Simulation of Data Transmission in Network Environment

Di Jin
Interdisciplinary Program: Information Security
Purdue University: West Lafayette

Background

Last two decades have witnessed the development of Internet. It is undeniable that Internet shortened the distance among people. However, the requirement of data transmission varies from situations. My study is inspired by the data transmission in the metro system. In such situation, there are two kinds of signals: one is control signal and the other is video signal. For the first one, the amount of data is small, but the accuracy must be guaranteed. For the second one, data loss is allowed, but the transmitting speed must be large enough to ensure video transmission.

My project tries to simulate data transmission which can be further implemented in secure communication situation.

Current Study

The project tries to simulate the data transmission by utilizing package capture analysis, package switching, package filtering, encryption and decryption, and VPN technique. It mainly starts with intercepting in the network environment and captures all the packages. Then IP packages will be filtered. Once valid packages are obtained, decryption operation will be conducted. Information can be padded to the original messages and the new messages will be re-packaged and sent out to the next receiver. In this way, the project aims to realize message transmission simulation.