

CLLOUD STORAGE AND RETRIEVAL OF INFORMATION USING USSD IN PHONES

¹TEJAS NAREN .T.N, ²SHANKAR SIDDHARTH .K.A, ³SANJEEVI LR

Department of CSE, Rajalakshmi Engineering College
Email: tejastn@live.com, kashankarsiddharth@gmail.com

Abstract--To use the latest hot technology CLOUD in all kind of mobile phones without needing any internet (GPRS connection).This is an innovation by us which uses USSD(Unstructured Supplementary Services Data) in order to store all your mobile files(Contacts, music, video ..etc) in a CLOUD without any internet or gprs facility in your basic phone.

Index Terms— USSD (Unstructured Supplementary Services Data), Cloud storage services, basic model phones.

I. INTRODUCTION

USSD is well known technology which exists from the age of the invention of mobile phones. Apparently the technology is used by the telecom providers for their customers in various applications such as checking balance ,rendering information about their account etc which is a session based application. USSD uses a gateway to communicate between the customer and telecom provider which is known as USSD-Gateway. Hence, the same may be technically defined as a protocol used by GSM cellular telephones to communicate with the service provider's computers. USSD can be used for WAP browsing, prepaid callback service, mobile-money services, location-based content services, menu-based information services, and as part of configuring the phone on the network...Unstructured Supplementary Service Data (USSD) is a technology unique to GSM. It is a capability built into the GSM standard for support of transmitting information over the signaling channels of the GSM/CDMA network. USSD provides session-based communication, enabling a variety of applications.

1.1. Cloud as a storage service

Cloud is a latest technology which is gaining immense popularity across the globe. The main advantage of a cloud as a storage service is that we can virtually store data and retrieve them efficiently. Hence , a Cloud as a storage can be defined as a service model in which data is maintained, managed and backed up remotely and made available to users over a network (typically the Internet).

1.2. Our System

“Revolutionizing the concept of storage in mobile phones”—This paper aims at using two efficient Technologies namely the Cloud as a storage service and the USSD to provide storage to the mobile phone users without them having any gprs connection. Cloud can be integrated in your basic phone without any viable internet using USSD.

II. LITERATURE SURVEY

It is to be observed that 89 .4% world population use mobile phones. Of this, 43% use phone which does not have an internet connection(Basic model).In the rest 46.4% its only 21% who have a proper regular internet connection. These Stats symbolises that the Technology which needs internet are on the rise but the real truth is we don't use them efficiently. This motivated us to come out with an innovation which enables us to use the latest technology CLOUD without needing the internet facility in your phones using USSD. Enabling Cloud without any viable internet connection in your mobile phone will give rise to new innovative ideas which may help the working and the non-working society in a big way.

III. EXISTING FLAWS

The Existing System uses the USSD Technology mostly as a session based service which aims helps easy communication by the user to the telecom provider using simple numbers and alphabets. The user doest need to have any gprs or internet connection in the mobile phone. Our contribution to the existing system is that we bring in the concept of using an application which needs internet without needing any visible internet connection in your phone. This is significantly absent in the existing system.

IV. WORKING

First, the user enters the USSD code say (*555#) in the phone. Then, the cell phone tower near by receives the code response from the mobile. The cell phone tower then transfers control to the USSD gateway. The USSD gateway sends the signal in the form of TCP/IP to the application development. The Application development does the service based on the response from USSD. The user views the result on the screen and hence can access cloud for

storing and retrieving the data. A Transaction consisting of a single response gets completed in a span of 200mili seconds.

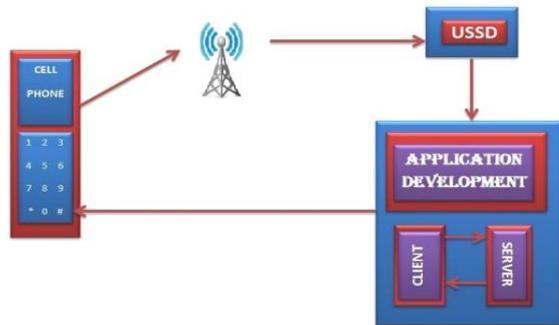


Fig: 1 A sample model showing the basic working of USSD.

4.1. Sending Response from phone to USSD gateway

The User having a telecom connection is made to enter the USSD code .The USSD Code has to begin with * and end with #. A USSD message can be upto 182 alphanumeric characters in length. Once the user enters the code, the connection transfers to the telecom tower nearby .The Telecom Tower recognizing the USSD code sends it to the respective USSD gateway. The work of the USSD gateway is to receive the USSD and redirect it to the application development of the telecom provider



Fig: 2 A sample showing the USSD response from the user

4.2. Response from the application development

The Application Development holds the key for the information transaction between the user and telecom provider. The Buisness logic of the entire application is done here . The response received from the USSD-gateway is received by the application development say java using a TCP/IP .This Coding is responsible for the application to complete its interaction between the customer and the telecom provider. A response accoding to the request is send back to the USSD gateway .This gateway in turn returns the response to the user who can view it in the screen of the mobile phone.

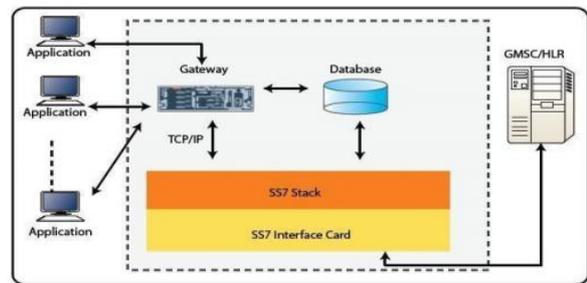
4.3 Connecting to a cloud using an unique pin

The user is asked to register for the cloud services via USSD while using the service for the first time. The user name and password entered is

a mapped to randomly generated 4 -digit unique pin. This is done for the convenience of users not to waste time and to reduce complexity in using the services. Then on , when the user uses the service, it is only mandatory to enter the 4 digit pin instead of the user name and password. Once , the user is authorized to enter the cloud ,he/she can choose the type of service i.e to view data say contacts or to retrieve them via the USSD response using the numbers and alphabets.

4.3.1 Secured and faster data transfer

The important feature of USSD is that it completes its response from the time it starts from the user entering the USSD code , the response going to USSD gateway , the application evlopment and back to user in just 200mili seconds , this allows a faster data transfer .Since the unique mapping of the password and the user name is done which adopt rsa Security algorithm ,it is deemed to be extremely secured.



USSD Gateway Architecture

Fig: 3 Architecture representing the inside working of an USSD.

The Architecture shown in the figure 3 represents the working of an USSD-Gateway which is abstract to the users.The Commuication transfer between the USSD gateway and the application takes place by means of a TCP/IP.The USSD gateway for most of the time function as a middle way communicator between the telecom tower to send and receive signals form the server i.e the application development which may be present at telecom provider’s site.

V. UNIQUE LOGIN TECHNIQUE

When the user registers for the cloud services the first time, the user name and password is given. Based on the user name and password ,A four digit unique pin is generated. This enables the user for faster access to the cloud saving time in typing the user name and password again

VI. SOFTWARE PROTOTYPING

We have designed based on the WIN software prototyping model. If this cloud services is implemented to a 5-8Km sq radius , it takes Rs4,000 approximately exclusive of the maintainence charges

for the telecom provider. To use this service the user has to pay Rs.7per month plus one time registration fee of Rs 8(approximately). Hence, The user gets value for this money(Cloud @). At , the same time , if 500 customers(average per 5km radius) are using this service, the telecom provider gets($7*500 + 8*500$)which makes Rs.7500 and hence profit. Hence the customer satisfaction is attained to the fullest at the same the telecom provider also makes profit.

VII. BENEFITS

No need any internet connection (gprs) in your phones to access cloud to store and retrieve your data. No need to worry about your contacts or files when your phone gets crashed or lost. All a user got to do if a havoc happens is to just reinsert a duplicate sim provided by the telecom provider and access the cloud services and hence forth retrieve the data. Cost of phones, when cloud becomes your primary storage in phones , will get reduced. On a large scale usage of this application , users would not require an additional storage device say a simple memory card which may eliminate the usage of those secondary storage deices in your phone. This Application will well prove to be very helpful for small scale workers to update their info to a cloud which can be retrieved by other people involved in the work from csame cloud anywher..Extremely secured based on our unique login technique.The USSD gateway transfer between its gateway and Application side at the telecom provider 's site is based on RSA security algorithm.Extremely fast (Requires only 200ms to complete one full response).The users will expirence a faster cloud service which saves efficient time.Follows WIN –WIN prototype model ,hence you can get value for your money.This model will prove to be economical and also provide stability in using cloud services.

VIII. TECHNOLOGIES USED

8.1 Gateway Simulator

LeibICT USSD GW Simulator is used as the USSD gateway which provides user to interact with telecom provider to access cloud.

8.2 Application Development

Servlets are used in the client side of application development which receives the request from the USSD gateway. Enterprise Java Bean is used as a Server side technology of the application development which may also act as a middle ware enabling faster access.

8.3 USSD Coding

The responses from the user which goes to the USSD gateway is done using core java enabling simplicity .

8.4 Cloud

On trial basis , dropbox is used as a cloud storage in order to store all data sent via mobile using USSD.

IX. SIMULATION

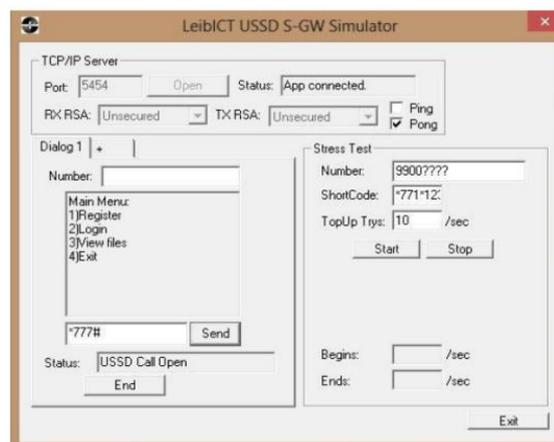


Fig: 4 A simulation showing the response and the request from a phone to the USSD gateway.



Fig: 5 A simulation showing the USSD menu in a basic phone to access the cloud services.

CONCLUSION

This model will enhance the user to avail cloud services without needing any gprs connectivity in the phone using USSD and hence forth avail enormous benefits at a economical cost. The future enhancements can be made.

ACKNOWLEDGMENT

We would like to thank Col(Rtrd) Chakravarthy (Chairman, IETE ,Chennai centre) and Staffs of CSE Department, Rajalakshmi Engineering college

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