

Manjunath Basavaiah

Design and Implementation of Telemedicine Client-Server Model using Encryption and Decryption Algorithm in Single Core and Multicore Architecture on LINUX Platform

Telemedicine Client-Server Model

Project Report

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Multicore Architecture on LINUX Platform

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Abstract

Multimedia applications have an increasing importance in many areas. There is a growing need to store and transmit high quality video for applications where common coding schemes do not yield enough quality. An example of this is Telemedicine system is best example of Applied Medical Informatics. Several physiologic data, Digital images and video can be transmitted more rapidly and easily than conventional images and videos. In telemedicine expert physicians in tertiary care centres can view a digital image, videos and advice local physicians on the best plan of care without having to move the patient many miles away.

Telemedicine will be implemented using the TCP client-server model. The client-server model was originally developed to allow more users to share access to database applications. The data must be secure, when the data is transmitted from server to client, security must ensure that data will not be damaged by attackers and protects against danger, loss, and criminals. Even if someone tries to hack the data content of file should not be revealed to the attacker. So it is necessary to encrypt the data before transmitting the file using encryption methods. The encryption method used in server and client model is XOR or AES (advanced encryption standard) or Rijndael algorithm which is used to encrypt and decrypt the x-ray images of patients, drug prescriptions.

The Rijndael algorithm allows encrypt video at high quality while achieving great encryption. This property makes the Rijndael algorithm a good option for building a video encryption able to obtain better performance than other more general purpose algorithms such as XOR or AES algorithm. One of the main problems when working with the video sequence is the huge datasets that have to be dealt with. Therefore, memory accesses slowdown the encryption execution. Performance is one of the main concerns of modern systems; therefore Profiling and tracing tools is used to determine which parts of a program to optimize for speed or memory usage. A general rule of thumb is that 90% of a program's time is spent in just 10% of the code. Profiling enables you to determine which 10% of the code. The parallelization of code using multithreading concept is required to reduce execution time on the processor and speed up the application. The method of measuring performance is to arrive at the speed of execution, later, measure the execution on a single core and multi-core processor.

Table of Contents

Abstract	i
Table of Contents	ii
List of Figures	v
List of Table	viii
Nomenclature	ix
CHAPTER 1	1
1. Introduction:	1
1.1 Applications and techniques which uses embedded security:	1
1.2 Criteria considered choosing embedded security:	2
1.3 Criteria considered choosing embedded security:	2
1.4 Challenges faced in Embedded Security Design:	2
1.5 Solution to Challenges faced in Embedded Security Design:	3
CHAPTER 2	5
2. Introduction:	5
2.1 Functional Requirements and task identification:	5
2.2 Flow graph for Telemedicine Client-Server System:	6
2.3 Flow Chart for Telemedicine Client-Server System:	6
2.4 Algorithm to Telemedicine Client-Server System:	7
2.5 Implementation TCP socket between client and server:	8
2.5.1 Implementation at server side:	8
2.5.2 Implementation of Client side:	9
2.6 Implementation UDP socket between client and server:	10
2.6.1 Implementation at server side:	10
2.6.2 Implementation at Client side:	10
2.7 Authentication:	11
2.7.1 Algorithm at Server side:	11
2.7.2 Algorithm at Client side:	11

2.8 Discussion:	12
CHAPTER 3	13
3. Introduction:	13
3.1 AES algorithm	13
3.2 AES encryption and decryption:	15
3.2.1 Implementation of AES algorithm at server side in C code is show below:.....	16
3.2.2 Implementation of AES algorithm at client side in C code is show below:.....	16
3.2.3 Algorithm of cipher(), InvCipher(), KeyExpansion and XOR:	16
3.2.4 Algorithm Parameters, Symbols, and Functions:	18
3.3 Performance Evaluation of Telemedicine System:	19
3.3.1 Performance Evaluation of TCP:.....	21
3.3.2 Performance Evaluation of UDP:	21
3.4 Test Cases for TCP & UDP:.....	22
3.4.1 Test Cases for Server (Tcp/Udp):	22
3.4.2 Test Cases for Client (Tcp / Udp):	22
3.5 Results:	23
3.5.1 TCP output:.....	23
3.5.2 UDP output:	23
3.6 Discussion:	24
CHAPTER 4	25
4 Introduction:	25
4.1 Profiling and tracing Tools:	26
4.2 Profiling the performance of TCP server and client program of telemedicine system using Rijndaelalgorithm:.....	27
4.3 Analyzing and identifying the code where parallelism is required using the profile data:	31
4.4 Designing the identified section of code for parallelization using multithreading concepts:	35
CHAPTER 5	40
5.1Pthread:	40