PViz
Visualising P2P Multi-Agent Simulations

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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
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!