

8.1 Benefits of Cookies

There are four typical ways in which cookies can add value to your site. We summarize these benefits below, then give details in the rest of the section.

- **Identifying a user during an e-commerce session.** This type of short-term tracking is so important that another API is layered on top of cookies for this purpose. See the next chapter for details.
- **Remembering usernames and passwords.** Cookies let a user log in to a site automatically, providing a significant convenience for users of unshared computers.
- **Customizing sites.** Sites can use cookies to remember user preferences.
- **Focusing advertising.** Cookies let the site remember which topics interest certain users and show advertisements relevant to those interests.

Identifying a User During an E-commerce Session

Many online stores use a "shopping cart" metaphor in which users select items, add them to their shopping carts, then continue shopping. Since the HTTP connection is usually closed after each page is sent, when a user selects a new item to add to the cart, how does the store know that it is the same user who put the previous item in the cart? Persistent (keep-alive) HTTP connections do *not* solve this problem, since persistent connections generally apply only to requests made very close together in time, as when a browser asks for the images associated with a Web page. Besides, many older servers and browsers lack support for persistent connections. Cookies, however, *can* solve this problem. In fact, this capability is so useful that servlets have an API specifically for session tracking, and servlet and JSP authors don't need to manipulate cookies directly to take advantage of it. Session tracking is discussed in [Chapter 9](#).

Remembering Usernames and Passwords

Many large sites require you to register to use their services, but it is inconvenient to remember and enter the username and password each time you visit. Cookies are a good alternative for low-security sites. When a user registers, a cookie containing a unique user ID is sent to him. When the client reconnects at a later date, the user ID is returned automatically, the server looks it up, determines it belongs to a registered user that chose autologin, and permits access without an explicit username and password. The site might also store the user's address, credit card number, and so forth in a database and use the user ID from the cookie as the key to retrieve the data. This approach prevents the user from having to reenter the data each time.

For example, when Marty travels to companies to give onsite JSP and servlet training courses, he typically checks both [travelocity.com](#) and [expedia.com](#) for flight information. These both require usernames and passwords to search flight schedules, but have different rules about which characters are legal in usernames and how many characters are required for passwords. So, Marty has a difficult time remembering how to log in. Fortunately, both sites use the cookie scheme described in the preceding paragraph, simplifying Marty's access from his personal desktop or laptop machine.

Customizing Sites

Many "portal" sites let you customize the look of the main page. They might let you pick which weather report you want to see (yes, it is still raining in Seattle), what stock symbols should be displayed (yes, your stock is still way down), what sports results you care about (yes, the

Orioles are still losing), how search results should be displayed (yes, you want to see more than one result per page), and so forth. Since it would be inconvenient for you to have to set up your page each time you visit their site, they use cookies to remember what you wanted. For simple settings, the site could accomplish this customization by storing the page settings directly in the cookies. For more complex customization, however, the site just sends the client a unique identifier and keeps a server-side database that associates identifiers with page settings.

Focusing Advertising

Most advertiser-funded Web sites charge their advertisers much more for displaying "directed" (or "focused") ads than for displaying "random" ads. Advertisers are generally willing to pay much more to have their ads shown to people that are known to have some interest in the general product category. Sites reportedly charge advertisers as much as 30 times more for directed ads than for random ads. For example, if you go to a search engine and do a search on "Java Servlets," the search site can charge an advertiser much more for showing you an ad for a servlet development environment than for an ad for an online travel agent specializing in Indonesia. On the other hand, if the search had been for "Java Hotels," the situation would be reversed.

Without cookies, sites have to show a random ad when you first arrive and haven't yet performed a search, as well as when you search on something that doesn't match any ad categories. With cookies, they can identify your interests by remembering your previous searches. Since this approach enables them to show directed ads on visits to their home page as well as for their results page, it nearly doubles their advertising revenue.

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 PREVIOUS  NEXT 