

The Internet and Related Issues

Research and Library Services Division
Legislative Council Secretariat
May 1995

The Internet and Related Issues

Background

1. The raid on seven Internet service providers by the Police in March this year has aroused public concerns on protection of data transmitted electronically and regulation of telecommunications services in Hong Kong. Interest on the Internet is also heightened as news concerning various problems of the Internet emerge.

2. In view of the public concerns, the Legislative Council Panel on Information Policy requested that a research into issues concerning the Internet and the Bulletin Board Systems be undertaken. The scope of study as defined by the Panel is give below:

- (a) Background information on Internet / Bulletin Board Systems (BBS), including its nature, role, function and present development;
- (b) Merits and shortcomings, if any, of such electronic communication network;
- (c) Pros and cons, as well as the implications of government regulation or de-regulation of such telecommunication systems;
- (d) The state of the art in Hong Kong and overseas countries;
- (e) Any other information which is considered to be relevant to the discussion on issues related to the Internet and BBS.

The Internet

3. The Internet is a global network of a large variety of computer networks. At present, it consists of some 30,000 networks, over 5 million computers and 30 million users world-wide. These networks and computers are connected by communications lines and they communicate by using a common transmission language - the Transmission Control Protocol/Internet Protocol (TCP/IP).

4. Despite the vast number of networks involved, the Internet does not have a central authority. Much of its directions are from the Internet Society, which is formed by a group of volunteers whose concerns are with the technological issues. There is no control on how individuals use the Internet or censorship on the information placed on the network.

Brief History

5. The Internet began in the United States as a military project to a build a nation-wide computer network that would withstand a disaster. In the 1960s, the Advanced Research Projects Agency (ARPA), a division of the U.S. Defense Department, developed the ARPAnet. The network used TCP/IP to enable sharing of messages and data among different computers of universities and high-tech defence contractors located at different places in the U.S.

6. From the mid-1970s to the 1980s, other networks used the ARPAnet technology to interconnect themselves mainly for academic and research purposes. They exchanged messages and information using telephone lines with the ARPAnet as the core.

7. Since then, more and more networks have been internetworked within and outside of the U.S. The network today connects government, research, academic as well as commercial sites in over 100 countries and is widely known as the Internet.

Uses

8. Internet users make use of the network to perform a large variety of activities which can be broadly divided into the following categories:-

Access to databases

9. Internet provides access to the large and growing number of databases and information systems. By logging in a database, users easily find information on a wide range of subjects in various forms. For instance, in a U.S. law library database, users can navigate through law libraries all over the U.S., search for information by keywords, read the case law or search the catalogues for books, publications and articles. Another museum database provides users with descriptive information as well as sound and images of its collections. Some databases not only allow access to stored information but enable users to interact with them, say to reserve books, place an order for a product. News wires are also available to provide updated news and financial data.

10. Most of the databases and information systems are provided free-of-charge. In recent years, however, more and more commercial organisations sell their databases on the Internet for profit. Access to such databases is restricted to subscribers, who are billed by their usage. In Hong Kong, a number of government departments, organisations, hospitals, universities and secondary schools have already made their information available free on the Internet.

Communications and Discussion

11. Internet users communicate among themselves by sending and receiving electronic mail (e-mail). Each user has a user identity and an e-mail address. **Private** e-mail can be sent to designated individuals at their addresses.

12. E-mail can also reach a large number of people at the same time through the **mailing list** system. Mailing lists are in fact groups of Internet users who have a common interest. Once subscribed to a mailing list, all messages of a user are sent to the list so that every one else on the list will get a copy of the messages.

13. Usenet News, which is similar to **bulletin board service** (BBS), is a popular means of communication and discussion among Internet users. There are tens of thousands of bulletin board-like newsgroups covering a large variety of

topics relating to business, computer, social and miscellaneous issues. Internet users can read and post messages on these newsgroups as well as send comments to them.

14. "Chatting" or **teleconferencing** among users logged in anywhere on the Internet is also possible. Responses and comments of those who take part in the conversation are shown on the computer screens at the same time. Anyone can join in the discussions and share his views with the others.

File Transfer

15. Internet users often find it useful to transfer computer files to their own computers. The files can be computer programmes, documents or even pictures and images. File transfer through Internet is much more efficient and speedy than by copying to and from floppy diskettes despatched by post or couriers. The large number of Internet tools available for downloading to users' computers also provide cheap and effective tools for users to browse and retrieve information on the Internet. Some software publishers make use of the file transfer function of the Internet to send software to their customers.

16. It must be pointed that many other computer networks or systems, including on-line information services and BBSs also provide functions such as e-mail, messaging, multi-user chatting or teleconferencing, file transfer and database searching, although with different emphasis. They differ from Internet in that the latter covers a much larger number of users and databases that are distributed around the world.

Connections to the Internet

17. Internet is a vast network, involving a hierarchy of computer networks that include local area networks, regional provider networks and high speed backbone networks. There are several ways to connect to the Internet and they are described below.

Direct connection

18. Most universities and large corporations have direct Internet connections. This requires the use of sophisticated computer equipment and high speed leased lines and is therefore a relatively expensive method of connection.

Connection through commercial on-line information services and networks of computer vendors

19. More and more on-line commercial information services provide e-mail exchange between their subscribers and Internet users. Some large computer vendors are also planning to offer Internet access service to their consumers.

Connection through Internet access service providers

20. This is a low-cost means of accessing the Internet commonly used by small organisations and individual computer users. By opening an account with an Internet access service provider, a user with very basic computer equipment (a personal computer installed with a communications software and a modem) can dial up the computers of the service provider, which are connected to the Internet through high speed communications lines.

21. Dial up access to Internet access service providers is growing in popularity because it is economical. In the U.S., there are hundreds of such providers which usually charge under US\$25 a month for an account. The number of service providers in Hong Kong also increases rapidly, from less than ten a few months ago to 17 at present, serving around 10,000 subscribers.

Benefits

22. The Internet offers many benefits to its users.

High speed

23. Information on the Internet are transmitted over the telecommunications network at high speed. Pages of documents which need minutes to transfer by fax or days by post can be transferred in a few seconds.

Low cost

24. Most of the information and databases on the Internet are provided free. Users are charged for the connection to the network only. In addition, compared with regular postal mail or fax machine transmission, data transmission over the Internet is much cheaper.

Currency of Information

25. The contents of many books and publications lack currency because of the time lag between the availability of information and publication. Information in electronic form is however available to all users immediately after being updated.

Comprehensive source of knowledge and entertainment

26. Databases on the Internet cover almost every aspect of our life. Some of the larger databases supply information on law, governments, medicine, computers, history and education. Others cover hobbies, fashion, sailing, astronomy, food and drink, drug, religion and news etc. Discussion groups and teleconferencing enable Internet users to tap information and knowledge from experts of all fields. Games, pictures and sounds also make the Internet an entertainment resource.

Communication beyond boundaries

27. National boundaries are removed for those who communicate on the Internet. One can communicate with anyone else on the other side of the world over the Internet.

Licensing under the Telecommunication Ordinance

28. The provision of a telecommunication service in Hong Kong involving the establishment or maintenance of a means of telecommunication is subject to licensing under the Telecommunication Ordinance. The right licence for the provision of such service over the public telecommunications networks is the Public Non-exclusive Telecommunications Service (PNETS) licence. Because telecommunications network is now frequently used by computer networks such as the Internet, on-line information services and BBSs, there are confusions as to which types of service would need to apply for a PNETS licence.

29. To clarify the criteria for licensing, the Office of the Telecommunications Authority (OFTA) issued a statement on 22 March 1995. According to the statement, the test for licensing a service connected to public telecommunications networks is whether a provision of a service to the public is involved. OFTA would examine if the following three elements are present to determine if there is a provision of a service to the public:

- whether there are physical telecommunication installations in Hong Kong operated by the service providers for the conveyance of messages for customers.
- whether a customer can make use of the service to communicate or exchange messages with another customer e.g. through electronic mail; and
- whether the service is generally available to the public.

30. Other points in the statement relating to the licensing requirements of particular relevance to Internet access service providers and BBSs are extracted and given below:

- No telecommunication licence is required for a service which only sells information.
- Generally, Internet access service providers in Hong Kong offer a wide range of information and messaging services. Clearly, the Internet service providers are providing a service to the public and are subject to licensing.
- A bulletin board service (BBS) which only provides an information service does not require a licence. However, if the scope of the service is expanded to include messaging or electronic mail capability and the service is offered generally to the public, a licence is required.

31. In addition, the OFTA statement stipulates that services licensed under the Public Non-exclusive Telecommunications Service have to pay the Hongkong Telecom HK\$69 per line per month and an additional usage charge of nine cents per minute, instead of the flat rate applicable to the rental of ordinary telephone lines. This tariff is regulated by the Telecommunications Authority; and is determined at a level to recover the actual costs incurred by the Hongkong Telecom in delivering the PNETS messages and to allow for a reasonable profit.

Concerns / Problems with the OFTA Statement

Scope of service

32. In determining whether a service needs a PNETS licence, there is a clear distinction for services that provide information only and those that provide additional services, including e-mail, messaging and teleconferencing.

33. By provision of information is probably meant the provision of on-line access to information stored on databases for searching and downloading of information by users. E-mail, messaging, discussion groups and teleconferencing are apparently regarded as means of communication with families, friends and business contacts. As a result, those who provide such services using the telecommunications network are classified as engaging in telecommunication service. However, it must be borne in mind that these functions are increasingly recognised as an inexpensive and indispensable way of accessing information and sharing experiences. They are therefore important functions of information services and BBSs.

34. Indeed, to satisfy the diverse information access needs of computer users, the trend is for information services and BBSs to expand their scope of service from simply providing access to databases or information to including e-mail, discussion and teleconferencing capabilities. Under the present licensing requirements, only those systems that have very restrictive scope of service would be exempted from licensing. This has an implication on non-commercial information services and BBSs providing a full range of service to the public because of the interconnection charges required on licencees, as discussed later on.

Public vs closed user group

35. There are hundreds of electronic bulletin board systems (BBSs) in Hong Kong and thousands on the Internet. A small number of those in Hong Kong are operated by commercial firms (typically computer vendors, computer newspapers and magazines) to provide on-line service or to disseminate information about new products and services. The majority of the local BBSs are formed by amateurs and are used as a means to foster discussions and to promote technological advances. There are also some that are operated by charities or welfare service groups for rehabilitation purposes or to encourage community awareness and participation. As such, there is very little restriction on their membership and their service can be regarded as open to the public. However, the fact that these systems are for people who share a common goal or interest

means that their users tend to form closed user groups. The need for licensing based on whether the service is for the public or for closed user groups could be arbitrary.

Interconnection charges

36. Many BBSs operated by hobbyists, educational and community service groups are for non-commercial purposes and have been provided to members free of charge or at a nominal fee. With the announcement of the licensing requirements and interconnection charges by OFTA, these system operators would have to pay for the licence fees as well as the tariff which is partly related to usage. This new requirement may pose problems to such BBSs as extra administrative costs will have to be incurred if the costs are to be recovered from the users. The new charges to users will discourage their use of BBSs, making these systems less useful for sharing views and information.

37. The Telecommunications Authority intends to adopt a "class licensing" approach to provide blanket authorisation for particular services such as the Internet. The details are being drafted for inclusion in a Telecommunication Amendment Bill to be introduced to the Legislative Council later this year. In drafting the proposals, the present concerns and ambiguities should be studied thoroughly.

Problems / Concerns with Internet

38. Apart from the controversies over the licensing requirements and interconnection charges, there are other concerns raised in connection with the use of the Internet.

Loose content controls

39. Since there is no censorship over information on the Internet, undesirable and offensive materials may be found on the network. One can obtain pornographic articles, nude pictures, information on hacking, making bombs, manufacturing drugs or committing suicide from the system. There are also concerns that the Internet would be abused by people who use it to spread rumours or false information to cause alarm to the public.

40. As the Internet is a global network, control over materials released outside Hong Kong may be difficult. Content controls on local publications are at present found in the Control of Obscene and Indecent Articles Ordinance. The ordinance has to be reviewed in the light of the free flow of electronic and digital information to the public over the network. There is of course a need to strike a balance between control and free access to information.

41. In the United States, a Communications Decency Act 1995, which aims to protect the public from the misuse of the telecommunications network and telecommunication devices and facilities has been introduced into the Congress. Under the bill, anyone using telecommunications devices and facilities in the

District of Columbia or in interstate or foreign communication to make, transmit, or make available any obscene, lewd, lascivious, filthy, indecent or harassing messages would be liable to prosecution.

42. The problem with the bill, if enacted, is that because telecommunication transmission involves carriers such as telephone companies and Internet service providers, the third party carriers would be liable to the offence brought about by the message creator. To avoid liability under this provision, carriers may be forced to pre-screen all messages, files, or other content before transmitting them to intended recipients.

43. The bill is very controversial and has aroused opposition from human rights advocates in the U.S. who believe that it will pose serious threats to the free flow of information throughout the on-line world and the free speech and privacy rights of individual users.

Copyright infringement

44. Copying and reproducing data available on-line, on CD-ROM or in other electronic forms including the Internet is much easier than copying from books. This has created problems for copyright enforcement. The difficulty is compounded on the Internet since it is a global network containing vast amount of articles from many sources.

45. The Copyright Ordinance in Hong Kong should be examined to see if it has adequate provisions to tackle the problem with copyright infringement on electronic works. Co-operation among governments and international bodies on copyright is needed to come up with an enforceable standard on the global electronic network.

Data security

46. Communication on the Internet very often spans across different countries. In such cases, data are transmitted over communications lines and routed from one network to another before they reach their destinations. Security of personal or private commercial data transmitted over the network is therefore a matter of concern.

47. Some degree of protection is found in the Telecommunication Ordinance. Thorough considerations of further safeguards are desirable and should be included in the review of the Telecommunication Ordinance which is being made. The Personal Data (Privacy) Bill should also be scrutinised to see whether it covers providers as any other companies in Hong Kong in the way they collect, hold or use the personal data they have such as clients' account name and billing details. The definition of 'data' in the Bill does not seem to cover electronic data being transmitted over telecommunications networks and should be studied in detail.

48. The public should be adequately educated of the implications of transmitting data electronically. Encryption techniques should be introduced to users for their protection. Consideration could also be given to see if there should

be a code of practice for providers of telecommunications service to ensure data security and privacy.

Consumer protection

49. An increasing number of small businesses and individuals connect to the Internet indirectly through Internet access service providers. The reliability of the service is of utmost importance especially to those whose businesses make use of the network heavily.

50. There is at present no regulation over the quality of service of these providers in Hong Kong. In applying for the PNETS licence, a prospective service provider is required to provide proof of a registered company and to supply information on its directors and principal business. There are concerns that subscribers of such service will suffer if the computer systems of these providers break down or these providers close down their business suddenly. The Government, and perhaps the Consumer Council also, should have a role to play in the education and protection of the consumers.

International Effort

51. The Internet has sparked off the world's interest in developing information and communication networks. Many are not content with developing and utilising the Internet only. Instead, they aim to build an information superhighway where networked communication can take place in a multi-media manner and which can provide different kinds of service. Ministers from G7 countries and Members of the European Commission met in the G7 Ministerial Conference on the Information Society in Brussels, Belgium in February this year. They are committed to playing a major role in the development of a Global Information Infrastructure.

52. To realise the shared vision, G7 partners agreed to put effort in the following areas:

- promotion of interconnectivity and interoperability
- developing global markets for networks, services and applications
- ensuring privacy and data security
- protecting intellectual property rights
- co-operating in research and development and in the development of new applications
- monitoring of the social and societal applications of the information society

53. The ministers also agreed on 11 pilot projects for initial implementation. They include:

- designing a global and computer-accessible inventory of human knowledge
- perfecting interoperable broadband communications networks
- developing cross-cultural education and training
- setting up electronic libraries

- setting up of electronic museums and galleries
- designing environmental and natural resources management
- development of a global emergency management information network
- designing global healthcare applications
- putting governments on-line
- establishing a global marketplace for small and medium enterprises
- designing a global maritime information system

54. In the Pacific Rim, leaders of the Asia-Pacific Economic Co-operation (APEC) agreed to liberalise trade and investment by the year 2020 and considered that information infrastructure would play a crucial role in achieving the goal. They have agreed to co-operate in the construction and expansion of an interconnected and interoperated Asia-Pacific Information Infrastructure (APII) in the region. The APII will form an integral part of the Global Information Infrastructure. The APEC Ministerial Meeting on Telecommunications and Information Industry will be held at the end of May and representatives from the Hong Kong Government will attend the meeting.

Conclusion

55. The Internet is a useful source of information and an important means of communication with the world. Its importance grows as more governments follow the footsteps of the United States Government to use it to disseminate official information to the public and as more companies use it to conduct their business.

56. While the Internet may give rise to some problems and concerns, any attempt to protect privacy, copyright or to clamp down obscene or harassing utilisation of the network should be carefully balanced against the freedom of access to information.

57. Computerised telecommunications networks involve many parties, such as telecommunications personnel, information technology personnel, information service providers, network access providers and end users. The technological development is phenomenal and has far-reaching implications on the activities of all parties. These implications should be carefully considered, and consultation with all parties should be held as far as possible in the formulation of policies and making of law.

58. As the Internet is a global network, co-operation with other countries is important to enhance its development and in solving its various problems. There is a need for Hong Kong to follow closely the work of the G7, APEC and other countries and to embark on projects that would benefit Hong Kong to remain as an international financial, communications and service centre.

RP05/94-95
Research and Library Services Division
Legislative Council Secretariat
May 1995

Reference

"Internet: The Undiscovered Country", by Andrew Kantor, "PC Magazine, March 15, 1994"

"Economic FAQs About the Internet" by Jeffrey K. Mackie-Mason and Hal Varian, Journal of Economic Perspectives, Vol 8, No3, summer 1994

The Internet Navigator, by Paul Gilster, published by John Wiley & Sons, Inc.

"Answers to FAQs About Hong Kong SuperNet", Hong Kong Supernet

Record of meeting of LegCo Panel on Information Policy dated 3 April 1995 and its associated papers.

Internet web sites:-

<u>Subject</u>	<u>Web Site</u>
G7 information	http://www.ibm.com
APEC information	http://www.mic.go.kr/APEC/apec.html
Latest sites offered by the Hong Kong Government	http://www.hongkong.org
On-line petition against the Communications Decency Act	http://www.phantom.com/~slowdog/comp.org.eff.talk

Note: The above are available in the Legislative Council Library. Members and their personal assistants are welcome to borrow from the Library. Library staff can be reached at 2869-9479 or at Internet e-mail address: legcorls@hk.super.net