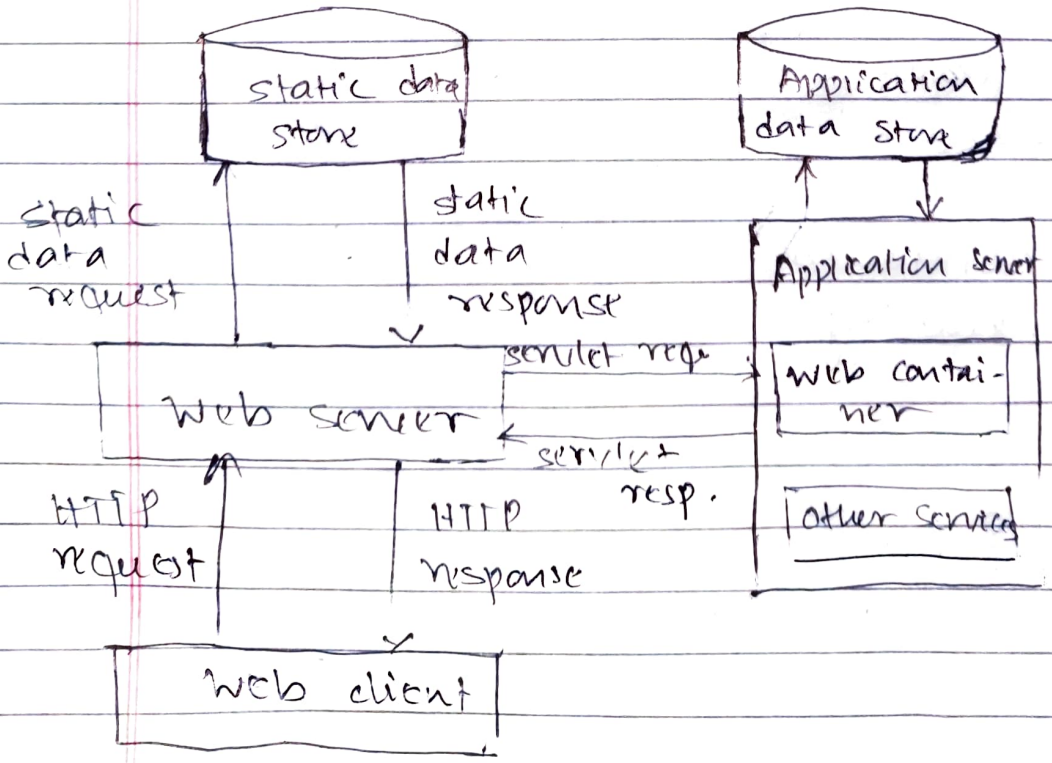
Unit: 1

Web Server Concept:

Web server is a computer where the web content is stored. Basically web server is used to host the web sites but there exists other web servers also such as gaming, storage, FTP, email etc.

Web site is collection of web pages while web server is a software that respond to request for web resources.

- Web server respond to the client request in either of the following two ways:
  - Sending the file to the client associated with the requested URL.
  - Generating response by invoking a script and communicating with database



- When client sends request for a web page, web server search for the requested page if requested page is found then it will send it to client with an HTTP response.
- If the requested web page is not found, web server will send an HTTP response Error 404 Not found.
- If client has requested for some other resources then the web server will contact to the application server and data store to construct the HTTP response.

* Architecture of web server:

Web server Architecture follows, the following two approaches:

1. Concurrent approach
2. Single-process-Event-Driven approach.

Concurrent Approach:

Concurrent approach allows the web server to handle multiple client requests at the same time. It can be achieved by following methods:

- multi-process
- multi-threaded
- Hybrid method.

- multi-processing:

In this single process (parent process) initates several single threaded child processes and distribute incoming requests to these child processes. Each of the child processes and are responsible for handling single request.

It is the responsibility of parent process to monitor the load and decide if processes should be killed or forked.

- multi-threaded:

Unlike multi-process it creates multiple single-threaded process.

- Hybrid:

It is the combination of above two approaches. In this approach multiple process are created and each process initiates multiple threads. Each of the threads handles one connection. Using multiple threads in single process results in less load on system resources.

Example of server:

Apache HTTP server:

This is the most popular web server in the world developed by the Apache software foundation. Apache web server is an open source software and can be installed on almost all operating systems including linux, UNIX, Windows, Free BSD, mac OS x and more. About 60% of the web server machines run the Apache web server.

Dynamic content:

Dynamic content (aka adaptive content) refers to the web content that changes based on the behavior, preferences, and interests of the user. It refers to websites as well as e-mail content and is generated at the moment a user request a page. Dynamic content is personalized and adapted based on the data you have, about the user at the time, its goal is to deliver an engaging and satisfying online experience for the visitor.

Generally powered by applications and scripts, dynamic content works in tandem with stic content. A classical example is the HTML content of a landing page or of an e-mail that changes to display

information that is relevant for the the viewer based on location or previous interactions with the website. An e-mail where the user's name is retrieved from the database and inserted automatically via HTML text is another example of dynamic content.

* Concept of architecting web applications

The web application architecture describes the interactions between applications, databases and middleware systems on the web. It ensures that multiple applications work simultaneously. Let us understand it with a simple eg of opening a webpage.

As soon as the user hits the go button after typing a URL in the address bar of a web browser, it requests for that particular web address.