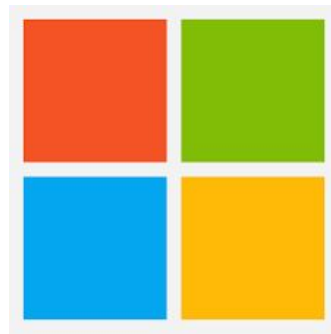


Who controls the internet?



And should they?

Google





I do not speak on
behalf of anyone,
least of all the
Dutch government.



POWERDNS 



Who controls the internet?

- This presentation will upset EVERYONE
 - Just different people at different times
 - If you aren't upset you likely weren't paying attention
- Very broad scope. Not just about packets and routing!
 - Who can enable access, or hinder it. Who can hide content or promote it. Who can make information cheap or expensive?
- This presentation is not about us geeks!
 - "They'll have to pry the internet from my cold dead hands!" - geeks all over the world
 - This is not about well financed freedom fighters - it is about how regular people get internet

INTERNET GOVERNANCE PROJECT

Georgia Tech  School of Public Policy



IGP Alert

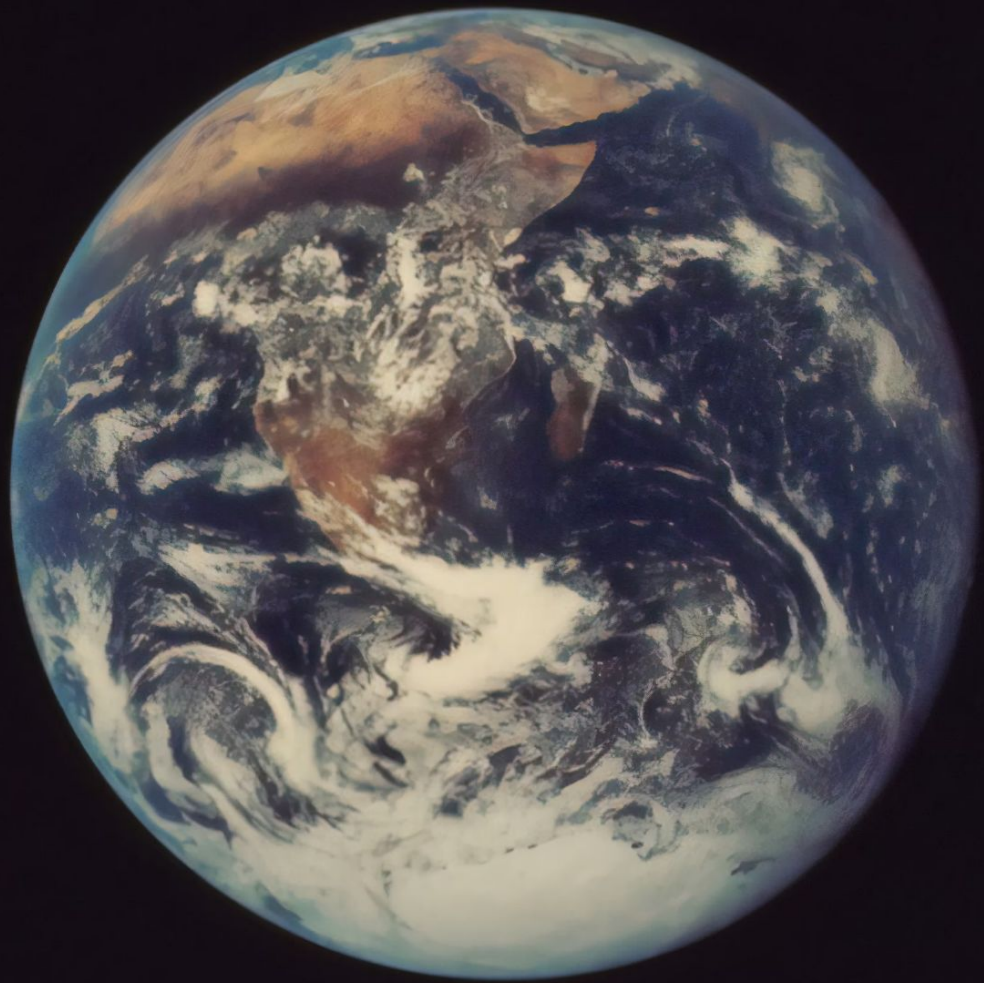
@IGPAlert



Replying to [@bert_hu_bert](#) and [@nanog](#)

Any question about control of the internet that starts with "who" immediately loses our interest. Large, complex, distributed systems are not controlled by "who's"

7:00 PM · Oct 25, 2021 · Twitter Web App



Who wants to control the internet?

- Democratically elected governments
- Authoritarian governments & regimes
- Rights holders
- Activists
- Advertising agencies
- Corporations in general
- Schools / institutions

- **You**



North-Korea

- More of an intranet than an internet
- “Kwangmyong” or “bright light”
- 10.0.0.0/8
- Highly curated
- Have their own:
 - Email system
 - Search engine
 - “Facebook”
 - Videoconferencing
 - Modified Android tablets, Linux operating system
- These modified Android tablets are rumored to track everything
 - (just like real Android tablets, but now on behalf of North Korea)
- **Full control: this might be the endpoint for some countries**

China



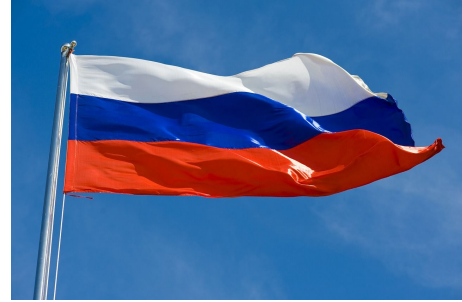
- Massive control (“Chinonet”)
 - But also self-sufficient
 - Parallel infrastructure, very advanced
 - Not just blocks, also “slowdowns” or errors
- China could disconnect itself from the worldwide Internet
- Willing to let certain groups have more access
 - Many Chinese companies are on Twitter, Facebook
 - Specific people also get permission somehow
 - Such freedom may come with enhanced monitoring
- **We should know far more about how this works**
 - **“Cone of silence”**
- Periodically launch technical efforts to create an Internet more along their lines for the rest of the world as well
 - Many companies also work like that



Turkey, Indonesia, Iran..

- It turns out that effectively blocking the internet is hard work
 - It is not easy to get technical people to work on this kind of infrastructure
 - Also expensive
- Many countries only succeed half-heartedly, perhaps by design:
 - DNS based blocks
 - Trying to block third party DNS, VPNs
 - Some IP blocking, some BGP hijacks
 - Some SNI blocking
- “Before the block in April 2017, the number of Turkish articles in Wikipedia was 289,314. By the time of the Constitutional Court's decision in January 2020, it had reached 338,882 articles”
- For a period, Internet without VPN in Iran was just too slow.

Russia



- ROSKOMNADZOR
 - Federal Service for Supervision of Communications, Information Technology and Mass Media (Russian: Роскомнадзор)
- Blocked PowerDNS.COM for ages and ages
- ROSKOMNADZOR has tried real real hard to block certain services. To do so, it blocked wide swathes of AWS, Digital Ocean etc
 - Including PowerDNS
- Reportedly, this started to hurt the economy too much, so they relented
- Unlike China, Russia does not (yet?) have enough home grown capabilities to seriously cut off the internet
 - They are working on it though, including by building independent payment systems



The United Kingdom

- Quite an outlier
- Large access providers have been pressured to turn on “parental controls” by default
 - And while ISPs were at it, they made pretty fine grained blocking possible
 - One place had the ability to block shoe stores (unsure how that happened)
 - Turning this off involves getting a letter informing you(r parents) you want p*rn
- **UK ISPs actively hunt for (football) streaming sites & block them preemptively**
 - Also receive court orders to do so
- UK is working on extra-territorial legislation which defines “lawful but harmful” content to which access must be regulated. Search for “Online Safety Bill”
 - UK market is big enough that people might have to pay attention

The European Union



- Love regulation. Came up with the GDPR that we now all have to deal with
 - Unless you have a litigation budget in the billions of euros of course
- Their newest idea is the NIS2 directive which, in its original design, attempts to regulate the reliability and availability of all root servers
 - Even if not in the EU!
 - This idea has been removed in the EU parliament version, but.. work in progress
- Various European countries at times implement blocks of domain names IP addresses, usually after a long legal struggle
- In Germany, the rights industry scans for bittorrent & other file sharing, and get court orders so ISPs must cough up user details. You then receive scary letters asking for 1000 euros.
- In general, blocking happens somewhat frequently, easier in some member states than others.
 - Not very effective



The United States of America



- FIRST AMENDMENT!
- And indeed, government ordered actual blocking never happens as far as I know
 - Well done
- So is it all good?
- US wages war on (international) content via other means:
 - DMCA
 - Exclusion from international payment systems
 - National security sanction legislation
 - Impounding your domain name if it is in .COM, .NET or .ORG



THIS DOMAIN HAS BEEN SEIZED

Since 29th June, 2021

On 29th of June 2021, law enforcement took down DoubleVPN. Law enforcement gained access to the servers of DoubleVPN and seized personal information, logs and statistics kept by DoubleVPN about all of its customers. DoubleVPN's owners failed to provide the services they promised.

International law enforcement continues to work collectively against facilitators of cybercrime, wherever and however it is committed. The investigation regarding customer data of this network will continue.



Polizia di Stato



The United States of America




- Pretty neat when such impounding goes your way!
- One day you'll be on the other end of such a decision though
- US recently impounded “presstv.com”, an Iranian propaganda site
 - Unclear how that works
- Technically 1st amendment may be intact
 - But doesn't do you a lot of good if you vanish from the internet anyhow
- US sanction regulation is so scary people run away from it in almost all countries
- This specifically impacts payment systems where the mighty dollar goes very far

Big tech coming to the rescue

Big tech efforts

- Google, Youtube, Facebook, Microsoft, Apple, Twitter all run private tribunals on who gets to be on the internet, send email or who gets to make money
- Much like with authoritarian governments, the choices of these tribunals:
 - Are arbitrary
 - Can't be appealed (elsewhere)
 - Do not adhere to any published procedures
 - Are often enforced without warning
 - Can be so harsh you can't even communicate with the company anymore
- Consequences are dire and far reaching
 - If "Google Safe Browsing" hates your content, you are *gone*
 - Losing access to Facebook or WhatsApp can kill a company
- **Processes are so arbitrary even senior staff can't help you**

“A kangaroo court is court that ignores recognized standards of law or justice, carries little or no official standing in the territory within which it resides, and is typically convened ad hoc. A kangaroo court may ignore due process and come to a predetermined conclusion.” - Wikipedia

A dark, possibly black, sign with the word "FACEBOOK" in white, sans-serif capital letters on the left and "1 Hacker Way" in white, sans-serif letters on the right. The sign is set against a dark background, possibly at night or in a shaded area. The sign is slightly angled and appears to be outdoors.

FACEBOOK

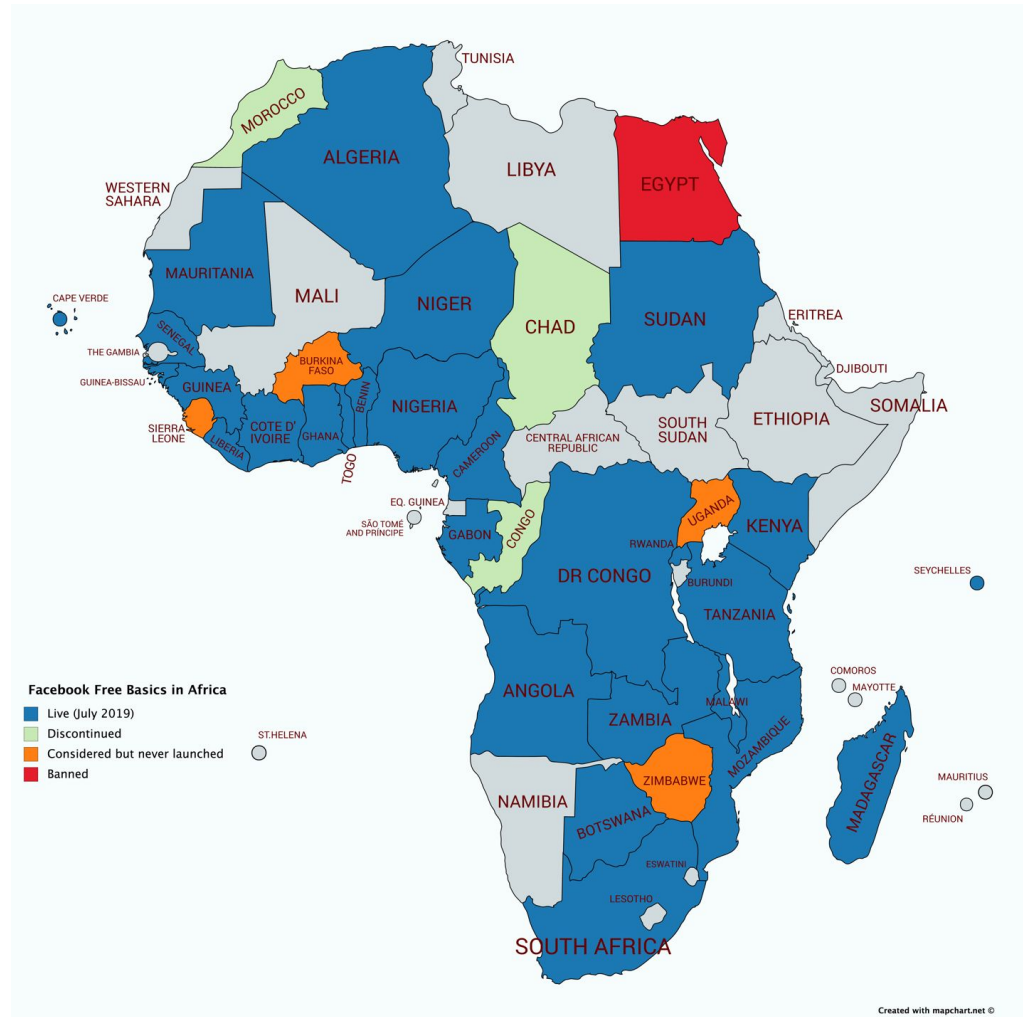
1 Hacker Way

AP

Mark Zuckerberg in 2020 bowed to demands from Vietnam’s government to censor posts with anti-state language rather than risk losing an estimated \$1 billion in annual revenue from the country, *The Washington Post* reported on **Monday**.

The decision to side with Vietnam’s government led to a significant increase in censorship of posts in the country, according to the *Post*, which spoke with three people familiar with the decision in addition to local activists and free speech advocates. **Facebook**’s own **transparency report** shows that the company more than doubled the number of posts it blocked in the country — from 834 in the first half of 2020 to more than 2,200 posts in the second half of the year.

Facebook Basics in July 2019



Big tech efforts

- Meanwhile, phones, apps and browsers are rapidly isolating themselves from scrutiny and control
- It is no longer possible to inspect what a phone (or its browser) is sending to its creators (certificate pinning, disregarding the certificate store by default, layers of super-encryption and obfuscation)
- Industry is striving for “the all or nothing pipe” (DNS over HTTPS, encrypted SNI):
 - Either you allow a device full **uninspectable** access to the internet
 - Or there is no access at all
- This is sold as zero trust and as “better for everyone”
 - First reason is that you can’t protect your data anyhow, so you should not see it
 - Second reason is that this allows everyone freedom from their overbearing governments (or employers)
- **Leaves all control to operators of phones and browsers**
 - Sad news for network operators and (evil) governments

A CRYPTO NERD'S
IMAGINATION:

HIS LAPTOP'S ENCRYPTED.
LET'S BUILD A MILLION-DOLLAR
CLUSTER TO CRACK IT.

BLAST! OUR
EVIL PLAN
IS FOILED!

NO GOOD! IT'S
4096-BIT RSA!



WHAT WOULD
ACTUALLY HAPPEN:

HIS LAPTOP'S ENCRYPTED.
DRUG HIM AND HIT HIM WITH
THIS \$5 WRENCH UNTIL
HE TELLS US THE PASSWORD.

GOT IT.



Things may not quite work out as planned

- Will authoritarian governments roll over and let big tech firms deliver freedom to their citizens?
 - “We give up, the SNI is encrypted too well, information wants to be free!”
 - Seems naive
- Also, given how tracker-laden the entire web has become.. Will all of these keep your browsing habits secret from evil governments? Can they even? Not so sure
- Evil governments have other ways of subverting your privacy
 - Phones in many countries now carry mandatory government apps, put there by famous manufacturers
 - May mandate Cloudflare-style browser-as-a-service, so they can inspect your traffic from the browser

No hate for Apple and Microsoft?

- Sure!
- Try sending email to live.com or hotmail.com users if you are on Microsoft's naughty list
 - Took me years and legal instruments
 - Oddly enough, email to office365.com worked - the paying people got less terrible spam filtering
 - Again, no way to appeal or even talk to someone
- Apple runs a whole control system for app developers, telling them how to breathe
- The Apple fight for privacy somehow leads to them selling lots of advertisement inventory to people suddenly with no other place to go
- Want to sell something on an Apple device? Count on forking over 30% to Apple either now or in the future..

So who controls the internet?

- All governments make more or less hamfisted attempts. In non-(or not yet)-authoritarian regimes, these mostly follow legal procedures. There are ways to appeal, there are lawsuits that can be filed.
- **Less sophisticated / less independent governments are losing control**
- Big technology firms meanwhile control the hardware, the software, and run kangaroo courts to decide who wins and loses
- In addition through technology and standards, they are centralising yet more control points onto themselves, and obscuring what they do
- Much as we love to hate on incompetent governments that just don't get it, **stuff like due process is actually rather nice**
- Because as it stands, control of the internet is shifting more and more to unaccountable mega-firms

What to do?

- There are no easy solutions
- Privacy is good, encryption is good, making information freely available is good
- **Neither governments nor companies protect these interests well enough**
- One thing we could demand is that players with significant market power do better than the current kangaroo courts they run
- Due process really is a lovely thing
 - Especially if decisions can lock you out of your life or ruin your company