RTMENT OF INFORMATION TECHNOLOGY
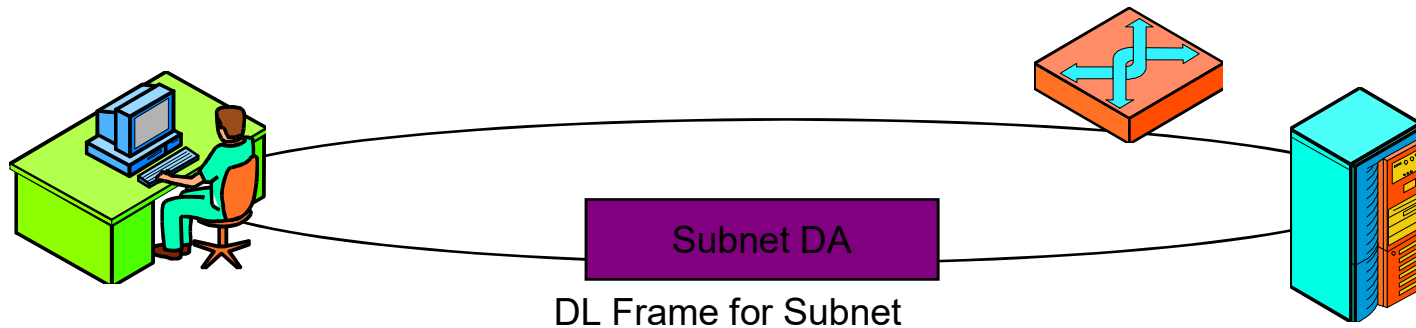
16IT301 – COMPUTER NETWORKS

II YEAR IV SEM

NIT 3 – INTERNETWORKING AND ROUTING

C 18 –Address Resolution Protocol (ARP)

ost and router on a subnet needs a data link layer addre

its address on the subnet

dress appears in the data link layer frame sent on a sub

tance, 48-bit 802.3 MAC layer frame addresses for LANs

Subnet DA

DL Frame for Subnet

outer also needs an IP address at the internet layer to d

ne overall Internet

Subnet

128.171.17.13
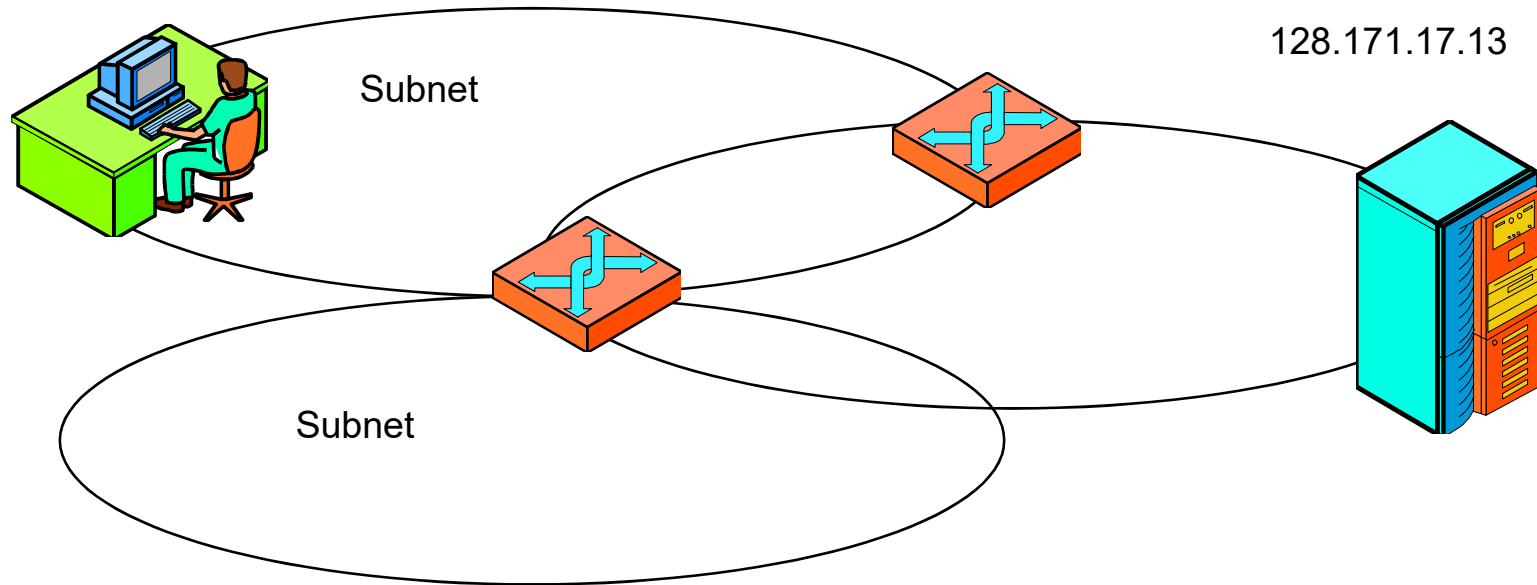
Subnet

Purposes

address

uide delivery to destination host across the Internet (ac...

iple networks)

ubnet Address

uide delivery between two hosts, two routers, and a hos...

er within a single subnet

e LAN, Frame Relay network, etc.

company, each person has a company-wide ID number (

dress)
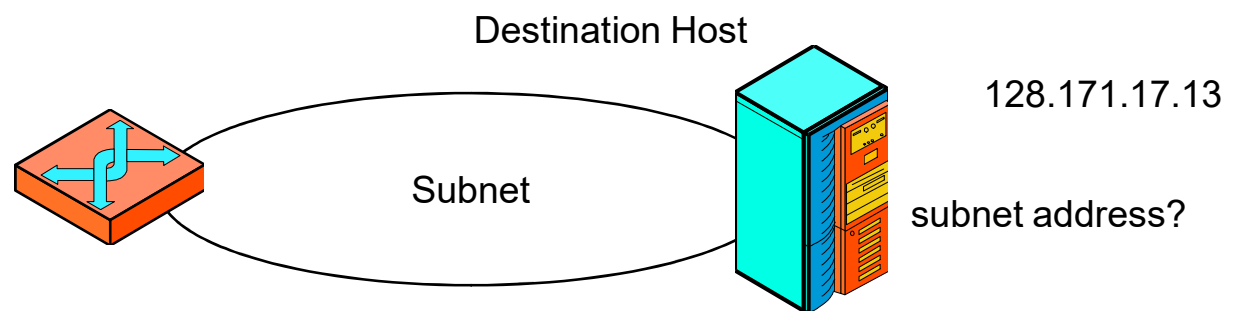
company, person also has a local office number in a buil

checks are made out to ID numbers

 delivery, also need to know office number

...

... knows that destination host is on its subnet based on th...
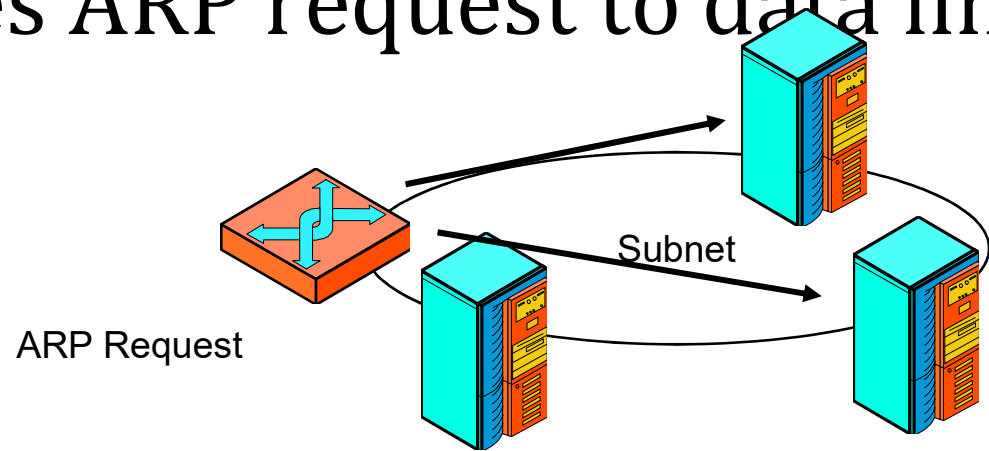
... ess of an arriving packet

... know the destination host's subnet address, *so cannot*...

...he packet across the subnet

Destination Host

128.171.17.13

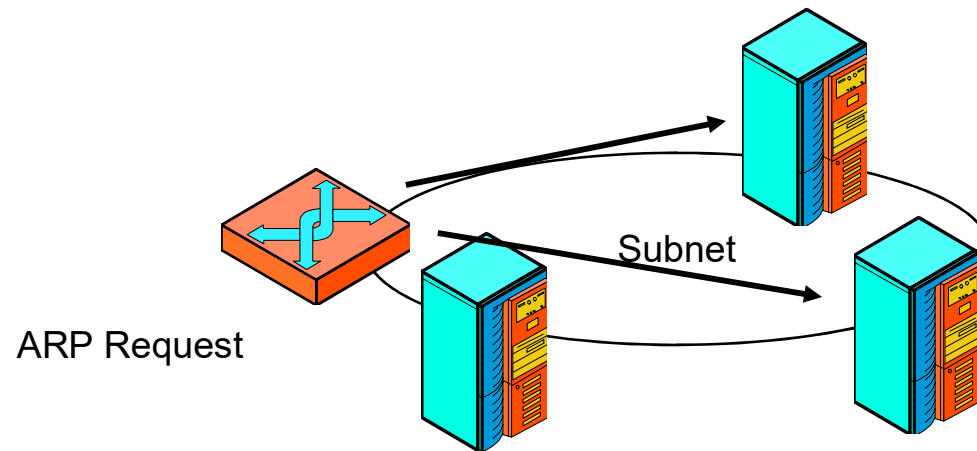Subnet

subnet address?

er creates an ARP Request message to be sent to all hos
et.

ess resolution protocol message asks "Who has IP addr
171.17.13?"

es ARP request to data link layer process for delivery

Subnet

ARP Request

ta link process of router broadcasts the ARP Request m[...]
sts on the subnet.

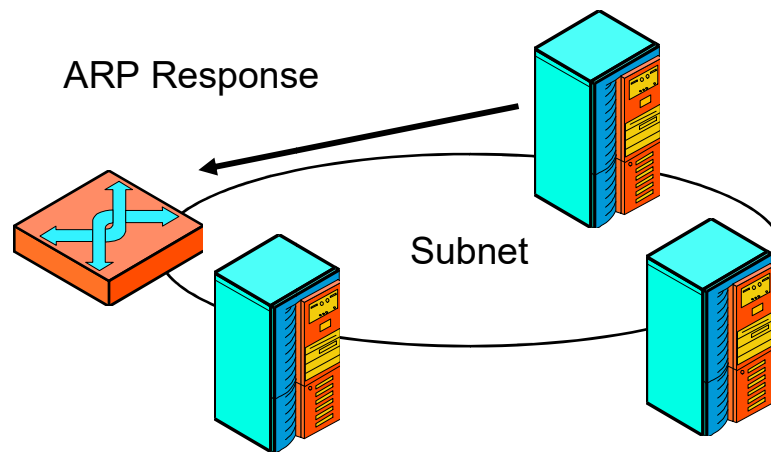a LAN, MAC address of 48 ones tells all stations to pay a[...]
me

Subnet

ARP Request

ARP

n IP address 128.171.17.13 responds

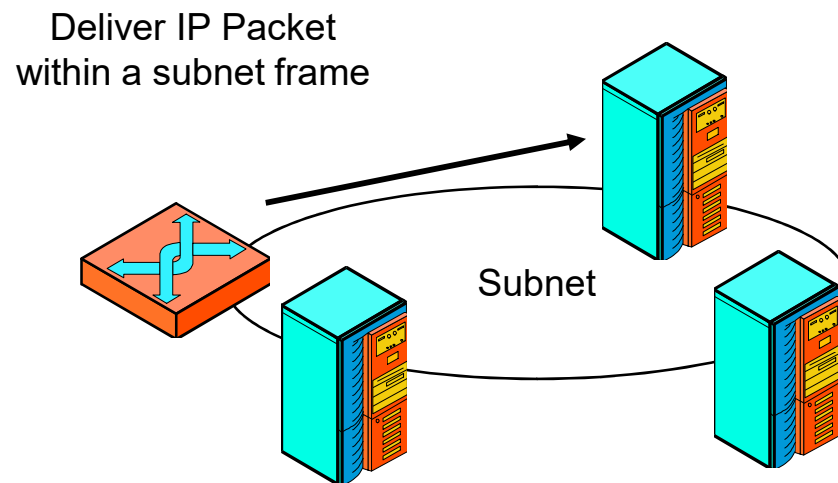process creates an ARP response message

the destination host's subnet address (48-bit MAC addr
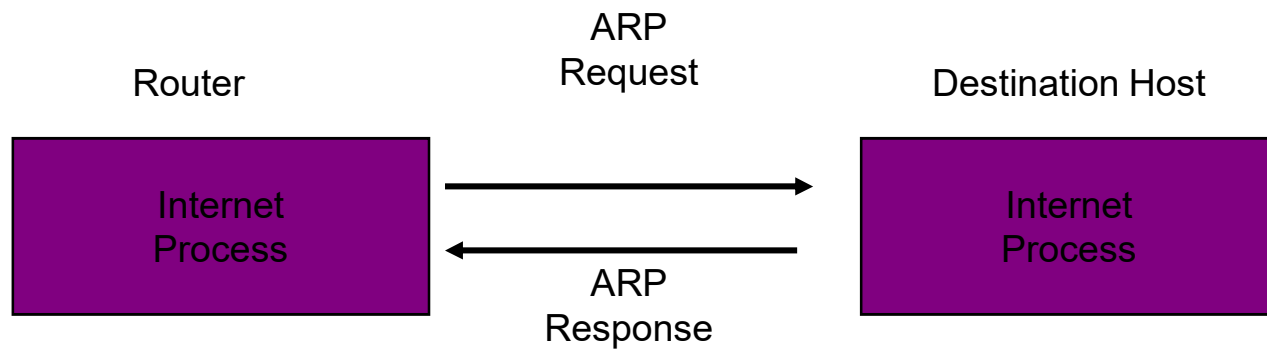
ARP Response

Subnet

Router delivers the IP packet to the destination host

Places the IP packet in the subnet frame

Puts the *destination host's subnet address* in the destina

address field of the frame

Deliver IP Packet
within a subnet frame

Subnet

ARP

P Requests and Responses are sent between the interne
r processes on the router and the destination host
wever, the data link processes deliver these ARP packets
ter broadcasts the ARP Request
tination host sends ARP response to the subnet source
ress found in the broadcast frame

Router   ARP   Destination Host
                        Request

┌─────────────────┐   ┌─────────────────┐
│   │ ──────────────────▶   │   │
│   Internet   │   │   Internet   │
│   Process   │ ◀──────────────────   │   Process   │
│   │   ARP   │   │
└─────────────────┘   Response   └─────────────────┘

ress Resolution protocols is a_____

 bit field

 bit field

 bit field

 Address Resolution Protocols (ARP) request is a broadcast ,an

Universal

Unicast

roadcast

Generally Locally

dress Resolution Protocol (ARP) ,a packet is directly encapsula

Data link Frame

Network Frame

Network Station

Data link Integer

Thank You