

Lessons learned running Tor exit relays at an NREN

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The Tor network, known for providing privacy and censorship circumvention to millions of daily users, is made up of volunteer relay operators around the world. A growing number of these relays are hosted at or run by European NRENs and universities. This session by Tor Project and Switch will compare Tor's education, community, and research goals to the NREN mission. We will use Switch's experience hosting Tor exit relays as a case study to talk about lessons learned and raise policy decisions that NRENs and universities should consider.

Why Tor is a good fit for educational institutions. Tor is a U.S.-based nonprofit that develops the free-software Tor proxy and Tor Browser. Tor researchers co-founded and still organize major academic conferences, such as the Privacy Enhancing Technologies Symposium (PETS) and the workshop on Free and Open Communications on the Internet (FOCI). Tor plays a central role in the Internet Freedom ecosystem by helping people in authoritarian regimes be able to freely and safely learn and publish.

Running Tor relays at universities makes sense for three reasons.¹ Education: Providing hands-on cybersecurity experience; teaching students about civil society and getting them thinking about global policy, law, and society; and helping refine privacy advocacy skills. Community: Connecting student groups to professors; supporting freedom of speech and freedom of learning; and increasing the capacity of the Tor network. Research: Helping the Tor network stay strong so people can use it for research; giving research groups a recruiting "competitive advantage" over their peer institutions; and giving researchers access to their own Tor relay.

Relevance and use to the NREN community – a case study. What was Switch's thought process when deciding to host exit relays? How does it fit into the mission? How many abuse complaints do they see, and what are their approaches to ensuring that the relays are sustainable and low maintenance? The maybe surprising answer is that it has been quite smooth. We will talk through these details, along with more nuanced or controversial benefits, for example an anecdote from another NREN that hosts Tor exit relays: when their exit relays get attacked, knowing the source IP addresses of the attackers helps them protect the rest of their network.

Why now? The Electronic Frontier Foundation launched an advocacy campaign in 2023 to get more relays running at universities around the world, leading to a growing community of relay operators across Germany (TU Berlin, University of Bremen, Karlsruhe Institute of Technology), the Netherlands (University of Twente), Austria (Johannes Kepler Universität Linz), Sweden (Karlstad University), Belgium (KU Leuven), and Romania (Universitatea Politehnica Timisoara). We also have relays running *inside* the NRENs themselves in Switzerland, the Netherlands, Croatia, Greece, Denmark, and Sweden. This momentum means that European universities and NRENs should learn more about Tor, and understand the policy questions, so they can make smart decisions when people come to them asking to host or run Tor relays.

What are these policy choices that universities and NRENs face? The primary question is whether to host Tor relays. Each relay has an exit policy that lets the operator specify whether it will interact directly with destination websites, or just pass encrypted traffic inside the Tor network. Running a non-exit relay is a simple matter of resources (bandwidth, CPU) whereas running an exit relay should probably involve letting the lawyers know too.

But we've also run across some institutions that try to block Tor traffic, either by trying to censor students from reaching the Tor network (which is problematic for education, community, and research reasons), or by trying to filter traffic from Tor exit relays to university webservers (which prevents people all around the world who want to read e.g. computer security research papers from doing it safely). Should NRENs or nations provide guidance about what protocols institutions should or shouldn't block? The first step in any case is more awareness.

Takeaways. The audience will better understand how Tor's goals match up to educational missions; participants will build connections to NREN staff who have concrete experience hosting Tor exit relays; and we will highlight Tor policy questions that NRENs and universities should be prepared to consider.

¹<https://toruniversity.eff.org/administrators/>