



Connectivity - Community - Commerce

Border Roaming Gateway

GSMA LATIN AMERICA
Plenary 38
Mexico City, Mexico



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Border Roaming Realities



- Mobile Coverage on borders overlap across countries and license areas
- Subscribers living in the vicinity of the border areas have access to roaming coverage in their home network
- Roaming coverage in home network areas causes customers to inadvertently latch on to roaming network

Inadvertent Border Roaming – Customer Perspective

Causative Factors

- Countries with numerous Islands and poor border coverage
- Densely populated border areas
- Landlocked countries with multiple well developed border areas
- Operators are getting national roaming agreements signed with partner networks



Bleak accidental roaming Regulations

accidental roaming*

During the discussions on the proposal for a common regulatory framework for electronic communications networks and services, the Polish-German border constituency (two regions on the Polish-German border) drew my attention to the issue of "accidental roaming".

Accidental roaming involves involuntary connection to a foreign network when using one's mobile telephone in a border region. This is a feature of the mobile phone operator in the neighbouring country and, as a result, the subscriber is charged for international roaming.

Operators asking subscribers to change SIMs for national roaming

SIM based accidental roaming prevention

Mobile subscribers, traveling or living near borders, often inadvertently roam onto visited cellular network while still in their homeland, incurring international roaming charges in the process. Accidental roaming is a feature occurring also on a national level where several PLMNs (Public Land Mobile Networks) are present in one country. The results: accidental high-tariff roaming.

Operators sending SMSs to subscribers to change their network

Prevent Accidental Roaming

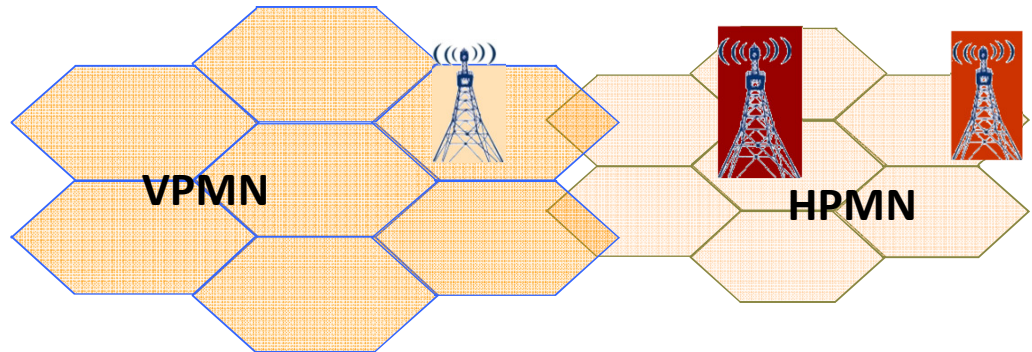
Important: your mobile phone may automatically log onto a Spanish operator's network even when you are in Gibtelecom's mobile coverage area. It is therefore recommended that you regularly check the network selected on your mobile phone to avoid accidental roaming which would result in higher call charges for both outgoing and incoming calls. It is further recommended that you manually select the "GIBTEL" network on your mobile phone's menu as an extra precaution. Please note that refund claims for accidental roaming will not be entertained by Gibtelecom.

Customer Related Issues

- High roaming charges consequent to inadvertent roaming
- Customer disputes, dissatisfaction and potential churn
- Customer Service Costs
- Usage Reversals

Conventional Approach

- Add BTS in Border Areas
- Manual Network Select Advisory



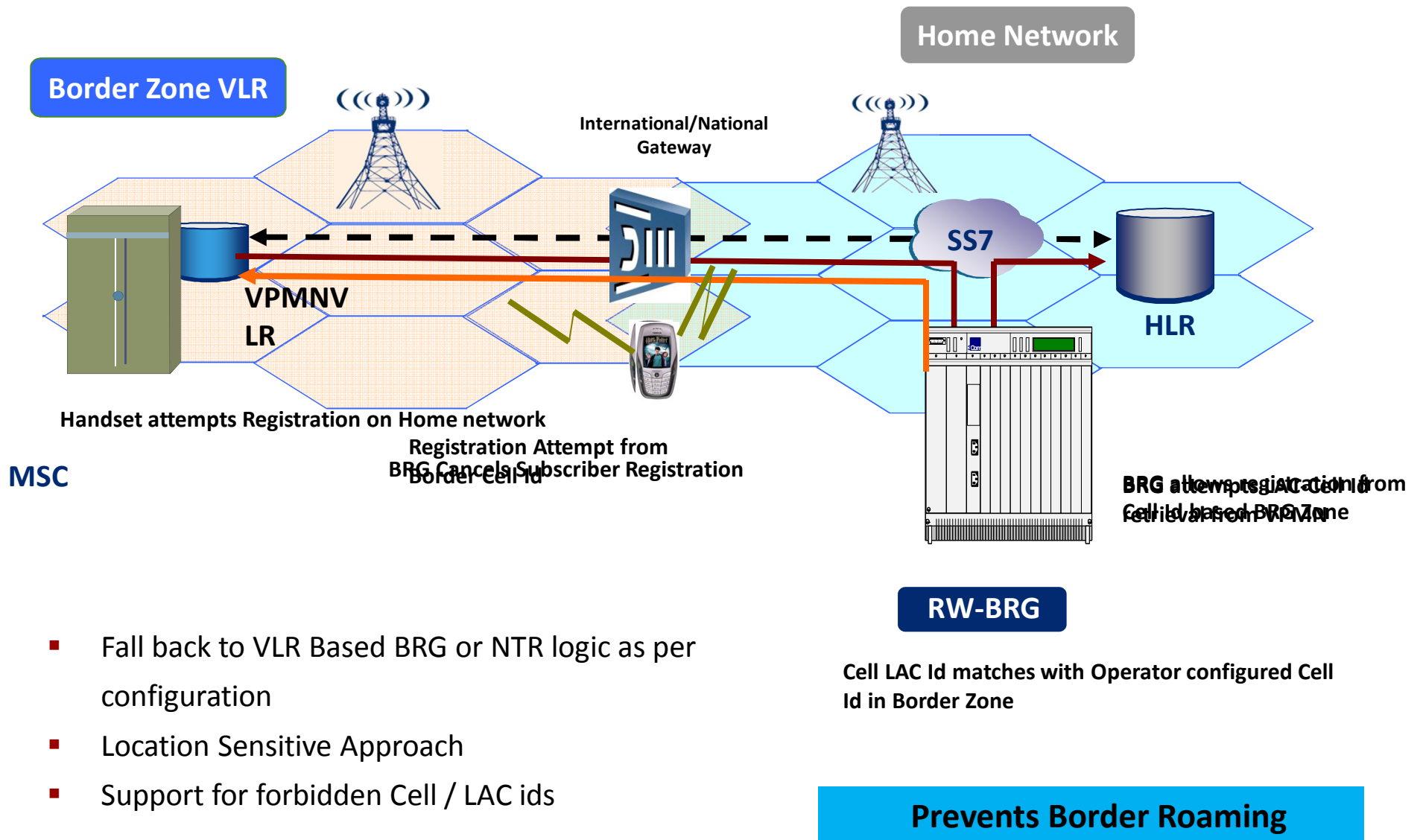
Merits

- Increased coverage for subscribers
- Can prevent roaming usage

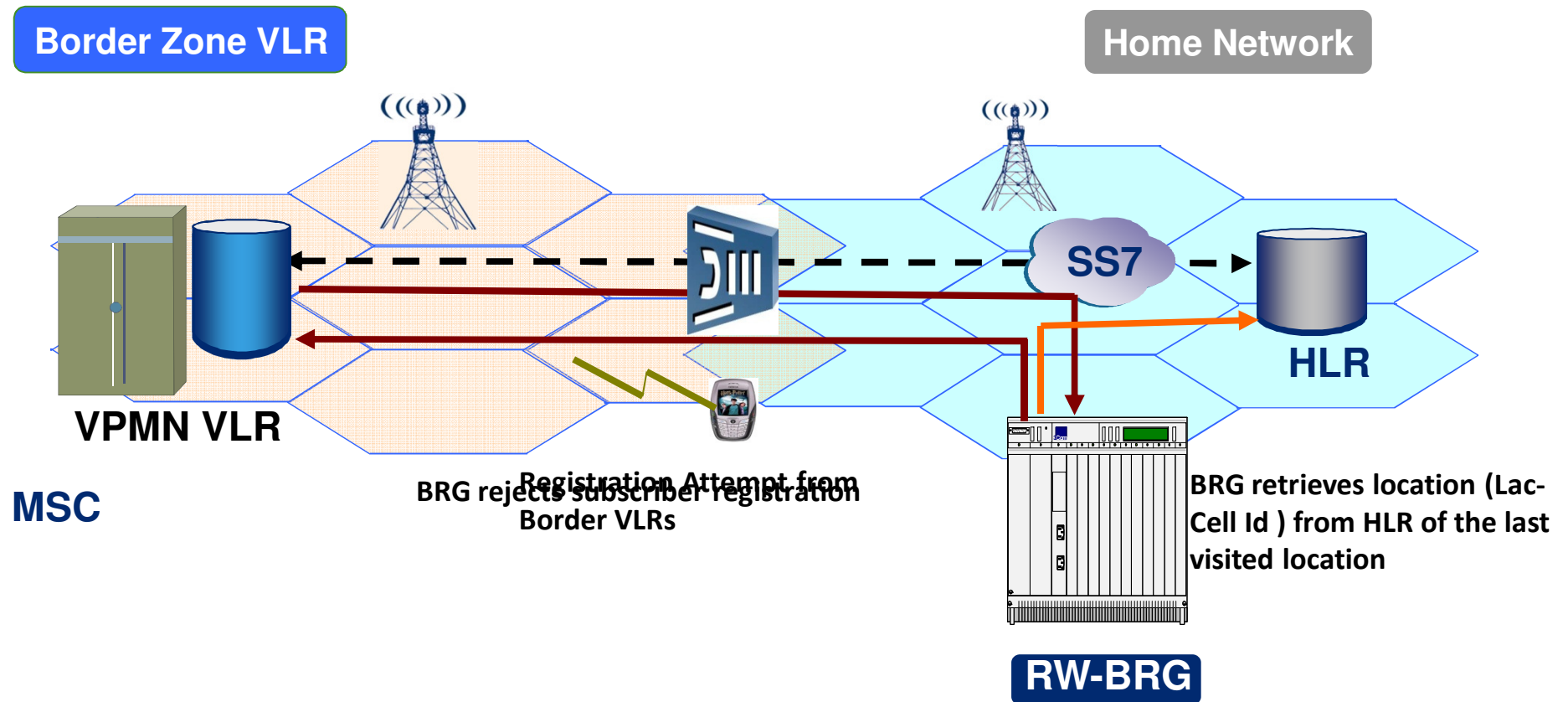
Demerits

- Additional CAPEX and OPEX of BTS
- Higher chances of violation of Regulatory Requirements
- Impact coverage at times in the areas of poor network coverage

Border Roaming Gateway™ - Cell / LAC ID Based



BRG™ – Previous Cell ID Based

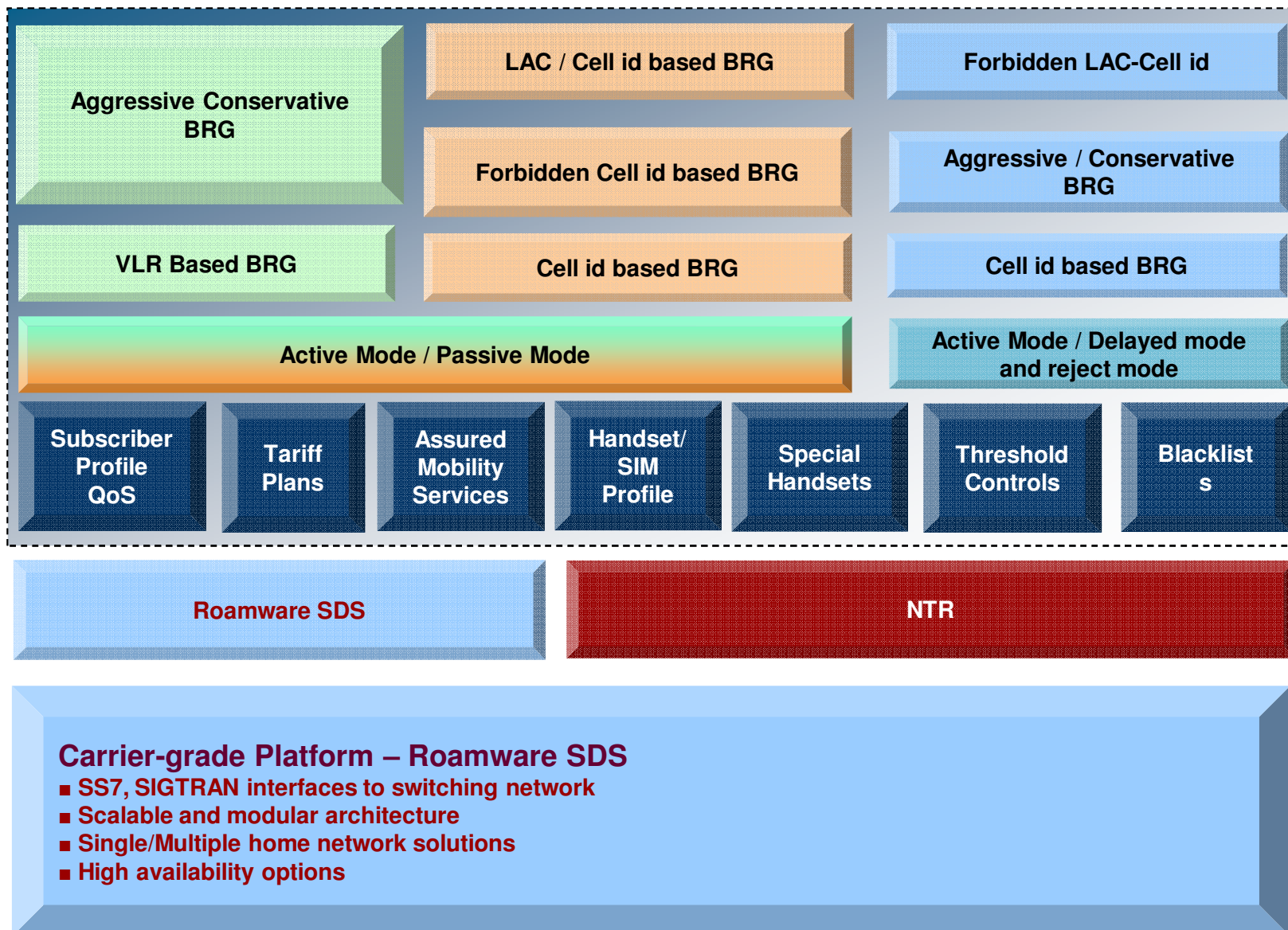


- Fall back to VLR Based BRG or NTR logic as per configuration
- Location Sensitive Approach
- Departing only however HPMN cell

Lac-Cell Id matches with Operator configured Lac-Cell Id for a Border Zone

Prevents Border Roaming

BRG™ – Features Summary



Border Zone Definition

Bar Time

Reject Limits

Network Association

BRG Mechanism

Traffic Redirection > BRG Zone Management

Search BRG Zone **Add Border Zone**

Search / Edit >> Modify BRG Zone

Border Zone Details

Selected Home: **MediTel (604,00)**

Border Zone Name: **Algeria Border (10001)**

Time Zone: **Africa/Casablanca** BRG Enabled: ☒

Bar Time (HH24:MI): From **09:00** To **10:00**

Throttle Control

*Default Daily Reject Limit: **0+**

0+:No Rejection Limit 0:No Rejection 1-N : Reject Only N

Time Bands (HH24:MI)	Reject Limit	Reset
From 08:00 To 09:00	100	<input type="checkbox"/>
From 00:00 To 00:00	0+	<input type="checkbox"/>
From 00:00 To 00:00	0+	<input type="checkbox"/>

Associate VLR/SGSN with the Border Zone

List of Free VLR / SGSN

- 324869100177(S) [KPN Orange Base(206,20)]
- 32495276565(V) [Mobistar(206,10)]
- 32495276567(S) [Mobistar(206,10)]
- 32495276569(V) [Mobistar(206,10)]
- 346079999777(V) [Vodafone Spain(214,01)]

Selected VLR/SGSN

- 21371982727(S) [Djezzy(603,02)]
- 2137198272735(V) [Djezzy(603,02)]
- 2137198272898(S) [Djezzy(603,02)]

Associate CoS with the Border Zone

Available CoS: **select any....** **+ Add**

CoS Name	BRG Mechanism	Aggressive	TMax (sec)	Tcl (sec)	Tnoact (sec)	NMax	Modify Mechanism	Delete
ZONEDEFAULT	Cell ID based BRG	<input checked="" type="checkbox"/>	300	300	40	2	Modify	<input type="checkbox"/>
Blackberry	VLR based BRG	<input type="checkbox"/>	600	200	40	2	Modify	<input type="checkbox"/>
GPRS	Cell ID based BRG	<input checked="" type="checkbox"/>	600	200	40	2	Modify	<input type="checkbox"/>

Delete

☒ Save ☐ Reset

Summary

For Mobile Operators

- Plugs revenue leaks to border networks
- Easy integration with Roamware NTR™
- IR 73 compliant
- Offers effective, flexible and easy to deploy solution
- Centralized deployment with no customer dependencies
- Works in national and international borders

For Subscribers

- Protection against inadvertent roaming usage





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Thank You !!!

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