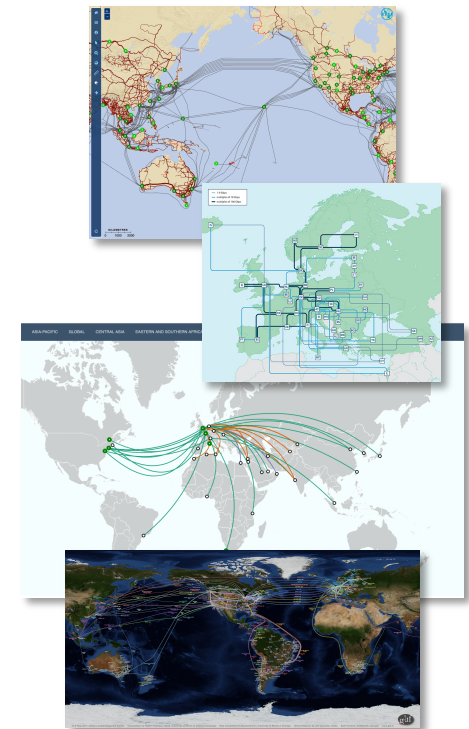# GREN Map Working Group

GNA-G Update May 2020

Objective

- A single unified map: a visual representation of Research & Education Network connectivity over the entire GREN.

- Primary goal: demonstrate the REN value proposition to all stakeholders.

- Current and previous efforts are limited in one way or another: onerous, incomplete, stale, static, isolated, technical, …

- Demand is high!

GREN Mapping Working Group

- Formed in the fall of 2018

- Enjoys participation from a wide variety of regions

- Meets roughly bi-weekly; English as primary language

- Reports to the GNA-G

- Guides the following primary objectives…

Chairs:
- Tom Fryer, GÉANT
- Ryan Davies, CANARIE

Members (24):
- Alain Aina, WACREN
- Kathryn Anthonisen, CANARIE
- Ed Balas, Indiana University
- Tiwonge Banda, UbuntuNet
- Erik-Jan Bos, NORDUnet
- Wallace Chase, REANNZ
- Leandro Ciuffo, RNP
- Dale Finkelson, Internet2
- Lars Fischer, NORDUnet
- Lisandro Zambenedetti Granville
- Carlos Gonzalez, RedCLARA
- Laurent Gyde, RENATER
- Andrew Howard, APAN
- Jo Kimaili, UbuntuNet
- John Macauley, ESnet
- Alex Moura, RNP
- Marcos Schwarz, RNP
- Dan Sellars, CANARIE
- Jerry Sobieski, NORDUnet
- Michael Stanton, RNP
- Thomas Tam, CANARIE
- Marco Teixeira, RedCLARA
- J.P. Velders, University of Amsterdam
- Mark Wolff, CANARIE

Working Group Guiding Goals

- Develop a data format and schema
- Encourage wide participation to achieve critical mass adoption of the above format
- Develop tools to help RENs transition/translate to the data format
- Develop a distributed database system to
  - store and manage this information
  - consolidate into a single node
- Develop a reference visualisation
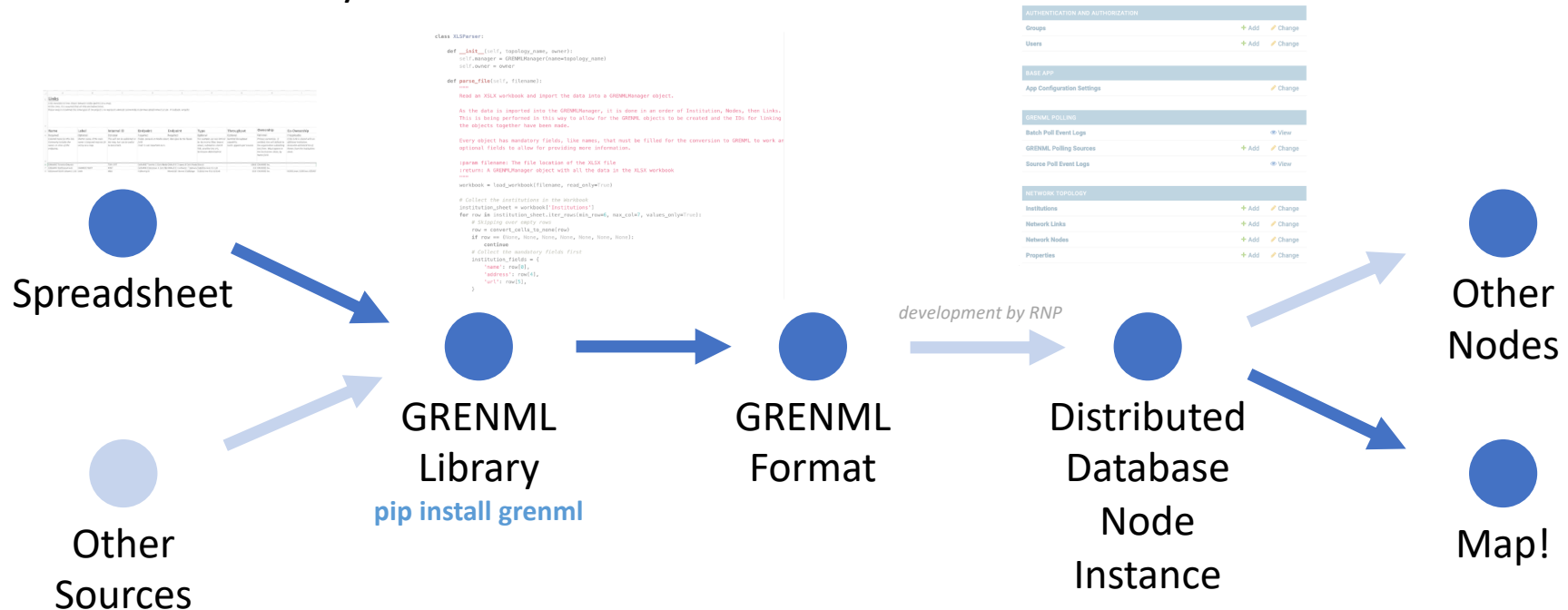
Data Format: Working Draft

- To support the streamlined sharing of network data for visualising the GREN

- Requirements extrapolated from features identified by this working group

- Basis: NML — Network Markup Language (XML)
  - Maintained by the Open Grid Forum
  - Meets many requirements

- Extension: "GRENML"
  - Added features
    - focus on visual mapping
  - Conveniences
    - support easier translation to/from the format

Distributed Database Architecture
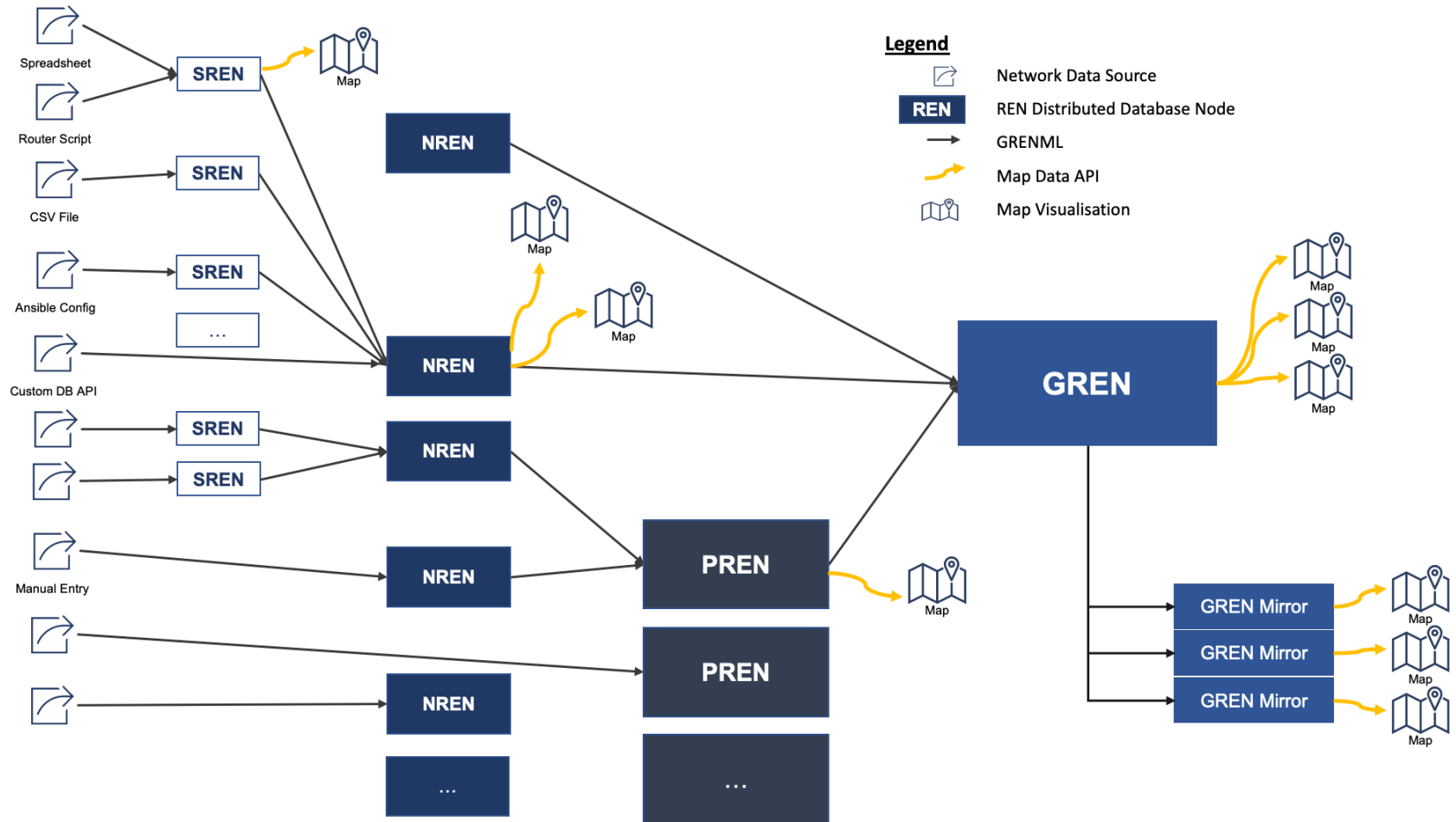
Tool Support: Development Progress

- Development effort led by CANARIE, with contributions from RNP.

- Alpha versions of all bold items below are available; lighter items are in progress or on near-future roadmap.

- Licensed under Apache 2.0, code hosted by CANARIE. Considering Commons Conservancy for release.

Spreadsheet

Other Sources

GRENML Library

pip install grenml

GRENML Format

development by RNP

Distributed Database Node Instance

Other Nodes

Map!

Demo Visualisation

- Showcases the use of the data format

- Serves as an example starting point for custom maps

Sample network data courtesy of GÉANT
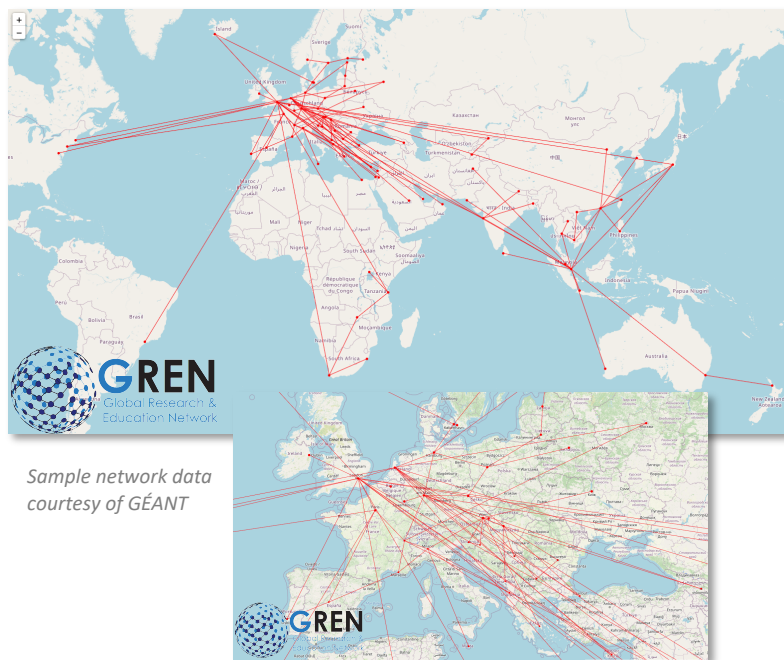
- Javascript package that connects to any distributed database node
  - GREN level (incl. mirrors)
  - SREN, NREN, PREN levels
- Basic functionality
  - nodes, links, zoom, infinite scroll, info popup
- Embeddable

Tool Support Roadmap

- Develop sandbox version for alpha release
  - Help us! Volunteer to deploy it.
- Security
- Hierarchical data collation algorithms
- Multi-language support
- Visualisation features: branding, defaults, performance, filters, …

Next Steps

- Seek early adopters:
  - Gather more initial source data & sources
  - Deploy "sandboxed" database node for alpha testing
  - Collect feedback
- Recruit more software development support
- Establish some conventions
  - Web registry
- Canadian NREN map
  - Core functionality, except automatic data merging
  - Fall 2020
- Global map
  - Core functionality
  - Some initial diverse global data — work with us by providing yours!
  - Summer 2021

Contact

For questions, or to get involved, please contact one of our working group chairs:

Ryan Davies
Ryan.Davies@canarie.ca
Tom Fryer
tom.fryer@geant.org

Especially seeking:

- Network mapping data for your REN

- Early adoption of alpha software

- Software development support