ALTO for the blockchain

draft-hommes-alto-blockchain-01

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Requirements for blockchain networks

• Large number of *transaction* and *blocks* that need to be propagated, but low throughput.

• Need of being in sync on global scale.

• Low latency.
Peer selection mechanism in bitcoin network

• The Bitcoin network relies on a DNS seed list, which is hardcoded in the client. All six seeds are controlled by Bitcoin’s core developers.
Peer selection mechanism with ALTO

Ressource Directory (RD)
Metric A
1 2 ...
Metric B
1 2 ...
Metric C
1 2 ...

ALTO Client

ALTO Server responds with a sorted list
ALTO client sends the current list of available peers

Request with role dependant metric.

RD proposes the best peers to the requesting node.
Information propagation

- A typical blockchain service propagates *transactions* and *blocks* by broadcasting their availability to all directly connected neighbours.

- Problem: Many nodes receive duplicates!

- The Tendermint network is limited to 300 nodes due to the excessive communication.

- ALTO can reduce the traffic volume by proposing the relevant neighbour peers during the bootstrap phase.
Benefits for blockchain networks

• A blockchain service provider can optimise the communication between nodes by using ALTO.

• ALTO can provide the best routes for each peer in dependence of its role (e.g. wallet, miner or relay node).

• A shorter propagation time reduces the number of forks in the Bitcoin network.
Discussion

Our mailing list for comments:

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