A Taxonomy of Censors and Anti-Censors: Part I–Impacts of Internet Censorship

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ABSTRACT

The tug-of-war on the Internet between censor and anti-censor technologies is intensifying. With an aim to raise awareness on Internet censorship and its circumvention, this paper and its companion Part II present a conceptual study of Internet censorship and anti-censorship. This first paper focuses on Internet censorship. It outlines an historical account of censorship through the lens of news coverage in the past decade, and presents a taxonomy of the principles, techniques, and technologies of Internet censorship. The interplay between social, political, and technological factors is presented to highlight the challenges in anti-censorship. Part II of the paper focuses on anti-censorship.

Keywords: Anti-Censorship, Circumvention Technology, Filtering, Internet Censorship, Taxonomy

1. INTRODUCTION

The Internet provides access to increasingly indispensible sources of information, yet it is censored almost everywhere and severely censored in a few countries. Censorship is defined as the institution, system or practice of reading communication and deleting material considered sensitive or harmful (“Censor,” 2011; “Censorship,” 2011). Throughout history, various methods of censorship have been used to reinforce specific religious and political agendas. Even though technological advancement often ameliorates the inefficiencies and limitations of the past, it is often suppressed through advances in censoring methods. The invention of the printing press in Europe in the 15th century is a prime example. The printing press increased the spread of information and knowledge, but it also faced increased degree of censorship. The task of maintaining effective censorship policies is undergoing rapid change due to the growth and diversity of different devices and networks including:

- Web traffic, Email (e.g., Gmail)
- P2P file-sharing (e.g., BitTorrent)
- Video (e.g., YouTube)
- Texting and messaging (e.g., Twitter)
• VoIP (e.g., Skype)
• Social Networks (e.g., Facebook)

While various media have been used in the past to communicate and inform the public of current events, none is as formidable to oppressive regimes as the Internet. For example, the printing press helped to spread information by accelerating the publication and dissemination of books and newspapers, while radio and television broadcasting facilitated the rapid communication of events and helped to expand overall news coverage. However, the Internet enables a much more rapid generation and spread of information and ideas compared to previous technologies. In addition, the inherent characteristics of the Internet make controlling information on the network extremely challenging. One factor is that national borders are more permeable online: residents of a country that ban certain information can find it on websites hosted outside the country (Wikipedia, n.d.).

Another major factor that makes online information especially difficult to control has to do with the fundamental design and objective of the Internet. The initial requirement for the Internet was to design a distributed system that was secure and would be less susceptible to failure and damage from a single point of failure. The very nature and advantage of a distributed system is that in the event that there is some damage or failure in the network, transmission can be routed around the damage. In addition, to allow for communication between different systems a set of standard protocols had to be developed to ensure interoperability. As a result, characteristics such as robustness which make the Internet an ideal platform for communication and dissemination of information also make it very difficult medium on which to regulate the spread and access of information. The combination of the ability to rapidly generate and share new ideas coupled with the complexity of controlling information flow, creates a viral effect which can, for example, spur social change. This phenomenon is especially significant if the information being exchanged contains content that may induce collective action and free thought. As a result, Internet censorship, which is defined as the control or suppression of the publishing or accessing of information on the Internet (Wikipedia, n. d.) has been steadily increasing in several countries.

Even though censoring information on the Internet may be more difficult compared to other forms of media, several techniques have been developed and are in use in many societies such as China, Iran, and Syria. Some recent events involving Internet censorship have also occurred in Iran, Tunisia and Egypt. In June 2009, the Iranian government headed by President Mahmoud Ahmadinejad blocked several websites and text messages to deter protesters supporting Presidential candidate Mir Hussein Moussavi (Chen, 2011). The popular social networking site, Twitter, was widely used by Iranian citizens to circumvent censorship to communicate current events outside of Iran. In October 2010, the Chinese “Great Firewall” obstructed the spread of the news that Liu Xiaobo, imprisoned for his activities for democracy in the country, received the Nobel Peace Prize, in recognition of “his long and nonviolent struggle for fundamental human rights in China” (“Liu Xiaobo”, 2010). Another case of Internet censorship that took place amidst presidential elections occurred in January 2011, when the Tunisian government selectively blocked many sites during the political uprising against existing President Zine el-Abidine Ben Aliin.

While these three examples underscore the impact of using the Internet to precipitate social change, perhaps the most prominent and extreme form of Internet censorship occurred in Egypt on January 28, 2011. In response to political unrest, the Egyptian government shut down Internet connections for several days “…Citizens in Egypt were able to use satellite communications, Twitter feeds, and land lines to continue to communicate outside of the country” (Chen, 2011). While this event marks one of the most recent drastic measures to control the flow of information, many oppressive regimes that have blocked Internet services for political purposes are continuing to investigate new approaches to censoring the Internet.
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