Regulating Orchestration in Computational Infrastructures

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Content moderation

Cost of services

Privacy settings

Transparency to users

Above the waterline

Below the waterline

New sensors

Background processes

Software updates

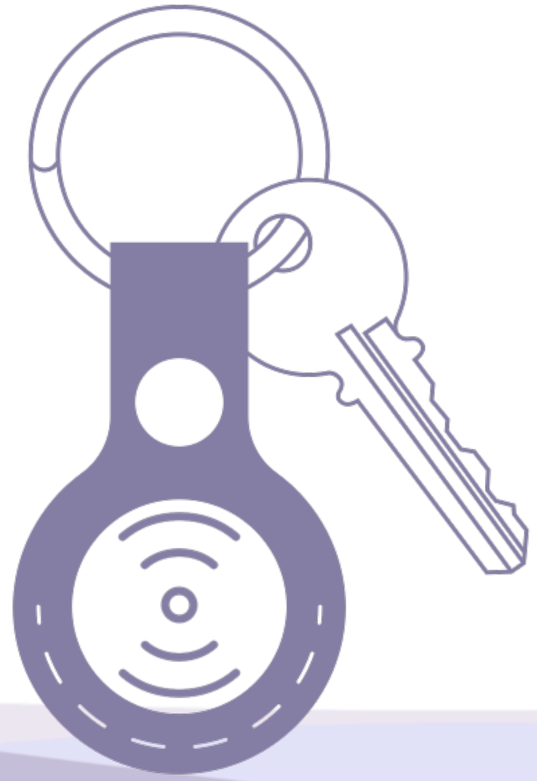
On device hardware

APIs

Motivating Examples

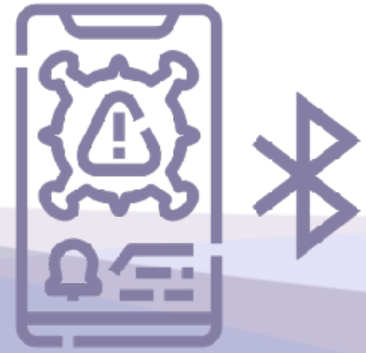
Enabling: Turning User Devices into New Infrastructures

- 2019: Apple launched *Find My* network
  - remotely reprogrammed iPhones/iPads w/ GPS modules as infrastructure of “finder” devices for devices without connectivity/GPS.
- 2021: Amazon launched *SideWalk* network
  - remotely reprogrammed Ring/Echo to share users’ internet to Amazon-authorised devices within 100s of metres to enable e.g. *Tile* devices.
- Significant societal concerns:
  - eg in 8 mo period surveyed US police departments document 50 times women reported tracking by *AirTags* they didn’t own. Half identified men in their lives they suspected wished to stalk them.



Disabling: Forbidding Functionality that States Desire

- 2018: UK gov wished to collect passport data of EU citizens living in post-Brexit UK via iPhones using the NFC scanner (since 2014 models).
  - Apple refused to permit the sensor to be used in an open-ended way, despite heavy ministerial lobbying. Eventually released limited *Core NFC API* at the end of 2019.
- 2020: Bluetooth COVID Proximity Tracing — some jurisdictions (mainly E&W, FR, SG) wished for a centralised model, where networks of who-saw-who available in a server.
  - Apple & Google reprogrammed phones with the *Exposure Notification* API which allowed Bluetooth to work in the background, but only gave building blocks for a decentralised model.



Regulatory Foundations and Approaches

Current approaches (include)

- **Competition law lens** (including the DMA)
  - Even critiques pushing for fairness accounts still separate economic and political ends of competition — *little said about the political legitimacy of the ends computation is put to*
- **Public utility lens**
  - Promising — yet nature of the *utility* is constantly reprogrammable; *who* owns less important than regulability and efficiency — are these really the ends of regulating computational infra?

Where do we go from here?

We can learn from...
(but it is Not Enough)

- **Telecommunications Law**
  - acknowledges public character of rights/entitlements potentially otherwise construed as private;
  - can learn from ‘common carrier’, ‘public utilities’, ‘essential facilities’ concepts/doctrines;
  - **yet** computational infrastructures are not *facilities*, but *capabilities*
  - concepts like (net) neutrality help us little with what is a constructive, generative role, not a neutral, passive one
- **Media Law**
  - recognised flexible, open-ended concepts (e.g. ‘fairness’, ‘due impartiality’);
  - can be directly concerned with power;
  - trade-off challenges with media freedom;
  - **yet** principles flounder as static infrastructures enter malleable world of arbitrary configurations

Foundations for a new approach

- Programmability as a matter of public interest
  - GAFAM are not essential. Their computational capacity is.
- A right to political participation for the Information Age
  - difficult to conceptualise due to cross-jurisdictional nature, but no need to over-institutionalise
- Remedial possibilities for positive configurations of the infrastructural stack
  - Courts rarely courageous (or skilled) enough to place specific positive design obligations, particularly ones with a broader structural perspective.
  - Yet daunting — how to require faithful design and construction without being overly prescriptive?

thanks!

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Annex: Other Approaches (also include)

- **Digital constitutionalism lens**
  - Assumes potential convergence on a set of normative ideals; also assumes that power imbalances and inequities were side-effects of digital transformation, not *constitutive parts* of the way technologies and business models have co-developed.
- **Digital sovereignty lens**
  - Loose and varied concepts, but by centring the issue as a geopolitical one, foreclose other discussions of power (including on a subnational level).