Censorship Prevention

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Anonymous Information

University of Twente
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suppression
freedom

Kerckhoffs Institute

Privacy Seminar

20.3.2015
Going Dark | Egypt disappears from the Internet

At 5:20 p.m. EST, traffic to and from Egypt across 80 Internet providers world-wide dropped.

Source: Arbor Networks
Contents

1. Introduction
   • What is censorship?
   • Types & Examples
2. Law & Censorship
3. Prevention
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“Censorship is the suppression of speech, public communication or other information which may be considered objectionable, harmful, sensitive, politically incorrect or inconvenient as determined by governments, media outlets, authorities or other groups or institutions.”*

*Wikipedia <3
Introduction

Can you think of examples of censorship?

Hint: Think about how information is restricted or controlled.
Introduction | Types & Examples

Political

“Is when a government attempts to conceal, fake, distort, or falsify information that its citizens receive by suppressing or crowding out political news that the public might receive through news outlets.”*

*Wikipedia <3
Introduction | Types & Examples

Political

Find the differences
Political

So who won the last World Cup?
Hint: not Germany.....
Religion

“It is a form of censorship where freedom of expression is controlled or limited using religious authority or on the basis of the teachings of the religion.”*

*Wikipedia <3
Self-Censorship

“Is the act of censoring or classifying one's own work out of fear of, or deference to, the sensibilities or preferences (actual or perceived) of others and without overt pressure from any specific party or institution of authority.”*

*Wikipedia <3
Introduction | Types & Examples

Self-Censorship

Scientific Publication

Journalism

Social Networks

Sexual Orientation
Introduction | Types & Examples

Media
SPY CATCHER
The Candid Autobiography of a Senior Intelligence Officer

by PETER WRIGHT
Former Assistant Director of MI5

WITH PAUL GREENGRASS
“In short, Fight Club will mess with your mind.”

Killian Summers
The Independent
Introduction | Types & Examples

Internet as a subtype

“Internet censorship is control or suppression of the publishing or accessing of information on the Internet. It may be carried out by governments or by private organizations either at the behest of government or on their own initiative.”*

*Wikipedia <3
Internet

• Controlled growth of the internet
• WikiLeaks domain ban
• Facebook monitors chat
• Golden Shield Project
• Yahoo blocked emails about “Occupy Wall Street”
• NSA VS Snowden
Freedom of speech is a Human right.

But how far.....?
Law

Freedom of speech is a Human right.

But how far.....?

Child pornography
Hate speech
Law | Circumventing Law

Daniel Bernstein VS USA
Can censorship be prevented?
Can censorship be prevented?

Governments' power  Users skills and motivation
What can be the solution against censorship?
What can be the solution against censorship?

- Anonymity
- Preventing deletion or modification
- Strong cryptographic schemes
- Traffic manipulation
Any prevention methods you know?
Any prevention methods you know?

• Tor Browser <3
• Dynaweb
• Anonymouse
• Publius
• CensorSpoofer
• Sneakernet
Prevention | Tools & Techniques

Telex

Paper: “Telex: Anticensorship in the Network Infrastructure”
Telex

TLS Handshake

<table>
<thead>
<tr>
<th>Type</th>
<th>Length</th>
<th>Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 B</td>
<td>3 B</td>
<td>≥ 0</td>
</tr>
</tbody>
</table>

32B Nonce = 4B UTS + 28 Random

CipherSuit:
- List of supported key-exchange algs
- List of supported encryption algs

Paper: “Telex: Anticensorship in the Network Infrastructure”
CensorSpoofer

- Censor Threat Model: State-level Adversary.
- System Goals:
  1. Unblockability.
  2. Unobservability.
  4. Law Latency.
  5. Deployability.

Prevention | Tools & Techniques

CensorSpoofer

• Downstream Channel

  ▪ TCP vs UDP for IP Spoofing.
  ▪ Carrier Application.
  ▪ Choosing Dummy Hosts.
Prevention | Tools & Techniques

CensorSpoofer

• Selecting Dummy Hosts
  ▪ Port Scans.
  ▪ AS Path.
Prevention | Tools & Techniques

Publius

A robust, tamper-evident, censorship-resistant web publishing system.
The Worst Part of Censorship is