This diploma thesis outlines the methods of server geolocalization, that is, determining the physical location of servers based on network measurements. Especially, it sums up several groups of methods, all more or less usable. What is more, it comprises the implementation of couple of them, mainly those based on round trip measurements from distributed environment of well known data points. According to this, statistical comparison of their ability to geolocate precisely is made. Finally, this thesis also tries to prove theoretically how to pick up geolocation servers in order to minimize the error of potential measurements.