

Outline

- ◇ Handoff detection strategies
- ◇ Handoff types with reference to link transfer
- ◇ Types of Handover

Handoff detection strategies

- ❖ Mobile-Controlled handoff (MCHO)
- ❖ Network-Controlled handoff (NCHO)
- ❖ Mobile-Assisted handoff (MAHO)

Mobile-Controlled Handoff (MCHO)

- In this strategy, the **MS continuously monitors** the radio signal strength and quality of the surrounding BSs. When predefined criteria are met, then the MS checks for the best candidate BS for an available traffic channel and requests the handoff to occur.
- MACHO is used in DECT and PACS.

Network-Controlled Handoff (NCHO)

- In this strategy, the **surrounding BSs, the MSC or both monitor the radio signal**. When the signal's strength and quality deteriorate below a predefined threshold, the network arranges for a handoff to another channel.
- NCHO is used in CT-2 Plus and AMPS.

Mobile-Assisted Handoff (MAHO)

- It is a variant of NCHO strategy. In this strategy, the **network directs the MS to measure the signal from the surrounding BSs and to report those measurements back to the network.** The network then uses these measurements to determine where a handoff is required and to which channel.
- MACHO is used in GSM and IS-95 CDMA.

Handoff types with reference to link transfer

- ❖ **Hard handoff**
- ❖ **Soft handoff**

Hard Handover

”break before make”

- ◇ Old connection is broken before a new connection is activated
- ◇ Primarily used in FDMA and TDMA systems (e.g. GSM)
 - ◇ Different frequency ranges used in adjacent cells to minimize the interference

Soft Handover

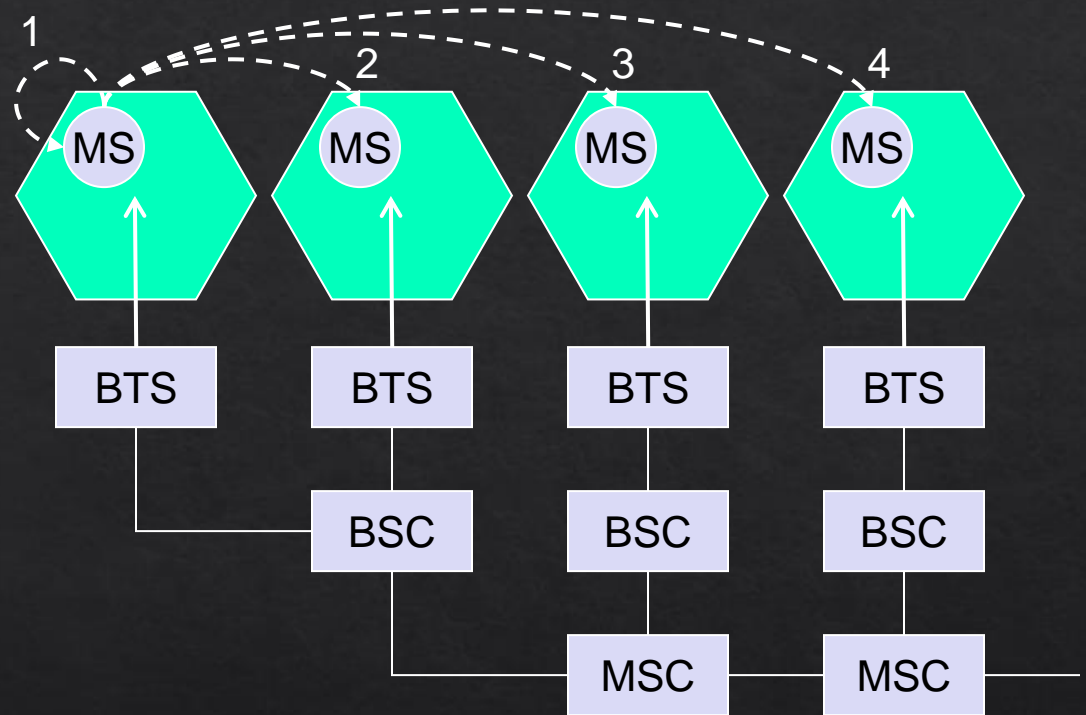
”make before break”

- ◇ New connection is activated before the old is broken
- ◇ Used in UMTS to improve the signal quality
 - ◇ Uplink and downlink signals may be combined for better signal
 - ◇ A mobile may in UMTS spend a large part of the connection time in soft handover
 - ◇ Better connection reliability
- ◇ More seamless handover

Four types of handover

Four types of handover

1. Intra Cell handover
2. Inter Cell or Intra-BSC handover
3. Inter-BSC or Intra-MSC handover
4. Inter-MSC handover



Handoff types with reference to the network

❖ Intersystem handoff

- ❖ If a mobile moves from one cellular system to a different cellular system controlled by a different MSC, an intersystem handoff becomes necessary. (GSM – WCDMA - LTE)

