Sustainable Censorship Resistance Systems for the Next Decade

UMASS AMHERST

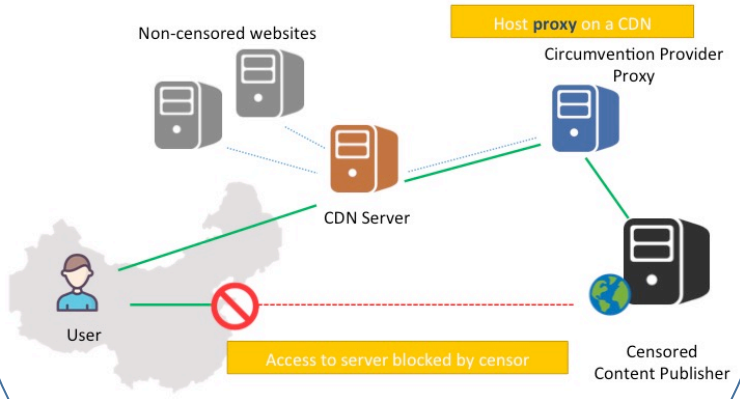
Challenge:

- Internet censorship is a global threat to the openness of the Internet and the freedom of speech
- Existing systems for censorship circumvention are easily bypassed by today's competent censors. This is in part because they are mostly designed based on heuristics

Solution:

- We aim at formalizing the Internet censorship problem based on theoretical foundations such as game theory and detection and estimation theory
- We leverage emerging communication paradigms such as content caching to design more effective circumvention systems
- We also aim at adapting circumvention systems to architectural evolutions of the Internet

CacheBrowser is a circumvention system designed as part of this project. It grabs censored content directly from the edge servers of CDNs, therefore foiling DNS interference



An open-source version of CacheBrowser is freely available at: https://cachebrowser.net/

Scientific Impact:

- The project will produce theory, methodologies, and tools to formally design, evaluate, and compare censorship resistance systems
- The project will investigate the impacts of Internet's architectural evolutions on the Internet censorship problem, with the goal of designing sustainable circumvention tools

Broader Impact:

- The project aims at fostering Internet freedom globally by producing effective systems for circumventing state-level censorship
- Computer science education (e.g., by integrating discussions into classes) is a key part of this project
- Involving women and students from underrepresented minorities in the project is another key component

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Award #: CNS-1553301