Althea

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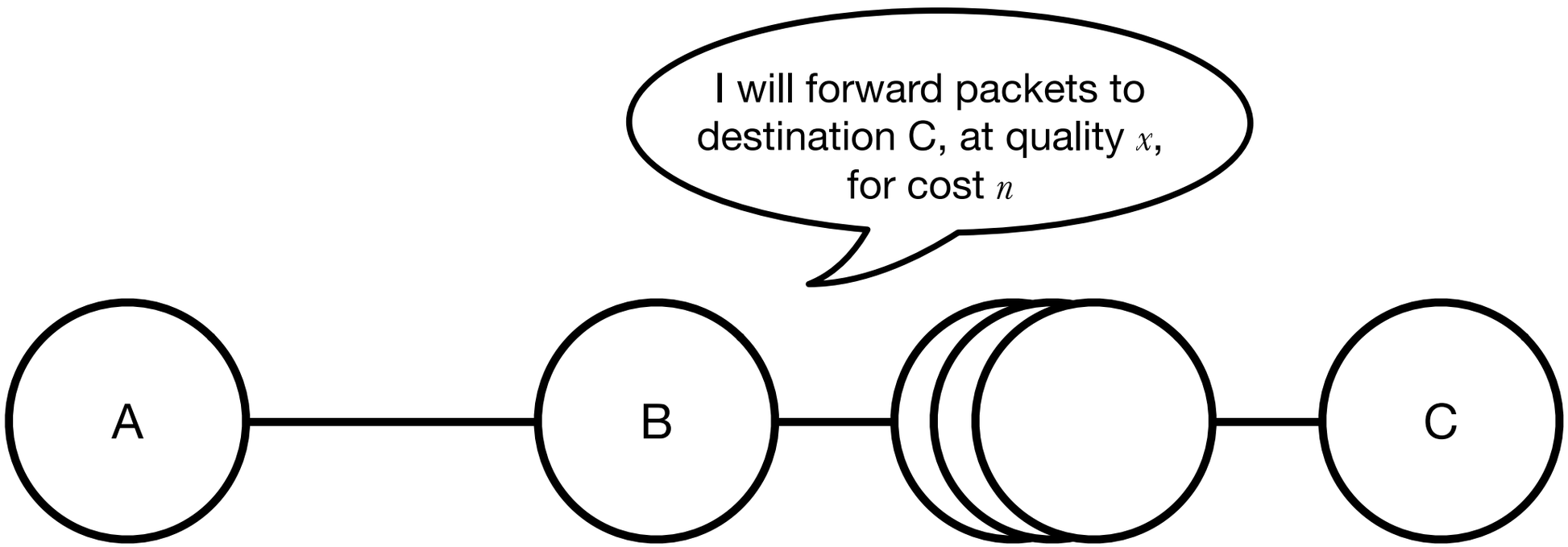
Goals

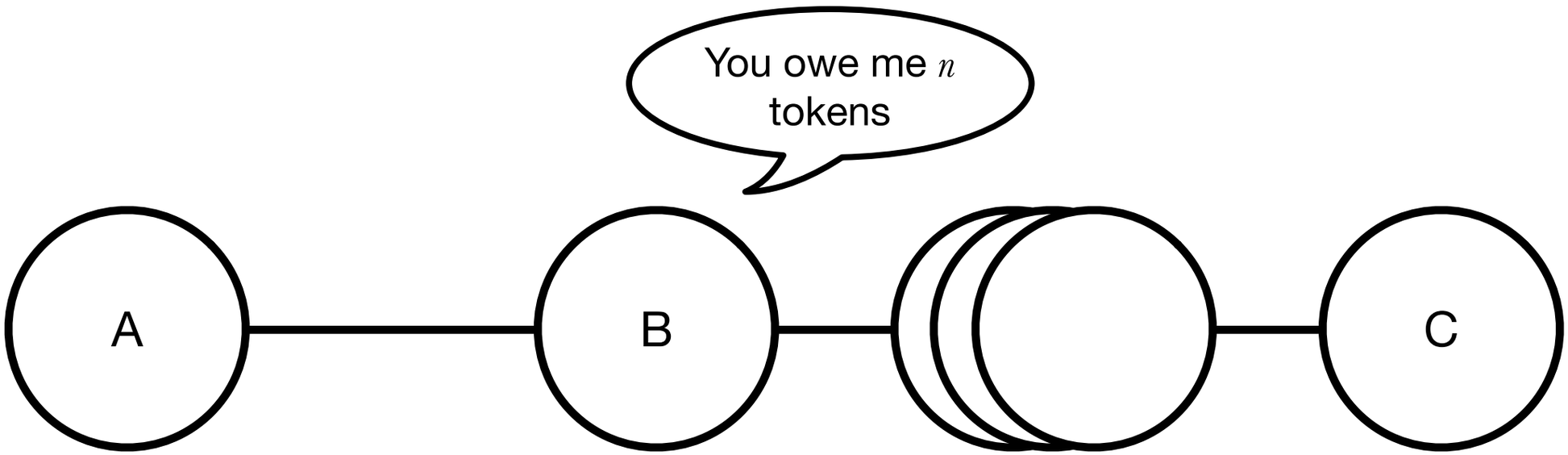
- Wireless ISPs serve lots of customers.
- It’s often hard for volunteers to find time to expand and maintain community mesh networks.
- Maybe there’s a way to collect and distribute payments on a protocol level?

Structure

- Pay-for-forward
- Payments with cryptocurrency “payment channels” (single packet per payment)
- Prices propagated by distance-vector
- Network architecture based on exit node model of Freifunk, WLAN Slovenija, peoplesOpen.net

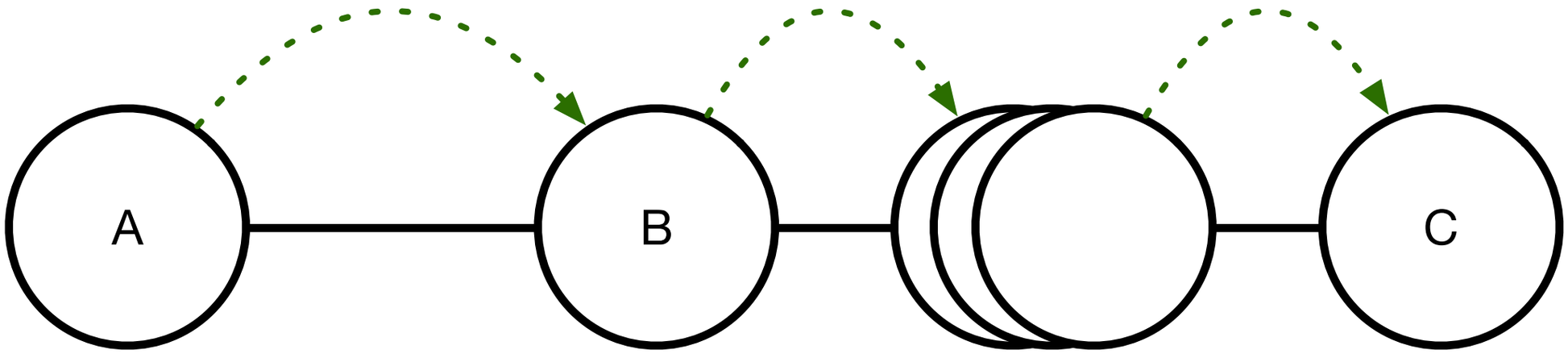


Distance-vector with additional price field

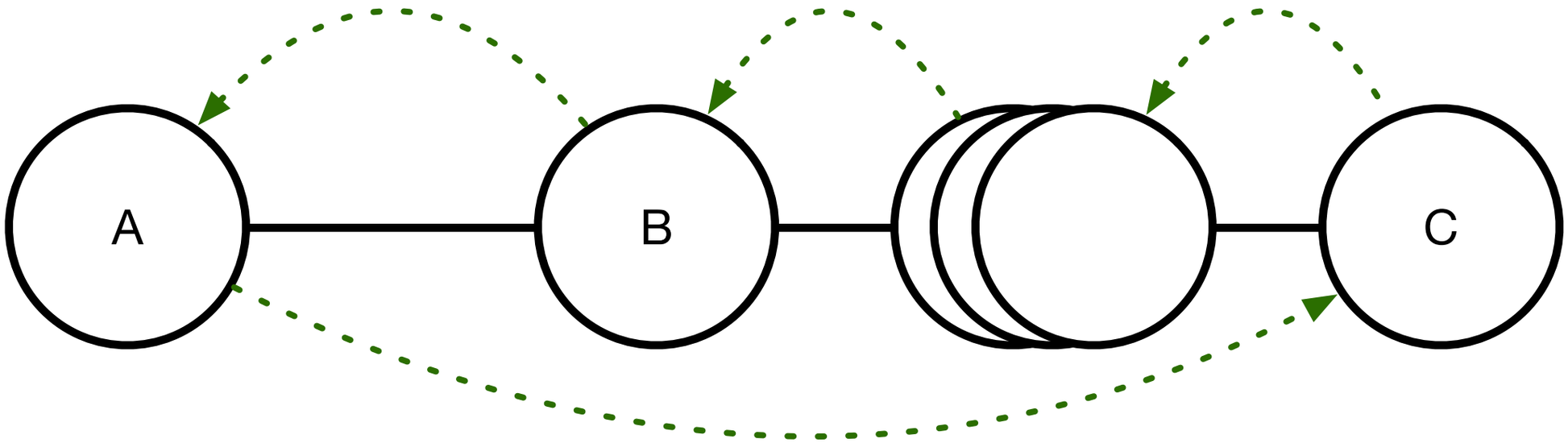


Nodes charge each other for forwarding

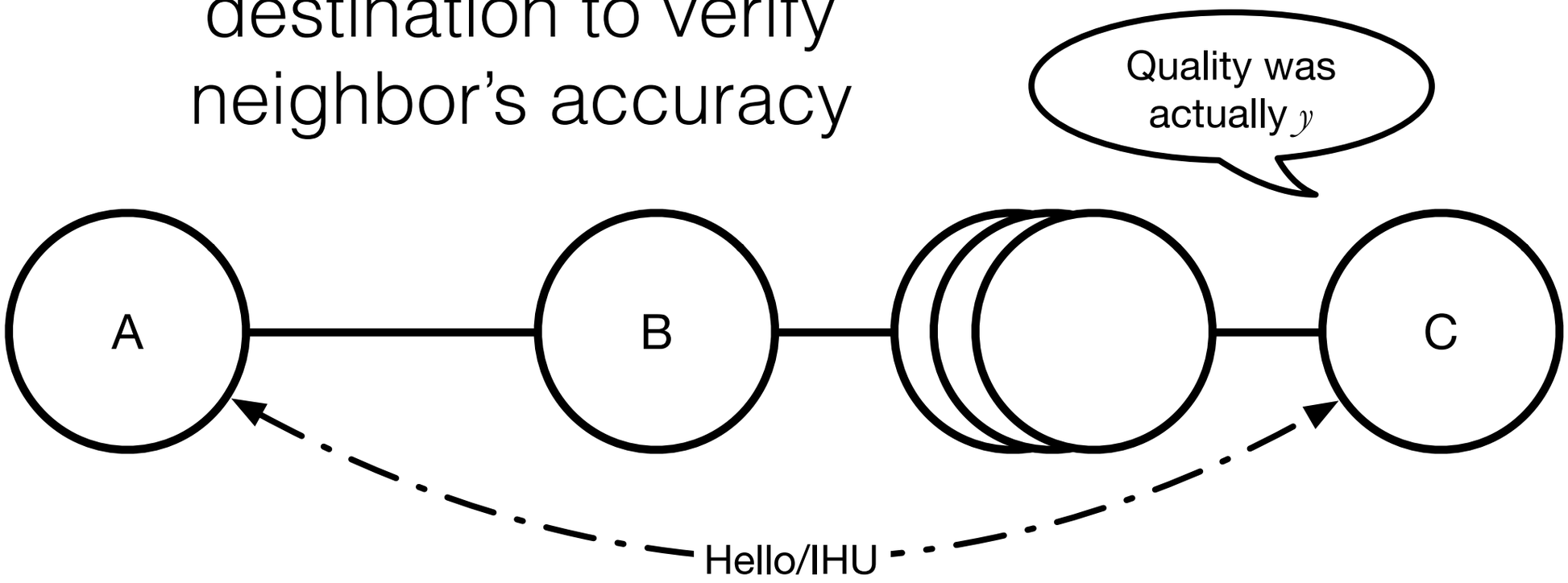
User node pays upstream

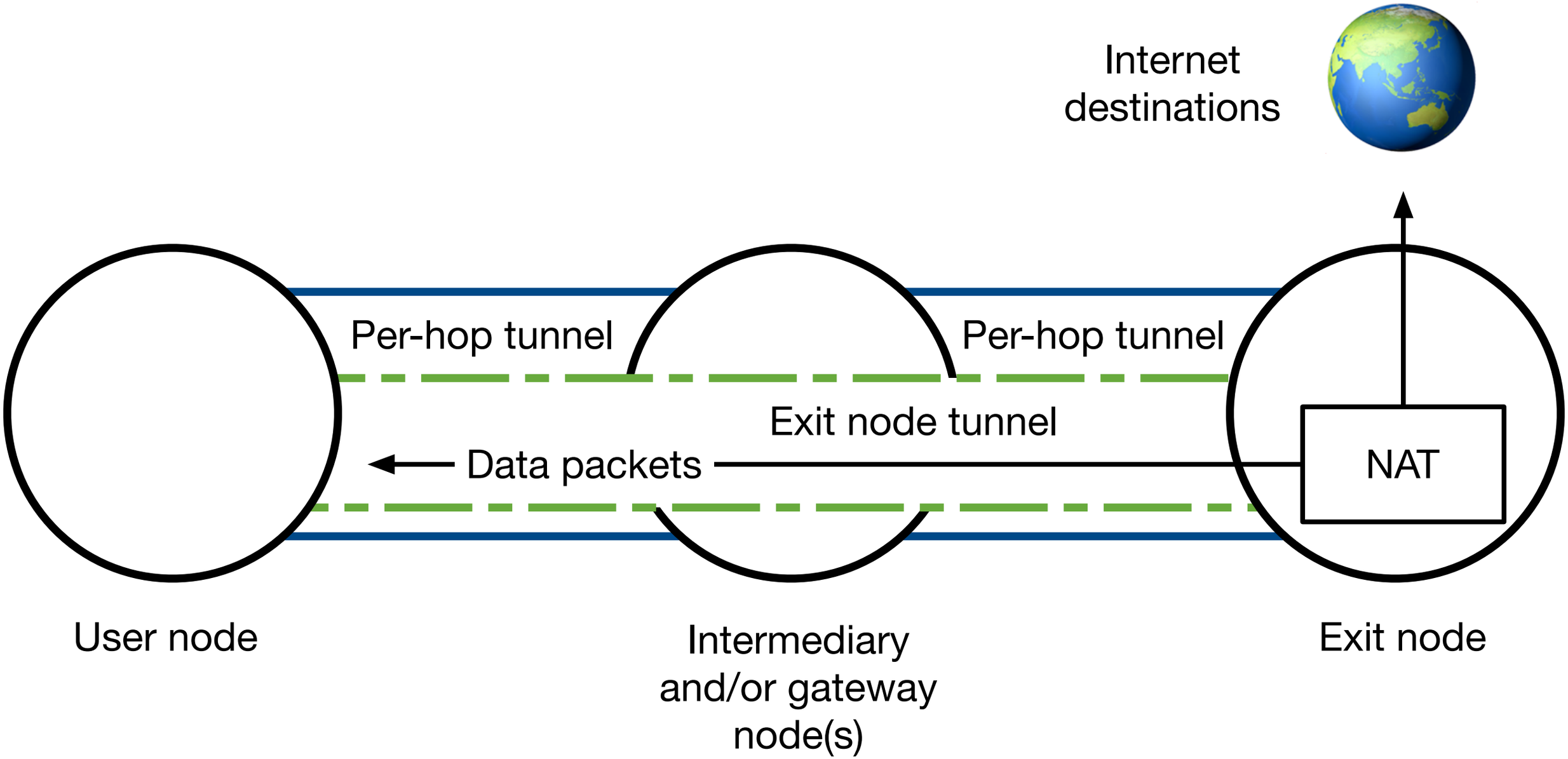


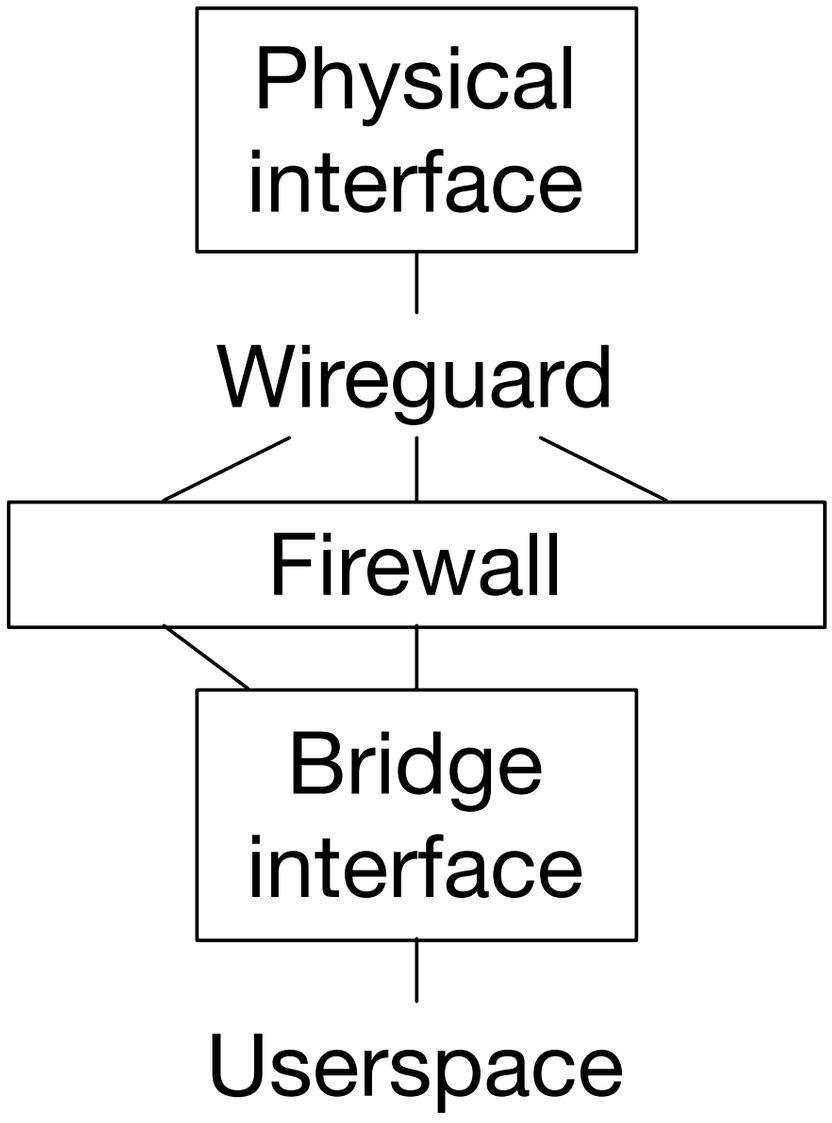
Exit node pays downstream on behalf of user node



Quality estimation with destination to verify neighbor's accuracy




Internet
destinations
Per-hop tunnel
Per-hop tunnel
Exit node tunnel
Data packets
NAT
User node
Intermediary
and/or gateway
node(s)
Exit node


Physical interface
Wireguard
Firewall
Bridge interface
Userspace

Possible problems

- Technical:
  - Routing protocol verification might not work
  - Network structure might be too rigid
  - Too much overhead?

Possible problems

- Social/business:
  - Maybe payment of node owners is not important, what about network admin.?
  - How to guarantee uptime etc. for paying customers?
  - Property is theft?

www.altheamesh.com

www.github.com/althea-mesh