

GraphNet

A GUI network visualization app for the
LHCb DAQ Event Builder Network

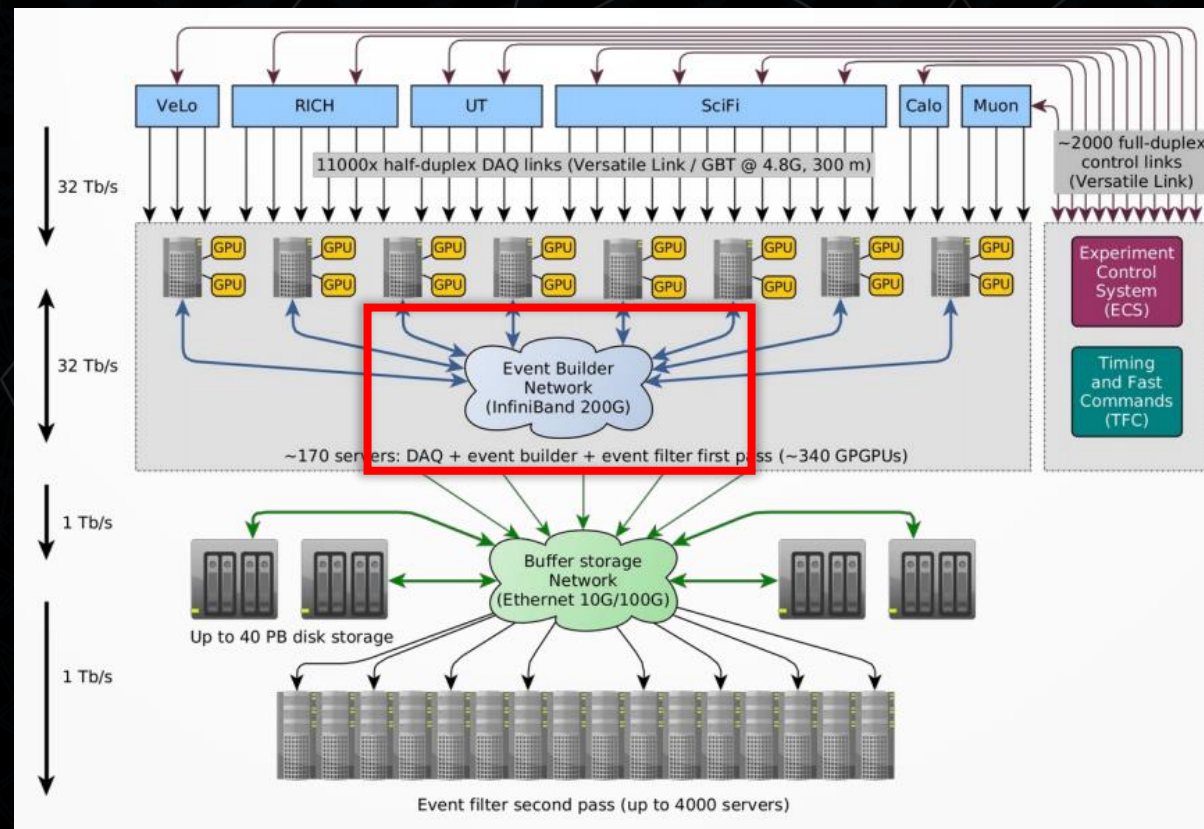
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Google Summer of Code

THE NETWORK

- This project aims at visualising the LHCb DAQ's Event Builder Network using a python app.
- To carefully monitor a network this large, a visual tool would be very helpful and intuitive.

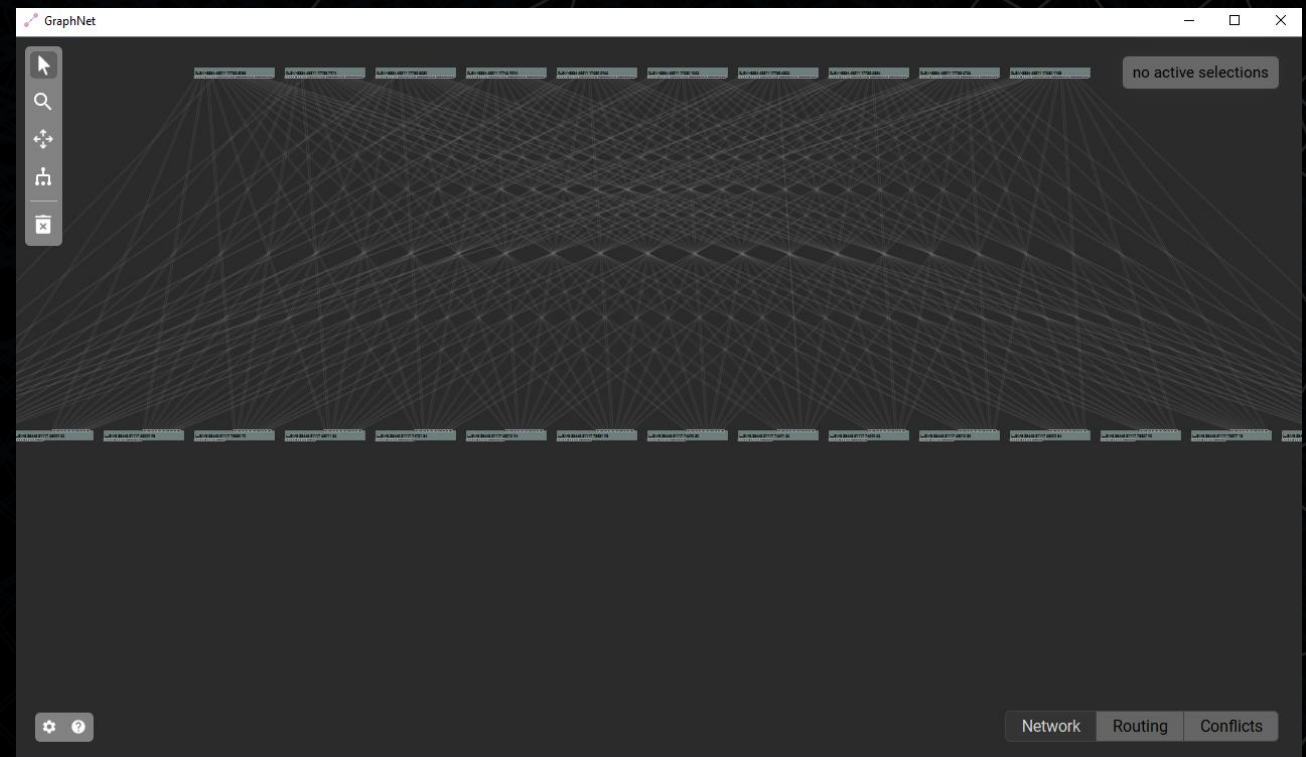


THE PROBLEM

- Missing links
- Conflicts – cause problems
- Looking at files filled with text to debug – doable, but tedious
- A visual tool which can point out errors – a better solution
- Routing + conflicts visualisation
- Additional features - zoom, pan, select, etc - would make things easier
- For the GUI - I decided to use PyQt5 - QT was robust, popular and fast
- Pickle for object storage

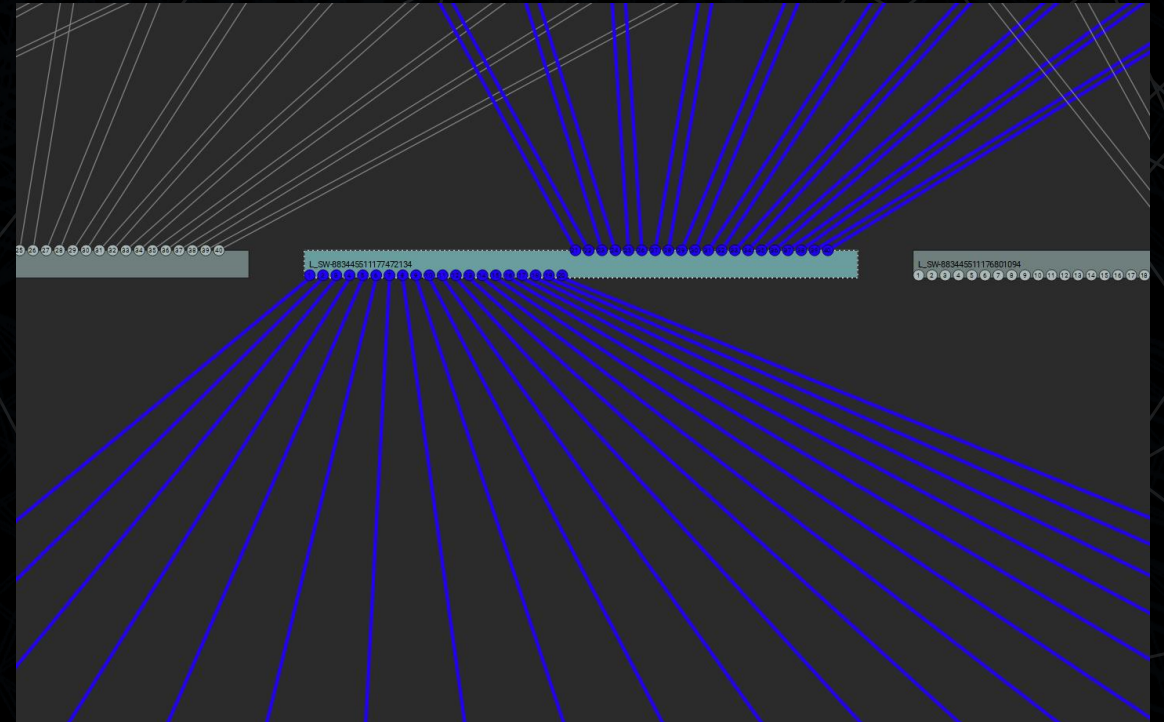
FEATURES

- The end product was a simple which would help monitor the EB network.
- On launch, a 'launcher' window is displayed.
- After launching the main application, the app is set to a default 'network' view
- Top Left – Toolbar
- Top Right -Text Bubble
- Bottom Right – Tabs
- Bottom Left – Second Toolbar



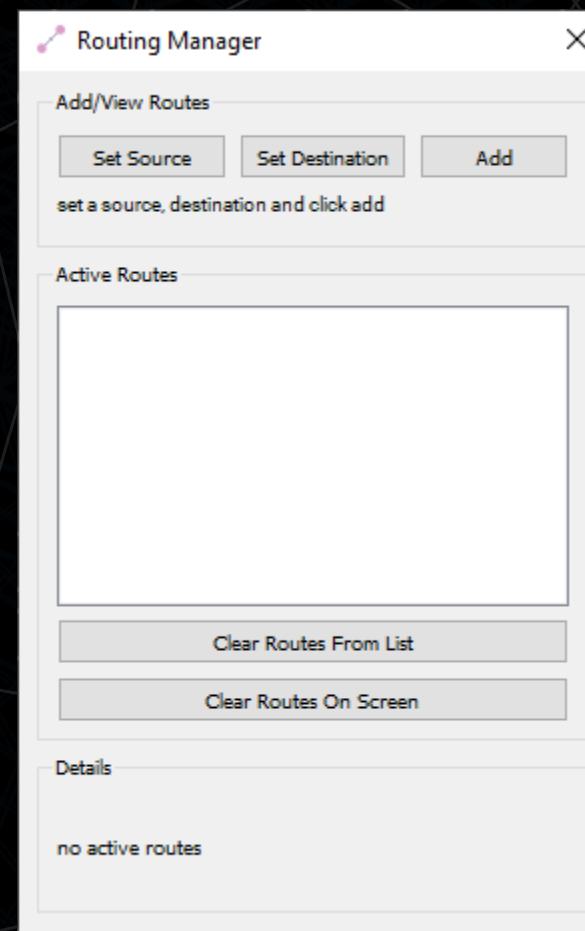
NETWORK

- Simple, easy-to-use UI
- Click on objects for more details
- Click on an empty area or the clear button – clear selections.

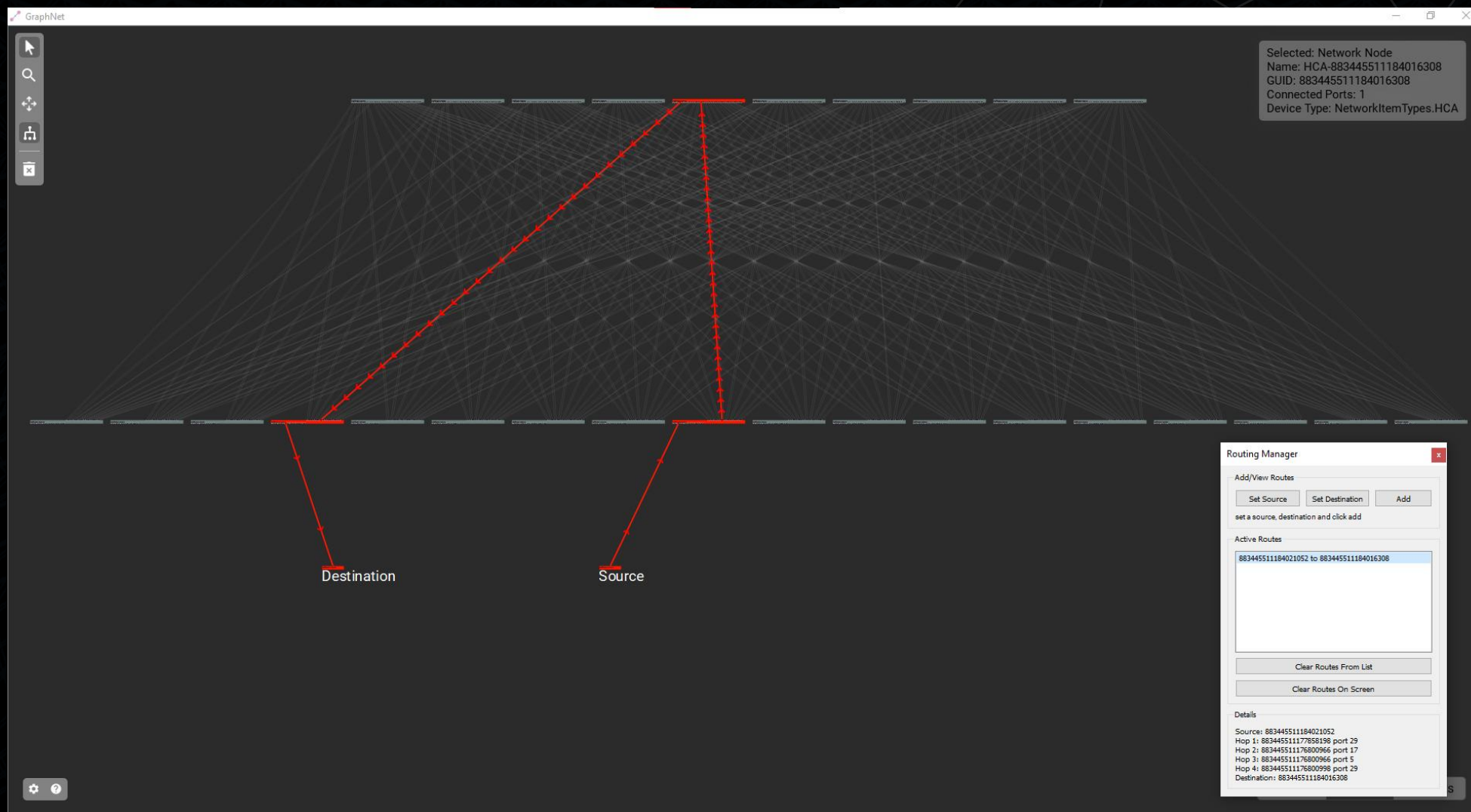


ROUTING

- The router view opens the Routing Manager
- Set source and destination HCAs – add route to the list
- Clicking on the list item draws that route on the screen.
- Multiple routes can be added.

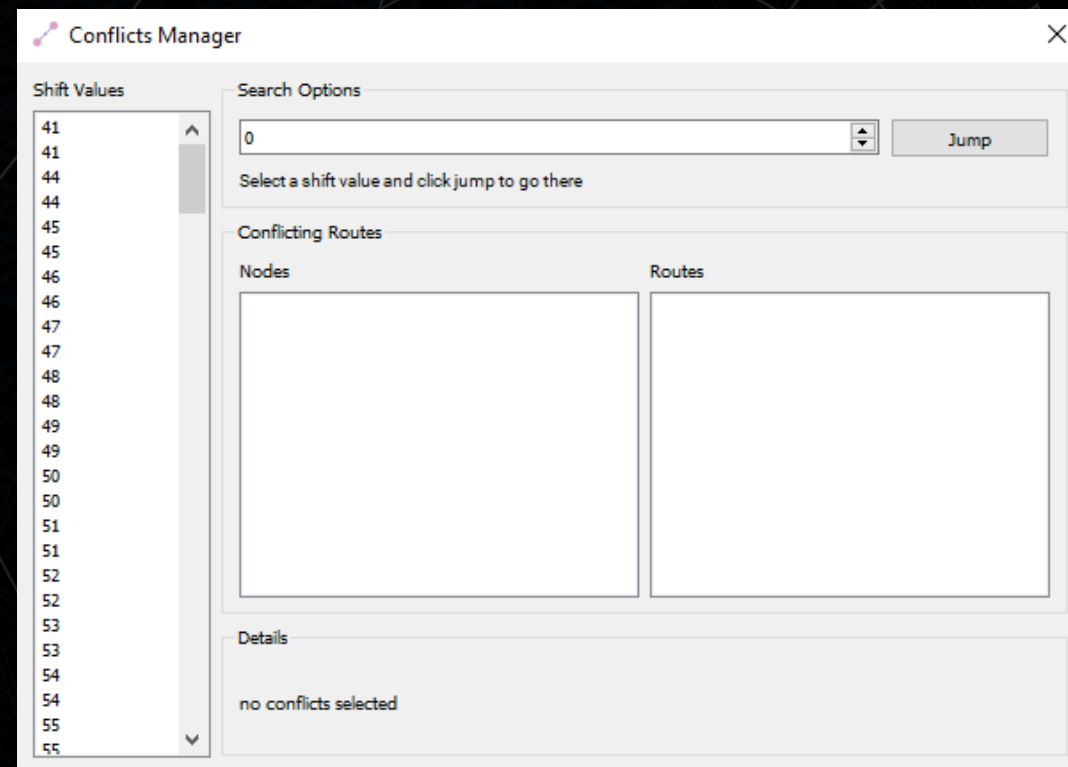


7 ROUTING – IN ACTION

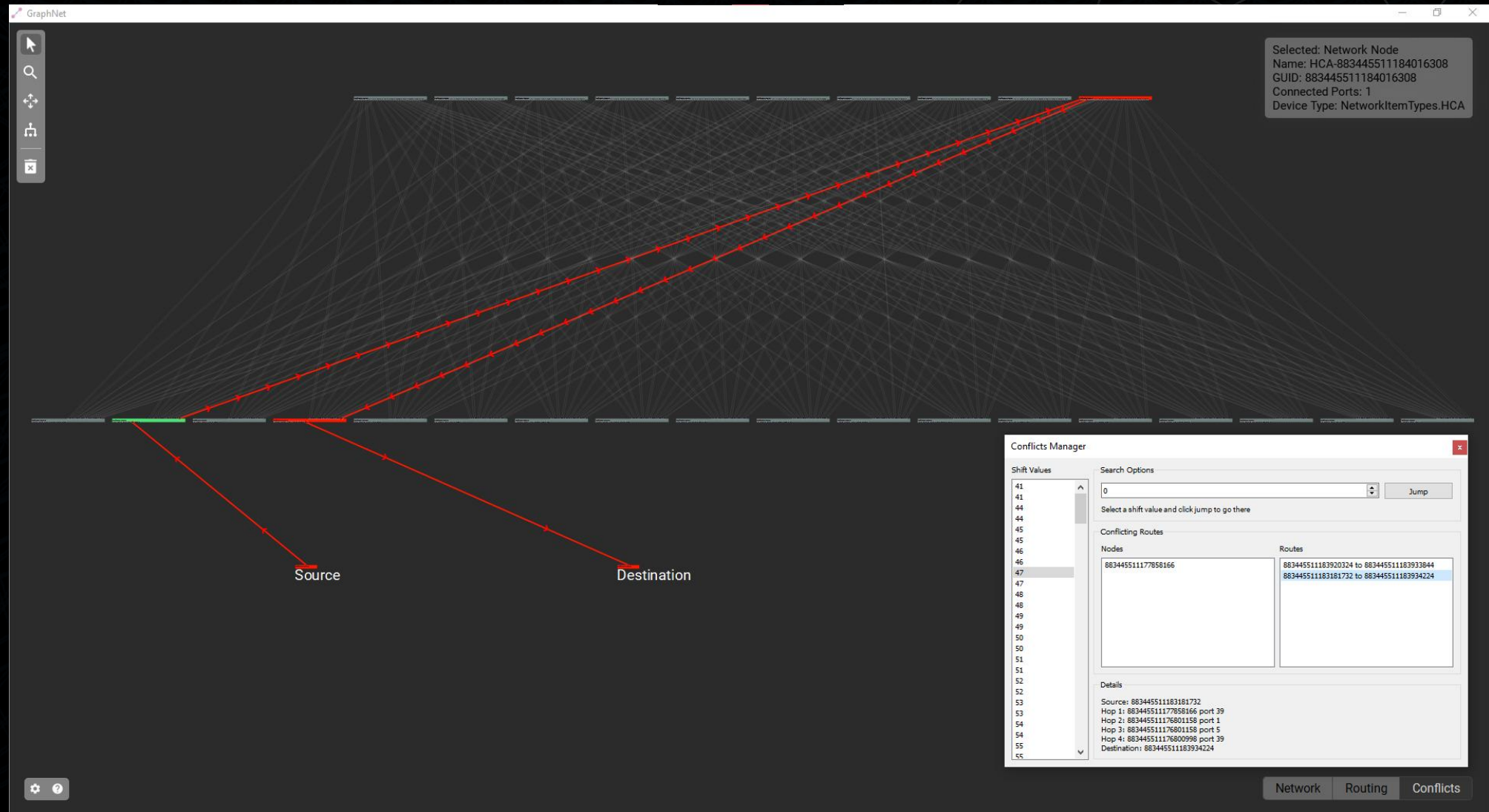


CONFLICTS

- The last tab, the conflicts tab opens the Conflicts Manager
- Extracts the conflict data to draw conflicting routes on the screen
- Selecting a shift value will populate the right panel's lists with conflicting routes.
- Selecting a particular list item - extra details about the port number, hops etc.



CONFLICTS – IN ACTION



THANK YOU!

FINAL REPORT:
[HTTPS://ANURAGAKELLA.GITHUB.IO/GSOC21/](https://anuragakella.github.io/GSOC21/)