EPISODE #256

Breaking the Blackout: CENO and the P2P Fight for Truth

Published January 20, 2026 • Runtime: 24:24

https://myweirdprompts.com/episode/ceno-p2p-internet-censorship/

EPISODE SYNOPSIS

In this episode of My Weird Prompts, Herman and Corn dive into the high-stakes world of digital circumvention, focusing on the CENO browser and its impact in Iran. As the Iranian government develops its "National Information Network" to isolate its citizens, tools like CENO use the Ouinet protocol to turn the internet into a decentralized, peer-to-peer library that is nearly impossible to kill. The hosts discuss how cryptographic signatures ensure data integrity in a world of misinformation, why "slow news is better than no news," and how the battle for information sovereignty is shaping the future of the global web. Join the conversation as they explore the technology making the "sneakernet" digital and the regime's cynical attempts to drown out the truth with synthetic noise.

DANIEL'S PROMPT

Daniel

I came across an interesting technology called CENO (ceno.app), which is being used in Iran to bypass internet restrictions. It works by creating a peer-to-peer relay system, where users with access to a stable network help share content with those who don't. I'd love to hear your thoughts on this model, how you would describe it, and what you think the likely response from authorities will be.

TRANSCRIPT

Corn

Hey everyone, welcome back to My Weird Prompts. I am Corn, and I have to say, my brain is already buzzing from the deep dive we are about to take today. We are sitting here in Jerusalem, and the sun is just starting to hit the balcony, but we are looking at something happening thousands of miles away that feels incredibly relevant to the future of how we all use the internet.

Herman

And I am Herman Poppleberry. I have been looking forward to this one since our housemate Daniel sent over that audio clip this morning. You know Daniel, he is always the one finding these niche technical solutions to massive geopolitical problems while the rest of us are still finishing our first cup of coffee. Today he has pointed us toward something called CENO, which stands for Censorship dot No. It is a browser and a protocol that is doing some very heavy lifting in places like Iran right now.

Corn

It is funny you mention the coffee, Herman, because I saw you hunched over your laptop at six in the morning looking at network topology maps. I figured Daniel had sent you something juicy. This prompt is really hitting on a theme we have been circling for a while. Last week in episode two hundred fifty-one, we talked about quantum threats to privacy, and before that, we looked at the physical side of preparedness with those respirators in episode two hundred fifty. But today, we are talking about the survival of information itself when the pipes get cut.

Herman

Exactly. And to be clear for everyone listening, when we talk about Iran and the internet right now in January of twenty-two-six, we are not looking at a total, nation-wide blackout today, but rather a sophisticated, multi-layered system of control. The authorities there have spent years building what they call the National Information Network. It is basically a giant intranet. They want to be able to keep the local economy running, keep the banks and hospitals online, while simultaneously cutting off the rest of the world. It is a scalpel, not a sledgehammer, and that is why tools like CENO are so fascinating. They are designed to work when the scalpel starts cutting.

Corn

So, let us get into the meat of it. Daniel mentioned this peer-to-peer relay system. Most people understand a Virtual Private Network, or a VPN. You connect to a server in, say, Germany, and then you browse the web from there. But if the government blocks the IP address of that server in Germany, your VPN is dead. CENO is doing something fundamentally different, right?

Herman

Right. CENO is built on a protocol called Ouinet, which was developed by a group called e-Qualit-dot-ie. Think of it less like a tunnel and more like a massive, distributed library. In a traditional browser, when you want to see a news article, your computer asks the server for that article directly. If the government blocks that path, you get nothing. With CENO, every user is also a part of the infrastructure. If I am in a country with an open internet and I access a page, CENO can cache that page. Then, when you, Corn, are in a restricted area and you want that same page, you don't have to go to the original server. You can get a copy of it from me, or from someone else in the network who already has it.

Corn

That sounds like BitTorrent for the web.

Herman

That is exactly the right analogy. It uses the same kind of logic as peer-to-peer file sharing. But instead of sharing a movie or a song, you are sharing the latest news from a blocked site or a social media feed. The brilliant part is that it works even if the international gateway is completely shut down, as long as there is some local connectivity between users.

Corn

Okay, let me poke at that for a second. If I am getting a copy of a news article from another random user, how do I know it is actually the article? What is stopping a bad actor, or even the government itself, from joining the CENO network and handing out fake versions of the news? This seems like a massive opening for misinformation.

Herman

That is a great question, and it is the first thing I looked into. The security model here relies on something called digital signatures. When the content is first pulled into the CENO network by what they call an injector, which is a node located outside the censored area, that content is cryptographically signed. It is basically wrapped in a digital seal that says, this is exactly what the BBC or Wikipedia sent out at this exact timestamp. Every other peer in the network can verify that signature. If someone tries to change even a single letter in that article, the signature won't match, and the browser will reject the content.

Corn

So the trust isn't in the person sending you the data, the trust is in the math protecting the data.

Herman

Precisely. It is a zero-trust architecture in that sense. You can receive data from your worst enemy, and as long as the cryptographic hash matches the original signature from the injector, you know it is authentic.

Corn

That is clever. But Daniel mentioned this idea of a library of saved internet content. How does that actually look for a user in a place like Iran? Are they browsing a live web, or are they looking at a snapshot of the past?

Herman

It is a bit of both. If the connection to the outside world is still flickering, CENO will try to get the most recent version. But if the connection is totally severed, you are browsing the distributed cache. This is where the community aspect comes in. If ten thousand people in Tehran are using CENO, and one of them manages to get a fleeting connection to a bridge node and pulls down the front page of a major news site, that page then propagates through the local network. It is like a digital rumor that is actually true. The library grows as more people use it.

Corn

I love that phrase, a digital rumor that is actually true. It reminds me of the old sneakernet days, where people would pass around floppy disks or thumb drives. CENO is basically automating the sneakernet using whatever local Wi-Fi or mesh connections are available.

Herman

It really is. And the authorities are aware of this, which brings us to the second part of Daniel's question: what is the likely response from the authorities? In Iran, we have seen them move away from just blocking websites to using Deep Packet Inspection. They look at the actual shape of the data moving through the pipes. If it looks like VPN traffic, they throttle it or kill it.

Corn

So how does CENO hide? If I am a government censor and I see a bunch of encrypted peer-to-peer traffic that doesn't look like a standard bank transaction or a government-approved video stream, can't I just block that protocol entirely?

Herman

They can try, but it is a game of cat and mouse. CENO uses something called bridge nodes. These are volunteers outside the censored country who act as the entry point. The traffic between a user and a bridge can be disguised to look like something mundane, like a standard HTTPS connection to a benign website. But the real challenge for the Iranian government with a peer-to-peer model is that there is no central server to hit. If they want to stop CENO, they have to stop the users from talking to each other.

Corn

Which is why the National Information Network is so dangerous. If they can force everyone onto a local network that they control every inch of, they can see those peer-to-peer connections happening in real-time. They could potentially identify every IP address that is acting as a CENO node.

Herman

You are hitting on the biggest risk. In episode two hundred forty-nine, we discussed how private investigators use digital footprints, but for a regime, those footprints are a target list. If you are running a CENO bridge or even just sharing a lot of cached content, you might stand out on a network map. The Iranian authorities have been very clear about this. They have passed laws recently that make the use of unauthorized circumvention tools a serious crime. They are not just looking to block the tech; they are looking to intimidate the people using it.

Corn

It feels like a very high-stakes version of the technology we take for granted. We use peer-to-peer stuff for things like updates for our operating systems or downloading games. But there, it is literally a lifeline. I am curious about the scale. Do we have any numbers on how many people are actually using this?

Herman

It is hard to get exact numbers because of the privacy protections built into the app, but the developers have noted significant spikes during periods of unrest. When the government tightens the screws, the CENO downloads go up. It is a reactive technology. Most people prefer a fast, direct VPN when they can get it. But when the VPNs start failing because the government has blocked the major providers, people turn to the peer-to-peer model. It is slower, sure, because you might be hopping through several other phones or computers to get your data, but slow news is better than no news.

Corn

That makes me think about the second-order effects. If a significant portion of the population is using a distributed cache, the government's ability to control the narrative in real-time vanishes. They can't just delete an article from the internet if it has already been cached on five thousand phones in Shiraz. The information becomes like a virus they can't eradicate.

Herman

And that is exactly why they are investing so heavily in artificial intelligence for censorship. They are trying to move faster than the cache. We are seeing reports of systems that can analyze content as it passes through the gateway and automatically generate counter-narratives or even just inject noise into the network to make the peer-to-peer connections unreliable.

Corn

Wait, inject noise? Like, they would join the network and just send garbage data to slow everything down?

Herman

Exactly. It is a classic denial of service attack, but performed by a nation-state against its own citizens. If they can make the CENO experience so frustratingly slow and unreliable that people give up, they win without having to actually break the encryption.

Corn

That is incredibly cynical, but I guess it is effective. It makes me wonder about the long-term viability of the open web. If we are moving toward a world where large countries are essentially creating their own fenced-off versions of the internet, does the peer-to-peer model become the only way to maintain a global conversation?

Herman

I think it might be. We are seeing similar trends in other countries too. It is not just Iran. This idea of internet sovereignty is gaining traction globally. The response from the authorities is always going to be a mix of technical blocks and legal threats. But the beauty of something like CENO is that it is open source. Anyone can look at the code, anyone can contribute to it, and anyone can set up an injector node. It is a decentralized response to a centralized problem.

Corn

You know, it reminds me of the discussion we had back in episode two hundred forty-eight about lane-level navigation and how precise our tech has become. We have all this precision in our daily lives, yet we are still struggling with the basic ability to share a paragraph of text across a border. It is a strange contrast. We can tell you which lane you are in on a highway in Tel Aviv, but a student in Tehran might have to rely on a peer-to-peer mesh network just to read a Wikipedia entry about history.

Herman

It is the ultimate digital divide. It is not just about who has a faster phone; it is about who has the right to access the collective knowledge of humanity. CENO is essentially trying to democratize that access. One thing I find particularly interesting is the way it handles dynamic content. Daniel asked how we would describe it. I think of it as a Wayback Machine that is constantly updating.

Corn

That is a good way to put it. But what about things like social media? You can't really cache a live Twitter feed or a Telegram channel as easily as a static news article, can you?

Herman

That is the current frontier for the developers. Static pages are easy. Interactive, real-time feeds are much harder because the signatures are constantly changing. Right now, CENO is best for what we call the slow web—articles, blogs, educational resources. But as long as the content can be signed and verified, it can be shared.

Corn

So, if I am a government official in Iran, my move is to make the internet so expensive or so localized that the cost of participating in a peer-to-peer network becomes prohibitive.

Herman

That is already happening. They offer cheaper rates for accessing local Iranian websites and charge much more for international traffic. They are using economic levers alongside technical ones. But here is the thing they can't account for: human ingenuity. Every time they build a higher wall, someone like the folks at e-Qualit-dot-ie figures out how to build a longer ladder.

Corn

I wonder if this technology could eventually be used here, or in other western democracies. We tend to think of censorship as something that happens elsewhere, but we have seen debates about blocking certain platforms or controlling the flow of information during emergencies. Could a peer-to-peer web be a standard feature of browsers in the future?

Herman

I think it should be. Imagine if your browser had a built-in toggle that said, switch to peer-to-peer mode. It would make the entire internet more resilient. If a major undersea cable gets cut by an anchor, or if a massive cloud provider goes down, we wouldn't all lose access to the sites we need. We could help each other out by sharing the data we already have. It turns the internet from a series of pipes into a true web.

Corn

That is a powerful vision. It moves us away from this total reliance on a few massive corporations and government-controlled gateways. It is more like the original vision of the internet—decentralized, robust, and owned by the people who use it.

Herman

Exactly. And that is why Daniel's prompt is so good. It is not just about one app in one country. It is about a fundamental shift in how we think about connectivity. We are moving from a world of consumers to a world of participants.

Corn

Okay, let us talk takeaways. If someone is listening to this and they are worried about the future of the open web, what can they actually do? Obviously, most of our listeners aren't in Iran, but the principles apply everywhere.

Herman

First, support open-source projects like CENO and the Ouinet protocol. They rely on volunteers and donations to keep developing these tools. Second, learn about how these things work. Understanding the difference between a VPN and a peer-to-peer network is the first step in being digitally prepared. And third, if you are technically inclined, consider running a bridge node or an injector. You can literally be the bridge that helps someone in a restricted area reach the outside world.

Corn

It is a way to be an activist without ever leaving your desk. You are providing the infrastructure for freedom. I think that is a really beautiful thing.

Herman

It really is. And it connects back to what we always talk about on this show—curiosity and empowerment. Don't just accept the internet as it is given to you. Understand the plumbing. Know how to fix it when it breaks, or how to bypass the valve when someone tries to shut it off.

Corn

You know, Herman, I was thinking about our conversation in episode two hundred forty-seven about portable power stations. We talked about how having your own power makes you less dependent on the grid. This is exactly the same thing, but for information. A peer-to-peer cache is like having a battery backup for the truth.

Herman

That is a perfect analogy, Corn. I might have to steal that one for my notes. A battery backup for the truth. It really captures the essence of what CENO is trying to achieve. It is about resilience.

Corn

So, looking forward into the rest of twenty-two-six, what do you think the next big development will be? Will we see more countries adopting the Iranian model of a National Information Network?

Herman

Unfortunately, yes. We are seeing similar discussions in several other regions. The idea of a sovereign internet is very attractive to governments that want to maintain control. But as these tools become easier to use and more integrated into our regular browsing habits, the cost of that control is going to keep going up. It is an arms race, but the side with the most creative and motivated participants usually has the edge in the long run.

Corn

I hope you are right. It feels like a battle for the soul of the digital age. On one side, you have centralization and control, and on the other, you have this messy, beautiful, peer-to-peer cooperation.

Herman

And that is why we do this show. To shine a light on these weird prompts that lead us to these massive, important topics. Daniel, thank you for sending this one in. It really pushed us to look at the mechanics of freedom in a way we hadn't before.

Corn

Absolutely. It is a reminder that even when things seem dark, there are people working on the light. Before we wrap up today, I want to say a huge thank you to everyone who has been riding along with us for these two hundred fifty-two episodes. We have covered a lot of ground, from sloths to donkeys to peer-to-peer browsers, and your engagement is what keeps us going.

Herman

It really does. And hey, if you are finding value in these deep dives, we would really appreciate it if you could leave us a review on your podcast app or on Spotify. It sounds like a small thing, but it genuinely helps the show reach more curious minds like yours. We love seeing the community grow.

Corn

Definitely. You can always find us at our website, myweirdprompts-dot-com. We have the full archive there, and if you have a prompt that has been keeping you up at night, there is a contact form where you can send it our way. Maybe it will be the subject of our next episode.

Herman

Or you can just find us on Spotify. We are everywhere you get your podcasts. It has been a pleasure as always, Corn. I think I am going to go back and look at those Ouinet signatures again. There is some really elegant math there.

Corn

Of course you are. I am going to go make another pot of coffee and maybe see if I can set up a bridge node myself. It feels like the right thing to do after this conversation.

Herman

That is the spirit. Alright everyone, this has been My Weird Prompts.

Corn

Stay curious, stay prepared, and we will talk to you next time.

Herman

See you in the next one.

Corn

Bye for now.

Herman

Goodbye.