

Rio de Janeiro, 31-Oct-2022.

Dear Editor,

We wish to submit our manuscript entitled “Symmetric Peer-to-Peer Applications” to be reviewed for publication in the journal “Peer-to-Peer Networking and Applications”.

We propose a middleware to program applications in which decentralized peers conform to identical behavior, as if they were mirrors of each other. The applications can broadcast asynchronous events between themselves, and the middleware is responsible to synchronize them in a single global timeline.

Existing solutions uses a central server for coordination, which must be available 100% of the time (see the Croquet framework). Besides the resilience to failures and partitions, we believe that our proposal has an associated advantage to support “local-first software”, in which applications can also work normally while offline.

The core contribution of our middleware is a “time machine” that can rollback conflicting peers to resynchronize their states.

The work is on the scope of “Architectures and protocols” for P2P networks, and we confirm that it has not been submitted for publication elsewhere.

Regards,

Francisco Sant’Anna