Office of the
Telecommunications
Adjudicator

Introduction to Fixed Line Porting in the UK

Table of Contents

1.0 Document Control

Doc Title	Version	Date	Detail
			•

2.0 Definitions

3.0 Geographic Number Ports

3.1 Overview

Number Portability enables end-users (who are taking a Publicly Available Telephone Service (PATS) – as defined in GC18) to retain their telephone number(s) when they change their Communications Provider (CP). This manual describes the industry agreed process for porting geographic telephone numbers. For the porting of non-geographic, mobile and personal numbers please refer to the appropriate industry process manual.

Geographic Number Portability (GNP) provides the capability for the customer of one Communications Provider (the losing Communications Provider) to become a customer of another Communications Provider (the gaining Communications Provider) whilst retaining the same geographic telephone number(s). When GNP was implemented in the UK industry adopted the "Onward Routing" technical solution. This requires the Range Holder (RH) to route calls to the Gaining Communications Provider (GCP) for them to deliver calls to the end-user.

To enable GNP there must be a commercial agreement in place between the GCP and the RH and they must have a Point of Interconnect (POI) or transit agreement with a network CP to be able to route the calls to. The CPs will also require a Communications Provider Identity Code (CUPID) and a porting prefix (format 5xxxxx); these are allocated and administered by Ofcom.

The GNP process is based around the principle that the GCP will recruit the customer and manage the transfer of the telephone number(s) on their behalf with the Losing Communications Provider LCP. The GCP will raise an order with the LCP, which will act as both retail and wholesale order. The retail order will be a third party cease, raised on behalf of the customer by the GCP, to cease telephone service with the LCP. The wholesale order will request the porting of the number(s) or for a transfer (1k or a 10k block) from the LCP to the GCP.

In all instances ONLY the number will be ported NOT the service, the LCP will cease the access line and removes all associated services at the time of port. The GCP will provide the customer with the agreed services when the number is ported to their network. The number must be in use and working to be portable, if service has been suspended for any reason (i.e. bad debt) this does not prohibit portability.

3.2 Hosted Number Ranges

Contracts for number portability are agreed on a bilateral basis between Network operators. Where the Range Holder contracts with another Communications Provider to Host numbers on their behalf, the contract between the Range Holder and the Host will include agreement to implement Number Portability of the hosted numbers allocated to the Range Holder.

Where a Range Holder has chosen to have their Ofcom-allocated number range(s) hosted by another CP (i.e. The Host CP – HCP), any port order transactions relating to numbers within the hosted range(s) are to be managed by the HCP on behalf of the RH.

Where any such numbers become the subject of a port order from another CP, the 'Gaining N/W CP' will need a way of identifying who the host CP is, so they can direct the NPOR accordingly.

In these circumstances, whilst some N/W CPs have home-grown tools to help identify such 'host CPs', in the absence of such tools, the Gaining N/W CP should adopt the following process; -

identify who the Range Holder is from the Ofcom database

GCP should send a email to the RH to request identification of the RHCP (inc. their CUPID ref) responsible for Hosting the number range concerned.

The Email header should read 'Number Range Host CP Query – CUPID Request'

On receipt of such email requests, the RH should respond (with HCP CUPID info) within 24hrs

Thereafter, the Gaining N/W CP should progress any NPOR-related transactions directly with the HCP

3.3 Regulatory Requirements

Communications Providers are required to provide Number Portability as set out in General Condition 18 ("Number Portability") of the General Conditions of Entitlement set by the Director General of Telecommunications under section 45 of the Communications Act 2003 (the "Act") by way of publication of a Notification pursuant to section 48(1) of the Act on 22 July 2003 and contained in a Schedule to that Notification. General Condition 18.2 requires Communications Providers to provide Portability

In the context of the business rules, procedures, timescales and other processes detailed in this manual, it is relevant to note that, General Condition 18 requires that Number Portability and Portability be provided "as soon as reasonably practicable" and on "reasonable terms". A Communication Provider may view the Functional Specification and the end-to-end process manual to represent an industry-agreed standard for porting.

The defined term "Communications Provider" is quite broad and encompasses both those who provide an Electronic Communications Network (e.g. a network operator in the old regulatory regime), or an Electronic Communications Service (e.g. a System-less service provider). This process manual has relevance to Communications Providers as described in Condition 18 of the General Conditions of Entitlement. The definitions of Number Portability and Portability are defined in GC18.

3.4 Technical Principles

When GNP was implemented in the UK, industry adopted the 'Onward Routeing' technical solution, whereby a call is carried to the destination switch in the RH network where it is identified as a call to a ported number. At that time the RH inserts a prefix (5xxxxx) which is added to the call that identifies the GCP. The RH then onward routes the call, via the appropriate POI (or transit CP), to the GCP for final routeing and delivery to the end-user

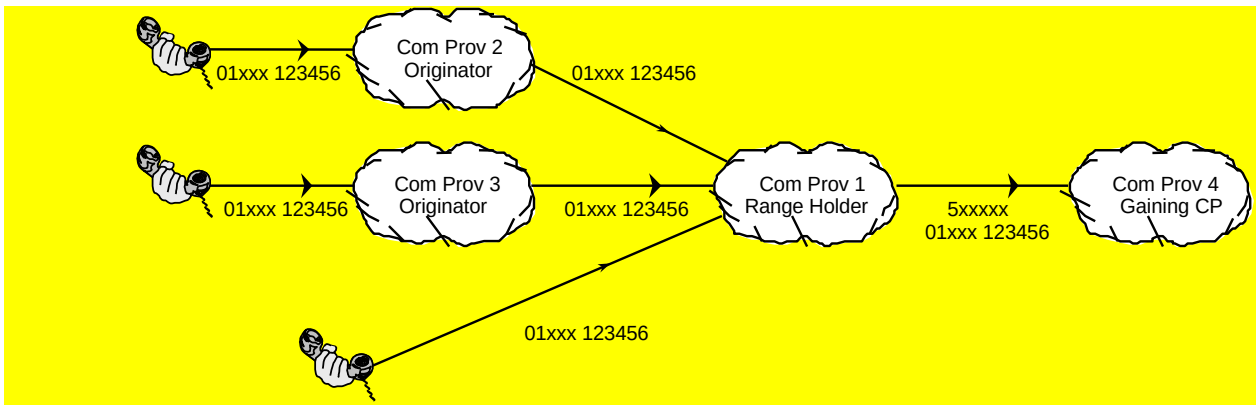


Fig.1 – Call to a ported number (Geo)

3.5 Service Establishment & Maintenance

The Service Establishment (SE) process is fully described in the Industry end-to-end process manual entitled 'Service Establishment and Maintenance'.

The SE process is for the setting up of GNP network capability between two CPs from initial contact to the point where the CPs are capable of exchanging porting orders. Calls can be routed either directly or indirectly (i.e. via a transit CP), the method of exchanging calls will have been agreed during the commercial negotiations. This document assumes that the CPs already have Points of Interconnect (POI) established between them. If a CP wishes to establish portability with another CP that it does not have a POI with, then it must either develop a wholesale transit agreement between itself and a more widely interconnected CP or establish direct interconnect to be able to offer this service. The transit process includes the same activities and target timescales as per the standard SE process but there will of course be extra cost implications.

Portability may be established in one direction only, but a CP must be able to export a number if requested by the end-user. There may be circumstances where a CP does not have an allocation of numbers in a particular geographic area, this does not prohibit their ability to import numbers allocated to other CPs.

The 'Initial Contact' stage carries a target time scale of five (5) working days and is the process whereby one CP declares its intention to import numbers from the other. Contact details are exchanged via the Contacts Register and a Planning Request form is submitted. A meeting of the two CPs (typically planning and commercial people) is sometimes felt necessary at this stage, but is by no means a requirement of the process.

This is followed by the 'Planning Stage' that has a target time scale of thirty (30) working days. This stage is used to define the interconnect links required for the flow of traffic between the two networks. It is a very detailed stage of work that requires a robust porting forecast and ported traffic arrangements to be planned and agreed. The interconnect plans produced during this stage of the work need to be agreed before the 'Network's Databuild and Testing' stage. A further ten (10) working days is allowed for the allocation and distribution of test numbers.

The final stage is 'Network's Databuild and Testing' that carries a target time scale of forty (40) working days. When the network databuild has been completed testing is conducted between the CPs using the test numbers defined in the Planning stage. Once this work is completed the CPs are ready to pass ported traffic between them. The whole process takes a total of eighty five (85) working days, assuming all runs smoothly. Once SE has been completed, customer orders can be exchanged.

Service Maintenance (SM) is the ongoing maintenance of the GNP service once it has been established; this is described in the Industry end-to-end process manual entitled ‘Service Establishment and Maintenance”.

3.6 Commercial Requirements

CPs must have a commercial relationship with other CPs to be able to port numbers. These commercial agreements will be bi- lateral and can be as part of an existing Interconnect Agreement, as part of a new Interconnect Agreement or as a freestanding contract. CPs may establish an agreement that incorporates only subsequent portability. CPs who wish to pursue the transfer of a 1k or 10k number block as per Ofcom Certificate may be required to enter into additional commercial arrangements and processes.

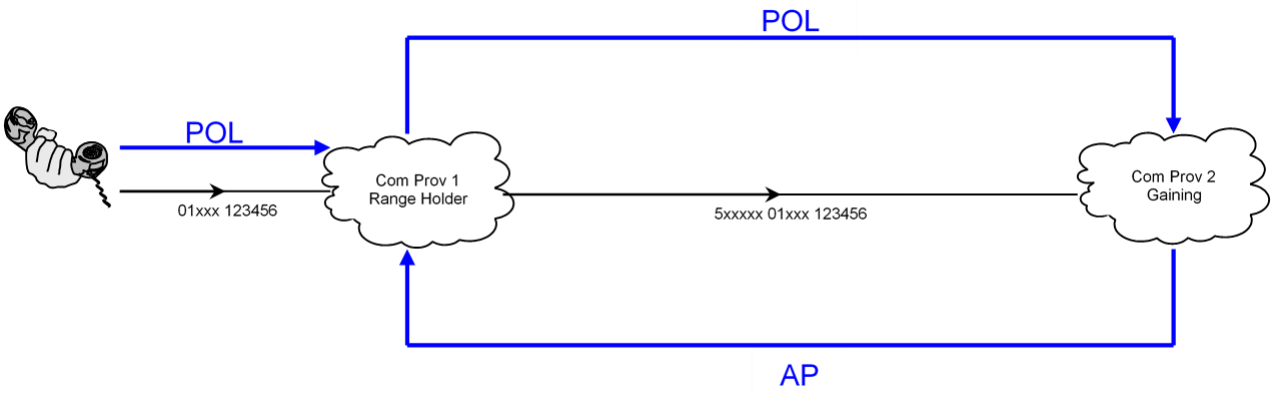
Where a CP having an Interconnect Agreement with at least one other CP wishes to enter into a GNP relationship with a CP with whom they do not interconnect, then both CPs will need to come to a commercial agreement with one of the parties with whom they have an existing interconnect for the purposes of providing a transit portability service. At the same time, a freestanding commercial agreement would need to be agreed with the other CP to support the order handling relationship and to allow databuild to commence.

When CPs set up a GNP agreement the following costs and cost recovery elements need to be considered:-

Service Establishment (SE) - Each individual CP bears their own SE costs on the understanding that each CP entering into GNP has costs and these will be in relation to their own network and systems.

The porting order management and activation charge (the per port charge) - These costs are borne by the GCP on the grounds that that CP will benefit from the additional revenues associated with gaining that customer’s business. They will also bear their own costs of establishing and operating an order desk. The LCP (and RH) will raise the charge against the GCP.

Additional conveyance of calls to ported numbers - Each individual CP bears their own costs but may agree an Additional Porting Conveyance Charge (APCC) with CPs on the basis that the CPs benefit from inadvertently transited traffic. The APCC represents the costs incurred in transiting a ported call across the Range Holder's network; the diagram below indicates the payment flow.



When a CP is hosting numbers allocated to another CP by Ofcom, both parties should agree who will manage number portability of these ranges. Where it is agreed that the network CP (hosting) will manage this process they will attempt to maintain porting arrangements in the event of the failure of the range holder CP, where technically and commercially possible.

GNP contracts shall be signed prior to the Service Establishment commencing, or at a later stage as agreed by both parties. It is generally agreed by Industry that no orders should be presented / exchanged by CPs unless the Commercial Agreements / Contracts are in place.

4.0 Non-Geographic Number Ports

4.1 Overview

Communications Providers are required to provide Number Portability and Portability (including Portability in relation to Geographic Numbers) as set out in General Condition 18 ("Number Portability") of the General Conditions of Entitlement set by the Director General of Telecommunications under section 45 of the Communications Act 2003 (the "Act") by way of publication of a Notification pursuant to section 48(1) of the Act on 22 July 2003 and contained in a Schedule to that Notification. Whilst the process manual and the Functional Specification may not be legally binding, Ofcom may view it to represent an industry agreed standard and therefore of relevance and assistance when assessing whether, taking the particular circumstances into, a Communications Provider has acted reasonably or not, for example, when considering an allegation of contravention.

The defined term “Communications Provider” is quite broad and encompasses both those who provide an Electronic Communications Network (e.g. a network operator in the old regulatory regime), or an Electronic Communications Service (e.g. a Reseller). This process manual has relevance to Communications Providers as described in Condition 18 of the General Conditions of Entitlement.

The purpose of this document is to define the method for establishing and maintaining the Non-Geographic Number Portability (NGNP) service between two Communications Providers.

A Communications Provider wishing to launch a Non-Geographic Number Portability service must have established an appropriate interconnect or transit contract between themselves and the other Communications Provider, or be in the process of doing so.

This document describes the Network Communications Provider processes that allow a customer to change Communications Provider and retain their allocated Non-Geographic number.

The product to be ported is defined as the number only. The processes described are restricted to Non-Geographic Numbers that are available to retail customers and which have been deemed by Ofcom to be portable. Portability arrangements for other number types are detailed in the relevant End-To-End Process Manual.

For the avoidance of doubt: The UK standard for handling calls to a number that has been ported is for the originating Communications Provider to deliver the calls to the Range Holder. The Range Holder or the Host on behalf of the Range Holder will add the Recipient Network’s Number Portability Code as a prefix to the dialled number and onward route it to the Recipient Network.

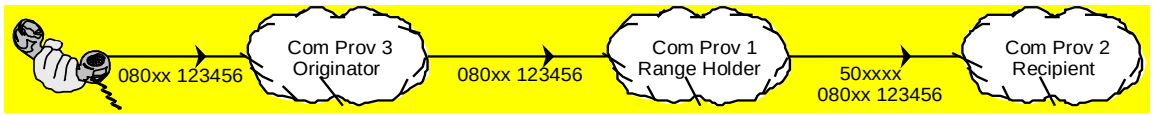


Fig.2 – Call to a ported number (Non-Geo)

Portability may be established in one direction only, but a Communications Provider must be able to export a number if requested by its customer. Service Establishment, whether reciprocal or not, requires both parties to undertake certain tasks. A Communications Provider will indicate whether they wish to establish porting in both directions on Appendix A

The Gaining Communications Provider will raise an order with the Losing Communications Provider, which will act as both a retail and wholesale order. The retail order will be a third party cease, raised on behalf of the customer by the Gaining Operator, to cease telephone service with the Losing Communications Provider. The wholesale order will request the porting of the number to the Gaining Communications Provider.

In March 2007, Ofcom began allocating 03 UK wide numbers to Communication Providers. Although 03 numbers are not classified as Number Translation Services, they do not have any geographic significance, therefore the NGNP process should be used to port these numbers. For the avoidance of doubt CP's can use their existing NGNP prefix or they can use a new NGNP prefix.

4.2 Non-Geographic Number Portability – Description

Non-Geographic Number Portability provides a method that enables a customer of one Communications Provider (The Losing Communications Provider) to become a customer of another Communications Provider (The Gaining Communications Provider) while retaining the same Non-Geographic telephone number. The Losing Communications Provider will cease the services with the customer who will agree the specific services they require with the Gaining Communications Provider. The Range holder or the Host on behalf of the Range Holder will 'onward route' any calls received on the existing number to the new Communications Provider. This process is known as 'porting'. The Range Holder is said to 'export' the number to the Gaining Communications Provider. Conversely, the Gaining Communications Provider 'imports' numbers from the Range Holder.

Non-Geographic Number Portability also provides a method to return a customer, who has already ported, back to the original Communications Provider.

Number Portability should be reciprocal between the two Communications Providers. Establishment of number portability from one Communications Provider to another is by a single service establishment process for any Non-Geographic number ranges referred to Service Establishment Process. Both Communications Providers must currently support a Non-Geographic Numbering service.

Non-Geographic Number Portability is for the number only and not for any services associated with the number.

4.3 Alternative Methods of Porting Non-Geographic Numbers

This manual concentrates on the UK industry-agreed standard for handling ported numbers, whereby all calls are routed to the Range Holder as normal. If the number has been exported, the Range Holder or the Host on behalf of the Range Holder is responsible for applying the correct prefix and routing the call to the recipient in an efficient manner. This is known as onward routing.

Call Trap Option - With onward routing, it is likely that a call originating on the Recipient's Network is passed to the Range Holder, translated and returned to the Recipient (tromboning). To avoid this Communications Providers may wish to filter out calls to imported numbers and deliver them to the customer rather than send them to the Range Holder. This method of porting can be

unilaterally carried out by a Communications Provider at any time and is at the discretion of each individual Communications Provider. Implementation of either method shall not prevent a Communications Provider establishing service with any other Communications Provider, regardless of the method implemented by that Communications Provider.

With the above two methods of porting only the number Range Holder or the Host and the Recipient have information of the number status (i.e. whether it is ported and to whom it has been ported).

4.4 NGNP Cost Overview

This section explains the costs associated with NGNP. This is covered at an outline level, and should not be considered an exclusive list of costs.

4.4.1 Initial set-up

Each Communications Provider will absorb all its own initial set-up costs. This includes all costs related to system changes to support NGNP

4.4.2 Service Establishment

Each Communications Provider will absorb costs relating to any databuild completed within the Service Establishment period. A Communications Provider that has chosen to port numbers via a transit Communications Provider shall be expected to reimburse such a Communications Provider for any databuild that is necessary to enable transit.

Service Establishment may only be undertaken between two Communication Providers with their own Electronic Communication Networks.

Once Service Establishment is complete, porting can proceed immediately for any hosted numbers.

4.4.3 Ports

The Range Holder and/or losing Communications Provider may levy charges to cover the cost of porting individual customer numbers. The basis of charging will be agreed as part of each Communications Providers NGNP agreement.

4.4.4 Calls

An additional conveyance rate, known as Average Porting Conveyance (APC), is recoverable by the Range Holder or the Host on behalf of the Range Holder for all calls that originate in another Communications Providers network and “trombone” via the Range Holder’s / Host’s network. The

APC charge represents costs incurred in transiting a ported call across the Range Holder/Host network. See Figure 2

Where the Range Holder / Host has chosen to pass calls to the Recipient via a transit Communications Provider, then the additional transit charges incurred shall be recoverable. A percentage, representing additional costs incurred by the Range Holder / Host in recouping the transit charge, may also be included. See Figure 3. In order for the Recipient Communications Provider to determine how transit charges have been calculated it is suggested that the Range Holder / Host send a copy of the bill received from the transit Communications Provider when claiming payment.

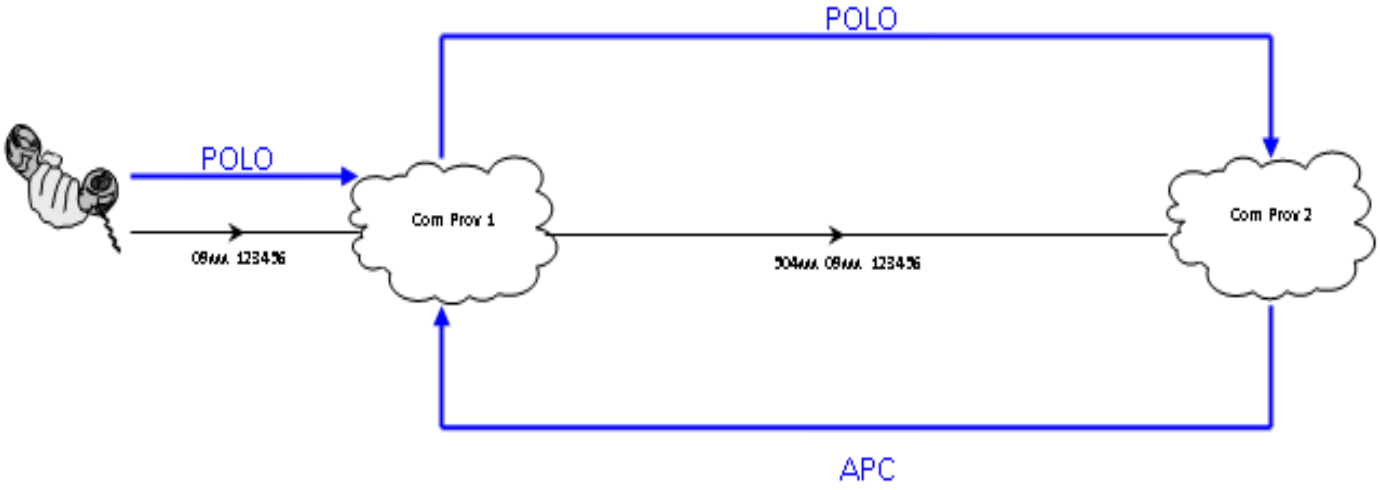


Figure 3 – Flow of monies using direct interconnect

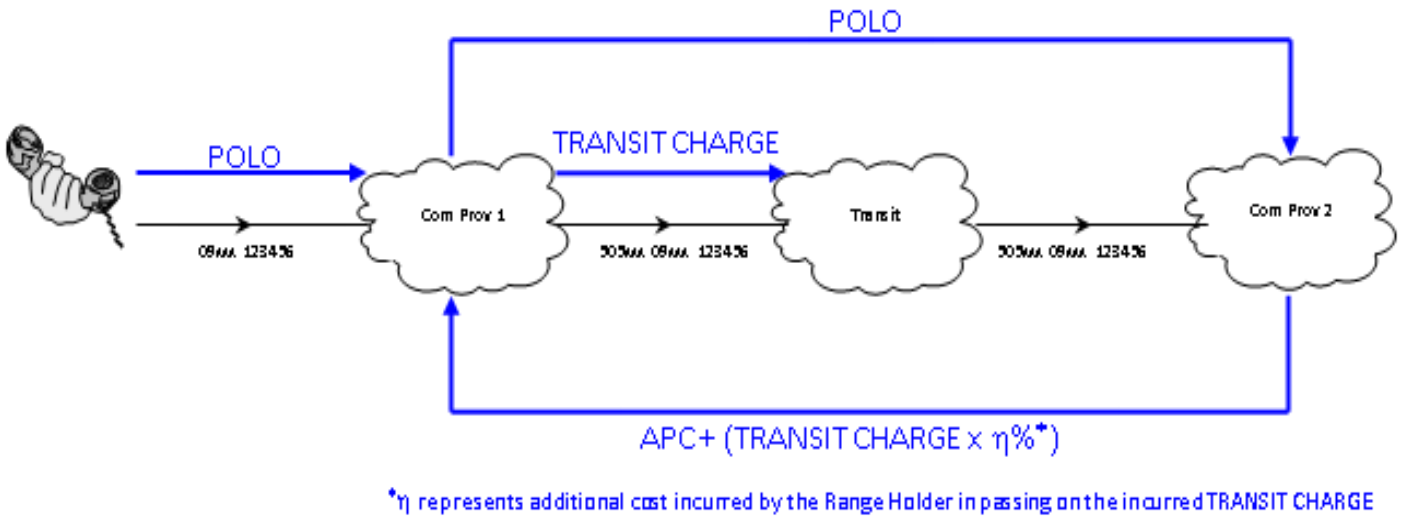


Figure 4 – Flow of monies using Transit Communications Provider

4.5 Contracts

Contracts for number portability are agreed on a bilateral basis between Network operators. Where the Range Holder contracts with another Communications Provider to Host numbers on their behalf, the contract between the Range Holder and the Host will ideally include agreement to implement Number Portability of the hosted numbers allocated to the Range Holder, and apportionment of costs in relation to exporting those numbers.

4.6 Technical Principles

4.6.1 Network Aspects

For the purposes of Non-Geographic Number Portability it is mandatory that the Communications Providers have Non-Geographic Number ranges.

NGNP may be offered between Communications Providers as part of an existing interconnect, as part of an agreement to provide new interconnect links between Communications Providers, or via use of a transit Communications Provider.

The existing network and presentation CLI generation and interchange shall not be inhibited by NGNP provision in either system.

It shall be possible to produce accounting records for both supplementary charges (e.g. APC & transit costs) as well as normal interconnect charges.

4.6.2 Routing Prefix Arrangements

Ofcom allocates Number Portability Prefix Codes. The Recipient will notify the Range Holder / Host of its assigned code during the planning stage of the Service Establishment process.

Calls shall be addressed to the Recipient system by means of a Number Portability Prefix Code inserted by the Range Holder / Host on recognition that the number has been ported.

Where subsequent prefix changes are required to permit altered routings; the changes shall be regarded as databuild alterations carrying the appropriate commercial ramifications.

The Number Portability Prefix Code has a fixed length of six digits with the first three digits being 504 where the calls are to be routed directly to the Recipient or 505 where the calls are to be routed to the Recipient via a Transit Network.

Number flows for re-routing of calls by direct connection shall conform to the following format: 504XXX 0SABC DEFGHJ, where 504XXX is the Number Portability Prefix Code and 0SABC is the Non-Geographic Number service definition code.

If a Transit Communications Provider is used for the transmission of the call between Range Holder / Host and Recipient, number flows for re-routing of calls shall conform with the following format: 505XXX 0SABC DEFGHJ, where 505XXX is the transit Number Portability Prefix Code and 0SABC is the Non-Geographic Number service definition code.

4.6.3 Traffic Routing

Calls originating in the number exporting system or from other networks shall be passed to a switch connection in the recipient system over one or more existing Points of Connection as defined by contractual routing principles and agreed during the planning stage.

To prevent call loops between systems, any call, with a Number Portability Prefix Code, arriving at a recipient switch must be either correctly translated or else failed. No attempt must be made to pass a call with a Number Portability Prefix Code back to the originating system.

The schematic shown in Figure **5** illustrates how re-routing of ported calls may be achieved using direct interconnect links.

Note: Communications Provider 1 is the exporting Communications Provider (Range Holder), Communications Provider 2 is the importing Communications Provider (Recipient) and Communications Provider 3 is a third Communications Provider who may originate the call. Communications Provider 2 appears twice as it can be both originator and recipient of a call. In

this scenario a call originating on a Recipient network will first be passed to the Range Holder then back to the Recipient (trombone).

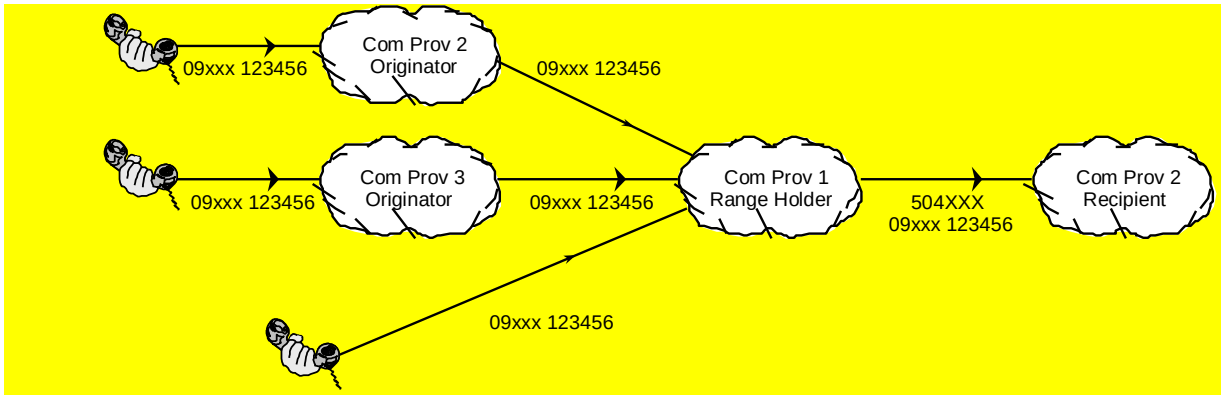


Fig.5 - Range Holder & Recipient use direct interconnect

Figure **6**. If the Range Holder / Host and the Recipient do not interconnect (or for the purposes of NGNP do not wish to interconnect) they may elect to use a transit Communications Provider to carry ported calls between them. The prefix range 505xxx has been allocated for this purpose. Commercial and procedural arrangements for the transit service will be subject to negotiation between the parties involved - this is not covered in this document.

Note: Again, Communications Provider 2 appears twice as it can be both originator and recipient of a call. In this scenario a call originating on a Recipient network will first be passed to the Range Holder / Host then back to the Recipient via a Transit Communications Provider.

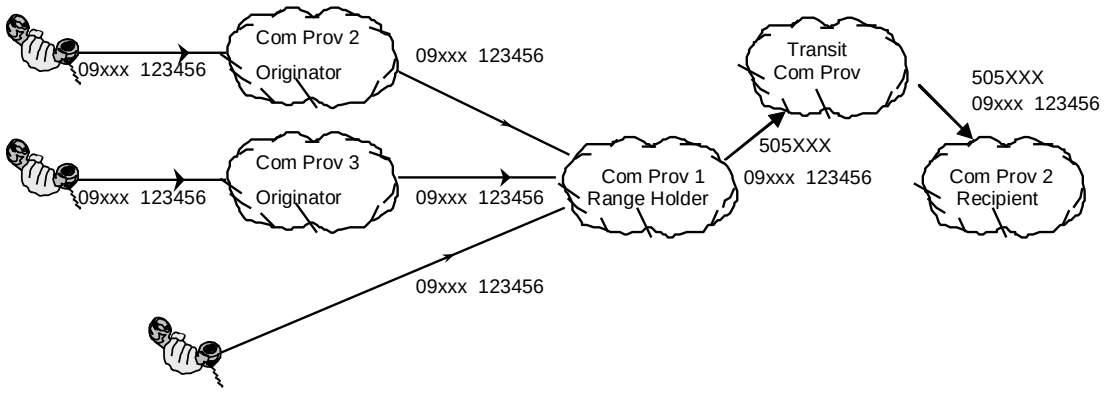


Figure 6 - Range Holder and Recipient use Transit Communications Provider

Figure **7** illustrates 'trombone' avoidance. A call that originates on the Recipient's Network is filtered out and delivered to the customer rather than sent to the Range Holder / Host.

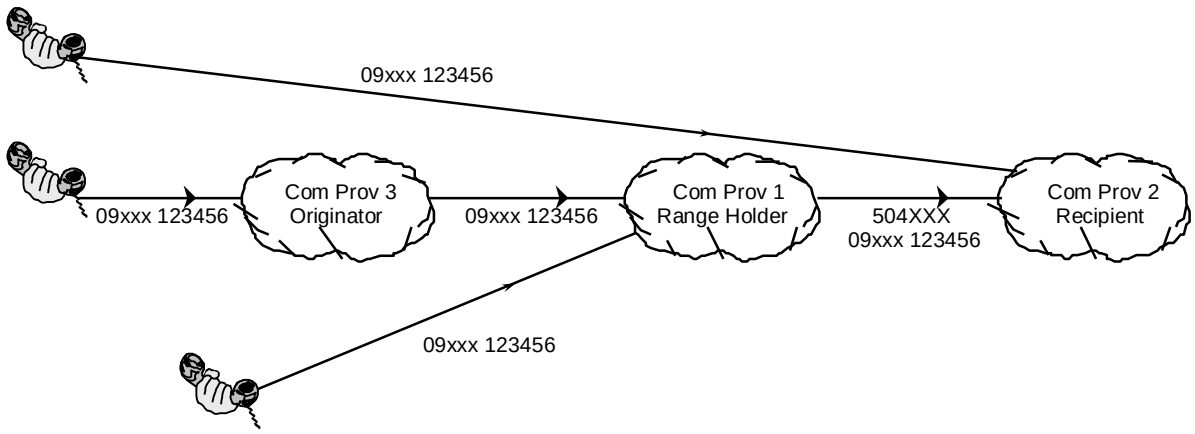


Figure 7 – Recipient Communications Provider (2) Performs Range Analysis and Terminates Call.

4.6.4 Traffic Forecast

NGNP call traffic volume forecasts will be incorporated into the overall Communications Provider interconnect traffic forecasts. Communications Providers will exchange the Interconnect total traffic forecasts in accordance with current practice.

The format of the number portability traffic forecast will follow the format defined in current contracts. For each exporting Communications Provider switch connection the Recipient will indicate the proportion of ingress busy hour traffic, which is forecast to be ported traffic. The Recipient will also indicate the proportion of ingress busy hour call attempts that are forecast to result from ported calls, either to the Range Holder / Host or Transit Communications Provider as required.

Traffic forecasts shall include call traffic volumes for ported numbers, where appropriate, as related in the NP Functional Specification, Section 2: Recipient Providers Rules, Rule 1. This states: "The Recipient Provider shall inform the Donor Provider [i.e. Range Holder / Host or Losing Communications Provider] of any change in the circumstances of the service associated with any ported Number that may impact the Donor Provider's ability to route calls to that ported Number… and in the case of NGNP, significant changes in call traffic volumes expected to be generated."

4.6.5 Network Performance

It shall be noted that the performance of calls to ported numbers will not always be up to the standard of the equivalent direct call; for example, there may be an increase in delay/echo due to additional transmission links and switches in the connection