Internet Censorship and How It Is Resisted

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Construction of the Internet

- Internet Service Providers (ISPs) give people access to the Internet, and allow people to host services such as websites.
- ISPs connect to other ISPs so the customers of one ISP can communicate with those of others.
- Some ISPs have international connections, others use those of the bigger ISPs.
- ISPs are typically based in one country and governed by the laws of that country.
- Often governments control international Internet connections, either directly or via regulation.
Construction of the Internet
What is being blocked, and why

- Out of the 40 countries studied by the OpenNet Initiative in 2006, 26 censored the Internet in some way.
- The types of material censored varied depending on country, e.g.:
  - Human Rights (blocked in China)
  - Religion (blocked in Saudi Arabia, UAE, Iran, Bahrain)
  - Pornography (blocked in Saudi Arabia, UAE, Iran, Bahrain, Singapore, Burma, ...)
- Other issues censored include: military and militant websites; sex education, alcohol/drugs, music; gay and lesbian websites; news
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Even if a site is accessible, it may be removed from search engine results.

Searching for “Tiananmen Square” on Google.com and Google.cn.
Blocking with technology

• When a country’s government controls international connectivity, they can block requests for banned websites
• There are a number of different approaches (URL blocking, keyword blocking, IP address blocking)
• Software may be produced in-country, but often is an adapted commercial product
• These companies not only make the software, but provide a continuously updated list of websites to be blocked

Blocking through laws, fear, and intimidation

- ISPs may be forced to block sites themselves, or implement self-regulation
- People can be intimidated into not testing rules through fear of detection and retribution
- These may be through laws, social pressure or extra-legal punishment
- All these approaches may be used at the same time, and complement each other
Limitations of blocking

- Censorship systems block legitimate content and fail to block banned content
- It is fairly easy for readers and publishers to circumvent the technical measures
- Building and maintaining censorship systems is expensive
- Blocking one type of content encourages other types to be blocked
- Often the process of censorship is not transparent
Measuring censorship

The OpenNet Initiative test and analyse Internet censorship

http://opennet.net/
Censorship resistance systems

• Software to resist censorship should
  • Hide where user is visiting (to prevent blocking)
  • Hide who the user is (to protect them from intimidation)
• These properties should be maintained even if the censorship resistance system is partially compromised
Limitations of censorship resistance

- Censorship resistance is thought controversial – especially by the censors
- There is something for everyone to like, and something for everyone to dislike, going on with censorship resistance systems
- Bad people do use them to do bad things (for many different definitions of bad people)
- It is impossible to block bad uses, even if we could come up with a common definition of bad content
- The systems are not perfect, so it is possible some people will be caught
Tor hides communication patterns by relaying data through volunteer servers.

Diagram: Robert Watson
Tor hides communication patterns by relaying data through volunteer servers.
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Diagram: Robert Watson
Tor hidden services allow censorship resistant hosting of services
Freenet is an anonymous content distribution network

- While Tor allows access to the Internet, Freenet creates a private network
- Users can create websites, share files and send/receive emails between other members of the network
- Content is hosted by sharing it amongst users of the network
- Users cannot select what content they host, and it is stored in an encrypted form
Psiphon a is a censorship resistance system with different tradeoffs to Tor

- There is no centralized control, so it is hard to block but also hard for user to find a server
- Users do not have to download software, but this limits the strength of protection
- If the user cannot modify browser settings or install software, Psiphon is still usable
- Users within a censored country can ask someone they trust outside of the country to install the Psiphon server
Ethical issues in censorship resistance

- People take risks in using censorship resistance systems, and contributing to them – many of these risks are not well understood
- Censorship resistance systems are used for evil, as well as for good – does the latter outweigh the former
- Censorship does serve a useful purpose for some people – when is it acceptable
- Is it appropriate to develop censorship software, deploying in countries with poor human right records, building list of blocked sites, designing surveillance systems
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Discuss