

Abstract

With an aim to give policy recommendations strengthening digital economy in Taiwan, this project conducted a study on international trend of regulation on internet exchange market and analyzed the internet exchange pricing policy that are appropriate for domestic internet access/exchange market.

Since telecom operators, especially ISPs (Internet Access Service Providers) have to conduct cross-industry and cross-border internet traffic transmission and exchange in which a large amount of data traffic is involved. Therefore, how to reduce the cost of Internet traffic exchanges and increase the profitability of IASPs and various telecom operators is a long-term concern.

According to the main finding in the international Internet exchange and peering development trends analysis, Whether the operator should pay (or how much to pay) for the exchange of traffic is usually based on commercial negotiation, among which most are handshake agreements, and the factors that may influence the decision based on business benefits involved in the transaction.

Taiwan has set the price of Internet interconnection as a wholesale price item that the domestic dominant market player, i.e. Chunghwa Telecom, should be subject to. Through the annual adjustment of the price (X value) under the authority's supervision, the price on peering with Chunghwa Telecom has gradually decreased these years. At the present, the wholesale price provided by Chunghwa Telecom has been reduced from NT\$ 1480/Mbps in 2009 to NT\$ 119/Mbps as of April 2018. Along with Chunghwa Telecom's volunteer plan offered in 2017, the price adjustment has also taken the average Transit Price in main regions of Asia into consideration for two consecutive years.

While the government has put efforts to develop various digital economy policy, internet traffic exchange fees seems to have influence on the cost of telecom operators and the development of digital economy in Taiwan. Therefore, the purpose of this study is to analyze the current supervision of adjusting the Internet peering fees as wholesale price, and whether it meets the needs of digital industrial development, in order to see whether there are other more forward-looking and more effective policy tools that can be introduced.

This study is conducted firstly by collecting specific countries/regions'

internet access and traffic exchange markets, as well as the status and trends of digital economic development of these countries/regions. This study decided that the US, European Union, UK, Poland and Japan should be singled out as research objects. Secondly, the comparison of different supervision mechanism of Internet traffic exchange fees between Taiwan and other countries/regions is made by analyzing the previous data. Thirdly, this study analyzes the advantages and disadvantages of relevant policies, mechanisms or measures on the overall digital industrial development in Taiwan (such as the network infrastructures and the application of innovative services). In the meanwhile, this study aims to recommend relevant policy tools or law/decrees amendment in order to form a regulation scheme on traffic exchange fee that domestic digital economy could benefit from, therefore opinions of relevant stakeholders are also collected. The collecting process are mainly conducted through conferences and a public consultation.

The main findings in the international Internet exchange market and development trends of exchange method (including peering/transit/Content Delivery Network) include:

■ Internet industry features in the digital economy

In practice, ISPs consider strategically while peering with large ISPs. Large ISPs are willing to work with similar-size ISP, but when it comes to matters of reaching regional end points, or peering with other companies with AS networks, ISP tend to accept free-peering agreement. However, the main motivation is to traffic exchange costs, latencies, local connectivity, increased redundancy, operational stability, etc.

■ Rise of Content Delivery Network as internet traffic exchange method

On a global scale, the economic relevance of CDNs continues to grow as CDNs account for an increasing share of total traffic. This is largely driven by the increasing quantitative relevance of video streaming traffic. According the investigation conducted in this study, there is a similar case in Taiwan.

■ International trend of supervision of traffic exchange fee

Most countries take low-level regulation, the possible reasons are as following:

1. Internet technology is different from circuit switching which has bottlenecks problems;
2. Peering and Transit can be adopted as an alternative in the Internet

traffic exchange market;

3. The proportion of using CDN as an traffic exchange method increases, reflecting the change in technological development;

4. Global Transit prices continue to decline, indicating the effective competition in the Internet traffic exchange market;

5. Although most countries do not tend to control over the Internet traffic exchange market, when there is a dispute over the Internet interconnection fee (peering or transit fee) between ISPs, the authorities still intervene the case through mediation or similar dispute resolution.

■ Suggestion: maintain current regulation

Current regulation mode adopts the Price-cap regulation (X value.) In addition, through Chunghwa Telecom's volunteer plan offered in 2017, the price adjustment has also taken the average Transit Price in main regions of Asia into consideration, making the private peering fee comply with international trend. This paper suggests the government should maintain current regulation mode based on the consideration of regulatory costs, regulatory impacts, scale of peering market and so forth. In the mid-to-long term, this paper suggested to set up an institution to investigate the condition of domestic ISPs' internet traffic exchanged.

Key Words:

Internet Traffic Exchange; Internet Access Service Market; Pricing of Internet Traffic Exchange; Peering, Transit; Digital Economy