An Roinn Comhshaoil,
Aeráide agus Cumarsáide
Department of the Environment,
Climate and Communications

International Connectivity for Telecommunications Public Consultation

OCTOBER 2020

Contents

1 Introduction

1.1 High quality access to international telecommunications networks is a key driver in the growth of social, economic and industrial development of regions and countries. In recent times, Ireland has experienced growth in demand for international connectivity with capacity demand on the Atlantic running at a compound annual growth rate of 26% between 2015-2019[1]. The overall growth is primarily driven by foreign direct investment, the large number of SMEs and new cloud-based applications.

1.2 Ireland ranks 6th in the 2020 EU Digital Economy and Society Index (DESI), meaning that it is among the leading ranks of EU Member States in terms of the uptake and use of digital technologies. It is expected that there will be a ramp-up in capacity demand in the next 5 years with the on-going rollout of fibre to the home and high-bandwidth services to consumers and businesses in Ireland. An example of consumer driven capacity demand is the predominance of entertainment and gaming services which are quick to exploit additional capacity as soon as it is available. Likewise, the trend to locate data centres in Ireland serving overseas clients will continue to generate increasing amounts of international traffic.

1.3 International connectivity for telecommunications relies on submarine cables using fibre-optic technology. Lasers on one end fire at extremely rapid rates down thin glass fibres to receptors at the other end of the cable. Ireland is connected to North America and the UK with a number of submarine cables. There are currently no submarine cable routes from Ireland directly to continental Europe (without traversing UK) and this is seen as an area for potential development. Several submarine cable service providers have plans to provide such routes. A new transatlantic route called Havfrue/AEC-2 is expected to be ready for service later in 2020 which will provide connectivity from North America to Denmark with spurs to Norway and Ireland with a landing point in Co Mayo.

1.4 Data centric services require high capacity as well as diversity. Diversity is based on multiple routes providing resilience in the event of a route failure. Sufficient capacity must be available on alternate routes to handle additional traffic in the event of a failure. Some services (e.g. real-time applications or financial transactions) also require low latency. Latency is the time it takes a signal to travel from source to destination and has been the focus of financial firms engaged in high-frequency trading for several years. Low latency and high capacity stimulate the demand for new types of internet-delivered services. During a market review conducted by the Department of Communications, Climate Action and Environment (DCCAE) in early 2019, a number of service providers and large volume users that were surveyed did not express any major concerns regarding capacity and diversity of international routes available. However it was concluded that a periodic review of international connectivity should be undertaken given the dynamic growth in capacity demands.

1.5 Broadband internet and over-the-top (OTT) providers across the globe are experiencing an increase in bandwidth demand due to the Covid-19 global pandemic[2]. The sharp rise in

[1] Based on Telegeography International Internet Capacity Growth

[2] Telegeography report: Internet Traffic and Capacity in Covid-Adjusted Terms

teleworking, video streaming, and other online activities due to full or partial lockdowns has resulted in a vast increase of traffic on networks in many countries. In Ireland, a report published by ComReg in April 2020 reveals that 60% of broadband users had seen an increase in usage of their home broadband since the start of the pandemic[3]. The resilience of international connectivity networks and diversity of routes in the event of route failure has become increasingly important.

1.6 The advent of Brexit has brought more focus to Ireland's diversity of routes and a greater importance of connectivity to other EU member state countries. As in other sectors there is still much uncertainty about the actual impacts of Brexit.

1.7 Recognising the importance of subsea telecommunications cables in underpinning so much of the economy and our digital future, the Department of the Environment, Climate and Communications (DECC) is working with other relevant Departments, mainly the Department of Housing, Planning and Local Government on the preparation of cross sectoral Marine Planning and Development Bill which will provide for a new and streamlined, robust consent/licensing framework for the Irish maritime area. A key objective in this from a telecoms point of view will be to ensure that Ireland remains an attractive location for providers of international connectivity.

2 Summary findings of Review by DCCAE in 2019

The Department of Communications, Climate Action and Environment (DCCAE) conducted a survey of service providers and large volume users of international links in Q1 2019. This was done in order to verify the current status of international connectivity, to establish the resilience and performance parameters of these links and to assess whether there is sufficient international connectivity capacity, both at present and planned, to meet the likely demand over the next five years, or whether a potential capacity bottleneck was developing.

Based on surveys conducted with service providers and large volume users, a summary of the findings is as follows:

2.1 There is sufficient capacity on international links in Ireland to meet the current demand.

2.2 Cable owners rarely purchase and install the transmission equipment to fully realise a cable's potential from day one. Because this equipment is expensive, owners instead prefer to upgrade their cable gradually, as customer demand dictates. Capacity can be increased by upgrading the optical terminal equipment at each end of the fibre cable (e.g. 10Gbps to 100Gbps per optical channel is now a common upgrade path on legacy systems).

2.3 Submarine cables generally have a minimum economic lifetime of 25 years but the actual lifetime of the cable can increase considerably beyond its initial expected economic lifetime, particularly if the cable has not been subjected to damage over the period.

[3] ComReg report: Impact of Covid-19 on Home Broadband use in Ireland

2.4 There are multiple paths offering diversity into and out of Ireland on both UK and transatlantic routes.

2.5 The majority of international data traffic growth is being generated by the top 5 content providers and over the top players who account for a high percentage of bandwidth on Atlantic routes.

2.6 Cables were traditionally owned by telecom carriers who would form a consortium of all parties interested in using the cable. Both the consortium and private cable models still exist today, but one of the biggest changes in the past few years is the type of companies involved in building cables. Content providers such as Google, Facebook, Microsoft, and Amazon are major investors in new cable. The amount of capacity deployed by private network operators – like these content providers – has outpaced internet backbone operators in recent years. Faced with the prospect of ongoing massive bandwidth growth, owning new submarine cables makes sense for these companies.

2.7 At the time of the review, there were no routes from Ireland directly to continental Europe and this is seen as an area for potential development. There may have been some developments in the interim period.

2.8 Service providers did not flag any immediate concerns relating to Brexit and issues around data protection. However there is still much uncertainty about the actual impacts of Brexit so a wait and see approach was being adopted.

2.9 There are a number of potential projects in development which may materialise in the next 5 years. A new transatlantic route called Havfrue/AEC-2 is expected to be ready for service later in 2020 which will provide connectivity from North America to Denmark with spurs to Norway and Ireland.

3 Purpose of this consultation

3.1 The purpose of this public consultation is to invite all interested parties to contribute their views on the status of international connectivity for telecommunications in Ireland. This will allow the Department to gather information before forming an up-to-date view.

3.2 This consultation is primarily aimed at telecommunication service providers and large volume users of international links (including content providers and data centre owners).

3.3 Parties responding to this consultation are asked to answer the questions in section 4 of the document and indicate anything that is confidential.

3.4 After the Department has gathered the responses, it will consider the inputs received before publishing the non-confidential responses and overall conclusions.

4 Questions

In answering the questions below, please provide supporting evidence or any supplementary information to support your position on each of answers. The Department would welcome submission of any relevant additional information that would assist the Department in this review.

Question 1

> "Is there sufficient capacity and diversity of routes available to meet current and future demand over the next 5 years (or over a longer timeframe if that information is available)?"
>
> Please provide current capacity of international links (in absolute terms and percentage of fibre cable used/free at present) and plans for future capacity over the next 5 years (or over a longer timeframe if available).

Question 2

> "What are the key challenges and commercial barriers that exist in the development of international connectivity in Ireland?"

Question 3

> "What measures are required, including actions by the State, to alleviate the key challenges and commercial barriers in the development of international connectivity in Ireland?"

Question 4

> "Given that the most recently deployed and planned submarine cables on transatlantic routes have landed on the west coast of Ireland, are there likely to be any issues with onward connectivity from the landing station to service provider hubs and data centres?"

Question 5

> "How do you think Ireland is positioned when compared to other countries with best practice international connectivity?"

Question 6

> "How can Ireland position itself as the preferred location to land submarine fibre optic cables in Europe?"

Question 7

> "How can Ireland make it attractive for companies to build new submarine fibre routes from other European countries to Ireland?"

5 Responding to this consultation and next steps

All responses to the consultation must be received in full by the Department no later than **5 pm on 27 November 2020**.

Responses should be returned via email (in a searchable format). The email address is set out below.

It is preferred that the response and any additional documentation you may be submitting as part of this consultation be in a web optimised version (i.e. 5mb).

Please note the Department may publish all submissions to this consultation. Respondents should clearly identify material that is confidential or commercially sensitive and which may not be released and outline the reasons why this is the case. The provisions of the Freedom of Information Acts 1997 to 2014 apply. A non-confidential version of responses should be set out in a separate document and must be provided to the Department by the closing date set out herein.

All responses to this consultation should be clearly marked: "**International Connectivity for Telecommunications'- Name of Respondent**" and sent to the following email address:

Email: IntComms@decc.gov.ie