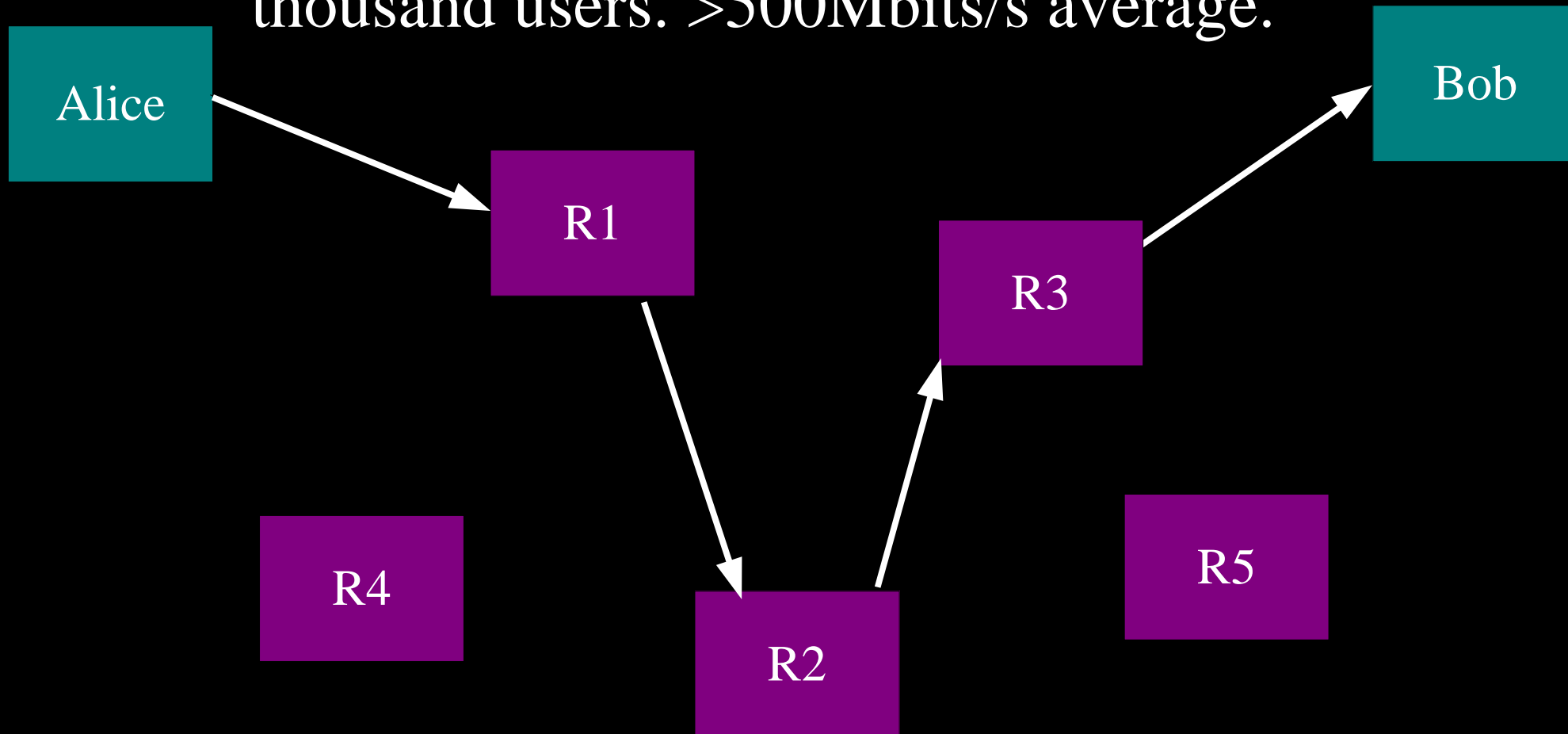


# Incentives to Relay Traffic in Tor

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# Tor in a nutshell

Right now we have 650 relays and several hundred thousand users.  $>500\text{Mbits/s}$  average.



# How to incent relays

- Altruists: Nice people become relays. (So make it easy to become a relay and that's it.)
- ZKS's Freedom.net proposed to pay relays.
- “Economics of Anonymity” paper suggests that people who value anonymity will opt to relay.
- Social network schemes where you relay traffic for your friends.
- P2P reputation scheme: track performance and reward it. Complex and can hurt anonymity.

# Central testing

- Tor already has directory servers that tell users who's up right now, keys, etc.
- They can do checking to see how each relay performs.
- We have an anonymity network, so it's hard for them to selectively perform only for the tests.
- (More complex than this, but hey, arms race.)

# Questions

- We want to reward people who relay, *so that capacity grows and everybody benefits.*
- Given a reputation score for each connection, how do we allocate our bandwidth among them?
- (Do we over-reward fast servers?)