Mobile Computing (lec 6)   / /

① Mobility   ② Direct, Indirect routing   ③ haoliling Mobility
                                                        in Cellular net
spectrum of Mobility from network prespective   (handoff)

① no mobility ⟶ Mobile user within Same accesspoint
② Mooderate Mobility ⟶ Connecting, disConnecting hom network Ottlp
③ high mobility ⟶ Mobile user passing through MA point (Phone)

    a) home network ⟶ Permanent   home of mobile
    b) permenent address ⟶ address in home network to reach mobile
المستعمل c) home agent ⟶ entity perform mobility functions
Mobility

    d) visited network ⟶ network which mobile Currently resides
    e) Permenant address ⟶ remain Constant
    f) Care of adress ⟶ address in visited network
    g) foriegn agent ⟶ like home agent but in visited net.
    h) Correspondent ⟶ want to Communicate with mobile

① let router handle it ⟶ routers advertise permenant adress of
mobile nodes using routing table exchange   ✗
-routing table ⟶ where each mobile located   ✗
    no change to end system   Not scalable كبير

② let end system handle it ⟶ indirect routing, direct routing
    ① Indirect ⟶ Communication from Correspondent to Mobile
        Goes from home ⟶ remote

    ② direct ⟶ Correspondent get forgien address, send directly

انتها

Regesteration   لما الموبايل يتحرك من مكان لمكان

① mobile Contact Foreign agent
② Foreign agent Contact home agent

(Result)

① agent know about mobile
② home agent know location

⇓

① Indirect routing
- Correspondant send pkts using <u>home address</u>   } triangulation
- <u>home agent</u> <u>Forward</u> pkt to <u>Foreign agent</u>
- <u>Foreign</u> <u>Forward</u> to <u>mobile</u>
- <u>Mobile</u> <u>Forward</u> to <u>Coresspondant</u>

* <u>Permenant address</u> ⟶ used by Correspondant
  <u>Care-of- address</u> ⟶ used by home agent to Forward pkts
  <u>Foreign agent</u> Functions Can be done by Mobile

* Triangle routing = Indirect routing = Corresponde _ home _ mobile
   not effecient when Correspondat , home are Same net.

* on Going Connection Can be mainteined !
   when mobile Chages to move then network

② Direct routing
① Corresspondant request, recieve foreign address d mobile
② Correspondant forward to foreign agent
③ Foreign agent forward to mobile
④ Mobile replies directly to Correspondant

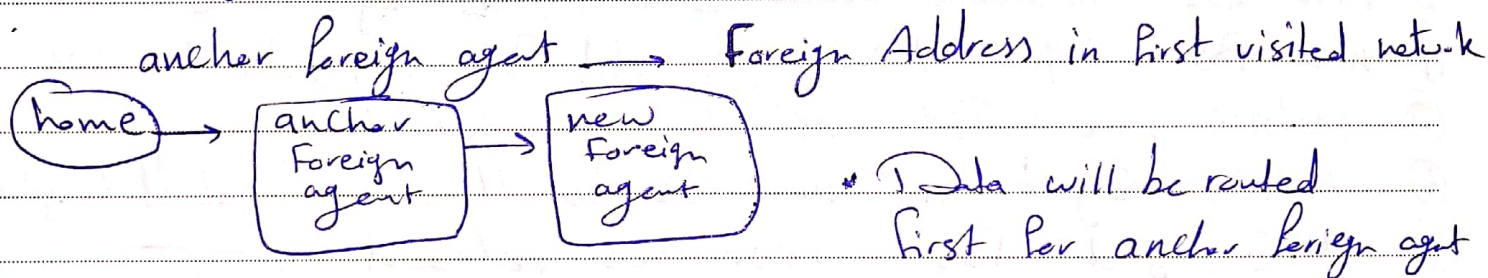- overCome triangle routing problem
- [non - transparent] to Correspondant
    Correspondant must get Core d address from home
what if Mobile change visited network?
↓

anchor foreign agent ────→ Foreign Address in First visited netw-k

(home) ──→ | anchor Foreign agent | ──→ | new Foreign agent | * Data will be routed
                                                            first for anchor foreign agent

when Mobile moves
new (FA) arrange to have data forwarded from (old) FA
        (chaining)
                                    In Network

___

In Cellular

1. Home network ──→ network of Cellular Provider you Subscribe
        to (vodafone, we ───)
    Home location Register ──→ (HLR)
        DB in home network ──→ Cell #, Profile info, Current location

2. visited network ──→ Network which mobile Currently in
    visitor location register (VLR)
        - DB entry for each user Currently in network
        - Could be home network

Handoff

route Call via new Base Station (without interuption)

(why?)

① Stronger signal to, from new BS
   Continue Connechivity, less battey drain
② load Balance → free up channel in Current BS
→ ③ handoff inaited by old BS.

① old BS → MSC → imeding handoff → Provide list of 1+ BS
② MSC → Setup path to ___ → new BS (allocated resoruce)
③ new BS allocate radio channel used by Mobile
④ new BS signal MSC , old BS : ready to relese
⑤ mobile , new BS activale new channel
⑥ Mobile signal via new BS to MSC → handelf Complete
⑦ MSC _ old - BS resources relased

with Common MSC

(Between MSCs)

• anchor MSC → first visited during Call
• new MSC add on to end of MSC chain as
  mobile move through MSCs