

CHAPTER 1 Introduction

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Kilnam Chon

Writing the second book on Asia Internet history in the 1990s has been very different from the first one in the 1980s [Chon 2013b]. It was not easy to gather data on the 1980s and earlier for the first book. For example, we spent some time determining the dates and locations where the International Academic NetWorkshop (IANW) was held from 1982 to 1989 [Landweber 2013]. Collecting the proceedings of the IANW was even more challenging, and we only succeeded partially. Another difficulty was that some Internet pioneers who worked in the 1980s and earlier were not available to write articles. On the other hand, the situation for the 1990s, especially after mid-1990, is very different. We were able to access a lot of information through various websites because of the invention of the WWW in the early 1990s. Many Internet pioneers from the 1990s are still available to contribute articles. For example, we had a hard time collecting information about the first INET Conference in 1991, and we barely obtained the table of contents after extensive searching, but not the contents themselves. However, in contrast, we could access the online proceedings of the INET Conferences from 1994 onward through its host organization, the Internet Society.

But the 1990s presented another challenge—the widespread growth of the Internet worldwide, which was thoroughly documented in Lawrence Landweber’s Connectivity Map and Connectivity Table [Landweber 1997]. In these, he reported the status of Internet connectivity for all countries starting in the early 1990s and created a global map of Internet connectivity. The international connectivity map from 1991 is available in Fig. 1-1 with permission from the copyright owners, Lawrence Landweber and the Internet Society. We included the connectivity maps and tables from the 1990s in Appendix D of the project website, <http://InternetHistory.asia/book2>. Additionally, we included the last available connectivity map from 1997 in Chapter 10, Snapshots of the Internet Around 2000, and the corresponding connectivity table in Appendix C, Connectivity Table, Version 16.

On the other hand, easy access to information about various organizations and events presented a different challenge. For example, the Internet Engineering Task Force (IETF) and the World Wide Web Consortium (W3C) have excellent websites where nearly any information about these organizations can be found. Deciding what was important to include became the challenge we faced for the second book of our Asia Internet History Project, given the wealth of information available online. Faced with this challenge, we chose to focus more on the “why” rather than the “what” for the second book of the 1990s.

Another challenge we faced with the second book was that the Internet has become very popular across various communities, not just among the research and education sectors as it was in the 1980s, when there were more than 100 million users in Asia toward the end of the 1990s. Therefore, covering every aspect of the Internet as we did for the 1980s would be nearly impossible. After deliberation, we decided to focus on Internet organizations in Asia that grew from one or two at the beginning of the 1990s to around twenty by the end of the decade.

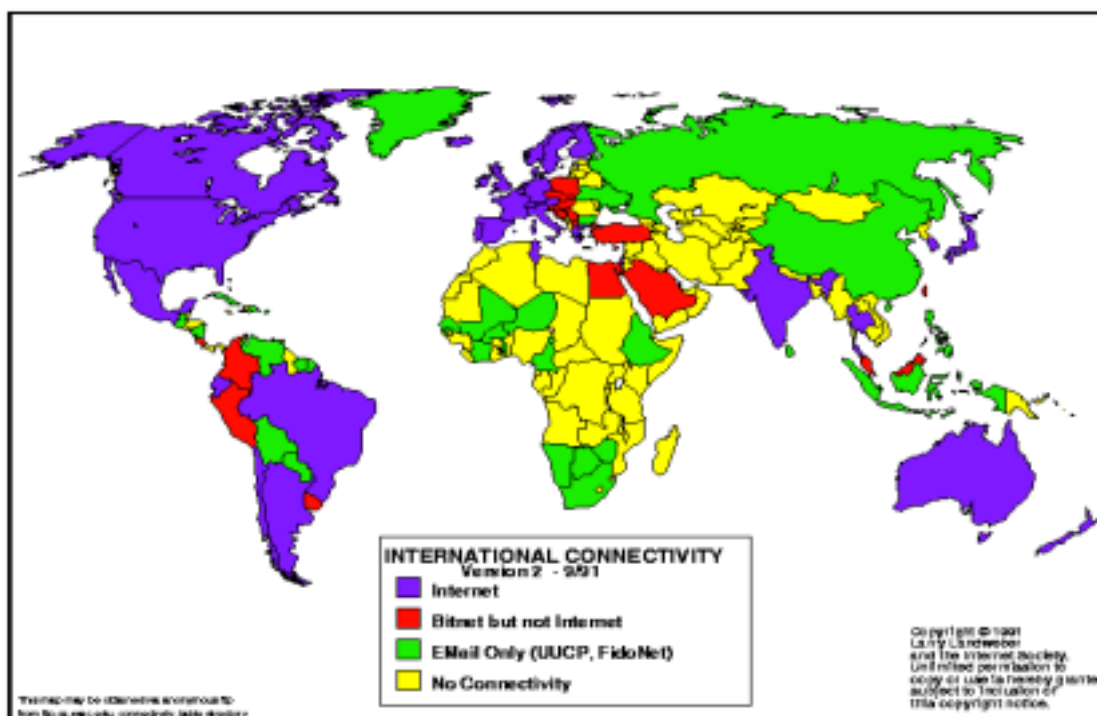


Figure 1-1. International Connectivity Map (1991.9)

Histories of some global Internet organizations and events that affected the Internet in Asia, such as the INET Conferences and the Internet Society Developing Country Workshops, were not well documented. Therefore, we decided to explore their histories during the 1990s, even though these could be considered global events like the International Academic NetWorkshop (IANW), which we discussed in the first book on the 1980s [Landweber 2013]. Conversely, we chose not to include articles on highly documented organizations like the World Wide Web Consortium (W3C), which was mentioned earlier.

We structured the book with the following chapters and appendices:

Chapter 1 Introduction

Chapter 2 Asia Pacific Networking Group

2.1 Coordinating Committee for Intercontinental Research Networking (CCIRN)

2.2 Asia Pacific Coordination Committee for Intercontinental Research Networking (APCCIRN)

Chapter 3 International Meetings and Organizations

3.1 International Networking (INET) Conference

3.2 The Internet Society Developing Country Workshops

3.3 Internet Corporation for Assigned Names and Numbers (ICANN)

Chapter 4 Spinoff Organizations of Asia Pacific Networking Group

- 4.1 Asia Pacific Star Retreat (AP* Retreat)
- 4.2 Asia Pacific Networking Group Camp (APNG Camp)
- 4.3 Africa Asia Forum on Network Research and Engineering (AAF)
- 4.4 Asia Future Internet Forum (AsiaFI)

Chapter 5 Major Domestic Conferences

- 5.1 Japan
- 5.2 South Korea

Chapter 6 Network Operators' Groups

- 6.1 Asia Pacific Regional Internet Conference on Operational Technologies (APRICOT)
- 6.2 Network Operators' Groups (NOGs)

Chapter 7 Research and Education Networks

- 7.1 Widely Integrated Distributed Environment Project (WIDE Project)
- 7.2 Asia Pacific Advanced Network Consortium (APAN)
- 7.3 TransPac Networking Project
- 7.4 Trans-Eurasia Information Network (TEIN)
- 7.5 Global Ring Network for Advanced Application Development (GLORIAD)
- 7.6 SILK Programme—Internet Provision for Universities in Central Asia

Chapter 8 Names and Numbers

- 8.1 Overview
- 8.2 Asia Pacific Network Information Center (APNIC)
- 8.3 Asia Pacific Top Level Domain Forum (APTLD)

Chapter 9 Internationalization and Localization

- 9.1 Internationalization and Localization Working Group
- 9.2 Internationalized Domain Names (IDN)

Chapter 10 Snapshots of the Internet around 2000

- 10.1 Bangladesh
- 10.2 Cambodia
- 10.3 India
- 10.4 Japan
- 10.5 Malaysia
- 10.6 North Korea
- 10.7 Sri Lanka

Chapter 11 Retrospective—Toward Twenty-First Century

Bibliography

Appendix A Year Table of Internet History

Appendix B Regional Internet Organizations

Appendix C Connectivity Table, Version 16, 1997.6.15

In Chapter 2, Asia Pacific Networking Group, we discuss the first permanent Internet organizations in Asia. We start with the Asia Pacific member organization of the Coordinating Committee for Intercontinental Research Networking (CCIRN). CCIRN was established in 1988 to coordinate trans-Atlantic communication links between Europe and North America. Since there is no comprehensive history article available about CCIRN, we decided to write one. CCIRN invited Asia as its third continental member in 1991. The Asia Pacific Internet community accepted the invitation, and we decided to form the Asia Pacific member organization of CCIRN, called the Asia Pacific Coordination Committee for Intercontinental Research Networking (APCCIRN), just as our counterparts in Europe and North America had done. Once we formed APCCIRN, we created numerous working groups and a project to address pending issues for the Asian Internet community. For example, a Regional Internet Registry (RIR) called the Asia Pacific Network Information Center (APNIC) was established as an experimental project, along with several other working groups, including the Internationalization and Localization Working Group (i18n WG) and the Satellite Working Group. See the details in Section 2.2 APCCIRN and Chapter 4 Spinoff Organization of Asia Pacific Networking Group for more information about these organizations. APCCIRN was renamed the Asia Pacific Networking Group in 1994 to better reflect the organization's scope.

In Chapter 3, International Meetings and Organizations, we discuss global meetings and organizations that influenced both the Asian Internet community and the worldwide Internet community. The Annual International Academic NetWorkshop (IANW) held its last session in 1989, after which a larger and more comprehensive conference on the Internet, called the International Network Conference (INET), was established to replace it. The first INET Conference took place in 1991 and was immediately successful. When the Internet Society was founded in 1992, it adopted INET as its primary conference. The Developing Country Workshops began during the first INET in 1991. Over the 1990s and early 2000s, these workshops trained several thousand Internet engineers from more than 100 countries. The Developing Country Workshops, alongside INET Conferences, played a significant role in the globalization of the Internet during that period. By the end of the 1990s, the Internet Corporation for Assigned Names and Numbers (ICANN) was established to manage domain name and IP address administration, as well as the root servers for domain names.

In Chapter 4, Spinoff Organizations of the Asia Pacific Networking Group, we examine APNG spinoff organizations, excluding additional spinoffs that will be discussed in Chapter 7—Research and Education Networks, and Chapter 8—Names and Numbers. APNG spun off about twenty Internet organizations in the 1990s and 2000s, either directly or through its spinoffs.

In Chapter 5 Major Domestic Conferences, we cover a few countries that organized major Internet conferences with over 1,000 participants or more. INET as well as the Pacific Computer Communications Symposium (PCCS) in 1985 influenced China, Japan, and South Korea to develop the major domestic Internet conferences in their own countries [PCCS 1985]. Other countries also founded one or more big domestic conferences in their home

countries.

In Chapter 6, Network Operators' Groups (NOGs), we discuss meetings for network engineers and operators. The North American Network Operators Group (NANOG) was founded in 1994 [NANOG 2013]. It influenced the creation of the Asia Pacific Regional Internet Conference on Operational Technologies (APRICOT), which held its first conference two years later in 1996. The success of APRICOT and NANOG shaped NOG developments in various subregions in Asia, including South Asia (SANOG), West Asia (MENOG), and the Pacific (PacNOG). NANOG, APRICOT, and these subregional NOGs further impacted the formation of many national NOGs. There are more than ten countries with national NOGs in 2013.

In Chapter 7, Research and Education Networks, we discuss six networks established from the late 1980s through the early 2000s. The WIDE Project was launched in Japan in 1988 to address various areas, from network operation to research and development. It also spawned spin-offs such as the Asia Internet Interconnection Initiative Project (AI3), which focused on satellite networking, and the School on Internet Asia (SOI Asia), dedicated to remote education. The Asia Pacific Advanced Network Consortium (APAN) was founded in 1997 and assumed most research and education network activities previously handled by APNG when it shifted focus. APAN also spun off several Internet organizations, including the Asia Pacific Bioinformatics Network (APBioNet). The TransPac Networking Project, created to connect Asia and the USA alongside APAN, is considered part of APAN. The Trans-Eurasia Information Network (TEIN) began with the Korea-France Network in 2000 and later expanded to include more Asian countries with additional intra-Asian links. TEIN worked closely with APAN in Asia and GEANT in Europe. GLORIAD originated from MirNET, a Russia-US network in the 1990s, which evolved into a global circular link with China joining in 2004. GLORIAD introduced the first trans-Siberia link between Russia and China, engineered to withstand Siberia's harsh winter cold. Later, South Korea, the Netherlands, Scandinavian countries, and Canada joined. GLORIAD was the first to establish a direct Africa-Asia link via Egypt. Currently, the only missing direct intercontinental link for Asia is between Asia and Latin America. The SILK Programme, initiated by NATO in 2001, focused on research and education networks for Central Asian countries, initially using satellite links for international interconnection.

In Chapter 8, Names and Numbers, we decided to provide an overview of these areas because they are very important parts of Internet governance. We were involved in quite complex activities related to names and numbers in the late 1990s. Both country code top-level domains (ccTLDs), IP addresses, and other numbers became accessible to people outside the USA in the mid-1980s. These are the only areas where the Internet is managed centrally. When IP address allocation became too complicated to handle centrally in the USA, it was decided to distribute its management to Regional Internet Registries (RIRs) across the five continents, starting with RIPE NCC in Europe in 1992. The following year, the Asia Pacific Committee for Intercontinental Research Networking (APCCIRN) decided to start the Asia Pacific Network Information Center (APNIC) Experiment Project. This project was successfully completed in 1994, and it was decided to officially establish APNIC with its inauguration meeting in 1995.

The global Internet community went through a series of complex negotiations to manage

top-level domain names, IP addresses, and other numbers worldwide in the late 1990s, including the 1996 International Ad Hoc Committee (IAHC).

1998 International Forum on the White Paper (IFWP)

1998 Internet Corporation for Assigned Names and Numbers (ICANN) 1999

Address Supporting Organization (ASO) under ICANN

1999 Domain Name Supporting Organization (DNSO) under ICANN 1999

First ICANN Meeting

During the late 1990s, the Asia Pacific Top Level Domain Forum (APTLD) was established to coordinate ccTLDs and gTLDs in Asia.

Chapter 9, 'Internationalization and Localization,' is quite unique in many ways. These issues are especially important in Asia, where we tend to use local scripts that are significantly different from the English alphabet. The Internet was originally designed for English speakers using ASCII code in the USA and struggles to handle other scripts, especially many Asian scripts that are much more complex than English. As a result, the Internationalization and Localization Working Group (i18n WG) was established soon after APCCIRN was founded in 1993. Later in the 1990s, APNG began working on internationalized domain names (IDNs) to support local scripts as domain names. IDNs became available under ASCII TLDs, including both ccTLDs and gTLDs, in 1998. Furthermore, IDNs in top-level domains became available starting in 2011, beginning with ccTLDs.

Chapter 10, Snapshots of the Internet around 2000, covers selected countries and their Internet environments at the turn of the century. We chose not to include snapshots of the other four continents because the previous book on the first decade (1980-1990) already covered that, and much information on other continents around 2000 is available in various books, periodicals, and websites. We also decided not to include many other countries in Asia since there are numerous books and articles that are readily available.

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