Measuring the blocking of AN.ON users by popular websites through web scraping

Research Project CSE3000
02/07/2021

Background

- Regular people want to protect their privacy online
- Websites block anonymity networks due to malicious users on them.
- Unknown how often this happens

AN.ON/JAP/JonDo(nym)

Similar technology to Tor, but with trusted independent mix operators, with paid options. Claims to be “in a league of its own” for privacy protection [1].

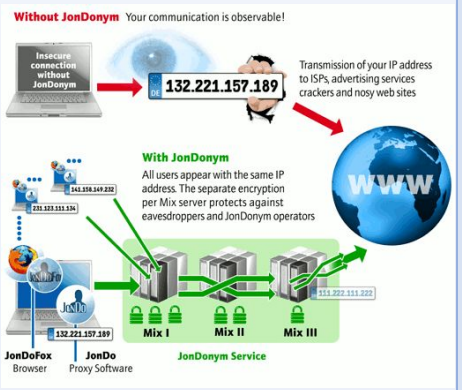

Figure 1: The workings of JonDonym

Method

- Crawl for links using Selenium [2]
  - FireFox with various optimizations
- Scrape and store data
  - With and without JAP, at the same time
- Detect characteristics
- Compare characteristics
- Manually verify
- Make conclusions

Selenium

Figure 2: Selenium, the library used to crawl

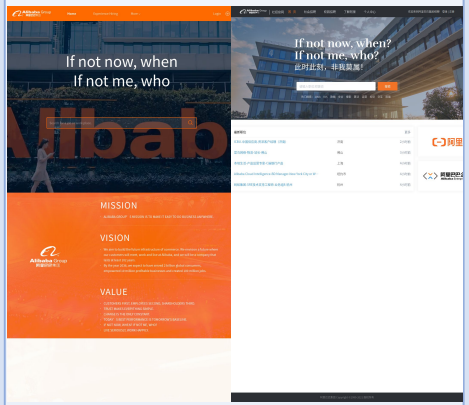

Figure 3: Two distinctly different web pages on the same URL

Results

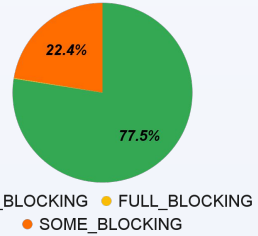

Figure 4: All results combined

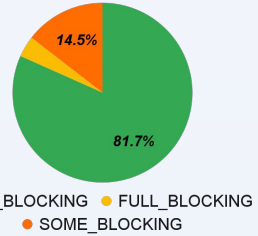

Figure 5: Results of SpeedPartner-Cyrax cascade

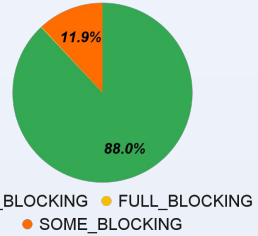

Figure 6: Results of Dresden cascade

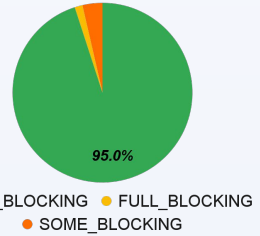

Figure 6: Results of a slowed down control connection

Conclusions

AN.ON users face significant blocking!
- Up to 23%
- More realistically 12-18%

Slow connections also face some differential treatment

Many limitations and shortcomings in this measurement

References

[1] Jondos GmbH, “Benefits of JonDonym”
[2] Selenium.dev

Contact

Jurgen Mulder - j.mulder-6@student.tudelft.nl
Supervision:
Stefanie Roos - s.roos@tudelft.nl