

Abstract

Nowadays mobility and internet are the needs in communication. Users always want to be connected to the internet anywhere they are. Because of that, Wi-Fi is a very helping technology, but almost all of free Wi-Fi providers ask their users to authenticate themselves to the network and it will be quite complicated for users to register in many different Wi-Fi providers. That's why a roaming system is needed, so the users can be authenticated in other Wi-Fi networks beside the network where they had been registered. The definition of roaming here is the ability to use many wireless Internet Service Providers by registering only in one of them.

In this final assignment an authentication system has been implemented, which supports interconnection of Home Servers (HS) and databases from two Wi-Fi providers, so that the user who is roaming can also be authenticated before they can access the internet. The implementation uses software FreeRADIUS and MySQL as the database. The implementation includes one coverage area of Provider A and two HS that have been interconnected, which are HS of Provider A and Provider B. User who uses this network will be a Provider A's user, a Provider B's user, and user from Provider "unknown". Provider "unknown" is a Wi-Fi provider which doesn't have a roaming agreement yet.

When a user login, the delay time until a user is authenticated by this system is not too big, it's about 29.911 ms for local users and about 30.65 ms for roaming users. Beside of that, the size of packets that are needed for authentication isn't too big either, it's about 2084 Bytes for local users and 2192 Bytes for roaming users.