High level economics of Number portability (NP)
(with emphasis on regulatory issues)

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Outline

I. Economical reasoning for NP - consumer benefits: reducing the switching costs, increasing competition.
   – what switching costs consumers face how they affect consumer benefit;
   – effect of NP on switching costs;
   – indirect impact of NP to consumers’ benefit;
   – the desired characteristics of NP from consumer point of view;

II. The costs of NP implementation and economical effects on operators
   – Different NP implementation options and the costs associated;
   – Possible competitive effects on operators’ business environment;
   – the issue of cost allocation;
   – The influence of technological developments on NP implementation costs (economies of scale and scope of IN platforms);

III. Lithuanian case
   – Process and the outcomes
   – EU context
I. Economical reasoning to implement Number Portability

Why NP is needed?
an economic perspective
I. Economical reasoning for NP
Cost – benefit analysis

- Each regulatory intervention should be justified by the public interest
- In economical terms – regulatory intervention should lead to the increase of overall public welfare
- In terms of number portability (NP) – the consumer benefits of NP should outweigh the costs of implementing NP
Effective competition in the communication markets benefits consumers in terms of:

- increased choice,
- lower prices,
- appropriate quality and innovation.
Why we need Number Portability?

Substantiating the need for a NP:

– Consumers are **tied to the usage of their numbers** – this is **barrier of switching operators without NP** (informing all contacts about changed number);

– Using this switching barrier, **operators can exploit their monopolistic power** to the certain extent (detrimental to competition);

– More effectively managed numbering resources;

– **NP - element of democracy** (right of choice makes customer happier).
What Does Switching Costs Mean?

Costs that a consumer incurs as a result of changing suppliers, brands or products.

Although most prevalent switching costs are monetary in nature, there are also psychological, effort- and time-based switching costs. (http://www.investopedia.com)
Types of switching costs

Switching costs

Exogenous
caused by the switching itself

Endogenous
created by the operator

• **Endogenous** switching costs are operators activity to create barrier for a competition;
• **Exogenous** costs – objective costs, which are incurred.
• Regulators can reduce both of these costs (NP, information sharing, education, tariff transparency, other means)
Examples of switching costs

- **Transaction costs** are related to cancelling and entering to the new contract. They arise about every service, when customers contract for subscription.

- **Compatibility costs** arise, when after purchasing the original products, customers need to buy auxiliary products, such as toners for printers, etc. An example for these in telecommunication services might be SIM-locking.

- **Contract costs** are typically monetary costs. These include penalties, which a customer have to pay if cancelling the contract before it expires, but also the lost of discounts, which loyal customers may earn.
Examples of switching costs

• **Learning costs** are relevant about more complex products and services, when customers need to learn the use of the new product/service.

• **Risk and uncertainty** arises about whether the new service or product fulfils their expectations.

• **Psychological costs** may emerge, when the customer emotionally sticks to a given product, service or service provider.

• **Search costs** almost always emerge about switching, but not necessarily connected to switching.
Grouping of switching costs

3 main categories of switching costs can be identified:

1. Procedural costs, which include managing transactions, learning costs, comparing alternatives and uncertainty;

2. Financial costs, which incorporate penalties for cancelling a contract and loosing loyalty discounts;

3. Relational costs, which comprise the psychological and emotional costs of breaking the existing relations.
Switching costs – obstacle for competition

- **Switching costs** **locks the customer**:  
  - operators need less resources to keep the customer;  
  - customers get worse prices/customer care, etc. (price discrimination: old vs. new customers).

- **Switching costs** – additional **entry barrier** for a new operator (restricted competition)  
  - higher prices in the whole market;
Switching costs & Product lifecycle

Product lifecycle affects operators strategic decisions, therefore is important to understand its implication on switching costs and competition.
<table>
<thead>
<tr>
<th>Market stage</th>
<th>Investments</th>
<th>Price discrimination (new vs. old) is possible</th>
<th>Price discrimination (new vs. old) is NOT possible</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Infant market</strong></td>
<td>Huge initial investments</td>
<td><strong>Strategies:</strong> skimming/penetration pricing, education</td>
<td><strong>Regulatory response:</strong> do not regulate - allow flexibility, do not restrict innovation</td>
</tr>
<tr>
<td>(to introduce services)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Growing market</strong></td>
<td>Stable / growing investments</td>
<td><strong>Strategies:</strong> On-net vs. Off-net pricing (snowball effect); switching costs used to compete for new customers (discounts for new customers; higher prices for old)</td>
<td><strong>Regulatory response:</strong> liberal approach (if same conditions applicable for all)</td>
</tr>
<tr>
<td>(to increase customer base)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Mature market</strong></td>
<td>Moderate stable investments</td>
<td><strong>Strategies:</strong> switching costs used to compete for new customers (discounts for new customers; higher prices for old)</td>
<td><strong>Strategies:</strong> concentration to maximise profits from existing (big) customer base (higher prices); <strong>Regulatory response:</strong> eliminate discrimination or switching costs (big operators have lots of subscribers – they can cross-subsidise)</td>
</tr>
<tr>
<td>(to maximise profits)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Declining market</strong></td>
<td>Very small, limited to what is necessary</td>
<td><strong>Strategies:</strong> operators might decide to create exit barriers to keep customers for a longer period</td>
<td><strong>Regulatory response:</strong> ensure end-user rights to abandon the provider/service</td>
</tr>
</tbody>
</table>
Demand

Sales

Price 1

Price 2

Switching costs

Effect of switching costs (old subsc.)

Service provider 1

Service Provider 2 (new entrant)

Prices

Switching costs

Price 1

Price 2

Demand

Sales

Number Portability Regulatory Issues and Implementation Impacts

Giedrius Pūras

19 May 2011, Chisinau
How to evaluate these costs?

- In order to compare against investment costs, switching costs **should be evaluated in monetary terms**;
- **No standard method** for estimating switching costs in economic research

**Methods** to estimate switching costs

- **Direct**
  - Analyse **actual behaviour of consumers**

- **Indirect**
  - Use aggregate **industry data** (can be based either on estimating cross-price elasticity or on prices and price margins)
Several alternatives can be identified in economic literature:

1) **Direct measurements** – analysis requires panel data (prices are usually very difficult to determine because of complex pricing + other non-monetary reasons might influence switching);

2) **Benchmark against competitors pricing** – assumes that operators set prices on equilibrium level, where assuming that their competitors undercut their prices by the extent of switching costs (to gain customers), it results in negative profits for the competitors. Drawback: it is based on the assumption that operators are aware of the extent of switching costs, and they set their prices based on them;

3) **Consumer survey** – this method is not based on revealed preferences, but on stated preferences (its validity depends on the extent that respondents can forecast their future behaviour).
**Impact of NP on different consumers**

**Different impact on different customer segments:**

- **High-usage users**
  - have higher switching costs (usually business customers – number is used widely);
  - But the competition in this segment tends to be more intense, because of higher ARPU;

- **Low-usage users**
  - Might be worse off if the NP costs are disproportionally high;
  - Pre-paid segment usually has low switching costs anyway.

**On-net vs. Off-net pricing:**
- If the termination rates differs a lot, **Tariff transparency** issue arises;

**Indirect effects:**
- Better conditions for ALL customers (not only those who have ported)
- Elimination of old vs. new customers;
Instruments to reduce switching costs

Regulatory examples from European countries:

– Availability of wholesale access products (LLU, WBA, CS/CPS);
– **Number portability** (eliminates the costs related to retaining the number while switching providers);
– seamless transition on wholesale markets (eliminates “no service” period)
– Regulating / standardizing service contracts (may decrease transaction costs connected to them)
– A price-comparison tool may make it easier to compare complex offers of telecommunication providers
Characteristics of successful NP

To make positive effect of NP on eliminating switching cost, regulators should ensure these characteristics:

**Consumer side:**
- High subscriber awareness and perception;
- Low/none porting fees/cost to subscriber;
- Accessibility/Ease of process;
- Short porting time;

**Provider side:**
- Determine the results expected (not the methods used)
- Guide the operators, intervene if necessary;
- Use what is already available on the market (networks);
- Change if needed
Main obstacles to switching, that still remain

After NP implemented...

BEREC* survey (2010):
1. Contractual issues;
2. Lack of consumer information;
3. Irresponsible selling;
4. Technical issues (internet/BB)
5. Loosing Party (LP) activities

* BEREC – the Body of European Regulators for Electronic Communications.
II. Costs to implement Number Portability

What are alternatives?
What are their cost differences?
I. Types of portability

Portability types:
- Operator portability (competition);
- Service portability;
- Location (geographic) portability.

Many names for NP:
- MNP vs. WNP;
- FNP vs. LNP;
- WLNP (US, Canada – same area codes and billing; different FTR and MTR regulation; the mobile user usually pays for incoming calls)

Number Portability can take many forms:
- Fixed-to-Fixed Porting
- Mobile-to-Mobile Porting
- Fixed-to-Mobile Porting
- Mobile-to-Fixed Porting
3 steps of NP process

1. Port Initiation
   - Donor-led process
   - Recipient-led process

2. Exchange of Porting Information
   - Manual
   - Automated
   - Centralized
   COSTS:
   - One-off
   - Per number ported

3. Re-routing
   - On-switch solution
   - Off-switch solution
   COSTS:
   - one-off
   - Per call made

- All these steps are required, independently of the NP solution chosen;
- Different solutions can be applied in each of these steps;
- All these steps are inter-related with each other
The complexity and therefore the costs of administration of NP requests increases as the number of Service Providers (SP) increase:

- It is possible to use manual P2P administration solutions in cases where NP takes place between small number of SPs (e.g. up to 3), or
- where the amount of numbers (expected to be) ported is low (hard to predict, depends on SPs response to NP)
- Anyway, the quick and efficient NP process should be ensured.
Overall costs of implementation of NP depend on the solution chosen – some have very small establishment costs, but high usage costs, others – vice versa.

Latter ones are sometimes called “long term” solutions as they are more appropriate when high portion of ported numbers is reached.
**NP implementation**

- **Off-switch** solutions transfer the portability information into one or several external databases that can be accessed by all network switches for query, perhaps using Intelligent Network (IN) techniques. Off-switch solutions allow for the best routeing of the call towards the final destination.

- **On-switch** solutions rely on information in the donor local exchange (i.e. the exchange where the subscriber was initially located). On-switch solutions involve call forwarding or “tromboning” at least in the signalling phase if not for the duration of the call.
Costs associated with NP implementation.

Call forwarding (onward routeing)

- **Benefits:**
  - easy to implement
  - low set-up costs

- **Problems:**
  - Increased routing costs
  - multiple ports
  - Cost sharing issue
  - Not suitable for mobile

Penalty/extra charge for incorrect routing?

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### Number Portability

**On-switch solutions**

<table>
<thead>
<tr>
<th>Costs involved</th>
<th>System set-up cost</th>
<th>Per-operator set-up</th>
<th>Per-line set-up</th>
<th>Additional conveyance</th>
<th>Other administration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Software evolutions in switches</td>
<td>High proportion of total cost</td>
<td>Small proportion of total costs</td>
<td>Very small</td>
<td>Varies depending on technical solution: but can be quite high</td>
<td>Negligible</td>
</tr>
<tr>
<td>Adaptation of information systems</td>
<td></td>
<td>Initial programming of switches (except for 2nd number solution)</td>
<td></td>
<td>Tromboning and non-optimal routeing of calls</td>
<td></td>
</tr>
<tr>
<td>Creation of inter-operator service management tools and procedures</td>
<td></td>
<td></td>
<td></td>
<td>Allocation of non-geographic numbers</td>
<td></td>
</tr>
<tr>
<td>Adaptation of maintenance and customer support procedures</td>
<td></td>
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</tr>
</tbody>
</table>

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Number Portability Regulatory Issues and Implementation Impacts  
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19 May 2011, Chisinau
Costs associated with NP implementation.

**Call drop-back**

**Call drop-back** is enhancement of Call forwarding:

- Donor operator “drops” the call in case it is ported and returns the routing info to the originating operator (whether penalties for incorrect routing occur depends on interconnect agreement)

- originating operator is responsible for correct re-routing, donor- for information.

**Drawbacks:** hard to implement as needs signalling system changes involvement of Donor operator; not suitable for Mobile (SMS, data transfers)
Costs associated with NP implementation.

All call query

- Originating operator knows the **exact routing** and can select the optimal/cheapest way;
- Costs: NP database (common costs), IN network (each operator)
Costs associated with NP implementation.

Query on release

**Advantages:**
- CDB is only approached in cases number was ported;
- internal IN resources can be avoided

**Disadvantages:**
- Unnecessary routing to Donor operator (+donor control)
- each time ported number is called CDB is used (per call payments?)
Costs associated with NP implementation.

### All call query

<table>
<thead>
<tr>
<th>System set-up cost</th>
<th>Per-operator set-up</th>
<th>Per-line set-up</th>
<th>Additional conveyance</th>
<th>Other administration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Off-switch solutions</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Costs involved</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Set-up of Intelligent Network</td>
<td>• Initial programming of switches</td>
<td>• Modification of subscriber data</td>
<td>• Management of a national ported numbers database</td>
<td></td>
</tr>
<tr>
<td>• Adaptation of information systems</td>
<td>• Access to national NP database</td>
<td>• Additional conveyance of IN query</td>
<td>• Allocation of non-geographic numbers</td>
<td></td>
</tr>
<tr>
<td>• Creation of inter-operator service management tools and procedures</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Adaptation of maintenance and customer support procedures</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Significance of costs</th>
<th>Higher proportion of total costs than for on-switch solutions</th>
<th>Very small</th>
<th>Negligible</th>
<th>Very small</th>
</tr>
</thead>
<tbody>
<tr>
<td>Significant proportion of total cost (higher than on-switch solutions)</td>
<td>Higher proportion of total costs than for on-switch solutions</td>
<td>Very small</td>
<td>Negligible</td>
<td>Very small</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Main party incurring cost</th>
<th>High impact on all operators, but low on other operators</th>
<th>Medium impact on all operators</th>
<th>Medium impact on the incumbent and low on other operators</th>
<th>Very low impact on all call-originating operators</th>
<th>Very low impact on the NRA</th>
</tr>
</thead>
</table>

- High set-up costs, but...
- Originating operator knows the exact routing and can select the optimal/cheapest way
## Comparative costs of NP solutions

<table>
<thead>
<tr>
<th>NP implementation</th>
<th>Establishment costs</th>
<th>Usage costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Call forwarding</td>
<td>Very low</td>
<td>Very high</td>
</tr>
<tr>
<td>Call drop back</td>
<td>Low</td>
<td>High</td>
</tr>
<tr>
<td>Query on release</td>
<td>Very high (real time CDB)</td>
<td>Low</td>
</tr>
<tr>
<td>All Call Query</td>
<td>High (reference CDB)</td>
<td>Negligible</td>
</tr>
</tbody>
</table>
• On-switch solution (OR) has comparably low initial costs, but they increase rapidly with each ported number;
• OR can be good transitional solution in case of time constrain;
• In long term (especially taking into account future fixed-mobile substitution) Centralized solutions are more efficient.
Costs of NP solutions. Dynamic aspect

- Relative costs of different NP solutions change as the amount of ported numbers increases. Average costs for off-switch solution reduces over time;

- Per usage costs in on-switch solution are close to additional routing costs – it will increase after 2nd, 3rd, etc. porting of the same number;
Costs of NP solutions. Dynamic aspect

• WHETHER (and WHEN) Break-even point will be reached depends on:
  – overall size of market (small vs. big countries);
  – expected take up of NP (see below);
  – total costs of NP implementation (ensuring the resources to be used effectively).

• Other factors might influence implementation decision:
  – Take-up might be the result of NP solution selected (the more effective solution, the bigger take up);
  – Actual Take-up might be lower, because of competitive pressures created by introduction of NP itself (potential Donor operators lower prices for all customers because of NP introduction);
## NP implementation choices in EU

<table>
<thead>
<tr>
<th>Country</th>
<th>How calls are routed from a fixed network to a mobile network</th>
<th>How calls are routed from a mobile network to another mobile network</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>Onward routing or all call query</td>
<td>All call query</td>
</tr>
<tr>
<td>Belgium</td>
<td>All call query</td>
<td>All call query &amp; query on release</td>
</tr>
<tr>
<td>Croatia</td>
<td>All call query</td>
<td>All call query</td>
</tr>
<tr>
<td>Cyprus</td>
<td>All call query</td>
<td>All call query</td>
</tr>
<tr>
<td>Denmark</td>
<td>All call query</td>
<td>All call query</td>
</tr>
<tr>
<td>Estonia</td>
<td>All call query</td>
<td>All call query</td>
</tr>
<tr>
<td>Finland</td>
<td>All call query (1.10.05-)</td>
<td>All call query</td>
</tr>
<tr>
<td>France</td>
<td>Phase 1: onward routing</td>
<td>Phase 1: onward routing</td>
</tr>
<tr>
<td></td>
<td>Phase 2: all call query</td>
<td>Phase 2: all call query</td>
</tr>
<tr>
<td>Germany</td>
<td>Onward routing &amp; all call query</td>
<td>All call query</td>
</tr>
<tr>
<td>Hungary</td>
<td>All call query &amp; query on release</td>
<td>Phase 1: all call query &amp; query on release</td>
</tr>
<tr>
<td>Iceland</td>
<td>All call query</td>
<td>All call query</td>
</tr>
<tr>
<td>Ireland</td>
<td>Onward routing</td>
<td>All call query</td>
</tr>
<tr>
<td>Italy</td>
<td>All call query</td>
<td>All call query</td>
</tr>
<tr>
<td>Lithuania</td>
<td>All call query</td>
<td>All call query</td>
</tr>
<tr>
<td>Luxembourg</td>
<td>Onward routing</td>
<td>All call query</td>
</tr>
<tr>
<td>Malta</td>
<td>Onward routing but ACQ may also be used</td>
<td>All call query</td>
</tr>
<tr>
<td>Netherlands</td>
<td>All call query</td>
<td>All call query</td>
</tr>
<tr>
<td>Norway</td>
<td>All call query</td>
<td>All call query</td>
</tr>
<tr>
<td>Poland</td>
<td>All call query</td>
<td>All call query</td>
</tr>
<tr>
<td>Portugal</td>
<td>All call query &amp; query on release</td>
<td>All call query &amp; query on release</td>
</tr>
<tr>
<td>Slovenia</td>
<td>All call query</td>
<td>All call query</td>
</tr>
<tr>
<td>Spain</td>
<td>Onward routing</td>
<td>Onward routing</td>
</tr>
<tr>
<td>Sweden</td>
<td>Onward routing &amp; all call query</td>
<td>Onward routing &amp; all call query</td>
</tr>
<tr>
<td>Switzerland</td>
<td>Onward routing</td>
<td>Onward routing</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>Onward routing</td>
<td>Onward routing</td>
</tr>
</tbody>
</table>

Source: ECC report on Implementation of Mobile Number Portability In CEPT Countries (2005)
Implementation choices

• Majority of countries have implemented centralized approach, e.g. All Call Query (ACQ)

• Onward Routing (OR) might be justified in declining markets (where lots of extra capacity on networks are available or major upgrade expected);

<table>
<thead>
<tr>
<th>Selected Country</th>
<th>Call Routing Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>OR</td>
</tr>
<tr>
<td>Belgium</td>
<td>ACQ</td>
</tr>
<tr>
<td>Canada</td>
<td>ACQ</td>
</tr>
<tr>
<td>Denmark</td>
<td>ACQ</td>
</tr>
<tr>
<td>Finland</td>
<td>ACQ</td>
</tr>
<tr>
<td>France</td>
<td>OR</td>
</tr>
<tr>
<td>Germany</td>
<td>ACQ (Operator Select)</td>
</tr>
<tr>
<td>Hong Kong</td>
<td>ACQ</td>
</tr>
<tr>
<td>Ireland</td>
<td>OR (Operator Select)</td>
</tr>
<tr>
<td>Italy</td>
<td>OR</td>
</tr>
<tr>
<td>Netherlands</td>
<td>ACQ/QoR</td>
</tr>
<tr>
<td>Norway</td>
<td>ACQ</td>
</tr>
<tr>
<td>Singapore</td>
<td>ACQ</td>
</tr>
<tr>
<td>Spain</td>
<td>ACQ/QoR</td>
</tr>
<tr>
<td>Sweden</td>
<td>ACQ/QoR</td>
</tr>
<tr>
<td>Switzerland</td>
<td>QoR</td>
</tr>
<tr>
<td>UK</td>
<td>OR</td>
</tr>
<tr>
<td>US</td>
<td>ACQ</td>
</tr>
<tr>
<td>Mexico</td>
<td>ACQ</td>
</tr>
<tr>
<td>Brazil</td>
<td>ACQ</td>
</tr>
<tr>
<td>India</td>
<td>ACQ (being implemented)</td>
</tr>
</tbody>
</table>

Source: Syniverse technologies. A Global Perspective on Number Portability (2009)
Cost effective solution for small jurisdictions

- **Interconnect Communications** provides examples of NP implementation in small countries

- Alternative solution might be to outsource?

<table>
<thead>
<tr>
<th>Jurisdiction</th>
<th>Approximate Population</th>
<th>Date of launch (MNP unless stated)</th>
<th>Solution chosen</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cyprus</td>
<td>800,000</td>
<td>2004</td>
<td>Distributed</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Direct routing</td>
</tr>
<tr>
<td>Iceland</td>
<td>320,000</td>
<td>2005</td>
<td>Centralised</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Direct routing</td>
</tr>
<tr>
<td>Luxembourg</td>
<td>500,000</td>
<td>2005</td>
<td>Centralised</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>F-M = indirect routing</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>M-M = direct routing</td>
</tr>
<tr>
<td>Malta</td>
<td>415,000</td>
<td>2006</td>
<td>Distributed</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Direct routing</td>
</tr>
<tr>
<td>Channel Islands</td>
<td>150,000</td>
<td>2008</td>
<td>Centralised</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>F-M = indirect routing</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>M-M = direct routing</td>
</tr>
<tr>
<td>Isle of Man</td>
<td>80,000</td>
<td>2009</td>
<td>Centralised</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>F-M = indirect routing</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>M-M = direct routing</td>
</tr>
</tbody>
</table>

*F-M = Fixed to mobile calls. M-M = Mobile to mobile calls*

International aspect

- International carriers are **not aware** of national ported numbers (and the actual costs associated with termination)...
- ...therefore **optimal routing** is hard to select.
- The problem correlates to the **differences between Termination rates**;
- EU: the problem is disappearing because of **symmetrical TR regulation**;
- If M2F and F2M number portability applied, there are still huge differences between FTRs and MTRs
**NP impact on Operators**

- Churn rates not necessarily increase after NP implementation;
- In some cases churn rates even decrease – the reason might be operators response to NP introduction with better customer care and etc.

**U.S. Mobile Operator Monthly Churn**

![Bar chart showing churn rates before and after NP implementation for different operators.](chart.png)

Source: Syniverse technologies. A Global Perspective on Number Portability (2009)
How to evaluate the NP solution?

- Is “cost per number ported” the right measurement?
- Is there a correlation between Cost and Efficiency and afterwards – “take-up”? 
- How to take into account indirect NP effects?
- Primary goal should be a set of NP quality requirements
IV. Lithuanian case
Introduction of NP in Lithuania

NP is implemented in Lithuania using **CDB solution**:

- **Recipient-led** process.
- **Free of charge** for consumers;
- All Operators/Service providers have to connect to CDB;
- All Operators/Service providers have to pay yearly fee to CDB administrator: 1 LTL (~0.29EUR) per number;
- Operators/Service providers can choose means by which they prefer to receive information about ported numbers from CDB;

- **2004 May**
  - New Law on Electronic communications
- **2004 July**
  - Draft Terms and conditions for an open Tender
- **2004 August**
  - Comments for Draft Terms and conditions
- **2004 November**
  - RRT started a Tender
- **2005 January**
  - The winner was announces
- **2006 February**
  - CDB was fully implemented
Although big operators are not very happy, costs of CRDB, they are comparably small ~0,6% of revenue:

- Fixed ~ 0,33% revenue
- Mobile ~ 0,71% revenue
Total ported numbers

Total number of ported numbers: **570 th. (10%)**:

- In mobile networks **553 th. (11.3%)**
- In Fixed networks **16.8 th. (2.2%)**

NP process < 5 working days (EU average MNP - 8.5 days, FNP - 7.5 days).
Price trends. Mobile and fixed markets

- Introduction of NP has brought *prices down*, especially in Mobile;
- Impact of different NP solutions is hard to assess, because CRDB was announced from the start;
- Fixed market showed only moderate price decrease as it is declining market.

**Mobile telephony market, Lithuania**

NP: Call forwarding

NP: CRDB based

**Fixed telephony market, Lithuania**

Avg. price ARPU

NP in Europe (2010 data)

- Majority of customers finds switching relatively easy in communications market;
- Majority of countries apply Gaining Party (recipient) Led (GPL) process;
- Porting time varies by countries (not harmonized);

Source: BEREC report on best practices to facilitate consumer switching (2010)

Source: Flash Eurobarometer 243 about Consumer’s views on switching service providers
Portability time

19 May 2011, Chisinau

Mobile – 4.1 days

Fixed – 6.5 days
NP take-up in Europe

% of mobile numbers ported over total mobile subscribers (Oct. 2008)

NOW: 11%
Summary

• Generally each intervention is subject to **cost-benefit** analysis. The same with NP (**reduction of switching costs vs. cost of implementation**), but...

• ...it is very **difficult to exactly evaluate** in monetary terms (especially influence on competition and non-monetary customer benefits)

• Elimination of switching costs should be evaluated according the **product lifecycle**;

• In mature markets, NP makes sense for **increasing competition**. As the benefit is hard to evaluate, decision could be made according the NP **efficiency benchmark** (target) – least costly NP solution to reach targets.
Questions...

Thank You!

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