Skype

- Features:
  - Distributed indexing service to route your incoming calls to wherever your are logged in.
  - Conference calls
  - Skype Me
  - Connector services, e.g., jyve.com
- Challenges
  - Session Initiation: NATs and Firewalls (vs. SIP)
  - Quality and congestion and collapse
  - Security, spam
  - Regulatory (Pulver Order Feb04)
  - Business model

Skype P2P

- No central infrastructure, except for login and upgrade service.
  - And static bootstrap supernodes
- Directory services spread among supernodes
- Direct connections unless NAT/firewall prohibits
  - Use STUN to identify NAT type
- May route calls through well-connected supernodes
- How to do the routing?
  - Client pings tens of nodes on startup with UDP
- Search technology hard to reverse-engineer.
  - DHT-SIP?

Quality and Congestion

- TCP or UDP
- Codec (RFC 3951)
- Fair? Responsive?
  - "True end-to-end congestion control"
  - Does it matter? (mice vs. elephants)
- Adaptive?
- Bursts and silence suppression
  - None in Skype
- Emergency calls: need priority?
- Is overprovisioning sufficient?

Security?