NOTE

To Net or Not to Net: Singapore's Regulation of the Internet

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> Online technology is like any other: made by human hands, blessed with our best intentions, and tainted with our worst vices.[1]

> Certain liberties in a developing nation sometimes have to be sacrificed for the sake of economic development and security and to prevent communist oppression. . . . I spent a whole life-time building this and as long as I am in charge nobody is going to knock it down.[2]

I. INTRODUCTION

In the modern information age, technology is a double-edged sword. As new uses for the Internet rapidly emerge, it is clear that this particular technology is at the forefront of the information age, becoming almost necessary in order for individual nations to promote development and to remain competitive. But with this development comes the proliferation of human vices. For nations like Singapore and the People's Republic of China (China) that wish to control the exchange of ideas, particularly those of Western origin, the desire to advance technologically is tempered by the desire to maintain censorship powers.[3]

For example, in 1991, Singapore's National Computer Board directed a study of the advantages of nationwide information technology development. Coinciding with that study was an examination of Singapore's censorship laws by the Ministry of Information and the Arts.[4] A review of the two studies reaffirmed that modern technology, particularly the Internet, and censorship may not coexist in an entirely peaceful manner. The government's desire to become the Asian "information-technology hub"[5] comes

1. DAVID HUDSON, REWIRED 128 (1997).

2. CHRISTOPHER TREMEWAN, THE POLITICAL ECONOMY OF SOCIAL CONTROL IN SINGAPORE 190-91 (Alex Pravda ed., 1994) (quoting Singapore Prime Minister Lee Kuan Yew).

3. *See generally* Scott E. Feir, Comment, *Regulations Restricting Internet Access: Attempted Repair of Rupture in China's Great Wall Restraining the Free Exchange of Ideas*, 6 PAC. RIM L. & POL'Y J. 361 (1997); Amy Knoll, Comment, *Any Which Way but Loose: Nations Regulate the Internet*, 4 TUL. J. INT'L & COMP. L. 275 (1996); Dr. Peng Hwa Ang & Berlinda Nadarajan, *Censorship and Internet: A Singapore Perspective* (last modified May 4, 1995) <http://info.isoc.org/HMP/PAPER/132/txt/paper.txt> [hereinafter *Perspective*].

4. *Perspective*, *supra* note 3.

5. Jimmy Yap, *Singapore—The Next Internet Capital of Asia?*, STRAITS TIMES (Singapore), Mar. 22, 1996, at 21; Darren McDermott, *New Internet-Access Provider Enters Cyberspace in Singapore*, ASIAN WALL ST. J., Mar. 25, 1996, at 9; James Kynge, *Singa-*

into conflict with the oft-practiced control over the amount and type of information entering the nation.[6]

This Note examines whether Singapore can successfully maintain control over the Internet while at the same time using the technology to become and remain competitive in the global market. Case studies of individual nations' successes or failures at attempts to control the Internet may provide fairly reliable predictions of the success of other nations in the same endeavor.

Part II provides a brief explanation of the origins and nature of the Internet in order to demonstrate the difficulties involved in controlling Internet content. Part III discusses current regulation of the Internet in Singapore, explaining Singapore's procedural and substantive means of censorship. Part IV examines the inherent difficulties involved in Internet censorship and analyzes the strengths and weaknesses of the Singapore system thus far.

II. ORIGINS AND NATURE OF THE INTERNET

A. History and Nature of the Internet

The Internet is an international system that knows no boundaries and has no centralized control over the content transmitted.[7] It began in the late 1960s when the U.S. Defense Department commissioned the Advanced Research Projects Agency (ARPA) to create a computer network that could survive a nuclear attack.[8] ARPANET was created, a decentralized network that utilized a process known as "packet-switching."[9] In packet-switching, a message sent from one computer to another is divided into separate pieces of data that are called packets.[10] The packets each follow separate routes, us-

pore Cracks Down on Internet, FIN. TIMES (London), July 12, 1996, at 6.

6. Interestingly enough, censorship in Singapore is not a practice encouraged solely by the government. A survey by *Perspective* author Dr. Peng Hwa Ang found broad community support for censorship. For a historical explanation of the social valuation of censorship, see *Perspective*, *supra* note 3.

7. *See* Randolph Stuart Sergent, *The "Hamlet" Fallacy: Computer Networks and the Geographic Roots of Obscenity Regulation*, 23 HASTINGS CONST. L.Q. 671, 676 (1996). *See also* TRACY LAQUEY, THE INTERNET COMPANION: A BEGINNER'S GUIDE TO GLOBAL NETWORKING 22-23 (2d ed. 1993); GWYNETH TSENG ET AL., THE LIBRARY AND INFORMATION PROFESSIONAL'S GUIDE TO THE INTERNET 6, 9 (1996); Wendy Grossman, *All You Never Knew About the Net . . .*, INDEPENDENT (London), July 15, 1996, at 15; Sean Selin, *Governing Cyberspace: The Need for an International Solution*, 32 GONZ. L. REV. 365, 366-69.

8. TSENG, *supra* note 7, at 9.

9. *Where Wizards Stay Up Late: The Origins of the Internet*, PUBLISHERS WKLY., July 15, 1996, at 65.

10. Edwin Diamond et al., *The Ancient History of the Internet*, AM. HERITAGE, Oct. 1, 1995, at 34.

ing different networks until they reach their final destination, where a computer reassembles the original message.[11] The utilization of this technology ensures that if a portion of the network becomes inoperable due to a catastrophe such as nuclear attack, the other computers on the network will automatically reroute the packets so that the information will arrive at its destination.[12]

Soon after the U.S. Defense Department developed this system, other institutions became interested in the decentralized system of computer communication. Commercial and educational institutions began adding their own networks to the ARPANET.[13] By 1982, the term "Internet" described the former ARPANET along with the additional networks.[14] The growth of the Internet since its inception has been astounding. The number of computers connected to the Internet totaled 10,000 in 1987, 100,000 two years later, and 1,000,000 by 1991.[15] The number of users is expected to grow to 200 million by 1999.[16] Indeed, the number of users has doubled every year since 1993.[17]

Because of its conception as a decentralized system of computer communication designed to withstand nuclear attack, the Internet is not an entity capable of being controlled by any one government or organization.[18] As such, problems arise when governments seek to control access to materials deemed to be undesirable. Even the most fleeting study of international cultures will indicate that values of a similar nature do not span the globe. The problem with control arises because of the truly international nature of the Internet.

Any computer linked to the Internet is capable of being connected with any other computer linked to the Internet.[19] In fact, the most valuable characteristic of the Internet is the ability to establish almost instantaneous international communication through the use of its network. Yet, this character-

11. *Id.* at 35.

12. DANIEL P. DERN, THE INTERNET GUIDE FOR NEW USERS 9 (1994); Cris Shipley & Matthew Fish, *The Web and the Internet*, COMPUTER LIFE, Oct. 1, 1996, at 115; Selin, *supra* note 7, at 367.

13. Selin, *supra* note 7, at 367.

14. DERN, *supra* note 12, at 11-12; *History of the Internet*, KAN. CITY STAR, Apr. 21, 1996, at K4.

15. *History of the Internet*, *supra* note 14.

16. ACLU v. Reno, 929 F. Supp. 824, 831 (E.D. Pa. 1996), *aff'd*, 117 S. Ct. 2329 (1997).

17. Arul Louis, *Answernet*, DAILY NEWS, Oct. 27, 1996, at 46, *available in* LEXIS, News Library, DLYNWS File.

18. Selin, *supra* note 7, at 368.

19. Dan L. Burk, *Transborder Intellectual Property Issues on the Electronic Frontier*, 6 STAN. L. & POL'Y REV. 9, 10 (1994).

istic may also promote the proliferation of human vices across international borders. Although a country may control the exchange of information within its borders, it cannot control an individual in another country from making that same information available on the Internet where it may readily be available to all users.

B. Methods of Internet Control

There are various technological means of protecting Internet users from "undesirable content."[20] A government may either prevent transmission of the undesirable material, remove the material once it arrives, or prevent users from accessing such content.[21]

1. Preventing Transmission of Undesirable Content

To prevent the transmission of content determined by the government to be undesirable, the government must stall the content in transit. Censors may then scan the content of the message for any terms or displays that have previously been defined as undesirable.[22] Certain difficulties arise with this means of censorship. In order for this process to be successful, the senders of the content scanned must send their messages via the government computers.[23] In addition, any message sent in code frustrates the purpose of the censorship.[24] Perhaps the greatest problem posed by this means of censorship, however, is the significant delays caused by the amount of time neces-

20. As discussed earlier, the definition of what is undesirable differs from nation to nation. Thus, it is impossible to ever reach an international consensus on the regulation of Internet content. *See* Illegal and Harmful Content on the Internet, COM(96)487 final at 11 (observing that a definition of "harmful content" on the Internet depends on cultural differences) [hereinafter Illegal and Harmful Content]. In addition, the undesirability of different content varies from country to country, and even from community to community. *See* Shea *ex rel.* American Reporter v. Reno, 930 F. Supp. 916, 931 (S.D.N.Y. 1996). Some governments might include in the definition of "harmful content" certain political, economic, and cultural views. *See East Asian Censors Want to Net the Internet*, CHRISTIAN SCI. MONITOR, Nov. 12, 1996, at 19 (noting that China has determined that certain Western publications, including the NEW YORK TIMES, WALL STREET JOURNAL, and WASHINGTON POST are harmful and a threat to national security, and that Burma prohibits sending or receiving any information concerning the national culture, the economy, or state security).

21. *See* Illegal and Harmful Content, *supra* note 20, at 19; *see also* Wayne Arnold, *Censoring the Net Isn't Easy, but It Can Be Intimidating*, ASIAN WALL ST. J., Sept. 11, 1996, at 1 (noting that for a government to prevent the transmission of such materials, it must force user access through a system of government computers, which would first decide whether to allow certain content on the Internet to be accessed by its citizens).

22. *See* Arnold, *supra* note 21; *see also* Steven Mufson, *Chinese Protest Finds a Path on the Internet*: *Beijing Tightens Its Control Can't Prevent On-Line Access*, WASH. POST, Sept. 17, 1996, at A9.

23. Arnold, *supra* note 21.

24. Mufson, *supra* note 22.

sary to scan every single message for undesirable content. This method impedes access to and the flow of information from the Internet,[25] creating a significant stumbling block to any nation wishing to harness the Internet for its technological advantages.

2. Removal of Undesirable Content

A government may hold users responsible for all content that they provide and force those individuals to remove any undesirable content.[26] Difficulties also arise with this means of censorship. Governments may only force removal of content that was physically posted within their borders. Governments may not exert control over Internet service providers (ISPs) located in other countries.[27] In addition, should a government determine that a particular content is undesirable for only some members of society, removal of that content withholds that information from everyone, not merely the group to be protected.[28]

3. Preventing Access to Undesirable Content

There are several ways to prevent users from retrieving content that a government has deemed undesirable.

a. Blacklisting

Blacklisting is the prevention of user access to sites that have been determined by the government to contain undesirable content.[29] A government may also blacklist a site by forming laws that order ISPs to prevent their users from accessing any site containing undesirable content.[30] This has been

25. *Id.*

26. In January 1996, the French government banned a book, which subsequently appeared on a Web page found on a French server. The government forced that server to eliminate the Web page. Keeping in stride with human nature, however, the book soon appeared on Web pages on servers located outside of France. This meant that even the French could now access the information. *See* Robert Uhlig, *Lords of the Net to Patrol Their Creation*, DAILY TELEGRAPH (London), Sept. 24, 1996, at 8.

27. *Id.*

28. This is exemplified by the struggle to prevent children from accessing pornography on the Internet. *See, e.g.*, ACLU v. Reno, 929 F. Supp. 824, 854 (E.D. Pa. 1996), *aff'd*, 117 S. Ct. 2329 (1997) (noting that the rejected Communications Decency Act, intended to protect children from pornography on the Internet, would also prevent access by adults to content deemed legal); Shea *ex rel.* American Reporter v. Reno, 930 F. Supp. 916, 922 (S.D.N.Y. 1996) (observing that pornography is undesirable content for a child to access).

29. *See* Illegal and Harmful Content, *supra* note 20, at 20. This method blocks only the particular site's address, not the actual content, which means that the information may be transferred to another site for access. *See* Arnold, *supra* note 21.

30. *See* John Minson, *No Time for a New Law*, GUARDIAN (London), Sept. 12, 1996, at 4, *available in* 1996 WL 4043542.

one method selected by the Singapore government to monitor the content of the Internet.[31] Another method of blacklisting involves the proxy server, which is a computer that screens user requests and prevents access to sites considered undesirable by the government.[32] However, those countries that have attempted the proxy server method of control have experienced prohibitive time delays in accessing the Internet.[33] As with most means of censoring Internet content, blacklisting falls prey to certain difficulties. The undesirable material may easily be moved to another site or may even be transferred via e-mail.[34] As such, blacklisting is not an effective means of Internet control.[35]

b. Whitelisting

Whitelisting allows access only to those sites approved by the government and known not to contain undesirable content.[36] A government may also require ISPs to only allow access to those sites containing approved content.[37] However, limiting user access to a preapproved list of sites defeats one purpose of the Internet, which is to provide a vast and international source of information.

c. Word and Character Search

A third method of controlling access to undesirable content is through certain software that blocks access to sites by using a list of criteria selected by the user.[38] The difficulty involved with this type of Internet control, however, is that certain words have both sexual and non-sexual meanings.[39] As

31. Singapore Broadcasting Authority, *Censorship and Free Speech* (on file with the *Federal Communications Law Journal*).

32. Michael Richardson, *Singapore Seeks to Assure Users on Internet Curbs*, INT'L HERALD TRIB., Oct. 14, 1996, at 11, *available in* 1996 WL 4093750.

33. *See generally* Uhlig, *supra* note 26, at 8 (indicating that because the proxy servers could not keep up with the Internet computer traffic, the time necessary to access Internet content increased). Indeed, because of the time delays created by the use of proxy servers, Singapore now allows most businesses to circumvent the process. Jack Robertson, *Net Escape*, ELECTRONIC BUYERS' NEWS, Sept. 16, 1996, at 2.

34. *See* Arnold, *supra* note 21.

35. As discussed *supra* in Part II.B.1, a method of censorship involving the scanning of individual messages and requests involves a great deal of time and slows the flow of information, which defeats the almost instantaneous nature and purpose of the Internet.

36. *See* Illegal and Harmful Content, *supra* note 20, at 20.

37. *Id.*

38. ACLU v. Reno, 929 F. Supp. 824, 839-42 (E.D. Pa. 1996), *aff'd*, 117 S. Ct. 2329 (1997).

39. An example of this is the word "breast." In 1996, America Online blocked the use of the word "breast." This action was protested by breast cancer survivors, as such a ban would prevent access to valuable information concerning the prevention and treatment of

such, a vast amount of helpful or nonobjectionable information may not be made available simply because the software cannot differentiate among the many connotations of certain words.

In summary, the Internet exists as an international system, recognizing neither borders nor individual values. It is therefore very tempting for individual governments to attempt to conform the Internet to fit each nation's needs and value system. However, as evidenced by the earlier discussion, actual control over Internet content is difficult. It appears almost impossible to incorporate censorship with a desire to set the pace for technological development. Even so, Singapore is attempting to, in the words of Bill Gates, "have their cake and eat it too."[40] As such, Singapore's attempts to censor the Internet are educational for other nations that despair at the seemingly endless array of ideas on the Internet deemed to be objectionable.

III. INTERNET REGULATION IN SINGAPORE

Singapore has lofty goals for its use of the Internet. The government would like to make Singapore the "information-technology hub" for Asia.[41] At the same time, however, the government would like to "rid the Net of content that 'threaten[s] public order and national security, religious and racial harmony, and morality.'"[42] The chosen method, of course, is through attempted regulation of Internet content.

The Singapore Broadcasting Authority (SBA) is charged with the regulation of the Internet.[43] The Internet is subject to Singapore's traditionally strict laws that apply to all other media, including the Defamation Act, Sedition Act, and Maintainence of Religious Harmony Acts.[44] However, Singapore has gone a step further in its regulation of the Internet, encompassing a wide variety of subjects in its definition of "undesirable content."

breast cancer. Edwin Diamond & Stephen Bates, *Censorship in Cyberspace: The Net's Been a Blast, Now Censors Threaten to Ruin the Party*, PLAYBOY, June 1996, at 74.

40. *Perspective*, *supra* note 3.

41. *See supra* note 5.

42. Heather Irwin, *Singapore Sling*, NETIZEN, July 23, 1996 (visited Feb. 15, 1999) <http://www.hotwired.com/netizen/96/30/wire1a.html>.

43. *The Singapore Broadcasting Authority and the Internet* (on file with the *Federal Communications Law Journal*).

44. Romen Bose, *Internet Regulation in Singapore: What Its* [sic] *All About* (visited Feb. 16, 1999) <http://www.comlab.ox.ac.uk/oucl/users/thong.wei.koh/mark1/romenart.html>.

A. Regulated Content in Singapore

On March 5, 1996, Brigadier-General George Yeo, the Minister for Information and the Arts, introduced new Internet regulations for Singapore.[45] Under the powers created for the SBA under section 21 of the Singapore Broadcasting Authority Act, the SBA issued the Singapore Broadcasting Authority (Class Licence) Notification 1996.[46] The new regulation established broad categories of proscribed contents that were not to be accessed by any Internet user in Singapore.[47]

1. Public Security and National Defense

The first category of proscribed communications include any that could be considered to jeopardize public safety or the national defense.[48] Included in this vast category are the following communications:

> Contents which undermine the public confidence in the administration of justice; Contents which present information or events in such a way that alarms or misleads all or any of the public; Contents which tend to bring the Government [of Singapore] into hatred or contempt, or which excite disaffection against the Government [of Singapore].[49]

The government announced that this provision does not ban criticism of the government; it is merely meant to require responsibility on the part of groups making statements on the Internet.[50] Those in favor of the regulation

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45. *Id.*

46. *Singapore Broadcasting Authority Act (Chapter 297), Singapore Broadcasting Authority (Class Licence) Notification 1996* (visited Feb. 15, 1999) <http://www.sba.gov.sg/work/sba/internet.nsf/pages/Doc21> [hereinafter *Class Licence*] (Annexes A-E on file with the *Federal Communications Law Journal*).

47. *The Singapore Broadcasting Authority Act (Chapter 297), The Schedule, Internet Code of Practice* [hereinafter *Internet Code of Practice*] (on file with the *Federal Communications Law Journal*).

48. *Id.*; *Open Letter from Sidney Jones, Executive Director, Human Rights Watch/Asia, to Brigadier-General George Yeo, Minister for Information and the Arts* (visited Feb. 15, 1999) <http://www.etext.org/CPSR/lists/rre/HRW_letter_to_Singapore_govern> [herein-after *Letter*].

49. *See supra* note 48. *Internet Code of Practice*, *supra* note 47; Singapore Broadcasting Authority, *Internet Content Guidelines* [hereinafter *Internet Content Guidelines*] (on file with the *Federal Communications Law Journal*).

50. Kynge, *supra* note 5; Catherine Ong, *Government Proposes Regulatory Framework for Internet*, BUS. TIMES (Singapore), Mar. 6, 1996, *available in* 1996 WL 6294321. Indeed, the Government appears to fear anonymous criticism more than criticism itself, perhaps because the anonymous speaker is not as readily targeted by Singapore's more traditional laws, including the Penal Code, the Defamation Act, and the Sedition Act. An SBA official stated, "Anonymity breeds irresponsibility and we don't want the Internet community to become a platform for inflammatory and possibly insidious discussions which could incite . . . discord." *Frequently Asked Questions on Class Licence Scheme for Broadcast Services* [hereinafter *Frequently Asked Questions*] (on file with the *Federal*

believe that this measure protects the public from unsubstantiated allegations that are used to assassinate the character of the government.[51] Those opposed to the measure argue that it is designed only to keep the current government in power.[52] Indeed, six months after the announcement of the new regulations, the PAP's strongest opposition, the Singapore Democratic Party, had yet to create any pages for its Web site, expressing the need for caution to avoid violation of the rules.[53] The Socratic Circle, an Internet site for political discussion, has been replaced by a message that indicates technical troubles—the site has disappeared.[54] Some groups claim to have been classified incorrectly as political groups under the Licencing Scheme and as such, protest that such measures unfairly constrict speech.[55]

2. Racial and Religious Harmony

The second category of proscribed communications is those that weaken racial and religious harmony. Such communications have been construed by the government to include the following: "(i) Contents which denigrate or satirise any race or religious group; (ii) Contents which bring any race or religious group into hatred or resentment; (iii) Contents which promote religious deviations or occult practices such as Satanism."[56]

Communications Law Journal).

51. Bose, *supra* note 44.

52. Prime Minister Lee Kuan Yew's People's Action Party (PAP) has been in power continuously since 1959. This power has largely been maintained by a strict regime of social control and the prevention of any meaningful challenge to the PAP. In fact, Singapore's administrative law characterizes "all non-PAP political action outside of political parties as illegal and subversive." TREMEWAN, *supra* note 2, at 195. Singapore's Societies Act requires the registration of all groups consisting of 10 or more people. *Id*. The Registrar must approve all information presented by the group, including a statement of the group's purpose. *Id.* The applicant groups are then investigated by the Internal Security Department. *Id.* Any applicant that could be viewed as a public interest or pressure group is required to register as a political association. *Id.* This subjects the group to state security surveillance as a rival political party, which is authorized by the Societies Act. *Id.* For a remarkable study on the rise to and maintenance of power by Lee's PAP, see *id.* Interestingly enough, the distribution of Tremewan's book in Singapore was banned by Singapore's Controller of Undesirable Publications. *Id.* National elections were to be held in 1996, the same year that the regulations were introduced. Goh Chok Tong, the successor to Prime Minister Lee Kuan Yew, indicated that he desired at least a 60% vote for the PAP. Kynge, *supra* note 5.

53. Ray Heath, *Lion Closes Net on Rogue Sites*, S. CHINA MORNING POST, Sept. 20, 1996, at 35, *available in* LEXIS, World Library, TXT NWS File.

54. Darren McDermott, *Singapore Posts Restrictions on the Net: Content and Access Providers to Be Accountable for Pornography, Politics*, ASIAN WALL ST. J., Mar. 6, 1996, at 1.

55. *See Letter*, *supra* note 48. For further discussion of Singapore's Licencing Scheme, see *infra* Part III.B.

56. *Internet Code of Practice*, *supra* note 47; *see also Internet Content Guidelines*,

Singapore's recent history explains the government's apprehension concerning religious and racial issues.[57] However, the new regulations have resulted in the required registration of certain religious groups without an explanation of how the groups fit into the categories of proscribed communications.[58] Contents that are proscribed under section (iii) include astrology, fortune-telling, and palm-reading.[59] These would appear to be prohibited merely because they may be described as "deviations" from the norm.

3. Public Morals

The third category of proscribed content under the SBA's regulations consists of communications that are thought to promote immorality, as defined by Singapore's value system.[60] Such communications include the following: "(i) Contents which are pornographic or otherwise obscene; (ii) Contents which propagate permissiveness or promiscuity; (iii) Contents which depict or propagate gross exploitation of violence, nudity, sex or horror; (iv) Contents which depict or propagate sexual perversions such as homosexuality, lesbianism, and paedophilia."[61]

This material has been banned for quite some time from all books, periodicals, newspapers, and films in Singapore.[62] The SBA has indicated that no access is to be given to certain sites perceived to be obscene, including the *Playboy* homepage on the World Wide Web (WWW).[63]

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supra note 49; *Letter*, *supra* note 48.

57. In the 1950s and 60s, Singapore experienced a period of riots and boycotts caused by ethnic strife. *See, e.g.*, Bose, *supra* note 44. In 1986, a political group used religious influence to gain votes in an attempt to secure a "revolution." *Id*. The Religious Harmony Bill now prohibits any religious leader from becoming politically active while maintaining a presence in the religious sector. *Id.*

58. For example, a Web site run by the Bible Society of Singapore has been required to register with the Government under the Licensing Scheme. Raoul Le Blond, *Scheme Affects 2 Groups: Content, Access Providers*, STRAITS TIMES (Singapore), July 12, 1996, *available in* 1996 WL 11721427. For an explanation of the Licencing Scheme, see discussion *infra* Part III.B.

59. Le Blond, *supra* note 58.

60. *Internet Code of Practice*, *supra* note 47; *see also Internet Content Guidelines*, *supra* note 49; *Letter*, *supra* note 48.

61. *Letter*, *supra* note 48.

62. Irwin, *supra* note 42. In 1981, *Cosmopolitan* was banned from circulation in Singapore because of the perceived promotion of undesirable lifestyles. Bose, *supra* note 44. Singapore's anti-pornography laws require that any person importing a videotape must pay for a government censor to view the tape. Arnold, *supra* note 21.

63. Darren McDermott, *supra* note 54. Users who attempt to reach the site receive a message stating simply that the site is out of bounds. *Id.*

4. Other Regulated Contents

The SBA has created and maintained a list of those sites to which ISPs should refuse to grant access.[64] So far, the SBA has refused to publish the list or even make known the number of blacklisted sites.[65] However, the SBA has guaranteed a "fair and objective assessment" of the materials in question.[66] Factors to be considered include the intention or motive of the provider, as perceived by the SBA, and the amount and type of damage that could result from such material.[67]

In addition, the SBA has based its censorship on classification of the intended recipients.[68] Contents that are intended for households, the young, or public consumption are more heavily regulated and censored than those directed towards businesses, adults, or purely private consumption.[69] In addition, materials that are deemed to offer artistic or educational benefits escape the rigorous censorship experienced by communications that appear to be "pure entertainment."[70] However broad Singapore's definition of undesirable content may be, a definition alone does not rid the Internet of certain content.

B. Singapore's Class Licence Scheme

Under the Singapore Broadcasting Authority (Class Licence) Notification 1996, all ISPs and Internet content providers (ICPs) licensed by the SBA are required to "use their best efforts" to remove from their communications any material that falls under the previously described categories of undesirable content.[71] Entities licensed under this Class Licence include all ISPs[72]and those ICPs[73] that the government determines provide undesirable

64. Tom Standage, *Connected: Web Access in a Tangle as Censors Have Their Say: Singapore Wants to Regulate What Is Broadcast on the Internet*, DAILY TELEGRAPH (London), Sept. 10, 1996, at 3.

65. *See id.*; *Report of the National Internet Advisory Committee 1996/1997* (on file with the *Federal Communications Law Journal*).

66. *Frequently Asked Questions*, *supra* note 50.

67. *Id*.

68. *Perspective*, *supra* note 3.

69. *Id*.

70. *Id*.

71. *Internet Code of Practice*, *supra* note 48.

72. The Class Licence defines ISPs as any of the following: an Internet Access Service Provider (IASP)—which includes Singnet, Pacific Internet, and Cyberway, the only three IASPs to be licensed (and therefore allowed to operate) by the Singapore government. *See* Peter Knight, *Recent Developments in Information Technology Law in the Asia-Pacific Region (Part II)*, 14 COMPUTER LAW. 20, 21 (1997); a Localised Internet Service Reseller—defined as one who obtains Internet access from an IASP and provides that access to all or part of the public, so long as the services provided are available for use in only one

content.[74] The SBA does exempt certain groups from this requirement, including weather and traffic services, services providing financial information without alteration or commentary, and flight entertainment provided by airlines.[75]

1. Internet Service Providers Under the *Class Licence Scheme*

All ISPs are required to register with the SBA.[76] In addition, ISPs are required to assist the SBA with any investigations the Authority might conduct concerning an alleged violation by that ISP.[77] The SBA has stated that ISPs "will only be required to block out objectionable sites as directed by SBA."[78] Even so, the licensed ISPs must use their "best efforts" to ensure that their services do not contain any content deemed undesirable by the SBA.[79] The SBA has indicated that it will conduct "spot-checks" in order to guarantee compliance by licensees.[80] The separate groups that comprise the

building, educational institution, or other temporary or permanent single structure, not including one who provides services to one's own employees for business purposes; or a Non-localised Internet Service Reseller—defined as someone who obtains Internet access from an IASP and provides that access to the public through leased telecommunication lines, integrated services digital networks, modems or by any other wired or wireless means, again not including the single provider of access to his or her employees solely for business purposes. *Class Licence*, *supra* note 46.

73. Internet Content Providers are defined in the Class Licence as

> (a). any individual in Singapore who provides any programme, for business, political or religious purposes, on the World Wide Web through the Internet; or (b). any corporation or group of individuals (including any association, business, club, company, society, organisation or partnership, whether registrable or incorporated under the laws of Singapore or not) who provides any programme on the World Wide Web through the Internet, and includes any web publisher and any web server administrator.

Class Licence, *supra* note 46.

74. Le Blond, *supra* note 58.

75. *The Singapore Broadcasting Authority Act (Chapter 297), Exemption* (on file with the *Federal Communications Law Journal*). Also exempted are those news services that transmit information purely for the purpose of providing information to broadcasting or newspaper companies, security surveillance services, online computer services that do not fall under the prerequisites as established by the SBA in the Class Licencing Scheme, and any other licensable service that already falls under the regulation of any other Singapore law. *Id.*

76. *Class Licence*, *supra* note 46, Annex B, para. 2.

77. *Id.* para. 8.

78. *Id*. Annex A, para. 5.

79. *Id*. Annex B, para. 11. For a discussion on undesirable content in Singapore, see *supra* Part III.A. An ISP will be found to have used its "best efforts" if the SBA can determine that the ISP has exhausted all reasonable steps in the attempt to block access to undesirable content. *Class Licence*, *supra* note 46, Annex B, para. 15.

80. *Frequently Asked Questions*, *supra* note 50.

category of ISPs as defined by the SBA also have different obligations under the *Class Licence Scheme*.

a. Internet Access Service Providers Under the Class Licence Scheme

There are only three IASPs in Singapore: Singnet, Pacific Internet, and Cyberway.[81] Under the *Class Licence Scheme*, these providers are required to prevent access to and remove those Web sites or Web pages that have been blacklisted by the SBA.[82] Additionally, the providers may only subscribe to newsgroups that have met the SBA's content approval and must remove newsgroups or particular articles that have been found to contain undesirable content.[83] Internet access service providers must establish use policies that have been preapproved by the SBA and must maintain records of their attempts to locate and block sites containing undesirable content.[84] Finally, IASPs must help the SBA locate users who, despite the regulation, have gained access to blacklisted sites.[85]

b. Localised and Non-Localised Resellers Under the Class Licence Scheme

The category of Localised Resellers includes schools, libraries, cybercafes, and all community centers that provide public access to the Internet.[86] These organizations, along with all Nonlocalised Resellers, are required to obtain Internet access through their provider's proxy server, which blocks access to sites containing objectionable materials.[87] Resellers also must remove Web sites, newsgroups, and articles that have been deemed undesirable by the SBA.[88] However, Resellers are limited to providing access to only those newsgroups that have been preapproved and supplied by the IASPs.[89] Resellers must also assist the SBA in investigations of alleged violations by users, as well as the Reseller's own organization.[90]

81. *See* Knight, *supra* note 72; *Class Licence*, *supra* note 46, Annex A.
82. *Class Licence*, *supra* note 46, Annex E.
83. *Id.*
84. *Id.*
85. *Id.*
86. *See id.* § 2 Definitions, Annex E.
87. *Id*. Annex E.
88. *Id.*
89. *Id.*
90. *Id.*

2. Internet Content Providers Under the *Class Licence Scheme*: Regulatory Means in Singapore

The SBA considers ICPs primarily responsible for the content on the Internet.[91] Most ICPs are deemed to have been licensed and, as such, are required to comply with the rules established by the SBA.[92] The exceptions to this provision are those groups that fall into the following categories: Political parties registered in Singapore that provide pages on the WWW through the Internet;[93] groups involved in political or religious discussions relating to Singapore on the WWW;[94] persons creating or providing Web pages with religious or political motivation who are notified by the SBA of the need to register with that Authority;[95] and online newspapers that seek subscriptions in Singapore through the Internet that are contacted by the SBA and told to register.[96]

These groups are required to register with the SBA in an attempt by the Authority to ensure responsible and mature use of the Internet—the groups are entitled to conduct their discussions as long as they refrain from violating the laws or disturbing social harmony.[97] Thus, it appears, under the *Class Licence Scheme*, that the SBA sets the guidelines for content constituting undesirable communication and places the responsibility for avoiding accessibility of such content either with ISPs or ICPs.[98] But how do these entities deny the public access to undesirable content?

The means of denying access to undesirable content in Singapore has primarily been through the use of proxy servers.[99] Proxy servers are typi-

91. *Frequently Asked Questions*, *supra* note 50, #11.

92. McDermott, *supra* note 54, at 9.

93. Examples given by the SBA include the National Solidarity Party and the Young People's Action Party. *Class Licence*, *supra* note 46, Annex D.

94. Examples of political discussion groups given by the SBA include the now defunct Socratic Circle and Sintercom, which protested its classification as a political discussion group. *See* Letter from SinterCom Editors to Goh Liang Kwang, CEO of SBA, July 15, 1996 (on file with the *Federal Communications Law Journal*).

95. Examples given by the SBA of groups engaging purely in religious discussions include the Catholic Archdiocese of Singapore Homepage, Varsity Christian Fellowship of Singapore, Islamic Religious Council of Singapore, and the National University of Singapore's Buddhist Society. *Class Licence*, *supra* note 46, Annex D.

96. *Id*. Annex A, para. 11.

97. *Id.* para. 12.

98. Responsibility for denying access to such content lies with ISPs since, as described earlier, ICPs are merely those that create the content in question, while the ISPs are the means of access for the public.

99. Arnold, *supra* note 21; Joshua Gordon, *Cyber-Censorship Grows in East Asia*, LOS ANGELES TIMES, Sept. 27, 1996, at B9; Heath, *supra* note 53; *Frequently Asked Questions*, *supra* note 50, #17. A proxy server is a computer that screens all user requests and blocks access to sites that have been banned. Richardson, *supra* note 32.

cally used by ISPs everywhere to "store" copies of the most widely visited sites in order to avoid jamming their lines with repetitive user requests.[100] However, the same technology may be used to block users from accessing sites that, in Singapore's case, have been blacklisted by the government.[101] This requires that all users reconfigure their browsers,[102] but is effective in preventing access to objectionable sites. In Singapore, an attempt to reach a blacklisted site is met with a message that links to a SBA site explaining the *Class Licence Scheme*.[103] Although technology may appear to be the most effective means of limiting the reach of the Internet, it, along with all other means of censorship, experiences certain difficulties.

IV. PROBLEMS WITH INTERNET REGULATION: AN ANALYSIS OF THE SINGAPORE SYSTEM—THE INTERNET REJECTS CENSORSHIP, TECHNOLOGICALLY SPEAKING

A perfect form of censorship does not seem to exist. As explored in Part II.B, governments and individuals alike have tried different methods of regulating access to the Internet. Singapore's *Class Licence Scheme* establishes the substantive guidelines that are to be enforced by ISPs and ICPs and leaves to these entities the task of procedural enforcement. However, as discussed earlier, each regulatory method suffers from at least one difficulty.[104] In Singapore's attempt to "have their cake and eat it too,"[105] the regulatory method selected, and indeed the censorship itself, may undo the feast.

The Internet is a global network of computers designed to be reliable.[106] Therefore, it stands to reason that any attempt to control information transmitted on the Internet must do more than merely attempt to block such information. Computer data on the Internet is broken into packets that are independently routed to the destination computer; there is no end-to-end connection to be broken.[107] Therefore, if one connection is broken, or blocked, the packets along that link are rerouted to arrive at their destination via a

100. *See* Arnold, *supra* note 21.
101. *Id.*
102. Heath, *supra* note 53.
103. *Id.*
104. *See supra* Part II.B.
105. *Perspective*, *supra* note 3.
106. *See supra* Part II.A.
107. This is contrasted with a telephone connection, in which an end-to-end circuit must be established before the resource (the telephone) may be used, and if one party disconnects, the information flow ceases.

different path. Indeed, the Internet perceives censorship attempts to be "damage" that necessitates rerouting of information.[108]

As such, an attempt to regulate the flow of information must account for this characteristic of the Internet. As discussed earlier in Part II.B, there are many different means of regulation, from preventing the transmission of certain content to preventing user access to that content. Internet service providers in Singapore have selected proxy servers as the procedural means of complying with the SBA's *Class Licence Scheme*.[109] All censorship, however, involves some cost. With the use of proxy servers, there is a concession to the loss of some access speed and reliability.

A. Proxy Servers and Network Congestion

Proxy servers may be used to actually improve user access to certain popular sites by storing copies of the sites locally and thereby reducing traffic elsewhere on the Internet.[110] Used as a tool for censorship, proxy servers will have little detrimental effect on the speed of access unless the list of forbidden sites is long. However, since the SBA has not revealed the number of blacklisted sites, or even which sites are included,[111] it is difficult, if not impossible, to predict at what point the proxy servers will begin to impede Internet access. At this point, there have been complaints of longer Internet access delays by Singaporean users.[112] If the SBA continues to blacklist forbidden sites, access delays will continue to increase dramatically, since the proxy servers must check every outgoing user request against the list of prohibited sites.

With Internet use increasing exponentially, the networks are already under immense demand. The advantage of the packet-switching technology is that many different data packets may use the same communication line on their way to different destinations, which allows for the most efficient use of the network.[113] As of now, the networks receive packets on a first-come, first-served basis.[114] If a network with its fixed capacity becomes full, the later packets are either deferred or rejected.[115] At this time, the only means of handling congestion is for the Internet to defer some packets. Deferred

108. *Perspective*, *supra* note 3.

109. *See supra* notes 100-01 and accompanying text.

110. Arnold, *supra* note 21.

111. *See supra* note 65 and accompanying text.

112. *See* Uhlig, *supra* note 26; Timothy S. Wu, Note, *Cyberspace Sovereignty?—The Internet and the International System*, 10 HARV. J.L. & TECH. 647, 659 (1997).

113. Jeffrey K. Mackie-Mason & Hal R. Varian, *Pricing the Internet*, *in* PUBLIC ACCESS TO THE INTERNET 269, 270 (Brian Kahin & James Keller eds., 1995).

114. *Id.*

115. *See id.*

packets must be resent by the routing computers, which results in delayed transmission of information and increased access time.[116]

The use of proxy servers in Singapore may be seen as the introduction of congestion to the network system there. The proxy servers must check every outgoing user request for information that is blacklisted by the Singapore government. This action necessarily increases the amount of time between the request for and receipt of information. However, with the number of users and user requests increasing, the proxy servers will become flooded with demands that must be checked against the government-supplied blacklist. As ISPs are required to procedurally implement the *Class Licence Scheme*, they will have to delay network traffic to allow the proxy servers to screen user requests. This procedure results in congestion, which will cause delayed and dropped packets of information. In the end, this defeats one purpose of the Internet—the almost instantaneous global transmission of information.

B. Effectiveness of the Proxy Server

Considering the sacrifices of speed and reliability required, the proxy server is a remarkably ineffective means of censorship. The SBA has compiled a list of forbidden sites, identified by Internet address. The primary weakness of a proxy server is that it identifies Internet sites by address, not by content. The provider of the unwelcome content need only change the address in order to make the content accessible to users.

However, all methods of Internet censorship involve some external costs, not just the proxy server. Any government attempt to censor the Internet will unavoidably involve some sacrifice of the attributes of the network system. At some point, the government must determine whether the goals of technological progress and economic growth will be overshadowed by the attempt to protect the traditional and cultural value system.

If Singapore truly wishes to harness the power and potential of the Internet for national economic growth, it must be willing to sacrifice a measure of its control over Internet content. The current system, as established by the SBA and implemented by the ISPs, provides a relatively full measure of control over Internet content. However, it also involves heavy costs, namely speed and reliability. The government has other options that, while sacrificing some control over content accessibility, will not forfeit the speed and reliability to the extent that proxy servers do.[117] Singapore need only decide its priorities.

116. *Id.* at 276.

117. This statement primarily refers to the potential adoption of a Platform for Internet Content Selection (PICS) system. PICS is a rating system that would allow ICPs, or even

V. CONCLUSION

Singapore is not unusual in its desire to control Internet access to undesirable content. Nations worldwide are trying to protect their citizens from pornography, deviant materials, and, in some cases, conflicting cultural values.[118] The methods of censorship used vary, but in most cases, the lesson is the same. Complete control over Internet content simply cannot coexist with a desire to harness the technology for its economic potential. Studies of individual nations' attempts to do so are informative for the rest of the world, since all may learn from others' successes and mistakes. Singapore may very well possess the potential to become the Asian "information-technology hub," but to do so, the government must first compromise its position on Internet censorship.

third parties, to rate Internet content. Ari Staiman, Note, *Shielding Internet Users from Undesirable Content: The Advantages of a PICS Based Rating System*, 20 FORDHAM INT'L L.J. 866, 882 (1997). This system allows users to block access to undesirable content by utilizing PICS compatible software. The user indicates what rating categories comprise undesirable content, and the software then checks that list against user requests. *Id.* at 884. In this sense, the PICS system is similar to a proxy server, in that it blocks access to the undesirable material by checking user requests against a supplied list of forbidden contents. However, a PICS-based rating system would involve user software that is PICS compatible, so any delay in access would be on an individual basis, as opposed to the delay caused to an entire network by the proxy server. In addition, the government retains some measure of control by rating Internet content and by establishing which ratings are undesirable. For an in-depth review of the advantages of the PICS based rating system, see *id.*

118. *Id.*; *see also* Knoll, *supra* note 3.