

Web Mapping & Analysis

The Web's Architecture and Economy

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Today

- A (brief an opinionated) history of the Web
- The server/client model
- The modern web mapping eco-system

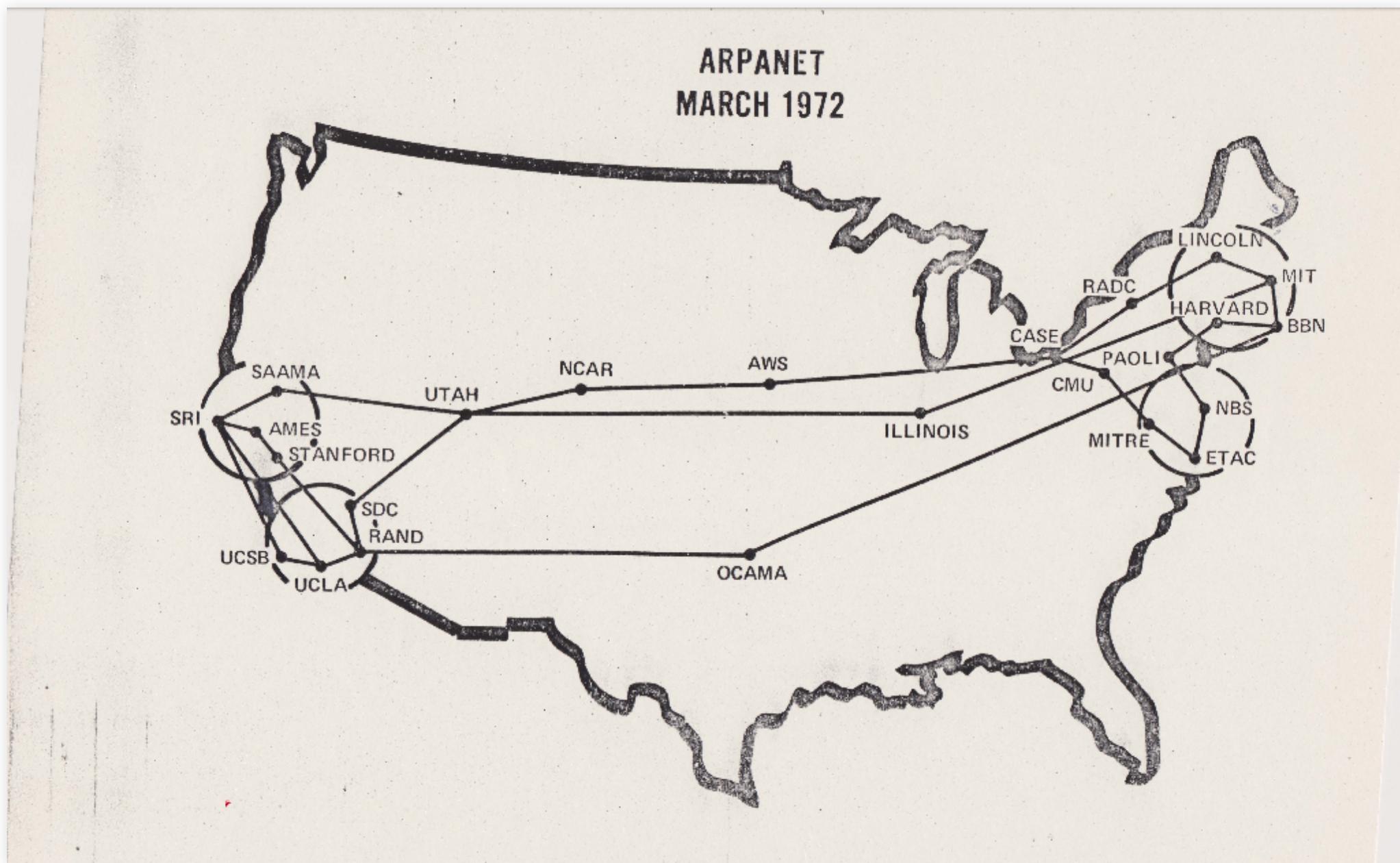
A (brief and opinionated)
history of Web trends

Pre 70s

The seeds:

- US (e.g. Licklider's “Galactic Network”)
- Mostly military contracts (e.g. D/ARPA -> ARPANET) and “research'y”
- Develop protocols for machine communication

70s - Birth of the *internet*



80s

- Growth of the “web”
- From experimental validation to scaled up infrastructure
- Free software (e.g. “Free as in Freedom”)

90s

- Civilian and commercial growth
- Web 1.0
- Open Source software (e.g. “The cathedral and the Bazaar”)

00s

- Web 2.0
- Mobile
- Web mapping takes off (hello Google Maps!)

+10s

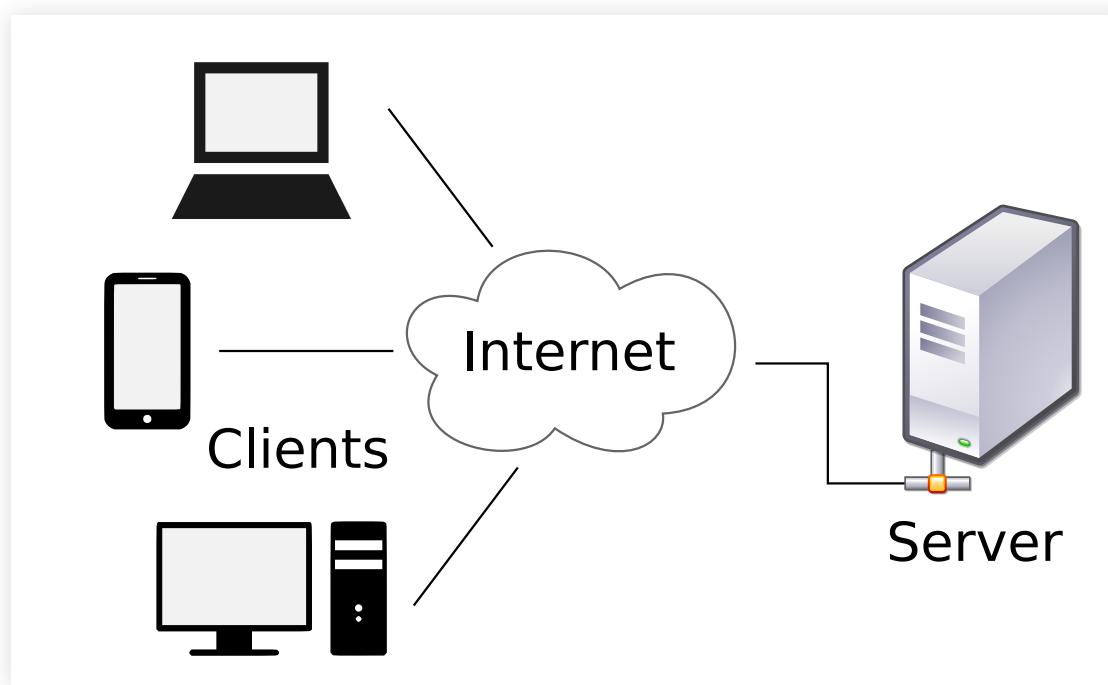
- Consolidation of GAFA → concentration
- IoT
- Death of the desktop?

Ideas to retain

- The Web is technology to build decentralised systems
- Economics (for the most part) have turned it into a concentrated economy
- Computing today is physically distributed but socio-economically concentrated

The server/client model

The server/client model



[Source]

Benefits

- Interoperability of disparate platforms
- Optimise on hard/software for each task (“distribute”)
- Separate data collection (e.g. sensor), storage (e.g. data centre), intensive computing (e.g. compute cluster), interaction (e.g. mobile)

“Disadvantages”

- Requires (cheap & ubiquitous) connectivity
- More complex than an isolated approach
(e.g. desktop)
- Harder to “keep afloat”

An example...



Another example...

Contrast it with...

The modern (web) mapping eco-system

Building blocks of a web map

Backend



Frontend



Server

Data, mapping (GIS)

Client

Style (CSS), web
(HTML)

The current web mapping landscape

- Software: a *lot* of open-source projects
- Platforms: a concentrated few (web infrastructure is hard and expensive!)
- Business model: software as a service

The current web mapping landscape

Trade-off

convenience + agility

Vs

flexibility + ownership

This course: mostly rely on commercial platforms to focus on design and cartographic rather than engineering concepts



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