

Call setup procedure between calling MSC & Called MSC.

Example 7.4 Call Setup Procedure

Consider the call setup signaling flow diagram shown in Figure 7.13. Describe the steps involved in setting up the call between the calling MSC and the called MSC.

Solution The steps involved in setting up the call should trace out the signal flows shown in Figure 7.13. The call can be set up using the following six steps:

- (1) The calling BS receives a call request. The request should contain the MIN of the called mobile. The calling BS forwards the request to the VLR of its RA. The VLR then forwards the request to its corresponding MSC.
- (2) The calling MSC sends a location lookup request to the HLR of the called mobile.
- (3) The HLR of the called mobile determines the current VLR of the called mobile (from its database) and sends a routing request message to the VLR. The VLR then forwards the message to its corresponding MSC.
- (4) The called MSC allocates a temporary local directory number to the called mobile and sends a reply to the HLR, together with the TLDN.
- (5) The HLR forwards the TLDN to the MSC of the calling mobile.
- (6) Using the TLDN, the MSC of the calling mobile initiates a connection request to the called MSC through the SS7 network.

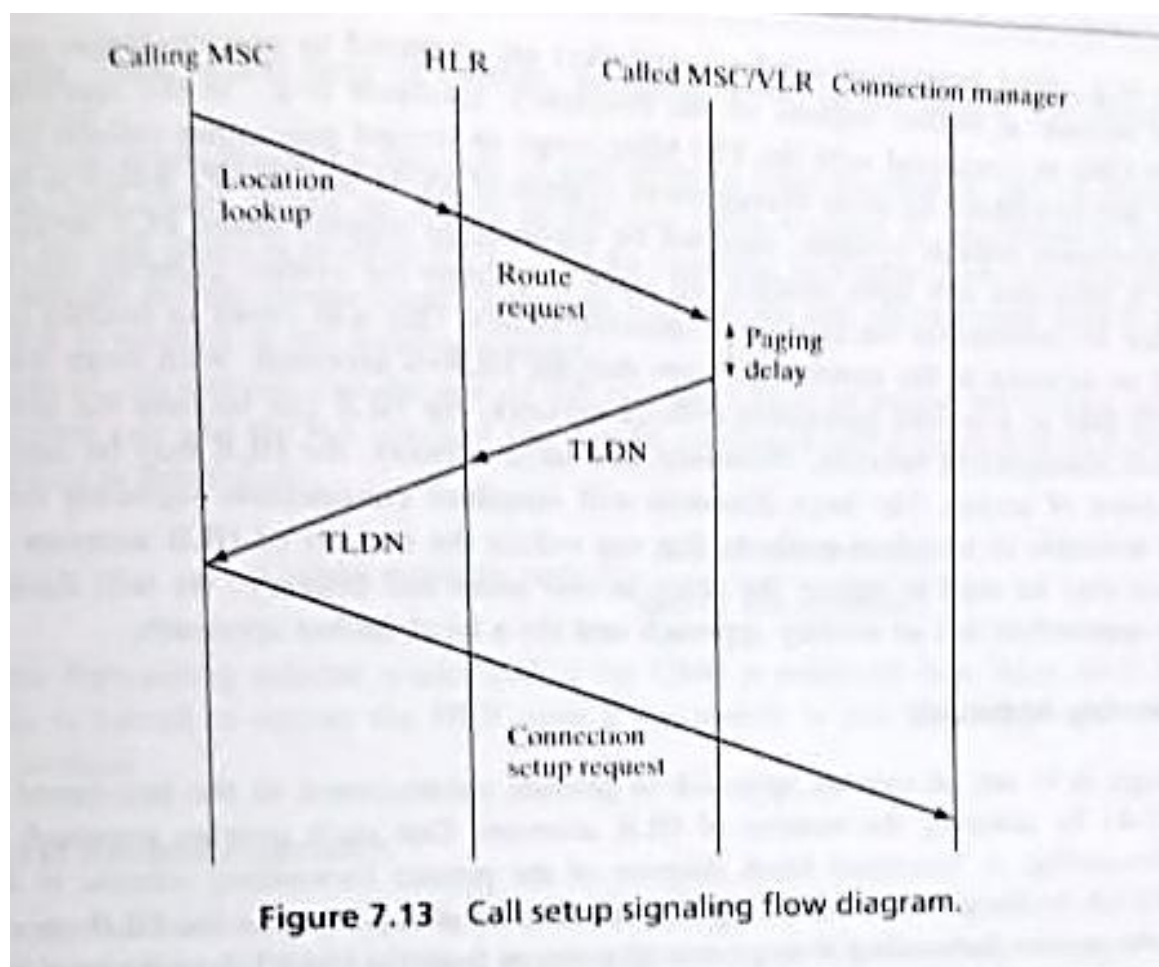


Figure 7.13 Call setup signaling flow diagram.

The above call setup procedure establishes a linkage between the calling MSC and the called MSC. In general, the called MSC only knows that the called mobile is in the RA under its jurisdiction, but does not know in which cell the called mobile is located. A *paging* procedure is needed to locate the called mobile.

Paging Procedure. Paging is a means of locating a mobile within a registration area. There may be different approaches to performing paging. A commonly used approach is *polling*. To locate the called mobile using the polling mechanism, the called MSC broadcasts a polling message, which contains the MIN (mobile identification number) of the called mobile, to all cells within the RA. The BS of each cell relays the paging message to the mobile terminals. Upon receiving the paging message, the called mobile responds to the called MSC, through its currently serving BS, with the base station ID of its current cell. The called MSC then knows where to forward the call.

The second generation wireless systems mainly support voice communications. It is anticipated that future wireless systems, called *personal communication service* (PCS) systems, will support multimedia services at transmission rates that are orders of magnitude larger than that for voice. The two-tiered architecture of IS-41 and GSM's MAP may not be adequate.