

Freechains



www.freechains.org



github.com/Freechains/README



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[@freechains_net](https://twitter.com/freechains_net)

peer-to-peer content dissemination

■ Content

- E-mails
- Social media posts
- Webpages, Blogs
- News
- Forums, Mailing lists
- Media streaming
- Instant Messages, Chat
- Teleconference
- Cloud Storage
- Services (delivery, auction)

■ Dissemination

- $1 \rightarrow N$ (news)
- $1 \leftarrow N$ (feedback)
- $1 \leftrightarrow 1$ (e-mail)
- $N \leftrightarrow N$ (forums)
- $1 \leftarrow$ (backup)

■ Peer to Peer

- No central server
- No central authority
- **No need to trust**

Internet Today

- Very few companies
 - Control our public data
 - Collect our private data
 - Decide what we consume
 - “The algorithms”
 - Demand connectivity
 - “Cloud Services”
 - Impose entry barriers
 - “Vendor lock-in”



*The Big Five
“FAAMG”*



Internet Today

- Centralization
 - Data
 - Infrastructure
 - Power

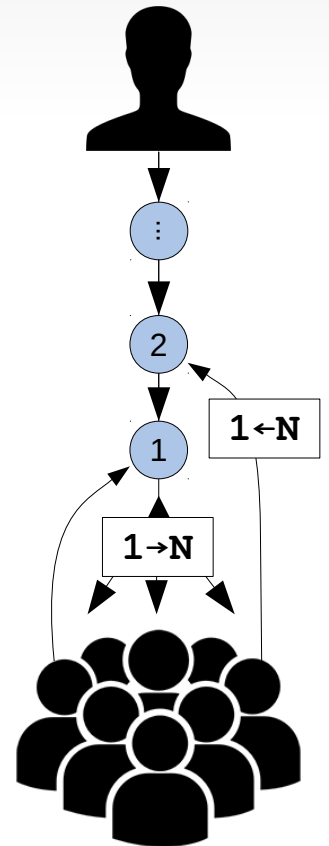


*The Big Five
“FAAMG”*



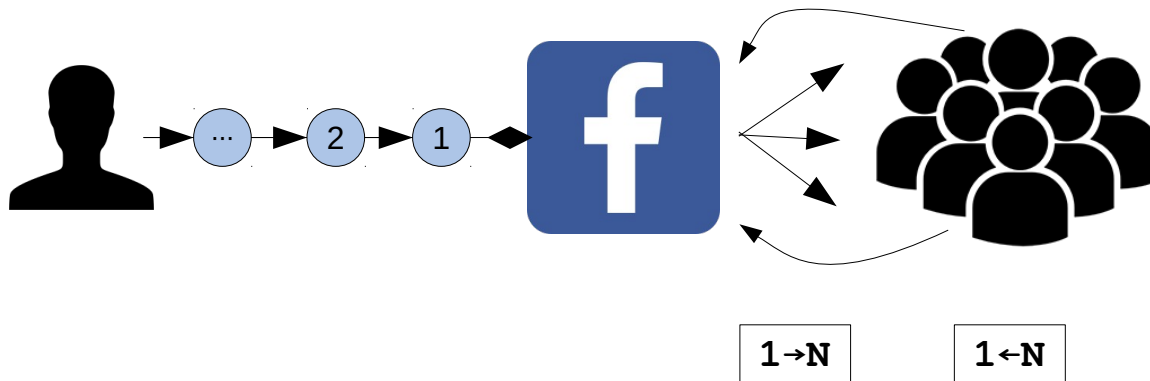
What we really need? (communication patterns)

- Public identity
 - $1 \rightarrow N$: *feed, streaming, news, repository, website*
 - $1 \leftarrow N$: *comments/feedback, private message*
- Private channel
 - $1 \leftrightarrow 1$: *IM, e-mail*
 - $N \leftrightarrow N$: *closed groups, shared files*
 - $1 \leftarrow$: *backup, documents*
- Public forums
 - $N \leftrightarrow N$: *forums, chat, trading*



Centralized

- Public identity
 - $1 \rightarrow N$: *feed, streaming, news, repository, website*
 - $1 \leftarrow N$: *comments/feedback, private message*



- Identity proxy
- Presence and availability
- Content delivery
- Adequate ads
- Control over fake/illegal

Can we decentralize?

- Availability

- Participants are able to exchange messages

- Integrity, Authenticity, Confidentiality

- Contents of messages are not altered
- Senders can be verified and cannot be repudiated
- Sensitive contents are kept secret

- Consensus

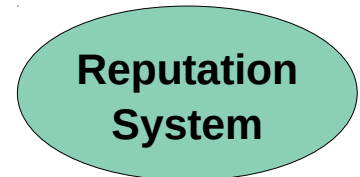
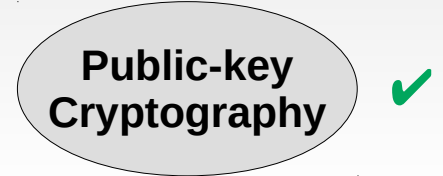
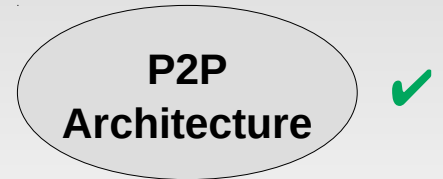
- Participants agree on the existence and order of messages

- Fairness

- Participants have equal opportunities to communicate

- Quality

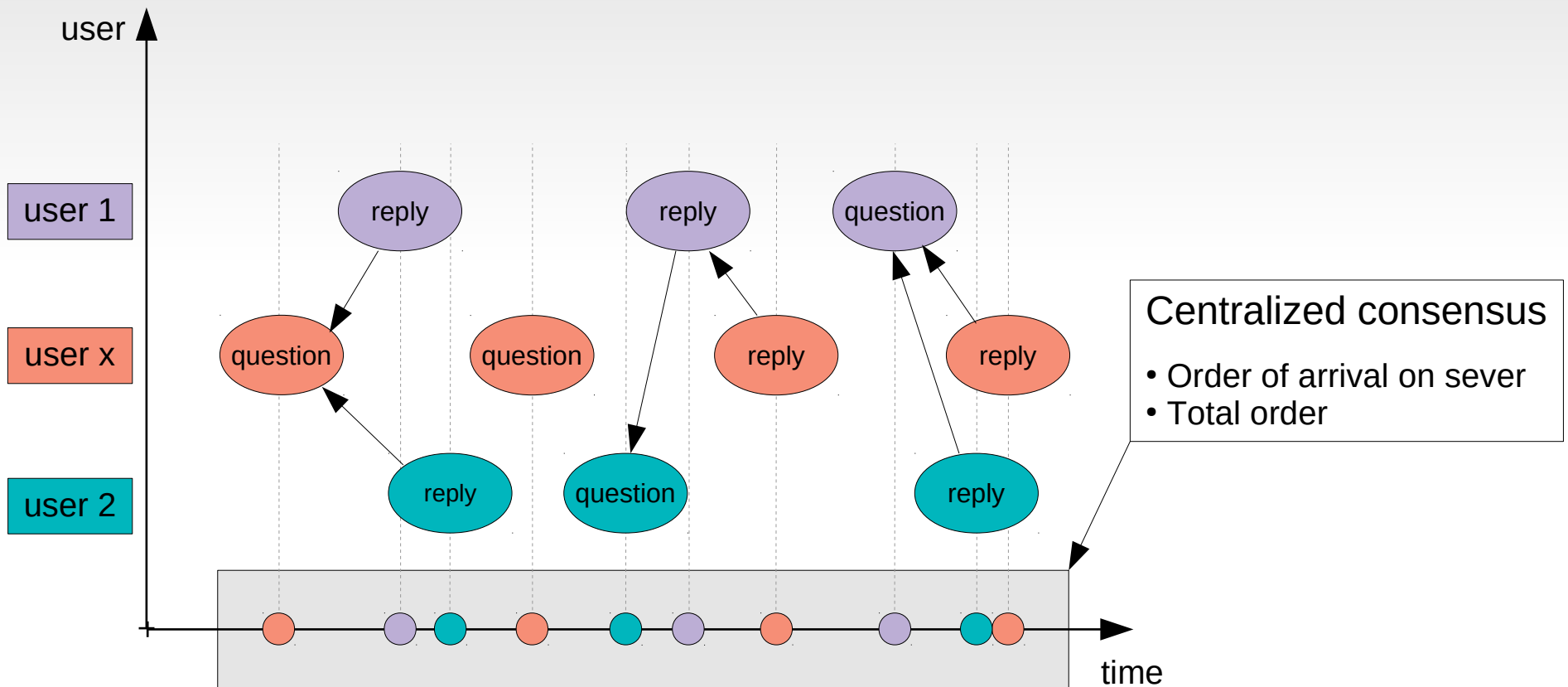
- Important messages are praised (and vice versa)
 - (*excess, SPAM, fake, abuse, illegal*)



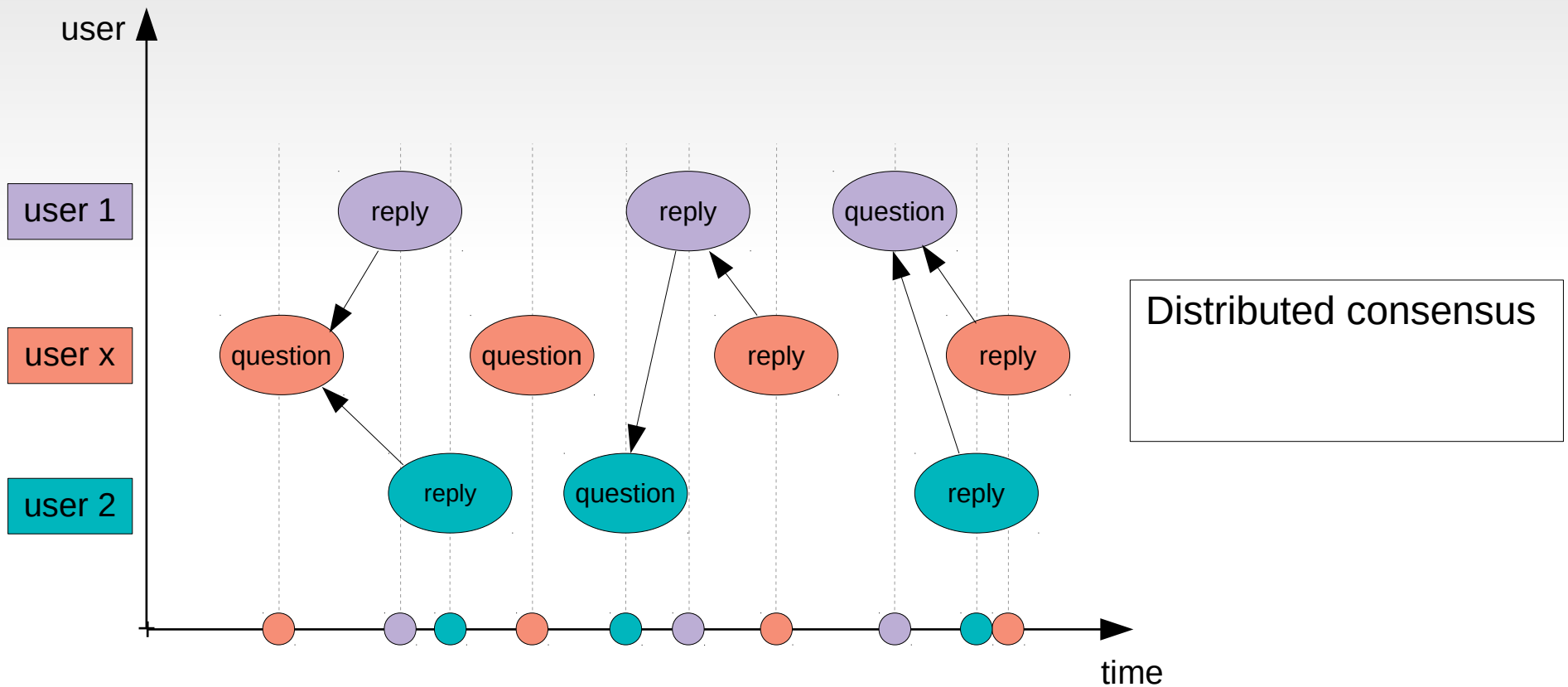
N↔N intercommunication (public forum)



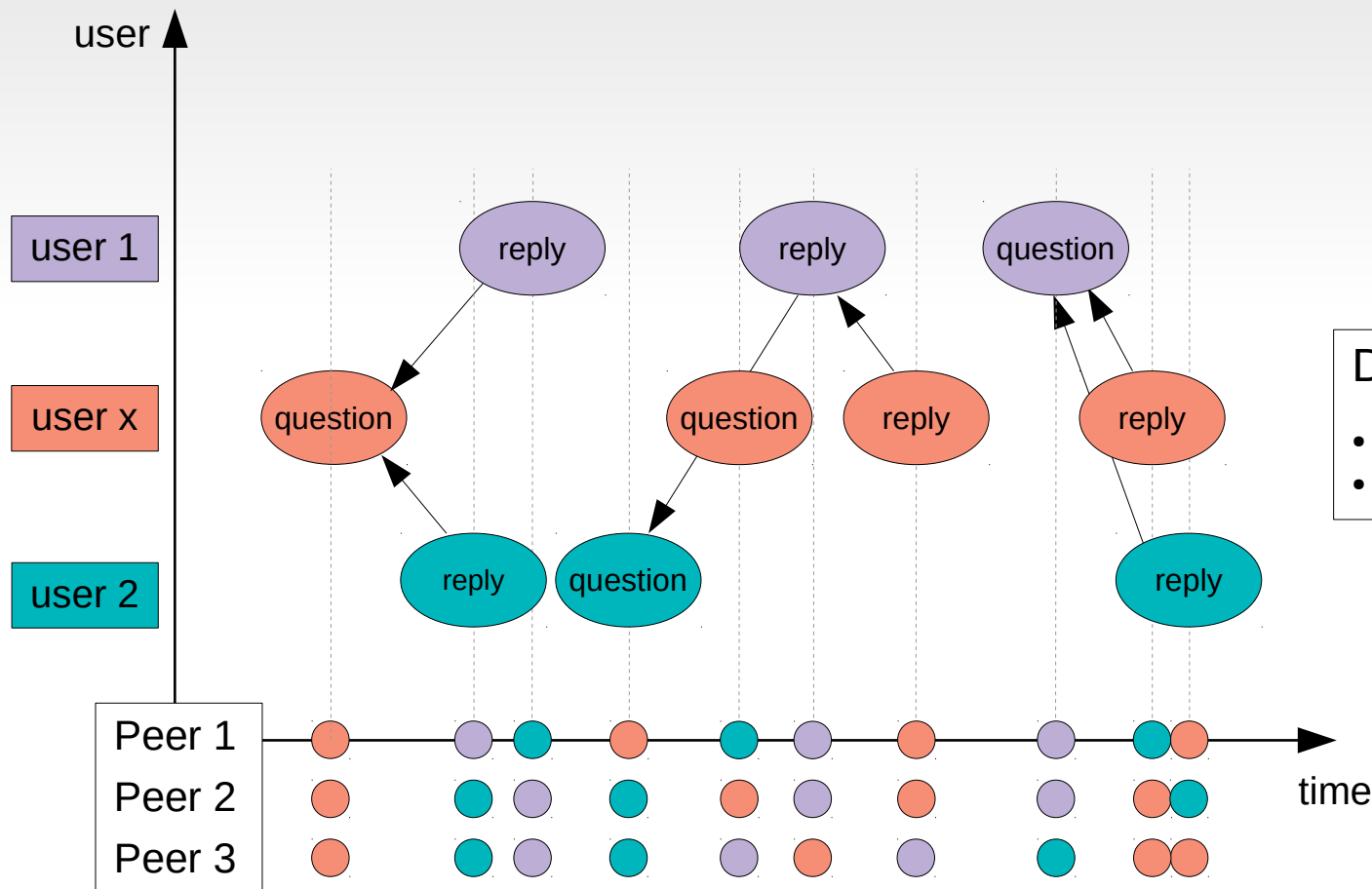
N↔N intercommunication (public forum)



$N \leftrightarrow N$ intercommunication (public forum)



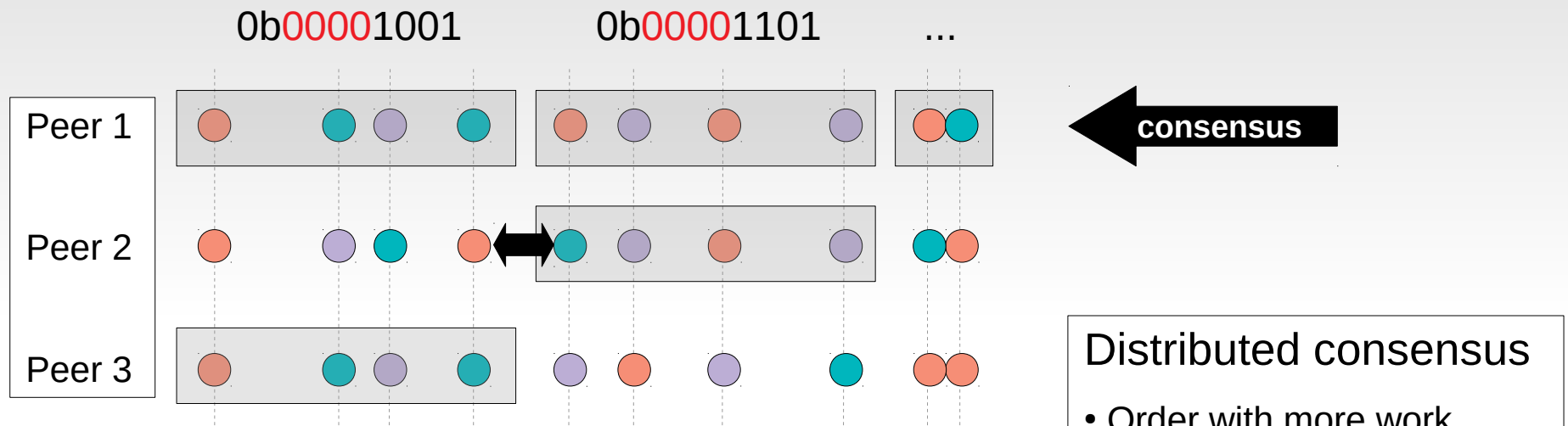
N↔N intercommunication (public forum)



Distributed consensus

- Multiple orders on peers
- How to synchronize?

Bitcoin “Proof of Work”



✓ Consensus

- Participants agree on the existence and order of messages

✗ Fairness

- Participants have equal opportunities to communicate

✗ Quality

- Important messages are praised

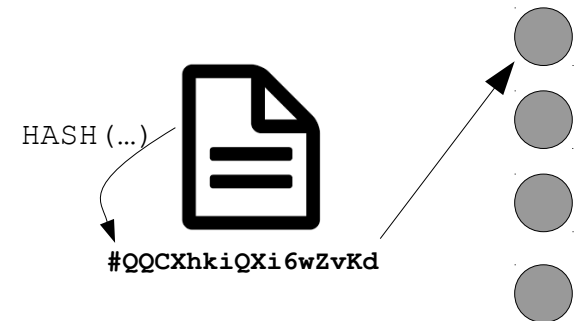
Distributed consensus

- Order with more work
- Total order
- Prevents double spend

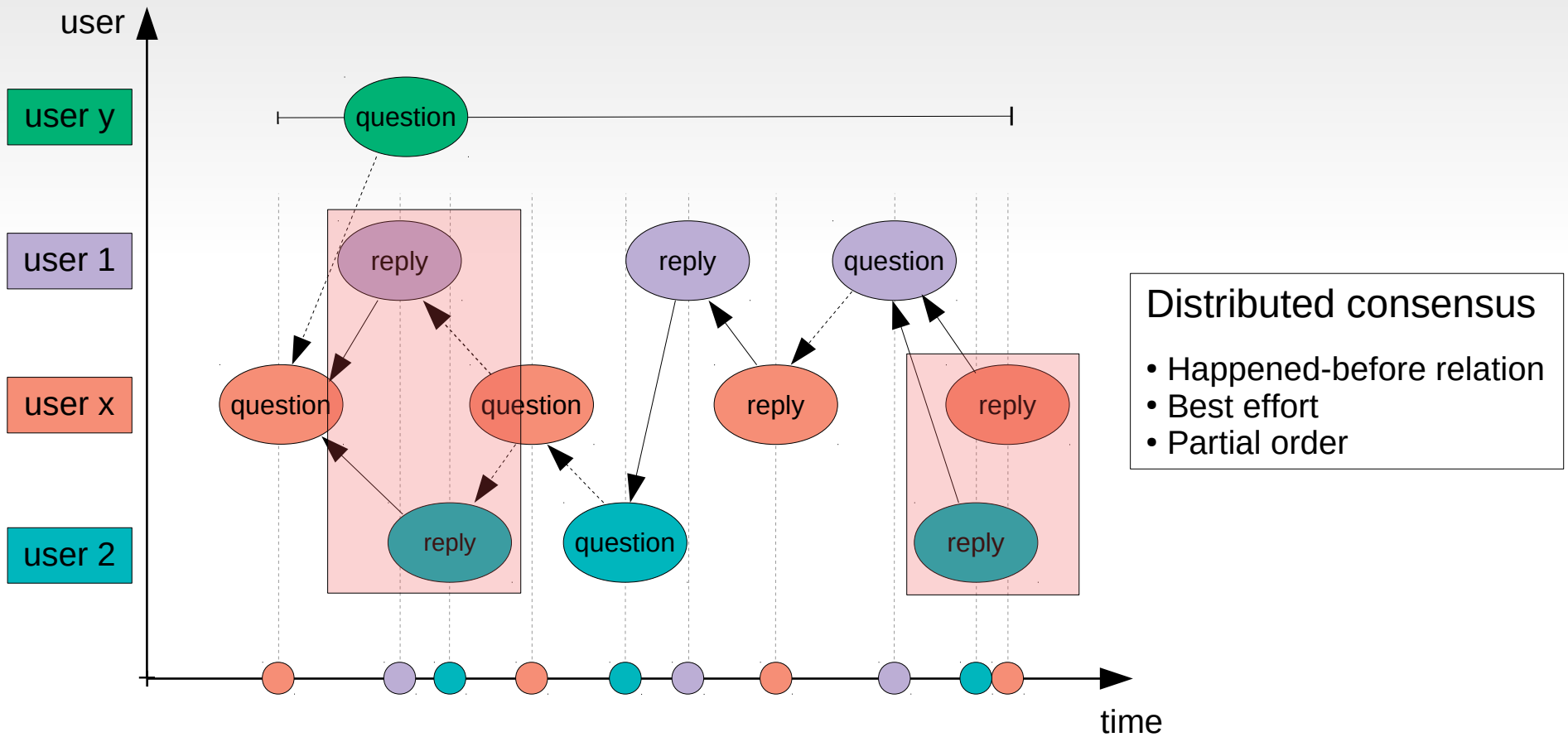
Too strong!

P2P Distributed Hash Tables (DHTs)

- Base of BitTorrent, IPFS, DAT
- ✓ Fast, Scalable
- ✓ Trending & Immutable & Large files
 - We don't want everyone to store all these files altogether!
 - Typically consumed once (movies, installers)
- ✗ Search existing content
- ✗ Publish new content
- ✗ Access unpopular content
- ✗ Incentive store and transfer



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