

CHAPTER 5 Meetings and Organizations in the 1980s

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The International Academic NetWorkshop (IANW) was one of the first global Internet-related meetings, begun in 1982 between North America and Europe as an annual workshop. Peter Kirstein chaired the first workshop in 1982, and Lawrence Landweber chaired IANW from its second meeting in 1983 until its last meeting in 1989.

The Network Working Group (NWG) of ARPANET Project which was created in the late 1960s was in charge of Internet standards development. The first RFC document of NWG was Request For Comments 1: Host Software, authored by Steve Crocker on 1969.4.7. A related international group, called the International Network Working Group, was created in 1972. The Internet Engineering Task Force (IETF) was founded in 1986 to take over the Internet standardization activity described in the Request For Comments (RFC), the Internet standards document from the Network Working Group of ARPANET Project.

Several countries, including Australia, India, Japan, and South Korea, started computer network research and development in the 1970s. All of them had contacts with North America and/or Europe, including exchanges with the ARPANET Project, prior to the 1980s regarding network research and development, but no exchanges among themselves in Asia. One of the dearly Internet-related meeting participants from Asia was Kilnam Chon, who participated in an informal meeting on UUCPNET during the 1982 USENIX Conference in Boston where he exchanged information with organizations involved in the UUCP-based networks in North America (*seismo*, *hplabs*, etc.) and Europe (*mcvax* in the Netherlands) and where an agreement was struck to collaborate on UUCPNET connections [Chon 2013]. He also participated in the NUS/UNESCO Workshop on Microcomputer Applications in February 1984, where he proposed the development of what became AsiaNet, a UUCP-based regional computer network in Asia. AsiaNet was launched that same year with partners from Indonesia, South Korea, and Singapore in addition to Australia and Japan which did not participate in the workshop [Chon 1985b; NUS 1984]. Other countries and regions in Asia that joined AsiaNet later in the 1980s include Hong Kong, Taiwan, and Thailand.

The International Academic NetWorkshop (IANW) organized its first meeting to coordinate research and educational networks between Europe and North America in 1982. Kilnam Chon participated in the IANW meeting held in the summer of 1985 in Stockholm as one of the first participants outside Europe or North America to attend. There, he came in touch with many organization involved in computer networks including ARPANET, BITNET and various European networks. The IANW was the only global network coordination meeting held amongst intercontinental partners at the time. Please refer to Section 5.1 IANW by Chon as well as Appendix D IANW by Landweber which is available in <http://InternetHistory.asia/book1> for further information on IANW. Finding the information exchanges to be very valuable, Chon contacted his counterparts in Australia, Indonesia, and Japan to recommend their participation at future IANW meetings. Australia and Indonesia began participation from the following year in 1986. China, India, Hong Kong, Japan, Malaysia, New Zealand, and Singapore began to participate in IANW from 1987. The International

Academic Networkshop – Asia-Pacific (IANW-AP) Meeting was held during the Dublin IANW Meeting in 1986 to coordinate research networking in Asia-Pacific, and had Australia, Indonesia, and South Korea as the participants to the first IANW-AP meeting.

Several countries in Asia including Australia, Israel, New Zealand and South Korea also joined CSNET, beginning with Israel in 1983. See Section 4.2 CSNET by Chon for details on CSNET. Please also refer Appendix CSNET by Landweber in

<http://InternetHistory.asia/book1>. CSNET members from Asia as well as AsiaNet members also joined in discussions at the annual IANW-AP meetings during IANW.

The Pacific Computer Communication Symposium (PCCS) was held in Seoul in October 1985 [PCCS 1985]. This global Internet conference was attended by 300 participants from Asia, Europe, and North America to coordinate work on the Internet and other computer networks in Asia and the world, as well as to foster discussion on research and development on computer networks and data communications. As one of the follow-on events, the Joint Workshop on Computer Communications (JWCC) was launched in 1986, initially with participants from Northeast Asia but with coverage that later expanded to Asia as a whole and beyond. The JWCC has remained active until now, with the name changed to ICOIN later in the 1990s. Similarly, the SDN Workshop was created as a domestic workshop for South Korean participants in 1986. Its name was later changed to the Winter Computer Communications Workshop, and again changed to the Summer Workshop on Computer Communications when the annual workshop was moved to summer.

Norman Abramson of the University of Hawaii, who developed a satellite network for ARPANET in the 1970s, ran a UNESCO-funded project in 1984-85 with the aim of promoting data communications and information exchange networks [Abramson 1985]. During that time, he visited several countries in Asia, including Singapore, The Philippines, Thailand, India, and China to assess the possibility of computer networks development there as well as giving lectures on computer networking.

The PACific COMmunications Network (PACCOM) Project was launched in 1989 to connect various Asian countries to the US Internet through hubs at the University of Hawaii and NASA Ames. See Section 3.4 for details on the PACCOM project. The project was initially funded by the National Aeronautics and Space Administration (NASA) in the United States as well as other participating countries including Australia, Hong Kong, Japan, South Korea, and New Zealand. The National Science Foundation (NSF) and US Department of Energy (DoE) joined NASA as the US funding agencies in 1991 with the NSF functioning as its contract agency. PACCOM held project coordination meetings once or twice a year, typically in Hawaii (summer 1991, summer 1992, winter 1993, etc.).

5.1 International Academic Networkshop (IANW)¹

Kilnam Chon

¹ This article is a personal account written by Kilnam Chon. An additional article with the same title by Lawrence Landweber, the chair of the International Academic Workshop (IANW) for all years except the first year is available in Appendix D of Book 1 (1980s) on the Asia Internet History Project website, <http://InternetHistory.asia>.

Outside of the two ARPANET nodes in the UK and Norway, the first major intercontinental collaborations on computer networking took place in the 1970s through the International Network Working Group (INWG) and the International Conference on Computer Communications (ICCC).

The 1980s saw the creation of another major intercontinental collaboration, called the International Academic Networkshop (IANW), with its first meeting held in London in 1982 and chaired by Peter Kirstein of University College London, a university which hosted one of the two ARPANET nodes outside of the USA. Kirstein did not attend the second workshop in Oslo in 1983 and so Lawrence (Larry) Landweber took over as chair and continued to chair the workshop until the last workshop in Sydney in 1989 after which the group was dissolved, and replaced by International NETwork Conference (INET), which had its first conference in

1991. Some called IANW “Landweber’s Workshop.”

IANW focused on cooperation and information exchange, whereas International Network Working Group (INWG) in the 1970s focused on technology development. IANW tended to be informal with updates provided by each participating country and network, followed by a discussion on specific topics. The IANW was held for three or four days, and all participants stayed at the same hotel where the workshop was held. The human networks that developed through IANW may be the biggest contribution that the workshop made at a time when there were not too many global events dedicated to computer networking including the Internet.

The IANW was held from 1982 until 1989 with participation of the following countries (years are dates of the first participation) [Landweber 2013]:

1982 London Italy, Norway, Sweden, Switzerland, UK, USA, West Germany

1983 Oslo Finland

1984 Paris Belgium, Canada, France, Ireland, Israel, Spain

1985 Stockholm South Korea, Netherlands

1986 Dublin Australia, Indonesia

1987 Princeton Brazil, Chile, China, Costa Rica, Hong Kong, India, Japan, Malaysia,
Mexico, New Zealand, Singapore

1988 Jerusalem Denmark, Ivory Coast

1989 Sydney Venezuela

The IANW has not been well documented. We at the Asia Internet History Project tried to collect as much information as possible on the IANW; the information we assembled is available at the Project’s website, <http://InternetHistory.asia/lib/ianw-proceedings>.

Kilnam Chon visited the University of Wisconsin to meet Lawrence Landweber (and Douglas Comer in Purdue University) on a cold day in May 1984 to discuss on CSNET. Chon then learned about IANW which Landweber had been chairing since 1983. Chon naturally requested to participate in IANW, and he was allowed to participate from 1985 on – the first time a representative from outside North America and Europe other than Israel had been present. When he went to the hotel lobby in Stockholm where the 1985 IANW was held, he saw a person with a very thick beard sitting alone. They greeted each other, and Chon found out that the gentleman was Teus Hagen who was in charge of EUnet. They had already been communicating for a few years since 1983 to coordinate UUCP networking between Asia (AsiaNet) and Europe (EUnet), but this was the first time they met in person. Kilnam Chon also had various coordination meetings with delegates from the USA given that the Pacific Computer Communications Symposium (PCCS) was scheduled to be held four months later in Seoul. He took those occasions to invite some European delegates to PCCS, too.

Kilnam Chon appreciated what IANW had to offer – in particular, its mix of human networking and information exchange. He encouraged his AsiaNet colleagues to participate in future IANWs. Australia and Indonesia joined the 1986 IANW in Dublin where a regional meeting for Asia-Pacific nations with these countries, IANW-AP, was formed, and its first meeting was conducted on the spot. He also discussed with Steve Wolff from the US NSF about the possibility of direct international links via IPv4, i.e., connecting the Internet in the USA to foreign IPv4 networks, during one of the evenings. Wolff agreed to the idea and promised to work on the matter as soon as possible. A few months later, we were told that the newly founded NSFNET in 1986 would be available for direct IPv4 links to non-US research networks.

Kilnam Chon came across Michael Stanton from Brazil in the UK in 1987 and encouraged him to participate in the 1987 IANW, which was to be held in Princeton, USA. It

was the first time that Latin America participated in the IANW.

Following the Princeton IANW, delegates from Europe and USA went on to Washington, D.C. to discuss trans-Atlantic links between Europe and North America in 1987, where they decided to form the Coordinating Committee for Intercontinental Research Networking (CCIRN) in 1988. Asia was invited to join CCIRN three years later in 1991.

The 1988 IANW held in Jerusalem saw participation from Africa for the first time, and thus IANW became a global meeting with representation from all five continents. The total number of countries that had participated by 1989 when IANW held its last meeting was 31. The 1989 IANW in Sydney hosted around 200 participants from around thirty countries. It was apparent that an informal workshop was no longer appropriate for global Internet cooperation, and so it was decided to end the IANW and to organize a new global conference to be called the International Network Conference (INET). The first INET was held in Copenhagen two years later in 1991. When the Internet Society (ISOC) was founded in 1992, it was decided that the Internet Society would take charge of the coordination of INET from 1992 on.

5.2 Internet Engineering Task Force (IETF)

Kilnam Chon

The Internet Engineering Task Force (IETF) Mission Statement states that the IETF is “a large open international community of network designers, operators, vendors, and researchers concerned with the evolution of the Internet architecture and the smooth operation of the Internet. It is open to any interested individual” according to “The Tao of IETF: A Novice’s Guide to the Internet Engineering Task Force” [Harris 2001].

The Network Working Group (NWG) was formed as part of the ARPANET project in the late 1960s, and the first Request for Comments (RFC) document, RFC 1, was written by Steve Crocker in 1969 [Crocker 1969]. RFC documents constitute the standards for the Internet and were initially administered by the NWG.

In 1972, the International Network Working Group (INWG) was formed during the first International Conference on Computer Communications (ICCC) in Washington, D.C. with the objective of collaborating on network protocols at an international level [McKenzie 2011; Zakon 1997]. Later, the INWG was renamed IFIP WG 6.1.

The Internet Engineering Task Force (IETF) was founded in 1986 to develop and refine Internet standards through the preparation of RFCs and working groups, among other fora. The first meeting of the IETF was held on 1986.1.16. Initially, the group met four times per year, but the meeting frequency was reduced to three times yearly starting in 1991. Participation by overseas experts, including Asian representatives, began in the late 1980s. In 1990, the first meeting was held outside of the United States, in Vancouver. In 1993, the IETF held its first meeting outside of the North American continent, in Amsterdam. The first meeting to be held in Asia took place in the year 2000. To date, six IETF meetings have been held in the Asia

Pacific region:

- 2000.03 Adelaide
- 2002.07 Yokohama
- 2004.02 Seoul
- 2009.11 Hiroshima
- 2010.11 Beijing
- 2011.03 Taipei

The IETF actively seeks to hold its meetings in different spots around the world as often as possible. However, meetings have been held in Asia less often than one would wish, given that Asians represent over fifty percents of the world's Internet user population. As well, no IETF meeting had been held in Latin America nor Africa as of 2012.

The Internet Research Task Force (IRTF) was created in 1989, and closely cooperates with the IETF. The IRTF addresses longer-term research issues whereas the IETF focuses on shorter term engineering issues including standardization.

The Internet Society was formed in 1991. The Internet Engineering Steering Group (IESG) of the IETF as well as the Internet Architecture Board (IAB), RFC Editors, and the Internet Assigned Numbers Authority (IANA) were granted a charter by the Internet Society. Until that time, the IETF was under the auspices of the United States government. Currently, IANA operates under the Internet Corporation for Assigned Names and Numbers (ICANN).

The current IETF operates with the following sub-groups:

- Internet Engineering Steering Group
- Working Groups
- Birds of a Feather
- IETF Administrative Oversight Committee

The working groups are organized into the following areas: General Area

- Applications Area
- Internet Area
- Operations and Management Area
- Real-time Applications and Infrastructure Area
- Routing Area
- Security Area
- Transport Area

The most recent IETF meeting—held in November 2013—was the 88th meeting. The typical number of participants to recent IETF meetings is around 1000 with a peak number of 2800 participants attending the San Diego IETF meeting in 2000.

Insofar as RFC publication is concerned, Asia lags behind the United States and Europe, but China and other countries in Asia have been publishing many more RFCs in recent years, resulting in Asia making up a fairer share of Internet standard contribution. However, Asia still lags behind in many areas such as participation in the IAB and IESG compared with North America and Europe.

5.3 International Academic NetWorkshop – Asia-Pacific (IANW-AP)

Kilnam Chon

Kilnam Chon participated in the 1995 International NetWorkshop (IANW) in Stockholm. He suggested that Bob Kummerfeld of Australia, Jos Luhukay of Indonesia, and Haruhisa Ishida of Japan among others to participate in the IANW the following years. When Kummerfeld with his Australian colleagues and Luhukay participated in the 1996 IANW in Dublin, it was decided among the Asia-Pacific group to begin to meet together during IANW to discuss network coordination in the Asia-Pacific, and the International Academic NetWorkshop – Asia-Pacific (IANW-AP) was born. This was one of the first meetings among Asians to discuss issues related to the Internet and other computer networks. Some IANW participants from Europe and North America also participated in the first IANW-AP meeting as observers.

During the meeting, the participants discussed meetings on computer networking including the annual Joint Workshop on Computer Communications (JWCC), which was one of the spinoff events of the Pacific Computer Communications Symposium (PCCS) in 1985. The group also discussed AsiaNet, which was proposed during the NUS/UNESCO Workshop at the National University of Singapore in February 1994 and was implemented later the same year. The participants also updated one another on the status of computer networking in each of the countries and regions in Asia. It was decided at that time to encourage other countries in Asia to participate in IANW and IANW-AP in following years.

Following that initial meeting in 1986, the IANW-AP forum was held annually until IANW was phased out in 1989 as an opportunity for IANW participants from Asia to discuss such topics as AsiaNet, exchange information on computer networking, and to share ideas about events in Asia and around the world. At the first IANW-AP meeting in Dublin in 1996, three countries participated: Australia, Indonesia, and South Korea. The following year at the 1987 IANW meeting held in Princeton, several other countries (China, Hong Kong, India, Japan, Malaysia, New Zealand, and Singapore) joined in the IANW-AP discussions. The IANW-AP stopped meeting after the IANW ceased meeting following its last annual workshop held in Sydney in 1989. More formal and elaborate meetings among Asia-Pacific nations had to wait until the creation of APCCIRN in 1991.

5.4 Pacific Computer Communications Symposium (PCCS)

Kilnam Chon

As previously discussed, Internet-related meetings with workshops, technical sessions, and “Birds of a Feather” sessions started to be held in the early 1980s in various locales. However, all the early meetings were held in Europe or North America with none in the Asia-Pacific region. Some of the key individuals in Asia felt that a meeting in Asia was highly desirable, and concrete discussions about such a meeting were first held during the NUS/UNESCO Workshop in February 1984. At the same workshop that the creation of AsiaNet was also decided. South Korea volunteered to organize and host the first conference on the Internet and other computer networks in the fall of 1985. The conference was named the Pacific Computer Communications Symposium (PCCS), and held in October of 1985. This conference turned out to be one of the first global Internet conferences. It had around 300 participants from fifteen countries on three continents; Asia, Europe, and North America.

Participants at PCCS came from various groups, including:

1. Unix conference participants (USENIX and UNICON)

Unix conferences such as USENIX and UNICON covered UUCPNET and Usenet as well as Unix software include the Berkeley Software Distribution (BSD) which included the software for the TCP/IP protocols. Speakers on UUCPNET and Usenet from USA and Europe were invited to speak, too.

2. USA: CSNET and IANW

Several CSNET project members including a staff from the United States National Science Foundation (NSF) which managed the CSNET project participated in the symposium. Most of these individuals were also regular participants at IANW.

3. Europe: IANW, EARN, and national networks

Several Europeans joined in the symposium as well, presenting European activities

including BITNET in Europe (known as EARN) and various research and education networks.

4. Asia: AsiaNet and Japanese academic communities

Many member countries and regions participating in AsiaNet, the UUCP-based regional network in Asia, joined in the symposium. These included Australia, Hong Kong, Indonesia, Japan, South Korea, Singapore, and Taiwan, among others. Several Japanese groups also sent their representatives to the symposium. They included: N-1 Net (the university network connecting university computer centers); IPSJ and other academic societies of information science and telecommunications; and JUNET (the UUCP-based network in Japan).

5. IEEE

Many members from the IEEE participated in the symposium thanks to the coordination of the symposium program co-chair, KH Kane Kim.

The objectives of the symposium were as follows:

- to serve as a global Internet-related conference as there were none in the early 1980s •
- to provide a forum for Asians to get together to discussion Asian concerns
- to give participants the opportunity to exchange information and to establish and renew personal contacts
- to furnish up-to-date information on computer networking, including the Internet

The Internet was used extensively throughout the symposium. During the preparation for the symposium, several thousand email messages were exchanged globally. During the symposium itself, a server developed in South Korea was provided onsite to support the email needs of the symposium participants.

During PCCS, a US-Asia Joint Workshop on Computer Networks was held. It was originally planned as a joint workshop between Asia and the United States as the workshop title indicated. However, it turned into a global exchange with presentations from Europe (including EARN and DFN) in addition to those of the Asian and American contingent.

An AsiaNet meeting was also held during the symposium. At that time, the participants decided to hold a Joint Workshop on Computer Communications (JWCC) in Asia starting the following year. The Korean group also met and decided to hold an annual SDN Workshop starting from the winter of 1986. It was renamed to Winter Computer Communications Workshop (WCCW) in 1987, and again to Summer Computer Communications Workshop (SCCW) later.

The five-day symposium had the following comprehensive program that included the presentation of 108 refereed papers as well as many more presentations: • Four one-day tutorials

- Two keynote speeches
- Twenty parallel sessions
- One panel discussion session

- One workshop (US-Asia Joint Workshop on Computer Networks)

5.5 Joint Workshop on Computer Communications (JWCC)

Kilnam Chon

An international workshop, to be called the Joint Computer Communications Workshop (JCCW), was proposed during the PCCS in 1985 as well as an annual domestic workshop for South Koreans, to be called SDN Workshop. The first JCCW was held in the summer of the following year (1986) at Sorak Mountain in Korea with participants from Japan and South Korea. In addition to technical presentations, there were also meetings held on network coordination. During the initial years, most participants at the JCCW were from Japan and Korea, with other countries and regions in Northeast Asia and followed by those in Southeast Asia joining in later years.

The JCCW was renamed the Joint Workshop on Computer Communications (JWCC) in 1987 and then renamed again to the International Conference on Information Networking (ICOIN) later in the 1990s [ICOIN 2012]. Please refer to the ICOIN website at www.icoin.org for further information. JWCC/ICOIN is one of the oldest existing Internet-related conferences, with the 28th conference in 2014. The only older Internet-related conferences still being held are SIGCOMM, which began in 1977, and INFOCOM, which began in 1982.

The following is a record of the JWCC/ICOIN meeting dates and locations:

- 1st JWCC 1986.7 Sorak Mountain, South Korea
- 2nd JWCC 1987.6.18-20 Tsukuba, Japan
- 3rd JWCC 1988.7. 7-9 Jeju, South Korea
- 4th JWCC 1989.7 Tokyo, Japan
- 5th JWCC 1990.7. 5-7 Gyeongju, South Korea
- 6th JWCC 1991.7.17-19 Kitakyushu, Japan
- 7th JWCC 1992.7.14-16 Jeju, South Korea
- 8th JWCC 1993.12.12-14 Taipei, Taiwan
- 9th ICOIN 1994.12.12-14 Osaka, Japan
- 10th ICOIN 1996.1.29-31 Gyeongju, South Korea
- 11th ICOIN 1997 Taipei, Taiwan
- 12th ICOIN 1998 Tokyo, Japan
- 13th ICOIN 1999 Tokyo, Japan
- 14th ICOIN 2000 Hsinchu, Taiwan
- 15th ICOIN 2001 Beppu, Japan
- 16th ICOIN 2002 Jeju, South Korea
- 17th ICOIN 2003 Jeju, South Korea
- 18th ICOIN 2004 Busan, South Korea
- 19th ICOIN 2005 Jeju, South Korea
- 20th ICOIN 2006 Sendai, Japan
- 21th ICOIN 2007 Estril, Portugal
- 22th ICOIN 2008 Busan, South Korea
- 23th ICOIN 2009 Chiangmai, Thailand
- 24th ICOIN 2010 Busan, South Korea
- 25th ICOIN 2011 Kuala Lumpur, Malaysia
- 26th ICOIN 2012 Bali, Indonesia
- 27th ICOIN 2013 Bangkok, Thailand

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