



NETWORK OPERATOR TOOLS
HACKATHON - DUBLIN 2018

ROUTING DB

GOAL

- ▶ Create a tool that can give routing insights on ASes AS using the RIPE Atlas and RIPE RIS services
 - ▶ **Only passive measurements**
 - ▶ RIPE Atlas traceroutes, BGP RIS/RouteViews, WHOIS
 - ▶ AS Relationships, AS-to-Organization mapping (siblings), Tier
 - ▶ IXP datasets (PeeringDB, PCH, Hurricane Electric)

SUGGEST POSSIBLE NEW PEERINGS

- ▶ Parse on a hourly base the RIPE Atlas traceroute dumps (v4/v6)
- ▶ Transform IP-level paths to AS-level paths
- ▶ Find collocated ASes at the same IXPs that reach each other using other intermediate transit providers
- ▶ Filter out siblings, Tier-1 ASes, common traceroute artifacts

AUTOMATICALLY INTERPRET BGP COMMUNITIES

- ▶ Parse WHOIS data through spacy
- ▶ Natural Language Processing
 - ▶ Extract Community values and infer their meaning
 - ▶ Ingress, Egress
 - ▶ Standardize the interpretations based on common naming conventions
 - ▶ PeeringDB IDs for PoPs (IXPs, Facilities)
 - ▶ Standardized location city/country names

DETECT ROUTING INCIDENTS BASED ON COMMUNITY CHANGES

- ▶ Parse BGP paths annotated with specific communities
- ▶ Create a baseline of paths annotated with the target communities
- ▶ Predict “normal” number of paths based on Facebook’s Prophet
 - ▶ ML-based forecasting of timeline series data
- ▶ Detect anomalous events when number of annotated paths falls below the uncertainty interval of forecasted paths

CODE

- ▶ Github: <https://github.com/pgigis/routingdb>

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