

# Chapter IX

## International Internet Interconnection Service in Asia–Pacific Region

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### ABSTRACT

*Since 1986, the Internet has developed into a global network enabling users worldwide to connect to each other to exchange information and data. The initial zero settlement peering arrangements, however, have now largely been replaced by commercial transit arrangements, as backbone providers seek to recoup their network infrastructure investments and generate commercial profits. This is a key cause of the issues and debates that have emerged between developed and developing countries about international Internet interconnection services (IIS). This study focuses on current interconnection settlement arrangement models that disfavor ISPs and end-users in the Asia-Pacific region. After reviewing the Internet market and digital divide in the region, the chapter summarizes the main current IIS issues between the Asia-Pacific and Western regions into three categories of concern: inequity, anticompetitive practices and the threat of the “balkanization” of the Internet. Practical recommendations to resolve these issues and improve the Asia-Pacific IIS market are discussed from regional and international perspectives.*

### 1. INTRODUCTION

The Internet is commonly understood to be a worldwide network reaching beyond national borders. This worldwide connectivity, however, does not mean that there is one global network serving all regions across the world. Instead, this

connectivity is created by countless open-architecture networks of varying sizes, interconnecting to exchange information and data. The original free peering arrangement, however, has now been replaced by transit arrangements, as backbone providers have sought to recoup their network infrastructure investments and generate com-

mercial profits. Transit arrangements constitute a special problem for ISPs in the Asia-Pacific region with regard to their interconnection to American IBPs (or 'backbones') and ISPs from other regions, as such Asia-Pacific/US interconnections are provided under one-sided transit arrangements, which entail the full costs of such connections being borne by the Asia-Pacific region.

This type of unilateral settlement arrangement seemed to make sense up until the 1990s, when most internet-related information was concentrated in the US, but this is no longer the case. ISPs in Korea and other Asia-Pacific countries have been paying excessive prices to IBPs in the US and other developed countries on the basis of such agreements, a situation that is exacerbating the digital divide between world regions. The Asia-Pacific countries officially challenged this inequitable cost-sharing arrangement at the third APEC TEL Working Group meeting in Singapore in 1998. During this meeting, a special taskforce (the International Charging Arrangement for Internet Service; ICAIS) was formed, and a resolution adopted to conduct research in this area<sup>1</sup>. However, investigating the internet connection market is far from easy, as details of interconnection arrangements are considered as purely commercial agreements which have been freely consented to by the parties involved, and are thus generally kept confidential. Typically, such contracts impose confidentiality not just as to their principal content, but also about pricing details and even the most general information. Challenges to research investigations also come from the sheer complexity of internet traffic, which makes it more difficult to design rational settlement models than, for example, for telephone networks. Efforts to resolve the imbalances in charging arrangement have thus so far failed to produce concrete results.

This chapter, as a pilot study under the deficiency of the related data and previous studies, deals with the IIS (International Internet Interconnection Service) market, particularly, the current

interconnection settlement arrangement which disfavors ISPs in the Asia-Pacific region, further is to give the alternative methods to resolve this issue by examining the debates among internet-related experts and policymakers, reviewing other records containing the content of meetings of international organizations such as WTO, APEC, OECD and ITU-T, etc.

The chapter is arranged as follows. Section 2 offers the various types of arrangements in its hierarchy of interconnection. Section 3 reviews the recent trends in the Asia-Pacific internet market from the perspective of the digital divide between the developed and developing countries, while section 4 examines several issues raised in recent years about interconnection services between the Asia-Pacific and Western regions. Practical recommendations designed to resolve these issues and to develop the Asia-Pacific IIS market are discussed in section 5. Finally, section 6 includes the summary and concluding remarks.

## **2. IIS AND INTERCONNECTION AGREEMENTS**

The Internet is a network of computer networks operated by various ISPs using a universal protocol known as TCP/IP. Traffic exchange occurs both between ISPs located in different service geographic regions, and between those at different tiers of the internet connection hierarchy. Arrangements for physical interconnections between these ISPs may be distinguished into two broad categories: peering arrangements – which involves the cost-free transfer of data - and transit arrangements, where ISPs or IBPs charge for such transfers. Thus internet connectivity is ensured via one or more of these peering and/or transit arrangements.

IBPs forward traffic generated by both their own customers and subscribers to other ISPs on to outside regions, interconnecting with other IBPs to exchange data under connection agreements

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