Datasync Smartdrive Application Using Cloud

V.Ashika
UG Scholars, Department of Information Technology, SNS College of Technology, Coimbatore, Tamilnadu, India.

K.Koushika
UG Scholars, Department of Information Technology, SNS College of Technology, Coimbatore, Tamilnadu, India.

D.Kowsalya
UG Scholars, Department of Information Technology, SNS College of Technology, Coimbatore, Tamilnadu, India.

S.Vinoth Kumar
UG Scholars, Department of Information Technology, SNS College of Technology, Coimbatore, Tamilnadu, India.

K. Rajakumari
Assistant Professor, Department of Information Technology, SNS College of Technology, Coimbatore, Tamilnadu, India.

Abstract – Smartphone's are becoming popular because of their capabilities and functionalities. Their small size and light weight make them very easy to carry, and they provide useful services as they run PC-like applications. The Multimedia applications such as image, video playing are very much resource intensive in terms of processing and data rates. Consequently they consume much energy and drain Smartphone battery very quickly .These limitations can be eased off in the era of cloud computing by uploading all our important activities to the cloud. Everyone using cloud storage offer by many cloud providers but users can only upload the things which we stored in internal or external storage. It's a drawback in this fastest lifestyle.

Enhancement for drawback we created an android application which connected with cloud, this is the one application which contains various option to deal with all multimedia activities. In proposed system we can upload our activities to cloud server directly and we use cloud storage and Cloud-Centric Media Network communication systems from mobile to cloud. Offline actions are uploaded automatically when turning online. The data is stored in a secured way and it is protected from other users, authorized user can retrieve and view data at anytime from anywhere. The energy cost of multimedia applications on Smartphone that are connected to the Multimedia cloud Computing is evaluated. We are proposed a new ideology where the memory consumption problem has been very +much addressed.

Index Terms – Cloud storage, data sharing, authentication, peer to peer computing.

1. INTRODUCTION

Cloud computing, known as 'on-demand computing', is a kind of Internet-based computing, where shared resources, data and information are provided to computers and other devices on-demand.

Android is a powerful operating system supporting a large number of application in smart phones. These application make life more comfortable and advanced for the user. It is based on the Linux kernel and primarily designed for touchscreen mobile devices such as smartphones and tablets.

Cloud computing is the use of computing resources (hardware and software) that are delivered as a service over a network (typically the Internet Cloud computing entrusts remote services with a user's data, software and computation. Cloud storage is a model of networked online storage where data is stored in virtualized pools of storage which are generally hosted by third parties. Hosting companies operate large data centers, and people who require their data to be hosted buy or lease storage capacity from them. The data center operators, in the background, virtualizes the resources according to the requirements of the customer and expose them as storage pools, which the customers can themselves use to store files or data objects. Physically, the resource may span across multiple servers. The safety of the files depends upon the hosting websites.

It is a model for enabling convenient, on-demand network access to a shared pool of configurable computing resources that can be rapidly provisioned and released with minimal management effort or service provider interaction. Location-based applications have become increasingly popular on Smartphone over the past years. The active use of these applications can however cause device battery drain owing to their power intensive location-sensing operations. The design principles of the framework involve substitution, suppression, piggybacking, and adaptation of applications' location-sensing requests to conserve energy. The design principles are

implemented on Android-based Smartphone as a middleware. The evaluation results show that the design principles reduce the usage of the power-intensive GPS (Global Positioning System).

BitTorrent-based file-sharing is already available for mobile phones. However, its energy profile makes it difficult to use it for transferring large amount of data. There is an alternative cloud-based solution that uses a remote server to download content via BitTorrent and transfer it to the mobile device in a transparent and energy efficient way. It is a protocol that supports the practice of peer-to-peer file sharing and is used for distributing large amounts of data over the Internet. BitTorrent is one of the most common protocols for transferring large files and peer-to-peer networks have been estimated to collectively account for approximately 43% to 70% of all Internet traffic.

Peer-to-peer computing or networking is a distributed application architecture that partitions tasks or workloads between peers. Peers are equally privileged, equipotent participants in the application. They are said to form a peer-to-peer network of nodes.

2. LITERATURE SURVEY

Cloud Computing is an emerging technology aimed at providing various computing and storage services. A multimedia-aware cloud, which addresses how a cloud can perform distributed multimedia processing and storage and provide quality of service (QoS) provisioning for multimedia services .If CC provides a multimedia functionality, which includes storage, encoding, and play on-demand, then it is called Multimedia Cloud Computing (MCC). MCC can access any multimedia content on the Internet and supply it to a user in a desired file format when a user provides the targeted multimedia Universal Resource Locator (URL).A user can take advantage of the encoding capability of MCC by uploading a multimedia content in any file format, and then request the uploaded file in another file format. Thus by surveying, we analyzed the features supported by MCC and the desired functionality that can be achieved by the same. It has proved to be of great importance for our study regarding MCC.

A partition scheme to upload computational tasks on handheld devices which are connected to server via wireless LAN which results in significant energy saving. Improving power efficiency when executing the workloads is done by proposing a power-efficient management of enterprise workloads by exploiting fundamental characteristics of data centers "Platform heterogeneity". The workload allocation scheme achieves on average 20% improvements in power efficiency for representative heterogeneous data center configurations, highlighting significant potential of heterogeneity-aware management.

Multimedia messages can easily exhaust the energy supply of a mobile device. To meet this challenge the design and implementation of an energy-efficient multimedia messaging service, SMERT [6] is used. SMERT is the first reported hierarchical multimedia messaging system with extensive support for the energy efficiency of end-user mobile devices. A hierarchical system for users to access multimedia content, leveraging widely available short message service (SMS), an embedded system-based new interfacing device, and the Internet capability of mobile devices. SMERT leverages the SMS and internet capability of a mobile device to enable it to obtain the same content in different formats. Message Gator on the mobile device decides which format to fetch and how to notify its user based on information about the battery, message priority and video clip size. The goal of energy efficiency is not to extend the battery lifetime. This is to make the best use of battery capacity before recharging.

Mobile devices derive the energy required for their operation from batteries. Energy efficiency of these devices is very important to their usability. A detailed analysis of the power consumption of a recent mobile phone is the Openmoko Neo Free runner [24]. We present this power breakdown for micro-benchmarks as well as for a number of realistic usage scenarios like audio playback, video playback, text messaging, phone call, emailing, web browsing etc. In all of our usage scenarios, except GSM phone call, static power accounts for at least 50% of the total. Thus it shows how different components of the device contribute to overall power consumption.

3. EXISTING SYSTEM

Everyone using smartphones, they all dealing with many multimedia things in dailylife. They also need those for long time. For this all going to cloud storage idea , which are offer now a days by many cloud providers through cloud storage. In existing system users can only upload the things which we stored in internal or external storage. For this we can do some steps (like synchronization steps) which consumes time. We can store multimedia files on the internal or external storage.

Disadvantages

- ☑ Internal or external memories may get erased or crashed in sometimes.
- ☑ We need external storage for storing multimedia files, ours data always depends on external storage.
- ☑ Once data is lost, it lost forever.
- ☑ As it requires high memory capacity and its leads to damage the mobile features.

4. PROPOSED SYSTEM

In proposed system we have used cloud mobile Multimedia Streaming System to store data in cloud. Our system is the one application which contains various option to deal with all multimedia activities which is instantly stored in cloud. The

user can open the data anywhere and anytime using cloud.While we are in offline it will store all activities in offline action, as soon as internet get access offline files get automatically uploaded to cloud.

Advantage

- ☑ Multimedia files are stored in the cloud storage and we can access files remotely from anywhere.
- ☑ No need to use external storage.
- ☑ Cloud memory cannot get crashed.
- ☑ Every actions we do with application can instantly stores in cloud.

5. SYSTEM ARCHITECTURE

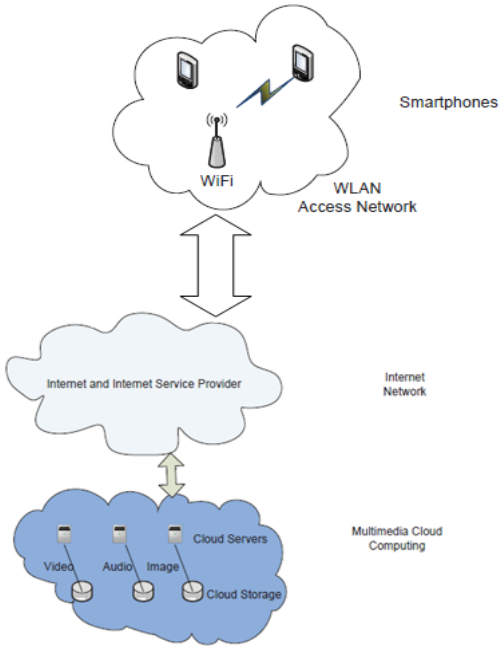


Fig a. Architecture design of smartdrive

The architectural diagram shown above clearly depicts the project of MCC. It consists of three sections such as the Smartphone, Internet interface and a Cloud. These three constitutes to the world of MCC. Each and every section is critical for the transfer of files. This transferring of files is done through a technique called OFFLOADING. This offloading technique involves transferring heavy tasks to the remote server commonly called as "cloud" and thereby reducing the power wastage in client. The multimedia cloud is referred to as the server and the handheld devices like Smartphone are considered to be clients. These two act as a base for the transfer of files.

The Smartphone consists of desired multimedia files such as text, image, audio, and video. These are collectively called as multimedia files. These multimedia files are stored in the Smartphone. The Smartphone which we use for our project is HTC NEXUS ONE. The main drawback when storing these files in the Smartphone is the energy consumption. This can be overcome by the offloading technique as mentioned above. The files that are offloaded are stored in a centralized database in the cloud. In this, the user has to go through an authentication process which involves the user to enter username and password. Only the user whose request has been granted by providing the above details can be recognized as the authentic user. This is the first step which is involved in MCC.The second step which is involved after the successful login is the uploading of files. This file transfer is done using two protocols namely FTP (File Transfer Protocol) and HTTP (Hyper Text Transfer Protocol). These two protocols play an important role in transferring of multimedia files. Among these, FTP is considered to be efficient since it involves faster data transfer. HTTP is the standard protocol that is used in the environment of file transfer. In order to provide more security https can be used.

Once the file that has to be uploaded is chosen, the internet access network which is responsible for the transferring of files from one end to other has to be chosen. The access network can either be wired or wireless network. In our project, we tend to make use of wireless network. The type of wireless network we specifically try to use is the WIFI and 3G interfaces. This is shown in our diagram where these network interfaces connect the Smartphone and the cloud server. In this, 3G is considered to be efficient than the WIFI because of its higher data rates. But some people prefer WIFI since 3G supports only short distance.

The last step involved is the storage of files in cloud, where it stores different multimedia files. The current tag location is being shown for text using GPS (Global Positioning System). This is the advanced feature which increases the interactivity and user friendliness between the user and the device. The multimedia files in the cloud are being viewed using date filter where the user can specify the corresponding date and the files that are uploaded in that date alone can be retrieved. The multimedia functionalities partially or fully interact with corresponding MCC.

6. IMPLEMENTATION AND DESIGN

Implementation is the stage of the project when the theoretical design is turned out into a working system. Thus it can be considered to be the most critical stage in achieving a successful new system and in giving the user, confidence that the new system will work and be effective. The implementation stage involves careful planning, investigation of the existing system and it's constraints on implementation, designing of methods to achieve changeover and evaluation of changeover methods.

MODULES

Module 1: Linking to the cloud storage.

Module 2: Upload multimedia files to cloud.

Module 3: Searching and viewing the multimedia file

MODULE1: LINKING WITH CLOUD STORAGE

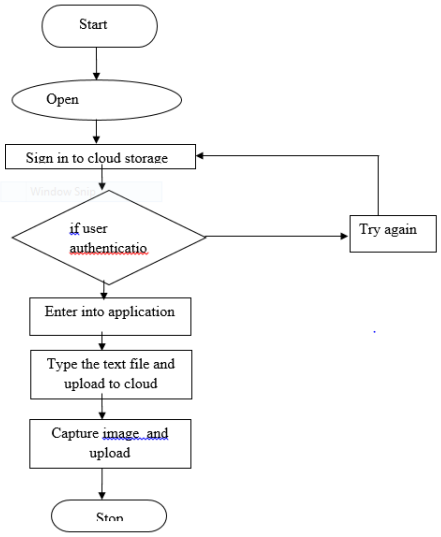


Fig b. linking with cloud storage

The files that are to be transferred from the smart phone to the cloud should be sent primarily via a secured medium. This is achieved in this module by allowing only authenticated user to link with the cloud storage. Authentication is the process which allows a sender and receiver of information to validate each other. If the sender and receiver of information cannot properly authenticate each other, there is no trust in the activities or information provided by either party. Authentication can involve highly complex and secure methods or can be very simple. The simplest form of authentication is the transmission of a shared password between entities wishing to authenticate each other.

MODULE 2: UPLOAD MULTIMEDIA FILES TO CLOUD

Once the user has been granted authorization, then the user can offload the heavy task which is in the local storage (Smartphone) to that to the cloud. The files that are to be transferred can be any multimedia files such as text, image, audio or video. Only the multimedia files with correct format that is recognized are allowed to be offloaded. The files that are stored in the cloud can be used for viewing also which reduces the time and energy needed for transferring the file in the local storage frequently for viewing.

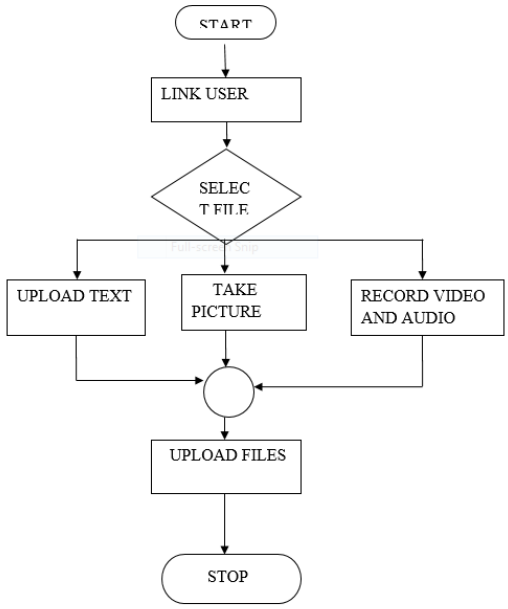


Fig c. upload multimedia files to cloud

MODULE 3: SEARCHING AND VIEWING THE MULTIMEDIA FILE

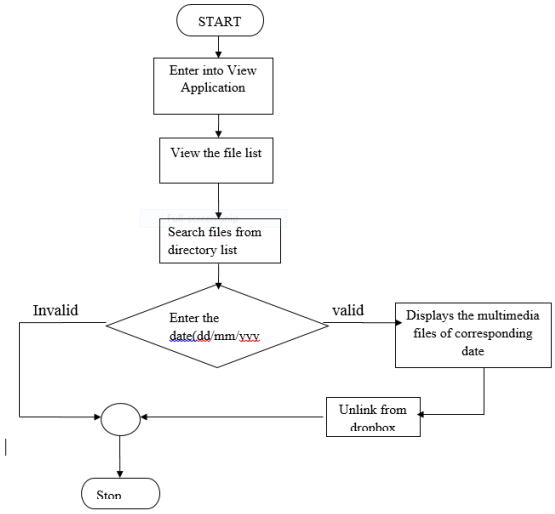


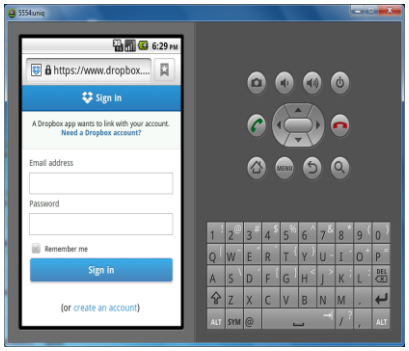
Fig c. searching and viewing the multimedia file

The files that are stored in the cloud are to be retrieved for further use. This can be done by searching option which is done efficiently where the user provides the date of the file of transfer and the cloud server groups the files and displays only the files of the corresponding dates. The date which is to be provided should be in the correct format of date, month, and year. Any date which is not in this format cannot be used for searching. The files can be viewing with an additional

information called as tagging which is used to attach the exact location of where the files has been created.

SNAP SHOTS

AUTHENTICATION PROCESS



In authentication process we link our account to our cloud provider with a secure steps and process.

UPLOADING TEXT IN CLOUD

Here our document uploading to the cloud with date, time and even our location by using global positioning system.

UPLOADING OTHER FILES

7. EXPERIMENTAL RESULTS & DISCUSSIONS

The performance evaluation of the Smartphone is being evaluated by using a application known as POWERTUTOR. PowerTutor is an application for Google phones that displays the power consumed by major system components such as CPU, network interface, display, and GPS receiver and different applications. The application allows software developers to see the impact of design changes on power efficiency. Application users can also use it to determine how their actions are impacting battery life.

PowerTutor uses a power consumption model built by direct measurements during careful control of device power management states. A configurable display for power consumption history is provided. It also provides users with a text-file based output containing detailed results. You can use Power Tutor to monitor the power consumption of any application. Power Tutor's power model was built on HTC G1, HTC G2 and Nexus one. It will run on other versions of the GPhone future.

We study the power consumption instead of energy because the power gives a good gives a good insight the device consumption regardless of the file size or the time required to finish a task. However, the total energy is used to show a comparison between specific tasks as we see next. This is because the total energy is more meaningful Metric to compare one particular task executed on two different Processing rates. In addition, we measure the speed of the Network interface to demonstrate the obtained data rate at the User level.

The power which is consumed is measured by switching on the PowerTutor profiler. The linking process is made and the files are created and uploaded. The graph shows the energy that is consumed when transferring the files. Later, the PowerTutor is stopped to note the readings and the graph is plotted. A graph is plotted which shows the performance of the Smartphone where the X-Axis represents the time taken and the Y-Axis shows the power consumed Similarly the PowerTutor is started in order to go directly to the dropbox and the files are opened in it. The power consumed is noted and again the profiler is stopped and the readings are noted in the previous manner.

8. CONCLUSION

The problem of running multimedia application on Smartphone is addressed, and thus investigating the benefits of using MCC framework in this regard.MCC appears to be promising to fill the gap between Smartphone performance limitations and expectation of the users by the Energy-as-a-Service (EaaS) service. The experiments are conducted for evaluating the benefit of MCC to overcome Smartphone Constraints. The results reveal that the potential of MCC reduces Smartphone energy consumptions on multimedia applications. This clearly indicates that offloading multimedia applications from

Smartphone to MCC is beneficial. MCC significantly reduces the energy consumption on Smartphone by the EaaS service.

The limitation is that we need network connection to upload the files into the cloud otherwise files cannot be uploaded into the cloud. The time taken to upload a file in 3G network is more compared to that of uploading a file in WIFI.

9. FUTURE ENHANCEMENTS

More experiments are to be conducted in order to generalize our finding which include playing games etc. Optimum algorithms, architectures, and implementations for this offloading technique are needed to reach best offloading case. This study opens up new opportunities to be investigated. Finally, modeling the MCC to handle the offloading is important to implement efficient offloading.

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