# What is the next roaming strategy for EU Operators?

## New rules. New game.

# Introduction

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**New Rules, new Game.**
Over many years, roaming has been a significant revenue source also for German mobile operators. Under the changing EU regulations this additional stream of income will potentially vanish soon. Approximately 5 to 6% of the operator`s previous revenues are at great risk.

If approved by the EU council, the European parliament vote for the end of roaming charges by December 2015 will have enormous impact on the mobile industry. In effect this regulation could transform the existing mobile landscape into one single European market.

Until that time, there is rising competition among operators within their countries with disruptive "Roam like Home" offers also being launched in Germany. In addition, there is the possibility of Alternative Roaming Providers coming to market, facilitated by the EU regulation enabling service providers to proactively attract inbound roamers.

Several questions arise from the new roaming regulation measures and the new competition that comes into play starting July 2014:

- Will innovative roaming offers and tariffs become a key differentiator among operators?
- For how long are operators able to protect the roaming cash cow?
- Has the European Union finally won its fight against roaming charges?
- Are we truly heading towards a connected continent?

The present study examines the upcoming market and regulatory trends and elaborates on potential strategies for operators to protect the value of roaming, disrupt the market, attract customers or even generate new revenues.

# What is the next roaming strategy for EU Operators?

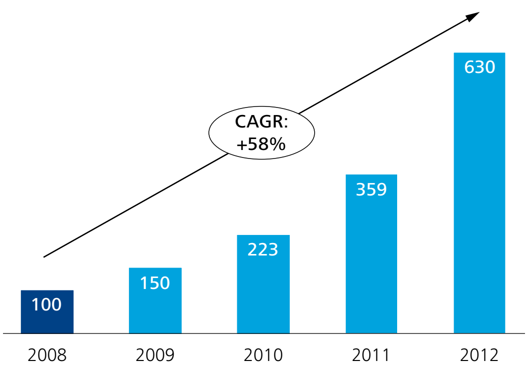
Regulatory pressure and intense competition are severely jeopardizing the roaming revenues for Mobile European Operators. All players are now facing the crucial question of what strategy will best protect the relatively high value of roaming services while satisfying extremely demanding travelers, yearning for affordable connectivity.

Roaming prices in Europe are now up to 90% lower than in 2007. But in the meantime, the volume of the data roaming market has been multiplied by more than six[1]. Operators' revenues are consequently at risk and most operators already see their revenues decreasing.

### Disruptive "Roam like Home" offers

Orange, Bouygues Telecom and Free in France, Base and Deutsche Telekom in Germany, Three and EE in the UK, as well as Comviq in Sweden have all recently decided to change the way they charge roaming services to their customers when they travel within the EU. These operators adopted a radical approach by launching so-called "Roam like Home" offers. This unconventional value proposition is straightforward in a way that pleases European mobile consumers: one should always be able to communicate and connect when travelling within the EU as if they were at home. In other words, no more prohibitive roaming bills.

**Fig. 1 – Volume of retail roamimg data usage in the EU**
(2008 = 100)




[1] Amdocs: European Roaming Regulation: Opportunity, not Obstacle; 2013

"Roam like Home" plans now include voice, SMS and data for both national and EU communications, at a flat-rate, close or even equal to rates of traditional national bundles. This means that communicating when travelling across the EU is now simply part of your contract. Theoretically, European customers will be able to stay connected without paying more than when staying at home.

Interestingly, this trend in Europe matches the extremely radical move of T-Mobile in the US, who decided to include voice and SMS roaming in more than 110 countries at prices comparable to national rates in its Simple Choice plan. Data roaming is also included even though the connection will be severely reduced in speed by T-Mobile and its partners, which makes it less attractive for demanding users.

### Change in paradigm for roaming charges

These developments imply a real shift of the paradigm. Most operators traditionally offer various daily packages at a much higher price per minute, SMS, or megabyte of data than the services included in bundles for national usage. Consequently, the majority of customers do not subscribe to these packages and continue paying very high standard roaming tariffs.

However, "Roam like Home" does not necessarily indicate that roaming prices will finally become simple, transparent and affordable for those users, contrary to what the European Commission had hoped. Roaming arguably remains one of the most obscure and frightful services in the eyes of mobile users. Restrictions and loopholes have not completely disappeared with these new "Roam like Home" plans. Whether they consist of a limited amount of days per year (Orange, Bouygues), designated destinations only (Free, Three), a specifically capped additional data package (Orange, Bouygues, Free), complex roaming bundles sized according to the value of the national bundle (Orange), the necessity to pay a monthly fee to benefit from the new offer (Base) or services limited to calls and SMS to your home country (Bouygues), the first disruptive moves of European operators seem to flourish in a chaotic, feverish way, often at the expense of a clear understanding by European customers.

**Decreasing average revenue per roaming user**

It is however undeniable that these new offers will significantly diminish the risks for EU mobile consumers of facing the famous bill-shock. These operators are sacrificing the roaming revenue they used to generate by launching significantly more attractive offers. Indeed, such a disturbance will, without any doubt, limit the average roaming revenue per customer travelling within the EU.

### Unsatisfied demand for continuous connectivity while travelling

The main reason why operators would give back roaming value to their customers lies in the regulatory constraints that the European Commission has been imposing on operators for many years. A new wave of price and competition pressure coming from regulation is set for July 2014. In order to better understand the war that the EU is fighting against operators on behalf of the European consumer, a number of differences between national and roaming usages should be highlighted.

**300x**
**less data usage**
when roaming

**43% of mobile workers**
received an expensive data roaming bill in 2012, the average of the highest being
**US$ 1089**

Mobile users drastically adapt their telecommunication behaviours when travelling across the EU. The natural demand for continuous and affordable connectivity when travelling is limited by current offerings.

Almost half of EU citizens would never use mobile data abroad. Around 90% of them limit their usage of basic services like e-mails or social networks, whereas more than 25% prefer to simply switch off their smartphone abroad. Only 8% say they use their phone in the same way as at home.[2] In July 2012 Eurocomms estimated that travelers use on average three hundred times less data when roaming.[3]

**Impacting Business across Europe**

Corporate customers represent a highly significant part of the roaming market, since business travelers tend to be less sensitive to prices as connectivity is often necessary for enterprises. The impact of high roaming tariffs is two-fold for European companies. On the one hand it reduces the amount that employees communicate when they are travelling abroad, causing damages to the company in terms of efficiency, flexibility and its ability to leverage business opportunities. On the other hand, when communicating abroad is absolutely necessary, companies face expensive bills that burden their business performance. In 2012 43% of mobile workers globally received an expensive data roaming monthly bill in 2012, culminating on average at $1089. Consequently, more than 4 out 5 companies said that roaming tariffs are too high.[4] Neelie Kroes, European Commissioner for the Digital Agenda, sees this as a key reason to fight high roaming tariffs: “It’s not just a fight between holiday-makers and telecoms companies. Millions of businesses face extra costs because of roaming, (…) Roaming makes no sense in a single market – it’s economic madness”.[2]

[2] European Commission: e-Communications Household Survey and Telecom Single Market Survey Results; 2014
[3] European Communications: EU roaming regulation – what next for the operators?; 2012
[4] iPass: Mobile Workforce Report; 2013

## Enormous regulatory pressure in favour of European mobile customers

The European Commission (EC) has regulated roaming services since 2007, expressing the desire to reduce international roaming charges by 2015 to the level at which the cost of using a mobile phone abroad (within Europe) is the same as the cost of using it in the subscriber's home country.

The European Parliament approved a new roaming regulation in June 2012 ("Roaming III") that set new caps for roaming charges. The last cut will take place in July 2014. This means that both the retail price that users pay for making and receiving calls while abroad, and the wholesale rates that network operators charge each other for providing roaming services will decrease again. The Parliament also regulated data roaming prices for the first time and introduced customer "bill-shock" protection (to avoid any unexpectedly high monthly bill after communicating from abroad) when subscribers travel outside the EU. The outlook is even more radical since a panel of lawmakers voted on March 20th 2014 for tougher measures to cut the cost of roaming charges across the 28-member European Union by 2015. Subsequently on April 3rd, EU parliament voted in favour of the package to end roaming charges by Christmas 2015. The package could still change after getting Parliament's backing because it must be approved by the Council of the European Union, which includes representative of each member state. The Council is expected to make a decision in October 2014. Many operators have expressed their concerns because according to them it would simply mean the destruction of the EU-roaming market.

This regulation also created a structural change in the industry. It determined that, starting in July 2014, customers should be able to receive roaming services from a provider other than their home network provider. These service providers are referred to as Alternative Roaming Providers (ARPs) and should be able to provide travelling customers with more affordable offers, thus increasing competition on roaming tariffs.

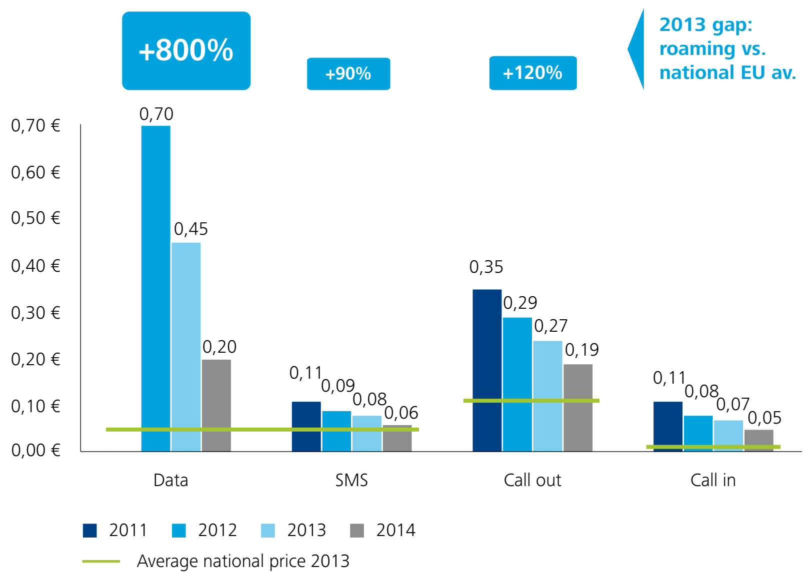
## Unprecedented impact in the EU-market

New price caps and potential ARP entries will create a strong impact on the EU-market for roaming, whose current value is estimated at €4.8 billion.[5] Customers will benefit both from lower standard roaming prices and from potential new offers made by ARPs. Moreover, the latest moves from home operators towards "Roam like Home" plans could even mark the end of the roaming game. Simultaneously, competition and its impact on prices will jeopardize mobile operators' revenues.

### The heaviest disruption: prices and the end of EU roaming

Regulated price caps will affect roaming revenues of European operators. Operators might prefer the benefits from "Roam like Home" over the decreasing roaming revenues because achieving customer satisfaction and loyalty could bring more value to operators. Increasing attractiveness of roaming usage could help them securing revenues through light monthly fees.

**Fig. 2 – EU roaming retail price caps 2012–2014**
(€ for 1MB, 1 SMS, 1 min)




Source: Body of European Regulators for Electronic Communications (BEREC)

[5] Synergy: Preparing for EU Roaming Regulations; 2013

Recent "Roam like Home" offers being launched in the market show that certain players have already made a few steps in that direction. In such a competitive market, it is likely that this will quickly generate a domino effect across Europe.

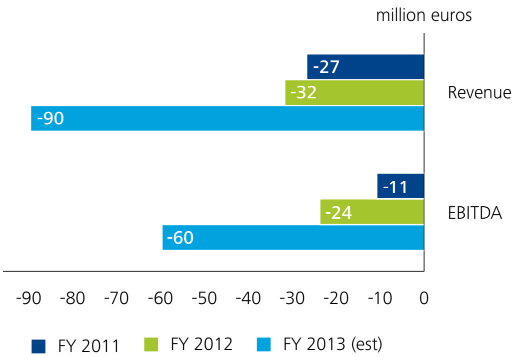
The impact of successive price decreases on operators' revenues is already visible. For instance, KPN in the Netherlands reports that regulated tariffs for roaming already accounted for €59 million of lost revenues over 2011 and 2012, and shows another lost €90 million in 2013.[6] Operator's ability to generate new revenues from roaming from lower prices will mostly depend on the offer strategy that they put in place in the near future.

When the latest roaming regulation package, driving for the end of roaming charges by December 2015, gets EU Council approval, the EU roaming market will look totally different, closer to a single European market, leaving mobile operators with only the challenge of monetizing mobile service usage, whether customers are at home or abroad.

**The challenge of profitable entry for an Alternative Roaming Provider**

Opinions are divided on the question of whether ARPs will be able to profitably launch roaming services in the market.

**Fig. 3 – Example KPN: Impact of regulated roaming tariffs**




Source: KPN

Four kinds of players could become ARPs. First, European MNOs and MVNOs can easily offer roaming services in their own countries, or abroad. Second, non-EU Telco players can penetrate the European market without making large investments. Vertical players come third, for instance travel agencies or airlines leveraging their unique contact and position to include roaming services in their travel packages. Finally, Over-The-Top (OTT) players such as Google, WhatsApp, or Netflix could be looking to lower customer barriers for OTT services abroad by offering lower data roaming rates.

"Roaming makes no sense in a single market – it is economic madness".

Neelie Kroes

The first obstacle to a profitable ARP launch lies in the essence of the regulatory environment itself. By continuously pushing prices down and by stirring up competition on roaming, the EC is accelerating the decrease in prices. The very same market that ARPs could enter is thus under pressure with the average revenue per roaming user set to decline. The skyrocketing volume of roaming usage could compensate for the loss in value per user, but ARPs will be left with much less margin. Ultimately, "Roam like Home" offers from home operators spreading around Europe could leave very few customers for the ARPs. For instance, it is very unlikely that an Orange customer in France would subscribe to a local roaming offer when travelling to Spain. The service is already included in the contract with Orange, at no extra cost.

Looking further to the future, the EU-roaming market is now likely to disappear under regulatory pressure and as a consequence of operator's competition, leaving very little room for profitable ARPs.

[6] KPN – Quarterly reports Q3 & Q4 2013

### The business model in question

Recent research indicates that travelers spend more than €12 billion a year on alternatives to mobile data roaming including €6 billion on hotel WiFi.[7] However, potential ARPs can only base their entry on short- or mid-term business models with decreasing margins, which reduces the attractiveness of the opportunity and the likelihood of a significant wave of entries.

On the cost side, launching an ARP will generate heavy technical costs and business challenges even for existing operators that would make this move: real-time charging support, home control operator services, APN control, etc. On the revenue side, demand will probably remain low because of the complexity of the offers and poor customer experience. Customers need to analyse and subscribe to existing plans before travelling, or should select a package on arrival. They also need to settle a local contract and payment. Additionally, unexpected/unrecognized network changes could cause fall back to the home operator generating additional charges and potentially confusing the customers. In other words, customers might find it much too complex.

Consequently, the business case for ARP is uncertain with significant risks on both costs and revenues. Some players might however try and serve a distinct purpose by becoming ARPs: brand awareness, geographical presence, competitive disruption, etc.

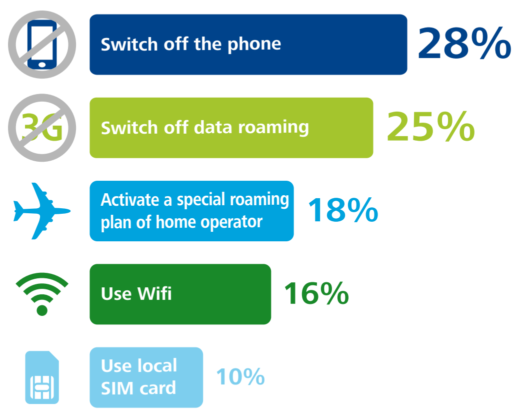

### Disruption from ARPs

ARPs represent both a threat, and an opportunity for operators to reach new customers in EU markets and compete with traditional players on roaming services. In any case, operators must engage costly resources to comply with regulatory requirements for ARPs. They also cannot completely rule out the possibility of ARP entrants causing disruption at the edge of the market, if their cost structure allow them to remain profitable even with roaming prices close to national levels. ARPs might leverage the following market characteristics to successfully launch roaming services:

Travelling creates break points (e.g. flight mode) in customer behaviour that ARPs can employ to enter a commercial relationship with the travelers. Already today 18% of travelers within the EU state that they activate a special roaming offer from their home operator and 10% buy a local SIM card. They are potential targets for ARPs.

Expert's opinion is divided on the extent of the market entries to be expected from July. Research conducted by one of the leading EU-roaming solutions providers announced in February that more than 20% of EU operators will launch an ARP by the end of August 2014.[8] However, in our view the commercial impact of ARPs will be limited.

**When visiting another EU country, you generally …**




[7] Tango Telecom Press Release; 2013

[8] Tango Telecom Press Release; 2013

## New strategies for operators

In response to this upcoming disruption, European operators are re-thinking their current roaming offer strategies. The market conditions, the positioning of operators and their target segments will play a significant role when defining the most appropriate strategy. The key steps for operators include first assessing the roaming price elasticity of customers in their own markets, in order to evaluate the potential untapped revenues caused by current excessive prices. Second, operators must try and foresee national competitors' moves in roaming offers to ensure their readiness against potentially disruptive launches.

### Market size and price elasticity of the demand

It is undeniable that average standard roaming tariffs in the EU are much higher than average national tariffs compared to relative costs. Especially when it comes to data: a megabyte is on average five times more expensive when roaming[9], whereas costs are only marginally higher. Many factors explain the clear gap.

The first factor is the absence of proper competition on these tariffs: a customer travelling abroad will remain within his home-operator service without benefiting from the opportunity to choose another local provider offering more attractive tariffs, hence the strong push from the EU towards ARP. The second factor is the lack of customer awareness and information when choosing a home operator. How often does a customer compare service providers based on complex roaming tariffs? Operators are not really differentiating on roaming prices yet, probably in an attempt to protect the revenues generated by this high-margin service.

Many stakeholders suggest that roaming tariffs are in effect withholding the potential of roaming in the EU. Neelie Kroes supports this view: "I'll be honest. I think the telecoms sector will ultimately benefit from this package. But that's not why I'm doing it".

That is to say that based on the price elasticity of demand for roaming services, a decrease in roaming tariffs would be made up for by the additional volume generated by lower prices. Is there such an untapped roaming market in the EU? Research shows that if roaming prices were only three times higher than national prices for retail customers and six times higher for business customers, as opposed to around ten times higher today for data, the roaming market in the EU would gain an additional €1.5 billion.[10]

The current increase in usage of roaming cannot only be related to cheaper prices, but should also be put into perspective with the boosting demand for connectivity on-the-go from travelers. Additionally, the growth in volume does not appear to be compensating for the price decrease in the case of many European operators. The impact of the price caps on roaming on their EBITDA is proving to be negative (see KPN illustration, for instance).

Finally, the additional demand induced by lower prices can only be triggered if the right strategy, marketing mix and communication are put in place, in order to create sufficient awareness and impact among apprehensive customers.

Between the optimistic communication from the EC and the fear of operators to see their revenues diluted by price caps, the size of the future roaming market remains uncertain. What we know is that data roaming will soon become the main source of roaming revenues. Globally Juniper Research has valued operator revenues generated from mobile data roaming at $42 billion by 2018. This will represent 47% of the global mobile roaming revenue, compared to an estimated 36% in 2013[11].

### Game theory and first mover advantage

Operators are usually trying to maintain price levels and to stay away from price wars. The best interest is to resist the temptation of stealing temporary market share with price decreases, because competition would follow, leading to value destruction in the overall market

The case of roaming is however more complex since the European market already seems severely jeopardized by the regulator.

Operators are left with a prisoner's dilemma, knowing that avoiding roaming price war will only provide benefits until the roaming market transforms into a single EU market or virtually disappears. The case is obvious for some operators (especially those who

[9] BEREC: International Roaming Benchmark Data Report; 2014

[10] Greenwich Consulting via Total Telecom: European regulation rule; 2012

[11] Juniper Research: The Rise of the Roaming Empire; 2014

earn limited revenues from EU-roaming) to immediately bet on disruptive tariffs in order to steal market share in their home countries, in exchange for a loss in revenues from a stream that seems to be drying up. The first mover advantage could justify strategic moves in roaming offering and explains the recent series of "Roam like Home" launches across Europe.

From a customer perspective, attractive roaming tariffs could be a key differentiator. One could expect that the growing demand for international connectivity will create a differentiation opportunity for telecom players in a sector on the verge of commoditization. The first operators to embrace the new EU-roaming paradigm would aim at the first mover advantage, whereas other players lobby in Brussels and continue protecting their cash cow.

Nevertheless, there is no doubt that all players will align their offers in a rapid manner when they need to. The French market proves the danger of aggressive competition once more. Orange was able to launch "Roam like Home" offers at the same time as Bouygues who had announced them earlier, both moving under the pressure of Free who was little by little including additional countries in its "Roam like Home" tariff. Now all three operators basically offer roaming for free in most of the EU, making it doubtful that one of them benefited from any significant first mover advantage by growing market share, or if they all lost most of the revenue stream.

### Three main strategies to address home customers

Operators now must define their strategy and market positioning on roaming for their home customers, taking into account the interdependent competitive strategies of all European players. We see three main strategies:

1) Wait & See: Operators can strictly comply with EU rules in order to focus on protecting current roaming revenues, without launching disruptive offers. Roaming tariffs then focus on fine-tuned daily packages and standard tariffs. However, this position might be hard to maintain in the event of a competitor launching more attractive offers or if ARPs were to rise in most visited countries stealing roaming revenues. This strategy is well suited for inelastic customers (e.g. business customers) in non-disrupted markets.
2) First mover: Operators can build dedicated "Roam like Home" offers at a premium (monthly fee) in order to find the right trade-off between value loss and gain of market share. This strategy could destroy value for the operator but will generate customer satisfaction if simple and visible enough, without eliminating roaming as a source of revenues. Alternatively, "Roam like Home" can be used as an upsell incentive. Orange now includes roaming for free in most offers, but when subscribing to the most expensive contracts, customers receive a much more attractive "Roam like Home" package (more data, more days per year, etc.). The first mover can expect a one-off effect on net-adds, but competititors will most likely replicate these offers. Additionally, home customers would become less likely to subscribe to potential competitive offers from ARPs when travelling.
3) Scorched earth: Operators might include "Roam like Home" in existing offers at no extra cost in order to increase the attractiveness of offers and gain market share. Triggering extreme customer satisfaction, this strategy kills roaming market value, while generating extra costs for operators through increased usage. This strategy could be adopted by low-cost disrupting operators with limited current roaming revenues, aiming at stealing market shares by entering a price war that would weaken competitors (e.g. Free, Bouygues Telecom, T-Mobile US). John Legere, CEO of T-Mobile US, explained his views in October 2013: "This is a dead revenue stream for the carriers, but how do you just wake up and eliminate a 90 percent gross margin stream (...) But nobody's ever called the industry on it"[12]. T-Mobile US was known for generating very little revenue from roaming which advocates for its decision to simply eliminate the roaming cash cow for competitors. In Europe, this strategy would ultimately leave no room for ARPs, by destroying their only market.

### Becoming an Alternative Roaming Provider

The back side of this tree of possibilities for home offers is the question of whether mobile operators should become ARPs in their own countries or abroad. In addition to the economic aspects previously mentioned, we see here that ARPs would most likely bloom in markets where incoming travelers do not already

[12] http://news.cnet.com/8301-1035_3-57606784-94/t-mobile-to-offer-free-unlimited-international-data-texts/

benefit from "Roam like Home" offers from their home operators. For instance French travelers are once again unlikely to become ARP customers. On the other hand, France could be an attractive market to launch ARPs, for incoming travelers. The extent and the future development of disruptive roaming offers by home operators is a key element to assess for operators considering the launch of an ARP in a home or foreign markets.

## Further disruptions in a connected continent

The mobile telecom market in Europe is going through a wider ecosystem whirlwind that will impact roaming. Among the multiple trends that impact the sector, we highlight three of great importance for international telecommunications: existing and potential pan-European operators in a period of expected consolidation, the risk of SIM card trading and the growing invasion of internet and technology players (OTT, device manufacturers etc.) into the telecommunication services.

### Pan European operators

As a consequence of different consolidation waves many European operators are present in more than one country within the EU. Vodafone, Orange, Telefonica and Deutsche Telekom serve the largest customer bases across the continent. By possessing networks in more than one European country, these players benefit from a competitive advantage in scale. Developing a roaming offer across their entire footprint could be achieved at limited cost compared to general wholesale prices charged between operators. Orange CEO, Stephane Richard, explained his intentions in January 2014: "We want to be the first European operator to offer completely European communications everywhere we are present". Orange's footprint is however limited to a handful of European countries which does not allow the French operator to rely only on its own subsidiaries to fully satisfy its roaming customers. But it can definitely support its move towards "Roam like Home" by limiting costs. Future consolidation is expected in Europe and could simplify the economic equation of roaming in the EU for pan-European operators. The EC will surely support these trends.

### Trading of SIM cards

Following upon the news of the EU parliament voting for the end of roaming charges, several analysts have warned about the trading of SIM cards within the European Union and a collapse of prices. Some talk about the Digital Crisis. The warnings are based on the fact that when there is no roaming charge, an individual can buy a SIM card from the mobile operator with the cheapest rates for data, voice and SMS within any EU country. The popular example country being Lithuania because of its cheap prices for mobile services. This individual can then use the SIM card in his or her home country, not necessarily Lithuania, and enjoy cheap prices for mobile service. It is easy to imagine that trading companies could arise to facilitate such trading or import and export of SIM cards.

The upcoming regulation will most probably contain caveats in order to prevent this sort of trading. Based on the "reasonable use" principle, customers would only be allowed to buy a phone contract in their country of residence. Capping the amount of data, minutes and SMS you can consume abroad is another option. Whether or not these scenarios become reality, operators of today have to completely review their business model and truly tailor it to serve a single EU market for mobile services.

### OTT VoIP and network-agnostic SIMs

Many of the trends in the internet and technology sectors jeopardize roaming. First, OTT VoIP (Over-The-Top Voice over Internet Protocol) players like Skype, Facetime and WhatsApp have been eating into mobile operators roaming revenues for years now. The multiplication of smartphones combined with the expansion of Wi-Fi access on-the-go will surely accelerate the growth of OTT VoIP traffic and its loss of roaming earnings for operators.

Second, a deeper revolution might be underway in the European market following the Netherlands' unprecedented decision in March 2014 to open the door for network-agnostic SIM cards. Any company (device manufacturer, car manufacturer etc.) could issue its own SIM cards configured to no particular carrier[13]. This company can then sign agreements with different operators to serve its customers, buying minutes, SMS and data in bulk at attractive cost. So far, the Nether-

[13] http://gigaom.com/2014/03/14/holland-says-yes-to-the-network-agnostic-sim-card/

lands is the only country to open this regulation, but if European countries followed, it would allow companies like Apple or Samsung to provide a SIM card together with their smartphones. By negotiating with hundreds of operators in Europe, or even with aggregators, they could get national tariffs in every market and provide their customers with network- and country-agnostic services. Not only would this service kill the roaming market for operators, it would also seriously harm their unique customer contact consigning them to commod-itized pipes.

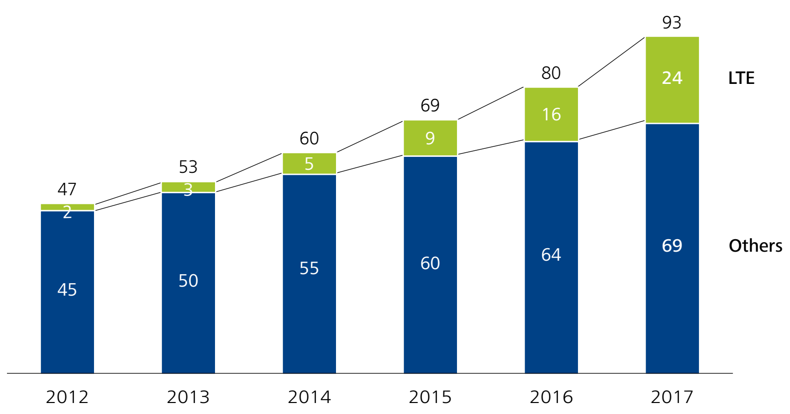
### Bottom line

The EU-roaming revenue stream is drying up for European operators. In the short term operators might try to protect the last benefits from the cash-cow. In the mid-term, however, adopting the new paradigm for EU-roaming seems inevitable, under regulatory and com-petitive pressure. More attractive offers, in the flavour of "Roam like Home" will soon be launched, which will stabilize roaming revenues for operators while matching the increasing demand of EU citizens.

In the long term, extra-revenues from roaming will be very limited and the EU-market will operate increasingly like a single market, favouring pan-European operators. The battle against technology players will continue to instensify, with OTT players and device manufacturers trying to confine operators to their core role of network operators. The loss of roaming revenues is another step in the process of commoditisation.

In order to compensate for this revenue loss, operators have threatened that they will need to increase national tariffs to protect their margins. The intensity of the competition in Europe will not necessarily allow such a move, and operators need to keep investing heaviliy in new network technologies to generate future revenues. In roaming, focusing on non-EU tariffs – that remain unregulated – will generate additional revenues thanks to growing global usage. The demand for 4G LTE (Long Term Evolution) connectivity will also allow them to get the most of non-EU roaming customers willing to access the best service.

**Fig. 4 – Global roaming revenues**
(LTE vs Traditional Roaming Forecast 2012–2017, US$ bl)




Source: Visiongain

**Regulation imposes structural changes to the provision of roaming services within the EU**

### Technical options

Several different technical options for the structural changes required by the EU Parliament have been considered. The objective of these changes is to allow subscribers to have a choice of receiving roaming services from a provider other than their home provider. These service providers are referred to as "Alternative Roaming Providers" or ARPs. Under the regulations, ARPs are able to offer two types of service – Local Breakout ("LBO") and "Single IMSI". These will be available to all EU subscribers from 1 July 2014:

- LBO. This solution applies to mobile data services only. It will allow customers to receive data services directly from a visited network when they are abroad. So, for example, if a subscriber of Three in the UK visits another European country, he/she would be able to choose which network to connect to. Data services would be provided by that network directly to the subscriber. However, the subscriber would continue to buy voice and SMS services through his/her home service provider. Payment for data services to the visited network could be through scratch cards, online payment portals etc. This solution is considered by the Body of European Regulators for Electronic Communications (BEREC) to be potentially the most effective in introducing competition and bringing down data roaming prices.
- Single IMSI (International Mobile Subscriber Identity). This will allow customers to use a different retail provider for voice, SMS and data when they travel abroad. This would function in a similar way to MVNOs. When a subscriber is abroad, he/she could opt to use a different retail service provider but this service provider would only be providing the front-end retail services. The subscriber would remain connected through his/her domestic network and its roaming partner. This solution is expected by BEREC to have a smaller impact on the prices than LBO because, under the technical solution to be implemented, the subscriber's home network would continue to control the choice of network on which the subscriber roams and therefore the level of wholesale roaming charges.

### Implementation

The implementation of these arrangements will involve several significant changes to the way in which networks operate. These include:

- MNOs will be required to support any reasonable request for access from an MNO or MVNO to provide Single IMSI and LBO
- MNOs will be required to update systems to facilitate changes to subscribers' roaming provider
- Updating facilities related to customer information which are necessary for the provision of roaming services
- Updating facilities necessary to support anti-bill shock measures
- Providing any ARP with a draft contract if requested within a month (and the service to be provided within 3 months from the contract)
- Agreements should be reached between ARP, MNO/MVNO to deal with fraud
- Setting up a universal APN for the provision of LBO services
- Preventing/giving instructions on how to prevent traffic steering for customers using an LBO provider
- Setting up and respecting SLA for Single IMSI, if specific KPIs cannot be set, MNO's own retail level of quality should be used

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