SMS

Redes Móveis

Assigment 7

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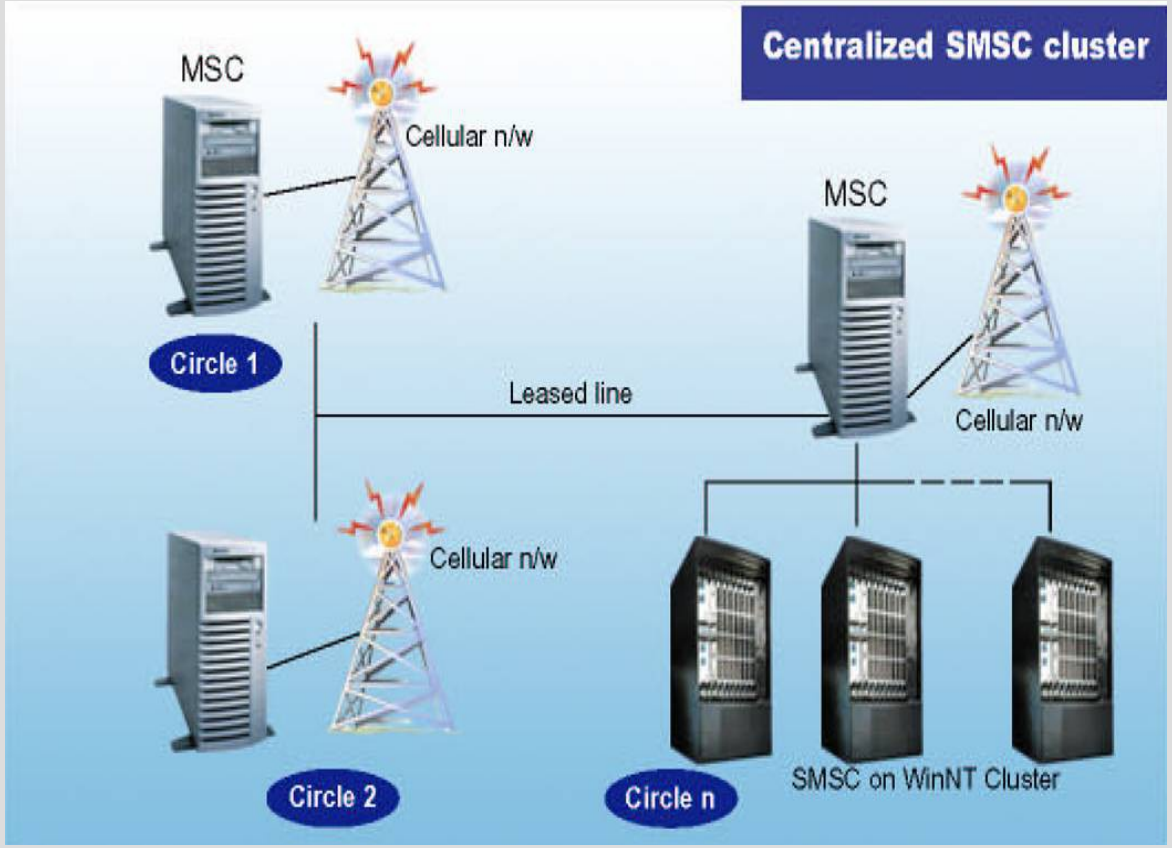
What is SMS?

Definition: A globally accepted wireless service that enables the transmission of alphanumeric messages between mobile subscribers and external systems such as electronic mail, paging and voice mail systems

- The SMS is a store and forward service (Guaranteed delivery)

- Send or receive during voice or data calls (use of a separate channel)

Short Message Service Center



The SMSC is a combination of hardware and software responsible for the relaying and storing and forwarding of a short message between an SME and a mobile device.

SMSC will retain any messages until the user can receive them

SMSC must be highly reliable, with redundant backups ,
should also be scalable, be able to serve a large number of subscribers

Components of the digital mobile network relevant to SMS

The **Home Location Register (HLR)**, an integral part of any cellular network, contains the data relevant to network subscribers: their status, location and thus routing information on how to access them

The SMSC will interrogate the HLR in order to obtain routing information for SMSs submitted, destined for mobile recipients.

The HLR will also inform the SMSC if previously unavailable subscribers have now registered on the network, allowing the delivery of messages that were buffered in the SMSC for those users.

Components of the digital mobile network relevant to SMS

Depending upon the structure of the network, subscribers in one HLR may visit another cell or network; the **Visitor Location Register** will then maintain the information on these subscribers while they roam.

If the destined subscriber is not within their homed HLR, the information in the VLR of the cell or network they are in will provide the routing information to ensure they receive their calls or messages.

It works by caching the information required to route calls and messages, as well as provide subscriber services to users that fall within that VLR's region of control, geographically.

Generally integrated into the Mobile Switching Centre, examined next.

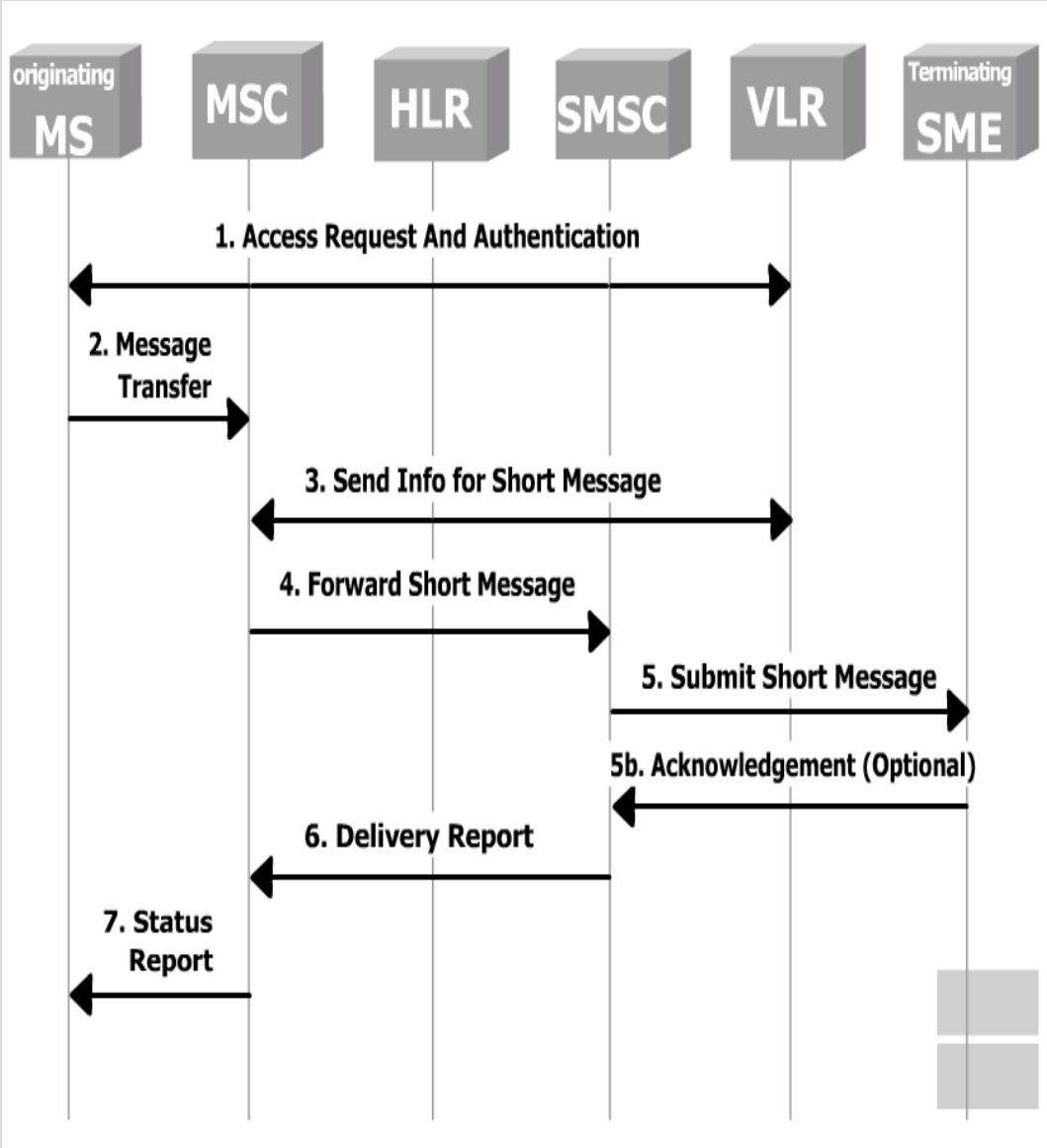
Components of the digital mobile network relevant to SMS

The **Mobile Switching Center** acts like a switching hub in an Ethernet network. Essentially, it will switch data between users on the network, in accordance with the routing information provided by the HLR/VLR.

In addition to the switching functionality, the MSC handles all the tasks needed to manage mobile subscribers:
Registration
Authentication
Location updating
Handovers
Routing to roaming subscribers

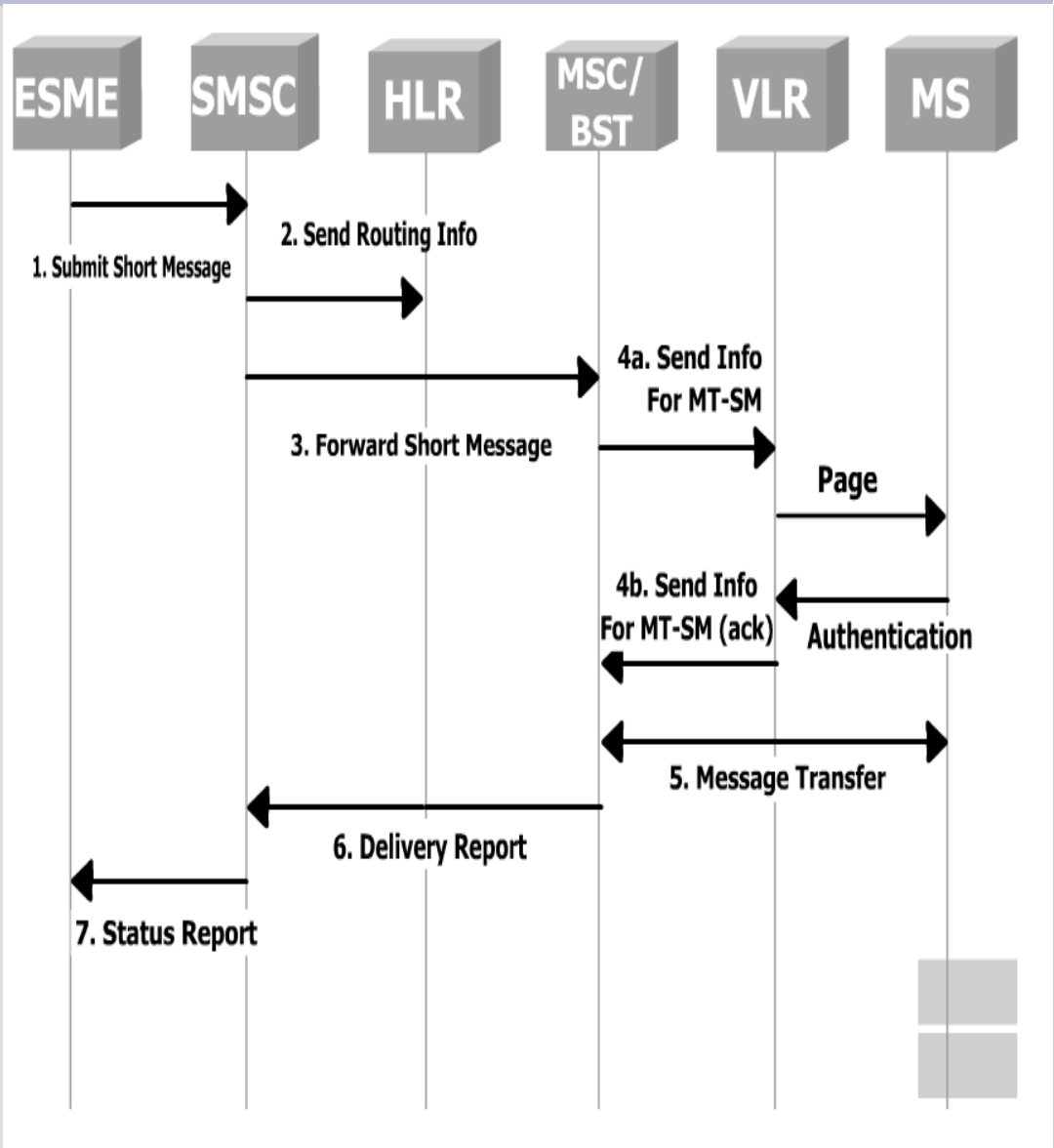
Mobile Originated SMS

Step 1: The Mobile Station (MS) is powered on and registered with the network.
Step 2: The MS transfers the SM to the MSC
Step 3: The MSC interrogates the VLR to verify that the message transfer does not violate the supplementary services invoked or the restrictions imposed.
Step 4: The MSC send the short message to the SMSC
Step 5: The SMSC delivers the short message to the SME (ack is optional).
Step 6: The SMSC acknowledges to the MSC the successful outcome of the 'forward short message' operation.
Step 7: The MSC returns to the MSC the outcome of the MO-SM operation.



Mobile Terminated SMS

Step 1: The short message is submitted to the SMSC.
Step 2: After completing its internal processing, the SMSC interrogates the Home Location Register (HLR)
Step 3: The SMSC sends the short message to the MSC using the 'forward short message' operation.
Step 4: The MSC retrieves the subscriber information from the VLR. This operation may include an authentication procedure.
Step 5: The MSC transfers the short message to the Mobile Station
Step 6: The MSC returns to the SMSC the outcome of the 'forward short message' operation.
Step 7: If requested by the ESME, the SMSC returns a status report indicating delivery of the short message.



Network Architecture