Office of the Director of
Telecommunications
Regulation

The Internet in Ireland Communication Transmission and Delivery Issues

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Contents

Forward

Last year a consultation was undertaken with the aim of trying to open the debate on the broader issues involved in Internet delivery and transmission. There were thirteen responses received and I would like to thank everyone for their contributions which are very helpful in developing both our understanding and proposals for regulation.

There is a danger that the over-exuberance of the past in relation to the development of the Internet is being replaced by an undue pessimism. There is no doubt a higher degree of realism was necessary and today's focus on building a strong business case for both content and transmission provide the basis for more robust and sustainable development. However as our last Quarterly Review indicated progress is being made in terms of Internet penetration. Today over 34% of households use the Internet, deployment in the SME sector is also growing and most major companies surveyed make extensive use of the Internet.

It is however clear from the market and from the responses that there is no simple or universal solution to the issues relating to the transmission of the Internet. Government continues to work with both the public and private sector to develop and roll-out the infrastructure and services to support the widest possible utilisation and deployment of the Internet. Progress is continuing to be made on a range of these complex and technical issues. Within the limits of our powers, the ODTR will continue to contribute as much as it can towards innovative arrangements and options that will encourage competition in Internet transmission.

It may be helpful to summarise the key elements of our work which impact on Internet transmission and outline some forthcoming developments, including those which follow up on issues raised in this consultation. Examples would include

- There is already a range of ongoing activities that will facilitate the delivery of Internet services in Ireland. These range from clarification of the regulatory framework for technologies such as Wireless-Lan, running a competition for 3G, actively facilitating the development and roll-out of Local Loop Unbundling to the provision of alternative codes for dial-up users.

- I am happy to note that substantial progress has been made on LLU and that the way is cleared for the first access seeker to carry out the extensive programme work of work required to link it's equipment with that of eircom at two exchanges. The framework for other exchanges has been developed and I expect that more rapid progress on the roll-out of these both for the present and new access seekers as interest in LLU grows. There now is a fuller and better understanding of the commercial and technical constraints on LLU than existed at the time the consultation paper was issued. Whilst no further step needs to be taken at this juncture the Director continues to closely monitor progress.

- In terms of the dial up market, the codes 189x have been set aside to provide a range of options and I am pleased to note that the arrangements to operate these are close to completion between operators, thereby offering a greater range of choices to users than is currently available.

Forthcoming ODTR papers of relevance include:

- Leased lines- the question of interconnect as a basis for leased lines and the availability of partial private circuits will be considered further in a consultation on the RIO scope to be issued in early March 2002.

- Wireless Local Loop-as indicated previously, a consultation paper on fixed wireless access will issue in February 2002.

- Review of IP Networks and related issues in April

1. INTRODUCTION

The Director of Telecommunications Regulation (the Director) issued a
consultation paper (01/47) on the future of the Internet in Ireland in July 2001.
This document briefly reports on the views respondents have given, presents the
Directors position on the various issues and documents the actions the Director is
taking or intends to take as a result of this consultation. The Director believes
that this assessment can contribute to an increased awareness of some of the
opportunities and constraints that currently exist.

Many of the measures identified as necessary to support the development of the
Internet are already underway or lie outside the scope of the ODTR. These
include for example activities relating to access mechanisms such as the new
189x series of access codes. A description of these activities and their current
status is given in the Appendix. The responses to the consultation are most
helpful in informing this ongoing work. As much of this work is continuing the
Director intends to treat these matters separately and therefore decisions relating
to these matters, where necessary [1][1], will be set out in stand alone notices at the
appropriate time. The comments received as a result of this consultation will be
most helpful in informing the Director if and when her intervention is required.

There is also another set of issues that are not currently being progressed with
the industry. These include for example regulation of IP networks or even
appropriate arrangements for interconnection in a 3G network. A consultation
paper is being prepared on IP related issues for publication in April. These issues
will need to be considered within the context of, for example, European Union
initiatives. The comments received to this consultation will contribute to the
understanding of the Director of the specific concerns Irish users and operators
may have that will need to be considered within this broader context.

Some responses to other issues such as the locations of points of presence, which
were raised in an Internet context in the consultation highlighted that the issue
has wider ramifications. The Director has therefore decided to initiate a further

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[1][1] The Director hopes that commercial discussions with appropriate ODTR facilitation will achieve
the desired goals. However, should commercial negotiation fails, the Director will intervene in an
appropriate manner as defined in law.

round of consultation on this matter so that these wider concerns can be addressed quickly. Full details of this consultation are given in section 3.

The consultation responses whilst wide-ranging and informative seems to indicate that there are few areas where completely new/specific regulatory measures would be appropriate within the scope of the powers of the ODTR. Nevertheless the Director would welcome at any time specific input on problems that need to be addressed, and does not exclude further interventions made on her own initiative. However, she does feel that it is important to ensure that existing measures are working as effectively as possible and that the initiative already in hand are rapidly drawn to an appropriate conclusion. Again she hopes this will occur through commercial negotiation but notes her powers of intervention should this process not lead to appropriate outcomes.

This document therefore is presented as a report on consultation that summarises and analyses comments and describes the status of activities already underway. The Director has received much useful input and hopes that this report will contribute to an understanding of some of the opportunities and constraints that currently exist in relation to the delivery of Internet services in Ireland. The Director would like to thank all the respondents for their time and effort and for the valuable information provided.

2 BACKGROUND

2.1   LEGISLATION

The Director has a range of powers and obligations that have an impact on Internet services based on legislation relating to the regulation of specific aspects of telecommunications services and not from regulation specific to the Internet. Key elements of legislation include (but are not limited to):

A   Telecommunications (Miscellaneous Provisions) Act, 1996

B   European Communities (Leased Line) Regulations. (S.I. No. 109 of 1998)

C   European Communities (Interconnection in Telecommunications) Regulations, 1998 (S.I. No. 15 of 1998) as amended

2.2   LIST OF RESPONDENTS

Thirteen responses were received to the consultation document; they are listed (alphabetically) below:

- Chorus
- Eircom
- Esat Digifone
- Esat Group
- IrelandOffline
- Irish Internet Association
- Nevada Telecom
- NTL
- People with Disabilities in Ireland Ltd.
- South Coast Community Television
- Worldcom Ireland
- 2 individuals

The Director wishes to express her thanks to everyone who contributed to the consultation. A copy of the non-confidential elements of the responses is available for inspection at the ODTR's premises.

3   THE INTERNET TODAY

In this section, respondents were asked for their views on the state of the Internet in Ireland today. The section broadly outlined the framework under which services are currently provided and asked for comments in relation to access and service provision of the Internet in Ireland today.

3.1   The Internet in Ireland

The consultation paper outlined a number of statistics and presented conclusions drawn from these statistics concerning Internet deployment in Ireland, across all market segments .In brief this set out that overall Internet penetration had now exceeded 30% with all large companies being engaged and an increasing

percentage of SMEs. The survey confirmed that progress was being made although we are not yet joined in the leading group of countries.

Question 3.1-A: Do you agree with the conclusions drawn on the state of Internet deployment in Ireland? Are there other conclusions that you would draw? If so please give reasons.

Views of Respondents

The majority of the respondents were broadly in agreement with the conclusion that Ireland still lags other developed countries in terms of Internet deployment. Amongst the comments made were:

- Greater emphasis should be given to addressing broadband access for small business and home users.

- In trying to diagnose the problem as regards Internet access in Ireland, it is important to ask the question as to whether the market in Ireland is competitive. A competitive market would normally be characterised by low prices, and a wide choice of competing ISPs. While Ireland does score well on access prices for the Internet – the EC's 6th Report places Ireland as the 3rd cheapest in the EU, in the same report Ireland is the second lowest on the number of ISPs per million inhabitants.

- Internet awareness must be greatly increased throughout the country.

- It is clear that there is substantial unmet demand for broadband.

- There was however an alternative view, which felt that some surveys understated the developments that has actually taken place here.

- They cite as an examples data from Eurobarometer, OECD, ESDIS, would indicate that Ireland

  - At 39.7%, Ireland is 8.6% above the EU average of 31.1% and on a par with the UK in relation to percentage of regular Internet users in EU households
  - Nine countries are more expensive than Ireland for 20 hours off peak access
  - Ireland is among the top five EU countries for the percentage of Internet users shopping online
  - At 2.8% of population, Ireland is in line with the EU average of 2.9% for public Internet access points usage

Director's Position

The Director makes the following comments in relation to Internet take-up. While Ireland's Internet population is growing, a higher penetration and usage rate might reasonably be expected given the general state of economic and social development as well as the relatively high level of IT skills and Internet awareness in Ireland. She recognises that there are a range of factors that are likely to contribute to the present penetration levels; these would include relevant competitive content, lack of predictability in terms of cost/Flat Rate Access, security and payment services, broadband services availability, etc. Nevertheless, she believes that a more competitive supply industry has an important role to play in stimulating demand and stresses her conviction that the regulatory environment should serve to promote fair competition and remove, where appropriate any barriers to entry. The Director is also of the view that achieving the stated objectives in terms of utilisation of the Internet, eCommerce, addressing the Digital Divide, etc will require a lot of co-ordination and some difficult choices being made. The growth and development of mobile and cable services reinforce the need to ensure that all technology platforms are explored. Segmentation of realistic demand profiles between large companies, SMEs and residential may also help to inform on the optimum approach. It may also be that, as in other European countries such as the UK that a mixture of narrow band and broadband services at competitive prices can both satisfy current needs and help to develop the type of demand profile necessary to spur further investment from the private sector.

Whilst the Director agrees with the comments that more ISPs in the market place would increase customer choice and awareness, she nevertheless recognises that the size of the market, penetration levels and the present economic climate all play a role in determining the time frames within which this is likely to happen.. To ensure this competition can flourish there also needs to be a parallel stimulation/education of the demand side.

Whilst favouring the measures aimed at promoting service providers, the Director recognises that much of this is outside her office's remit. She nevertheless notes her obligations to consider the competitive impact of her decisions and reiterates that the likely impact on promoting further ISP entry and competition generally will continue to be factored into any assessment of Internet related decisions.

Commercial Models for Internet Access

This section of the consultation paper related to dial up services and also incorporated other services that can be used as a means of Internet access.

3.1.1   Leased Lines Market

The consultation paper asked for views regarding the leased line market development in Ireland and rationalisation of leased line products below 2Mbit.

Question 3.4A: How do you see the leased line market developing in Ireland? Do you consider that it would be appropriate to have a rationalisation of regulated leased line products?

Views of Respondents

There was a range of views on this issue. The majority of respondents felt that the high price and long delivery times for leased lines contributed to the slow development of the leased line market. One respondent felt however that to have value and meaningfulness leased line prices needs to be compared with other access options such as the emergence of high capacity DSL services

The following points were raised:

- The introduction of Government incentives has not been addressed with sufficient vision or clarity.
- The review of eircom's performance under the service level agreement regime is welcomed.
- Operators are reliant upon eircom to provide services to customers. This applies in particular to the provision of short distance leased lines (local tails) to link customer premises to the network of the operator.
- The delivery time for leased lines is excessively long in comparison to the average delivery times in most other Member States in the EU.
- It is critical that eircom are tightly regulated in terms of price, lead-time and penalties.

- The number of low capacity leased lines will steadily increase in the absence of a nationwide Broadband service, be it via fixed line or wireless.

- One operator proposed that local tails should fall within the scope of the leased line offerings set out in Annex I and Annex II of the Interconnection Directive 97/33/EC.

- The level of demand for Internet access will influence prices.

- That leased lines are perhaps most relevant for ISP access to international capacity. Concerns exist that the concentration of international Internet access rests primarily with global carriers and this places Ireland at a strategic disadvantage.

The majority of respondents agreed that there was no need for rationalisation of regulated leased line products below 2Mbit/s and that operators should use their own commercial judgement for the provision of leased line speeds below 2Mbit/s.

Question 3.4B: What are the implications of treating leased lines as an interconnect product?

Views of Respondents

- The majority of respondents welcomed the proposal to include leased lines as an interconnect product. However one respondent expressed concern that this would seriously undermine competition in infrastructure by effectively creating an economic barrier to entry for new market entrants. Another respondent felt that as leased lines are principally a retail product there would be no benefit in turning this into an interconnect product.

- The approach will give the development of effective competition a boost while at the same time giving eircom a fair regulated return.

- It is important to differentiate between leased lines as an interconnect product and "data tails" or partial private circuits to a point of interconnection. Whilst end-to-end leased circuits are clearly retail products, "data tails" can be regarded as wholesale products. It is the respondents opinion that the ODTR should require eircom to provide "data tails" on a cost plus basis to enable OLOs to compete actively in the markets for

providing leased lines thus facilitating competition for ISP call termination and IP/core networks.

- Treating leased lines, as an interconnection product would result in significantly reduced costs for OLOs, allowing them to pass on the savings to the customer thus stimulating demand for the Internet.

- According to the EC Interconnection Directive a leased line interconnection product must be provided under transparent, non-discriminatory and cost-orientated conditions, subject to the approval of the National Regulatory Authority. Operators would urge the ODTR to ensure the provision of such a leased line offering as soon as possible.

- Regulation of leased lines as an interconnection product would have an important bearing for the competition in other areas of the market, such as Frame relay, ATM, and Internet access, for which, leased lines are an important input.

Director's Position

The Director considers leased lines a vital element of the overall telecommunications market and believes it essential that both the wholesale and retail sub-markets operate effectively. This has already resulted in a number of measures.

- In September 2000 the ODTR introduced uncapped penalties for late delivery and non-compliance with delivery process points with regard to service level agreements for the delivery of leased lines. Current published delivery figures indicate that considerable progress has being made on standard orders with over 85% delivered by the due date and average delivery times down to 20 days. However further work is needed to reduce the overall number of designated non-standard orders and also to ensure that operators are quickly informed when an order is designated non-standard.

- The Measuring Licensed Operator's Performance programme will address leased line orders and faults, and this data will be published on the ODTR website.

The Director welcomes comments about treating leased lines as an interconnect product and notes that some respondents believe this should increase service competition in the market. However, she also notes the complex nature of a

product that is used in both wholesale and retail context, and the balance between infrastructure and service competition. The difference between data tails and end-to-end circuits and the emerging concept of a 'partial leased line'[2][2] is noted in this respect.   The Director nevertheless notes that the range of Leased Line Directive transposed into Irish legislation in European Communities (Leased Line) Regulations 1998 SI No 109 of 98 includes many powers and that comments received regarding the treatment of leased lines as an interconnection product were general rather than specific in nature. The Director is proposing to obtain more specific comments relating to data circuits/partial leased lines in the upcoming RIO Consultation which will be issued in March.

The Director concludes, therefore, that at this point in time she will continue to actively enforce the measures included in the leased Line Directive such as price setting and delivery performance .She also intends to include consideration of leased lines as an interconnect product and the utilisation of partial private circuits in consultation on RIO scoping which is planned for early March.

3.1.2   Local Loop Unbundling

The consultation paper analysed the current situation in regard to LLU. Operators were asked whether they were actively considering implementation of LLU, and if not, what would be their criteria in making a decision. The paper also gave the following analysis and operators were asked whether they agreed. *"The Irish interim pricing is well within the EU range. It is notable that LLU tends to develop relatively slowly, and within the EU, only Germany, which started in 1998, has unbundled more than 100,000 loops. However, there are also indications that capital rationing may be affecting interest in Ireland, and/or the business cases for LLU are considered less satisfactory by operators, for reasons of cost and scale not specifically connected with the elements subject to price regulation, which may in some large international business models represent only one seventh of total costs. While LLU may technically be used for voice*

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[2][2] The idea of a partial leased line has been discussed in the UK and the EU to indicate the different requirements of an OLO from a typical retail customer.

as well as Internet, the business case for operator and user relies on the broadband uses.”

Question 3.4-C: *Are you as an operator actively considering implementing LLU? If not, please indicate the key considerations for you*

Views of Respondents

Four respondents expressed an interest in LLU. The following views were given

- Without LLU it is apparent that the necessary infrastructure for e-commerce will not exist.
- One Operator had the view that LLU is a key access mechanism to achieve full ownership of the customer relationship.
- Only with full liberalisation of the local loop and efficient cost oriented leased lines interconnect offering can we achieve a fully competitive telecommunications market in Ireland.

One respondent expressed the view that the level of interest from the OLO community has dwindled over the past year and that currently only one company remains interested in these products. They believed that future regulatory initiatives need to recognise the associated costs and resource implications involved in developing both the internal and external processes and systems available to support these products.

Question 3.4-D: *Do you agree with this analysis? If not, please give reasons.*

Views of Respondents

The majority of Respondents agree with the analysis in the consultation paper. They made the following comments:

- One respondent concurred with the assertion that capital rationing is negatively affecting LLU interest in Ireland. Not-withstanding that, LLU must still happen, and the means of intervening with the market to make it more attractive at this stage must be considered and deployed.

- Pricing for LLU and indeed Bitstream must be LRIC based and treated as an interconnect product.

- In addition to the capital rationing the availability of both " all calls CPS" and "wholesale Bitstream" in the Irish market will be key influencing factors in the demand of OLO's for LLU

- However, one respondent did not agree with the analysis in the consultation paper, as they believed the ODTR's analysis to be over simplified as it failed to recognise the associated OLO costs and these were a major barrier to most OLO's in Ireland.

Director's Position

The Director, whilst recognising the current investment climate, remains disappointed in the level of take-up of the LLU framework established by the industry and the ODTR.

The policy reasons that underpin why the LLU regulation[3][3] was adopted in under nine months by the European Union mean that Local Loop Unbundling must be implemented in Ireland although the challenges that exist in terms of its cost and likely geographical reach are increasingly understood. Where these can and are being addressed LLU can provide businesses and consumers alike with a range of innovative products and services.

The ODTR continues to work with the industry to drive the development of product descriptions and processes, as well as setting interim prices last year[4][4]. We are providing extensive facilitation where requested, and we are encouraged by the recent successful conclusion of collocation agreements between eircom and one operator. She notes that three companies are now registered as LLU beneficiaries. Her views on pricing matters for LLU, is set out in Decision Notice D6/00[5][5] and Decision Notice D8/01

The Director will continue to facilitate negotiations where operators request, or

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[3][3] Regulation 2887/2000 of the European Parliament and of the Council on unbundled access to the local loop
[4][4] See for example ODTR document 01/27 Decision Notice D8/01 'Local Loop Unbundling – eircom's access reference offer'
[5][5] ODTR document 00/30 'Local Loop Unbundling' Decision Notice D6/00

on her own initiative as provided for under the LLU regulation. Operators are free at any time to outline their concerns to her Office.

3.1.3 Dial Up Access

The two main dial-up access models were discussed (commonly known as the call termination and call origination models). The paper asked for the industry's opinion on other relevant models that may exist for dial up access.

Question 3.4-E: Do you agree with the description of the models outlined above? Are there any other models, which you think are maybe relevant?

Views of Respondents
In general terms, the respondents agreed with the models set out in the consultation paper, and one additional model was highlighted as follows:

- One respondent believes that there is in fact a third 'model' in Ireland referred to as the Number Translation Model. In this, whilst the 'model' is similar to NTC, the key difference is that termination payments are calculated by subtracting retention[set by the originator] from the retail price.
  Interconnect arrangements for the terminating model is based upon costs in the terminating network. The difference with the (NTC) model is that the termination payments are calculated by subtracting retention (set by the access network) from the retail price (as opposed to the termination model where access operator sets the retail and the retention price)
- One Operator, while agreeing with the models described in the consultation paper, felt that Fixed Wireless Access (FWA) via a Wireless Local Loop (WLL) is another particular method of access to ISPs that has been overlooked.
- Another also described an NTC and NTC like model, based on the access operator collecting the retail revenue from the end user but in this instance, the access operator pays the full revenue collected to the terminating network less a retention rate to cover its costs. They believe that this is a more appropriate model for Internet access than the terminating model.

Director's Position

The Director notes the comments relating to the commercial models for Internet access, including the additional commercial NTC model that was highlighted by a number of the respondents and draws attention to recent progress and ongoing activities to implement new access models (189x). These are described more fully at Appendix1. The Director also notes the comment regarding WLL and would be keen to see such access solutions employed.

3.2 ISP payment for Internet Services

The consultation paper gave a brief description of the different types of ISP payments for Internet services. These ranged from customers having a separate commercial arrangement with their ISP, to 'pay as you go' schemes, and including, for example, 'flat-rate' services.

Question 3.5-A: Do you agree with the description above? If not, please give your reasons?

Views of Respondents

The respondents agreed with the ISP payments described by the ODTR. A number of respondents made the following points:

- It is one Operator's opinion that deficiencies in the access models have created a bottleneck in ISP payment models and it is holding back the proper development of the whole Internet market. The number of viable ISP payment models needs to be increased in order for this failing to be addressed.
- The FRIACO model adopted in the UK would be of great benefit to the Republic of Ireland Internet market. It would allow the development of unmetered access at reasonable cost to the customer and the OLO.
- The expected portal revenues being low have to be attributed to some very poor decisions made by the ISPs who felt that revenue could be generated this way.

- "Portal Revenues" are largely mythical. The concept of portal revenue is merely an artefact of market hype, which was used to fuel the 'dot-com' explosion.

Director's Position

The Director's comments relating to flat rate services (retail and interconnection) are expanded on in section 4. Reflecting on the other comments made, the Director does not believe that other regulatory interventions are required at this stage. The current options under development are included in the Appendix. The Director is open to considering all proposals and would be glad to receive representations about other possible models.

The Director notes and agrees with the generally pessimistic tone with respect to portal revenues and its potential impact on investment plans. It is clearly important to have real services which users want to buy on a regular basis.

3.3 General issues arising from the current state of deployment

The Director was interested to review which Internet access options are likely to be most important from the point of view of consumers and providers. Such options as access device, charges, public access (e.g. Kiosk access), ISP choice, coverage and usage profile.

Question 3.7-A: Do users have sufficient choice of capacity and pricing mechanisms?

The majority of respondents maintained that users did not have sufficient choice of capacity and pricing mechanisms. Conversely one respondent however believed there was sufficient choice and pricing mechanisms in place.

Views of respondents

- Lack of choice of Internet Service Providers is the key symptom of the problems with the Irish Internet market.

- With GPRS, 3G and the introduction of un-metered dial up services, consumers should have a greater choice of both capacity and pricing mechanisms.

- Amongst the Irish based ISPs there is as yet insufficient choice of capacity and pricing mechanisms, however, with the introduction of LLU and other infrastructural changes the market will increase and find equilibrium.

- Operators and their ISP's have met the evolving requirements of the market in a period when consumer expectations were difficult to rationalise and respond to. The current evolution of *eircom's* portfolio including such models as "Pay-As-You-Go", and existing 1891 pricing, and future viable options via 1893 and ADSL product pricing will deliver a diversity of access options that will facilitate further Internet growth in Ireland and will provide a stable revenue flow to sustain future network investment.

Question 3.7-B: Reflecting on the questions raised above, what do you consider to be the key deficiencies from a user perspective in the models currently available to support Internet service delivery?

Views of Respondents

The respondents made the following comments:
- The key deficiency is the lack of a viable range of competitive access models for ISPs.

- Currently the average home and SOHO users are extremely limited in the Internet models available to them.

- The key deficiencies with the current circuit switched Internet regime is that wholesale arrangements are based on a per minute model, which do not support the flat rate access model.

- Every ISP service should incorporate the network usage billing and content billing to the consumer.

- The perception of the Internet and more importantly the relevance or lack of it to people's daily lives is where the deficiencies currently lie.

Question 3.7-C *Which options do you consider are likely to be most important from the point of view of consumers and providers?*

Views of Respondents

- Residential consumers want consistency of service, fast connection speed with no congestion issues and low cost access.
    - ➤ For the Internet to flourish charges must be offered at a flat rate and residential markets also want one bill.
    - ➤ Kiosk access will grow in importance.
    - ➤ With regard to the SOHO market they want choice of metered, un-metered and hybrid charging.
    - ➤ For the SME market, access devices are seen as the most important factor.
    - ➤ The lack of choice as regards ISPs is the key option that is currently lacking across all sectors of the market.
- The introduction of FRIACO and different xDSL technologies allowing greater reach from the exchanges.
- GPRS and 3G will be important access technologies for the Internet. The regulatory environment must serve to encourage rather than stifle these new technologies.
- From a user perspective it is important to have choice, variety of access and the possibility of deciding the cost level of engagement based on clearly demarcated services.
- For consumers there are four options that are likely to be most important: content, support, access quality and choice of access model.

Director's Position

The Director again notes a disappointing assessment by many respondents concerning the reported slow growth in demand, but sets this against the expectations that other access methods and technologies may stimulate Internet take-up. The information provided is valuable in understanding the general context, and the Director will use it when assessing future options.

The Director notes the issues raised by the respondents pertaining to the current state of deployment including limited choice of ISP and the relevance consumers

place on going on-line generally. She shares the views that the new technologies such as, 3G, GPRS and the future introduction of a Flat Rate offering would encourage more people to go online. The importance that relevant and competitive content can play in stimulating demand is also recognised.

In terms of actions, the Director notes that the issues relating to interconnection models for 3G (especially non-voice elements of the service) are complex and need to be considered within a European framework. This will be addressed in the future reflecting international developments and the helpful comments made separately.

Other than those already mentioned, the comments made do not suggest any completely new regulatory measures that would be appropriate or necessary at this stage; the deficiencies being more commercial in nature. Again the Director will welcome further representations on specific areas where a different regulatory approach may be appropriate.

3.3.1 Points of Interconnection

The Director posed the question of interconnection at POPs, the benefits of permitting virtual POPs and the issues surrounding these questions (acknowledging that numbering conventions need to be considered).

Question 3.8 –A: *Should interconnection at POPs be enabled or required? What issues would this give rise to? What would the impact be on Internet quality and pricing?*

Views of Respondents

Most respondents agreed that interconnect at POPs should be enabled and required. One respondent felt that the location where switched interconnect can take place is at the Primary switch. The only possibilities for earlier access to the end-user would be through the use of Bitstream or unbundled local loops.

The following comments were made.

- A number of respondents agreed that interconnection at POPs should be enabled and required. They believe that OLO's are forced to interconnect at too high a level in eircom's network and consequently pay higher conveyance tariffs than they would otherwise.

- Another respondent maintained that connections should be cost based using a LRIC model and the respondent envisioned that there would be a dramatic increase in quality and speed of throughput as the in-efficiencies of the switched network are reduced and data is conveyed and managed on an IP network.

- Another respondent supported the concept of virtual POPs (i.e. Sharing of a common POP infrastructure among a number of ISPs, where the physical POP equipment is located at the primary switches) and the provision of a "data interconnect" to support interconnect between an *eircom* wholesale router and an ISP router, without the ISP having to purchase or manage POPs.

Question 3.8-B: What is the market impact for your company of current arrangements (interconnection at switches) and can the financial impact be quantified?

Views of Respondents

The respondents made the following comments:

- The impact of the current interconnection arrangements means that many services are not profitable due to the additional and unnecessary costs forced on OLOs by eircom.

- Under the current arrangements all Internet access traffic to ISP's connected to the *eircom* network is handed off to a network of PoP's throughout the country. This allows the vast majority of calls to be delivered from the Primary switch onto data networks.

Question 3.8-C: What are the arguments against changing arrangements?

Views of Respondents

- One Operator does not see the arguments as significant. Voice and data are currently handled separately from a network perspective, with the advent of VOIP this will change. Data accounts for more network usage than voice therefore it is clear that data interconnection agreements must be part of the basic interconnection offerings.

- Due to the global downturn in the telecommunications sector, Operators will more than likely withdraw to focus their efforts on markets where NRA's are actively seeking to create a level playing field by subjecting the incumbent to the type of regulation that will facilitate full competition. Delay by the ODTR in taking action against *eircom* will be gravely damaging to the Internet market.

- We have identified the desirability of identifying Internet traffic and routing/handling it differently to PSTN traffic. The existence of the 189X

- access number facilitates this, but the decision on whether routing control is handled by switched data or through IN technology is an internal network issues. Network Operators must be free to make such decisions to arrive at the most efficient and flexible handling arrangements.

Director's Position

The issues raised in this section are complex and responses have indicated that more work, taking account of the interrelation between areas, is needed before a final position can be set on all the issues raised.

Firstly, the Director note progress (see Appendix) with respect to the development of 189x solutions and expects *eircom* to make rapid progress on this matter. She also welcomes *eircoms* longer term proposals in regards to virtual POPs for Internet.

She believes however that even this will address only part of a wider issue that encompasses the generality of voice services. For example, the arguments cited for primary-level interconnection should rightly be considered for all calls. The Director reiterates her position that interconnection arrangements should reflect those that might be adopted by an efficient operator and is yet to be convinced that this is always the case.

The comments received further suggest that such issues are of sufficient concern to the industry and market that a wider review needs to be concluded quickly. She therefore proposes to initiate a full investigation by consultation covering routing principles for all NTCs and this is to occur before the end of March 2002. This is mentioned so that interested parties can start to consider the issue.

3.3.2   Routing and Billing of calls for Dial-up interconnection

In this section the Director asked respondents for their views on the routing and billing systems of an efficient operator and requested to be alerted to areas where billing and routing constraints may be an issue and what might be appropriate to resolve the problems caused by these restraints.

Question 3.9-A: What factors are appropriate for the Director to take into account when applying the efficient operator principle to Internet interconnection charges where efficient routing cannot be implemented for practical reasons?

Views of Respondents

- One respondent maintained while, they have no knowledge of eircom's billing systems or network architecture, routing arrangements or network development plans, if eircom cannot implement efficient routing then OLO's should not be penalised.
- IN functionality does not need to be present down to the primary level. Indeed, one of the aims of IN is to centralise higher functions in the network for ease of maintenance and update.
- The principle that data networks are the most cost effective mechanism for the transportation of Internet access calls must be accepted. If these principles are accepted, the issues relating to the routing of calls becomes relatively simple. Internet access calls can be easily identified at the Primary switch and routed onto the appropriate data network. The technology utilised to achieve this transfer onto the data network then becomes irrelevant as it must be assumed that originating operators will make cost efficient decisions between the use of IN functionality or more traditional data fill routing analysis.

Question 3.9-B: *What technical routing issues still prevent (or may prevent in the future) efficient routing from being realised? What is necessary to overcome these deficiencies?*

Views of Respondents

- IN is an established technology. We do not see any reason why the eircom network should not have this technology at primary level. This was one of the main drivers behind the developments of IN, efficient routing of calls especially at the primary level.
- One Operator believed that only *eircom* could respond to the above question.
- There should be a regulated planning process that ensures a uniform approach in implementing best planning practices when handling 1891 traffic. Extending the concept of voice interconnect to Internet 189X access, by opening up NNI interfaces for 189X services has a number of potential flaws that may decrease the quality of voice interconnect services. The main enabler for this is the regulatory position of enabling 189x NNI interconnects from any point within the eircom core network i.e. the 47 POIs, without a corresponding commitment from OLOs to best network planning practice. Such an interconnect scheme, if extended towards 189x Internet access would lead to significant traffic handling inefficiency on the eircom network. This is particularly the case if the proposed introduction of 1893 services were to be interpreted as "always on" flat rate services, where the impact of flat rate traffic could have a marked effect on quality of service with the network. eircom has done a number of scenario studies on the effect of introduction of capacity-based charging on the evening busy hour of the network. In each case the effect of introducing a scheme that encourages extremely long holding times is to significantly increase the traffic carried on the network, resulting in unavoidable degradation of the quality of service offered to both internet and voice customers. The correct approach should be to migrate heavy users to an always-on type technology such as ADSL.

Question 3.9-C: *What billing constraints still exist or might exist in the future? And what is a reasonable timeframe for resolving these constraints?*

Views of Respondents

- One operator believes that six months is adequate to resolve billing issues from inception to completion.
- One Respondent believed that this is a matter to which only eircom can respond.
- Another estimated that where major new systems are not currently being deployed the lead-time for an agreed network topology and product/process specification to the availability of appropriate solutions will be between 12 and 24 months. They also highlighted that there were two major issues involved

    1. **Packet Billing:** The consideration of Internet connection with the value of the cell being based on the amount of information that is exchanged (packets) has not been included in the design of existing systems and functionality. To address this would require the development of a new billing system and the alteration of virtually every interface with existing billing systems. The lead-time for a new system to support IP billing would be in the region of 12 months, once the appropriate business case has received approval.
    2. **ISPs PoPs:** Depending on the approach taken by the ISP's in relation to the existence of interconnection PoP's for routing, current routing processes and support systems may not be appropriate.

Question 3.9-D: *What factors are appropriate for the Director to take into account when applying the efficient operator principle to Internet interconnection charges where billing constraints prevents the appropriate recording?*

Views of Respondents

- One Operator believes that OLO's should not be penalised for "billing constraints" within the Incumbents network. One issue of detail which needs

to be considered further is if and how CDR's identify the PoP or switch where the interconnect took place?

- One Respondent maintains the factors that should be taken into account include
  1. The dominant position of eircom
  2. That eircom is a vertically integrated firm
  3. That it is in eircom's best commercial interests to have billing constraints for calls to OLOs to enable eircom's carrier revenue to be maximised.

- Another highlighted that the most important factor to take into account when applying the efficient operator principle is the willingness/interest that ISP's have in relation to the appropriate investment in infrastructure. In addition, it is essential to remember that this is a new industry paradigm, one that was and could not have been conceived when the existing network and systems were designed and developed.

Director's Position

The Director firstly notes that flat rate services and ADSL provide substantially different features and ADSL will not necessarily represent a suitable migration path for all flat rate customers. That said, the Director recognises the traffic implications of handling Internet traffic. The Director mentioned above that she intended to consult further on the issue of points of presence and noting the link to traffic handling proposes that the issues raised above are also addressed in this consultation.

With regard to billing constraints, the Director confirms previous guidance that billing should not be regarded as a reason for failing to implement efficient measures and believes that solutions must be developed over an appropriately short time scale. Furthermore, in the absence of a billing solution, short-term workarounds should be adopted but this should not result in increased costs being passed on to the OLO's

4   FUTURE DEVELOPMENTS OF THE INTERNET

This section looks to the future. It considers how the Internet may develop both in general terms and raises some specific concerns in relation to Flat Rate access, the deployment of IP technology and the development of new access mechanisms.

4.1   Internet Developments

In this section the Director asked for general comments on how the Internet market may develop so that she is aware of the context in which the market will need to be regulated.

Question 4.1-A: How would you see the Internet market generally developing over the next 3 years? Please consider the following markets separately:

Views of Respondents

One of the respondents gave general responses to the above question while the other respondents broke their responses into the relevant market sectors as follows:

- It is expected that access to the Internet through other technologies will increase significantly. In particular one Operator believes the following factors will influence the popularity of the Internet:

A.   Mobile

1. New appealing content services and applications.
2. New technologies like GPRS and 3G, providing easy and faster access to services and applications and a continuous always-on connection.
3. New pricing structures that introduce flat rates for Internet access and/or traffic based pricing, instead of the current time based structure.
4. Handsets and devices with enhanced functionality such as PDAs.

B. Residential:

1. With the roll out of digital television services people will expect more from their Internet connections. Digital television usage will educated people in new interaction possibilities however, the limitations of Digital Television set top boxes will still make computer access popular.

2. Students and home-makers will take lectures over the Internet (DCU offers such a service with the Computer Application Database course) and work perhaps a few days a week if not every day from home. FRIACO is a must for such a set up at least.

3. ISP services will offer a "walled garden" approach, offering specific services such as mail; some elements of procurement, specific news and sports update structures. This will be managed at a fixed rate per month and there will be little or no commercial transactions other than mail and perhaps some travel pages.

4. The other major segment of the market will be PC driven and be characterised by significant IT literacy. Content will be specifically focused depending on the fragment of the market being addressed. There will be significant commercial transactions completed at this level with financial services, Government, travel and consumer goods being the main focus. Such residential users may use one or more ISPs depending on need.

5. 'Free' products (Pay-As-You-Go) will continue to be attractive for first time users. Premium services will remain as long as customers perceive value from value added services such as local call tech support.

6. A FRIACO type interconnection product will introduce the availability of flat or partial flat rate charging structures; customers likely to be attracted to such services are likely to be cost conscious users, sophisticated Internet users, or heavy users.

7. Local Loop Unbundling and the availability of broadband services will also meet the demands for high bandwidth at a flat fee.

8. Converged services that are of interest to the home user will consist of following services delivered over xDSL

9. High Speed Internet

10. A second voice line and the possibility of a third line may also be of interest depending on cost.

11. Value added services e.g. unified messaging.

12. Subscription based entertainment e.g. Pay TV, which it is hoped, will ultimately generate revenue for the broadband operator.

13. Residential users can expect improved choice in Internet package options that will better meet their individual needs. If the business model allows, those looking for more capacity will find ADSL more beneficial.

C.   SOHO/SME

1. The SME market is probably the segment of the Irish market that will undergo the most change in relation to the Internet. :

➢ Pressure from international suppliers/ customers that insist they engage in some form of e-business to allow them trade effectively.

2. Goods and services will still be created and designed however the supply chain will become more complex with many more permutations.

3. Effectively bidding will be performed at a European level and this will present its own problems to the Irish SME as it needs to compete at an increasingly stringent level.

4. Irish SMEs will also experience an assault on their own home market. A reduced barrier to entry from external service/product providers will cause this.

5. The growth in the use of Remote Administration Tools (RAT's) by small to medium sized IT companies allowing work to be carried out off site in a customers premise without a physical presence will see increased demand for broadband.

6. By 2005 the SME sector will account for 75% of expenditure on IP services by European enterprises, according to Analysis forecasts. Since SMEs tend to be geographically dispersed, DSL use of the universally deployed copper access network is ideal. The SOHO market therefore, will be greatly influenced by the rollout of DSL and the introduction of FRIACO-based product offerings.

7. SME users can expect more flexibility in pricing and increased quality of services. New access products, such as ADSL, will provide mechanisms for reducing access costs during business hours. These new products will also bring higher quality, affordable access.

D. Corporate

1. The large corporate market will experience significant change also such as:

➢ Business-to-Business procurement, ordering and financial transaction.

➢ Supply chain shrinkage

➢ Business process model change

➢ Vertical integration

➢ Increase in competition from outside and niche players.

2. Development of IPVPN's with access to and from the Internet over secure (Ipsec) access will drive demand for increased capacity.

3. Ability to IP video conferencing for the Corporates with inherent QOS guarantees will add to the demand for increased speeds, reliability and quality.

4. One respondent believes that the economic downturn could stimulate higher Internet usage for corporate sector as it seeks greater efficiency.

5. The current infrastructure serving this segment to be robust and adequate in the medium term. We also see opportunities in the areas of web hosting and ASP as well as opportunities to grow home-working utilising available ISDN and ADSL accesses.

E. ISPs

1. Given the right climate it is likely that the next few years will see ISPs make more specialised offerings through more managed services for example more development in the area of web hosting. ISPs will begin to offer applications on a 'rental basis'. Applications such as Customer Relationship Management packages and Supplier chain Management packages, which are extremely costly to purchase particularly for the SOHO sector.

2. The portal business will also increase although there will be slow growth as regards advertising and sponsorship. A key area for growth in this area is likely to be in respect of e-commerce especially in relation to travel and consumer electronics sectors.

3. With the development of Web-Farming/hosting facilities and Internet Data centres, one important issue which still needs to be

addressed is whether the National Electricity Grid can support these sorts of centres into the future as numbers increase.

F.   Supply side of Internet services

1. Over the next three years eircom anticipate the release of new services, which will significantly increase the pool of Internet access options available in Ireland. In the short term, ADSL will deliver an "always on" option to consumers. While the NTC codes released by the ODTR will further increase the options available to the consumer.

2. Demand for access and capacity will increase over the coming three years. As demand increases, ISPs in Ireland will be forced to expand their networks, however, in parallel to this demand technology will more than likely be developed to make such expansion more affordable for ISPs. Consumers will share in these reduced costs as providers pass on the savings in an aim to remain competitive.

3. Neither content nor applications fall within the business scope of ISPs or access providers. Specialists in the content and Application Service Provision (ASP) markets deal with these features respectively. we encourage and are involved in ensuring that the public are aware of how relevant the Internet can be to their everyday life, by showing how the Internet can make peoples lives easier. We believe this is the way to increase Internet penetration in Ireland.

Director's Position

The Director concurs with the comments raised in this section and agrees that access to the Internet through other technologies will increase significantly going forward, through LLU, GPRS and 3G.   The Director also believes that there will be notable developments across all segments of the Irish market both in terms of package options available and demand for access and capacity. The Director maintains that the comments provided in this section will place the ODTR in a better position to appraise the future development of the Internet in Ireland.

The Director welcomes the comments regarding public awareness. The Director also believes that this will aid the increase in Internet penetration in Ireland.

Question 4.1-B: *what will be the most significant revenue streams for ISPs? Please quantify where possible or provide market research evidence?*

Views of Respondents

- Hosting (Physical resources, domain name services), Host Applications (ASP Type services) and Professional Services (Consultancy).

- One respondent believes that the amount of e-commerce enabled transactions will increase and premium content will begin to contribute to revenues. The most significant revenue streams will therefore be:
  - ➢ Internet Access Charges
  - ➢ Revenue from online revenue transactions
  - ➢ Premium Content
  - ➢ Online Advertising.

- One respondent believes that access revenues will continue to be the most significant revenue stream for ISPs. However, portal revenues will also increase in particular in the area of e-commerce (travel, betting and consumer goods) albeit at a slower rate than was first anticipated.

- Managed services are something, which US ISPs have moved into. They offer value added managed services, which go beyond basic web hosting. Services such as security, 24/7 monitoring, equipment and space to rent. This is very popular for business consumers who may not have the necessary capital to invest in the equipment or resources needed to operate them.

- IP multicasting is promising, since it promises to raise the quality of live broadcasts over the Internet and give Internet providers a chance to capture new revenue streams. IP multicasting allows a broadcaster to replicate data across a number of providers, making it much cheaper for content providers and raising the level of quality for the end users. Market researcher Forrester Research has predicted that ISPs will be able to increase their revenue up to eight-fold by offering multicasting and other revenue enhancing services.

- We see five areas that will generate revenue going forward:
  1. **Service improvements**: are anticipated to ensure customer loyalty by leading the industry in service level agreements offered to the paying

dial-up access market. There is also potential for such improvements to entice some current free customers to upgrade to a paying model.

2. **Value added service**: for the SME and Corporate sectors eircom are refining and developing value added services to be offered in conjunction with Internet products for example, email, support, domain registration and maintenance.

3. **Settlement Revenue**: This revenue refers to total retail call charge revenue generated by Internet traffic less the Network Operator's retention fee. As ISPs create such traffic, it is not unreasonable for them to request revenue recognition in the form of settlement fees for those call minutes from the Network Operator.

4. **Subscription Revenue**: Currently there are two sources of revenue with regard to Internet access products. eircom expect subscription revenue to continue to contribute to its total revenue generation going forward.

5. **Bandwidth Revenue**: The other form of Internet access product revenue generation is bandwidth charges. Such revenue is generally derived from Leased Lines and ADSL access.

Director's Position

The Director believes that the comments made provide a helpful assessment of how the Internet may develop that she can usefully use, as appropriate, when assessing Internet issues going forward.

4.2   Barriers to Development

The Director asked for views from respondents on what they felt would be likely barriers to the demand for Internet services across all sectors of the Irish market.

Question 4.2-A: What do you think are the most significant barriers (other than those specifically mentioned in the rest of this paragraph) that might prevent the Internet market from achieving its full potential over the next three years?

Views of Respondents

The respondents made the following remarks in relation to barriers to entry:

- The lack of a FRIACO type product, the cost of deploying LLU and the high cost of Bitstream access.

- The cost of a 3G licence will in turn determine the level of financial investment available for an operator to make in a 3G network. An expensive licence could constitute as a significant barrier to the rollout of 3G networks. The availability of handsets/mobile devices for GPRS and 3G at prices which are affordable for the consumer will determine how rapidly GPRS and 3G will become mass market and finally, the planning environment for 3G will determine how quickly consumer's have access to the internet in the 3G environment.

- Near end handover of Internet dial traffic from the incumbent is a pre-requisite and delay in development and definition in the introduction of FRIACO.

- Technology costs that are deemed too high by all sectors. This applies to both application and infrastructure.

- High degree of concern about fraud and confidentiality.

- Inability to relate investment in the Internet to company goals and objectives and to realize tangible business benefits from the investment.

- We believe the Internet sector as a whole has suffered due to ill-conceived business plans and hype that could never have been delivered. We firmly believe that placing the Internet in the daily lives of users is a key barrier to lift.

Question 4.2-B: *What would be the impact of removing these barriers? If you have undertaken market research, we would be glad to know of your findings.*

Views of respondents

- One respondent sees two categories of drivers that will change the way Irish business and residential users will decide to engage with the Internet. Firstly, increasing the speed with which goods/services can be obtained and dispatched. Reducing sales, purchasing and operational costs. Secondly, in relation to competition, improving the range and quality of services offered.

- The most significant impact the removal of barriers will have is to vastly increase the number of Internet users in Ireland and increase the time spent

on-line. It also has the affect of allowing more new entrants into the market, which will give the customer not just more choice but further decrease the cost to the consumer.

- A greater effort is required from all sectors of the economy to create a public awareness of the services and benefits available from the Internet.

Director's Position

Many of the concerns raised are already under consideration as either an existing action item e.g. LLU pricing, 3G and flat rate charging (retail and wholesale). The Director's analysis of the remaining comments indicates that the problems are generally more fundamental and cannot be resolved through regulation alone. Whilst examples such as ticket booking and e-procurement have proven how successful the Internet can be nevertheless the current economic climate places a significant burden on companies to have fully developed and costed business plans in place.

The Director believes and would welcome consideration being given to the introduction of a number of innovative products which could contribute to the development of Internet Services in Ireland. These would include
- Prepaid fixed rate cards
- Self Install DSL Kits or utilisation of microfilters

The issues of fraud and security are a particular concern but these issues lie outside the ODTR's remit. The industry is urged to pursue these concerns on behalf of their customers with the appropriate international and national agencies.

4.3   PSTN Congestion

Views were sought from respondents in relation to capacity problems that may arise as a result of the growth in traffic that accompanies Internet access. This growth in traffic may cause congestion on the PSTN network.

Question 4.3-A: *Do you see PSTN congestion as a significant problem? What solutions are needed in the short to medium term?*

Views of Respondents

- One respondent does not consider PSTN congestion to be a critical issue in the short to medium term but rather would suggest that the arrival of this issue would be an indication of increased growth and penetration.

- The use of data networks such as Frame relay and ATM or leased lines can be used to take traffic off the PSTN at the earliest point of interconnect. In this instance co-lo and backhaul charges must be tightly regulated to ensure that there is a cost benefit for the OLO otherwise it would not be economic and Ireland will be left in the dial up PSTN access sphere as other countries move on.

- One operator believes that congestion issues could be significantly eased if eircom were to hand over eircom billed calls to OLO PoP's from the primary level. With the growth seen by the market in respect of dial up Internet over the last three years coupled with the profile of long call duration we believe that it has been a challenge for planners to adjust routing and capacity to deal with the situation, however the problems have been exacerbated by eircom refusing to hand over dial up Internet access traffic to OLOs at primary nodes. In addition, eircom refuses to groom traffic in accordance with the requirements of OLOs. Such grooming is undertaken in other markets where OLOs find it advantageous to have certain traffic being conveyed over designated 2Mbit/s interconnect links or parts thereof.

- Another operator stated that ISPs have indicated congestion in the network during busy hours and could this be due to a number of circumstances for example:
  1. Inefficient routing of Internet calls imposed by regulations surrounding 1891 and geographic internet call handling
  2. The rapid increase in Internet take-up and delays in providing additional core ports and PoP ports.

  Evolution to early stage Internet offload will resolve the first issue. The second issue is as a result of the success of the Internet take up in Ireland which will continue to be improved provided a regulatory regime exists that serves as an incentive to infrastructure investment.

Director's Position

The Director believes that with the option of handing off traffic at the primary level should aid the reduction of PSTN congestion. The points raised will be addressed as part of the consultation mentioned above on points of presence.

4.4 Flat-Rate Interconnection – dial up market

This section addressed the implications of a flat rate interconnection offering following the introduction of the new Internet access code 1893, which allows for partial or full flat rate access. Views were sought from respondents regarding any concerns they may have related to a flat rate offering.

Question 4.4-A: Are there other ways of providing for flat-rate consumer products? Are there other innovative methods of containing/controlling/providing certainty to consumers and if so, what interconnect basis would be required for them?

Views of Respondents

- With packet based technologies like GPRS and 3G, customers will see a move away from the traditional per minute based retail charging models to traffic based charging models.

- There is a need to develop a flat rate interconnect product available at the local exchange as a minimum but available later at the tandem layer. In the meantime eircom's high-speed bonus scheme needs to be removed.

- The availability of LLU and Bitstream offers OLOs flat rate interconnection that will enable the development of innovative offerings using a combination of rented eircom infrastructure and OLO self build networks to build their own DSL type solutions. In addition eircom will offer both retail and wholesale DSL proposition that meets the needs of customer requiring flat rate type solutions. It should also be noted that cable and wireless operators also have the capability to offer flat rate type access services. The availability of 1892 type access introduces a further level of choice into the dial up market. The introduction of 1893 if designed on the same principle of sustained economic viability will offer an even greater range of service

options in the dial up market. The development of IP networks designed and operated to specifically carry data will also offer possibilities to carry Internet access services.

Questions 4.4-B *What considerations would moving to a capacity based interconnect product for dial up Internet give rise to?*

Views of Respondents

- Network Operators can move Internet traffic away from the voice network in order to overcome quality and congestion problems. Voice networks are not designed for Internet traffic, as long holding times cause problems.
- Consideration must be given to increased congestion on the PSTN.
- The level of charges that may apply coupled with the difficulties and barriers on capacity arrangements with OLO's.
- The following are some of the major considerations in discussing capacity based products:
  - ➢ A sustainable market need that can be met in a manner that encourages and rewards investment while allowing a viable business to be operated.
  - ➢ Pricing of capacity solutions has to be carefully positioned in order to allow other products to coexist.
  - ➢ Billing solutions must lie with the capability of existing billing solutions.

Director's Position

The Director notes the range of responses received. It clear that a wide range of options in addition to LLU and bitstream will be needed.

The Director welcomes existing initiative in this regard which are reported at Appendix.1 She looks forward to early progress in this important area.

4.5   IP-Based Networks

This section examined trends towards more extensive use of IP-Based networks both in the core network and private networks. Responses were sought to identify potential problems, and to drive the ODTR's longer term plans.

Question 4.5-A: How quickly and extensively do you see IP being deployed within core networks in the Irish market?

Views of Respondents

- The use of IP within core networks will grow in Ireland however its relationship and closeness to the end customer will take some time to develop. As in other European countries the first area of conversion to IP networks within the access network will be in data transmission. However the conversion will take some years to deploy.

- It is one Operators view that the deployment of IP within core networks will take place within an 18- to- 36 months timescale.

- GPRS which is a mobile IP based technology will be available commercially this year

- One Operator believes for telecommunications as a whole (voice and Data) it will take place between 3-5 years, providing the IP transport can guarantee to provide quality of service to the toll quality we are accustomed to.

- Another outlined their strategy as an evolution to a "Next Generation Network" (NGN), where both voice and data are carried over the same core network. Such a network would have an ATM/IP core and IP/Voice edge. Migration to such a network would depend on many issues including
  - ➢ A solid business case for such a migration
  - ➢ Maturity of IP quality of service (QOS) technology.
  - ➢ Maturity of Next Generation Network technology. In this context it is not yet possible to indicate when such an all IP core would be possible.

Question 4.5-B: What regulatory concerns would a move to IP-based network cause you or your company?

Views of Respondents

- It is one Respondent's view that regulation of the incumbent should, where possible, be neutral of the technology used to deliver services.

- Having regard to the less than satisfactory general interconnection regime in Ireland, one Operator would be concerned that the ODTR would be unable to oblige eircom to provide IP interconnection.

- Regulation where mandated should be technology neutral and all transport telecommunication networks should be treated the same irrespective of the content they are carrying.

Director's Position

The position on regulating IP-networks is currently under investigation within the ODTR. The comments received are most helpful in informing the Director about the Irish context which needs to be reflected into the broader debate. As part of this process the Director intends to publish a consultation paper on this area in April 2002

4.6 New Access Mechanisms and Models

This section highlighted the range of Internet access technologies currently available and some which will be available in the future. Respondents were asked for their comments in relation to any likely barriers that would affect the deployment of these technologies.

Question 4.6-A: Which new access methods are most likely to succeed in Ireland and over what timeframe?

Views of Respondents
- There are little or no barriers to the deployment of technologies once the market conditions of availability and cost are met.
- One Operator believes that GPRS and 3G will succeed in the market. It is expected that mobile Internet access will overtake PC Internet access in the next two to three years.
- Wireless access allows mobility for individual users with WAP, GPRS or 3G mobile. Dial up access via analogue lines is universal but is typically unstreamed and bandwidth is low. Fixed broadband is expensive and excludes the residential user. Having regard to the foregoing, the only compromise is LLU and xDSL, which this Operator believes could be rolled out extensively within an 18-month period.

- The rollout of ADSL and fixed wireless technologies will meet the needs of Corporate, SOHO and high residential users. The new options for dial up Internet access presented to the market by the release of 1892/3 codes will also be of considerable benefit providing the industry avail of these codes to develop and launch a range of new products suited to market requirements.

Question 4.6-B: Do you have any views on any barriers to the deployment of the above technologies and which will be the most significant Barriers?

- There are no barriers to the deployment of technologies once the market conditions of availability and cost are met.
- One Operator believes that the inconsistent approach taken by the local authorities when dealing with the operators in relation to cable TV and wireless local loop access is a significant barrier.
- A number of Operators believe that the cost of the 3G licences* will be a significant barrier to the rollout of 3G networks in the Irish market.
- One Respondent believes that the most significant barrier to deployment of the DSL technology is the lack of a strong regulatory regime to force access to eircom's network at prices that are cost-orientated and non-discriminatory.
- Another respondent believes that the Internet market appears to be reaching a state of maturity; the preparation of a convincing and sustainable Business case may prove to be difficult for some Operators. Investment requirements will be considerable and in an increasingly challenging marketplace. We also believe the reliability and quality of the services to be supported on the new access mechanisms i.e. ADSL and wireless broadband will be crucial to successful deployment.

Director's Position

The Director notes the range of issues raised from planning to costs and commercial issues on Internet transmission business cases. Even since last summer, awareness among local authorities concerning need for a new approach to communications infrastructure has been stimulated. The 3G pricing was agreed and announced in December 2001 having regards to concerns to encourage roll-out and development.

Additional powers to enforce quicker progress on areas such as LLU would also be helpful. The Director, whilst recognising the slow down in certain elements of the e-Commerce/e-Business sector does not however believe that the Internet has as yet reached maturity. Internet deployment remains critical to Ireland's ability to be competitive and to maintaining its commercial and social standing internationally.

5 Delivery of Goods Purchased over the Internet

The Director sought views from respondents in relation to the Postal service in Ireland; she asked whether the needs of retailers using the Internet are being fully met by An Post and its competitors. She also requested information regarding the speed and cost of the service received.

Question 5-A: *Do you consider that the range of services provided by An Post in delivering goods over the Internet adequately meet your needs, with particular reference to:*

- Price of services
- Convenience of posting, availability of collections from premises, and latest collection times.
- % of mail delivered the Next day working day after posting
- Time of deliveries
- Consistency in time of delivery
- Efficiency and general responsiveness of Customer Services

Views of Respondents

Three respondents answered the above question and they made the following comments:

- The price of the service must be as competitive as its (named) competitors.
- An Post is only capable of delivering in Ireland whereas (named) competitors are global delivery companies whose core competencies lie in expediting deliveries; they therefore tend to be chosen over An Post for the delivery of goods purchased on-line.

- Convenience of access is another important factor; smaller business and consumers may not be at home during office hours to accept delivery of items, and it is not always possible for customers to get to a post office during opening hours.

- There is also a perception that An Post tends not to deliver on time and that there is no consistency in respect of delivery times.

- The post office needs to make its services easier to understand and to use. The United States Post Office (USPS) provides a good model of how the shipping of goods can be made transparent for customers. The USPS provides standardised envelopes and boxes; the cost of mailing these boxes is fixed and not dependent on the weight of its contents.

- In Ireland, we have a complicated weight-based tariff system and packaging materials are, in general not provided.

- Our addressing system is complex this could easily be overcome with the adoption of a nationwide postal code system.

- We believe that e-commerce requires very low cost delivery services if it is to be used widely.

- Customers who place an order over the Internet typically want immediate delivery. Yet, distribution and delivery can take several days thus limiting the potential for impulse purchases. We believe that there is need to develop new innovative delivery arrangements such as late night delivery or deliveries to a local pick up point for example, a local shop. Installation of secure lockable receiving boxes at houses so that goods can be left secure.

Director's Position

The points made in response to this question have a resonance with issues brought to the attention of the Director in relation to other consultations specifically about the postal services, in correspondence and in market research surveys. The comments highlight the need for An Post:

➢ to adapt its services to the current needs of its customers, e.g. delivery of parcels and small packets at times when recipients will be at home,

➢ to offer customers a choice between reliable next day delivery and economy services,

➢ to properly inform its customers about the services it does provide [the comment of one respondent, reported above, that An Post is only capable

of delivering in Ireland is inaccurate but reflects a failure on the part of An Post to inform its customers about the range of its services].

- ➤ to adjust its tariff structures so that they reflect the attributes that drives the cost of providing the service, i.e. format of packaging and speed of service, rather than weight.

- ➤ The lack of a postal code system, mentioned by one respondent to this consultation, is an issue that has arisen in a number in a number of different contexts and the Director intends to enter into a specific consultation about the pros and cons of introducing postal codes in Ireland. She would be interested to receive submissions from interested parties who have specialist knowledge about the need for such codes in Ireland.

Question 5-B: *Are you aware of any other companies who provide the delivery services you require for delivery of internet purchases – either nationally or in a specific locality – and how do these services compare with the services provided by An Post in terms of the headings set out in Question 5-A.*

Views of Respondents:

- • The bigger integrated companies such as Express Couriers are more developed than An Post in the delivery of Internet purchases.

Director's Position

It would be unwise to form definitive judgments based on a limited number of responses, but the Director is encouraged by the indication that private-sector companies are focussed on meeting the needs of e-commerce. She hopes that An Post will develop its services to compete effectively in these markets.

Question 5-C: *Is a separate price charged for "packing and delivery"*
or is it incorporated into the price? If there is a separate charge is it
based on the cost of delivery or is it subsidised? How does the total cost
(cost of goods + delivery + any other charges) compare with the cost of
purchasing costs from a shop?

Director's Position

The Director notes that the number of responses from people who have used the
Internet to purchase goods was limited and that they did not address this issue.
While the availability of cost effective and reliable delivery services is a
prerequisite for the success of e-commerce, the policy of e-retailers in charging
for items such as a packing and delivery can be an important influence on the
extent to which potential customers make use of the Internet to order goods.

APPENDIX

Following the introduction of the additional access codes and number ranges for dial up Internet access the ODTR has been monitoring negotiations closely. The introduction of product offerings on these codes is a matter for the operators in the first instance to negotiate suitable interconnect arrangements with eircom, who are obliged to negotiate with the operators for the introduction of new product offerings. Equally, should eircom introduce retail offering they must provide a wholesale offering to the operators. The Director noted efforts her office has made and will continue to make every effort to ensure the expeditious deployment of these dial-up services.

A description of the status and progress by Internet access code is listed below.

- **1891-Hybrid Model.**

Negotiations have concluded between one operator and eircom to ensure delivery of the 1891 product [reduced rate local call with a subscription fee] on an interim basis. It is envisaged that the development of a permanent solution should be available with a launch in Q2 2002. The ODTR is currently monitoring developments and will be using all the resources at its disposal to ensure the discussions come to a timely and productive solution.

- **1892 - Pay-As-You-Go.**

On the 1892 product code the consumer pays for their telecoms time on line but Internet service is free of charge. The product offering will give the Operators the ability to set their own retail price points, negotiations have begun between the several operators and eircom for the development of the 1892 product offering, it is likely that the product will be launched early in 2002. The ODTR has been facilitating these negotiations and will provide dispute resolution at the request of any party in the event of a breakdown of negotiations.

- **1893 –Partial or Full Flat Rate Internet Access.**

Partial or Full flat Rate Internet access, including fully un-metered Internet access, where the consumer is not charged for the telecommunications time on line but pays an agreed subscription rate for its Internet service. The ODTR will closely monitor these negotiations and will provide dispute resolution in the event of a breakdown of negotiations.