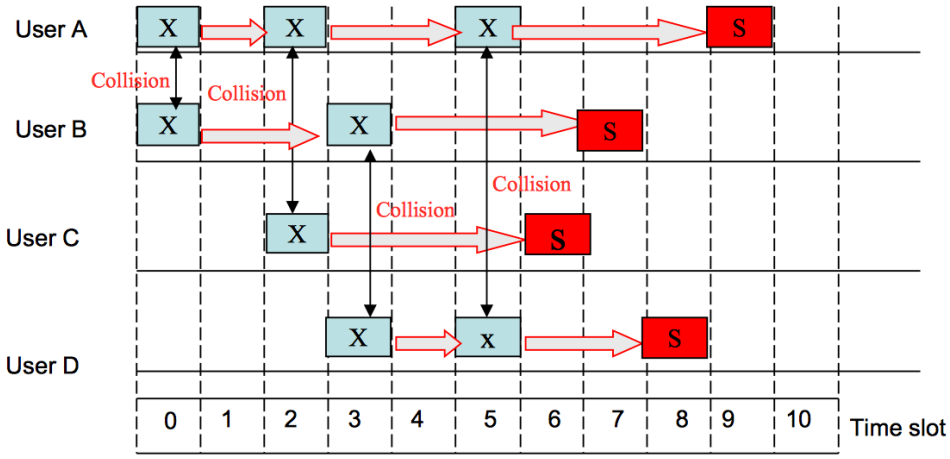
Calculation Questions

2- Wireless Communication

MAC: back-off sequence collision avoidance

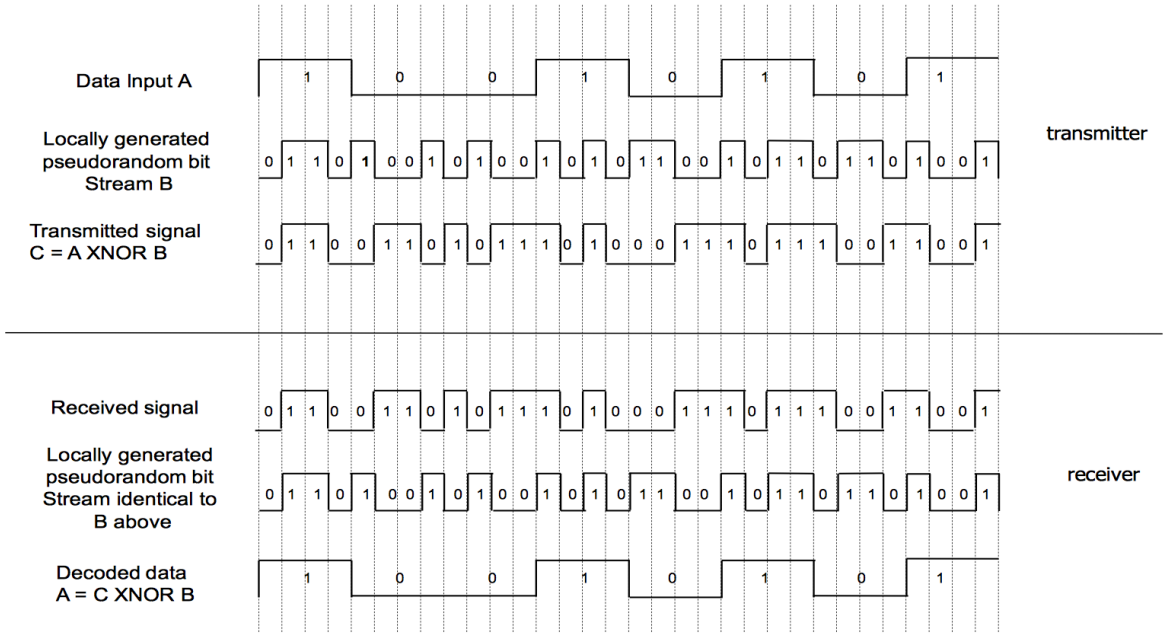
Tut 03 1



Back-off timeslots for each user

A: (1,2,3,4) , B: (2,3,2,1) , C: (3,1,2,4) , D: (1,2,2,3).

DSSS Direct Sequence Spread Spectrum



CDMA Chip-code Calculation

Which bit is transmitted by a station

Prove codes are pairwise orthogonal

Sinusoidal Wave Draw and Pick Parameters

Period, frequency, phase, peak amplitude

3- Wireless Networks

4- Mobile Computing Models and Architectures

5- Mobility Management

Handoff Decision Algorithms RSS

Use table to show the process:

4. Using RSS + threshold P_T = -60dBm + hysteresis P_H of 10dBm: handoff occurs from BS_{old} to BS_{new} if $P_{new} > P_{old} + P_H$ and $P_{old} < P_T$

Time(s)	0	1	2	3	4	5	6	7	8
BS1	-47	-57	-56	-65	-60	-62	-60	-62	-56
BS2	-59	-56	-57	-61	-53	-56	-54	-52	-57
BS3	-70	-72	-75	-70	-58	-50	-55	-62	-75
BS4	-72	-71	-65	-59	-56	-53	-62	-63	-70

Time(s)	**0**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
BS_{old}	**BS1**	**BS1**	**BS1**	**BS1**	**BS1**	**BS1**	**BS3**	**BS3**	**BS3**
P_{old}	**-47**	**-57**	**-56**	**-65**	**-60**	**-62**	**-55**	**-62**	**-75**
BS_{new}	**BS1**	**BS2**	**BS1**	**BS4**	**BS2**	**BS3**	**BS2**	**BS2**	**BS1**
P_{new}	**-47**	**-56**	**-56**	**-59**	**-53**	**-50**	**-54**	**-52**	**-56**
$P_{new} > P_{old} + P_H$?	**No**	**No**	**No**	**No**	**No**	**Yes**	**No**	**No**	**Yes**
$P_{old} < P_T$?	**No**	**No**	**No**	**Yes**	**No**	**Yes**	**No**	**Yes**	**Yes**
Handoff	**No**	**No**	**No**	**No**	**No**	**Yes**	**No**	**No**	**Yes**
New access	**BS1**	**BS1**	**BS1**	**BS1**	**BS1**	**BS3**	**BS3**	**BS3**	**BS1**

The handoffs occur at time 5,8.

Location Management Cost

Tut 06 1

Calculate state stable probability based on provided state transimtion probbility

Whole cost: cost of location update + cost of paging

- under parallel paging
- under sequential paging
- under sequential paging with higher probability first

Dynamic Location Updates, in Location Management in CN

Time based

Distance based

Movement based

Mobile IP

Explain how MN know that it has moved from its home network to a foreign network?

What will M do after it is aware of its moving to a foreign network?

What will be the role played by F in this process?

Routing packet from sender to MN?

1- Sender device → Home address. Sender IP to MN IP

2- Home agent → COA. HA IP to MN COA

3- Unwrap packet, get original one. FA → M. Sender IP to MN IP

How to solve insufficient routing?

6- Location Based Services

Find Location given Several TOA

Tut 06 2