

AREGNET Workshop on International Mobile Roaming (IMR)

J. Scott Marcus

The opinions expressed are solely my own



Schedule for the day

Nominal times	Presenter	Content
09h00-09h20	Darwish	Opening remarks
09h20-10h40	Marcus	Introduction to International Mobile Roaming (IMR) <ul style="list-style-type: none"> • A history of high prices with little connection to underlying cost • Cash flows and data flows: voice, SMS, data • Linkage to economic theory on interconnection • Double marginalisation • Societal welfare implications
10h40-11h00		Coffee
11h00-11h30	Darwish	Evolution of regulation of IMR in the AREGNET region and worldwide
11h30-12h30	Marcus	Detailed review of public policy initiatives around the world <ul style="list-style-type: none"> • “Jawboning”: EU pre-2007, Australia/New Zealand • Voluntary measures not enforced: Russia/Poland; EACO region • MoU and enforcement: Singapore Malaysia, Singapore/Brunei • Europe: wholesale retail regulation; bill shock measures; ARP/LBO; Roam Like at Home (RLAH) • Others: CRASA region; Regulatel region; ASEAN; UK post-Brexit
12h30-14h00		Lunch and prayer
14h00-15h30	TBN	Perspectives of the MNOs on IMR
15h30-15h50		Coffee
15h50-17h20	Marcus	Detailed review of public policy initiatives around the world (continued if needed)
	Marcus	Policy considerations for the AREGNET region going forward <ul style="list-style-type: none"> • Geographic scope of measures • Bill shock measures • Alternative regulatory approaches: “traditional”, ARP/LBO, Roam like a local (RLAL), RLAH • Price levels and implementation sequence if regulation is chosen • GATTs / WTO MFN considerations • Collection of statistics
1720-17h30	Darwish	Closing remarks



AREGNET Workshop on International Mobile Roaming (IMR)

- Introduction to International Mobile Roaming (IMR)
- Detailed review of public policy initiatives around the world
- Policy considerations for the AREGNET region going forward



INTRODUCTION TO INTERNATIONAL MOBILE ROAMING (IMR)



Introduction to International Mobile Roaming (IMR)

- A history of high prices with little connection to underlying cost
- Cash flows and data flows: voice, SMS, data
- Linkage to economic theory on interconnection
- Double marginalisation
- Societal welfare implications



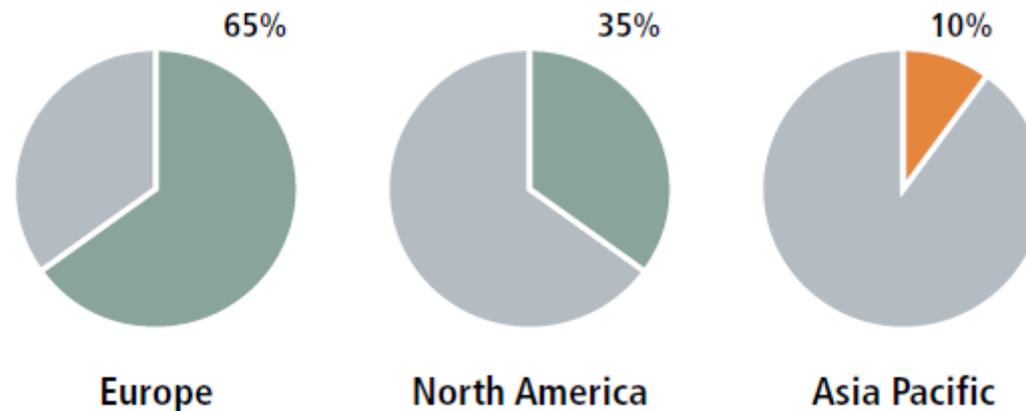
IMR: A challenge to policymakers

- In many countries of the world, governments have been concerned not only over excessively high international mobile roaming (IMR) charges at the retail level to consumers, but also over payments at the wholesale level between mobile operators.
- The actual underlying cost of e.g. an IMR call made or received bears little relation to the retail charge that the home network charges the consumer for roaming on a visited network.
- Many factors contribute to these high prices:
 - Insufficient attention on the part of the consumer.
 - Cross-border nature of the IMR service.
 - Low demand elasticity for IMR voice services.
- IMR prices can be viewed as a form of *double marginalisation*.



The need for roaming varies from one region to the next

- GSMA estimates that only 10% of the Asia Pacific population roams in a given year, versus 65% of Europeans.



GSMA (2012), International roaming explained: Asia Pacific, based on A.T. Kearney (2012)



CASH FLOWS AND DATA FLOWS

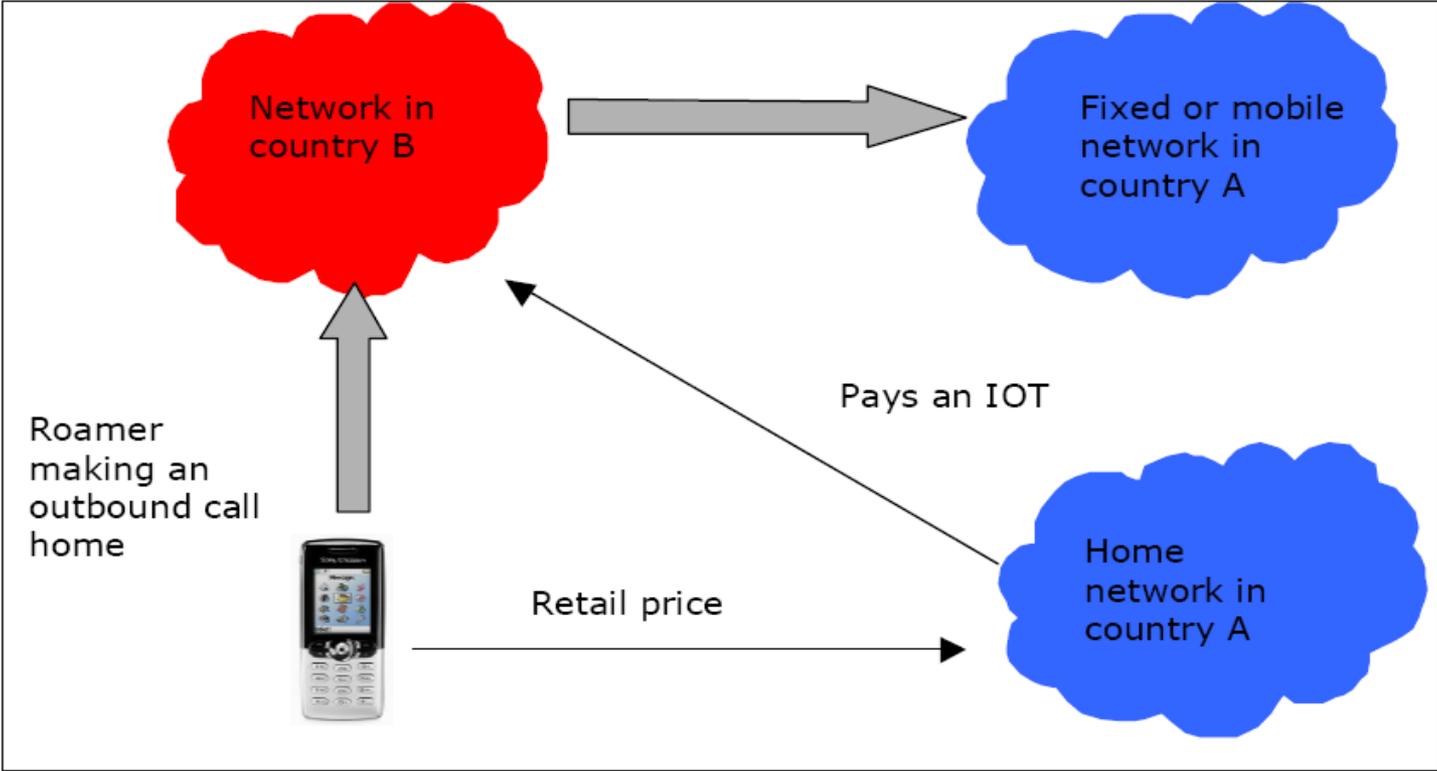


Cash flows and data flows

- At least four different services:
 - Calls made
 - Calls received
 - SMS (and MMS)
 - Roaming data
- Different data flows and cash flows for each.
- Roaming data is by far the most important today, but voice calls are perhaps easiest to understand.



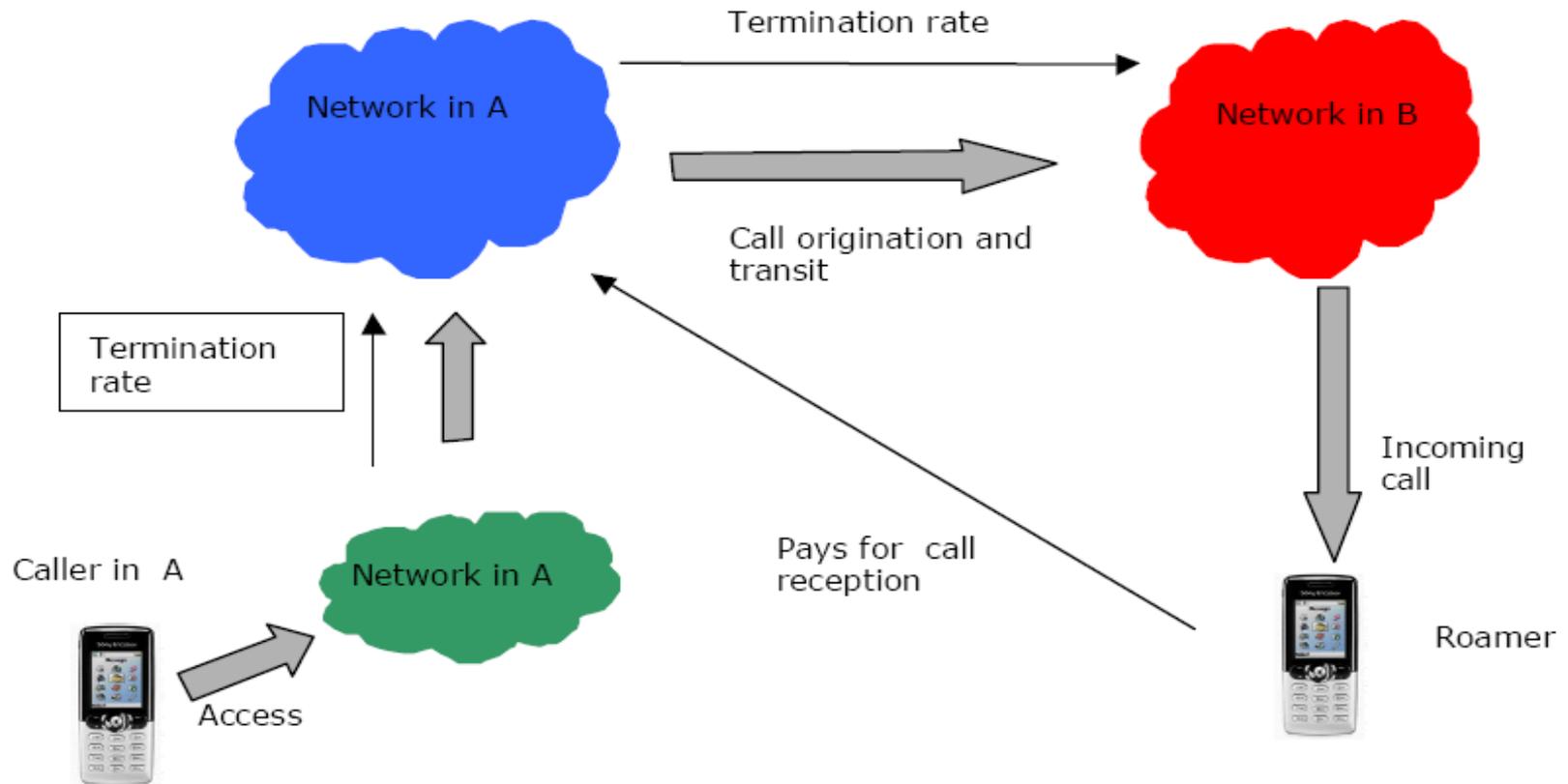
Roaming traffic and payments: calls made



Source: ARCEP, The Market for International Roaming, February 2006



Roaming traffic and payments: calls received



Source: ARCEP, The Market for International Roaming, February 2006



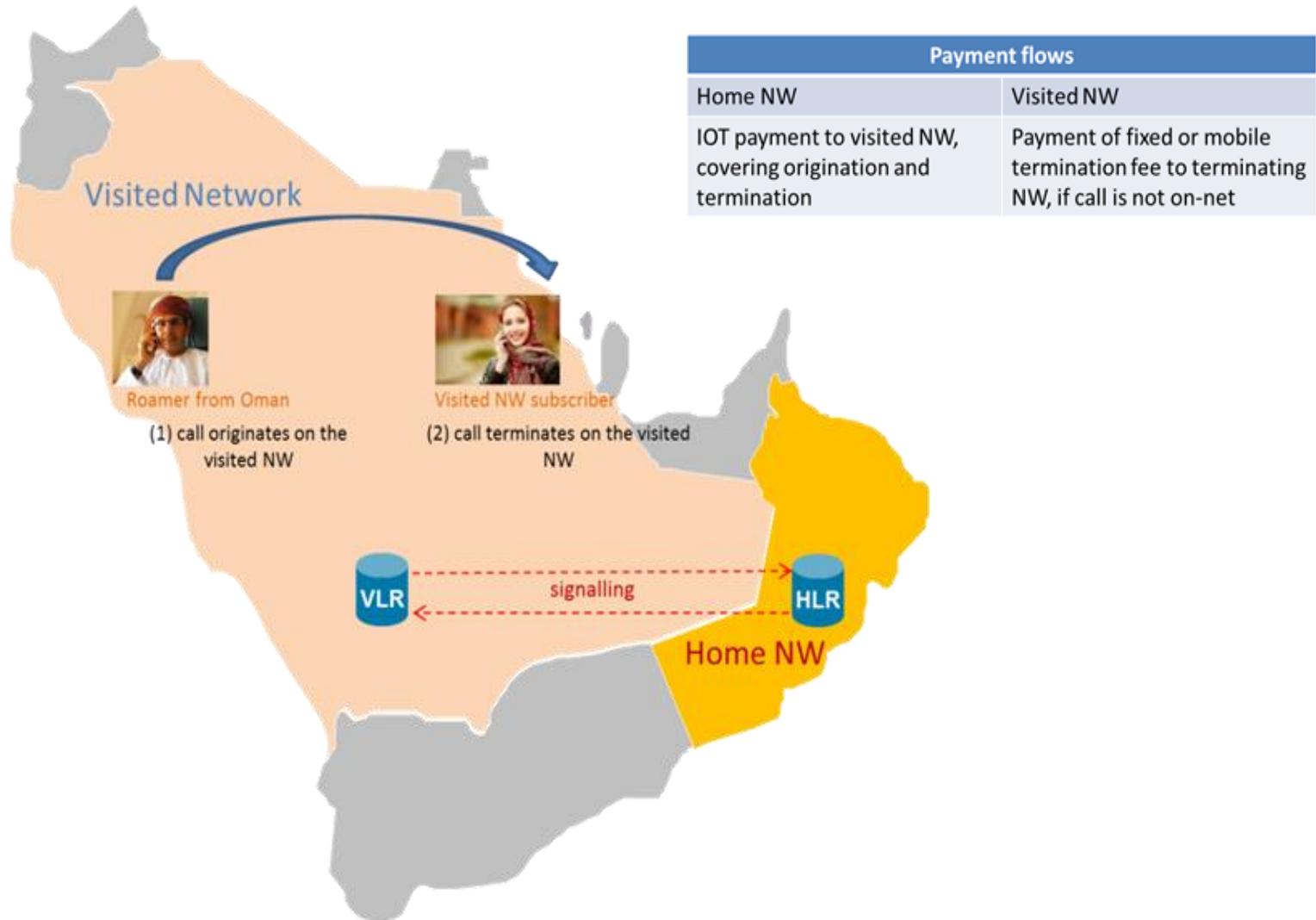
How roaming works in the GCC Region 2

- Five primary roaming scenarios are identified as follows:
 - Scenario 1: Calls and SMS made inside a visited country (“local calls”) terminating on the visited network, the fixed network or another mobile network.
 - Scenario 2: Calls and SMS made from a visited country to the subscriber’s home country or another GCC country, terminating on the home network, the fixed network or on another mobile network (“international GCC calls”).
 - Scenario 3: Calls and SMS made from a visited country to a third (non-GCC) country terminating on a fixed or mobile network (“international calls”).
 - Scenario 4: Calls and SMS received from any GCC country while roaming in the GCC.
 - Scenario 5: Data accessed while roaming in the visited country.



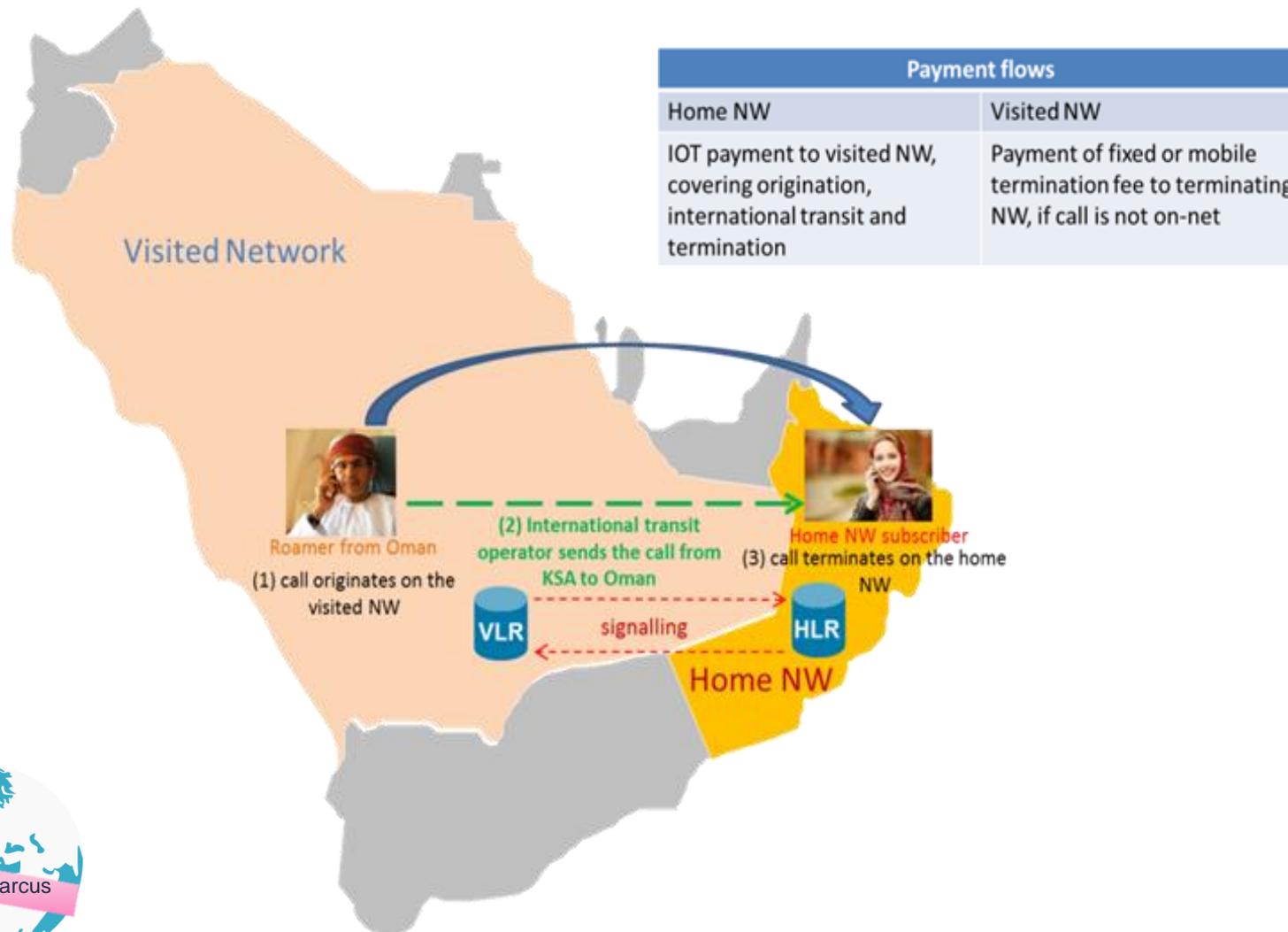
How roaming works in the GCC Region 1

Call made within the visited country (“local”)



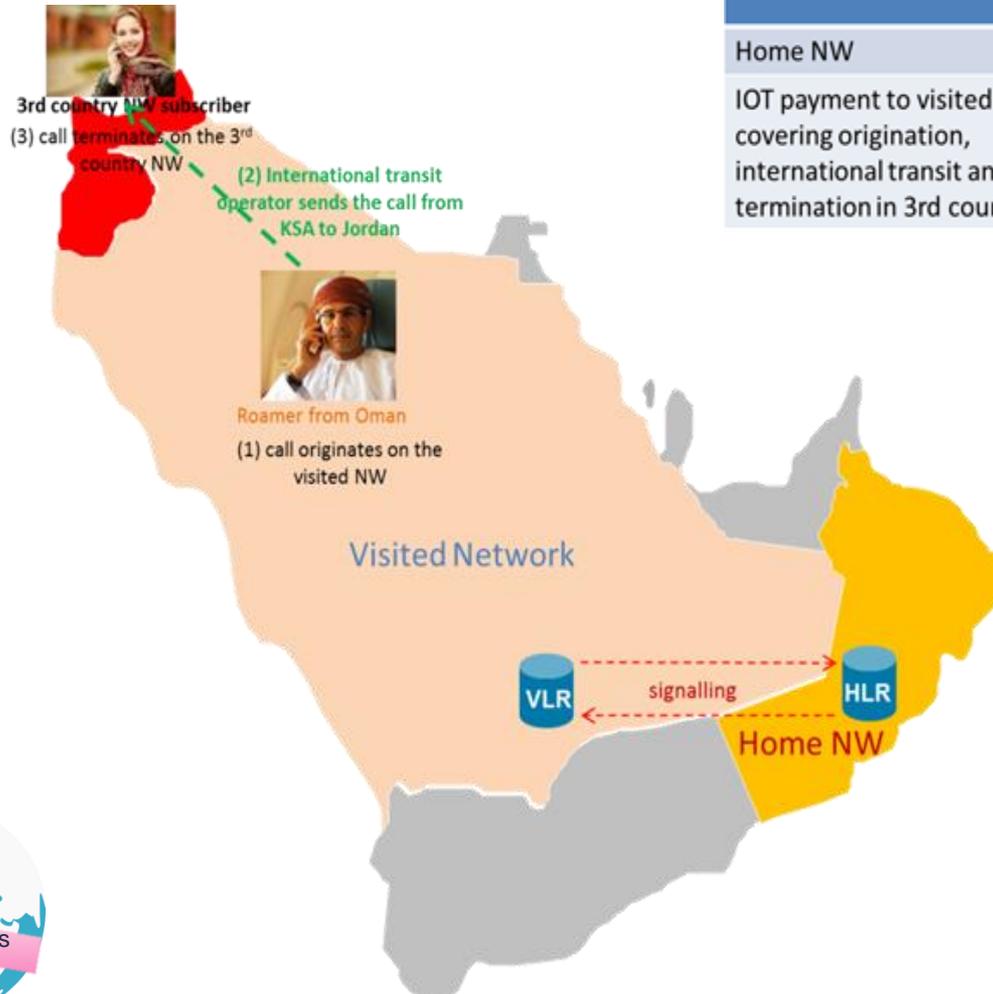
How roaming works in the GCC Region 2

Other calls made within the GCC (“GCC international”)



How roaming works in the GCC Region 3

Calls made to a non-GCC third country

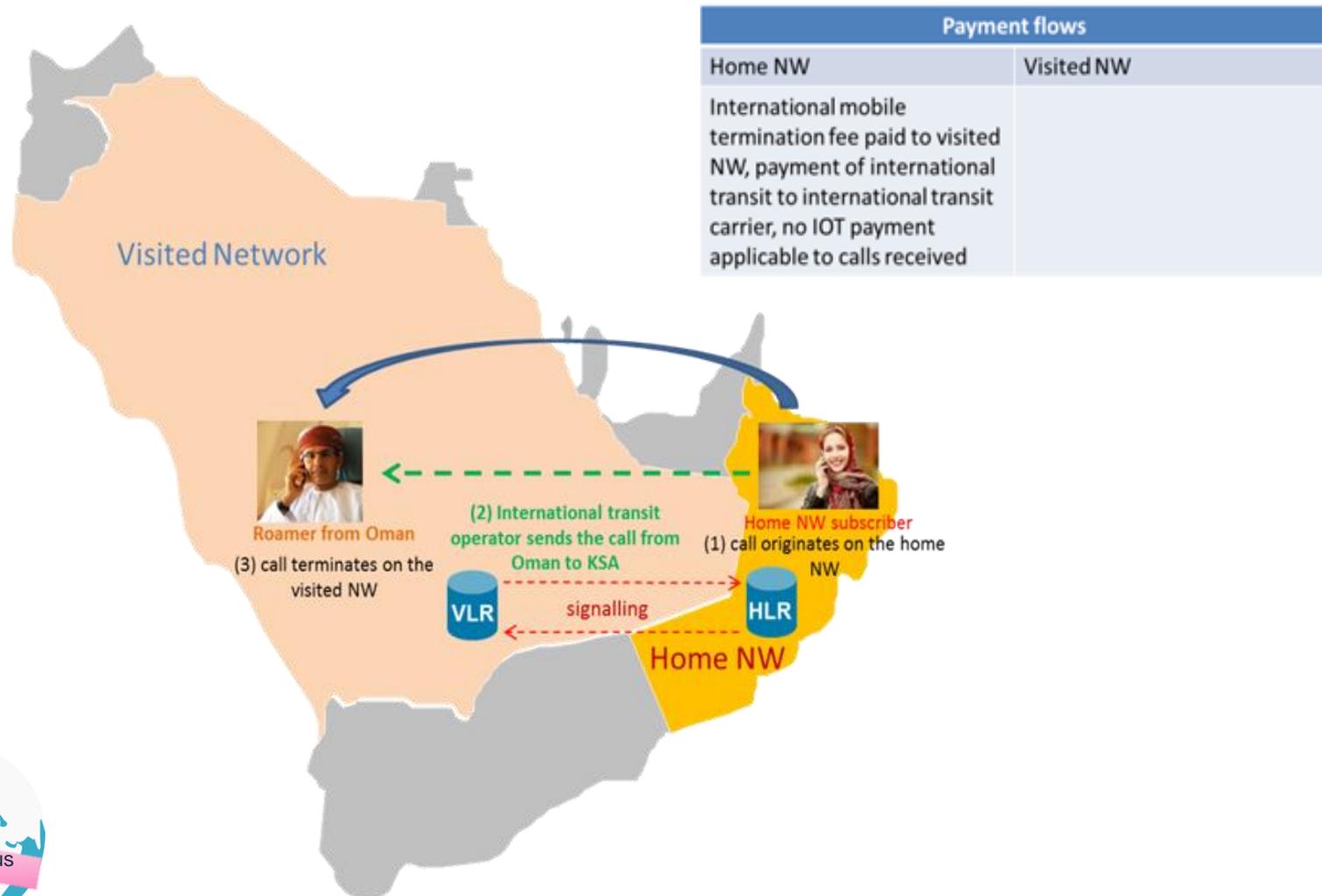


Payment flows	
Home NW	Visited NW
IOT payment to visited NW, covering origination, international transit and termination in 3rd country	Payment of fixed or mobile termination fee to 3rd country network



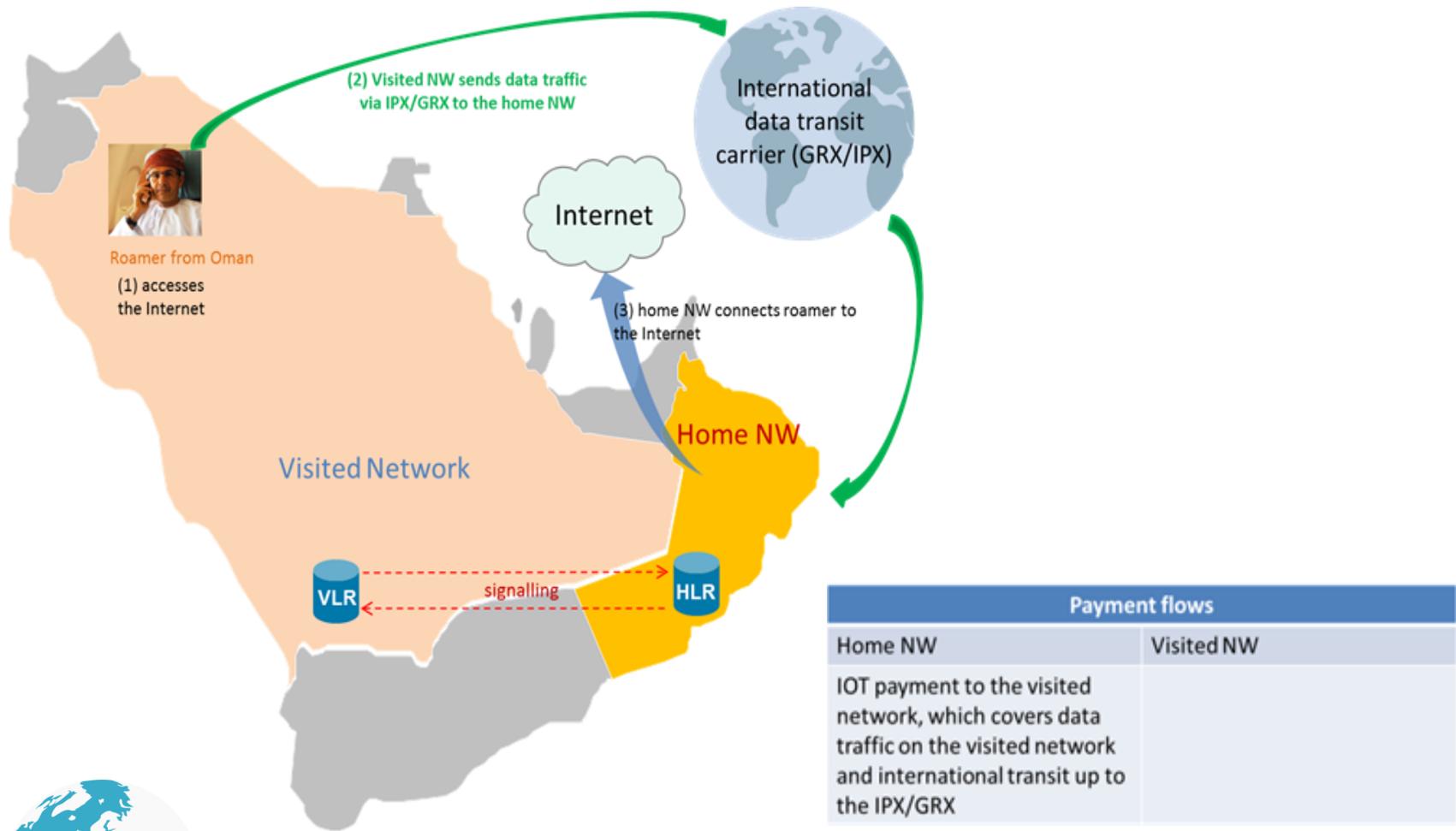
How roaming works in the GCC Region 4

Calls received while roaming



How roaming works in the GCC Region 5

Data accessed



LINKAGE TO ECONOMIC THEORY ON INTERCONNECTION



Linkage to economic theory on interconnection



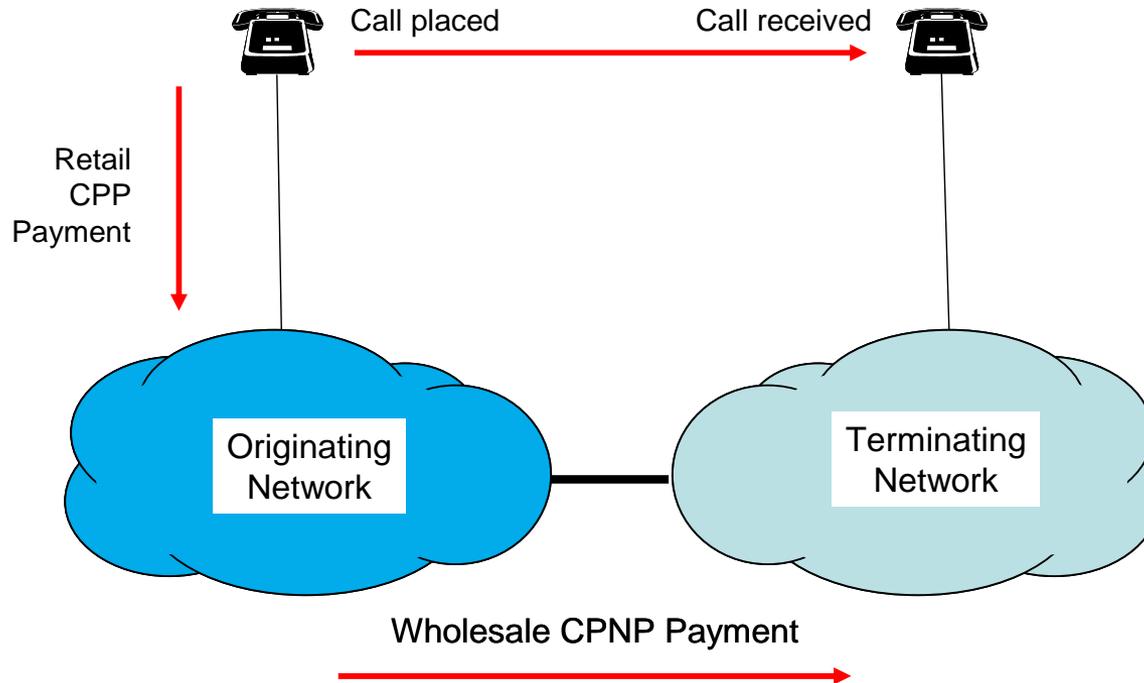
Economic background: Retail arrangements

- Calling Party Pays (CPP)
 - Traditional arrangement based on presumed cost causality and presumed internalization of call externalities
- Receiving (Mobile) Party Pays (RPP/MPP)
 - Shared utilities from calls, receiver sovereignty.
 - True RPP systems are rare today.
- Flat rates: Calls included in monthly fees
- Banded flat rates (buckets of minutes)



Economic background: Traditional Fixed and Mobile Interconnection Models

- *Calling Party's Network Pays (CPNP)* wholesale arrangements



- The Bill and Keep alternative reflects negotiated arrangements and obligations of reciprocity, often resulting in no wholesale charges. Variants have been used in the US, Canada, Hong Kong, Singapore, Russia and Mexico.



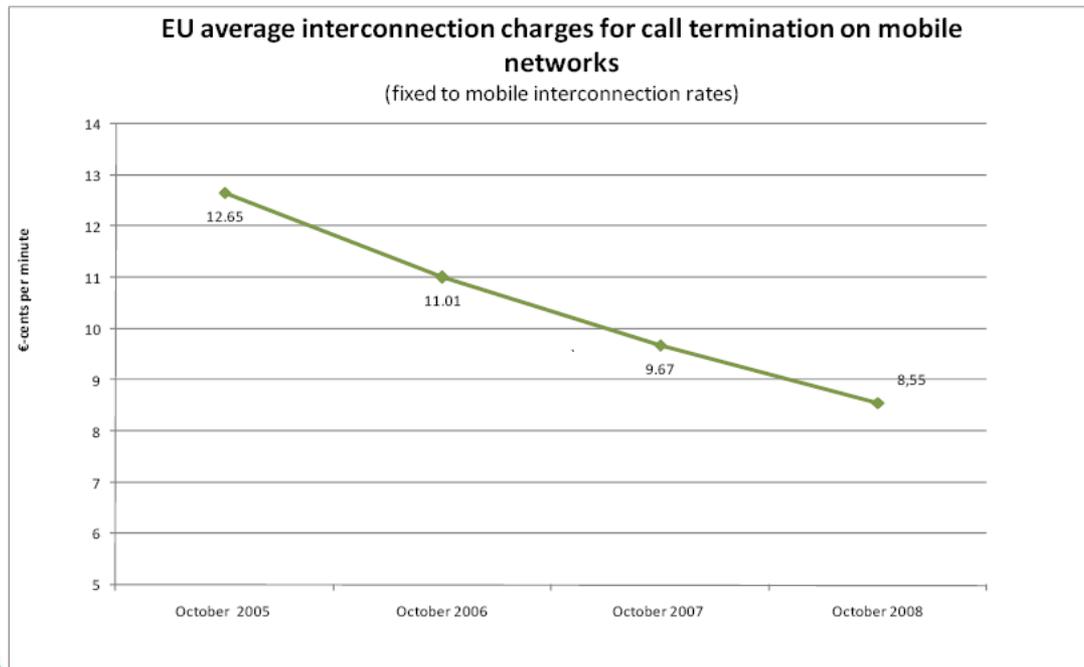
Termination Rates

- A substantial economic literature tells us to expect high termination fees (from small operators as well as large) in the absence of regulation.
- These prices result from the *termination monopoly*: As long as only one network operator is able to terminate calls to a given number, that network operator has market power in regard to call completion to the number.
- Termination rates for the *fixed* network have long been constrained by regulation in European Member States so as not to exceed the terminating network operator's marginal cost.
- *Mobile* termination rates were, however, unregulated in most Member States until 2003 or so.



Termination Rates

- European experience supports the expectation of high MTRs in the absence of regulation.
 - MTRs before regulation (2002): € 0,187.
 - MTRs after regulation (2008): € 0,086.



Source: 14th Implementation Report, Annex 2, 2009,



Economic background: Wholesale and retail

- Several factors contribute to the termination monopoly.
 - Since the charges are ultimately borne by *another network operator's customers*, normal market forces do not adequately constrain them.
 - Customers have no direct visibility into termination fees.
- Termination charges at the wholesale level interact with retail pricing arrangements.
 - The termination fee generally sets a floor on the retail price.
 - This limits the ability of small competitors to compete on price.
 - Where termination fees are high, they generally limit the applicability of flat rate or “buckets of minutes” plans.



Economic background: Wholesale and retail

- CPNP with high mobile termination rates tends to lead to:
 - Subsidies for mobile adoption, and thus rapid penetration.
 - High retail prices.
 - Exclusion of calls with high termination from flat rate plans.
 - Low usage.
- Rapid penetration can be beneficial, but not the rest.
- Wholesale and retail arrangements interact.
 - The TR sets an effective floor on retail usage-based price.
 - CPNP with high termination rates practically mandates CPP retail arrangements.
 - Low or zero termination rates, however, place no constraints on retail arrangements.



The regulatory solution

- Fixed network termination rates have been regulated in many countries for many years.
- Starting in 2003, the EU effectively regulated mobile termination rates (MTRs) as well.
- In 2009, the EU recommended that the rate for MTRs be determined by bottom-up modeling of “true LRIC” costs.
- There is a good argument that the MTR should reflect true costs.
- In the US, a complex system effectively sets the MTR to zero.
- MTRs in the European Union averaged € 0.20 prior to regulation, but have declined steadily and are likely to fall to less than € 0.01 in most Member States.



Economic background: Wholesale and retail

Region	Arrangements	Results
US	No fixed MTR, but obligations of symmetry and reciprocity	MTRs are zero, and FTRs are low.
Europe before 2003	No regulation at all for mobile	MTRs averaged €0.20
Europe today	Cost based MTRs on an accelerated glide path	MTRs dropping, efforts to make all TRs uniform in all Member States.



DOUBLE MARGINALISATION



Double marginalisation

- Consider the case of two firms in vertically related markets, each possessing considerable pricing power.
- Each takes a substantial mark-up on its service.
- The mark-ups are in effect additive – ***the price paid by the end user reflects the sum of the two.***
- If the two firms do not coordinate their behaviour (which competition law likely prohibits in any case), the end user price can be higher than the price that a rapacious monopolist would charge.
- Paradoxically, a classic solution is for the firms to merge (e.g. General Motors and Fisher Body) such that the end user “only” pays the monopoly price.
- ***This is a messy problem to fix.***

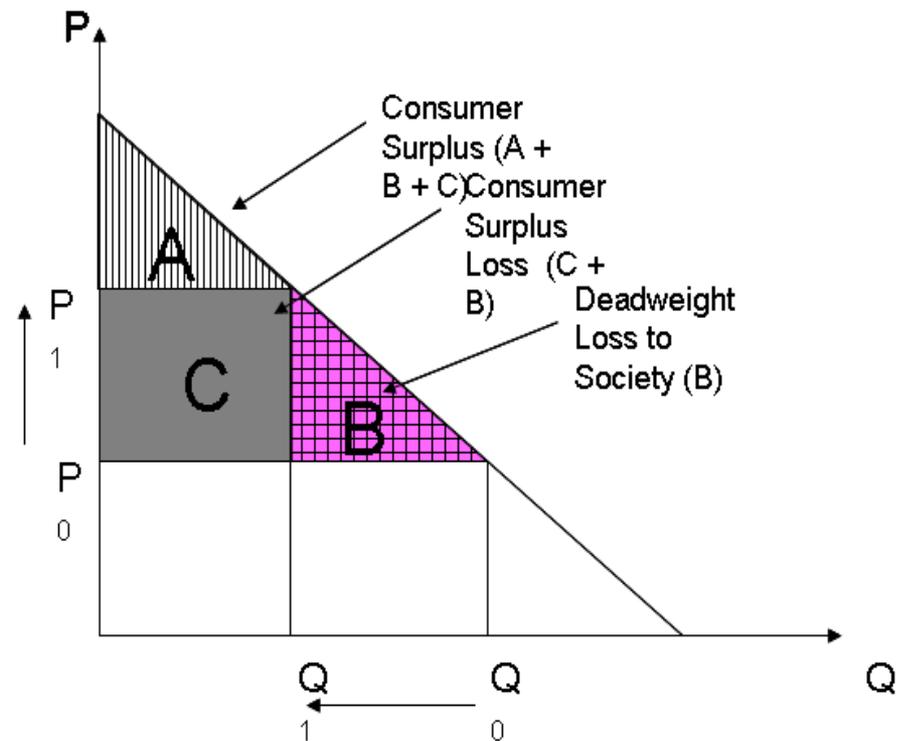


SOCIETAL WELFARE IMPLICATIONS



Roaming and societal welfare

- Societal welfare is generally defined as the sum of consumer welfare and producer welfare.
- If lowering consumer prices merely **transfers welfare from producers to consumers**, society is not better off.
- To the extent that lower prices lead to greater consumption, **deadweight loss** is reduced and society benefits.
- The **demand elasticity** is thus critical. To what extent do lower prices promote increased consumption?



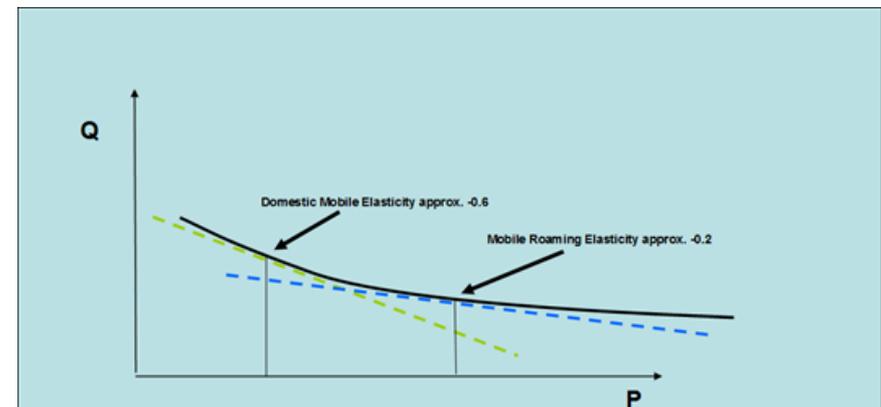
Roaming and socio-economic welfare

- Demand for roaming voice services is not very elastic at all.
- Demand form roaming data appears to be highly elastic.
- Experience in the US demonstrates that roaming data and domestic data are not really different services. They are *perceived differently because they are priced differently*.
- If roaming voice prices were lower, elasticity of roaming voice services would presumably be higher.

ECONOMETRIC ESTIMATES			
Price of calls made	Price of calls received	Price of SMS	Price of data
-0.27			0.05
	-0.24		-0.09
		-0.24	
0.21	-0.13		-1.23

Source: own calculations (all values significant at a 5% confidence level)

Source: Steffen Hoernig et al. (2011). All figures 95% significant.



Roaming and socio-economic welfare

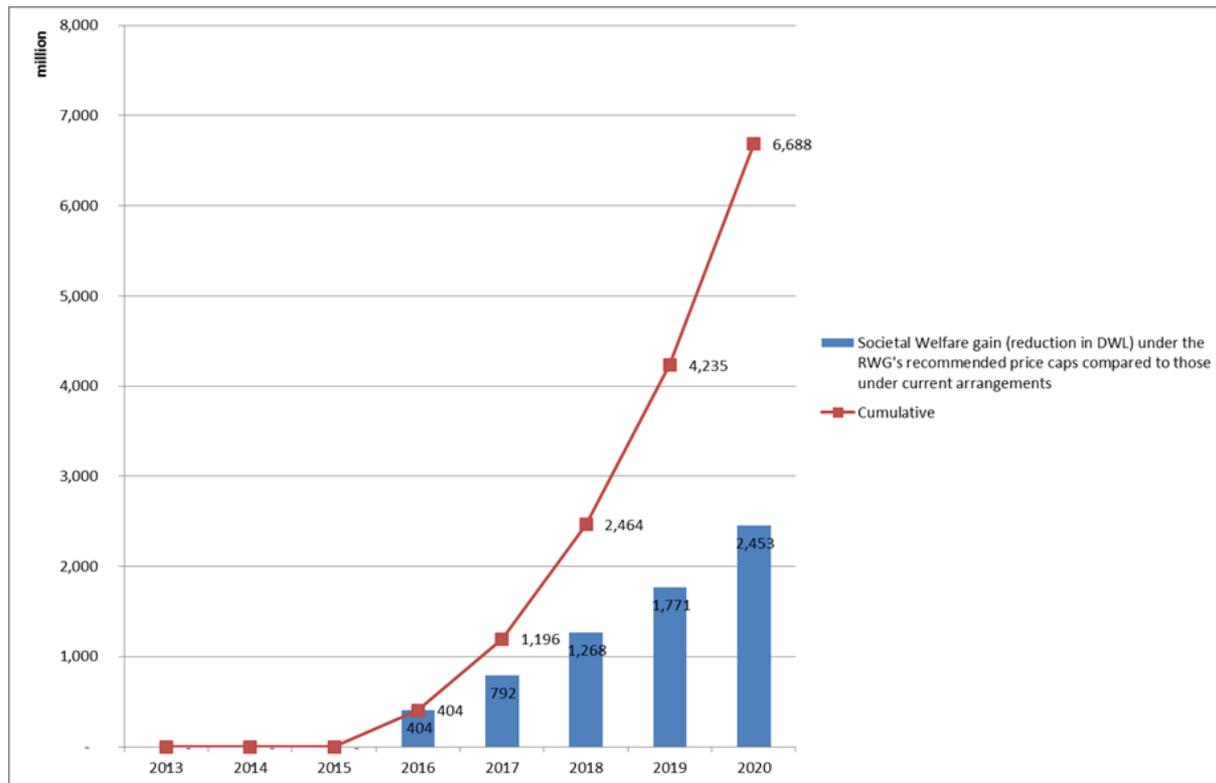
- The Impact Assessment for the Roaming Regulation of 2012 included an assessment of the impact on societal welfare.
- Complete elimination of the price controls in the 2009 regulation would have decreased consumer welfare, increased producer welfare, and increased deadweight loss. Overall, the cost to society over the period 2012-2014 would have been substantial.
 - Reduction in consumer welfare € 18,6 billion
 - Increase in producer welfare € 5,0 billion
 - Net loss of societal welfare € 13,6 billion
- European societal cohesion is probably the *real* reason to regulate.



Source: Steffen Hoernig et al. (2011).

Welfare analysis of new GCC IMR rules

Gain in societal welfare (reduction in deadweight loss) (millions of USD)



Source: GCC Roaming WG (2015),
International Mobile Roaming (IMR) across the Gulf Corporation Council (GCC) Region
AREGNET Workshop on International Mobile Roaming (IMR), Bahrain, 7 April 2019



REVIEW OF PUBLIC POLICY INITIATIVES AROUND THE WORLD



Detailed review of public policy initiatives around the world

- “Jawboning”: EU pre-2007, Australia/New Zealand
- Voluntary measures not enforced: Russia/Poland; EACO region
- MoU and enforcement: Singapore Malaysia, Singapore/Brunei
- Europe: wholesale retail regulation; bill shock measures; structural solutionis (ARP/LBO); Roam Like at Home (RLAH)
- Others: CRASA region; Regulatel region; ASEAN; UK post-Brexit



Attempts to drive down IMR costs/prices

- Intensive regulation has been present in the European Union (EU) since 2007, and in the GCC since 2012.
- Studies and actions in many other parts of the world, including the West Balkans, Australia / New Zealand, the SADC region (CRASA), EACO, ECOWAS, Regulatel (Latin America), and more.
- ITU Recommendation D.98, and more work in progress.
- Mixed results from voluntary bilateral or multilateral arrangements such as Russia/Poland and Russia/Finland.



Roaming prices declines driven by commercial developments in the US and Africa...

North America	<ul style="list-style-type: none">• Domestic Roaming was an issue in the US (14% MNO revenue).• Commercial offer of AT&T (“Digital One Rate” launched in 1996 - nationwide flat rate package at an affordable price) changed the market overnight.• Domestic roaming as a service nearly disappeared.
Africa	<ul style="list-style-type: none">• Strong regional differences.• Commercial offers have driven down roaming prices (Zain “One Network” and others) in parts of Africa.• In the Southern African Development Community (SADC) region, regulators have been evaluating the roaming situation and have attempted roaming regulation (CRASA initiative). Cost-based roaming, Roam Like at Home (RLAH). Implementation status is unclear.• In the EACO Region, joint decision to encourage lower prices. Some prices have in fact been reduced. Uneven progress.



Roaming is an important regulatory issue in the GCC Region...

GCC Region

- Regulatory concern since 2005, in 2007 AREGNET decided for a self-regulation approach with the industry, further work was done in 2008 and 2009.
- In 2010 GCC telecom ministers agreed on setting a maximum cap on mobile roaming tariffs. In 2012, regulation was implemented for calls made.
- A WIK study evaluated how these arrangements worked, and recommended expanding the framework to include roaming data and more. Implementation appears to be effective.



Roaming is also a concern in Australia/New Zealand, Asia-Pacific, and Latin America...

Australia and New Zealand	<ul style="list-style-type: none">• Regulatory discussions started in 2010.• Regulators investigated trans-tasman mobile roaming in 2011/2012.• The Australian Communications and Media Authority (ACMA) developed a “Telecommunications (International Mobile Roaming) Industry Standard 2013” that will become valid on 27 September 2013. It will operate in conjunction with the Telecommunications Consumer Protection Code, and focuses on transparency and consumer awareness.• Some operators in Australia and New Zealand (e.g. Vodafone, SingTel Optus, Telecom New Zealand) launched new offers to lower roaming rates.
Asia-Pacific	<ul style="list-style-type: none">• Roaming is perceived as a problem and has been examined by different organisations (e.g. APEC TEL, APT, ATRC).• Bilateral agreements in place, but no regulatory measures are in place.• Commercial offers are available (reduced roaming charges, roaming alternatives), e.g. by China Mobile.
Latin America	<ul style="list-style-type: none">• The number of roamers is strongly growing.• They intend to improve price transparency, but it is not yet implemented.• A study is available..



The Public Consultation on IMR in the GCC region

- The GCC is comprised of Saudi Arabia, Bahrain, Kuwait, Oman, Qatar, and the UAE.
- Few people outside of the region realise that the GCC has had European-style regulation of wholesale and retail charges for IMR calls made within the GCC region in place since 2012.
- They launched a comprehensive review and update of the programme late in 2013.
- WIK-Consult was chosen as the GCC's advisers.
- A Public Consultation document was issued at the beginning of September 2014.



“JAWBONING”



“Jawboning”

- From roughly 2002 to 2007, the European Commission tried to persuade, cajole or threaten MNOs into lowering IMR prices.
- This appears to have had very limited effect. (Prices probably would have dropped slightly even without threats.)
- Even when legislation was put forward, prices did not decline much.
- A possible explanation is that the interlocked nature of wholesale and retail prices, together with incentives that tend not to be aligned, makes it very difficult for MNOs to respond unless they are willing and able to collude on prices.



VOLUNTARY MEASURES WITH LITTLE ENFORCEMENT



The Russia / Poland MoU

- Bilateral voluntary commercial arrangements have enjoyed mixed success.
- The bilateral arrangements between Russia and Poland, for instance, appear to have produced no tangible results at all. (Shortall, 2013, for the OECD)



Australia and New Zealand

- New Zealand and Australia in February 2013 announced an agreement to enhance their national regulators' powers in respect of international roaming services between their two countries.
- This included empowering the regulators, should they choose to regulate wholesale roaming rates, to impose retail price controls as well.
 - Although draft legislation was prepared, this approach was never actually implemented for two main reasons.
 - First, the announcement had the effect of reducing trans-Tasman roaming rates significantly (including the introduction of daily flat-rate pricing), meaning that the intervention arguably became unnecessary.
 - Second, the September 2013 federal elections in Australia resulted in a new government with a more light-handed approach to economic intervention.



The EACO region

- The countries of the East Africa Community region (EACO) agreed to take measures to reduce the price of IMR.
 - No mandatory framework was put in place.
 - Actual implementation by network operators has been very uneven.
- Some IMR prices have been substantially reduced, while others remain high. (ITU-D, 2016)



MOUS WITH (THE THREAT OF) ENFORCEMENT



Bilateral agreements in ASEAN

- The Singaporean arrangements with Malaysia and with Brunei appear to have had definite, positive effect.
- “Singapore and Malaysia mobile phone subscribers saw price reductions of up to 30% for voice calls and 50% for SMS, when they use the mobile roaming service provided by all mobile operators in Malaysia and Singapore respectively.” (Shortall, 2013)
- According to the Singtel web site, for instance, incoming roaming calls in Malaysia or Brunei or outbound roaming calls within the Visited Country cost \$ 0.35 SGD, while calls home to Singapore from those two countries cost only \$ 0.46 SGD. No other roaming call costs less than \$ 1.50 SGD.

<http://info.singtel.com/personal/phones-plans/international-calling/travelling-overseas/roaming-rates>



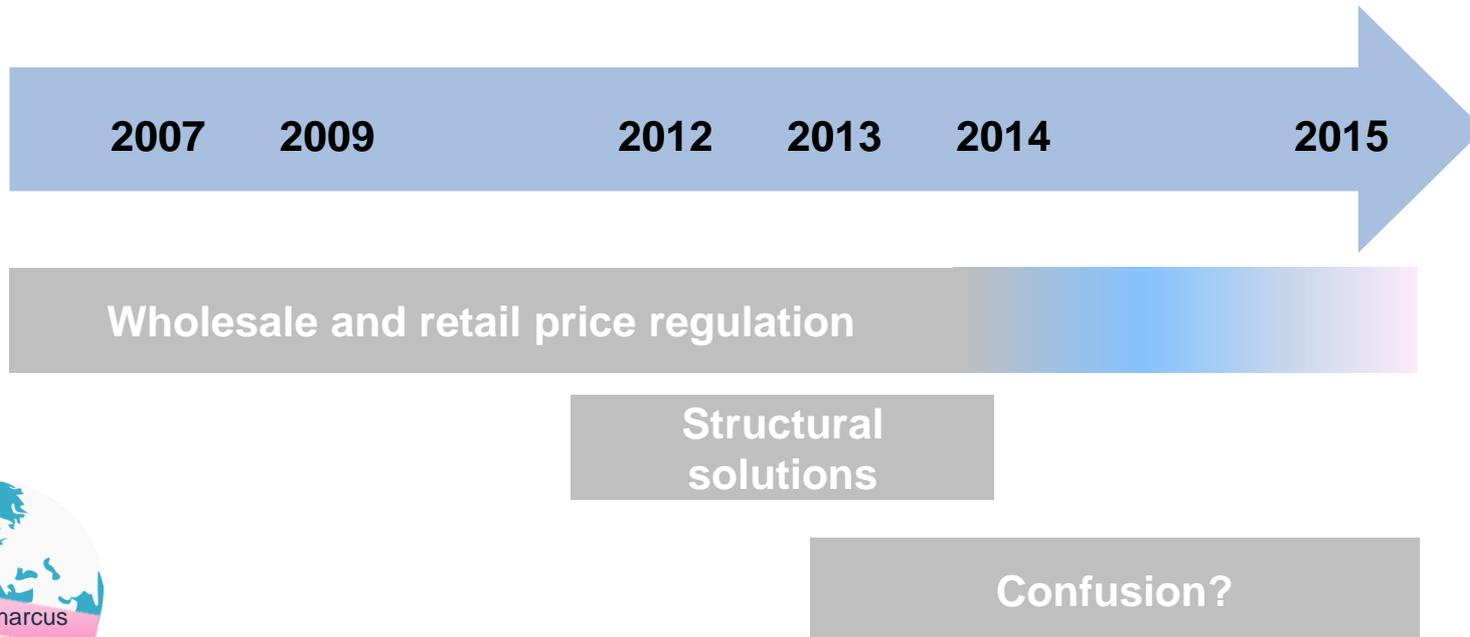
THE EUROPEAN UNION (EU)



Roaming Regulation in Europe

Past, present, ... and future?

- Regulation of IMR since 2007 can be viewed as comprising three phases
 - 2007 – present and beyond: wholesale and retail price regulation
 - 2012 – 2014: attempts to introduce structural solutions
 - 2013 and beyond: ???



Roaming Regulation in Europe

Early initiatives

- The regulatory framework for electronic communications attempted to deal with IMR by defining it as one of the 18 markets susceptible to ex ante regulation.
- This simply did not work.
 - NRAs were methodologically unable to regulate IMR arrangements in two Member States (i.e. Home and Visited) at once.
 - Transnational market arrangements in the framework were not felt to be suitable for dealing with IMR.
 - An NRA might perhaps have regulated wholesale arrangements in its own Member State, but this would have hurt its own MNOs, only to benefit end-users from other Member States – there was no incentive to do so.
- The Commission “jawboned” MNOs to try to persuade them to lower IMR prices.
- This also did not work.



Roaming Regulation in Europe

Background

- A 2006 Eurobarometer Survey identified consumer concerns over high mobile roaming prices.
- The European Commission proposed the Roaming Regulation in 2006.
- The Roaming Regulation came into effect on 29 June 2007, and imposed retail and wholesale price caps as well as transparency measures.
- The Roaming Regulation was amended in 2009.
- It was further amended again in 2012, with a commitment to keep arrangements in place until 30 June 2022.
- That commitment was not kept.



Roaming Regulation in Europe

2007 Regulation

- Circa 2002, retail roaming prices averaged about €1,30. and wholesale prices (often referred to as IOTs) about €1,00 per minute (source: Stumpf (2002)).
- The 2007 Regulation placed a retail and wholesale price cap on roaming calls while roaming in the European Union, and thus reduced roaming charges up to 70%.
- The **retail price cap** was initially set at a maximum for calls placed of €0.49 (excl. VAT) and for calls received at €0.24 (excl. VAT).
- The **wholesale cap** for the prices that operators charge each other for roaming (IOTs) for the first 12 months was initially set at €0.30.
- Wholesale and retail prices were progressively lowered from these levels (more later).
- It was expected that operators would compete below these caps; however, effective competition did not emerge.
- The 2007 Regulation also placed a number of **transparency measures** with clear and customized information on the retail price of international roaming, helping to ensure that consumers were well informed in relation to roaming in the EU.



Roaming Regulation in Europe

2007 Regulation: price controls

- An important positive feature is that both wholesale and retail prices were regulated in a coordinated way.
- Retail regulation only?
 - Risk that retail prices are less than wholesale prices (costs to MNOs).
 - Risk that some roaming services might no longer be offered.
- Wholesale regulation only?
 - Risk that MNOs would not pass on cost savings to users in the form of lower prices.
 - Potentially alters WHICH MNOs benefit from excessive profits, without however benefitting consumers or the broader society.
- Price regulation going forward still needs this kind of coordination.



Roaming Regulation in Europe

2007 Regulation: retail arrangements

- The EuroTariff was the default retail plan, but users could “opt out” in favour of other retail plans.
- A range of multi-country plans were available (e.g. Vodafone Passport).
- This accords with the general principle that firms should retain as much retail pricing flexibility as possible.
- Many of these plans came to represent average cost somewhat in excess of the EuroTariff, which became a source of consternation to European regulators.
- This concern is arguably misplaced. If consumers value other factors such as convenience over price, why should the regulator’s judgment be preferred over that of the customer?



Roaming Regulation in Europe

2009 Regulation

- In 2009 the roaming Regulation was amended in scope and duration.
- The 2009 amendments to the Roaming Regulation included
 - further reductions to the wholesale and retail “Eurotariff” (voice calls),
 - the introduction of a wholesale and retail Euro SMS price cap,
 - a wholesale data price cap, and
 - a number of new measures in relation to pricing transparency were introduced.
- The 2009 Regulation included an Anti-Bill-Shock cut-off mechanism, which kicked in once the bill reached €50, unless a different limit was chosen by the customer.
- It also required per-second billing after the first 30 seconds for roaming calls placed, and from the first second for calls received while roaming.



Roaming Regulation in Europe

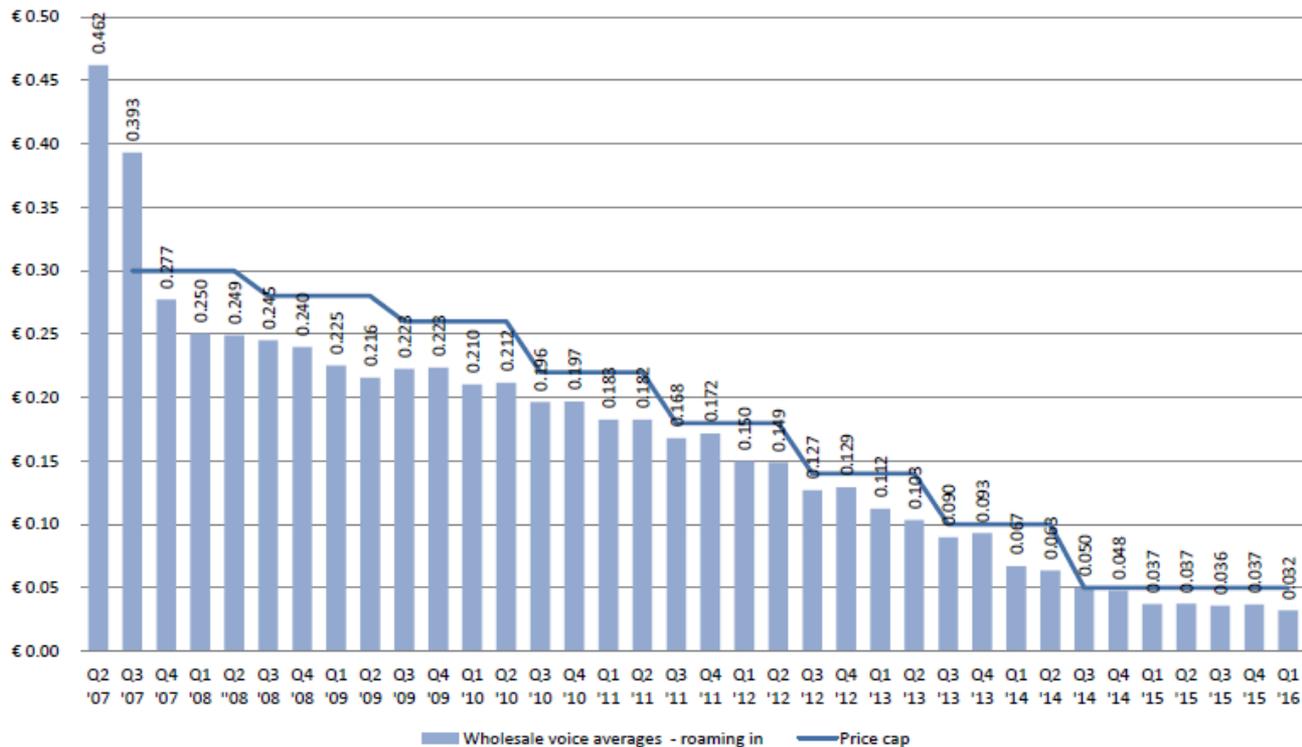
2012 Regulation

- The Roaming Regulation was again revised effective 1 July 2012.
 - **Price Caps for Voice, SMS and Data** were further reduced, and are to remain in place until 30 June 2017.
 - **Transparency SMS** - When a consumer roams in the EU, their MNO must send an SMS explaining the costs of cost of calls made and received, the cost of sending an SMS/MMS, the cost per Megabyte (MB) of data, how to find out more information, and how to reach the European emergency number 112.
 - **Data Usage (“bill shock”) Alert** – The usage cap is €50 excl. VAT unless the consumer chooses otherwise. The consumer must be advised when he or she reaches 80% of the data usage cap, and again at 100 % of the data usage cap. The consumer can then decide to continue to data roam or not.
 - **“Structural Measures”** were imposed, effective 1 July 2014, with the expectation that they would introduce competition that would ultimately obviate the need for regulation.



Effects of price controls in Europe

Wholesale roaming prices for voice calls made, EEA average, non-group companies (price in euro per minute, Q2 2007 – Q1 2016)

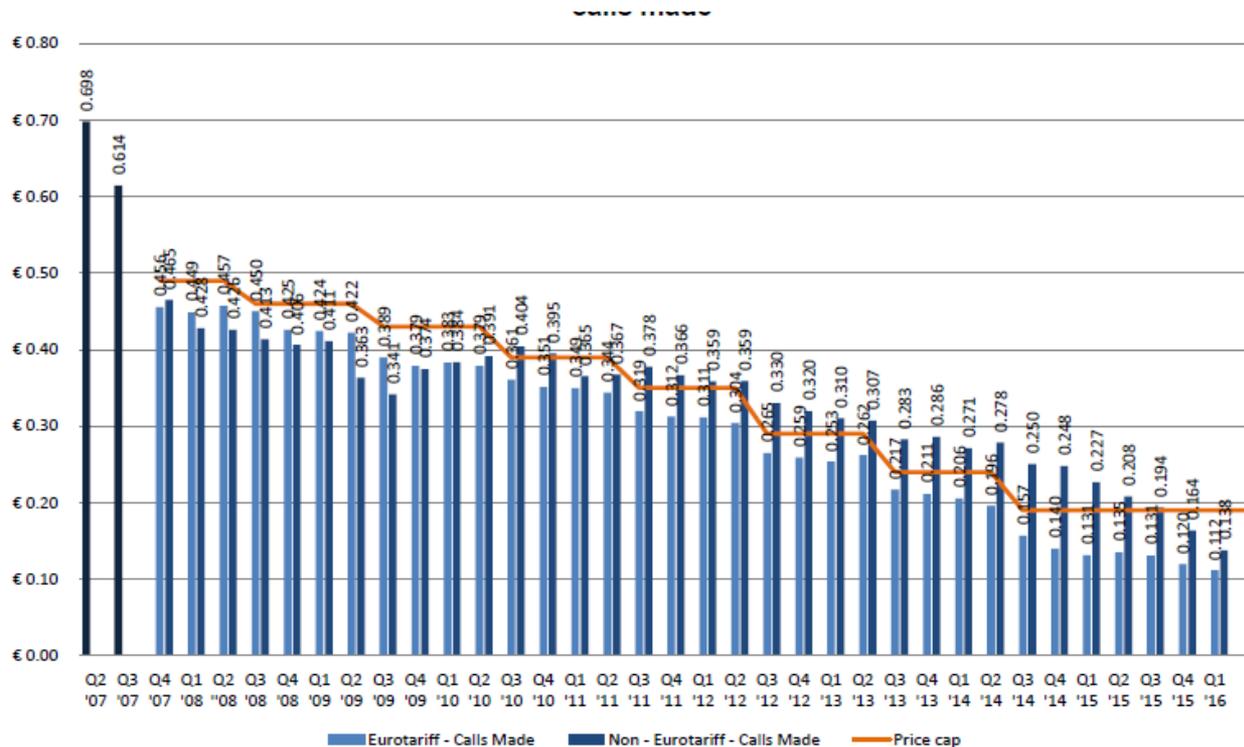


Source: BEREC (2016) BoR (16) 160



Effects of price controls in Europe

Retail roaming prices for voice calls made, EEA average, (price in euro per minute, Q2 2007 – Q1 2016)

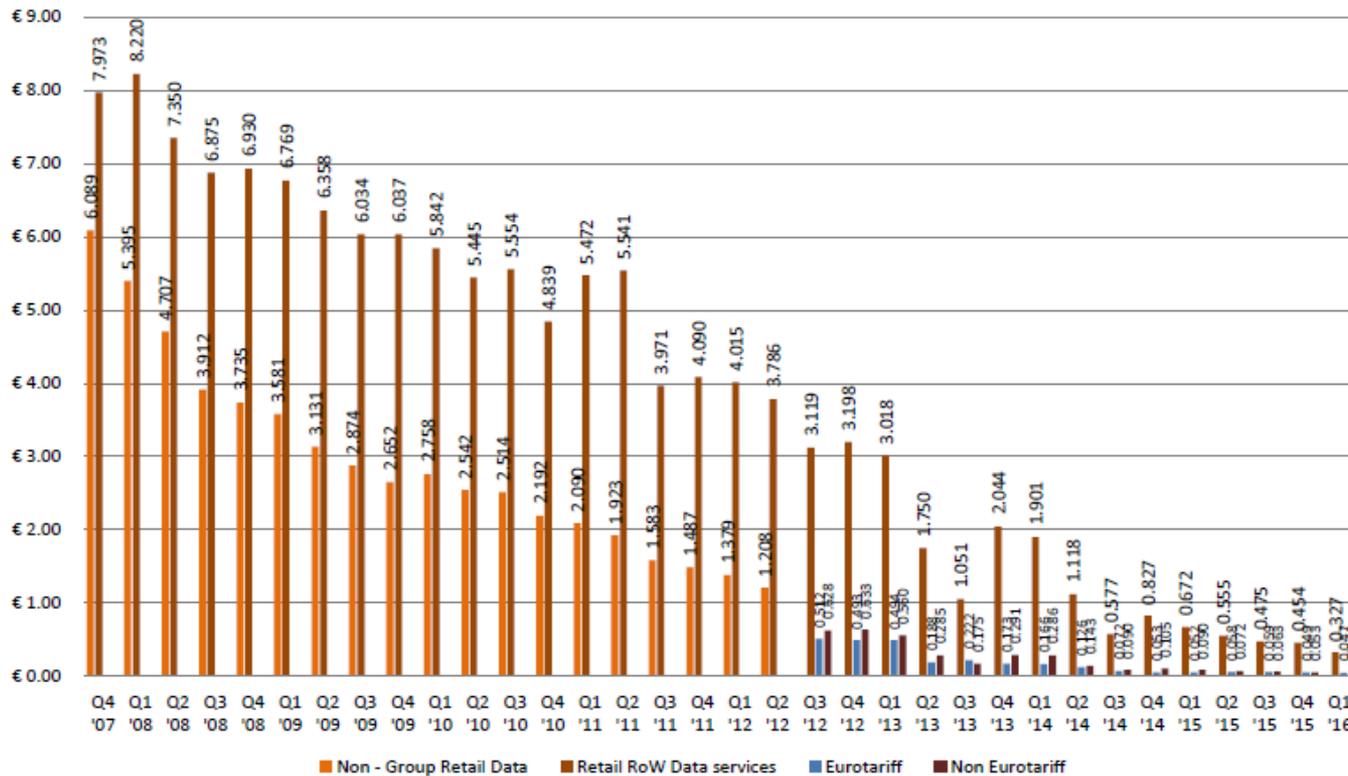


Source: BEREC (2016) BoR (16) 160



Effects of price controls in Europe

EEA average price per Mb for retail EU/EEA and RoW data (Eurotariff and Non Eurotariff: prepaid + postpaid)

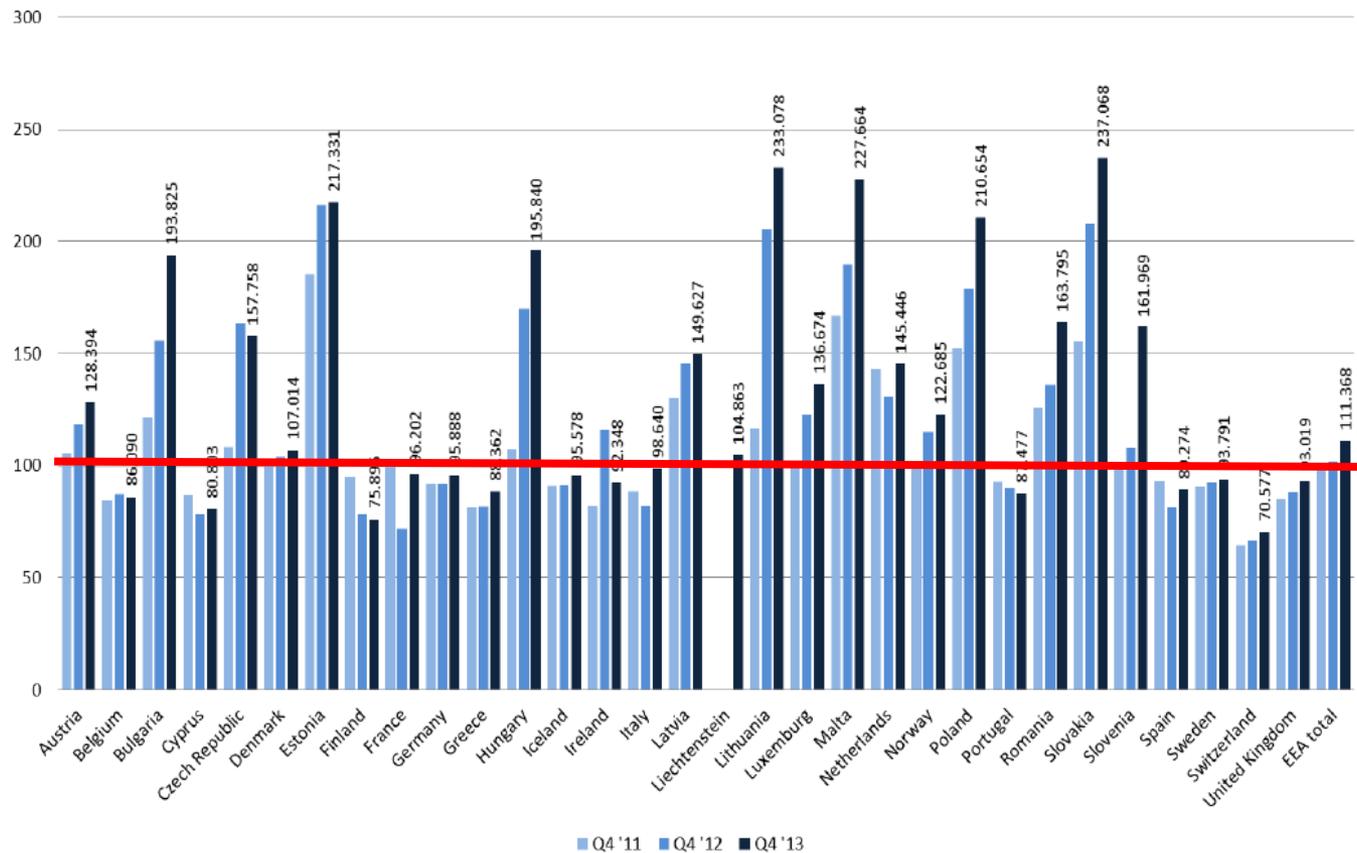


Source: BEREC (2016) BoR (16) 160



Effects of price controls in Europe

Volumes of intra-EEA roaming calls made in Q3 2013
(Actual minutes, Q3 2008 = 100)

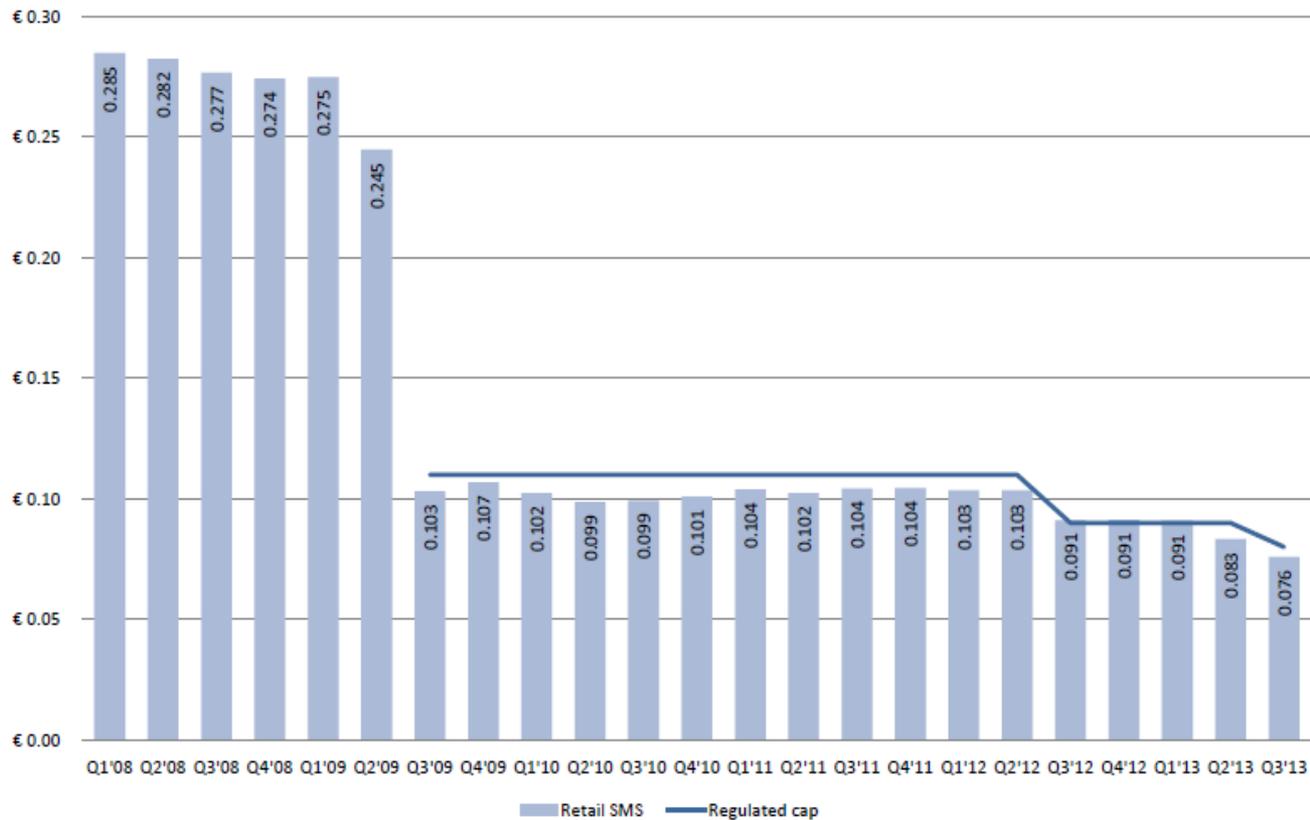


Source: BEREC (2014)



Effects of price controls in Europe

**Average price per retail SMS (Euro + Non Euro SMS tariffs)
(EU only for Q2 2009 - Q1 2010)**

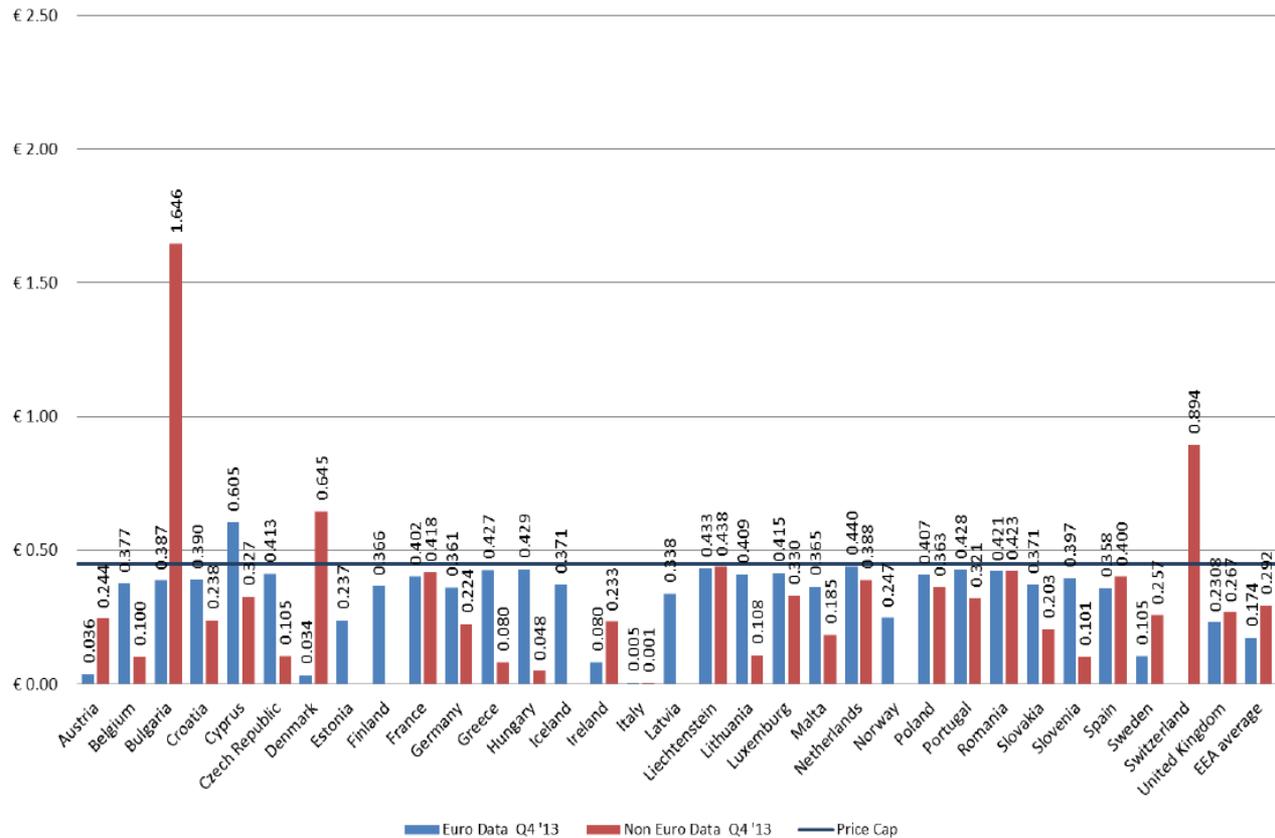


Source: BEREC (2014)



Effects of price controls in Europe

Average retail data price per Mb (prepaid+postpaid)

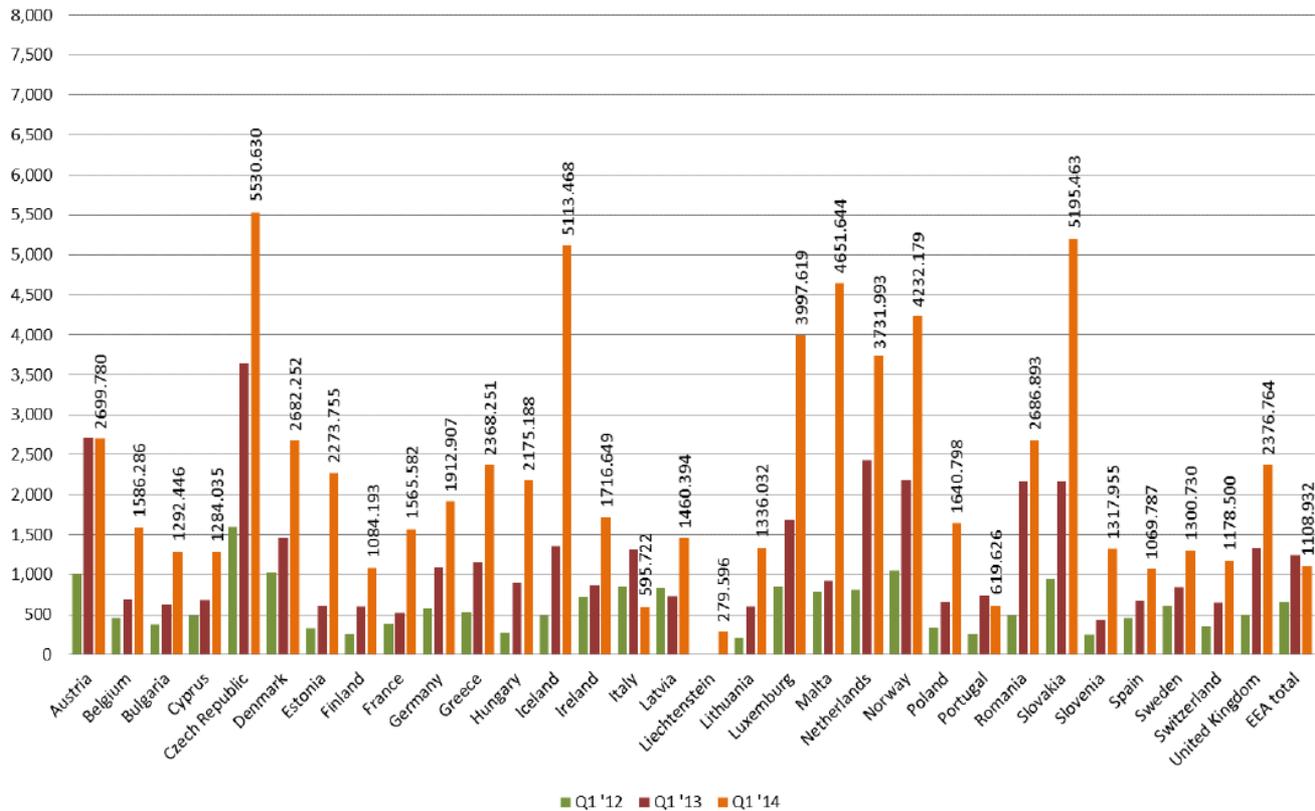


Source: BEREC (2014)



Effects of price controls in Europe

Indexed volumes of retail data in Q3 2013, prepaid +postpaid)
(Q3 2008 = 100)



Liechtenstein based on Q1 2013 = 100

Source: BEREC (2014)



Roaming Regulation in Europe

2012 Regulation: Structural Solutions

- From 1 July 2014, customers were to have the option to sign up with an **Alternative Roaming Provider (ARP)**, which could have been different from their domestic mobile provider, for a separate mobile contract for roaming while keeping the same phone number (“**single IMSI**” plan).
- MVNOs and resellers would have had the right to access other EU/EEA mobile network operators' networks at regulated wholesale prices in order to provide roaming services (together with national services) to their customers.
- Neither domestic nor roaming providers may prevent customers from accessing regulated data roaming services provided directly on a visited network by an alternative roaming provider. This data-only alternative is known as **Local Break-Out (LBO)**. In other words, providers in a visited Member State cannot be prevented from offering data roaming services to consumers with a subscription in a different Member State.



Roaming Regulation in Europe

2012 Regulation: Structural Solutions

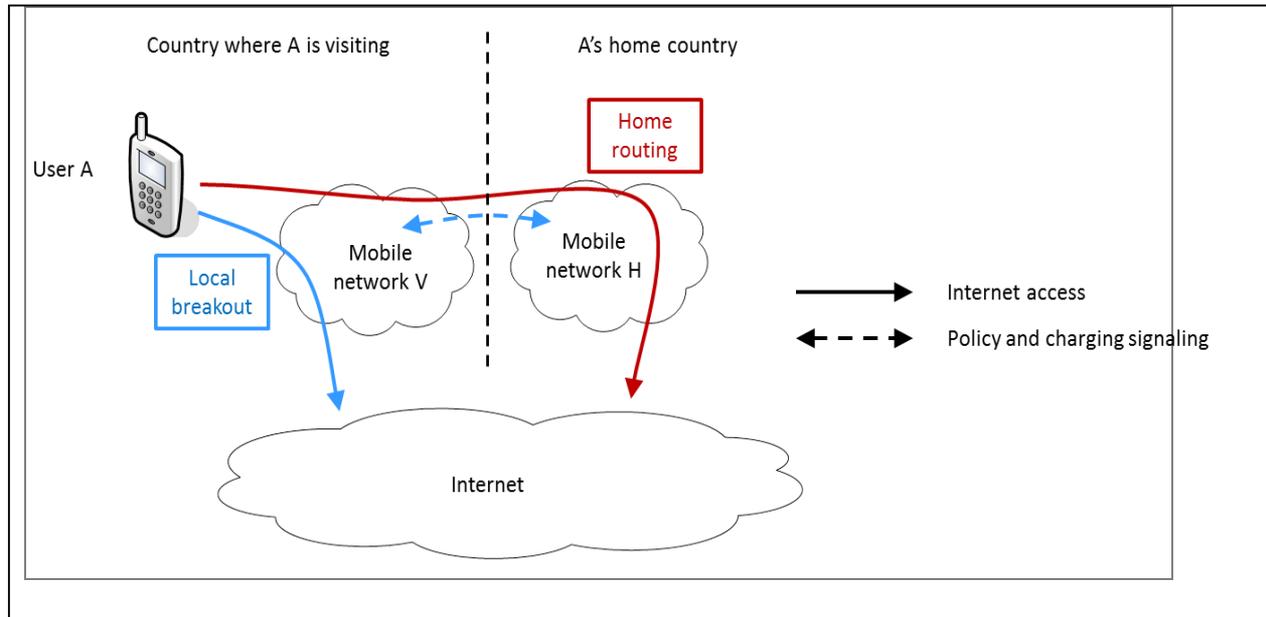
- The ARP/single IMSI arrangements might have reduced the spread between wholesale and retail prices, but would have had no effect at all on wholesale prices. It would not have been a game changer.
- LBO could conceivably have been a game changer (but only for data) if multi-country plans had emerged; however, there was no attempt to facilitate multi-country operation.
- In its 11 September 2013 proposal, the Commission effectively acknowledged that it no longer had high expectations for the structural solutions enacted in 2012 but first to have been (theoretically) implemented on July 2014.



Roaming Regulation in Europe

2012 Regulation: Structural Solutions

- LBO and Home Routing roaming scenarios could be especially suitable for Internet access in e.g. LTE networks.



Source: WIK/TNO Long Briefing Note to the European Parliament, July 2012



Commission, Parliament, and Council initiatives (2013-ongoing)

- The Commission submitted a Telecoms Single Market (TSM) package to the European Parliament on 11 September 2013.
- This caused consternation in the Parliament.
 - Delivered much too late in the term (elections in May 2014).
 - Much problematic content.
 - The Commission did not follow its own procedure in terms of conducting a public consultation and submitting an Impact Assessment approved by the Commission's IAB.
- The TSM legislative proposal was horribly flawed.
- The TSM Regulation that was ultimately enacted bears no resemblance to the package that the Commission proposed.



Roaming Regulation in Europe

The Commission's TSM proposal

- The Commission's proposed TSM package would have encouraged MNOs to **form roaming alliances** so as to provide roaming services in all Member States at prices no greater than domestic prices.
- In exchange for doing so, the MNO would receive various benefits:
 - Freedom from implementing the otherwise required price caps.
 - Freedom from the need to implement ARP and LBO.
 - In effect, freedom from the competition that ARP and LBO provide.
- There are obvious problems with this approach.



Roaming Regulation in Europe

The Commission's TSM proposal

- There were *many* practical problems with the proposal.
- The MNOs did not strongly oppose it because it placed no new obligations on them.
- They perceived, however, no reason to enter the alliances.
 - Avoidance of costs that would have already been incurred.
 - Avoidance of ARP/LBO competition that was unlikely to be effective.
- Meanwhile, the proposal irrevocably undermined the business plans of prospective providers of ARP and LBO.
 - Uncertainty as to whether MNOs would be required to support ARP or LBO offers on the part of competitors.
 - Uncertainty as to whether IMR prices would still provide enough margin to enable ARP or LBO services to be profitable.



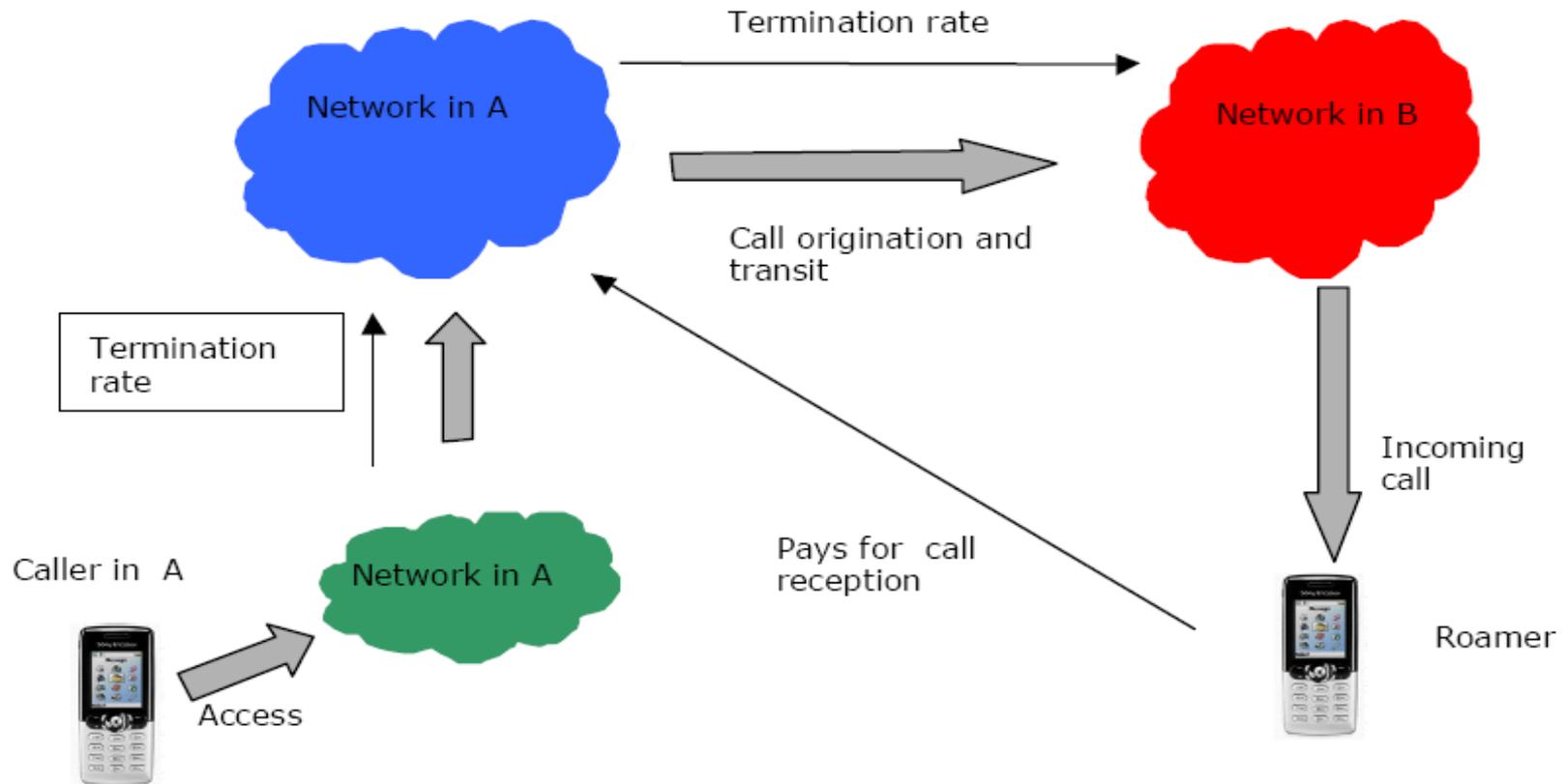
Roaming Regulation in Europe

The Commission's TSM proposal

- Meanwhile, TSM also called for elimination of surcharges for ***calls received*** while roaming within the EU/EEA.
- ***There is no conventional wholesale IOT payment for calls received*** while roaming; however, the Home Network's costs are generally dependent on the difference between an MTR paid and an MTR received.
- These differences have been declining over time, but in 2013 were still too large to ignore.



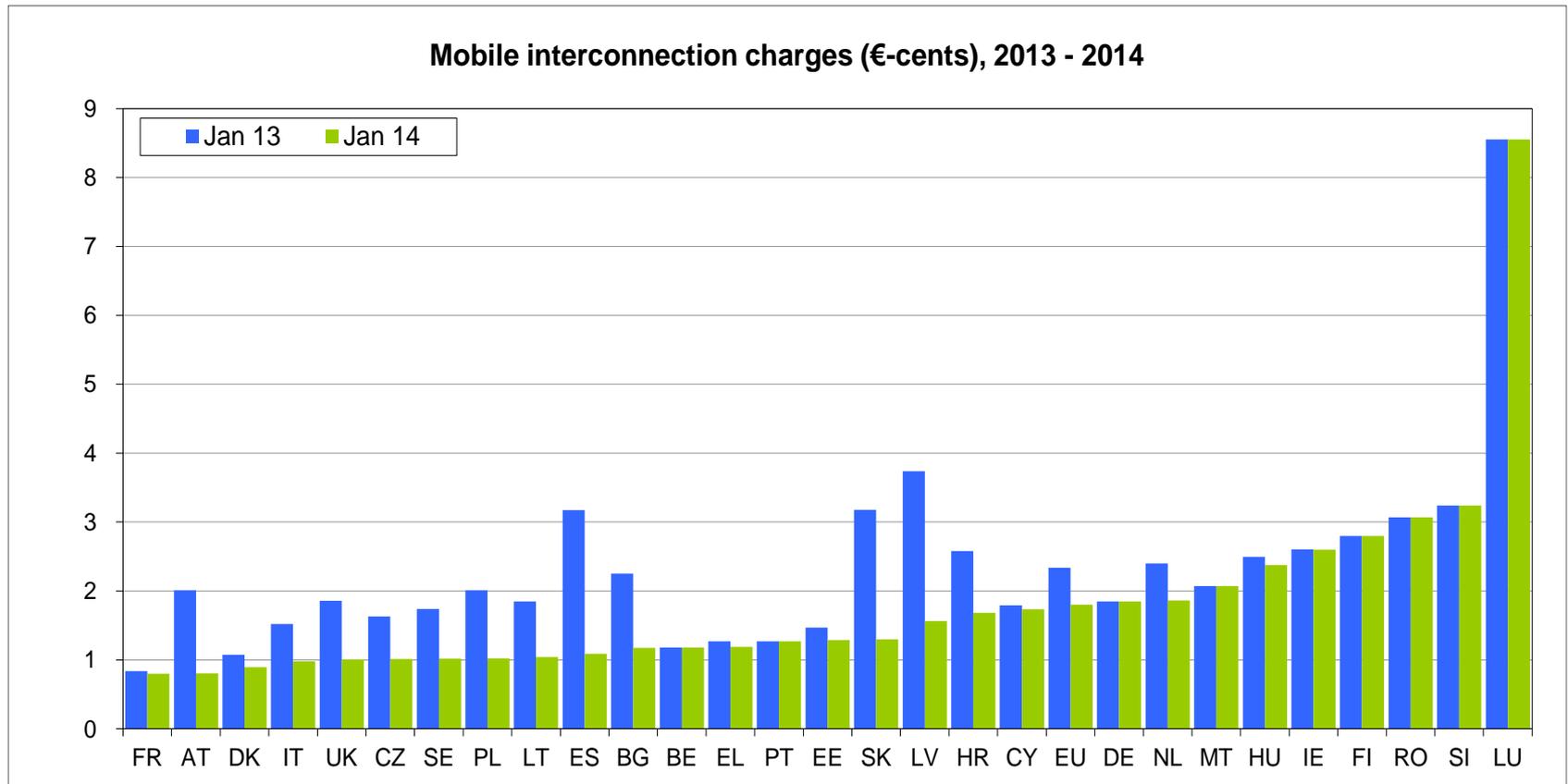
Roaming traffic and payments: calls received



Source: ARCEP, The Market for International Roaming, February 2006



Are differences among MTRs still too great?



Source: European Commission (2014), DAE Scoreboard, financial indicators spreadsheet, interconnection



Italian Presidency 21 Nov 2014 statement on the TSM package

- “The mere presentation of the TSM proposal, coming one year after adoption of that Regulation and before a number of the structural measures required by it were to be implemented, caused considerable uncertainty on the market to the detriment of users and providers. Most delegations therefore agree on the need to swiftly address roaming and are analysing various possible solutions in order to have an economically sustainable solution in place at the earliest possible date. The issue is however complex.”



Impact on Structural Solutions

- All of these proposals are deadly for structural solutions.
- Apparent status of ARP and LBO offers:
 - Legal obligations to support the service took effect on 1 July 2014.
 - MNOs invested €5-10 million per MNO per country for support.
 - Cloud9 is offering wholesale ARP support to firms in e.g. the travel industry.
 - Several firms were offering OSS support for ARP and/or LBO at the time, but there are no indications that ARP ever went on offer at retail level in Europe.
 - At least one firm offered LBO. The market impact was negligible.



Impact on Structural Solutions

- Meanwhile, MNOs were legally required to inform their customers that new services had become available, when in practice they were not available – ***a brilliant example of what should not be done.***
- Once the Commission determined that ARP and LBO were unlikely to have much effect, they should have attempted to relieve the MNOs from the obligation to implement support.
- This was not done.



The emergence of *Roam like at Home* (*RLAH*)

- A number of experts gave poor marks to the Commission proposals.
- In related work, I advised the Parliament to throw out most of TSM, and see if they could make something useful out of the parts that dealt with roaming, network neutrality, and spectrum management.
- In the end, TSM dealt only with roaming and net neutrality.
- The Roam Like at Home policy that resulted needs to be understood as a political aspiration, not as a well thought out economic strategy.
 - The Parliament rightly understood that the European public would welcome a fully hassle-free roaming service.
 - They effectively drafted the law in such a way as to oblige the European Commission and BEREC to try to figure out the bits that they themselves had no idea of how to solve.
 - These efforts are still ongoing. RLAH is a work in progress.



BEREC's assessment

- “BEREC’s analysis of the risks and impacts of the European Parliament’s RLAH proposals demonstrates that the removal of retail roaming surcharges across Europe is not currently sustainable or feasible in practice, given the significant variations in a number of important parameters across Member States, including (but not limited to) the levels of retail tariffs, costs, and travelling and consumption patterns.
- The situation is made more complex by differences between operators and between travel patterns of consumers within individual Member States.”

International Roaming: Analysis of the impacts of “Roam Like at Home” (RLAH), 17 December 2014



RLAH in practice

- I would have to acknowledge that, for a proposal that was, according to BEREC “not currently sustainable or feasible in practice”, it has not led to too many obvious problems **so far**.
- There are however risks as time goes on:
 - Consumer preferences take time to adjust – consumption of roaming data increasing by a factor of five in the first year, but it could go much higher.
 - The legislative articles to limit “permanent roaming” were watered down to the point of being made meaningless due to an outcry from the Parliament, to which Juncker caved.
- The impact on overall (non-roaming) retail price of undermining small, aggressive players and MVNOs is unknown.
- There is no longer any assurance that price will remain above cost. Sooner or later, this is likely to cause problematic distortions.



Roaming Regulation in the EU: Likely effects of Roam Like at Home

- Near term static effects
 - Significant one-time administrative costs as MNOs/MVNOs have to review and adapt every retail plan they have.
 - Immediate increases of from €1 to €3 in the overall mobile plan price (not just roaming) are already visible to cover extra roaming costs.
- Medium term static effects
 - Further price increases in the mobile package as consumer preferences respond to take advantage of RLAH.
 - Distributional effects: the poor, who rarely travel, subsidise those with greater disposable income (Robin Hood in reverse).
 - Market exit of many MVNOs and single country MNOs (next slide).
 - Further price increases due to more oligopolistic market structure.
- Longer term dynamic effects
 - Survivors may have more profits to invest but less incentive to do so.



Roaming Regulation in the EU: RLAH leads to exit of MNOs/MVNOs?

- MNOs that operate in a single Member State face a major challenge, because every MB of roaming data implies a real payment to a Visited MNOs that is *an order of magnitude* higher than their domestic cost.
- Multi-Member State MNOs will be able to internalise some fraction of their costs.
- The likely shift in usage patterns implies higher costs for all MNOs, and will result in higher prices for end-users; however, multi-Member State MNOs will not be forced to raise their prices as much.
- Most MVNOs and single Member State MNOs will not be able to deliver their current services at prices that are competitive with those that multi-Member State MNOs can achieve.



Roaming Regulation in the EU: Brexit as a natural experiment

- The UK is about to exit the EU ... or perhaps not?
- If the EU truly exits without becoming an EU or EEA member, we are likely to learn more about the functioning of RLAH.
- The UK Government would like RLAH to remain exactly as it is.
 - They can regulate domestic roaming providers.
 - They sometimes forget that post-Brexit, they will have no control over prices that UK MNOs must pay to Visited MNOs.
- For large MNOs like Vodafone, it probably makes little difference.
 - They can internalise costs because they operate in so many of the EU Member States to which UK consumers travel.
 - They can offset losses if they have substantial inbound roaming.
 - Larger groups enjoy wholesale rates well below regulated caps.
- Smaller MNOs are in a much weaker position.

For MVNOs, this could be deadly.



THE GULF COOPERATION COUNCIL (GCC) REGION



- The GCC Ministerial Committee studied, consulted on, and implemented a roaming Regulation in 2010.
- The Regulation took full effect as of 1 February 2012.
- A price cap was introduced at the retail and wholesale level on calls made within the visited country (local calls), and on calls made to other GCC member states (international calls), including the home country.
- In 2013-2015, the GCC Roaming Working Group assessed the effectiveness of the measures in place, and considered whether further steps should be taken.
- The following slides summarise the state of IMR in the GCC at the time of that study, and the recommendations made.
- The Ministers adopted the recommendations, which have been in effect since 2016.



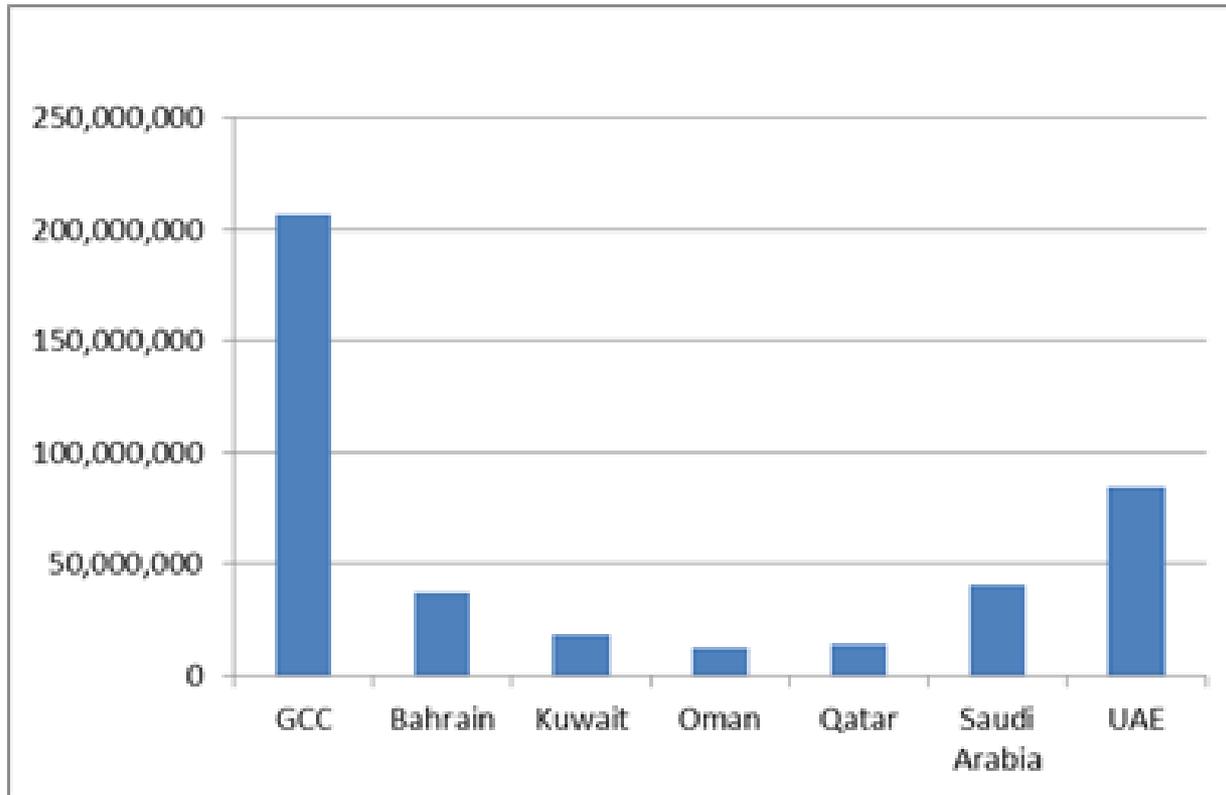
Key IMR characteristics of the GCC (2012)

Service	Unit	Volume	Revenue ¹	Unit Price
Calls Made	Minutes	207 million	197 million	0.70 ²
Calls Received	Minutes	184 million	108 million	0.59
SMS Made	SMS	72 million	34 million	0.47
Data	MB	69 million	421 million	6.11



Roaming in the GCC (2012-2013) Outgoing Voice (Calls Made while Roaming)

Total traffic generated in the GCC region and in the different visited networks (in minutes, 2012)



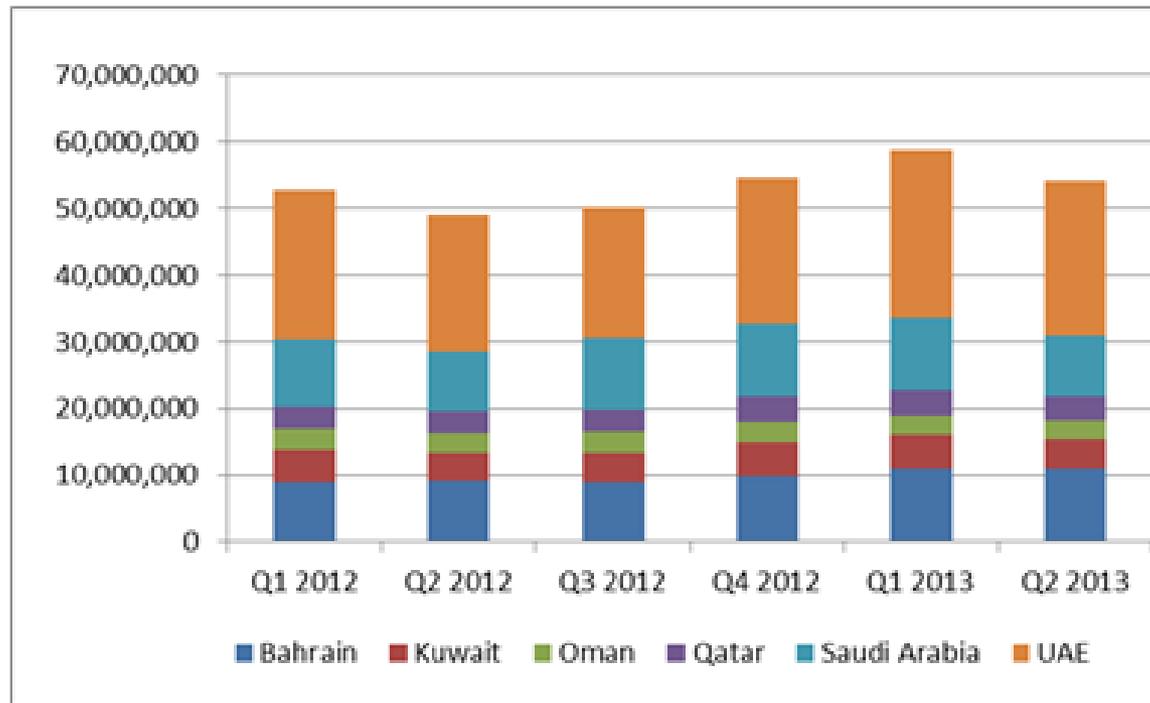
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Roaming in the GCC (2012-2013) Outgoing Voice (Calls Made while Roaming)

**Development of total traffic generated in the GCC region
and in the different visited networks
(in minutes, Q1 2012 – Q2 2013)**



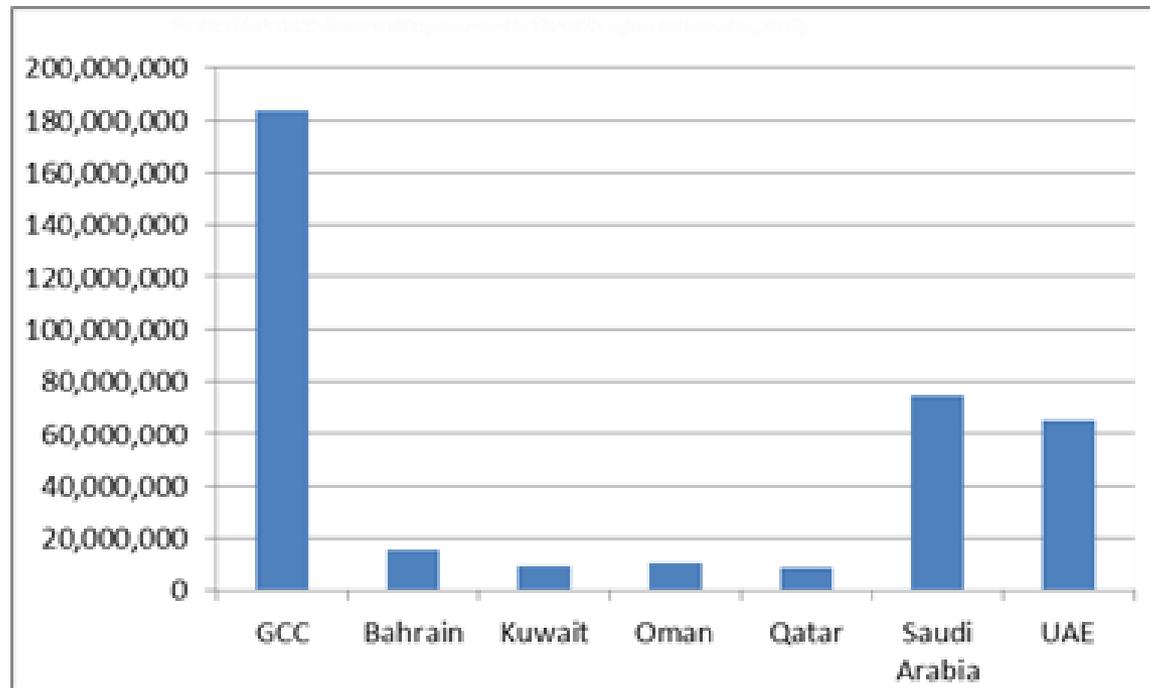
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Roaming in the GCC (2012-2013) Incoming Voice (Calls Received while Roaming)

Total traffic generated in the GCC region and in the different visited networks (in minutes, 2012)



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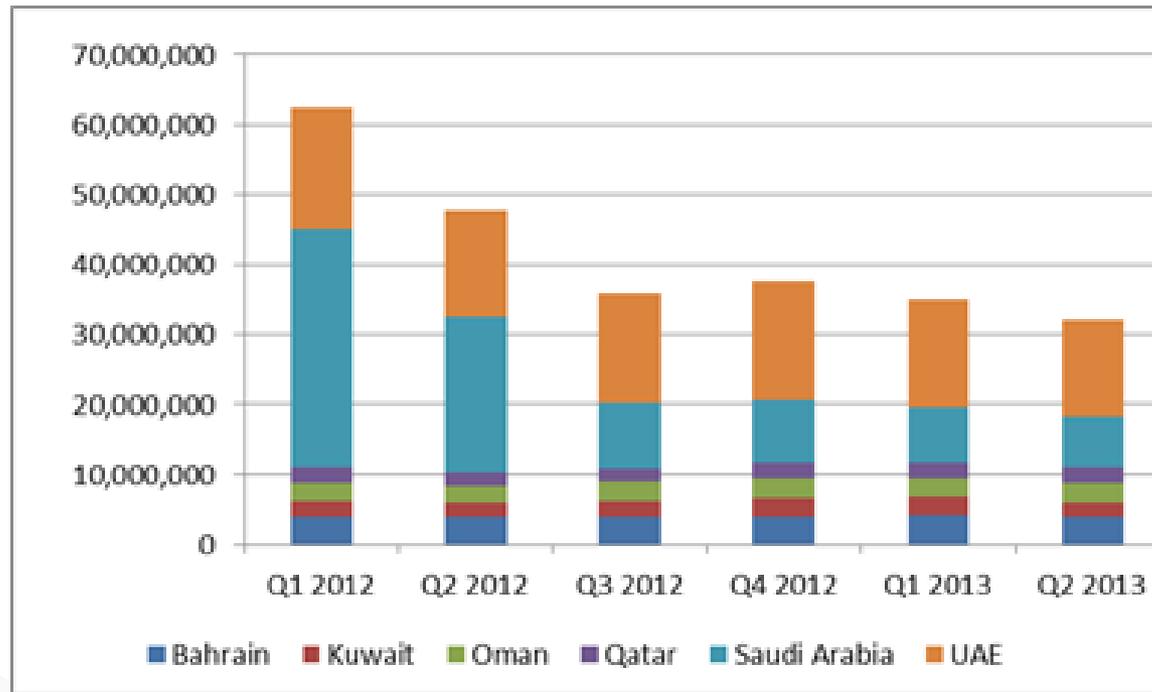
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Roaming in the GCC (2012-2013)

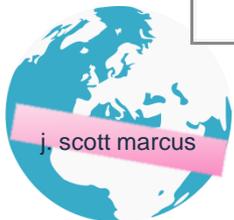
Incoming Voice

(Calls Received while Roaming)

Development of total traffic generated in the GCC region and in the different visited networks (in minutes, Q1 2012 – Q2 2013)



Special offers in Saudi Arabia played a large role in early 2012

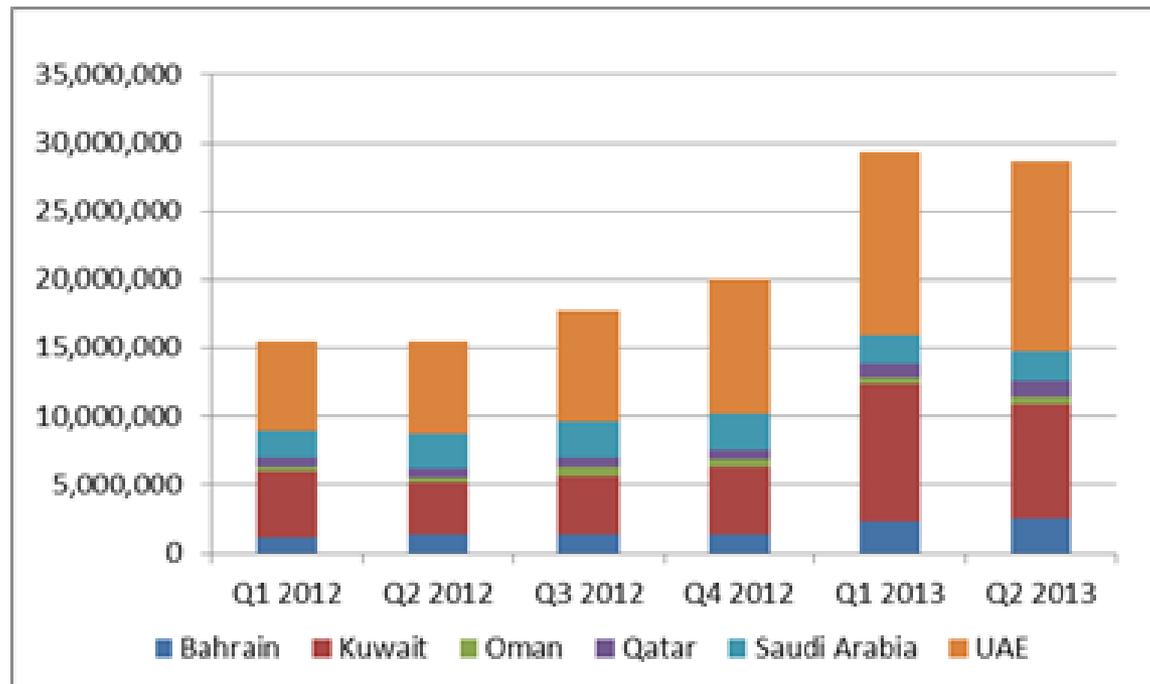


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Roaming in the GCC (2012-2013)

Data Downloaded or Uploaded while Roaming

Development of total traffic generated in the GCC region and in the different visited networks (in MB, Q1 2012 – Q2 2013)



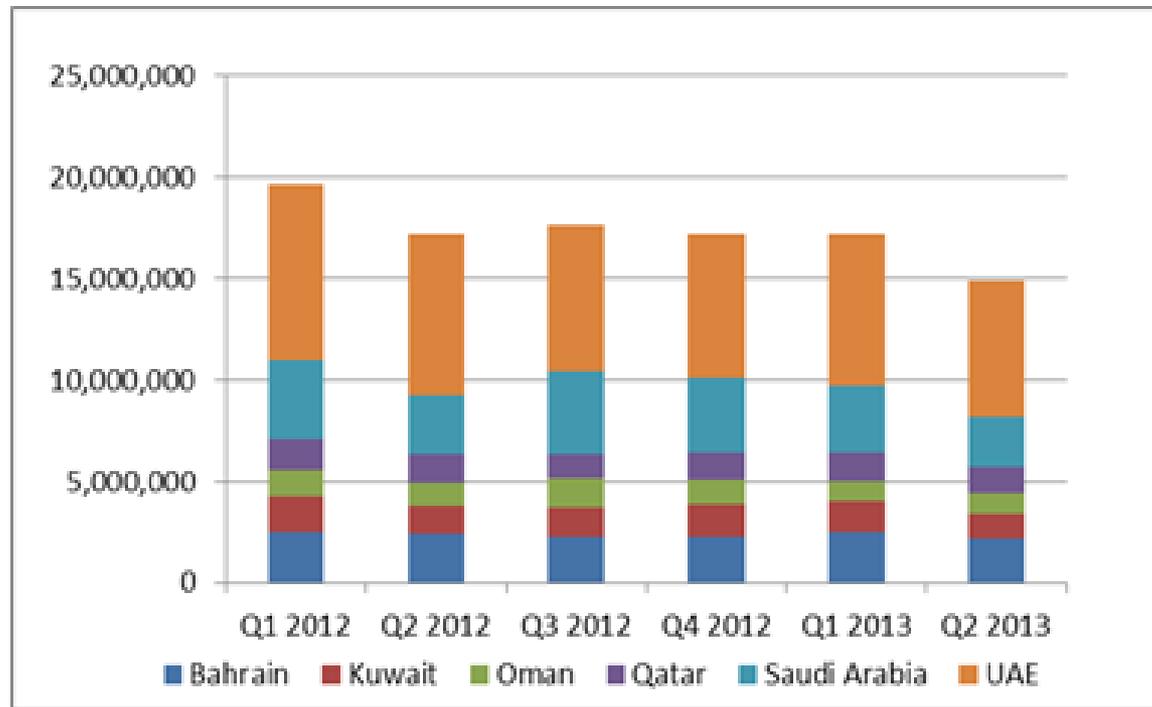
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Roaming in the GCC (2012-2013) Outgoing SMS (SMS Sent while Roaming)

Total traffic generated in the GCC region and in the different visited networks (2012)



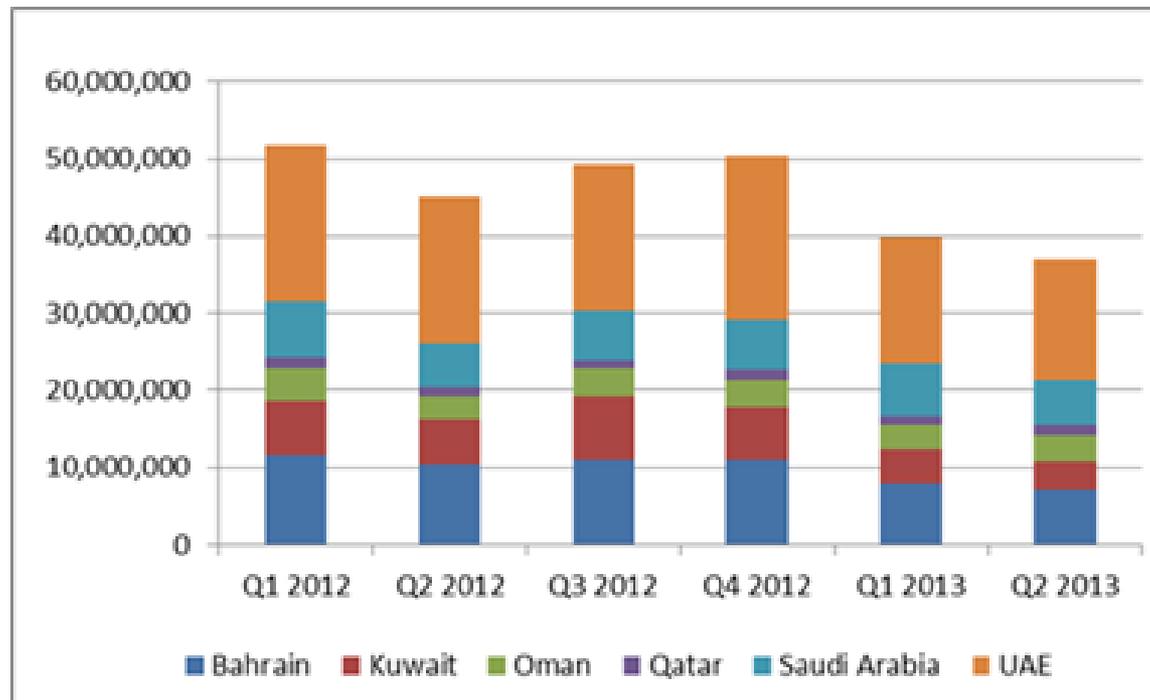
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Roaming in the GCC (2012-2013) Outgoing Voice Retail Revenue (Calls Made while Roaming)

Development of total retail revenue generated in the GCC region and in the different visited networks (in USD, Q1 2012 – Q2 2013)



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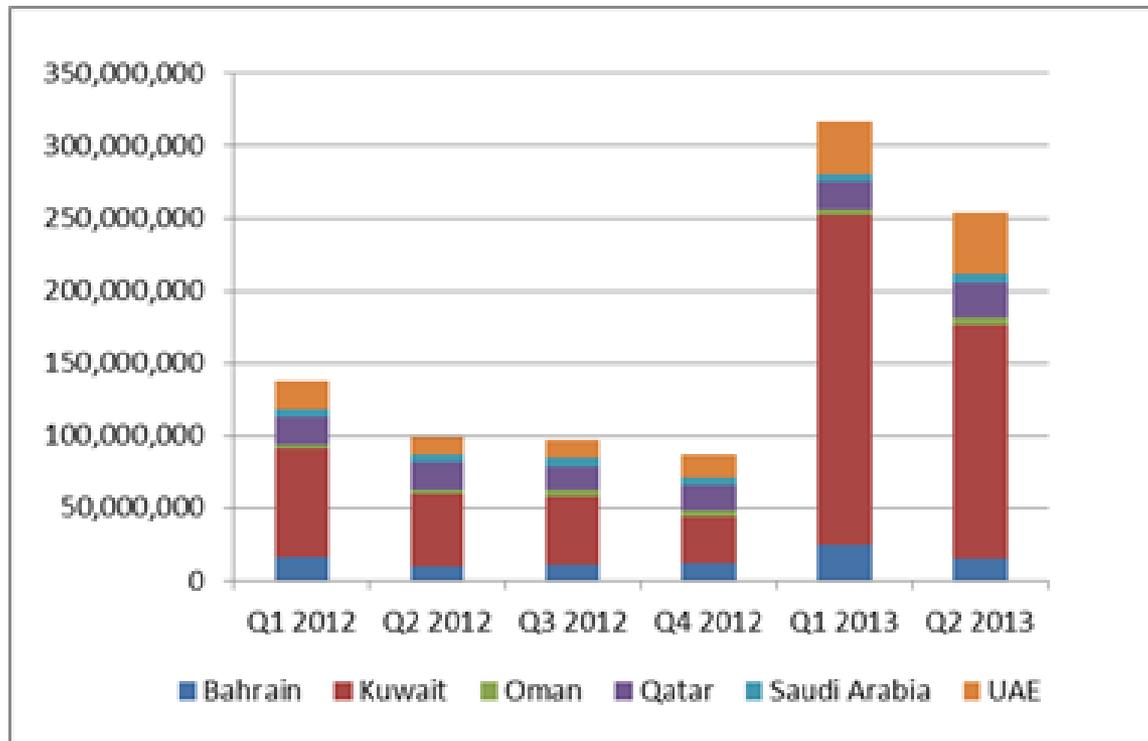
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Roaming in the GCC (2012-2013)

Data Downloaded or Uploaded while Roaming

Development of total retail revenue generated in the GCC region and in the different visited networks (in USD, Q1 2012 – Q2 2013)



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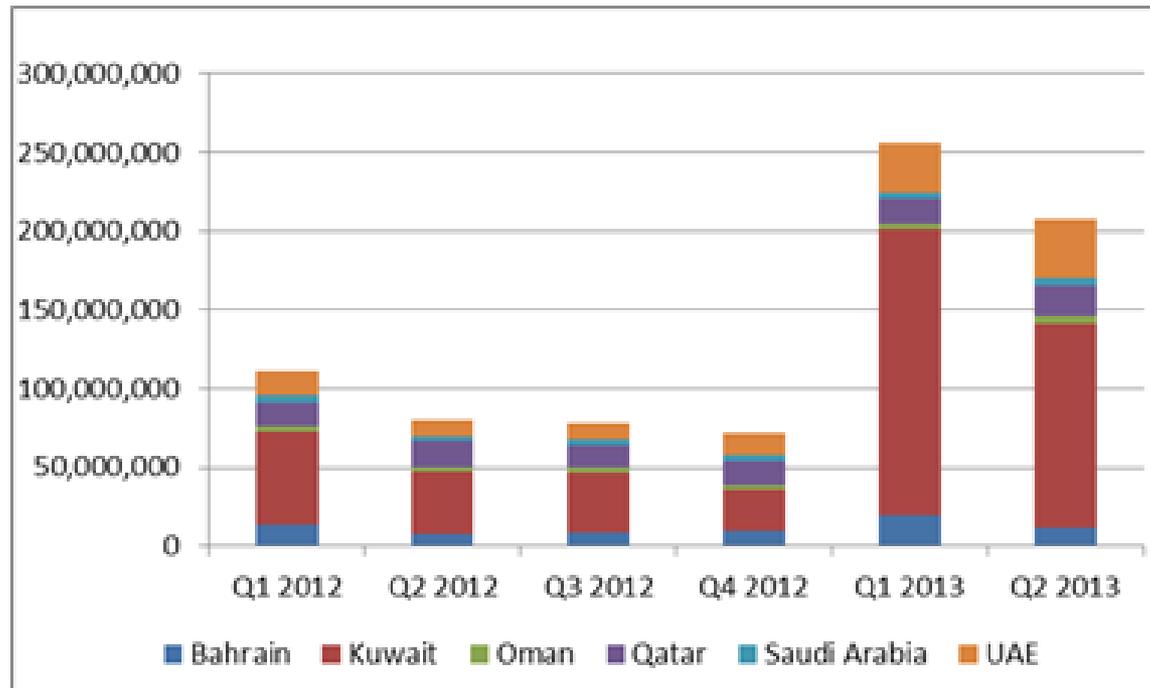
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Roaming in the GCC (2012-2013)

Data Downloaded or Uploaded while Roaming

Development of total wholesale revenue generated in the GCC region and in the different visited networks (in USD, Q1 2012 – Q2 2013)



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Assessment of costs

- In any scheme where prices are regulated, it is crucial that regulators understand underlying costs.

- For IMR, it is essential to ensure:

wholesale cost < wholesale price (IoT)

retail cost < retail price

- Since the IoT is not the only cost to the retail service, it is generally also the case that

wholesale price (IoT) < retail price

- The regulator is at a disadvantage in assessing costs due to *information asymmetries*.
- Even retail price is not trivial to assess.



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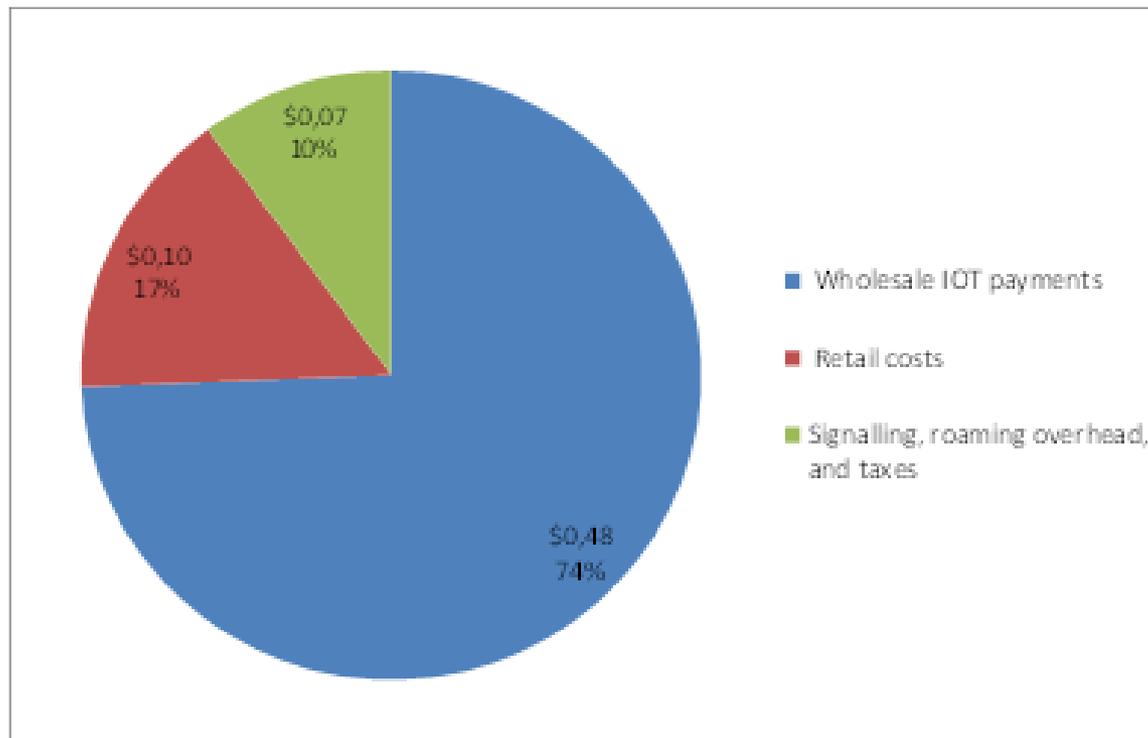
Cost of the Home Network in the GCC

- The Home Network provides IMR retail services to end users.
- Relevant cost components for home network IMR services include:
 - retail costs;
 - wholesale payments to the visited network;
 - roaming overhead costs (as defined below, plus taxes and other involuntary payments to the government); and
 - signalling.
- For some IMR services, home network costs can also include:
 - origination, termination, and other traffic related costs; and
 - international transit.



Cost to the Home Network

The cost of calls made to GCC member states other than the visited country (in USD)



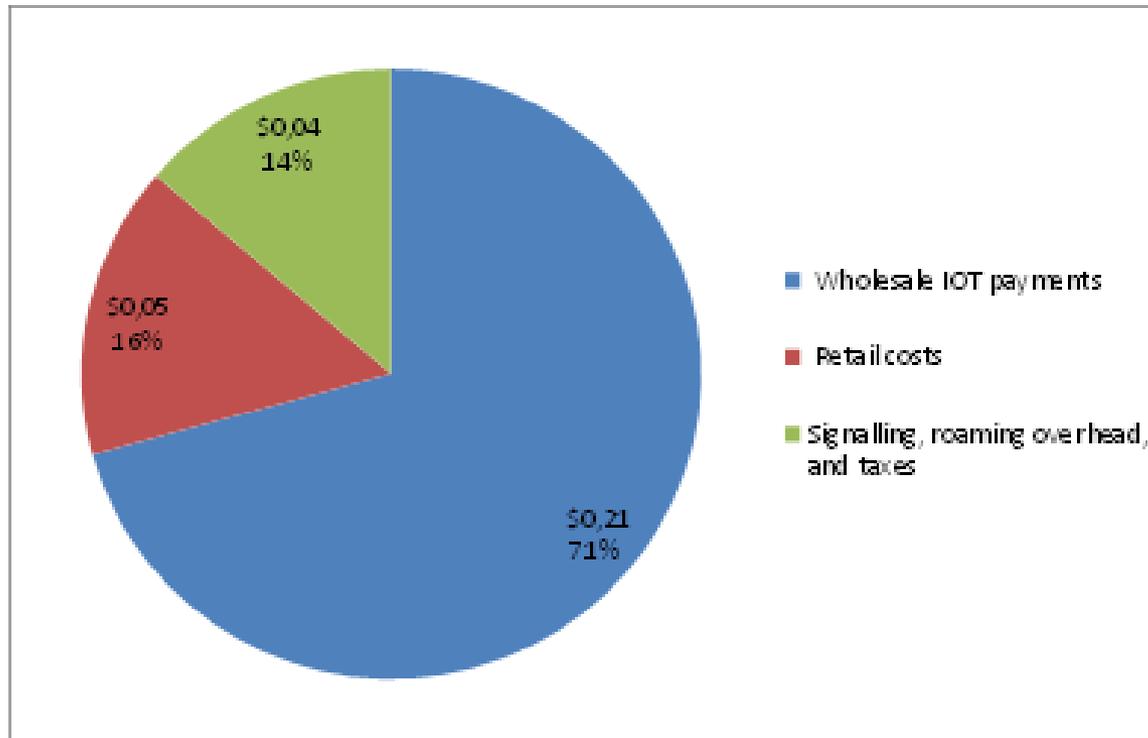
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Cost to the Home Network

The cost of calls made to GCC member states within the visited country (in USD)

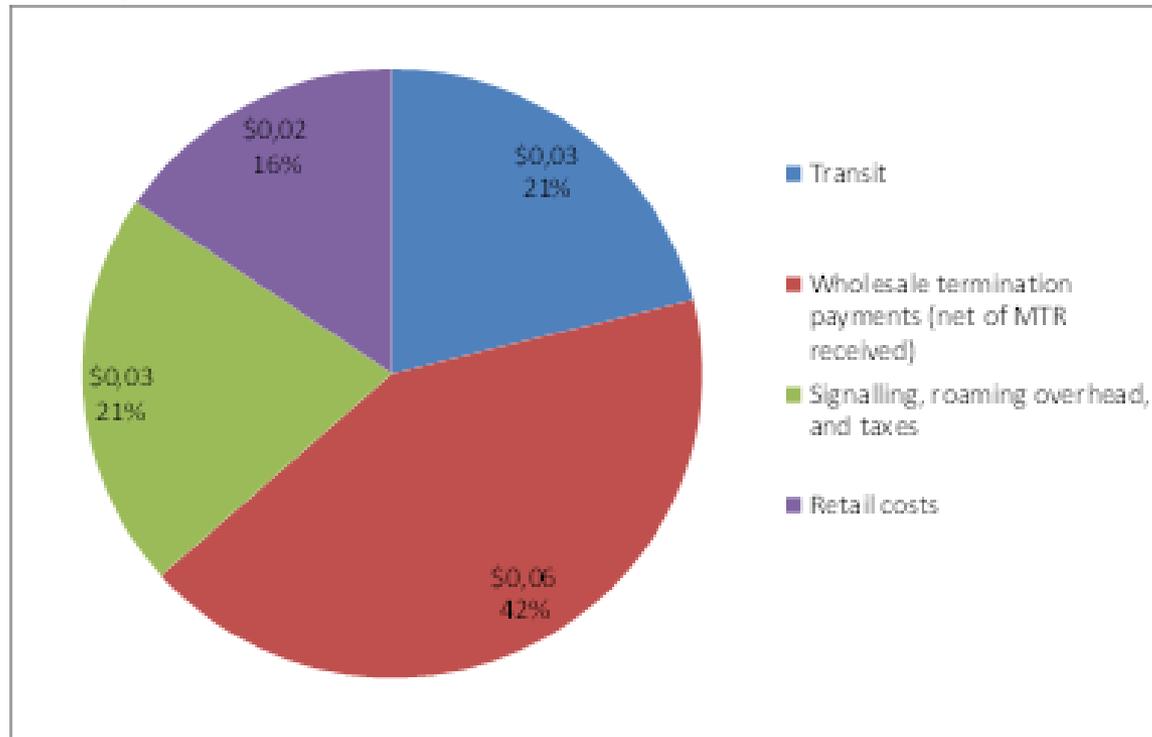


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Cost to the Home Network

Cost to the home network of completing a call from a country other than Kuwait to a roamer in the GCC (USD per minute)

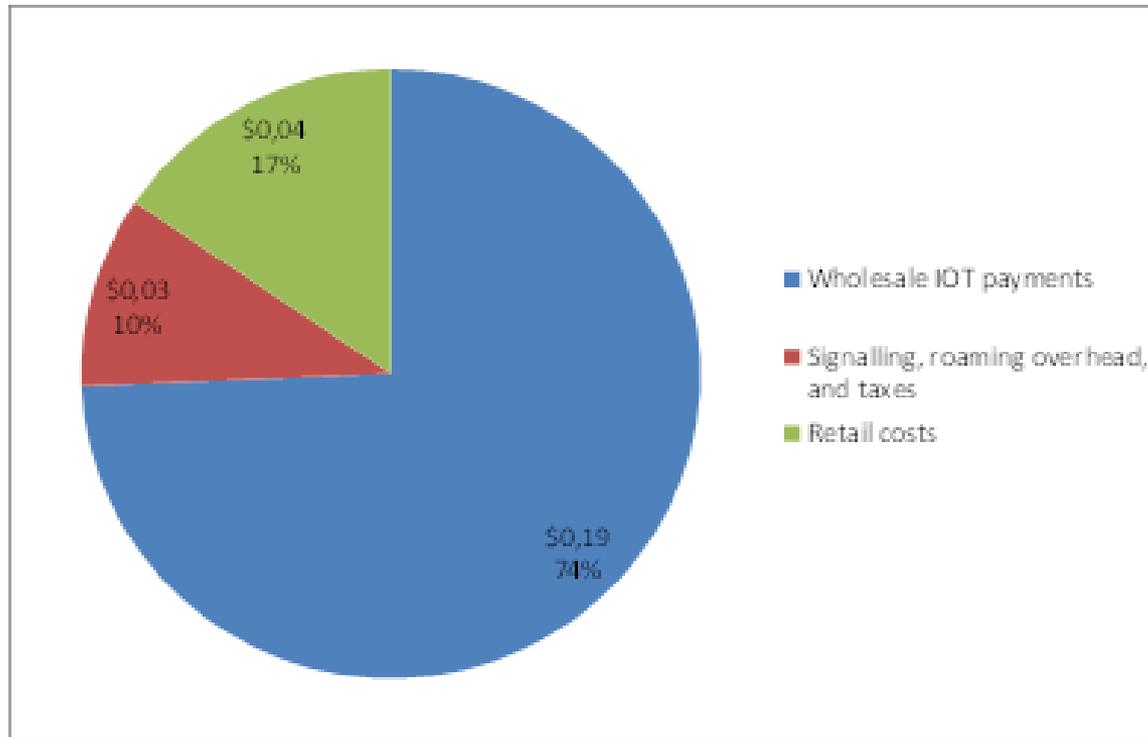


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Cost to the Home Network

The cost per SMS sent (in USD)



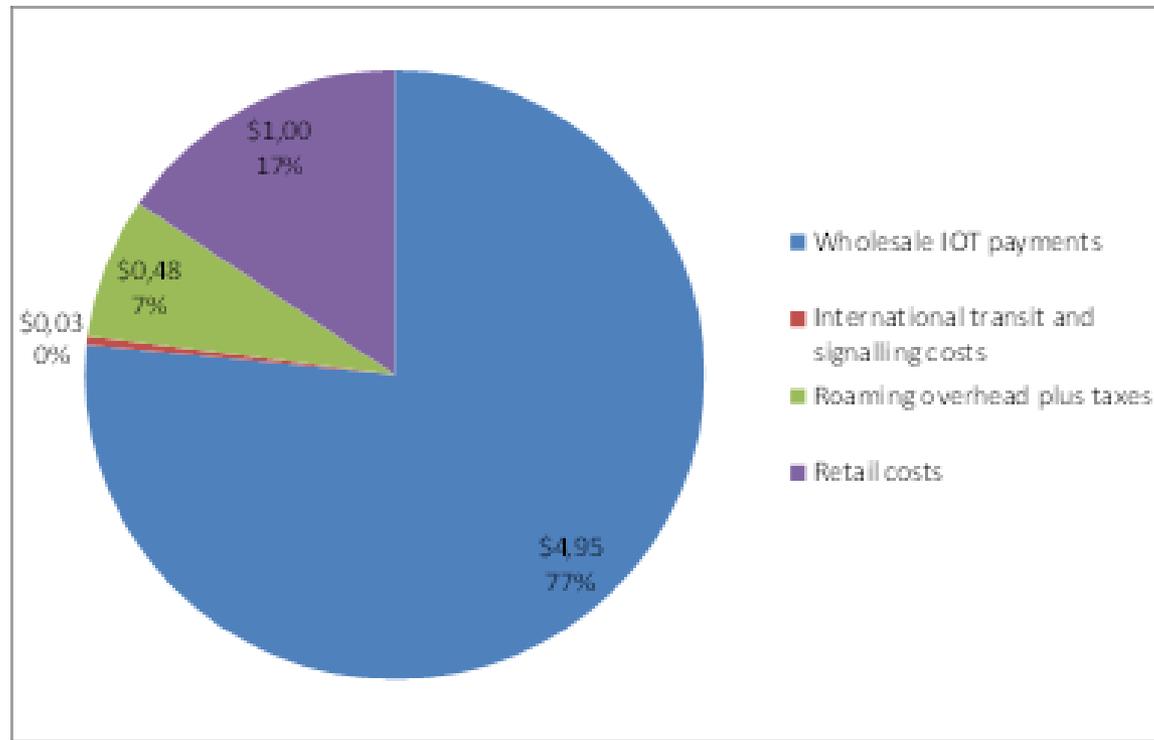
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Cost to the Home Network

Cost of international mobile roaming data to the home network (in USD, 2012)



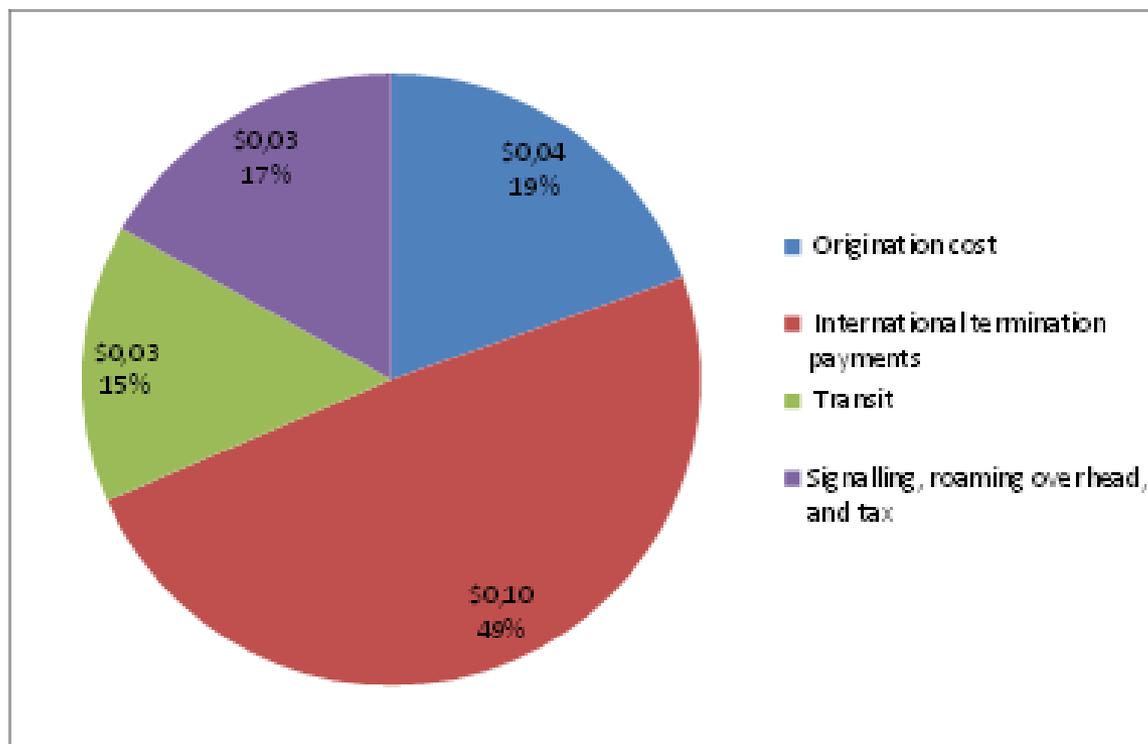
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Cost to the Visited Network

The cost of calls made to GCC member states other than the visited country (in USD)



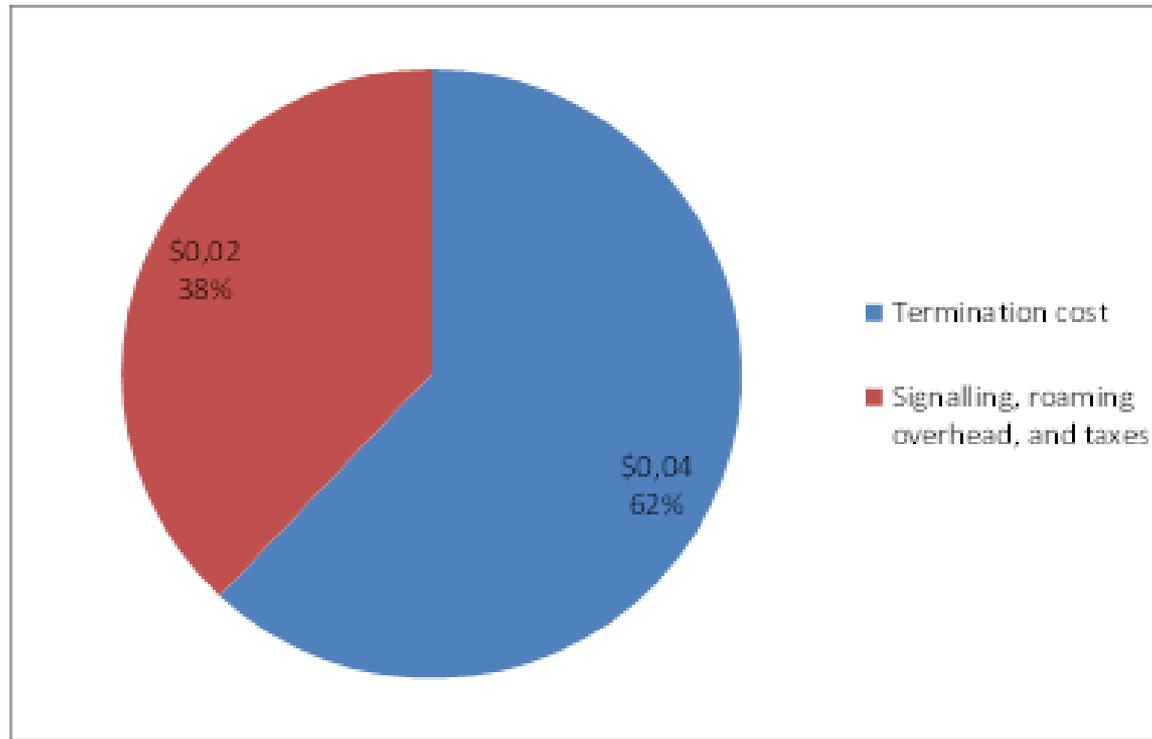
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Cost to the Visited Network

Cost to the home network of completing a call from a country other than Kuwait to a roamer in the GCC (USD per minute)

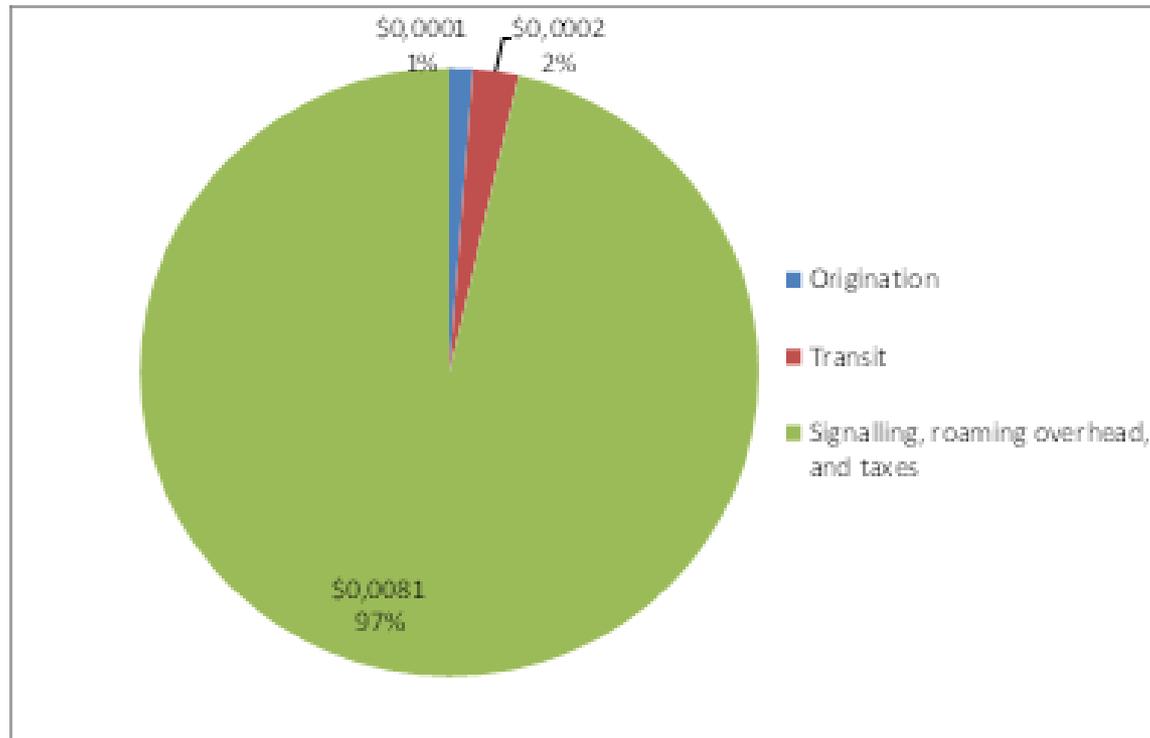


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Cost to the Visited Network

The cost per SMS sent (in USD)

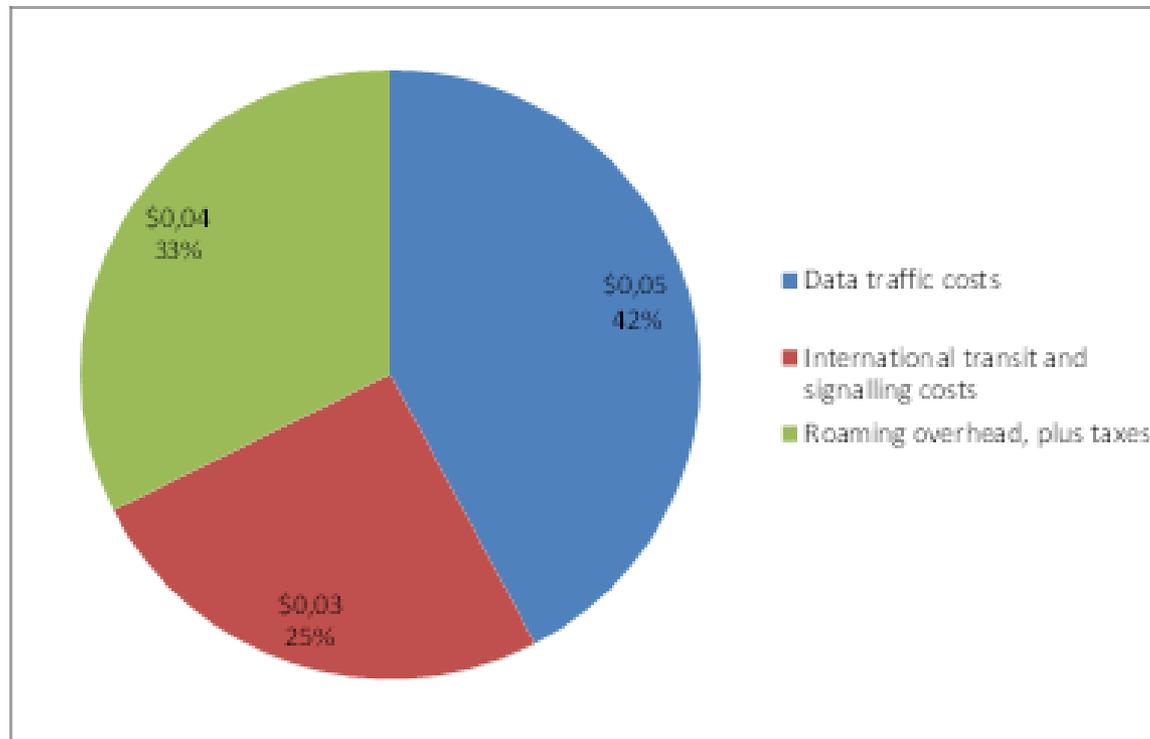


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Cost to the Visited Network

Cost of international mobile roaming data to the visited network (in USD, 2012)



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Summary of cost to the Home Network (USD)

	Per	Wholesale IOT payment to visited network	Transit	Signalling	Roaming overhead plus taxes	Wholesale termination payment (net of MTR received)	Retail costs	Total
Calls made (international GCC)	min	0.48	0.07			n/a	0.10	0.65
Calls made (visited country)	min	0.21	0.04			n/a	0.05	0.30
Calls received (other than Kuwait)	min	Not applicable	0.03	0.03		0.06	0.02	0.14
Calls received (Kuwait)	min	Not applicable	0.02			0.31	0.07	0.40
SMS sent	SMS	0.19	0.03			n/a	0.04	0.26
Data	MB	4.95	0.03		0.48	n/a	1.00	6.46



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Summary of cost to the Visited Network (USD)

	Per	Origination or termination	Transit	Signalling	Roaming overhead plus taxes	Wholesale termination payment	Total
Calls made (international GCC)	min	0.04	0.03	0.03		0.10	0.20
Calls made (international from Kuwait)	min	0.04	0.00	0.02		0.35	0.41
Calls made (visited country, off-net)	min	0.04	n/a	0.03		0.06	0.13
Calls received	min	0.04	n/a	0.02		n/a	0.06
SMS sent	SMS	0.0001	0.0002	0.008		n/a	0.01
Data	MB	0.05	0.03		0.05	n/a	0.12



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Effectiveness of the prior Regulation

- Compliance with the Regulation appears to have been good once it was fully implemented.
- The Regulation was found to be effective in reducing the level of retail and wholesale prices for calls placed while roaming.
- The volume of minutes for voice calls originated in total has increased slightly (some 11%) since the Regulation came into force, probably largely in response to lower prices.
- Meanwhile, the volume of mobile roaming data was increasing rapidly.
- Prices for other IMR services continued to be high, which was especially worrisome in the case of data roaming – the most important IMR service going forward.



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Effectiveness of the prior Regulation

- The price reductions achieved prior to the 2013-2015 review benefitted consumers, as well as the GCC economy at large.
- The RWG estimated that the prior Regulation resulted in a transfer of welfare from network operators to consumers of some 79.5 million USD in 2012, and a reduction in deadweight loss (caused by calls that would have been made, but were not due to high prices) of 4.3 million USD.
- These numbers are significant, but they are not dramatic.
- Expanding the scope of regulation appeared to offer a potential for much greater benefits.



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Two distinct reasons to act

- The first has to do with the integration and the social cohesion of the GCC as whole.
 - This is fundamentally a politically driven issue, and not solely an economic matter.
 - This rationale is grounded in the GCC Charter and in the Economic Agreement of 2001, where scale economies and a stronger bargaining position in any international negotiations are clear objectives.
- The second is based on the recognition that consumers and business travelers use their mobile devices differently (and less) when roaming than they do for purely domestic purposes.
 - The usage that is sacrificed represents a direct economic loss for the region (a deadweight loss), and likely has negative spill-over effects into the broader regional economy.
 - This is primarily a matter of industrial and regulatory policy.



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Measures implemented

- The RWG recommended to the Ministers a range of wholesale and retail price controls on IMR services, together with supporting measures, in order to promote the interests of the GCC, its businesses, and its citizens and residents.
- The RWG recommended implementation of IMR price controls for voice calls made, voice calls received, and SMS in three steps in 2016, 2017 and 2018; for data, however, the RWG recommends five steps in 2016, 2017, 2018, 2019, and 2020 (see the tables at the end of this Executive Summary).
- Controls for calls made and SMS sent apply only where the destination of the call or SMS is also within the GCC.
- In each case, wholesale controls would come into effect on 1 January, while the corresponding retail controls would come into effect on the following 1 April.



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Measures implemented

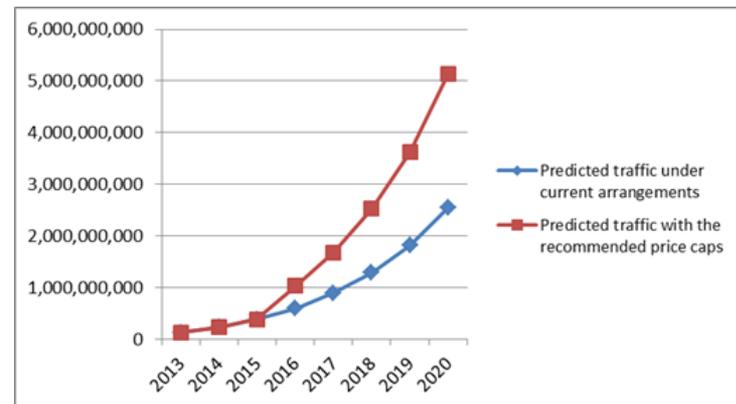
- Subject to the price controls, MNOs should have as much retail pricing flexibility as possible.
- They should not, however, be permitted to offer commercial roaming packages where, under reasonable assumptions as to the unit price to impute to the roaming service, the package would generate a higher price than the regulated rate even if all roaming minutes, SMS, and data MB in the bundle were fully utilised.
- National authorities may require MNOs to notify them in advance of proposed commercial roaming packages in order to ensure that these conditions are met.



GCC Roaming Working Group (2015), International Mobile Roaming (IMR)
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Expected impacts

- The RWG's recommended a very large cut to mobile roaming data prices.
- This should generate a dramatic increase in traffic volume as a result.
- This increased usage can be expected to generate direct economic benefits.
- In addition, it can be expected to generate “spill over” effects into business in the region, and to contribute to enhanced economic and social cohesion.



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Approach to the glide path for prices

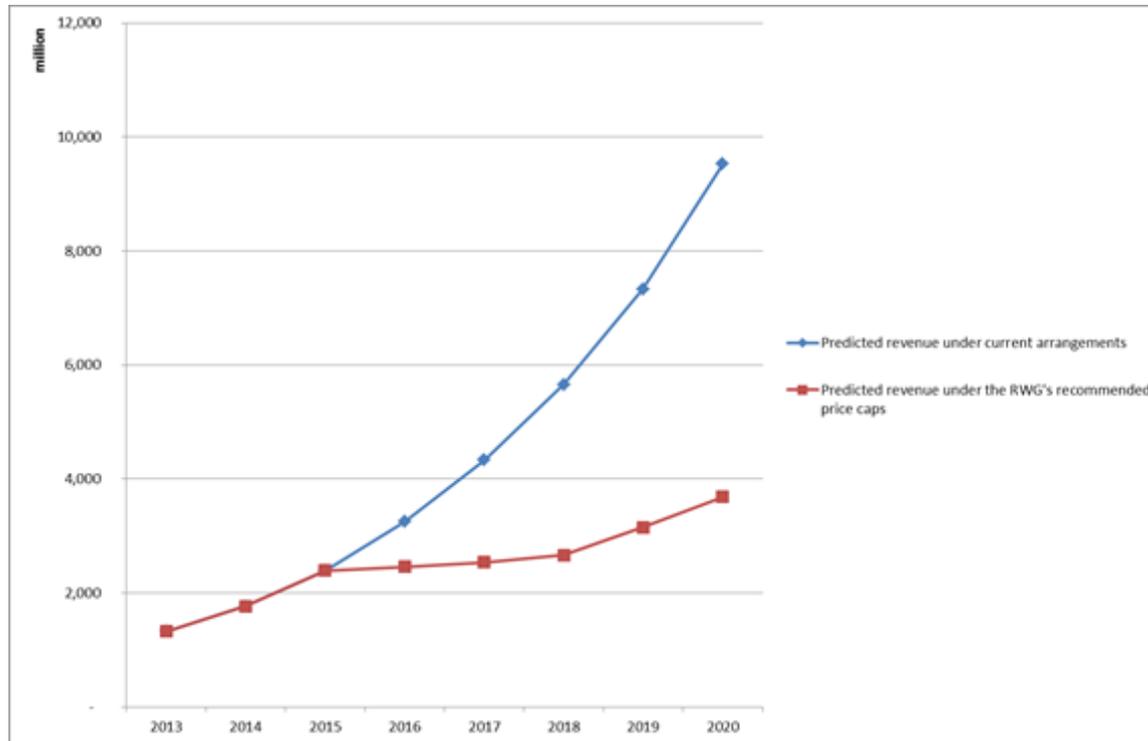
- Any measures taken should consider both consumer welfare and MNO welfare, since both contribute to societal welfare.
- In this regard it is important to avoid abrupt “shocks” and needless disruption to MNO revenues and profits.
- No one can predict the future with perfect confidence; however, the RWG sought to use the level and glide path of regulated roaming data prices as a “control knob” to enable a smooth, gradual transition, with as little disruption as possible to the MNOs.
- The RWG sought to ensure that MNO IMR revenues remain in excess of 2015 levels.
- The expected growth of mobile data services in general is the economic “engine” that makes this possible.



GCC Roaming Working Group (2015), International Mobile Roaming (IMR)
across the Gulf Corporation Council (GCC) Region

Expected impacts

Expected evolution of total GCC MNO revenues if no action is taken versus under the RWG's recommended price caps (millions of USD)

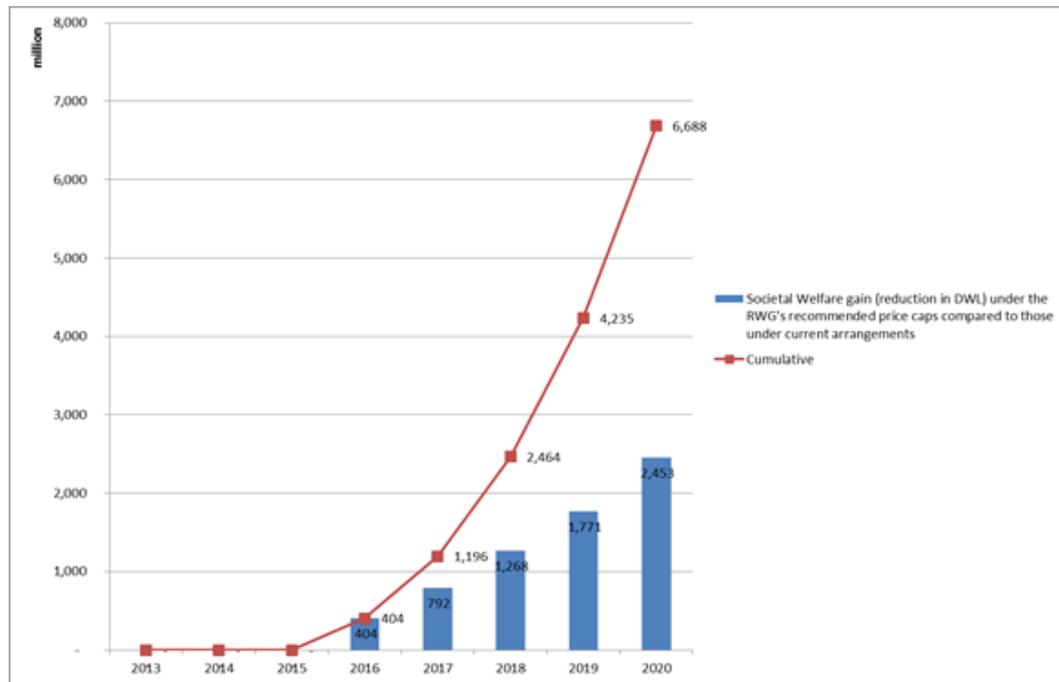


GCC Roaming Working Group (2015), International Mobile Roaming (IMR) across the Gulf Corporation Council (GCC) Region



Expected impacts

- Predicted direct gain in societal welfare (reduction in deadweight loss) under the the RWG's recommended approach compared to a “business as usual” approach (millions of USD)



GCC Roaming Working Group (2015), International Mobile Roaming (IMR) across the Gulf Corporation Council (GCC) Region



Price levels and glide paths: Calls made

- Recommended price caps for calls made while roaming
(USD per minute)

Within the Visited Country							
	Today	As of 1 January 2016	As of 1 April 2016	As of 1 January 2017	As of 1 April 2017	As of 1 January 2018	As of 1 April 2018
Wholesale cap	\$ 0.21	\$ 0.19		\$ 0.18		\$ 0.17	
Retail cap	\$ 0.28		\$ 0.26		\$ 0.25		\$ 0.24
Retail/wholesale mark-up	33%		37%		39%		41%
To other GCC Member States							
	Today	As of 1 January 2016	As of 1 April 2016	As of 1 January 2017	As of 1 April 2017	As of 1 January 2018	As of 1 April 2018
Wholesale cap	\$ 0.50	\$ 0.47		\$ 0.45		\$ 0.43	
Retail cap	\$ 0.66		\$ 0.64		\$ 0.62		\$ 0.60
Retail/wholesale mark-up	32%		36%		38%		40%



GCC Roaming Working Group (2015), International Mobile Roaming (IMR)
across the Gulf Corporation Council (GCC) Region

AREGNET Workshop on International Mobile Roaming (IMR), Bahrain, 7 April 2019

Price levels and glide paths: Calls received

- **Recommended price caps for calls received while roaming (USD per minute)**

Calls received	As of 1 April 2016	As of 1 April 2017	As of 1 April 2018
Retail cap (other than Kuwait)	\$ 0.35	\$ 0.28	\$ 0.22
Retail cap (Kuwait)	\$ 0.66	\$ 0.60	\$ 0.55
Markup versus cost (other than Kuwait)	147%	97%	55%
Markup versus cost (Kuwait)	67%	52%	39%



GCC Roaming Working Group (2015), International Mobile Roaming (IMR)
across the Gulf Corporation Council (GCC) Region

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Price levels and glide paths: SMS sent

- Recommended price caps for each SMS made while roaming (USD per minute)

SMS	As of 1 January 2016	As of 1 April 2016	As of 1 January 2017	As of 1 April 2017	As of 1 January 2018	As of 1 April 2018
Wholesale cap	\$ 0.04		\$ 0.04		\$ 0.04	
Retail cap		\$ 0.08		\$ 0.07		\$ 0.06
Retail/wholesale mark-up		100%		75%		50%



GCC Roaming Working Group (2015), International Mobile Roaming (IMR)
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Price levels and glide paths: Roaming data

- Recommended price caps for each SMS made while roaming (USD per minute)

	As of 1 January 2016	As of 1 April 2016	As of 1 January 2017	As of 1 April 2017	As of 1 January 2018	As of 1 April 2018	As of 1 January 2019	As of 1 April 2019	As of 1 January 2020	As of 1 April 2020
Wholesale cap	\$ 0.80		\$ 0.50		\$ 0.35		\$ 0.30		\$ 0.25	
Retail cap		\$ 1.30		\$ 0.85		\$ 0.60		\$ 0.50		\$ 0.42
Retail/wholesale mark-up		63%		70%		71%		67%		68%



GCC Roaming Working Group (2015), International Mobile Roaming (IMR)
across the Gulf Corporation Council (GCC) Region

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POLICY CONSIDERATIONS FOR THE AREGNET REGION GOING FORWARD



Policy considerations for the AREGNET region going forward

- Overall approach: “traditional”, ARP/LBO, Roam like a local (RLAL), RLAH
- Price cap levels and implementation sequence if regulation is chosen
- Transparency and bill shock measures
- GATS / WTO MFN considerations
- Special concerns: international gateways, double taxation
- Collection of statistics



Geographic scope of measures

- Measures to make IMR consumer-friendly and to mitigate overpricing can be viewed as a form of *public good*.
 - Non-rivalrous.
 - Excludable (and thus not a *pure* public good).
 - Commercial incentives would not sufficiently produce them.
- Public goods can be national, regional (trans-national), or global.
- Since a single country cannot fully regulate IMR, it is clearly not a *national public good (NPG)*.
- Since prospects for an integrated global solution seem thin, it is best viewed today as a *regional public good (RPG)*.
- A key question, then, is what is the right region? It is easiest by far to implement in a region that has regional institutions that can enforce rules, and that already seeks regional integration.



OVERALL APPROACH



Overall approach

- Wholesale and retail price regulation is a well tested and proven approach, but requires agreement among participating countries.
- Without an institution like the EU or GCC, attention must be paid to (1) enforcement and (2) GATS considerations.
- Avoid dubious approaches (structural solutions, RLAH).
- Some measures could be undertaken quickly:
 - Statistics collection, and/or
 - Transparency and bill shock prevention measures.
- Some elements that were not present in Europe may need special attention in parts of the Asia Pacific region.
 - Not yet fully liberalised international gateways.
 - Double taxation.



Wholesale and retail price controls

- Wholesale and retail price controls can make sense in general, and especially in regions where there is a strong desire to enhance regional integration, provided that sufficient political will is present.
- The two clearest examples of successful controls are in the European Union (prior to 2017) and in the GCC, areas where regional integration is fairly well developed and where regional institutions exist that can enforce international agreements.
- The *One Network Area* initiative in Kenya, Rwanda, South Sudan and Uganda suggests that some measures are possible even in the absence of such extensive regional integration.



Roam like a local might conceivably work

- An IMR regulatory regime that pegs retail price, not to those of the home country but rather to those of the visited country, is likely to be less problematic than RLAH.
- Prices would be able to adjust to true cost differences in the visited country; however, they still would not fully track cost.
- EU policymakers wanted to provide their constituents with the “cozy feeling” that the price is the same no matter where you are in the EU. RLAL does not provide that kind of security.
- Very little research has been done on RLAL.



Issues for Roam like a Local

- The regulator of the Home Network would presumably set a regulatory cap on the price that it charges its customers, as it the case today in the GCC.
- The level of that cap would reflect circumstances in the Visited Country.
- The Visited Country regulatory authority would presumably determine the relevant price. Is this the typical price for the Visited Network, or some blended average across multiple networks?
- The Visited Country regulatory authority might have an incentive to set a higher price than it should in order to help its own countries MNOs – there might be an incentives problem.
- There may be ways to “game” things – analysis would be needed that probably has not been done to date.



PRICE CAP LEVELS AND IMPLEMENTATION SEQUENCE IF REGULATION IS CHOSEN



Price cap levels

- It is never a good idea to force prices below the level of associated costs.
 - Wholesale price caps should not be lower than the Visited Network's relevant costs.
 - Retail price caps should not be lower than the Home Network's relevant costs (including payments to the VN).
 - Wholesale charges, retail prices, and call (and SMS) termination rates must be kept in balance with one another.
- It is much easier to keep these things in balance when caps are not excessively tight.
- European experience suggests that rough cost orientation is workable; however, they never attempted cost-based prices for fear that court challenges to a cost determination might lead to chaos.
- A conservative glide path is likely to be appropriate.



Staggering wholesale versus retail caps

- In Europe, wholesale and retail prices always changed on the same day.
- In other regions, implementation delays are possible.
 - NRAs may not have sufficient enforcement powers.
 - Appeals might get hung up in the courts.
- If MNOs in one country do not promptly lower wholesale charges, MNOs in other countries in the region could be forced to sell roaming retail services at prices below their cost.
- In the GCC region in 2016, we applied a simple fix.
 - Retail price cuts took effect three months after wholesale cuts.
 - This ensured that NRAs would have time to react to any unforeseen delays.



TRANSPARENCY AND BILL SHOCK MEASURES



Transparency and bill shock measures

- Transparency measures can be imposed early, and unilaterally if desired.
- Bill shock prevention measures may be less contentious than price controls – network operators tend to recognise the importance for public relations of avoiding bill shocks.
- Oman implemented bill shock measures prior to GCC regulation – they can be implemented unilaterally, as long as visited networks provided necessary underlying capabilities (e.g. CAMEL).



INTERNATIONAL GATEWAYS, (DOUBLE) TAXATION



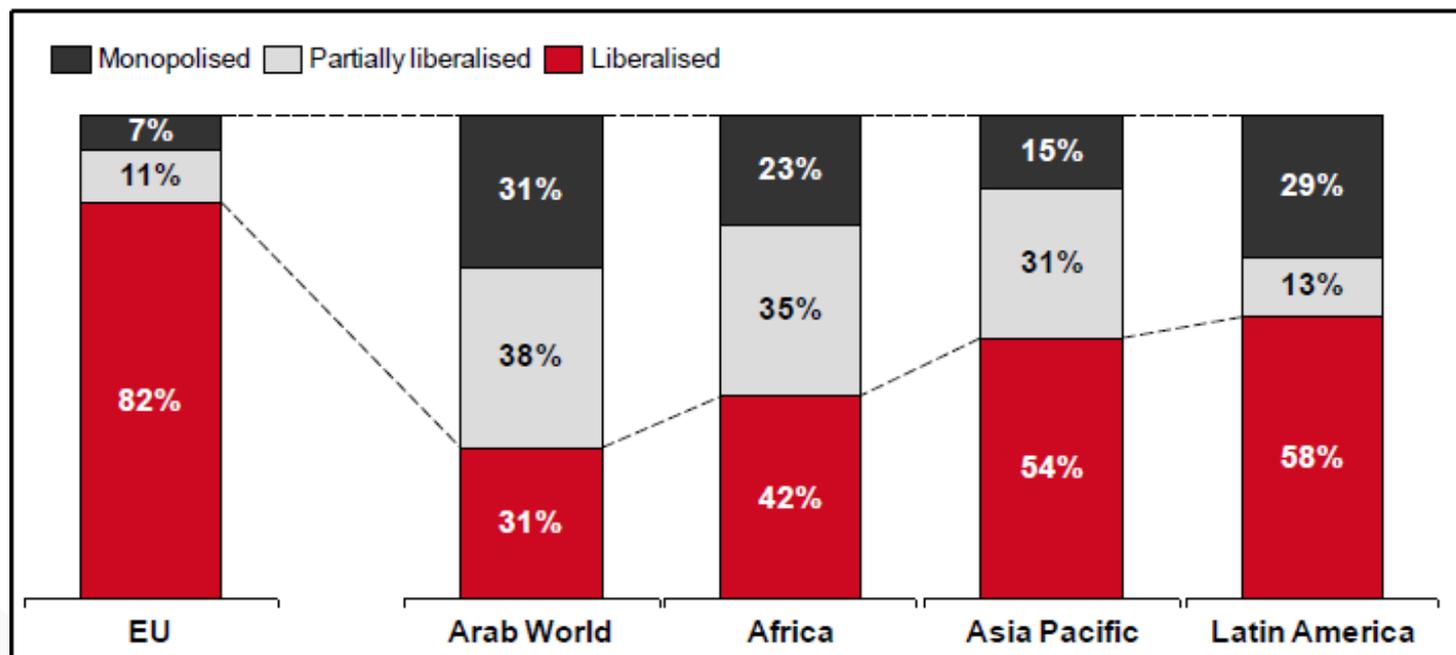
Special concerns: double taxation

- If taxes are applied both in the Home Country and in the Visited Country, roaming prices can become substantially inflated.
- This concern is not very visible in the literature because European VAT arrangements are limited to retail payments, and thus to the Home network only.
- In some countries, taxes can be very high.



Special concerns: International gateways

- Not yet liberalised international gateways can add a large cost element that complicates roaming agreements.
- In 2012, GSMA noted large differences among regions.



GSMA (2011), Information Paper: Overview of the Global Roaming Market outside of the European Union



GATS / WTO MFN CONSIDERATIONS



A hypothetical scenario

- How might two countries joint implement IMR regulation?
- Suppose that Country A offers to Country B to do the following, subject to commitments of reciprocity:
 - Cap wholesale charges that Country A MNOs can impose on inbound roamers from Country B for voice calls placed, data sent or received, and SMS sent, at three levels mutually agreed and specified.
 - Oblige MNOs to offer a plan to subscribers where Country A retail charges for outbound roaming in Country B are capped at levels not more than (for instance) 30% higher than the wholesale caps agreed.
 - Require its MNOs to implement bill shock measures, and require its own MNOs to provide support needed to enable Country B MNOs to implement bill shock measures (e.g. CAMEL ...).
 - Impose no taxes or surcharges on inbound roamers.
 - Liberalise international gateways (to the extent not already done).
 - Collect statistics on roaming traffic, wholesale and retail charges between Countries A and B based on e.g. BEREC 2015 templates.



What is wrong with this picture?

Dealing with the GATS

- Under Article II(1) of the GATS, a third country could demand access to the capped wholesale rates without having to offer reciprocity (at wholesale) or compliance with conditions (at retail).
- Under Article V(1), however, exclusive agreements between members liberalising trade in services are permitted provided that they have “substantial sectoral coverage”.
- In other words, a suitably drafted multi-sectoral FTA would effectively shield the signatories from MFN claims under the GATS from countries outside the scope of the FTA.
- This is timely, given that numerous bilateral FTAs are in force or under discussion in the region, and two multi-lateral FTAs are under discussion.

Multi-lateral FTAs can pose MFN considerations of their own.



Implications for Brexit

- Wholesale roaming agreements between the UK and the EU would probably be workable without running afoul of the GATS if the UK were to
 - remain an EU Member State,
 - become an EEA member,
 - implement wide-ranging FTAs with the EU, for instance as part of the arrangements under Art. 50 TEU.
- Under most other scenarios, it is hard to see how the EU and UK could provide reciprocal wholesale roaming price regulation.
- Once again, Brexit makes for an interesting natural experiment.



IMR within a multi-lateral FTA

- With the withdrawal of the United States, the Trans-Pacific Partnership (TPP) could not enter into force; however, it has been salvaged by the remaining signatories as the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP).
- Art. 13.6 TPP, which is carried forward into the CPTPP, deals with IMR elegantly by making wholesale arrangements available to Country B MNOs only where
 - Country B signs an agreement to implement reciprocally, or
 - the Country B MNO in question voluntarily implements wholesale pricing to country A MNOs that is roughly equivalent.
- The Regional Comprehensive Economic Partnership (RCEP) is proposed to include the ten ASEAN countries plus six countries with which they have FTAs (Australia, China, India, Japan, South Korea and New Zealand), and thus might represent an opportunity to broaden the scope of IMR agreements.



STATISTICS COLLECTION



Statistics collection

- BEREC statistics collection represents one of the greatest successes of European IMR regulation.
- As part of the GCC IMR work, we asked BEREC to provide their templates, which they graciously agreed to do.
 - Avoided a learning curve for GCC experts.
 - Some regional MNOs were already familiar with the process.
 - Facilitates cross-comparison of statistics among regions.
- Our experience suggests that MNOs are likely to have data going back a year or two, but not much more in general.
- Statistics capture should begin with a period *before* any price controls are imposed – otherwise, it will not be possible to make before-and-after comparisons to gauge effectiveness.



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