

Recitation 13 — E2E

What is the end-to-end (E2E) argument?

- An argument that there are functions that can be completed correctly/completely *only* by applications. If lower-layers support these functions, it should be only as performance enhancements.
- The E2E argument does *not* prevent the network from implementing features in the middle of the network

Example: Careful File Transfer

- The steps
 - Host A reads file from disks, passes to file transfer program
 - File transfer program asks the communication system to transmit the data
 - Communications system moves data from Host A to Host B
 - And then the reverse at Host B
- What can go wrong?
 - Hardware failure at A (bad read)
 - File system or file transfer program or communication system might make a mistake in copying/moving
 - Local memory could have failure
 - Underlying communications system may drop or change data
 - Hosts could crash
- How do we fix this?
 - E2E check and retry

Discussion: What is the value of the E2E principle?

- Discipline in thinking
- Minimizing functionality and dependence on support machines
- By minimizing what is required of the interior of the network, edges can innovate without requiring cooperation from the network