Abstract

By: Suhaib Naseem

Degree: Master of Science in Computer Science

Title: CBR Exploiting Broadcast Transmissions using Characteristic Based Communication.

Supervisor: Stefan Weber

Year: 2013

In the world today, there is an enormous leap in the development of mobile devices, which have grown hugely in capacity and popularity. The enterprise industry has a huge demand and application requirement for new services, in such space we need to envisage ad hoc networks that can genuinely be autonomous and do not rely on the user interaction for the service discovery. Traditional networks have relied upon using IP addresses for communication inside the networks and bind node features to these addresses for service discovery purpose. We find that this type of service discovery mechanism does not suit mobile ad hoc networks as the topology remains dynamic. We view that this IP addressing scheme can be replaced with characteristics or features of nodes. For this we introduce a characteristic based routing protocol called CBR. This protocol spreads the characteristics of nodes across the network through advertisement broadcasts that follows a stream like pattern, similar to the flow of a water stream. In this research project we will establish node communication based on these characteristics rather than the IP address. We choose OMNET++ simulation framework for the evaluation of our protocol. We approach our design through simulation techniques and prove that successful data delivery can be achieved by using node characteristics. We also demonstrate a two-way communication context with service instances broadcasting their device features.