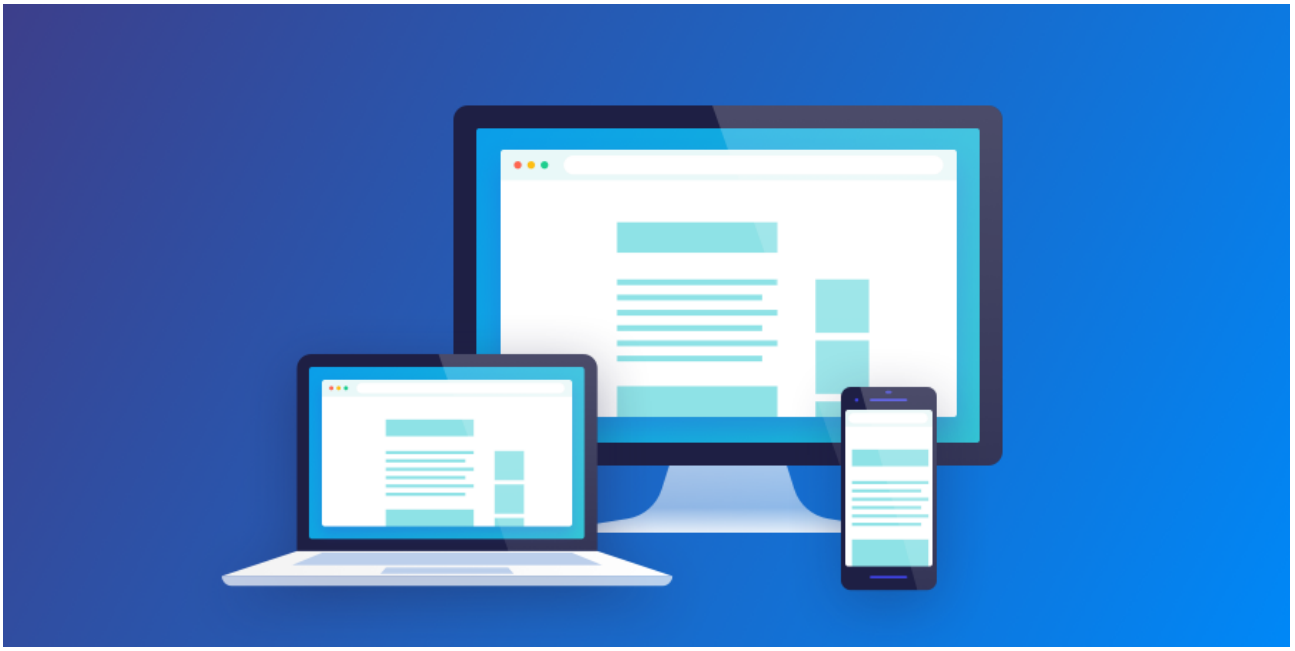
Arquitectura web



Hassan Shah, Bernat Roma i Mario Florentino

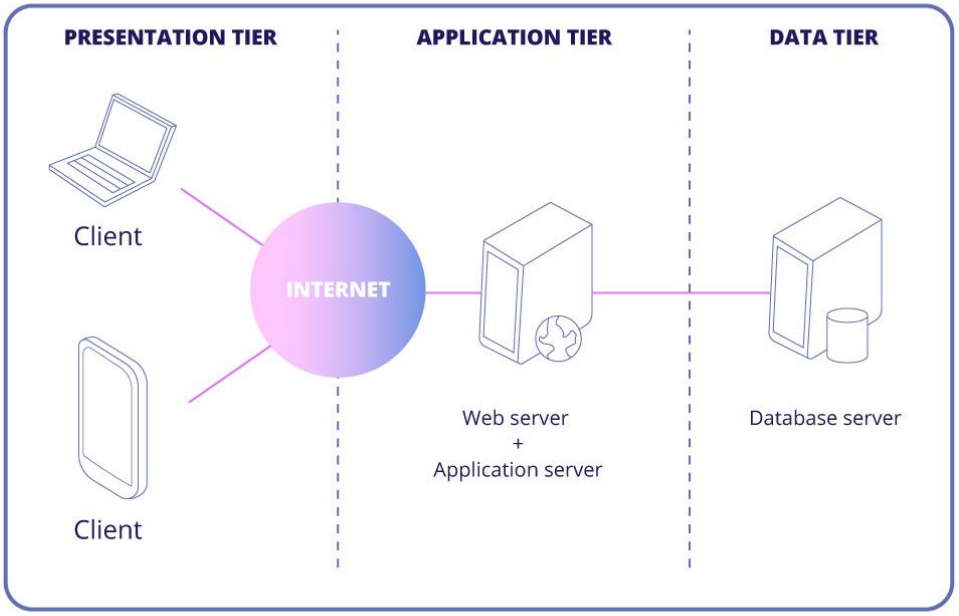
30/10/22

M08 – Desplegament Web

UF1 – Arquitectura Web

Índex

Web architecture refers to the structure of the World Wide Web. The WWW or internet is a constantly changing system that enables communication between different users and the technical interaction between different systems. The basis for this is different components and data formats, which are usually arranged in tiers and build on each other. Overall, they form the infrastructure of the internet, which is made possible by the three core components of data transmission protocols, representation formats, and addressing standards (DNS, URI, URL).



mobidev

Data transmission protocols:

- **TCP/IP:** Transmission Control Protocol/Internet Protocol is a standard Internet communications protocols that was developed in the 1970s and adopted as a protocol by ARPANET in 1983. It allows digital computers to communicate over long distances.
- **UDP:** User Datagram Protocol is a communication protocol used across the Internet for especially time-sensitive transmissions such as video playback or DNS lookups, this allows data to be transferred very quickly.
- **HTTP:** Hypertext Transfer Protocol is an application layer, request-response protocol for the web, it has a client-server architecture that enables the reliable transfer of resources between a web application server and a user agent such as a web browser. It was designed to send data between a web browser and a website.

- **HTTPS:** Hypertext transfer protocol secure is the encrypted version of HTTP, which as previously stated, is the primary protocol used to send data between a web browser and a website.

Representation formats:

- **HTML:** HyperText Markup Language is the main markup language used to create websites, it's the standard language for documents that have been designed to be displayed in a web browser.
- **CSS:** Cascading Style Sheets is generally used with HTML to change the style of web pages and user interfaces. It is a style sheet language which is used to describe the look and formatting of a document written in markup language.
- **XML:** E**x**tensible **M**arkup **L**anguage is a markup language similar to HTML, but without predefined tags to use. Instead, you define your own tags designed specifically for your needs. This is a powerful way to store data in a format that can be stored, searched, and shared.

Addressing standards:

- **DNS:** Domain Name System turns domain names into IP addresses, which browsers use to load internet pages. Every device connected to the internet has its own IP address, which is used by other devices to locate the device, DNS servers make it possible for people to input normal words into their browsers without having to keep track of the IP address for every website. Basically, makes IP addresses more human-readable.
- **URI:** Uniform Resource Identifier is a character sequence that identifies a logical or physical resource usually, but not always, is connected to the internet. URI can be just a name by itself (like google.com) or a name combined with a protocol for how to get there (like https://).
- **URL:** Uniform Resource Locators are a type of uniform resource identifiers (URI) that provides a way to access information from remote computers, like a web server and cloud storage. It contains various elements, including the network communication protocol, a subdomain, a domain name, and its extension. Unlike URI, URL has directions, for example, a URL is always a name combined with a protocol (https://google.com).

Practical case

En aquest exemple hi haurà un client utilitzant Firefox, i buscara la direcció URL **google.com,** per poder accedir a la web i veure en aquest cas l'aplicació web, per darrer el dispositiu del client està fent tots aquest procesos que explicarem a continuació:

1. Al primer que farà el navegador sera utilitzar un servidor DNS per descobrir quina IP representa el domini **google.com.** Básicament la màquina del client fa una petició al servidor DNS, el servidor DNS respon amb la IP corresponent al domini que el client ha buscat en el seu navegador.

2. Un cop ja sap la IP a la que té que accedir, la màquina client envia una petició TCP, on basicament mira si esta el servidor disponible.

3. Quan el servidor respon de forma positiva, per tant esta disponible i accepta les peticions del client, el client i el servidor es posen d'acord per quin protocol utilitzar, normalment HTTP o HTTPS, normalment HTTPS perquè les dades viatjen encriptades gràcies els certificats SSL

4. Un cop ja han decidit quin protocol utilitzaran per comunicar-se via Web, es el moment en al que el servidor web envia la pagina HTML al client, per tant el client el que veuria seria únicament la pàgina carregada en el seu navegador