
AS INTERDEP VIZ
IAIN GEDDES, SOFIA SILVA BERENGUER, PEDRO VAZ


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Enter your AS number
Submit

- Spyder
- GitHub Desktop
- And a Magnum!!

DATA

- Download bview file from RIS
  - From a single RIS collector for this prototype
- Get data from AS hegemony API

BACK END

- Unzip and extract as paths from bview file, filtering by given origin as
- Construct graph
  - Create structure for nodes with attributes (ASN name, AS hegemony, size) on default values at first
  - Create structure for edges (pairs of nodes)
- Populate nodes structure with AS hegemony data
- Build JSON in format needed by graph tool (alchemy)

FRONT END

- Flask (Tiny Flask)
- Alchemy
- HTML, JavaScript, CSS, …

VISUALIZATION

- Graph with nodes representing ASes and edges representing relationships between ASes
- Size of nodes representing distance in AS path from origin AS
- Colours representing AS Hegemony category
  - Very Small, Small, Medium, Large, Very Large and Extremely Large
  - Warmer colours mean higher AS Hegemony

CHALLENGES ON ALL THE LAYERS!

- Front end -> UI is the hardest part!
  - Alchemy not working as expected when overriding default size and colour values for nodes.
- Back end -> installation of bgpdumpy not as straight forward as expected
  - Hack: we used bgpdump CLI tool calling it from python with subprocess library
  - We could finally get bgpdumpy installed so we refactored and optimized code
- Data -> AS hegemony API doesn't provide data for all the nodes we had found in AS paths
  - We had to talk to Emile to understand why (nodes with negligible AS hegemony values are not included in response)
- Data -> AS hegemony API doesn't provide raw data used for computation of AS hegemony values
  - Hack: we are using BGP routing table from one RIS collector (RRC00) for the same date and time

USEFUL URLS

- Our GitHub repo
  - https://github.com/chufia/asinterdependenceviz
- AS Hegemony API
  - https://ihr.iijlab.Net/ihr/api/hegemony/?originasn=2914&timebin__gte=2018-06-19+08:00&af=4
- RIS Raw Data
  - http://data.ris.ripe.net/rrc00/2018.06/bview.20180619.0800.gz
- Tiny Flask (Thanks Cristian!!)
  - https://github.com/cmsirbu/tiny-flask

DEMO TIME ☺️

- http://127.0.0.1:5000/