Off-Grid Batamming in Oppressive Regimes: The Pirate Box (and Sneakernet!)

(A talk about keeping information free for the people)



Presented at DC33 8 August 2025

DEFCON

About the Speaker (who is this hacker?)

- He's chaotic
- He's probably three possums in a trenchcoat
- But really he's a walking meatsack
- He's an old school crustpunk
- He got sass, he got class, but most important…
- He knows too much or too little… you decide!
- He's a resident of hackers.town
- …And New Jersey
- This is his third DEF CON
- He teaches Linux classes to kids and adults
- Ask him about Red Star OS!
- He's spoken at a couple of places about some interesting subjects
- He's a Linux sysadmin, network engineer, and security dude looking for work… hire him?
- He has horror stories (Solaris furrowed his brow)
- Some other stuff you'll find out



ARE YA READY, KIDS??



What is the Pirate Box?



TL;DR, off-grid, mesh networked, anonymous filesharing, chatting, and media streaming. There's no right or wrong way to build one.

Most Pirate Boxes can be built with a SBC, old mini PC (Mac Mini? Intel NUC? Why not!), or hell, a laptop, or even a router!

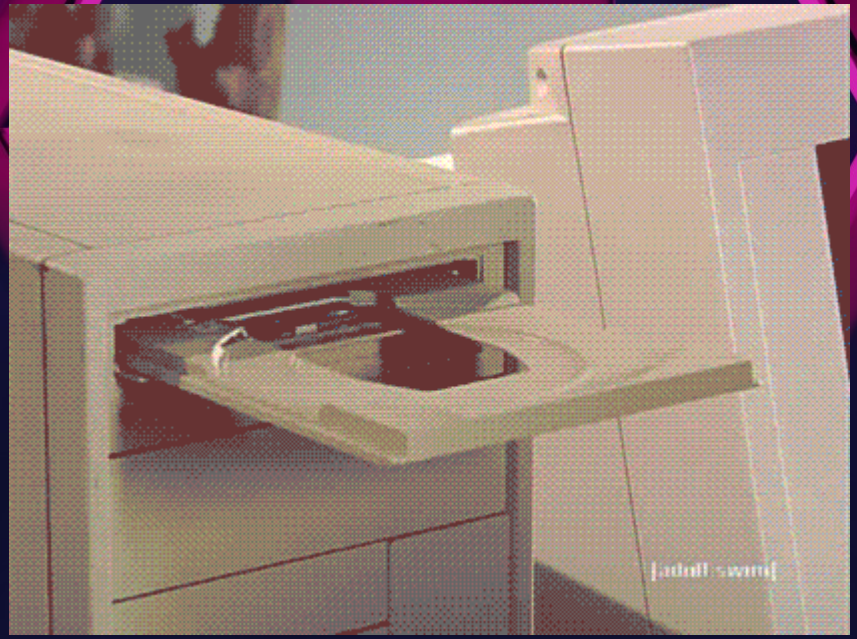
The core is a Linux or BSD distro, with some basic services as servers for content (books, videos, chat, etc.)

Put files onto a storage device, attach to your Pirate Box, have the services reading them as sources… BOOSH!

← See this picture? These are all Pirate Boxes!
  Yes, even the USB stick!

How hard is it to build one?

IT'S SUPER EASY!!



How to make a Pirate Box (for fun and learning!)





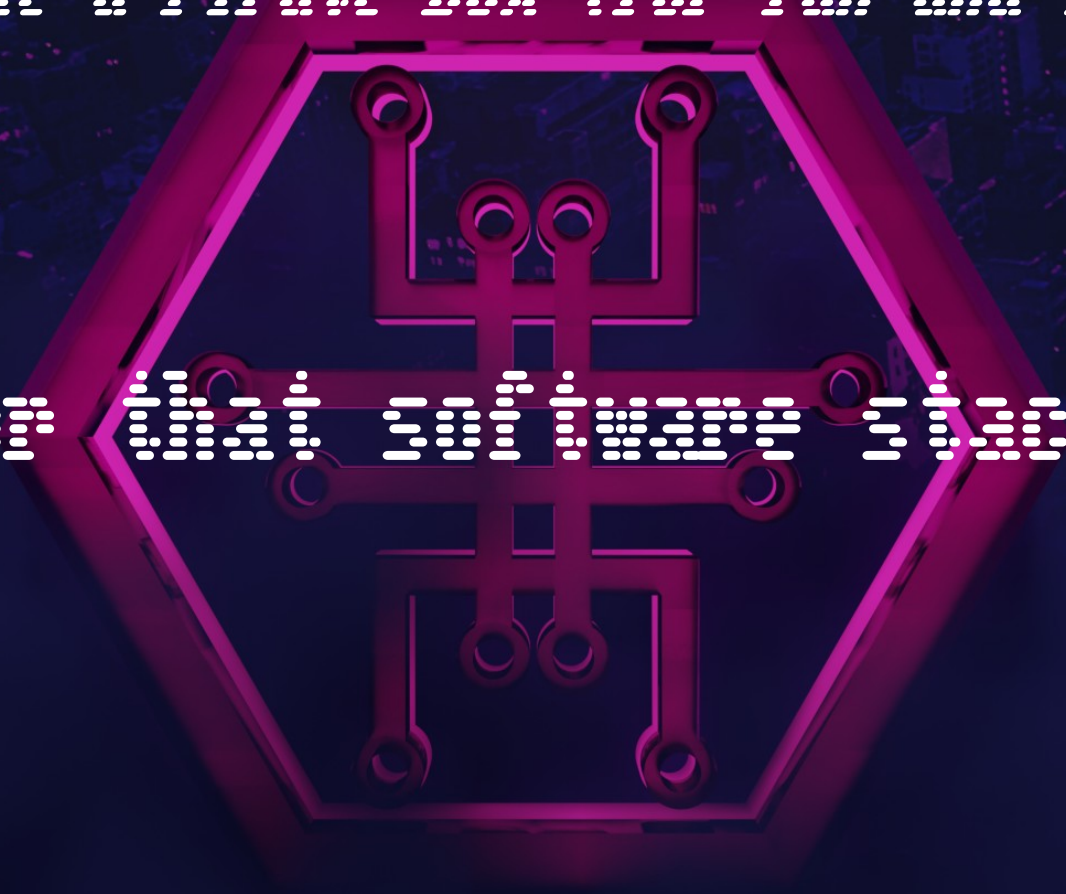
- Pick your hardware!
- Pick your case!
- Pick your Linux distro!
- Pick a wireless option… onboard? Router? Build a mesh?
- Software stack(s) for sharing media? (I have an idea for one!)
- Carrying it around?
- (bonus) Ever see a USB flash drive with WiFi? Because...

How to make a Pirate Box (for fun and learning!)



- Meet the SanDisk Wireless USB Flash Drive!
- Onboard WiFi
- Uses microSD cards for storage
- Tiny web server stack (lighttpd)
- 400mAh battery
- Put whatever you want onto the mSD card… even an entire website!
- You can have a portable web server kandx a PirateBox right in your pocket! Just power it and go!
- Ask me for one later!

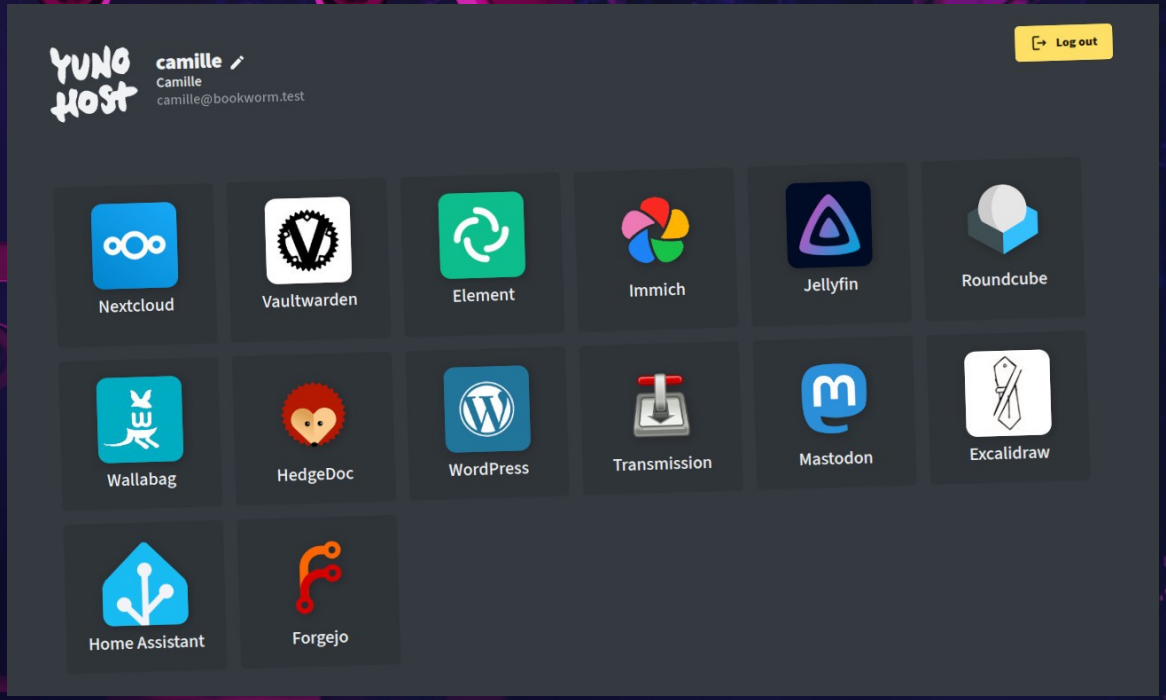
How to make a Pirate Box (for fun and learning!)



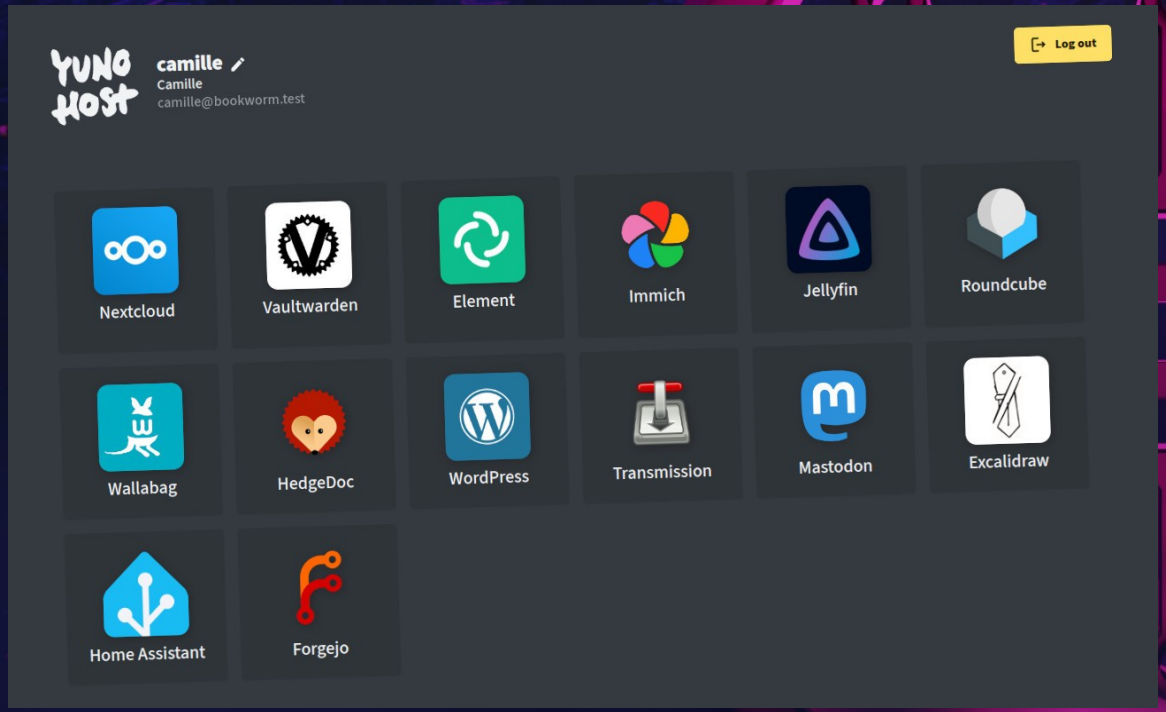
As for that software stack...

The easy-to-use, easy to cultivate server stack...

YUNO HOST



A quick overview of Yunohost



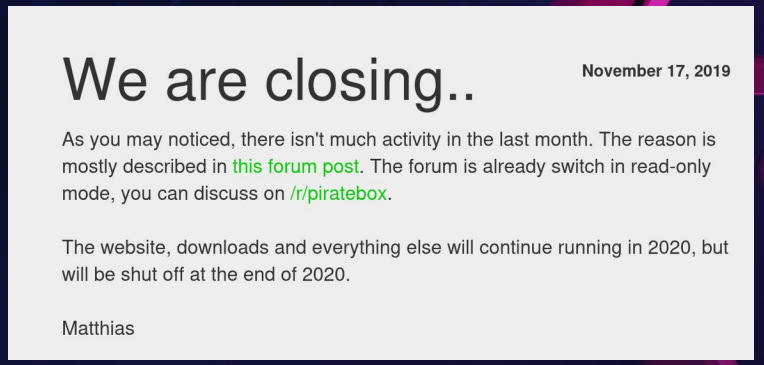
- A simple to install server stack with comprehensive and extensive documentation
- Lets you install what it is you need and be a sysadmin
- Community focused first and foremost!
- Runs on most any hardware you have (x86_64, aarch64, riscv)
- Get up and running quickly
- System resource usage is light (depending on what you run)

Pirate Box + Yunohost = MATCH MADE IN HEAVEN



YUNO HOST

Reviving the Pirate Box project



We are closing..

November 17, 2019

As you may noticed, there isn't much activity in the last month. The reason is mostly described in this forum post. The forum is already switch in read-only mode, you can discuss on /r/piratebox.

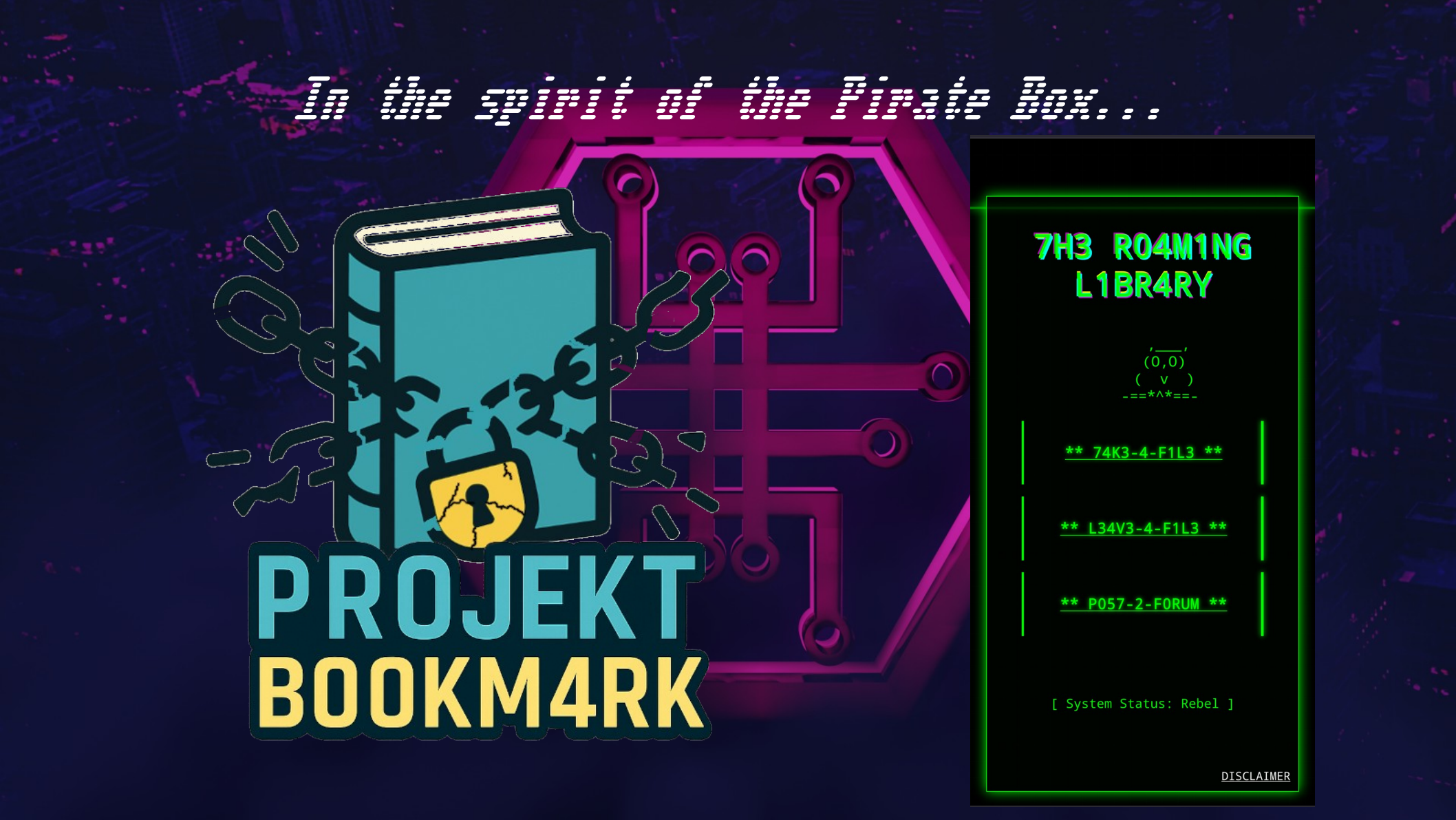
The website, downloads and everything else will continue running in 2020, but will be shut off at the end of 2020.

Matthias

In 2019, the original PirateBox site put up a post stating the project is closing. The last release of the original PB software for Raspberry Pi is from 2018. While functional, the software shows its age and needs a lot of coddling to be modernized.

As the spirit of the project has never died, however, it lives on through new projects and tools that carry the spirit onward. However, reviving the original project as a whole and making it into a newer, better project and keeping the ideals, message, and spirit moving is a critical step in today's climate.

As for those ideals...


In the spirit of the Pirate Box...
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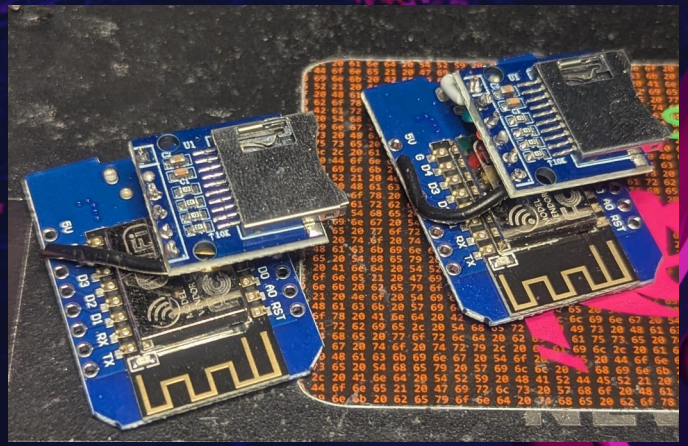
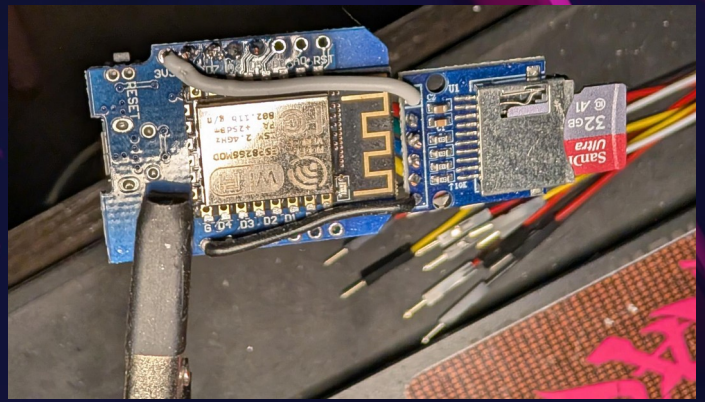
** L34V3-4-F1L3 **
** P057-2-FORUM **
[System Status: Rebel]
DISCLAIMER

What is Project BOOKMARK?





- An ESP32/8266 based board with microSD storage
- Small web server captive portal
- The philosophy: take a file, leave a file
- Centered around the sharing of documents
- Can be made with ~$15 worth of hardware
- Created by fellow hackers.town member, TheSlugNoodle, both to keep the spirit of information sharing and book sharing alive

(Read more in the summer 2025 issue of 2600: The Hacker Quarterly: "The Roaming Library: Preserving Knowledge in the Age of Digital Fragility)

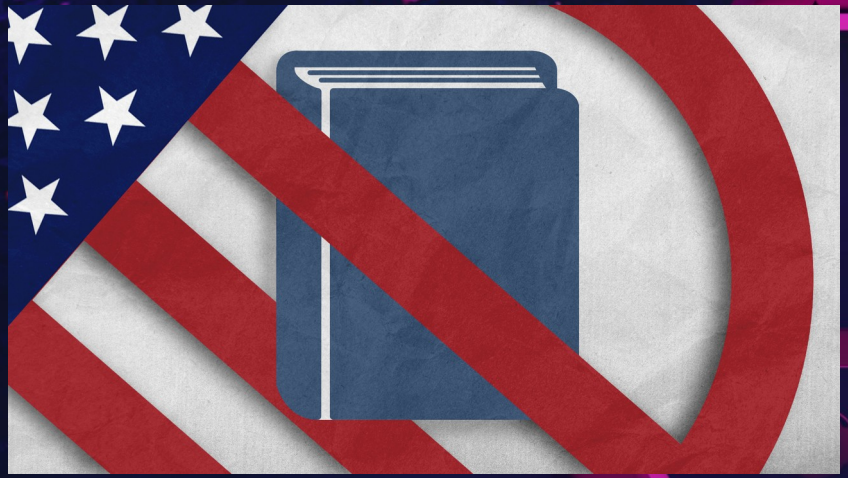
Slugnoodle says, "HACK THE PLANET!!"



https://mast0.hackers.town/@TheSlugnoodle


How, why am I talking about all this?

Now, why am I talking about all this?

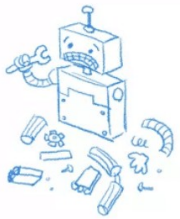




Google

404. That's an error.

The requested URL /badpage was not found on this server. That's all we know.



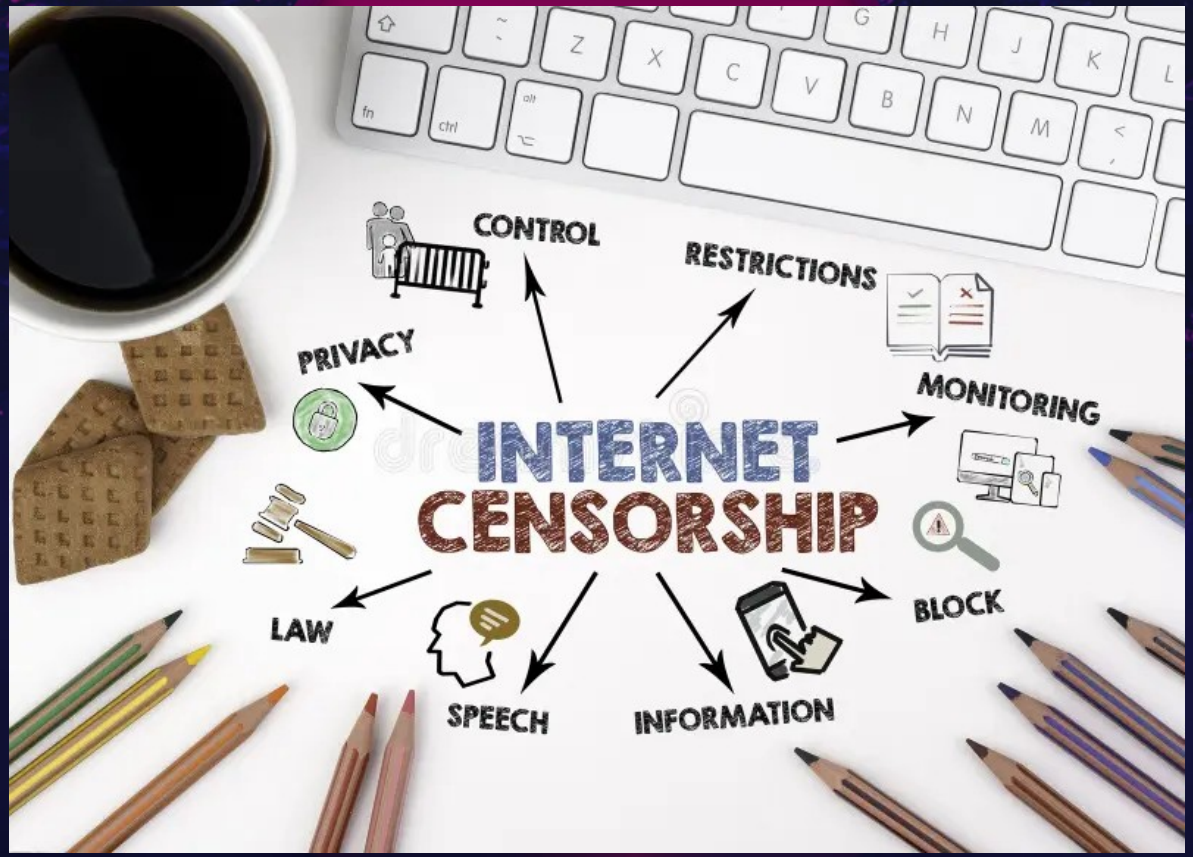
WE LIVE IN DANGEROUS TIMES FOR INFORMATION ONLINE



For decades, book and media bannings have been ongoing in the US and many other countries, but in 2016 and beyond, they have gained considerable traction. Libraries, both online and off, are in severe danger of funding being cut simply due to books being carried that various groups take "offense" to. The Internet Archive has also suffered DDOS attacks in 2024, and many government datasets and libraries have been pulled offline (but thankfully backed up).

Which is why an idea like the Pirate Box is vital in this day and age, and we must keep it alive.

WE LIVE IN DANGEROUS TIMES FOR INFORMATION ONLINE



Internet censorship is a very, very real danger!

Information Deserves to Be Free and Shared!

- Marginalized communities need us, too!
- Pirate Boxes let us be datarunners to those in need of learning materials!
- Censorship and erasure are very real dangers (and they SUCK)
- Doing it off-grid and with a mesh network is a form of Sneakernet





A Brief Overview of Sneakernet



Sneakernet is a means of transferring files not through a network, but through physical media.

Copy to a floppy, CD, USB stick, hard drive, SSD, memory card, and carry it around!

In many ways it also beats bottlenecks caused by networks that may be slow or restricted, and it can also slip past the eyes of watchdogs (provided you practice good opsec!

So copy that floppy (and pass it on!)

Physical Transportation vs. Network Transportation



"Never underestimate the bandwidth of a station wagon full of tapes hurtling down a highway."

--Andrew S. Tanenbaum, "Computer Networks" (1989, Prentice-Hall)

Examples of Sneakernet in Action



- In Cuba: "El Paquete Semanal" (The Weekly Package)
- Approx. 1TB of various media
- Distributed on hard drives to people who lack internet access
- People take chunks of the package that they want
- Package is usually updated weekly
- Reason: Internet infrastructure in Cuba is slow and still lacking in rural and suburban areas

You can think of the distributors of "El Paquete" as datarunners!

Examples of Sneakernet in Action



- In North Korea: government suppression and monitoring of internet and media
- Their Linux distro, Red Star OS, contributes to tracking of files by watermarking most files
- Most files are smuggled in from outside of North Korea
- Shared media includes South Korean cinema, music, TV shows, etc.

Examples of Sneakernet in Action

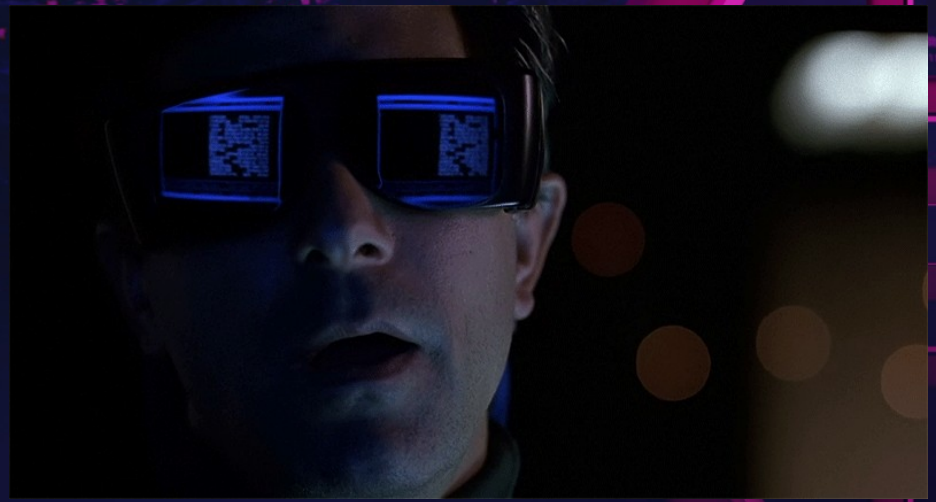


- IP Over Avian Carrier (RFC 1149, RFC 2549)
- A homing pigeon in South Africa carried 4GB worth of data on a microSD card 60km (37 mi), racing the same transfer over ADSL
- The pigeon won; 2hr 6min 57sec
- The online transfer? Only 4% complete by then!

Be the Datarunner you want to see in this world!



Shout Outs and Special Thanks!!



- Everyone at hackers.town!
- Our friends at corteximplant.com!
- All my crews!
- Everyone who supported me through mutual aid!
- Everyone who came today!
- All those Netrunners and Datarunners in the world fighting the good fight!

Shout Outs and Special Thanks!!



Thank you Midwest Gadgets for sponsoring me!

https://www.tindie.com/stores/hansjoedv

THANK YOU FOR LISTENING!!

