Technical challenges of game servers

**Latency:**

Latency can be a challenge for technical side of making game servers, the geographic location of the server can really affect the user’s experience of the game when playing in a multiplayer game. The location of the server must be within the user’s region to avoid such bad latency when playing the game causing bad experiences and losing users to drop the game entirely.

The network engineer must figure out where to place their servers to achieve maximum coverage over the region.

**Bandwidth:**

The bandwidth of the server and client is also something the developers have to look at when developing a multiplayer game. The bandwidth can effect how a player can play within the server due to the player’s own internet provider or the server itself, the developer can’t really do much about the player’s internet provider but they can work with the server to lessen the lag for the players that has bad internet.

**Security:**

Online game servers pose a special security threat since they can expose the player’s IP address which can in term can be DDoS or other form of cyberattack. This type of challenges is sometime beyond the game developers’ control. The developer can only do is to mitigate the damage by having anti-cheat programs running when playing the game but its unreliable since hackers can just bypass it.

**Protocols:**

The network engineer has two type of protocols to work with, TCP and UDP. Each protocol has their own advantages and disadvantages. Games are usually built around UDP since it’s the best effort of communication between client and server, and TCP is usually a fairly bad choice when developing a multiplayer game.