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Peer-to-peer networking: A security analysis

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Peer-to-peer (p2p) networks have developed as an alternative to the typical client-server model of networking which has a single point of entry, a server connected to all of the users on the network, with the server handling all of the work. In a p2p network there is no central server. Instead, all of the users in the system are equal, distributing the resources amongst themselves. When creating a p2p network there are many things that have to be considered in order to minimize the effect that a malicious user can have on the entirety of the network. I will analyze the security issues of p2p networking by first examining the possible attacks on a general p2p network. File sharing is one application of a p2p system and file sharing clients are numerous and vary considerably, I compared 3 popular clients, eMule, LimeWire and BitTorrent. I used these clients as a basis for examining the security issues outlined in this paper. Outlining the security features of these file sharing clients will come in 2 ways; outlining the general structure of the network and examining the way requests for files are handled within the network. Outlining the structure of the network will look into how node ids are assigned and how nodes and files are stored in the network. Examining the structure of file requests will show how well each of these clients distribute files and search for them. With all the p2p file sharing networks being created and used today, this will hopefully provide a good background on what needs to be considered in order to create a p2p network that is more secure.