

- 1) Https offers several key security advantages that are needed to protect sensitive information.

Encryption: Http sends data as plain text, this means the data can be intercepted and isn't as secure, whereas HTTPS encrypts data between the client and the server using transport layer security.

Data Integrity: Http data can be tampered with during data transmission meaning sensitive information may differ from what it was originally set for. Https ensure data integrity meaning this data that is being sent cannot be tampered with.

Authentication: Http doesn't provide a way to authenticate the server. The client cannot be sure if it's communicating with the proper server. Https uses digital certificates to authenticate the server connected to so you can always be sure you are on the correct server.

By using https you can ensure your game data is secure by utilising these security advantages.

- 2) Websockets are full-duplex meaning that they can enable a persistent connection between the client and the server, both parties can send and receive data simultaneously without needing a new request. Websockets are also designed for real time, Low latency data exchanges, the connection remains open as long as needed so it avoids establishing connection repeatedly.

Http on the other hand is a request response mode, each interaction requires the client to make a request to the server. The need for these frequent requests increases latency and server load. Http is also typically one way at a time given its request response model.

In a multiplayer game, websockets would be useful for exchanging information like player positions, actions made and game events, as when a player moves that data can be sent to the server through the connection and shared to all other players via the websockets. This is efficient because it offers low latency, has efficient bandwidth usage and reduces the server load by maintaining the one persistent connection.