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Stopping Future Losses from Origin Based Rating

A Guide to Using Global Number Intelligence to Take
Control of Your Voice Traffic and Maximise Margin.

Origin Based Rating (OBR) e-guide

The carrier voice market is changing.

Surcharging, fraud mitigation, and the evolution of technology means that many carriers are evaluating Origin Based Rating (OBR) rather than prefix routing. As a result, carriers require global number portability data and number range information to accept or reject traffic and drive routing decisions.



As OBR is implemented in more countries, carriers are looking for a solution that quickly enables them to take control of their traffic and give them predictable margins. //

This eGuide will cover the following:

1. What is Origin Based Rating (OBR)?
2. Voice Market Disruption
3. What to Do When OBR is Deployed in a Key Destination
4. Stopping Origin Based Rating Losses on Call Termination in Germany
5. Using Data to Remove the Risk from OBR

Section One

What is Origin Based Rating (OBR)?

Origin Based Rating, also known as Origin Based Charging for voice termination, takes into account both the origination and termination of a call when billing. The terminating network (usually mobile) will apply a surcharge to the mobile termination rates (MTRs) based on the country of the call's origin.

Penalty surcharges can also result from invalid or manipulated Caller Line Identification (CLI) and Automatic Number Identification (ANI). Currently networks in over 20 countries (including many EU) have begun charging OBR. This list of countries is growing almost monthly. Carrier contracts typically have clauses where a call with an invalid CLI (also known as A-number or ANI) will be charged a penalty surcharge (or the highest country surcharge). An example of an invalid CLI is if the CLI is not defined as allocated in the official number plan issued by each country's regulator.



Potential
3,500%
over the standard
termination rate

Penalties

Penalties can mean an increase of 3,500% over the standard termination rate. Therefore, even a small amount of traffic to an OBR destination with invalid CLI, incurring the penalty surcharge, can wipe out many months of margin.

Section Two

Voice Market Disruption

More and more networks across different countries are now adding OBR, averaging around one every month or higher.

In March alone, one or more networks in Saudi Arabia, the UAE, Algeria, Tunisia, and of course the two main MNOs in Germany, all added OBR, which is causing challenges for carriers around the world. On top of this, in Q2 2020 networks in two more EU countries began OBR charges, including a third major network in Germany as well as a network in Denmark.

Here is a list of just some of the countries where we're aware OBR is active today, which is just a subset of the full list:

- **10+ EU countries**
- **Saudi Arabia**
- **Algeria**
- **Tunisia**
- **South Africa**
- **United Arab Emirates**
- **Turkey**

We are also aware that certain networks in Asia have recently begun to charge OBR, which will see more challenges span across continents.

OBR has the potential to impact the business of any carrier that terminates international voice traffic. With OBR gradually being introduced across continents, it's important that carriers understand the risks and take the necessary steps to reduce the impact on their business today.

Mitigating OBR is critical for carriers of all sizes. Smaller carriers that are only carrying a few thousand dollars of transit traffic per month can incur losses of \$100,000 per month if just a small percentage of these calls have invalid CLIs. Therefore, the OBR losses could wipe out any gross margin and create a massive loss not only for large carriers, but also for small and midsize carriers.

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Section Three

What to Do When OBR is Deployed in a Key Destination

The challenge for carriers of all sizes is to avoid penalty surcharges, both now and in the future, while minimising disputes with partners. Penalty surcharges can cause margins to evaporate and profitability to disappear almost overnight.

So, what do you do when OBR is imposed by one of the networks where you terminate traffic? Carriers have four choices:

1. Stop termination traffic to the destination

The carrier would face immediate loss of revenue.

2. Price everything at the highest possible rate

The carrier stops losses, but it means that it will no longer be competitive in the market.

3. Block the traffic with the highest OBR risk

The carrier reduces its exposure to OBR losses and is able to operate without risk of "bill shock" 3-4 months down the line. High-cost traffic to destinations that cannot be terminated profitably can be blocked. This avoids the surcharges that would cost several times the value of the associated revenue and cannot be billed to the customer.

At XConnect we provide a simple 'block/allow' service that allows the carrier to define the rules (i.e. which calls are allowed) for any given destination. The service has no or minimal impact on the network and support systems and can be implemented quickly.

4. Adapt OBR routing and accounting to cater for the differentiated rates and penalty surcharges

The carrier proactively manages its OBR risk and benefits from predictable margins by deploying call routing business rules for specific originations.

XConnect can hosts call routing business rules based on A/B number intelligence, which are defined by the carrier, and carriers can activate the business rules by sending a SIP Invite to XConnect. Route instruction codes are returned which can be used by the carrier to route the call to the destination.

Section Four

Case Study: Stopping Origin Based Rating Losses on Call Termination in Germany

A Tier 2 carrier operating across Europe and the Middle East selected XConnect to help it to stop future losses resulting from Origin Based Rating (OBR) on its voice traffic in Germany.

The carrier was concerned about new surcharges that have been introduced by Mobile Network Operators (MNOs) in the country and wanted to ensure that they would be able to maintain margins. They hadn't received a bill with surcharges yet but needed to take proactive measures to manage their risk and protect the business.

OBR makes it necessary for voice operators to account for both the B Number (Destination Number) but also the A Number (Calling Line Identity/CLI) which defines the Origin Country when rating and routing calls. Cost differentials between different Origin countries vary, but also calls that are presented without a valid CLI are charged at the most expensive rate. These rates can vary from 1-euro cent per minute to 35-euro cents per minute depending on the destination and origination countries.

The carrier was aware that its traffic could start contractually incurring the surcharges but needed to take action to stop potential losses before they led to disputes. XConnect worked with the carrier to identify its potential margin losses and use data to stop OBR from impacting its bottom line.

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The Challenge

German mobile networks introduced OBR on two networks on March 1st, 2019 and a major network on April 1st, 2019. Instead of a single rate for all traffic, the cost of termination to German mobile networks was based on originating country and the carrier could face rates between 1-euro cent for traffic from EEA countries to 35-euro cents for 'Invalid CLIs.'

The customer is carrying a medium amount of traffic terminating in Germany and it had no option to simply avoid the market. Its German traffic is critical to the carrier's business as it originates from a primary carrier partner where a swap deal is in place. If it can't terminate the traffic, it could threaten other revenue streams.

With unpredictable rates, the carrier faced a significant risk of 'under-pricing' the cost of calls to its customers and incurring significant losses. Typically, these losses would not be visible until they received the surcharge bills, often many months after the traffic was carried and regular bill applied. The analysis of the traffic showed that 12.7% of calls had invalid CLIs and could incur the surcharge of \$0.35c. These losses would amount to more than \$100,000 per month, on only a few million minutes of traffic to German mobiles and generating a typical wholesale margin of just a few thousand dollars a month. Therefore, the OBR losses could wipe out any gross margin, and create a massive loss.

It could implement pricing to account for declining margin but offering uncompetitive rates would lead to losses of traffic from customers. Nor could it bill the customers for surcharges, as it could not identify which calls would be impacted and at what rate. Trying to pass on the surcharges would only likely create billing disputes requiring time and legal resources with an unknown outcome. The carrier needed a way to take control of the traffic it carries and remove its risk from OBR.

The Solution

The carrier came to XConnect after realising the risks on its traffic due to the contractual introduction of the OBR charges and was shocked by the possible losses it would accrue. XConnect worked closely with the carrier to understand its challenges, analyse its traffic, and build a business case for addressing its OBR losses. The team at XConnect gave the carrier a report showing where its losses were coming from and how much it could save by using telecoms data to take control of its traffic.

XConnect helped the carrier to deploy its OBR management solution based on XConnect's 'Global Number Range' (GNR) data. GNR data is a database of all allocated and unallocated number ranges globally. It is created and updated from a number of data sources including national regulators, international regulators and other operators' data sets. The database is continuously 'stress tested' through analysis of XConnect and other partner traffic streams to maintain a 'real world' view.

When receiving a call for Germany, rather than routing directly to the terminator the 'call' is sent to the XConnect platform via a standard SIP trunk which includes the A Number, B number and all other SIP header information. XConnect determines if the A number is 'allowed' and valid according to its GNR database.

XConnect analyses the call, and with minimal latency, returns a SIP 503 which causes the carrier's network to route to the terminator for that call and the call is completed. If the A number is not a valid CLI (and could thus potentially incur the surcharge rate), XConnect returns a SIP 607 (a SIP response value chosen by the customer) which causes the customer network to reject the call back to the originating customer.

The solution looks to the customer like any other terminator, so no changes were required in the customer's network, routing system or billing system. Importantly, due to the ultra-fast XConnect systems and multiple locations globally, the additional delay was well within reasonable carrier-grade parameters and had no impact on call routing and termination. It was deployed in 15 days and offered with carrier-class reliability, scalability and support.

The results were an immediate reduction in the risks of the substantial surcharges from OBR in Germany, increased margins and the ability to offer customers accurate pricing.

Benefits



Cost-Savings – In one month, the carrier saved approximately \$137,000 using global numbering intelligence



Predictable Margins – The carrier was able to carry traffic with confidence and benefit from predictable margins when serving new business demands



New Visibility – XConnect was able to give the carrier visibility into OBR losses and provide a business case for taking action



Greater Control – The carrier was able to gain control over the traffic it carries, price its services accurately and grow its business in Germany



Expert Support – XConnect supported the carrier every step of the way from assessing losses through to building a business case and implementation



A Simple Activation – XConnect made it simple for the carrier to implement in its voice routing architecture, with no changes and standard configurations, to use new data sets to solve challenges and prepare its business to combat OBR

We're experts in using telecoms data to solve challenges and enable carriers to increase profitability. We make it simple to understand the scale of the problem then take action to remove OBR losses from a carrier's profit and loss sheet. Ultimately, telecoms data is helping carriers to increase their sustainability and health of voice business across the globe.

**Eli Katz, Founder and CEO,
XConnect**

Section Five

Using Data to Remove the Risk from OBR

Origin Based Rating (OBR) can hurt a transit carrier's profitability in two ways:

They can either block risky voice traffic or carry traffic and charge the highest surcharges. Both options can result in loss of market share and reduced profitability.

Transit carriers have to take action to address these risks in a market where roaming revenues are collapsing, and margins are already thin.

The challenge is to gain greater visibility into their traffic and route it with confidence. Transit carriers that take action will grow traffic volumes and capture higher margins.

A recent traffic impact assessment for France revealed a cost difference of up to 30% in rated records when compared to pre-OBR charging. This did not account for the risk associated with invalid CLIs. This is a small snapshot of the scale of the opportunity in addressing OBR and not just in Europe. Surcharges are appearing in markets across the globe.

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CLI/ANI Validation

If OBR is a problem, what can a transit carrier do about it?

CLI/ANI validation can be an effective measure to mitigate against surcharge risks.

As a minimum, originating carriers and transit carriers need to validate the A-number (CLI/ANI) in order to identify spoofed origination. Demonstrating that the CLI is valid, as defined by the official regulator's numbering plan in the country of origin, will mitigate against the largest penalty fees, which can be as high as 35 euros. More advanced analysis is also possible, such as A-number frequency checking and CLI call back, which can be used to single out spoofed CLIs.

To perform most A-number validation techniques, transit carriers must have access to complete, accurate and up-to-date number plan information for each country. In addition, they must be able to activate that data at the switch in order to make real-time decisions.



Data is a Differentiator

The quality of a transit carrier's global number plan data sets is crucial to CLI validation – and mitigating the largest OBR penalties.

An expert in telecoms data can offer these data sets as a regular download or through a real-time query, such as enum or http.

When a transit carrier has access to these data sets, it can make accurate decisions about how to manage its traffic and reduce OBR risk. Otherwise, it is forced to make decisions about its traffic that can be costly to its business. With the right data, it can be confident that it is maximising profitability while protecting against surcharges.

However, this only goes part of the way to helping transit carriers. Speed of deployment is critical, and many carriers are constrained by their technology as well as a lack of resources.

The best data providers also offer a SIP-based filter service, to identify and reject calls based on CLI intelligence via a Global Number Range database. This service uses SIP response codes to facilitate block or overflow and can be used by almost every transit carrier. The best providers enable common data to be accessed in real-time by routing, rating, and fraud management systems.

As OBR continues to grow, organisations will have to take action at some point. The ones that start now will only save more than their competitors. They will have more resources to reinvest in their businesses and overall, they'll be prepared for a future where OBR is common across different geographies.

The key is to get started now, as the benefits to a carrier's balance sheet will only grow.

With the right data, a transit carrier be confident that it is maximising profitability while protecting against surcharges.



Take Control

As OBR continues to grow across a number of markets globally, organisations will have to take action. The ones that start now will save more than their competitors. They will have more resources to reinvest in their businesses and overall, they'll be prepared for a future where OBR is common across different geographies.

XConnect can help you to quickly complete an OBR impact assessment and understand the impact it is having on your business. You can assess the benefits of blocking just the highest cost traffic or take a deep dive and explore the benefits of a fully optimised, real-time OBR optimisation.

Whether you are a carrier with existing OBR solutions that requires the best number intelligence, or your existing OSS/BSS is constrained and you need a work around or don't have a capability, XConnect offers solutions that match your business needs and make it as simple as possible to use data to tackle future OBR losses.

Already, some of the largest mobile network operators (MNOs) and carriers use XConnect's number portability query service to complete over 10 billion lookups per year.

 We're ready to help you use new intelligence to take control of your traffic. 



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XConnect delivers carrier-grade services to over 200 operators globally, including MNOs, business messaging (A2P) hubs, aggregators, carrier and interconnect providers.

XConnect provides a trusted global registry of network and subscriber information, based on privacy compliant phone number data including number portability, to optimise global communication services.

These services are used for voice and messaging routing, fraud protection and to identify and validate insights. They also support the deployment and evolution of next-generation communications, such as VoLTE and RCS. XConnect's Number Information Services are accessed through its global distributed hybrid cloud platform using simple, secure, scalable real-time protocols and APIs.

2 Billion

Over 2 Billion numbers have been ported

50%

In some countries over 50% of numbers have been ported

67%

Over 67% of organisations believe inaccurate data negatively affects their customer service

\$6.1Billion

IRSF Fraud costs operators \$6.1billion a year

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Book an OBR Consultation

Email: info@xconnect.net | T: +44 (0) 20 8371 4800 | www.xconnect.net

