Is Mobility a Solved Problem?

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On the edge

- **End-host diversity**
  - Multiple interfaces
  - Cognitive radios
- **Environment diversity**
  - Edge networks combine
    - Point-to-point networks
    - Ad hoc networks
    - Sensor networks
    - Delay tolerant networks
  - Islands of connectivity

5 Challenges

1. Detection
   - What connectivity do I have?

   - The more available interfaces/channels, the more expensive detection becomes
   - Always-on connectivity is not feasible
   - Can there be a common control channel?

5 Challenges

2. Discovery
   - Who are my neighbors
   - Can they help me with my communication?

   - All roads don't lead to the Internet
   - Move more routing into the end host
   - Selfish vs. cooperative routing

5 Challenges

3. Naming

   ○ Who do I want to talk to?

   ○ Host vs. service based communication

5 Challenges

4. End-to-end services

    ○ What is a connection?

    ○ What service can I expect?

    ○ How is end-to-end communication supported?

    ○ Revisit hop-by-hop communication

    ○ Move more services into the network

5 Challenges

5. Resource management
   ○ Where are the bottlenecks?

   ○ Buffer space
   ○ Energy
   ○ Bandwidth

What do we need?

- **Simple design**
  - Easy to use
- **Can we design an architecture that supports these new communication paradigms?**
  - Is IP an option?
  - Can we enhance IP?
  - Do we need something new?