HTTP-vanilla mode

List the top-10 most popular third-party domains requested by http protocol--vanilla mode

1. **doubleclick.net**

   This domain is forwarded to marketingplatform.google.com. Google has unified DoubleClick advertiser products and the Google Analytics 360 Suite under a single brand. This website is specialize in verifying the authenticity of ad impression and also proposing statistical results regarding ads.

2. **alicdn.com**

   This is the CDN for alibaba.

3. **googlesyndication.com**

   googlesyndication.com is a domain owned by Google that is used for storing and loading ad content and other resources relating to ads for Google AdSense and DoubleClick from the Google CDN.

4. **google.com**

   search engine

5. **pubmatic.com**

   PubMatic is a company that develops and implements online advertising software and strategies for the digital publishing and advertising industry. PubMatic, for a fee, participates in online auctions to help advertisers buy and publishers sell media and advertising spots between various advertising companies.

6. **yahoo.com**

   Yahoo! is an Internet portal that incorporates a search engine and a directory of World Wide Web sites organized in a hierarchy of topic categories.

7. **r10s.jp**

   it seems that it analyzes marketing websites traffic. Its marketing strategy is focused on Mail with 69.76% of traffic coming from this channel.

8. **cloudfront.net**

   Cloudfront.net is part of a content delivery network that website publishers use to speed up their sites. Unfortunately, there are some malicious programs that are injecting these Cloudfront.net ads on websites you visit without the permission of the publisher in order to generate revenue.

9. **google-analytics.com**

   Google Analytics is a web analytics service offered by Google that tracks and reports website traffic, currently as a platform inside the Google **Marketing** Platform brand.

10. **rubiconproject.com**

    The main business activity is: Advertising. The main purpose of cookies set by this host is: Targeting/Advertising

Distribution of # of 3rd-party HTTP requests in "vanilla mode

Distribution of # of 3rd-party HTTP requests in "vanilla mode"
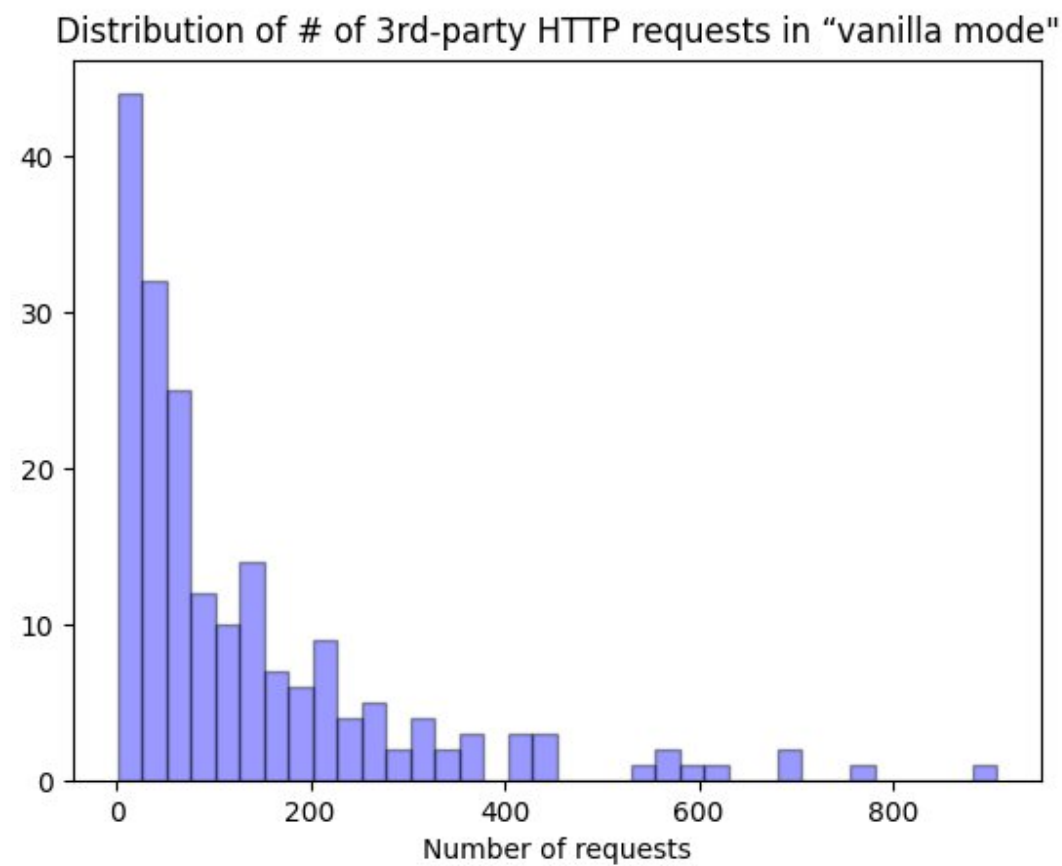
HTTP-AdBlocked mode

List the top-10 most popular third-party domains requested by http protocol--adblocked mode

1. **alicdn.com**

   This is the CDN for alibaba

2. **streamrail.com**

   StreamRail **is** a video-delivery platform that provides publishers and advertising networks with technology to deliver and monetize videos on any.

3. **r10s.jp**

   it seems that it analyzes marketing websites traffic. Its marketing strategy is focused on Mail with 69.76% of traffic coming from this channel.

4. **cloudfront.net**

   Cloudfront.net is part of a content delivery network that website publishers use to speed up their sites. Unfortunately, there are some malicious programs that are injecting these Cloudfront.net ads on websites you visit without the permission of the publisher in order to generate revenue.

5. **gstatic.com**

   Gstatic is a service used by Google to hold static content and reduce bandwidth usage. Gstatic is not a virus, and a domain utilized by Google to host various static content, such as images, CSS, or JavaScript. static content can be offloaded to geographically diverse CDN servers. Google can push all the content to servers that are nearest to you.

6. **msocdn.com**

   One of the CDNs of Microsoft office domain.

7. **pstatic.net**

   I couldn't get anything for pstatic.net. But its name might indicate that it is something like gstatic

8. **espncdn.com**

   CDN of espn.com

9. **sinaimg.cn**

   This site is related to sina.com.cn which is a Chinese news page.

10. **spotim.market**

    This site is directed to open web.com which they explain that their mission is capturing and synthesizing user data to facilitate relevant advertising

Distribution of # of 3rd-party HTTP requests in "adblocked mode

Distribution of # of 3rd-party HTTP requests in "adBlocked mode"
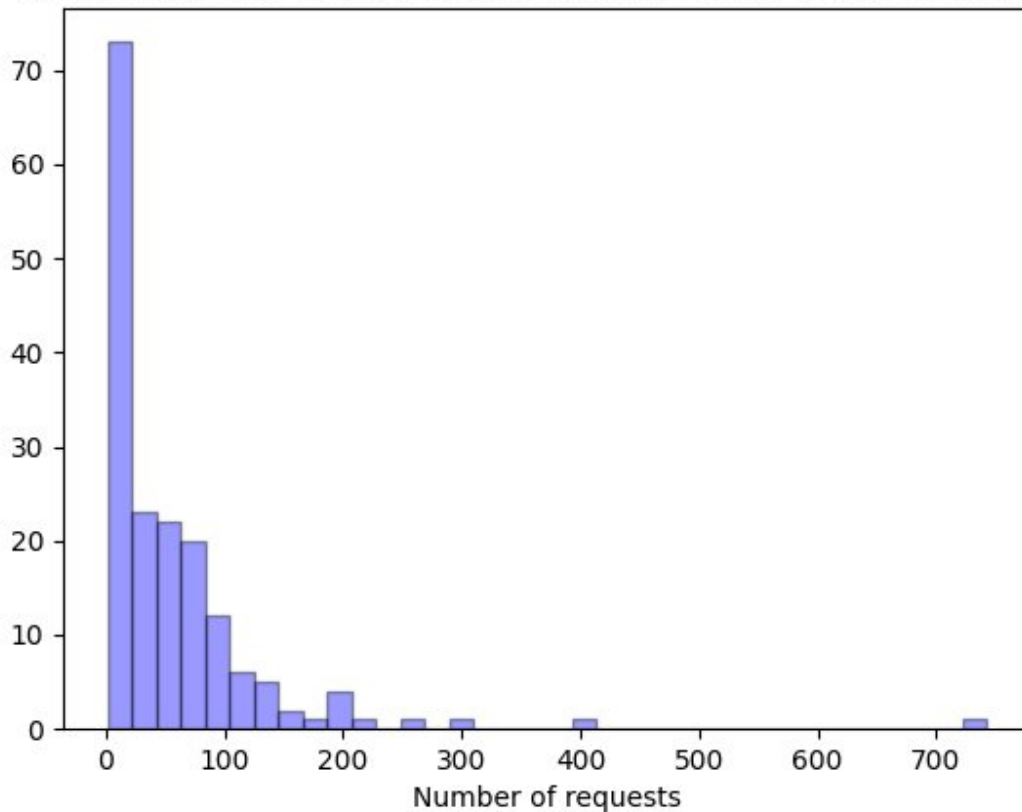
Comparison between top-10 most popular third-party domains in vanilla and ad-blocked mode:

Six out of then top most popular third party http requests are related to ad companies which investigate user's information and can sell this data to market companies which they can use it for customizing their advertisement, for example. After activating ad-blocker this number reduces to 4. It means that Ad-blocker can detect about %60 of third party http request. Moreover, by comparing the distribution of two modes, we can see that the number of 3rd-party requests is roughly halved after using ad-blocker.

After using ad-blocker, we can see that the content of most popular third-parties are CDNs and search engines or portal hubs like yahoo.

Javascript -vanilla mode

List the top-10 most popular third-party domains requested by JavaScript protocol--vanilla mode

1. **2mdn.net**

   The name of a domain owned by google which is used for loading ad content for http://Doubleclik.com from the google cdn. it is used to show adverts by google. 2mdn.net has various variants from Xs0.2mdn.net to s0.2mdn.net and many others. There are a few security risks involved in this online advertising even though advertisers collect non-identifiable data. First of all, your data can be shared with third parties seeking to misuse it for malicious purpose. Secondly, the developer itself can try using your email address and similar information to share with you the potentially malicious information. In most of the cases, adware is capable of collecting the following data: IP addresses; geolocation; most viewed sites; commonly searched items; browser history.

2. **moatads.com**

   is a bogus website, used by hackers to redirect traffic to sponsor links or sponsor ads or to promote FAKE Remote Support Services. It generates pop-ups, ads and banners via a malicious browser extension (browser add-on), which is a part of an adware.

3. **hotjar.com**

   gather user information, a third-party website that use fingerprinting to gather user behavior for advertisers

4. **google-analytics.com**

   Google Analytics is a web analytics service offered by Google that tracks and reports website traffic, currently as a platform inside the Google **Marketing** Platform brand.

5. **adobedtm.com**

   Adobe Dynamic Tag Management, Tags are snippets of code which are added to a site to collect information and send it to third parties.

6. **doubleclick.net**

   This domain is forwarded to marketingplatform.google.com. Google has unified DoubleClick advertiser products and the Google Analytics 360 Suite under a single brand. This website is specialize in verifying the authenticity of ad impression and also proposing statistical results regarding ads.

7. **segment.com**

   With Segment, companies can collect, unify, and connect their first-party data to over 200 marketing, analytics, and data warehousing tools. It collects data from everywhere customers interact with your business, including server-side and cloud application sources. The platform offers a breadth of integration categories that are compatible with all methods of data collection
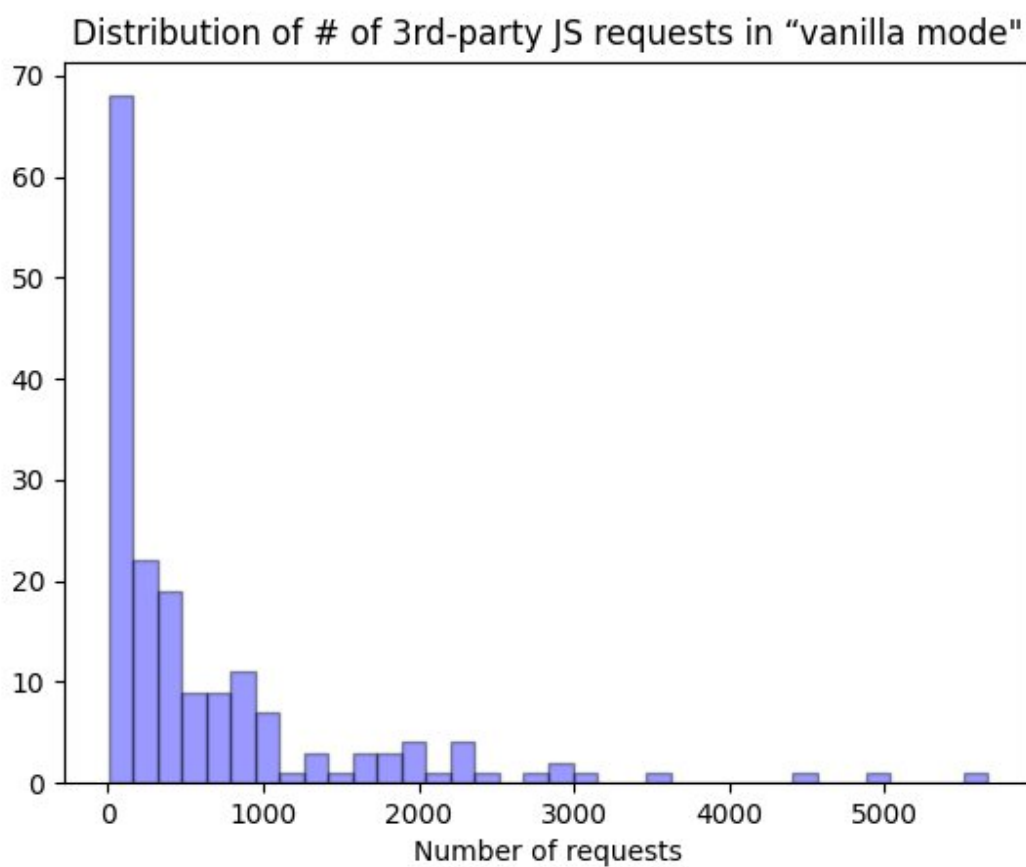
8. **krxd.net**

   Providing a data management platform

9. wsimg.com

could't find the main purpose of this site, but it seems that it also gather user data from sites

10. media.net

Media.net is a Yahoo! Bing contextual network that manages high-quality ad supply to more than 500,000 websites. The company is in partnership with some of the large ad networks, publishers (TechCrunch and Forbes), and leading ad tech companies (Facebook Audience Network)

Distribution of # of 3rd-party HTTP requests in "vanilla mode

Distribution of # of 3rd-party JS requests in "vanilla mode"

Javascript -AdBlocked mode

List the top-10 most popular third-party domains requested by JavaScript --AdBlocked

1. **forbesimg.com**

    it seems that it is relatd to wsimg.com

2. **segment.com**

    With Segment, companies can collect, unify, and connect their first-party data to over 200 marketing, analytics, and data warehousing tools. It collects data from everywhere customers interact with your business, including server-side and cloud application sources. The platform offers a breadth of integration categories that are compatible with all methods of data collection

3. **wsimg.com**

    could't find the main purpose of this site, but it seems that it also gather user data from sites

4. **tiqcdn.com**

    it's name is misleading because it contains "cdn." **however, it is an** Ad tracking site. Present on a massive amount of sites.

5. **dailymail.co.uk**

    is the website of the **Daily Mail**, a newspaper in the United Kingdom

6. **espncdn.com**

    CDN of espn.com

7. **ensighten.com**

    "**Ensighten** is the premier enterprise marketing and media optimization platform enabling brands to take full control of their marketing initiatives across channels. **Ensighten** is the provider of enterprise data platform for advertisers. The company provides a cloud-based platform designed to enable marketers to act on data. But the company **claims** Ensighten the leading cybersecurity solution providing client-side protection against data loss, journey hijacking

8. **gstatic.com**

    Gstatic is a service used by Google to hold static content and reduce bandwidth usage. Gstatic is not a virus, and a domain utilized by Google to host various static content, such as images, CSS, or JavaScript. static content can be offloaded to geographically diverse CDN servers. Google can push all the content to servers that are nearest to you.

9. **alicdn.com**

    This is the CDN for alibaba.

10. **imgur.com :** online image sharing community and image host founded

Distribution of # of 3rd-party HTTP requests in JavaScript "AdBlocked

Distribution of # of 3rd-party JS requests in "adBlocked mode"
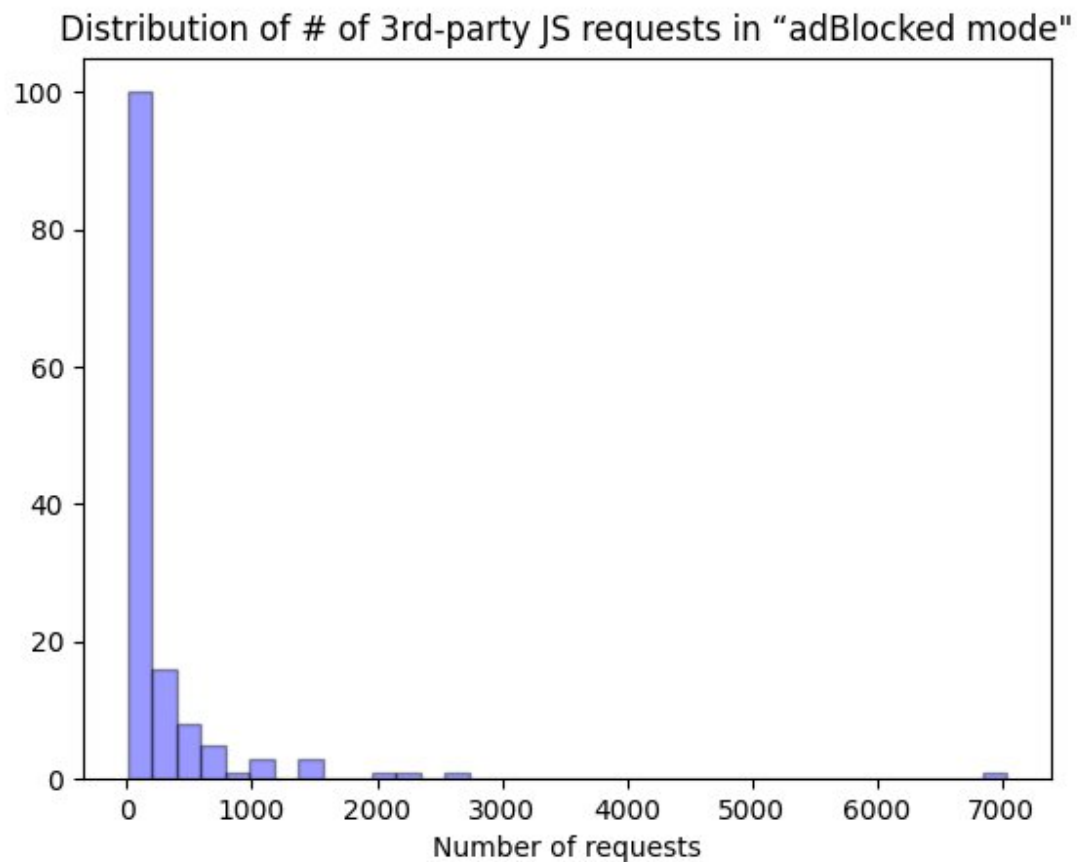
Comparison between top-10 most popular third-party domains in vanilla and ad-blocked mode:

Ten out of then top most popular third party Javascript requests are related to ad companies which investigate user's information and can sell this data to market companies which they can use it for customizing their advertisement, for example. After activating ad-blocker this number reduces to 4. It means that Ad-blocker can detect about %60 of third party Javascript requests.

The important point about javascript requests is that the in comparison with http requests and cookies, they number of javascript 3rdparty request are far more (more than 10 times) which shows that most of the 3rdparty requests origins in javascript.

Moreover, by comparing the distribution of two modes, we can see that the number of 3rd-party requests is decreased after using ad-blocker.

After using ad-blocker, we can see that the content of most popular third-parties are CDNs and mail servers.

Cookies -Vanilla mode

List the top-10 most popular third-party domains requested by cookies --vanilla mode

1. **yahoo.com**

   Yahoo! is an Internet portal that incorporates a search engine and a directory of World Wide Web sites organized in a hierarchy of topic categories.

2. **pubmatic.com**

   PubMatic is a company that develops and implements online advertising software and strategies for the digital publishing and advertising industry. PubMatic, for a fee, participates in online auctions to help advertisers buy and publishers sell media and advertising spots between various advertising companies.

3. **casalemedia.com**

   Casale Media may obtain data from third party companies for the purpose of informing ad selection. This data is supplied in aggregate form and does not include any personally identifiable information (PII).

4. **demdex.net**

   DemDex captures behavioral data on behalf of Websites and advertisers and stores it in a "behavioral data bank

5. **rubiconproject.com**

   The main business activity is: Advertising. The main purpose of cookies set by this host is: Targeting/Advertising

6. **adsrvr.org**

   The main purpose of cookies set by this host is: **Targeting/Advertising**

7. **adnxs.com**

   The main purpose of cookies set by this host is: **Targeting/Advertising**

8. **id5-sync.com**

   id5-**sync**.com **is** the potentially unwanted program that **is** created for the purpose of redirecting users to sponsored or affiliated pages, so views **can** get collected and revenue generated for the publisher.

9. **doubleclick.net**

   This domain is forwarded to marketingplatform.google.com. Google has unified DoubleClick advertiser products and the Google Analytics 360 Suite under a single brand. This website is specialize in verifying the authenticity of ad impression and also proposing statistical results regarding ads.

10. **rlcdn.com**

cdn for rapleaf.com. Rapleaf acquired by TowerData in 2013, Rapleaf provides comprehensive data about email addresses and the people behind them.

Distribution of # of 3rd-party HTTP requests in <u>cookies</u> "vanilla mode

Distribution of # of 3rd-party Cookie requests in "vanilla mode"
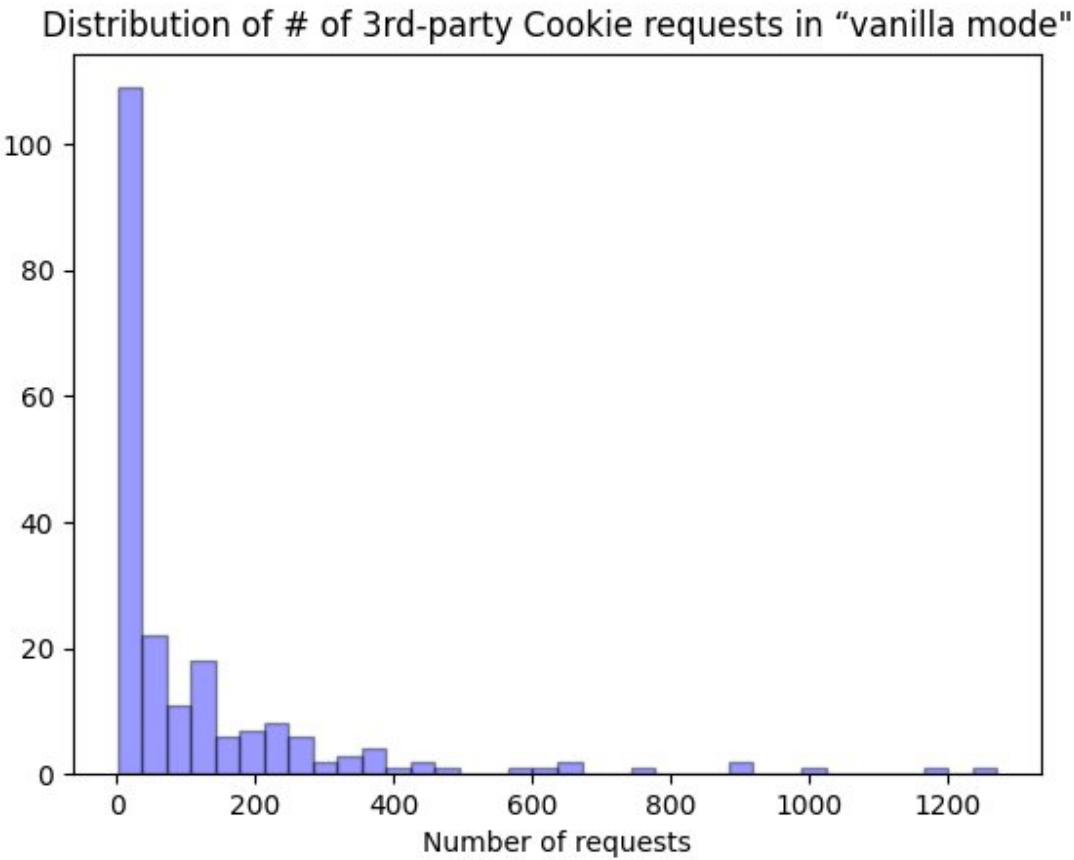
Cookies -AdBlocked mode

List the top-10 most popular third-party domains requested by cookies --AdBlocked

1. **bbc.com**

   news portal

2. **alibaba.com**

   Alibaba.com is a global e-commerce platform that connects buyers and suppliers around the world.

3. **taobao.com**

   s a Chinese online shopping website, headquartered in Hangzhou, and owned by Alibaba. It **is** the world's biggest e-commerce website and seventh most visited website according to Alexa. ... The website was founded by Alibaba

4. **udemy.com**

   Udemy is a platform that allows instructors to build online courses on their preferred topics.

5. **cloudflare.com**

   Cloudflare is essentially nothing more than a content delivery network (CDN). The theory behind it is that they will cache copies of your website to their servers, which are spread across different locations.

6. **yahoo.com**

   Yahoo! is an Internet portal that incorporates a search engine and a directory of World Wide Web sites organized in a hierarchy of topic categories.

7. **kexin001.com**

   It seems that it is a forum in Chinese language in which people ask about science and technology

8. **aliexpress.com**

   AliExpress is an online retail service based in China that is owned by the Alibaba Group.
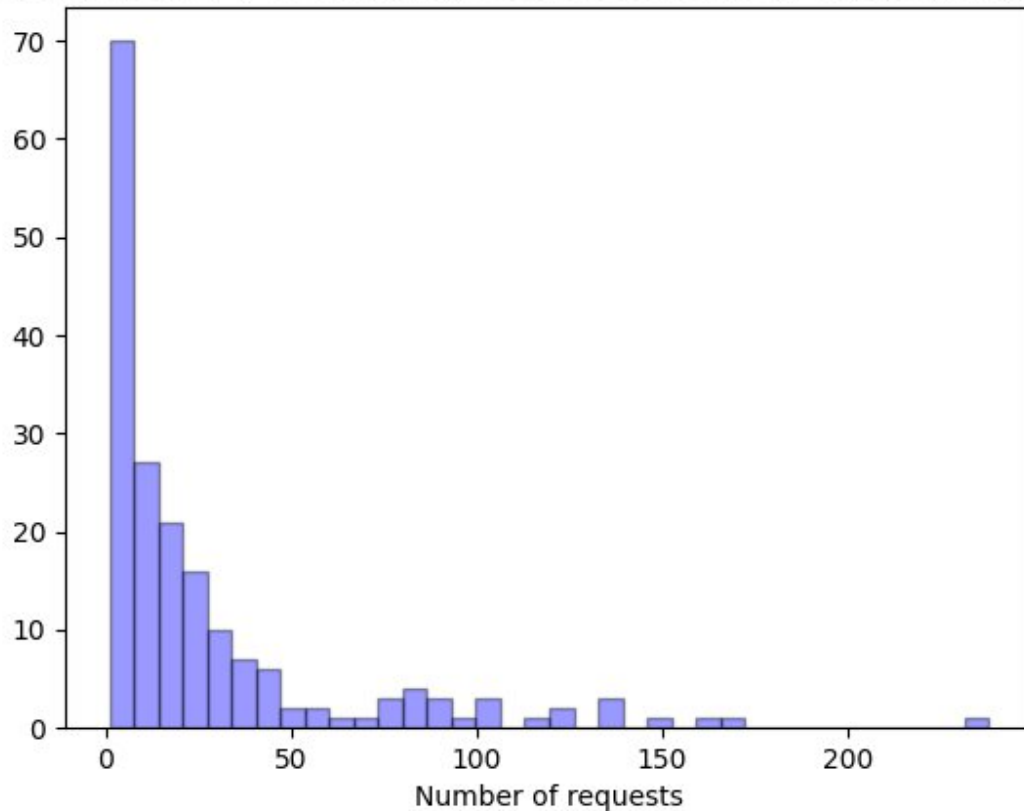
9. **trello.com**

   for project management and task management.

10. **wired.com**

    a monthly American magazine

Distribution of # of 3rd-party HTTP requests in cookies "AdBlocked

Distribution of # of 3rd-party Cookies requests in "adBlocked mode"

Comparison between top-10 most popular third-party domains in vanilla and ad-blocked mode:

Nine out of ten top most popular third party cookies are related to ad companies which investigate user's information. After activating ad-blocker this number reduces to 0. It means that Ad-blocker can detect about %100 of third parties who set cookies. Moreover, by comparing the distribution of two modes, we can see that the number of 3rd-party requests is roughly halved after using ad-blocker.

The important note about thrird-party domains which set cookies is that after using ad-blocker, it is found out that they are mainly news portals, CDN, and alibabab and its sub-companies.

Impression: How often your ad is shown. An impression is counted each time your ad is shown on a site. Whether the ad is clicked is not taken into account. Each time an ad is fetched, it is counted as one impression.

Ad fraud (also referred to as *Invalid Traffic)* is concerned with theory and practice of fraudulently representing online advertisement impressions, clicks, conversion or data events in order to generate revenue. While ad fraud is more generally associated with banner ads, video ads and in-app ads, <u>click fraud</u> has been associated with <u>search marketing</u>, mobile advertising and conversion fraud with <u>affiliate marketing</u>.

Type of Fraud

- **Impression fraud:** Impression fraud is when an ad is not viewable to the human eye, but impressions are still counted. The most well-known fraudulent methods are pixel stuffing, ad stacking, and <u>fraudulent traffic</u>. But fraud can also occur within mobile apps and on fake sites created by fraudsters.

- **<u>Click fraud</u>:** . In this type of <u>advertising</u>, the owners of <u>websites</u> that post the ads are paid an amount of money determined by how many visitors to the sites click on the ads. Fraud occurs when a person, <u>automated script</u>, or computer program imitates a legitimate user of a <u>web browser</u>, clicking on such an ad without having an actual interest in the target of the ad's link.

- **Conversion fraud**

- **Data fraud**

Ad Fraud Detection: To the relief of the publishers and the advertisers, there is no dearth of ad fraud detection companies to take care of that. From non-human traffic to ad injection, an ad fraud detection company looks after all kinds of fraudulent activity and helps publishers minimize revenue loss.

A content delivery network (**CDN**) refers to a geographically distributed group of servers which work together to provide fast delivery of Internet content. A **CDN** allows for the quick transfer of assets needed for loading Internet content including HTML pages, javascript files, stylesheets, images, and videos.