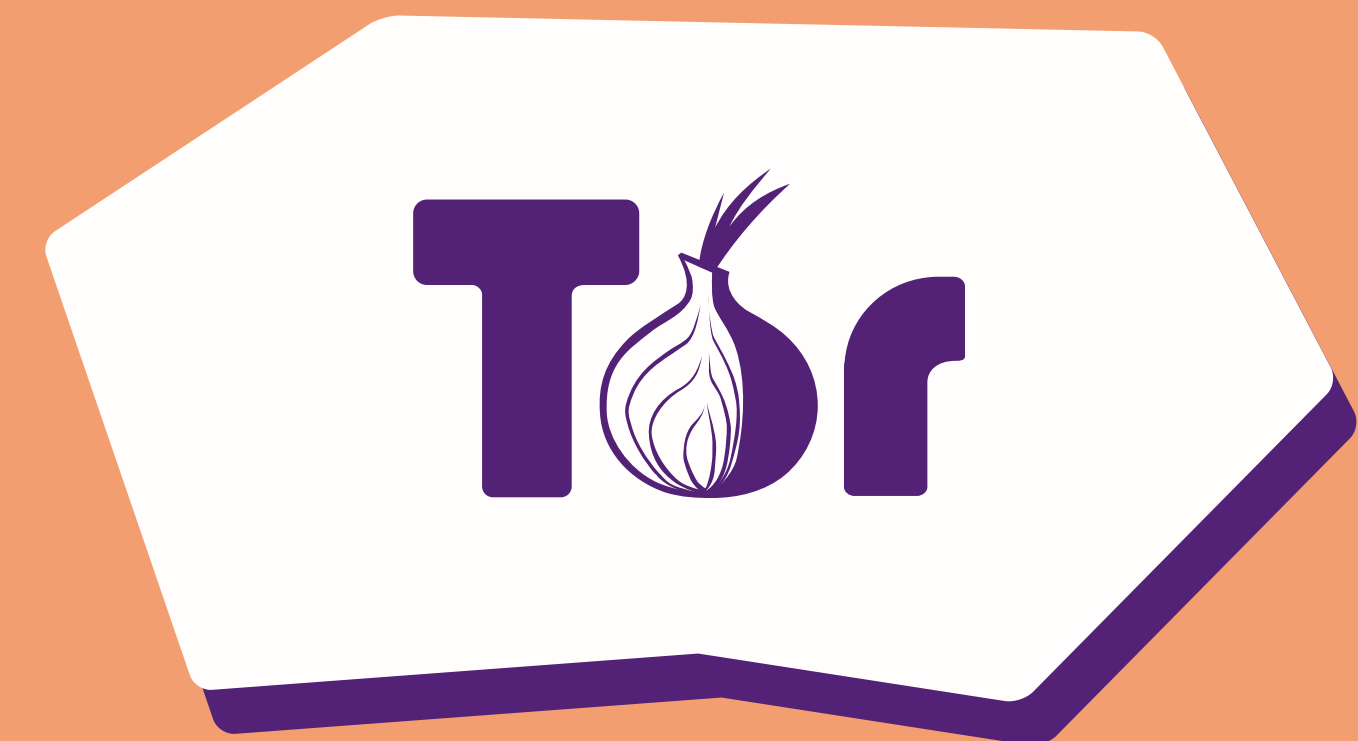# 2021

Annual Report

The Tor Project

Tor

About Tor

We believe everyone should be able to explore the internet with privacy. We are the Tor Project, a 501(c)(3) US nonprofit. We advance human rights and defend your privacy online through free software and open networks.

Our mission is to advance human rights and freedoms by creating and deploying free and open source anonymity and privacy technologies, supporting their unrestricted availability and use, and furthering their scientific and popular understanding.

Letter from the Executive Director

In 2021, the Tor Project uplifted the message that "Privacy is a Human Right," in our annual fundraising campaign. Our mission is to advance human rights and freedoms by creating and deploying anonymity and privacy technologies, and we want to make it clear that privacy is one of those human rights.

The notion that privacy is a human right and that it is important to protect this right is more commonly accepted today than it used to be. Not so long ago, back in 2013, news outlets published Snowden's revelations and communities everywhere debated online surveillance and whether or not it was important to protect privacy. In these debates, it was common for people to react saying "they had nothing to hide." The association of privacy with having something to hide, something to be ashamed of, diminished the importance of the right to privacy.

In the following years, we have seen concrete examples of how abusive privacy invasions online affected everyone's lives and the social context around them. There is a wider understanding that most of the tech industry uses a business model focused on harvesting information about your online behavior as if it were the new natural resource to be exploited. People have seen that with this data, governments and corporations use their knowledge about you to manipulate public opinion. Targeted campaigns using this data, especially those using fake news or hate speech, have driven nations towards decisions that affect global society. The campaign for the BREXIT referendum in the U.K, Trump's election in the U.S., and Bolsonaro's election in Brazil, all used these tactics.

We've all lived through these examples of how invasive data collection and surveillance impacts our lives. We now understand that privacy has nothing to do with having something to hide. Instead, privacy means protecting the human being that you are, all the personal details that make you, you. What you care about, what you love, what you hate, what you are curious about, what makes you laugh, what you fear. And most importantly, choosing when you decide to share that information and who you share it with.

This shift has generated a rise in customer demand for better privacy protection from the tech industry and the creation of legislation (like GDPR and CCPA) that tries to help consumers exercise some rights over the data we generate while using a service or app.

The tech industry has morphed itself to avoid the rejection of their customers and the risk of millions of dollars in fines due to new legislation. I say "morph" because they aren't really changing their business models to stop harvesting data about you or to limit the way this data is used. They are changing just enough to meet the requirements without losing profit.

At the Tor Project, we believe we can offer an example of how technology can be made differently, how it can exist without invading people's privacy and harvesting their data. It's possible to build technology that millions of people use with privacy at the heart. We say "privacy is a human right" and we build technology to advance that right. We want to be the point of reference for what is possible regarding user data and technology in a changing world.

Setting an example is working: we are very proud to see the rest of the industry pick up the innovations in Tor Browser and the Tor network. For example, web browsers are now shipping protections against third party cookies or fingerprinting, features we've offered for over a decade, and Apple's private relay experimental feature which is similar to the Tor network's model.

Change is possible. We're seeing it take shape.

I invite you to read our 2021 Annual Report and learn about the amazing features we worked this year and what is coming up for 2022. And thank you for your support. When you make a gift to the Tor Project, you are not only helping one organization or technology, you are shaping the future of the internet. Your support means that one day, the technology we use will advance our rights instead of violating them.
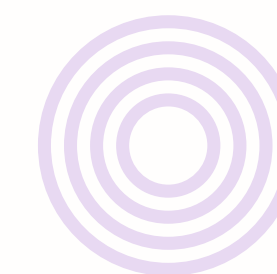
Isabela Bagueros
Executive Director
The Tor Project

2021
Accomplishments

Every single person who contributed to Tor, the Tor Project staff, our core contributors, our community, and our supporters made 2021 a successful year.

After 2020, a year of sacrifice, we did not let those challenges stop us. We kept dreaming. We continued to create a better, more private experience on the internet–for everyone. In this section, we're sharing just some of the milestones we accomplished together.
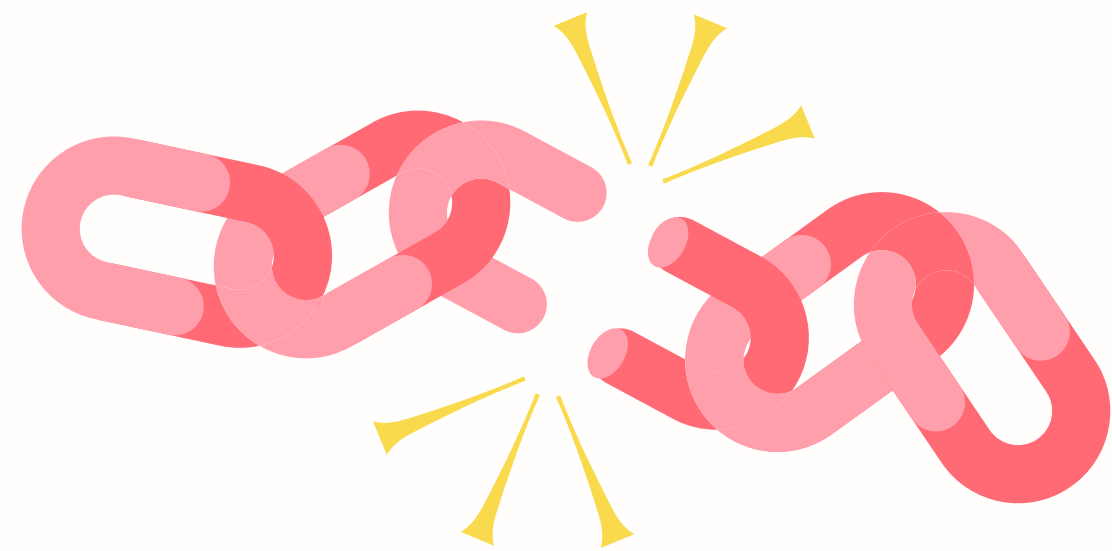
Keeping Russians connected to the free internet

This last year demonstrated the idea of censorship as an "arms race," with changes in censorship on the side of authoritarian governments—and advancement in circumvention methods on Tor's side. We'll share one story of our fight against the creep of censorship.

Throughout 2021, Roskomnadzor, the Russian government bureaucratic entity responsible for internet censorship in the country, began to crack down on VPN access for Russian citizens. The agency ordered that Internet Service Providers (ISPs) block these services and slowly, the Russian government increased its stranglehold on free access to information.

In December, that wave of censorship reached Tor. Services in Russia began blocking the Tor Project website (torproject.org), and different regions started rolling out blocks against the Tor network.

Russia is the country with the second largest number of Tor users, making up 15% of total daily users throughout 2021. When blocking started, we immediately saw support requests flood our inboxes. Russians needed help circumventing new censorship—they rely on Tor to access the uncensored internet, and their government had just disrupted their free access to information, news, and resources.

As soon as we understood the scale of the problem, we activated a cross-team response. Almost every person at the Tor Project turned their attention to this issue. On the Community team, we called on our volunteers to spin up new bridges—tools that make it possible for users to "hop" over censorship against the Tor network. The Tor community went above and beyond to support censored users by starting up approximately 1,200 new bridges. We doubled the number of bridges on the network in just a few weeks.

We also onboarded a Russian-speaking user support agent to respond to the flood of requests from users, and in the last three months, we have responded to more than 5,000 messages from Russians alone. We immediately mobilized our translator community, and began working with a contracted Russian-speaking translator, to rapidly localize support documentation.

At the same time, the Anti-Censorship team worked with our research partners to understand how Russian ISPs were blocking Tor and adjusted our techniques to evade those blocks. Our Applications team released a new version of Tor Browser with upgrades to Snowflake for enhanced censorship resistance.

We developed a Telegram bot to automatically respond to user messages with bridge addresses, and we rolled out a new method of distributing bridges in such a way that makes it difficult for censors to find and block them. We also spun up vantage points to test whether or not bridges are still working in Russia and implemented mechanisms to remove them from the distribution pool when they are blocked by the censors. That's how we've discovered that our methods to keep bridges out of the hands of censors—and in the hands of real users—have been incredibly successful.

The Kremlin's decision to force Russians away from sources of information, community, and global news is a rapidly escalating example of what is happening more gradually in the rest of the world. It's also an example of how the Tor Project has the cross-team collaboration, anti-censorship innovation, and tenacity to keep users connected to the free internet even in the most difficult circumstances.

"Tor helped me a lot. Here in Russia, blocking on the Internet is extremely common... Tor helps me bypass blocking and get more privacy. For example, many wonderful websites, such as foreign services or the websites of the Russian opposition, have been blocked. I have been using Tor for many years... without it, many very important sources of useful information would be inaccessible, or accessible with great difficulty."

"Tor has helped me look things up, read articles, and watch videos that I wasn't comfortable opening on a regular browser or over an unprotected Internet connection… I identify as gender nonconforming and I could risk being outed in circumstance in which I would rather stay in the closet."
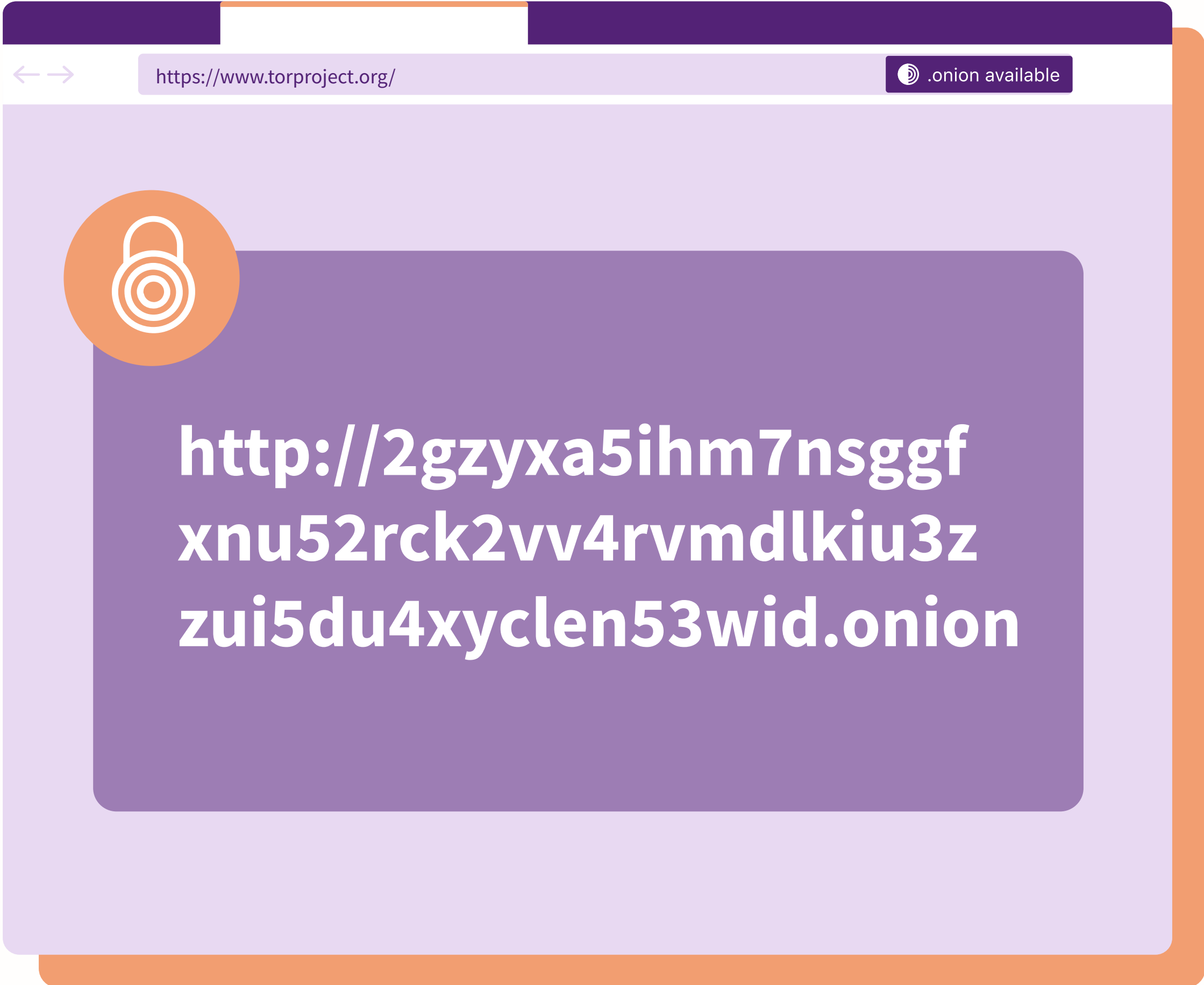
Advocating for privacy for everyone

The Tor Project builds software that helps people circumvent censorship, and we are also part of an internet freedom community.

That means we join forces with this community whenever we can to advocate for issues that align with our mission.

In 2021, we participated in more than 15 joint actions with coalitions and community groups fighting for internet freedom and privacy online.

Modernizing onion services

With the release of Tor Browser 11 in October, much safer v3 onions officially took the place of v2 onions. Now onion service operators and users benefit from protection against attacks that made v2 onions vulnerable, and Tor Browser users can no longer access these unsafe old addresses. And in a victory for widespread onion adoption, HARICA, a nonprofit root certificate authority, began offering affordable DV certificates for .onion sites.

https://www.torproject.org/

.onion available

http://2gzyxa5ihm7nsggf xnu52rck2vv4rvmdlkiu3z zui5du4xyclen53wid.onion

Connecting with Tor users

This year we released a Tor Browser user survey and Snowflake client user survey. Tens of thousands of people shared their thoughts on these Tor tools, giving us great insight on how to improve and where to focus new changes. Additionally, we launched the brand-new Tor Forum, a dedicated space for the Tor community to ask questions, read and comment on updates from us, publish events, and find other Tor users and relay operators. Similarly, we launched a new version of the Tor blog that makes it easier for users to comment and share their thoughts. In 2021, we also held privacy and digital security workshops for 337 human rights defenders, journalists, and other participants.
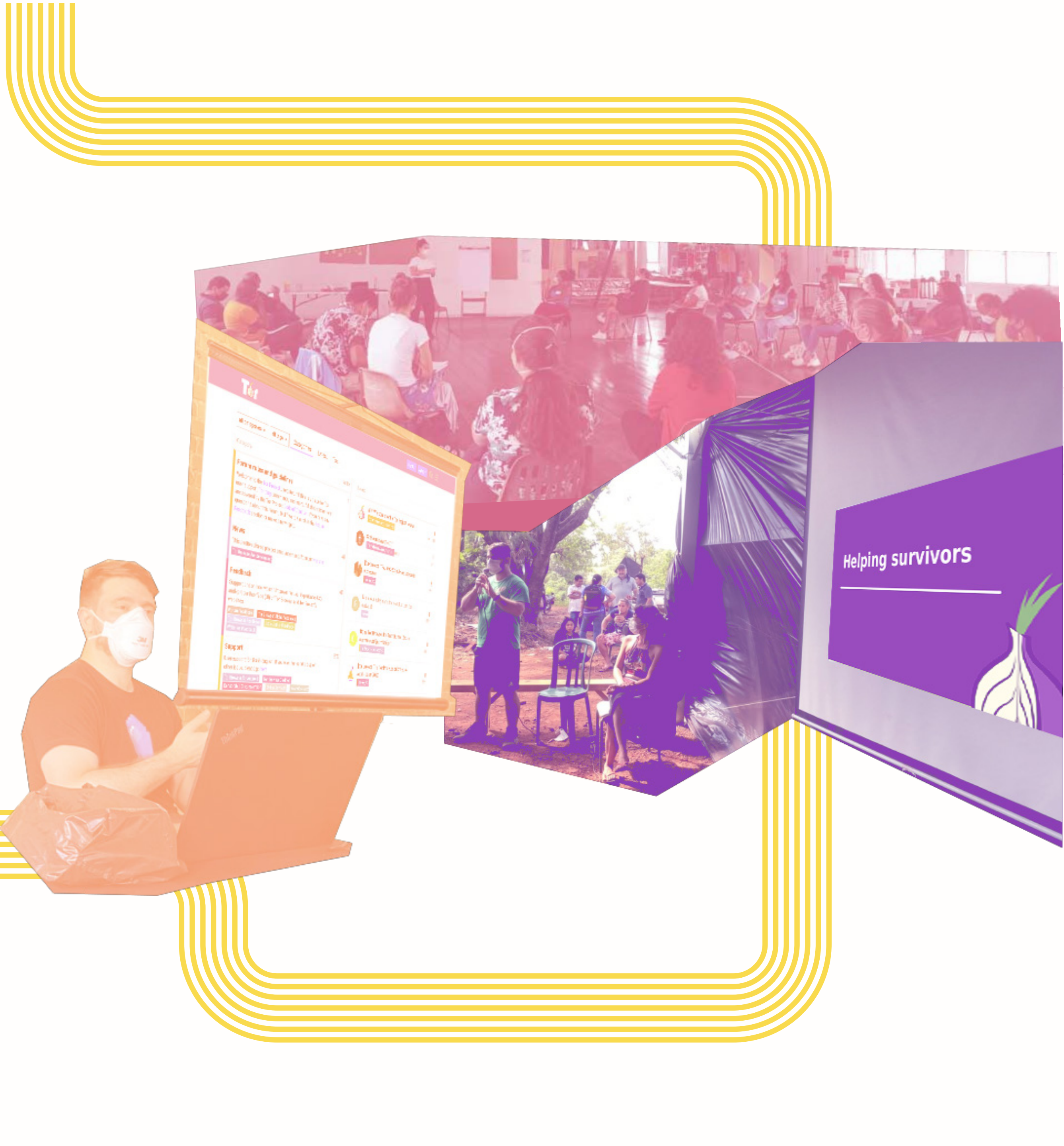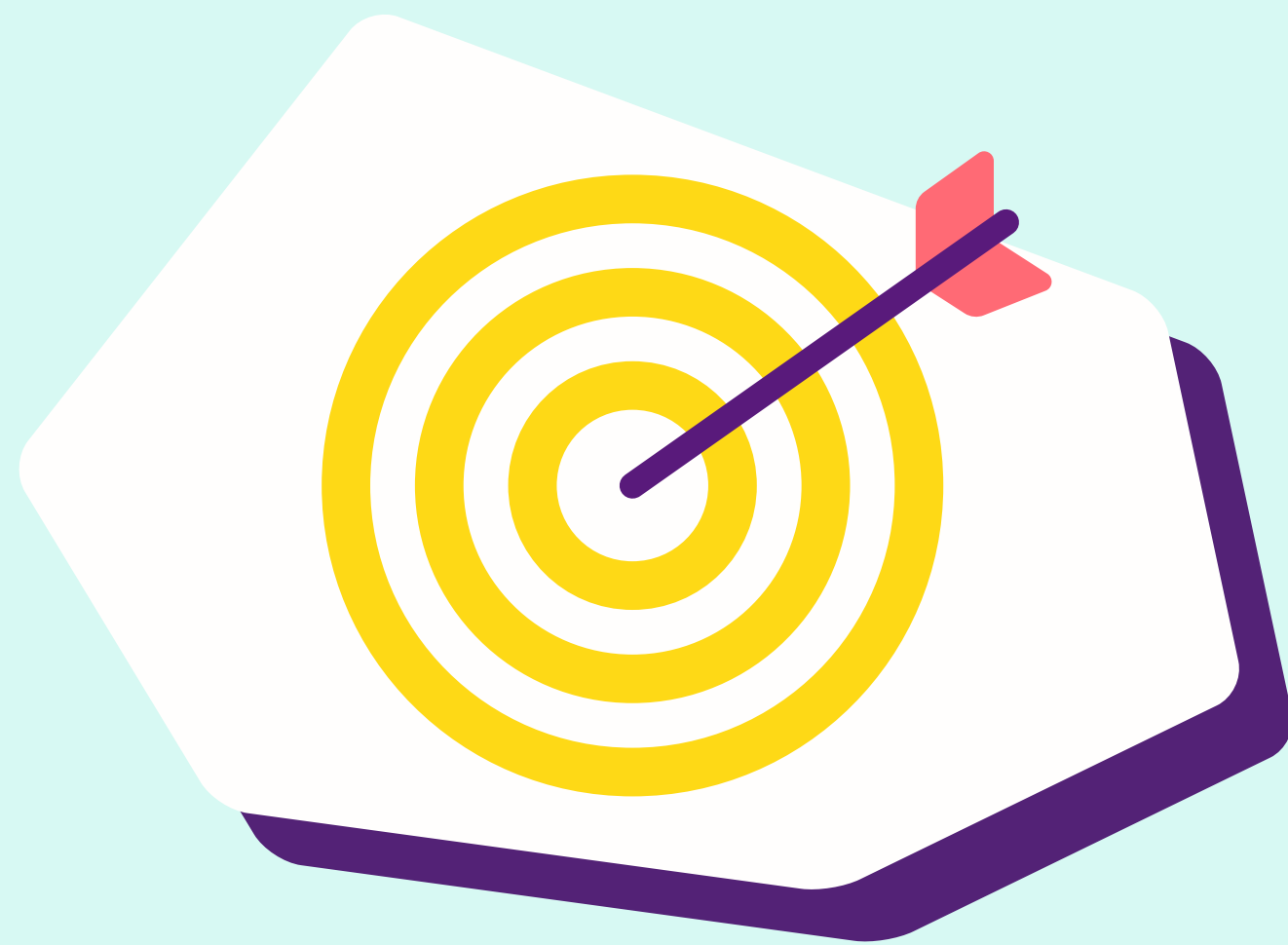
2022 Goals

In 2022, our plans are to make Tor even faster, stronger, and easier to use. These are just some of the things we have planned and are already working on for this year.

Bringing users what they want: Tor speed improvements

Last year, we asked users what they would change about Tor if they could make one wish. The answer was loud and clear: make Tor faster. This year, we'll grant that wish by rolling out congestion control improvements on the live Tor network. These improvements will give users huge gains in speed and reliability when using Tor, especially for people connecting from a mobile device. In a world where most people access the internet on their phones, this change makes Tor more useful for everyone.

Mobilizing against increasing global censorship

When Russia began censoring access to our website and the Tor network in late 2021, we jumped into action by adding a Russian-language user support agent to help Russians stay connected. We simultaneously built a Telegram bot to distribute bridges and activated tools to monitor and rotate those bridges when the Russian government blocks them. This year, we will continue to respond to increasing global censorship with this highly effective and tailored approach. In addition to responding to emerging internet freedom violations, we're preparing to ship a completely new Tor Browser experience that will automate the censorship detection and circumvention process, simplifying connecting to Tor for users who need it the most.

Going beyond mobile browsing

With internet access and mobile phones becoming inherently linked, more and more people live their digital lives without relying on a web browser. People connect to social media, email, and chat services through standalone apps. And even though Tor Browser for Android is one of the most secure ways to protect your privacy on your phone, its use is limited when you are more likely to open an app than a browser. That's why we're developing a new kind of Tor client: a standalone app that allows a user to send all of their phone's traffic through Tor.
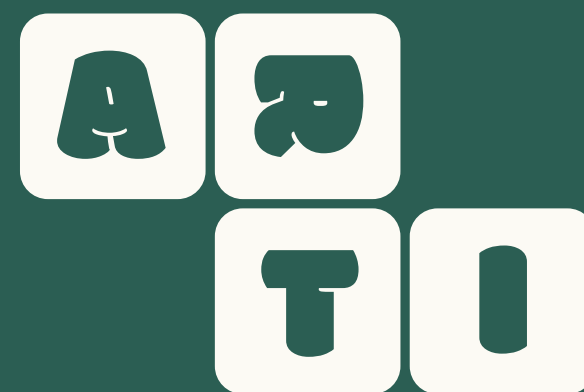
Launching Arti year two – 1.0.0, here we come!

Today's Tor is written in the C programming language. C, while venerable and ubiquitous, is notoriously error-prone. We're working on a full rewrite of Tor in Rust, a modern programming language that will bring speed and security benefits to users—and ultimately means that other apps and services can use Tor much more easily. Plus, since 2016, we've been tracking all the security bugs that we've found in Tor—it turns out that at least half of them were due to mistakes that should be impossible in safe Rust code. Arti is a big win for privacy and safety, and we can't wait to bring you Arti 1.0.0 in 2022.
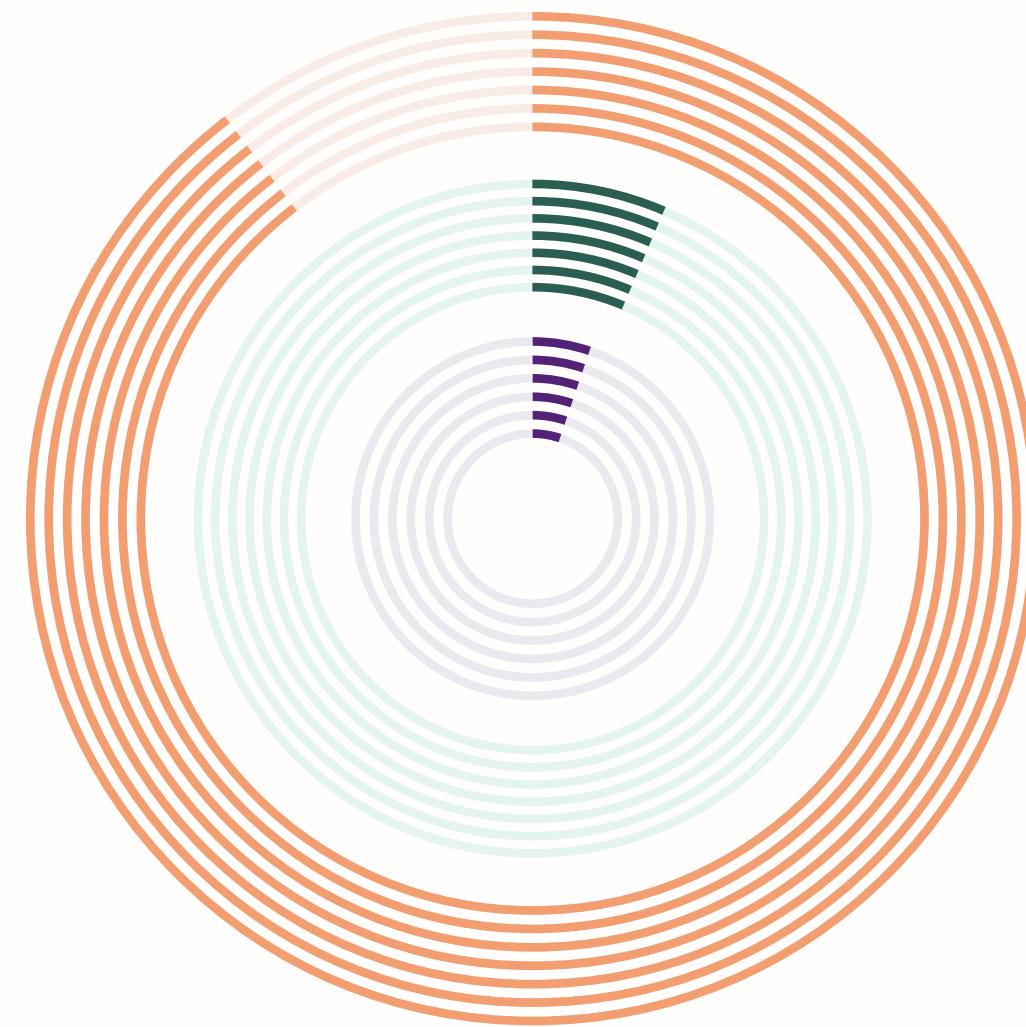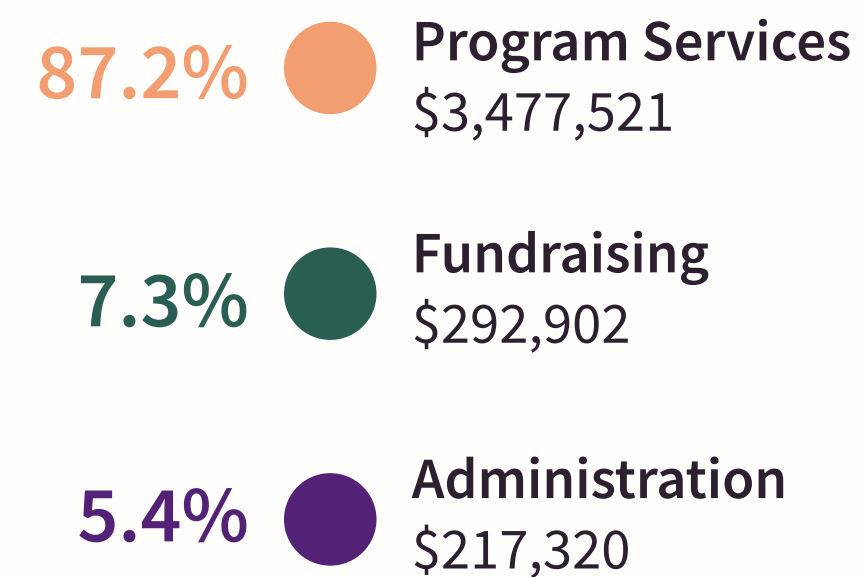
Defending the network, fostering community

In order to keep growing the Tor network and ensure it's healthy and well-defended against attacks, we will roll out a series of initiatives to better organize our relay operator community and strengthen the relationship and trust between the Tor Project, Tor users, and relay operators. Additionally, we will continue building tools that help us monitor the Tor network for malicious relay activity in order to remove these relays from the network.

2020-2021 Financials

Expenses

Total Expenses: $3,987,743

87.2% ● Program Services
$3,477,521

7.3% ● Fundraising
$292,902

5.4% ● Administration
$217,320

Revenue

Total Revenue: $7,412,081

38.17% ● U.S. Government
$2,829,250

36.22% ● Individual Donations
$2,684,390

16.15% ● Private Foundations
$1,196,763

5.07% ● Non-U.S. Government
$375,809

2.89% ● Corporate
$213,950

1.51% ● Other
$111,919
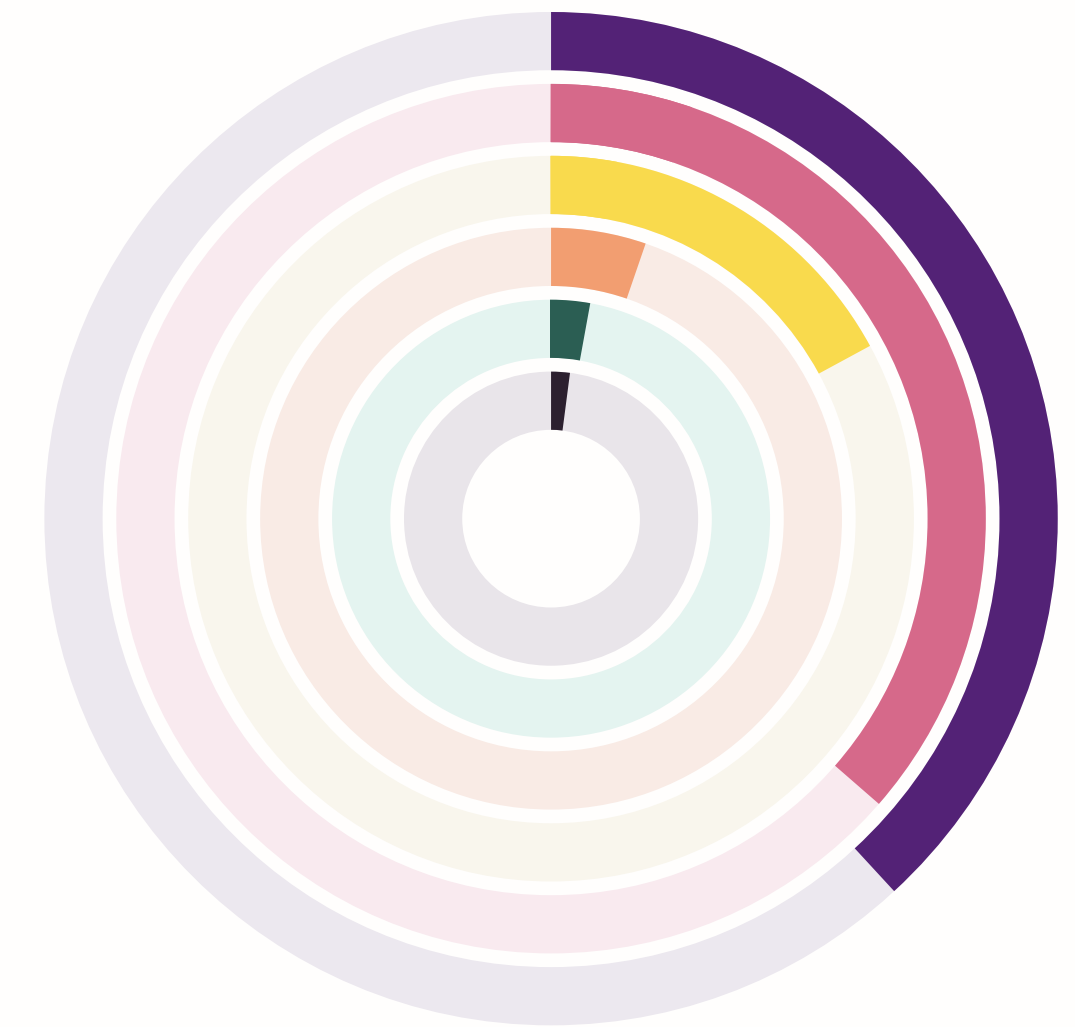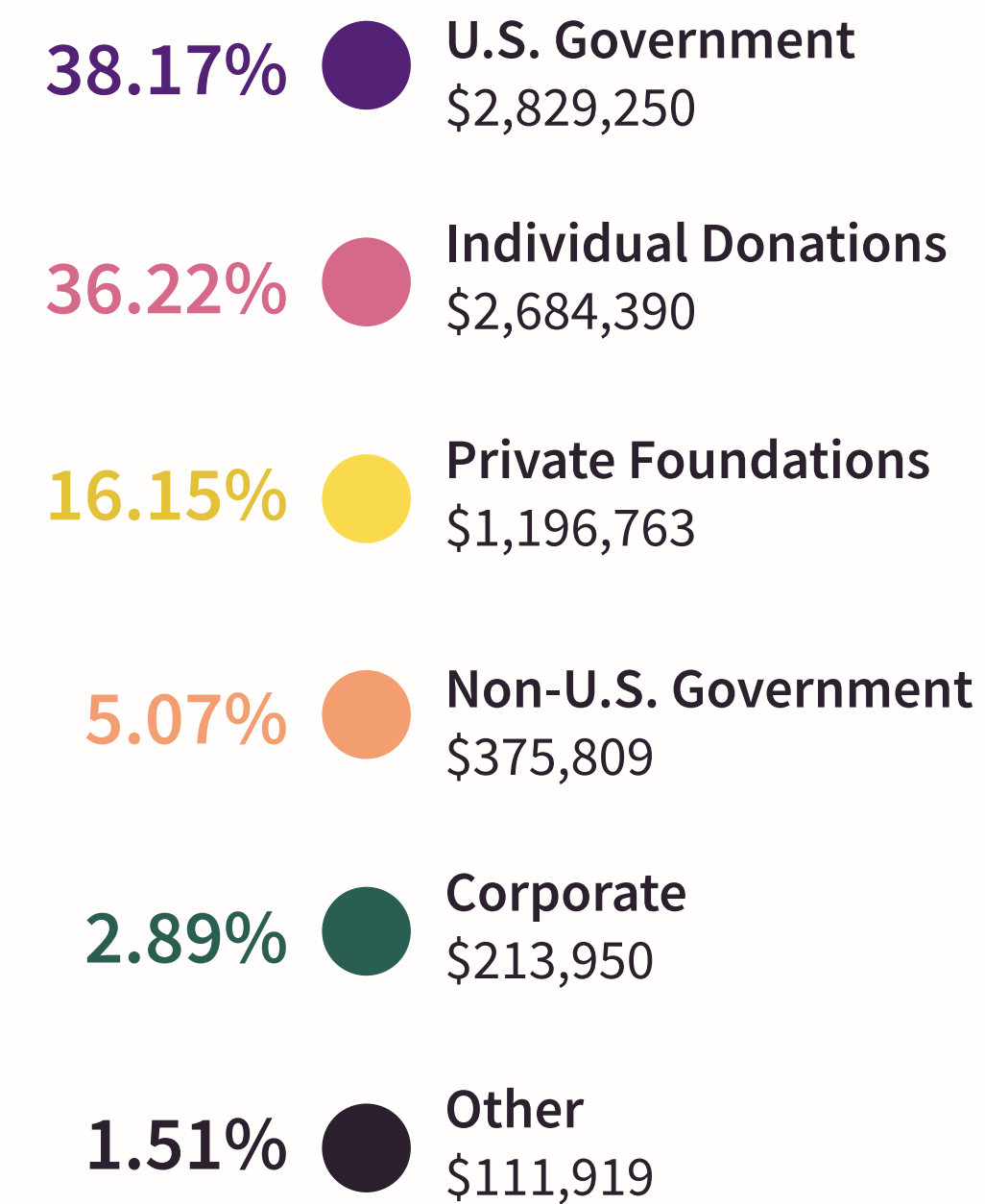
Who we Are

Staff

Al Smith, Fundraising Director
Alexander Færøy, Network Team Lead
Antoine Beaupré, Sysadmin Team Lead
Bekeela Davila, Grants Manager
Cecylia, Anti-Censorship Team Developer
David Goulet (dgoulet), Network Team Developer
Duncan Larsen-Russell (donuts), Product Manager & UX Team Lead
emmapeel, Localization Coordinator
Gaba, Project Manager
Georg Koppen (GeKo), Network Health Team Lead
Gustavo Gus, Community Team Lead
Ian Jackson (Diziet), Network Team Developer
Isabela Bagueros, Executive Director
Jérôme Charaoui, Systems Administrator
Jim Newsome, Network Team Developer
Joydeep Sen Gupta (championquizzer), User Support Specialist
meskio, Anti-Censorship Team Developer
Narrira Lemos, User Researcher

Nick Mathewson, Co-Founder and Network Team Developer
Nico Bucaro, Brand Designer
Nicolas Vigier (boklm), Applications Team Developer
Pier Angelo Vendrame (PieroV), Applications Team Developer
Roger Dingledine, Co-Founder
Shelikhoo, Anti-Censorship Team Developer
Silvia Puglisi, Ph.D. (hiro), Metrics Team Lead

… and more!

Who we Are

Board of Directors

Matt Blaze	McDevitt Professor of Computer Science and Law, Georgetown University	Chair (until January '21)
Rabbi Rob Thomas	CEO, Team Cymru	Chair (as of January '21)
Chelsea Komlo	Principal Technical Advisor & Researcher, Zcash Foundation	Vice-chair
Cindy Cohn	Executive Director, Electronic Frontier Foundation	Treasurer (until April '21)
Julius Mittenzwei	CEO, Open Publishing	Treasurer (as of April '21)
Gabriella Coleman	Professor, Department of Anthropology at Harvard University	Clerk
Kendra Albert	Clinical Instructor, Harvard Law School	Director
Designan Chinniah	Creative Technologist	Director
Alissa Cooper	VP/Chief Technology Officer, Cisco System	Director
Nighat Dad	Founder & Executive Director, Digital Rights Foundation - Pakistan	Director
Ramy Roof	Technologist, Open Technology Fund	Director
Bruce Schneier	Fellow & Lecturer, Harvard University Kennedy School	Director

Core Contributors

Volunteer Contributions

In 2021, volunteers contributed a value of $798,000 to our work, including 6,540 hours of software development, translation services of 1,364,631 words, and cloud hosting services using 23 servers.

Sponsors

Bertha Foundation
Brewster Kahle Charitable Foundation
The Calyx Institute
Digital Defenders Partnership
Digital Impact Alliance Open Source Center
Fastly
Ford Foundation
Georgetown University, Defense Advanced Research Projects Agency
Georgetown University, National Science Foundation
Google Summer of Code
Interledger Foundation
Levchin Foundation
Marcos Family Foundation
Media Democracy Fund
Mozilla
New York University, Institute Of Museum And Library Services
Open Source Collective
Open Technology Fund
PleasrDAO
Réseaux IP Européens Network Coordination Centre
Swedish International Development Cooperation Agency
U.S. Department of State Bureau of Democracy, Human Rights, and Labor
University College London
University of Pittsburgh, National Institutes of Health - National Library of Medicine
Zcash Community Grants (formerly Zcash Open Major Grants)

Members

The Tor Project's Membership Program is a way for private sector organizations to fiancially support our technology and mission.

Avast
Mullvad
Team Cymru

Blank
Blockchair
Brave
DEF CON
DuckDuckGo
Insurgo
The New York Times
TunnelBear

Your support empowers millions of people every day to access the free internet and exercise their human right to privacy.

Make a donation today at **donate.torproject.org.**