Universality: (everyone can network)
- Value of net 2 O(N^2)
  ⇒ Interoperability ⇒ standard
  ⇒ Net is black box

Net of hosts

⇒ Look inside cloud.

Utilization (E)
- Overprovision: too expensive.
- Failback: back up failback interface to cloud.
- Throw away:
  ⇒ Reconnect at hosts/net
  ⇒ Dumb vs smart net

Topology (E)
- Perfect
  - N^2 wires
  - Shared hub (w/links) reliability bad
- Mesh: Finding paths
  - Switching:
  - Shortest path

Slide MIT: topology?
- Fix picture of net
  ⇒ No N^2 wires

Addressing (O)
- Ideal: no structure
  - Relay on flat ID open problem
  - Practice: address hints
  - At location 18.x.x.x

Error (E+O)
- Analog
- Backup
- Switch failures
- Operational errors
  - Debug, repair

Speed of light
- Cost (Ni) ? = cost + transport
  ⇒ Challenges control algorithms