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<thead>
<tr>
<th><strong>Title</strong></th>
<th>Internet in Asia: local empowerment or cybercolonialism</th>
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<tr>
<td><strong>Author(s)</strong></td>
<td>Sirsakdi Charmonman; Kanokwan Wongwatanasin</td>
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<td><strong>Date</strong></td>
<td>1998</td>
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<tr>
<td><strong>URL</strong></td>
<td><a href="http://hdl.handle.net/10220/1992">http://hdl.handle.net/10220/1992</a></td>
</tr>
<tr>
<td><strong>Rights</strong></td>
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Paper No. 5
Internet in Asia:
Local Empowerment or Cybercolonialism\textsuperscript{1}
Srisakdi Charmonman\textsuperscript{2} and Kanokwan Wongwatanasin\textsuperscript{3}

1. Introduction

The Internet will change the way you live, the way you learn, the way you work and the way you play. Internet will change everything. Internet can make all telephone calls over the world local calls. With Digital Library, Internet brings the library to you in your bedroom or anywhere in the world. With Electronic Commerce, Internet brings the whole shopping center to you. With virtual universities, Internet gives you education-on-demand. The box which used to be your television becomes your communications center (for telephone, fax, mail, etc.), your shopping centers, your entertainment centers, your learning centers, your news centers, your own broadcasting station, etc. Internet is information at your finger tip.

As an example, searches were made with Infoseek on May 19, 1998, and found the number of pages of information on the Internet as shown in Table 1.

2. A Brief History of Internet

In 1969, the US Department of Defense (DOD) Armed Forces Research Project Agency (ARPA) established ARPANET as an experimental network to support armed forces research. In war, it has to be assumed that any part of the network could be destroyed at any moment and the remaining portion must still work. Therefore, to send a message on the network, a computer puts the message in an envelope which is called an Internet Protocol (IP) packet and put the receiving

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\textsuperscript{1} A paper presented to “Asia’s Information Marketplace: Race for Technology, Content & Competence” Conference, organized by AMIC (Asian Media Information and Communication Centre Ltd., at Novotel Hotel, Bangkok, Thailand, May 21, 1998.

\textsuperscript{2} Professor Emeritus of the National Institute of Development Administration. Chairman of KSC Group of Companies. Chairman of ABAC-KSC Internet Institute of Assumption University. Chairman of the Working Group on Software and Human Resource of the National Education Council.

\textsuperscript{3} President of Internet KSC. Past President of Thailand Chapter of the ACM. Seminar Chairperson of Thailand Chapter of the Internet Society. Director of the SchoolNet Project of Assumption University.
address on the envelope. The responsibilities of sending the packet is not placed on the network (which is assumed to be unreliable) but on the sending and receiving computers.

Table 1. Number of Pages on the Internet for Various Keyword

<table>
<thead>
<tr>
<th>Keyword</th>
<th>Number of Pages</th>
<th>Keyword</th>
<th>Number of Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internet</td>
<td>11,923,643</td>
<td>Cyber</td>
<td>481,911</td>
</tr>
<tr>
<td>USA</td>
<td>6,644,804</td>
<td>Encyclopedia</td>
<td>466,648</td>
</tr>
<tr>
<td>digital library</td>
<td>4,638,060</td>
<td>Singapore</td>
<td>442,398</td>
</tr>
<tr>
<td>Canada</td>
<td>4,368,961</td>
<td>Thailand</td>
<td>258,202</td>
</tr>
<tr>
<td>entertainment</td>
<td>2,304,296</td>
<td>Indonesia</td>
<td>246,644</td>
</tr>
<tr>
<td>Australia</td>
<td>2,261,644</td>
<td>Malaysia</td>
<td>246,217</td>
</tr>
<tr>
<td>sex</td>
<td>1,663,666</td>
<td>nude</td>
<td>207,874</td>
</tr>
<tr>
<td>Japan</td>
<td>1,644,492</td>
<td>Brunei</td>
<td>20,442</td>
</tr>
<tr>
<td>Asia</td>
<td>944,938</td>
<td>Philippines</td>
<td>6,486</td>
</tr>
<tr>
<td>dictionary</td>
<td>766,640</td>
<td>Internet + USA</td>
<td>468</td>
</tr>
<tr>
<td>Hong Kong</td>
<td>603,408</td>
<td>Internet + Asia</td>
<td>445</td>
</tr>
</tbody>
</table>

The Internet Protocol software have been made available on all kinds and brands of computers. Thus, a user can buy whichever computer he likes and connect it to the Internet.

Then came UNIX operating system with Internet Protocol and the popularity of local area network (LAN). So, the whole LAN can have connectivity with ARPANET, i.e. each computer on the LAN can have access to ARPANET.

In the late 1990’s, NSF (the US National Science Foundation) established five supercomputer centers. The senior author visited one at the University of Illinois and found that the cost was over 70 million US$. That kind of cost is expensive even form US standards. As supercomputers should be shared, a researcher closer to any supercomputer should have his terminal connected to that computer. The ideal solution at that time was the use ARPANET for the connection but it did not work because of bureaucracy. So, NSF decided to build its own network based on ARPANET’s IP technology. The network was called NSFNET. It connected the five supercomputer centers by 65 kbps telephone lines and any user can use telephone to connect to the nearest center to access the network. In 1987, NSFNET became overloaded and the 56 kpbs lines had to be replaced by lines which are faster by a factor of about twenty.
With the increase of popularity of Internet, other networks like Bitnet, DECnet, Fidonet, etc. developed methods of connecting to Internet. At first, the connection was for transferring electronic mail only but later some of them have develop full service translator.

The International Standards Organization (ISO) has designed OSI (Open Systems Interconnect) protocol which is allowed in many of the Internet's component networks. Consequently, users of OSI also have connectivity to Internet.

Many publications concerning Internet are readily available. Examples of those written by the authors of this paper are given in the reference [1,2,3,4,5,6,7].

3. Internet in Asia

Although Internet started in the US, many Asians have used Internet from the very beginning because a large number of them either worked or studied in the US in 1969 when the Internet was born there.

From Byte Extra International section, August 1996, page 17, it was estimated that the number of Internet users in Asia are as shown in Table 2.

Table 2. Number of Internet Users in Asia in 1995

<table>
<thead>
<tr>
<th>Country</th>
<th>Number of Internet Users</th>
<th>Country</th>
<th>Number of Internet Users</th>
</tr>
</thead>
<tbody>
<tr>
<td>Japan</td>
<td>1,600,000</td>
<td>Thailand</td>
<td>35,000</td>
</tr>
<tr>
<td>South Korea</td>
<td>100,000</td>
<td>Hong Kong</td>
<td>32,000</td>
</tr>
<tr>
<td>Malaysia</td>
<td>100,000</td>
<td>Philippines</td>
<td>20,000</td>
</tr>
<tr>
<td>Singapore</td>
<td>100,000</td>
<td>Indonesia</td>
<td>10,000</td>
</tr>
<tr>
<td>Taiwan</td>
<td>70,000</td>
<td>China</td>
<td>15,000</td>
</tr>
</tbody>
</table>

The figures in Table 2 are rough estimate and attracted a large number of arguments. They should be taken only to show that the Internet was gaining popularity in Asia.

For example, the number of the Internet users in Thailand was much bigger than that indicated in the table. Assumption University alone started with over 20,000 users. As a matter of fact, the number of Internet users in Thailand may be estimated as shown in Tables 3 and 4.
## Table 3. Rough Estimate of Number of Internet Users in Thailand

<table>
<thead>
<tr>
<th></th>
<th>June 97</th>
<th>December 97</th>
<th>December 98</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Government Universities</td>
<td>50,000</td>
<td>100,000</td>
<td>120,000</td>
</tr>
<tr>
<td>(Chiang Mai, Chula, Kasetsart, KMIT Ladkrabang, Songkla, Thammasat, etc.)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Private Universities</td>
<td>80,000</td>
<td>150,000</td>
<td>200,000</td>
</tr>
<tr>
<td>(ABAC, ATT, Bangkok, Siam, etc.)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Commercial and Technical Colleges</td>
<td>20,000</td>
<td>100,000</td>
<td>200,000</td>
</tr>
<tr>
<td>4. Highschools and Grade Schools</td>
<td>20,000</td>
<td>100,000</td>
<td>200,000</td>
</tr>
<tr>
<td>5. Government, State Enterprise, Private Sector, individuals, etc.</td>
<td>40,000</td>
<td>100,000</td>
<td>200,000</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>210,000</strong></td>
<td><strong>550,000</strong></td>
<td><strong>920,000</strong></td>
</tr>
</tbody>
</table>

## Table 4. Rough Estimate of Number of Internet Users in KSC

<table>
<thead>
<tr>
<th></th>
<th>June 97</th>
<th>December 97</th>
<th>December 98</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Universities</td>
<td>45,000</td>
<td>80,000</td>
<td>100,000</td>
</tr>
<tr>
<td>(ABAC, Kasem Bundit, Siam, Vongchwalitkul, etc.)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Commercial and Technical Colleges</td>
<td>20,000</td>
<td>50,000</td>
<td>100,000</td>
</tr>
<tr>
<td>(Siam Technic, Wimol Technic, SBAC, Stamford, etc.)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Highschools and Grade Schools</td>
<td>15,000</td>
<td>50,000</td>
<td>100,000</td>
</tr>
<tr>
<td>(Assumption College Thonburi, Assumption College Sriracha, Assumption College Sumrong, Patai Udomsuksa, Prachnives, etc.)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Government, State Enterprise, Private Sector, individuals</td>
<td>20,000</td>
<td>50,000</td>
<td>100,000</td>
</tr>
<tr>
<td>Ministry of Education, Ministry of Science, Krung Thai Bank, Royal Forest Dept., Bumrungrad Hospital, Siam Cement, private sector business, individuals)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100,000</strong></td>
<td><strong>230,000</strong></td>
<td><strong>400,000</strong></td>
</tr>
</tbody>
</table>

Each country in Asia usually has several leased line connected directly to the Internet in the USA. Therefore, an email sent from
Bangkok to Singapore may have to travel through the USA. Even an email sent from Bangkok across the street may have to travel via the USA. To avoid that unnecessary routing, Thailand has established the local exchange for all ISPs to connect in Bangkok. Similarly, the Asian countries should have their backbone. Several attempts have been made.

As the first example, A-Bone was launched in 1996 by Asia Internet Holding Co., Ltd. (AIH), with 1.5 Mbps leased line between Hong Kong and Tokyo, and 2 Mbps leased line between Singapore and Tokyo.

As the second example, SINGNET/STIX (Singapore Telecom Internet Exchange) aimed to create a meshed backbone which routes Asia Pacific traffic directly within the Asia Pacific, instead of US-centric network model.

The third example is Pan Asia Networking (PAN) of Canada’s International Development Research Centre planing to extend electronic network in Asia and support the development of communications and sharing of data resources around research and policy issues.

The forth example is Asian Internet Interconnection Initiatives (AI³) started in October 1995 by WIDE (Widely Integrated Distribute Environment) Project and JSAT (Japan Satellite Systems Inc.).

The fifth example is APAN (Asia-Pacific Advanced Network) started in 1997 to construct Asia-Pacific Information Infrastructure, especially high-speed Internet backbone, for regional cooperation and collaboration.

Another point of concern in Asia is whether Internet should be controlled. Singapore and China seem to be active in this area. In March 1996, Singapore announced rules and regulations aimed at ensuring citizens that connect to the global Internet receive nothing that offends the national government. The rules state that ISPs must restrict access to material concerning sex, politics, and religion. Singapore views the Internet as a broadcast application and, therefore, is under the authority of the Singapore Broadcasting Authority (SBA). Altogether, Singapore has 3 ISPs, namely, Pacific Internet, SingNet, and Cyberway. In August 1997, an ISP in Singapore blocked a newsgroup posting that criticized some lawyers. That action was considered the first test of Singapore’s laws for policing the Internet.

China has announced rules and regulations to control the Internet. For example, an Internet user must sign an agreement that he would not...
use the Internet to criticize the government. An ISP in China must also act in accordance with the rules and regulations.

In 1997, a group of Internauts in Thailand proposed the Internet Promotion Act which is the best and most complete collection of activities to promote Internet in Thailand. In summary, the senior author stated when he was interviewed on CNN that the group’s purpose is that “In Thailand, wherever we have electricity, and wherever we have telephone, we must have Internet”.

4. Internet in Thailand

Some Thai students and visitors to the United States of America had been given Internet addresses but when they return to Thailand, not many continued to use their addresses because of the high cost of international telephone connection. In 1987, the Asian Institute of Technology (AIT) in Thailand entered into an agreement with the Department of Computer Science at the University of Melbourne in Australia to operate Internet email service on a regular basis. The Australian node would call AIT three times a day to send and collect mail.

AIT charged 200 Baht (about US $8) per month for upto 15,000 characters transferred (counting both in and out messages combined) plus one Baht for every additional 50 characters. One of the problems was the inability to control incoming mail, especially the lengthy Calls for Papers, list of reference, etc. which was not asked for, and had to be paid for because they had automatically entered the mailbox. This problem was later solved when the rate was changed to a fix amount per month rather than varying with the number of characters. Another problem was that during the connection to Australia, usually three times a day at 02:30, 15:30 and 19:30, users were requested not to call the only dial-in number with the only modem available at that time.

In 1988, Prince of Songkhla University in the southern part of Thailand established an Internet node connected to Melbourne University a few times a day. Two dial-in telephone numbers were made available from 09:00 in the morning till 19:00 in the evening.

In 1991, Digital Equipment (Thailand) Ltd. acquired an Internet address for internal and research-related usage. No dial-in number was made available and user had to user to use the machine at the company.

A major breakground occurred in 1991 when Chulanlogkorn University became Internet gateway in Thailand. After sufficient testing,
full operation was started in July 1992 with a 9600 baud leased line to Virginia, U.S.A. and later upgrades to 64 K line. The fees for the leased line with 25% educational discount from the Communications Authority of Thailand (CAT) were about 5.2 million Baht per year (about US$468,000). Initially only one telephone line was made available but by 1993 twenty lines were accessible. The all day, all night and full Internet service at Chulalongkorn University were obviously much better than the email-only at AIT. Instead of waiting a day or so for the message to be routed through Australia, one could communicates as many times a day as necessary and desirable. One could use the "talk" command to enter into interactive communication. When calls for papers were received from the network, one could ask for and obtain clarification right way.

In January 1992, the National Electronics and Computer Technology Center (NECTEC) established the NECTEC E-mail Work Group (NWG). In February 1992, NWG established a network named ThaiSarn (Thai Social/scientific, Academic and Research Network) with a machine donated by IBM, two dial-in telephone lines available 24 hours a day for NWG connections. UUCP (UNIX-UNIX Copy) was made hourly with Thammasat University and Prince of Songkhla University, and international connection with Australia through AIT three times a day. The service was later upgraded to included six dial-in telephone lines and 24 hours per day international connection through Chulalongkorn University. Then in September 1993, NECTEC became the second gateway from Thailand and it was connected to Virginia, U.S.A. by a 64 K leased line.

In January 1992, Thammasat University (TU) Information Processing Institute for Education and Development (IPIED) also registered as an Internet node. One dial-in telephone number was made available 24 hours a day.

The Faculty of Engineering at King Mongkut's Institute of Technology Ladkrabang started experimenting with Internet in mid 1992 connected to at Thammasat. At the beginning, only about 40 users were approved. Later the Computer Research and Service Center which serves all the faculties established a central node for Ladkrabang. By October 1993, about 500 Internet addresses had been given.

Digital Equipment (Thailand) joined ThaiSarn in January 1992 but was later disconnected because commercial organization was not allowed to use educational Internet in Thailand. Prince of Songkla University and AIT joined ThaiSarn in 1992 but AIT later installed a direct leased line to Chulalongkorn University.
As of May 1995, Assumption University (AU) and KSC Commercial Internet Co., Ltd. (KSC) have the largest Internet system in Thailand. Three SunSparc 1000 computers with 640 Mb of main memory and 123 Gb of disk space, 56 sets of Sun Sparc Classic and several hundred sets of micro-computers. The computers are connected through campus network with the speed of 100 million bits per second. For telecommunication, 360 telephone lines are available for dial-in at up to 15.4 Kbps, additional 150 lines have arrived and a total of 2,000 lines have been requested.

The Internet project at Assumption University was started soon after AIT spearheaded Thailand connection to the Internet in 1987. The senior author of this paper was the President of AIT Alumni Association and got Internet account at 200 Baht per month. Since he was also the Honorary Vice President of Assumption University, his Internet fees at AIT as well as the costs of the computer and modem were paid for by Assumption University.

After several years of usage of Internet through AIT, the authors were convinced that the system should be made available to the whole university. Therefore, in August 1993 they proposed to AU Board of Trustees and got approval to implement the Internet project by setting up an Internet network called AuNet. The purposes of AuNet include the followings:

1. To educate the students, faculty and staff member on the concepts of local and international networking.
2. To prepare the students to enter into information society where networking will be the norm rather than the exception.
3. To provide full Internet access to all students, faculty and staff members for their personal and educational usages.

On the financial side, the Board of Trustees approved the proposal to let the students pay for the project. The Board decreed that Internet knowledge and experience become a requirement for graduation in any and all educational programs at AU. Each undergraduate student is charged US $4 per month and graduate student US $8 per month. All the income is earmarked for the development and maintenance of the project.

On the nineteenth day of January 1995, Her Royal Highness Princess Maha Chakri Sirindhorn graciously presided over the opening ceremony of the International Internet Gateway at Assumption University. This international gateway may be considered the third international Internet gateway from Thailand or the first private-sector international Internet.
gateway from Thailand. The two earlier gateways are in the government sector.

Another major Internet breakthrough in Thailand occurred at the end of 1994 when the Communications Authority of Thailand (CAT) entered into joint venture agreements with two organizations, namely, NECTEC and Internet Knowledge Service Center Co., Ltd. (KSC), to offer commercial Internet in Thailand for the first time. For flexibility in operation, it was agreed that each joint venture be made a private company in order to avoid the red tape and bureaucracy associated with government agencies. However, the joint venture with NECTEC is supposed to become a private company named Internet Thailand Co., Ltd. but it turned out not to be a private company unless an approval is given by the cabinet of Thailand. NECTEC was allowed to operate commercial Internet on a trial basis for one year.

In December 1994, a private company was registered as KSC Commercial Internet Co., Ltd. (KSC) and subsequently CAT got 32% shares in KSC free of charge. The other 3% shares are to be sold to CAT employees, and 65% goes to Internet KSC Co., Ltd. Assumption University agreed to serve as the incubator for KSC for a period of not more than two years.

On January 19, 1995, HRH Princess Maha Chakri Sirindhorn graciously presided over the opening ceremony of the first private-sector Internation Internet Gateway at Assumption University connecting to the USA at San Jose, California at 64 Kpbs. The cost of rental of the Gateway was paid for by Internet KSC Co., Ltd. This link is later upgraded to 4 Mbps and requested to be 8 and 16 Mbps.

On March 16, 1995, HRH Princess Maha Chakri Sirindhorn kindly gave her royal permission for Dr. Srisakdi and associates to present computer and telecommunication equipment to establish an Internet Node in the royal palace which is later upgraded to 2 Mbps connection.

On April 4, 1995, KSC launched the first Internet Shopping Mall in Thailand at a seminar organized by the American Chamber of Commerce in Thailand.

On July 1, 1995, KSC and Assumption University promoted National Election in Thailand by allowing all political parties and candidates to have Homepages free of charge.

On July 29, 1995, KSC signed an agreement with Business Day newspaper to be the first online newspaper on the Internet in Thailand.
On December 21, 1995, KSC joined Dusit Thani Hotel and AVS to establish the first CyberPub in Thailand. There were 11 Internet terminals with SmartCards installed at the CyberPub.

On February 1, 1996, KSC proposed to the Prime Minister that he became the first prime minister of Thailand to be on the Internet and he accepted the proposal.

On February 28, 1996, KSC established a public-service Web page to combat Don't-Buy-Thai campaign from a group in the USA. Any organization trying to solve child prostitution and child labor in Thailand would be given a free Homepage and E-mail address by KSC.

On March 1, 1996, KSC joined with Axact to create the first Thai Drama Homepage on the Internet.


On January 4, 1997, the authors were invited to host “Internet IT Talk” at Radio of Thailand FM 97 every Saturday at 8 AM.

On March 10, 1997, HRH Prince Maha Chakri Sirindhorn kindly gave her royal permission for Dr. Srisakdi to conduce a short course on Internet for her.

On July 17, 1997, KSC introduced International Roaming via GRiC and iPass covering more than 1,500 locations in more than 150 countries.

On July 17, 1997, KSC is the first ISP in Thailand to provided 56 Kbps modem in both X2 and Flex standards, starting with 420 ports to be expanded to 1,440 later.

On July 29, 1997, KSC signed an agreement with Microsoft to provide radio and television broadcasting through the Internet.

On October 8, 1997, KSC started www.thaicast.ksc.net broadcasting 6 radio stations and a TV station.

On February 9, 1998, the authors were appointed by Thailand Chief of Police to be advisors to the Internet Police Project to train 600-700 Internauts to cooperate with the police in crime suppression.

On April 2, 1998, KSC and Assumption University organized Internet training free of charge for the Association of the Deaf in Thailand.
5. Internet as Empowering Tools

The Internet has become the best and the most widely used tools to enhance human capabilities. A few examples will be given here.

5.1 Internet Facilities

Features of the Internet are presented in this section.

- **Electronic Mail or E-mail**
  
  You can send E-mail anywhere in the world instead of sending letter and fax and benefit from not having to pay postages or long distance phone bills.

- **Usenet News or Distributed Bulletin Board Systems (BBS)**
  
  You or anybody can read and post articles in any one of over 2,700 topics such as culture, politics, science, computers, etc. It is a very good resource to find out solutions to your very specific problems.

- **Mailing List**
  
  You can join over 1,500 mailing lists and/or set up a new mailing list on any subject of your interest.

- **Gopher or Menu to Get Information**
  
  You can easily find tremendous amount of information from the Internet by just typing the word “gopher” to run the Gopher software which produces simple system of menu list you can select by number. KSC operates its own Gopher server and allow you to explore hundreds of other gopher servers in the Internet.

- **Talk and IRC for Remote Discussion**
  
  You can converse with another person by use of “talk”, or a group of people by use “IRC” anywhere in the world without having to pay for international phone bills.

**Telnet or Remote Access to Another Computer**

- Once connected to the Internet, you can access another computer anywhere in the world by use of “telnet”.

**WAIS for Searching the Network for Information**

You can provide a set of keywords and the “WAIS” software will fetch documents matching those keywords. It is a very good general research tool, acting much like a reference librarian.
• FTP for File Transfer
  You can transfer, free of charge, files of information, software, sound, and images available at many, many sites in the Internet.
• Archie to Find FTP Sites
  You can easily find most of the free FTP archives by use of the "archive server".
• Hytelnet for On-line Library
  You can access more than 1,000 on-line library catalogs in over 90 countries.
• On-line Magazines and Newspapers
  You can read more than 250 electronic journals without having to pay for subscriptions, or subscribe to read many popular magazines and newspapers such as The Telegraph, New York Times, USA Today, The LA Times, The Times, etc.
• Mosaic or Graphic User Interface
  You can get graphical information (graphic and text) by use of the "mosaic" software or other similar software to travel on the WWW (World Wide Web) of information on the Internet.
• Electronic Shopping
  You can access many Shopping Malls in many countries to view and order merchandise directly through the Internet without having to travel.
• SunSite or a Popular WWW Site
  SunSite is designated by Sun as a depository for public domain software, and a forum for local and regional events and issues. Assumption University and KSC are operating SunSite Thailand to provide you with Thailand homepage and access to eight other SunSites in the world with over one million users per day. If you advertise in SunSite Thailand, your advertisement may be read by million of Internet users from all over the world, 24 hours a day and 7 days a week.

5.2 Opportunities in Internet Business
  What are the hottest business opportunities on the Internet today? Although hundreds of entrepreneurs are rushing in to set up roadside stands, hoping to sell products and services, a long-time Internet observer says the real opportunity lies in building the Information
infrastructure -- the roadways, the on-ramps, even the pit stops-- for tomorrow's Internet tourist and travelers.

We believe that two among other key areas that will become more and more important as the Internet continues to grow are companies that can help user find information and companies that can help organize information for providers.

Dave's Internet Mall, a monthly electronic listing of products available through the Internet, offers an interesting glimpse into the growth of commerce on the network. Dave estimates that, during the summer of 1994, one company was added to the mall every day; now the list includes hundreds of vendors. Over the same period, the volume of user's requests catapulted the Internet Mall to one of the top ten sought on the network.

Dave believes that finding information will be the Internet's next big business opportunity. It's no different, he believes, than the friendly gas station quickest route to their destinations.

5.3 Communications

Despite the many possibility in Internet commerce, business communication with customers remains one of the most popular uses of the Internet. Because of its low cost and its universal accessibility, the Internet is complementing and, in some cases, replacing the phone, the fax, and the overnight letter.

5.4 Real Estate by E-Mail

Internet Communication isn't just for large companies such as Lockheed. Even small companies are finding the Internet to be a cost-effective communications solution. Hooking up to the Internet allows small business to deploy resources, access information and communicate with customers in ways that offer a competitive edge to help them at par with large rivals.

Bob Doyle, director of marketing for SprintLink, an Internet access provider, says that one small bank is using the internet to exchange interest rates and submit loan applications to the corporate office. A few years ago, Peat Marwick shelved a proposal to build a proprietary network for the Big Six accounting form's 200 offices around the world, informing its clients that it would just be too expensive, Today, the firm is busy recomputing the costs and feasibility based on the new possibilities offered by the global Internet.
5.5 Business Services

Companies that provide business services are also beginning to realize that the Internet's combination of price, features, and Internet-connected business make the electronic community a promising place to do business.

These companies include consulting, publishing, marketing, and other service firms.

Advertising agencies are starting to appear on the Internet. One interesting example is Apollo Advertising, which invites clients to tack up short advertisements on its Word Wide Web page for free and charges a modest fee for posting longer ads and other World Wide Web documents.

Other Internet business services include

- Document Center, a hard-copy, document delivery service specializing in government and industry specifications and standards, available through e-mail, Gopher, or World Wide Web. To check it out, send e-mail to info@doccenter.com, Gopher to doccenetr.com, or go to URL://www.service.com/doccenter/home.html.

- Infotech Information Technologies, a Charlotte, North Carolina, company, offers individual and business credit reports; Dunn & Bradstreet information; a Social Security locator service; arrest and conviction records; and other credit-checking information. You can find out more by sending electronic mail to infotech@fx.net.

- The Company Corporation offers incorporation service for small business on-line. To contact the company by e-mail, send a note to corp@incorporate.com or connect to the Web at http://incorporate.com/tcc/home.html.

- If your company does business internationally, international Trade Network might be of interest. Daily e-mail messages from the company keep you up-to-date on trade opportunities and import/export trends. Send e-mail to majordomo@world.std.com with the subject "info intltrade" for details.

- INFOMARK, a Colorado consulting firm, help customers develop their own marketing strategies and sells its 900 number
resource guide on-line through gopher or Web. To check it out, connect to marketplace.com.


- Computer Literacy offers computer books on-line. Send an e-mail message to info@clbooks.com or more information.

5.6 Sale and Marketing

While the Internet is not a mass market (you won't fine Coke and Pepsi on-line slugging it out, for example) a growing number of booksellers, software and computer hardware retailers, and even a florist and gourmet popcorn shop have found it a valuable addition to their current sales strategies.

While retails sales remain a rarity on the Internet, there are some early success stories.

At Computer Literacy, one of the stores described above, four employees help answer Internet e-mail, suggesting a large volume of information requests and, possibly, orders. The Compact Disc Connection has graduated from renting space on an access provider for its one online music store to setting up a sophisticated system of its own with multiple warehouses throughout the United states (telnet cdccennection.com). Ceram Inc. sells Unix workstations through the Internet and puts its Internet-based sales between $3,500,000 and $5,000,000 for 1995.

What kind of business actually using the Internet Mall today? Here's a sampling of Internet merchants culled from the latest issue of The Internet Mall:

- Book Stacks Unlimited, a Cleveland, Ohio, bookstore specializes in classic such as Shakespeare and Dickens. To connect: telnet books.com.

- Moes Books, Berkley, California, used bookstore with more than 5000,000 titles specializing in rare, antiquarian, remainder, and imported books. Anyone connected to the Internet with electronic mail can seek and purchase book: moesbooks@delphi.com.

- Future Fantasy, a bookstore specializing in science fiction, fantasy, mystery and horror, offers an online catalog and ability
for customers to order books directly. To connect with its Web server, use: http://www/commerce/digital.com/palo-atlo/FutureFantasy/ home.html.

- The Online Bookstore sells books in electronic, rather than hard copy, format, enabling customers to download books directly to their computer. Connect to marketplace.com with Gopher or a World Wide Web browser such as Mosaic, NetScape or Lynx.

- Infinity Link Network Services offers an online catalog of CDs, video tapes, books, and laser discs. Connect through telnet comlumbia.ilc.com with the login cas (or with Gopher, also to columbia.ilc.com).

- Softpro Books, a small computer bookstore with shops in Boston and Denver and an online bookstore with catalog of more than 1,000 titles. Send mail to softpro@world.std.com.

- Canadian shop named Roswell Electronic Computer is also an extension of existing shop, this one in Halifax, Nova. Scotia. The online database includes more than 5,500 titles. Customer can visit them at gopher nstn.ns.ca, through the Web at URL http://www.nstn.ns.ca/cybermall/cybermall.html, or via email: rosweell@fox.nstn.ns.ca.

- JF Lehmanns Fachbuchhandlung is based in Berlin but also accessible via the Internet. The company offers German language technical books and CD-ROM discs through Gopher with URL: http://www.germany.eu.net:80.shop/jfl/jfl_kat.html.

- The Expert Center for Taxonomic Identification (ETI) in Amsterdam, with funding from UNESCO, makes its Multimedia CD-Rom-based Mac, Windows, and NeXTStep biodiversity disks available via the Internet. For more informations about ETI and its products, send e-mail to info@eti.bio.

- Planet Earth Management, which sells concert packages complete with tickets and hotel rooms to rock performance by Pink Floyd, The Rolling Stones, and other big-name acts. Information can be obtained via e-mail from telerama.lm.com.

• Grant’s Florist and Greenhouse, the Internet's answer to Pc Flowers, enables customers to browse its offerings on the World Wide Web. Connect to http://florist.com:1800.

• The Programmer's Shop sells software and hardware of interest to computer programmers. For more informations, send electronic mail to progshop@world.std.com.

• The CERAM Email Marketplace offers weekly price quotes in CPU and RAM chips via e-mail. Send mail to catalog@ceran.com for details and a current price quote.

In addition to the online merchants, a growing number of technology service providers also specialize in putting products catalogs and other company products online.

In August, 1993, O'Reilly & Associates, a California publishing company specializing in Internet books and guides, introduced the Global Network Navigator, an Internet resource center that enables Internet user to browse product brochures, press release, and white papers; downloads demonstration software, and ask company representatives for additional information. Advertisers can submit hypertext advertisements that run in the GNN Marketplace or in a general GNN guide to the Internet.

5.7 Customer Support

Thanks to the Internet, even small companies can stay in touch with customers throughout the world without exchanging international phone call or staffing office with on-site service reps. Today, hundreds of businesses offer customer support through the Internet, especially those in the technology fields. For many hardware and software vendors, customer support on the Internet is a logical extension of dial-up bulletin boards or support forums setup on commercial online services such as CompuServe and GEnie.

For computer companies, the Internet is especially useful because many of their customers are already online. Through the Internet, customers can ask questions, receive upgrades and bug fixes for their software programs, and sometimes even demonstrate problem to an online engineer, all without leaving the office.

Small software companies have been particularly aggressive in setting up e-mail addresses for problems, questions, enhancement request, and other messages. Indeed, it's the rare software firm that isn't
accessible through the Internet, even if the company also has a presence on CompuServe, AppleLink, or another online service.

Larger computer vendors have also embraced the Internet as a communications tool, particularly those firms whose engineers are already using the Internet for their purposes. A quick scan of Usenet groups shows Apple employees in Mac-related newsgroups, HP employee in HP groups, Sun employees answering question in Sun-related groups, and even some Microsoft employees answering questions in the Independent.

Beside discussion forums, companies can also publish catalogs, products databases, and other information on the Internet, using a variety of electronic tools such as telnet FTP, WAIS (wide-area information server), Veronica, and Gopher, and more.

David Flack, editor-in-chief of Open Computing magazine, comments in a recent editorial that, by using the Internet, "Vendors can offer information products, services, and software for trial use instead of merely hyping them. Customer feedback is enhanced and people can share their opinions of products in ways not possible in the world of read-only advertising."

5.8 Research and Developments

When you consider that the initial reason for creation of the Internet was to facilitate government research and development projects, it should come as no surprise that R&D is still one of the most popular activities on the Internet. Because of its low cost, companies such as Bellcore, GE Medical Systems, Motorola, Intel, and thousands of others are using the network to collaborate on worldwide research efforts.

Thanks to the Internet, researchers can keep abreast of new discoveries, communicate in real-time with colleagues working on similar projects, and find out about an interesting discovery in an altogether different field. The Internet also links many corporate research divisions directly to supercomputer centers for dedicated research projects.

Some companies use simple e-mail to communicate, others set up internal and external newsgroups to publish and discuss findings, and still others make use of the multimedia capabilities of the Internet to support voice, video, and data. Other companies are using Internet tools such as Gopher and WAIS to set up online libraries to share information worldwide.
5.9 Publishing

Newspaper and Magazine publishers are also discovering what computer professionals have known for years: hop abroad the Internet and kiss your printing and distribution costs good-bye.

On the Internet, publishers pay a flat monthly fee to publish all the news they want, without paying a penny extra for newsprint, printing presses, or delivery trucks. As a result, the Internet has become a popular hangout for computer-assisted journalist, and more than dozen newspapers as well as more than 250 journals and magazines are now publishing online editions on the Internet.

6. Internet as Cybercolonialization Tools

The coin has two sides. Anything as wonderful as the Internet must have some bad effects. In addition to using the Internet as empowering tools as stated in Section 5 above, there are other usage of the Internet such as digital library, virtual universities, virtual banks telemedicine, etc.

Complaints about Internet have been about sexual abuse of children through the Internet, sex trades through the Internet, gambling through the Internet, etc.

The Internet was originated from the United States and as such, it may be said that the spread of Internet from the US to Asia is a form of colonialization.

With the Internet, western powers can have access to financial information concerning Asian countries. For example, it may be speculated that Thailand loss the financial war because of having less information than the enemy. However, Internet is a two-way system. Thailand must learn to use the Internet as effectively as other advanced countries.

With the Internet, it may be said that the western countries can easily spread their culture to Asia. However, Asian countries can also use the Internet to spread Asian culture to the west.

With the Internet and especially electronic commerce, western countries can reach into and grab customers from Asian countries, similar to the case of dell.com, amazon.com, onsale.com, etc. However, Asian countries can easily establish counter attacks.
7. Concluding Remarks

Presented in this paper were A Brief History of Internet, Internet in Asia, Internet in Thailand, Internet as Empowering Tools including Internet facilities, Internet in Business, Communications, Real Estate Application, Business Service, Sales and Marketing, Customer Support, Research and Development and Publishing. Finally, a discussion is made of whether or not the Internet is Cybercolonialization Tools. It may be argued that every coin has two sides. Therefore, the Internet has both the good points and the bad points. However, it is generally agreed that the Internet advantages overwhelm the disadvantages. It is also said that the dam blocking the Internet has been broken and the water which used to be behind the dam is now unstoppable. May be, we should adopt the concept of "If you cannot fight them, join them". In other words, Asian should join the Internet to use it for our own advantage. If people in the west can use the Internet to colonize us, we can also use the Internet to colonize them. So, the Internet should be used wisely in a win-win situation.

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