A Major Project Report On

A STRONG TWO FACTOR MUTUAL AUTHENICATION SCHEME FOR CLOUD COMPUTING

Submitted in partial fulfilment of the requirements

for the award of the degree of

MASTER OF TECHNOLOGY

IN

SOFTWARE ENGINEERING

By

Neha Sharma

(Roll No. 2K13/SWE/09)

Under the guidance of

Mr. Manoj Kumar

Associate Professor

Department of Computer Engineering

Delhi Technological University, Delhi

Department of Computer Engineering

Delhi Technological University, Delhi

2013-2015

DELHI TECHNOLOGICAL UNIVERSITY

CERTIFICATE

This is to certify that the project report entitled "**A STRONG TWO FACTOR MUTUAL AUTHENTICATION SCHEME FOR CLOUD COMPUTING"** is a bona fide record of work carried out by Neha Sharma (2K13/SWE/09) under my guidance and supervision, during the academic session 2013-2015 in partial fulfilment of the requirement for the degree of Master of Technology in Software Engineering from Delhi Technological University, Delhi.

To the best of my knowledge, the matter embodied in the thesis has not been submitted to any other University/Institute for the award of any Degree or Diploma.

Mr. Manoj Kumar

Associate Professor

Department of Computer Engineering

Delhi Technological University

Delhi

DELHI TECHNOLOGICAL UNIVERSITY

ACKNOWLEDGEMENTS

I feel immense pleasure to express my heartfelt gratitude to **Mr. Manoj Kumar** for his constant and consistent inspiring guidance and utmost co-operation at every stage which culminated in successful completion of my research work.

I also would like to thank the faculty of Computer Engineering Department, DTU for their kind advice and help from time to time.

I owe my profound gratitude to my family which has been a constant source of inspiration and support.

Neha Sharma

Roll No. 2K13/SWE/09

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ABSTRACT

Cloud computing is an emerging technology. Along with many benefits, it brings new challenges. Among many issues of cloud computing, security is one of them. Security issues in cloud computing evolves along with the technology and considered as most critical one.

Security issues, such as identity management, virtualization security, application security, access control and authentication, are considered as one of the major cause of hindrance in widespread adoption of cloud computing. Security mechanisms being followed are insufficient to ensure confidentiality, integrity, availability and non-repudiation etc. A strong mutual authentication scheme is the vital requirement of cloud computing. This research work proposes a strong two factor mutual authentication scheme. The proposed scheme makes use of factors from two categories i.e. knowledge factor and possession factor. Use of multiple factors i.e. alphanumeric password, Stego-image, one time password and digital signature from two categories makes the scheme stronger. The proposed protocol provides identity management, mutual authentication and session key agreement between user and service provider. The scheme provides facilities for changing credentials such as password, Stego-image file etc. The scheme also provides facility to get new credentials if the user looses/forgets any credential. Security analysis illustrates that our scheme resists common security attacks. Our scheme is well suited for cloud computing environment because of its strong security features.