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An Approach for Own cloud Using Iot

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ABSTRACT: This work shows how to utilize a Raspberry Pi to generate personal cloud storage for usage instead of utilizing cloud storage services like Dropbox, Google Drive, iCloud, etc. The security of our data and the storage we require to save data and have control over our data is of the utmost importance in this dynamic environment and with ever-evolving technologies. We concentrate on the issues listed above. Since other users can access third-party Cloud services, security becomes an issue. Additionally, these Cloud service providers charge us a huge sum of money to use their services, offer a meagre quantity of storage, and also have some control over our data. Our external hard drive can be used as personal Cloud storage using a Raspberry Pi. We can control our data and choose how much RAM we need. We can access the data from any internet-connected device by treating our external hard drive as a Cloud storage device and using our ownCloud.

KEYWORDS: Cloud Computing, Raspberry pi, HTTP, SSH, NGINX, VPN, DNS.

I. INTRODUCTION

[1]Cloud storage allows us to save data online and access it whenever we want when our device's storage is full. Some companies that offer cloud storage include Dropbox, Google Drive, and iCloud. Data storage over the internet is aided by cloud storage. Users can use cloud storage services by simply creating an account on one of the aforementioned cloud services and paying monthly or annually. Users no longer need to carry additional storage devices as a result. As data accumulates over time, preserving it becomes crucial because so many crucial things rely on it. It becomes challenging for the user to purchase pricey storage devices and transport them. In this case, cloud storage is highlighted. With cloud storage, the user is spared the expense of purchasing and the burden of transporting bulky storage devices. Cloud storage is made available to consumers by cloud service providers, and users can access their data from any internet-connected device.

II. PROBLEM DEFINITION

Right now and with consistently evolving innovations, the security of our information is most extremely significant just as the measure of capacity we have to store the information and power over our information. Below mentioned are the challenges that users are facing with third-party cloud storage services:

1) As third-party cloud services are open to other users too, so this creates an issue of security. As well as these cloud service providers provide a limited amount of storage and they have some control over our data too.
2) As third-party cloud services are open to other users too, so this creates an issue of security. As well as these cloud service providers provide a limited amount of storage and they have some control over our data too.
3) Buying expensive storage devices and carrying them around becomes difficult for users.

III. EXISTING SYSTEM

With so many new technologies emerging, cloud computing is one of the most widely used today. Cloud computing has solved many key problems such as mobility, security and disaster recovery, scalability and flexibility, and cost control. A big part of that is cloud computing or cloud storage. If your device runs out of storage space, cloud storage is an option to store your data over the internet and access it anytime. Cloud storage service providers include Dropbox, Google Drive, and iCloud. Cloud storage helps save data over the internet. This saves the user from carrying around unnecessary storage of his device. Users simply create an account with one of the above cloud services and use the cloud storage service for a monthly or yearly fee. As your data grows over time, storage becomes critical as many important things depend on it. It becomes difficult for users to purchase and carry expensive storage devices. This is where cloud storage comes into the spotlight.

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With cloud storage, users don't have to buy expensive storage devices and don't have the hassle of carrying them around. Cloud service providers make cloud storage available to users, allowing users to access their data using any device with an internet-enabled device.

IV. PROPOSED SYSTEM

The security of our data and the amount of storage we require to keep and manage our data are of the utmost importance in this dynamic environment and age of ever-evolving technologies. The aforementioned issues are the main emphasis of this study. Since other users can access third-party cloud services, privacy is a concern. These cloud service companies also have some control over our data and only offer a small quantity of storage. Additionally, using these cloud services costs us a pretty penny. Using a Raspberry Pi, we can use our external hard drive as personal cloud storage. We are in control of determining how much memory we need and can have.

To create your cloud storage you will need Raspberry Pi and an external hard disk drive to convert it into cloud storage, and a micro SD card of a minimum of 8 GB of class 10 that will act as ROM for the Raspberry Pi. You can use ownCloud as a platform to access your cloud storage, manipulate data in it, and upload or delete data in your cloud storage. Although there are many other files hosting services like Dropbox, Google Drive, and iCloud, you can create your cloud storage and use your OwnCloud as secured access to your cloud storage drive. This Raspberry Pi will act as a service, but first, you have configured it to save data that is stored from the ownCloud. To do this you have to install ownCloud on your Raspberry Pi. You can use a 500GB- 1TB external hard drive as your cloud storage. To access a drive from any part of the world, you have to have an internet connection.

V. REQUIREMENTS SPECIFICATIONS

A. Software Requirements:

1) Raspbian OS: It is an operating system that has been designed specifically for Raspberry Pi devices. It is based on Unix/Linux. It consists of Python, Scratch, Sonic Pi, and Java and that's just the beginning.
2) Linux terminal/Putty: Linux can be used to configure the Owncloud server with the raspberry pi. Use Putty, an open-source terminal emulator, if you use Windows. Other than that, Raspbian OS is based on Linux and comes with an integrated terminal.
3) Constant internet connection: To configure and use it further, you must always have an internet connection. Additionally, Owncloud would require an internet connection to function.
4) Application (Owncloud): A collection of file hosting services is called Owncloud. Although it is identical to Dropbox, OwnCloud differs in that it does not provide data center capacity. It is freely available. For their servers, users are not required to pay anything.

B. Hardware Requirements:

1) Raspberry Pi: A device for quick calculations. It performs the same functions as a minicomputer. It has a dual-band LAN, USB ports, and an HDMI port. It can serve as a server as well.
2) Power supply for the Raspberry Pi 5v/10v: This device requires at least a 5v-10v power supply to operate. It is important to select a power supply adapter with the correct pin type.
3) Micro-SD card, 4/8 GB class 10: The Raspberry Pi's rom is stored on the Micro-SD card. This MicroSD card has the whole raspbian operating system installed. MicroSD cards that are at least class 10 or U1 should be used with this device.
4) Internet connection (LAN/Wifi): Setting up and using the full setup both require an internet connection. The internet is required for the execution of every command, as well as additional chores. The use of a LAN or WiFi is advised.
5) External hard drive: Centralized cloud storage requires an external hard drive. Before utilizing it, it must be mounted. Then, to access the files saved there, they must be connected to Owncloud.

VI. DESIGN AND METHODOLOGY

A. General Architecture :

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Figure1: Theabovefigureisthegeneral architecture of Personal Cloud Storage

B. System Architecture :

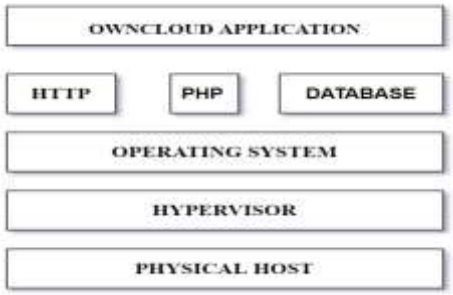

Figure2: Theabovefigureisthesystem architecture of Personal Cloud Storage.

C. Working of OwnCloud Application:

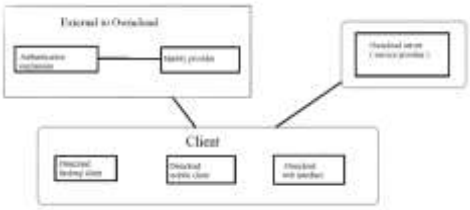

Figure3: Theabovefigureshowsthe working of the owncloud application.

Initially, the requests are processed by the Authentication mechanism and then the requests are forwarded to the client application and then forwarded to the server then the request is processed in the server, and the response is sent back to the client.

VII. RESULTS

Figure 4: After setting the owncloud server and mounting the hard drive, enter the Pi's IP address onto the browser. The above-mentioned screen will appear. Enter the desired username and password to create an admin account and also mention the external hard drive information by clicking on storage and database.

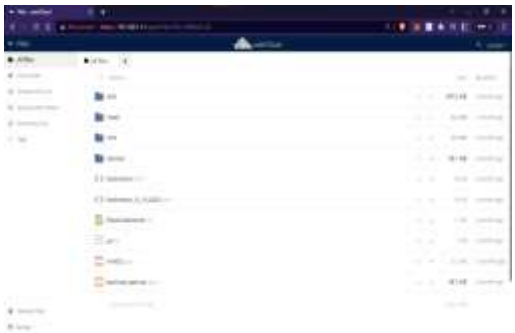

Figure 5: After creating the admin account and logging in this screen will appear which will show data that is stored in the external hard drive. The data stored can be accessed here.

VIII. CONCLUSION

Numerous benefits were provided by the individual distributed storage with Raspberry Pi, including free Cloud services, the ability for customers to select more storage space using their hard drives, and additional security features like encryption. This type of cloud administration using Raspberry Pi is merely a concept, and it is implemented at a reasonable cost if other features are required, such as improved security or damaged equipment. Therefore, it has been investigated if individual distributed storage using a Raspberry Pi may be used to limit or suppress the drawbacks of the present commercial Cloud management used by clients.

IX. FUTURE SCOPE

The Raspberry Pi's characteristics, prototype, use on the edge and in the cloud, as well as its future, have all been described by certain authors. Last but not least, authors have described a remote sensor arrangement framework built with Arduino, Raspberry Pi, XBee, and numerous open-source software packages that require little effort, are more compact, flexible, easy to change, easy to send, and easy to maintain features.

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