InterValue

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DAG Data Structure

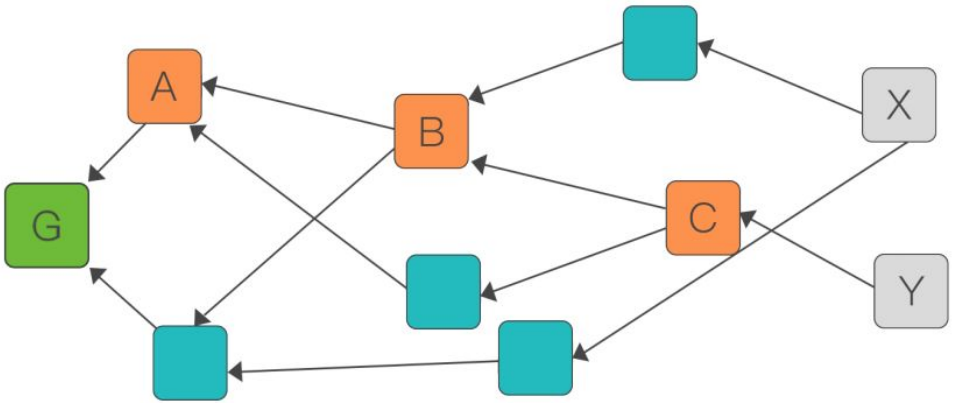


Figure 4–1: The DAG of InterValue

B -> A:

A sends message to B and B confirms A

HashNet Data Structure

Node

Vertex (Event)

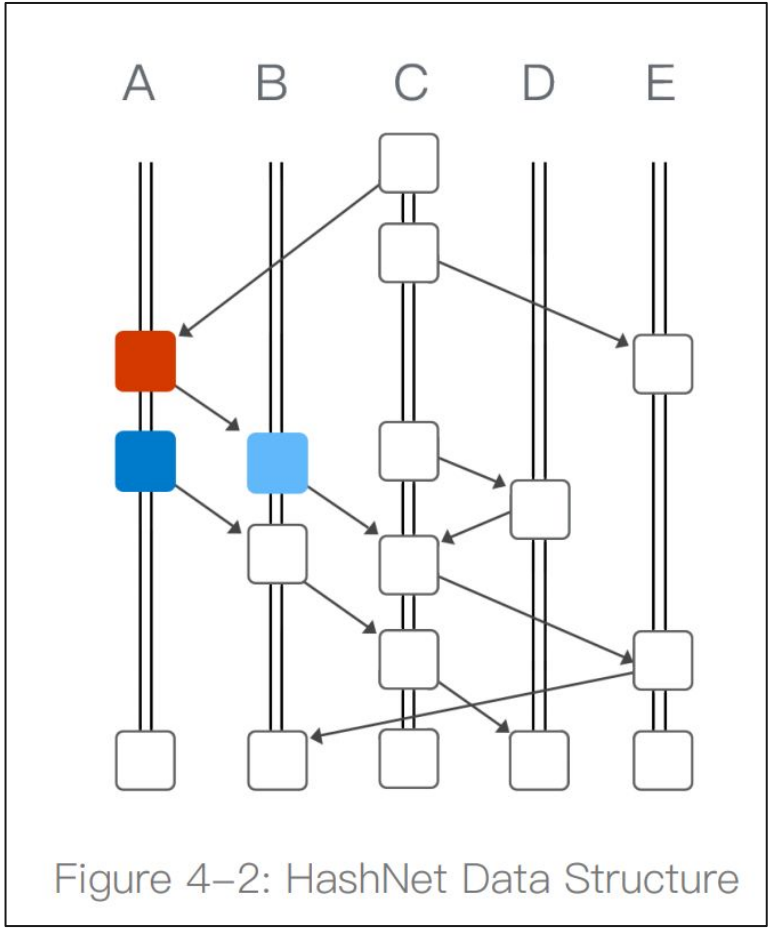


Figure 4–2: HashNet Data Structure

Vertex Inside

Edge:

Vertical edge (chain)

Bevel edge (2 vertices)

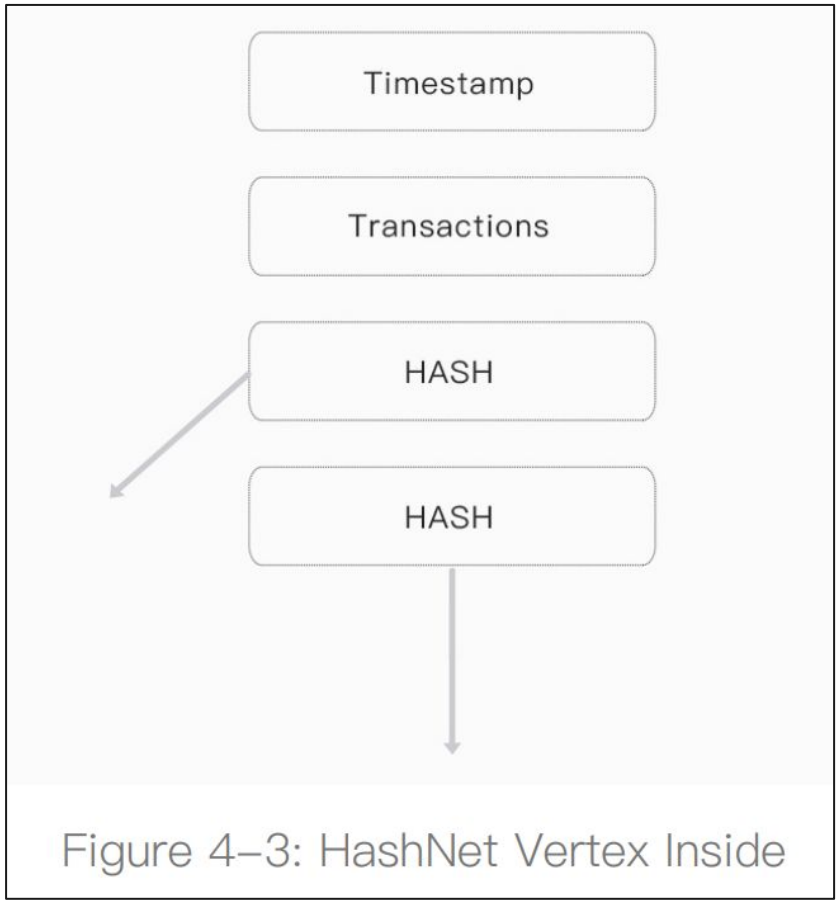


Figure 4–3: HashNet Vertex Inside

HashNet Continued

One vertex has only 2 downwards edges

Each vertex has one or more upwards edges

A and C negotiate before syncing the whole tree

HashNet Continued

All the events will sync on each node

Nodes which have same event will run Byzantine for consensus

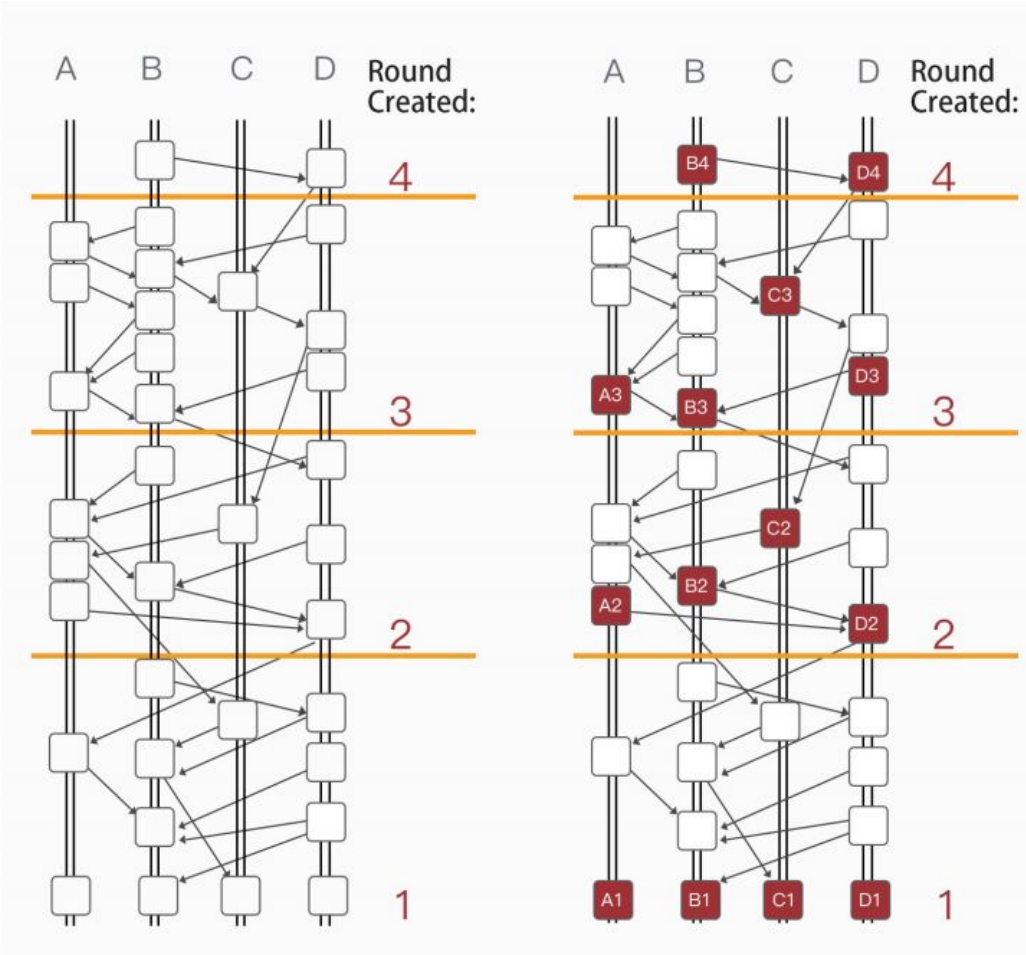
HashNet on every node are almost same

HashNet Terminology

Self-parent event vs self-ancestor event

Round & Round index

Witness



HashNet Terminology

Famous Witness

Election

Vote

HashNet Terminology

Round Received

Received Time

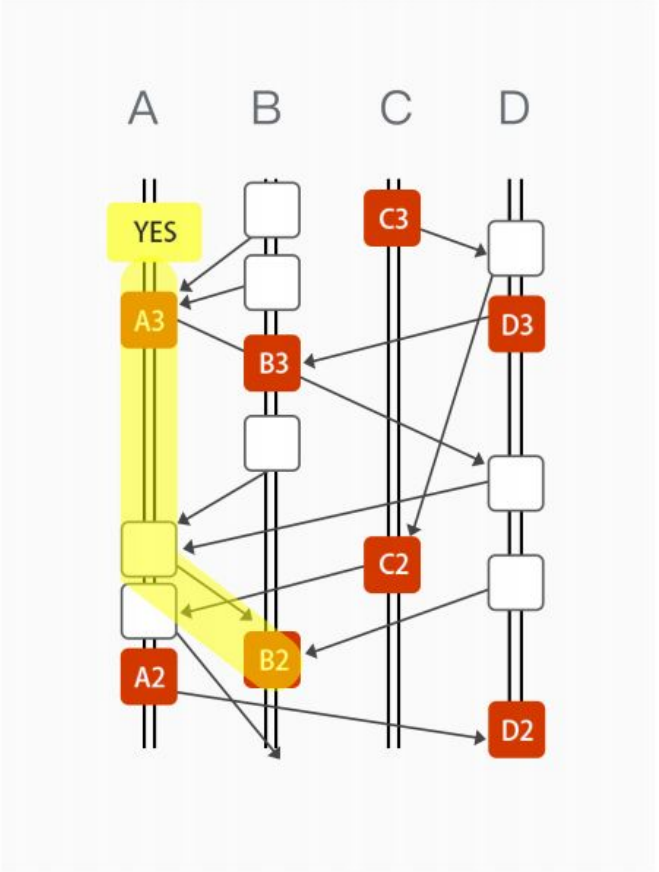
Gossip over Gossip

HashNet Terminology

Supermajority

See:

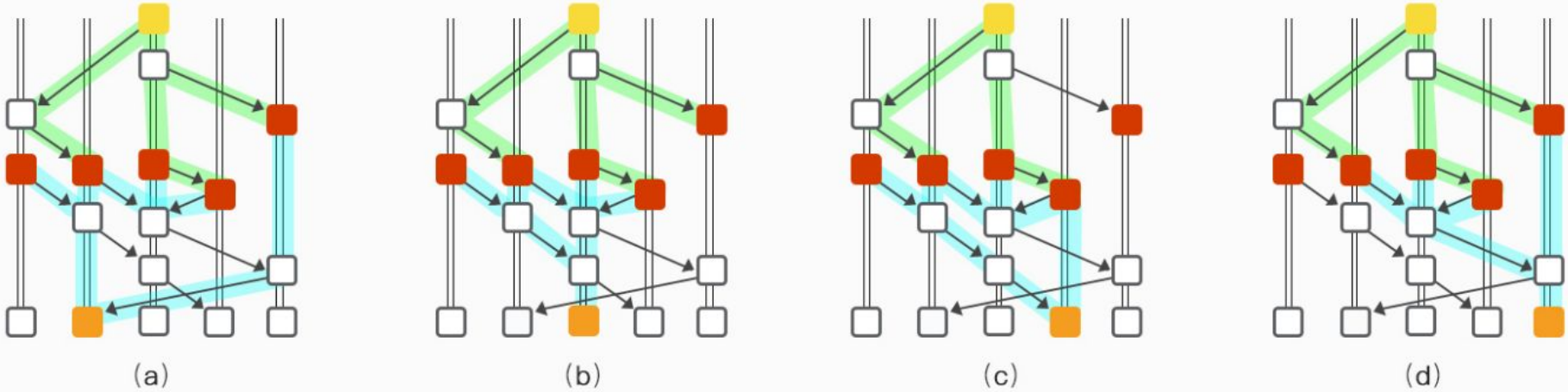
X see Y



A3 is x, B2 is y in above graph

HashNet Terminology

Strongly See: x strongly sees y



DAG Consensus

The Main Chain

Double Spending

Finality

HashNet Consensus

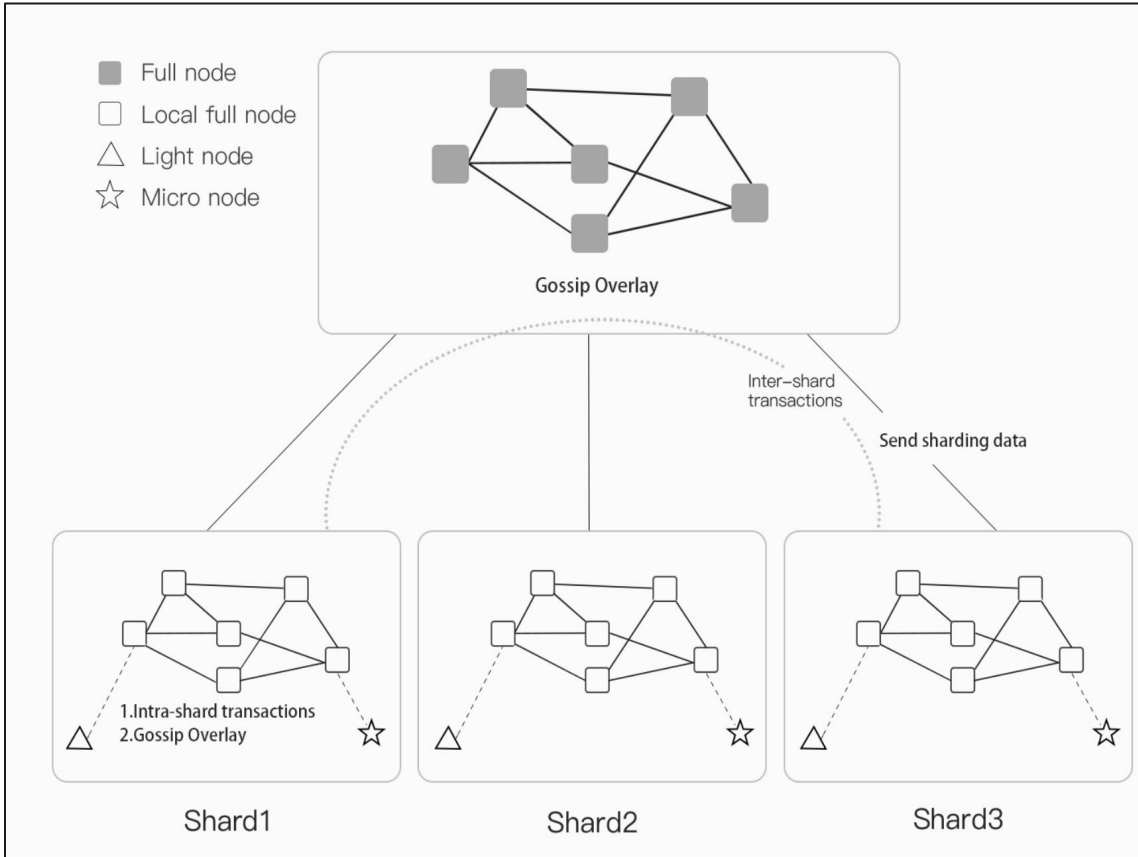


Figure 5–1: HashNet Overview Based on Two–layer Gossip Topology

HashNet Consensus

1. Fast to reach consensus in full and local full node
2. Full node not engage in tx consensus and verification

Note Types

Full Node

Local Full Node

Light Node/Micro Node

Node Maintenance

Full Node:

Hub node -> POW -> Confirm -> Hub Node

Node Maintenance

Local Full Node:

Score = α1PoS + α2PoW + α3PoB + α4PoO …

Sharding

Shard Number

BA-VRF

Cross Sharding

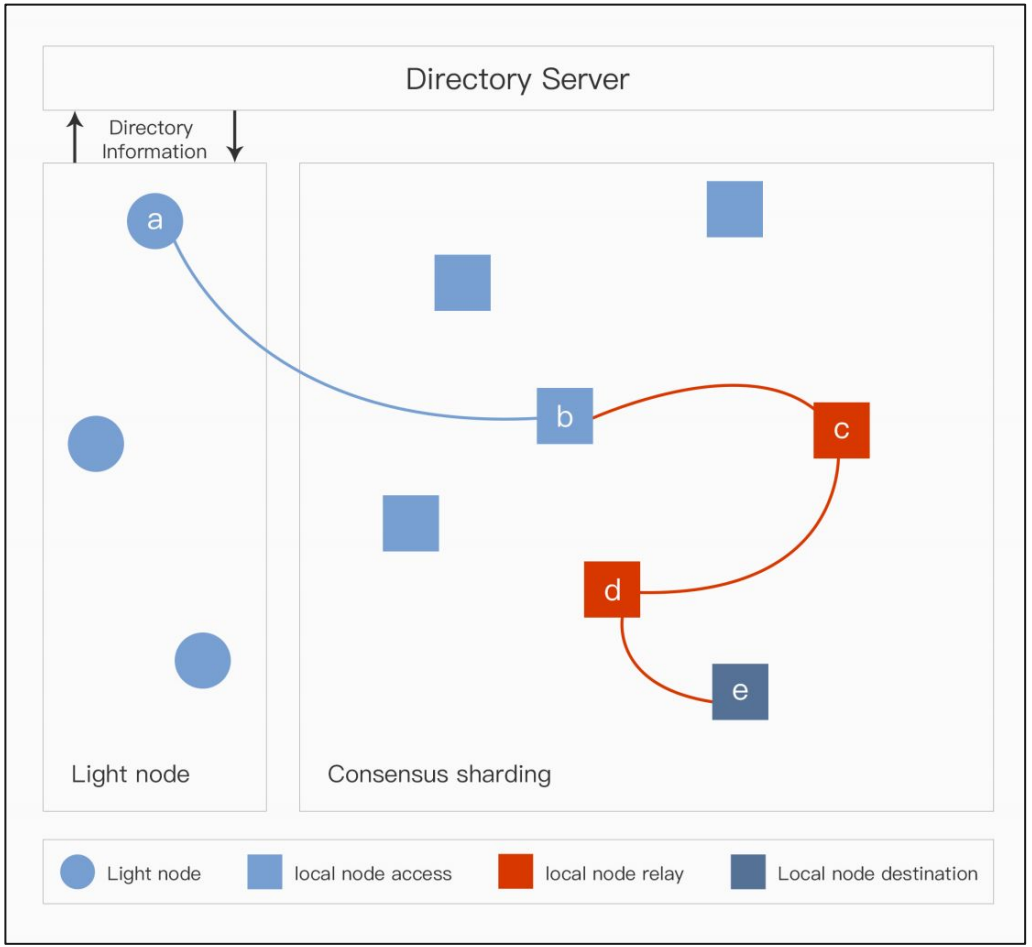
Input (1) + input (2) -> output (3)

Valid certificate

P2P Anonymous Communication

- Proxy Service
- Application Encryption
- Anonymous Routing

Anonymous Interaction



Reference

https://www.inve.one/InterValue_whitepaper_cn.pdf

https://github.com/intervalue