

Private Attached Network Cloud Storage Using IOT

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Abstract: Building cloud computing environment using a low-cost systems based on the Raspberry Pi is very effective for use as a storage system in libraries and classrooms in schools and universities in developing countries where money is always an impediment. Weaved is used for remote access to set up Raspberry Pi from any device such as a smartphone. Numerous services are configured on the weaved to control such as: SSH, HTTP, and VNC. Admin alone has access to private Cloud account. The administrator can provide various services to users through Weaved. This paper presents the results of an experimental preparation of low-cost computing environment using Raspberry Pi 3 (Model B) and design analysis, in addition to a literature review of Raspberry Pi and a methodology applied. Our design will provide you with free data storage according to the requirements. In addition, give the freedom to use space and savings with strong control over the system

Keywords: Cloud Computing, Raspberry pi, HTTP, SSH.

1. Introduction

Building cloud computing environment using a low-cost systems based on the Raspberry Pi is very effective for use as a storage system in libraries and classrooms in schools and universities in developing countries where money is always an impediment. Weaved is used for remote access to set up Raspberry Pi from any device such as a smartphone. Numerous services are configured on the weaved to control such as: SSH, HTTP, and VNC [1]. Admin alone has access to private Cloud account. The administrator can provide various services to users through Weaved. This paper presents the results of an experimental preparation flow-cost computing environment using Raspberry Pi 3 (Model B) and design analysis, in addition to a literature review of Raspberry Pi and a methodology applied [2]. Our design will provide you with free data storage according to the requirements. In addition, give the freedom to use space and savings with strong control over the system.

1.1 Overview

Cloud computing is only one of several networking trends in the face of future technology, which will change its technological development today. It will help access mobile devices, new software-based technologies, and change skill sets to change the face of companies and suppliers alike. As a general rule, cloud data is stored on hard drives. And yes, it may be safer than traditionally stored data. What makes cloud storage so diverse? [3] To a certain extent from directly stored on your computer (hard drive on your laptop, for example, or the phone), the data to be stored is based on the cloud to another place servers owned by large companies, usually accessible via the Internet. Cloud data storage technology contains many concepts that are often misunderstood. Today, we will identify the correct concept of storing data on the cloud, and what is the exact one.

Storage networking is the practice of linking together storage devices and connecting them to other IT networks. Storage networks provide a centralized repository for digital data that can be accessed by many users, and they use high-speed connections to provide a fast network performance.[4]

2 Problem Statements

Private network attached storage using IoT is to provide personal storage access to the users. The user gets an alternative storage option for PersonalCloud storage but that needs to optimize by admin (files) so the speed of the data transfer will be up to the mark. Network attached storage has being used widely lately. Storage can be accessed commonly in any platform [5]. Public cloud storage service providers are providing personal cloud storage for higher costs. Storage space can be increased by the clients according to their usage. The admin panel can be accessed only when the credentials match. Admin can give access to a number of clients with restricted permissions.

2.1 Existing System

Own cloud is an excellent way of sharing files both locally and via the internet. It's very similar to something like drobox. It comes complete with a beautiful interface and offers extensions so you can in-crease the functionality of your setup. Rasbi next cloud is very similar to own cloud since it is a fork of it. It's very active project and is begin worked on by the original own cloud developer and some of the original team

2.2 Issues

- The upload and download speed can't be managed

- RAM size can't be increased
- 2 step authentication is provided with the login page.

2.3 Proposed System

Advance encryption standard (AES) is Rijndael based cipher developed by two Belgian cryptographers Joan Daemen and Vincent Rijmen. AES first adopted U.S. government and now being used worldwide. The AES algorithm is a symmetric key algorithm, the same key is used for encryption and decryption of data. AES-128, AES-192, AES-256 process the data block in, respectively, encryption consists of 10 rounds for 128-bit keys, 12 rounds for 192-bit keys, and 14 rounds for 256-bit keys, iterations of a pre-defined sequence of transformations, which are also called "rounds" (AES rounds) for short. The rounds are identical except for the last one, which slightly differs from the others (by skipping one of the transformations)

2.4 Advantages

- It has a simple web design layout when compared to other cloud devices.
- Network traffic can be prioritized.
- No separate OS is used for managing the files.
- Easy to access files no complicated in doing that.
- Storage driver can be changed when it is required.
- Third party OS and extensions are not implemented in this project.

3 Methodology

3.1 Design Phase



It tells about the outline of the flow of input to the system and output from the system indicated by the arrows. The direction of the arrow shows the flow of data from input to output.

In level-1 DFD each of the sub-processes is clearly explained by showing the detailed input and output of each subprocess. In the above diagram, each subprocesses shown in detail with input and output. In module 1 label encoding and one-hot encoding is done. In module 2 scaling and transformation of data is done. In module 3 the data is split into training and testing data. In the next module, the data is classified for feature extraction used for predicting accuracy. In the final module, the confusion matrix and accuracy of different classifiers are obtained.

3.2 General Architecture



4. Conclusion

The personal cloud storage with Raspberry pi provided a lot benefits such as cloud services without any charges, also user can determine their storage space using their own hard disk and added security features involving encryption. With this security features will ensure all data secure. User can have used hard disk with large space hence user can store the large of data on it. Furthermore, user can access to their personal data from any anywhere with this cloud storage services if access inter-net. This type of cloud services with using Raspberry pi is just a prototype and it implemented with reasonable price, if there are some features need to add on, for instance enhance usability, security or hardware get damaged. For enhance security, developer need to configure and find suitable like create password on hard disk and Raspberry pi. Hence, it become more secure. Then, Raspberry may get damage because of lifetime.

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