# Game networking technical challenges

When working on an online implementation for a game, there are a magnitude of technical considerations and challenges down the road. Firstly, a game company should decide which type of online play fits their game. If the player base of the game is big enough, the company should consider dedicated servers if the budget allows it. Otherwise, the company should use peer-to-peer network connections as they are much cheaper to setup and maintain.

When deciding on the protocol to use (TCP or UDP), UDP is the preferred options due to its speed. TCP protocol could possibly be considered when the network connection in the game does not need to be very fast or when accuracy is more important than speed.

When working with game servers, there are important things to consider such as region-based servers & the number of different servers depending on the size of the game’s player base. Multiple servers are recommended for games of the MMORPG genre, the more players play your game, the more servers you would need. You should test your servers to see how much traffic the servers can handle without going down. A successful game should have region-based servers as well as a global server that would connect users across the world.

Setting up a server is a huge undertaking on its own, you must decide what server hosting service would be best suited for you based on service provided and at what price. Creating a server from scratch is another option that can be good in the long term but, it requires heavy planning and preparation. Firstly, the company should gauge if a custom server is even worth it. If the game is small, a custom server might not be worth making. You should consider the manpower necessary to develop a server as well as the security issues that might arise. Once the server is created, you must first test it to make sure its stable and to deduce its overload point. Next, you must formulate a server maintenance team to maintain the server, maintaining the server is extremely important and should not be overlooked.

Lastly, creating a tool that setups a dedicated server would be beneficial to your company and the players who want to create private servers for your game. The tool should be relatively easy to use, with good documentation written and it should allow the user to modify the game server to their liking e.g., different XP drops in an MMORPG game.