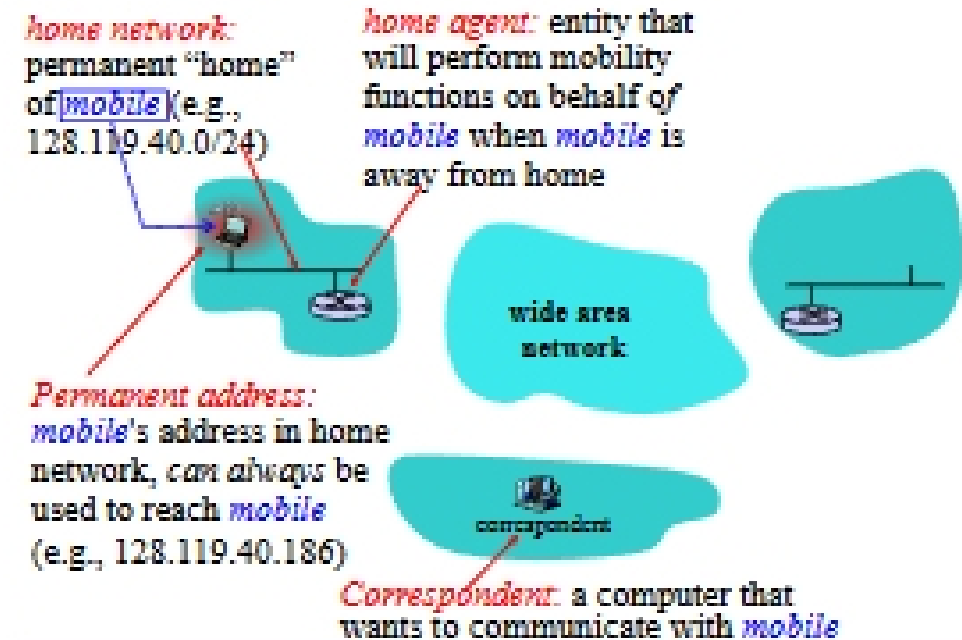


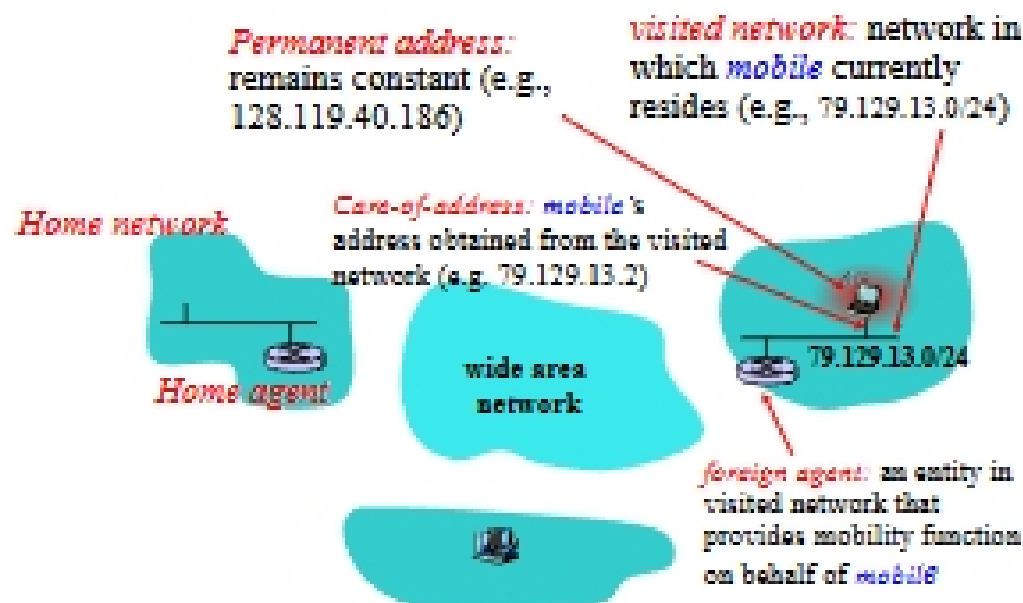
## We've reached the last week of the quarter!

- ♦ Tuesday lecture: support for host mobility
  - Focus: IP mobility
  - FYI (if time): cellular mobility
- ♦ Thursday lecture: review
  - Your suggestions are most welcome here!
    - Please email me what you would like to see covered
- ♦ Office hours this week:
  - Thursday 6/2: 3:00-4:00PM
  - Friday 6/3: 4:00-6:00PM
- ♦ Final exam: **Sat 6/4 3:00-6:00PM**
  - Location to be announced later

## Mobility: Vocabulary (I)



## Vocabulary (II): when away from home



## How do you contact a mobile friend?

Consider a friend who frequently changes addresses, how do you find her?

- ♦ search all phone books?
- ♦ expect her to let you know where she is?
- ♦ call her parents?



## Mobility: approaches

- ◆ *Let routing handle it:* routers advertise permanent address of mobile-not possible to scale to millions of mobiles
  - routing tables indicate where each mobile is
  - no changes to end-systems
- ◆ *Let end-systems handle it:*
  - Mobile keeps home agent updated on its whereabouts
  - *indirect routing:* correspondent sends packets to mobile's home agent, which forwards to mobile
  - *direct routing:* correspondent gets mobile's foreign address, sends directly to mobile



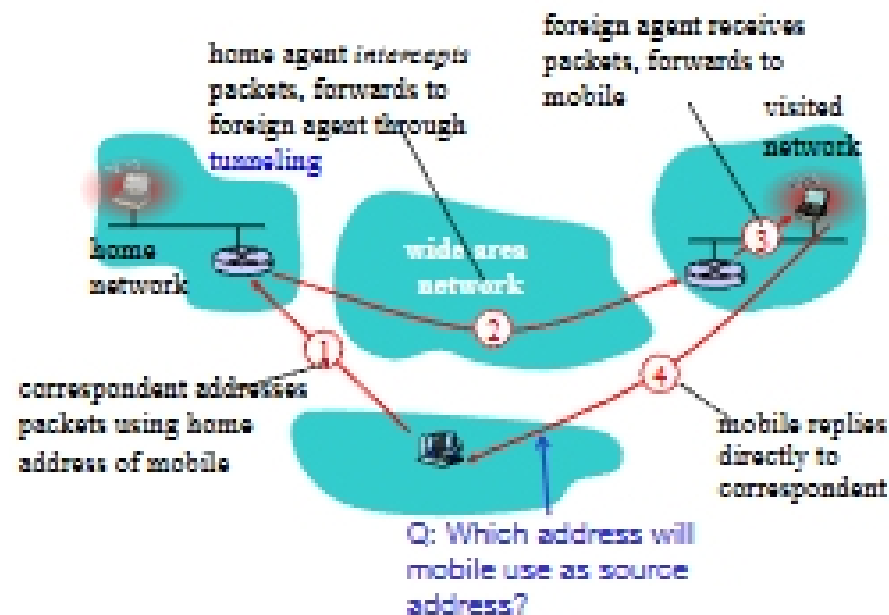
## Mobility: registration



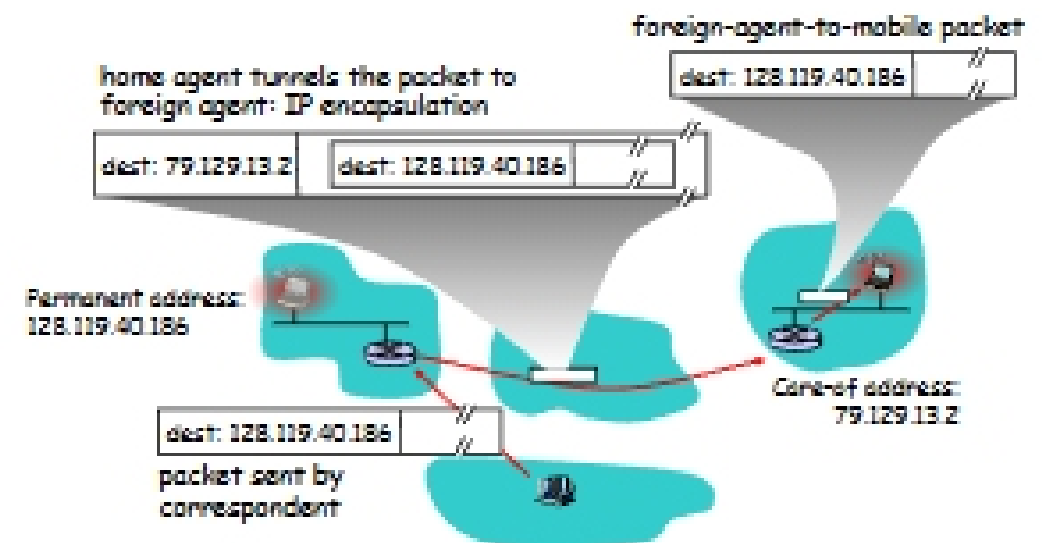
End result:

- ◆ Foreign agent knows about mobile
- ◆ Home agent knows location of mobile

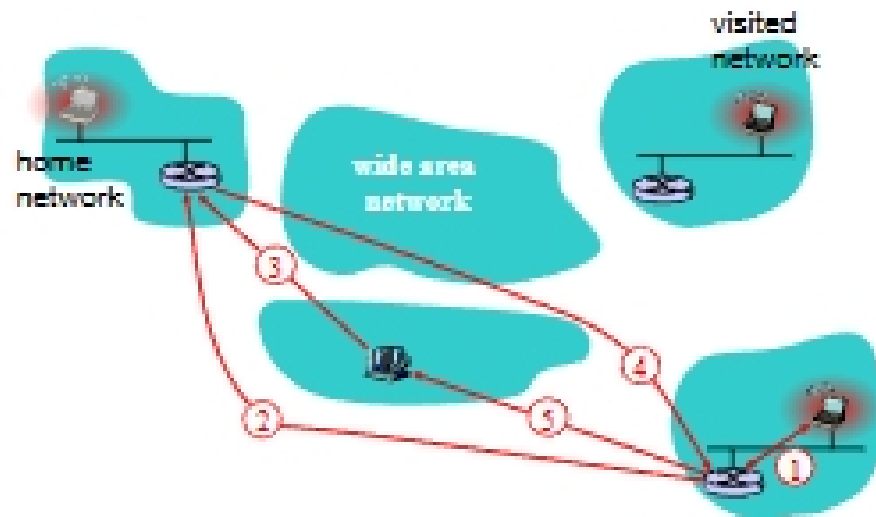
## Supporting Mobility via Indirect Routing



## Mobile IP: indirect routing



## Indirect Routing: handling further movement



Q: Will the correspondence be aware of mobile's move?

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CM 18

## Indirect Routing: moving between networks

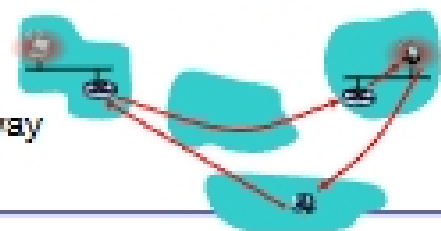
- ◆ When mobile moves to another network
  - registers with new foreign agent
  - new foreign agent registers with home agent
  - home agent update care-of-address for mobile
  - Home agent continue to forward packets to mobile through IP-in-IP tunnel (to the new care-of-address)
- ◆ Mobility is transparent to correspondent
- ◆ mobility is transparent to TCP (or any other transport protocol)
  - TCP connection uses mobile's home address, *ongoing connections can be maintained* while mobile moves

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## Summary of Indirect Routing

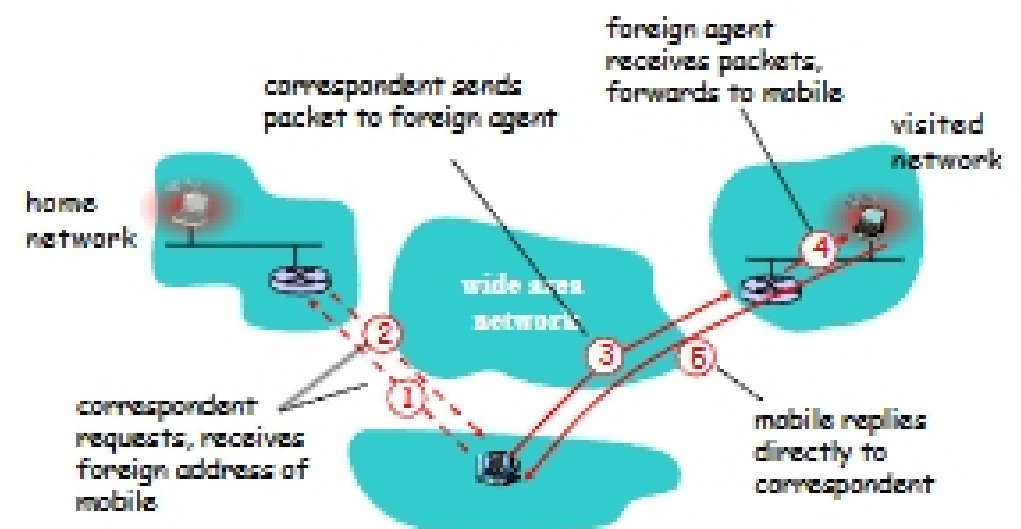
- ◆ Mobile uses two addresses:
  - permanent address: used by correspondent to send packet to mobile
  - care-of-address: used by home agent to forward packet to mobile
- ◆ Mobile can perform foreign agent function itself
  - Just get a care-of address from foreign DHCP server
- ◆ Mobility is transparent to correspondent
- ◆ **May result in triangle routing:** correspondent → home-network → mobile
  - Inefficient, especially when correspondent & mobile are close but home agent is far away



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CM 18

## Mobility via Direct Routing



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