Summary – Bitcoin networking

Bitcoin is a network of homogeneous nodes. There are no leaders or anyone to give orders, each node keeps a complete replica of all the information needed to verify that the system is running smoothly. It is a peer-to-peer system. To ensure that it's hard to make coalitions between nodes, once a node joins network, it queries a DNS server. DNS servers return a random set of nodes that are currently participating, and then once connected, the new node can start to learn about the network by asking those nodes about other nodes. Delay is related to size of the blocks, as they take time to propagate the network. This means that simply increasing the block size in bitcoin will result in slow propagation, giving an attacker an advantage. Forks will also be more likely to occur. The biggest and most influential problem is the distance between the origin of a transaction/block and nodes. One solution to fix this could be to connect all nodes on the network to each other (instead of average 32 connections per node), but this would bring other problems. There is also a huge number of nodes.