This thesis entitled, ‘Risk and Mitigations of Authentication Protocol Kerberos: A Public Key Approach’ is an attempt to provide the knowledge about authentication and authorization. Kerberos authentication protocol is well known protocol for authentication, but it has certain limitations. Attempt is made here to overcome the limitations of Kerberos and provide more strong and secure protocol. At the same time precaution has been taken such that it should not be overburden to the system and add communication overhead to the users. The purpose is to provide users with a suitable mechanism of exchanging their data safely across the network. The motivation behind the work is to keep data safe from attackers. This thesis provides a technique where public key cryptography and location of users as contextual data is integrated with Kerberos authentication protocol. This thesis comprises 6 chapters includes with conclusions.

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