I-1-1 Domain name registration and administration system

Shifting from government-led to private sector-led for an internationally balanced registration and administration

1. Conventional domain name registration and administration system (led by the U.S. government)

The international registration and administration of the Internet domain names used to be handled under support from the U.S. government by the Internet Assigned Numbers Authority (IANA, a function performed mainly by the late Jon Postel as undertaken by the Information Science Research Institute, the University of Southern California); IANA fulfilled the role of top-level organizational authority by handling related systems such as the technological development, standardization and penetration promotion systems and the establishment of a Top Level Domain (TLD).

Moreover, as regards the generic TLD (gTLD), a private company in Virginia, Network Solutions Inc. (NSI) had a monopoly over the handling of registrations (Fig. 1).

2. International discussions on the establishment of a new domain name registration and administration system

Conventional domain name registration and administration system, as witnessed by the fact that it was being handled by IANA and NSI with support from the U.S. government via such channels as the Defense Advanced Research Project Agency (DARPA) and the National Science Foundation (NSF), was centered in the U.S. under supervision of its government — a historical vestige of the fact that the Internet originated in the U.S.

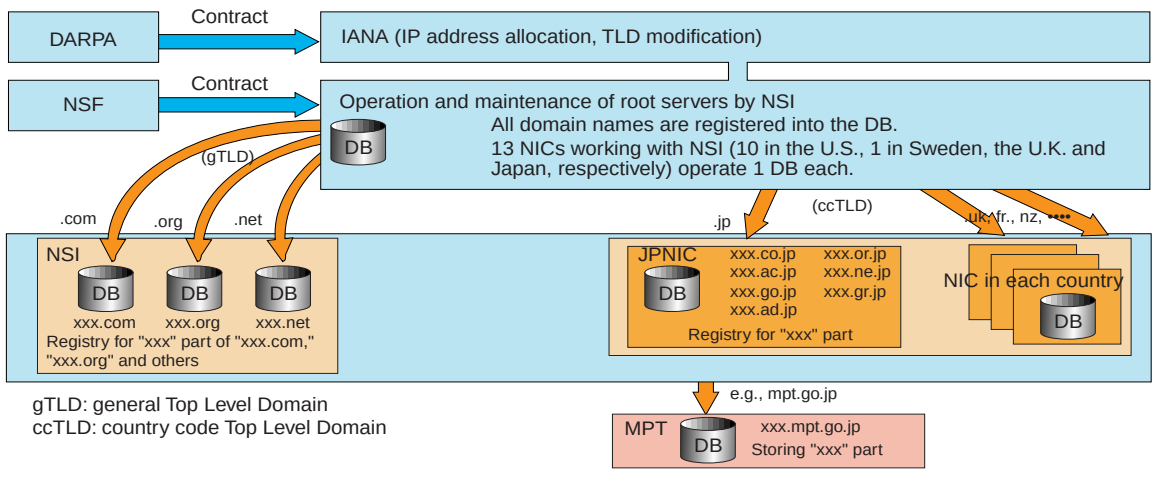
However, with the recent worldwide penetration of the Internet, while the discussions increased concerning the need to make the Internet more open internationally, the expiry of the contracts between the U.S. government and IANA/NSI as of the end of September 1998 drew near. In advance of this date, the international move to establish a new private sector-led domain name registration and administration system which is internationally balanced gained strength.

Under the circumstances, the U.S. government issued the "Proposal to Improve the Technical Management of Internet Names and Addresses" (the so-called "Green Paper") on January 30, 1998 in order to obtain comments from those concerned in both the public and private sectors. In the Green Paper, there were calls to establish a not-for-profit corporation to replace IANA as a new top-level organizational authority, but since this would have continued the relationship with the U.S. government, even in the comments received there were criticisms of this proposal.

After receiving the comments on the Green Paper, the U.S. government made public a "Statement of Policy on the Management of Internet Names and Addresses," the White Paper, as a finalized policy proposal on June 5, 1998 (Table).

With the White Paper being made public to build the new private sector-led domain name administration system, upon adjustments with the private sector, sessions of the International Forum on the White Paper (IFWP) were held in various locations around the world in July and August 1998. Concerning the status of the new not-for-profit corporation, even after four rounds of discussion, the location of the new corporation, its legal jurisdiction,

Fig. 1 Existing domain name registration and administration system



Related sites: IANA (http://www.iana.org/); NSI (http://www.networksolutions.com/)

membership of the board of directors and other issues could not be agreed and no arrangement could be finalized.

Due to the failure of the IFWP in establishing a private-sector arrangement, the central players in the conventional domain name management system, IANA and NSI, joined forces for another attempt at establishing a new private sector arrangement. On September 17, 1998, IANA and NSI jointly published a proposal and a request for comments (RFC) from those concerned including governmental organizations. From Japan, a joint comment was provided by the Ministry of Posts and Telecommunications together with the Ministry of International Trade and Industry (MITI), the Ministry of Education, Science, Sports and Culture and the Science and Technology Agency (STA). IANA produced a finalized private-sector proposal based upon such comments and submitted it to the National Telecommunications & Information Administration (under the U.S. Department of Commerce) on October 2, 1998.

3. Establishment of ICANN as a new top-level organization

The U.S. government, based upon the finalized private-sector proposal, again requested comments from those concerned, and upon noting that an international agreement had been obtained, exchanged a Memorandum of Understanding (MoU) with a California-based non-profit corporation, the Internet Corporation for Assigned Names and Numbers (ICANN) on November 25, 1998. Upon this basis, the international domain name management will henceforth be handled mainly by the non-profit ICANN (Fig. 2).

Also, the gTLD registration activities hitherto monopolized by NSI was opened as a result of the October 7, 1998 signing of a contract between the U.S. government and NSI. The contract stipulated among other things that the entry of registration handlers (registries) other than NSI into the gTLD activities and the transfer in the future of the root server management activities to ICANN. Thus, competition was introduced into gTLD activities.

4. Future outlook

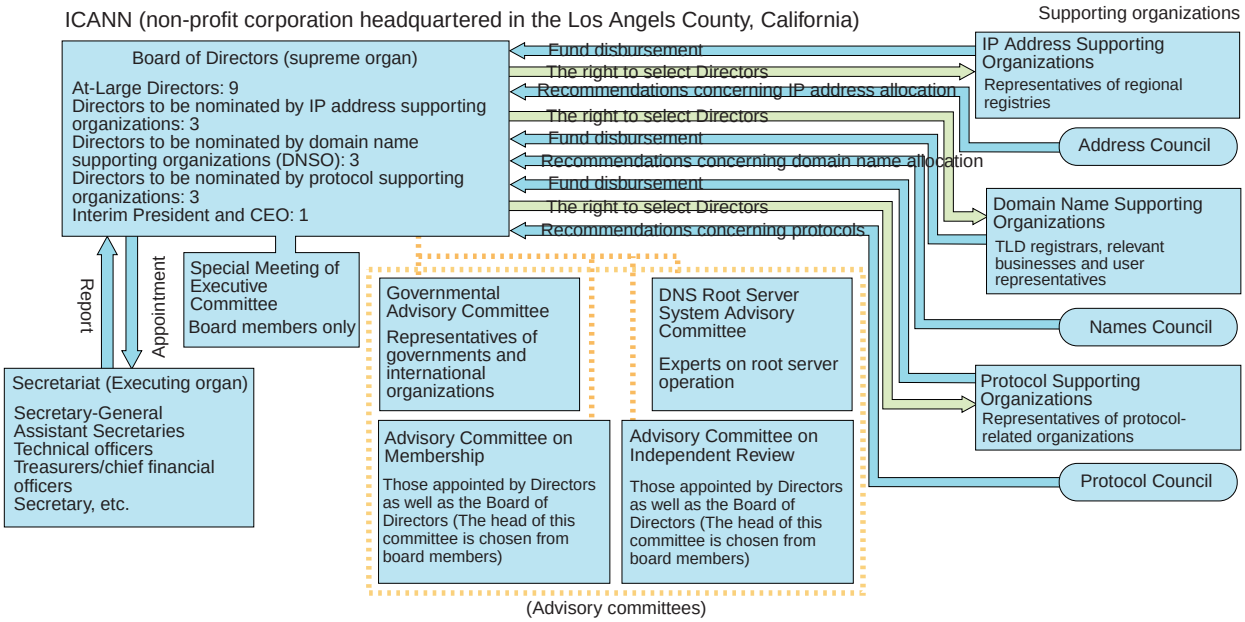
Although the new domain name management system will be handled mainly by the non-profit ICANN as a private sector-led and internationally-balanced effort, there are still problems such as the establishment of organizations within the ICANN, the introduction of competition into the gTLD registration activities, the handling of domain name-related dispute settlement and the enlargement of domain space that needs to be solved by the fledgling ICANN.

In March 1999, ICANN Meetings were held in Singapore and a Governmental Advisory Committee (with Japan also providing members) and other committees were organized, but throughout the rest of 1999, it is expected that ICANN will vigorously deal with the issues at hand.

Table Outline of the White Paper

- The U.S. government would withdraw from the domain name administration (Establishment of domain name administration systems by the private sector)
- Establishment of a not-for-profit corporation as the top-level organizational authority for the domain name administration system in place of IANA
- Introduction of competition for the domain name registration services
- To reflect opinions from a wide range of interested parties on the DNS administration, holding of preparatory meetings, or IFWP, was proposed.

Fig. 2 Outline of new international domain name management system



Related site: ICANN (http://www.icann.org/)

I-1-2 Trends in international organizations, etc.

International frameworks for promoting electronic commerce

Electronic commerce (EC) based upon the Internet is expanding globally beyond national borders and thought to have the potential to change the worldwide socioeconomic structure. For such reasons, vigorous discussions on establishing global EC activities have been going on recently in international organizations and bilateral talks.

MPT, in addition to engaging fully in discussions at such international organizations and conferences looking to promote EC, worked strenuously to produce the "Japan-US Joint Statement on Electronic Commerce"; this statement made known worldwide the fundamental principles and policies on EC. The "Japan-US Joint Statement on Electronic Commerce" has had the effect of greatly influencing discussions both in Japan and in international arenas concerning the future of EC.

Table Statements and decisions on Electronic Commerce at international conferences

Conference, etc.	Outline of outcomes, etc.
Japan-US Joint Statement on Electronic Commerce (May 1998)	Both governments recognized the following "Four General Principles" and "Nine Policy Issues." General Principles 1. Development of electronic commerce (EC) through the initiative of the private sector 2. Avoidance of unnecessary regulations or restrictions on EC by governments 3. Encouragement of effective self-regulation by the private sector 4. International cooperation and harmonization Policy Issues i) Tariffs; ii) Taxes; iii) Electronic authentication/Electronic signatures; iv) Privacy; v) Content; vi) Electronic payments; vii) Intellectual property rights; viii) Domain name system; and ix) Consumer protection
APEC: APEC Ministerial Meeting on Telecommunications and Information Industry (June 1998)	Ministers approved a "Reference Framework for Action on Electronic Commerce," which is aimed at: i) the development and enhancement of the infrastructure through the promotion of market competition; ii) raising awareness for social and economic benefits of EC; iii) building trust in EC for users and consumers; and iv) promoting the development of EC through international cooperation in preparing legal and regulatory frameworks for EC.
APEC Economic Leaders' Meeting (November 1998)	Leaders approved the "APEC Blueprint for Action on Electronic Commerce," and agreed to these principles: i) the development of EC through the private-sector initiative; ii) environmental preparation for EC by the governments; and iii) collaboration of public and private sectors toward the construction of the information infrastructure.
OECD: Ottawa Conference on Electronic Commerce (October 1998)	Ministers as well as representatives of international organizations, business, labor, consumer and public interest groups from around the world participated in the conference and held discussions on these elements of a shared vision for global EC: i) building trust for users and consumers; ii) establishing ground rules; iii) enhancing the information infrastructure for electronic commerce; and iv) maximizing the social and economic benefits of EC. In conclusion, OECD ministers adopted three declarations on: i) the protection of privacy; ii) consumer protection; and iii) authentication for EC; in addition, OECD's future activity plan was announced.
WTO: WTO Ministerial Conference (May 1998)	Ministers adopted the "Declaration on Global Electronic Commerce" and declared that: i) WTO General Council shall establish a comprehensive work program; and ii) members would continue their current practice of not imposing customs duties on electronic transmissions.
The General Council (September 1998)	The General Council formulated the "Work Programme on Electronic Commerce," which stipulates frameworks for the activities for the relevant WTO bodies. These WTO bodies shall inform the General Council of the results of their activities relevant to electronic commerce.
Plenipotentiary Conference of the International Telecommunication Union (ITU) (Minneapolis, USA, October to November1998)	Two decisions were made by the Conference regarding the Internet, which is becoming the key infrastructure for EC, on the management of: i) Internet Protocol-based networks and ii) Internet domain names and addresses.
United Nations Commission on International Trade Law (UNCITRAL)	The Working Group on Electronic Commerce is proceeding with compiling of the draft uniform rules on electronic signatures.

UNCITRAL: The United Nations Commission on International Trade Law (UNCITRAL) was established by the General Assembly in 1966, composed of 36 member States including Japan.

Related sites: OECD (http://www.oecdtokyo.org/); WTO: (http://www.wto.org/); ITU (http://www.itu.int/)

Column 1 History of the Internet

A computer network that evolved from military to commercial use

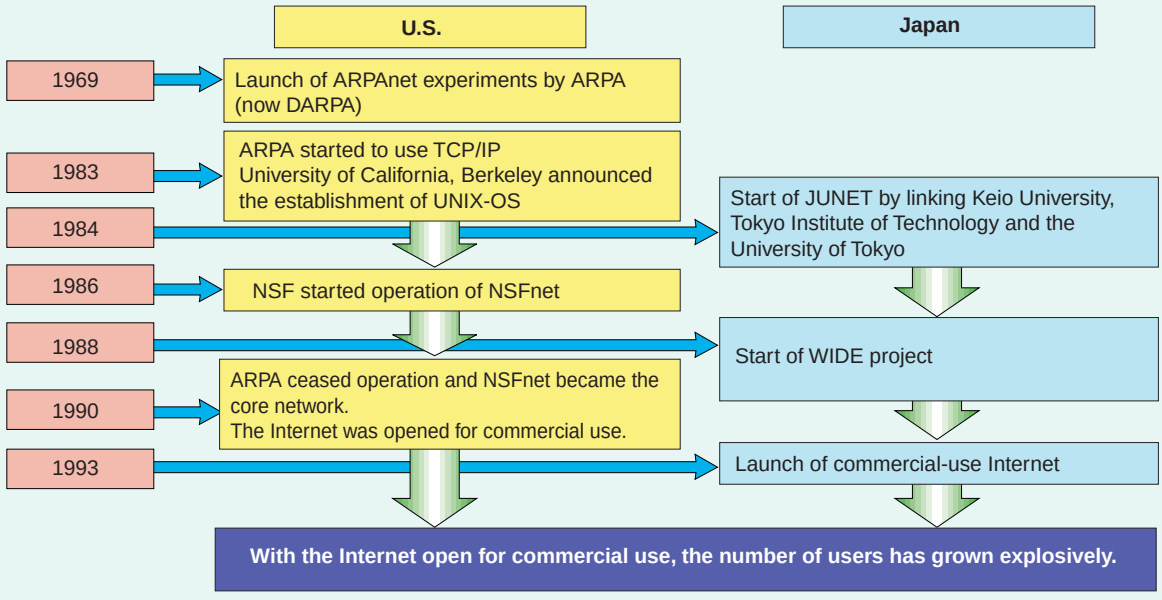
A "network of networks," the Internet connects existing computer networks around the world. It originated in the U.S. with the military-use ARPAnet, built in 1969 by the Advanced Research Project Agency, of the Department of Defense. Operation of the network was transferred to the National Science Foundation (NSF), which started the NSFnet in 1986.

The launch in 1984 of the Japan University/Unix NETwork (JUNET) was the foundation of the Internet in Japan. JUNET was started as a research network linking Keio University, the Tokyo Institute of Technology and the University of Tokyo. Following this, the Widely Integrated Distributed Environment (WIDE) project, with participation from the private sector, was established in 1988 to develop network technology and such, leading up to the acceptance of the Internet today.

However, since these networks were maintained by governmental agencies and research institutes, private and commercial use was not allowed until such commercial Internet services started in the 1990s. After the user restrictions to the Internet were scrapped in the U.S. in 1990, such commercial Internet use began in Japan in 1993. The world has since seen a rapid growth in the number of the Internet users.

One reason the Internet became so popular among ordinary personal computer users unlike conventional computer networks was that in 1989 the European Laboratory for Particle Physics (Conseil Européen pour la Recherche Nucléaire: CERN) developed the World Wide Web and in 1993 National Center for Supercomputing Applications (NCSA) at the University of Illinois (Champaign-Urbana) developed the "Mosaic" WWW browser. Prior to this, most information on the Internet was provided in text and technical knowledge was required to use it, but with the appearance of WWW, multimedia information became much easier to obtain and provide, allowing personal computer users to access databases worldwide.

Fig. History of the Internet



Related sites: CERN (http://www.cern.ch/Public/); NCSA (http://www.ncsa.uiuc.edu/)

I-1-3 Trends in the U.S.

Legislations concerning the Internet have been enacted successively.

1. Next Generation Internet Research Act Enacted

The U.S. government will, for three years starting 1998, earmark a budget of 100 million dollars per annum, to develop a next-generation Internet program (to be called Next Generation Internet, or NGI). NGI will be established upon successful testing and applications development by DARPA and the National Aeronautics and Space Administration (NASA) as well as universities and industries on a very-high speed testbed (open-type test facilities) with a speed a hundredfold (100 Mbps) to a thousandfold (1 Gbps) that of the existing Internet. An outline follows.

i) Basic research

In order to provide various services efficiently and safely, the three themes of dealing with network extensibility, provision of quality service to the final consumers and security are to be researched.

ii) Testbed

The 622-Mbps backbone network owned by DARPA, National Science Foundation (NSF), NASA and the Department of Energy (DoE) will have over a hundred organizations connected at 155 Mbps by 1999. Also, over ten organizations will be connected to DARPA's very-high-speed testbed at 2.4 Gbps by 2000.

iii) Applications

Applications that can make good use of the basic research in i) and the testbed in ii) will be developed.

Moreover, the U.S. government supports the establishment of some 120 universities around the country for the establishment of Internet 2, a program for building a research and educational-use network. Furthermore, the "Next Generation Internet Research Act" was enacted and approved in October 1998. This law amended the "High-Performance Computing Law of 1991." Specifically, it clarifies the objectives (Table 1) of the NGI program while earmarking 67 million dollars in the fiscal 1999 budget and 75 million dollars in the fiscal 2000 budget. Moreover, the law stipulates that the Advisory Committee shall review implementation of the Next Generation Internet program and shall report to the President and Congress on its findings and recommendations.

2. Countermeasures against cyber-terrorism

President Clinton announced countermeasures against "cyber-terrorism," which aims to disrupt computer networks during a January 1999 speech at the National Academy of Sciences. The president requested that Congress authorize a 1,460 million-dollar appropriation for combatting the cyber-terrorism such as those perpetrated by hackers and the establishment of the "cyber-squad," consisting of computer experts.

3. Digital Millennium Copyright Act of 1998 Enacted

The "Digital Millennium Copyright Act of 1998" was enacted in October 1998. This law aims to effectively protect copyrighted works in digital images, voice, text, etc. being distributed over the networks, and has the characteristic of being a comprehensive legislation which seeks to establish the copyright system in the digital era (Table 2). Moreover, the enactment of this law sets the stage for the U.S. to put in place the WIPO Copyright Treaty and the WIPO Performances and Phonograms Treaty of 1996, for protection of digital copyright.

4. New Encryption Policy

The Clinton Administration decided to relax re-

Table 1 Purposes of the NGI program

The purposes of the NGI program are to:

1) Support research, development and verification of advanced networking technologies to increase the capabilities and improve the performance of the Internet;
2) Develop high-performance testbed networks linking universities, federal research institutes and other appropriate research institutions, to enable the research, development and verification of advanced networking technologies;
3) Develop and verify advanced Internet applications that meet important national goals or agency mission needs; and,
4) The Advisory Committee on High-Performance Computing and Communications, Information Technology shall review implementation of the Next Generation Internet program and shall report to the President.

strictions on the export of strong encryption products in September 1998, which until then had been allowed only for use by banks and other financial institutions. Since then, such export controls became unnecessary as well for 1) subsidiaries of U.S. companies in any country other than the following seven countries: Cuba, Democratic People's Republic of Korea (North Korea), Iran, Iraq, Libya, Sudan and Syria; 2) insurance/health care institutions (except for manufacturers of biochemical and pharmaceutical products) in 45 countries with wide-ranging business dealings with the U.S.; and, 3) online dealers of client-server machines. Furthermore, the threshold level resulting in governmental permission being required upon export of encryption technology products to these seven countries was increased from 40-bit DES (Data Encryption Standard) encoding strength to 56-bit DES.

5. Enactment of Child Online Protection Act and a restraining order against the Act

A new law aimed at keeping Internet pornography away from children, the "Child Online Protection Act of 1998" (COPA) was enacted in October 1998.

The law made it a federal crime for commercial websites to communicate material considered "harmful" to those minors aged 16 and under. However, it stipulated that if it required the use of credit cards and other financial instruments not available to minors, then it would be exempt from prosecution under the Federal criminal code or from liability for monetary relief under the civil code.

In 1997, the United States Supreme Court struck down the "Communications Decency Act" which prohibited the transmission, etc. of content that was "sexually explicit or indecent" and "obviously objectionable when compared with modern standards," but of these the definition of "indecent" and "obviously objectionable" were too fuzzy and therefore determined to be an infringement upon the freedom of expression as guaranteed under the U.S. Constitutional Bill of Rights. The COPA legislation thus clarified that "material that is harmful to minors" means "material that the average person, applying contemporary community standards, would find, taking the material as a whole and with respect to minors, that such material is designed to appeal to or panders to the prurient interest," and also "taken as a whole, lacks serious literary, artistic, political or scientific value for minors."

However, the American Civil Liberties Union objected that the new law would lead to censorship of the Internet content just as the Communications Decency Act that was struck down and infringe upon the First Amendment protection of the freedom of speech, and filed a suit in the Federal District Court in Philadelphia, as it had done earlier when it filed a suit against the Communications Decency Act, asking for a temporary restraining order. In addition to the ACLU, the 17 organizations included the Internet Content Coalition (ICC) which counts among its members CBS New Media, Time Inc., The New York Times Electronic Media Company, Warner Bros., Sony Online and others.

The Federal District Court in Philadelphia granted a temporary restraining order in November 1998, concerning enforcement or prosecution of matters premised upon 47 United States Code, Section 231 of the Child Online Protection Act, and in February 1999 granted a preliminary injunction while the determination of whether or not the statute in fact is constitutional is being deliberated. The government is appealing the ruling and it seems more time will be required for the judgement to be delivered.

This dispute between the government and private organizations over Internet restrictions for keeping harmful content away from children clearly showcased the difficulty of imposing restrictions on the use of the Internet.

Table 2 Digital Millennium Copyright Act of 1998 (excerpts)

The law includes the following stipulations:

1) No person shall manufacture, import, offer to the public, provide, or otherwise traffic in any technology, product, service, device, component, or part thereof, that is primarily designed or produced for the purpose of circumventing a technological measure that effectively controls access to a protected work. (Related to the implementation of WIPO Copyright and Performances and Phonograms Treaties)
2) A service provider or non-profit educational bodies shall not be liable for monetary relief, or, except for injunctive or other equitable relief, for infringement of copyright.
3) Computer maintenance or repair copyright exemption
4) Protection of certain original designs

I-1-4 Trends in the EU

Establishment of legal framework being promoted for Internet use within the EU

As the January 1999 monetary union further integrates the region's market, EU must respond to the need to adjust the interests of its member states even for the use of the expanding Internet and also must establish a legal framework that harmonizes such use therein. An outline of recent major policy moves by the EU is as follows.

1. Transparency Directives on member state's national rules and regulations concerning the information society

The European Parliament and the EU Council had respectively in May and June of 1998 mandated through Directives that when a government of a member state wants to establish new rules and regulations on a field related to the information society, it must inform the European Commission and establish that said rules and regulations are in harmony with rules and regulations of other member states. This procedure is implemented upon the setting of technical standards and regulations of each state.

2. Electronic Commerce Directive (November 1998)

The EU guarantees the free flow of products and services in the internal market and was forced to adjust the legal framework, such as under whose legal jurisdiction it was to deal with a problem which may result from such transactions.

Under the circumstances, the European Commission has adopted a directive that will require companies providing the products or services, in conducting electronic commerce within the European Union, to abide in principle by national and Community laws. On the other hand, in dealing with the concerns from the consumer side, it passed another Directive mandating that in cases where it considers it necessary in the interest of consumer protection and such, the national law where the consumer resides may exceptionally apply limits on such businesses. The Directive is to be reviewed later by the European Parliament and the EU Council.

3. Move to place restrictions to deal with illegal and harmful content

The European Parliament and the EU Committee decided upon an "Action Plan on Promoting Safer Use of the Internet by Combatting Illegal and Harmful Information on Global Networks" in January 1999. This Action Plan not only calls upon each nation's government to deal by law with illicit contents but also calls upon the industrial sector to exercise self-restraint while working to develop "content rating systems" and "filtering systems" that users can adopt to deal with harmful content.

Moreover, for the three-year period between 1999 and 2001, some 25 million Ecu will be used to subsidize such efforts.

In the meantime, as regards the Internet service providers' responsibilities concerning illegal and harmful content, the Munich Court in Germany found the major provider in the country, Germany AOL, guilty of providing such content in May 1998, prompting the European Commission to take a look at the issue, but in November of the same year, the European Parliament and the Council announced the "Electronic Commerce Directive" that included an item which states that just introducing such content does not place responsibility on the Internet service provider (that is, the telecommunications carrier). This Directive is henceforth to be deliberated by the European Parliament and the EU Council.