INTERNET CENSORSHIP AND RESISTANCE







Joseph Bonneau

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(thanks to Steven Murdoch)



Churchill Conference on Everything 2009

Historical Censorship



He who controls the past controls the future, and he who controls the present controls the past

—George Orwell, Nineteen Eighty Four, 1949

Historical Censorship



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Information as a Human Right

Everyone has the right to freedom of opinion and expression; this right includes freedom to hold opinions without interference and to seek, receive and impart information and ideas through any media and regardless of frontiers.

—Article 19, UN Declaration of Human Rights

The Internet Dream

The Net treats censorship as damage and routes around it.

— John Gilmore, 1993

- No longer true on a technical level!
- Remains true on a social level
- Information wants to be free...

The Internet Reality

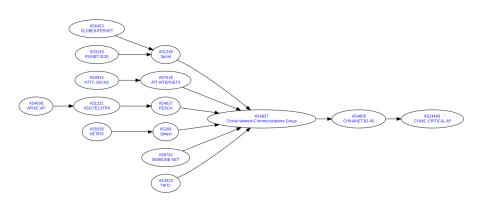
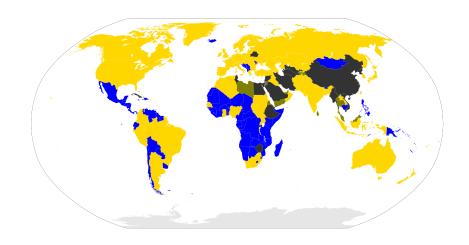


Diagram: robtex.com

Pervasive Censorship



Reporters Without Borders Internet censorship ratings

- International News





BBC

- International News
- Political Opposition

- Joseph Bonneau (University of Cambridge)





Falun Gong

- International News
- Political Opposition
- Militant Groups
- Human Rights
- Religion
- Pornography
- Sex Education
- Homosexuality
- Drugs & Alcoho
- "Illegal" Content
 - Hate groups
 - Child pornography
 - Copyrighted material
 - Witi



Kurdistan Worker's Party (PKK)

- International News
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 - Copyrighted material
 - VVit







PRESS RELEASE/STATEMENT

Beijing Lawyers Beaten for Representing Falun Gong Case

HRIC has learned that Beijing rights defense lawyers Zhang Kai (基础) and Li Chunft (安祐南) were violently beaten at their diert's home in Chongging by local police on My 13, 2009. They were then brought to the local police station for interrogation and were locked up in an iron cage and slapped in the face. A month earlier, Beijing rights defense lawyer Cheng Hai was also violently beaten by the police in Chengdu, Sidruan for handling a Falun Gong Casse... Mare 2-80.

PRESS RELEASE/STATEMENT

Wife of Abducted Rights Defense Lawyer Gao Zhisheng Requests Urgent Help from U.S. Congress in Open Letter

Geng He (我名), wife of Gao Zhisheng (高智麗), the prominent Chinese rights defense lawyer who has been disappeared since early February 2009, is requesting help from the United States government to put pressure on the Chinese government to disclose Gao's whereabouts. She has requested that Human Rights in China (HRC) release her open letter, dated April 23, 2009, to members of the U.S. Congress... (Page >>

Human Rights in China

- International News
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- Religion
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- "Illegal" Content
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 - Wit



Christianity.com

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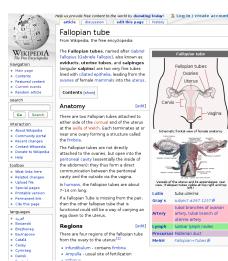




- International News
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- Joseph Bonneau (University of Cambridge)





Wikipedia

Vagina

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- Homosexuality







ILGA celebrates its 30th anniversary: in 2008, join us and celebrate our world movement!

English Español Français Português Other Ilga Sites

The only worldwide federation campaigning for lesbian, gay, bisexual, trans and intersex rights. Since 1978.

homophobia 80 countries around the world consider homosexuality illegal, five of them punish homosexual acts with death ILGA, the International Lesbian, Gay, Bisexual,

Trans and Intersex Association publishes the third edition of its report...

UN Conference on Racism ILGA facilitates LGRTI visibility at Durban review conference World The UN Conference against racism, racial

discrimination, xenophobia and related intolerance, held in Geneva during April 2009, was a follow up to the Conference in Durban, South...

UN Durban Review 2009 States must do more to explicitly protect LGBTI people UN Racism Conference Affirms Multiple Grounds of Discrimination

APRIL 24, 2009 (Geneva)- Governments endorsing the conference declaration should do more to... Joint Statement at the Durban Review Conference Sexual Orientation, and Gender Identity as Multiple Forms

The following speech was given by Lindiwe Nkutha, South Africa (Coalition of African Lesbians) on behalf of ILGA, the International Lesbian, Gay, Bisexual, Trans...

WORLD SOCIAL FORU Women's Assembly

International Busine Equality Index Which is the most gay friendly corporation in t

South Africa Sexual Violence Sexual Violence Against Lesbian Women in Soutl Africa

World IGLYO and ILGA Global LGBT youth netw

Awid Feminist Forum

World

UN Gen. Assembly Statement Affirms Rights for all First ever statement on sexual orientation and gender identity at the U

ILGA delegation ralli

International Lesbian & Gay Association

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 - Wit



Other forms of cocaine:

fumes inhaled. In soluble form, cocaine can be injected.

Freebase occaine is cocaine without its water-soluble component or 'base'. A chemical treatment is used to draw out the 'pure' occaine from many of the impuribles, increasing the impact of the effects when smolad. Crad: is a form of freebase occaine made by heating occaine hydrochloride with baking soda or ammonia in water. Speedball is the term given for an injectable and dangerous mixture of soluble occaine and heroin.

is then absorbed into the blood via the nasal membrane. Cocaine can also be heated and the

The effects:

- Cocaine produces feelings of wellbeing, mental exhilaration, and euphoria;
- The sensations often last between 15-30 minutes followed immediately by a 'coming down'

TheSite.org

Related ar

Anxiety and

We all feel a

when does a

Daranoia

Find out wha

what can be The origins

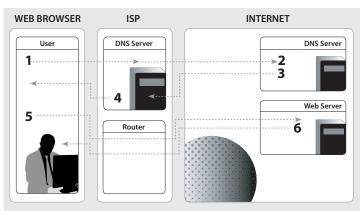
Coca-Cola w

contained co marketed as

- International News
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 - Witness identities

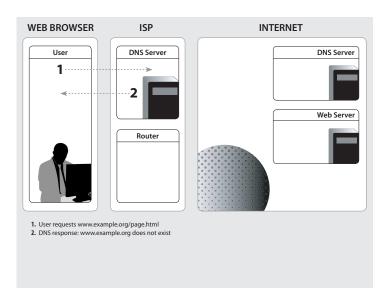


Normal Web Browsing

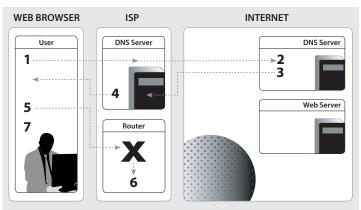


- 1. User requests www.example.org/page.html
- 2. DNS lookup for www.example.org
- 3. Lookup response: www.example.org is 192.0.2.166
- 4. www.example.org is 192.0.2.166
- 5. Get web page: www.example.org/page.html at 192.0.2.166
- 6. Here is www.example.org/page.html

DNS Blocking



IP Blocking



- 1. User requests www.example.org/page.html
- 2. DNS lookup for www.example.org
- 3. Lookup response: www.example.org is 192.0.2.166
- 4. www.example.org is 192.0.2.166
- 5. Get web page: www.example.org/page.html at 192.0.2.166
- 6. Router drops all packets to 192.0.2.166
- 7. Browser concludes that www.example.org is inaccessible

404 Errors



Address Not Found

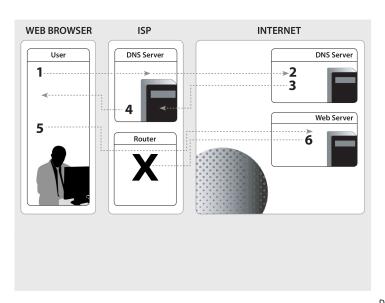
Firefox can't find the server at www.freetibet.cn.

The browser could not find the host server for the provided address.

- Did you make a mistake when typing the domain? (e.g. "ww.mozilla.org" instead of "www.mozilla.org")
- Are you certain this domain address exists? Its registration may have expired.
- Are you unable to browse other sites? Check your network connection and DNS server settings.
- Is your computer or network protected by a firewall or proxy? Incorrect settings can interfere with Web browsing.

Try Again

Deep Packet Inspection



Connection Resets



Connection Interrupted

The connection to the server was reset while the page was loading.

The network link was interrupted while negotiating a connection. Please try again.

Try Again

V

Tradeoffs

- DNS blocking
 - Cheap, very easy
 - Over-blocks complete websites
 - Trivial to bypass
- IP blocking
 - Cheap, easy
 - Over-blocks virtual hosting
- Deep Packet Inspection
 - Expensive
 - Tricky to get right
 - Far more powerful



Photograph: David Gaya

The Censorship-Industrial Complex

- ISPs usually oligopolistic or state-owned
- Major corporations provide commercial blocking tools
- Also sell continuously updated lists of sites to block



Blocking Through Regulation

- ISPs coerced to block their customers
- Web hosts coerced to block user-uploaded content
- Search engines coerced to censor results





Blocking Through Regulation





"Tiananmen Square" on Google.com and Google.cn

Blocking Through Fear & Intimidation

- Individuals threatened not to post offensive content
- Violators intimidated through social pressure or extra-legal punishment
- Users encouraged to report banned content





Blocking Through Fear & Intimidation

I call on Egyptian government officials to take the necessary procedures to protect the Egyptian youth from the spread of subversive religious ideologies among them by permanently shutting down religious institutions in this country.



Kareem Ameer, Egyptian blogger (sentenced to four years in prison)

Problems with Blocking

- Building and maintaining censorship system is expensive
- Censorship rarely transparent
- Deployed systems tempt abuse
- Surveillance is a natural extension
- USA: NSA Warrantless wiretapping
- UK: Interception Modernisation Programme



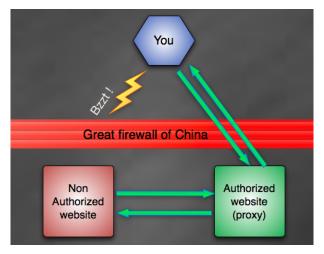
NSA room 641

Censorship Resistance

Avoid telling hackers they shouldn't do something, and NEVER tell them they can't do it...

- Software to resist censorship:
 - · Hide where a user is visiting
 - Hide who the user is
 - Hide where content is hosted
- Must also resist attack by censors

Web Proxies



- Relay traffic through an uncensored machine
- Vulnerable to monitoring and punishment

Psiphon

- Users in non-censored countries can easily set up proxies
- Users in censored countries can choose a proxy run by somebody they trust
- Requires no software for browsing user
- Encryption used to hide traffic
- Provides weak anonymity only

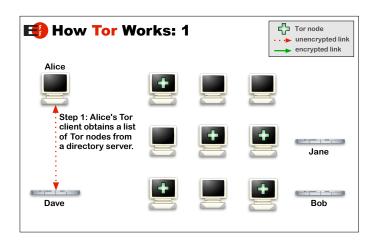


Tor

- Anonymous web-browsing
- Anonymous hosting
- De-centralised
- Versatile

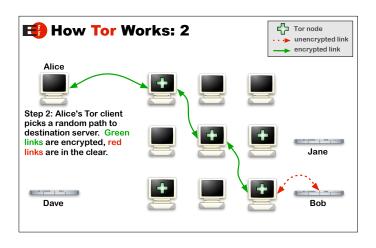


Tor Circuits



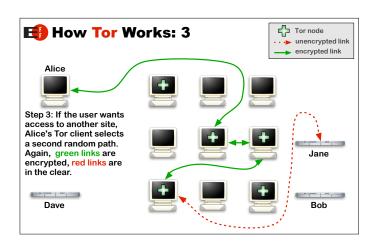
Diagrams: EFF

Tor Circuits



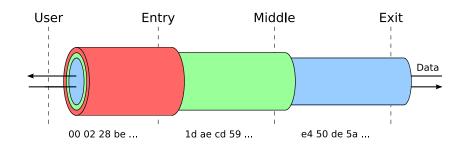
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Tor Circuits



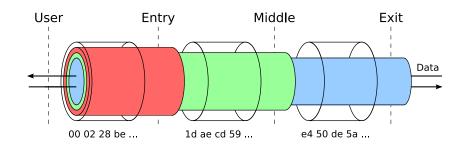
Diagrams: EFF

Tor Cryptography



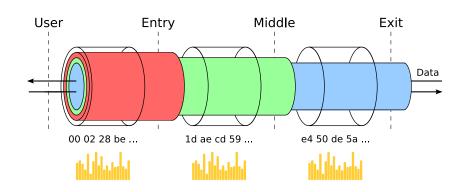
- Each relay in circuit removes/adds one encryption layer
- Separate encryption between relays
- Careful traffic analysis can correlate flows . . .

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Tor Hidden Services



Wikileaks

- Repository of sensitive documents
- Source anonymity strongly protected
- Mirrored and de-centralised
- Over 1.2M documents:
 - Classified documents
 - Corporate whistle-blowers' leaks
 - Political leaks
 - Censorship blacklists
 - Security breaches



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Guantanamo's SERE Standard Operating Procedures, 2002

October 14, 2008 Summary

> This document clearly specifies that the abusive interrogation techniques to be used at Guatanamo Bay prison (ITF GTMO) are based upon the US military's Sunival Evasion

Resistance, and Escap (SERE) program. The document is notable for its documentation of the extent to which abuse was hureaucratically

standardized for routine use. The document is dated 10 Dec 2002 and written at the For Official Use Only level The document was released a

few days ago by George Washington University's National Security Archive to promote the film Tarturina Democracy

Unless otherwise specified the document described here

- . Was first publicly revealed by Wkileaks working with our source · At that time was classified. confidential, censored or otherwise withheld from the public.
 - . Is of political, diplomatic, ethical or historical significance. · Any questions about this
 - document's veracity are noted. . The summary is approved by the
 - editorial board. Follow updates:
 - · Email addrage
 - Subscribe
 - · BSS feed
 - Secure talk join our chat 4.

Freenet

- Parallel to World Wide Web
- Can create websites and post files
- Content collaboratively hosted
- Content encrypted and replicated
- Users don't know what they host!

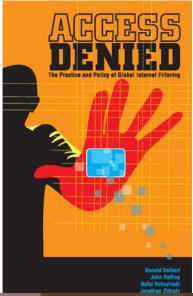


Ethical Concerns

- Censorship resistance systems sometimes controversial
 - Usually to censors
- People use them to do many different bad things
- Technologically impossible to block bad uses
 - · Can't even agree on a definition of 'bad'
- Positive uses outweigh negatives
- Information wants to be free...

Fight Censorship!

- Read Up
 - "Access Denied": opennet.net/accessdenied
 - Anonymity bibliography: www.freehaven.net/anonbib/
- Participate, Donate, Volunteer
 - Tor
 - Psiphon
 - FreeNet
 - Wikileaks
 - Electronic Frontier Foundation
 - Open Net Initiative
 - Reporters Without Borders
- Experience it Yourself...
 - chinachannel.hk



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