



National Numbering Rules

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Introduction

- Existing numbering plan developed by TSKL
- Numbering plan has evolved over decades
- Intended for operation in monopoly regime
- No formal rules for the management and administration of the plan
- With liberalised regime responsibility transferred to Commission
- Purpose of this project is to:
 - review the existing numbering plan and where appropriate propose changes
 - develop a set of rules for the future management and administration of the numbering plan

Agenda

1. Background
2. Proposed changes to the numbering plan
3. Allocation rules
4. Other numbering aspects

The importance of numbering

- In monopoly environment numbering is typically seen as part of network operations
- In liberalised market
- “Numbering is a key facilitator - a pivot in market liberalisation and the introduction of competition”.
- Demands on the numbering plan increase
- Need for all service providers to get equal quality numbers
- Numbering is an enabler
- Numbering has an important role to play in providing
 - tariff information
 - service information
 - subscriber location information

Reform of the numbering plan

- Transferring control of the numbering plan to the Commission presents an opportunity to reform the numbering plan
 - To safeguard the long term interests of the telecommunications sector
 - To structure the plan to facilitate the introduction of competition
 - To improve the capacity and flexibility and to cater for future growth
 - Enabling more service providers to share the numbering plan requires more structural divisions

Reform of the numbering plan

But....

- any changes are constrained by the historical implementation of the plan
- we can't throw away the existing plan and just start again.

Reform of the numbering plan

Key objectives

- to ensure an adequate supply of numbers
- to improve flexibly in order to be able to cater for largely unknown future
- to ensure that numbering allocations can be made in a fair, transparent and non-discriminatory way
- to minimise disruption to existing users
- to ensure that the costs of any change are reasonable for both service providers and users
- to ensure that any changes to the numbering plan do not adversely impact the existing tariffing structure

Numbering Plan - Changes

- Rationalisation
- Expansion

Expansion options considered

- “Two zero”
- “Three Zero”
- Overlay

Fixed PSTN Numbers

- Consolidate under a single leading digit (“2”)
- Expand capacity in areas risking exhaustion
- Retain existing numbers as far as possible
- Implement changes that are easy to describe
- Trap mis-dialled calls

Fixed PSTN Numbers

Areas risking exhaustion

- Betio zone 72% utilised
- Bikenibeu zone 58% utilised
- Bairiki zone 36% utilised
- All other locations are 3% utilised or less
- In some other locations the number of available numbers per household is less than 2 e.g. Abaiang Island, Butaritari Island and Abemama Island

Fixed number changes

All existing Tarawa numbers migrated under the leading digits “20X”
Extended to an overall 8 digit number length.

Location	Old number	New area code	New Number
Telecom Services Kiribati Ltd (TSKL)	20XXX	201	201 20XXX
Bairiki zone	21XXX	202	202 21XXX
	22XXX		202 22XXX
	23XXX		202 23XXX
	24XXX		202 24XXX
Betio zone	25XXX	204	204 25XXX
	26XXX		204 26XXX
Bikenibeu zone	27XXX	206	206 27XXX
	28XXX		206 28XXX
	29XXX		206 29XXX
North Tarawa	31XXX	208	208 31XXX
	32XXX		208 32XXX

- Creates at least 400,000 numbers in each area
- Further expansion possible into codes 203, 205, 207 and 209
- After quarantine period codes 21, 22, 23, 24, 25, 26, 27, 28, 29 available
- Target date: Quarter 1, 2015

Fixed number changes

- Rest of Kiribati Island Group migrated to 208 3X and 208 4X

For example 34 XXX numbers on Makin Island become 208 34 XXX

- Line Islands migrated to 21 XXX XXX
- Phoenix Island migrated to 22 XXX XXX
- Target date: Kiribati Group islands end 2015, other island groups end 2016

Mobile Numbers

- The majority of countries have opted to implement mobile services under a single unique mobile identifier digit - typically 6 or 7.
- As 2G is phased out, plan to migrate all mobile services under the leading digit 7
- New service providers allocated (non-geo) number blocks in the 750 to 779 range or in the 71X or 79X ranges.
- For geo-structured numbers:
 - allocated unique 7XX N XXXX blocks or
 - open up more than one code per area
- For Tarawa, open second mobile area code (721 XXXX)

Short Codes

Code	Service	Code Type
00	International direct dial	A
100	Faults and Service Difficulties	A
103	Directory assistance	A
192	Police Bairiki	A
193	Fire station Bonriki	A
194	Emergency hospital, Nawerewere	A
195	Emergency hospital, Betio	A
1050	Shipping information	B
1051	Time announcement (language 1)	B
1052	Time announcement (language 2)	B
1055	Weather information	B
1059	Airport information	B

Short Code classification

Type A access codes – Public services

- Used for commonly used services, e.g. 19X for emergency services.
- Must be provided by all service providers

Type B access codes – Common service codes

- Used for commonly provided services e.g. fault reporting, time
- Service providers are not required to provide these services, but if they do then must use common codes designated by the Commission.

Type C access codes – Other service codes

- Network / service provider specific
- Used for any authorised service
- Service providers encouraged to use similar codes wherever possible

Emergency number

- No reason to change existing emergency numbers (192, 193, 194, 195)
- In addition introduce single, internationally recognised, emergency number 112
- 112 currently used in over 80 countries:
- All European countries, Algeria, Albania, Australia, Brazil, Canada, Colombia, Costa Rica, Dominican Republic, East Timor, Egypt, Georgia, Hong Kong, India, Indonesia, Iran, Israel, Jordan, Kuwait, Lebanon, Macau, Malaysia, Mauritius, Nepal, New Zealand, Panama, Russia, Saudi Arabia, South Africa, South Korea, Sri Lanka, Syria, Taiwan, Turkey, United Arab Emirates, USA (AT&T), Vanuatu, Zambia, Zimbabwe

Reserved codes

800 – Freephone

90X – Specially tariffed services

12XX – Carrier Selection

Allocation Rules

Allocation Rules

These Rules...

- Define how the Commission will manage the numbering plan
- Define how the Commission will allocate numbers from the plan
- Specify the terms and conditions of use of numbers

Allocating numbers

- Set of allocation rules
- The Commission will allocate numbers
 - in accordance with those rules
 - upon receipt of specific requests
- Two fundamental allocation principles:
 - “First come first served”
 - Service Providers need to show that they are exhausting their existing allocations before new allocations are made

Application timescale

- Applications for numbering allocations should be made a minimum of three months prior to the planned in-service date.
- Allows time for ...
 - Allocation process
 - Internal admin processes
 - Informing other service providers
 - Network changes (routing & tariffing tables)
 - Interconnection

Reserving numbers

- Numbers can be “reserved”
- Provides commercial confidentiality (of the operator and / or the service)
- Applications are treated in confidence
- Reservations last for 3 months but can be renewed

Terms and conditions for using numbers

- Numbers must be used for the purpose allocated
- The service provider allocated numbers is responsible for them
- Numbers cannot be traded between service providers
- Number transfer between users is permitted
- An allocation is made “in perpetuity” but no ownership rights
- Records must be maintained



Number Portability & Carrier Selection

Number Portability

Subscribers attach a high value to “their number”

Number portability allows a user to change operator without changing their number..

Number Portability aims to remove a competitive barrier

Various studies have shown that number portability can introduce substantial net economic benefits e.g.

- For the porting user - saves the costs of advising other users
- For all callers - save costs and time through less misdials and changes to directories
- For all users – increased competition (lower prices, better service)
- Greater innovation through increased competition

Types of Number Portability

Operator Portability

Allows the End User to change
Operator/Service Provider
without changing number

Service Portability

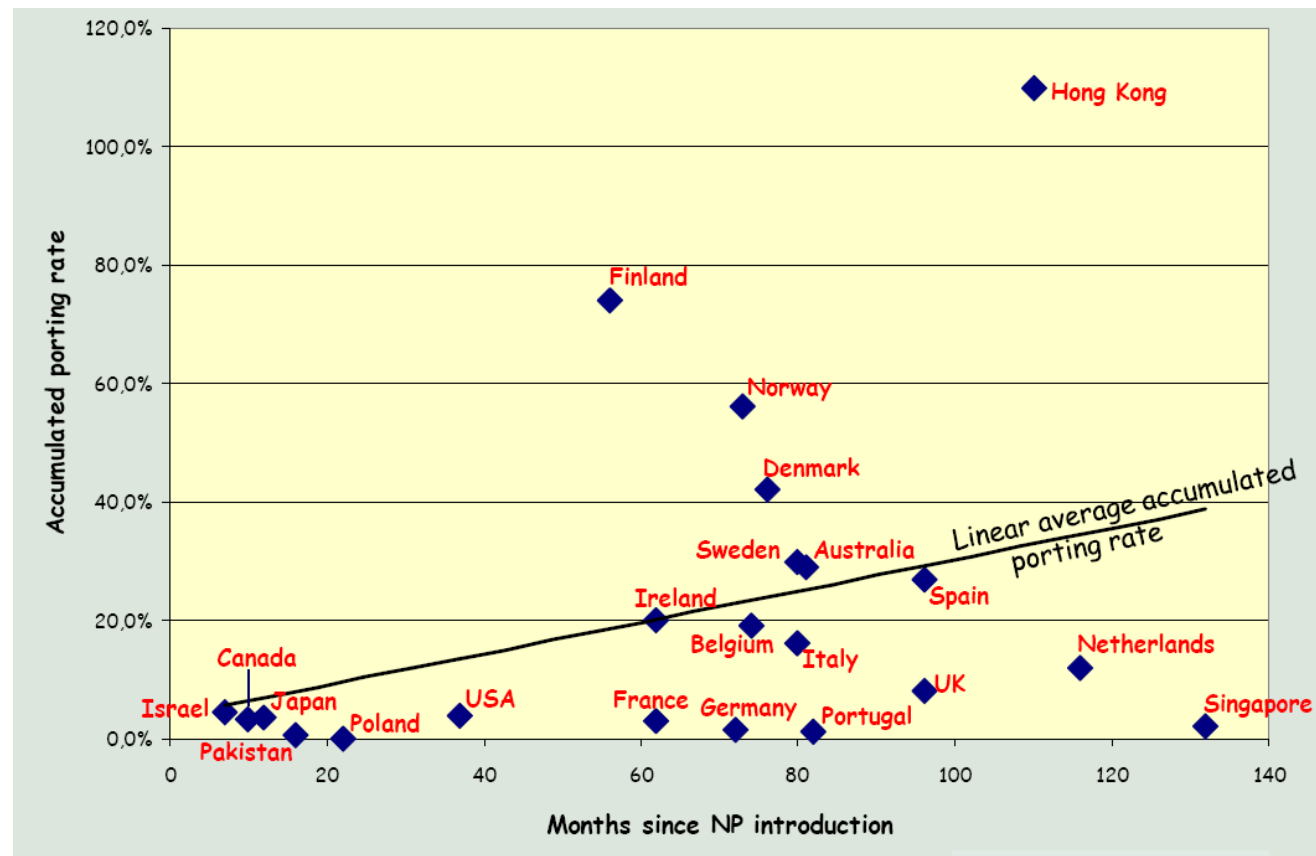
Allows the End User to change
Service Mix
without changing number

Location Portability

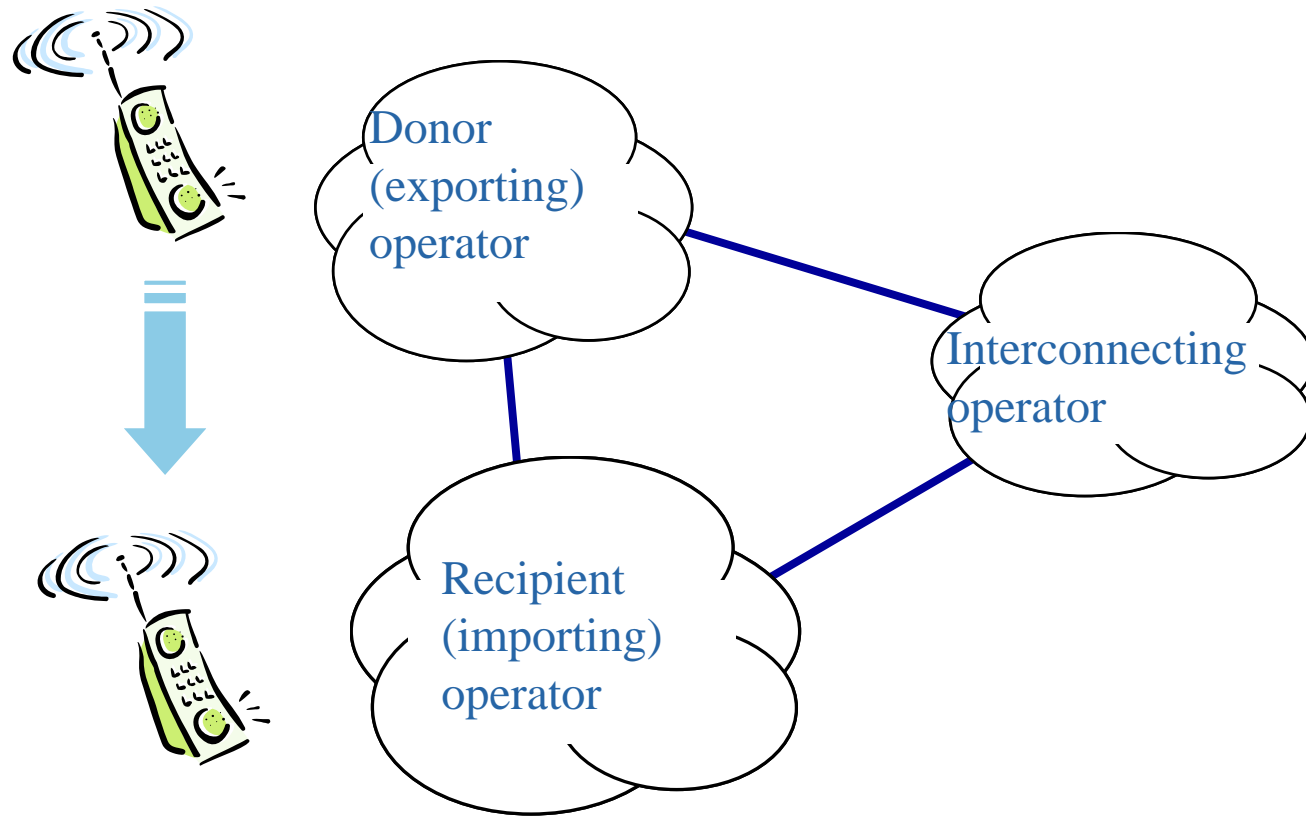
Allows the End User to change
Locations
without changing number

Types of Number Portability

- 95+ countries
- Primary success is MNP
- Relatively low take up of fixed NP



Definitions



Number Portability – Porting process

- One-stop shopping
- Customer requests new service set up with porting from Recipient SP
- Recipient SP exchanges customer information with Donor SP
- Donor agrees to the port
- Recipient SP passes information to
 - Donor SP
 - other SPs (as required)
 - CDB

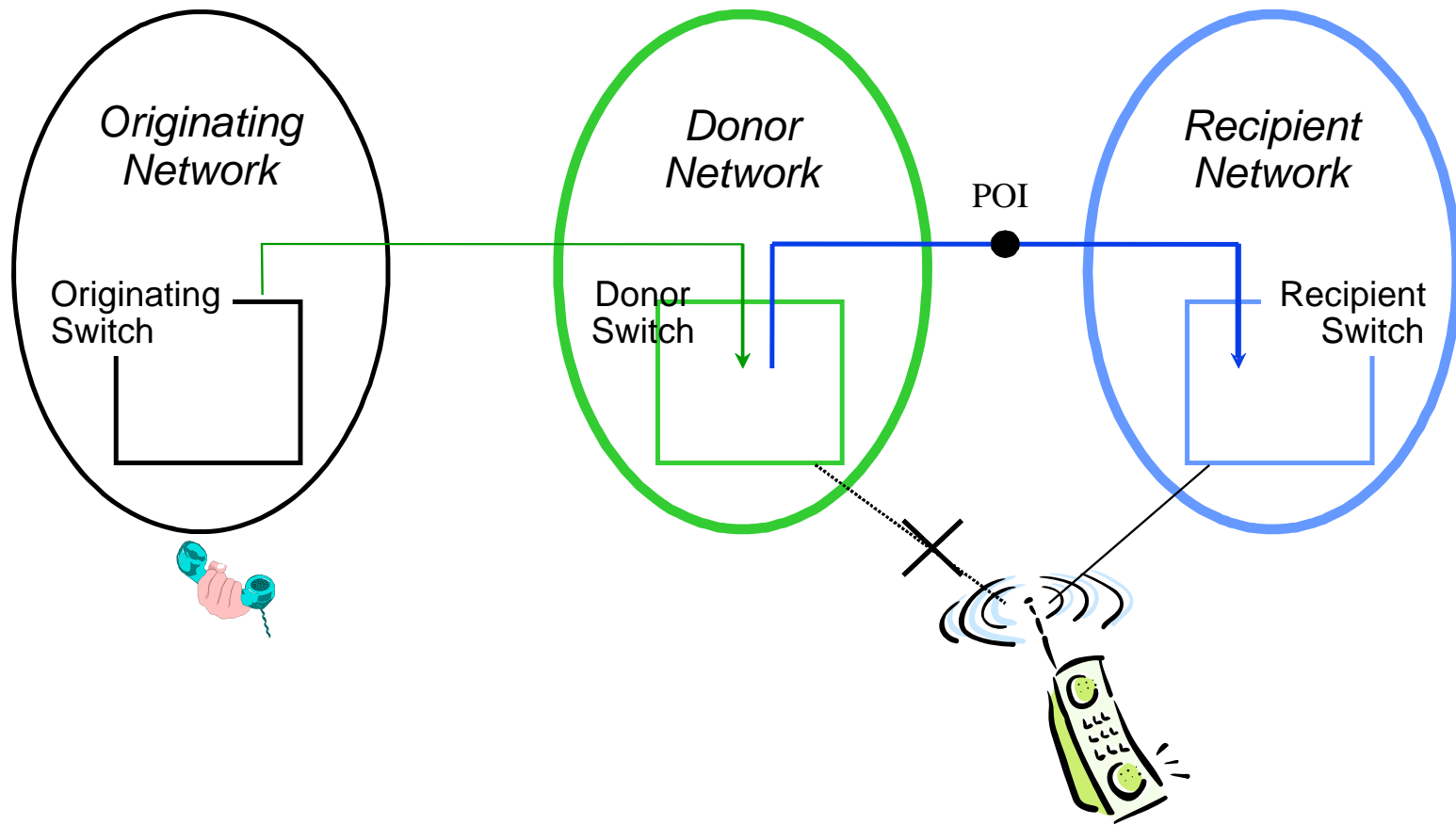
Number Portability – porting time

- Aim for short porting time
- Initially within 24 hours of the customer request
- After 6 months experience, aim to reduce port time to 2 hours

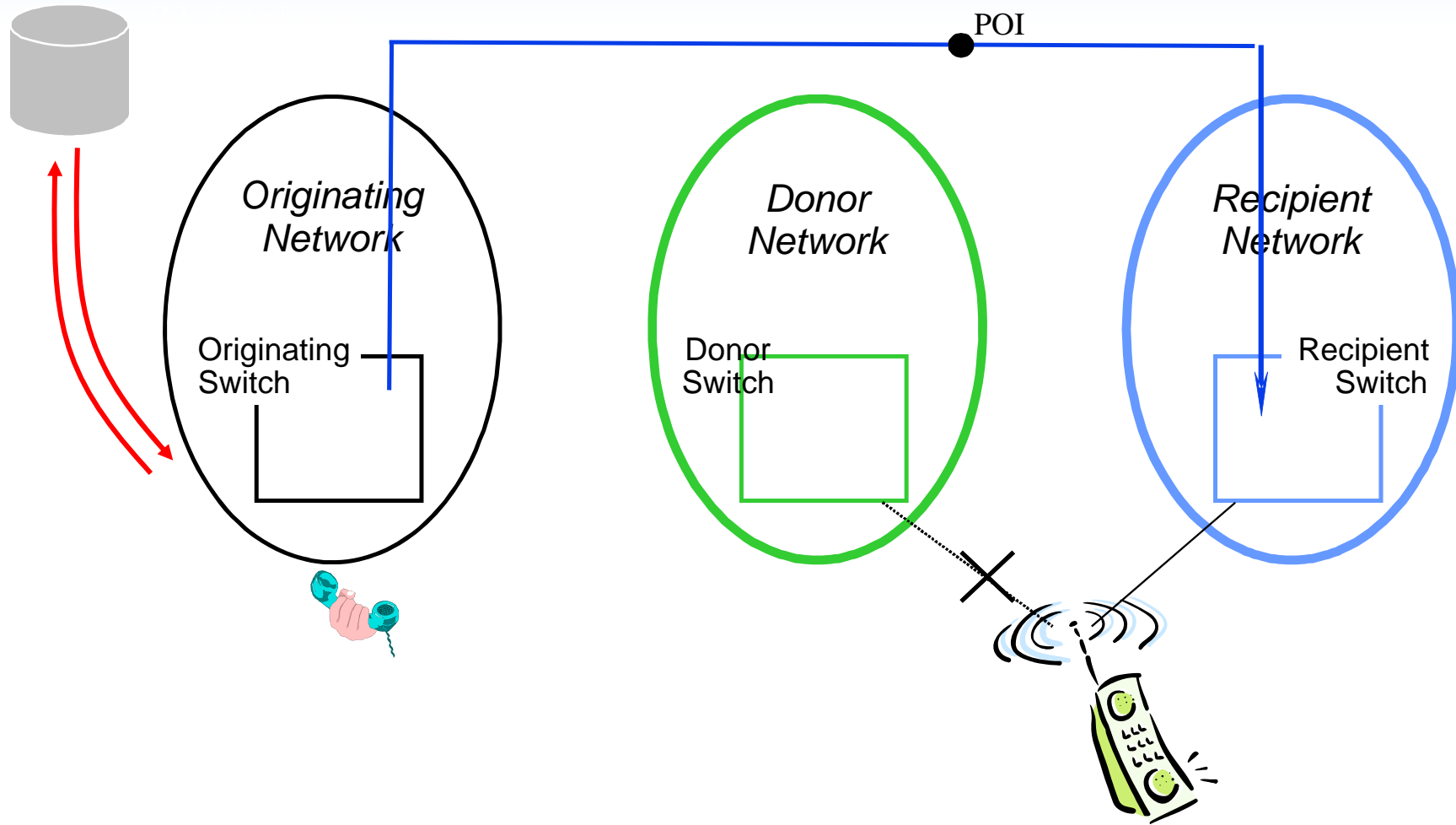
Number Portability – Porting database

- Centralised porting database
- Operated by one SP / CCK / Third party?
- Funded jointly by mobile service providers
- Dipped by all SPs
- Updated by Recipient SP
- Not real time, SPs download information in batches
- Must achieve high availability (typically 99.999%)

Call forwarding



Database Call Query



Number Portability – call routing

- Direct routing of ported calls between all mobile service providers
- 3GPP TS 23.066
- If technically possible - Direct routing of ported calls from other networks
- Alternately call forwarding via the donor mobile network

Carrier Selection

- Allocation is 12XX
- Customer will dial 12XX + destination number
- Call is routed to chosen service provider
- Can also be used as carrier pre-selection over-ride code