

Office of the Director of  
**Telecommunications  
Regulation**

**Interconnect for calls destined for Internet services  
and  
number translation codes**

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**Consultation paper**

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## **Foreword by the Director**

The Internet is redefining the way people communicate with each other, the way they carry out business transactions and the way they seek information. As use of the Internet becomes more and more integral to daily life, it becomes increasingly important as a key driver in our economy. Electronic commerce over the internet is not a pipe dream - it is a reality. In fact at the pace that the telecommunications sector moves, it is likely to become an accepted and expected part of business in a very short time. Ireland must ensure that it is in a position to play its part in the new e-commerce world, ensure the benefits of e-commerce accrue to Ireland and most importantly, ensure that our economic success to date is not undermined by a hesitation or lack of ability to embrace new technologies and new ways of doing business .

Increasing the use of the Internet by Irish people, in their business and home lives, is a key factor in ensuring Ireland's readiness for e-commerce. There are many factors that can drive such increased use, from leased capacity pricing to innovative and attractive charging options for users accessing the Internet using dial up access. Low cost access for end users is naturally an overriding concern and ongoing work by my Office on matters such as Long Run Incremental Costing and leased line charges are likely to impact directly on the total costs involved in providing Internet access and other non-geographic numbering services. Looking to the future, I expect the introduction of competition in the provision of local access infrastructure through Wireless Local Loop (WLL), Cable Television Networks (CATV) and Unbundling of the existing Local Loop (ULL) infrastructure to exert further downward pressure on access costs. The use of new technology by existing, and especially new entrant operators, should also reduce costs and lead to lower prices in the medium term.

In this paper we are considering the dial up access market. We are seeking to establish the best interconnect regime possible to enable and encourage both the availability of the Internet to dial-up end users and facilitate a greater choice in terms of services offered and methods of paying for these services. The paper focuses on the effects of distributing the costs of providing Internet access services in new ways so as to benefit the end user by enabling new and innovative offerings by competing service providers.

There are a number of stakeholders that will be affected by the outcome of this consultation paper; Telecom Eireann, Other Licensed Operators, Internet Service Providers and the end user. More generally, the Irish telecommunications market and the Irish economy as a whole will be affected by the proposals made. In preparing responses, I would urge you to consider the impacts of your replies/proposals not only on your own organisations/stakeholder group, but also on the other stakeholders. We are seeking to establish a regime which is both sustainable and offers the greatest overall benefit so these views will be invaluable in make final decisions.

I look forward to receiving the responses to this paper and setting out a robust and sustainable interconnect regime that will see the provision of Internet services flourishing in 1999 and well into the next century.

**ETAIN DOYLE**  
**Director of Telecommunications Regulation**

# 1 Introduction

Access to Internet services is a complex and developing issue in telecommunications markets in Europe and elsewhere. There is rapid growth in the use of the Internet generally - at the same time the potential of the Internet to enable the provision of a wide range of innovative services to end users is being exploited and e-commerce services are being developed over the Internet. These service driven changes are complemented by the changing nature of technology – traditional circuit switched networks are not well suited for Internet Protocol (“IP”) traffic, packet switched networks are growing up and complementing, in some cases replacing, traditional circuit switched networks. In this environment, the question of access to Internet services is a complicated one that must be considered within the framework of EU and national telecommunications legislation. This challenge is facing many EU Member States including Ireland where we are faced with the additional challenge of managing a transition to a fully competitive telecommunications market.

This paper is the second in a two-stage consultation process that the Director of Telecommunications (“the Director”) is holding on Interconnect for calls destined for Internet services. The first stage, detailed in 99/02 (“Interconnection services for calls destined for Internet Service Providers”), addressed the issue of access to Internet services as an interconnect product under the present interconnection regime. A summary of the responses to 99/02 and the comments of the ODTR on specific issues can be found in annex A.

This current stage of the consultation deals with issues that required a longer time frame to analyse, and are of overall importance to the development of a competitive market for Internet services and the provision of access to these services in Ireland. These issues include:

- The status of Internet Service Providers (“ISPs”) in the licensing and interconnect regimes;
- Access and pricing options for Internet calls that can be offered to end users; and
- The interconnect regime for calls to the Internet and other services.

We have incorporated comments on the scope and inputs into the review of Internet access arrangements which were received from interested parties by Monday 15 February 1999. It is anticipated that the timetable of this consultation will be as follows:

- Date of Issue of this paper : 22 April 1999;
- Comments on this paper: by 4<sup>th</sup> June 1999;
- ODTR Report on the consultation: end June 1999;

If clarification of any of the issues raised by this paper is required, this Office will be pleased to answer any questions. In order to fully inform the decision making process, the ODTR may seek to discuss the implications of the proposals contained in this paper with interested parties during the consultation period.

The Director wishes to thank respondents to 99/02 and others who contributed to the scope of this paper and the identification of relevant issues to be addressed.

There are a number of ODTR consultation papers that address issues of relevance to Internet access including accounting separation, unbundling of the local loop, and retail

price capping. We draw your attention to these papers in Annex B.

The matters that other consultation papers address are not duplicated in detail in this consultation paper.

Comments on the issues raised in this consultation paper are requested by close of business on 4 June 1999. All responses should be addressed to:

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All comments are welcome, but it would make the task of analysing responses easier if comments reference the relevant question numbers from this document. It would also be useful if respondents, in answering those questions, consider the implications of the proposals on all stakeholders affected by the issues discussed in this paper. Respondents should therefore seek to describe to the ODTR not only the effects on themselves of the decision taken and the scenarios adopted, but also the effects on other stakeholders. Section 5 of this paper gives some further guidance on this.

In the interests of promoting openness and transparency, the Office of the Director of Telecommunications ("ODTR") will summarise the comments received in a report on the consultation. The Director appreciates that many of the issues raised in this paper may require respondents to provide a considerable amount of commercially sensitive information if their comments are to be meaningful. Such information will be treated as strictly confidential. Respondents are requested to clearly identify confidential material and if possible to include it in a separate annex to the response. If possible, comments should be submitted in electronic form, by email or on diskette.

*This consultative document does not constitute legal, commercial or technical advice. The Director is not bound by it. The consultation is without prejudice to the legal position of the Director or her rights and duties to regulate the market generally.*

## 2 Background and summary of legislation

### 2.1 Background to this consultation paper

In December 1998 when the first interconnection agreements between fixed operators were concluded, the question of the interconnection regime associated with Telecom Éireann's "1891" access service remained an unresolved issue.

On 22 December 1998, the ODTR requested that Telecom Éireann provided a price for 1891 access to Internet services as an interconnect product, or inform this Office why the service was not available.

In response, Telecom Éireann stated that it had no objection to offering 1891 as an interconnect service but believed that there was an issue that should be explored in connection with such an interconnect service: if the 1891 access code were to be freely permitted over a national interconnect, it would be possible for Internet Service Providers ("ISPs") who had decided not to invest in a national Point of Presence ("PoP") network to provide a national service through the use of an Other Licensed Operator's ("OLO's") carrier code.

In general, the level of detail provided in response to the particular issue of the effect of routing 1891 calls outside local call areas was lower than the ODTR had hoped. ISPs that have PoPs in local call areas are encouraged to consider this particular issue once again (see Questions for this section).

As a result of representations from various OLOs requesting that 1891 access be made available as an interconnect service, requests for a public consultation on the issue and a request for a complete study on the arrangements for Internet access and related interconnection prices in Ireland, the ODTR issued a consultation paper 99/02 ("Interconnection services for calls destined for Internet Service Providers"). 99/02 proposed an interim set of interconnection arrangements pending this fuller review. In particular it was proposed that:

- The following should be available as interconnect services without further delay:
  - Interconnection of calls originating on OLOs' networks (or passed to OLOs' networks) destined for an ISP connected to the Telecom Éireann network;
  - Interconnection of calls originating on Telecom Éireann's network (or passed to Telecom Éireann's network) destined for ISPs connected to OLOs' networks;
- A transit charge appeared to be the most applicable charge for calls originated on the networks of OLOs that were destined for ISPs connected to the Telecom Éireann network. This charge should apply pending the results of the second consultation stage;
- The impact on ISPs of the introduction of a transit interconnection charge for calls destined for ISPs connected to the Telecom Éireann network would be minimal, at least in the short term. This was an issue on which comments from ISPs were particularly encouraged;
- Specific technical and commercial matters should be negotiated between the relevant parties in the first instance;
- The ODTR would carry out a full review of the arrangements for 1891 access to Internet services and related interconnect arrangements and prices.

A summary of the responses to this first paper and the ODTR decision on the proposed interim interconnection arrangements are presented in annex A. Having considered the comments received, the ODTR does not at this time propose to issue a direction regarding the pricing of calls destined for ISPs passed over interconnect links. However the ODTR expects Telecom Éireann, OLOs and ISPs to enter into commercial negotiations (if requested) to agree arrangements for interconnection of calls destined for Internet services.

The issue of the status of ISPs in the licensing and interconnect regimes of Ireland was briefly raised in 99/02. A summary of the comments received from industry players is presented in annex A. The legislation governing interconnection entitlements and licensing requirements is also described in this annex. In summary, legislation defines the entitlement to interconnection and the requirement to hold a licence. The entitlements and requirements depend on whether the service and/or network provided by an ISP is a telecommunications service/network as defined and whether it is necessary for the ISP to hold a relevant licence to provide that service and/or network.

### **Questions 2a**

*Q2.a.1: This question is directed specifically at ISPs. Considering at the moment that 1891 calls are limited to local calling areas and considering the proposals set out in this document (section 4):*

- *If interconnect arrangements are put in place for calls destined for ISPs to be passed over national interconnect links between all telecommunications operators, what impact will this have on your business?*

*If your answer depends on the actual interconnection arrangements that are implemented, use scenarios to explain your concerns, state any technical solutions (rules regarding the routing of calls for example) that may address your concerns.*

*Q2.a.2: Considering how different ISPs arrange their operations, the nature of the transmission and switching involved in providing access to the Internet, the infrastructure used and the manner of operation of various ISPs, do respondents consider that there will be ISPs with and without Telecommunications licences in Ireland? If not please explain why.*

*Please provide examples of the different network arrangements you have considered and explain why you think these arrangements do or do not require a Basic or General telecommunications licence, and do or do not involve interconnection links with Telecom Éireann.*

## **2.2 Legislative Background**

While this paper examines a broad range of issues related to Internet access generally, the substantive issues under consideration are appropriate access arrangements to Internet services and the underlying interconnection regime. The issues for consideration and consultation therefore relate largely to the interconnection arrangements between Telecom Éireann, OLOs and/or ISPs that may, or may not also be licensed telecommunications operators.

There is a body of EU and Irish legislation that governs the provision of interconnection in telecommunications. The most relevant pieces of legislation are:

- Directive 97/33/EC of the European Parliament and Council of 30 June 1997 on interconnection in Telecommunications with regard to ensuring universal service and interoperability through application of the principles of Open Network Provision (“ONP”) (the “Interconnection Directive”);
- The European Communities (Interconnection in Telecommunications) Regulations, 1998; S.I. No. 15 of 1998 (the “Interconnection Regulations”) which transpose the Interconnection Directive into Irish law.

The Directive and Regulations place special obligations on an operator who is designated by the Director as having Significant Market Power (“SMP”). Among these are the following:

- The obligation to publish a Reference Interconnection Offer (“RIO”) that is defined as: *an offer to provide an interconnection facility that includes a description of the interconnection offerings setting out the particular components according to market needs and all of the terms and conditions for interconnection to be satisfied by a person wishing to enter into an interconnection agreement*<sup>1</sup>. The Director may, in certain circumstances, direct changes be made to the RIO;
- The obligation, in providing interconnect services, to adhere *inter alia* to the principles of non-discrimination, cost-orientation and transparency as described in the Interconnect Directive and Regulations.

Telecom Éireann is currently the only operator that has been designated as having SMP in the relevant market and therefore subject to these requirements.

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<sup>1</sup> Paragraph (17) of Regulation 8 of the European Communities (Interconnection in Telecommunications) Regulations, 1998, S.I. No. 15 of 1998.



## **3 Access to Internet Services**

### **3.1 Access to Internet services - international comparisons.**

Access to Internet services can be provided in a number of ways. Different markets have developed different models based on the regulatory regime, customer demand and the historical development of national telecommunications networks and markets. It is relevant to examine some of these models to put the Irish market in context. Annex C summarises the situations in the US and UK. While a number of other markets have been researched, it is considered that the US and UK markets illustrate the main options most clearly.

In examining these models, and throughout this paper, we concentrate on “dial-up” access to Internet services only. Dedicated access to Internet services (over leased lines) is not considered. This latter method of access is most commonly used by large organisations who have sufficient total telecommunication traffic to warrant the use of dedicated capacity. Access to the Internet services is provided over the dedicated capacity and no specific “call charges” are levied.

In the US, typically, fixed monthly subscriptions are paid by the customers to the local telecommunications operator to cover line rental and unlimited local calls. A monthly subscription is paid to the chosen ISP for use of its Internet services. Customers do not pay time related call charges for calls to the Internet. Charges for calls to the Internet Service Provider and for the use of the ISP’s Internet services are separate.

In the UK, most customers dial a non-geographic local rate number (typically 0845) to access Internet services and pay a local call charge no matter where they are calling from. In the closing months of 1998, ‘free’ Internet services became popular. These ‘free’ services have no subscription charges; users pay only the local call charge for web access and additional charges for helpdesk assistance. Calls to these services cost the same as, and use the same 0845 numbers as the traditional subscription based services.

### **3.2 Access to Internet services in Ireland**

There are three possible ways that dial up access to Internet services can be offered to the Irish consumer. ISPs can operate on:

- Telecom Éireann’s 1891 service;
- A geographic number belonging to Telecom Éireann or an OLO;
- Any number allocated to an OLO with the consumer prefixing the telephone number by the OLO’s carrier code.

In addition, ISPs could offer services on one of the range of Number Translation Codes (“NTCs”), this case is similar to the scenario of calls to geographic numbers.

#### **3.2.1 “1891” access to Internet services**

Telecom Éireann charges a low daytime rate for calls to ISPs (operating services on 1891 codes) that have a PoP in the local call area of the caller.

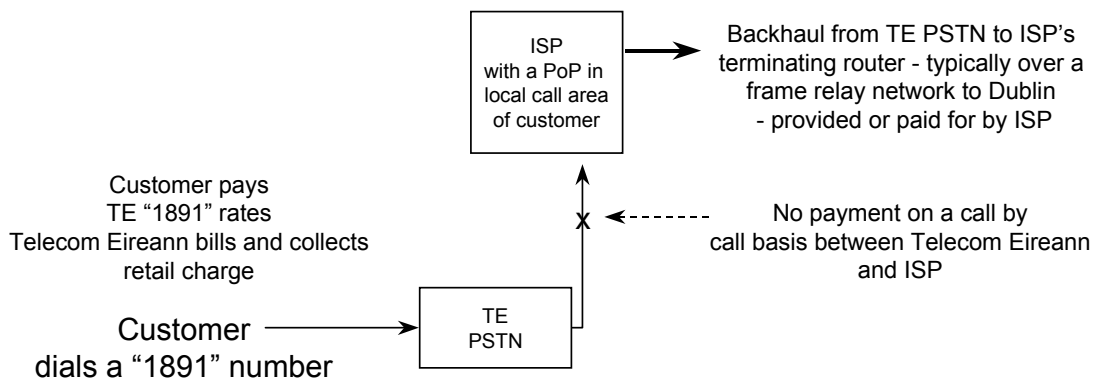
The present 1891 retail call charge is set by Telecom Éireann on the basis that:

- The 1891 retail call charge needs to cover the cost of the network elements up to and including the local exchange and the retail costs of Telecom Éireann;
- All other network elements involved (typically frame relay backhaul to the ISP terminating routers in Dublin) are provided by, or paid for, by the ISPs;
- The ISPs presently do not collect an outpayment from Telecom Éireann for calls delivered to them.

As discussed in section A.1.1.2 of Annex A, the ODTR is presently discussing with Telecom Éireann the basis for the costs that are attributed to the 1891 service.

Due to the effect of charging for calls in units rather than seconds, the actual revenue per minute collected by Telecom Éireann is not equal to the price per unit divided by the duration of the unit (price per unit/duration of unit = 1.27ppm), but is higher than this. Telecom Éireann has supplied the ODTR with actual per minute revenue figures for the 1891 service. These figures are confidential business secrets. It is possible to estimate Telecom Éireann's revenue using standard techniques (such as assuming a negative exponential distribution of call duration and an average call length). 1.27ppm is the minimum revenue per minute that Telecom Éireann can expect to collect for an infinitely long 1891 call, or a call that lasted a exact multiple of the duration per unit. In any other case, Telecom Éireann would collect in excess of 1.27ppm for daytime 1891 calls.

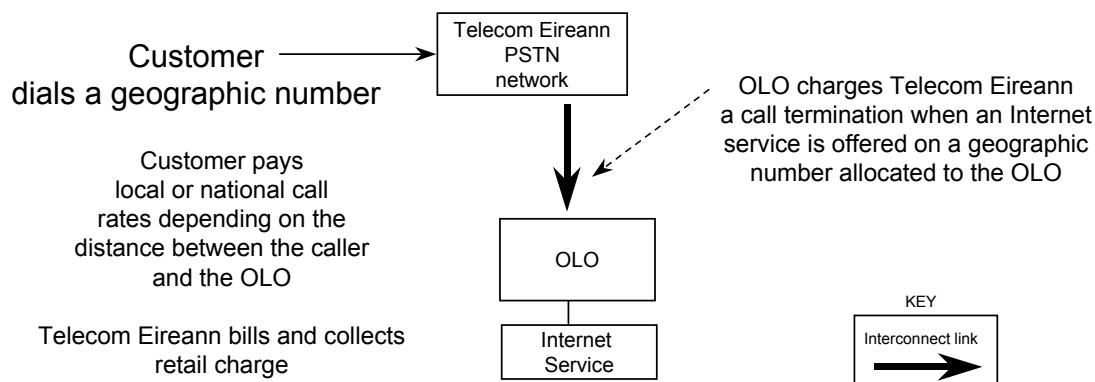
**Figure 1 Present 1891 Internet access arrangements**



### 3.2.2 Access to Internet services using a geographic number

OLOs could offer or host Internet services on a geographic number from a number range allocated to the OLO. In this case, the OLO would charge Telecom Éireann a call termination fee. Telecom Éireann would charge the customer the relevant geographic local or national retail rate for the call. These retail call charges are in excess of the 1891 rates during peak hours (evening and weekend local call rates and 1891 rates are the same).

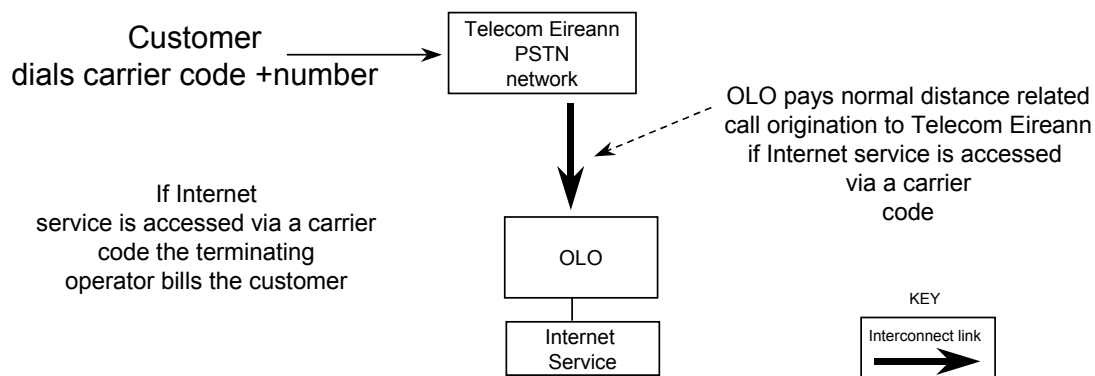
**Figure 2 Internet services operating on a geographic number allocated to an OLO**



### 3.2.3 Access to Internet services using an OLO's carrier code

There are no arrangements in place for OLOs to receive 1891 calls over national interconnect links. If an OLO offered a service on a 1891 number, Telecom Éireann customers could only access that service by prefixing the 1891 number by the relevant carrier code of the OLO unless there were arrangements in place for the call to be handed over to the OLO in the local call area of the calling party. If such arrangements were not in place and a carrier code was used, the OLO would determine the retail rate paid by the customer and would pay Telecom Eireann a call origination fee. If an OLO wished to deliver a call to an ISP connected to the Telecom Éireann network, the OLO would need to “translate” the number to a geographic number that identified the ISP before passing the call to Telecom Éireann. In this case, Telecom Éireann would impose the normal distance related call termination charge. There is an argument that Telecom Éireann should only impose a transit charge to deliver calls to ISPs from OLOs’ networks (this argument was discussed in ODTR document 99/02 a summary of responses and the ODTR’s position can be found in annex A).

**Figure 3 Internet access provided using an OLO's carrier code**



### 3.3 The importance of ensuring a robust Interconnection regime for calls destined for Internet services

In examining the various interconnection regimes for calls to the Internet, the ODTR is conscious of the need to ensure that Ireland's regime is robust and flexible, facilitates competition and secures maximum benefits for end-users<sup>2</sup>. Research (see Table 1) and international comparisons have shown that Internet usage is encouraged if operators are free to develop new pricing and revenue models and to charge customers for *either* call charges *or* Internet subscriptions.

Consumers in major European markets were asked if they were likely to go online (and use the Internet). 11% expressed interest, but the number increased nearly fourfold if local phone charges were dropped. The same increase took place in the absence of Internet subscription charges.

**Table 1 European research on consumer use of the Internet**

	Overall	If no monthly ISP fee	If no per-minute phone charge
Likely	11%	40%	41%
Unsure	12%	18%	18%
Unlikely	77%	42%	40%

*Source: Jupiter Communications, November 1998*

In order to facilitate innovative pricing of Internet access in Ireland, the ODTR is considering a range of possible interconnection services for calls destined for ISPs, including the "1891" service provided by Telecom Éireann. Section 4 examines:

- Interconnect arrangements and retail prices for calls destined for ISPs;
- Interconnect arrangements and retail prices for "number translation codes" in general;
- "Pay-as-you-go" interconnect arrangements and numbering schemes.

A range of scenarios is presented to illustrate the possibilities and the effects of each scenario are set out. The objective of the final interconnection regime should be to stimulate competition in the provision of Internet access and enable new revenue models and innovative pricing structures for Internet access so as to maximise the benefits to end users.

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<sup>2</sup> Article 9(1) of Directive 97/33/EC on interconnection in telecommunications.

## 4 Interconnection Arrangements for calls destined for Internet and other non-geographic services

### 4.1 Extent of Regulatory Intervention

The ODTR considers as a general principle, that wherever possible, issues between operators should be resolved through commercial negotiations and should be raised with the ODTR only when it is evident that commercial negotiations have failed to bring about a satisfactory solution. In relation to access to Internet services, the ODTR notes that in the markets described in this paper (see annex C), there has been regulatory intervention:

- In the UK, OFTEL originally set up the Number Translation Services (“NTS”) formula (see annex C for a full explanation of the UK NTS formula) in 1996. OFTEL agreed to intervene after two years to resolve a dispute between originating and terminating operators over the split of revenue from NTS following dramatic growth in the use of these services due to Internet calls<sup>3</sup>. OfTel has recently issued a consultation paper on this subject<sup>4</sup>.
- In the USA, the FCC has proposed that inter-carrier compensation rates for ISP bound traffic are set by commercial negotiation within a governing framework<sup>5</sup>.

Several respondents to ODTR consultation paper 99/02 advocated regulatory intervention to set new interconnect arrangements for calls to the Internet on the premise that commercial negotiations cannot be successful where one party to the negotiations will not gain by a final agreement (i.e. there cannot be a win-win situation). Several suggestions for industry working groups were also made.

The ODTR considers that there are a number of issues that would be most appropriately addressed in an industry forum or in bi- or multi-lateral negotiations between interested parties, for example, technical and billing solutions and implementation, co-location details etc. The ODTR encourages co-operation between interested parties on such matters. However, it may not be possible to resolve all issues in such a forum and examination and determination by the ODTR may be required in some instances. The ODTR would welcome submissions or representations from an industry group on such issues.

#### **Questions 4a**

*Q4.a.1: Do respondents consider that an industry forum should address the issue of interconnection services for calls destined for Internet services? Please give reasons for your answer.*

*Q4.a.2: If so, what issues do you consider should be addressed in such a forum? Please give reasons for your answer?*

*Q4.a.3: What timeframe should such a group operate in and why?*

<sup>3</sup> OFTEL: Consultation paper on the relationship between retail prices and interconnection charges for number translation services, March 1999.

<sup>4</sup> Ibid.

<sup>5</sup> FCC - Declaratory ruling in CC Docket No. 99-98 and notice of proposed rulemaking in CC Docket No. 99-68 “Inter-carrier compensation for ISP bound traffic”.

## 4.2 Governing principles of Interconnect services for access to Internet services

There are a number of principles governing interconnection tariffs that are set out in relevant legislation. For example, the Interconnection Directive and Interconnection Regulations provide that relevant operators must adhere to the principle of non discrimination in the provision of interconnection services; they must also adhere to the principles of transparency and cost orientation in terms of the charges for interconnection. In addition, the principles of ONP and “any-to-any” communication are inherent in the definition of interconnection.

This section examines and applies a number of basic principles to the interconnection regime generally and to interconnect for access to Internet services in particular.

### 4.2.1 Open Network Provision (“ONP”)

Interconnection is defined as:

*The physical and logical linking of telecommunications networks used by the same or a different organisation in order to allow the users of one organisation to communicate with users of the same or another organisation, or to access services provided by another organisation<sup>6</sup>.*

In accordance with the principle of ONP and the concept of “any-to-any” communication, the ODTR considers that any customer connected to a PSTN in Ireland should be able to access any customer connected to, or any service provided via, a PSTN. This includes access to Internet services.

Access to Internet services does not have to be provided using a 1891 code. As discussed in the section 3, there are various ways that calls to Internet services can be passed between operators. However, “1891” access is being sold and marketed as a distinct product by Telecom Éireann. The lack of any interconnection regime such that the customers of any operator can dial 1891 and access services on another network does not appear to be consistent with the principles of any-to-any communication. The ODTR considers that if an OLO wishes to offer a service using a 1891 code, Telecom Éireann customers should be free to call that number and vice versa.

The ODTR considers that interconnect arrangements should be put in place for 1891 calls destined for ISPs to be passed over interconnect links.

#### **Question 4b**

*Q4.b.1: Do you agree that interconnect arrangements for 1891 codes to be passed over interconnect links should be put in place? Please give reasons for your answer.*

### 4.2.2 Different interconnection regimes for different traffic types

Implicit in some of the comments the ODTR has received from the industry, is the suggestion that the interconnect regime for calls to Internet services should be differentiated from the general interconnect regime. This approach would require the determination of different interconnect origination rates for different types of traffic that are originated on Telecom Éireann’s network and passed to an OLO.

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<sup>6</sup> European Communities (Interconnection in Telecommunications) Regulations, 1998, S.I. No. 15 of 1998.

There are two difficulties with differentiating traffic destined for the Internet:

1. Cost justification for the difference in origination costs of Internet destined traffic; Internet bound traffic incurs the same costs to originate as ordinary traffic. The reason why 1891 traffic incurs lower origination costs is because a specific number has been allocated to it and specific rules are applied to this traffic, i.e. the call must be picked up in the local call area of the calling party. Unless OLOs set up POIs in the local call area of the calling party, this cost justification is absent;
2. How to determine whether traffic is Internet traffic or ordinary telecommunications traffic; in today's telecommunications environment not only are services converging and changing, but new and innovative services are developing all the time. Technological change is making any distinction based on traffic type or on a definition of a particular service less and less feasible. Against this background, the ODTR does not consider it is practical or sustainable to differentiate interconnection regimes based on services or traffic type. It would not be possible to differentiate between traffic destined for Internet services and traffic destined for any other services without an impractical level of monitoring, analysis and policing of traffic, codes and services.

#### **Question 4.c**

*Q4.c.1: Do respondents agree that interconnect arrangements differentiated by traffic type are not appropriate? Please give reasons for your answer. If respondents disagree, please explain how any differentiation might be implemented in practice.*

#### **4.2.3 The principle of cost orientation**

Telecom Éireann, as an operator designated as having SMP, is obliged to adhere to the principles of non-discrimination, transparency and cost orientation in relation to interconnection charges. The principle of cost-orientation implies that interconnect rates should accurately reflect the cost of the interconnection services used. In such a regime, competing operators should be able to purchase unbundled network elements at appropriate interconnection prices and design new and innovative retail service offerings<sup>7</sup>.

Some OLOs have requested that Telecom Éireann's interconnect origination charges for traffic destined for Internet services hosted on other telecommunications networks be reduced on the basis that Telecom Éireann's daytime retail price for 1891 is below that charged for local calls.

The ODTR does not consider this to be a sustainable or robust approach to setting interconnection charges for a number of reasons. Firstly, this approach would link the interconnection charges and network elements artificially to a specific retail product of Telecom Éireann. If this principle were to be applied to all, or even some other products, then the scope for innovation and development of new services could be severely restricted. Secondly, this approach could result in interconnection charges that are not in accordance with the principle of cost orientation.

The ODTR's preferred approach is therefore for a cost based interconnection regime for calls destined for Internet services that are passed across interconnect links.

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<sup>7</sup> A discussion of the interaction between retail and interconnect prices can be found in ODTR consultation paper: 99/16

**Questions: 4.d**

*Q4.d.1: Do respondents agree that interconnect rates should be set according to the principle of cost-orientation? In particular, do respondents agree that interconnecting parties should pay for the network elements used? Please give reasons for your answer.*

### 4.3 Proposed new interconnect arrangements

Telecom Éireann has and will continue to have for some time, control over the majority of access lines in Ireland. As a result, most dial up calls to internet services will originate on the Telecom Éireann network and Telecom Éireann will be in a position to set the retail price charged to call Internet services that are hosted on its network and on the network of other operators (unless the number is prefixed by a carrier code). This creates the situation where the *originating* operator sets the price for a call but the “value” in the call is added by the *terminating* operator because the service is offered and marketed to consumers by that terminating operator (or ISP hosted on the terminating operator’s network). Clearly there is potential for the originating operator to set rates that could be unfavourable to the terminating operator who in turn may rely on the retail revenue from call charges to fund the “value” added service – in this case access to the internet. A possible solution to this matter is to ensure that the retail retention of the originating operator is cost-oriented.

The rationale for setting the retention of the originating operator according to costs for calls to internet services is based on the need for regulatory intervention given the position of control that TE has over access lines and the end user, and the nature of the service offered. However, internet is not the only case where calls originate and terminate on different networks and access specific services offered by the terminating operator. Most non-geographic calls are in a similar position, e.g. freefone, premium rate services etc. Therefore, due to the similar nature of 1891 and other non-geographic Number Translation Code (“NTC”) calls, the ODTR proposes to implement arrangements that require the retention of the originating operator to be based on cost for all NTCs.

The proposals in the remainder of this paper are limited to the case where the calling party dials a non-geographic number to access Internet or other NTC services without the use of carrier codes.

The regime will not be extended to the case where the originating or terminating operator is a mobile operator. Arrangements for such calls needs further consideration and are not addressed in this paper.

By ‘Number Translation Codes’ the ODTR means calls to number codes that represent a geographic number. Calls are ‘translated’ into geographic numbers for delivery to a certain destination. The codes under consideration are: Freefone (180x), LoCall (1890), Callsave (185x) and Premium rate (153x, 154x, 155x, 156x, 157x, 158x), any future codes of a similar nature and 1891 codes.

The ODTR suggests that it would be appropriate that the interconnect arrangements for all NTCs are reciprocal between Telecom Éireann and OLOs. However, if an OLO wishes to set non-reciprocal arrangements (because, for example, the costs of an OLO vary



significantly from Telecom Éireann's), the details of this arrangement should be decided through commercial negotiations and only referred to the ODTR if the interconnect dispute procedure is invoked. For this reason, for the remainder of this discussion, the originating operator is assumed to be Telecom Éireann.

The ODTR proposes that:

- The retention of Telecom Éireann on calls to Number Translation Codes and the 1891 code is set according to: cost of network elements + relevant retail costs associated with the service. The remainder of the retail charge will be passed to the terminating operator.

#### **Questions: 4.e**

*Q4.e.1: Do you agree that the retail retention of the originating operator for calls to NTCs and/or the 1891 code hosted on other telecommunications networks should be set according to the costs involved in originating the call? Please give reasons for your answer - why do you agree or disagree?*

*Q4.e.2: If you disagree that the retention of the originating operator should be set according to the costs involved, please suggest your preferred alternative, bearing in mind the governing legislation as discussed previously.*

*Q4.e.3: Which retail costs of the originating operator do respondents consider should be allowed in the total retention? For example, does the terminating operator bear the cost of marketing services operating on NTCs and 1891?*

#### **4.3.1 Methods of setting cost based retention**

There are two main types of cost to be considered when setting the retention of Telecom Éireann: the cost of network elements used and relevant retail costs associated with the call.

It is possible to account for call origination network costs in different ways. The costs can be considered to be averaged or de-averaged. That is:

- If de-averaged costs of network elements are used, the network element cost of originating each call is considered to be the cost of the actual network elements used;
- If averaged costs are used, the cost of originating a call can be considered to be the average cost of network elements used to originate *all* NTC calls and/or all 1891 calls.

In accordance with the principle of non-discrimination, the method for setting the costs to originate calls on behalf of Telecom Éireann "Retail" and the cost to originate calls to OLOs should be identical.

In November 1998, the ODTR accepted that it was reasonable that Telecom Éireann's interconnect prices for access to services offered through the use of NTCs such as Premium Rate, Freefone, LoCall and Callsave should be presented to the market. Telecom Éireann included interconnect charges for access to its own NTC services in the RIO. Telecom Éireann have a preference that all charges in the RIO are reciprocal. It is reasonable to expect that the charges that Telecom Éireann offer in its RIO for access to its own NTC

services are also the interconnect prices Telecom Éireann is paying to access OLO's NTC services. The ODTR now proposes that the retention of Telecom Éireann for these services should be set through a cost determination exercise.

The ODTR seeks views on three different proposals. The proposals are that the retention of Telecom Éireann be set for:

1. NTC and 1891 calls on the basis of the average cost of network elements used to originate all NTC calls and 1891 calls;
2. NTC and 1891 calls on the basis of the cost of the actual network elements used to originate each call;
3. 1891 calls on the basis that calls are restricted to the local calling area of the customer and network element costs are an average of the cost to Telecom Éireann of originating a 1891 call within all local call areas.

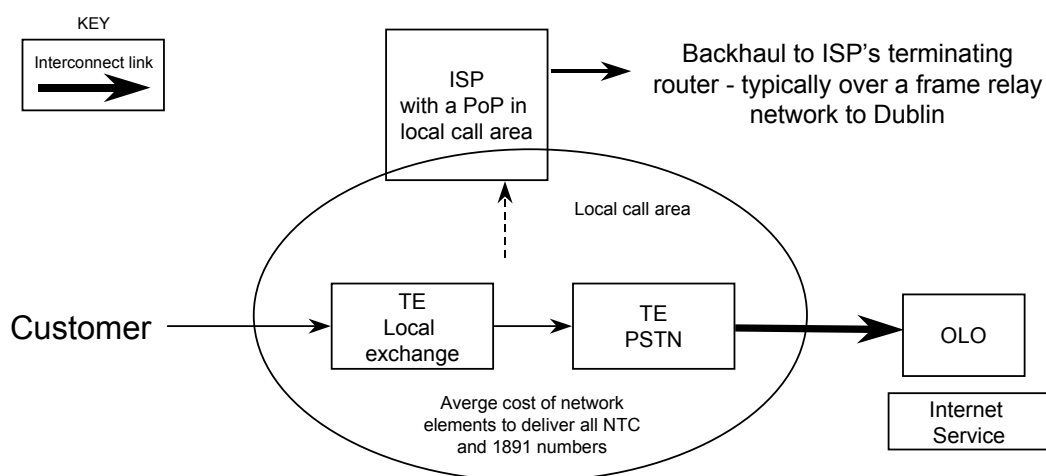
#### 4.3.2 Proposal one: average cost of network elements used to originate all NTC and 1891 calls

If the costs of network elements are averaged, Telecom Éireann will retain the same amount on all calls to NTCs and the 1891 code, independent of the actual network elements used to convey the call to the terminating network. The average cost of network elements will be considered to be the average of originating *all* calls to NTCs and 1891. It should be noted that at present, Telecom Éireann offers distance independent charges for access to Telecom Éireann NTCs.

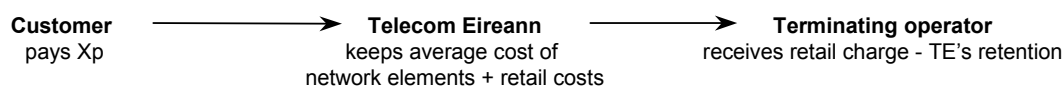
The average cost of network elements is expected to be higher than the present minimum cost of call origination (Primary) and likely to be lower than the present maximum (Double tandem) cost. One disadvantage of averaging the cost of network elements is that the incentive for operators to interconnect efficiently with Telecom Éireann may be reduced. Operators with many interconnect points would, in effect, subsidise those operators with fewer interconnect points.

If this proposal were to be implemented, its effectiveness would be reviewed annually. Any increase in Telecom Éireann's average cost of call origination to NTC and 1891 codes would be reflected in the average price paid by other operators for call origination to these codes. If this policy became ineffective as OLOs increase their network build, actual costs of network elements used (proposal two) could be introduced. The timescales and procedures of the review would be set out in advance of implementation and would be designed to give as much certainty to OLOs as possible.

**Figure 4 Retention set on average cost of network elements**



**Revenue flow**



**The anticipated effects of proposal one are:**

- Traffic will not be encouraged to migrate between NTCs and the 1891 code as the retention of Telecom Éireann will be the same for all codes;
- The incentive for OLOs to interconnect efficiently with Telecom Éireann may be reduced.

Anticipated impact on NTC services:

- The cost oriented retention of Telecom Éireann may be below the present charge in Telecom Éireann's RIO (if these rates are considered to be reciprocal);
- All other things being equal, the impact on the present retail prices to call NTC is expected to be minimal.

Anticipated impact on 1891:

- The PSTN network costs involved in calling 1891 are likely to rise. Presently, the backhaul (typically to the ISP's terminating routers in Dublin) is over a frame relay network. The ISPs pay Telecom Éireann (out of the Internet subscription revenues) for the use of the frame relay network or provide the backhaul themselves. If calls are backhauled over the PSTN due to ISPs withdrawing their PoPs from the local call areas, since Telecom Éireann will keep a cost-oriented retention, the costs of the backhaul will be recovered from the retail call price rather than the Internet subscription revenue as is currently the case;
- Use of the frame relay network for Internet traffic as an alternative to the PSTN may be discouraged;

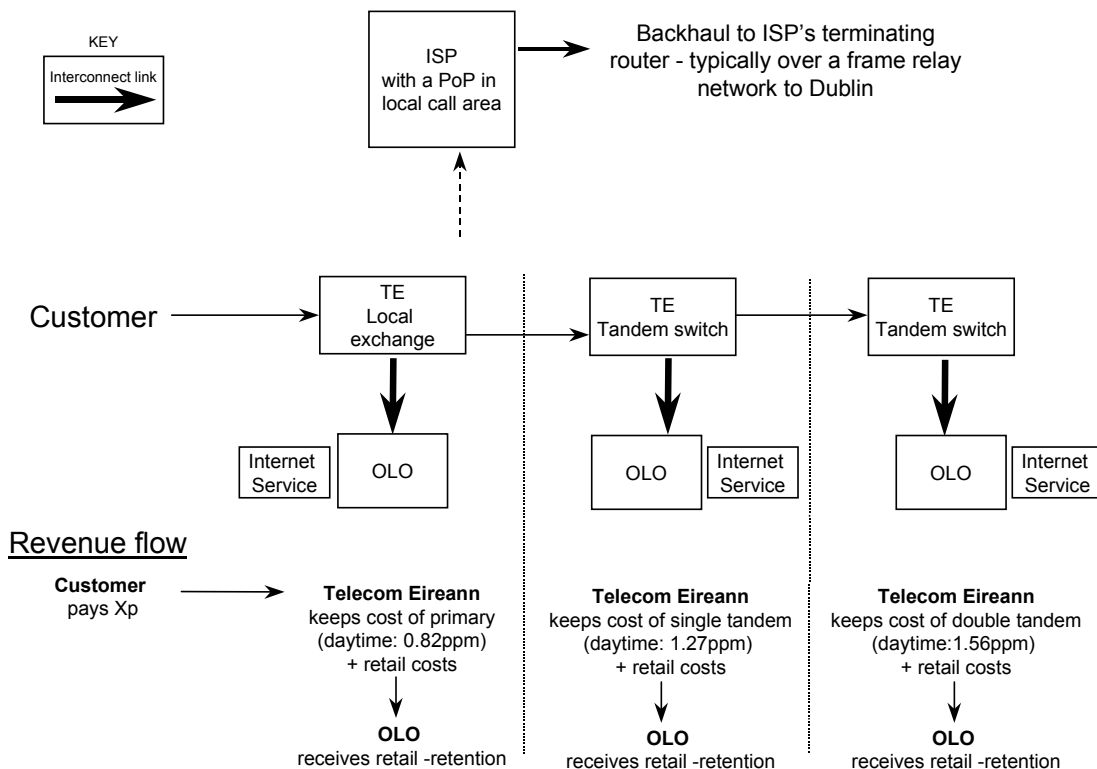
- It is unlikely that there will be an advantage in ISPs maintaining PoPs in each local call area if traffic can be picked up from one PoP/interconnect link (with the same share of retail revenue passed to the terminating operator), this offers an alternative revenue stream for terminating operators for some services.

#### 4.3.3 Proposal two: actual cost of network elements used to originate all NTC and 1891 calls

If the retention of Telecom Éireann is based on the actual network elements used to originate a call, Telecom Éireann will retain a different amount on calls to NTCs and 1891 codes based on the actual network elements used to convey the call from the caller to the terminating network. That is, the retention of Telecom Éireann will vary according to the network elements involved in delivering the call to the terminating network.

The advantage of this proposal is that operators have an incentive to interconnect efficiently with Telecom Éireann. Operators with many interconnect points would collect a greater percentage of the retail revenue than those operators with fewer interconnect points (of course, depending on the geographic distribution of customers). In addition, for some services (such as Freefone, LoCall etc.) terminating operators can also bill the called party for incoming calls, depending on the cost of delivering the call to the called party.

**Figure 5 Retention set on the basis of actual network elements used**



**The anticipated effects of proposal two are:**

- Traffic will not be encouraged to migrate between NTCs and the 1891 code as the retention of Telecom Éireann will be set from the same principle (pay for network elements used) for all codes;
- The incentive for OLOs to interconnect efficiently with Telecom Éireann will be maintained.

Anticipated impact on NTC services:

- The cost oriented retention of Telecom Éireann may be below the present charge in Telecom Éireann's RIO (if these rates are considered to be reciprocal);
- All other things being equal, the impact on the present retail prices to call NTC is expected to be minimal.

Anticipated impact on 1891:

- The cost of the PSTN network elements involved in a 1891 call will be different depending on the location of the terminating operator. Presently, the backhaul (typically to the ISP's terminating routers in Dublin) is over a frame relay network. The ISPs pay Telecom Éireann (out of the Internet subscription revenues) for the use of the frame relay network or provide the backhaul themselves. If calls are backhauled over the PSTN, since Telecom Éireann will keep a cost-oriented retention, the costs of the backhaul will be recovered from the retail call price rather than the Internet subscription revenue as is currently the case;
  - A price difference may be established between calls to ISPs connected on the Telecom Éireann network and calls to ISPs on other networks. It may be more expensive to call ISPs connected to OLOs' networks than the Telecom Éireann network. It should be noted that the present low 1891 call rate only applies when calling ISPs with a PoP in the local call area;
- There may still be an advantage in conveying internet traffic over a frame relay network rather than the PSTN thus ensuring efficient use of networks;

**4.3.4 Proposal three: 1891 calls restricted to local call area; costs based on average cost of network elements used to originate 1891 calls within local call areas**

Presently, Telecom Éireann's retail rate to call a 1891 code is set on the basis that ISPs collect 1891 calls in the local call area of the customer. Typically, these calls are transferred to a frame relay network and backhauled to the ISP's terminating router. The ISP provides or pays for, the frame relay backhaul the costs of which are covered by the monthly Internet subscription revenues. The PSTN network element costs accounted for in Telecom Éireann's retail price for 1891 calls are therefore lower than if the calls were routed over the PSTN to the ISP's terminating router (typically in Dublin) and the costs of backhaul over the PSTN were included in the price to call a 1891 number.

This has the advantages of removing Internet calls from the PSTN onto frame relay networks close to the primary exchanges. If the retention (i.e. the portion of the retail

charge that Telecom Éireann retains for originating a call) of Telecom Éireann is set for 1891 calls on the basis of the averaged cost of network elements used in call origination to *all* number translation codes including 1891, the effective PSTN costs of originating 1891 calls will increase.

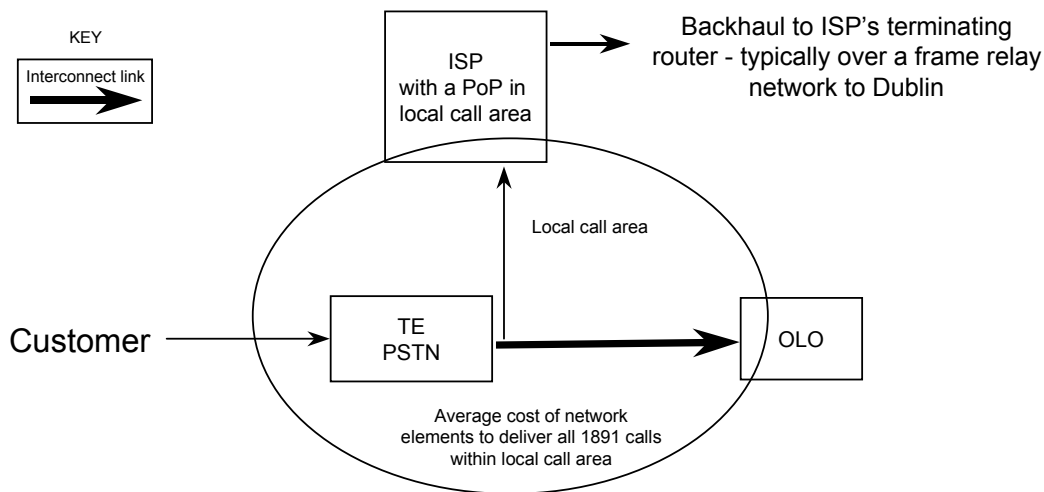
If a distinction is made between interconnect that uses the PSTN for calls destined ultimately for packet networks (i.e. 1891 calls) and interconnect for calls destined for circuit switched networks (i.e. other number translation calls), this might encourage the migration of traffic between different codes. That is, traffic will be encouraged to migrate to the option that the operators considers to be the best retail price/lowest retention of Telecom Éireann for call origination. In the absence of any obvious and “future-proof” control over the type of traffic that can be originated on different codes, this might undermine the current cost-oriented circuit switched network interconnect regime.

Presently, Telecom Éireann originates calls to ISPs that have a PoP within the local call area of the customer at the 1891 rates. Outside the Dublin local call area, these calls typically only use the network elements involved in a Primary call origination and network elements that are considered to be part of the frame relay network backhaul. In Dublin, the network elements used to originate calls to ISPs are a mix of primary, single tandem and, on occasion, double tandem. Telecom Éireann presently considers the costs of originating a call to an 1891 number to be an average of all 1891 call origination costs within local call areas. That is, Telecom Éireann has presented to the ODTR the cost to originate 1891 as an average between primary and single tandem call origination interconnect charges.

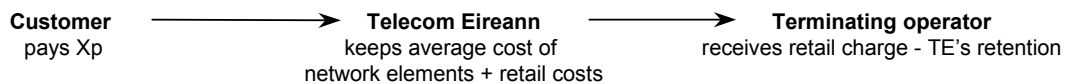
The ODTR proposes that:

- The interconnection of 1891 calls is limited to within local call areas, that is, terminating operators must pick up 1891 calls within the local calling area of the customer. The retention of Telecom Éireann would be set on the basis of the average costs of network elements used in call origination to Internet services operating on the 1891 code (including those hosted on its own network), within the local calling area of the customer.

**Figure 6 “1891” interconnect limited to local call areas**



**Revenue flow**



**The anticipated effects of proposal three are:**

- The retention by Telecom Éireann is expected to be lower on 1891 codes than on NTC calls. This may encourage the migration of traffic between the NTCs and the 1891 code within a local call area. It is expected that traffic will migrate to the option that the OLO perceives as the best retail price/lowest retention of Telecom Éireann;
- The incentive for OLOs to interconnect efficiently with Telecom Éireann will be maintained to a certain degree;
- There may still be an advantage in conveying internet traffic over a frame relay network rather than the PSTN thus ensuring efficient use of networks;
- Telecom Éireann’s PSTN network element costs will only be those associated with originating traffic in the local call areas. It should still be possible to keep the option of maintaining the present model of recovery of minimum PSTN costs in the call price and backhaul costs in the Internet subscription price.

**Questions: 4f**

*Q4.f.1: Regarding proposals one and two, do you think averaged or de-averaged costs of network elements should be used as the basis from which to set a cost oriented retail retention of Telecom Éireann? Please explain the basis for your answer*

*If you think that the cost of network elements should be averaged: do you agree that the cost to Telecom Éireann to originate calls to number translation codes that terminate on its own network should be included in the average network element cost? How should Telecom Éireann’s costs of origination and termination be separated?*

*Q4.f.2: Do you think that interconnect arrangements for 1891 codes should be treated*

*differently from other number translation codes? Please give reasons for your answers. Please include in your answer your assessment of the impact of treating 1891 codes differently from (or the same as) other number translation codes on:*

- *the retail price of calls to the Internet;*
- *the migration of traffic and services between different number translation codes and 1891 codes and between geographic and number translation codes;*
- *the business plans and strategies of OLOs;*
- *the business plans and strategies of ISPs;*
- *the network build plans of OLOs and/or ISPs;*
- *competition in the provision of Internet services and in the provision of access to Internet services.*

*Q4.f.3: If you think that 1891 codes should be treated the same as all other number translation codes please give your reasons. Do you think averaged or de-averaged network element costs should be used? Please include in your answer your assessment of the impact on the above listed areas.*

#### 4.4 Retail prices and numbers for number translation codes

If Telecom Éireann sets the retail price to call NTCs and 1891 codes that are hosted on another network, Telecom Éireann has the ability to reduce the terminating operators' revenue by lowering the retail price while Telecom Éireann's cost oriented retention revenue remains the same. The margins of the terminating operators are dependent on the retail price of Telecom Éireann. One solution to this is to give some control of the retail price to the terminating operator.

If the terminating operator has control over the retail price of the originating operator, a number of issues that are potentially very difficult to resolve are raised. These issues include:

- The ability of operators to apply different tariffs to numbers within the same number range or using the same access code;
- Practical limitations imposed by the need to administer and structure the national numbering scheme;
- The need for the customer to be aware of the price they will pay for certain types of call.

These issues have been discussed before in relation to Premium rate services<sup>8</sup>. However, for calls to the Internet, with pay-as-you-go services on the horizon, the ODTR considers that a certain amount of control over the retail price or ability to control incoming revenue by the terminating operator may be necessary. Bearing in mind the limitations discussed above, and the proposals in section 4.3, the ODTR seeks the views of interested parties on appropriate arrangements for retail price ranges and different codes used for access to Internet services.

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<sup>8</sup> ODTR: Premium rate numbering, Decision notice D5/98, ODTR 98/54, November 1998.



There are many options that could be considered such as varying retail prices depending on the revenue collected by the terminating operator on the same number code or on a range of similar codes with different retail prices.

As an example only, the code 1891 could be limited to within the local call areas (proposal three) but have a range of discrete prices associated with it, 1892 could operate as a translation code (proposal one or two) and again, have a range of discrete prices associated with it. The exact nature, possibilities and requirements for the different pricing schemes and numbering ranges needs further investigation and perhaps, further consultation.

The ODTR would welcome analysis of the practical implications of the implementation of the proposals, including the effort required and the relative timescales for implementation. Respondents should consider the total effort in:

- billing,
- call routing,
- numbering,
- retail pricing, and
- any other relevant issues.

As a starting point, it is suggested that proposal three is likely to be the quickest to implement. Proposals one and two are likely to require a longer implementation period particularly as arrangements for alternative call routing will be required.

#### **Questions 4g**

*Q4.g.1: Should the terminating operator have some control of the retail price charged by the originating operator? If yes, how can the practical problems discussed above (such as varying retail prices on the same number range, billing, customer awareness of price etc.) be addressed?*

*Q4.g.2: What is your opinion on codes for pay-as-you-go services? Should these services operate on 1891 codes or on new codes? Please explain your reasoning.*

*Q4.g.3: If it is only possible to implement a limited number of codes with different retail price bands and the retail price cannot vary depending on the terminating operator - how should these price bands be set? How could competition on call prices be encouraged?*

*Q4.g.4 If Internet services were to operate on NTCs do you think a new NTC with a range of discrete prices associated with it is necessary (1892 for example)? If so, why are the existing NTCs insufficient? How would operation on a new 'Internet' NTC differ from operation on the existing (1850 or 1890 for example) codes?*

*Q4.g.5: Please give your estimation of the level of difficulty and timeframe required for the implementation of the proposals set out in this paper. Which activities (setting up new routing of calls, adjusting billing systems etc.) require the most effort?*

*Please consider the different proposals set out in section 4 in your answers.*

## 4.5 Responses to proposals

Three different proposals have been suggested. These proposals are not necessarily mutually exclusive. As an example, consider proposal one and three. It might be possible to set up the arrangements described in proposal one for NTC calls and the arrangements described in proposal three for 1891 calls. Suggestions for combinations of or modifications to the proposals are welcome.

The ODTR is interested to receive suggestions that might mitigate some of the potential disadvantages of any particular proposal. These suggestions might include such issues as different numbering or pricing arrangements for NTCs and access to Internet services, or address such issues as the use of Telecom Éireann's frame relay network by OLOs and how the interconnect regime might accommodate this.

If OLOs and ISPs would like to comment on the effect that the different proposals might have on their own business plans and strategies, the ODTR welcomes such information and will treat it as strictly confidential. All confidential information should be included in a clearly marked annex to the main response.

## 5 Conclusion

The objective of the ODTR in consulting on interconnection arrangements for access to Internet services in Ireland is to decide to what extent regulatory action, if any, needs to be taken to enable the development of infrastructure and service competition in this market, to the benefit of end users. The ODTR has had regard to the general responsibilities of NRAs as set out in Article 9 of the Interconnection Directive (transposed into Irish legislation in SI No 15 of 1998) which states that “*NRAs shall encourage and secure adequate interconnection in the interest of all users, exercising their responsibility in a way that provides maximum economic efficiency and gives maximum benefit to end-users*”. The Article goes on to refer to the obligation on regulators to stimulate a competitive market.

There are a number of categories of stakeholders who are affected by the issues raised in this consultation. The following broad categories have been used to identify the relevant interests and assess the effect of possible developments or regulatory actions:

- End users;
- OLOs;
- ISPs;
- The incumbent operator (Telecom Éireann);
- The Irish telecommunications market; and
- The Irish economy as a whole.

It would greatly assist the ODTR in considering responses to this consultation, if respondents considered these categories of stakeholders when preparing their replies.

In order to facilitate meaningful responses, the ODTR has presented a range of possible interconnect arrangements for consideration. The ODTR has only presented those scenarios that may be sustainable moving forward and are potentially flexible enough to allow for the development of new Internet access pricing models such as “pay -as-you-go” that are likely to be developed in the future.

The Director now welcomes the views of interested parties on the questions raised in this consultation paper. It would be useful if respondents consider the implications of the proposal they most favour (or their suggested alternative) on other stakeholders affected by the issues discussed in this paper. Interested parties should therefore seek to describe to the ODTR not only the benefits to themselves of the decision taken and the scenarios adopted, but also the benefits to other stakeholders.

## **ANNEX A: Responses to 99/02 and decision on interim solution**

### **A1: Summary of responses received**

The ODTR has received responses to 99/02 from:

- Cable & Wireless;
- DNA Internet;
- Eircell;
- Equant/SITA;
- Esat Digifone;
- Esat Telecom;
- Indigo
- Ireland On Line;
- MCI WorldCom;
- Media Net
- Nortel;
- Ocean;
- PostGEM
- Tele2 Europe;
- Telecom Éireann
- Transaction Network Services.

This section presents a summary of the comments received in response to consultation paper 99/02. It is not possible here to represent every comment received or to address every subject discussed by the respondents. Some comments submitted would be better directed to other consultations that will be carried out by the ODTR. A full list of consultations on related issues can be found in Annex 2 to this paper and respondents are encouraged to also review these papers.

#### **A.1.1 Telecom Éireann's retail prices for calling a 1891 number**

There were many respondents that were concerned that the price cut for 1891 services introduced in January 1999 by Telecom Éireann must mean that Telecom Éireann is pricing the 1891 service below cost.

There was general concern that Telecom Éireann's justification of this price cut had not been published and that there was a lack of transparency surrounding the costs and prices of Telecom Éireann.

In addition to the comments regarding the possibility of below cost selling there were comments received from both ISPs and telecommunications operators that expressed the view that *"it is good for Ireland for the 1891 service to be offered at lower rates as it*

*provides immediate benefits to the end user and encourages usage of the Internet and automated information exchange”.*

#### **A.1.1.1 Telecom Éireann’s costs for the 1891 service**

Several respondents to 99/02 questioned if the retail price charged to call an ISP using Telecom Éireann’s 1891 service was above the cost to Telecom Éireann of call conveyance. The ODTR is presently carrying out, or has planned, a number of relevant work streams and consultations including:

- Accounting separation and publication of financial information for telecommunications operators;
- An ongoing consultation on the Reference Interconnect Offer (“RIO”) and many interconnection issues and services;
- Consultation on appropriate cost allocation methodologies;
- Ongoing work on Telecom Éireann’s cost-accounting systems including existing and proposed new systems with a view, *inter alia*, to ensuring procedures and systems are in place that will clearly relate costs to retail revenues.

These work streams will provide the ODTR with improved information and establish procedures and principles for assessing the costs of existing and new, retail and interconnect, telecommunications services. In addition, these workstreams will establish the level of financial information that can be released to the industry in order to improve transparency of the prices and costs of Telecom Éireann.

The ODTR has considered the costs of the 1891 service. Based on the information provided by Telecom Éireann, the ODTR formed an initial view that there was not enough evidence or established principles to challenge the retail costs of 1891 on the basis of below cost selling by Telecom Éireann. However, it is possible that as a result of this consultation, the cost allocation exercise that may result from it, and the various consultation processes described above, the basis for measuring Telecom Éireann’s costs may be revised. The ODTR is presently discussing with Telecom Éireann the basis for the costs that are allocated to the 1891 service.

#### **A.1.1.2 Alleged unfair discrimination by Telecom Éireann**

A number of operators have expressed a view that Telecom Éireann is engaged in unfair discrimination in the provision of the 1891 service.

Unfair discrimination or undue preference is covered by a range of legislation including EU and national competition law<sup>9</sup>, EU and national telecommunications legislation<sup>1011</sup>, and the General Telecommunications Licence<sup>12</sup>. The latter condition applies only to operators that have been designated as having SMP in a relevant market. Telecom Éireann is the only such operator at present.

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<sup>9</sup> Section 5(2)(c) of the 1991 Competition Act.

<sup>10</sup> Directive 90/388/EEC on Open Network Provisions requires that the principle of ONP be non discriminatory

<sup>11</sup> Interconnection – requirement for non discrimination.

<sup>12</sup> Condition 23.1 of the Pro Forma General Telecommunications Licence (ODTR 98/50R)

Interested parties have suggested that the following could be grounds for allegations of unfair discrimination by Telecom Éireann:

1. Telecom Éireann is providing an interconnection service to its own downstream arm that it is not providing to competing operators (routing of 1891 calls from the local exchange to an ISP without use of the PSTN network outside the local area);
2. Telecom Éireann is providing a service to end users (low cost Internet access using 1891 codes) at a retail price that competing operators are not in a position to offer, and therefore has an unfair advantage over other operators;
3. TE is providing a service to ISPs as end users (collection and handover of Internet calls at the local exchange) that other operators cannot offer.

This prompts the following question: Is Telecom Éireann favouring its own business and placing other operators at an unfair disadvantage and/or is Telecom Éireann's apparent advantage in the supply of calls to ISPs simply result of its ubiquitous network.

In considering this point, it is useful to consider other examples (apart from the "1891" service) of the advantage that Telecom Éireann has in providing certain services as a result of its ubiquitous network and an interconnect regime that is based on the use of network elements. For example, Telecom Eireann has an advantage in the provision of local call services compared to OLOs who do not have a ubiquitous network. In an interconnect regime where charges are based on actual network elements used, the cost to an OLO of providing a local call service (where it must purchase both call origination and termination) in an area remote from that OLOs network, is likely to be such that the OLO is unlikely to be able to make a profit supplying such a service.

The ODTR considers that there are strong arguments that the introduction of new interconnect arrangements for calls destined for ISPs would promote competition in the provision of Internet services and access to those services (these issues are discussed in the main body of this paper). However, this does not automatically mean that Telecom Éireann is presently providing a service to its own business that other operators could use and have been refused.

Some respondents to 99/02 suggested that an appropriate measure would be to require Telecom Éireann to provide a discount on the interconnection charge for call origination for all Internet access calls to compensate for the existence of the 1891 product and allow competing operators to make a profit by handling calls destined for ISPs. The ODTR is concerned that this approach is not robust or sustainable in the long term and this is discussed in section 4 of this paper. This paper addresses the development of a cost-based interconnection regime, including the geographical averaging of certain types of interconnection charges, as a much more sustainable principle for ensuring fair opportunities for competing operators.

#### A.1.2 Co-location of ISP PoP in Telecom Éireann's Exchanges

Comments were received that corrected a statement made in 99/02 that the ISP PoP is hosted in Telecom Éireann premises. The 1891 service is offered on the basis that the ISP has a PoP in the relevant local call area, not necessarily hosted in the Telecom Éireann exchange. It is possible for ISPs to lease equipment from Telecom Éireann in the Telecom Éireann exchange.

The issue of co-location is raised in ODTR Consultation Paper 99/16 and interested parties are referred to this document.

### A.1.3 ISP PoPs and routing of calls destined for ISPs outside of a local call area

Only a few ISPs commented on this particular issue. A summary of the comments and views expressed are as follows

- Calls to ISPs operating on 1891 should be allowed to be routed outside the local call area on an interconnect basis;
- Telecom Éireann did not consult with all ISPs before it decided not to offer the facility for any additional routing outside the local call area to be charged to the ISP on a per call and/or per minute basis, as indicated in 99/02;
- In order for an ISP to compete nationally, there is a requirement to have a PoP in each local call area - this is a great barrier to entry for ISPs;
- In order to provide competitive services to people outside Dublin, some form of non geographic number will have to be implemented for calls destined for ISPs. In other countries this is facilitated by Virtual PoPs.

Only one ISP rejected the proposed interim solution (that transit charges should be applied to calls passed from OLOs to Telecom Éireann destined for ISPs connected to the Telecom Éireann network) on the basis that it had invested in a national PoP structure and was concerned that to allow the routing of Internet calls over interconnect links might reduce the value of this investment. The ODTR noted this issue as one of a number of relevant matters to be considered. However, in a sector where investment in network build and development is likely to be continuous and constantly changing, the primary concern of the ODTR is to develop a robust and sustainable regime and the question of preserving the value of any specific network belonging to any specific player is not an overriding concern.

### A.1.4 Distinctions between OLOs and ISPs, status of ISPs in the licensing and interconnection regimes

Some respondents expressed confusion over the use of the terms Other Licensed Operator (“OLO”) and Internet Service Provider (“ISP”) in 99/02 and requested exact definitions of these terms. These terms are not legally defined.

The ODTR uses the term “OLO” simply to indicate telecommunications operators that are predominantly in competition with Telecom Éireann for the provision of a range of telecommunications services including voice or products traditionally provided by telecommunications operators. The term “ISP” rather than “OLO” is used for companies whose main focus is the provision of Internet services rather than traditional PSTN telephony services. The use of these terms does not indicate the ODTR’s position on the status of ISPs under the licensing and interconnect regimes. It is recognised that OLOs might provide Internet services or host ISPs on their networks and it is possible that ISPs might obtain Basic and/or General telecommunications licences and might also provide other telecommunications services.

On the issue of licensing of ISPs and the rights and obligations of ISPs to interconnect, the following views were expressed by the respondents:

- ISPs are connected, not interconnected to the Telecom Éireann network. They collect calls via normal PSTN and/or ISDN Network Termination Points not via interconnect links. Therefore, they are operating as customers of Telecom Éireann and interconnect payments should not be made or received;
- The fact that ISPs are connected to Telecom Éireann's network with ISDN lines rather than with interconnect links is irrelevant. Telecom Éireann is still terminating a call on an ISP's network and some form of interconnection payment should be made;
- It is discriminatory for TE not to make payments to ISPs when it makes payments to OLOs with interconnection points;
- Although the lower rate set by Telecom Éireann to call 1891 will encourage the growth in the Internet market, by abstaining from providing interconnect revenue sharing to the ISPs, Telecom Éireann places the ISPs at a cost disadvantage forcing them to have a subscription based fee from end users and preventing free Internet subscription services that may have a dramatic effect on the take up of Internet services.

#### A.1. 4.1 ODTR comment on the status of ISPs

In Ireland the European Communities (Interconnection in Telecommunications) Regulations, 1998; S.I. No. 15 of 1998 (the "Interconnection Regulations") transpose the EU Interconnection Directive into Irish law. Regulation 4 "Rights and Obligations for Interconnection", paragraph (8) states:

*...an organisation in any of the classes specified in paragraph (2)(a) which has been designated by the Director as having significant market power in accordance with regulation 5 shall, when requested by an organisation authorised to provide a public telecommunications service, have an obligation to negotiate an interconnection with that organisation.*

When considering applications from ISPs for public telecommunications licences, the ODTR will apply the same criteria as for any other application. The criteria are based on the definition in legislation of "telecommunications services" and "telecommunications network". In brief, it is an offence to provide such services or networks without a licence. The relevant definitions are:

*"Telecommunications Services" means services whose provision consists wholly or partly in the transmission or routing of signals on a telecommunications network or both transmission and routing;*<sup>13</sup>

*"Telecommunications Network" means the transmission equipment and, where applicable, switching equipment and other resources which permit the conveyance of signals between defined termination points by wire, by radio, by optical or by other electromagnetic means;*<sup>14</sup>

There are some services and networks that are explicitly defined and subject to specific

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<sup>13</sup> Section 111(12) of the Postal and Telecommunications Services Act, 1983 as amended.

<sup>14</sup> Ibid.



rules (e.g. broadcasting and mobile telephony services and networks). Apart from these, most of the services defined above may be provided under a Basic or General Telecommunications licence. Licensed services in those licences are defined as:

*“Licensed Service” means the establishment and/or operation of any Telecommunications Network and/or the provision of any services to the public consisting wholly or in part of the transmission and/or routing of signals on a Telecommunications Network, other than... [certain exceptions as described earlier].<sup>15</sup>*

Decisions to issue licences are made on a case by case basis after the submission of a substantial amount of information regarding the proposed services and network. If an ISP is providing a telecommunications service covered by the Basic or General telecommunications licence, that ISP requires a licence.

It is possible that some ISPs may provide services in such a manner that a Basic or General telecommunications licence is not necessary, in this case, they can commence operations or continue to operate without the need for any licence issued by the ODTR at all. This raises the possibility of three classes of ISPs that might operate in Ireland in the future:

1. An ISP that is a licensed telecommunications operator and can, if entitled to, take advantage of the interconnect regime in force in Ireland;
2. An ISP that is a licensed telecommunications operator but negotiates with another telecommunications operator for the provision of certain telecommunications services necessary for its operations;
3. An ISP that is not a licensed operator and is a customer of a telecommunications operator that provides certain telecommunications services necessary for its operations.

The legislation governing interconnection entitlements and licensing requirements has been described above. It is legislation which defines the entitlement to interconnection and the requirement to hold a licence. The entitlements and requirements depend on whether the service and/or network provided by an ISP is a telecommunications service/network as defined and whether it is necessary for the ISP to hold a relevant licence to provide that service and/or network.

#### A.1.5 Future interconnection arrangements

Many respondents suggested future possible interconnection arrangements based on various principles from a percentage split of the retail price, allowing ISPs to simply set a call termination fee, to a discount on the present call termination rates based on the difference between Telecom Éireann’s price to call 1891 and local call price. Several respondents indicated that any interconnect arrangements should anticipate pay-as-you-go, flat-rate and other new charging structures.

Several respondents commented that it is impossible to achieve a win-win situation when setting the new interconnect arrangements, one party is bound to receive less revenue than it did previously. Therefore the ODTR is requested to intervene and not leave the rates to commercial negotiation.

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<sup>15</sup> Pro forma General Telecommunications Licence (ODTR 98/50R).

Suggestions for industry workshops tasked with setting the new interconnect rates and requests for open forums for discussion under the guidance of the ODTR were received.

Various discussion on the difference between interconnection for PSTN calls and interconnection for data calls were received. These suggestions, along with other issues relating to future interconnection arrangements for calls destined for ISPs, are discussed in the main body of this paper.

#### A.1.6 The interaction between Telecom Éireann's retail and interconnect products

Many respondents stated that it was necessary for effective competition that Telecom Éireann:

- Develops an interconnect product or varies an existing product at least three months in advance of the introduction of any new retail product;
- Reflects any change in retail offerings in its interconnect offerings ;
- Offers appropriate interconnect services well in advance of the launch of any pay-as-you-go or flat rate Internet access services.

This issue is addressed in the consultation paper 99/16 – Telecom Éireann's Reference Interconnect Offer published in March. This can be found on the ODTR web site.

## A.2 Decision resulting from consultation 99/02: interim interconnect arrangements

The interim interconnect arrangement proposed by 99/02 was: for calls passed to Telecom Éireann over an interconnect link destined for an ISP connected to the Telecom Éireann network, a transit charge should apply.

### A.2.1 Summary of comments on interim solution

One ISP was against the proposed interim solution on the basis that transit charges are not distance related and it was concerned that this might have the effect of rendering national ISP networks unprofitable.

Several telecommunications operators opposed the interim solution on the basis that:

- The proposed interim solution would not allow for the profitable provision of Internet access by OLOs and therefore would not alter the exclusion of OLOs from the market;
- The interim solution might become a permanent solution;
- Terminating operators require a revenue stream from terminating calls to ISPs that are connected to its network. The interim solution did not allow for this.

Comments were also received from some telecommunications operators and ISPs expressing the view that interconnect rates for calls to ISPs should be treated in exactly the

same way as for voice calls. The transit charge should not apply, the normal call termination charge should apply.

Comments were received from both telecommunications operators and ISPs that supported the interim solution as the final solution may take some time to develop and implement.

### A.2.2 ODTR position

The ODTR proposed the interim arrangements as a short term measure to allow all parties to enter the market and develop services. The proposal was not expected to greatly impact on the profitability of OLOs hosting Internet services on their networks or introduce an incoming call revenue stream for ISPs. The interim arrangement would have had the greatest impact for OLOs directly connecting customers and wishing to pass calls to ISPs connected to the Telecom Éireann network. The transit charge is a distance independent charge that is substantially below the charge for terminating voice calls. The introduction of the interim arrangement would have also immediately provided a basis for commercial and technical negotiations to begin for calls destined for ISPs over interconnect links.

### A.2.3 Decision not to implement the proposed interim arrangements

After considering all the responses, the ODTR presently does not intend to issue a direction that transit rates should apply for calls destined for ISPs connected to the Telecom Éireann network.

While the ODTR does not, at the moment, intend to issue a direction regarding the pricing of calls destined for ISPs passed over interconnect links, the ODTR expects Telecom Éireann, OLOs and relevant ISPs to enter commercial negotiations (if requested to) to agree arrangements for:

- Interconnection services for calls originating on OLOs' networks (or passed to OLOs' networks) destined for an ISP connected to the Telecom Éireann network;
- Interconnection services for calls originating on Telecom Éireann's network (or passed to Telecom Éireann's network) destined for ISPs connected to OLOs' networks.

## **Annex B: List of related consultation papers**

The ODTR has issued, or plans to issue, a number of consultation papers that address in detail a wide range of regulatory issues related to this consultation. There may be some overlap between this paper and other consultation papers. Issues that are addressed comprehensively in other papers are not covered in this paper. Relevant consultations are described below. Other consultations that may be of interest are also listed:

### **Accounting Separation and the Publication of Financial Information for Telecommunications Operators (ODTR 99/10): Consultation paper published on 4<sup>th</sup> March; comments requested by 31<sup>st</sup> March; Report on consultation in April 1999.**

This paper addresses the requirement for accounting separation and asks questions about the nature and extent of such separation and what information should be published on foot of accounting separation.

### **Telecom Éireann's Reference Interconnect Offer (ODTR 99/16): Consultation Paper Published on 22nd March; Comments requested by 23<sup>rd</sup> April; Report in May 1999.**

This paper is based on the Telecom Éireann consolidated Reference Interconnection Offer (RIO) published in March 1999. The RIO is in effect a "catalogue" of interconnection services for competitors setting out Telecom Éireann's stall of interconnection services for operators and the charges for those services. It is essential to new entrants who can choose the elements they require to build their services and then negotiate a specific agreement with TE. The March 1999 RIO incorporated a number of positions agreed prior to the full liberalisation of the market in December 1998. This review looks at those positions which were declared to be interim in nature and raises a range of other relevant issues for industry comment.

### **The Development of Long Run Incremental Costing for Interconnection (ODTR 99/17): Consultation paper Published on 23<sup>rd</sup> March; Comments requested by 30<sup>th</sup> April; Report in May 1999.**

A key issue that has been the subject of much discussion throughout Europe is the basis on which interconnection costs are calculated. In line with best practice throughout Europe and in particular Part 1 of the European Commission Recommendation on Interconnection (98/195/EC), the Director considers LRIC based costing to be the most appropriate basis to be used.

This consultation seeks views on the different methods of implementing LRIC and how they may be best applied in Ireland's liberalised environment.

**Local Loop Unbundling (ODTR 99/21): Consultation Paper Published on 29<sup>th</sup> March; Comments requested by 8<sup>th</sup> June (extended on request from 4<sup>th</sup> May): Report in July 1999.**

The unbundling of the local loop is seen as a key enabler of competition in local telecommunications services. This consultation paper considers the question of unbundling the local loop in Ireland, the forms of unbundling that might be implemented, the scope of regulatory involvement in relation to unbundling and how such access might be priced.

**Costing Methodologies for use in Accounting Separation (ODTR 99/26): Consultation Paper published on 22<sup>nd</sup> April 1999; Comments requested by 28<sup>th</sup> May.**

This paper will address the costing principles that should be applied when calculating interconnection costs. It will consider the recommendations set out in Part 2 of the Commission Recommendation on Interconnection (98/322/EC), and will address the methodology to be applied in establishing appropriate cost drivers and allocation methods to be used primarily for accounting separation purposes.

**Other Consultation documents issued or planned include:**

- Dispute Resolution Procedures (ODTR 99/13);
- Review of Price Cap on Telecom Eireann (ODTR 99/19);
- Opening the Market for Satellite Services (ODTR 99/09);
- Introducing Carrier Preselection in Ireland (99/08);
- Irish National Numbering Conventions (99/11);
- Rate regulation on CATV and MMDS (planned);
- Deflectors (planned);
- Service Level Agreements (planned);
- Performance Measurement and publication (planned).

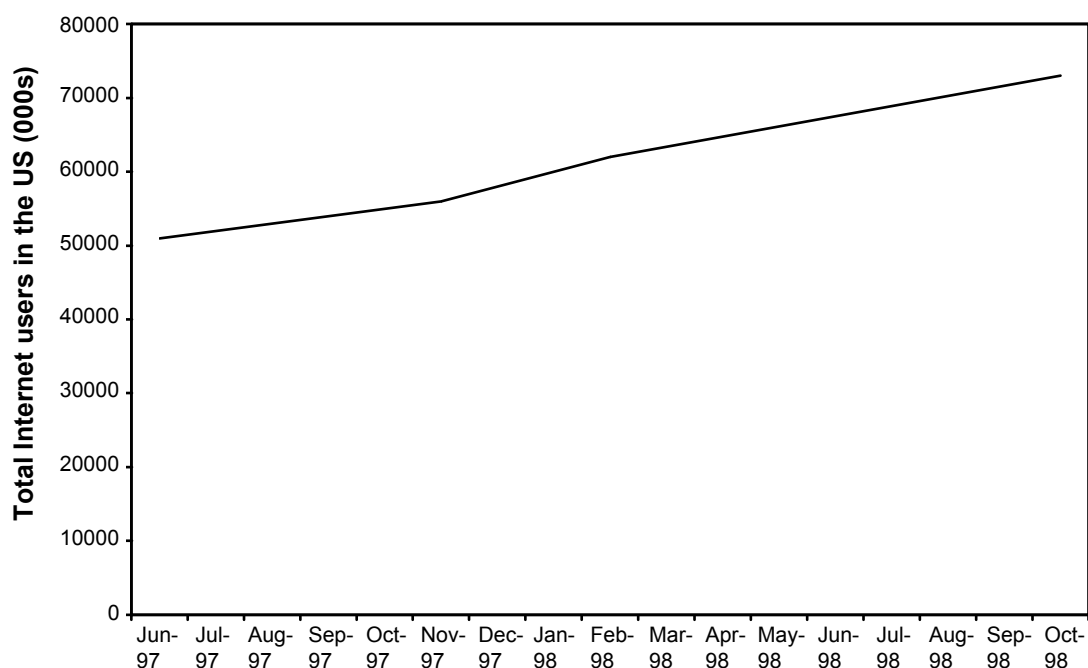
## Annex C: Access to Internet services - US and UK

### C.1 Access to Internet services in the US

#### C.1.1 The USA Internet market

Internet usage penetration had reached 28.5%<sup>16</sup> by October 1998. This has been attributed to the user friendly pricing structure of Internet usage in the US.

**Figure 7 Total business and residential Internet users in the US**



Source: IntelliQuest, June 1997 – October 1998

#### C.1.2 Interconnecting Status of ISPs

In the US, under the 1996 Telecommunications Act and Federal legislation:

*“Information and enhanced service providers that also provided domestic or international telecommunications, and are thus not telecommunications carriers within the meaning of the Act, do not obtain interconnection rights under section 251”<sup>17</sup>*

This and other interpretations of the legislation dictate that ISPs in the USA generally operate as customers of the Local Exchange Carriers (“LECs”), buy access lines at retail rates and are exempt from paying access charges to the LECs. Recent disputes between carriers regarding reciprocal compensation payments for Inter-carrier calls destined for

<sup>16</sup> This is business and residential penetration therefore, penetration can be higher than 100% as consumers can have access to the Internet from their homes and businesses

<sup>17</sup> Section 251 of the 1996 USA telecommunications Act defines the operators that have interconnection rights and obligations.

ISPs are presently being considered by the FCC<sup>18</sup>. There is presently no FCC ruling that governs compensation between carriers for the delivery of calls destined for ISPs.

While the ODTR recognises that the liberalised telecommunications regime in the US is different from that being adopted in Europe, it is still interesting to examine the pricing models for access to Internet services that are offered to end-users as a result of the US telecommunications environment and the effects of this on the Internet market generally.

**C.1.3 Services and Charges to End Users (Internet Customers)**

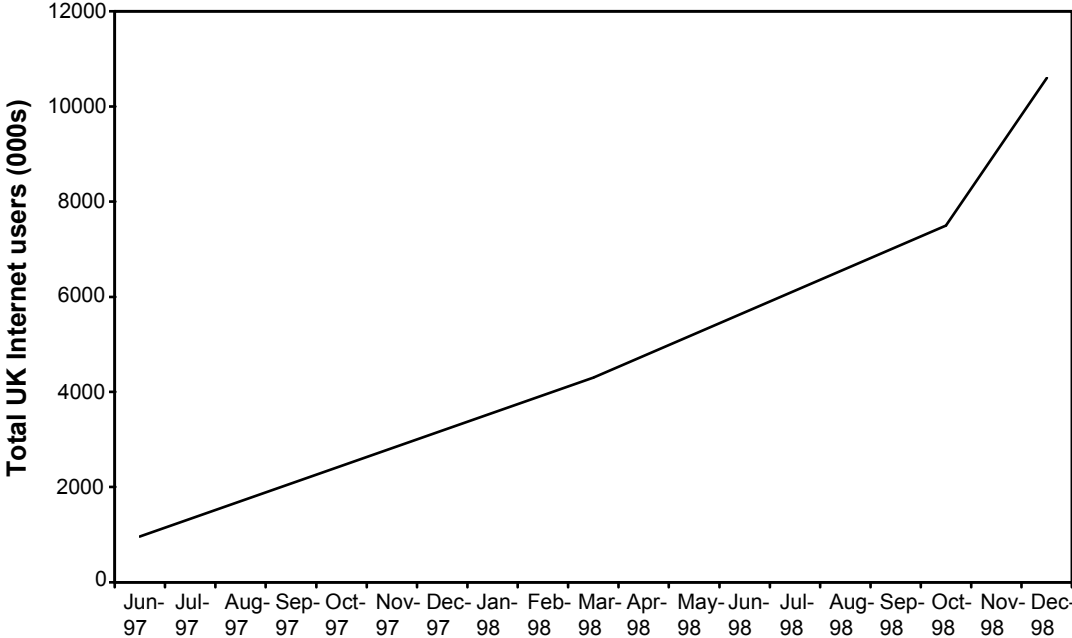
Typically, fixed monthly subscriptions are paid by the customers to the local telecommunications operator to cover line rental and unlimited local calls. A monthly subscription is paid to the chosen ISP for use of its Internet services. Customers do not pay time related call charges for calls to the Internet. Charges for calls to the Internet Service Provider and for the use of the ISP’s Internet services are separate. This regime is the same as that for normal local calls on most local operators' networks, that is, local calls are not paid for on a call-by-call basis. The marginal cost to the end-user of making a local call is zero.

**C.2 Access to Internet services in the UK**

**C.2.1 UK Internet market**

Research by NOP Research Group in London reveals that the number of subscribers accessing the Internet from home in the UK increased between December 1997 and December 1998 by 76% from 3.4 million to 6 million.

**Figure 8 Total business and residential Internet users in the UK**



Source: NOP Research Group and CNET

<sup>18</sup> FCC - Declaratory ruling in CC Docket No. 99-98 and notice of proposed rulemaking in CC Docket No. 99-68 “Inter-carrier compensation for ISP bound traffic”.

By contrast, over the same period, users accessing the Internet from the office increased by only 54% from 3.5 million to 5.3 million people. This illustrates the impact that the launch of "free" Internet subscription has had on the UK Internet access market. The residential market is actually leading the business market.

### C.2.2 Interconnection Status of ISPs

Historically in the UK, OFTEL defined telecommunications operators and the right to Condition 13 prices (interconnection prices) on the basis of the operation of a *Relevant Connectable System*<sup>19</sup>. This was updated<sup>20</sup>, and OFTEL now specifically lists those operators that have been designated with Annex II status<sup>21</sup>. The ISPs that have recently launched 'free' Internet services in the UK do not have Annex II status and are considered customers of telecommunications network operators.

Access to Internet services in the UK is regulated in the same way as Number Translation Services ("NTS"). NTS calls use non-geographic numbers which are translated to geographic numbers once they reach a local exchange so that they can then be routed through to the relevant exchange for termination. NTS calls are priced depending on the number called rather than the distance between the caller and the terminating network.

The NTS regime created by OFTEL in 1996 was designed to allow competition to develop in the provision of services that could benefit from the use of non-geographic numbers such as Freephone or LocalCall. At the time of the introduction of the NTS regime, it was not anticipated that calls to Internet services would migrate from geographic numbers to non-geographic numbers.

Although ISPs are generally hosted on the networks of terminating operators and do not interconnect directly with BT, the ISPs do receive a share of the terminating operator's revenue from Internet calls. This revenue, known as outpayments, is set via commercial negotiations between the ISPs and the terminating operator.

Under the NTS regulatory regime, most customers dial a non-geographic local rate number to access Internet services and pay a local call charge no matter where they are calling from. The amount that the originating operator retains from the retail revenue (the rest is passed to the terminating operator) is set by OFTEL. The network costs accounted for in BT's retention was deemed to be equal to a call origination using only one tandem switching stage in BT's network. In addition to the cost of the use of a single tandem network element, BT retains an amount sufficient to cover retail costs (such as billing and bad debt) that is 46.3% of the network costs incurred.

The UK NTS formula has been disputed by both originating and terminating operators<sup>22</sup>:

- *The originating operators (typically BT) wanted a greater share of the revenue. They argued that this was necessary to meet the extra investments needed to meet the explosion of demand;*
- *Terminating operators also sought more, arguing they were creating most of the "value added" by providing innovative new services. Falling local call prices meant that their share of the revenue for local call rate calls was being squeezed.*

<sup>19</sup> OFTEL's RCS Policy can be found in: OFTEL: Promoting competition in services over telecommunications networks, June 1996.

<sup>20</sup> OFTEL: Rights and obligations to interconnect under the EU Interconnection Directive, March 1998

<sup>21</sup> Annex II of the EU Interconnection Directive. List can be found at: <http://www.oftel.gov.uk/competition/smp2.htm>

<sup>22</sup> OFTEL: Consultation on the relationship between retail prices and interconnection charges for number translation services



### C.2.3 Services and Charges to End Users (Internet Customers)

OFTEL recently issued a consultation paper<sup>23</sup> which summarised the latest developments in the UK. The following extract provides a useful overview of the UK situation:

*When the NTS formula was determined by OFTEL early in 1996, the services to which it applied generally related to telemarketing activities or to other Premium Rate (information etc.) types of services. At the time, calls to the Internet represented only a tiny proportion of total calls and their potential impact on the telecommunications market and the interconnection charging arrangements was not foreseen.*

*The NTS formula has proved successful in encouraging the development and growth of new services including those related to the Internet. Media related services including radio/TV phone-ins and interactive programming and the expansion of the Call Centre industry have all benefited from non-geographic numbering (one number, any location). Additionally, in some cases, terminating operators have been able to use their share of the revenues to pay service providers for access to their services.*

*The most significant development has been in Internet related services which have seen enormous growth since 1995. The first were subscription based services offered by a wide range of Internet service providers via a network of terminating operators, some of whom are also ISPs themselves. Services are almost universally offered using 0845 numbers where callers are charged at local rate for calls and are charged, separately, for Internet usage either by fixed monthly subscription, or by timed 'on-net' usage, or a combination of both.*

*The closing months of 1998 saw the emergence of 'pay-as-you-go' Internet services such as Freeserve offered by Dixons and Energis\*. These services have no subscription charges; users pay only the call charge for unlimited web access and additional charges for helpdesk assistance. Calls to these services cost the same as, and use the same 0845 numbers as the traditional subscription based services. Pay-as-you-go services have proved highly popular with FreeServe claiming a million new customers in the first 18 weeks of operation. As a result, Freeserve has been quickly followed by a range of similar services most of which are backed by large retail or media organisations. BT has launched its own ClickFree service, demonstrating that it too sees the potential of this market.*

*There is clear evidence that the availability of 'free' access has enabled many more customer to try the Internet for the first time and caused many existing users to migrate to the new services. As a consequence some large retailers are viewing the Internet as a potentially important way of attracting customers and are directing their marketing budgets to support it.*

*\*ODTR note: Freeserve is provided by Compuserve hosted on the Energis network with the backing of Dixons.*

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<sup>23</sup> OFTEL: Consultation on the relationship between retail prices and interconnection charges for number translation services

## Annex D: Acronyms used in the consultation paper

FCC	Federal Communication Commission
IP	Internet Protocol
ISP	Internet Service Provider
LEC	Local Exchange Carrier
LRIC	Long Run Incremental Costing
NTC	Number Translation Codes
NTS	Number Translation Service
ODTR	Office of the Director of Telecommunications Regulation
OLO	Other Licensed Operator
ONP	Open Network Provision
PoP	Point of Presence
ppm	pence per minute
RIO	Reference Interconnect Offer
SMP	Significant Market Power
ULL	Unbundling of the Local Loop

### D.1 Terminology

**Figure 9 The terms “the Internet”, “access to the Internet” and “access to Internet services”**

