CS698T
Wireless Networks: Principles and Practice

Topic 17
Roofnet: 802.11b Outdoor Measurements

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http://www.cse.iitk.ac.in/users/braman/courses/wless-spring2007/

Measuring the Performance of an Outdoor 802.11b Network

Reference: "Link-level Measurements from an 802.11b Mesh Network", Daniel Aguayo, John Bicket, Sanjit Biswas, Glenn Judd, Robert Morris, SIGCOMM 2004

The Setup

- 38-node community network: Roofnet

  - 802.11b, Intersil Prism 2.5 chip-set

  - Pseudo-IBSS mode

- Each node sends 1500-byte broadcast packets

  - For 90 sec at each of the 4 bit-rates

  - Packet has a sequence number

- "RSSI" and "silen ce" values noted at receiver for each packet
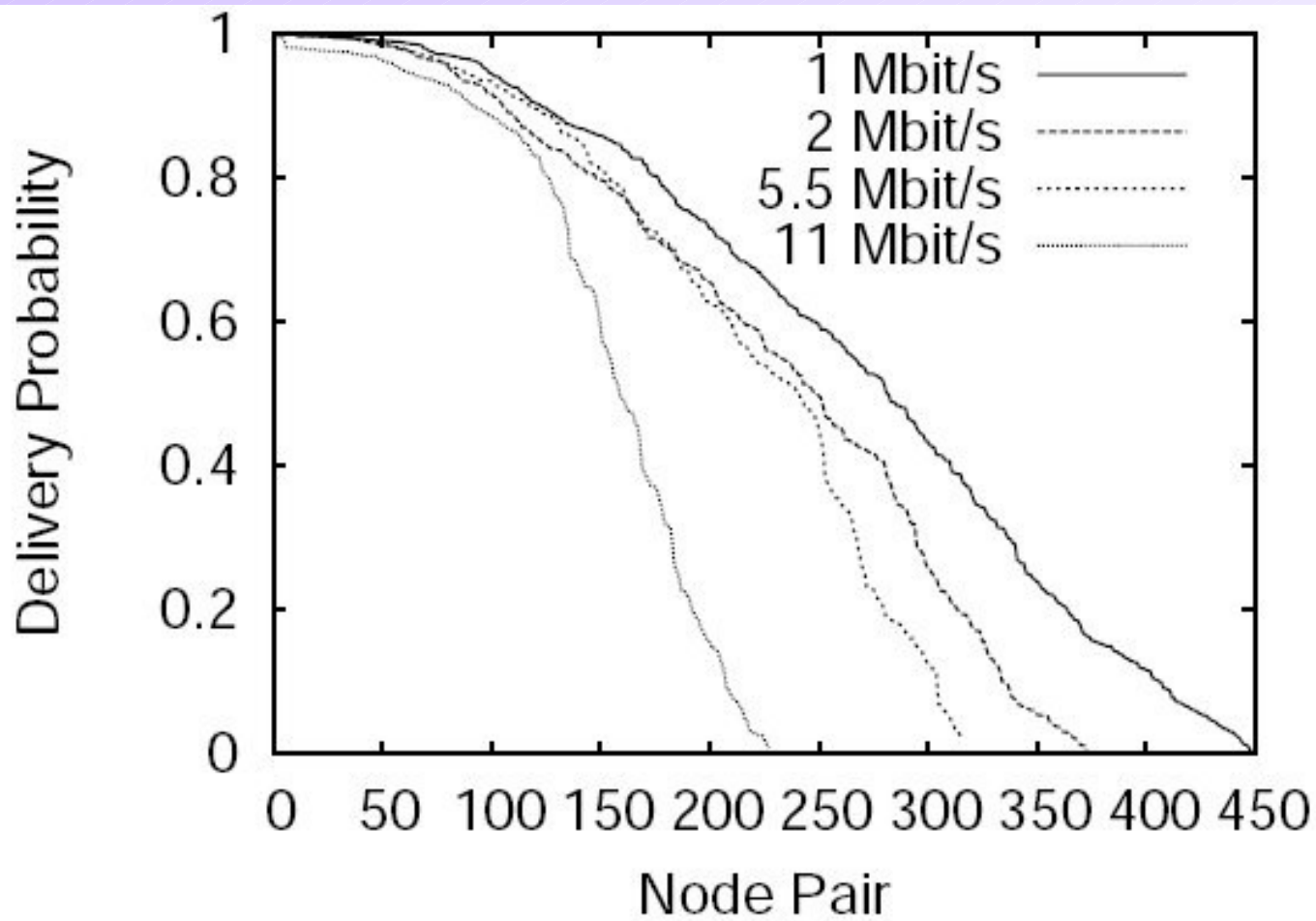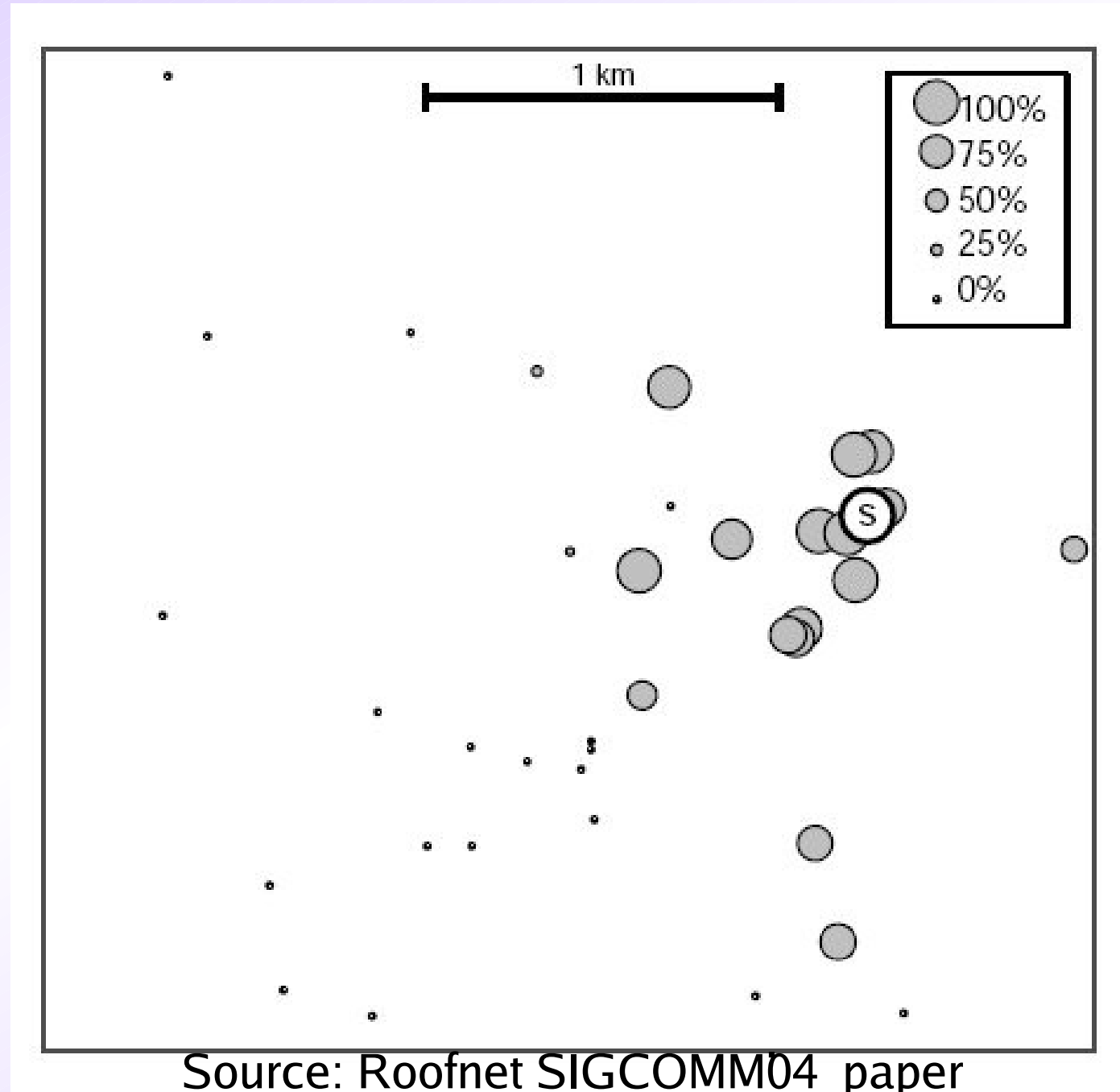
Delivery Probability

Figure 4: The distribution of link delivery probabilities for 1500-byte broadcast packets. Each point corresponds to one sender/receiver pair at a particular bit-rate. Points were restricted to pairs that managed to deliver at least one packet during the experiment. Most pairs have intermediate delivery probabilities.
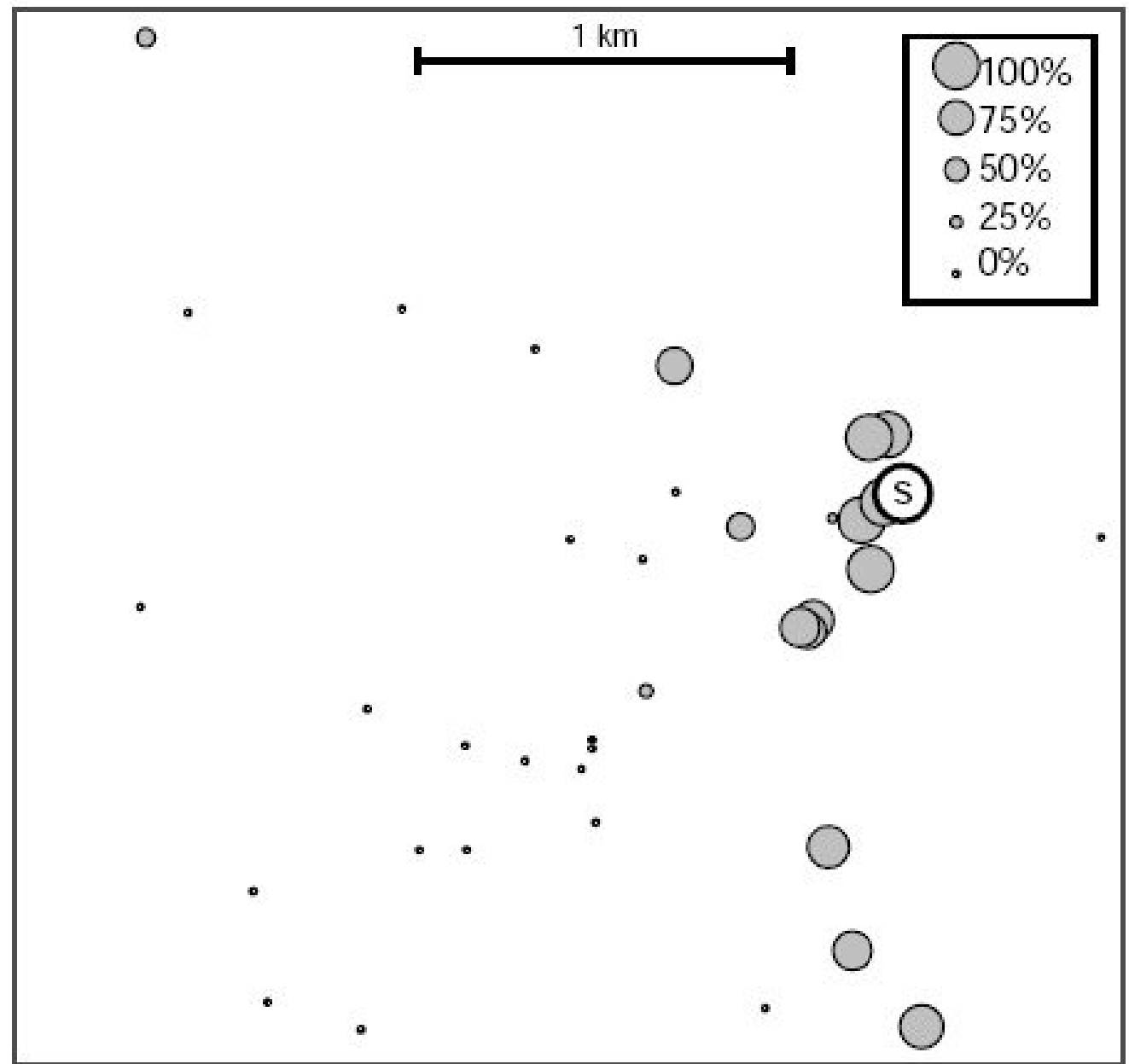
Conclusion: link-abstraction does not quite hold

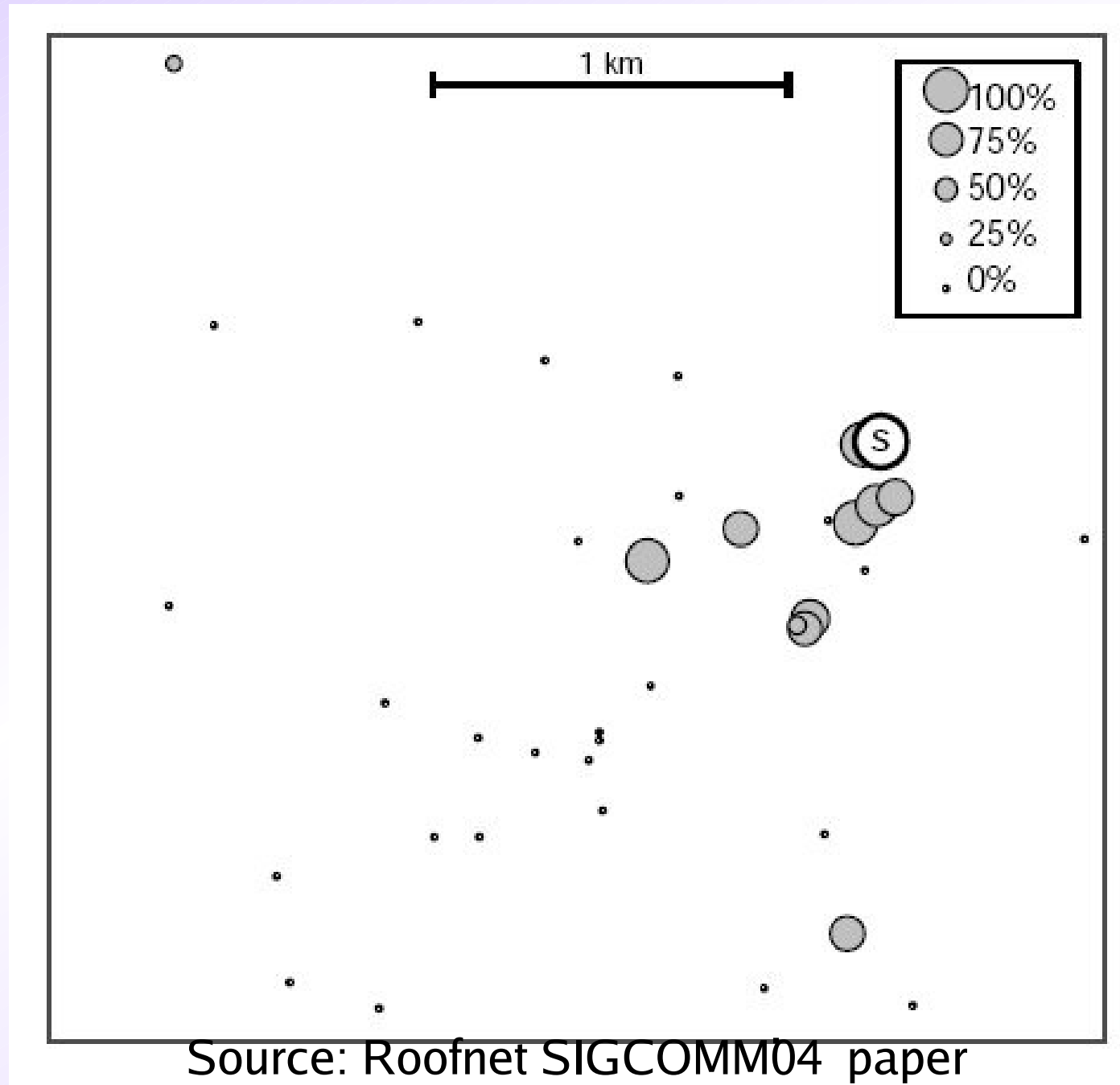Source: Roofnet SIGCOMM04 paper

Spatial Distribution of Losses (1/3)

Source: Roofnet SIGCOMM04 paper
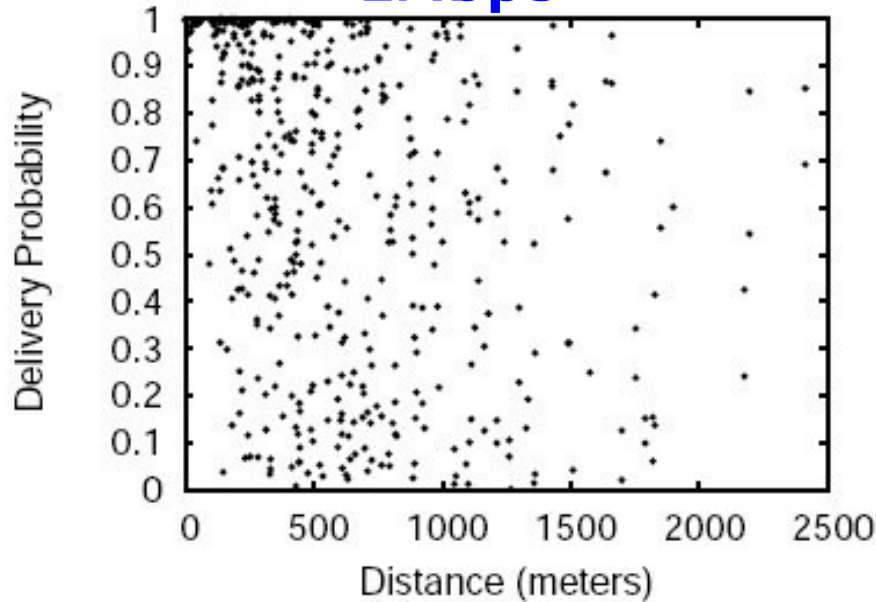
Spatial Distribution of Losses (2/3)

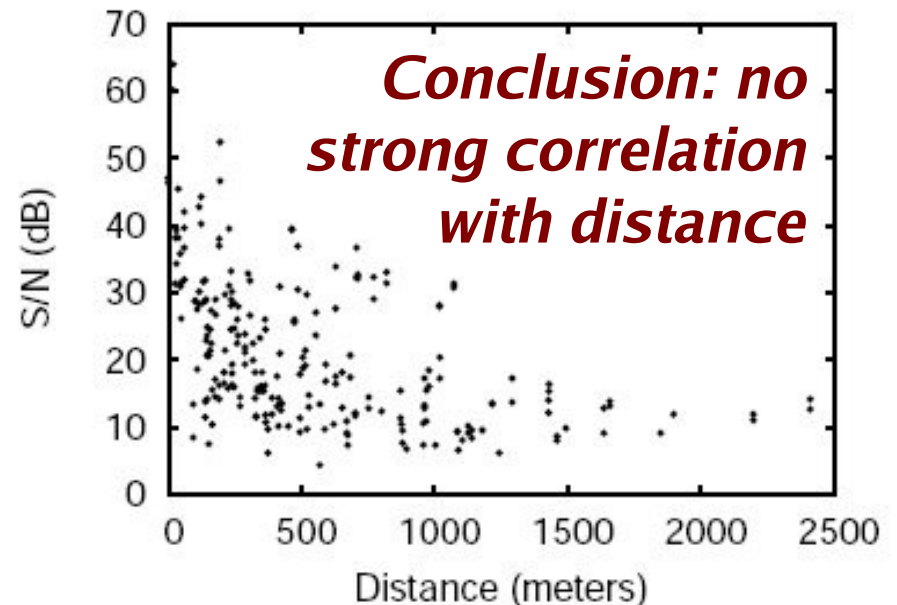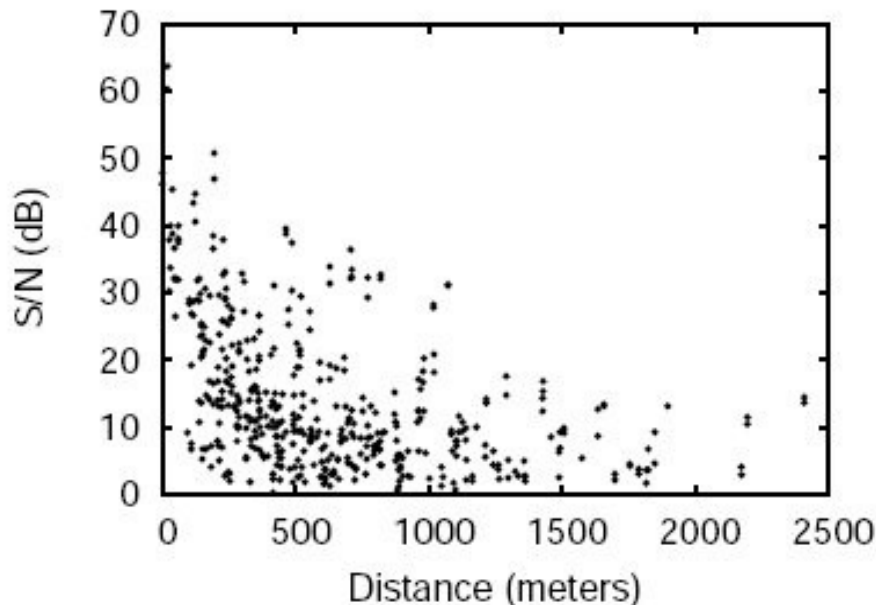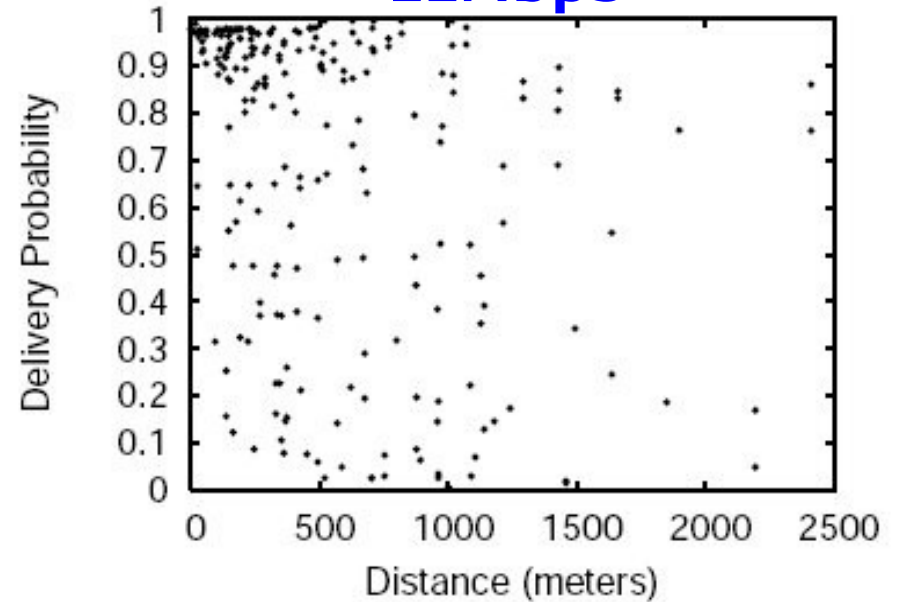Source: Roofnet SIGCOMM0 4 paper

Spatial Distribution of Losses (3/3)

Source: Roofnet SIGCOMM04 paper

Delivery Prob., SNR vs. Distance
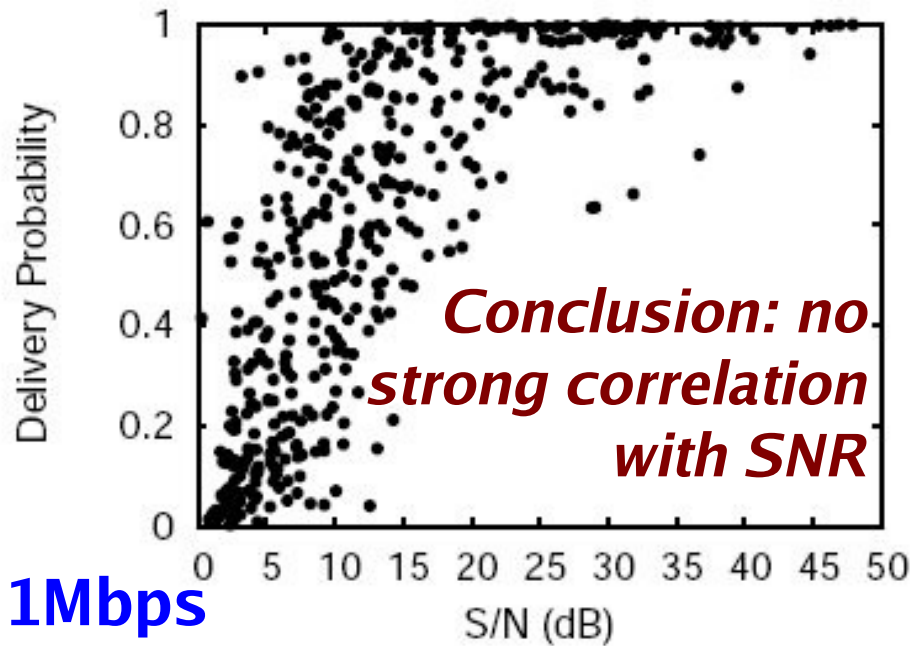

Source: Roofnet SIGCOMM04 paper

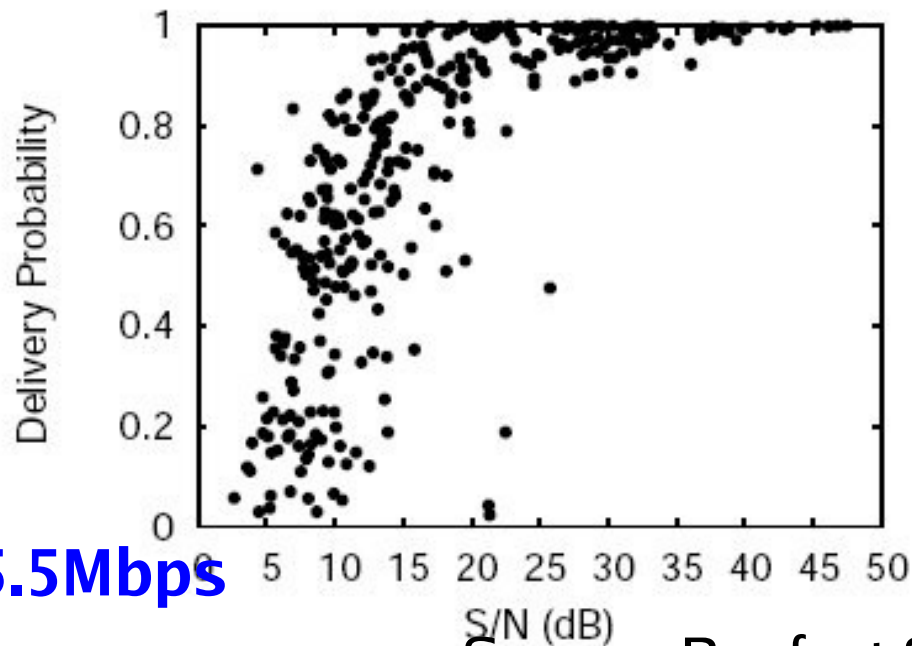# Delivery Prob. vs. SNR
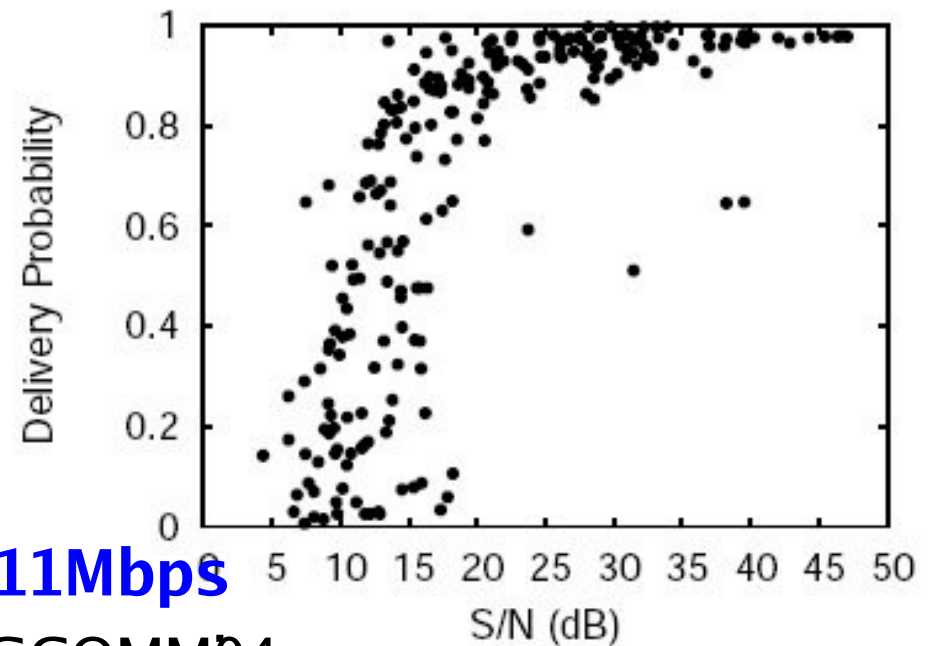

Conclusion: no strong correlation with SNR

1Mbps

2Mbps

5.5Mbps

11Mbps

Source: Roofnet SIGCOMM04 paper