Http Persistent Connection or HTTP Keep Alive is introduced through HTTP header Keep Alive since HTTP 1.0, which is used to indicate a HTTP client would like to maintain a persistent connection with HTTP server. The main objects is to eliminate the needs for opening TCP connection for each HTTP request. However, while there is a persistent connection open, the protocol for communication between client and server is still following the basic HTTP request/response pattern. In other word, server side can't push data to client.

WebSocket is completely different mechanism, which is used to setup a persistent, full-duplex connection. With this full-duplex connection, server side can push data to client and client should be expected to process data from server side at any time.

The HTTP long polling mechanism can be applied to either persistent or non-persistent HTTP connections. The use of persistent HTTP connections will avoid the additional overhead of establishing a new TCP/IP connection [**[TCP]**](https://tools.ietf.org/id/draft-loreto-http-bidirectional-07.html#TCP) for every long poll request.