PHP Session Management

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Session Management

• In Web applications, it is frequently desirable to:
  – Remember if a user has visited a site previously
  – Remember the sequence of pages visited during a session
  – Associate information with a user session
    • Like a shopping basket

• To accomplish these things, need to have “stateful” connections between client and server
  – That is, association information (state) with the connection
  – HTTP was originally designed to not be stateful, leading to the addition of the Cookie mechanism
Cookies

- A mechanism for adding state to HTTP requests.
- Permits *name*, *value* pairs to be preserved across multiple HTTP requests.
- Basic approach:
  - Server sends a Set-Cookie HTTP header in its response.
  - Value of the header includes name, value pairs.
  - The client stores the name, value pairs, and proactively sends them to the server (in the Cookie header) with every request thereafter.
  - The Cookie protocol piggybacks on top of HTTP
    - Information flow is in the reverse direction of most HTTP requests
Cookies in PHP

• How Cookies are set in PHP:
  – Use built-in setcookie() function. Most simple form is:
    – setcookie(name, value)
• It is also possible to specify when the cookie will expire, the URL path and domain for which it applies (defaults to those of request URI).
• Accessing Cookie values:
  – $local_variable = $_COOKIE[name]
• To delete a cookie, use setcookie with the same cookie name, and an expiration value in the past.
Problems with Cookies

• Problems with Cookies
  – Browsers can refuse to accept cookies.
  – Additionally, it adds network overhead to send lots of information back and forth.
  – There are also limits to the amount of information that can be sent
  – Some information you just don’t want to save on the client’s computer.
PHP Sessions

• The solution: store session information on the server, and have the client only store an identifier for its information as stored on the server.
• The identifier is known as a session ID. The session ID is stored using a cookie (can be passed as a GET parameter as well)
• The server then uses the session ID to retrieve the information it has stored on the server.
• Session information is typically stored in files on the server, though options exist for using shared memory, and also writing your own handlers (e.g., to use a database for storage)
Using Sessions in PHP

• To start a session:
  – session_start()
  – Creates a session identifier
  – Session identifier is passed between client and server either as a Cookie, or in GET parameters

• Then, can create, access, and modify session variables:
  – $_SESSION[session_var_name] = value;
  – $_SESSION is only available once you call session_start()
  – $local_variable = $_SESSION[session_var_name];
  – Can check if session variable is set by using isset();

• To end a session:
  – session_destroy();
Security of Session Data

• In general, cannot guarantee that session data will remain private
• Often, the session data files can be read by any web application on the same server
• The session ID can be grabbed by looking at the GET parameters (for GET-based passing of the session ID), or by eavesdropping the on-the-wire protocol (to get the cookie with the session ID)
  – If the session holds a password, someone can then “replay” the session ID back to the server
• Cookie data, though stored on the client side, are sent across the wire in-the-clear
  – Client machines might be compromised, such as by malicious software inadvertently downloaded, or by a virus