Interconnection prices – another way to do it

The interconnection prices is and will be a source of debate and dispute as long as they are not set by the market. An interesting approach would be to analyze what a negotiated solution would be, assuming that such a solution could be reached in reasonable time. The idea below is a way to analyze a thought negotiation situation.. The interesting thing is that a possible solution would be asymmetric prices.

The room of amnesia

Suppose representatives of all mobile operators in a country are gathered in a room to agree on new interconnection prices and price regime. The conditions are that a solution must be unanimous. Adding to that we assume that all representatives are struck with amnesia in one particular aspect – they cannot remember what operator they represent.

What would under such circumstances be the probable outcome?

The amnesia neutralizes the individual operator interests, the parties must find a solution that is good enough for everyone.

The condition “good enough” is an interesting way to find an acceptable price regime instead of an optimal that might hurt individual oeprators.

The amnesia room negotiation strategy

As no one of the participants knows the real volumes of traffic and of course have no clue on how the volumes will evolve there is no possibility to calculate what each operators should prefer.

Uncertainty will make the operators’ representatives try to avoid situations where you will have a certain loss, because one cannot know if that loss is compensated by gains on the other service.

The limited knowledge only gives certainty on losses on the wholesale P&L. The implication is that situation which results in a certain loss in the wholesale P&L is rejected. There are also situations where the purchased termination is priced very high which might cause losses or at least limited possibility to compete with low prices. Such situations should be avoided is possible.

The strength of the “Amnesia room” is that it creates a situation when the negotiators will have a different strategy than they would in the “real world”. The model will not guarantee a solution that all possible operators could live with in the real world, but it can point out the situations different operators should avoid.

The result

In the presented example the negotiation solution where no negotiator could act in the interest of a specific operator, is asymmetric prices where the price for terminating in a specific operator network is equal to the unit price for terminating in that specific operator.

This is a result that would be a possible interpretation of the European regulation. This interpretation is however not the one that the European Commission has taken. The European Commission has strongly supported symmetric prices and that position has also been the position of the European Regulator Group, ERG.

The weaknesses

The result from the “Amnesia room” according to the example on next pages depends on the set-up of the example, for instance the operators’ market shares..

Other set-ups of the number of operators or the market shares will most probably end up in a different solution – or that a common solution is not possible.

The result is more interesting as an example on how to reason and to attack the issue of interconnection charges.

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Service profit & loss

One could in simplified terms create the template for the calculation of service profitability.

The retail business P&L would look as follows

Retail P&L
+ *Own customers paid charges*
- *Cost of originating calls in own network (all kinds)*
- *Cost of terminating calls from own customers in own network (part of total terminating costs in own network)*
- *Purchased terminations in other networks (all purchased terminations)*

_____
Profit or loss

The wholesale service has the following P&L.

Wholesale P&L
+ *Sold termination services*
- *Cost of terminating calls from other networks in own network (part of total terminating costs in own network)*

_____
Profit or loss

One could also note that – for cash flow reasons – there might be an interest in keeping track on the balance of payments towards other operators. It would be calculated as

Balance of payments
+ *Sold termination services*
- *Purchased termination services (all kinds)*

_____
Balance of payments

Stereotype operators

To be able to make the analysis we create three stereotype operators and analyse the effect of different pricing schemes on these stereotypes. The characteristics of the companies – known to the people in the Amnesia room are the following:

Operator	Unit cost of termination	Characteristics of retail P&L
Biggie	Lowest unit cost of the three because of high volume	Only threat is the unit prices on purchased termination from other operators. On-net traffic very profitable.
Challenger	Unit cost s are higher than for Biggie but lower than for Dame	Sensitive to unit prices on purchased termination. On-net traffic is good.
Dame	Highest unit cost of termination because of low volume	Own unit network costs are high Sensitive also to unit termination prices. Lower margins also on on-net traffic than other two operators.

Other assumptions

To make the analysis simpler we assume that all operators are mobile operators and that they have no fixed network in the same business group.

We also assume that the competition on the retail market is fierce which makes it impossible to increase retail prices to compensate for other losses.

We also note that as in all networks the volume is decisive when it comes to unit costs irrespective of efficiency. To make the reasoning somewhat simpler we can assume that the operators represented in the "Amnesia room" are sufficiently efficient.

Pricing regime hypotheses

To analyze the problem we form four hypotheses of the termination prices

Hypothesis 1 – Bill & Keep

In a Bill & Keep (B&K) termination price regime all termination prices are set to zero.

Hypothesis 2 – Individual network cost coverage

This pricing model will in most cases result in an asymmetric price regime. All operators get a price equal to their unit cost of termination. Following our assumptions, *Biggie* will have the lowest price and *Dame* the highest. We call this Asym prices.

Hypothesis 3 – highest cost

The third hypothesis is that the termination prices are set to cover the unit costs of the operator that. have the highest costs – as *Dame* has the lowest volume we can presume that *Dame's* unit costs are the highest. We call this Highest

Hypothesis 4 – lowest cost

The final hypothesis is that termination prices are set to cover the unit costs of the operator that have the lowest costs. As Biggie has the highest volume we can assume that the unit costs of Biggie are the lowest. We call this Lowest.

Evaluation

The prices of sold and purchased termination will change. Sold termination prices will inflict only the Whole Sale P&L while the prices of purchased termination will have an impact on the Retail P&L.

Biggie

In the table below we can see how the different hypotheses will be evaluated.

Hypo-thesis	Operator	Purchased termination price	Whole-sale P&L	Evaluation
B&K	Biggie	Purchased Termination Price equals zero	Loss	Best retail P&L loss in wholesale
Asym	Biggie	Purchased Termination Price second lowest	Zero	Third best retail – no risk on wholesale
Highest	Biggie	Purchased Termination Price highest	Profit	Risks retail P&L, good wholesale
Lowest	Biggie	Purchased Termination Price lowest	Zero	Second best retail P&L, wholesale = zero

As there are no traffic figures available we can conclude that alternatives that causes losses in any of the services must be ruled out.

The best chances is a very low interconnection price as there are no risks on the wholesale side and the purchased termination will be the second cheapest. The second alternative is the asymmetric prices where there are still no risk on wholesale but the retail will be somewhat lower

Challenger

For *Challenger* the wholesale P&L is an important source of profit. The two alternatives that gives loss in the wholesale P&L is problematic.

Hypo-thesis	Operator	Purchased termination price	Whole-sale P&L	Evaluation
B&K	Challenger	Purchased Termination Price equals zero	Loss	Best retail, great risk on wholesale
Asym	Challenger	Purchased Termination Price second highest	Zero	Third best on retail – no risk on wholesale
Highest	Challenger	Purchased Termination Price highest	Profit	Second lowest on retail, great wholesale
Lowest	Challenger	Purchased Termination Price second lowest	Loss	Second best retail, loss on wholesale

We don't have the actual traffic numbers which means that we prefer certainty. This will make the alternative with high interconnection prices the best one followed by the low risk scenario with asymmetric prices.

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Dame

Dame has no better expectations when it comes to wholesale than have a zero result. One alternative that is really bad and that is the one with the lowest interconnection charges.

Hypothesis	Operator	Purchased termination price	Wholesale P&L	Eva-luation
B&K	Dame	Purchased Termination Price equals zero	Loss	Best on retail P&L. Loss on wholesale P&L
Asym	Dame	Purchased Termination Price second highest	Zero = 0	Third best retail P&L no risk on wholesale
Highest	Dame	Purchased Termination Price highest	Zero = 0	Worst retail P&L no risk on wholesal
Lowest	Dame	Purchased Termination Price second lowest	Big loss	Second best on retail. Big loss on wholesale P&L

Dame will rank the asymmetric prices as the best alternative followed by high interconnection prices.

Evaluation table

To evaluate the different rankings are presented in the table below:

	B&K	Asym	Highest	Lowest
Biggie	Bad	No 2	Risky	No 1
Challenger	Bad	No 2	No 1 (Risky)	Bad
Dame	Bad	No 1	No 2 (Risky)	Worse than bad

A solution seams to be to choose asymmetric prices where no one risks their wholesale business. This choice will not give the best retail P&L possible for any of the operators – it is the effects on the wholesale side that is decisive.

About this R&I A

This Regulatory & Interconnection Analysis is inspired from the European discussion on new models for calculating interconnection charges. The position of the EU Commission and the European Regulatory Group (which consists of all NRAs of the European Union) have taken a firm position that symmetric interconnection charges are preferable. As a by-result one can conclude from this R&I A that symmetric prices based on the costs and volume of the biggest operator will hurt all smaller operators (see alternative “Lowest above”).

The Commission suggestion is to use the cost level of an operator with a market share of (1/number of networks). All operators that in real life have a volume more than that will benefit from such pricing model, while small operators (like *Dame*) will loose money on the whole sale side. This is shown above in the evaluation of *Dame*.

This analysis can – as demonstrated – be used to more than in an abstract way try to find out an abstract negotiation.

The EU Commission proposal is based on traditional thinking concerning interconnection charges. Whyen changes of the proposed magnitude are about to happen (and with the ultimate target of having a Bill & Keep-regime, according to the Commissioner Viviane Redig) it is also useful to analyze the effects mechanisms behind the interconnection.

It is possible that further approaches to the interconnection charging problem will be discussed in this paper.

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