

Experiments in Security and QoS in Mobile Systems

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Abstract

Disaster recovery after emergency such as earthquake, terrorist attack, war depend on mobile systems for communications. Security and Quality of Service (QoS) are of utmost importance. Providing security and QoS is a difficult problem in mobile systems because the availability of network and other resources may change as the mobile host moves or comes under intentional or unintentional attack or simply fails. We have proposed a technique to achieve fault-tolerant mobile node authentication in an efficient way. It eliminates single point of failure, distributes the load, enhances scalability and survivability, and makes failures transparent to users. We propose to conduct a series of experiments that will evaluate the this technique under a variety of variables and lead to the development of new authentication and key management techniques. We plan to identify guidelines for authentication between an upstream domain and a DiffServ ingress router in a QoS enabled network. We will evaluate how various secure group communication and access control techniques fit into the wireless world. We plan to explore the adaptability requirements when considering security as a QoS parameter. By participating in this research and experimental studies, the postdoc will conduct research that cuts across security, mobile systems, and Quality of Service. The CERIAS security center at Purdue will provide an intellectually stimulating environment for her.