CIS 457 - Data Communications

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Images taken from Kurose and Ross book

Cookies

HTTP protocol is stateless -- does not keep track of user information
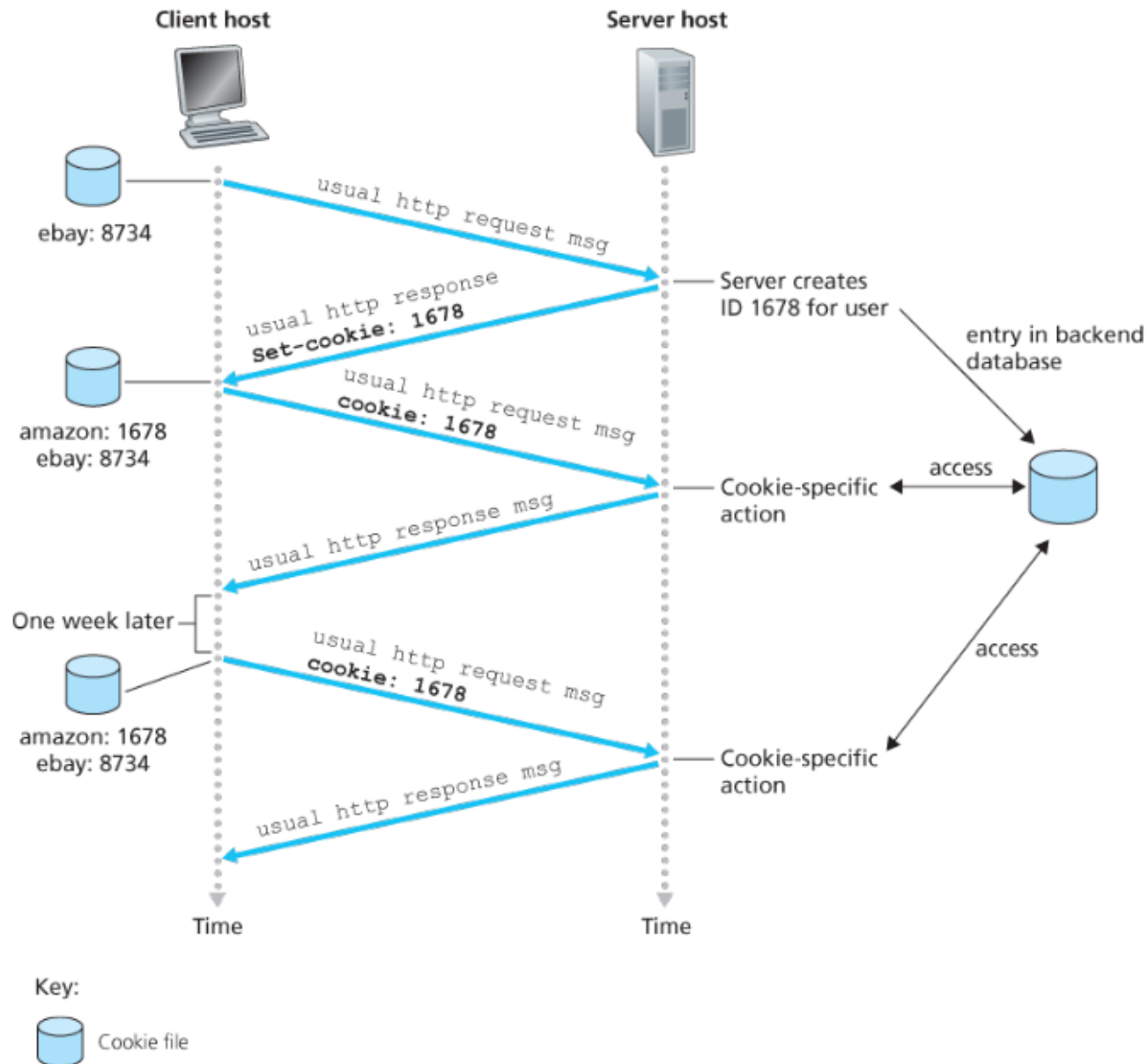
However, user interface often relies on knowing about client's past

For example, shopping cart on Amazon relies on having information about previous HTTP requests from particular client

Cookies are how HTTP servers keep state information

Cookies consist of four components

- header line in HTTP response (server assigns client a cookie)
- header line in HTTP request (future requests from client use that cookie to identify themselves)
- cookie file kept on user's end system and managed by browser
- database entry corresponding to cookie stored on server

Client host

Server host

ebay: 8734

usual http request msg

usual http response
Set-cookie: 1678

Server creates
ID 1678 for user

entry in backend
database

amazon: 1678
ebay: 8734

usual http request msg
cookie: 1678

Cookie-specific
action

access

usual http response msg

One week later

usual http request msg
cookie: 1678

access

amazon: 1678
ebay: 8734

Cookie-specific
action

usual http response msg

Time

Time

Key:

Cookie file

Once server is able to identify users in this way, it can perform authenticate them, keep session information (e.g., shopping cart), etc.

Adding session functionality to (stateless) HTTP is very useful and powerful

For example, this is how you stay logged in to your webmail account

Client (browser) generally uses same cookie indefinitely, so servers can track all user page visits including dates and times, and can associate that information with anything user has entered into forms

Cookies have a bad reputation because they are also used to track users for advertising purposes