Kilnam Chon

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

But the 1990s posed another challenge—the proliferation of the Internet around the world which was documented well in Lawrence Landweber's Connectivity Map and Connectivity Table [Landweber 1997]. There, he published the status of Internet connectivity for all countries in the world starting from the early 1990s and drew a global map of Internet connectivity. You can find the international connectivity map in 1991 in Fig. 1-1 with the permission of the copyright owners, Lawrence Landweber and the Internet Society. We included the currently available connectivity maps and connectivity tables in the 1990s in Appendix D of the project website, http://InternetHistory.asia/book2. We also 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, readily available information on various organizations and events raised a different challenge. For example, the Internet Engineering Task Force (IETF) and the World Wide Web Consortium (W3C) have very good websites where one may obtain almost any information about these organizations. The question of what was important to record became the challenge we faced for the second book of our Asia Internet History Project when so much information is available through various websites. Faced with this challenge, we chose to focus more on the "why" rather than the "what" for the second book of the 1990s.

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

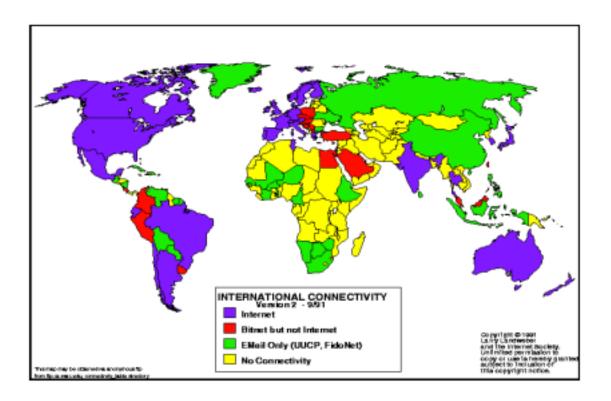


Figure 1-1. International Connectivity Map (1991.9)

Histories of some of the global Internet organizations and events which impacted the Internet in Asia such as the INET Conferences and the Internet Society Developing Country Workshops were not well documented, and so we decided to cover their histories during the 1990s even though these may be considered global events like the International Academic NetWorkshop (IANW) that we covered in the first book on 1980s [Landweber 2013]. On the other hand, we decided not to include articles on very well documented organizations such as 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 cover the first permanent Internet organizations in Asia. We need to start with the Asia Pacific member organization of the Coordinating Committee for Intercontinental Research Networking (CCIRN). CCIRN was formed in 1988 to coordinate trans-Atlantic communication links between Europe and North America. Since there is no good 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. As soon as we formed APCCIRN, we decided to form many working groups and a project to handle pending issues for the Asian Internet community. For example, a Regional Internet Registry (RIR) called Asia Pacific Network Information Center (APNIC) was experimental project, and several working groups including the formed as an Internationalization and Localization Working Group (i18n WG) and the Satellite Working Group were set up as well. See the detail in Section 2.2 APCCIRN and Chapter 4 Spinoff Organization of Asia Pacific Networking Group for details of these organizations. APCCIRN was renamed the Asia Pacific Networking Group in 1994 to reflect the scope of the organization.

In Chapter 3 International Meetings and Organizations, we cover the global meetings and organizations that impacted the Asian Internet community as well as the global Internet community. The Annual International Academic NetWorkshop (IANW) held its last workshop in 1989 with the understanding that a much larger and more comprehensive conference on the Internet, called the International Network Conference (INET) would take its place to replace IANW. The first INET Conference was held in 1991, and it was an instant success. The Internet Society, when it was founded in 1992, adopted INET as its main conference. The Developing Country Workshops started during the first INET in 1991. Eventually, the Developing Country Workshops trained several thousand Internet engineers from over 100 countries in the 1990s and early 2000s. The Developing Country Workshops with INET Conferences impacted globalization of the Internet in the 1990s and the 2000s. At the end of the 1990s, the Internet Corporation for Assigned Names and Numbers (ICANN) was formed to take charge of administration of domain names and IP addresses as well as the root servers for domain names.

In Chapter 4 Spinoff Organizations of the Asia Pacific Networking Group, we visit APNG spinoff organizations except additional spinoffs to be explained in Chapter 7–Research and Education Networks, and Chapter 8–Name and Numbers. APNG spun off around 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 cover meetings for network engineers and operators. The North American Network Operators Group (NANOG) was founded in 1994 [NANOG 2013]. It influenced the formation of the Asia Pacific Regional Internet Conference on Operational Technologies (APRICOT), which had its first conference two years later in 1996. Success of APRICOT and NANOG influenced 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 influenced 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 cover six research and education networks which were founded from the late 1980s through the early 2000s. The WIDE Project was founded in Japan to cover many areas from network operation to research and development in 1988. It also had its own spin offs called the Asia Internet Interconnection Initiative Project (AI3) dealing with satellite networking, and the School on Internet Asia (SOI Asia) dealing with remote education. The Asia Pacific Advanced Network Consortium (APAN) was founded in 1997, and it took over most of the research and education network activities of APNG when it stopped focusing on the research and education network activities. APAN, in turn, spun off a few Internet organizations including the Asia Pacific Bioinformatics Network (APBioNet). The TransPac Networking Project to link Asia and USA was founded together with APAN and is considered to be a part of APAN. The Trans-Eurasia Information Network (TEIN) started with the Korea-France Network in 2000, and it was later expanded to cover more countries in Asia with additional intra-Asia links. TEIN cooperated very closely with APAN in Asia and GEANT in Europe. GLORIAD had its origin in MirNET, a Russia-US network in the 1990s, which evolved to become a global circular link with the addition of China in 2004. GLORIAD added the first trans-Siberia link between Russia and China with very elaborate engineering to make it able to withstand the cold weather of Siberia in winter. Later, South Korea, Netherlands, the Scandinavia countries, and Canada joined. GLORIAD was the first network to realize a direct. Africa-Asia link through Egypt. Thus, the only missing direct intercontinental link for Asia is an Asia-Latin America link at the moment. The SILK Programme focused on the research and education networks for countries in Central Asia with an international interconnection of these research and education networks through satellite links initially. NATO took the initiative for the Silk Programme in 2001.

In Chapter 8 Names and Numbers, we decided to provide an overview in these areas since they are very important parts of Internet governance, and we were involved in fairly complicated activities on the names and numbers in the latter part of the 1990s. Both country code top-level domains (ccTLDs), and IP addresses and other numbers became available to those outside of the USA in the mid-1980s. These are the only areas where the Internet is centrally managed. As soon as the IP address allocation became too complex to handle centrally in the USA, it was decided to distribute its administration to Regional Internet Registries (RIR) on the five continents starting with RIPE NCC in Europe in 1992. In the following year, Asia Pacific Committee for Intercontinental Research Networking

(APCCIRN) decided to start the Asia Pacific Network Information Center (APNIC) Experiment Project that was successfully completed in 1994, and it was decided to officially form APNIC with its inauguration meeting in 1995.

The global Internet community went through a series of complex negotiations to handle top-level domain names, and IP addresses and other numbers globally in late 1990s as follows: 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 formed to coordinate ccTLDs and gTLDs in Asia.

Chapter 9 Internationalization and Localization is rather unique in many ways. These issues are very important in Asia since we tend to use local scripts that are substantially different from the English alphabet. The Internet was created for those using English with the ASCII code in the USA, and it cannot handle other scripts well, in particular many Asian scripts that are far more complex than the English script. Thus, the Internationalization and Localization Working Group (i18n WG) was set up as soon as APCCIRN was founded in 1993. Later in the 1990s, APNG started to work on internationalized domain names (IDNs) in order to support local scripts as domain names. IDN became available under ASCII TLDs including both ccTLDs and gTLDs in 1998, and IDNs in top-level domains became available in 2011 starting with ccTLDs.

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

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