AUSTRALIAN COMMUNICATIONS INDUSTRY FORUM LIMITED
ACN 078 026 507

SPECIFICATION

1800/13/1300 NUMBER PORTABILITY - NETWORK PLAN

ACIF G511: 1998 (VERSION 1.0)
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Background Briefing

AUSTEL (the Australian Telecommunications Authority) was the government agency responsible for ensuring promotion of competition, protection of consumers, and fairness and efficiency in the Australian telecommunications industry. Responsibility for these functions now resides with either the Australian Communications Authority(ACA) or the Australian Competition and Consumer Commission (ACCC).

Among the ACA's core functions are the maintenance and administration of the Australian National Numbering Plan, and development of policies related to allocation and use of numbers. These functions include making assignments of numbers to Carriers and Service Providers on a fair and equitable basis.

The Numbering Advisory Committee (NAC) of the ACA (and prior to that, AUSTEL), which provides advice and guidance on numbering to the ACA, established a Number Portability Study Group (NPSG) to examine the technical and commercial feasibility of implementing number portability between Service Deliverers[1]. The NPSG was comprised of representatives from AUSTEL, consumer groups, the Carriers, Service Providers and telecommunications industry bodies.

AUSTEL had a keen interest in the early introduction of number portability. AUSTEL and the NPSG facilitated arrangements designed to ensure that number portability is introduced in order to produce pro-competitive outcomes on a fair and equitable basis between Service Deliverers. AUSTEL set a target date of 31 December 1996 for the implementation of number portability for 1800, 13 and 1300 services in Australia. In September 1997, the ACCC directed the ACA to set out rules in the numbering plan about the portability of allocated numbers, including Freephone (1800) and Local Rate (13/1300) numbers. The ACA is also required to set an implementation date and the ACA is expected to set a date during the first quarter of 1998. The implementation date is expected to be in the fourth quarter of 1998.

After extensive investigations, the NPSG concluded that central coordination of the 1800/13/1300 number ranges is an appropriate method to maintain records of the numbers. To perform that role, industry will establish an Industry Number Management Service (INMS)[2], to administer number portability in the Australian environment. The INMS will oversight the establishment and operation of a database for 1800/13/1300 numbers, which will be accessible to all Originating Access Service Deliverers (OASDs) and Prime Service Deliverers (PSDs)[1]. The database will record details of all 1800/13/1300 numbers in use, including those which have been transferred from one PSD to another. The database will not record any customer details.

Industry has established Working Groups responsible for creating the Industry Number Management Service, for defining the processes to be followed for number allocation, reservation, searching and porting of numbers and for specifying the functions and performance of the number database.

This Plan has been prepared in consultation with those Working Groups.

1 Refer to AUSTEL Interconnection Model, Multi-Service Deliverer Environment, Final Report, March 1995

2 Previously referred to as the Independent Body (IB)

1. Introduction

1.1 Number Portability for 1800/13/1300 Services

Number portability for 1800/13/1300 services is expected to be implemented in Australia during 1998 and with the advent of number portability there will be a change to the way those numbers are administered as well as changes to the way such calls are delivered from access networks to the Prime Service Deliverers' networks.

The ACA's/AUSTEL's current practice of allocating blocks of 1800/13/1300 numbers to carriers and service providers will cease. Industry based arrangements are being put in place to replace the block allocation process with one that will enable access to a common pool of numbers.

This Plan defines the industry agreed call handling and technical interconnect arrangements based on a model of interconnected networks. The model of interconnected networks is derived from AUSTEL's Interconnection Model of March 1995.

This plan is written consistent with the agreed ACIF G500:1998 - Specification - Signalling Number 7 - Interconnect ISUP (also known as the Network Signalling Plan developed by the Network Interworking Industry Forum (NIIF)).

1.2 Industry Structure

Under the Telecommunications Act 1991, the supply of 1800/13/1300 services was undertaken by two carriers in Australia, Optus and Telstra. Under the Telecommunications Act 1997, new carriers and carriage service providers are able to establish their own networks for 1800/13/1300 services or they may choose to resell the services of a network operator. New carriers and carriage service providers may enter the market and may obtain interconnect with the same level of technical functionality as other networks.

This plan for the implementation of number portability for 1800/13/1300 services takes account of the future market place, in terms of the number of Access and Prime Service Deliverers and the services offered.

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2. Network Model

2.1 Overview

AUSTEL's Interconnect Model (Multi-Service Deliverer Environment) Final Report March 1995 identifies in general terms the various networks that may be involved in the establishment of a connection across multiple networks operating in a competitive environment. The Model identifies the roles of those networks in maintaining the ability of any customer to call any other customer, irrespective of who provides the access networks of the two customers and any intervening networks.

The provision of 1800/13/1300 services in a competitive environment will generically involve the calling customers, who may be directly connected to various originating access networks and the called customer, i.e. the customer with the 1800/13/1300 services, who may have answering points that again may be directly connected to various terminating access networks. The Prime Service Deliverer for 1800/13/1300 services typically translates the dialed number to the number of an appropriate answer point for that call, performs any trunk or transit carriage of the call and bills the 1800/13/1300 services customer. The Prime Service Deliverer may be a separate organisation and network from either the originating and terminating networks. The Prime Service Deliverer may also resell network based services of other network operators and have no network of its own.

The interconnection model for number portability for 1800/13/1300 services has been developed to take account of the potential separation of Access and Prime Service Deliverer functions in an open competitive environment.

2.2 Types of Service Deliverers

The following definitions are applicable to the types of Service Deliverers that may be operate in a portable 1800/13/1300 environment. Their relationships are shown in Figure 2.1 below.

PSD - Prime Service Deliverer

The PSD contracts with a customer to provide a 1800/13/1300 service. The PSD is responsible for all customer and caller interactions including service assurance and billing, unless agreements have been made with other SDs. If the PSD operates a network, the PSD negotiates interconnection agreements with OASDs, CASDs and TrSDs, as required, to deliver traffic to and from the PSD's network to meet their service requirements.

CPSD - Contracted Prime Service Deliverer

Where a PSD does not operate its own network, the CPSD is contracted by the PSD to provide the necessary service functionality and possibly other ancillary services such billing, service assurance and interconnect reconciliation and payment.

OASD - Originating Access Service Deliverer

The OASD through their interconnect agreement with the PSD provides an access service to connect the A party (the end-user that originates a call) to the PSD. This may be undertaken directly or through a CASD or TrSD. Part of the access service provided by the OASD would be the determination of the PSD. This function may be contracted by the OASD to CASD.

CASD - Contracted Access Service Deliverer

The CASD contracts with an OASD to determine the PSD/CPSD for a call as part of the OASD's access service. The CASD then delivers the call to the PSD/CPSD directly or through a TrSD.

TASD - Terminating Access Service Deliverer

The TASD through their interconnect agreement with the PSD provides an access service from the PSD (or CPSD) to the B party or translated number. This may be undertaken directly or through a TrSD.

TrSD - Transit Service Deliverer

A TrSD is contracted through an interconnect agreement to provide a transit service between SDs.

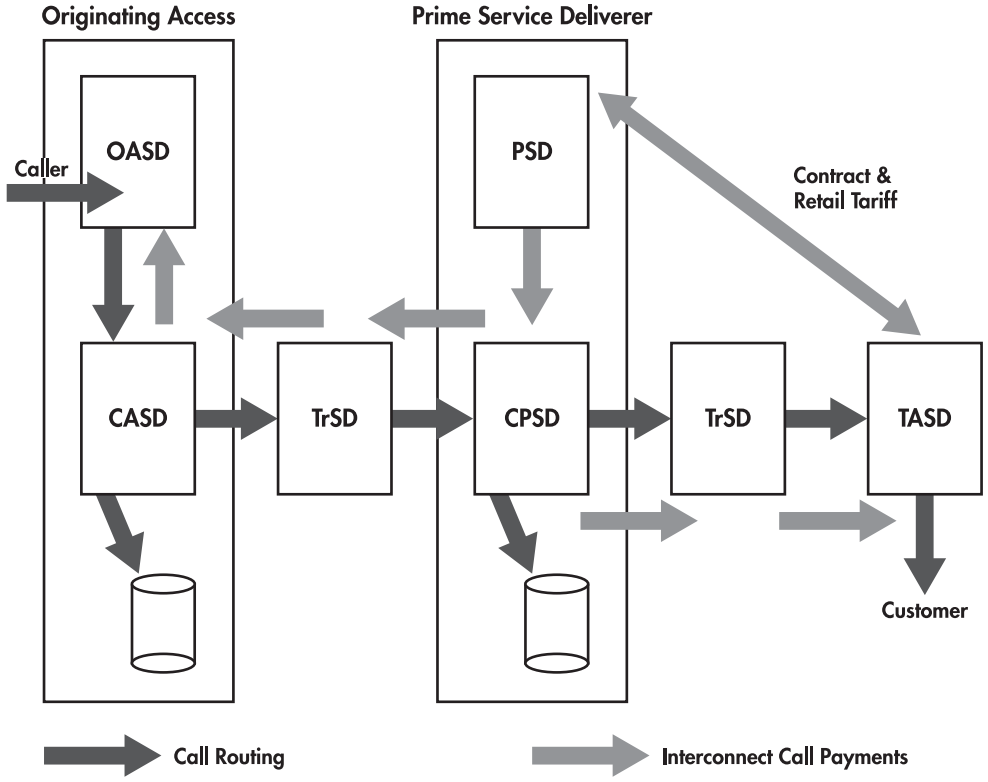

FIGURE 2.1
1800 Portability - Interconnect Arrangements

2.3 Assumptions

As number portability in other services e.g. Local Number Portability and constraints in the signaling system may not allow the identification of all SDs in the call path interconnection payments will need to be made between adjacent SDs on a call as the identification of non-adjacent parties may not be workable.

3. Call Handling

3.1 PSD

The PSD has a contractual relationship with the customer for the provision of the 1800/13/1300 service. The PSD determines the service profile required by the customer and bills the customer. The PSD is responsible for ensuring the delivery of the service levels required by the customer.

The PSD may utilise its own network rescues for implementing the service required by the customer or may contract with a network operator, the CPSD, for network implementation of the service.

3.2 OASD

The directly connected customers of an OASD will inevitably make calls to 1800/13/1300 numbers. The OASD must ensure that any such calls are delivered to the correct PSD or its contracted CPSD.

The OASD has at least three options for meeting its obligations:

i. Determine the PSD or CPSD for the service using its own network resources and deliver calls to a Point of Interconnect with the PSD or CPSD.

ii. Determine the PSD or CPSD for the service using its own network resources and deliver calls to the PSD or CPSD via a transit network.

iii. Contract with one or more other network operators, the CASDs, and deliver all 1800/13/1300 calls to the CASDs.

3.3 CASD

When the CASD receives a call from an OASD without an indication of the PSD or CPSD, the CASD will determine the PSD or CPSD for the call and deliver the call to a POI with the PSD or CPSD either directly or through a transit network.

3.4 CPSD AND PSD

The PSD or CPSD will receive calls from other networks information identifying it as the PSD or CPSD for that number. The PSD or CPSD will determine the terminating number for each call, based on the service profile of the 1800/13/1300 service.

Following determination of the terminating number, the call is offered to the TASD, either directly or via a transit network.

3.5 TASD

The destination points nominated by a customer for the termination of 1800/13/1300 calls could be directly connected to any TASD. The TASD should terminate calls received directly from the PSD or CPSD, or via a transit network, in the same way as other calls.

3.6 Transit Network Operator

A transit network may be used on the originating section of a call to the PSD or CPSD to provide links between either an OASD or a CASD and the PSD or CPSD. The OASD or CASD must have a contract with the transit network for the delivery of such calls. The transit network operator would be advised of the PSD or CPSD for the call, and would deliver the call based on that information.

A transit network may be used on the terminating section of a call from the PSD or CPSD to provide links to a TASD. The PSD or CPSD must have a contract with the transit network for the delivery of such calls to the TASD. The transit network operator would be advised of the TASD for the call, and would deliver the call based on that information.

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4. Interconnect for 1800/13 Portable Numbers

This section provides a description of the industry proposed multi-carrier network interconnect prefix structure and its use in the 1800/13/1300 number portability application. Interworking between networks is defined below consistent with general interconnect arrangements and ACIF G500:1998 - Specification - Signalling System Number 7 - Interconnect ISUP (also known as the Network Signalling Plan developed by the NIIF), including the use of interconnect prefixes. Other means of satisfying interconnect requirements may be defined in future signalling plans and, should that occur, this plan would be reviewed accordingly.

4.1 Interconnect prefix Structure

The purpose of the interconnect prefix structure is to allow efficient call routing to the identified service provider and to provide service information to the service provider for the call from the access or preceding network. (Reference ACIF G500:1998 - Specification - Signalling System Number 7 - Interconnect ISUP.) A network sending a call across a Point of Interconnect must ensure the correct prefix is inserted.

A significant consideration in the development of this structure has been the requirements of the customer and network operator billing systems, the capabilities of the existing signalling systems and existing exchange applications as well as providing a clear migration path for potentially new signalling systems and exchange applications.

Network Addressing Structure

The interconnect prefix structure of the ACIF G500:1998 - Specification - Signalling System Number 7 - Interconnect ISUP is currently required on all calls between interconnecting networks. The structure includes a Carrier Access Code (CAC) and a Service code (S). The Carrier access code is proposed to align directly with the ACA/AUSTEL allocated carrier override code.

The Service code is proposed to provide explicit customer or network information for billing purposes and to enhance network integrity. The following service codes and meanings have been proposed:

Service Code	Number Length	Meaning
-	0	No service indicator. Override code dialed by the calling party. The Access carrier provides immediate call hand-over to the Interconnecting carrier. Near-end hand-over observed.
9'S' 8	2-3	Transit network service. Transit, Originating Access Preselection (instead of '95').
5	1	Customers preselection choice used. The Access carrier provides immediate call hand-over to the Interconnecting carrier. Near-end hand-over observed.
2	1	Customer dials a carrier specific code. The Access carrier provides immediate call hand-over to the Interconnecting carrier. Near-end or agreed hand-over observed.
3	1	The Interconnecting carrier requires terminating access from the access carrier. Far-end hand-over observed.
4'S'	2	Access Service to Portable Number Ranges. **Re-routing of call back to Donor carrier not allowed.**

Where:'S' = Previous service indicator

TABLE 1
Service Code

For the purpose of 1800, 13 and 1300 calls in a portable number environment the following interconnect prefix structure would generally apply :

CAC + S Prefix	B-Number Address Structure	Number Length	Comment
14XY+42	14XY+42+1800 XXX XXX	16	
	14XY+ 42 13 A XXX	12	Access required to a number
	14XY+ 42 13 4B XXXX	14	on network 14XY.
	14XY+ 42 1300 XXX XXX	16	

Where : X = digit 0 - 9

Y = digit 0 - 9

A = specific 6 digit 13 code range

B = specific 8 digit code range

TABLE 2
B-Number Address Structure

It must also be recognised that the establishment of this interconnect prefix structure does not preclude or replace the requirement of developing an intercarrier service description. For each new interconnect service the service description should explicitly identify the prefix applicable to the service.

4.2 1800/13/1300 APPLICATION OF THE INTERCONNECT PREFIX STRUCTURE

A number of 1800/13 call scenarios can be easily supported by the above interconnect prefix structure. For simplicity three of the most common call cases are drawn below with the appropriate interconnect prefix.

Case 1

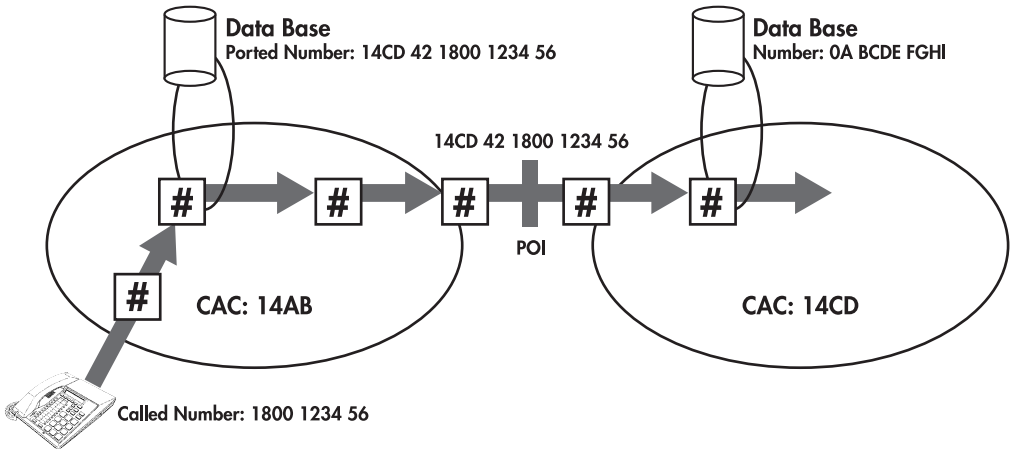

FIGURE 4.1
Access network direct to Service Provider network

Case 2

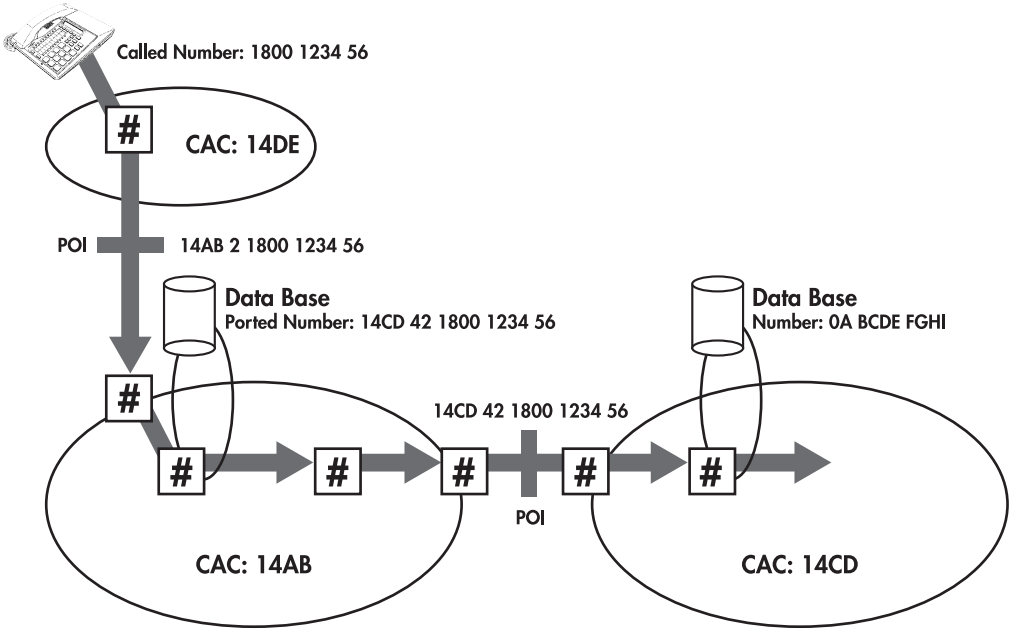

FIGURE 4.2
Access network indirect to Service Provider network

Case 3

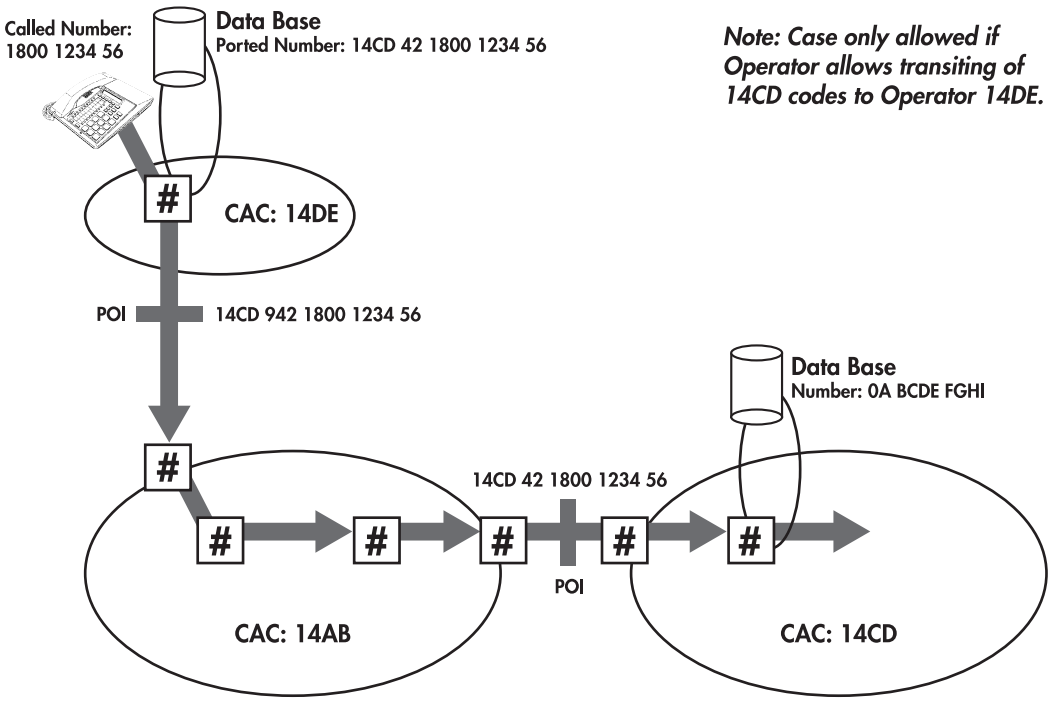

FIGURE 4.3

Access network transit through alternate network operator to Service Provider network

Other call cases may also be supported.

4.3 Trunking Rules

To ensure that network integrity is maintained for this type of call and to avoid the occurrence of circular routing, any interconnect call received with a ported number service indicator (4) must not be re-ported.

Any network receiving an incorrectly ported call should direct the call to an appropriate Recorded Voice Announcement and may choose to inform the offending network of the error.

4.4 Calls from Mobile Network

Calls from mobile networks may have information regarding the location of the caller at the commencement of a call. This origin information may be used by the PSD in determining the appropriate termination point for the call. There is no industry agreement for exchange of MoLI between OASDs and PSDs. However MoLI is used within some carrier networks and between some carrier networks by bilateral agreement The ACIF, via the Network Reference Panel, is working on an industry solution for implementation in the medium to long term.

The Interconnect ISUP and associated dial plan do not at this stage accommodate exchange MoLI between networks. MoLI digits must not be passed from an OASD or CASD to a PSD, unless agreed between the OASD/CASD and the PSD.

Note 1 - In the absence of an industry agreed solution for exchange of MoLI between service deliverers, some OASDs and CASDs may not be able to provide MoLI to other PSDs.

Note 2 - Work is in progress to define an industry solution for the exchange of MoLI between networks. All PSDs should be expected to be capable of accepting MoLI in the industry agreed format.

4.5 Terminating Calls from the PSD

The PSD will translate the dialed 1800/13/1300 number to a geographic number and the call will be terminated to that number. The geographic number for terminating the call may be connected to the network of a Terminating Access Service Deliverer that is separate from the PSD. Hence the call must be passed via any point of interconnect with the appropriate signalling information. The appropriate B-Number Address Structure is shown in Table 3 below.

Table 3 - B-Number Address Structure for Terminating Calls

CAC + S Prefix	B-Number Address Structure	Number Length	Comment
14XY+3	14XY+3+Area Code+ Local Number	15	Terminating Access required to a number on network 14XY.
14XY+43	14XY+43+ Area Code+ Local Number	16	Terminating Access required to a ported number on network 14XY

It must also be recognised that the establishment of this interconnect prefix structure does not preclude or replace the requirement of developing an intercarrier service description. For each new interconnect service the service description should explicitly identify the prefix applicable to the service.

AUSTRALIAN COMMUNICATIONS INDUSTRY FORUM LTD (ACIF)

The Australian Communications Industry Forum Ltd (ACIF) is a communications self-regulatory body established in 1997 by the industry to manage communications self-regulation within Australia.

The primary role of ACIF is to develop and administer Technical Standards, Industry Codes of Practice and industry support services that promote both the long-term interest of end-users and the efficiency and international competitiveness of the Australian communications industry.

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Technical Standards and Industry Codes are prepared by Working Committees made up of experts from industry, consumer, government, and other bodies. The requirements or recommendations contained in ACIF's published documents are a consensus of views of representative interests and also take into account comments received from other sources.

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