

PCMA



Constraints

1. $P_{tmin} \leq P_{ti} \leq P_{tmax}$
2. $P_{ti} \times G_{ij} > RxThresh$
3. $\frac{P_{ti} \times G_{ij}}{\sum_{k \neq i} P_{tk} \times G_{kj} + N_j} > SIRThresh$

$$\sum_{k \neq i} P_{tk} \times G_{kj} + N_j = P_{nj}$$

4. Noise tolerance

$$E_k = \frac{P_{rk}}{SIRThresh} - P_{nk}$$

$$\frac{P_{rk}}{P_{nk} + E_k} = SIR_Thresh$$

$$P_{ti} \cdot G_{ik} \leq E_k$$

$$P_{ti} \leq \min_k \left(\frac{E_k}{G_{ik}} \right)$$



$$\max \left\{ \frac{RX-Des}{G_{ij}}, \frac{SIRDes \times P_{nj}}{G_{ij}} \right\} \quad G_{ij} = \frac{P_R}{P_{ti}}$$

$$\Rightarrow P_{ti} = \frac{P_R}{G_{ij}}$$

P_{t_des}

(2) $P_{ti} \cdot G_{ij} \geq Rx_Thresh$
 $\frac{P_{ti}}{G_{ij}} \geq \frac{Rx_Thresh}{G_{ij}}$

(3) $P_{ti} \cdot G_{ij} > SIRThresh$

$$SIR_Des > SIRThresh$$

$$SIR_Des = \frac{P_{ti} \times G_{ij}}{P_{nj}}$$

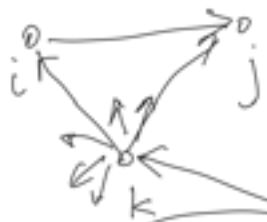
$$P_{n-si}$$

$$P_{tj} \geq \frac{SIR_{Thresh} P_{n-si}}{C_{ij}}$$

$$P_{ki} = \frac{SIR_{Des} P_{nj}}{C_{ij}}$$

Node k

$$P_{t-BT_k} = \frac{C}{E_k}$$



At i, $\frac{C}{E_k} \times G_{ki} = X$

$$\frac{C}{X} = \left\{ \frac{E_k}{G_{ki}} \right\}$$

$$C = P_{tmax} \cdot CS_{Thresh}$$



max power P_{tmax}

$$C \rightarrow \frac{(P_{tmax} \cdot CS_{Thresh}) \cdot G_{ki}}{E_k} = X$$

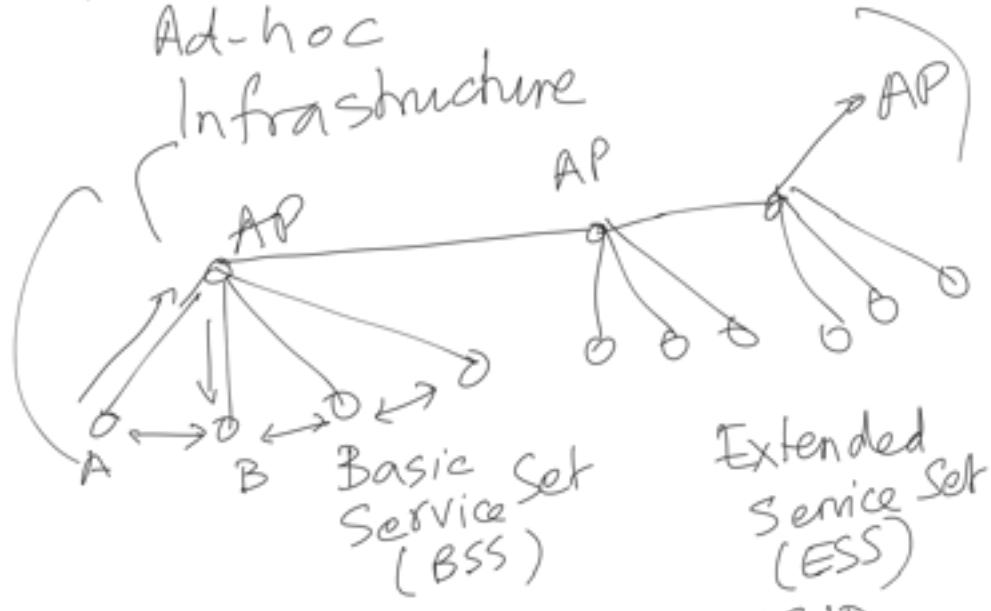
~~$$\frac{C \cdot G_{ki}}{E_k} = CS_{Thresh}$$~~

$$P_{tmax} \cdot G_{ki} = E_k$$

$$G_{ki} = \frac{E_k}{P_{tmax}} = \frac{CS_{Thresh} \cdot E_k}{C}$$

$$C = P_{tmax} \cdot CS_{Thresh}$$

Ad-hoc Infrastructure

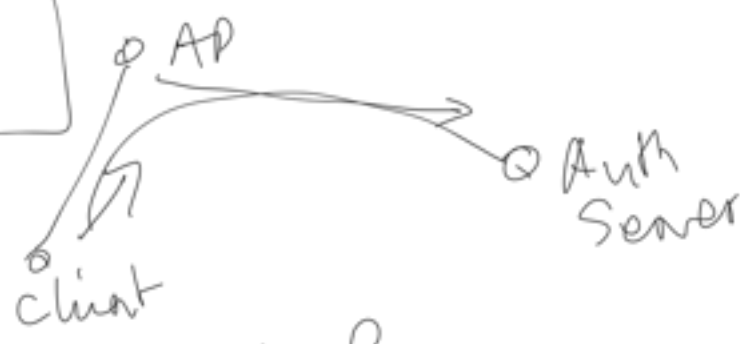


Periodic msgs
Beacons - 100ms

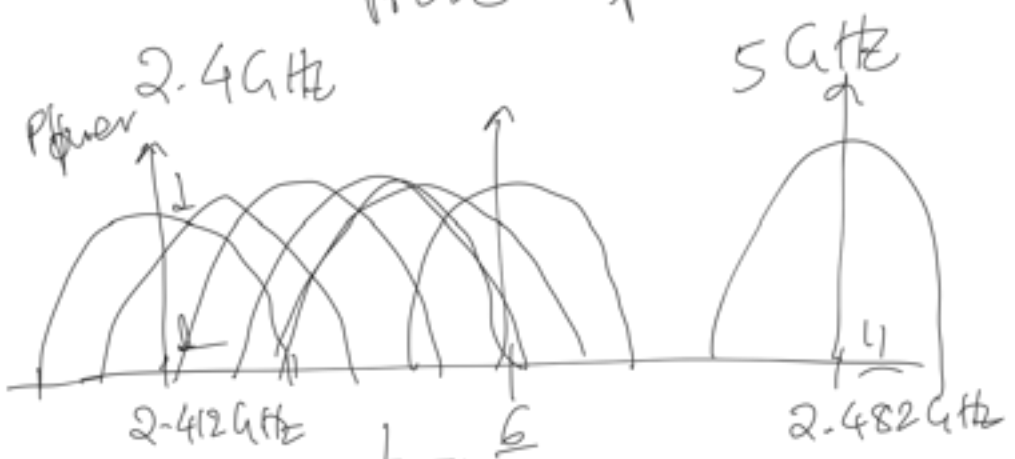
ESSID



Assoc Req.
Assoc Resp.



Probe Req
probe Resp



Transmit Spectral Mask

Data Rates

802-11b

1, 2, 5.5, 11

802.11a/g

Mbps

6, 9, 12, 18, 24, 36, 54
Mbps



MCS \rightarrow M-modulation