

International Mobile Roaming

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**A presentation to the
WTO Symposium on International Mobile Roaming**

22 March 2012



What is International Mobile Roaming?

- Customers can seamlessly continue to use their mobile phone and phone number to make and receive voice calls and text messages, as well as browse the internet and check emails, whilst visiting another country
- The *home operator* bills their retail customer for making and receiving voice calls, sending text messages and internet services while roaming on a *host operator's* network in another country
- As a mobile service, it is another retail service such as voice calling, text messaging or accessing the internet when at home. The unique feature of international mobile roaming (IMR) is that the home operator extends the coverage of these mobile services to another countries
- IMR is offered in a market for communication services while travelling. Wide selection of communication services while travelling abroad includes prepaid SIMs and WIFI in visited country, travel SIMs, and others as well as IMR



What do IMR Retail Customers Pay For?

- Receiving calls or text messages whilst roaming in another country
 - If you are called or receive a text message whilst roaming, the caller or sender of the text message pays the same charges as if they were calling or texting whilst you were in your home country
 - The international portion of the roaming call is charged to you by your home operator
- Making calls, sending a text message, or internet browsing whilst roaming in another country
 - When you make a call, send a text message, or browse the internet whilst roaming, you will bear all costs of making the call, and the called party pays nothing

Assumes the other party is in your home country and not roaming internationally



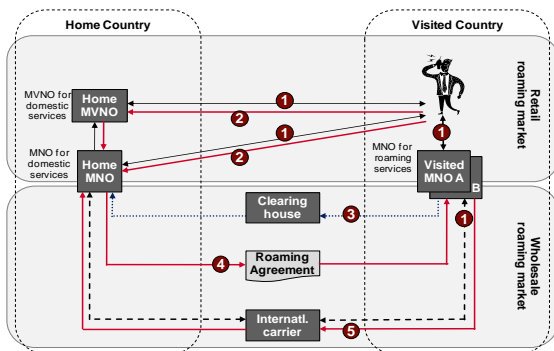
Overview of IMR Technology and Operations

Complex links between operators are required for customers to seamlessly use their mobile phones outside the home country

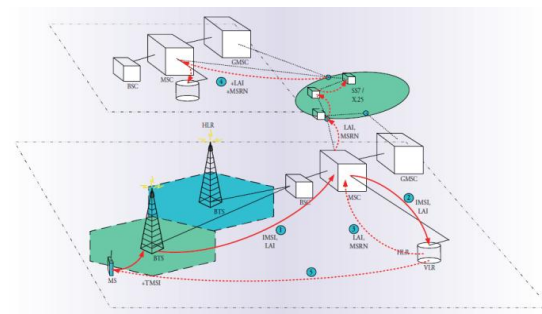
Seamless customer experience



Commercial links



Technical links



Inputs to Mobile Services Including IMR

Inputs are not only used for IMR but also other mobile services:

- Mobile termination
 - Mobile termination rate is the price paid for terminating a call on a mobile operator's network. Mobile termination rates are regulated in most jurisdictions
- International transit
 - Transport on international networks of voice calls or text messages, as well as internet traffic
- Mobile handsets
- Billing systems and process
 - Costs recovered by your home network to cover things such as billing arrangements
- Traffic management platforms
- Marketing
- Customer care, fault management



Inputs to IMR Services

Inputs specific to IMR:

- IMR wholesale service
 - Includes the commercial fees the host network charges the home network for enabling the home network's customer to connect to and roam on the host network
 - Commercial incentives are competitively negotiated – e.g. discounts on volume of traffic passed between operators, and the direction net traffic
 - Wholesale charges also differ between operators, as network build costs and operational costs are likely to differ

- Network related cost elements
 - Data Clearing House fees
 - Home Location Register & Visitor Location Register
 - SMS welcome servers (e.g. welcome messages and pricing updates)
 - Fraud prevention measures (e.g. prepay Camel platform)

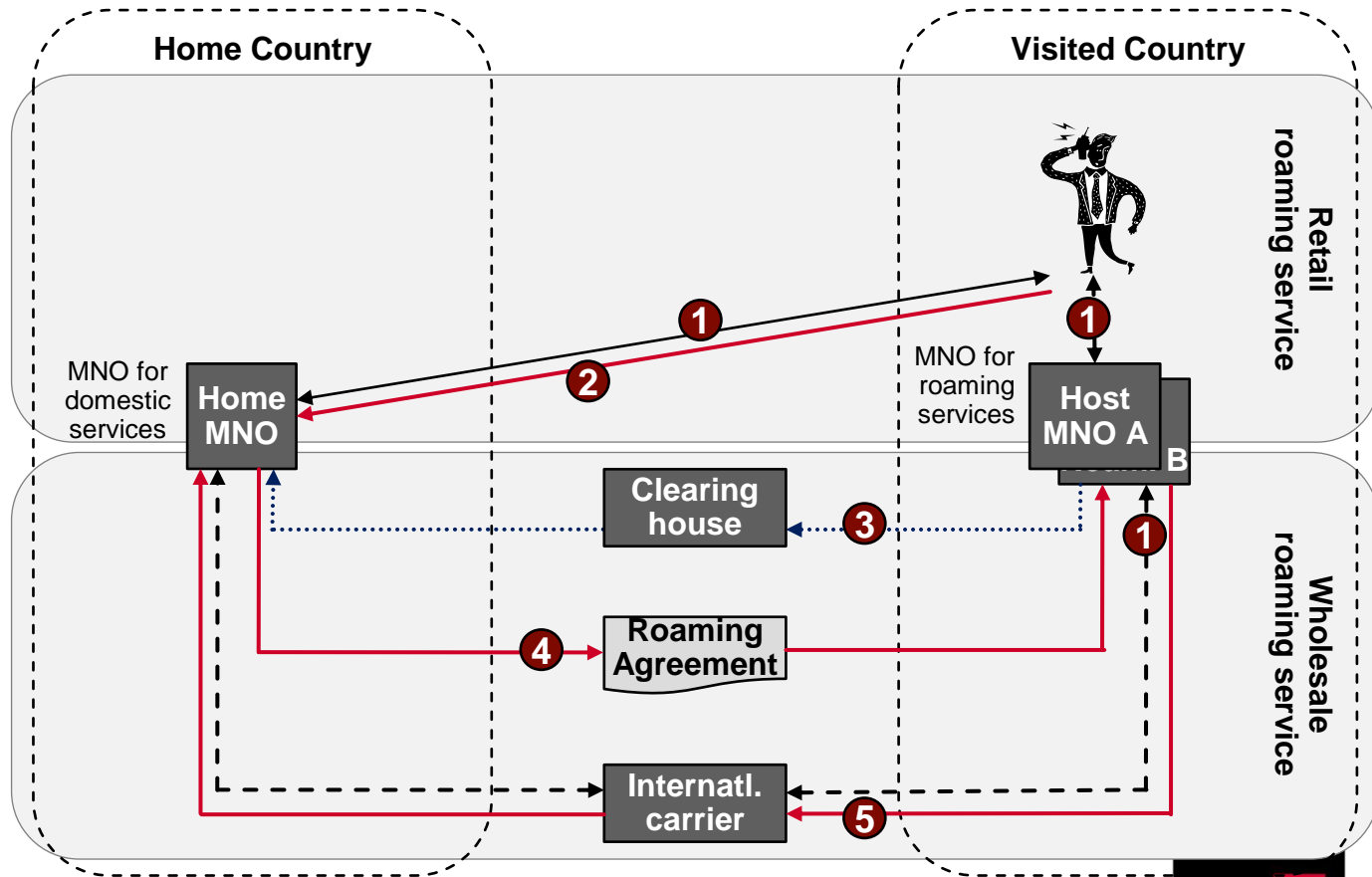


IMR Wholesale Traffic and Payment Flows

Commercial links required for international mobile roaming

- 1 Roamer makes a call back home via roaming offered by home MNO, using the host network, which in turn uses international carriers to transport the call
- 2 Roamer pays a retail price to the home operator (receiving party does not incur any charges)
- 3 Host network sends TAP file to the Clearing House and forwarded to the home operator on a consolidated basis
- 4 Home operator pays host operator wholesale charges as per volumes in the TAP file and rates in the roaming agreement
- 5 Host network pays the international carrier and the international carrier in turn pays a termination rate in the home country

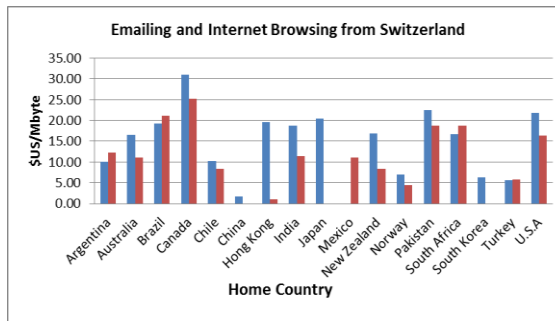
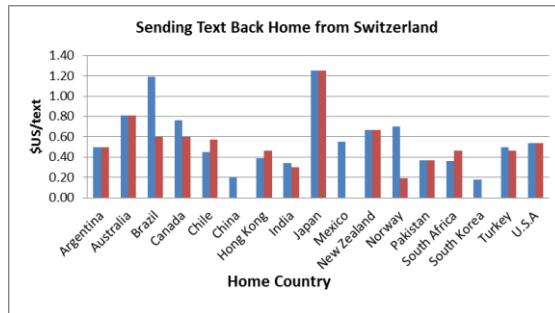
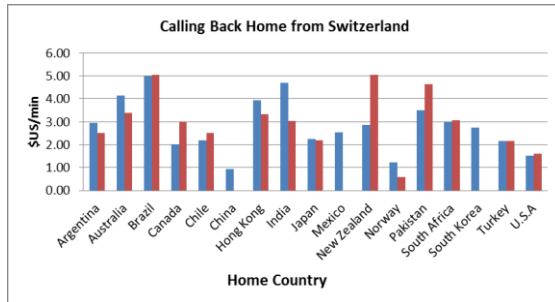
- Roaming services
- ← - - - Traffic flow
- Revenue flow
- Data exchange



TAP: Transferred Account Procedure
Source: A.T. Kearney analysis



Variation of IMR Rates



■ Operator A ■ Operator B

- Graphs shows high and low roaming rates – e.g. visited country is Switzerland
- Graphs shows that rates differ between countries – e.g. visited country Switzerland
- The graphs show a wide range of roaming rates between countries:
 - Max. call price (US\$5.04/min.) is 5 times min. call price (US\$0.93/min.)
 - Max. text price (US\$1.25/min.) is 7 times min. text price (US\$0.18/min.)
 - Max. data price (US\$30.95/MB) is 29 times min. data price (US\$1.07)
- Acknowledge some higher rates, however there is clear evidence of lower rates
- Why is there such a variation?



Factors That May Explain Variation

Domestic factors that might explain different roaming rates:

- Tariff structure of retail bundles that include domestic call, text messaging and internet access
- Per capita income
- Percentage of population that travel internationally
- Growth in tourism and business travel
- Mobile penetration rates
- Different growth rates in mobile penetration
- Differences and level of demand for travel to different destinations
- Structural factors: double taxation, international gateway liberalisation, prepaid route availability

International factors that might explain different roaming rates:

- Mobile termination (which may also be a domestic factor)
- Access of substitutes (which may also be a domestic factor)
- International transit
- Wholesale roaming rates

The GSMA Information Paper: *Overview of the Global Roaming Market outside of the European Union* provides data that highlights the differences between countries.



Tariff Innovation

- The range in roaming rates extends to a diversity in tariff structures
- The Annex includes a list of roaming tariffs from various countries from round the world
- There is a diversity of IMR tariff structures:
 - Price discounts depending on the level of expected usage
 - Price discounts depending of the term of contract (day, week, month)
 - Prices based on using preferred networks
 - Prices linked to either host or home country domestic prices
- Mobile operators are competing on price innovation
- This means it can be misleading to measure or compare prices on a simple \$X/min or \$X/Mbyte bases

Concluding Remarks

- IMR is a retail service offered by home operators to their domestic customers
- IMR extends the geographic coverage of calling, text messaging, and internet browsing services while travelling abroad
- There are differences in retail prices for roaming services between countries. Some countries have higher roaming rates and some have lower
- These differences can relate to the market conditions in the consumer's home country and international factors
- There is a rich diversity of innovative IMR packages available which is a good indicator of competition for communication services while travelling.

Annex – Examples of Innovative Tariffs (Page 1)

Operator	Roaming Tariffs	Coverage
2degrees (New Zealand)	Data: €0.76/MB Text: €0.64/text Voice: €0.35/min	Australia
2degrees (New Zealand)	Data: €12.51/month for 10 MB Data: €46.90/month for 50 MB Data: €62.54/month for 100 MB	Australia, UK, USA
Airtel (Nigeria)	One-Network: Low incoming rate in destinations where Airtel is operating i.e. lowest rate offered is € 0.02/min	Kenya, Malawi, Uganda, Zambia
Axiata (Asia Pacific)	Voice: Single rate for all voice calls that include Calling Home, Calling Local, Incoming Calls and Sending SMS on Axiata network. Data: Daily unlimited data roaming with a fixed rate per day on Axiata network.	Indonesia, Sri Lanka, Bangladesh, Cambodia, Malaysia
Du (UAE)	“One World One Rate” – single preferential rate across the GCC Voice: €0.21 for local & incoming	GCC countries – Oman, Bahrain, Saudi Arabia, Qatar, Kuwait
Etisalat (Nigeria)	“Easy Pass” make and receive calls , send and receive SMS at a uniform rate irrespective of the visited country.	Benin Republic, Togo, Niger, Gabon, Central African Republic and Cote D'Ivoire
Etisalat (UAE)	Outgoing local call €0.21 Incoming voice roaming, flat rate packages in bundles of (€12.37) 30 minutes, (€30.93) 100 minutes, and (€41.23) 200 minutes per month.	Arab countries, Global

Annex – Examples of Innovative Tariffs (Page 2)

Operator	Roaming Tariffs	Coverage
Vodafone (Europe)	Smartphone roaming in Europe, €2 per day plus domestic price plan (50 MB), UK £40 and higher price plans include up to 25 MB of daily roaming in Europe	Markets in European Union with Vodafone presence
Bridge Alliance (Asia Pacific)	Bridge DataRoam, Data: €7.25/day, €19.6/3 days, €29/5 days for unlimited data roaming for postpaid customers Bridge AsiaRoamData SIM, Data: universal prepaid SIM for unlimited data roaming at €8.70/day	11 Asia-Pacific countries for postpaid customers 11 countries for prepaid data roaming SIM
Batelco (Bahrain)	Batelco World Freedom Free incoming calls	Partner networks in Albania, Jordan, Iraq, Saudi Arabia, Sudan, Slovenia, Slovakia, Serbia, Norway, Nigeria, Mozambique, Moldova, Luxemburg, Ivory Coast, Ghana, Georgia, Estonia, Croatia, Bosnia & Herzegovina, Armenia, Algeria
Batelco (Bahrain)	Data: Local unified roaming rates at €1.19/MB	GCC countries, Jordan, Yemen, Egypt, and Spain, UK, Ireland, Czech Republic, Australia
Qtel (Qatar)	SmartRoamer: Voice: €0.18/min for local calls Voice: €0.37/min for calls home	GCC countries
Qtel (Qatar)	Monthly Pack for €41 including 100 minutes Voice: €0.41/min	Partner networks in France, Germany, Italy, Spain, Switzerland, UK, USA

Annex – Examples of Innovative Tariffs (Page 3)

Operator	Roaming Tariffs	Coverage
China Mobile (China)	Voice: €0.02/min	Roaming rates were lowered for 38 countries across the world
Saudi Telecom (Saudi Arabia)	Calls received for free roaming	90 countries
Telkomsel (Indonesia)	This operator offers multiple data schemes under the names 'Bridge', Packet Data Asia, Packet Data Europe-USA, Packet Data Africa typically in 1, 3 and 5 days denominations – e.g. Data: €7/day for unlimited Data: €19/ 3 days for unlimited	Australia, Hong Kong, India, Indonesia, Korea, Macau, Malaysia, Philippines, Taiwan, and Thailand
Claro (Argentina)	Voice: €0.36/min for local & back home Voice: €0.07/min for received	Special prices for roaming in border countries Uruguay and Paraguay
Umniah (Jordan)	Voice: €0.10/min	Arab Countries
Turkcell (Turkey)	Flat rate call packages in bundles of 30min., 90min. and 180min. per month. Flat rate data packages in bundles of 30MB, 60MB, 100MB, and 250MB per month.	Europe, USA, Russia, China and Northern Cyprus
Vodafone (Australia)	Standard voice calls from Singapore and New Zealand cost the standard domestic call rate plus a connection fee.	Singapore, New Zealand
Zain One Network	Data services at local rates are available for Zain Bahrain postpaid customers on Zain networks in Saudi Arabia, Kuwait*, Jordan, Iraq and Sudan. *In Kuwait, data services only available at local rates.	
Virgin Canada	Data Saver: €7.43 per month, the per Mbyte rate is €0.743 for those accessing the Internet in the USA 50 Asia/Middle East minutes: €63.17 for 50 minutes use in Asia and the Middle East. 50 Europe/Australia: €44.58 for 50 minutes use in Europe and Australia.	USA Asia/Middle East Europe/Australia



Annex – Examples of Innovative Tariffs (Page 4)

Operator	Roaming Tariffs	Coverage
Austria A1 (Austria)	Grenzenlos (smartphone) Day: €4.90 20 MB, €9.90 50 MB Week: €19.90 100 MB, €29.90 200 MB Month: €29.90 200 MB, €59.90 500 MB, €99.90 1000 MB A1 Mobil Grenzenlos €19.90 including 100 min., €59.90 including 300 min.	60 Countries 37 countries (preferred networks)
Digicel	“Digi Regional Roaming” Postpaid: USD 0.25 per minute making a call back home, calling local and receiving a call Prepaid: USD 0.40 per minute	22 countries where Digicel has a presence
Vodafone Australia (Australia)	Singapore and New Zealand Calling at domestic rates plus a connection charge Data in New Zealand Light use: AUD 25 (€20): 100 MB Medium Use: AUD 50 (€40): 300 MB Heavy use: AUD 200 (€160): 2 GB Data Bundles Light: AUD 20 (€15.89): 10MB Medium: AUD 199 (€158): 120 MB Heavy: AUD 329 (€261): 200 MB	New Zealand & Singapore New Zealand Preferred networks