Web requests

CS252

August 23, 2018

Lifecycle of a web-request

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2. Getting to know the gateway MAC address and the webserver IP address: ARP, DNS
3. Requesting the web-page: TCP and HTTP.

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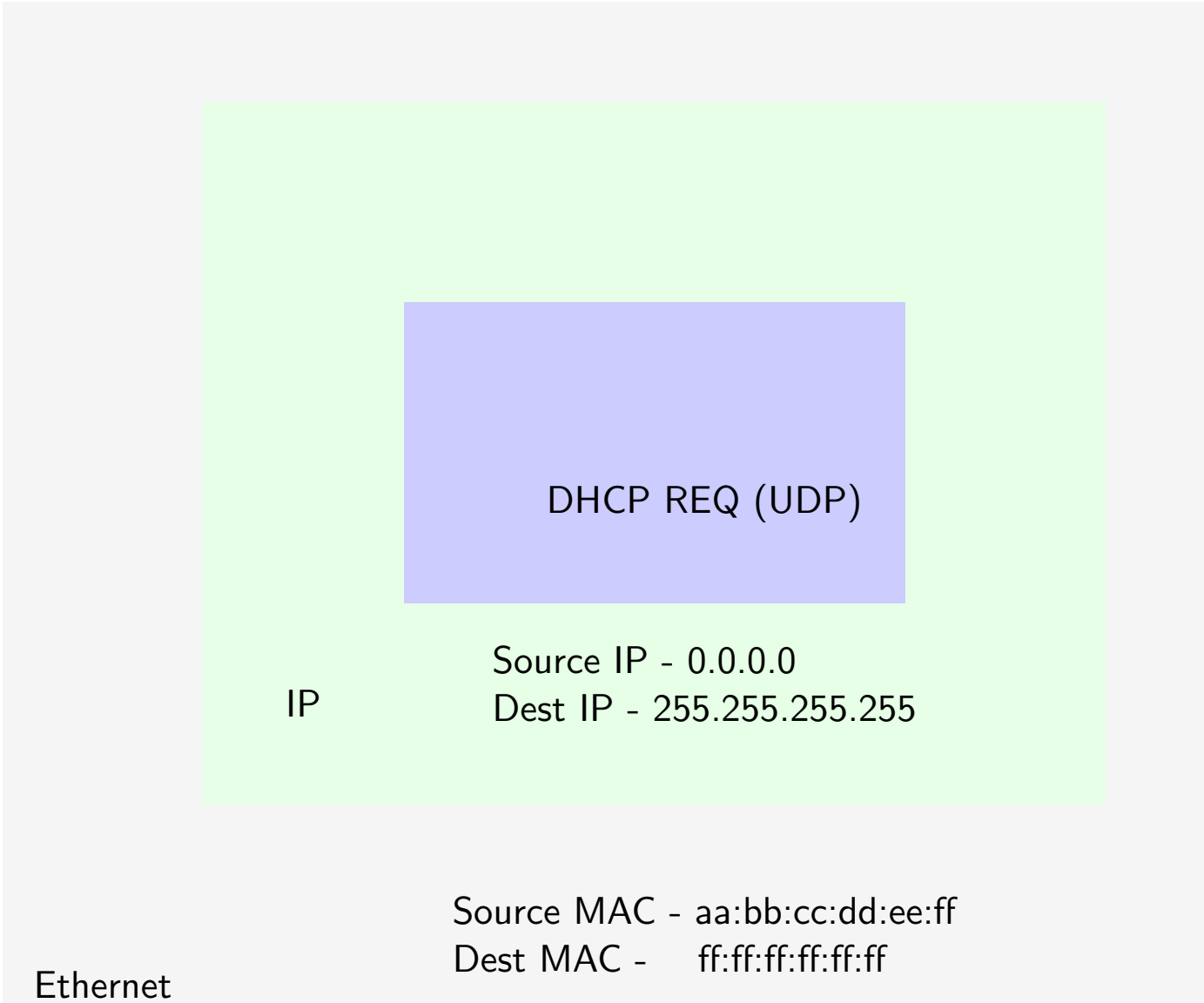
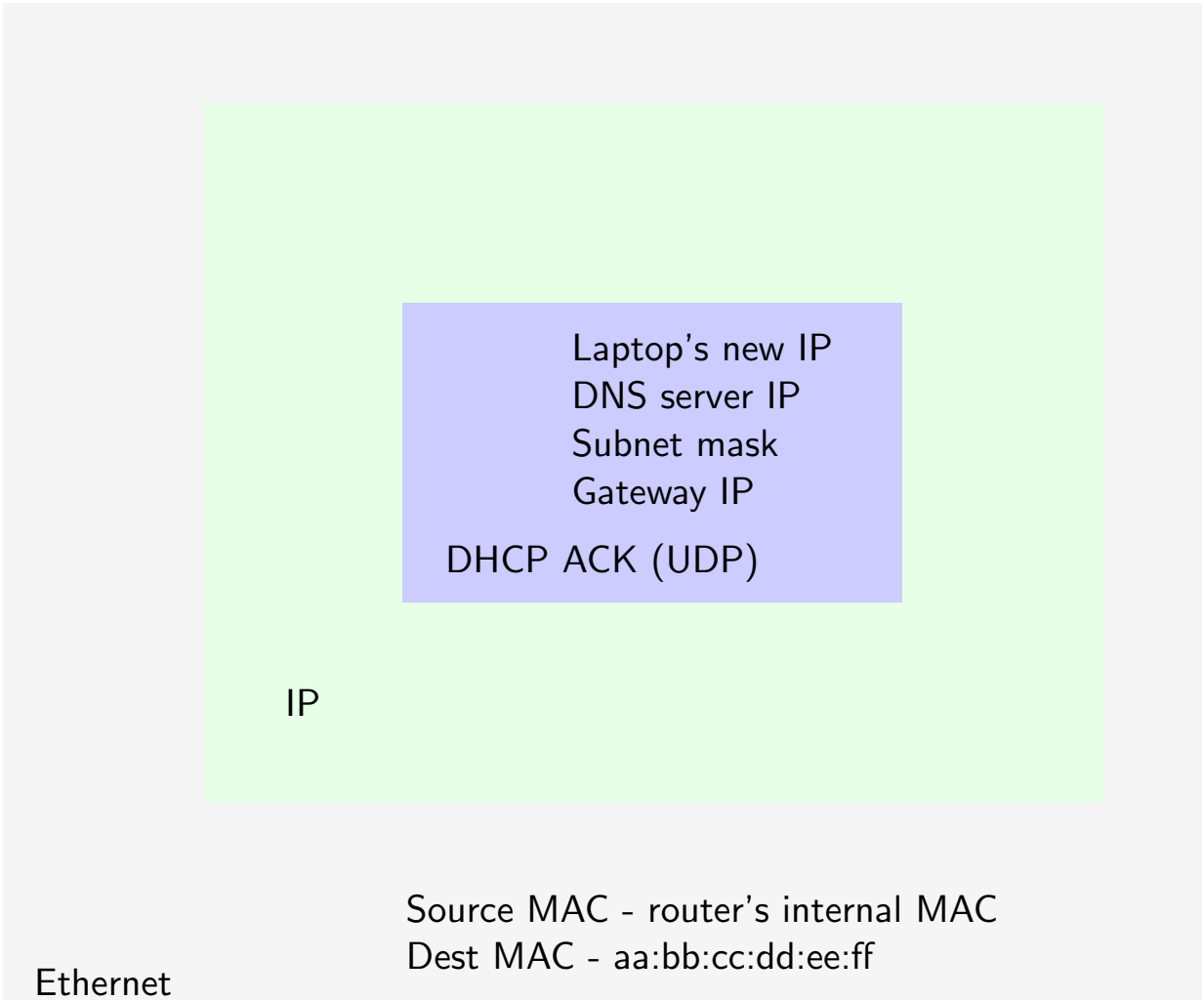
5. The router running the DHCP server (on port 67) assigns an IP address and sends a DHCP ACK response containing the machine's assigned IP address, the IP address of the *DNS* server, the IP address for the default *gateway*. It is put in an IP datagram, inside an ethernet frame with source mac address equal to the router's internal interface, and destination MAC address that of the laptop.

DHCP request over IP



DHCP response over IP



How does the ethernet switch receive this packet? How is it forwarded to the laptop?

Stage II: ARP, DNS

The machine knows its own IP address, its own MAC address, the address of the DNS server, the subnet mask, and the IP address of the default gateway. (see also: adapter TCP settings in Windows)

1. The user on the laptop opens a browser and types `http://www.google.com` in the location bar.

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2. Now we try to construct the DNS query message, a UDP packet, inside an IP packet with source=laptop's IP and destination=DNS server's IP. It now has to send the packet to the gateway. But we don't know the MAC address of the default gateway.

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4. Now the packet in step 2 can be completed. We send the DNS query to the local DNS server, and get the IP address of `www.google.com`

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3. Using HTTP response, the HTTP server sends the webpage in the body of the response message to the TCP socket.

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5. netstat: examine the state of the Networking subsystem. e.g. `netstat | grep tcp`

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3. Our lab next week will focus on using curl effectively

Simple curl GET usage

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6. curl ftp://username:password@ftp.server:21/path/to/file.tar.gz

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6. Can read in file as input
7. curl -d @sample-data.txt http://server/

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4. Most commonly returned data format is JSON

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5. Get all stations by requesting
   $http://api.erail.in/stations/?key=API\_KEY$

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4. http://api.erail.in/pnr?key=API_KEY&pnr=4857412584
5. http://api.erail.in/live/?key=API_KEY&trainno=12138&stnfrom=N SEP-2018

Output format - JSON

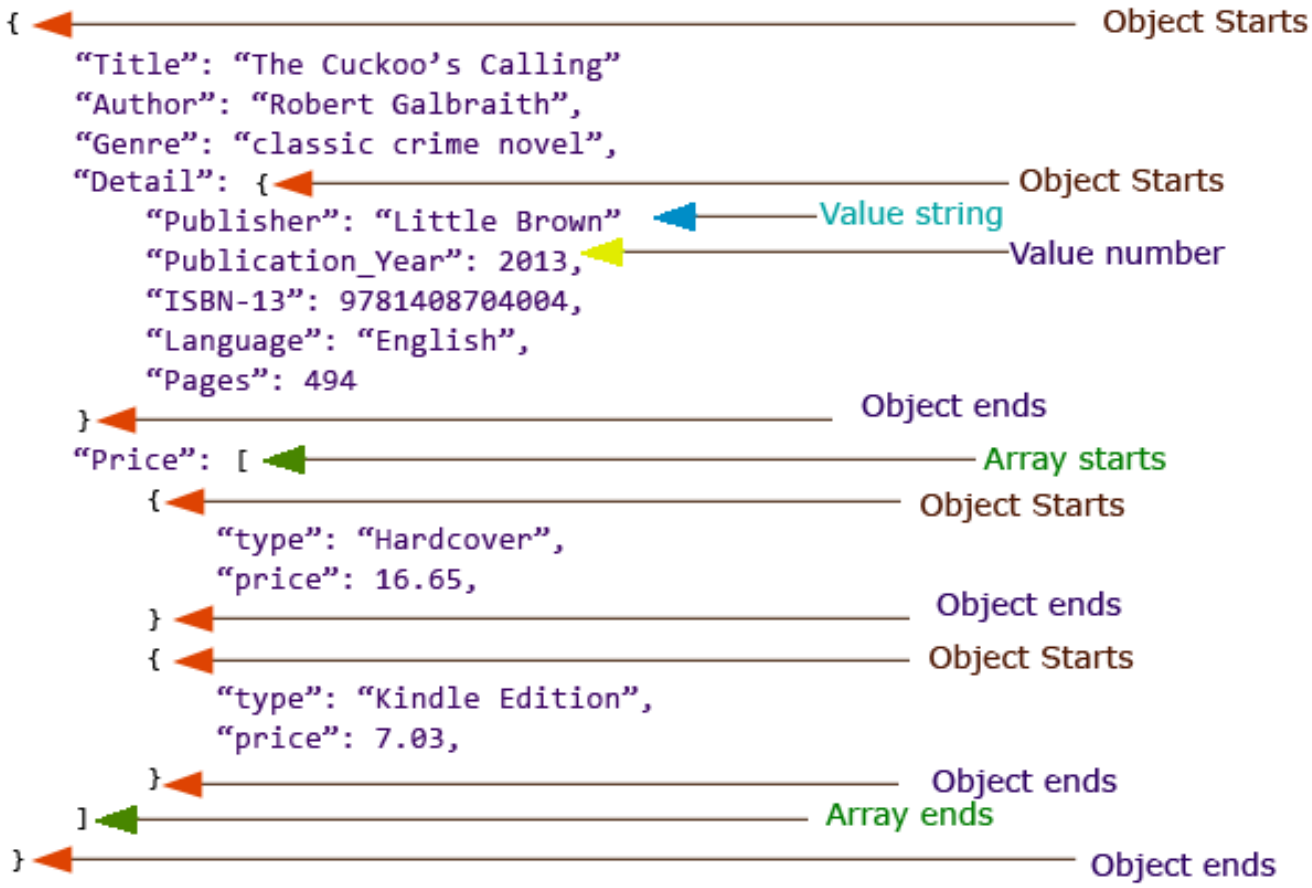

Figure: A sample JSON string

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6. We will do Assignment 1 during the first lab hour in the coming week