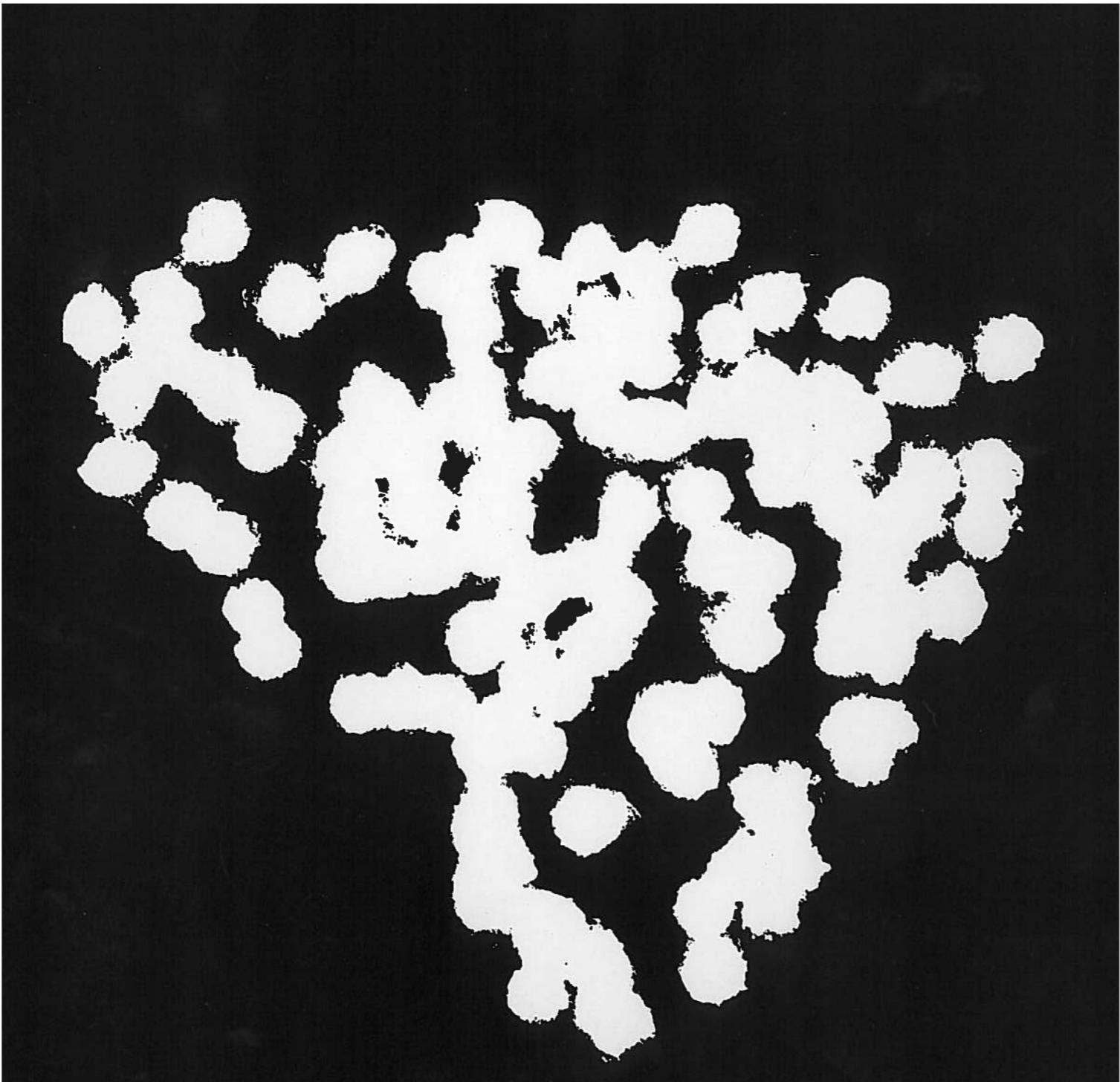
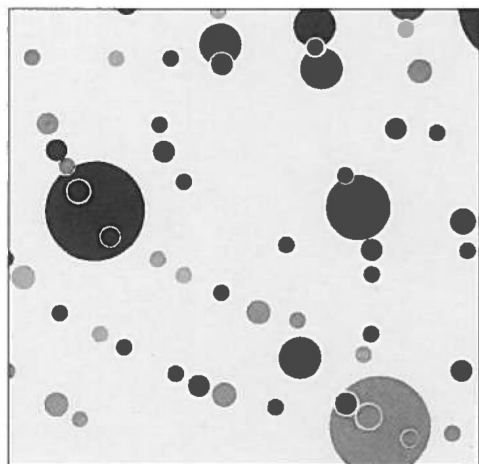
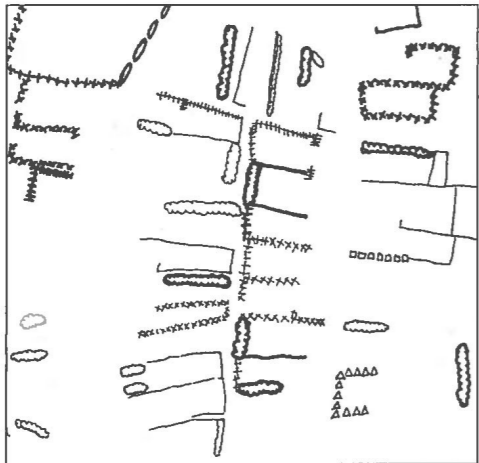
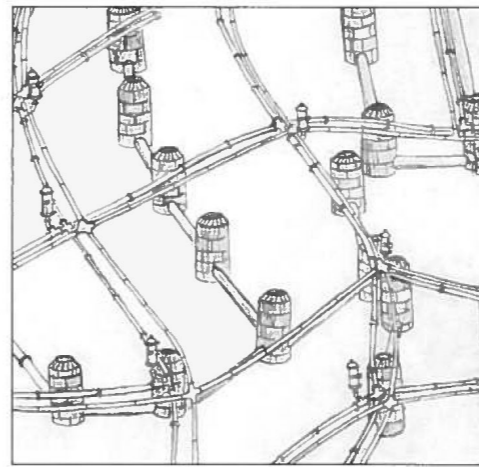
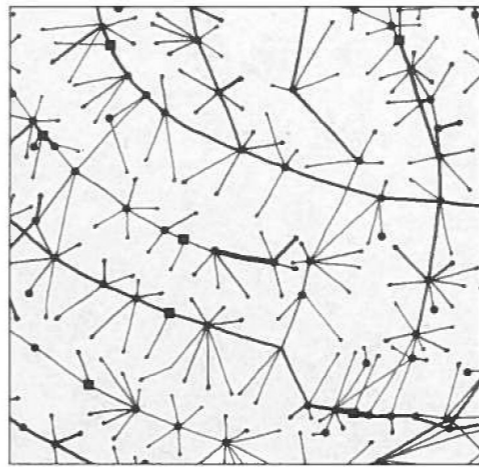
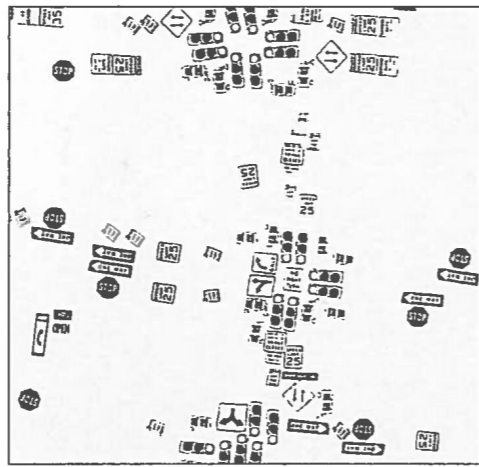
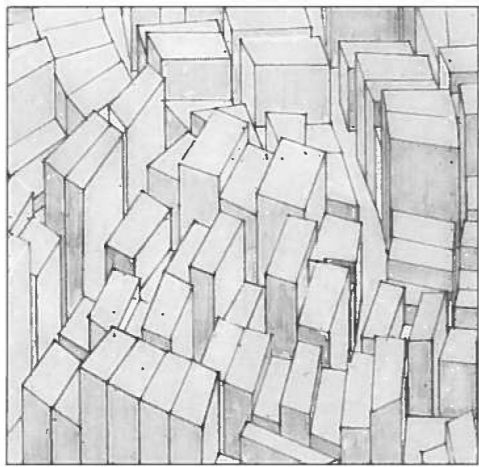
sketched manuscript



coded website

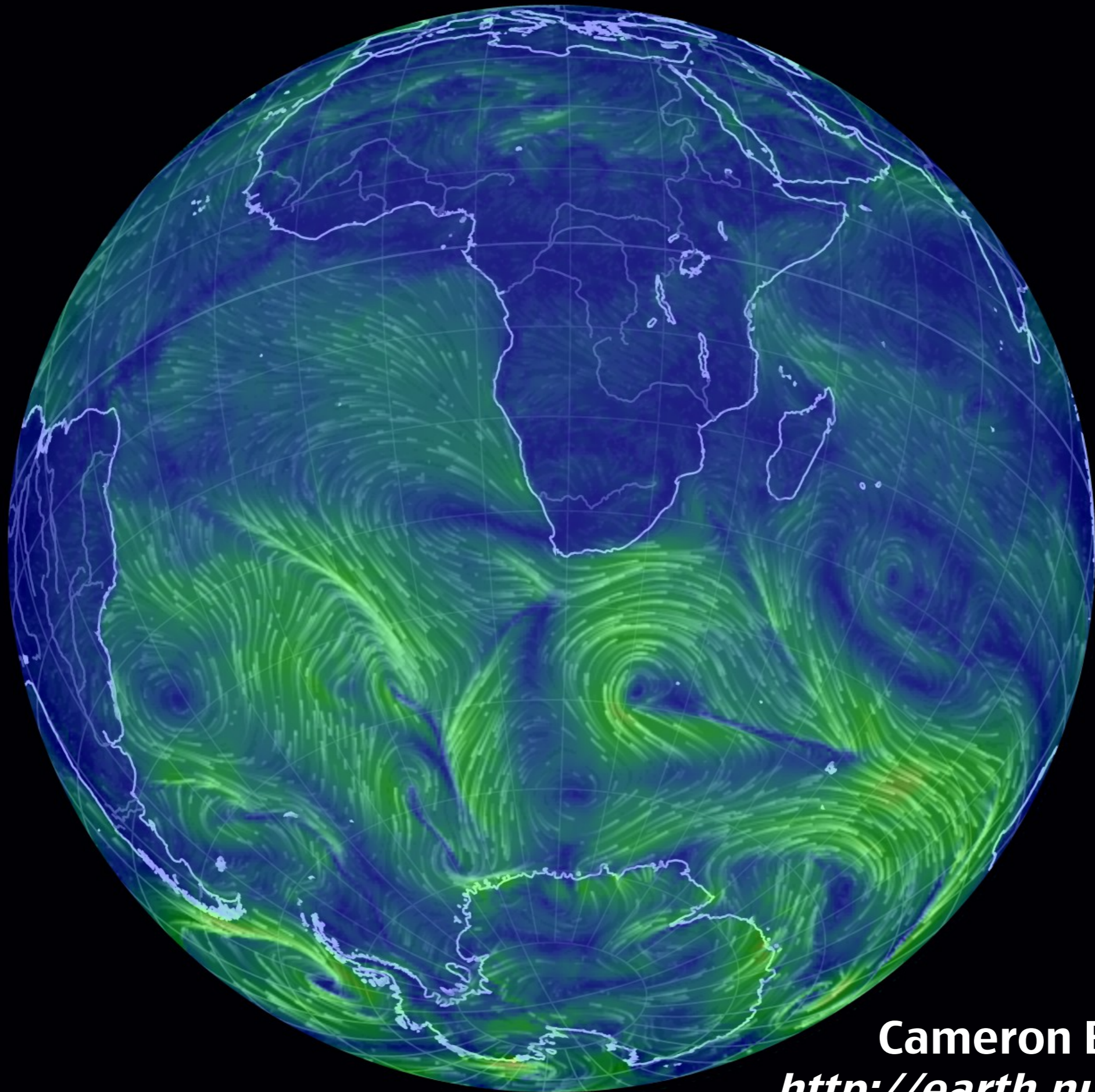






"Everything Sings"
a narrative Atlas

Dennis Wood



Cameron Beccario
<http://earth.nullschool.net/>

So....

Can coders be cartographers ...?

So....

Can coders be cartographers ...?

Sure, just as engravers could be cartographers

So....

Can coders be cartographers ...?

Sure, just as engravers could be cartographers

Cartography is a state of mind

So....

Can coders be cartographers ...

...or should
cartographers become coders?

So....

Can coders be cartographers ...

...or should
cartographers become coders?

Sure, just as they could become *engravers*

It's just another tool!

A new role for the cartographer

providing

tools that implement cartographic intent

A new role for the cartographer

providing
(cartographic knowledge for)
tools that implement cartographic intent

A new role for the cartographer

providing
(cartographic knowledge for)
tools that implement cartographic intent:

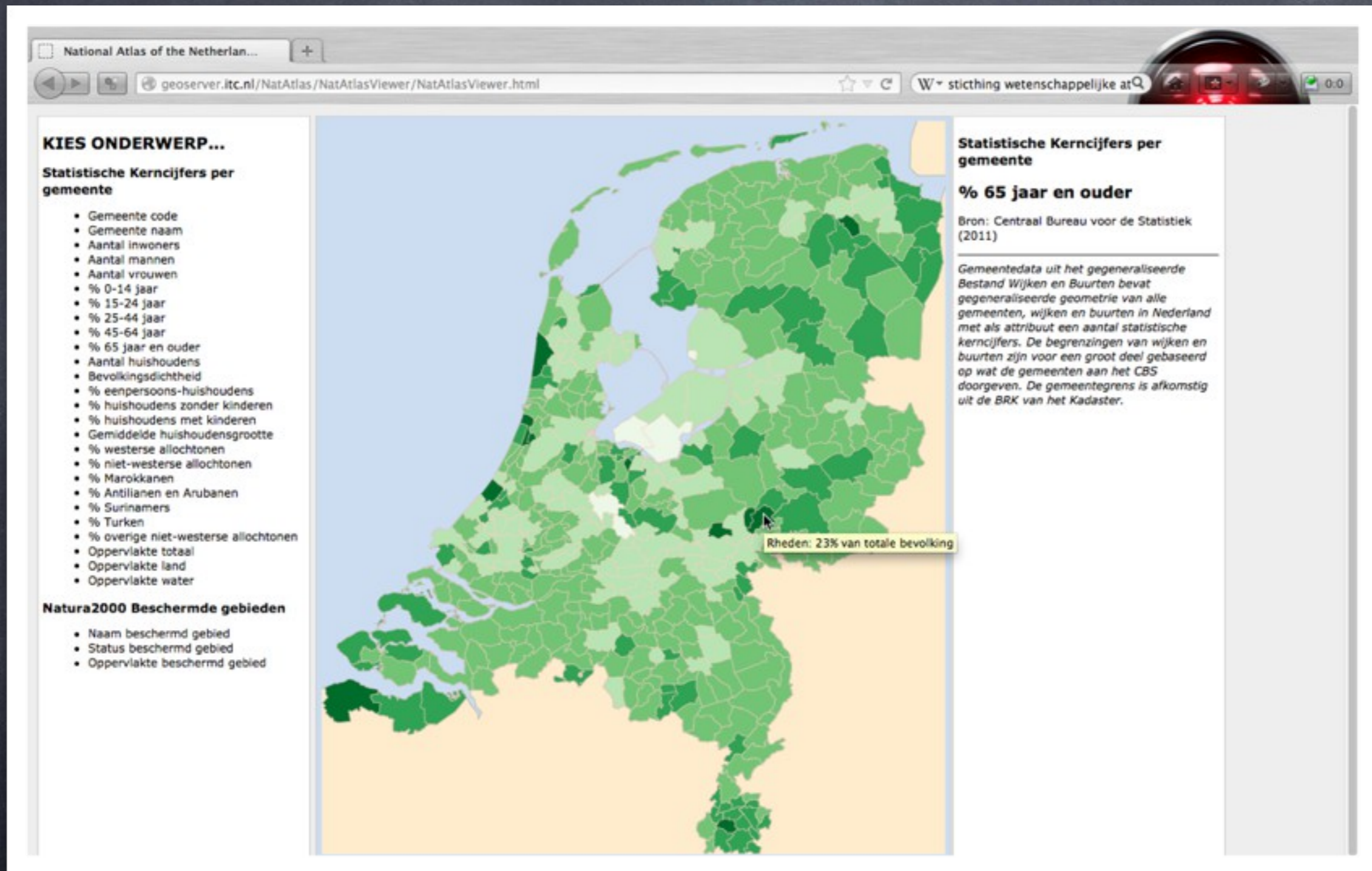
*“code that thinks like a
cartographer”*

A new role for the cartographer

providing
(cartographic knowledge for)
tools that implement cartographic intent:

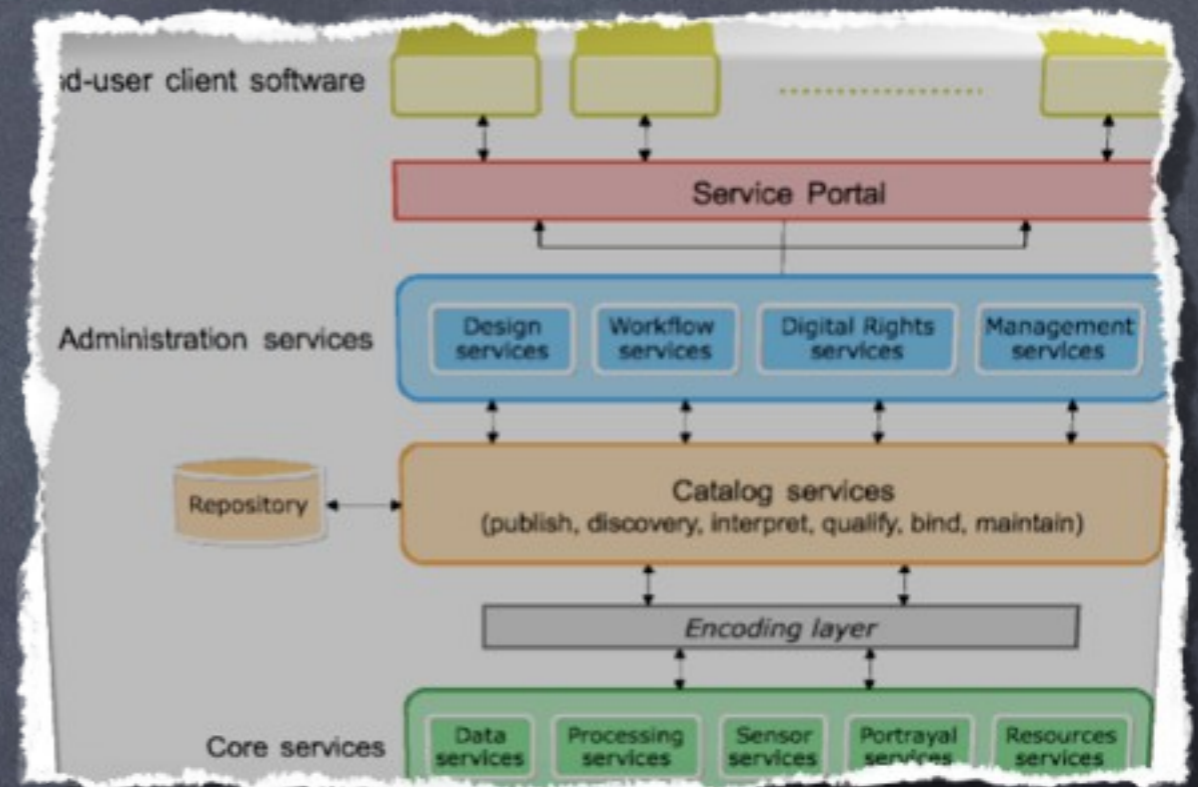
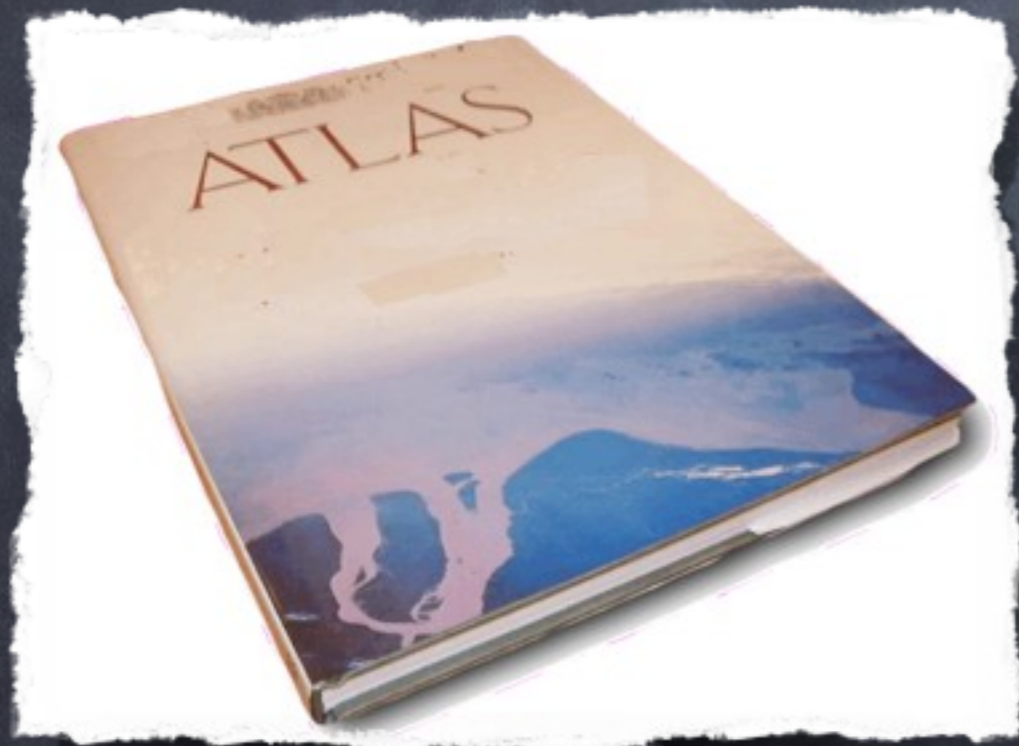
“code that thinks like an atlas”

The Dutch National Atlas



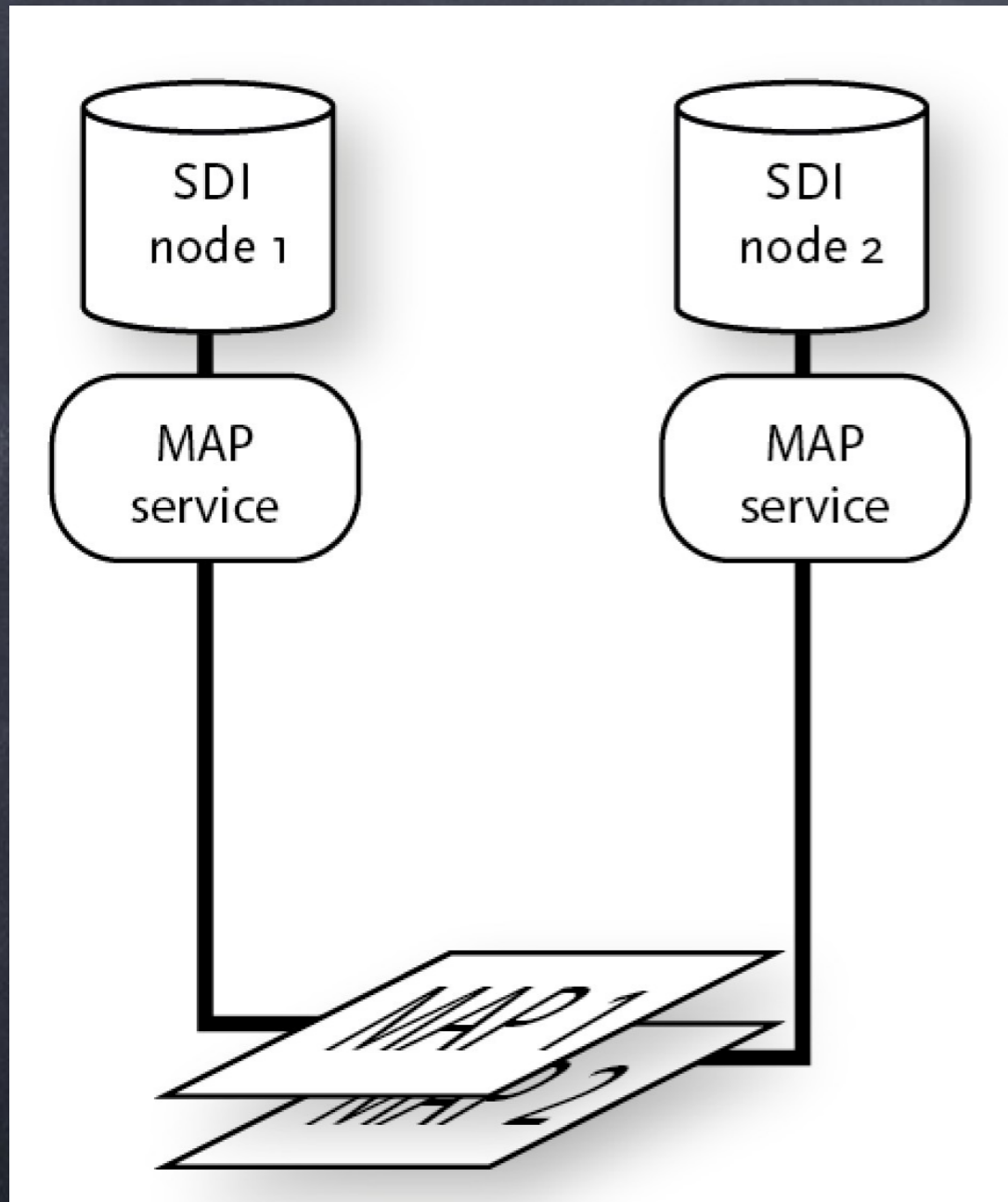
www.nationaleatlas.nl

Atlas as part of a Spatial Data Infrastructure



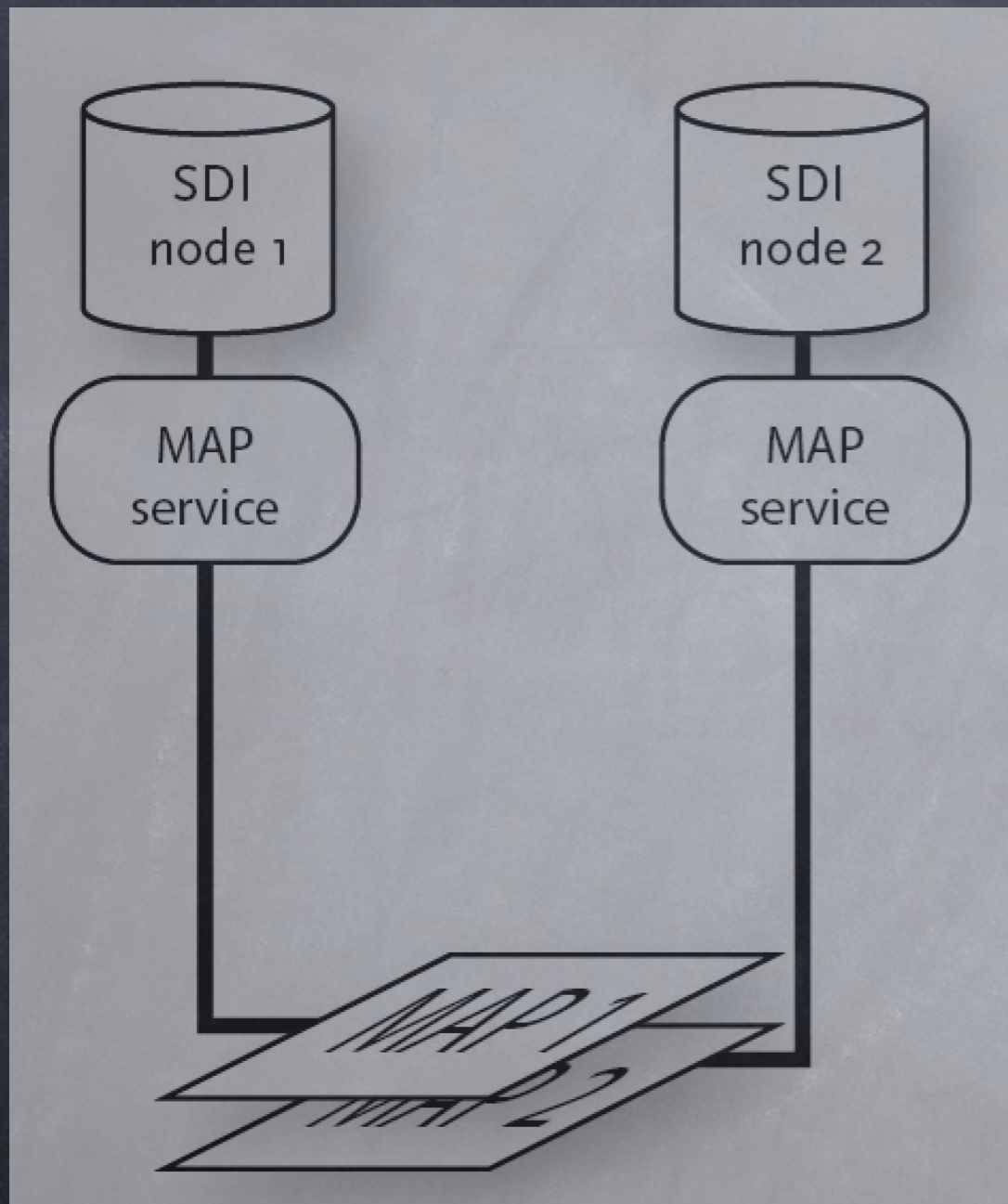
a combination of
two different worlds

conceptual change needed

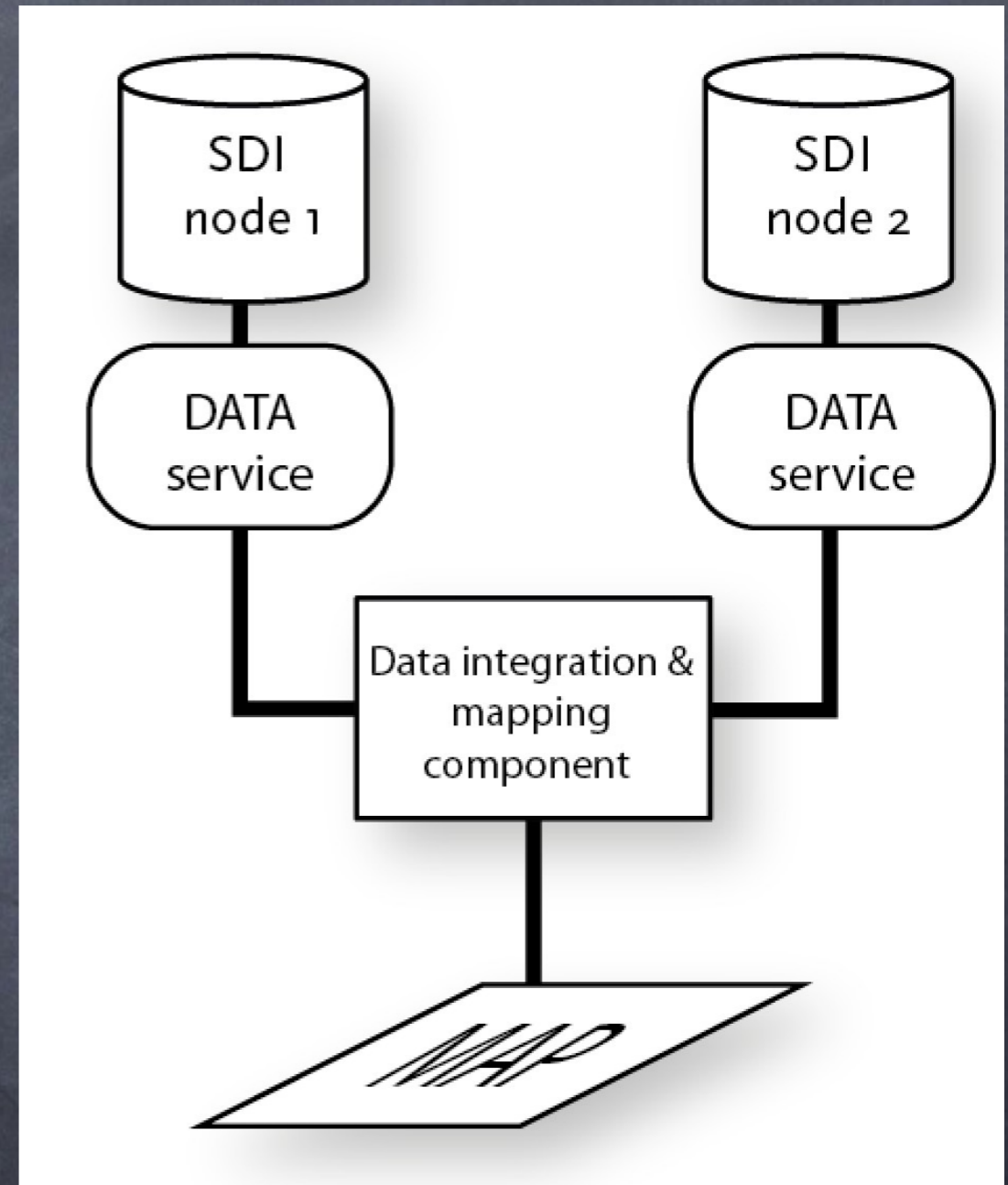
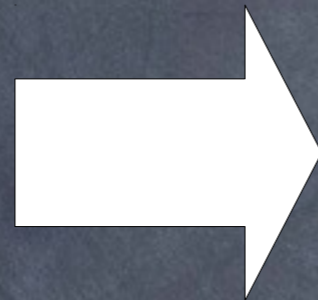


sub-optimal combination
of arbitrary map layers

conceptual change needed

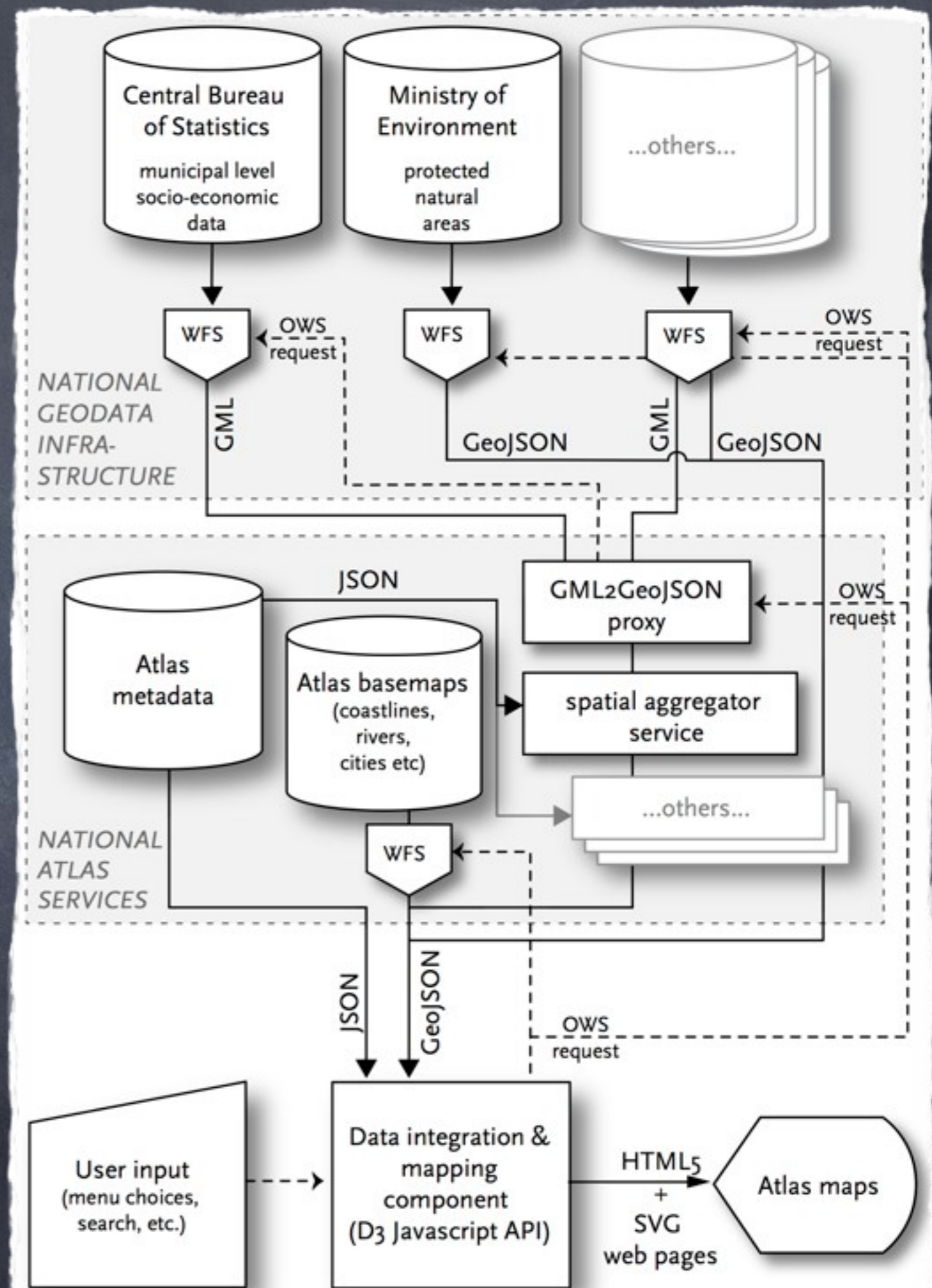


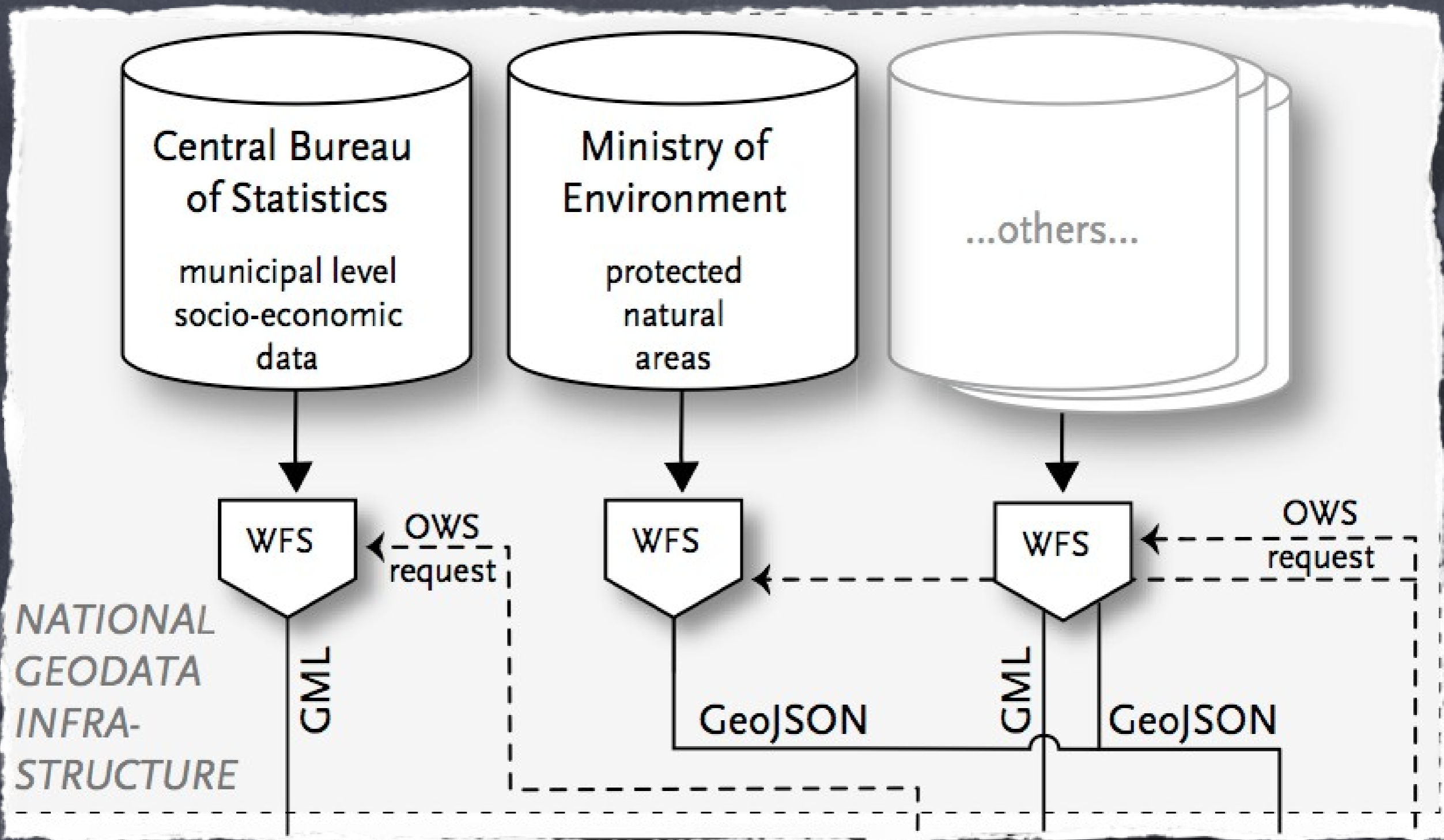
sub-optimal combination
of arbitrary map layers



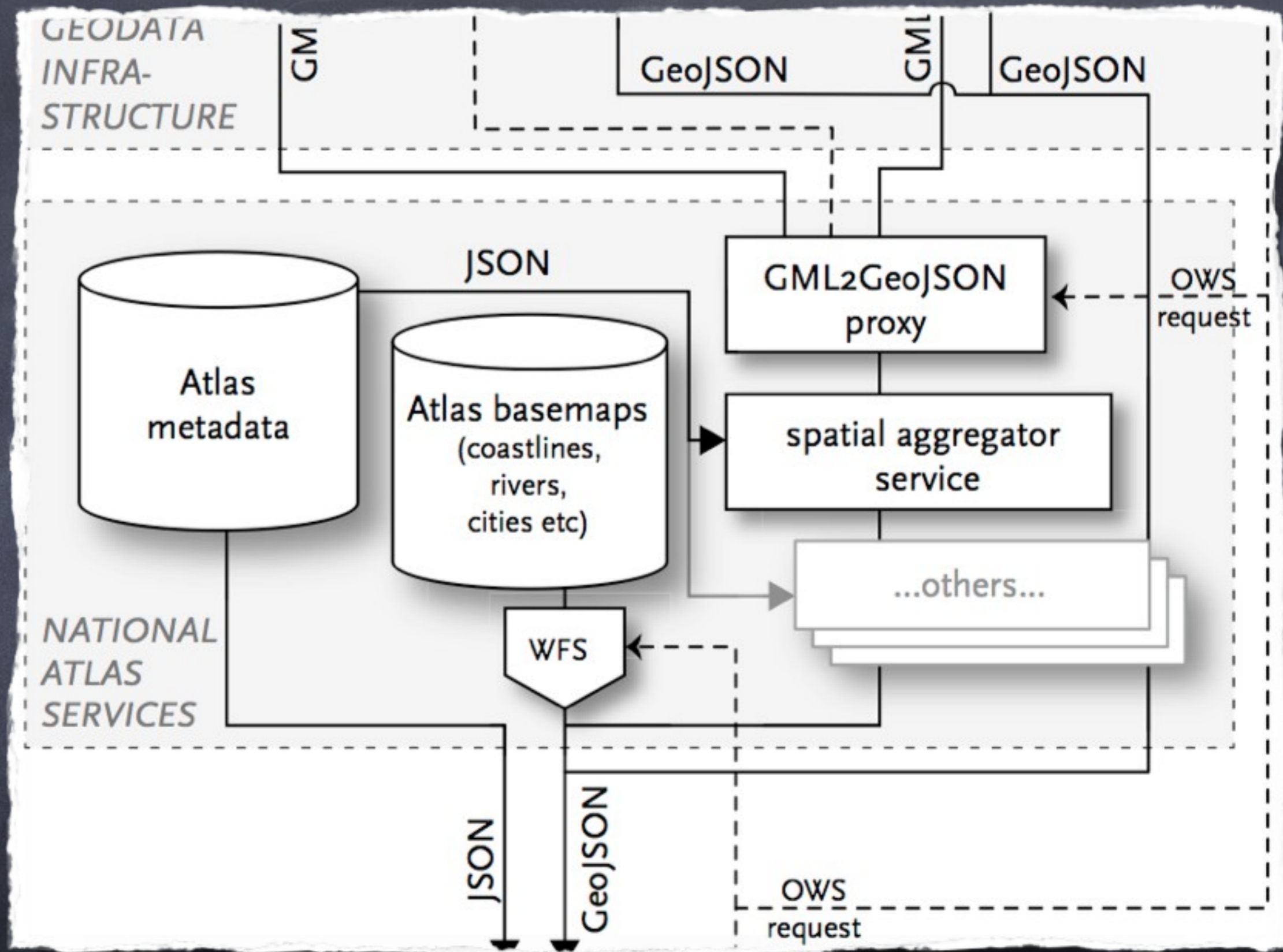
integrated mapping of
data layers

Architecture





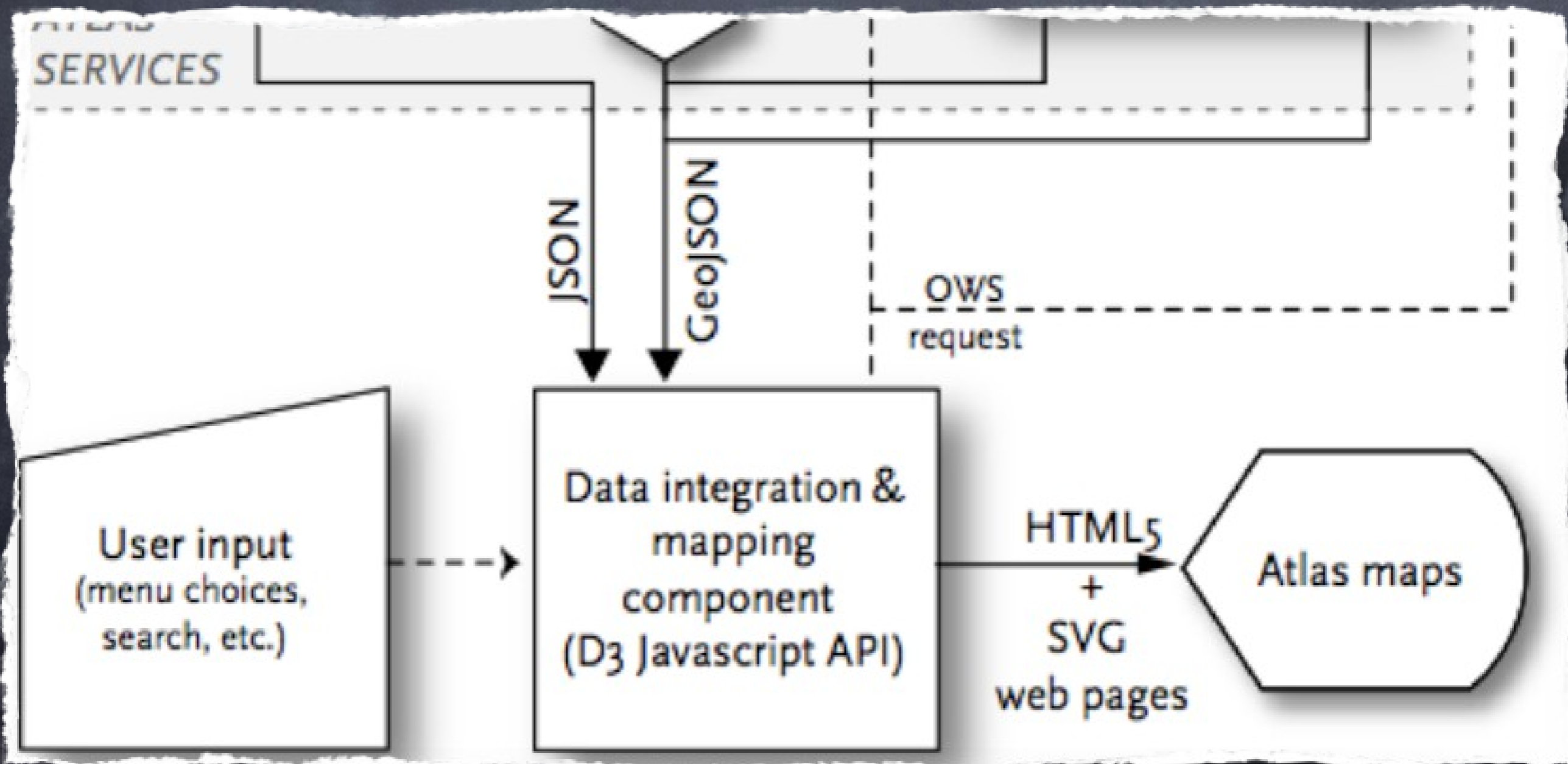
- use data services (WFS) requests
- GeoJSON where possible



ATLAS utility services & basedata

Atlas Viewer:

- based on the Open Web Platform
- uses D3 library



Thank you!

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