FDP: A teaching and demo platform for P4-based SDN

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Problem

VM-based methods for P4-based SDN demonstration:
- Require effort and adequate client-side resourcing
- Give tool-centric rather than network-centric view
- Do not give a visualization of running SDN

Solution

- Zero-effort in-browser interactive visualization
- Easy to use, easy to host
- Reliable replay for many concurrent users
- Generic and portable
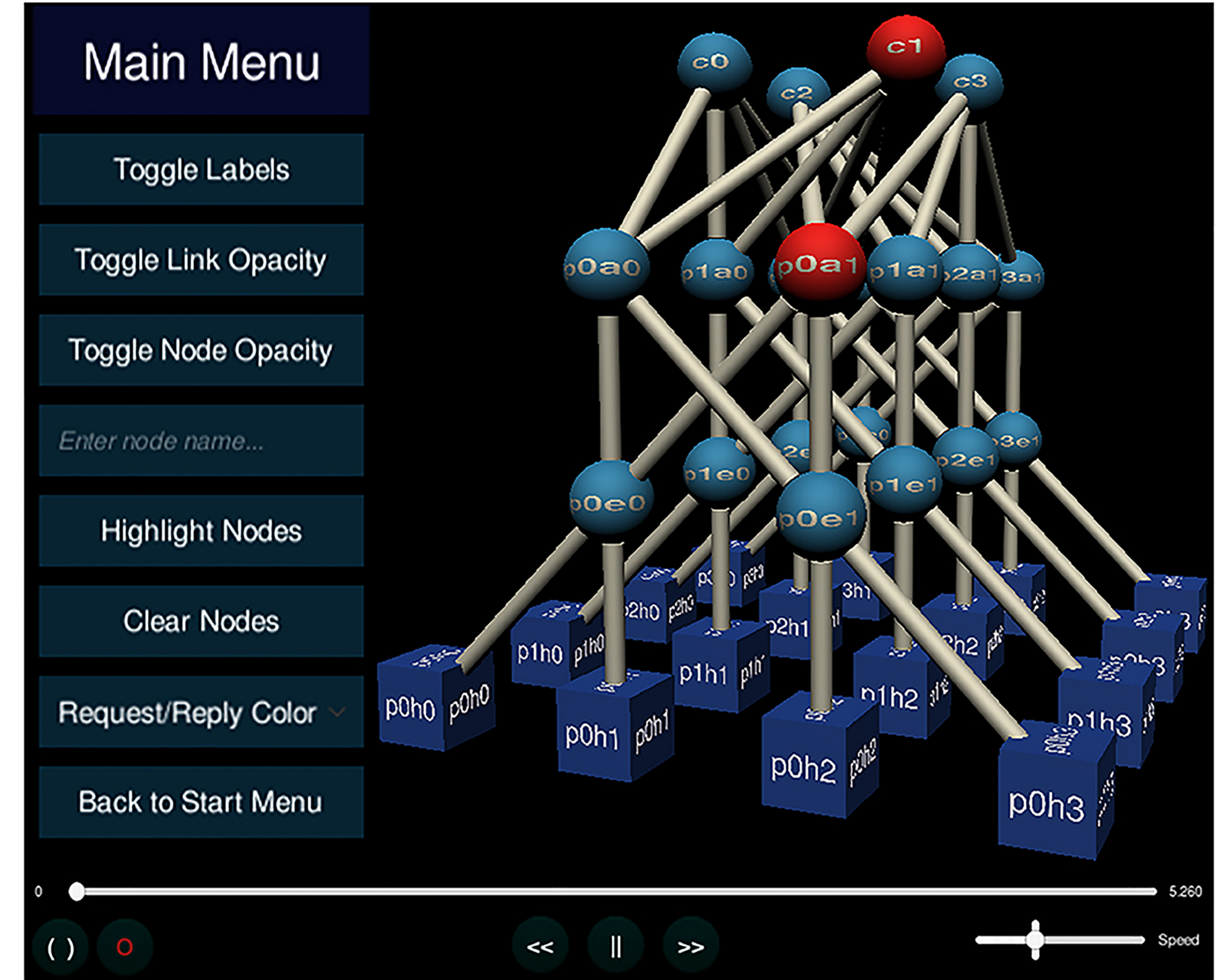- Amenable to animation and customization
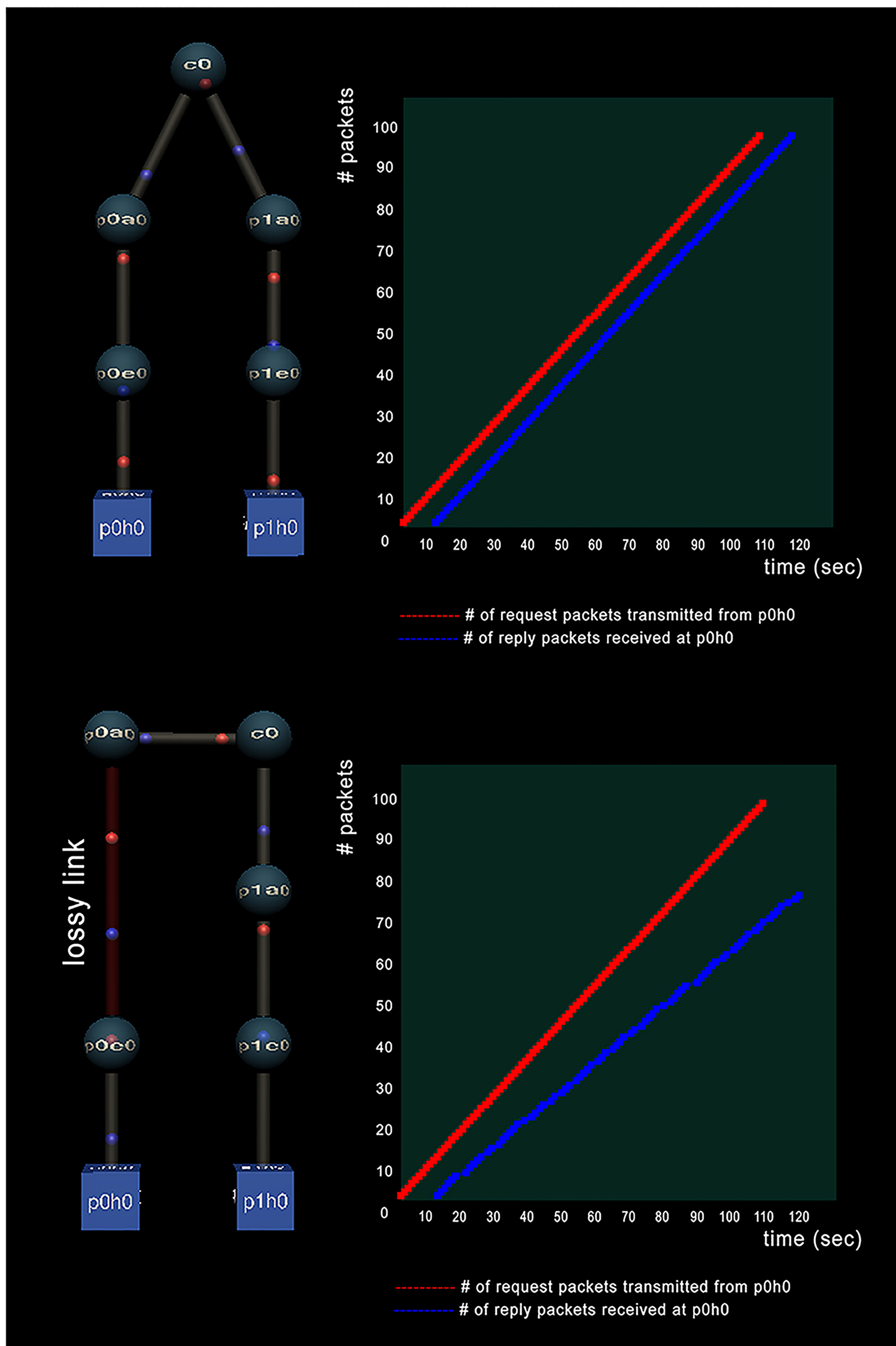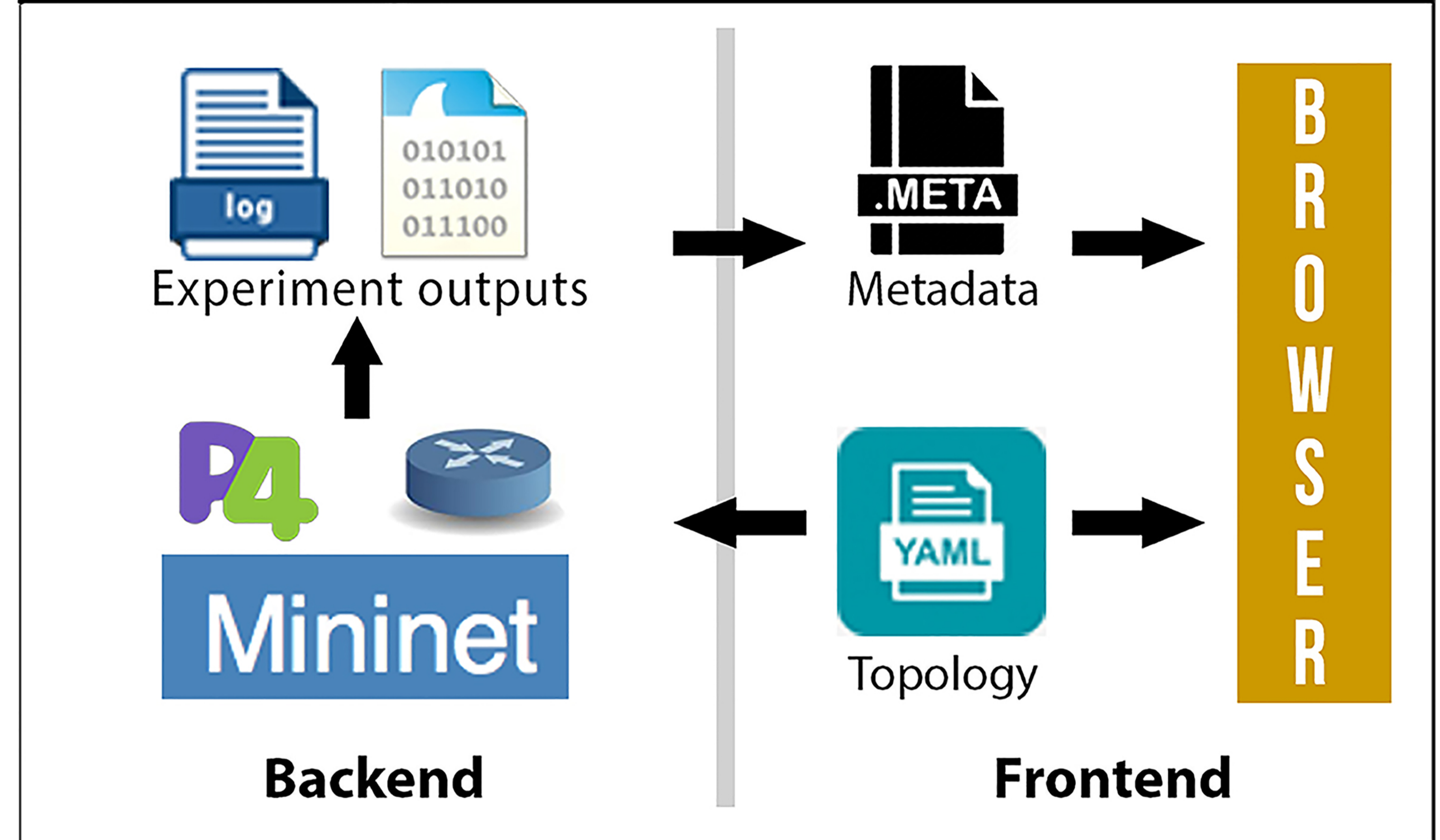

Fig.1 FDP Network Animation

Fig.2 Example running on FDP

FDP's Design

Example

Fig. 2 shows screenshots of two instances of an experiment on a fat-tree topology (k = 2). Host p0h0 pings p1h0, and the latter replies.

Upper pane:
- The network is functioning correctly
- Graph shows that pings and replies are equinumerous

Lower pane:
- Same setup with a lossy link between p0e0 and p0a0
- Fewer ICMP replies compared to requests over time