ASSOCIATION OF EUROPEAN BUSINESSES
IN THE RUSSIAN FEDERATION

Round Table organized by the AEB IT-Telecom Committee

“Number portability in Russia: to Be or not to Be?”

May 20, 2010
AEB Premises, Moscow

Number Portability in Germany

Regulatory Framework and Realisation

Clemens Schlotter

Partner,
Head of German desk

Content

- Concept
- Regulatory Framework
- Realization
- Problems and Cures

Concept

- Possibility to take own end customer's telephone number from one operator to the other
- Incentive to competition as readiness to switch operators increases
  - No costs connected to new phone number (publications, information to clients)
  - Best product by different operators decides
- Considered as one essential for success of liberalisation of German telecommunications market 1996

Regulatory Framework I

§ 46 German Telecommunications Act

- Obligation of the providers of publicly available networks to ensure NP in their network
- Obligation of the providers of public telecommunication services to ensure NP
- Fixed Network Numbers (geographically bound) within the boundaries of the municipality
- Mobile numbers
- No change between different numbering spaces

Regulatory Framework II

§ 46 German Telecommunications Act

- chargeable costs: costs incurred with the change
  - Network operator – telecommunication service provider
  - telecommunication service provider – end customer
- Non-chargeable costs: development / implementation of NP database
- Ex-post regulation of change fees

Regulatory Framework III

- Remedies for end customer
  - ADR at telecoms regulator, § 47a German Telecommunications Act
  - Civil lawsuit

Realisation

- End customer requests NP with the new operator in due time before expiry of old contract
- New operator coordinates porting process with old one.
- After expiry of old contract , number is switched off in the system of old operator and (ideally) switched on the same day in system of the new operator.
- NP requires identity of end customer‘s data with old and new operator.

Problems and Cures

Technical/administrative

- NP request with old operator (Report German Telecoms regulator 2009)
- Late NP requests close to/after expiry of old contracts lead to technical difficulties
- Change to again another operator (Report German Telecoms regulator 2009)
- Differing end customer‘s data with old and new operator

Economic

- Excessive change fees by some operators (ex-post regulation)

Legal

- Technological development
- Abusive Practices by operators („slamming“ – switching of end customer againt his/her will) – clear definition upon which criteria switch is admissable
- Adequate legal recourse for end customers (small claims - ADR)

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Thank you!

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Thank you!

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Number Portability

Presentationl for

Dr. Arnulf Heuermann
Managing Partner
20th May 2010

Consulting
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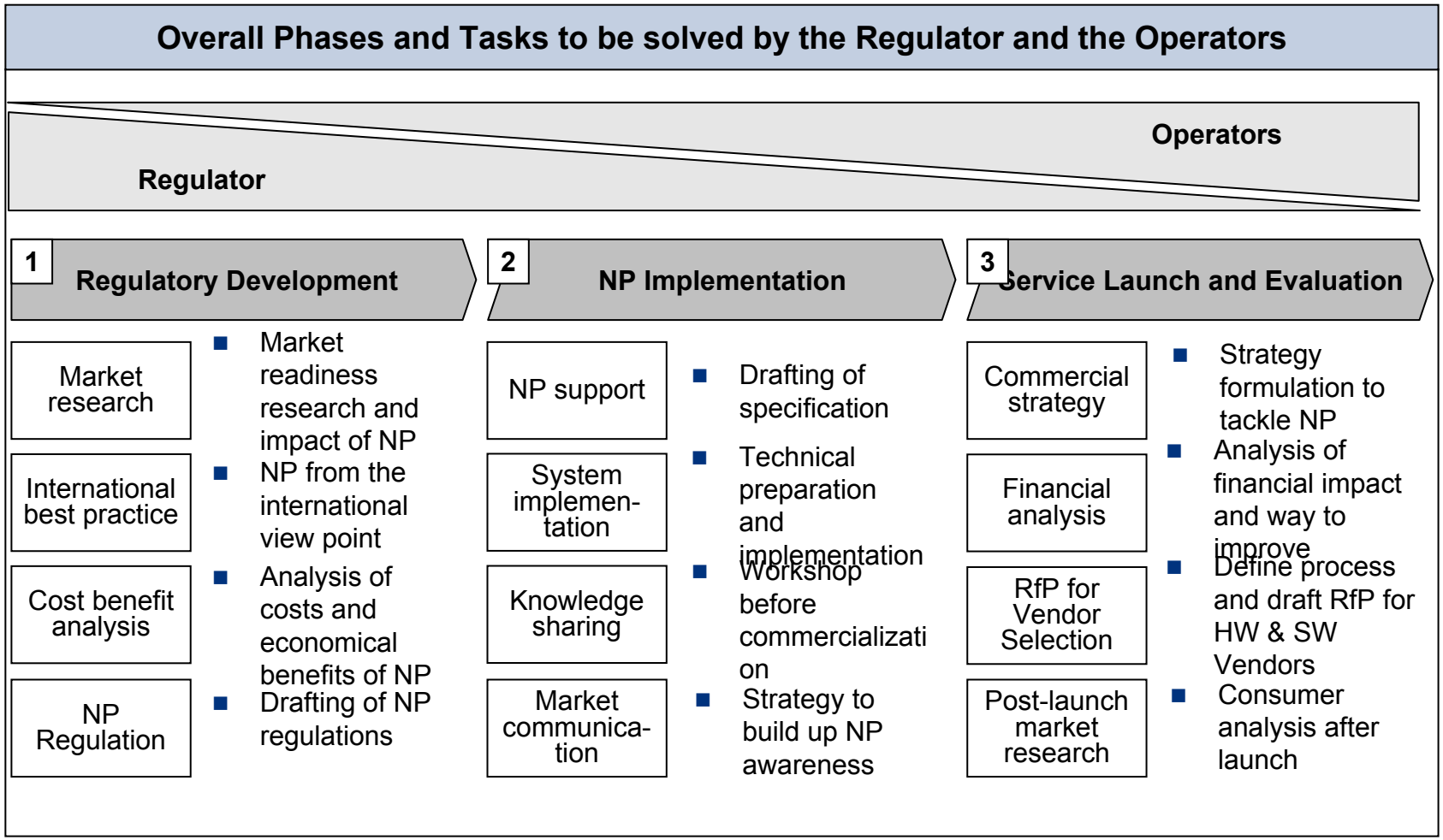
Regulator and Operators have to Coordinate Activities for NP

Number portability is a regulatory and an operational task. Both parties have to co-operate and co-ordinate their actions in a project organization manner.



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Stakeholders Interests

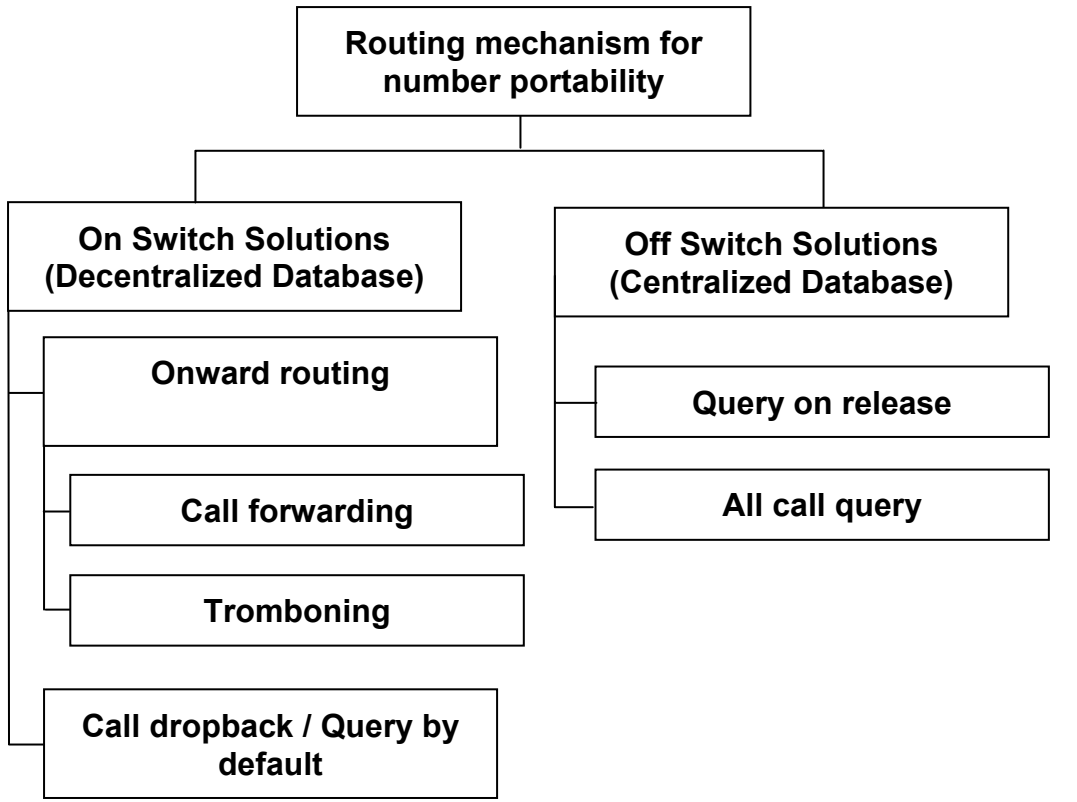
The point of view of different stakeholder of the telecommunication market differs heavily. New operators welcome NP whereas established operators dismiss NP.

Regulator	Incumbents	Challenging Operators	Consumers
■ Improving consumer benefits ■ Removing competitive barriers ■ Conserving and optimizing numbering resources	■ Minimal benefits but costs for technical solution and loss of customers ■ (M)NP may pose a significant threat in the business customer segment ■ Threat depends on smaller operators aggressiveness in approaching the market with a churn orientated offer. ■ Need to anticipate competitors' moves and prepare counteractions	■ High benefits from removed barrier to competition ■ An opportunity to win high value (post paid) customers from incumbent, if own subcriber base is less vulnerable to churn. ■ (M)NP needs to be aggressively marketed by new price packages, promotions, special MNP incentives for dealers and service providers.	■ Values to keep his/her phone number(s) ■ Eases choosing another operator with new services ■ Saves costs, in particular to inform own customers about a new number ■ Less inquiry or misdialing

Many Options for Number Portability

Number portability is a strong regulatory element to increase competitive pressure, but can be defined and implemented in different ways. Which one is optimal for Russia?

Different Technical Solutions for Number Portability (NP)

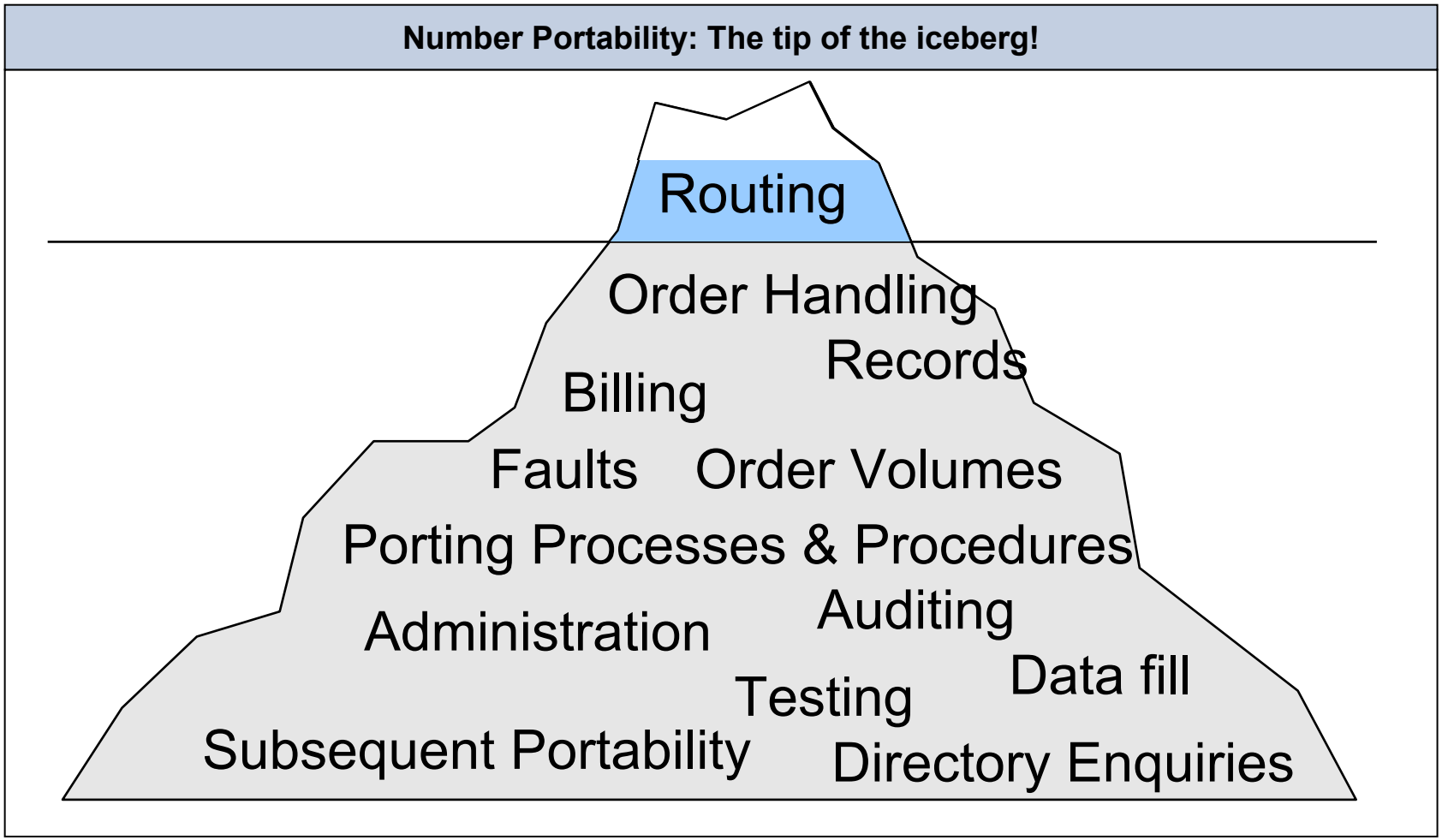


Three Types of NP

- **Operator Number Portability / Service Provider Portability** describes the ability of a customer to retain the same geographic or non-geographic telephone number when changing from one (fixed or mobile) operator or service provider to another.
- **Geographic Portability** is the ability of a customer to retain the same geographic or non-geographic number when moving from one permanent physical location to another.
- **Service Portability** is the ability of a customer to retain the same geographic number when changing from one service to another (e.g. from basic telephony to ISDN).

Number Portability has Complex Implications

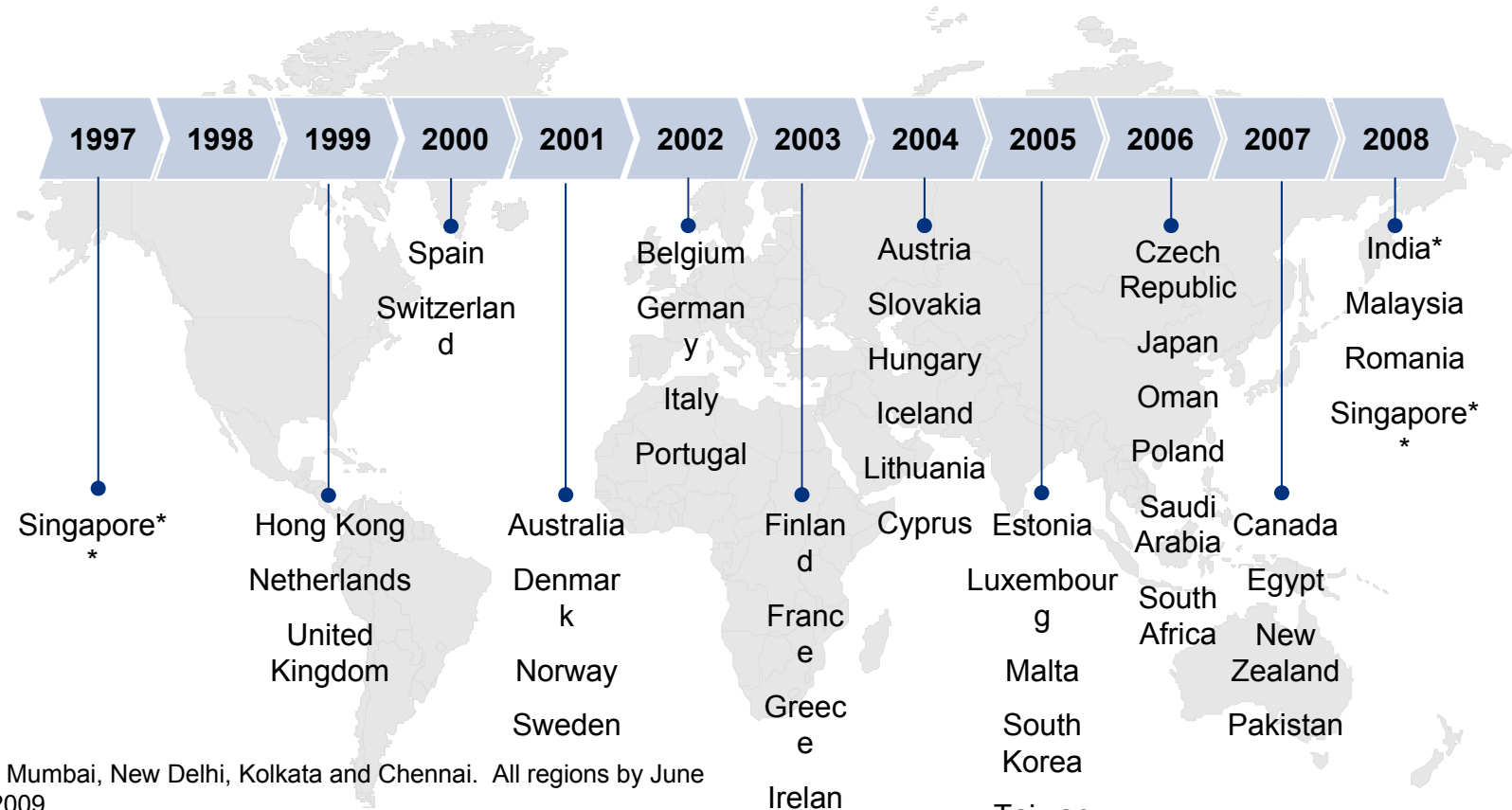
Number portability has an impact in more or less all functions of a telecommunication operator. The routing issue is only the tip of the iceberg.



Number Portability is Implemented by Many Countries

Mobile Number Portability (MNP) has been introduced in 1997. Since then it has been widely adopted in most developed countries, but very few developing countries.

Mobile Number Portability Adoption around The Globe



* Mumbai, New Delhi, Kolkata and Chennai. All regions by June 2009

** Singapore has just implemented the full MNP in 2008

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Fixed Network Number Portability

The technical solution which is implemented for number portability differ within the European Union.

	Finland	France	Germany	Netherlands	Sweden	UK
1. Service offered (date)	Yes (October 1998)	Yes (January 1998)	Yes (January 1998)	Yes (April 1999)	Yes (July 1999)	Yes (April 1996)
2. Technical solution implemented (or planned)	Advanced call forwarding. IN solution seen as long term solution	Onward routing for geographic number portability. IN solution used for non-geographic number portability	Onward routing call drop-back, IN. No specific long term solution	IN solution. This seen as long term solution	Onward routing (short term solution) and All Call Query (long term IN solution)	For geographic number portability, the current solution is transparent call forwarding with call drop back. (IN for NGNP)
3. Responsibility for choosing technical solution	NRA together with operators and manufacturers	Industry working group with NRA	Industry working group (NRA with operators)	Industry working group (NRA with operators	All operators	Industry working group

andates direct routing (not through number range owner) from 31.3.2006

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Technical Aspects of Number Portability

Mobile Network Number Portability

Also in the mobile environment no unique technical realization for number portability exists.

Country	How calls are routed from a fixed network to a mobile network	How calls are routed from a mobile network to another mobile network
Belgium	All call query[1]	All call query & query on release[1]
Denmark	All call query	All call query
Finland	All call query (1.10.05-)	All call query
France	Phase 1: onward routing Phase 2: all call query	Phase 1: onward routing Phase 2: all call query
Germany	Onward routing & all call query	All call query
Hungary	All call query & query on release	Phase 1: all call query & query on release
Ireland	Onward routing	All call query
Italy	All call query[2]	All call query
Netherlands	All call query[3]	All call query[2]
Norway	All call query	All call query
Sweden	Onward routing & all call query	Onward routing & all call query
Switzerland	Onward routing	Onward routing
United Kingdom	Onward routing	Onward routing

1. The minimum legal requirement is for onward routing. / 2. Queries could be outsourced to other operator. / 3. Queries are outsourced by one operator to the incumbent operator.

Content

3. **Number Portability and the Regulatory Framework**

Regulatory Challenges of Number Management

Number Portability and the Regulatory Framework in the EU
Despite a common Regulation Implementation was different in the EU

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Number Portability and the Regulatory Framework in the EU

Most issues regarding to number portability are arranged in the EU Universal Service Directive. Operators have freedom regarding the used technology.

	Description of EU Requirement
1 Date for introduction	■ NP has to be introduced at the earliest possible date in each member state.
2 Obligation to provide Number Portability	■ All fixed and mobile public operators have to support NP. The national regulator cannot allow for exceptions.
3 Technical Type of Number Portability	■ Every member state can choose his own technical solution (off switch or on switch).
4 Number Range	■ NP is required for geographic and non geographic numbers, including mobile and VAS. ■ Exception: NP is not mandatory between fixed and mobile operators.
5 Charging Principles	■ Pro- competitive, transparent, cost orientated, reasonable, in the interest of all users, economic efficient
6 Tariff Information	■ Facilitate appropriate tariff transparency as part of the implementation of number portability

Despite a common Regulation Implementation was different in the EU

Several EU member countries implemented NP in quite different ways. Also the market effects have been quite different.

Target maximum porting period	
Germany	4 working days + 2 further days
Portugal	5-20 working days
United Kingdom	2 working days + 1 calendar week
France	30 days

Type of ported mobile number database	
Germany	Centralised
Portugal	Centralised
Malta Cyprus	Distributed
France	Centralised

Annualised Churn in % (3months period)	
NTT DoCoMo	8%
China Unicom	29%
T-Mobile UK	35%
Orange France	21%

Net Gain or loss in 1st five years of MNP (Spain)	
Orange	–1 060 000 ported customers
Telefonica Moviles	375 000 ported customers
Vodafone	770 000 ported customers

Source: Analysys Research Limited report

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Costs incurred in the provision of NP Off Switch Solution

The system set-up costs are the main cost driver of the number portability service for off switch solutions.

Costs incurred in the provision of NP Off Switch Solution					
	System Set-up cost	**Per-operator set-up costs**	**Per-line administration costs**	**Additional conveyance costs**	**Other administration costs**
Costs involved	Intelligent Network set-up costs; Adoption of information systems; Creation of inter-operator management tools and procedures; Creation of maintenance and customer support procedures	Initial programming of switches; Access to national NP database	Modification of subscriber data	Additional conveyance of IN query	Management of a national ported numbers database; Allocation of non-geographic numbers
Significance of costs	Very significant	Some significance	Very small	Negligible	Very small

Costs incurred in the provision of NP On Switch Solution

Where additional conveyance costs are negligible for off switch realizations the additional conveyance costs can be high for the on switch realization.

Costs incurred in the provision of NP On Switch Solution					
	System Set-up cost	Per-operator set-up costs	Per-line administration costs	Additional conveyance costs	Other administration costs
Costs involved	Software evolution in switches; Adoption of information systems; Creation of inter-operator management tools and procedures; Creation of maintenance and customer support procedures	Initial programming of switches	Modification of subscriber data	Non-optimal routing of calls	Allocation of non-geographic numbers
Significance of costs	Significant – the bulk of costs will fall on the incumbent	Small proportion	Very small	Varies depending on the technical solution – can be high on the donor operator	Negligible

Comparison of Cost Principles for NP in selected countries

Prices of number portability are cost oriented in most European countries.

Comparison of Cost Principles						
	Finland	France	Germany	Netherlands	Sweden	UK
Costs that each operator must bear itself	System Set-up costs	System Set-up costs	System Set-up costs and additional conveyance	System Set-up costs	System Set-up costs investment costs for additional conveyance	System Set-up costs and additional conveyance costs
Principles used by NRA	Cost orientation and reasonable costs	Cost causation and cost orientation	Cost causation and cost orientation	Cost orientation	Cost orientation and cost minimization	Cost causation, cost minimization, distribution of benefits, effective competition

Benchmark Results

Within Europe there is no unique picture regarding to the issue who covers the costs of number portability.

Benchmark Results
■ As a general rule, in European countries no charges are imposed on consumers with respect to porting. ● Donor operators may not charge customers who port away from them. ● In some countries, the recipient operator charges the user for porting. ■ Each operator bears its own set up costs. ■ In several countries operators have agreed a charge for transaction costs to be paid by the receiving operator to the donor operator, without regulatory intervention. ■ Usually the regulator intervenes only in cases where there is strong evidence that charges are not cost oriented. ■ The originating network pays any additional conveyance costs. This rule applies to originating operators who are fixed operators as well as mobile operators. ■ The donor operator charges the recipient operator for the cost of the porting procedure, these charges being subject to approval by Regulator.

Content

5. Market Impact

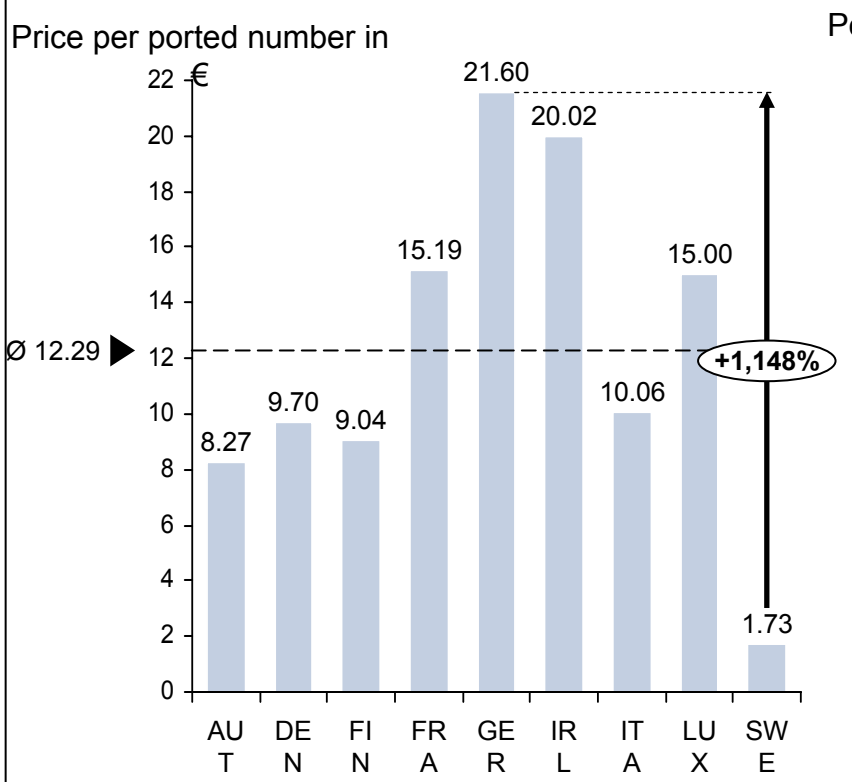
Mobile Number Portability had Different Market Impact

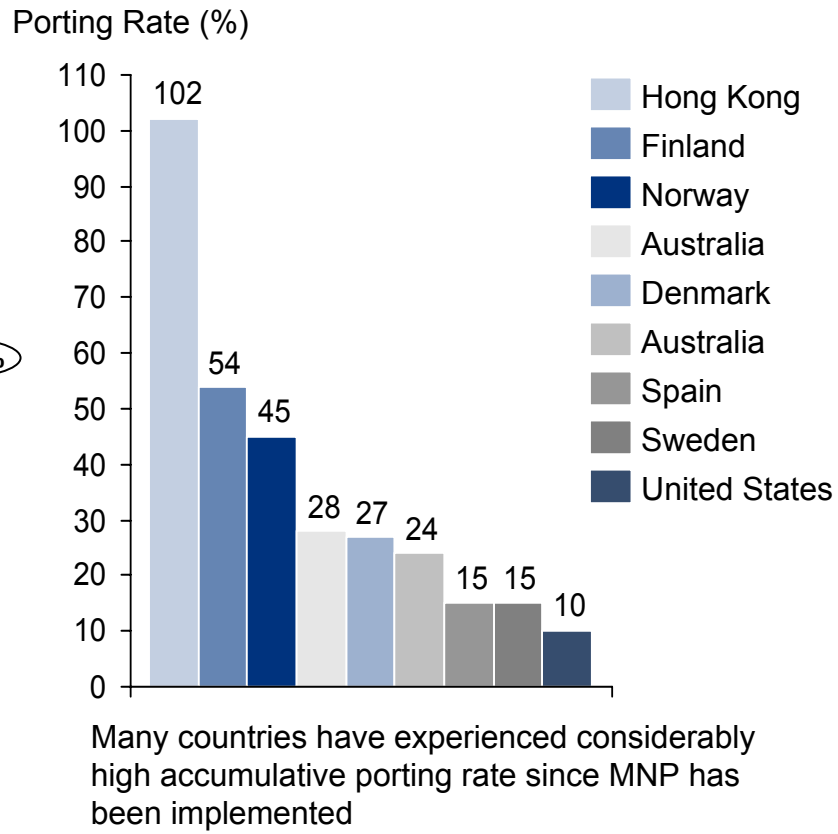
MNP Impact depends on Bundling with other Marketing Measures

Mobile Number Portability had Different Market Impact

Depending on the regulatory, technical and market framework number portability introduction had very different costs and very different adoption by customers.

Different Inter-operator charges and porting rates in Countries that introduced MNP





Many countries have experienced considerably high accumulative porting rate since MNP has been implemented

Source: European Commission, 2006

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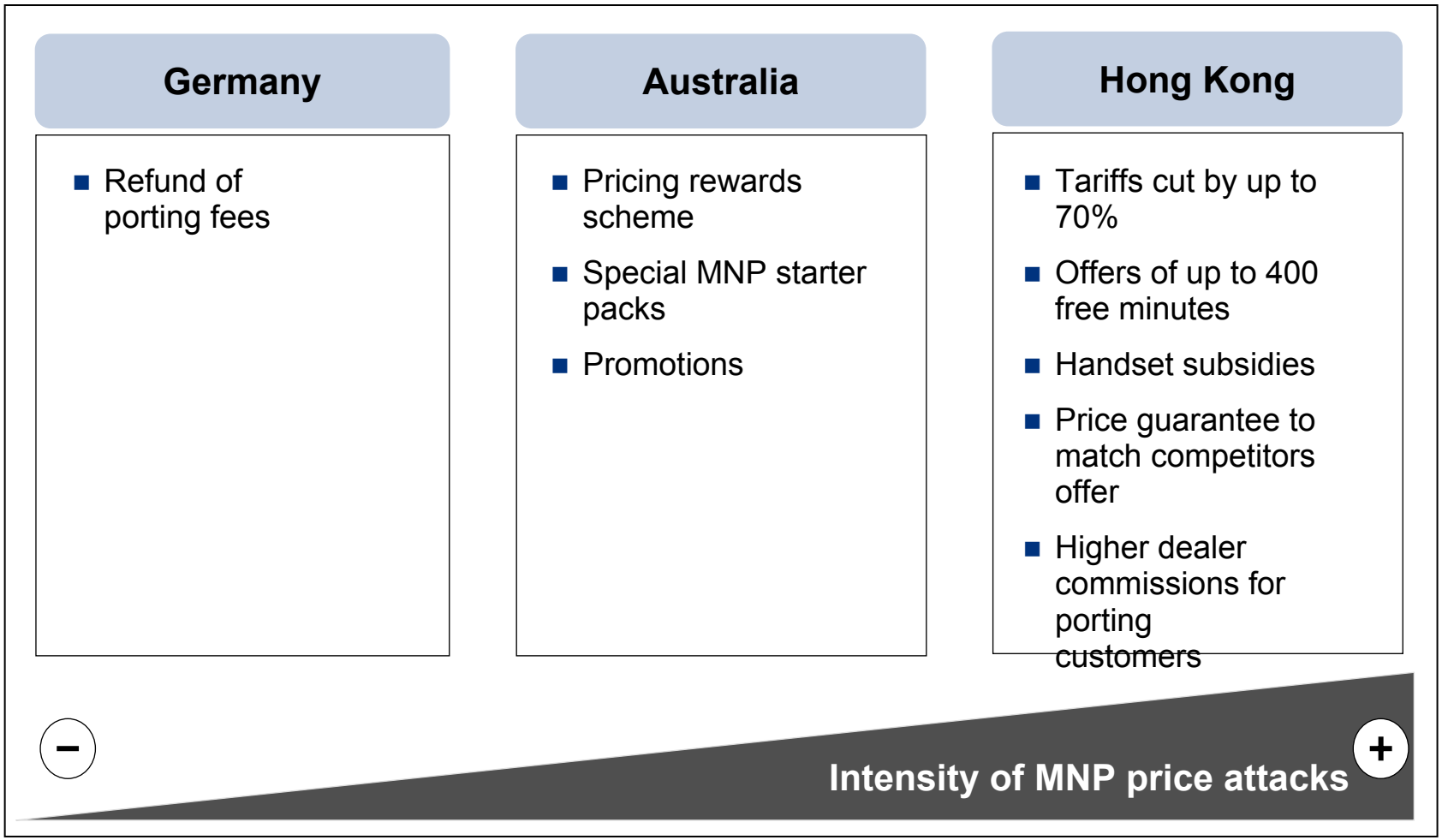
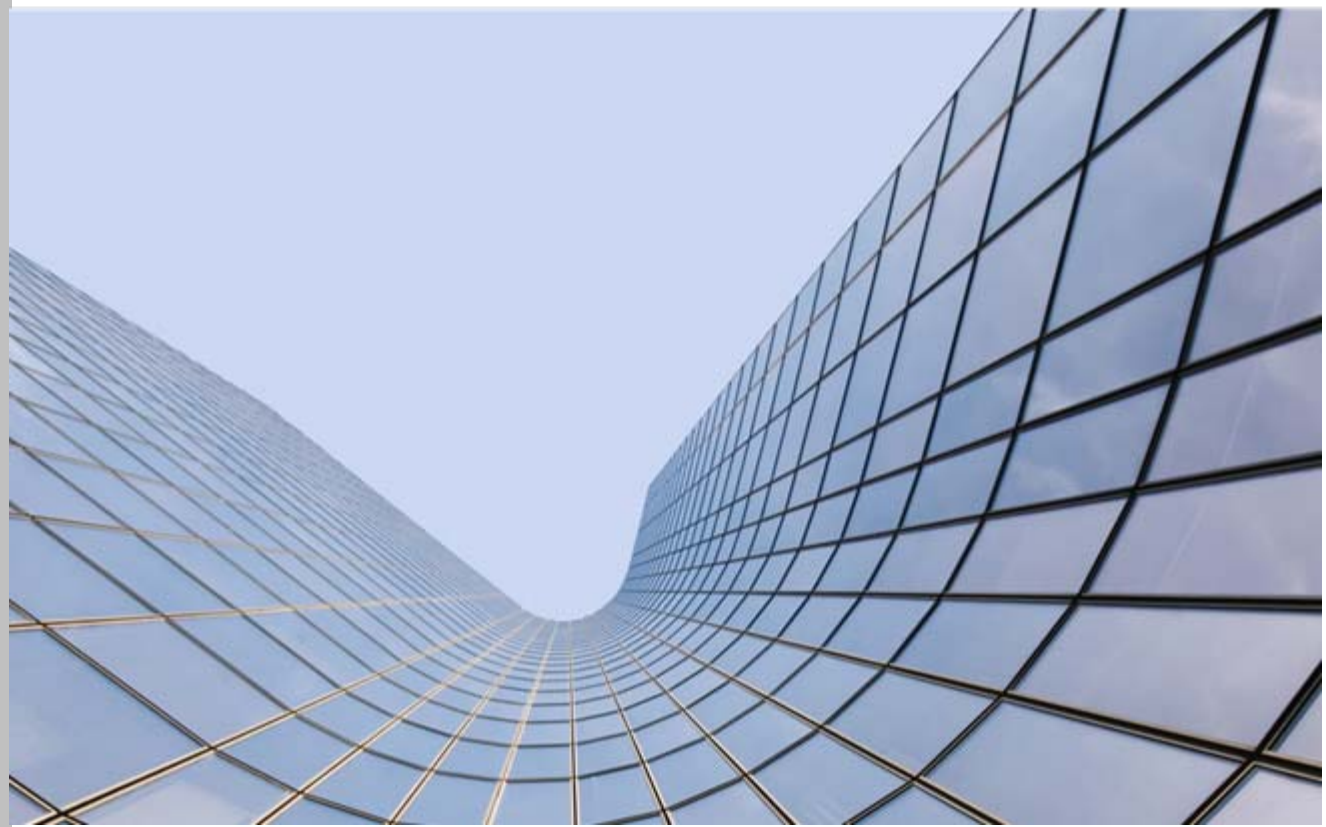
MNP Impact depends on Bundling with other Marketing Measures

The relatively high MNP effects in Hong Kong resulted in particular from aggressive price attacks.





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Техническое решение по организации переносимости абонентских номеров

Рабочая группа по MNP

Гуркин Д.В., ОАО «МТТ»

РЕГЛАМЕНТ

- Определение переносимости
- Определение переноса, как совокупности процессов в рамках переносимости, ограниченной во времени моментами подачи абонентом заявления на перенос и началом предоставления услуг в другой сети
- Понятие сегмента переносимости
- Определение бюро переносимости номеров
- Определение общей инфраструктуры и принципов её финансирования
- Определение перечня обязанностей участников МНП

Основные требования к техническому решению по маршрутизации вызовов на перенесённые номера

- Возможность внедрения в кратчайшие сроки
- Сохранение принятых схем построения сети и межсетевого взаимодействия
- Обеспечение возможности поэтапного внедрения
- Отсутствие необходимости маршрутизации вызовов на перенесённые номера на технических средствах оператора – держателя номерного диапазона (донора)
- Минимизация требований по поддержке переносимости к техническим средствам фиксированной сети

Основные ограничивающие факторы при выборе схемы маршрутизации вызовов на перенесённые номера

- Направление вызовов из фиксированной сети непосредственно в сети СПС – держатели номерных диапазонов
- Неоднородность технической готовности сетей СПС

Основной критерий выбора варианта технической реализации **- минимизация технических требований к участникам процесса** (наиболее критичный компонент)

Пути минимизации технических требований

- Выбор «простого» решения, основанного на использовании традиционных технологий
- Централизация инфраструктуры
- Применение комбинированных решений

Основные положения технического решения по организации переносимости абонентских номеров

- Обязанности по маршрутизации вызовов на перенесённые номера возлагаются на одного оператора в каждом сегменте переносимости
- Оператор – держатель номерного диапазона обязан при поступлении вызова на перенесённый номер передать уведомление об этом во взаимодействующую сеть путём формирования специального сигнала разъединения
- При получении уведомления о переносе, сети, взаимодействующие с операторами СПС обязаны перенаправить вызов на технические средства оператора, на которого возложены обязанности по маршрутизации вызовов по перенесённым номерам
- Для маршрутизации вызовов на перенесённые номера применяется префикс, идентифицирующий HLR сети приписки

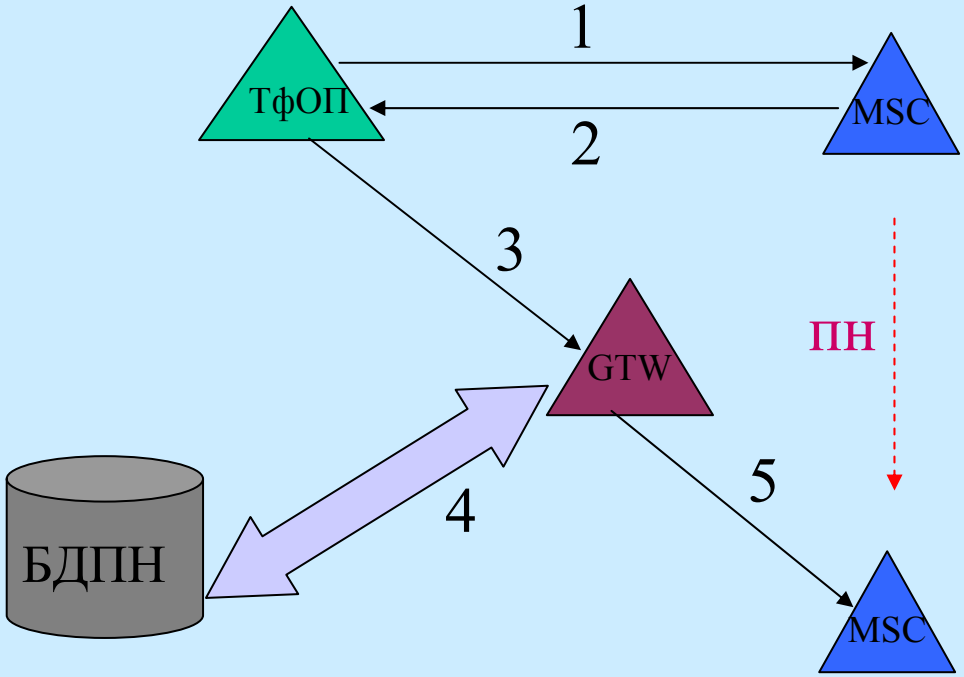
Слабые стороны предложенного решения

- Сложность внесения модификаций в протоколы взаимодействия
- Нет гарантии, что все взаимодействующие с сетями СПС станции фиксированной ТфОП отработают второй маршрут при получении REL(пн)
- В некоторых случаях может потребоваться модификация ПО MSC и HLR
- Сложность использования префиксов при маршрутизации вызовов на перенесённые номера

Возможные варианты:

- переадресация в MSC оператора – держателя номерного диапазона вызовов на перенесённые номера в направлении технических средств оператора, ответственного за маршрутизаций вызовов на перенесённые номера в данном сегменте переносимости
- использование для маршрутизации сетевых номеров, принадлежащих номерной ёмкости, закреплённой за оператором, обслуживающим абонента по перенесённому номеру

Маршрутизация



1. Вызов на перенесённый номер
2. Сообщение REL(пн)
3. Перенаправление вызова
4. Запрос маршрутного номера
5. Вызов по маршрутному номеру в сеть приписки

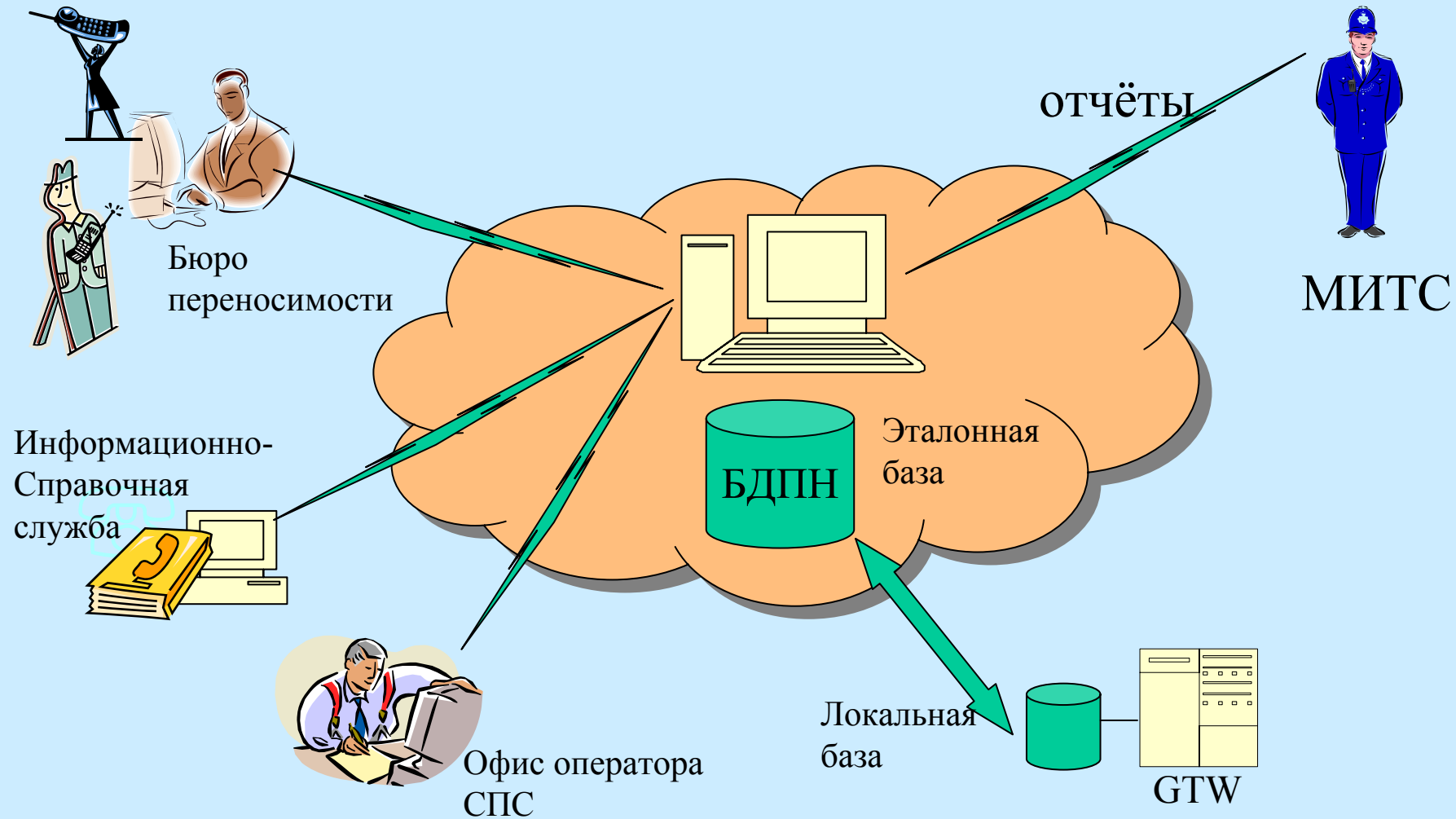
Обязанности «маршрутного» оператора

- Маршрутизация вызовов на перенесённые номера непосредственно в сеть обслуживающего оператора
- =>
- 1) Взаимодействие с БДПН
- 2) Взаимодействие со всеми сетями СПС в сегменте переносимости
- 3) «Запрос на все вызовы»

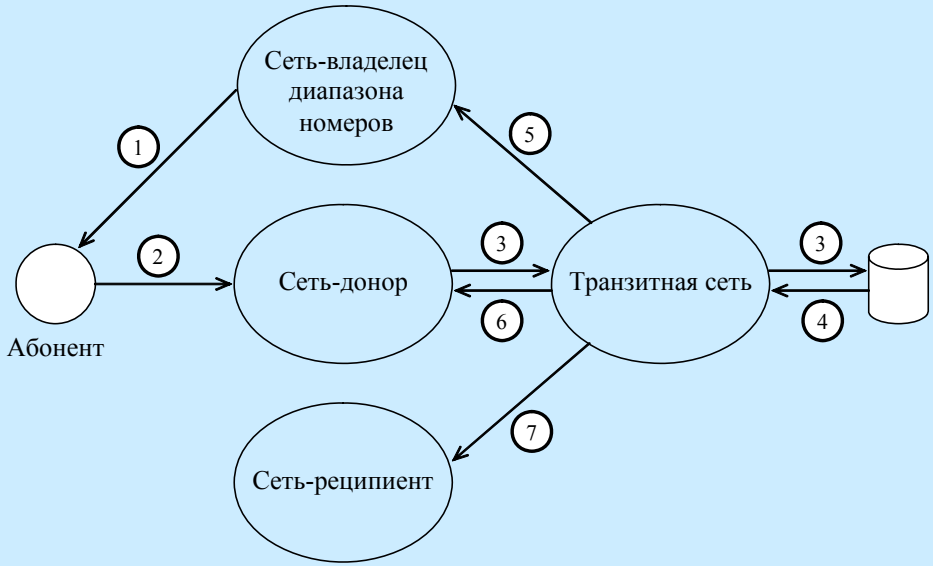
Требования к общей инфраструктуре

- Поддержка и актуализация эталонной базы данных перенесённых номеров
- Взаимодействие с бюро переносимости
- Взаимодействие со службами операторов СПС
- Взаимодействие с системами информационно-справочного обслуживания
- Актуализация информации в локальных БД реального времени

Общая инфраструктура МНП



Административная (организационная) структура процесса переноса номера



1 - номер MSISDN

2 - запрос на перенос номера

3 - перенос номера

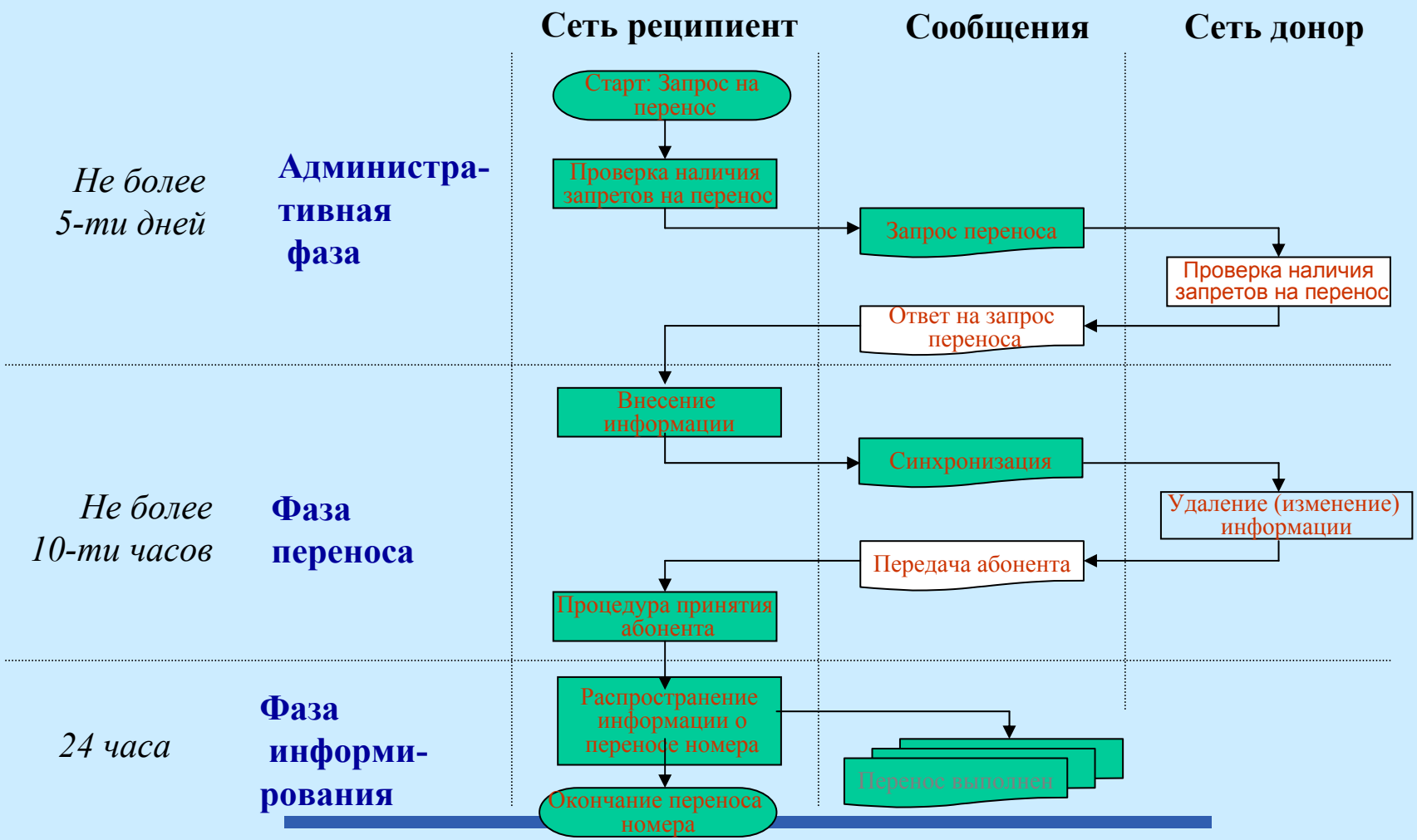
4 - информация о перенесенном номере

5 - сообщение о переносе номера и маршрутная информация

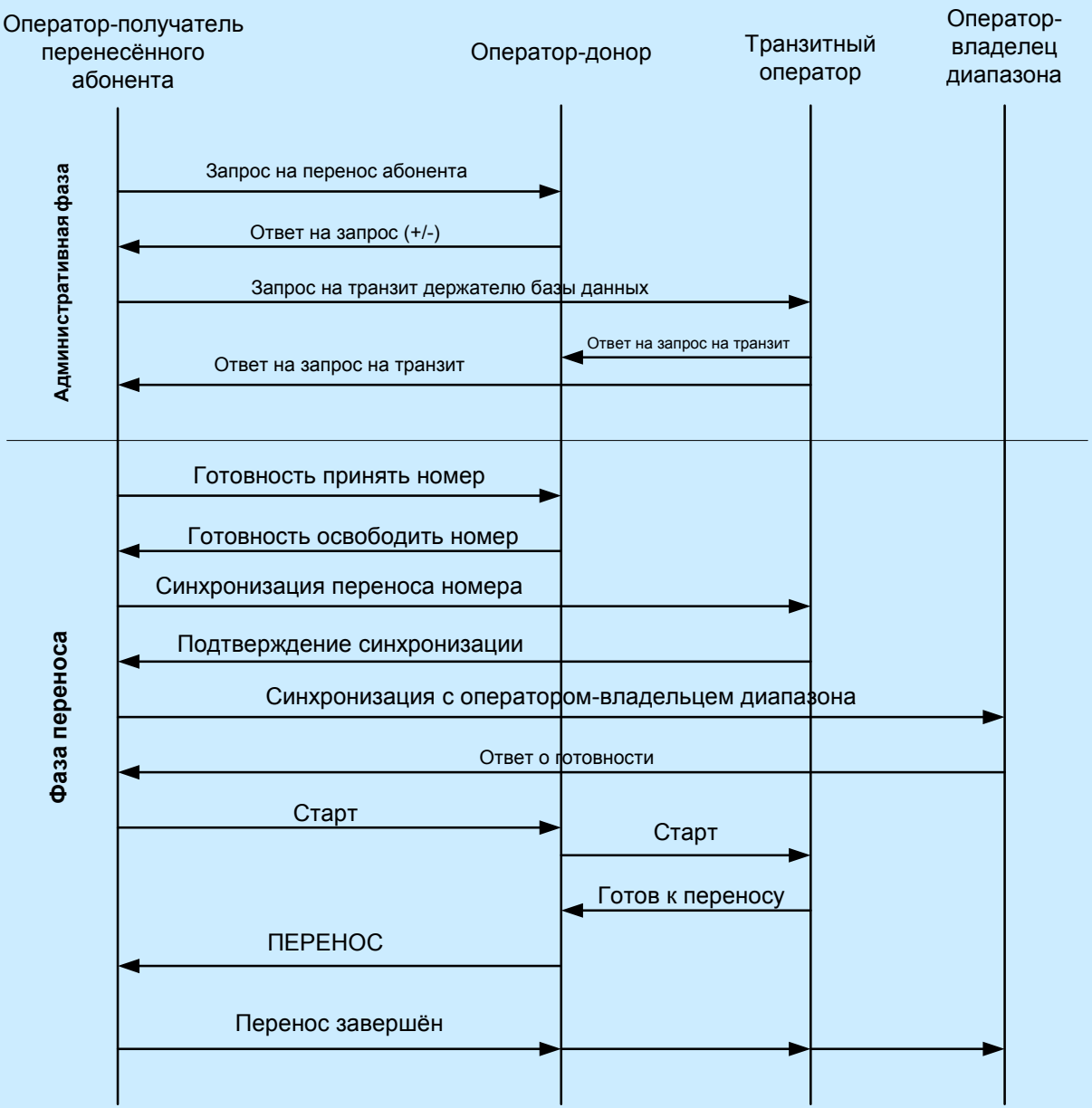
6 - сообщение о переносе номера и его блокировка

7 - перенос номера и запись в HLR сети-реципиента

Администрирование услуги MNP



Составляющие процесса



Основные принципы, заложенные в основу административной процедуры

Длительность процедуры:

- требования к длительности различных этапов выполнения процедуры

- распределение ответственности

Непрерывность обслуживания:

- требования к длительности интервала времени между моментом прекращения обслуживания в сети-доноре и моментом начала обслуживания в сети-реципиенте

Равноценность обслуживания:

- недискриминационный подход к обслуживанию

Стоимость переноса номера:

- д.б. минимальна и сопоставима с затратами операторов на предоставления услуги

- не должна носить дискриминационный или заградительный характер

Причины отказа в переносе номера

Технические:

- неправильное оформление требования
- невозможность авторизации требования
- направление нескольких взаимоисключающих требований
- недостоверная информация

Не технические:

- окончание срока контракта абонента
- наличие непогашенной задолженности
- блокировка SIM-карты
- др.

Расходы по переносу номера

Единовременные расходы, организация инфраструктуры MNP

- разработка нормативной базы
- внедрение технических решения по поддержке MNP
- внедрение административной подсистемы
- внедрение БДПН и организация взаимодействия

Текущие расходы, поддержание функционирования инфраструктуры MNP

- администрирование БДПН
- поддержка административной подсистемы
- эксплуатация технических решений по поддержке NMP

Предельные расходы, связанные с обработкой вызовов и сообщений

- снижение эффективности использования сетевых ресурсов (на каждый вызов задействуется большее количество сетевого ресурса)

Новые требования к технологическим процессам

Активация / прекращение обслуживания

- процедуры оповещения
- процедура выдачи абоненту новой SIM - карты
- взаимодействие между АСР
- перенос дополнительных услуг
- оповещение об отказе абонента от пользования услугой

Процедура переноса

- процедура обработки заявки на перенос номера в сети-реципиенте (в т.ч. инициализации процедуры переноса)
- авторизация абонента
- процедура активации «перенесённого» абонента
- координация действий между донором, реципиентом, владельцем диапазона и администратором БДПН
- процедура прекращения обслуживания и «резервации» номера
- согласование вопросов межсетевого взаимодействия

Новые требования к технологическим процессам (продолжение)

Обеспечение гарантированного обслуживания

- обеспечение поддержки технических процедур по обработке вызовов к «перенесённым» абонентам в автоматизированных системах контроля качества предоставления услуг

Начисление оплаты

- процедура подготовка финального счёта в сети-доноре

- процедура управления остатком средств на счету

Начисление оплаты за «паразитный» трафик

- внесение изменения в механизмы взаиморасчётов с транзитными операторами за трафик в направлении «перенесённых» абонентов