

Identifying ASes of State-Owned Internet Operators

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State-owned telcos, a few examples

The New York Times

Uruguayans Resisting Call For Changes

Feb. 21, 1993

The New York Times

Venezuela seizes largest telecom

May 9, 2007



A public institution

POST Luxembourg was founded in 1842 as a public service and has been a wholly state-owned company since 1992. It is the country's largest provider of postal and telecommunications services and also offers financial and philatelic services.

Australia Plans \$31 Billion National Broadband Network

By MERAIAH FOLEY
Published: April 8, 2009

The New York Times

Research question, goal and motivation

Research question

Is the state ownership of Internet operators a widespread phenomenon?

Goal

Create a list containing *all* ASes of state-owned Internet operators

Motivation

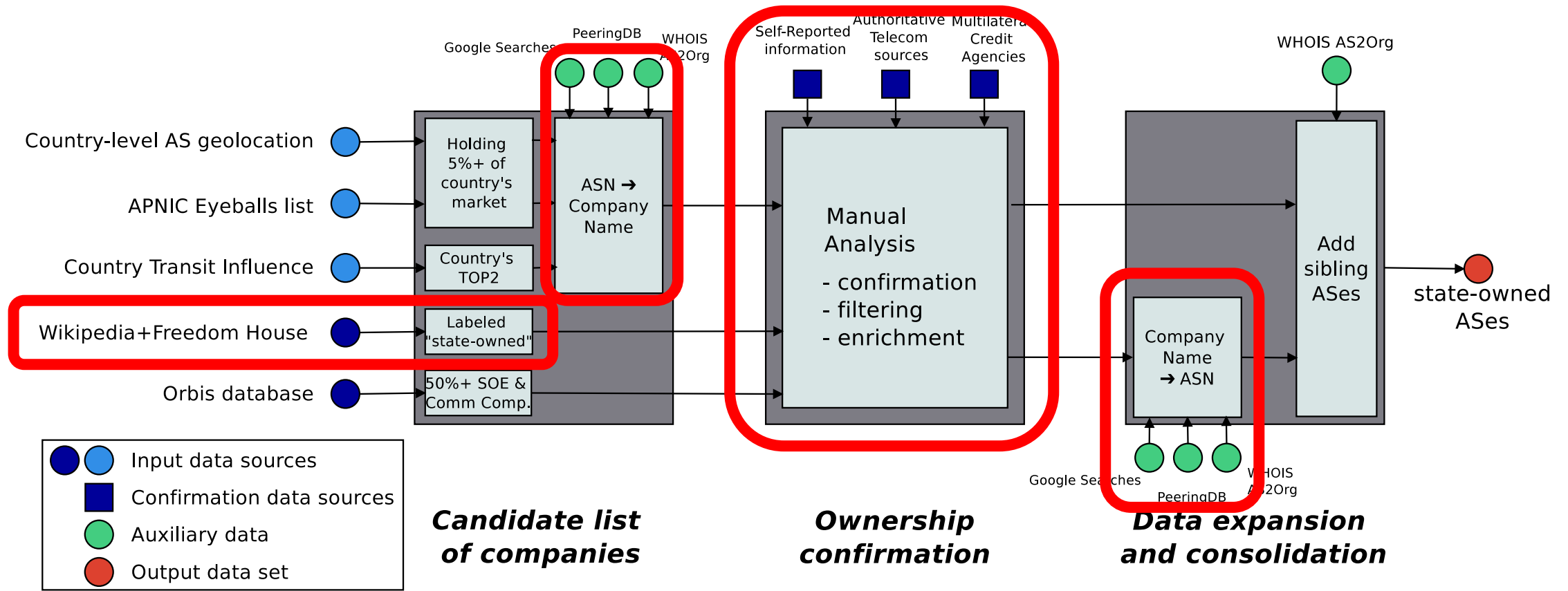
- New AS taxonomies enable more in-depth analyses at scale
 - e.g., correlation of outages with state-owned Ases, government-funded infra deployments
- Multiple areas of study that can benefit from this classification
 - e.g., social sciences, policymakers, etc.

Challenges

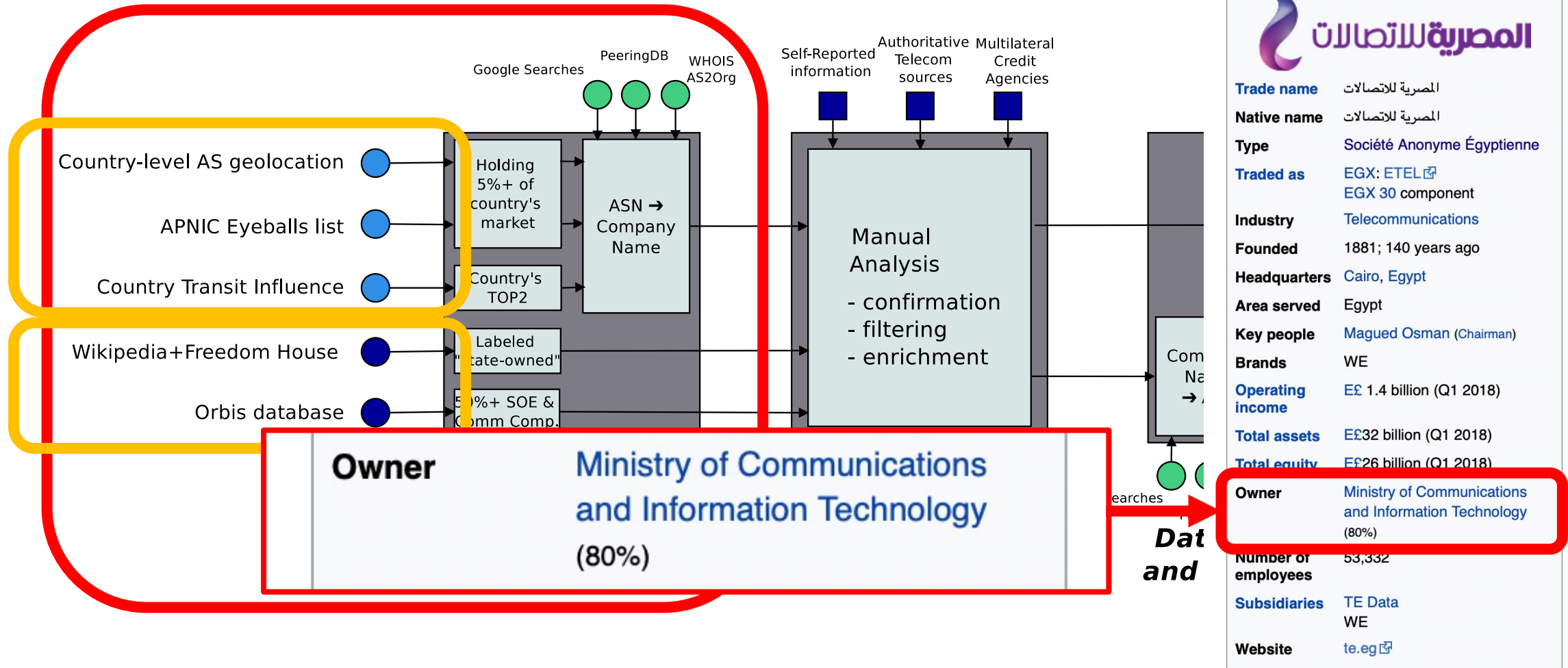
- Lack of public databases
 - A few country-specific transparency resources (e.g., Sweden, Uruguay)
 - Some material presented at the ITU
- Company-to-AS mapping (using WHOIS records)
 - Outdated records
 - Inconsistency between brand and company names (e.g., Internexa Argentina)
- Complex and evolving ownership structures
 - Aggregated ownership of multiple state-controlled bodies
 - Subsidiaries and branches to operate abroad

How we identified state-owned ASes

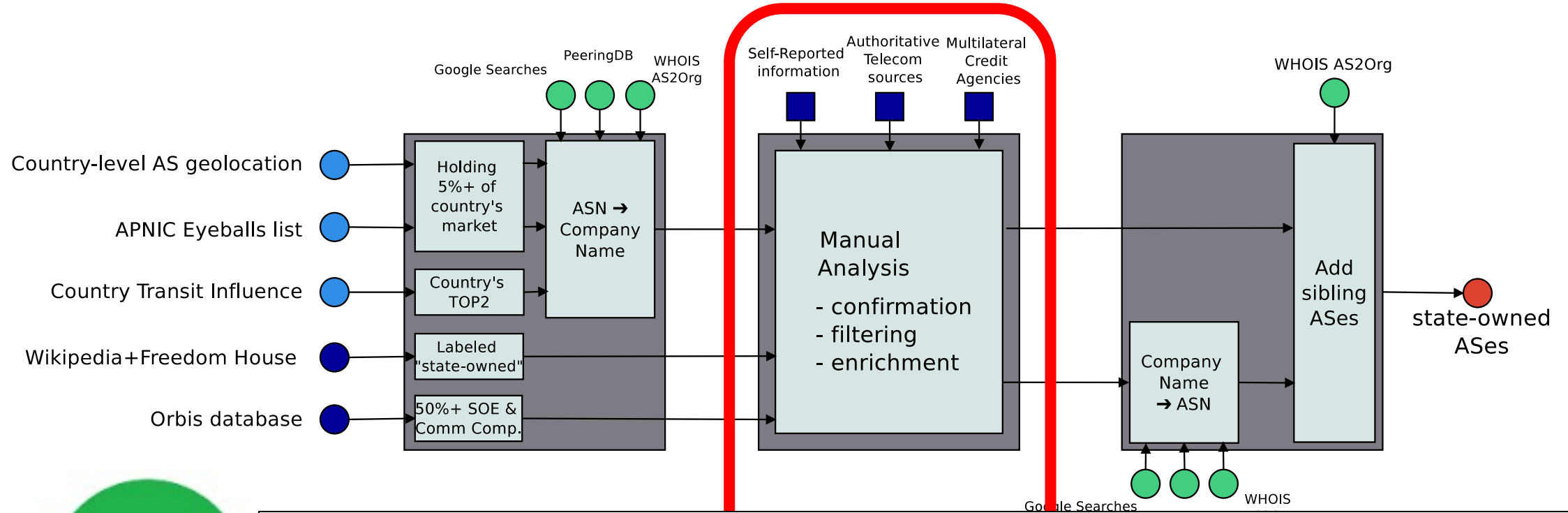
Steps requiring (semi-)manual intervention



How we identified state-owned ASes



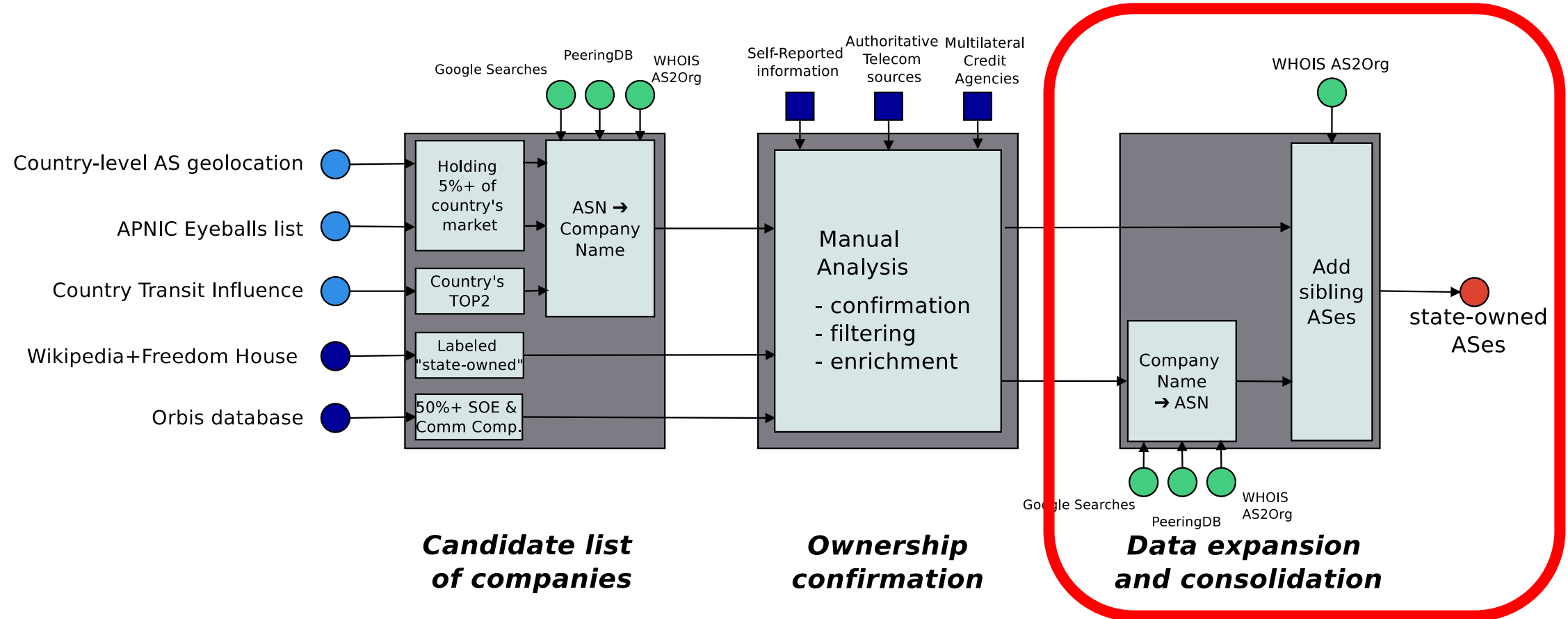
How we identified state-owned ASes



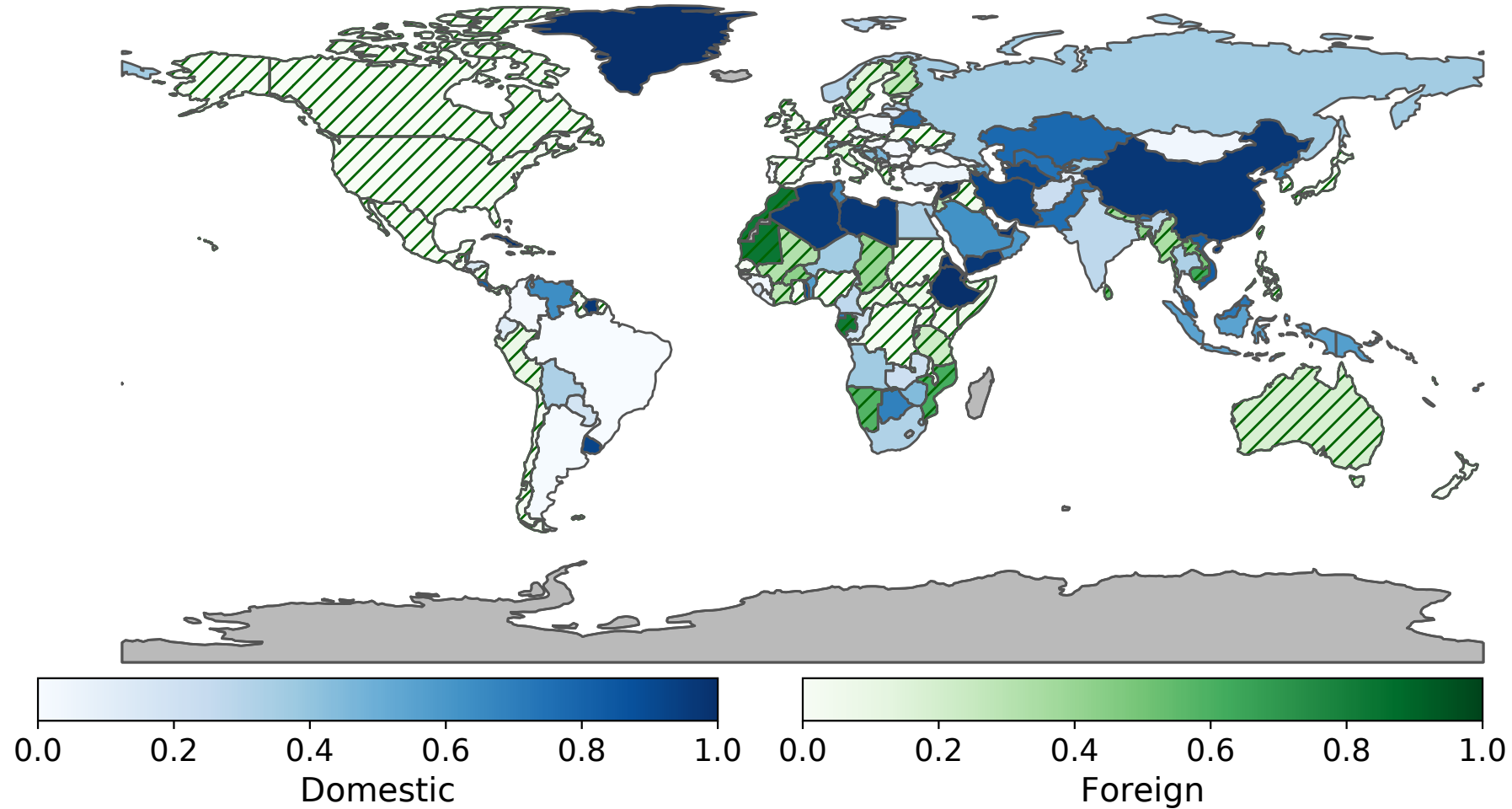
Our Company

Zambia Telecommunications Company Limited Is A Company Incorporated In Zambia Under The Companies Act Chapter 388 Of The Laws Of Zambia. The Sole Shareholder Of The Company Is The Government Of The Republic Of Zambia. The Company Falls Under The Jurisdiction Of The

How we identified state-owned ASes



Domestic and foreign state-owned ASeS footprint



We have obtained

- 989 state-owned ASes (193 foreign subsidiaries)
- 302 state-owned companies of 123 countries operating on the Internet
- 17% of the Internet's address space (25% without the US)
- 302 minority state-owned ASes
- Multi-government joint ventures
- state's footprint >50% of country's IP addresses in 49 countries

Contributions & Future work

Contributions

- The first publicly available dataset of state-owned ASes
 - List of foreign subsidiaries
 - Partial list of minority state-owned companies
- Exhaustive multi-sourced methodology to identify state-owned ASes

Future work

- Explore correlation between outages and state-owned Ases
- Study governments response to the digital divide

Thanks!

<https://github.com/estcarisimo/state-owned-ases>