Flooding

on recv(pkt, ifin):
    for i in interfaces:
        if i != ifin:
            send(pkt, i)

Deliver Packets

But

Cycles

Bad

Packet

Source: h₀
Destination: h₂
Packets everywhere all the time.
How to solve?
  • Remember all packets forwarded
    • How many packets should be remembered?
    • How much memory?
  • Change graph so there are no cycles

How to change graphs?

Remove links so that no cycles remain

Without Disconnecting Graph
Example
Q: How to remove links?

Assume all networks are designed to be acyclic

\[ \downarrow \]

Done by someone else.

Does not work in many environments.
Automate?

Modified Flood

deactivated = Set()
on recv(pkt, ifin):
    if ifin in deactivated:
        return
    for i in interfaces:
        if (i != ifin and
            i not in deactivated):
            send(pkt, i)
Algorithm that converts graph with cycles to acyclic graph?

Requirements

1. Acyclic
2. Spanning

Spanning Tree?

How?
Algorithm?
From Algorithm to Protocol

Step 1

Step 2
Putting it all together