



**Australian
Competition &
Consumer
Commission**

Pricing Principles for Local Number Portability - a guide

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Preface

On 22 September 1997, the Australian Competition and Consumer Commission issued directions to the Australian Communications Authority under Section 458(2) of the *Telecommunications Act 1997* requiring that number portability for local services (local number portability), freephone services (for example, 1800 numbers) and local rate services (for example, 13 numbers) be mandated in the Numbering Plan.

Consistent with these directions, the Australian Communications Authority set an implementation date of 1 January 2000 for full local number portability and a date of 1 May 1998 for limited local number portability. Following the setting of these dates the ACA has granted exemptions from some of the obligations to provide limited local number portability. Currently Telstra and Optus are obligated to provide local number portability for simple services in respect of customers moving between Telstra and Optus.

Under Section 462 of the *Telecommunications Act 1997*, the Australian Competition and Consumer Commission may be required to arbitrate disputes between parties who are unable to agree on the terms and conditions upon which number portability is provided.

The purpose of this document is to outline the pricing principles the Commission is inclined to apply, in the usual case, if required to arbitrate a dispute over the terms and conditions of local number portability.

The major principle the Commission is inclined to apply is that each CSP should be responsible for the costs they incur in their own network to meet their obligations under the Numbering Plan to provide local number portability.

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1. Introduction

On 22 September 1997, the Australian Competition and Consumer Commission (the Commission) issued directions to the Australian Communications Authority (ACA) under Section 458(2) of the *Telecommunications Act 1997* (the Act) requiring that number portability for local services (local number portability), freephone services (for example, 1800 numbers) and local rate services (for example, 13 numbers) be mandated in the Numbering Plan.

Consistent with these directions, the ACA set an implementation date of 1 January 2000 for full local number portability and a date of 1 May 1998 for limited local number portability.

Local number portability (LNP) allows a customer to change from one carriage service provider (CSP) to another and retain their geographic telephone number.

Subsequent to setting the dates in the Numbering Plan, the ACA has provided exemptions to Telstra and Optus from providing simple local number portability to other CSPs until 30 November 1999.¹ Further exemptions have been granted to Telstra from providing complex limited local number portability² and limited local number portability from some exchanges. As a result, only limited local number portability for simple services is currently provided between customers moving between Telstra and Optus.³

Under Section 462 of the Act, a CSP that holds a portable number in accordance with the Numbering Plan must provide number portability to another CSP on terms and conditions as agreed between the two parties. Where parties are unable to agree on the terms and conditions upon which number portability is provided, however, the Commission may be required to arbitrate their dispute.

The purpose of this document is to inform interested parties of the pricing principles the Commission is inclined to apply, in the usual case, where an arbitration dispute arises between the CSP holding the portable number (the donor CSP) and the CSP to whom the end-user wants to port their number (the recipient CSP).⁴

¹ Simple local number portability refers to the porting of a geographic telephone number for a customer with a single-line voice service.

² Complex number portability refers to the porting of geographic telephone numbers used for either multi-line services or services with enhanced functionality such as enhanced fax stream, OnRamp, InDial, Rotary/Line Hunt, Centrex etc.

³ Simple services are single-line voice services.

⁴ The donor CSP is the CSP that originally provided the service to the customer. The recipient CSP is the CSP that currently provides the service to the customer.

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The Commission recognises that in a multi-carrier environment the costs of LNP extend beyond the direct costs incurred by the donor and recipient CSPs. In a multi-carrier environment there may be costs common to all CSPs (such as the costs of industry databases). CSPs other than the donor or recipient CSP may incur costs when a customer changes CSP and ports their telephone number.⁵ Further, some CSPs might provide a transit service for other CSPs and direct calls to the terminating CSP once the number has been ported.

These principles apply to disputes between the donor CSP and the recipient CSP. To the extent the Commission has jurisdiction over disputes between other CSPs, these principles may or may not apply.

Although these principles are not intended to unreasonably limit the outcomes of commercial negotiations, an indication of the approach the Commission is inclined to take if required to arbitrate a dispute may assist parties by narrowing the boundaries for those negotiations. For the same reason, these principles may also be a useful tool in alternative dispute resolution processes.

In April 1998, the Commission issued a draft of this guide. Following publication of the draft guide, the Commission received seven submissions. This guide represents the Commission's views after considering those submissions.

A major change in reaching the Commission's view on pricing principles for LNP is the treatment of customer transfer costs. In contrast to the draft guide, the Commission is now of the view that each CSP should be initially responsible for **all** the costs they incur to provide LNP. This includes customer transfer costs.

The discussion of the pricing principles for LNP is divided into a number of parts. Chapter 2 describes the relevant legislative background. Chapter 3 briefly describes a number of technical methods that may be used to provide LNP and their respective cost structures. In Chapter 4, the legislative criteria are discussed with specific reference to the pricing of LNP. Chapter 5 outlines the approach used by the Commission in developing these pricing principles. Chapter 6 of the paper discusses relevant issues associated with the allocation of the costs of LNP. Finally, Chapter 7 presents the Commission's views on the appropriate pricing principles for LNP.

The pricing principles detailed in this document constitute the general approach the Commission currently intends to take in the usual case. The Commission's approach to pricing LNP may not be static. This document reflects the Commission's approach based on knowledge and experience to date.

⁵ For example, other CSPs must ensure that calls originating on their network are routed to the appropriate terminating network once a number has been ported.

2. Legislative background

The main objectives of the *Telecommunications Act 1997*, when read together with Parts XIB and XIC of the *Trade Practices Act 1974*, are to promote the long-term interests of end-users of carriage services or of services provided by means of carriage services, and to promote the efficiency and international competitiveness of the Australian telecommunications industry.⁶

Section 455(1) of the Act provides that the ACA must, by written instrument, make a plan for the numbering of carriage services in Australia and the use of numbers in connection with the supply of such services.⁷ Section 455(5)(d) of the Act states that the Numbering Plan may set out rules about the portability of allocated numbers (including rules about the maintenance of, and access to, databases that facilitate portability).⁸ Section 458(2) of the Act confers on the Commission the power to give written directions to the ACA in relation to the rules the ACA can put in the Numbering Plan regarding number portability.⁹ In exercising its power, the Commission must have regard to whether portability of particular allocated numbers is required in order to promote the long-term interests of end-users of carriage services or of services supplied by means of carriage services.¹⁰ Whether a particular thing promotes the long-term interests of end-users is to be assessed with reference to the following objectives:

- promoting competition in markets for listed services;
- achieving any-to-any connectivity in relation to carriage services that involve communication between end-users; and
- encouraging the economically efficient use of, and the economically efficient investment in, the infrastructure by which listed services are supplied.¹¹

In September 1997, the Commission issued directions to the ACA requiring that number portability for local services (LNP), freephone services (for example, 1800 numbers) and local rate services (for example, 13 numbers) be mandated in the Numbering Plan. In making the direction, the Commission formed the view that LNP

⁶ *Telecommunications Act 1997* (Cth), Section 3.

⁷ *Telecommunications Act 1997* (Cth), Section 455(1)(a) and (b).

⁸ *Telecommunications Act 1997* (Cth), Section 455(5)(d).

⁹ *Telecommunications Act 1997* (Cth), Section 458(1) and (2).

¹⁰ *Telecommunications Act 1997* (Cth), Section 458(5).

¹¹ *Telecommunications Act 1997* (Cth), Section 458(6) which refers to the definition of 'long-term interests of end-users' in the *Trade Practices Act 1974* (Cth), Section 152AB(2).

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is required in order to promote the long-term interests of end-users.¹² Consequently this matter will not be revisited in this document.

In December 1997, the ACA published the *Telecommunications Numbering Plan 1997*. Under the plan, **number portability** means the right of a customer to:

- change from one CSP to another CSP within particular number ranges and retain the same telephone number; and
- receive equivalent service after porting the number.¹³

Under Section 11.4 of the Numbering Plan, a carriage service provided in relation to a ported number is an **equivalent service**, if (and only if) any differences in quality, reliability, services or features, between it and a carriage service provided in relation to a non-ported number:

- will not be apparent to a customer; or
- if they are apparent to a customer - will not affect the customer's choice of CSP.¹⁴

In relation to LNP, **limited portability**, for a local service, means a level of service for ported numbers that:

- is not an equivalent service under section 11.4; and
- is acceptable to the ACA under section 11.7.¹⁵

For the purposes of this discussion of pricing principles for LNP, local number portability refers to **both** number portability for local services (full LNP) and limited number portability for local services (limited LNP) as defined in the Numbering Plan.

Under Section 462 of the *Telecommunications Act*, a carrier or CSP required by the Numbering Plan to provide LNP in relation to customers of a CSP must comply with

¹² Australian Competition and Consumer Commission, ACCC directions to the Australian Communications Authority on number portability, September 1997; and Australian Competition and Consumer Commission, ACCC directions to the Australian Communications Authority on number portability - Commission's reasoning, September 1997.

¹³ Australian Communications Authority, *Telecommunications Numbering Plan 1997*, Section 11.2.

¹⁴ Australian Communications Authority, *Telecommunications Numbering Plan 1997*, Section 11.4.

¹⁵ Australian Communications Authority, *Telecommunications Numbering Plan 1997*, Section 11.2. Section 11.7(3) states:

In determining an acceptable level of service for limited portability, the ACA must have regard to:

- *the technical feasibility of requiring limited number portability for local services by the interim date; and any other matters the ACA considers relevant.*

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that requirement on such terms and conditions as are commercially agreed between the two parties, or failing agreement, determined by an arbitrator appointed by the parties. If the parties fail to agree on the appointment of an arbitrator, the Commission is to be the arbitrator.¹⁶

Under Section 8 of the *Telecommunications (Arbitration) Regulations 1997*, the Commission must take the following matters into account in making an arbitration determination:

- the legitimate business interests of the parties, and the parties' investment in facilities used to supply the relevant service;
- the interests of all persons who have rights to use the service;
- the direct costs of providing access to the service;
- the operational and technical requirements for the safe and reliable operation of a telecommunications network, or facilities used to supply carriage services;
- the economically efficient operation of a carriage service, a telecommunications network or a facility;
- whether the determination will promote the long-term interests of end-users of carriage services or services supplied by means of carriage services^{17,18} and
- any other matters the Commission considers relevant.¹⁹

The purpose of this document is to outline the principles the Commission is inclined to apply, in the usual case, where required to arbitrate a dispute between the donor and recipient carriers regarding the terms and conditions of LNP.

¹⁶ *Telecommunications Act 1997* (Cth), Sections 462(1) and (2).

¹⁷ Whether a determination will promote the long-term interests of end-users of carriage services or of services supplied by means of carriage services is to be determined in the same way as the question is determined for Part XIC of the *Trade Practices Act 1974* (that is, in accordance with Section 152AB of the *Trade Practices Act 1974*): *Telecommunications (Arbitration) Regulations 1997*, Section 8(2).

¹⁸ *Telecommunications (Arbitration) Regulations 1997*, Sections 8(1)(a)-(f).

¹⁹ *Telecommunications (Arbitration) Regulations 1997*, Section 8(3).

3. Technical background

LNP allows customers to change their CSP of local services and retain the same geographic telephone number. There are potentially a number of different technical methods of providing both limited and full LNP. The appropriate method of providing LNP is uncertain and will differ from case to case and CSP to CSP depending on a range of factors including the number of calls to ported numbers, network design, the demand for other services, expectations concerning future technology and so on.

Overall, however, so long as the CSP meets its obligations under the Numbering Plan to provide LNP, the technology employed is the choice of each CSP.

The purpose of this Chapter is to describe a few of the technical methods of providing LNP that appear of most relevance for Australia and discuss the different costs of providing LNP using these methods.

3.1. Methods of providing LNP

3.1.1. Call forwarding (facility re-direct)

Facility re-direct is a call forwarding device. Calls to ported numbers travel through the donor CSP's network until they reach their destination local exchange (ie. the local exchange to which the party receiving the call (the 'B-party') was connected to before changing CSP and porting the number). The destination local exchange recognises the number has been ported and re-routes the call to the recipient network via a point of interconnection.

3.1.2. Call drop-back

Call drop-back is an enhancement of the facility re-direct solution. It involves passing the signal to the destination local exchange during the call set-up phase to determine whether the call is to a ported number. If the call is to a ported number, the call path to the recipient CSP is established directly, and the donor CSP's destination local exchange takes no further part in the call.

3.1.3. Intelligent network solutions

An intelligent network (IN) solution involves the interrogation of a database (whether or not calls are to a ported number). The database contains information on the appropriate routing of calls to ported numbers.²⁰ If the call is to a ported number then it is directed to the recipient CSP's network via a point of interconnection. If the call is not to a ported number, it is routed as normal.

²⁰ Number portability for '1800' and '13' numbers in Australia will be provided using an IN solution.

There are a number of possible IN solutions. The major difference among them is where in the donor CSP's network the databases are located. The earlier in the routing of the call the database is interrogated, the more efficient will be the routing of the call. However, the earlier in the network the database is interrogated, the more calls to non-ported numbers that must interrogate the database.

Which of these solutions meet the requirements of full LNP is currently being assessed by the ACA.

3.2. Costs of providing LNP

The costs of providing LNP can broadly be divided into three categories.

First are the costs that are unrelated to the number of calls to ported numbers. These costs are in the main incurred in establishing and maintaining the capability to provide LNP (*system set-up and maintenance costs*). These costs include the costs of conditioning exchanges and establishing and maintaining databases.

Second are the costs that vary with the number of calls made to numbers ported from the donor CSP's network. These costs are in the main the additional costs associated with delivering calls to ported numbers (*call conveyance costs*). These costs include any additional switching and transmission required for calls to ported numbers, as well as the costs of expanding the capacity of the network to cater for calls to ported numbers. In part these costs depend on the number of customers who have ported their number.

Third are the once-off costs the donor CSP incurs each time a customer ports their number to another CSP (*customer transfer costs*).

Different technical solutions for LNP have different ratios of these costs.

Facility re-direct involves relatively low system set-up costs as it is established within the existing network structure. However, as calls to ported numbers using facility re-direct can create an additional loop for the duration of the call, (referred to as tromboning), facility re-direct requires additional switch processing, switching capacity and transmission capacity for each call to a ported number and hence involves relatively high call conveyance costs.

Call drop-back involves higher system set-up costs than facility re-direct, but as a signal to the destination exchange during the call set-up phase determines if the call is ported (rather than the call going through the destination exchange for its duration) it avoids tromboning and some of the call conveyance costs involved in a facility re-direct solution.

IN solutions involve relatively high system set-up costs, but low call conveyance costs. The costs of software, network alterations and establishing databases and query points

in the network for an IN solution are usually quite high (relative to facility re-direct).²¹ But as the IN solution routes calls to ported numbers via a more direct route through the network (using less elements of the network), the call conveyance costs are usually lower relative to facility re-direct.

The customer transfer costs also differ depending on which solution to LNP is used. If an IN solution is used, customer transfer primarily often involves the updating of a central database. For facility re-direct it involves re-programming the local exchange and can potentially be more costly.

Identifying the most cost efficient (lower cost in total) method of providing LNP is difficult. The most cost efficient method is uncertain and will differ according to a number of factors including the number of calls to ported numbers, the number of competing CSPs, the design and technology of the donor CSP's network, and the demand for related services (for example, location number portability). For instance, given the nature of the costs of facility re-direct and IN solutions for LNP (*low system set-up and high conveyance* versus *high system set-up and low conveyance*), there may be a proportion of calls to ported numbers above which it becomes more cost efficient to use an IN solution. However this in itself may depend on the location of the IN databases in the donor CSP's network.

The choice of the most efficient method of providing LNP, subject to meeting the requirements of the Numbering Plan, is a matter for each CSP to determine. Although these pricing principles are designed to encourage efficient choices of the methods to provide LNP, they do not aim to limit those choices. Nor are they predicated on any particular choice of methodology.

²¹ Once an IN technology (database) has been set-up, CSPs may be able to provide a range of other services at low marginal cost including, for example, location portability.

4. Legislative criteria and pricing principles for LNP

In this Chapter the legislative criteria the Commission must consider if it is required to arbitrate a dispute over the terms and conditions of LNP are discussed. The discussion examines each of the legislative criteria and draws implications for the pricing of LNP. The criteria are interdependent. In some cases promoting one criterion will promote another. In other cases, the criteria may conflict.

4.1. Whether the determination will promote the long-term interests of end-users of carriage services or of services supplied by means of carriage services

The long-term interests of end-users will, in general, be promoted by lower prices (that are sustainable), higher quality and greater choice of products and services. Section 152AB of the *Trade Practices Act 1974* provides that in determining whether a particular thing promotes the long-term interests of end-users, regard must be had of the extent to which the thing is likely to result in the achievement of the following objectives:

- the objective of promoting competition in markets for carriage services or services supplied by means of carriage services;
- the objective of achieving any-to-any connectivity in relation to carriage services that involve communication between end-users; and
- the objective of encouraging the economically efficient use of, and the economically efficient investment in, the infrastructure by which carriage services or services supplied by means of carriage services are supplied.²²

4.1.1. Promoting competition in markets for telecommunications services

The *Telecommunications Act 1997* and Part XIC of the *Trade Practices Act 1974* are concerned with opening up to competition potentially competitive markets that are dependent on the services of telecommunications infrastructure (dependent markets).²³ Competition constrains the market power of individual CSPs and creates the incentives for CSPs to maximise the benefits to end-users at minimum cost.

²² *Telecommunications Act 1997* (Cth), Section 458(6) which refers to the definition of 'long-term interests of end-users' in the *Trade Practices Act 1974* (Cth), Section 152AB(2).

²³ The legislation was established, in part, from the recommendations of the Hilmer Report. See Hilmer, F., Rainer, M. and Taperall, G., *National Competition Policy*, Report by the Independent Committee of Inquiry, August 1993. This report emphasises the role of competition in promoting the economically efficient use of society's resources - see page 6.

In determining pricing principles that best promote competition in markets for telecommunications services, it is necessary to be aware of the role of LNP in the provision of local services.

Currently, around 99 per cent of customers of local services are directly connected to Telstra's fixed phone network. Other CSPs have developed or are currently developing their own networks to provide some customers with a choice of their supplier of local services.

Competition and its consequent constraints on the behaviour of CSPs is likely to be greater where CSPs can easily enter and exit and can compete on their relative merits based on price (cost), quality and the range of services they provide. One factor that will influence the extent to which CSPs can compete on their relative merits is the degree to which customers are 'locked-in' to their current CSP.

LNP provides customers with the ability to change from one CSP (of local services) to another within particular geographic number ranges whilst retaining the same telephone number. As such, LNP can reduce the costs incurred by customers in changing their provider of local services and promote competition in the provision of local and other telecommunications services.

It follows that pricing principles for LNP should allow CSPs to enter, attract customers and remain viable in the long-term based on their relative merits, which in turn depend upon their costs (including their costs of providing LNP), and the quality and range of services they supply. In this regard, pricing of LNP should allow for efficient entry and exit in the provision of local services and other telecommunications services.

4.1.2. Any-to-any connectivity

As stated in Section 152AB(8) of the *Trade Practices Act 1974*:

... the objective of any-to-any connectivity is achieved if, and only if, each end-user who is supplied with a carriage service that involves communication between end-users is able to communicate, by means of that service, with each other end-user who is supplied with the same service or a similar service, whether or not the end-users are connected to the same telecommunications network.

Pricing principles for LNP should be consistent with achieving any-to-any connectivity. In particular, pricing principles for LNP should not encourage CSPs to provide a portability solution that lowers the quality or reliability of important community services, (for example, emergency call services).

4.1.3. Encouraging economically efficient use of, and investment in, telecommunications infrastructure

The economically efficient use of and investment in infrastructure involves many elements. CSPs should have the appropriate incentives to invest, innovate, improve the range and quality of services, increase productivity and lower costs through time. CSPs should also have appropriate incentives to produce services at least cost, and production activities should be distributed among CSPs so that industry-wide costs are

minimised. Further, CSPs should employ resources to produce services that provide the maximum benefit to society.

When considering the implications of pricing principles for LNP for these elements, it is useful to divide the discussion into two parts:

- the economically efficient use of, and investment in, infrastructure to provide LNP; and
- the economically efficient use of, and investment in, infrastructure to provide local services and other telecommunications services.

4.1.4. The economically efficient use of, and investment in, infrastructure to provide LNP

In regard to pricing principles for LNP, three issues are particularly important:

- providing incentives for CSPs to minimise the costs of providing LNP;
- providing appropriate signals to encourage ‘efficient’ porting of telephone numbers by customers; and
- providing incentives for CSPs to provide appropriate levels of quality of LNP.

Providing incentives for CSPs to minimise the costs of providing LNP

Pricing principles for LNP should provide appropriate incentives for CSPs to minimise their costs of providing LNP consistent with the required level of quality and reliability of the service specified by the ACA at any time. Pricing principles should also provide appropriate incentives for CSPs to choose the efficient transition path (if any) from a solution that meets the requirements of limited LNP to one that meets full LNP.

Providing appropriate signals to encourage ‘efficient’ porting of telephone numbers

Pricing principles for LNP should encourage the ‘efficient’ porting of telephone numbers. Having decided to change their CSP, customers should port their number only when the benefits of porting exceed the costs of providing LNP.

The relevant costs in this regard are the additional call conveyance costs and customer transfer costs. These costs are avoided if customers change their CSP but decide not to port their numbers (although there will still be some costs associated with allocating new numbers to the customers).

The benefits to customers porting their number result from avoiding the costs of a number change. These include the costs of informing potential callers of the number change and the costs of missing calls.²⁴ The costs customers incur in changing their

²⁴ More generally, there are three types of benefits of LNP to end-users:

telephone numbers differ. Many businesses face high costs (through advertising their new number); some residential customers face low costs.

For the efficient use of infrastructure to provide LNP, customers should port their number only if the benefits to them (the cost savings) outweigh the additional call conveyance and customer transfer costs. Pricing principles for LNP should provide customers with the appropriate incentives for 'efficient' porting.

Providing incentives for CSPs to provide acceptable and appropriate levels of quality of LNP

As noted in Chapter 2, CSPs must provide a solution to both limited and full LNP that meets certain quality levels specified by the ACA. However, over and above these requirements, pricing principles for LNP should not unnecessarily limit CSPs from agreeing on a commercial basis a quality level above the minimum specified by the ACA. These higher levels of quality may be provided at a price, or at a premium upon any price agreed or determined for the minimum level.

The economically efficient use of, and investment in, infrastructure to provide local services and other telecommunications services

The primary mechanism to encourage the economically efficient use of, and investment in, infrastructure to provide local services is competition. It is widely held that competition (or the threat of competition) is the most effective way of encouraging CSPs to innovate, improve productivity, minimise costs of providing services and improve the range and quality of services. Competition also provides incentives to use infrastructure and invest to provide local services to maximise benefits to end-users.

LNP will increase the ability of more efficient CSPs to displace less efficient CSPs in the provision of local services. The provision of LNP, by removing a barrier to entry and competition, also reduces the ability of CSPs to maintain artificially high prices, resulting in the more efficient use of telecommunications infrastructure. Pricing principles for LNP should not inhibit the development of competition or unnecessarily reduce the competitive benefits that LNP can generate.

However, care must be taken not to encourage inefficient entry. Pricing principles for LNP should not discourage CSPs that can provide high quality services at least cost from entering and providing local services. However, the pricing principles should not cause inefficient high-cost CSPs to remain viable in the long term.

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- Type 1 benefits - those which flow directly to porting customers arising from a lowering of their switching costs when changing CSP;
 - Type 2 benefits - those which arise from the intensification of competition caused by the provision of number portability, which leads to lower prices and improvement in the quality of telecommunications services to all end-users; and
 - Type 3 benefits - those which flow to consumers who call ported customers being able to more easily locate these customers.

Further, once entry has occurred, the pricing of LNP should encourage the efficient distribution of customers across CSPs. If there is no requirement to provide LNP, the industry-wide costs of providing local services will be minimised by customers selecting the CSP that can provide this service at the lowest cost (for a given level of quality).²⁵ However, as LNP involves customer transfer costs and additional call conveyance costs (when getting calls to a ported number), the distribution of customers across CSPs that minimises industry-wide costs will depend upon the CSP to which the customer initially subscribes.²⁶ For industry-wide costs of local call services to be reduced, a customer should change CSPs (and keep the same number) only if the cost reduction achieved by the customer's new CSP for providing local services is greater than the customer transfer costs and additional call conveyance costs to get calls to the customer's ported number.

4.2. The legitimate business interests of the parties, and the parties' investment in facilities used to supply the relevant service

Most often the parties to a dispute will be CSPs providing competing local services. Regard to the legitimate business interests of parties requires that CSPs be allowed to compete on their relative merits, in terms of their costs, quality and range of services they provide. It also requires that CSPs should be allowed to meet their contractual commitments and have control over the use of their own network. In regard to the parties' investment in facilities, CSPs should be allowed to at least recover a normal commercial return on prudent investment (inclusive of risk). It is unlikely 'legitimate business interests' extends to achieving a higher than normal commercial return through the use of market power.

Providing LNP involves significant investment by all CSPs. Pricing principles should allow efficient CSPs to recover the costs of these investments and the costs of providing LNP more generally. In any competitive market it is ultimately customers who bear the costs incurred by an efficient firm in doing business. This should be kept clearly in mind when determining whether the pricing principles allow each CSP to recover the costs of LNP.

4.3. The interests of all persons who have rights to use the service

As indicated in Chapter 2, under the Numbering Plan it is ultimately customers of local services who have rights to use LNP.

Once allocated a telephone number the customer has the right to port that number to another provider of local services. The interests of customers include allowing them to

²⁵ This assumes that there are no costs of changing CSPs.

²⁶ Assuming that the alternative carriage service provider has entered the market and there is an obligation to provide number portability, the set-up costs can be treated as sunk and are not relevant for this comparison.

reap the rewards of their investments in their telephone numbers and not be unduly restricted in their choice of CSP. As a result, pricing principles for LNP should not allow the appropriation of the good will or capital that a customer has invested in a telephone number.

4.4. The direct costs of providing access to the service

Direct costs are those costs necessarily incurred in the provision of LNP. As stated in the *Trade Practices Amendment (Telecommunications) Bill 1996* Explanatory Memorandum:

... 'direct' costs of providing access are intended to preclude arguments that the provider should be reimbursed by the third party seeking access for consequential costs which the provider may incur as a result of increased competition in an upstream or downstream market.²⁷

This requires that the price for LNP should not be inflated to recover any profits the donor CSP (or any other party) may lose in a dependent market as a result of the provision of LNP. In particular, the Efficient Components Pricing Rule (ECPR) - opportunity cost pricing - may be inconsistent with this criteria.²⁸ Therefore, any charges between CSPs for LNP should be based on the direct costs of providing LNP.

4.5. The operational and technical requirements for the safe and reliable operation of a telecommunications network, or facilities used to supply carriage services

Pricing principles for LNP should not encourage arrangements between CSPs or incentives for particular CSPs that lead to the unsafe or unreliable operation of a telecommunications network or facilities used to supply carriage services. Nor should the pricing principles inhibit CSPs from operating their network in a safe or reliable manner.

4.6. The economically efficient operation of a carriage service, a telecommunications network or a facility

This criterion is similar to the economically efficient use of, and investment in, infrastructure to provide local services and other telecommunications services described above. Pricing principles should encourage CSPs to select the least-cost method of providing LNP given the required level of quality and reliability. Pricing principles should not unreasonably limit CSPs from reaping economies of scale and scope in their own networks. Further, pricing principles for LNP should not encourage

²⁷ Trade Practices Amendment (Telecommunications) Bill 1996 Explanatory Memorandum, page 44.

²⁸ ECPR bases price on the incremental cost of providing a service plus the opportunity cost to the service provider of losing business in related markets.

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CSPs to employ methods of providing LNP that impose unnecessary costs on other CSPs.

From the above discussion of the legislative criteria, a number of issues are particularly relevant when assessing pricing principles for LNP. They are the:

- implications for entry and competition in the provision of local services;
- incentives for CSPs to select efficient solutions to provide LNP;
- ability of CSPs to recover the costs of providing LNP;
- incentives for the 'efficient' porting of telephone numbers;
- implications for the industry-wide costs of providing local services;
- incentives for CSPs to provide appropriate levels of quality and reliability of LNP; and
- ability of customers to reap the rewards of investments in their telephone numbers.

5. The Commission's approach to determining pricing principles for LNP

Given the legislative criteria and the implications for the pricing of LNP, the Commission has adopted a three stage approach to developing pricing principles for LNP. Stage one involves considering whether there should be any payments between the donor CSP and the recipient CSP for the provision of LNP. This basically involves answering the question of which party should initially be responsible for each of the costs of LNP.²⁹

Stage two involves determining, if there are to be payments for LNP, whether such payments should be cost based. In light of the legislative requirements for the Commission to consider the direct costs of providing LNP; the interests of all persons who have rights to use the service; and the economically efficient use of, and investment in, infrastructure to provide local services and other telecommunications services; any charge to be paid by a recipient CSP to a donor CSP for LNP should be based on the costs of providing LNP.

Stage three involves determining the appropriate cost base upon which any payment between CSPs for LNP should be calculated. For example, should any payment for LNP be based on short run marginal cost, incremental cost, fully distributed cost or some other costing method?

If in stage one it is decided that there is to be no payment between CSPs, stages two and three are not required.

²⁹ Even though the CSPs will initially be responsible for these costs, it is likely that customers will ultimately bear most of these costs (through higher prices). As discussed below, which customers bear these costs will depend upon which CSP is initially responsible for these costs.

6. Allocation of the costs of LNP

The purpose of this Chapter is to consider the appropriate initial allocation of the costs of providing LNP (system set-up, call conveyance and customer transfer costs) between the donor CSP and the recipient CSP. This represents stage one of the process outlined in Chapter 5. Two approaches to allocating the costs of LNP are assessed in relation to each of the relevant issues derived from the legislative criteria. The cost allocations are:

- each CSP is initially responsible for the costs incurred in their own network to provide LNP (*each CSP is responsible for their own costs*); and
- the donor CSP recovers the costs incurred in its own network to provide LNP from the recipient CSP (*donor CSP recovers costs from the recipient CSP*).

Although much of the discussion focuses on these cost allocations, the Commission also considered approaches where these costs are shared between the donor CSP and the recipient CSP. In particular the Commission considered:

- allocating a proportion of each of the cost types to the donor CSP and the recipient CSP (for example, allocating a proportion of call conveyance costs to each CSP); and
- allocating in turn each of the cost types (system set-up, call conveyance and customer transfer costs) to the donor CSP and the recipient CSP.

It should be again stressed that this is an initial allocation of costs. Once this allocation is made it is at the discretion of each CSP to determine whether and how to recover these costs from its customers.

6.1. Entry and Competition in the Provision of Local Services

As indicated in Chapter 4, the pricing of LNP should allow CSPs to enter, attract customers and remain viable in the long-term based on their relative costs (including the costs of providing LNP in their own network), and the quality and range of services they can provide.

Each CSP is initially responsible for their own costs

If each CSP is responsible for their own costs of providing LNP, both the donor CSP and the recipient CSP will be able to compete and attract customers based on their relative merits (including their relative costs of providing LNP). In this sense this allocation of the costs of providing LNP does not advantage one CSP over other CSPs.

Donor CSP recovers costs from the recipient CSP

If the donor CSP recovers the costs of providing LNP in its own network from the recipient CSP, the degree to which the relative merits of the CSPs will determine their long-term viability will be weaker. If the recipient CSP is more cost efficient in providing local call services (including local number portability), it will not be able to pass those benefits onto its customers. Rather, the ability of the recipient CSP to compete will depend upon the cost efficiency of the donor CSP in providing LNP (rather than its own cost efficiency). Further, if the donor CSP recovers its costs from the recipient CSP, there may be an incentive for the donor CSP to disadvantage its competitor (the recipient CSP) by adopting a high-cost method of providing LNP (see discussion below). This will increase the likelihood of efficient entry being deterred and for inefficient exit to occur.

If each CSP is initially responsible for the system set-up, call conveyance costs and customer transfer costs of LNP in their own network, the long-term viability of CSPs will largely depend on their relative merits based on their costs (including the cost of providing LNP in their own network), and the quality and range of services they can provide. Further, if the donor CSP can recover the costs of LNP from the recipient CSP, there is the prospect for efficient entry to be deterred and inefficient exit to occur.

6.2. Incentives for CSPs to select efficient solutions to provide LNP

As detailed in Chapter 4, pricing of LNP should encourage CSPs to select the technical method that provides LNP at minimum cost for a given level of quality and reliability.

Each CSP is initially responsible for their own costs

If each CSP is responsible for their own system set-up, call conveyance and customer transfer costs of providing LNP, they have the appropriate incentives to select the most efficient technologies to minimise these costs.

Donor CSP recovers costs from the recipient CSP

If the donor CSP recovers these costs from the recipient CSP, the incentives are reversed. The donor CSP has the incentive to gain an advantage over its competitors (recipient CSPs), by selecting the technology that maximises the costs of LNP.

These incentives are magnified as the donor CSP will not have to bear any of the costs of selecting an inefficient technology and the recipient CSPs must bear all these costs. This differs from the incentives faced by providers of many declared services under Part XIC of the *Trade Practices Act 1974* (such as PSTN originating and terminating access). For access services, the incentives to adopt inefficient technologies are far weaker, as the access provider usually provides the same services to its own downstream operations as well as access seekers. Unlike the donor CSP, the access

provider will have to bear a proportion of the costs of adopting an inefficient technology.

Similar issues arise if the donor CSP can only recover the call conveyance and customer transfer costs from the recipient CSP. In this case, the donor CSP has an incentive to employ a solution for LNP that has high call conveyance and customer transfer costs even if it is more efficient to use a different solution.

Encouraging CSPs to adopt efficient technology is important given the size of the system set-up and call conveyance costs of LNP. Providing incentives to make inefficient choices will impose substantial additional costs, which in the end will be to the detriment of the long-term interests of end-users.

One possible approach is to limit the costs CSPs can recover to those of providing LNP using the most efficient solution. There are practical difficulties with this approach. First, as the most efficient solution may differ from one CSP to another,³⁰ it risks the selection by the Commission of an inappropriate technical solution. Second, even when the technology has been selected, there are incentives for these costs to be overstated.³¹

Another approach is to share the donor CSP's costs of providing LNP between the donor and recipient CSPs. If the donor CSP must bear some of the costs of providing LNP in its own network, it will have a greater incentive to select the most cost efficient solution. This will depend upon the proportion of the costs that are borne by the donor CSP. The greater this proportion, the greater the incentive for the donor CSP to choose an efficient solution.

Creating incentives to encourage CSPs to adopt an efficient technology for providing LNP is important given the size of the costs of LNP. This can best be achieved if each CSP is initially responsible for its own system set-up, call conveyance and customer transfer costs of LNP. It should be noted that by having each CSP being initially responsible for the costs of LNP is not based on any presumption that one method of providing LNP is superior to another. Rather, a desirable property of this approach is that it does not in any way affect each CSPs choice of method to provide LNP.

³⁰ For example, Telstra is using FRD to meet its obligation to provide simple LNP. Optus, on the other hand, is using an IN solution.

³¹ One possible approach for the Commission is to use information sourced independently of the parties to determine these costs, such as international benchmarks, or the costs incurred by other CSPs in the industry in implementing LNP.

6.3. Ability of CSPs to recover the costs of providing LNP

The pricing of LNP should allow an efficient firm to achieve a normal commercial return on investment and a recovery of costs, including on the investment and the costs associated with providing LNP.

Under each of the different ways of allocating the costs of LNP between the donor CSP and recipient CSP, there is scope for an efficient CSP to recover the full costs of providing LNP.

Each CSP is initially responsible for their own costs

If each CSP is initially responsible for their own costs of providing LNP, the question becomes one of how will an efficient provider of LNP recover the system set-up, call conveyance and customer transfer costs?

In answering this question, it must be stressed that it is likely that ultimately customers will bear the costs of LNP. Offset against these costs, however, are the competitive benefits LNP generates, including lower prices, greater choice and improved service quality.

Taking the call conveyance and customer transfer costs first, these costs are incurred when a customer changes their provider of services and opts to keep their telephone number. These costs are similar to other exit costs incurred in a large number of competitive markets when customers change the provider of services. In competitive markets, service providers recover these costs from their customers. For example, in some industries firms charge higher service fees or negotiate contracts with minimum service periods and exit charges for the early termination of contracts. In other cases, these costs are recovered from up-front fees.

In terms of LNP, it is important to note that each CSP providing local services must (unless exempted by the ACA) provide LNP. As a result, each CSP has the scope to recover the efficient costs of LNP from their customers.³² How each CSP recovers these costs from its customers is a decision for each CSP. For example, in the United States local exchange carriers are allowed (but not required) to recover their carrier-specific costs directly related to providing long-term number portability through a federally tariffed, monthly number portability charge that will apply to end-users for no longer than five years.

System set-up costs of LNP are akin to most other costs CSPs face in the local call market. All CSPs providing local call services must provide LNP and hence incur

³² As Telstra has around 99 per cent of customers, Telstra will inevitably be responsible for most of the call conveyance and customer transfer costs. It is entirely a matter for Telstra (and any other CSP for that matter) to choose how to recover those costs from its customers. However, it would be expected that Telstra could recover these operating costs efficiently from customers in areas where there is a competing supplier (where the benefits of LNP will be reaped). It has been argued in submissions that Telstra is constrained by retail price controls from passing these costs on to customers. As the costs of LNP are small relative to Telstra's revenue from local call services, this is highly unlikely.

system set-up costs. The Commission is of the view, however, that an efficient CSP would be able to recover their costs through local call service charges. Of course, how each CSP decides to recover these costs is entirely at its own discretion.

Donor CSP recovers costs from the recipient CSP

The logic above also applies if the donor CSP recovers the costs of providing LNP from the recipient CSP. In this case, the costs are initially recovered from the recipient CSP who will recover them from customers through either local call charges or up-front fees.

Irrespective of which CSP is initially responsible for the costs of number portability, there is scope for CSPs to recover the costs of LNP. How CSPs choose to recover these costs from customers is at their own discretion.

6.4. ‘Efficient’ porting of telephone numbers

To encourage the ‘efficient’ porting of numbers, customers should face incentives to port their numbers only if the benefits to them outweigh the costs of LNP. In this regard the relevant costs are the additional call conveyance costs and the customer transfer costs.³³ These are the costs that are incurred if a customer decides to port his/her number. For efficient porting of telephone numbers, customers must be signalled the costs of doing so. Whether this is the case depends on the manner in which CSPs structure their charges.

The Commission, in its role as the arbitrator, has no jurisdiction of how CSPs structure their charges. The discussion below considers whether the manner in which the costs of LNP are allocated between the donor and recipient CSP limit the extent to which the costs can be signalled to the CSP.

Each CSP is initially responsible for their own costs

If each CSP is initially responsible for its own costs of LNP, then potentially the call conveyance and customer transfer costs of LNP can be signalled to end-users by the donor CSP offering customers a discount to give up the option of having a portable number or charging a fee if the customer decides to port. Although any such approach is at the discretion of the donor CSP, making each CSP initially responsible for the costs of LNP does not prevent the costs being signalled to customers.³⁴

³³ Assuming that the alternative CSP has entered the market and there is an obligation to provide LNP, LNP set-up costs can be treated as sunk and are not relevant for this comparison.

³⁴ One difficulty is setting a discount or structuring a fee to recover the call conveyance costs. As the donor CSP will not know with accuracy the number of calls to the ported telephone number, these costs are uncertain. This makes it difficult for the donor CSP to structure a discount or fee to signal the ‘true’ cost of call conveyance to the party that ports the number. However, this difficulty is no

Donor CSP recovers costs from the recipient CSP

The logic above also applies if the donor CSP recovers the costs of providing LNP from the recipient CSP. In this case, the costs are initially recovered from the recipient CSP. Potentially the recipient CSP could recover these costs from customers through either local call charges or up-front fees. In doing so, the donor CSP would again be able to signal the costs of LNP to customers.

A variety of mechanisms exist for call conveyance and customer transfer costs to be signalled (albeit imperfectly) to end-users. These mechanisms are possible irrespective of which CSP is initially responsible for these costs.

6.5. Industry-wide costs of providing local services

Once a CSP has entered and is offering competing local services, the choice of CSP by customers should be such as to minimise the industry-wide costs of providing local services. Pricing for LNP should provide incentives for customers to change their CSP (and port their number) only if there is a net reduction in the industry-wide costs of providing the service (including the costs of LNP). In this regard, the relevant costs are the additional call conveyance costs and the customer transfer costs.³⁵

Again, these costs can potentially be signalled to customers. These costs will then be incorporated in the customer's choice of CSP. The customer's choice of CSP will then be such as to minimise the industry-wide costs of providing local services.

Whichever combination of local service charges and customer contract mechanisms a CSP chooses is entirely at its own discretion. The signalling of such costs is possible irrespective of which CSP is responsible for recovering the call conveyance and customer transfer costs of LNP.

The 'efficient' allocation of customers across CSPs is likely to be achieved by signalling the costs of LNP to end-users. A variety of mechanisms exist for call conveyance and customer transfer costs to be signalled to end-users. These

less, and possibly greater, for the recipient CSP. Without the possibility of B-party charging it is similarly not possible for the recipient CSP to signal the 'true' cost of call conveyance. Arguably the recipient has, at least initially, less information than the donor CSP to structure such a discount or fee. Furthermore, the extent to which it is an issue depends on the size of call conveyance costs. While these costs may be significant for Telstra with its facility re-direct solution, they are small for CSPs that have chosen to employ IN solutions.

³⁵ Assuming that the alternative CSP has entered the market and there is an obligation to provide LNP, LNP set-up costs can be treated as sunk and are not relevant for this comparison.

mechanisms are possible irrespective of which CSP is initially responsible for these costs.

6.6. Incentives for CSPs to provide appropriate levels of quality and reliability of LNP

Different solutions for LNP can provide different levels of quality and reliability. As indicated above, the ACA has specified a minimum quality that must be provided by a CSP to meet their obligations under the Numbering Plan to provide limited LNP and full LNP.

While these safeguards are in place, the allocation of the costs of LNP may nevertheless influence the quality and reliability of LNP provided.

Each CSP is responsible for their own costs

If each CSP is responsible for their own costs of LNP, the donor CSP has an incentive to provide LNP at as low a quality as possible within the limits of the Numbering Plan. This may create two problems. First, it may encourage the inefficient degrading of LNP which, for example, may increase the costs to the recipient CSP of handling the call. Second, it may reduce the scope for the CSPs to reach commercial agreements for a quality of LNP exceeding the requirements of the Numbering Plan.

Donor CSP recovers costs from the recipient CSP

If the donor CSP can recover its costs from the recipient CSP there is greater scope for the recipient CSP to compensate the donor CSP for a service quality in excess of the requirements under the Numbering Plan and for the recipient CSP to compensate the donor CSP for porting numbers in a fashion that reduces costs in the recipient CSPs network.

The incentives for parties to reach agreement on the most appropriate level of quality and reliability of LNP are greater if the recipient CSP compensates the donor CSP for the costs incurred in its network. However, as the jurisdiction of the Commission is to arbitrate disputes over limited and full LNP as defined in the Numbering Plan, the decisions of quality of LNP over and above the requirements set out in the Numbering Plan are to commercial agreement.

6.7. Ability of customers to reap the rewards of investments in their telephone numbers

The pricing of LNP should not allow the appropriation of the good will or capital that a customer has invested in a telephone number. This principle suggests that the maximum charge a customer should face for keeping their number should be a cost based charge so that any such capital are not appropriated by the CSP. If each CSP is

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responsible for their own costs of LNP, the scope for this capital to be appropriated is limited.

7. Commission's view

Based on knowledge and evidence available to the Commission at this time, the Commission, if it is required to arbitrate a dispute over the terms and conditions of the provision of limited or full local number portability, is inclined, in the usual case, to allocate the costs of local number portability between the donor CSP and the recipient CSP as follows. Each CSP should be responsible for:

- all system set-up and maintenance costs;
- any additional call conveyance costs;
- customer transfer costs

incurred in their own network to meet their obligations under the Numbering Plan to provide limited and full local number portability.

The Commission is of the view that allocating costs in this manner provides an appropriate balance of the following matters: the implications for entry and competition in the provision of local services; the incentives for CSPs to select efficient solutions to provide LNP; the incentives for efficient porting of telephone numbers; the implications for industry-wide costs of local services; the incentives for CSPs to provide the appropriate quality of LNP; the ability of customers to reap the rewards of investments in their telephone numbers; and the ability of CSPs to recover the costs of providing LNP.

As such, the Commission is of the view that this allocation of costs, will, in the usual case, best promote the legislative criteria the Commission is required to consider if it is required to arbitrate a dispute over the terms and conditions of local number portability.