Short message service

Short Message Service (SMS)

Short message service (SMS) is a mechanism of sending and receiving short messages between the subscribers. The messages can be sent from GSM mobiles and also from devices like internet. It is a mature technology supported by most of the mobile sets and over GSM networks. SMS is carried out in the scope of 3G. SMS does not involve message transfer directly from sender to receiver. It is a store-and-forward service i. e. the message from sender is stored in an SMSC from where it is forwarded to the recipient. This method is advantageous because the recipient mobile needs not to be active or in range of the sender mobile. If in ay case the recipient mobile does not respond the message is store in SMSC and can be send later. After the message is successfully transferred a delivery report is also send to the sender to ensure the successful communication to the desired recipient.

In order to avoid overloading in the system the standard defined for maximum numbers of characters in an SMS are 160 characters for Latin alphabets and 70 characters for non-Latin alphabets like Arabic or Chinese.

5. 1History of SMS

In late 1980's, the telecommunication experts felt the need of sending short messages along with the service of making calls. The result of this discussion was that the first ever Short Message was successfully send on December 3, 1992, in United Kingdom over a Vodafone GSM network. The first message stated as " Merry Christmas". It was due to this success that later Short Message Service started in UK and Norway. Initially the messaging growth is very slow around 0. 4 messages per month but according to an estimate in 2003 its growth has increased to 168 billon messages over the world. The

early adopters of SMS were teenagers followed by adults, business people and are now used by all sections of the society.

The huge amount of SMS sends or receives now days provoked a new form of SMS communication which gave rise to abbreviations and acronyms. This form of communication save time and is understood by most of the people.

Started from the objective of sending or receiving messages SMS is now used for many other purposes. Form bidding amount to TV show voting, cooking recipes to cricket match score, weather news to horoscope everything can be viewed on the mobile screen in the form of an SMS.

A service started from 0. 4 messages per month is now a billion dollar industry. During the last 16 years the average of sending SMS has gone very far. And it will surely increase in the years to follow.

5. 2SMS Architecture

The basic of launching SMS service was to exchange limited amount of information between the mobile users. This limited form of Text service is now the backbone for many complex services like downloading, tracker system and many more. The basic functionality of the components supporting SMS in GSM architecture are as follows.

5. 2. 1SME (Short Message Entity)

Short Message Entities are the elements that can send or receive short messages. The SME that generates a short message is called originator SME and which receives messages is called recipient SME.

MS

BTS

PSTN

Internet

Email gateway

BTS

TE

BTS

BSC

ME

HLR

MSC

SMSC

SIM

Figure 5-1: SMS Enabled GSM Architecture

5. 2. 2 SMSC (Short Message Service Center)

The main function of SMSC (Short Message Service Center) is to relay short messages between SME's and secondly to store and forward the messages if the recipient mobile is not active.

5. 2. 3MSC (Mobile Switching Center)

MSC deals with the switching between mobile stations or between mobile stations and fixed networks.

5. 2. 4GMSC (Gateway Mobile Switching Centre)

The email gateway provides an email to SMS interoperability. This can be done by interconnecting the SMSC with the internet. Email gateway allows to send messages from a SME to an internet host and the reverse is also true.

5. 2. 5 HLR (Home Location Register)

HLR is the database of the GSM network containing information about the subscriber. HLR maintains the mapping between the IMSI and MSISDN.

5. 2. 6VLR (Visitor Location Register)

VLR is the database which contains information about the users who are attached to the mobile network. It is used to indicate the user's geographical location. VLR is integrated with MSC through which it communicates with the other networks like PSTN (Packet Switched Packet Data Network), ISDN, SCPDN and PSPDN.

5. 3Pros and Cons of SMS

The incontestable advantage of SMS is that it is the essential part of in all GSM networks. This service is supported by 100% of the GSM handsets. A message send from any GSM network can be delivered to any other subscriber attached to the same or different network. It also permit to send one message to multiple senders. It is less costly as compared to the billing system of the local and international calls.

The main drawback of SMS is its limited capacity. It limited is restricted to 160 characters. For sending long messages concatenation has to be done. The other drawback is that only text can be included in the messages. It does not support sending complex services like image, audio video. Furthermore due to high traffic sometimes, the message delivery is not guaranteed.

5. 3Pros and Cons of SMS