

Cookies

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Definition

- A cookie is a TEXT object of max 4KB sent from a web server to a browser
- It is intended for the server to maintain session information on top of the basic http protocol
- It can be used for
 - Remember login and passwords, e.g. Yahoo mail
 - Keep track of items in an online shopping cart
 - Maintain a user profile, e.g. interested news categories

Operation

- A cookie is always created by the server, typically a program e.g. CGI script or servlet
- It is “pushed” from the server to the browser
- When the browser connects back to the server, the server can retrieve all its cookies from the browser

Elements of a cookies

- Comment
- Domain
 - A server can only read cookies that are set by a server of the same domain. (servers for bali.vacation.com and mexico.vacation.com can both read cookies set for vacation.com, but not for cookies set for travel.com)
- Age
 - Life time limit of the cookies
 - If the again is negative, then the cookies is only good as long as the browser is active. When the browser is closed, such cookies are destroyed
 - A cookie of again greater than one will be saved to the disk by the browser

Elements of a cookie (continued)

- Name
- Value
 - The name and value pair contains information that is most relevant for applications using cookies
- Path
 - Similar to domain, path limits the visibility of cookies based on the URL path. For example cookies sent by <http://ecommerce.site.com/toys/special.htm> is visible to <http://ecommerce.site.com/toys/bikes/bg.htm> but not to <http://ecommerce.site.com/cds/classical.htm>

Elements of a cookie (cont)

- Secure
 - Whether to send cookies only in encrypted connections

Digital foot print with cookies

1. User visits portal.com and clicks on a banner ad, shoe.com, hosted by advts.com
2. advts.com pushes a cookies to the browser: portal.com::shoe.com, it then directs the user to shoe.com, passing that path information to shoe.com
3. User visits a banner ad on shoe.com, vacation.com, also hosted by advts.com
4. advts.com reads cookies from the browser, updates the cookie to: portal.com::shoe.com::vacation.com, it then directs the user to vacation.com, passing that path information to vacation.com.
5. User visits a banner ad on vacation.com, skii.com, also hosted by advts.com
6. advts.com reads cookies from the browser, updates the cookie to: portal.com::shoe.com::vacation.com::skii.com, it then directs the user to skii.com, passing that path information to skii.com.

Possible acts of privacy violation

- advts.com could attach a unique number to each digital footprint it tracks
- Supposed our user bought a pair of shoes from shoe.com, suppose the id associated with this digital footprint is 1234.
- When vacation.com gets the info from advts.com that our user has just visited shoe.com, vacation.com could contact shoe.com and ask what did browser session 1234 buy?
- If our user has bought a pair of hiking shoes, then vacation.com can high light vacation packages for the mountains.