Freedom of Speech and the Internet

Tor user
Tor Node
Tor Node
Tor Node
Tor Node
Tor Node
Tor Node
Tor Node
Tor Node
Entry node
Middle node
Exit node

Encrypted tunnel
Unencrypted TCP

Web server

Steven J. Murdoch

http://www.cl.cam.ac.uk/users/sjm217/

UNIVERSITY OF CAMBRIDGE
Computer Laboratory

Tor

Cambridge University Amnesty International, 11 February 2009, Cambridge, UK
Universal Declaration of Human Rights

Article 19

“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 20

“Everyone has the right to freedom of peaceful assembly and association.”
Online archives are easily censored.
Online archives are easily censored

UK mobile giant seeks £7.5bn Dutch merger
The Observer, Sunday April 6 2003
Jamie Doward, deputy business editor
A management team from mobile phone giant mmO2 has held exploratory talks with counterparts at Dutch telecom operator KPN to create a £7.5 billion pan-European wireless champion. Informed sources stressed that the talks, held within the last two months, were informal and nothing was currently being discussed. However, news that the two sides are contemplating merger (…)

Landlords must rent out empty homes
The Observer, Sunday April 6 2003
Jamie Doward
Given the way in which it has been described, you could be forgiven for thinking one of the central planks of the Government’s solution to the housing crisis is the most draconian piece of central planning since the Berlin Wall went up. Deputy Prime Minister John Prescott’s plan to force landlords to rent out empty homes - discussed in the Government’s Sustainable (…) (…) to turn around blighted communities face a number of obstacles, writes Jamie (…)

Sky wins battle for rolling news audience
The Observer, Sunday April 6 2003
Jamie Doward
Even if, according to the French philosopher Jean Baudrillard, the 1991 Gulf war didn’t exist, there can be no such doubts about its successor. Baudrillard’s much quoted thesis, famously espoused in the pages of Libération, suggested the first conflict - as seen through the prism of the media - came to be depicted as an unreal, imaginary place, a giant video game to (…) (…) a new appetite for 24-hour news among British viewers, reports Jamie (…)

Ex-Chancellor aids fraud suspect
The Observer, Sunday April 6 2003
Jamie Doward, deputy business editor
Former Chancellor Norman Lamont has used his influence to try to help a billionaire business associate arrested in Switzerland amid allegations that his company defrauded another firm of more than £100 million (£67.7m). Lamont wrote two months ago to give the Swiss authorities a character reference for metals broker Vahid Alaghband, who is one of three (…)
The Internet facilitates centralisation

- Centralised systems work better: cheaper, more versatile, and more efficient
- By eliminating distance, the Internet allows greater centralisation
- Centralised archiving of physical newspapers is awkward, but online archiving works well
- This makes life easier for readers, and censors too
- Many libraries are now dropping archiving of paper in favour of electronic subscriptions
George Orwell was an optimist

“Who controls the past, controls the future: who controls the present controls the past

— George Orwell, Nineteen Eighty Four, 1949

The re-writing of history is now much more efficient than when George Orwell imagined armies of Winston Smiths cutting holes in newspaper archives
The Internet eases publication too

- “The Catholic Orangemen of Togo”, by Craig Murray, was dropped by its publisher due to libel threats.
- The lack of support from a publisher and network of book shops would previously be devastating.
- However, the Internet facilitates self-publishing and marketing.
The Catholic Orangemen of Togo”, by Craig Murray, was dropped by its publisher due to libel threats


The lack of support from a publisher and network of book shops would previously be devastating

However, the Internet facilitates self-publishing and marketing
Internet architecture allows censorship

Diagram: China Internet Network Information Center
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
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
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.
Even if a site is accessible, it may be removed from search engine results.

Searching for “Tiananmen Square” on Google.com and Google.cn
Resisting Internet censorship

“The Net interprets censorship as damage and routes around it.”

— John Gilmore, 1993

No longer true on a technical level: censorship is in the routers.

Remains true on a social level: when material is censored, people distribute copies and draw attention to them.

But what if people are too afraid to do this?
Self-censorship through fear, intimidation, and punishment

People can be intimidated into not testing rules through fear of detection and retribution

“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 Amer (sentenced to four years’ prison in Egypt)
Freedom of speech and privacy

United States Constitution: 1st Amendment

"Congress shall make no law respecting an establishment of religion, or prohibiting the free exercise thereof; or abridging the freedom of speech, or of the press; or the right of the people peaceably to assemble, and to petition the Government for a redress of grievances."

McIntyre v. Ohio Elections Commission

"Protections for anonymous speech are vital to democratic discourse. Allowing dissenters to shield their identities frees them to express critical, minority views. . . . Anonymity is a shield from the tyranny of the majority . . . It thus exemplifies the purpose behind the Bill of Rights, and of the First Amendment in particular."
Internet surveillance is pervasive

- Conventional surveillance methods had to be targeted
- Internet censorship is capable of monitoring everyone, all of the time
- Governments are increasing monitoring: SORM (Russia), Golden Shield (China), and Interception Modernisation Programme (UK)
- 1 in 7 East German citizens worked for the Stasi. Today we can achieve the same results with a fraction of the cost
Traffic data surveillance

• Traffic data (who talks to whom, how often and for how long) is the core of intelligence capabilities
• This information is cheaper to record and store, compared to full content
• Because it can be easily processed by computer, data mining techniques can be used to understand social structures

“No government of any colour is to be trusted with such a roadmap to our souls"

— Sir Ken Macdonald, former director of public prosecutions, on the UK Interception Modernisation Program
Importantly, information on social networks can be derived

- Communities
- People

From “The Economics of Mass Surveillance” by George Danezis and Bettina Wittneben
The Transparent Society

- David Brin proposed that a world of pervasive surveillance, balance could be maintained by allowing everyone to monitor everyone else
- Bruce Schneier retorted that surveillance amplifies existing powers
- Many countries restrict anonymous speech (e.g. Germany and China)
- It is easy for those in power to call on the weak to link their names to opinions

Photo: Manos Simonides
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
Tor hides communication patterns by relaying data through volunteer servers.

Diagram: Robert Watson
Tor hides communication patterns by relaying data through volunteer servers.
Tor hides communication patterns by relaying data through volunteer servers.
Tor hidden services allow censorship resistant hosting of services.
Conclusions

- The Internet and centralisation can both improve and harm freedom of speech
- Slogans regarding the borderless nature and inherent freedoms of the Internet are frequently wrong
- Technical details matter: how a system is implemented can make a radical difference
- Technologies can be used to resist censorship and improve privacy
- However, policies must be changed too and pressure is needed on legislators