PViz

Visualising P2P Multi-Agent Simulations

Dimitris Giouroukis
University of the Peloponnese, Greece

dgiouroukis@uop.gr

Nikos Platis
University of the Peloponnese, Greece

nplatis@uop.gr

Christos Tryfonopoulos
Max-Planck Institute for Informatics, Germany

trifon@mpi-inf.mpg.de

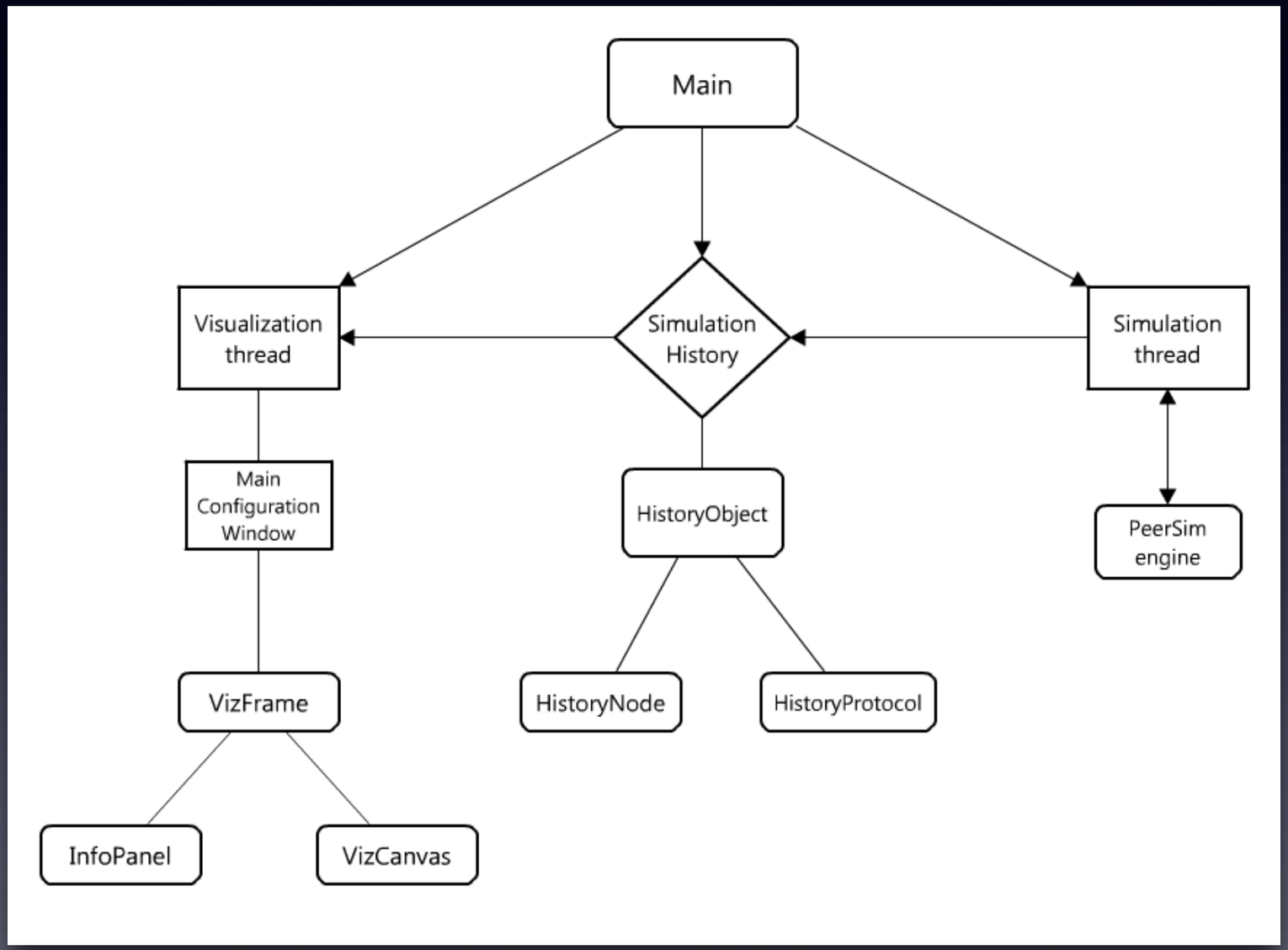
Overview

- PViz is a visualiser for PeerSim simulations.
- Allows the user to visually explore multi-agent, P2P simulations and “replay” their events.
- Effective even for simulations with large number of nodes.
- Fully integrated with PeerSim engine, allows for various user-defined protocols to be visualised
- Chord is used as a test showcase since it is easy to implement and understand.

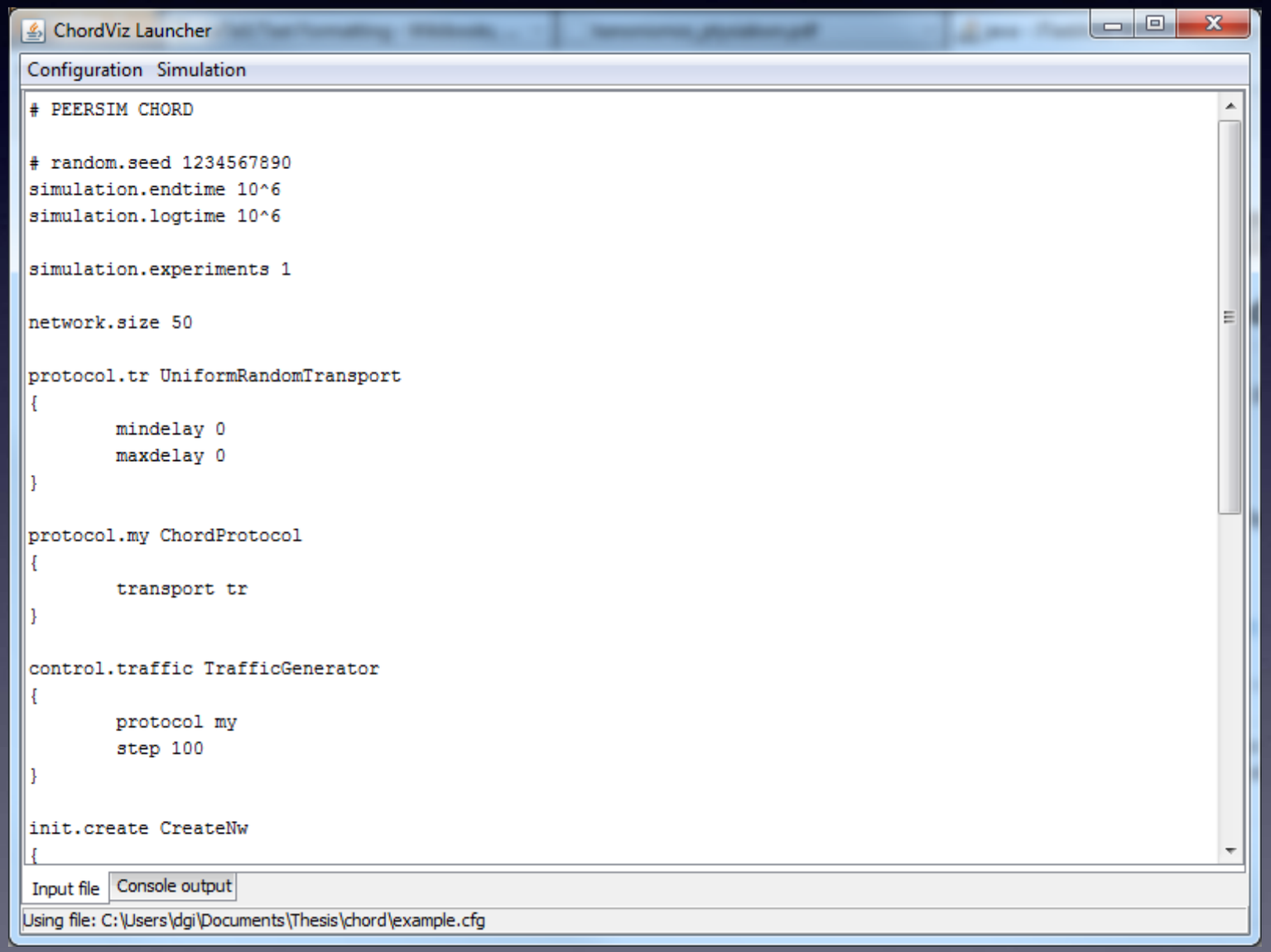
Architecture

- Expands PeerSim, sits on top of simulation engine
- Records all network events and changes (e.g. insert / remove / alter)
- Complete network history is passed to the visualisation engine
- Information presented to the user

Architecture

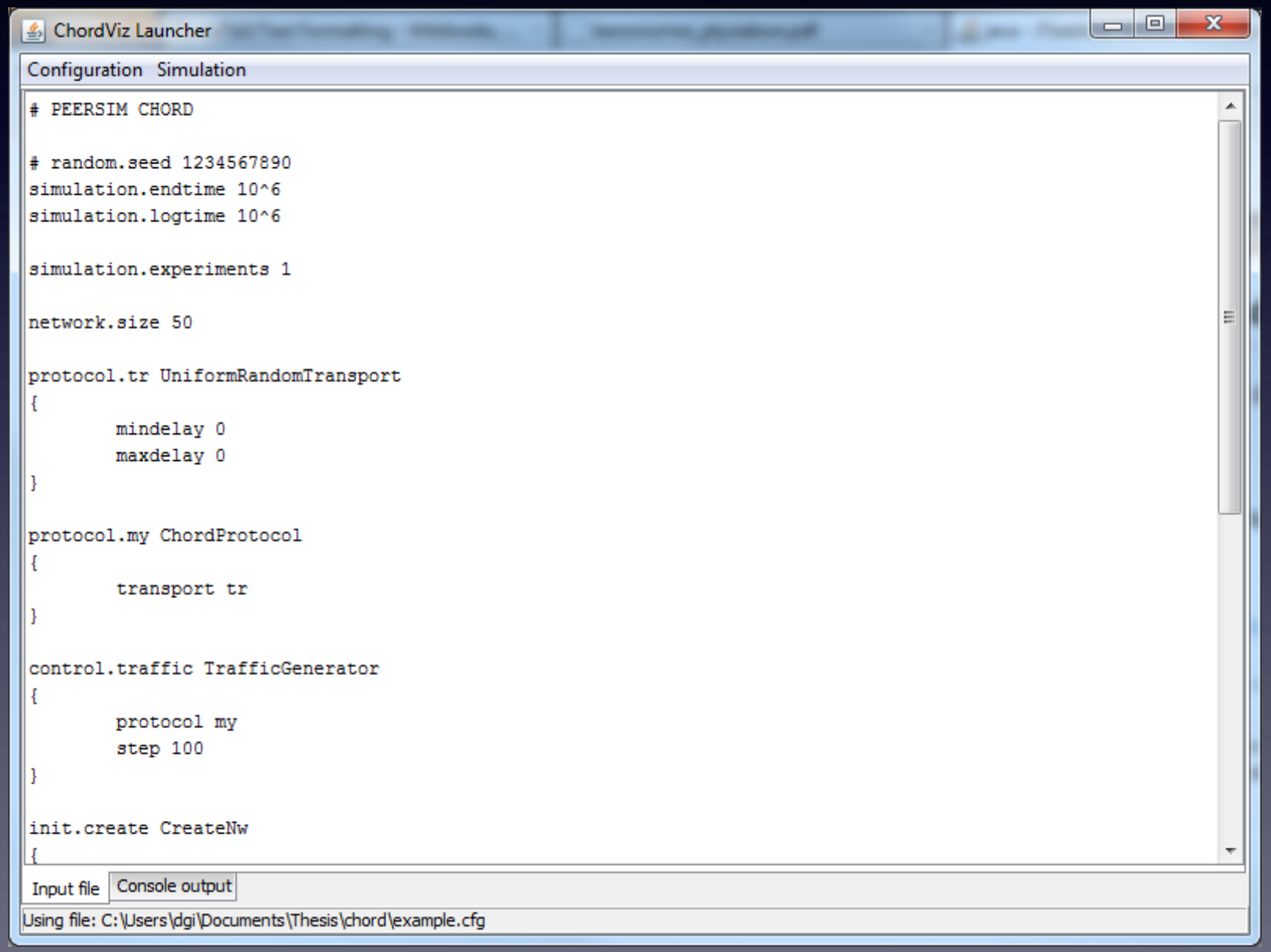


Step-by-step



Input Configuration

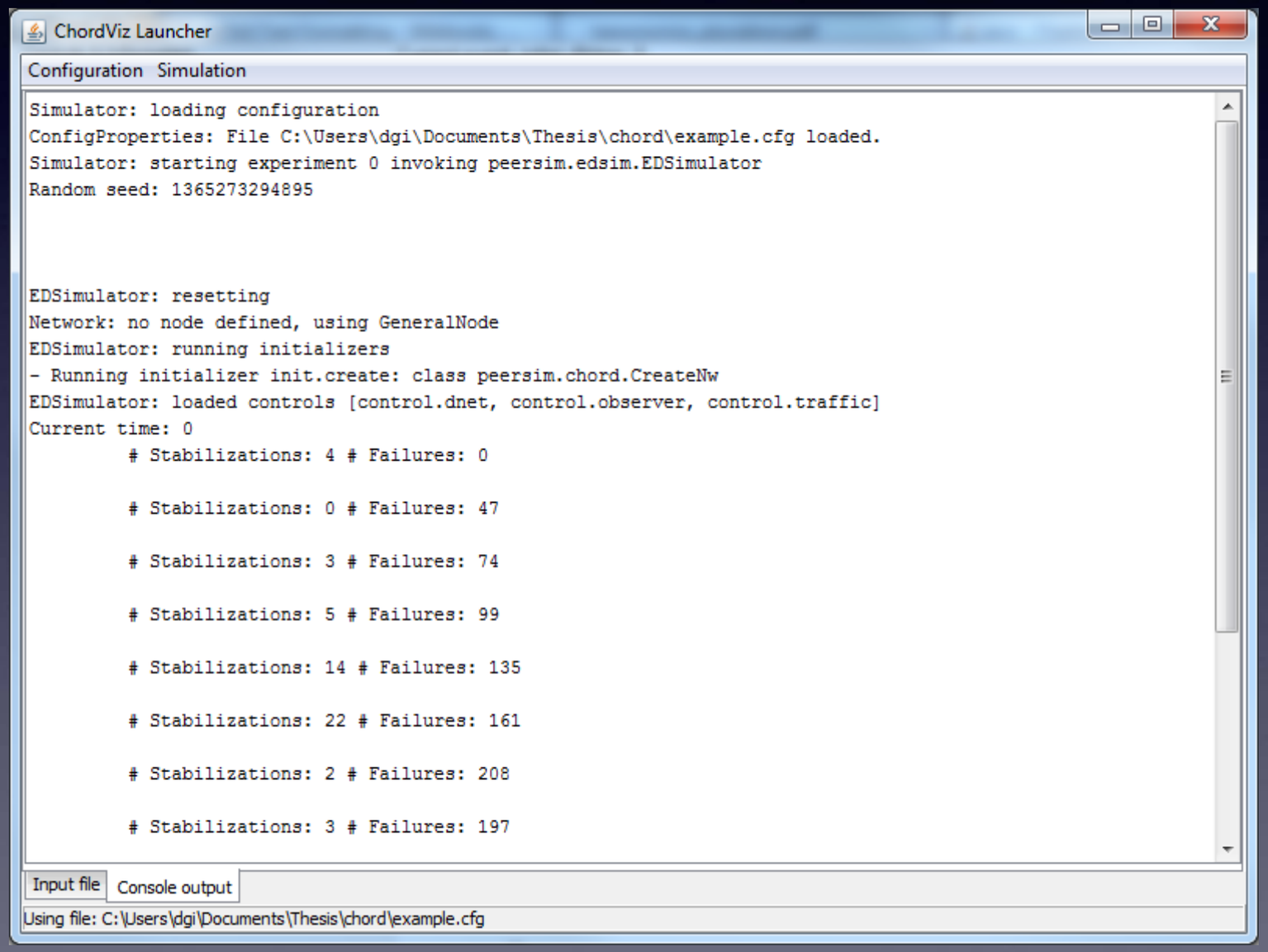
Step-by-step



Input Configuration

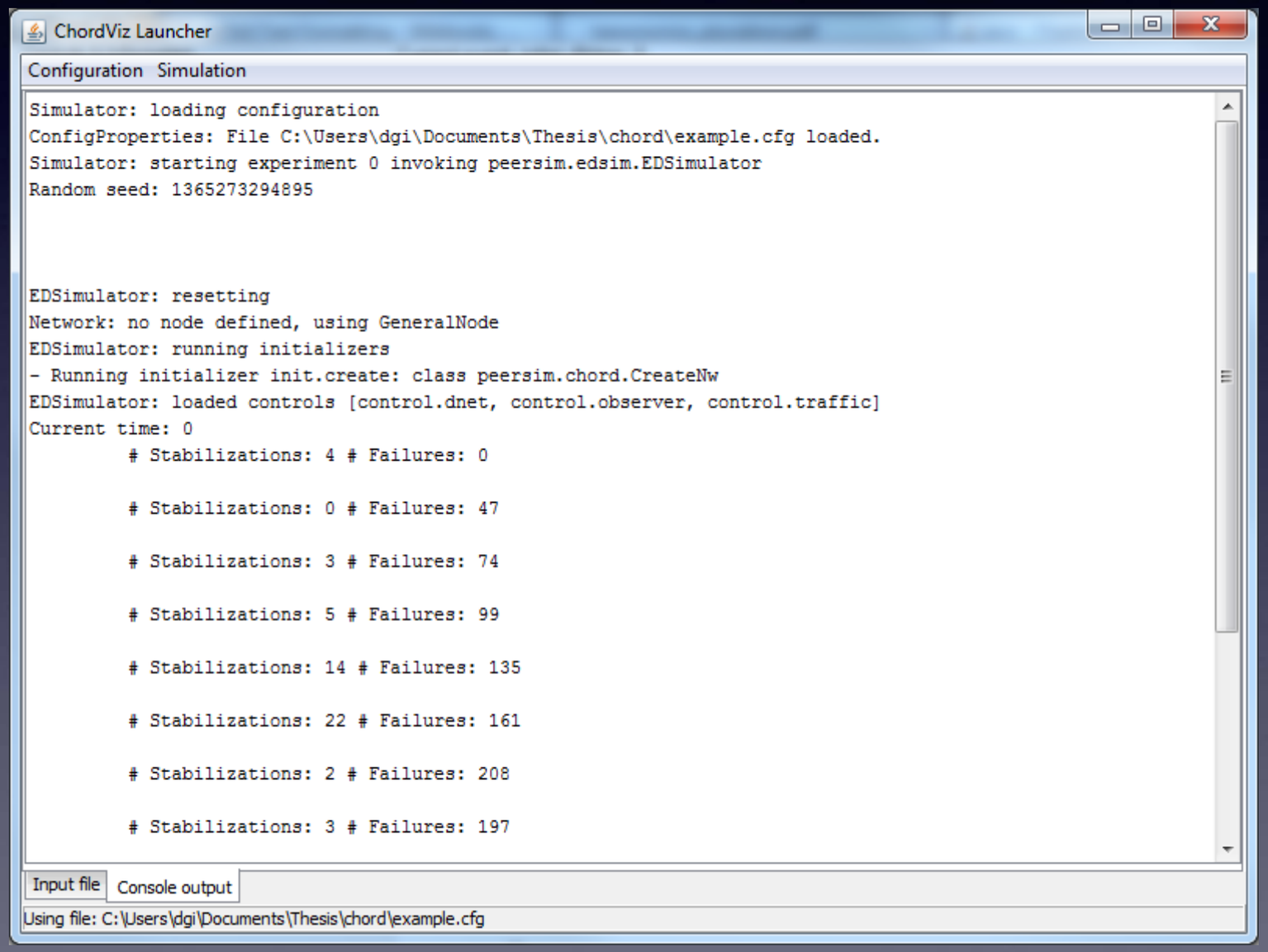
- Accepts PeerSim files
- Allows customisation

Step-by-step



Output pane

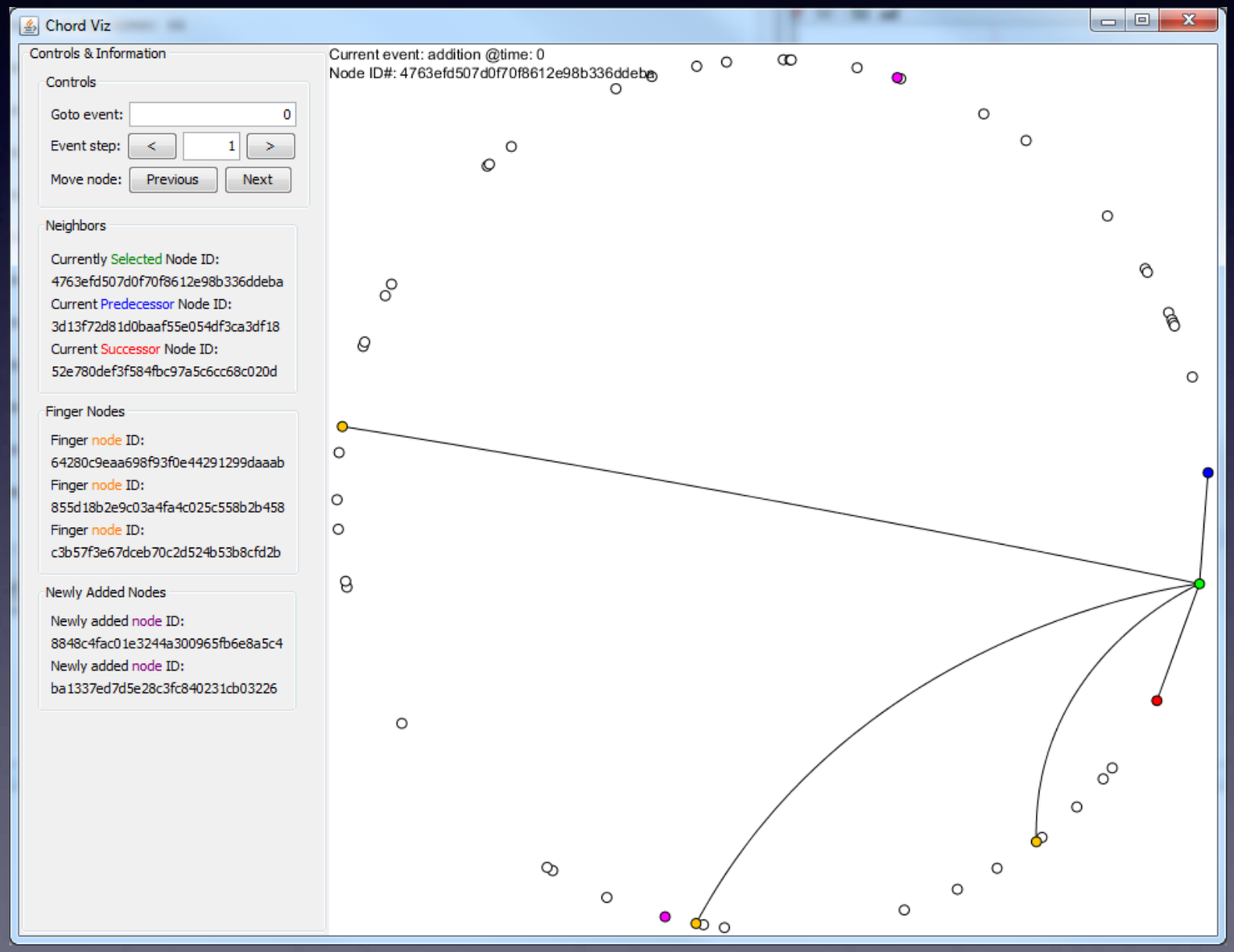
Step-by-step



Output pane

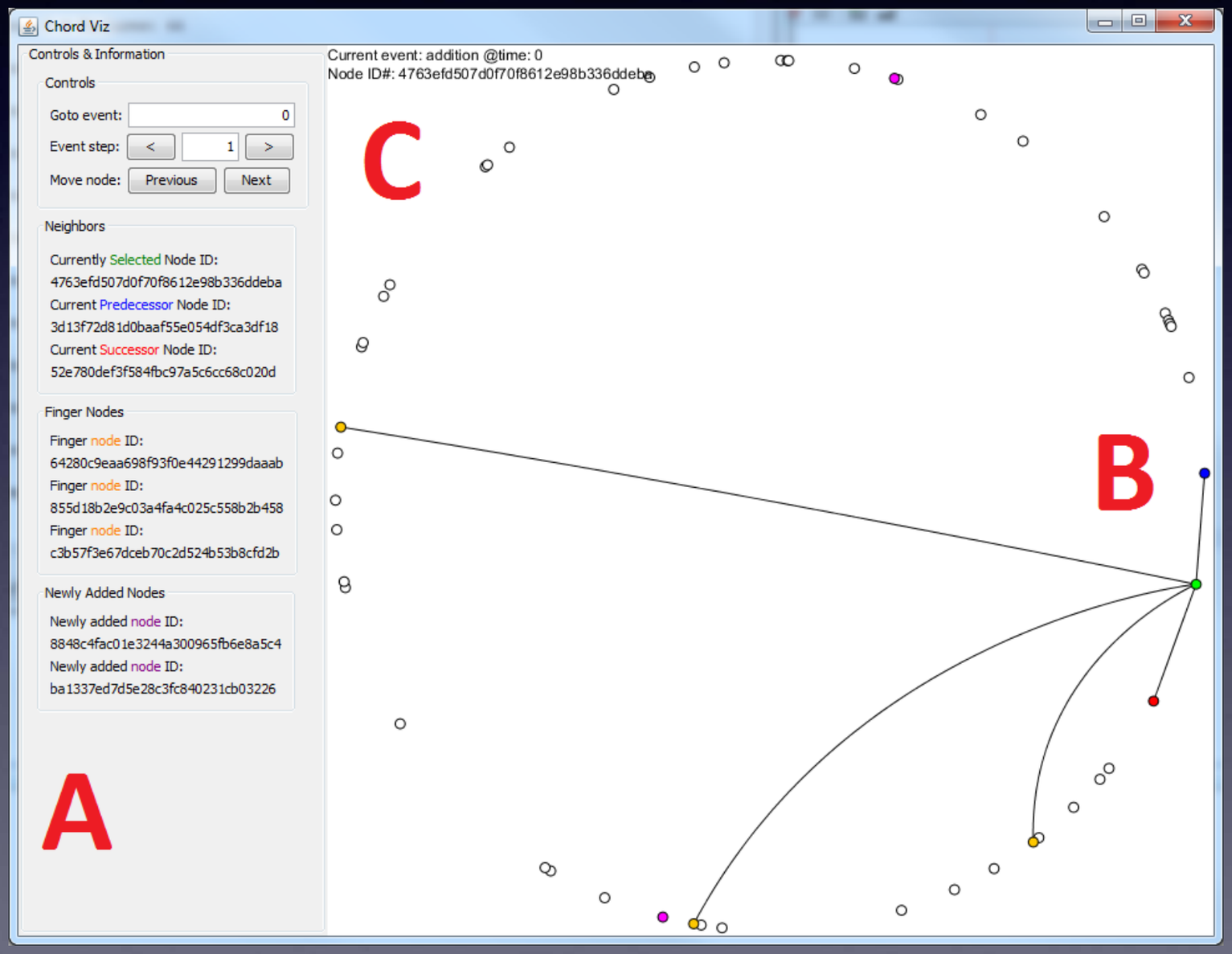
- PeerSim output log
- Provides additional information

Step-by-step



Visualization Window

Step-by-step



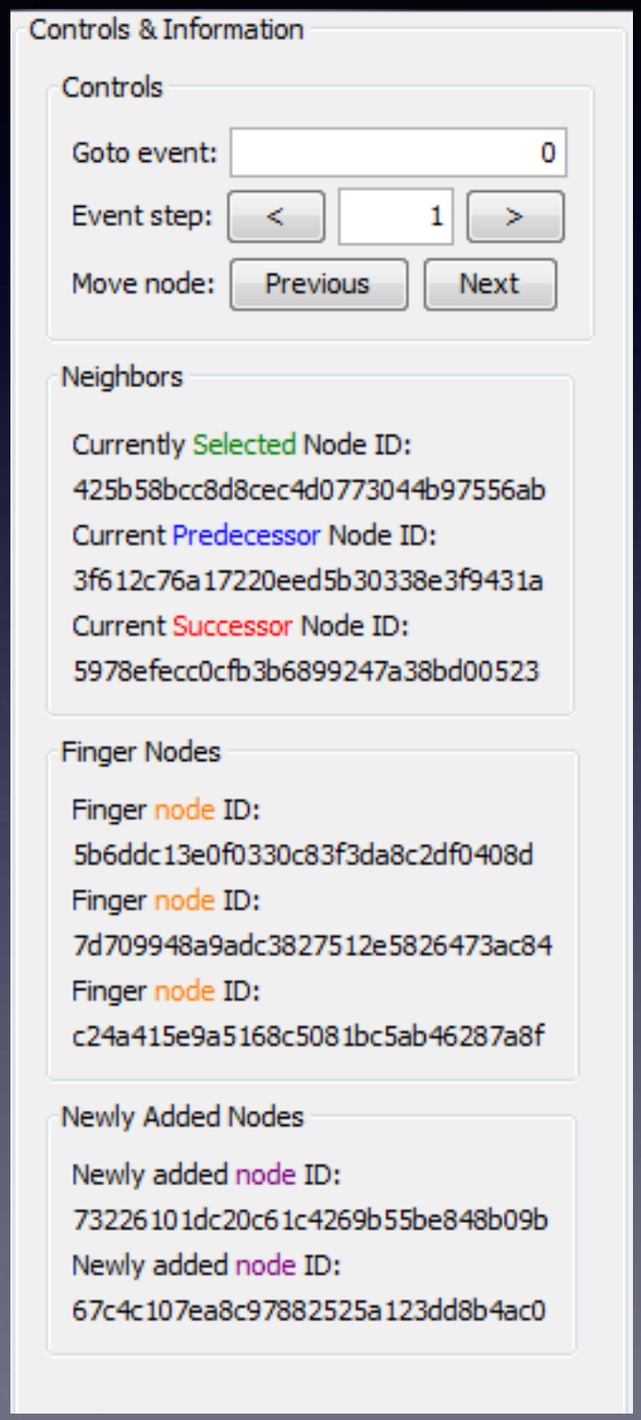
Visualization Window

A. Information Panel

B. Interactive Visualisation

C. Details on current event

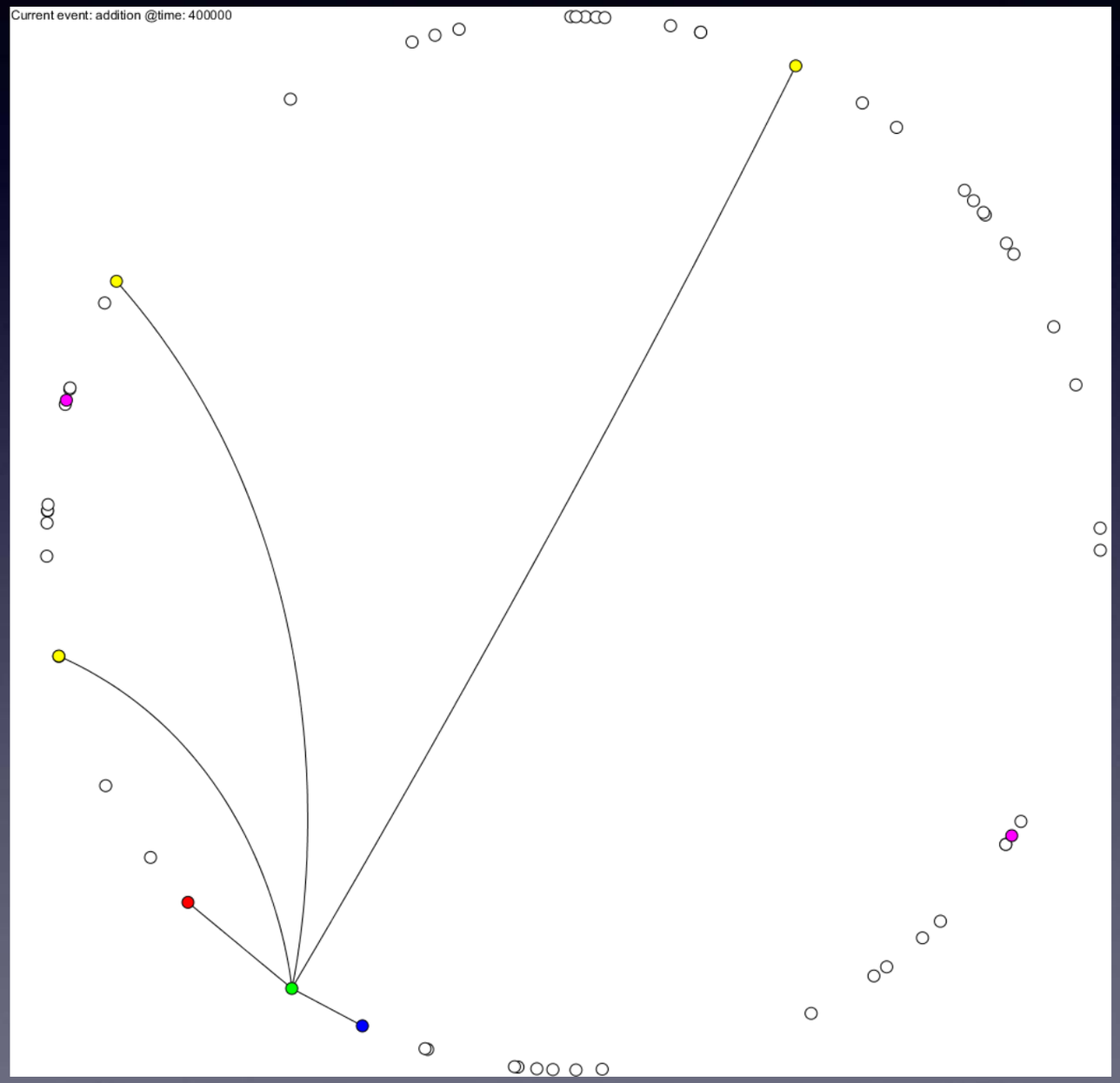
Step-by-step



A) Information Panel

- Controls for event, simulation stepping, selected node.
- Lists neighbours and fingers of selected node
- Lists details of nodes added on the current event

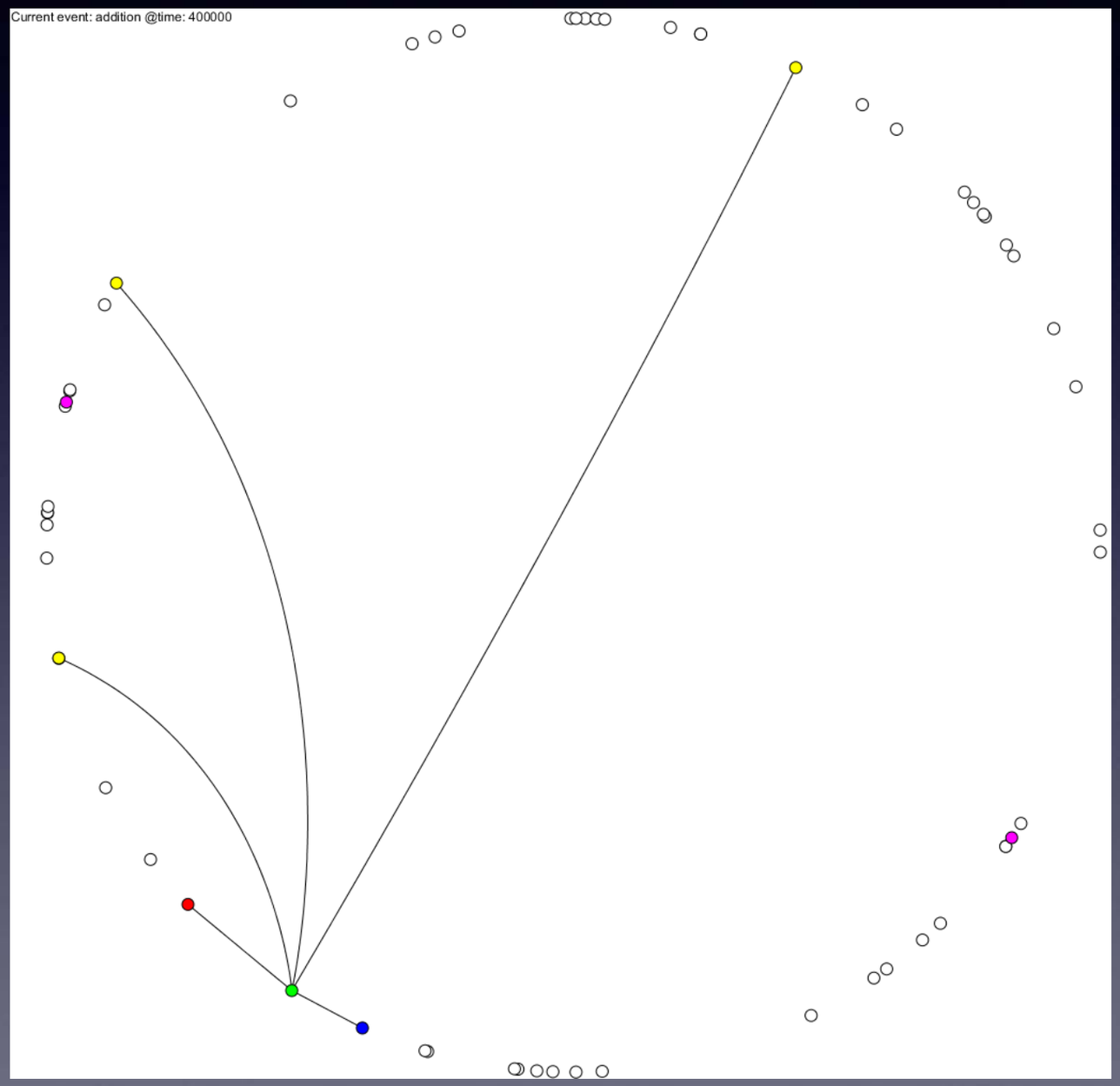
Step-by-step



B) Main Visualization

- Node selection reveals successor, predecessor, fingers
  - Successor: red
  - Predecessor: blue
  - Fingers: yellow

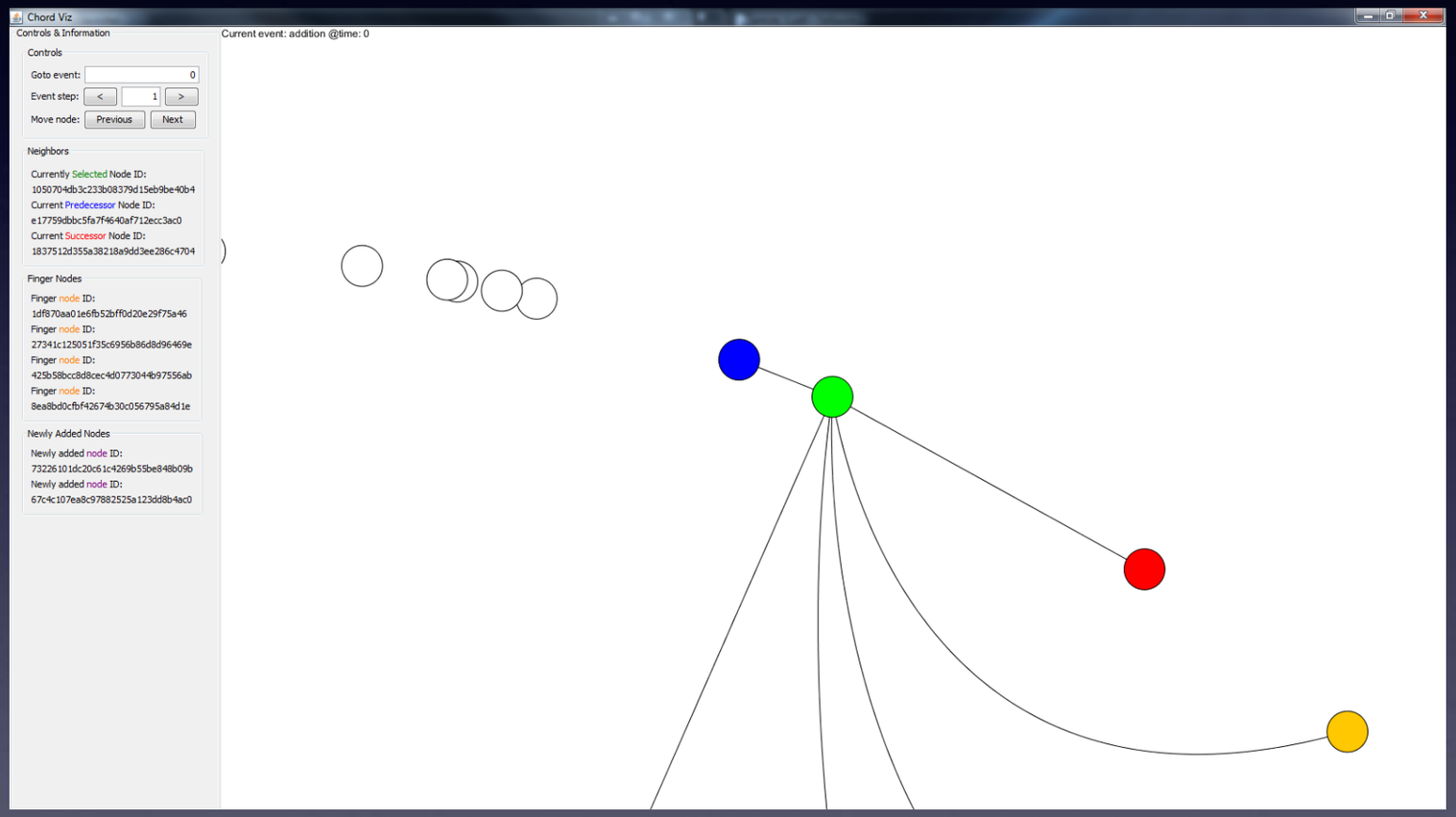
Step-by-step



B) Main Visualization

- Event details shown on top-left corner
- On event change, new nodes are highlighted
  - New nodes: magenta

Step-by-step



Interaction

- Visualization allows zoom in or zoom out
  - Explore dense networks
  - See overview of network

- Selected node can be changed via keyboard
  - Useful when network is dense

Questions

- Any questions?

PViz

Thank you!