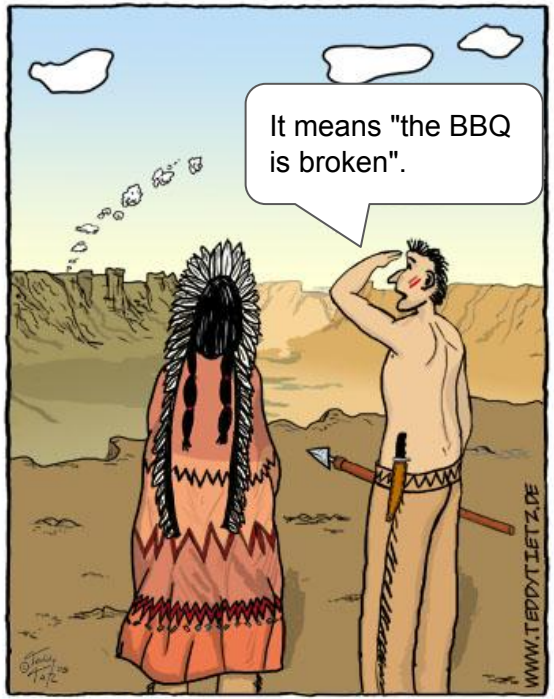
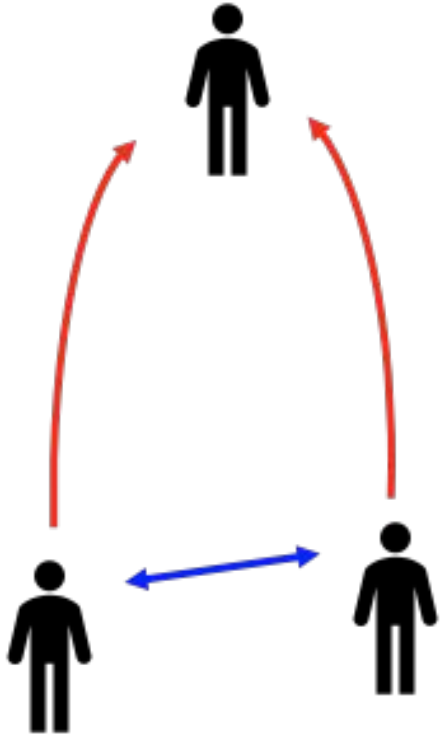
OverHyPeD Project Group

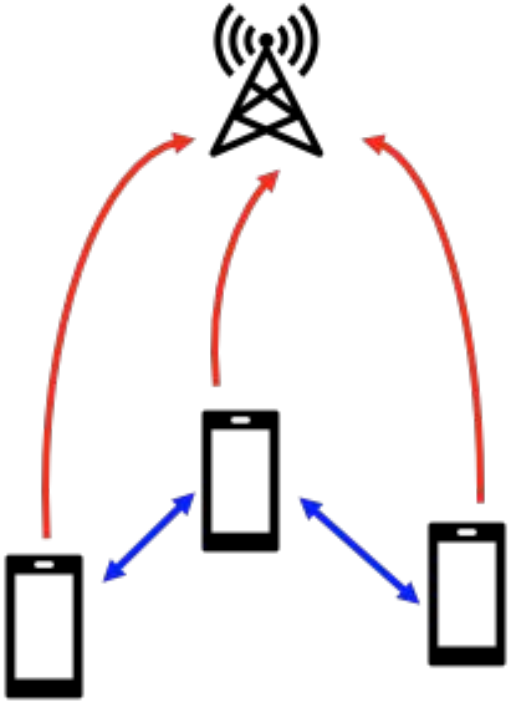
Overlay Hybrid Peer-2-Peer Distributed Simulator

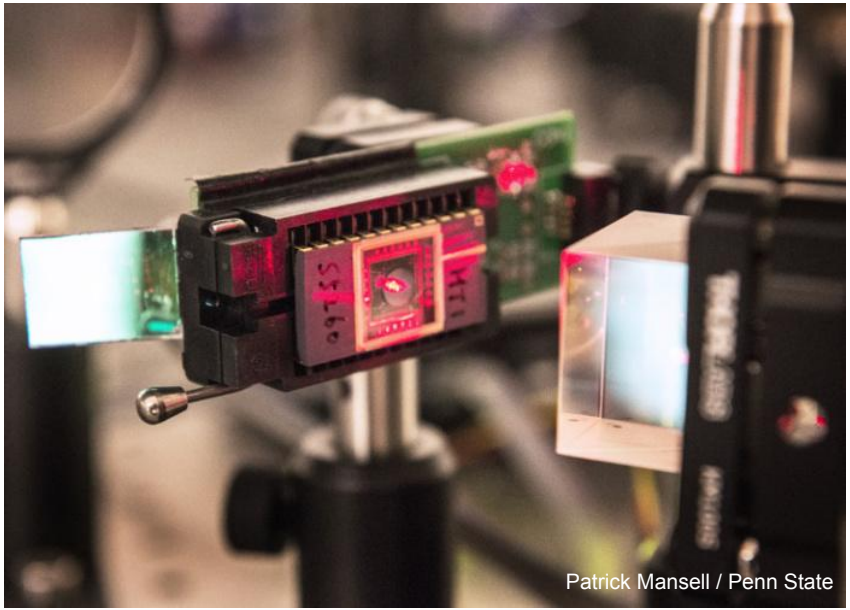
Hybrid Communication





Modern Technology

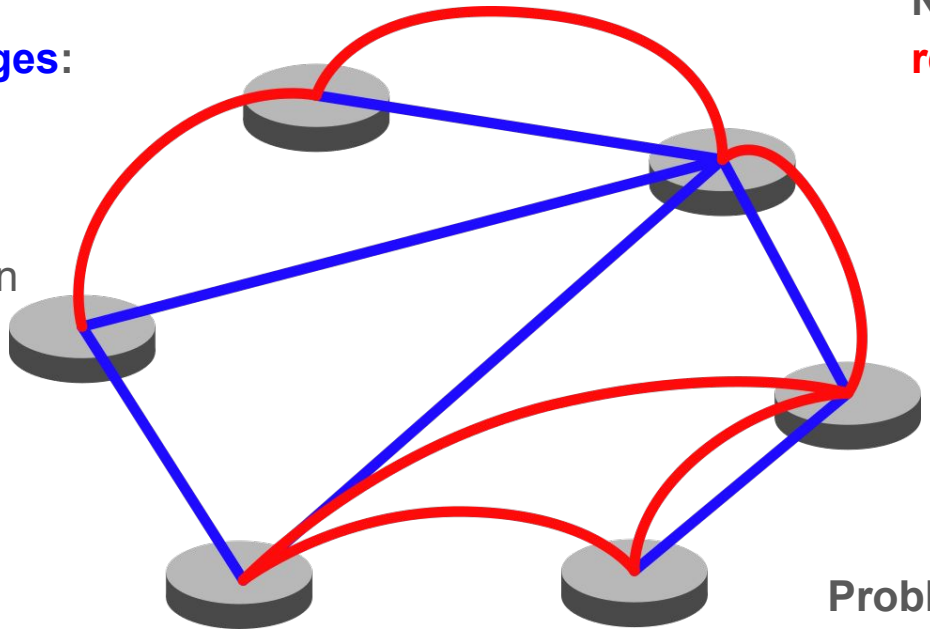




Network Model

Network of
non-reconfigurable edges:

- Restricted communication
- High communication load per node
- (Lower costs)



Network of
reconfigurable edges:

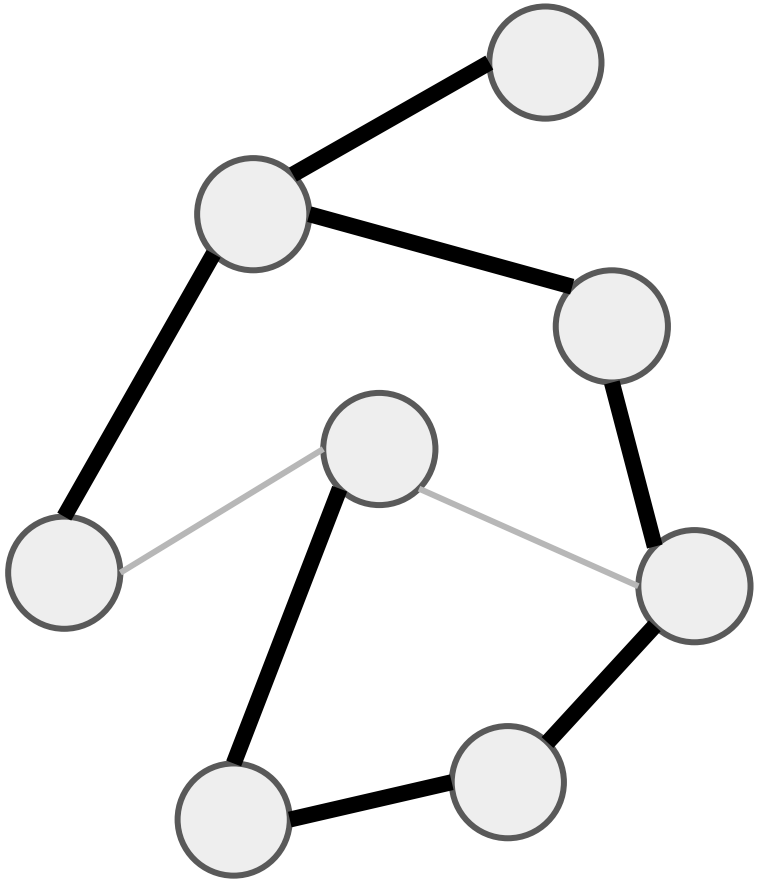
- Unrestricted communication
- Low communication lo per node
- (Higher costs)

Problem of locality!

Problem of node-capacities!

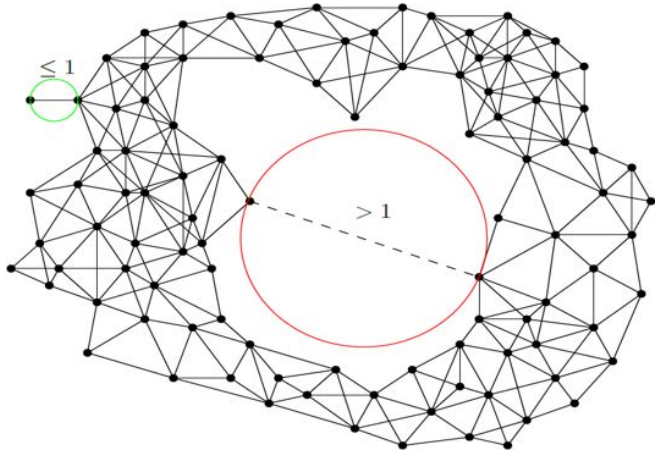
Graph Problems

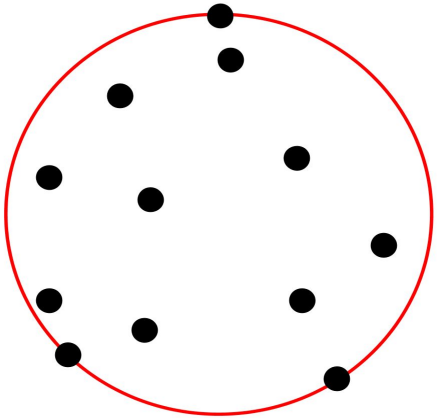
- Compute an MST
- Compute a spanner
- Shortest paths problems
- Dominating sets
- ...

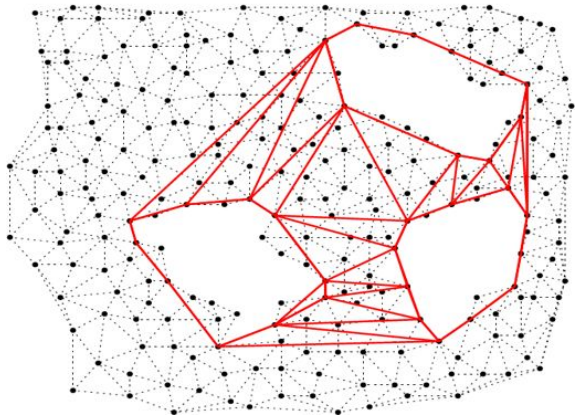


Geometric Problems

- Routing (with holes)
- Smallest enclosing circle
- ...

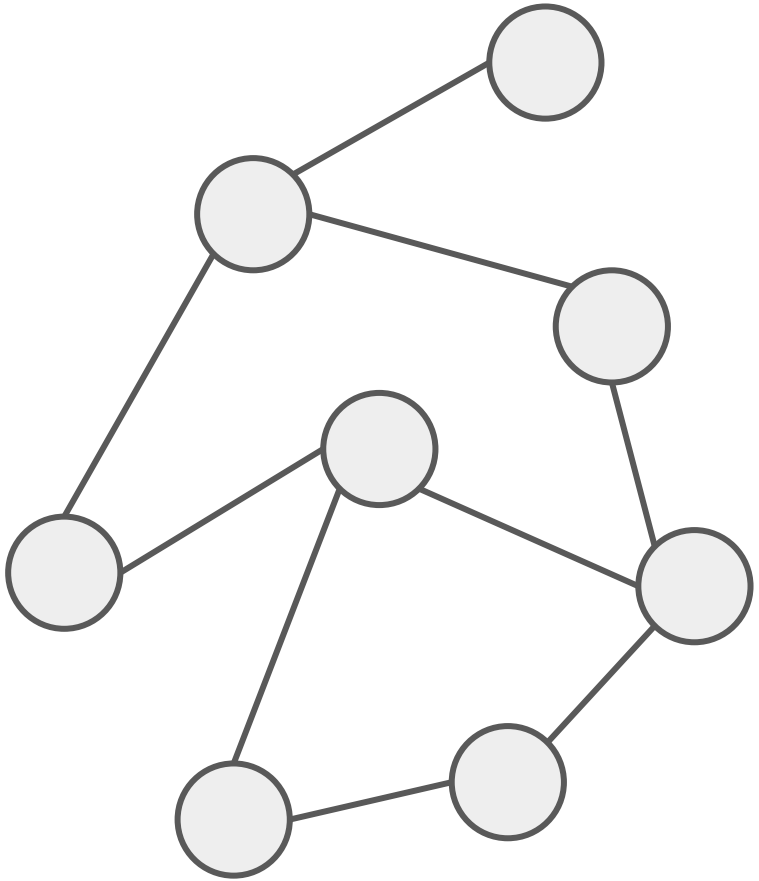






Monitoring Problems

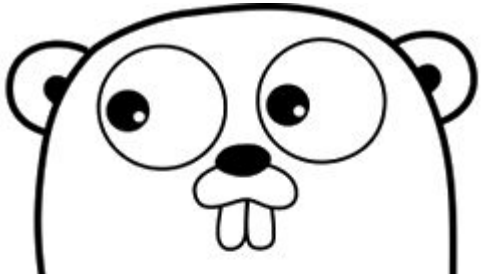
- Number of edges, Average node degree
- Weight of an MST
- Diameter, Girth
- ...



What do we want (you) to do !?

1. We want to simulate tens of thousands of nodes
   - Processes/Threads won't be feasible
2. We want algorithms
   - Find/implement solutions for interesting problems
3. We want a visualization
   - Display a (possibly) dynamically changing graph and its properties
4. We want it to run distributedly
   - Nodes are simulated by several physical machines
   - Communication and coordination between instances

How do we want (you) to do it!?



What do we require!?

- Both knowledge in algorithms/theory and in programming are welcome
- Basic knowledge in both areas required
- We have not yet decided on a particular language/framework or the particular problems to be solved, so knowledge must be acquired on one's own

Who are we?



Theory of Distributed Systems Group

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