

EE559T

7/25/16

Network layer  
for wireless networks

- Blacklisting

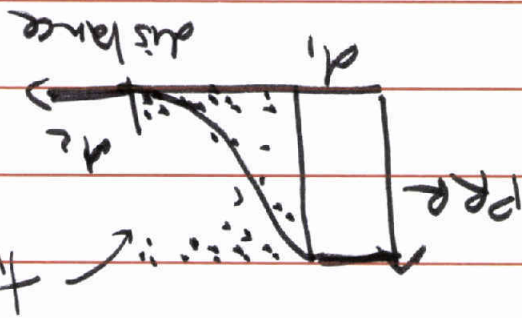
- ETX as a metric

transitional region  
subject to

intermittent

link availability

due to fading



first-order approximation:  
 - if PRR is an iid r.v.  
 - if ACK pkts always received

$$ETX \sim \frac{1}{PRR}$$

in practice it is measured as

ETX

a naive average of instantaneous  
 ETX values

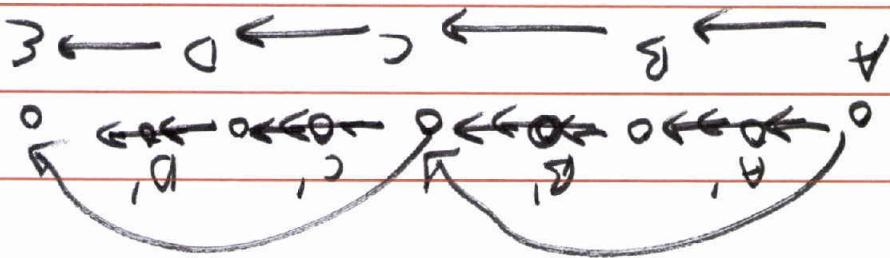
~~$$ETX(n+1) = \alpha ETX(n) + (1-\alpha)ETX_{inst}$$~~

empirically not

3 TX flows : Reliability  
 Energy  
 Latency  
 Throughput

min-3TX min-hop balance  
 both hop-distance & # of hops

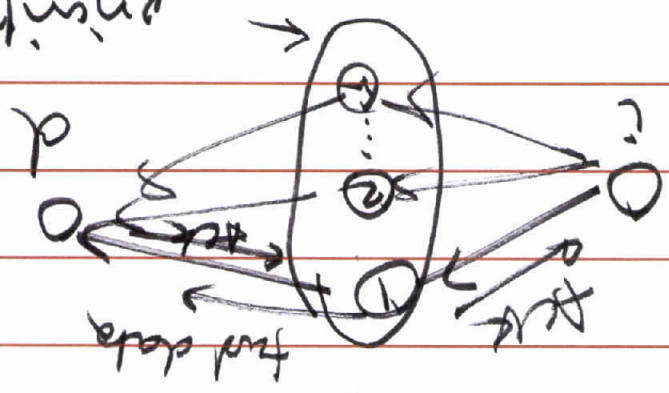
min-hop-count min-hop may  
 prefer fewer hops



min-ETX routing can be implemented  
 w/ Standard Dijkstra/Bellman  
 Ford Algorithm (ie. link state  
 or Distance Vector protocols)

Anypath routing can  
 produce total end to  
 end ETX even further

- uses the diversity of  
 receivers / exploits the broadcast  
 advantage in wireless.



requires saving information  
 can reduce problem → typically implemented in first  
 forwarding set  
 pruned