Difference between HTTP1.1 vs HTTP2

**Hypertext Transfer Protocol(HTTP)** created by Tim Bernes -Lee, is designed for communication between web browsers and web servers. It is an application-layer protocol for transmitting hypermedia documents, such as HTML.

* It is a ***client-server protocol***, which means requests are initiated by the recipient, usually the Web browser, communicated by exchanging individual messages. The messages sent by the client are called ***requests*** and the messages sent by the server as an answer are called ***responses.***
* When we make a request to a server through a browser for a page(eg: wikepedia.html) the server will respond with the resource(wikepedia.html) page.
* **http/1.1 is a version of http created in 1992 and http/2 is another version developed in 2015.**

**http/1.1:**

http/1.1 allowed multiple requests/responses per TCP connection compared to http/1.0 which allowed only one request per TCP connection, This allowed a second request to be sent before the answer to the first one was fully transmitted. Though the requests are sent, the response is received only one by one and not all at once. If a response is not received for a request in queue, TCP blocks all requests pending the response(Head of line blocking).

***The drawback of http/1.1 such as transfer of data in text message form and head of line blocking lead to development of http/2.***

**http/2:**

Http 2 is developed over SPDY - The SPDY (pronounced speedy) protocol is an open-source, **Transmission Control Protocol** (TCP)-based, application layer protocol that transports content over the Web.

The data is transferred in binary form by the http/2 and uses one TCP connection for multiple requests and receives responses without any block in the request queue. The server sends all the other files like CSS & JS without the request of the client using the PUSH frame. There was upto 50% reduction in page load time (PLT) due to SPDY.

**DIFFERENCE BETWEEN HTTP/1.1 AND HTTP/2**

| **TYPE** | **http/1.1** | **http/2** |
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| **DATA TRANSFER** | It transfers all the requests & responses in the plain text message form. | It works on the binary framing layer instead of textual that converts all the messages in binary format. |
| **REQUESTS** | There is head of line blocking that blocks all the requests behind it until it doesn’t get its all resources. | It works on fully multiplexed.  One TCP connection is used for multiple requests. |
| **MULTIPLE REQUEST AND RESPONSE** | It uses requests resource Inlining for use, getting multiple pages | It uses PUSH*(the server anticipates the resources that will be required by the client and pushes them prior to the client making requests)* frame by server that collects all multiple pages |
| **DATA COMPRESSION** | It compresses data by itself. | It uses HPACK *(A compression format for efficiently representing HTTP header fields)* for Data compression |