Open Measurement of Internet Censorship

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OONI

https://ooni.io

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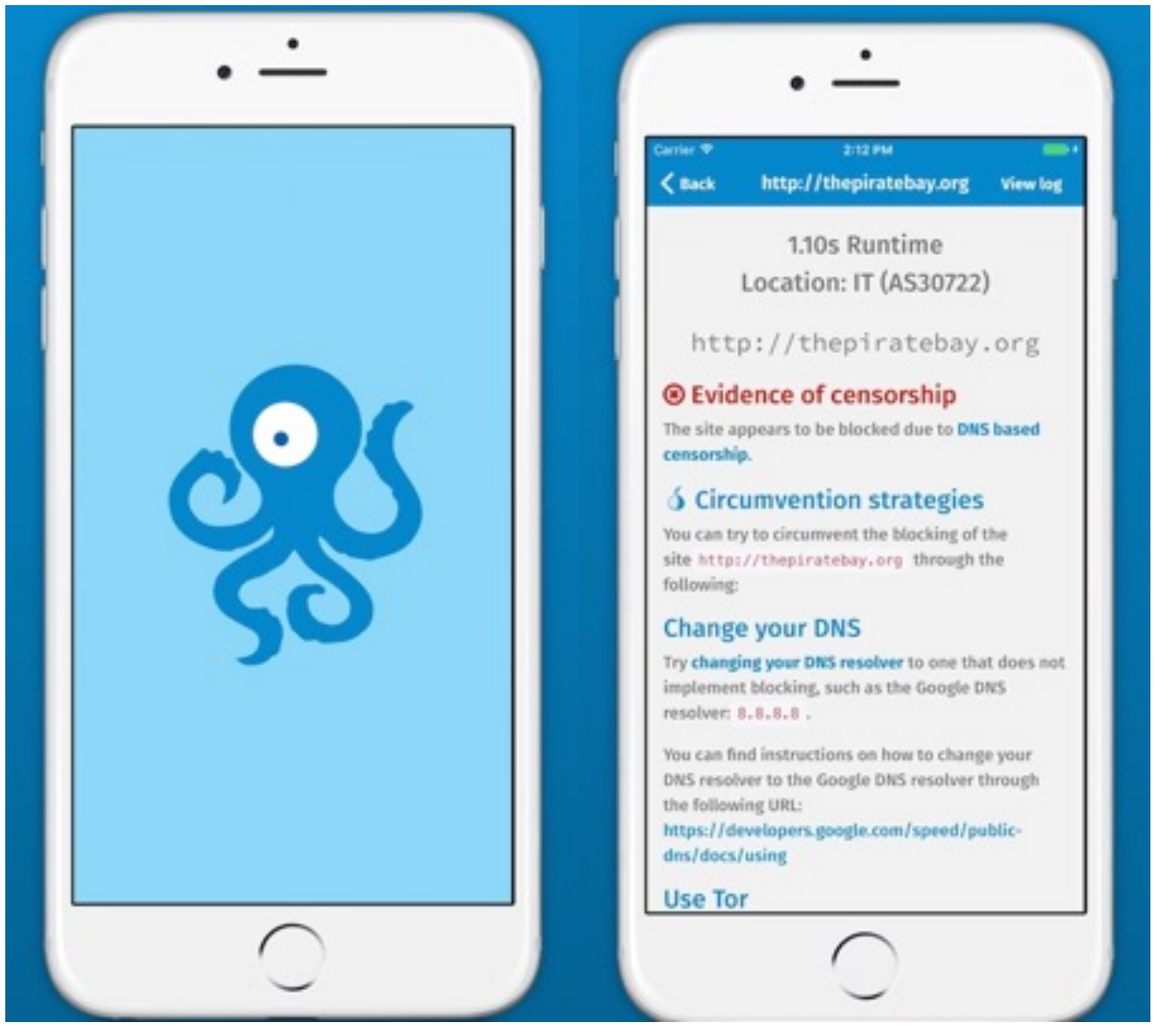

- Mobile App 2017
- Android, iOS

- HTTP connectivity
- Middle-box Detection
- NDT speed test

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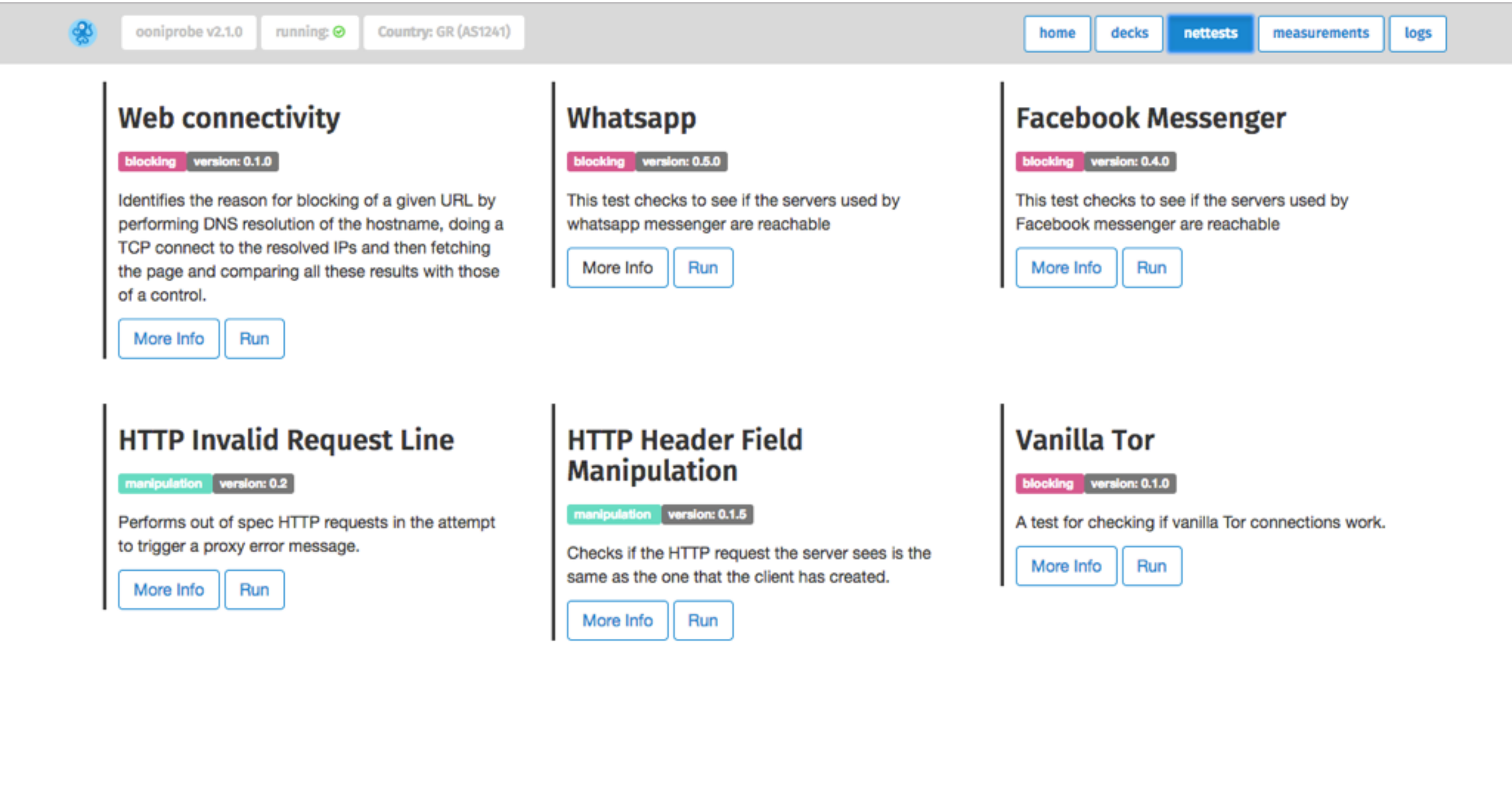
ooniprobe v2.1.0
running:
Country: GR (AS1241)
home
decks
nettests
measurements
logs
Web connectivity
blocking
version: 0.1.0
Identifies the reason for blocking of a given URL by performing DNS resolution of the hostname, doing a TCP connect to the resolved IPs and then fetching the page and comparing all these results with those of a control.
More Info
Run
Whatsapp
blocking
version: 0.5.0
This test checks to see if the servers used by whatsapp messenger are reachable
More Info
Run
Facebook Messenger
blocking
version: 0.4.0
This test checks to see if the servers used by Facebook messenger are reachable
More Info
Run
HTTP Invalid Request Line
manipulation
version: 0.2
Performs out of spec HTTP requests in the attempt to trigger a proxy error message.
More Info
Run
HTTP Header Field Manipulation
manipulation
version: 0.1.5
Checks if the HTTP request the server sees is the same as the one that the client has created.
More Info
Run
Vanilla Tor
blocking
version: 0.1.0
A test for checking if vanilla Tor connections work.
More Info
Run

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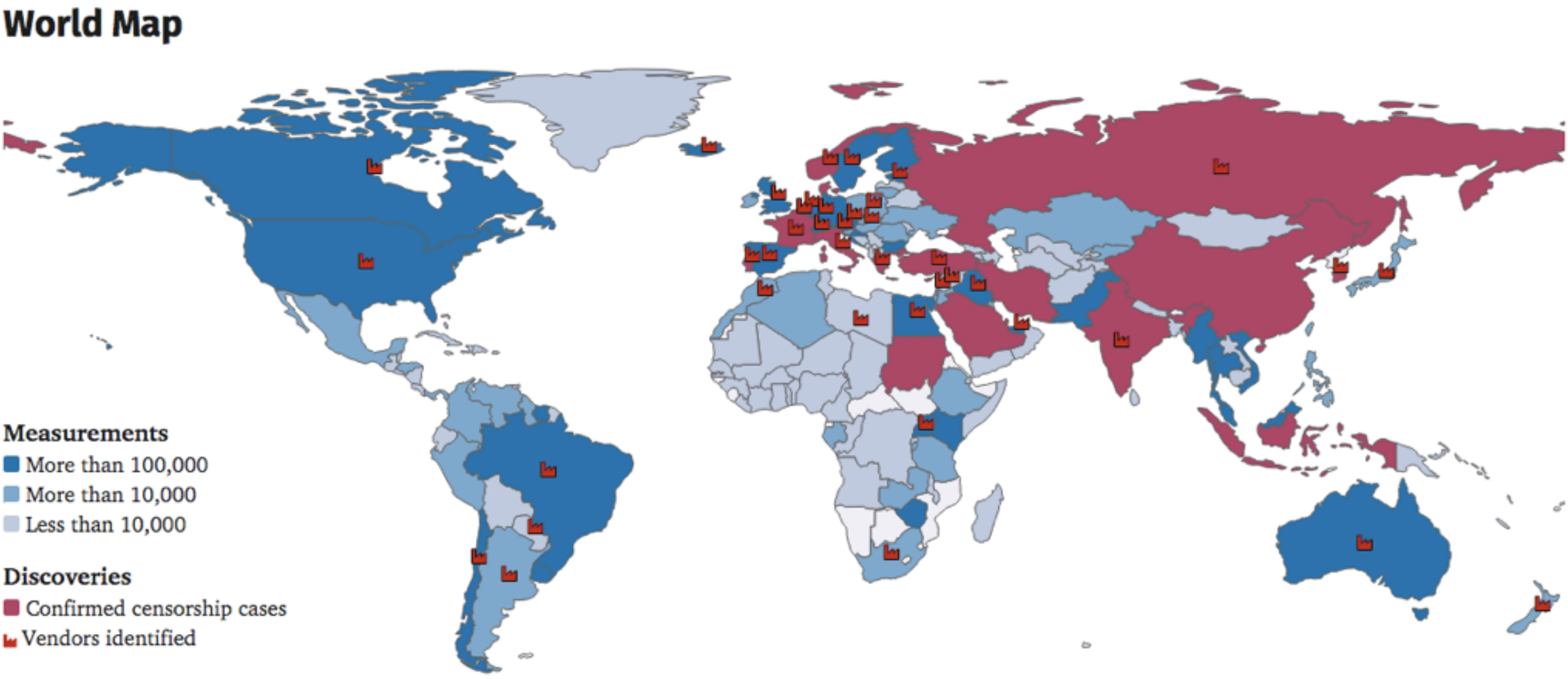
World Map
Measurements
More than 100,000
More than 10,000
Less than 10,000
Discoveries
Confirmed censorship cases
Vendors identified

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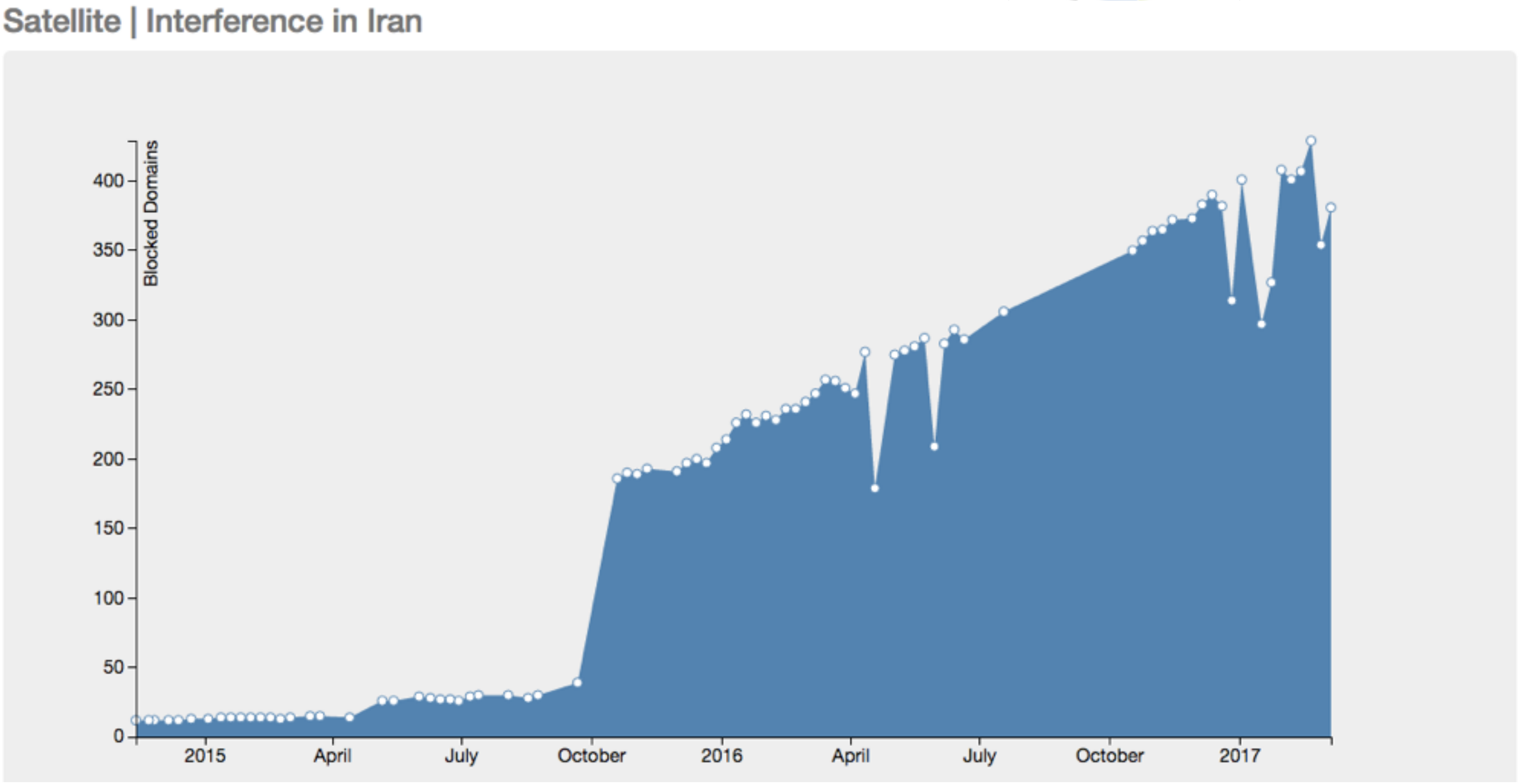
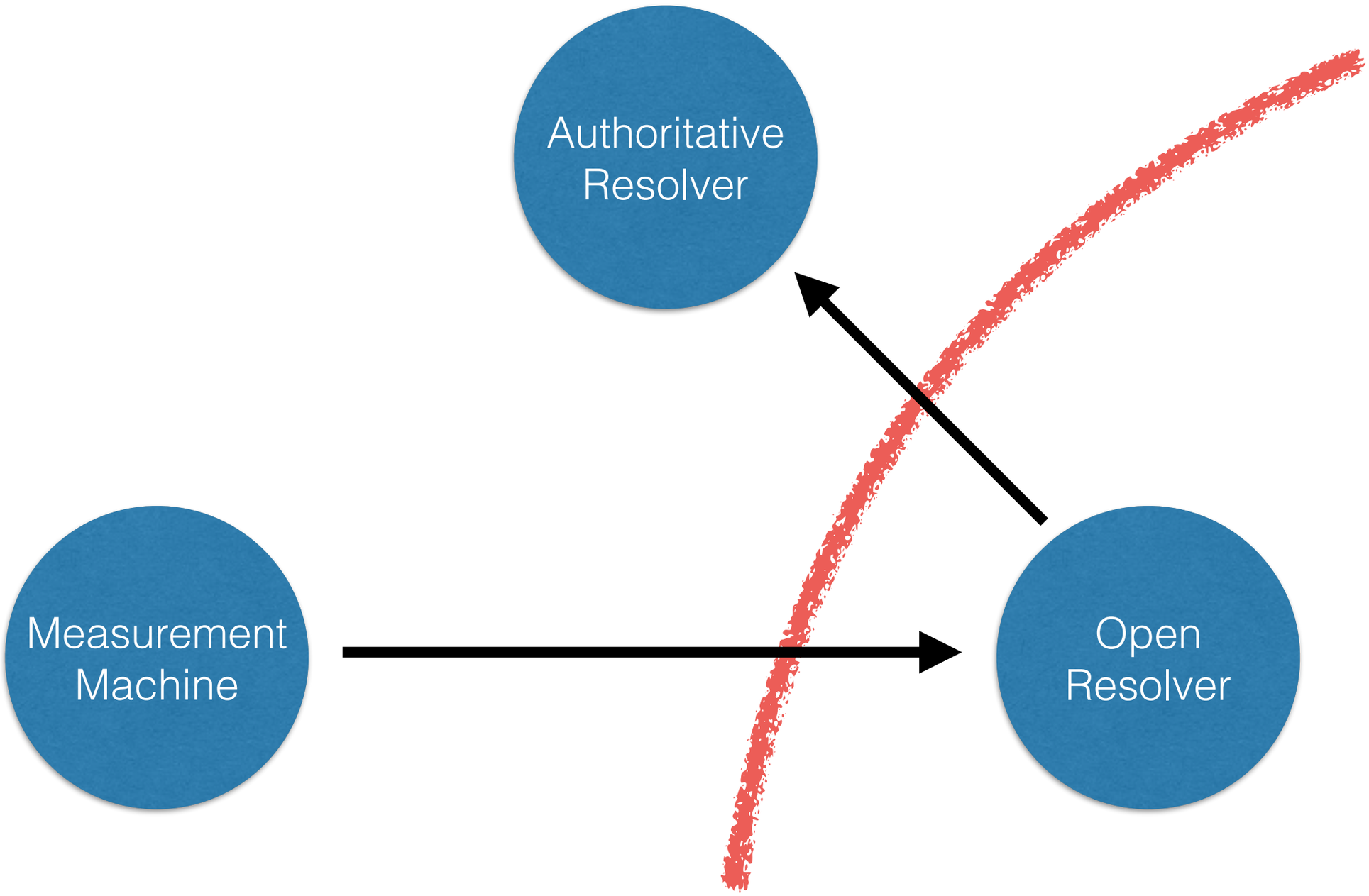
- URL List: https://github.com/citizenlab/test-lists
- C library: https://github.com/measurement-kit
- Reports for: Kenya, Malaysia, Ethiopia, Gambia, Belarus, Egypt, Zambia, Turkey, Uganda, Brazil

Satellite



http://satellite.cs.washington.edu/

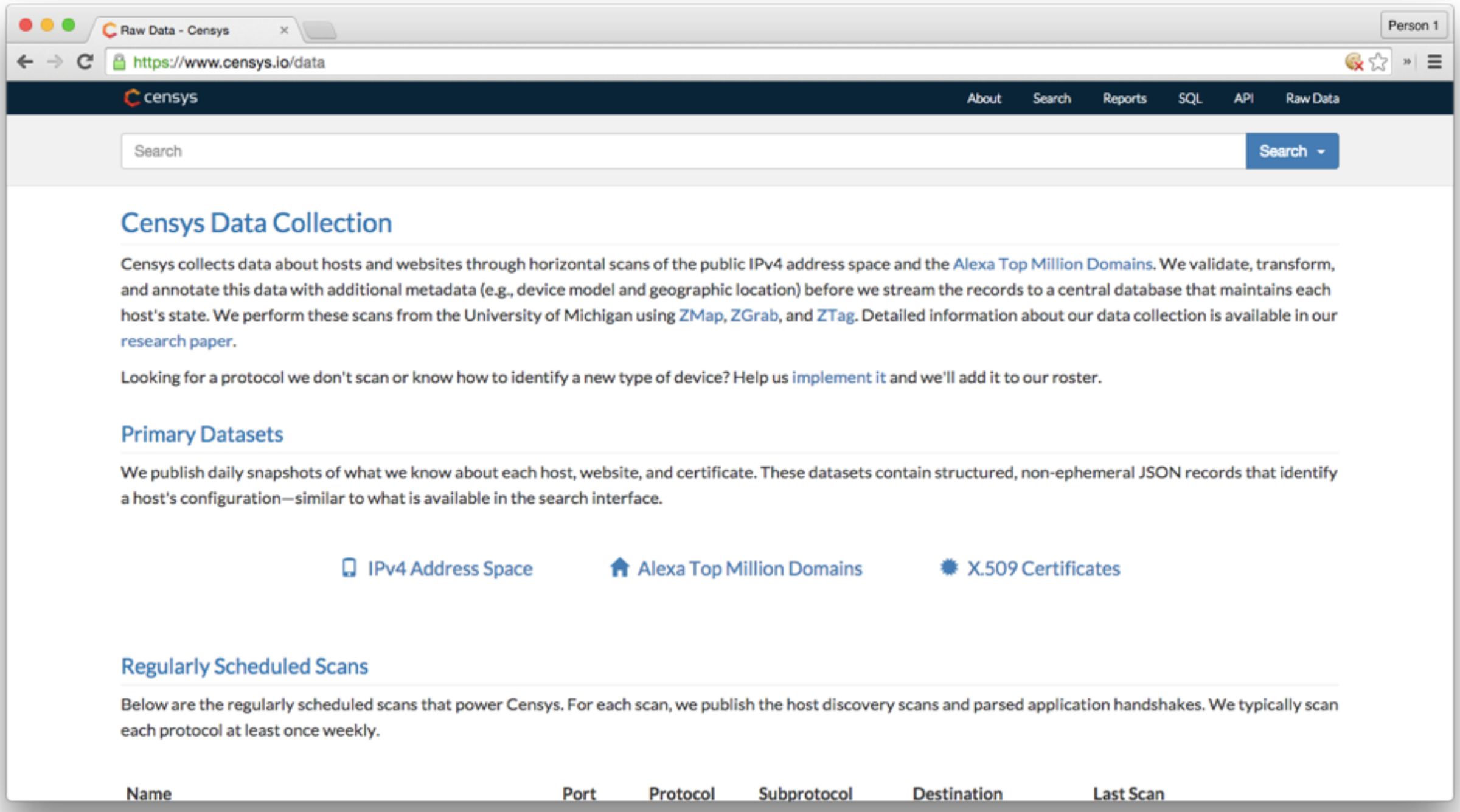
Satellite


Authoritative Resolver
Measurement Machine
Open Resolver

Satellite

- 7M distinct IPv4. 1.5M distinct /24
- Weekly Scan of Alexa top 10k domains
- 3 years of public data on https://scans.io/

Censys & Scans



Censorship

- Four countries with significant DNS poisoning
  - Iran, Turkey, China, Indonesia
- 12 countries with explicit block pages
  - Russia, China, Iran, Saudi Arabia, Turkey, India, Indonesia, Greece, Sudan, Belgium, Cyprus, South Korea
- Many more with censorship:
  - Norway, France, Italy, Greece, Cyprus, Qatar, Portugal, Egypt, Thailand, Malaysia, Cuba, Ethiopia, Gambia

Censorship

- **Elections** are a common trigger for censorship.
- Censorship is often implemented by **ISPs**, not by the state, complicating attribution.
- Open measurements are **losing relevance** as censorship moves to social media and closed platforms.

Opportunities

- Format standardization
- Ground truth standardization
- Service Measurements