

### CALL & MOBILITY MANAGEMENT

### **Connection Management**



### What is Connection Management?

Connection Management enables different CM sub-layer entities to communicate with their pier entity using different MM connections.

Different CM sub-layer entities use different MM connections.

Different MM connections are identified by Protocol Discriminator PD and, additionally by Transaction Identifier TI.



# Phases of Mobile To Land Call ( Mobile Originated Call- MO Call )

- SETUP PHASE
- RINGING PHASE
- CONVERSATION PHASE
- RELEASE PHASE



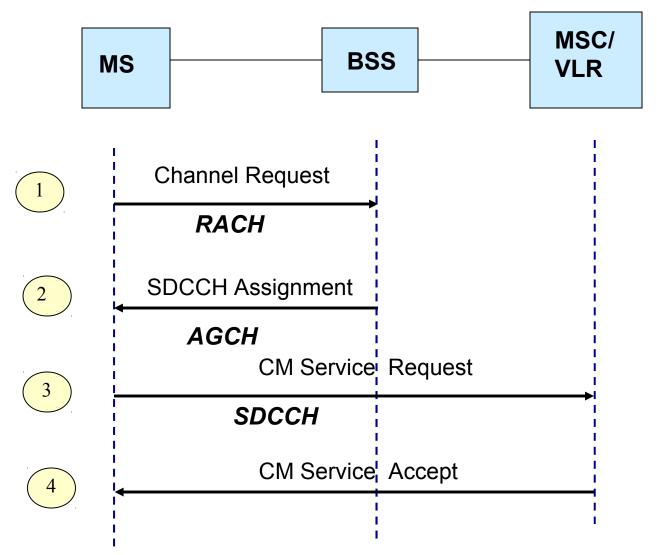
### SETUP PHASE

- REQUEST FOR SERVICE (CHANNEL) BY MS
- CM SERVICE REQUEST
  - AUTHENTICATION
  - CIPHERING
  - EQUIPMENT VALIDATION (EIR CHECK)
  - SETUP MESSAGE
  - VALIDATION AT VLR
  - ASSIGNMENT

### **MOBILE TO LAND CALL - 1**









### CM SERVICE REQUEST

- The Call Control (CC) entity of MS initiates the establishment of CC connection by requesting MM sub-layer of the mobile to establish MM sub-layer connection.

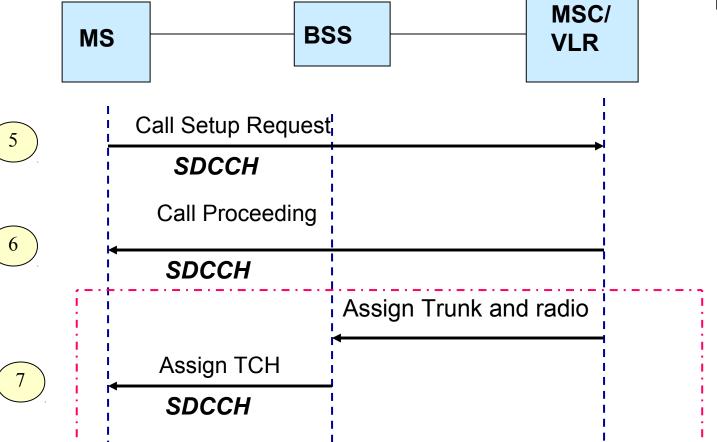
- Upon establishment of MM connection CM SERVICE ACCEPT message is received from n/w.

### SETUP MESSAGE

- CC entity sends a setup message to its peer entity.

## MOBILE TO LAND CALL - II Call Setup

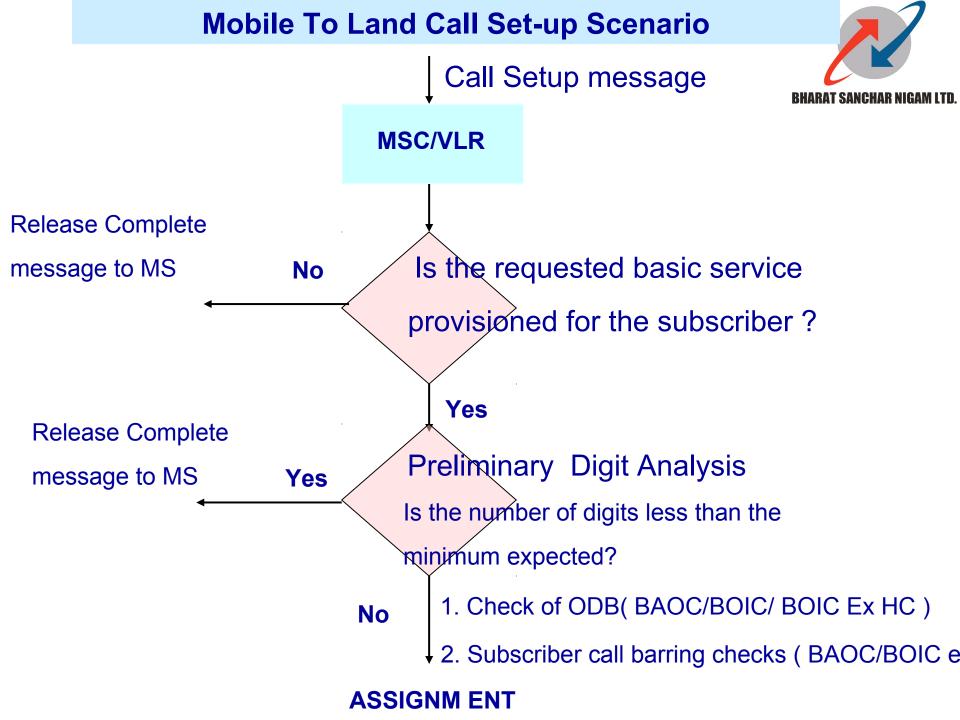




Trunk and Radio Assignment Complete

Radio Assignment Complete

**SDCCH** 





### ASSIGNMENT

- A BSSMAP message 'Assignment Command' is sent by MSC to BSS.
- The message contains a free CIC on A-Interface for terrestrial channel allocated by MSC.
- A free TCH is allocated by the BSS and MS is informed to attach to this TCH.
- On receiving a response from BSS MSC switches the speech path towards the calling MS.

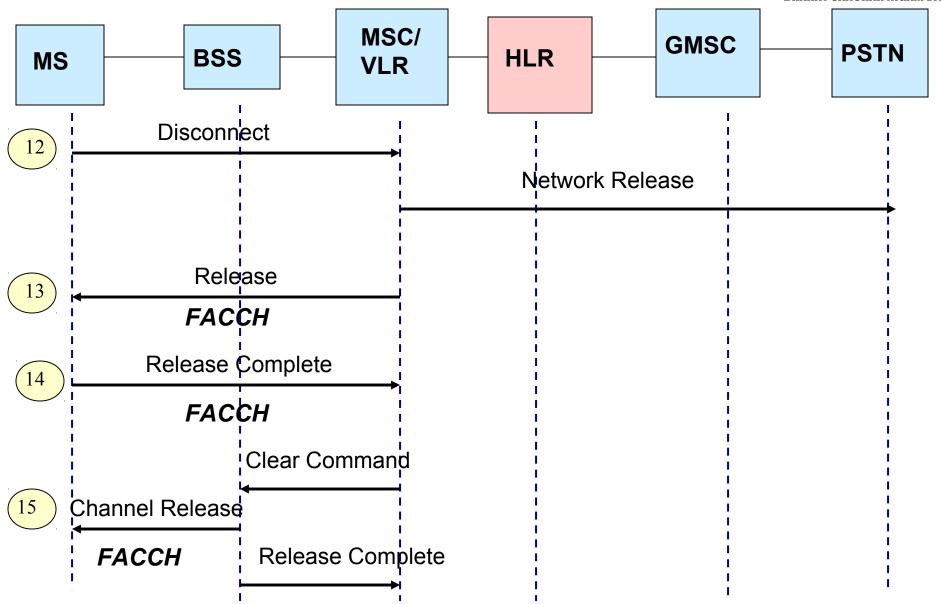
Note: Mobile has not connected user connection as yet.

### **MOBILE TO LAND CALL - III** Call Setup MSC/ **GMSC PSTN BSS HLR** MS **VLR** Network Setup (Dialed Digits) **Network Alerting** Alerting Connect **FACCH** Start Billing Connect 10 **FACCH** Connect Acknowledge **FACCH**

### **MOBILE TO LAND CALL - IV**

### **Call Release**





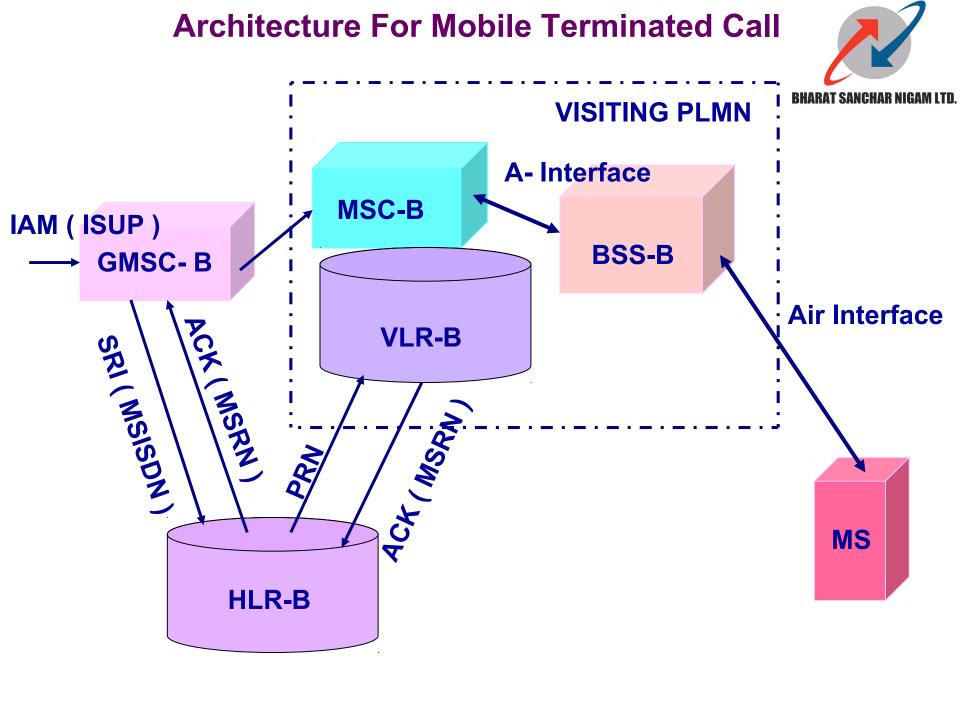
### **Land To Mobile Call Set-up Scenario**

# RHARAT SANCHAR NIGAM LTD

## Phases of Land To Mobile Call

( Mobile Terminating - MT Call )

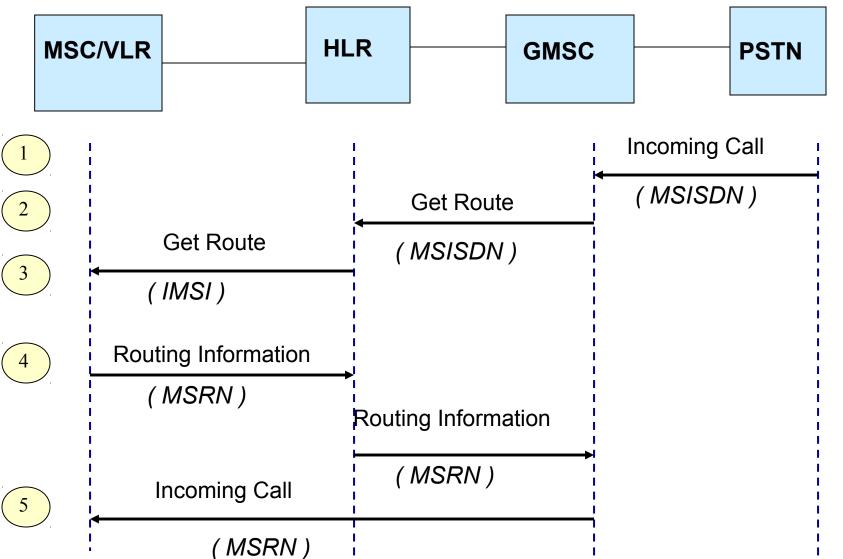
- Routing Analysis
- Paging
- Authentication
- Ciphering
- Call-Setup
- Call Release



### **LAND TO MOBILE CALL - I**

### **Routing Analysis**

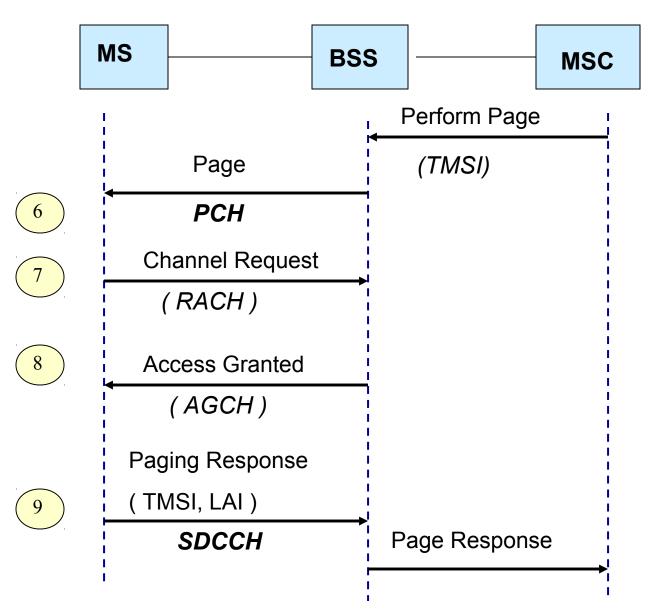




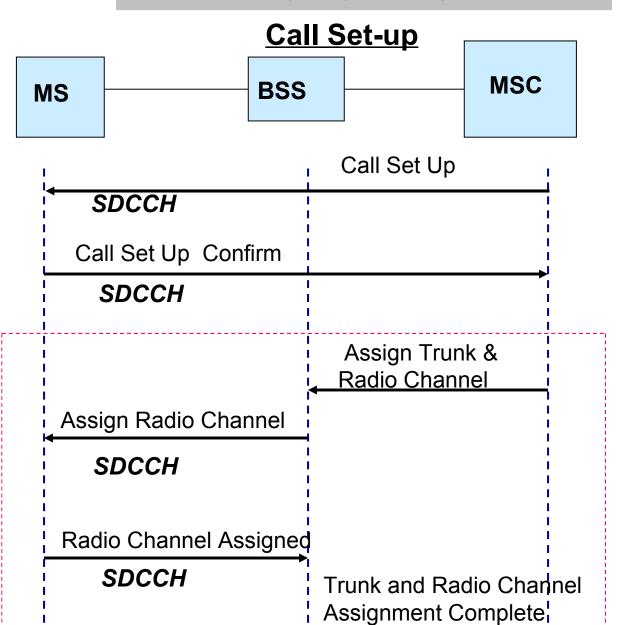
### **LAND TO MOBILE CALL - II**



### **Paging**

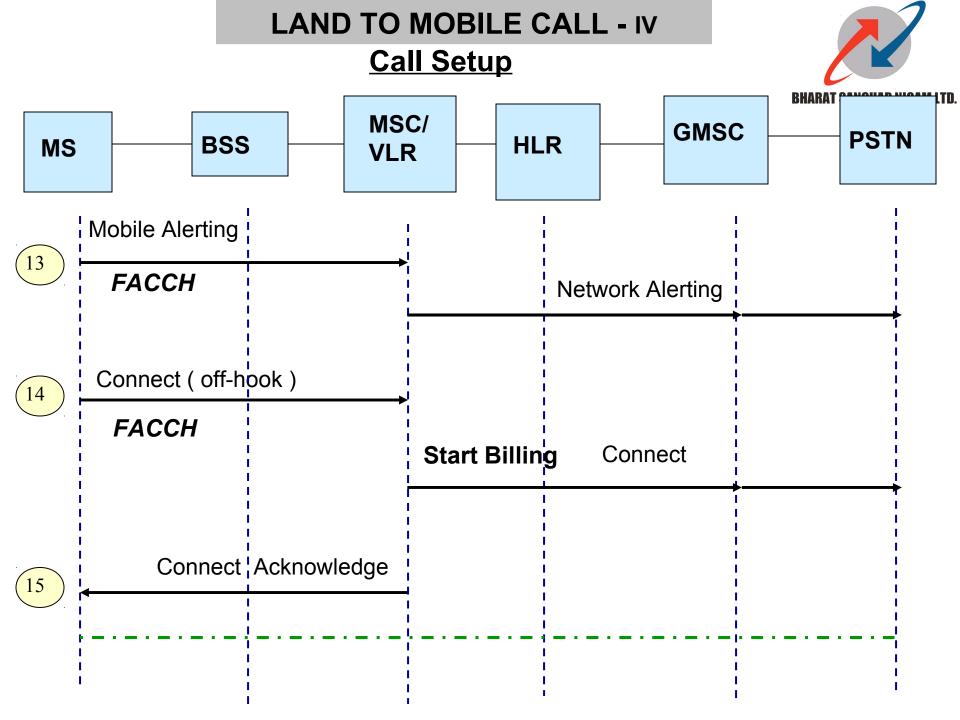


### LAND TO MOBILE CALL - III



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### LAND TO MOBILE CALL - V **Call Release** MSC/ **GMSC PSTN BSS HLR** MS **VLR** Network Release Disconnect 16 Stop Billing **FACCH** Release Release Complete **FACCH** Release Complete 18 **FACCH** Clear Command Clear Channel Clear Complete **FACCH**

### Mobile To Mobile Call Set-up Scenario

# BHARAT SANCHAR NIGAM LTD.

## Phases of Mobile To Mobile Call

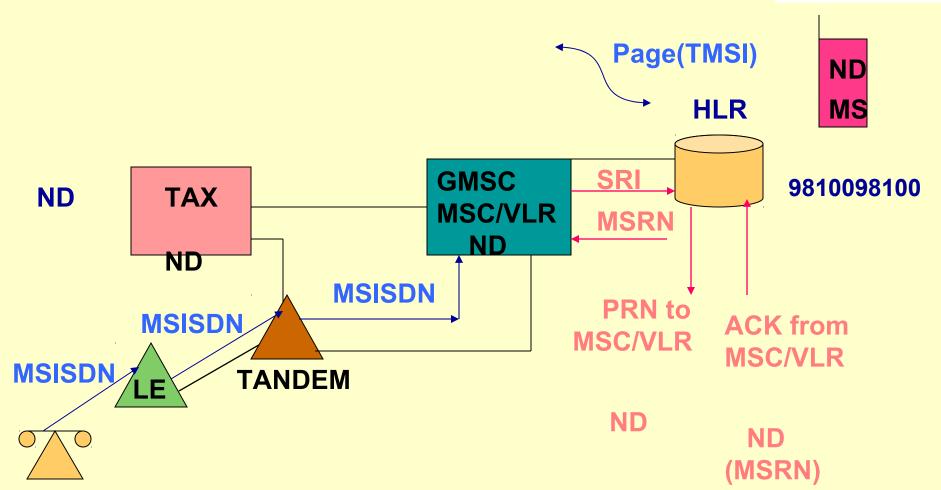
- Request for service.
- Authentication
  - Ciphering
  - Call-Setup
  - Call Release
- Routing Analysis
- Paging
- Authentication
- Ciphering
- Call-Setup
- Call-Release

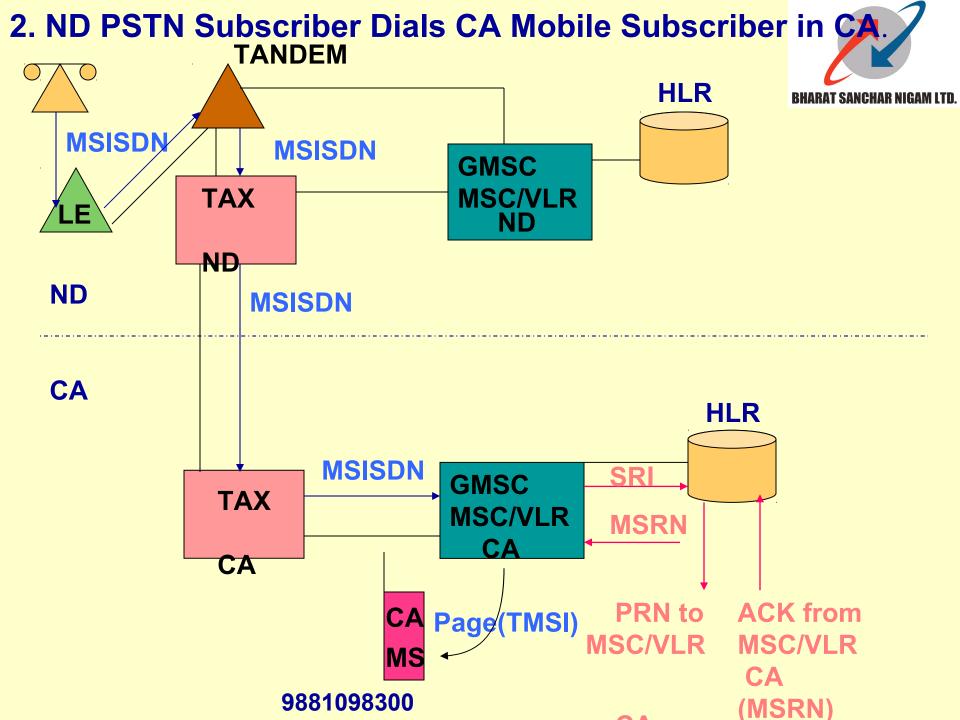
**Mobile Originating** 

Mobile Terminating

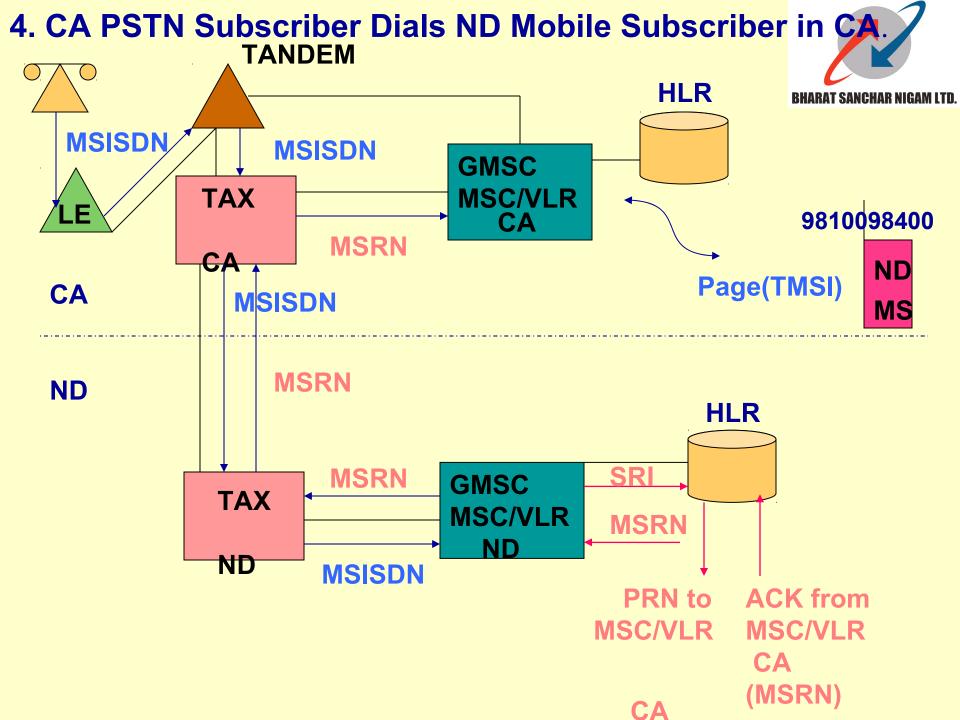
### 1. ND PSTN Subscriber Dials ND Mobile Subscriber in ND







#### 3. ND PSTN Subscriber Dials ND Mobile Subscriber in CA. **HLR** AR NIGAM LTD. **GMSC** ND **TAX** MSC/VLR MS **MSRN** CA 9810098200 CA Page(TMSI) **MSRN** HLR **MSRN GMSC** ND TAX MSC/VLR **MSRN** ND ND **MSISDN** PRN to ACK from **MSISDN** MSC/VLR MSC/VLR **MSISDN TANDEM** CA (MSRN) CA



#### 4.A CA PSTN Subscriber Dials ND Mobile Subscriber in CA Roaming agreement with Optimal Routing TANDEM HLR Page(TMSI) **MSISDN** ND **MSISDN GMSC** MS **TAX MSC/VLR** 9810098410 CA SRI CA **MSRN** CA ND HLR **GMSC** TAX MSC/VLR ND ND **ACK from** PRN to MSC/VLR MSC/VLR CA



### **THANKS!**