COMPUTER NETWORKS

Sivaraman Eswaran Ph.D.
Department of Computer Science and Engineering

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Application Layer

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Unit – 2 Application Layer

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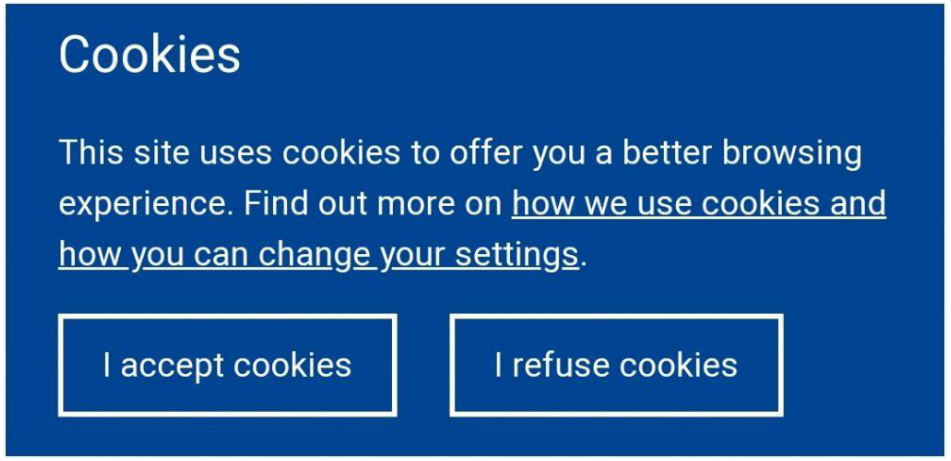
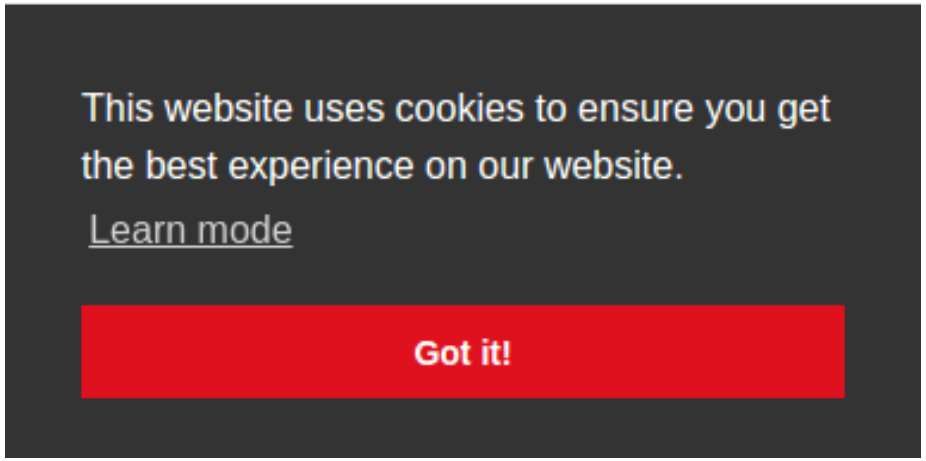
Cookies

- Website/HTTP/Internet cookies
- Piece of data from a specific website
- Stored on a user's computer
- Allows sites to keep track of users
- Eg: language selection



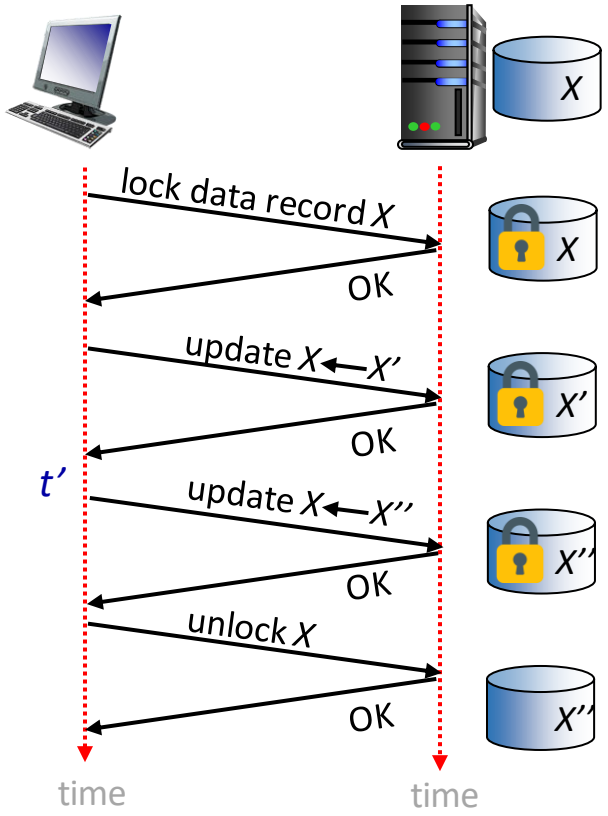


Maintaining user/server state: cookies

Recall: HTTP GET/response interaction is *stateless*

- no notion of multi-step exchanges of HTTP messages to complete a Web "transaction"
  - no need for client/server to track "state" of multi-step exchange
  - all HTTP requests are independent of each other
  - no need for client/server to "recover" from a partially-completed-but-never-completely-completed transaction

a stateful protocol: client makes two changes to X, or none at all



Q: what happens if network connection or client crashes at *t'* ?

Maintaining user/server state: cookies (more)

Web sites and client browser use *cookies* to maintain some state between transactions

four components:

1) cookie header line of HTTP *response* message
2) cookie header line in next HTTP *request* message
3) cookie file kept on user's host, managed by user's browser
4) back-end database at Web site

Example:

- Susan uses browser on laptop, visits specific e-commerce site for first time
- when initial HTTP requests arrives at site, site creates:
  - unique ID (aka "cookie")
  - entry in backend database for ID
- subsequent HTTP requests from Susan to this site will contain cookie ID value, allowing site to "identify" Susan

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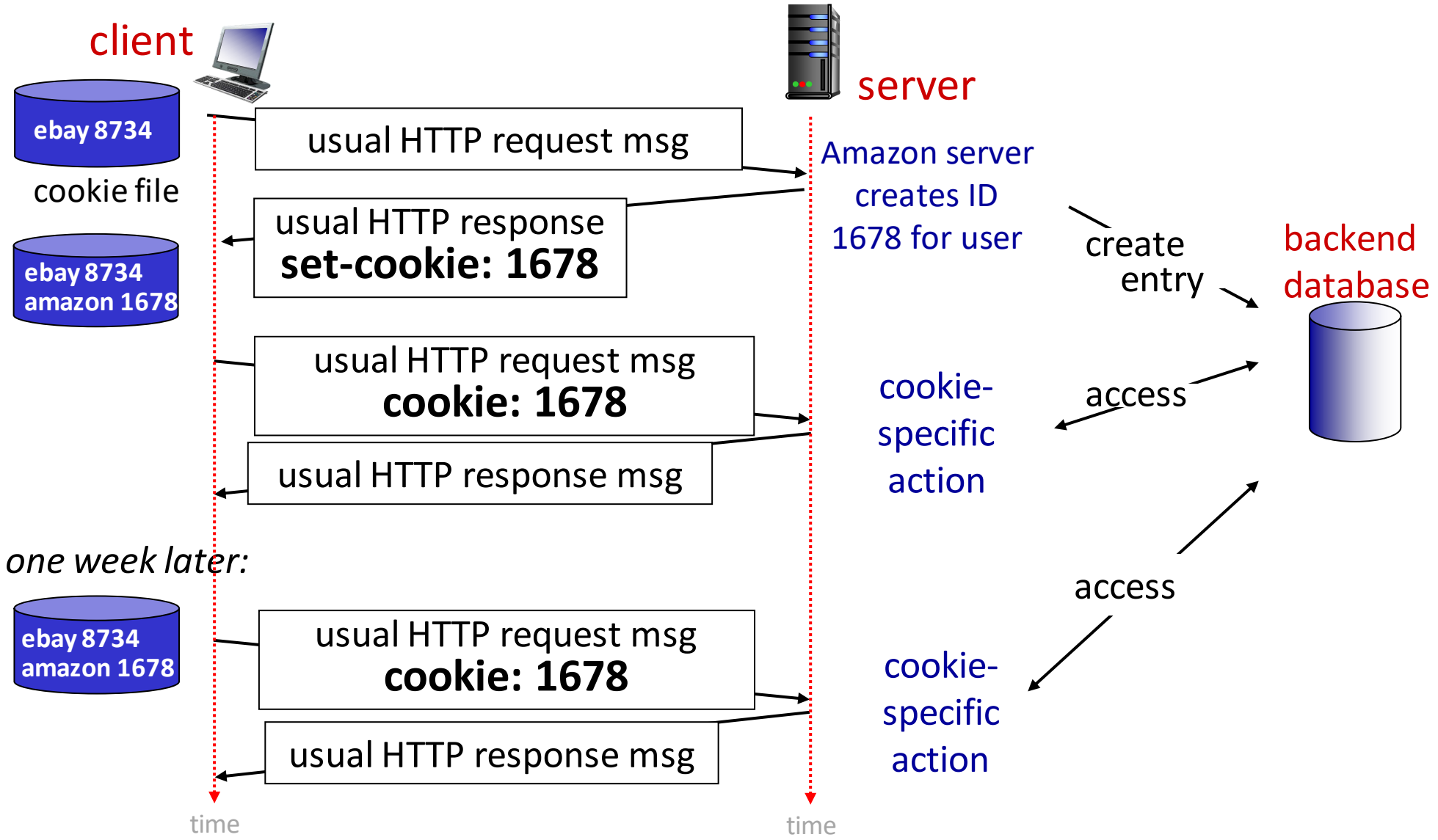
Maintaining user/server state: cookies (more)



HTTP Cookies: Comments

What cookies can be used for:

- track user's browsing history
- remembering login details
- track visitor count
- shopping carts
- recommendations
- save coupon codes for you

Challenge: How to keep state:

- protocol endpoints: maintain state at sender/receiver over multiple transactions
- cookies: HTTP messages carry state

aside

cookies and privacy:

- cookies permit sites to *learn* a lot about you on their site.
- third party persistent cookies (tracking cookies) allow common identity (cookie value) to be tracked across multiple web sites

THANK YOU

Sivaraman Eswaran Ph.D.
Department of Computer Science and Engineering

sivaramane@pes.edu

+91 80 6666 3333 Extn 834