Internet Censorship In China

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Definition of Internet Censorship

Internet censorship is control or suppression of publication of or access to information on the internet.
Golden Shield Project
Administrative Actions

- Pass Laws
- Set up oversight bodies
- Enforce internet real-name system
- Cooperate with big internet and technology companies
- Guide public opinion
Pass Laws
Pass Laws
Set up oversight bodies
Enforce internet real-name system
Cooperate with big internet and technology companies
Guide public opinion

- Hire internet commentators
- Build official websites
The Great Firewall of China
Types of Censored Content

- Politically sensitive information (mostly)
- Pornographic, Gambling, and Violent Material
Targets of Censorship

- Search engines
- Discussion forums
- Social media websites
Technology Approaches to Censorship

- DNS filtering and redirection
- IP blocking
- TCP Connection reset
- HTTP Packet filtering
DNS filtering and redirection

Incorrect IP

youtube.com

IDS

Request

DNS Local Cache

DNS Server (ISP)

Parent DNS Server
DNS filtering and redirection

OPenDNS & Google DNS?

nslookup -type=A www.youtube.com 129.42.17.103

4.36.66.178
203.161.230.171

211.94.66.147
202.181.7.85

202.106.1.2
209.145.54.50

216.234.179.13
64.33.88.161

DDoS attack!
IP blocking

- Access Control Lists, ACL
- Routing table modification
- Port blocking
TCP Connection reset

- SSL
- HTTPS
- TLS

... Connection Blacklist

SYN

TCP reset

TCP reset

SYN-ACK
HTTP Packet filtering

- “溫”，“習”，“圓” are some of the sensitive characters
- You do not get a result when search things when the above words are included
- “溫泉” [hot spring]
- “學習” [study]
- Both censored
HTTP Packet filtering

- “胡” => “古”[ancient] & “月”[moon]
  “Hu” “Gu” “Yue”

- “和谐”[Harmony] => “河蟹” [crab]
  both pronounced “He Xie”
Conclusion

- Pre-censorship
- Vague standards
- Strict restrictions on political speech
Discussion

- Do you think that the Chinese government has acted too harshly on internet censorship?
- Is it a good idea to eliminate internet censorship in China and allow messages to be transmitted freely?
- Can you think of a method to get connected with youtube.com in China?
References

- http://en.wikipedia.org/wiki/Internet_censorship_in_the_People%27s_Republic_of_China
- http://zh.wikipedia.org/wiki/%E4%B8%AD%E5%8D%8E%E4%BA%BA%E6%B0%91%E5%85%B1%E5%92%8C%E5%9B%BD%E7%BD%91%E7%BB%9C%E5%AE%A1%E6%9F%A5
Thank you
Notes on Class Discussion of Yang Li’s Presentation (1)

1. What’s going on in Yang’s Slide #17?

   A user is trying to obtain the correct IP address of youtube.com. Instead of being sent to a real DNS server, his query is redirected to a fake DNS server with the address 129.42.17.103. This fake server replies with one of the other addresses on the slide (4.36.66.178, 203.161.230.171), none of which is the address of youtube.com. This could result in a flood of traffic to those addresses (an unwitting DDoS attack).

2. “Sensitive character” filtering, as on Yang’s slides #20 and #21, is a problem in other languages and other countries as well. For example, many schools in the US try to filter out pornography by blocking all webpages that include pictures or names of certain human body parts. In the process, they block many webpages that contain medical and public-health information – even medical and public-health pages that are written and hosted by school systems!
3. There are well known workaround for many of the “blocking techniques” that Yang presented. Why aren’t they in widely used in China?

   The first, short answer given to this question was “because the sites from which we could download those workarounds are blocked!” Moreover, the Chinese government is apparently very serious about blocking them and, more generally, about controlling internet use. People who manage to install those workarounds could be put in jail.

4. Possible answer to the first two questions on Yang’s slide #23:

   Is this really about censorship, or is it about protection of domestic industry? For each of the global internet businesses that is blocked or filtered (youtube, Google, facebook, etc.), there is a domestic Chinese equivalent.

5. Answer to the third question on Yang’s slide #23:

   We couldn’t come up with an obvious workaround for the TCP connection reset.