Software Requirements Specification

Version 1.0

November 4, 2015

TauNet

CS 300 Section 1 Fall 2015

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1. Introduction

1.1 Purpose

The purpose of this document is to give a detailed description of the TauNet secure texting system. It will explain the purpose, features of the system, what the system will do, how the system will be used, and the constraints imposed on the system. This document is intended for the developers of the TauNet system, the students of the CS 300 section 1 Fall 2015 PSU class and will be submitted to Professor Bart Massey for approval.

1.2 Scope of the system

The TauNet system is a secure communications solution that will be a one-to-one encrypted text messaging system developed to run on the Raspberry Pi 2 hardware with the Raspbian operating system (a version of Debian Linux). The user will be able to send and receive encrypted text messages, via the internet, to other TauNet users.

1.3 Glossary

Term – Definition

- Node – A Raspberry Pi 2, connect to the internet, and running the TauNet software.
- Receiver – The TauNet user who receives an encrypted text message from another user.
- Sender – The TauNet user who sends an encrypted text message to another user.
- User – A person using the TauNet software to send and receive encrypted text messages via the internet.
- Server terminal – The terminal that the user has started the TauNet server in. This terminal will display all incoming messages.
- Client terminal – The terminal window the user started the TauNet client in. This terminal is used to send messages

1.4 References

1.4.1 TauNet protocol version 0.1.

1.4.2 Ciphersaber http://ciphersaber.gurus.org/

2. Proposed System

2.1 Environment

A TauNet consists of two or more nodes connect via the internet. A TauNet node consists of a Raspberry Pi 2 running the Raspbian operating system, access to the internet, screen, keyboard, and running the TauNet software.

2.2 Functional Requirements

This section outlines the success criteria of the project. It defines a minimum viable product.

- Send encrypted text message to another TauNet user via the protocol outlined in the TauNet protocol document.
- Receive encrypted text message from another TauNet user via the protocol outlined in the TauNet protocol document.
- Decrypt as outlined in the cibersaber document and display received text messages on the user's screen.
- Run and function from a command line terminal
- Sent text messages must be able to be at least 300 characters long.
- Send and receive messages to other TauNet nodes anywhere in the world via the internet.
- Be able to communicate with at least 12 other nodes.

2.3 Use Cases

This section outlines the use cases for each action a user can make using the TauNet system. Any text contained within <> is meant to be typed by the user exactly, without the <>.

2.3.1 Use Case: User starts the TauNet software

Before this case can be initiated, the user must have already booted the Raspberry Pi 2 and connected it to the internet.

1. The user opens a new terminal window and navigates to the TauNet directory.
2. The user starts the TauNet Server software by typing <python TauNet_Server.py> into the terminal.
3. The user opens a second new terminal window and navigates to the TauNet directory.
4. The user starts the TauNet Client software by typing <python TauNet_Client.py> into the terminal.

5. The client system asks the user to input their username.
6. The user enters their username and hits enter.
7. The system is ready to send messages via the client terminal window and receive messages via the server terminal window

2.3.2 Use Case: The user sends an encrypted text message to another TauNet user

Before this case can be initiated, the user must have already started the TauNet software

1. The client system asks the user to input the username to send the message to.
2. The user enters the username to send the message to and hits enter.
3. The system asks the user to input the message.
4. The user enters the text of the message to be sent and hits enter when done.
5. The system encrypts and sends the message to the intended user

2.3.3 Use Case: The user receives a message

Before this case can be initiated, the user must have already started the TauNet software

1. The system displays the message in the Server terminal

2.4 Non-Functional Requirements

- Raspberry Pi 2 with connection to the internet
- Raspberian operating system
- 1 Gb RAM
- 8 Gb Micro SD
- Keyboard
- Monitor
- Python 2.7 or later installed