【CN】Day15

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Materials	User-Server Interaction: Cookies
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【Ch2】Application Layer

2.2.4 User-Server Interaction: Cookies

It is often desirable for a Web site to identify users, either because the server wishes to restrict user access or because it wants to serve content as a function of the user identity.

For these purposes, HTTP uses cookies. Cookies allow sites to keep track of users.

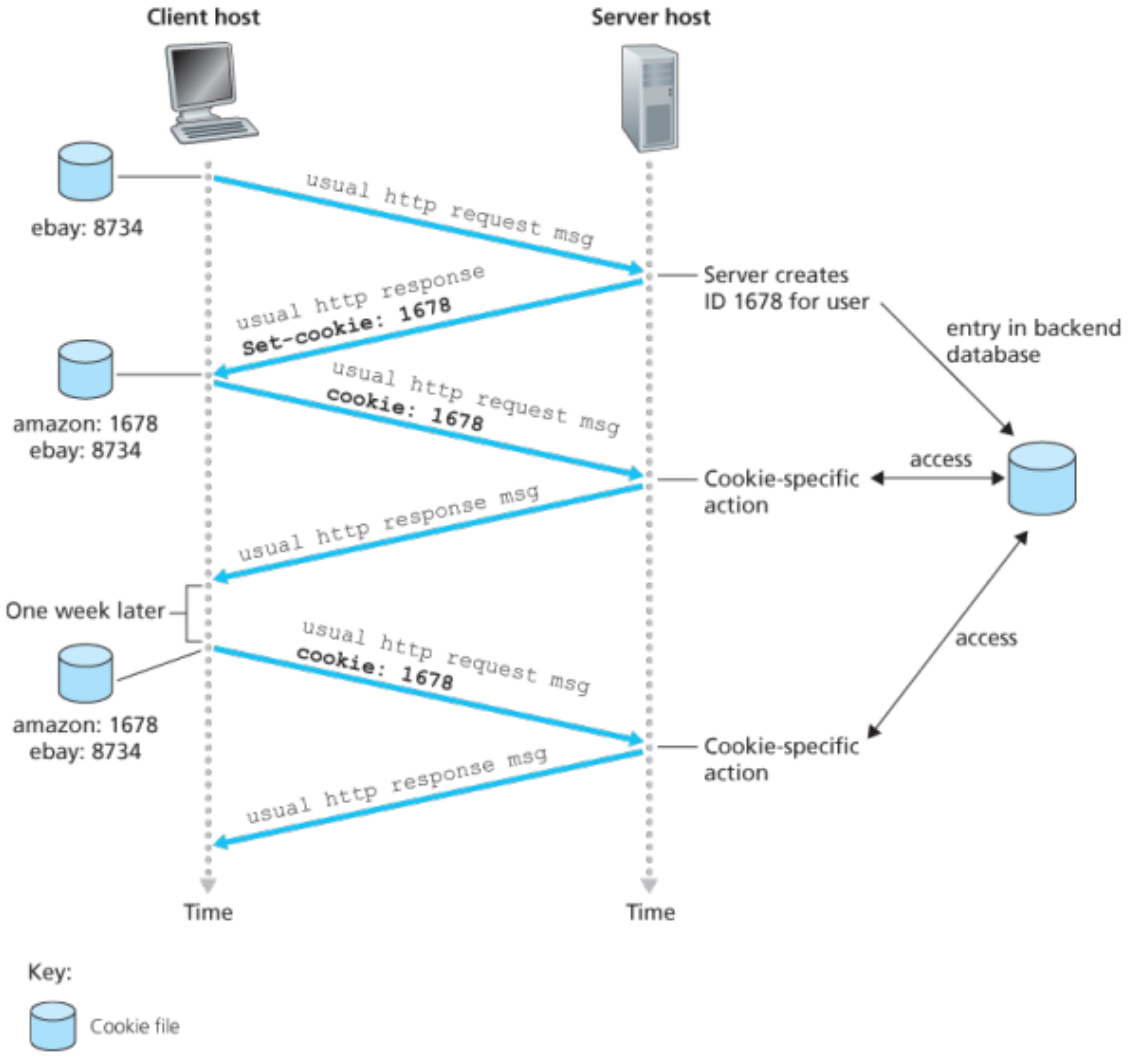

Figure 2.10 Keeping user state with cookies

Cookie technology has four components:

1. A cookie header line in the HTTP response message
2. A cookie header line in the HTTP request message
3. A cookie file kept on the user's end system and managed by the user's browser
4. A back-end database at the website.

Suppose Susan wants to access Amazon.com from her browser.

When the request comes into the Amazon Web server, the server creates a unique identification number and creates an entry in its back-end database indexed by the identification number.

The Amazon Web server then responds to Susan's browser, including the HTTP response a `Set-cookie:` header, which contains the identification number.

When Susan's browser receives the HTTP response message, it sees the `Set-cookie:` header. The browser then appends a line to the special cookie file that it manages. This line includes the hostname of the server and the identification number.

As Susan continues to browse the Amazon site, each time she requests a Web page, her browser consults her cookie file, extracts her identification number for this site, and puts a cookie header line that includes the identification number in the HTTP request.

Thus, each of Susan's HTTP requests to the Amazon server includes: `Cookie: 1678`.

In this manner, the Amazon server is able to track Susan's activity at the Amazon site. It knows exactly which pages user 1678 visited, in which order, and at what times! Amazon can maintain a list of all of Susan's intended purchases, so that she can pay for them at the end of the session.

If Susan returns to Amazon one week later, her browser will continue to put the header line Cookie: 1678 in the request messages. Amazon also recommends products to Susan based on Web pages she has visited in the past.

If Susan provides her other information such as email address, full name, credit card numbers, Amazon can then include this information in its databse.