



A solution to free-riding in peer-to-peer systems

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PDS Colloquium

Overview



- Peer-to-peer
 - Free-riding
- Example of free-riding prevention
- Supervised teaming

Peer-to-peer



- Liars, cheaters, and colluders
- Free identities
- Whitewashing

Example of free-riding prevention



- BitTorrent
 - Private tracker
 - Sharing-ratio enforcement

Supervised teaming

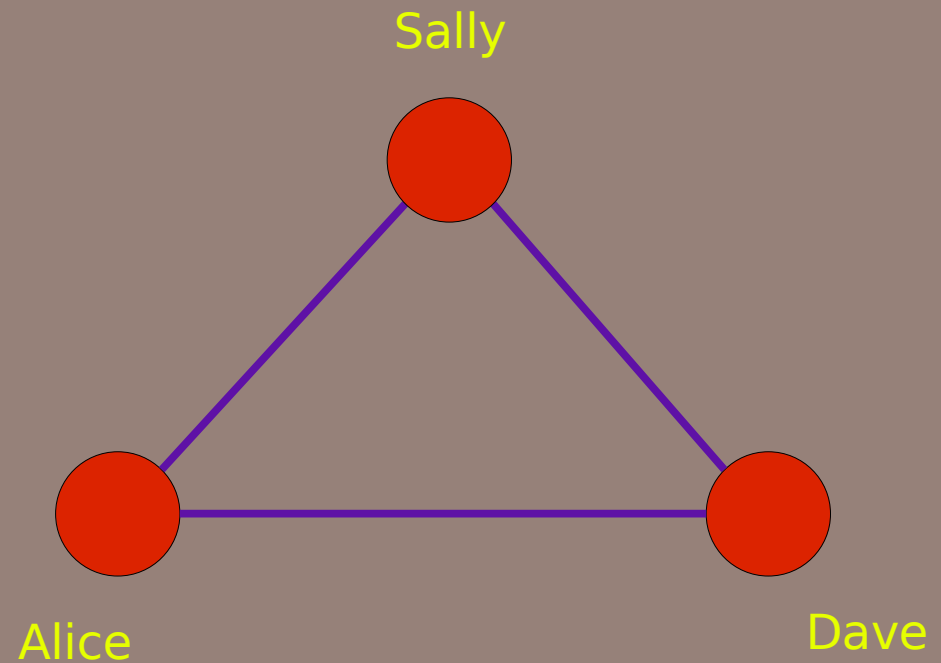


- One supervisor
- N team members

Supervised teaming: Setup phase



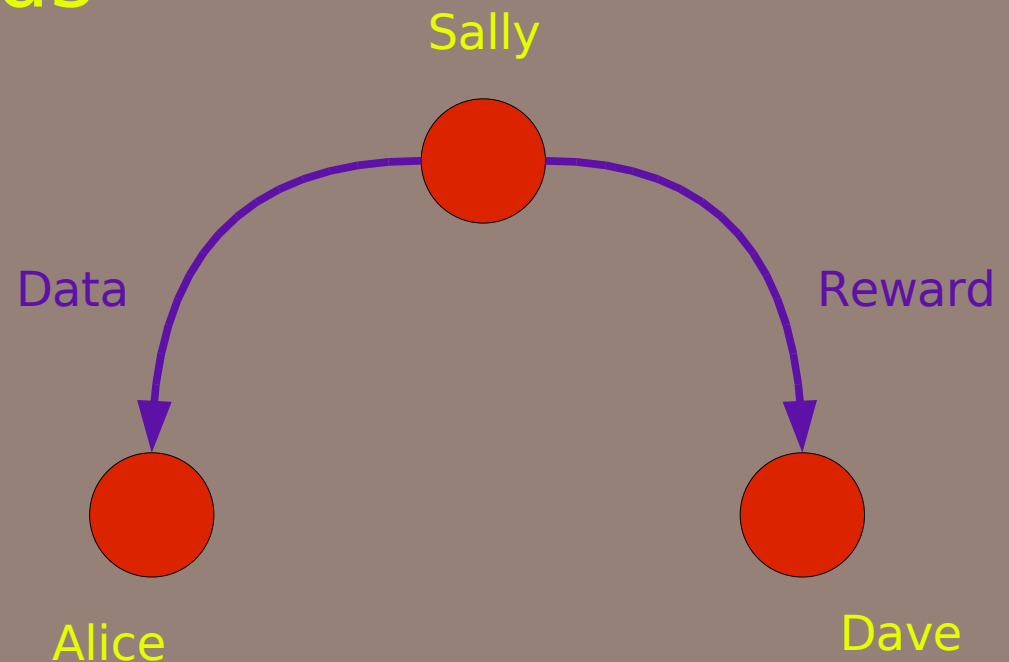
- Interested
- Connectible



Supervised teaming: Seeding phase



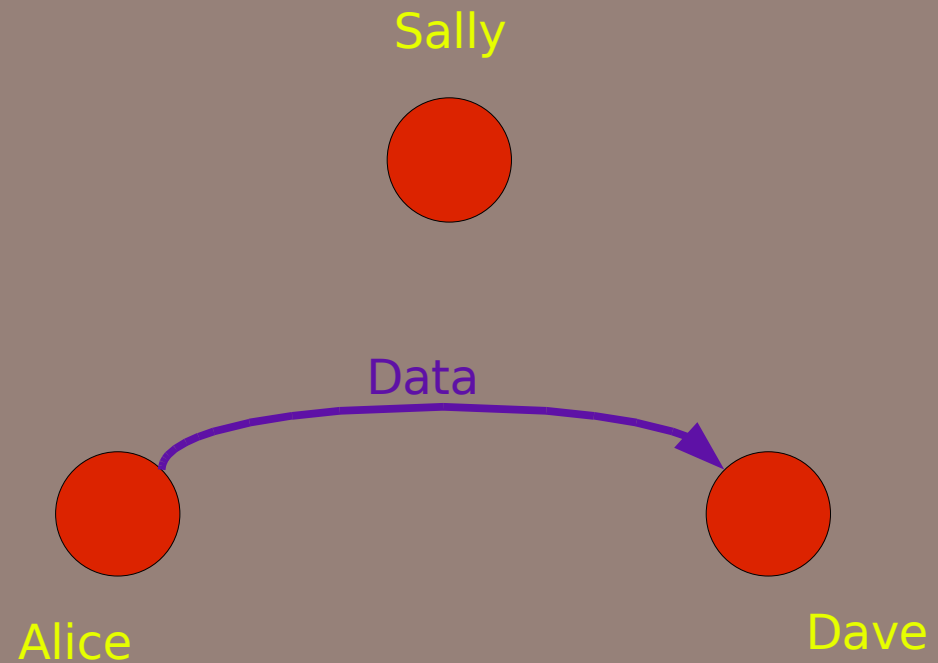
- Supervisor sends new data & rewards



Supervised teaming: Exchange phase



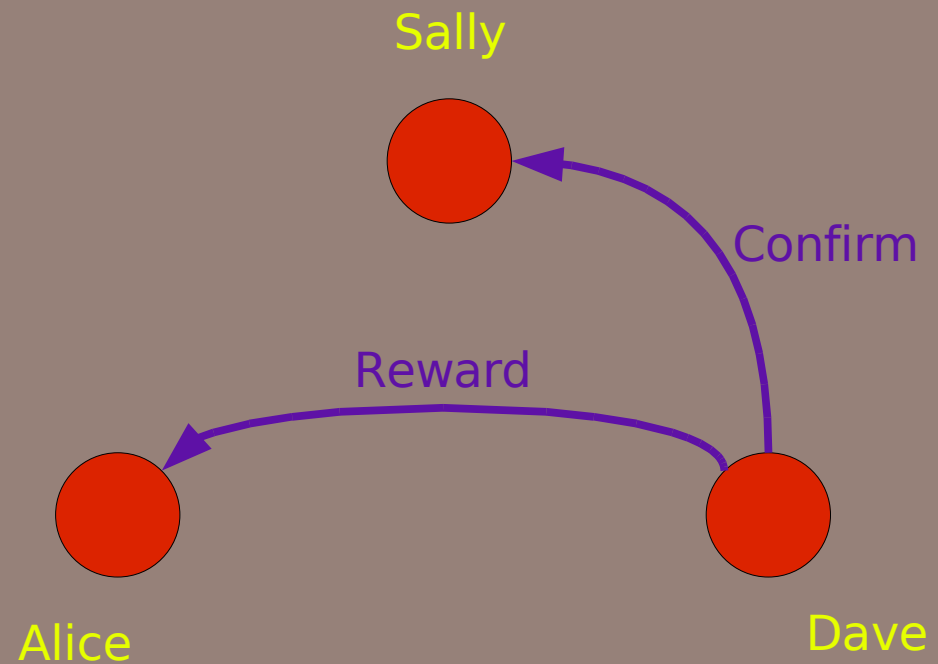
- Exchange data between peers



Supervised teaming: Reward phase



- Exchange reward
- Confirm forward

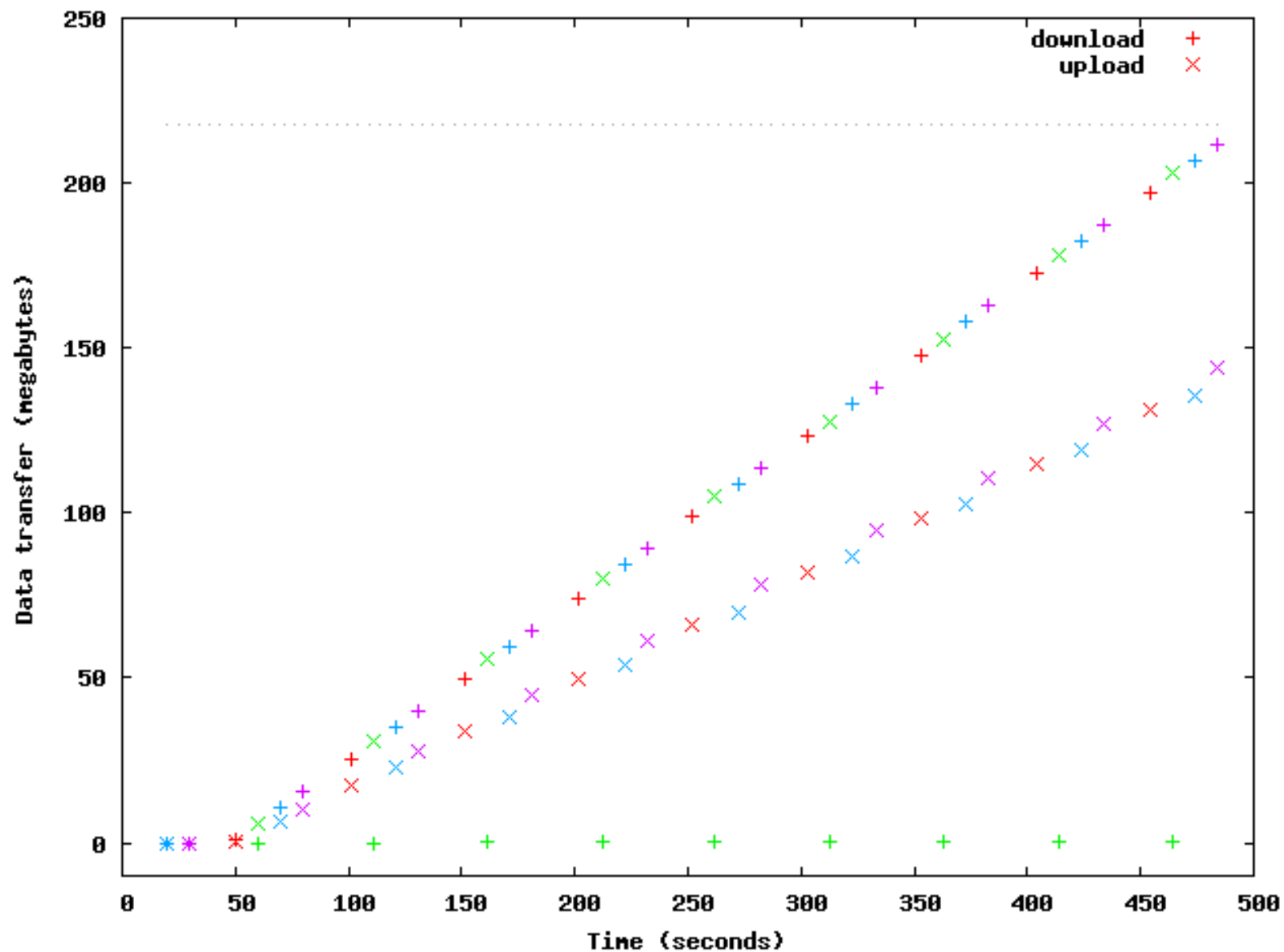




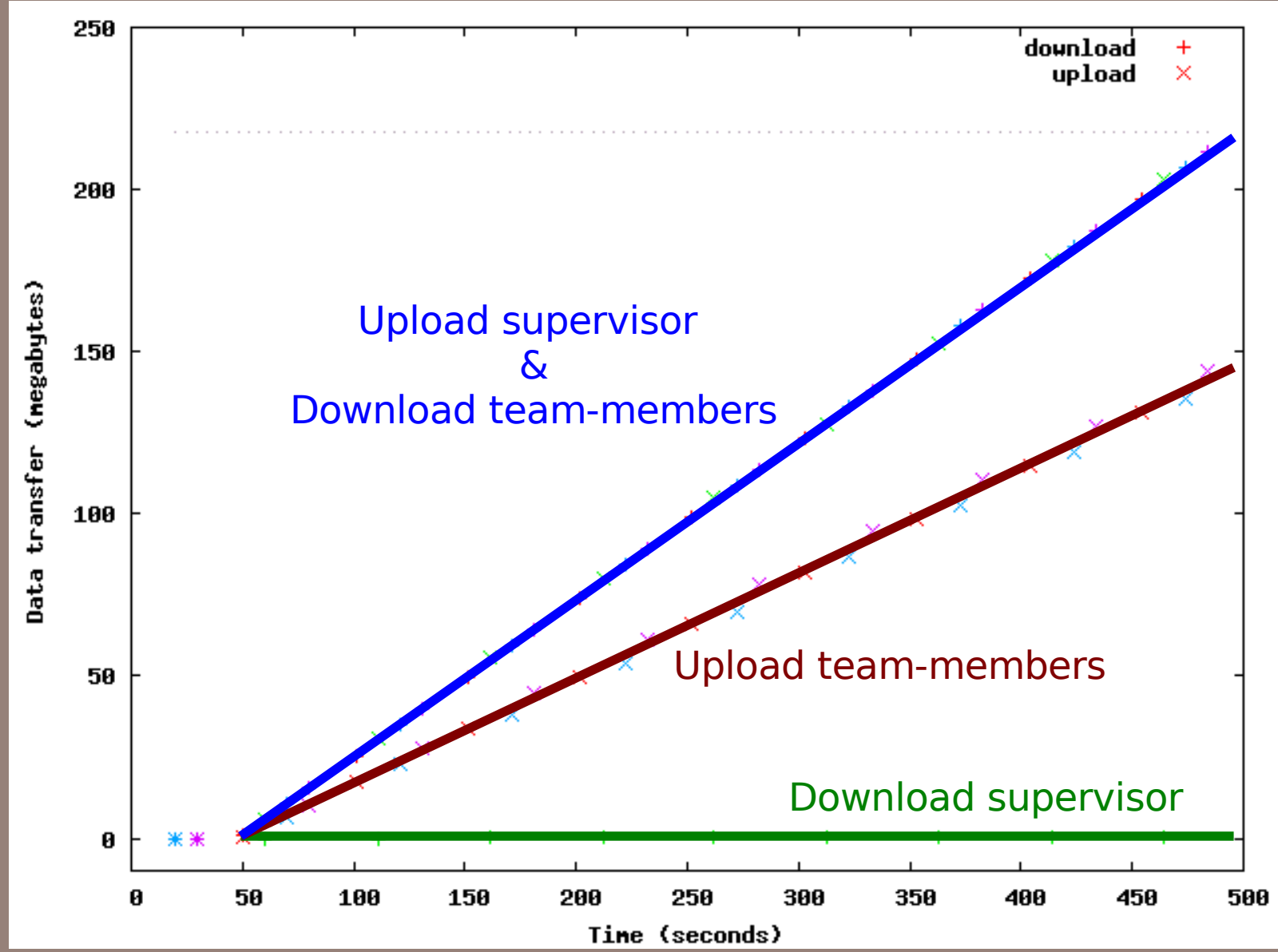
Supervised teaming

- Advantages
 - Very efficient for the supervisor
 - Free-riders are forced to upload
 - Speed guarantees
- Disadvantages
 - Non-optimal throughput
 - Bottleneck at slowest team-member

Results so far...



Results so far...



Questions



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