

ALFI: Adaptation Layer Fragmentation Indication

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Fragmentation is bad

- IP-layer fragmentation (IPv4, IPv6)
 - usually mostly prevented by PMTUD
- Adaptation Layer Fragmentation (ALF)
 - “transparent”!
 - serious impact on packet delivery probability for 6LoWPAN etc.

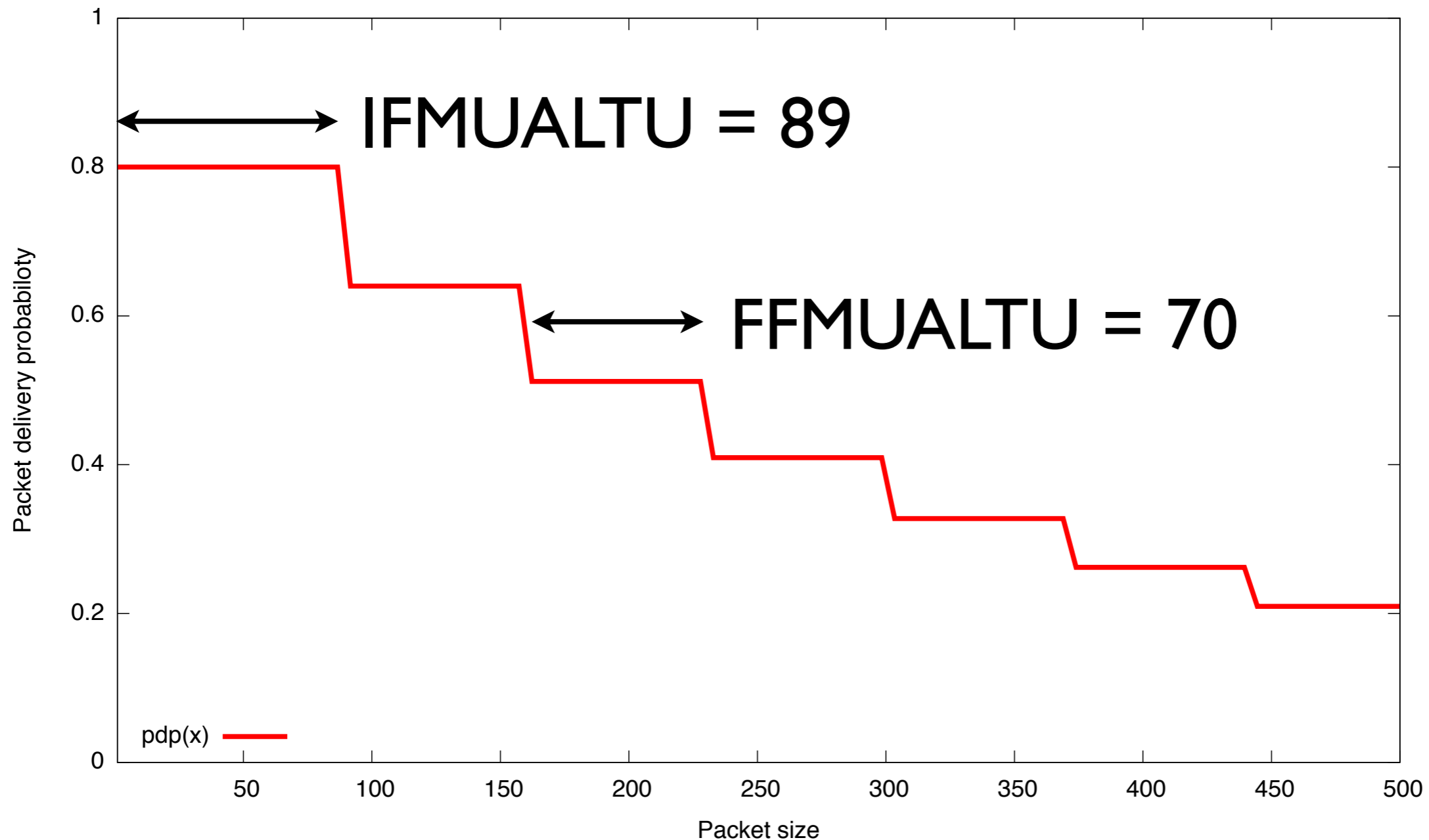
Applications often have a choice

- E.g., application layer fragmentation
 - CoAP: selecting the right block size
- But how to do this without information?
 - Could try to detect step function in packet delivery probability
 - Better: don't hide ALF completely

Terms

- **MUALTU:** Maximum Unfragmented Adaptation Layer Transmission Unit
- **IFMUALTU:** Initial-Fragment MUALTU, the MUALTU for the initial adaptation layer fragment of an IP packet.
- **FFMUALTU:** Following-Fragment MUALTU, the estimated minimum MUALTU for all but the initial adaptation layer fragments of an IP packet.

Packet delivery vs. fragmentation

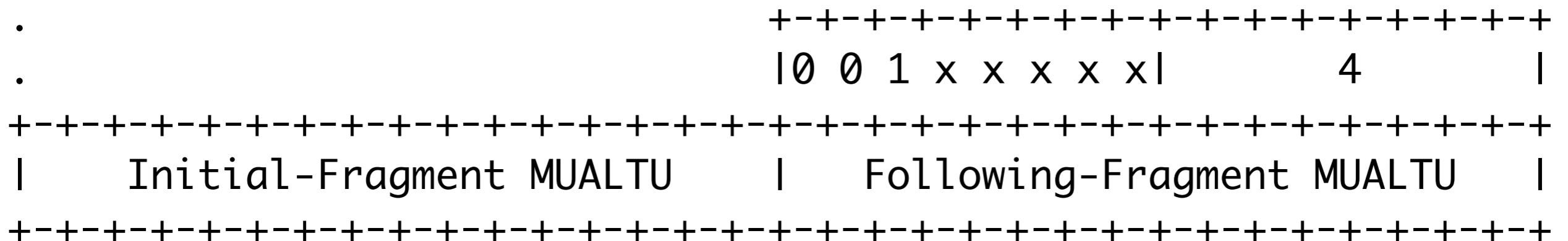


Header compression

- ... creates a difference between the IFMUALTU and the FFMUALTU
- ... makes the MUALTUs variable
 - e.g., changing an address may change compression significantly
 - hard to probe out-of-band

ALFI

- In-band probing
 - Add to actual data packets
 - Compensate for distortion
- Add hop-by-hop option:



Protocol

- Originator sets both MUALTUs to zero
- Each adaptation layer updates, if it understands the option
- Receiving application:
 - Still zero? Not worse off than before
 - Send back application layer info to sender (e.g., CoAP: Block2 option)

TBD

- Socket interface?
- How steppy must the adaptation layer be to qualify for setting MUALTUs?
 - ATM vs. 6LoWPAN
 - e.g., DVB?
- Spend time on IPv4???

Do we want to do this?

- If yes: where?
 - 6LoWPAN is shutting down
 - 6MAN? intarea?
 - AD-sponsored?
 - Independent submission?