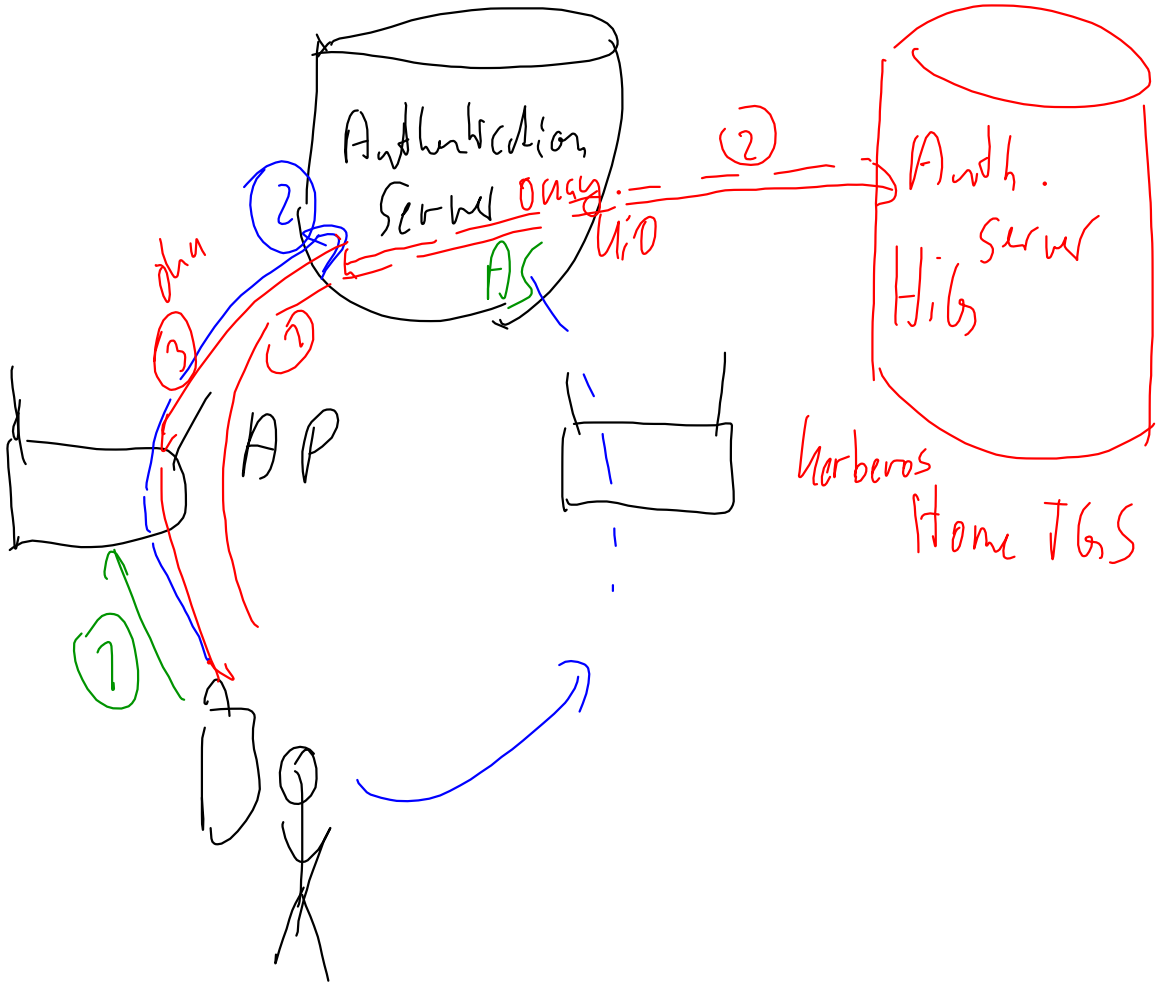
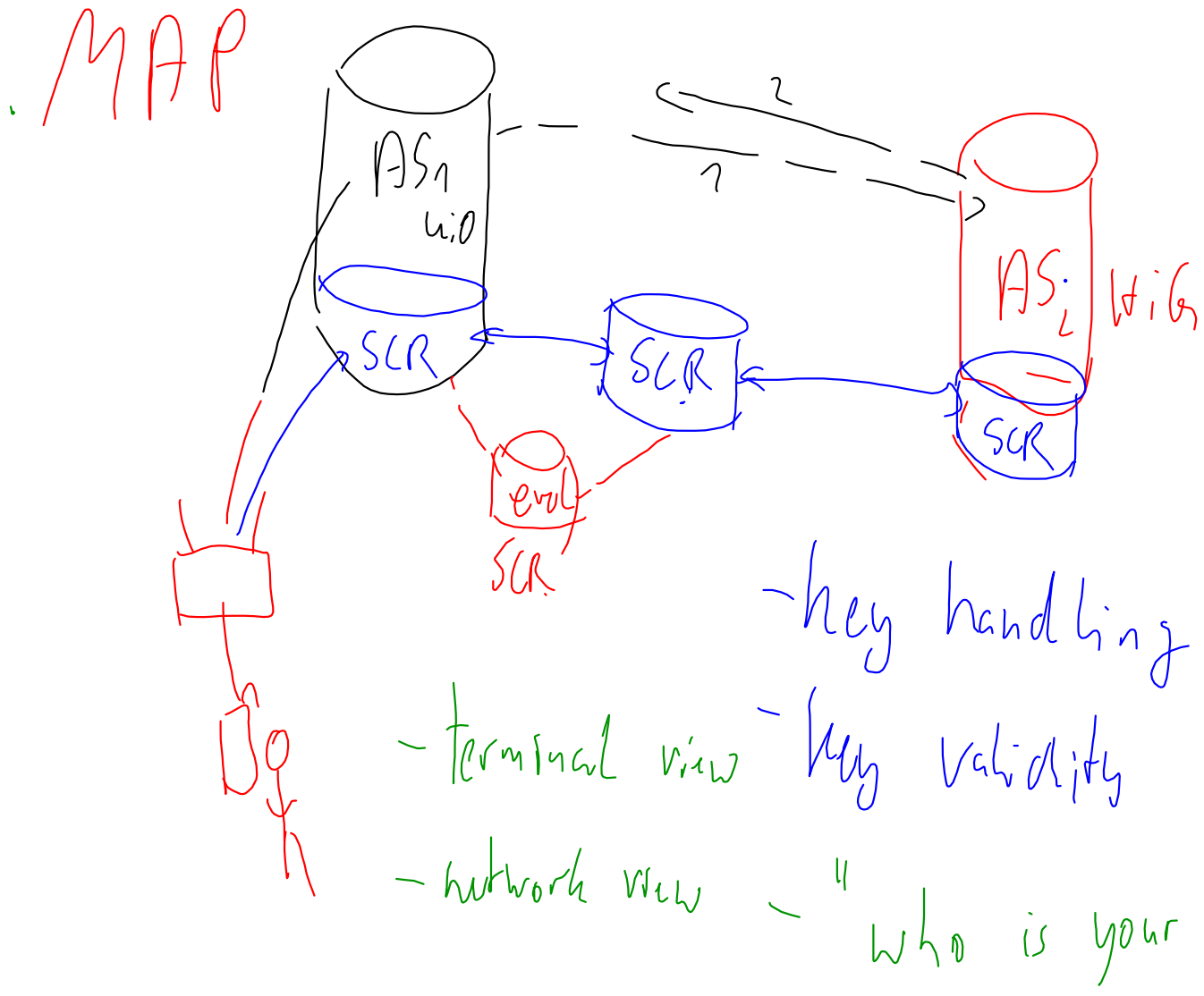
(2) UNIk
- username/password

(1) WPA, (WEP)
- move the AS into the AP

(3) EDUROAM

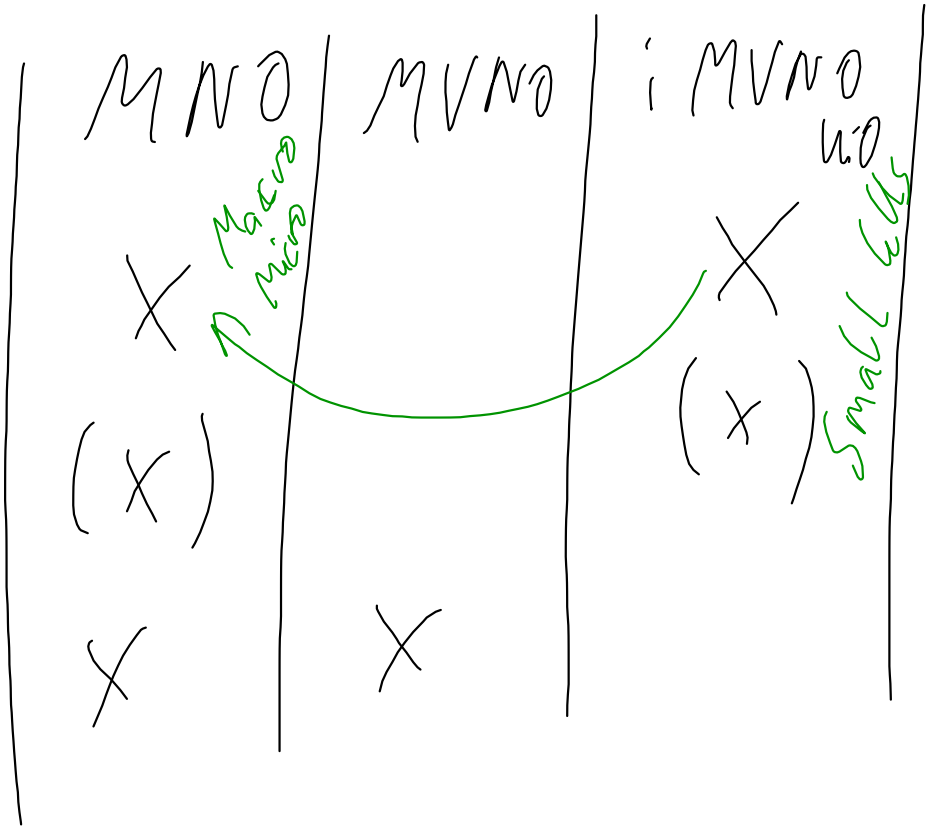


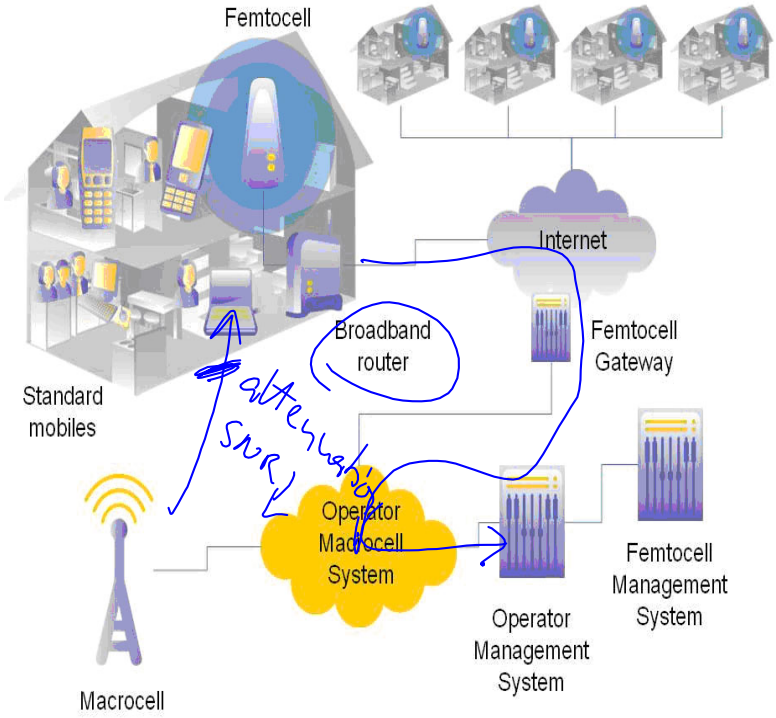

MAP
AS1
u,0
2
1
ASi
u,i,G
SCR
SCR
SCR
evil
SCR
- key handling
- terminal view
- key validity
- network view
- "who is your friend"

(in us) Mobile Virtual Network Operator

Mobile network

- access network
- transport network
- authentication & billing





Range ~ path loss $\frac{1}{r^2}$

Capacity ~ SNR, BW, MIMO

↑ ↑ ↑

channel bonding

Goal: increase capacity

- MIMO ~ 3-5 ↑
- signal processing (high SNR) ~ 1.5 ↑
- more cells ~100-1000 ↑ shorter distance
- higher BW at low freq?

Remaining lectures

28 Nov

5 Dec

(12 Dec "Exam"
indiv. feedback)

Final Presentation

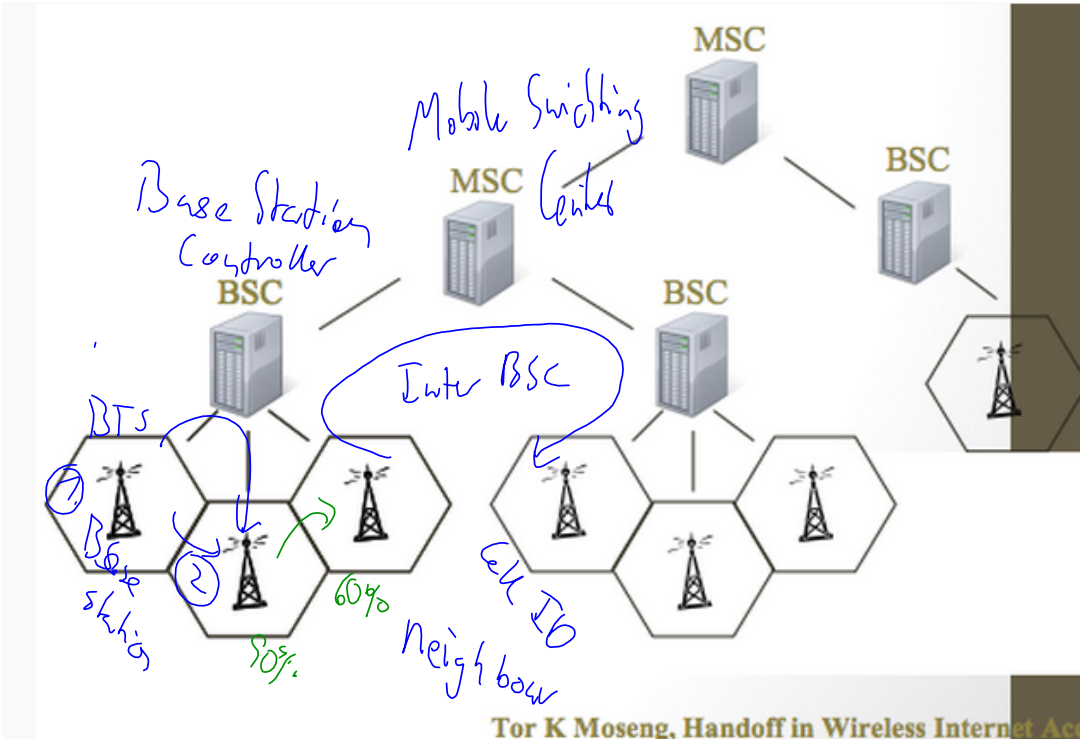
- Scenario
- focus on input numbers
- simulation results
- evaluation
  - sensitivity
  - shortcomings / advances
- conclusions

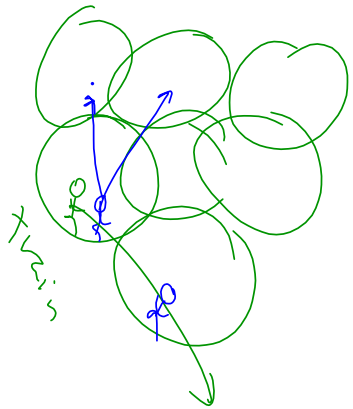
Mobility Principles

v > 100 km/h & 20 Mbit/s
↳ train
LTE

- Continuous mobility enables continuous availability of services while the user moves
- Discrete mobility enables the availability of services within certain areas and for certain access points, e.g home and office, but not while moving from one area to another.
- Portability is an example of discrete terminal mobility, where it is only allowed to move a terminal from one plug to another.

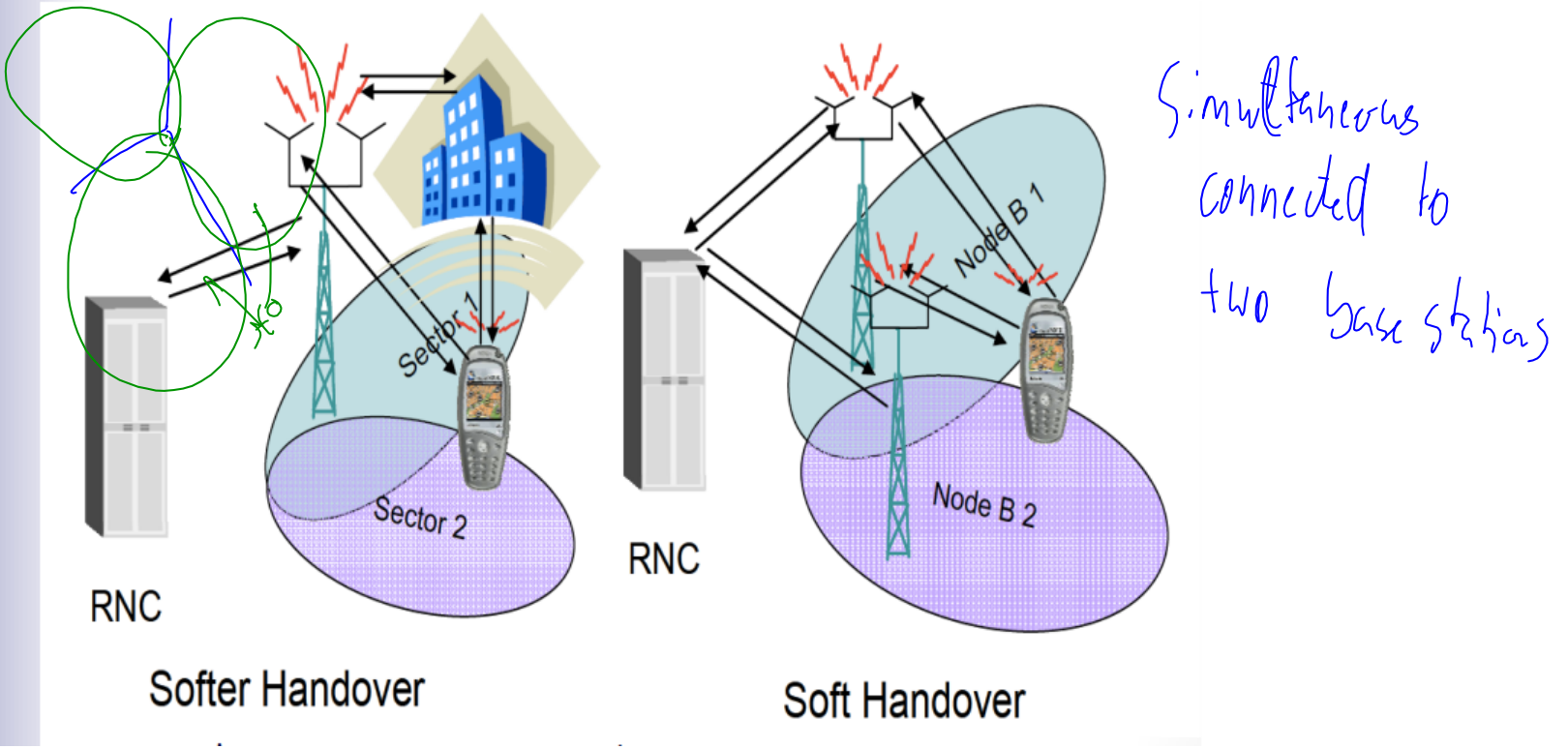
> 95% of all traffic
"low" capacity continuously
high capacity at certain points


MSC
Mobile Switching
MSC Center
BSC
Base Station Controller
BSC
BSC
Inter BSC
BTS
60%
Neighbour
Tor K Moseng, Handoff in Wireless Internet Ac



Softer Handover

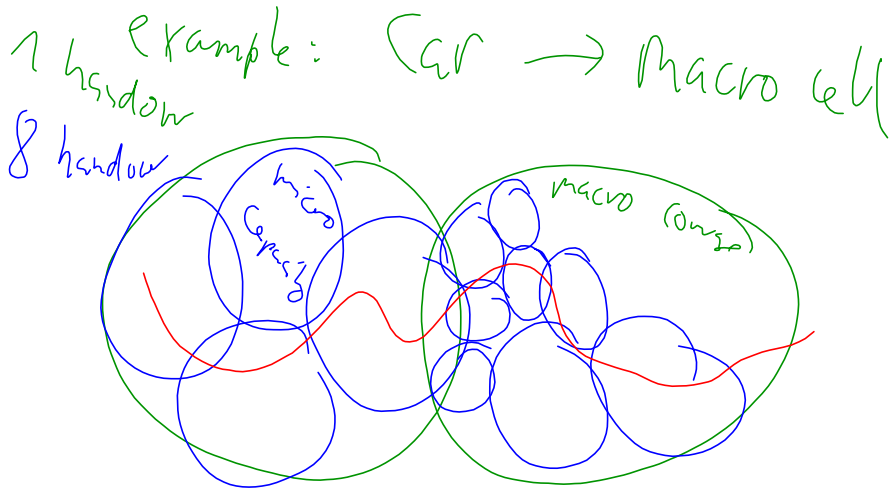
- Softer handover is a special case of soft handover where the radio links that are added and removed belong to the same Node B.
- In softer Handover , the NodeB can receive the signal in macro diversity with maximum ratio combining.
- In soft handover macro diversity with selection combining is selected.



Simultaneous connected to two base stations

Handoff And Performance

- Handoffs are expensive to execute, so unnecessary handoffs should be avoided.
- If the handoff criteria are not chosen appropriately, then in the overlapping region between the two BS coverage area boundaries, the call might be handed back and forth several times between them.
- If the criteria are too conservative, then the call may be lost before the handoff can take place.
- The handoff decision-making criteria become even more critical with the evolution to smaller cell sizes, which is happening to increase the capacity of systems and to reduce power requirements of MSs.
- Unreliable and inefficient handoff procedures will reduce the quality and reliability of the system.



Unsolved issues in Mobility

- Cost of network usage
- policies during access