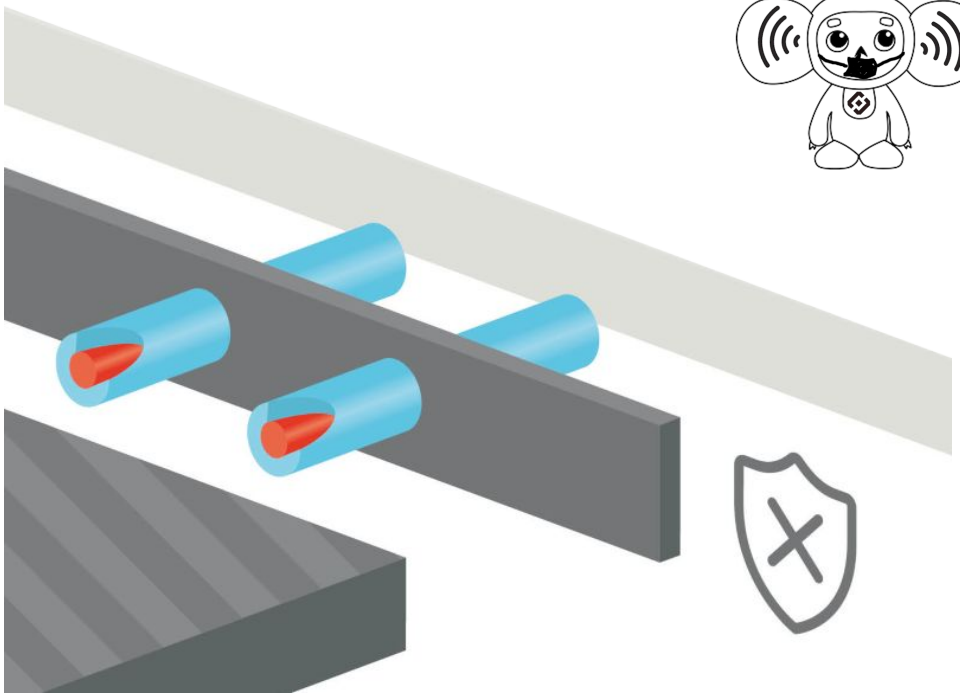
eQualitie

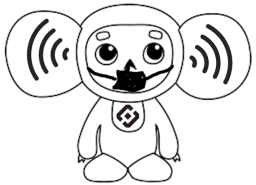
WEB SECURITY | CAPACITY BUILDING | CENSORSHIP RESISTANCE

We create decentralized internet services in support of a more equal and equitable network. Everyday, they enable freedom of association for millions of people online.

github: equalitie/ouinet; censorship-no

eQSat - Rebuilding the web in isolated networks





ceno

OUINET

Internet shutdown
Disconnection of external connectivity

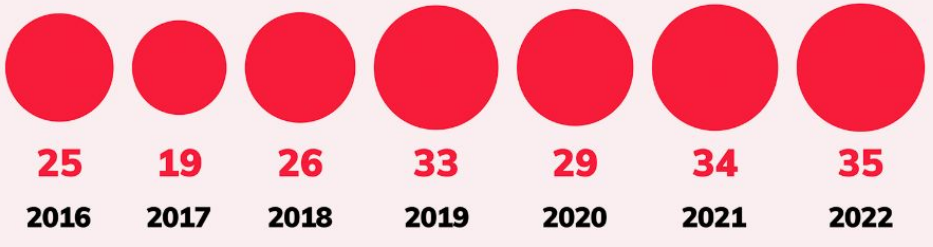
Shutdowns around the world

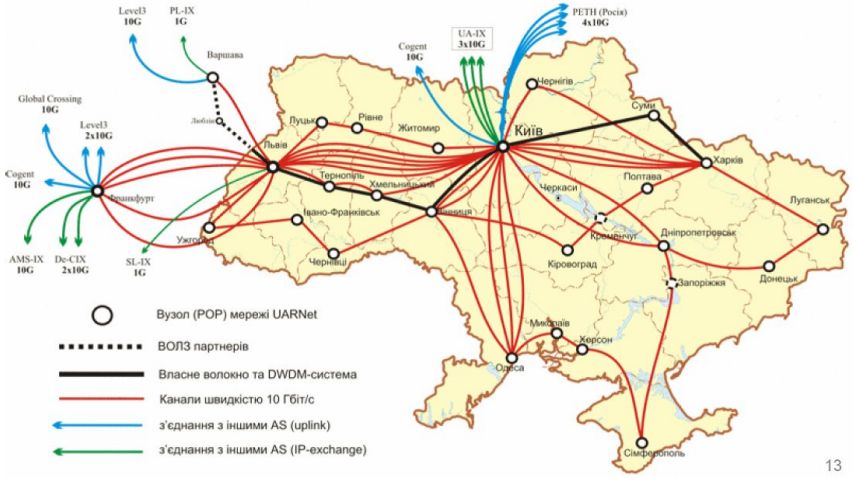
** Shutdowns were imposed by external forces during armed conflict in Ukraine and Yemen.

India: 84
Ukraine: 22**
Iran: 18
Myanmar: 7
Bangladesh: 6
Jordan: 4
Libya: 4
Sudan: 4
Turkmenistan: 4

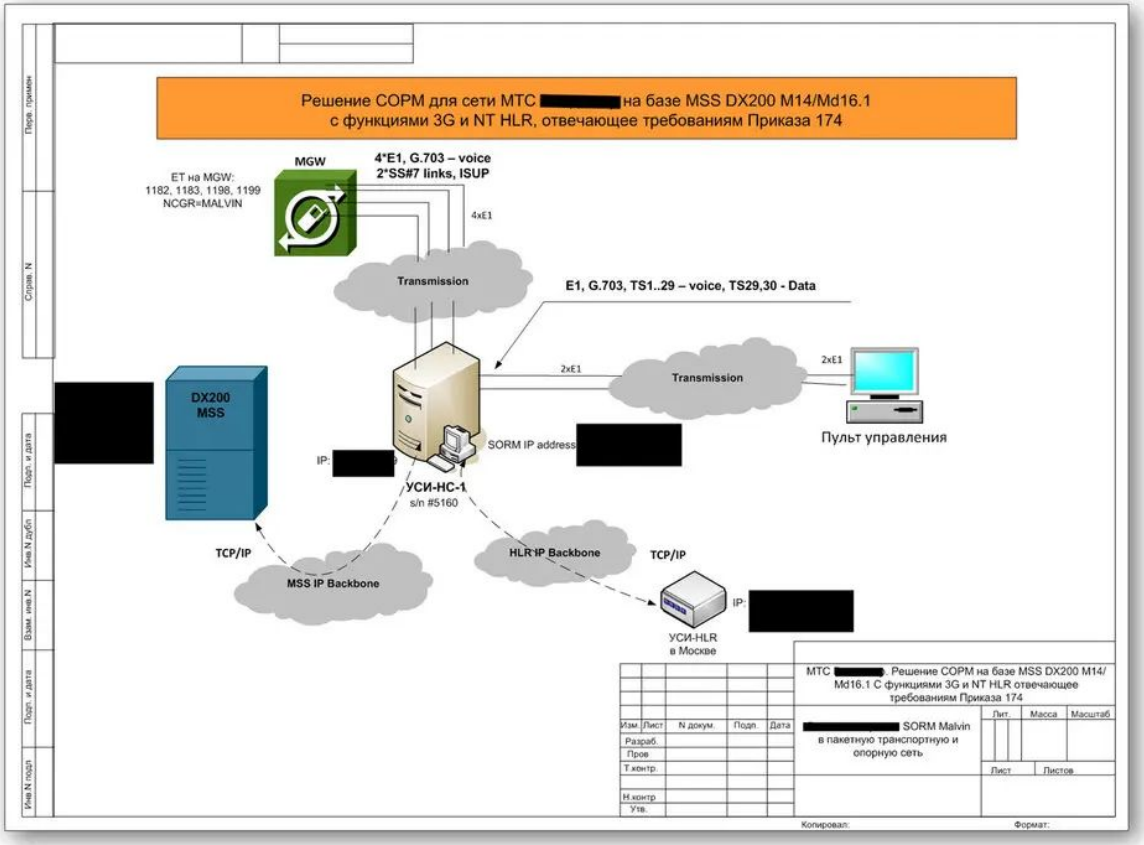
Afghanistan: 2 Burkina Faso: 2 Cuba: 2 Kazakhstan: 2 Russia: 2 Sierra Leone: 2 Tajikistan: 2 Uzbekistan: 2 Algeria: 1 Armenia: 1 Azerbaijan: 1 Brazil: 1 China: 1 Ethiopia: 1 Iraq: 1 Nigeria: 1 Oman: 1 Pakistan: 1 Somaliland: 1 Sri Lanka: 1 Syria: 1 Tunisia: 1 Turkey: 1 Uganda: 1 Yemen: 1 Zimbabwe: 1**

Number of countries where shutdowns occurred

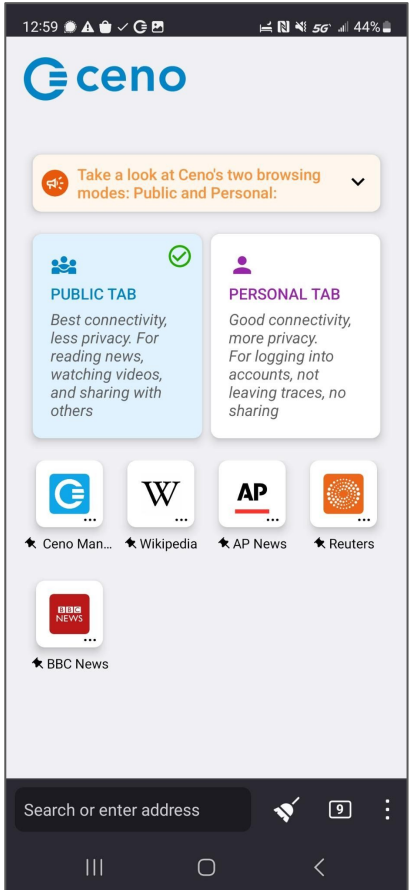




Our steps for content resilience and availability



VS



Ceno Browser

ceno

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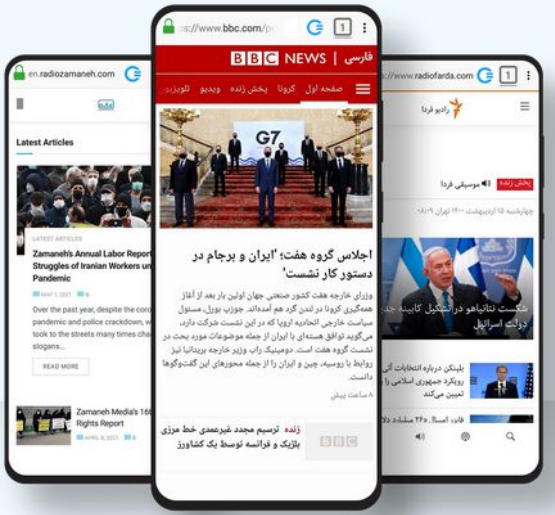
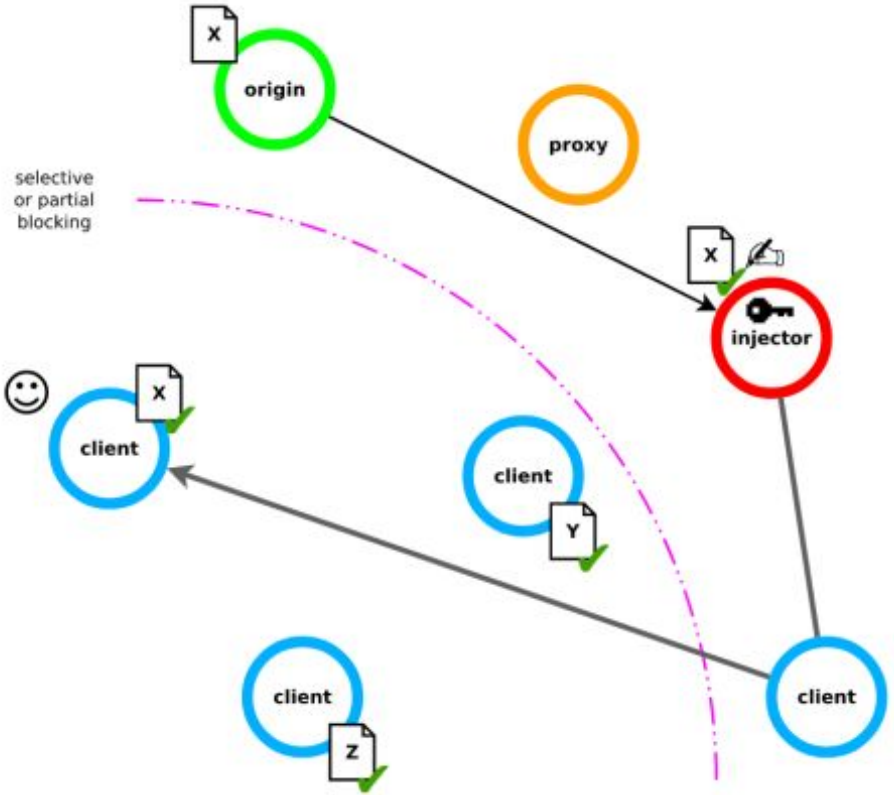
Share the web!

Ceno (short for censorship.no!) is the world's first mobile browser that side-steps current Internet censorship methods. Its peer-to-peer backbone allows people to access and share web information in and across regions where connectivity has been interrupted or compromised.

GET IT ON Google Play
GET IT ON F-Droid
GET IT ON Paskoocheh

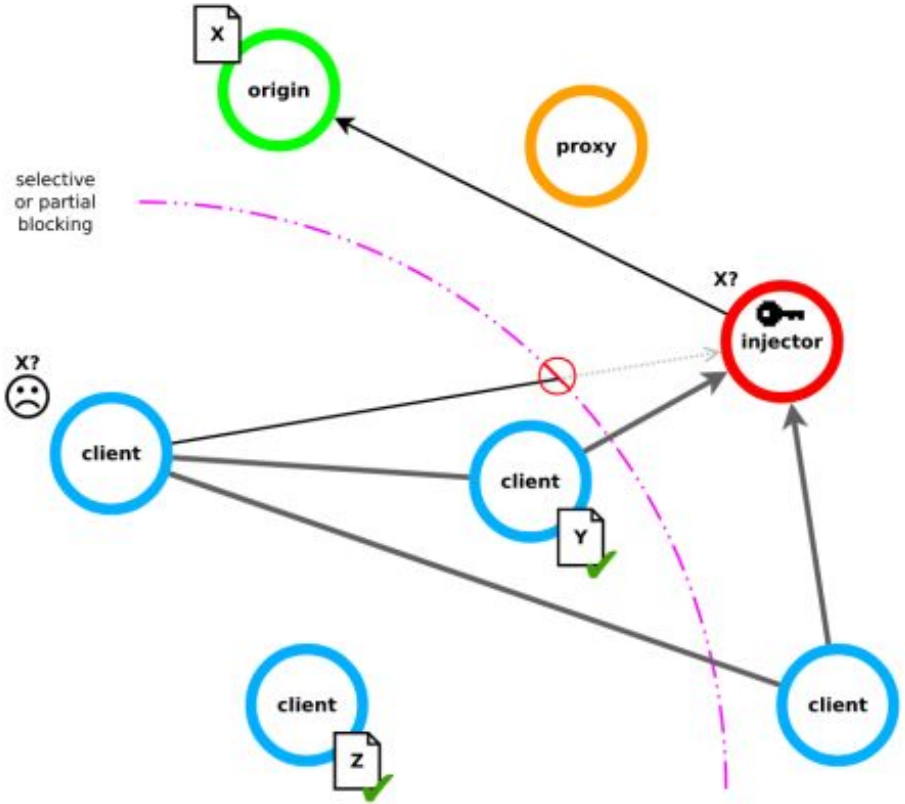


Ceno - web browsing via BitTorrent



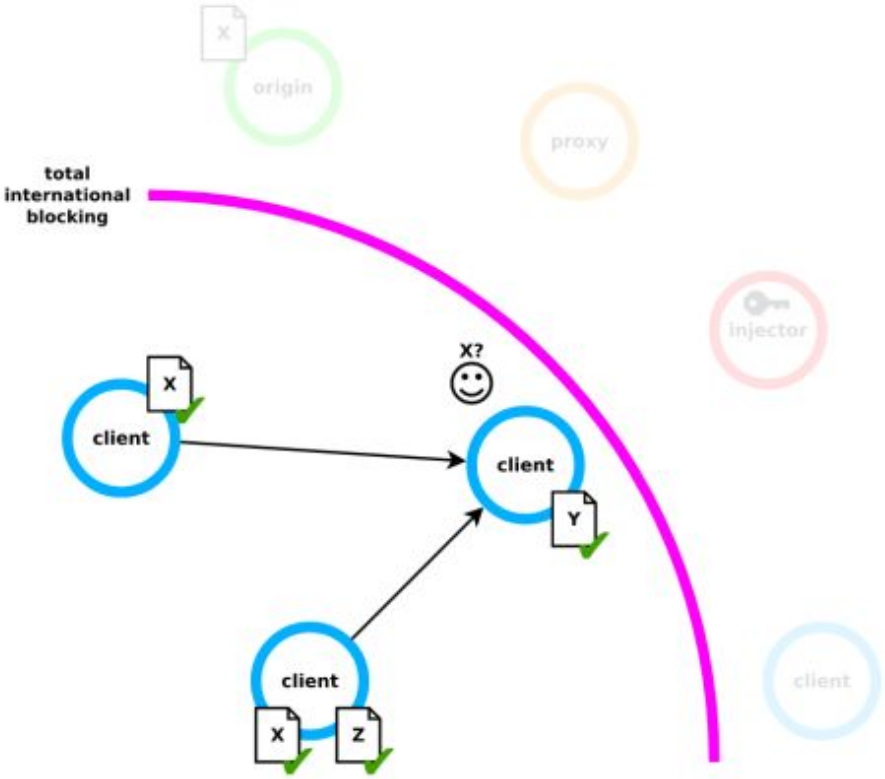
Ceno is a mobile web browser for storing and sharing web content anywhere.

Ceno - cooperative browsing



Ceno users create small-world networks to connect to each other, and thereafter to a bridge outside the censored zone.

Ceno - decentralized caching



Once a website is accessed by a single Ceno user, it is stored and shared inside the country peer-to-peer.

Share the Web!

Become a bridge!

Want to help grow the network? Join the swarm!

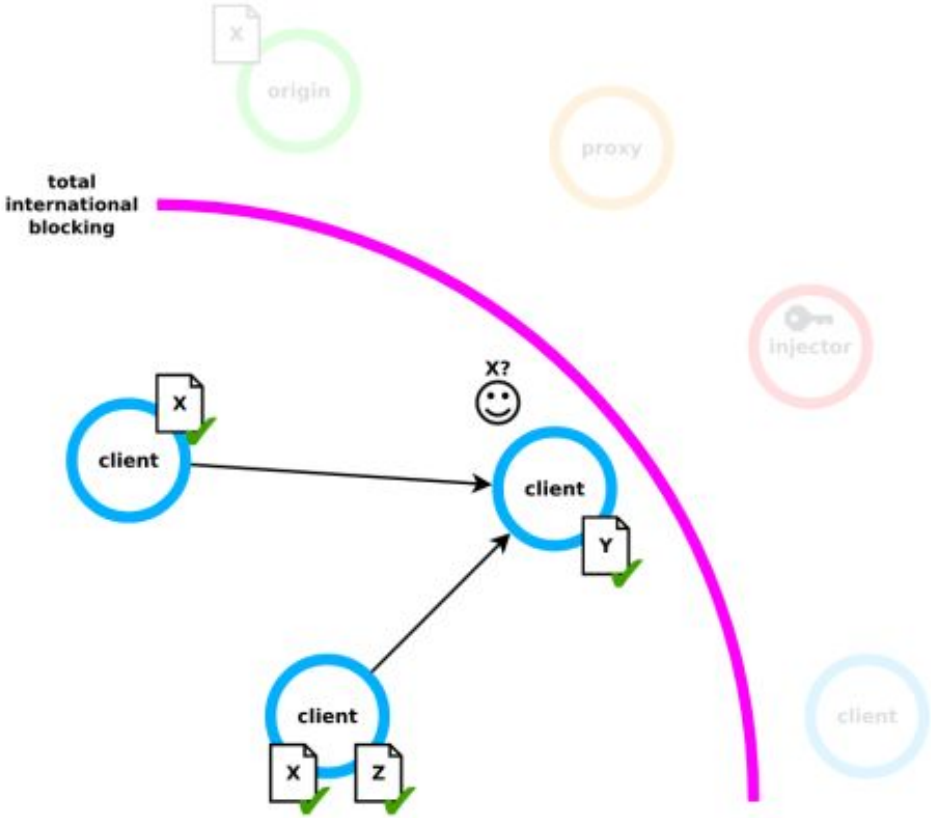
The easy way: Android

Run Ceno Browser on your Android device, and/or a spare, always-on device.

Run the Ceno Docker Client

Alternatively, with just one command you can set up a bridge on your computer or VPS: `sudo docker run --name ceno-client -dv ceno:/var/opt/ouinet --network host --restart unless-stopped equalitie/ceno-client`

shutdown resistance



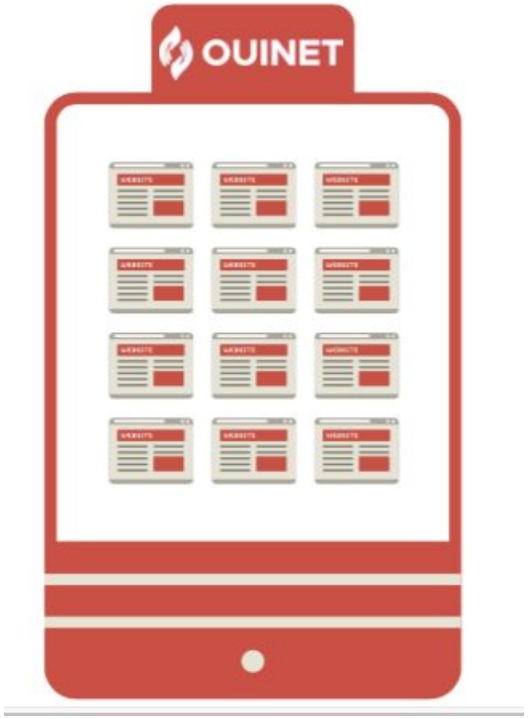
Delivery

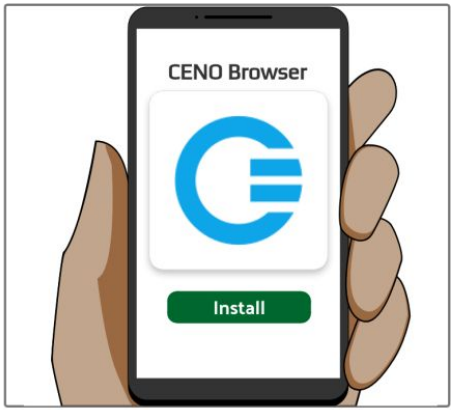
Content

Propagation

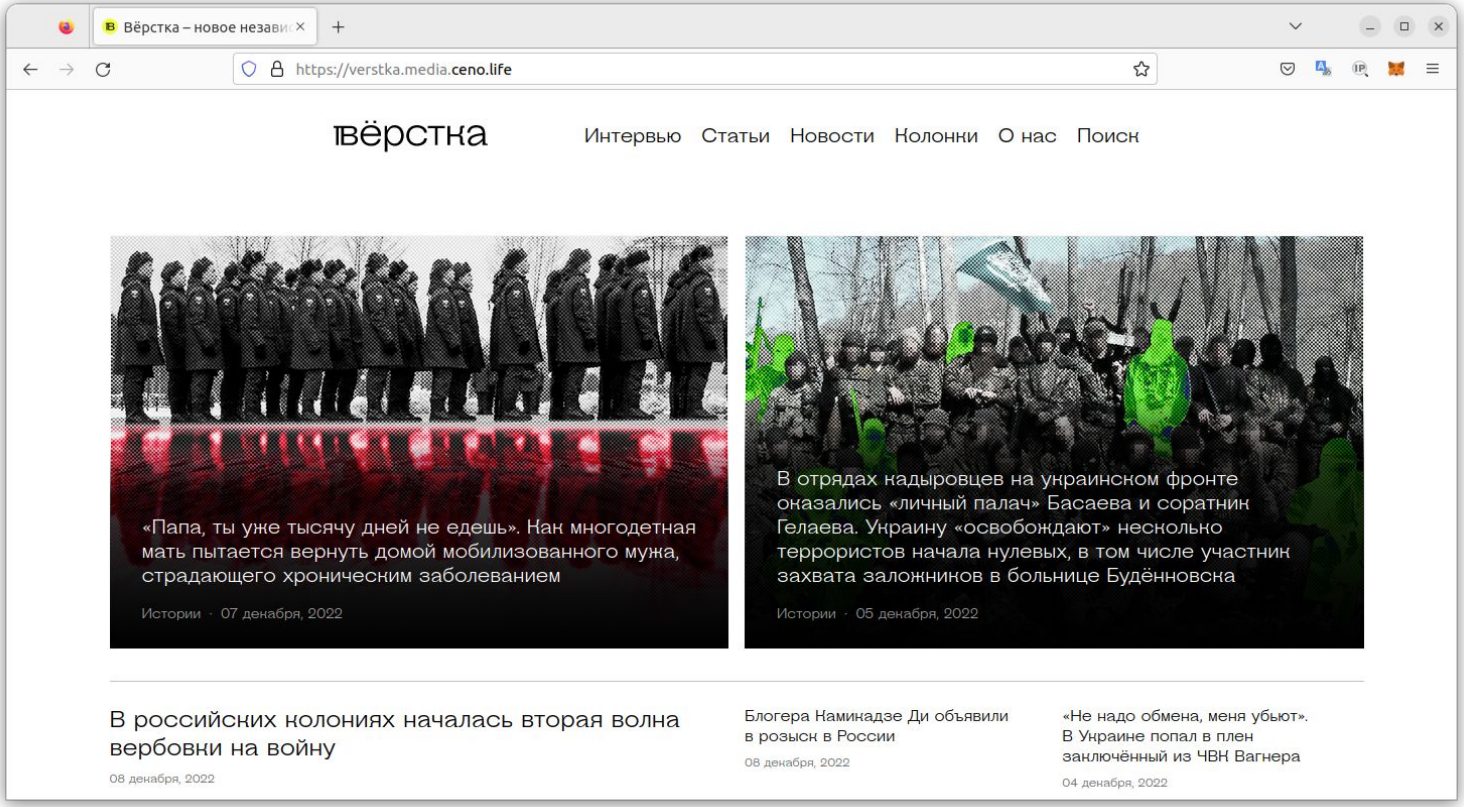
OuiCrawl - It’s all about the cache

WebRecorder
+
OuiCrawl





Cached web


Вёрстка – новое незави
https://verstka.media.ceno.life
твёрстка
Интервью Статьи Новости Колонки О нас Поиск
«Папа, ты уже тысячу дней не едешь». Как многодетная мать пытается вернуть домой мобилизованного мужа, страдающего хроническим заболеванием
Истории · 07 декабря, 2022
В отрядах кадыровцев на украинском фронте оказались «личный палач» Басаева и соратник Гелаева. Украину «освобождают» несколько террористов начала нулевых, в том числе участник захвата заложников в больнице Будённовска
Истории · 05 декабря, 2022
В российских колониях началась вторая волна вербовки на войну
08 декабря, 2022
Блогера Каминадзе Ди объявили в розыск в России
08 декабря, 2022
«Не надо обмена, меня убьют». В Украине попал в плен заключённый из ЧВК Вагнера
04 декабря, 2022

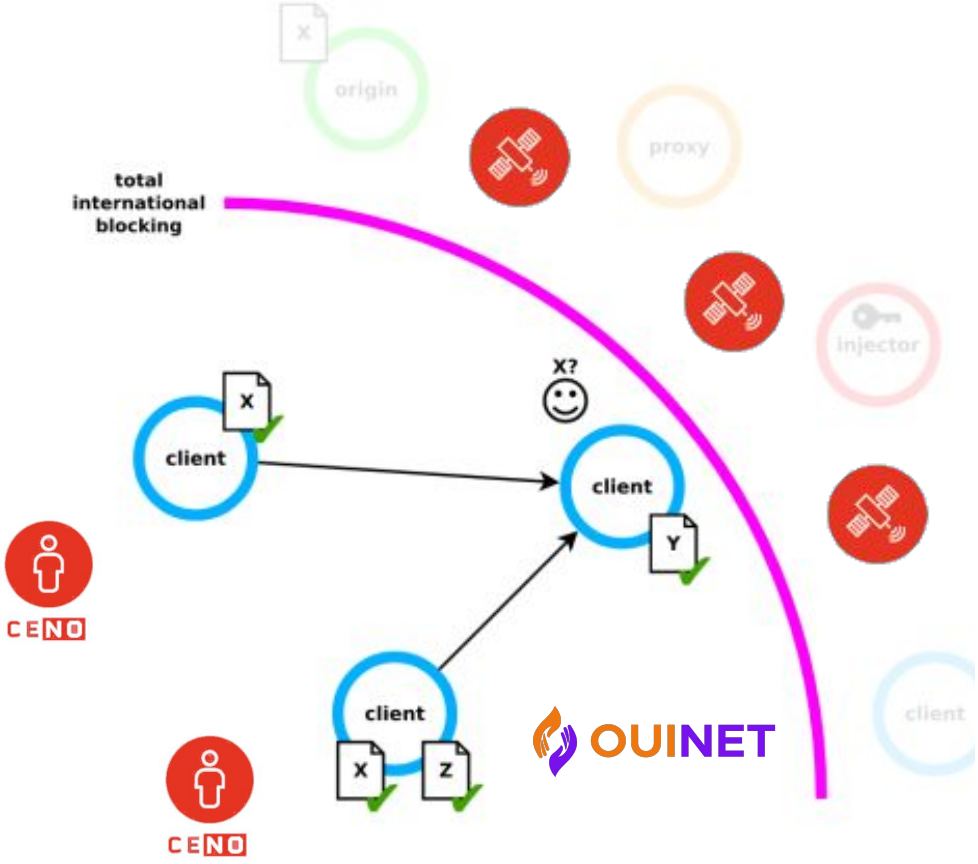
schedule.ceno.life

Ceno Mirrors Schedule

Sites mirrored by Ceno Browser can be accessed globally, even in areas with strict government restrictions.

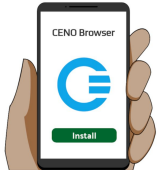
BBC Russian	✓	last mirror — 12 minutes ago	updating hourly, next — 47 minutes from now
Novaya Gazena Europe	✓	last mirror — 31 minutes ago	updating hourly, next — 27 minutes from now
Doxa	✓	last mirror — 50 minutes ago	updating hourly, next — 7 minutes from now
Ej.ru	✗	last mirror — 1 hour ago	updating daily, next — 22 hours from now
Tayga.info	✓	last mirror — 2 hours ago	updating daily, next — 21 hours from now
Romb.tv	✓	last mirror — 2 hours ago	updating daily, next — 21 hours from now
Holod	✓	last mirror — 3 hours ago	updating twice-daily, next — 8 hours from now
dComms	✓	last mirror — 3 hours ago	updating twice-daily, next — 8 hours from now
Verstka	✓	last mirror — 3 hours ago	updating twice-daily, next — 8 hours from now
Groza	✓	last mirror — 4 hours ago	updating twice-daily, next — 6 hours from now
Idel.Realii	✓	last mirror — 4 hours ago	updating daily, next — 19 hours from now

2023 resistance to shutdowns - cache and deliver

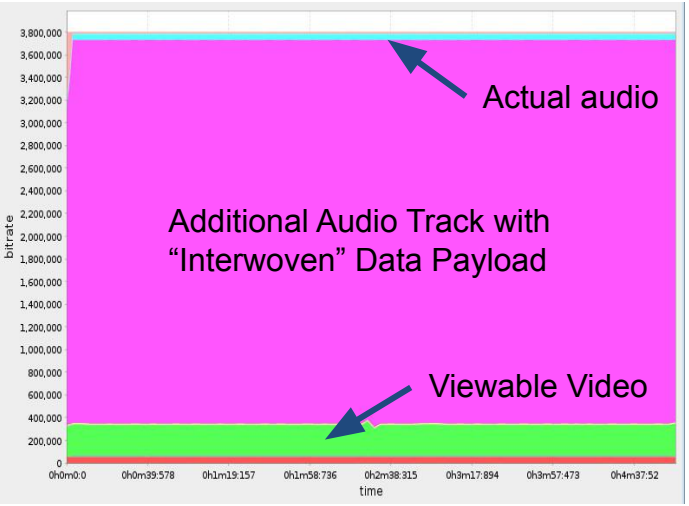


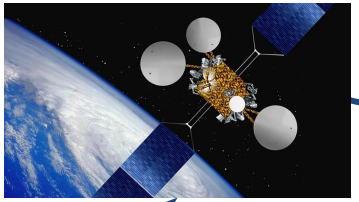
OuiCrawl

OUINET



Data-Casting w/MPEG-TS





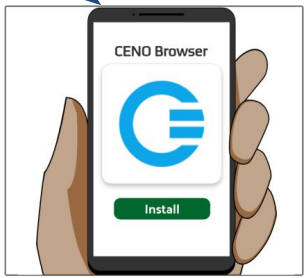
Downlink to Dish

Uplink to Satellite

Record w/DVB Receiver

I.P. Stream to Ground Station

Sync w/ Ceno Cache



Srv Id	Service Name	Access	Bitrate
0x0001	eqSat	C	3,717,280 b/
Total	Digital television service	C	3,717,280 b/s
0x0100	AVC video (720x576, main profile, level 3.1,	C	278,302 b/s
0x0101	MPEG-2 AAC Audio (eng)	C	8,288 b/s
0x0102	ATSC AC-3 Audio (vol)	C	3,378,090 b/s
0x1000	PMT	C	52,600 b/s

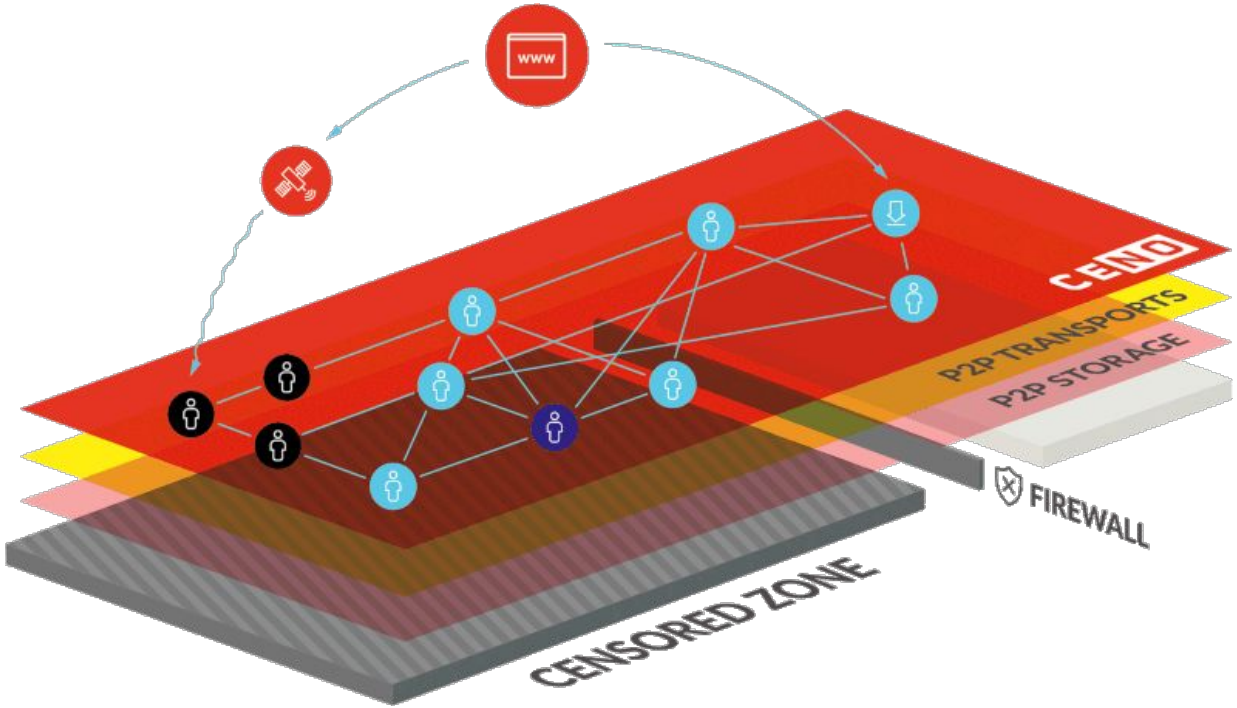
OuiServices → eQSat

Two-way Internet

- Near-border LTE coverage
- Satellite Internet

One-way content delivery

- Just a few injection nodes
- TS-MPEG / DVB-S
- Large geographic coverage



Propagation

- Ouinet / Ouisync
- Fediverse
- Decentralized networks
- Sneakernets

cross border connectivity - options

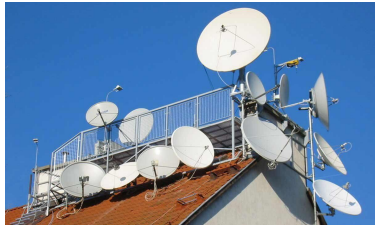
GEO & LEO Satellite Internet: 2-way

Border LTE coverage: 2-way

Data over DVB-T(2): 1-way within 100km from borders

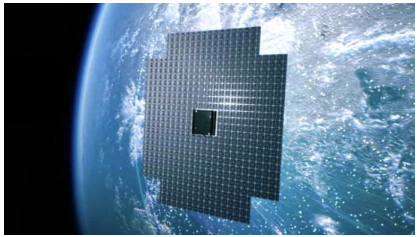
Point to Point Wifi: 2-way, (requires line of sight)

HF Radio: low bandwidth, 2-way



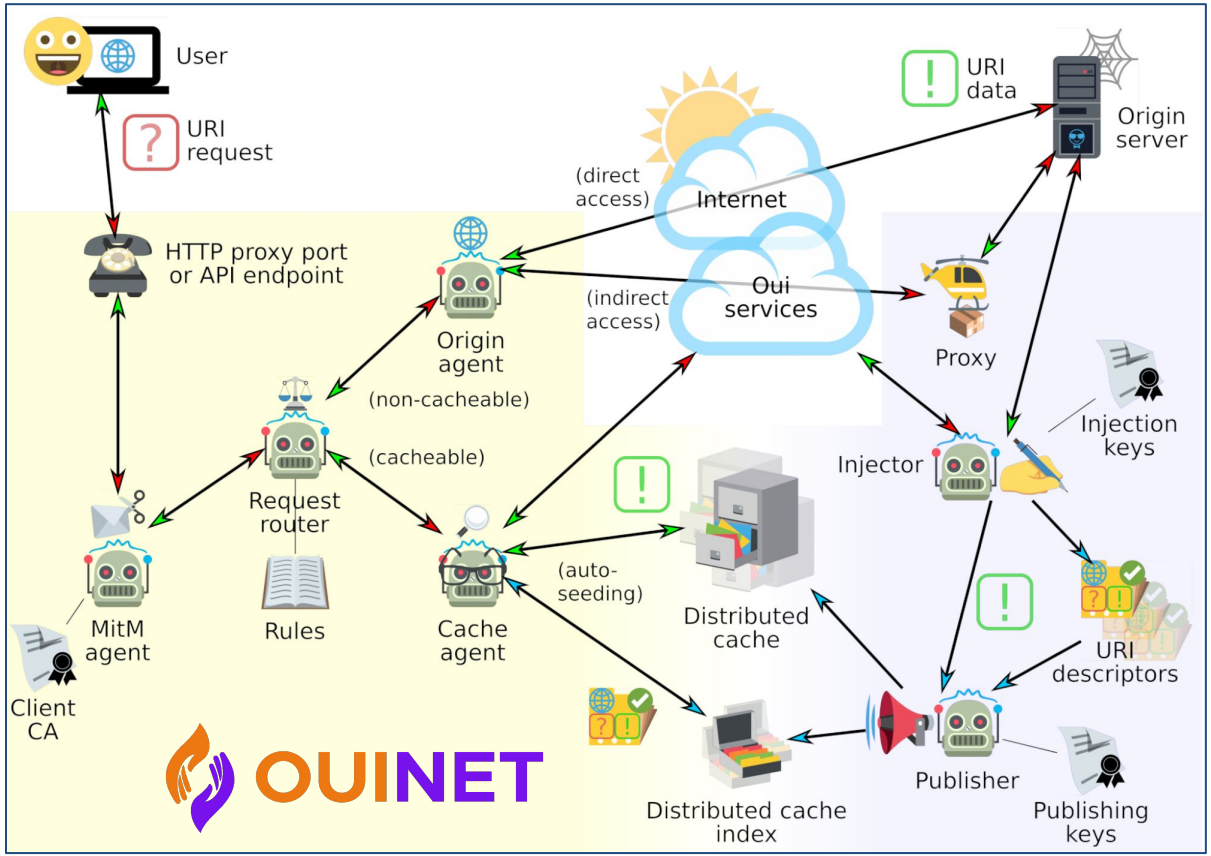
Data over DVB-S(2) Satellite: 1-way

Satellite Phones: very low bandwidth, 2-way

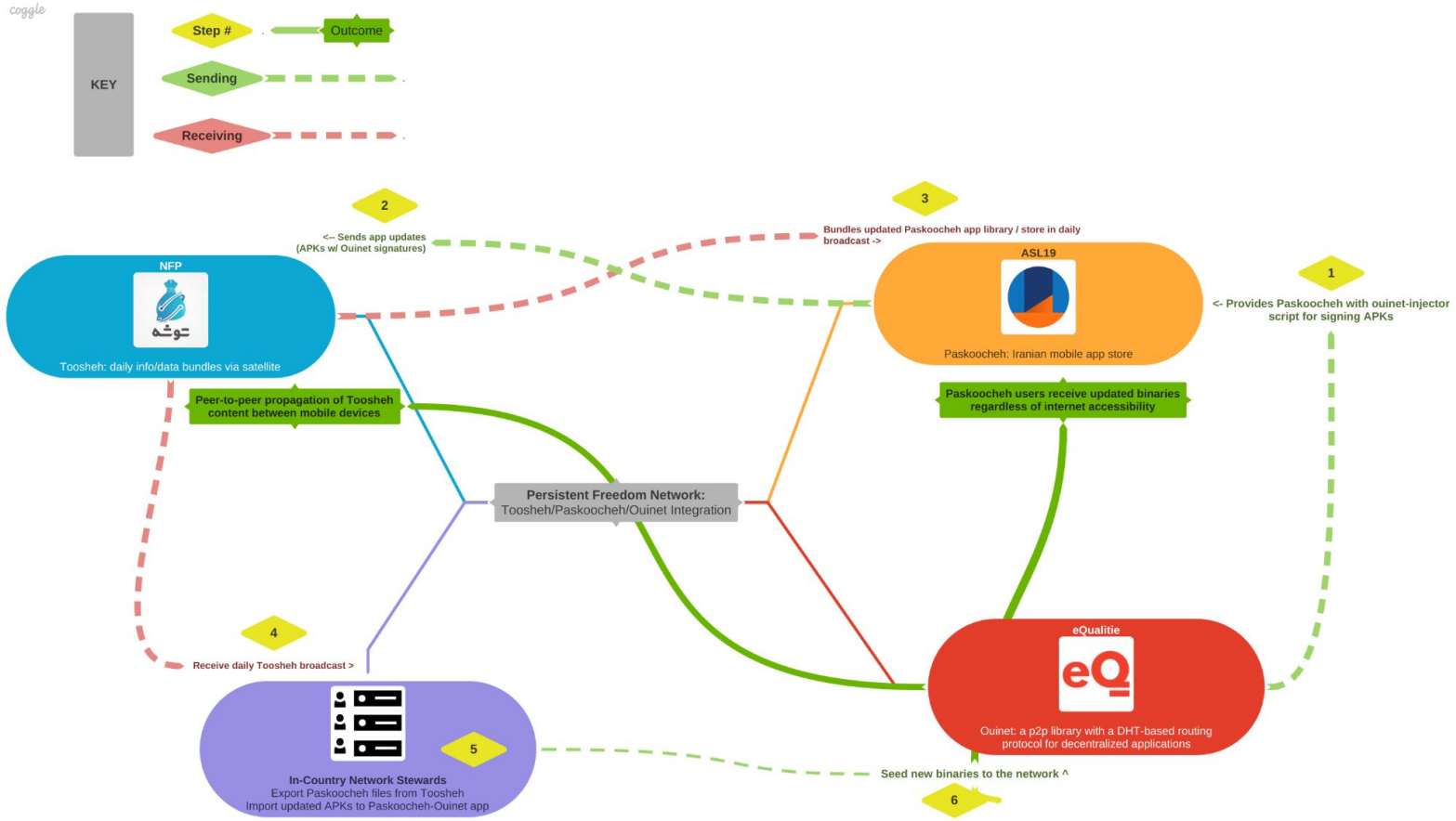


5G (3GPP) Broadband: Phones to LEO, 2-way

Decentralized content distribution



Updating software during shutdowns and splinternets



Thank you!
Questions? Ideas?

https://censorship.no

cenoers@equalite.org

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#cenobrowser + #ouinet

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