

GSM Roaming, Fraud in International Roaming and Fraud Preventions Techniques



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Roaming is defined as the ability for a cellular customer to automatically make & receive voice calls, send & receive data, or access other services when travelling outside the geographical coverage area of the home network, by means of using a visited network.

Roaming is technically supported by mobility management, authentication and billing procedures. Establishing roaming between network operators is based on - and the commercial terms are contained in - Roaming Agreements.

If the visited network is in the same country as the home network, this is known as National Roaming. If the visited network is outside the home country, this is known as International Roaming (the term Global Roaming has also been used).

If the visited network operates on a different technical standard than the home network, this is known as Inter-standard roaming.

GSM Roaming, which involves roaming between GSM networks, offers the convenience of a single number, a single bill and a single phone with worldwide access to over 218 countries*. The convenience of GSM Roaming has been a key driver behind the global success of the GSM Platform.

As the service needs billing of Mobile number even they are not in their home network The Visited network needs to update the calls and charge as per their tariff and acknowledge the Home network. To

make the trade between operators there should be one international trade association and the association is called as GSMA (GSM association)

GSMA is a global trade association representing over 720 GSM mobile phone operators across 218 countries of the world. There are currently over 2.2 billion GSM customer worldwide

The GSMA aims to accelerate the implementation of collectively identified commercially prioritized operator requirements and to take leadership in representing the global GSM mobile operator community with one voice on a wide verity of Issues, nationality regionally and globally.

GSMA has defined various working group. The scope of these groups is considerable, reflecting the sophisticated and thorough approach to the maintenance and the growth of the GSM family of wireless communication platform

Among the various group the **Transferred account data interchange group (TADIG)** has been formulated and the main focus of the TADIG is to develop and maintain the data related CDR interchange specifications facilitating inter operator billing, financial settlement and fraud monitoring for international roaming purpose

Tadig is responsible for the following specifications:

- Transferred account procedure (TAP3), the exchange of wholesale billing information.



- The roaming agreement electronic exchange (RAEX)-The exchange of international roaming agreement (AA.14) data
- Electronic invoice Data (EID)-the exchange of inter operator invoice data
- Near real time roaming Data exchange (NRTRDE)-the exchange of roaming usage detail.

Similarly one more group has been formulated for the International fraud Known as **Fraud Forum – FF**. The main focus of the fraud forum is to identify and analyze the various techniques that are used throughout the world to perpetrate fraud against member networks and to recommend practical cost effective solutions. The fraud forum monitors the reports on all types of cellular fraud breaches through out world.

Roaming Fraud Facts and figure

Fraud has affected telephone operators since the very inception of the public communications networks. In the communications and IT boom of 1999 and 2000, fraud losses were tolerated by many operators as the revenue generated by their rapidly increasing customer base easily overshadowed them. Now the fraud is a global problem that can no longer be ignored in the current climate. It has been estimated the fraud problem is worth between \$12bn and \$55bn per year globally, with companies losing anything up to 15% of their total annual revenue to criminals.

Please refer to URL <http://www.mindbranch.com/listing/product/R144-062.html> and GSMA report says International Roaming fraud is currently running at 24% of the total fraud that leads to figure as \$2.88bn fraud.

Based on the above fact GSMA and with various report from **Fraud forum FF** the **Transferred account data interchange group (TADIG) group** has suggested that the new system should be implemented on top of exchanging

wholesale billing information (TAP3) is **Near Real Time Roaming Data Exchange (NRTRDE)**.

NRTRDE provides a new method for monitoring the customers' activities in the VPMN (Visited Public Mobile Network) networks, and enables the HPMN (Home Public Mobile Network) to detect unauthorized network usage and other fraud issues near real time.

The GSMA has decided that the NRTRDE must have to be implemented by all Operators who are member of GSMA and should be started by 1-Oct-2008.

Nepal Telecom has currently roaming partners from 41 countries and 116 operators around the world. Nepal Telecom is using solution provided by ACECOMM for roaming module which includes Rating of Inbound Roaming calls processing and generating TAP3.4 files similarly, the offered roaming module also receives the TAP3.4 Files from NT's partners through NT's Roaming **DATA CLEARING HOUSE (DCH)**, process and load to billing system database for generating Invoices of NT's customer.

Nepal Telecom currently as agreement with Roaming partner to send/receive Tap files per day so the charge of each roaming calls will be updated to HPLMN only after 24 hours. The risk of fraud lies with in the duration. The GSMA recommendation of NRTRDE suggests that the any calls made on VPLMN must be updated to HPLMN with in 4 hours.

Hence even though NT does have significant fraud on Roaming for the future and as the member of GSMA NT has to implement NRTRDE solution along with Roaming application currently running. Since the Roaming software of NT does not have capability to send/receive NRTRDE files along with TAP3.4 files, the existing Roaming application has to upgrade and the process for upgrading the system is already starting by asking to the solution/quotation with Existing Roaming module vendor, Existing Data clearing house and also with other various roaming solution providers. ●