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Online censo and its se impact

Kirils Solovjovs

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“Cyberchess 2017”

Contents

- History
- Overview
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- Recommendations

Censorship

- Control of information that is considered undesirable
 - censorship = filtering = blocking
- The goal of a censor is to disrupt free flow of information
 - stop the publication of information,
 - prevent access to information (e.g. by disrupting the link between the user and the publisher),
 - to directly prevent users from accessing information.

Originally

Internet had nothing to do with reality.

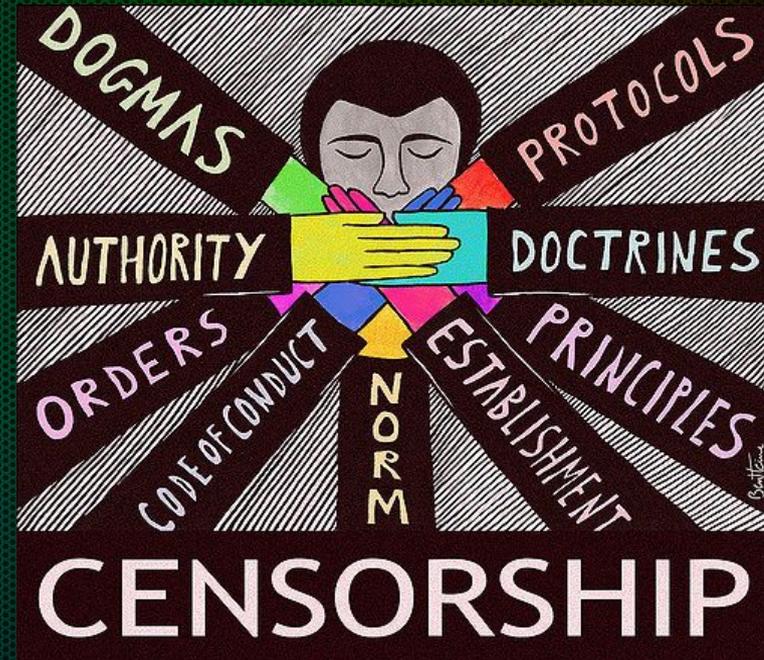
It always begins with a library

- ~200BC The burning of a library in China
- 1969 ARPAnet
- 1990 WWW
- 1990 Filtering in libraries in the USA
- 1998 GFW of China

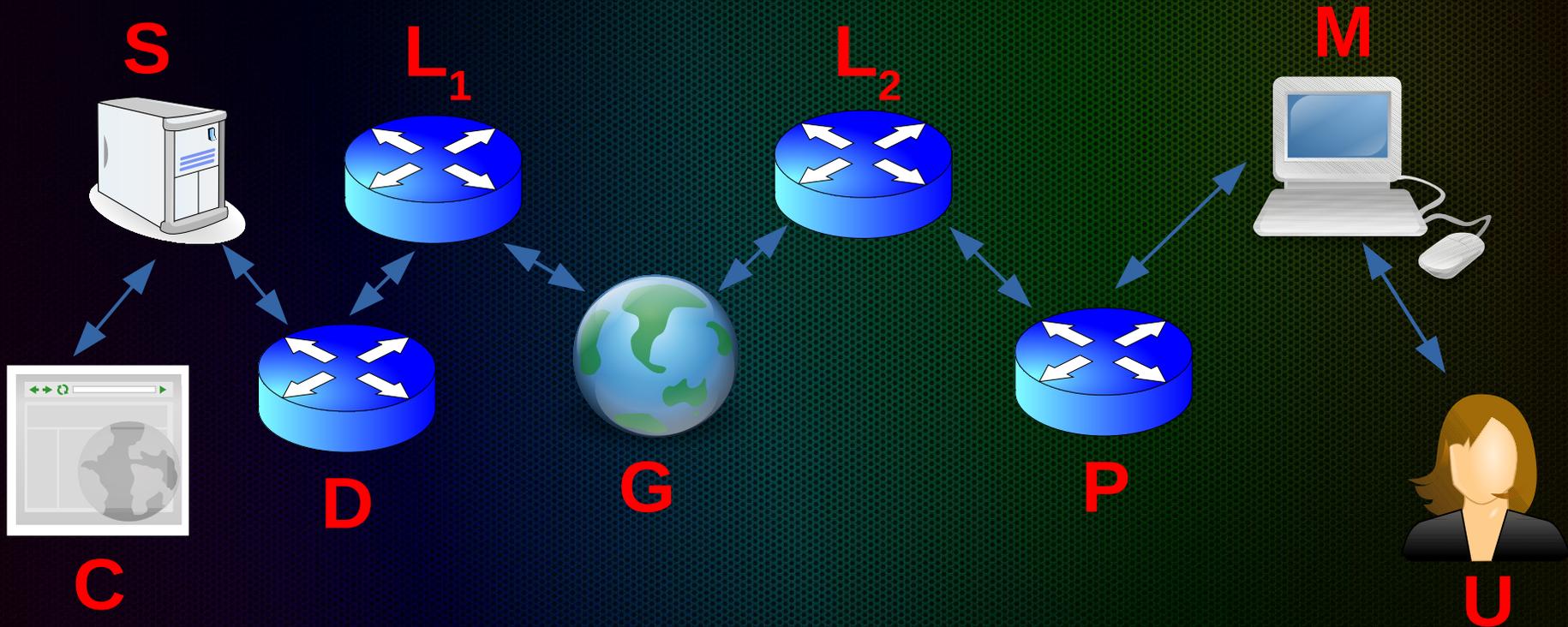


Motivation for censorship

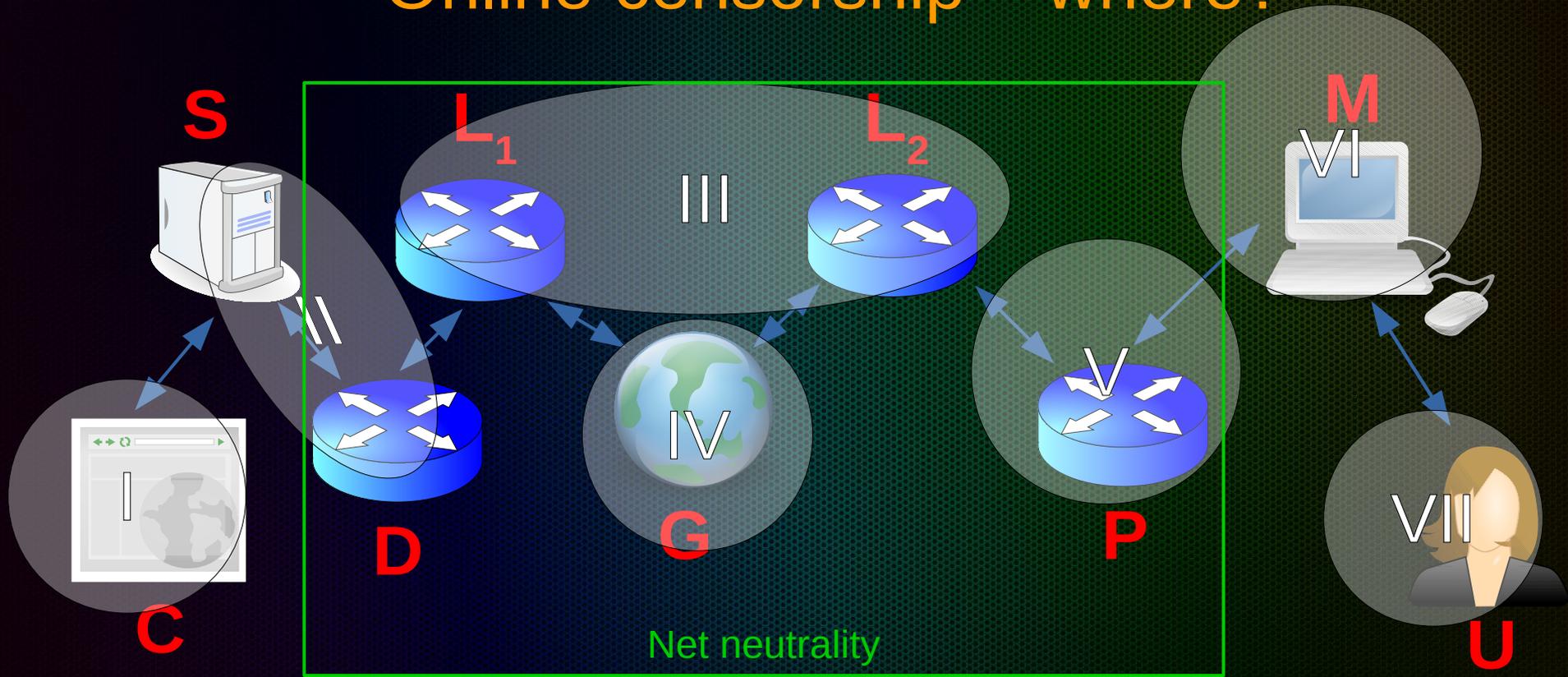
- P politics and power
 - according to political agenda of the ruling party or tyrant
- N social norms and morals
 - pornography, sexual orientation, gambling, hate speech
- S security
 - terrorism, insurgency, IT threats
- E economic interests
 - foreign services
- B business goals
 - protection of intellectual property rights,
 - preferential treatment of content providers
- F enforcement
 - limiting ways to work around censorship



Online censorship – where?



Online censorship – where?



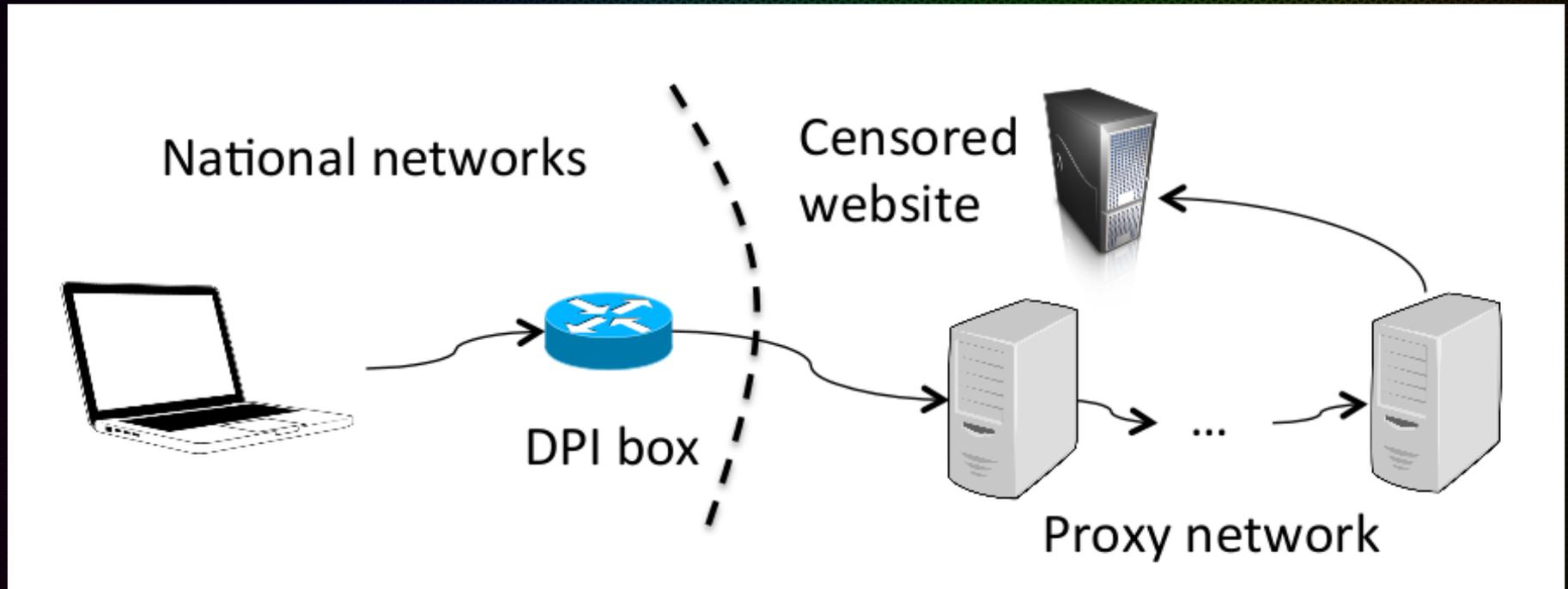
Censorship methods

- End-point malware (I, VI)
- Transit degradation (II, III, V)
- Self-censorship (I, VII)
 - “chilling effect”
- Content manipulation (I, II, V)
- Routing corruption (III, IV)
- Corruption of other protocols (II, III, IV, V)

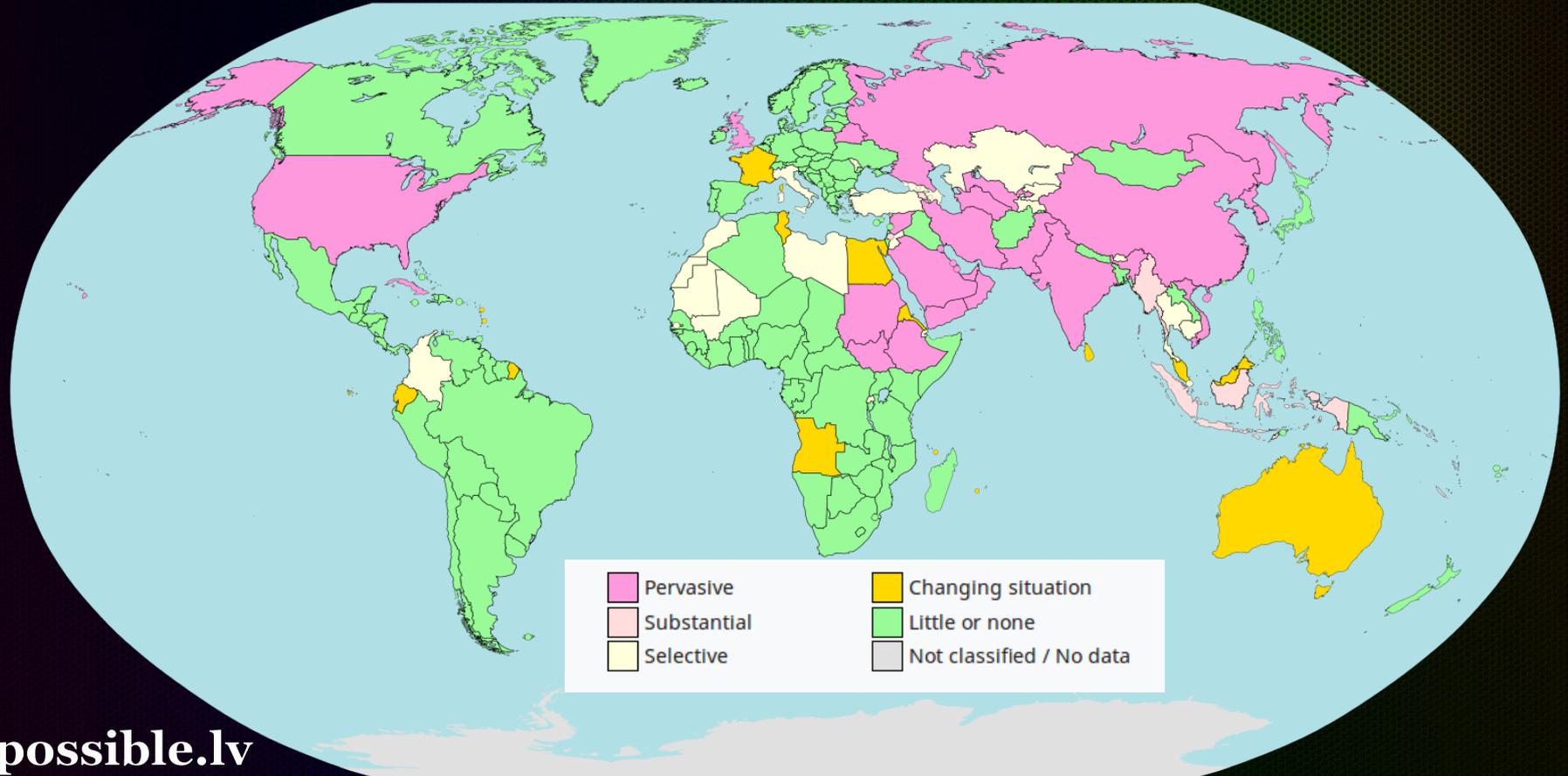
Censorship concerns

- Intentional abuse of power
- Mistakes when creating a block list
- Reusing existing capability for other goals (via policy change)
- Enforcement slippery slope ending with:
 - banning of entire types of services, e.g. VPNs
 - disconnecting the country from the internet altogether

Circumvention



Global overview



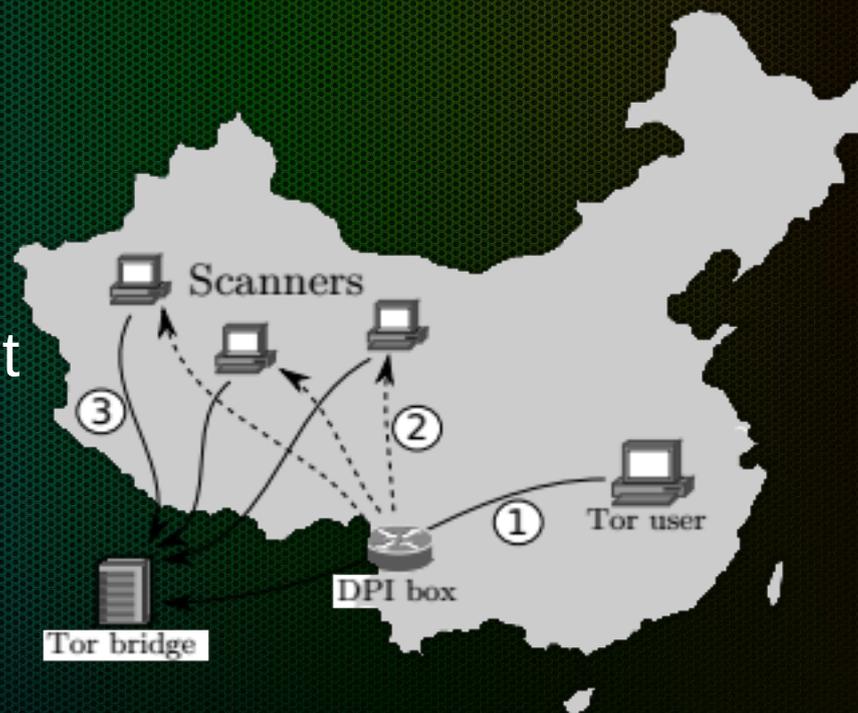
Overview of 3 countries

China

- 1994 Internet
- 1996 First regulation
- 1998 GFW started
 - Part of the Golden Shield Project
- ... lots and lots of initiatives ...
- 2017 VPNs officially banned

China (2)

- Type III
- Goals: P, N, F
- “Deeper” than DPI
 - Active probing
- Current challenge — enforcement



Russia

- 2004 → 2008
 - Number of internet users x3
- 2012 Internet blacklist law
- 2017 VPNs officially banned
 - a new global trend?
- Type: II, V, VII
- Goals: P, N, S, E, B, F
 - (all of them!)

**Russia Is Trying to Copy
China's Approach to
Internet Censorship**

The good news is that it's probably too late.



Russia (2)

- This whole presentation will be banned in Russia because of this single slide

– <http://image.slidesharecdn.com/random-120517123757-phpapp01/95/-4-728.jpg>

СПОСОБЫ САМОУБИЙСТВА

- Повешение
- Удушение
- Утопление
- Химическое воздействие:
 - Отравление
 - Сильная щёлочь или кислота
- Радиологическое воздействие:
- Поглощение радиоактивных материалов
- Прыжок и падение с высоких зданий, скал, мостов и других возвышений, прыжок из самолёта без парашюта
- Самосожжение
- Самоубийство методом доведения себя до физического истощения
- Самоубийство при помощи холодного оружия:
 - Сэппуку или харакири
 - Падение на меч
 - Вскрытие кровеносных сосудов
- Использование технических средств:
 - Прыжок под поезд, под машину и т. д.;
 - Использование электричества;
 - Отключение большим аппаратуры поддержания жизни — пассивная эвтаназия.
- «Полицейское самоубийство»
- Сдавливание сонной артерии
- Самоубийство при помощи огнестрельного оружия



Russia (3)

Russia blocks access to Internet pages promoting new Moscow protest

Reuters Staff

Russia blocked Google briefly, but don't panic

Russia

Hackers undermine Russia's attempts to control the internet

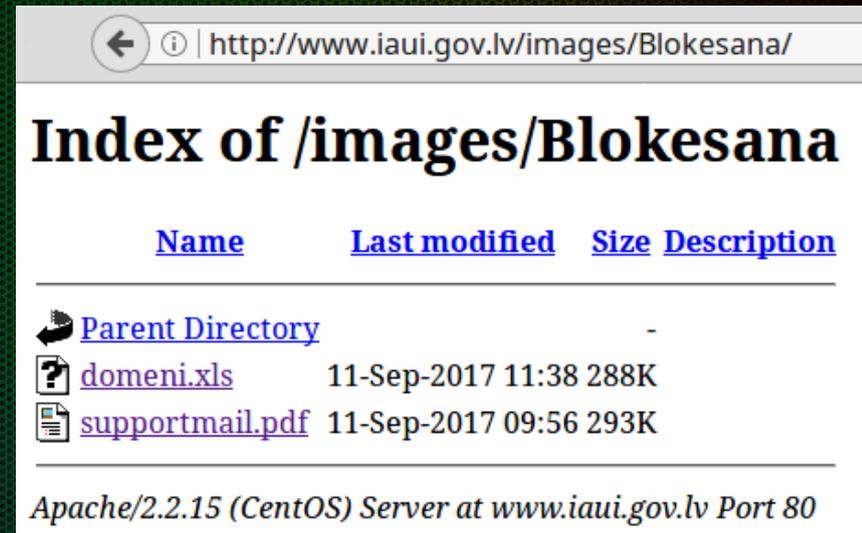
Authorities have blacklisted thousands of sites for political dissent since Putin's re-election in 2012 – but activists have subverted the system

Latvia

- Very little information available internationally
 - Fortunately I've seen the horror with my own eyes
 - Following slides will take a deep look at Latvia

Latvia (2)

- In 2013 a secretive process lead to sudden changes to the Electronic Communications Law (paragraph 13¹)
 - allowing Lotteries and Gambling Supervision Inspection to order ISPs to block gambling sites
 - E, Type V
- Only two ISPs have properly implemented the mechanism



The screenshot shows a web browser window with the address bar containing the URL <http://www.iaui.gov.lv/images/Blokesana/>. The main content area displays the title "Index of /images/Blokesana" and a table with columns for "Name", "Last modified", "Size", and "Description". The table lists three items: "Parent Directory" (with a back arrow icon), "domeni.xls" (with a spreadsheet icon), and "supportmail.pdf" (with a PDF icon). The footer of the browser window indicates "Apache/2.2.15 (CentOS) Server at www.iaui.gov.lv Port 80".

<u>Name</u>	<u>Last modified</u>	<u>Size</u>	<u>Description</u>
 Parent Directory		-	
 domeni.xls	11-Sep-2017 11:38	288K	
 supportmail.pdf	11-Sep-2017 09:56	293K	

Apache/2.2.15 (CentOS) Server at www.iaui.gov.lv Port 80

Latvia (3)

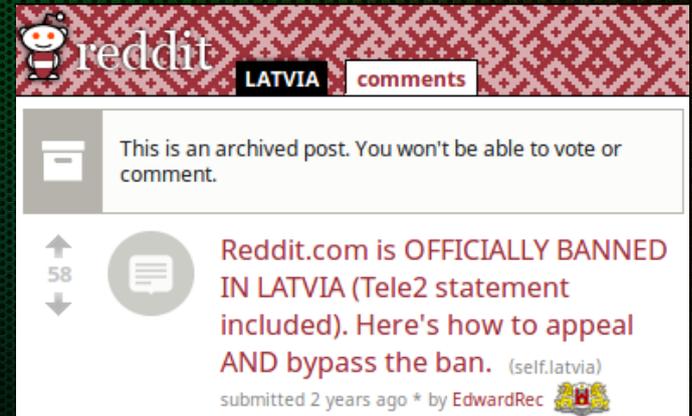
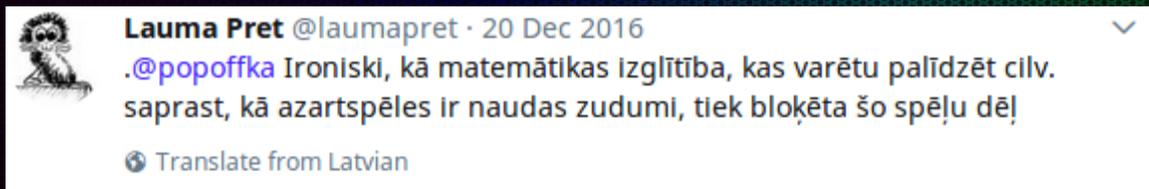
- A lot of commotion and intent at all decision making levels to use censorship system for various other goals
- In 2015 Ministry of Culture sought to reuse same type V censorship for enforcing copyright of audiovisual works
 - Civil society stood their ground and demanded an open discussion
- Finally in 2016 changes were made to Electronic Mass Media Law (paragraphs 21⁷, 21⁸) implementing censorship on copyright grounds
 - B; Type I, II

Latvia (4)

- In 2016 a haste process resulted in changes to the Law On Taxes and Duties (paragraph 34⁴) allowing for blocking on the ground of tax evasion as well as minor infractions
 - P/E; Type I, II, III

Latvia: errors

- Stated error rate ~ 1 per year
 - Page of mathematician James Grime
 - VMware knowledge database
 - *reddit* forums



Latvia: 50.63.202.6

- Is IP list append only?
 - Same vulnerability as in Russia
 - No mechanism to clear the blacklist. Why?

betadonis60.com	109.205.94.49	2015.gada 02.novembra Lēmums Nr. 665-Blok,
	50.63.202.6	2016.gada 18.janvāra Lēmums Nr. 718-Blok

Reverse IP lookup for: 50.63.202.6

Found 150,052 domains hosted on IP address 50.63.202.6. On

```
betadonis60.com. 600 IN A 50.63.202.75
betadonis60.com. 3600 IN NS ns13.domaincontrol.com.
betadonis60.com. 3600 IN NS ns14.domaincontrol.com.
betadonis60.com. 600 IN SOA ns13.domaincontrol.com. dns.jom
betadonis60.com. 3600 IN MX 10 mailstore1.secureserver.net.
betadonis60.com. 3600 IN MX 0 smtp.secureserver.net.
;; Received 222 bytes from 216.69.185.7#53(ns13.domaincontrol.com) in 29 ms
```

Honorable mention: ~~ss.lv~~.com



XINHUANET



Latvian online businesses
decry tax authority's
treatment of leading ads
website

Individual case studies

Ethiopia

BLOCKED AGAIN

Ethiopia shut down the country's internet to beat exam cheats

By [Abdi Latif Dahir](#) | May 31, 2017 | Quartz Africa

Spain (Catalonia)

News › World › Europe

Catalan independence websites blocked by Spanish government in bid to stop referendum

'Blocking domain name servers is doing what Turkey does and what China does and North Korea does'

Lydia Smith | Thursday 28 September 2017 13:05 BST | 

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The Independent Online

Security consequences “-”

- Erodes trust in integrity of available information
- Chilling effect on end-users and publishers
 - won't speak up against e.g. illegal activities
- Banning VPNs leads to lower availability of encryption services
- Internet shutdown = no communication even in emergency
- Wartime: Censorship system if overtaken by enemy can be used to paralyze legitimate traffic

Security consequences “+”

- Allows for quick reaction to IT threats
 - e.g. malware
- Allows enforcing global regulations and moral norms
 - e.g. child abuse imagery
- Wartime: Can be used to resist enemy propaganda

Recommendations

- Censor
 - for moral reasons (N) at I, II
 - for security reasons (S) at I, II, III, IV, V
- Do not censor
 - for other reasons
 - at VI, VII for any reasons
- Censor ad hoc and on case-by-case basis
- Never implement a centralized dragnet censorship system

References

- Sheharbano Khattak, Characterization of Internet censorship from multiple perspectives, 2017
- Lucas Dixon et al., Network Traffic Obfuscation and Automated Internet Censorship, 2016
- <https://infopeople.org/content/history-internet-filtering>
- https://en.wikipedia.org/wiki/Internet_censorship_and_surveillance_by_country
- http://www.slate.com/articles/technology/future_tense/2017/04/russia_is_trying_to_copy_china_s_internet_censorship.html
- <https://www.technologyreview.com/s/427413/how-china-blocks-the-tor-anonymity-network/>
- <http://mashable.com/2017/06/22/russia-blocks-google/>
- <http://www.reuters.com/article/us-russia-protests-idUSKBN1721Y4>
- <https://www.theguardian.com/world/2017/jul/25/hackers-undermine-russias-attempts-to-control-the-internet>
- <https://www.reddit.com/r/latvia/comments/35xvxe/>
- <https://www.iinuu.lv/lv/it-guru/latvijas-valdibas-uzdevuma-tiek-bloke-pieejja-vmware>
- http://news.xinhuanet.com/english/2017-08/08/c_136506858.htm
- <https://qz.com/994990/ethiopia-shut-down-the-internet-ahead-of-a-scheduled-countrywide-national-exams/>
- <http://www.independent.co.uk/news/world/europe/catalan-independence-referendum-spain-websites-blocked-spanish-constitution-votes-a7971751.html>
- <http://www.iaui.gov.lv/images/Blokesana/>
- <https://www.tcpiutils.com/reverse-ip>