

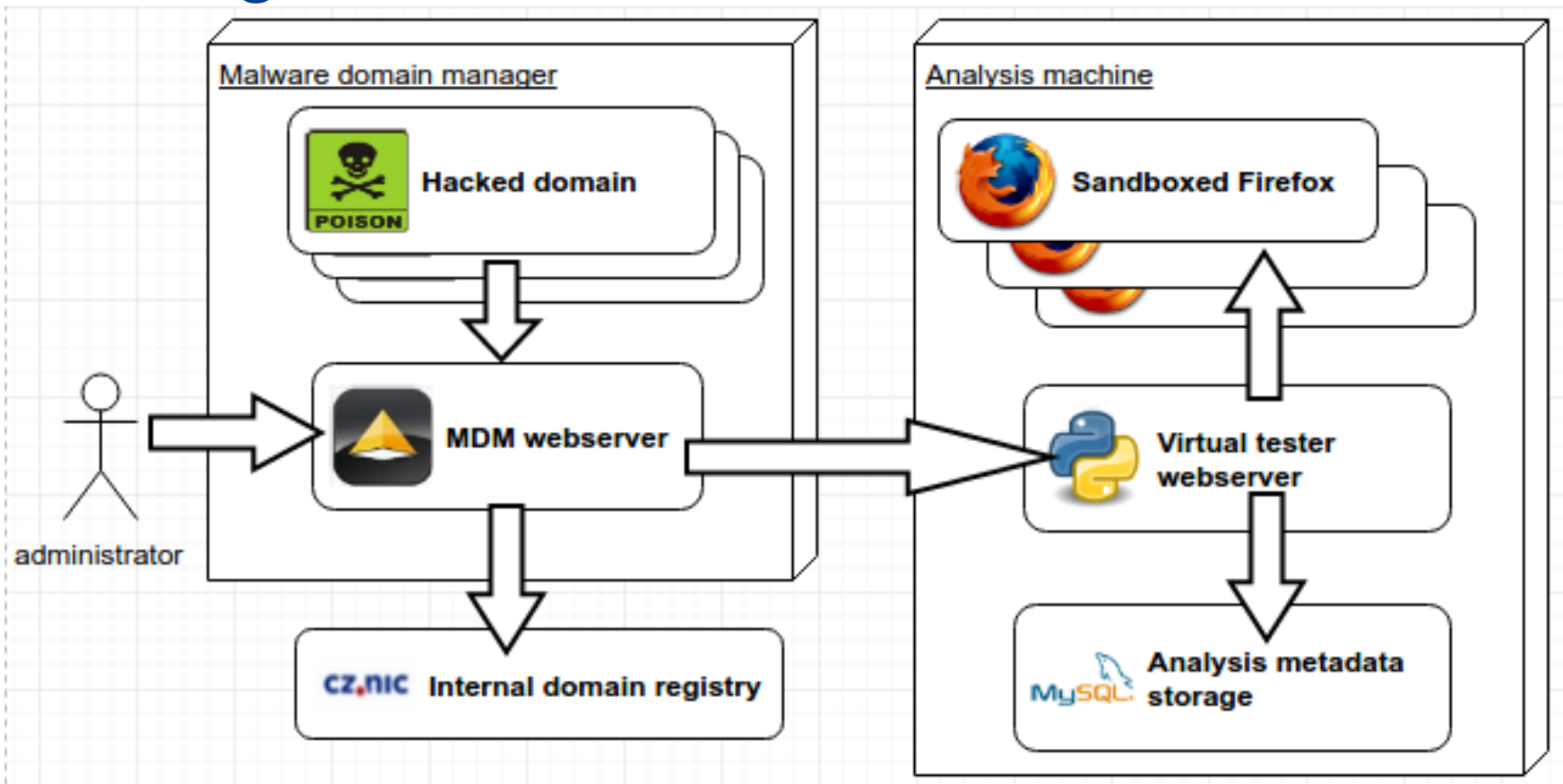


Hledání malware

na 10 000 doménách

Edvard Rejthar • edvard.rejthar@nic.cz • 15. 11. 2018

MDMaug interface



Mdmaug

ostravskykompoc.cz
adrealinvest.cz
femalelife.cz
foppapedretti-monad.cz
bubbleways.cz
modry-mauricius.cz

analyze

Multiple URLs

Cache max age:

No cache

Yesterday

Week

Any cache

Max days



Google Safebrowsing

PDNS

Geoip

Autoprune

Creation spree

6:46 PM Scan for pastingroup.cz already exists.

Requests 1279... / 11000
(684 s)

4 threads

6 s bdvyskovicka178.cz

✓ pastingroup.cz

✓ cestakeklidu.cz

✓ i-superstore.cz

✓ hydraulika-praha.cz

11 s mandalia.cz

✓ dido.cz

17 s agenturahledajici.cz

✓ delticom.cz

✓ netflix.cz

✓ tvojemistax.cz

19 s praguepictures.cz

✓ prodejnemovitosti-trebic.cz

✓ rockovyslunovrat.cz

✓ 21 s bezdratovakancela

✓ skodaci.cz

✓ kaznet.cz

02.10.2018 06:34 - 09.10.2018 06:34

aggregate

http://bezdratovakancelar.cz

09.10.2018 18:45

○ ○ ○ ● ○ n/a bezdratovakancelar.cz

● / →

○ ○ ○ ● ○ n/a www.bezdratovakancelar.cz

89.221.213.28

● / →

- /wp-json/
- /wp-content/plugins/contact-form-7/includes/css/styles.css?ver=5.0.1
- /wp-content/themes/Divi/style.css?ver=3.0.106
- /wp-includes/css/dashicons.min.css?ver=4.9.8
- /wp-content/plugins/jetpack/css/jetpack.css?ver=5.9
- /wp-includes/js/jquery/jquery.js?ver=1.12.4 →
- /wp-includes/js/jquery/jquery-migrate.min.js?ver=1.4.1
- /wp-content/plugins/duracelltomi-google-tag-manager/js/gtm4wp-form-move-tracker.js?ver=1.7.2 →
- /wp-content/cache/et/global/et-divi-customizer-global-15375435650506.min.css
- /wp-content/uploads/2018/03/bezdratova-logo-480.png



Kontakt

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Po-Pá 10-16 hodin

martin@levay.cz

Bankovní spojení:

č.ú. 2800701891/2010

variabilní symbol použijte vaše telefonní číslo

iPhone

MacBook

iCloud

WiFi

Whitelists

- Add-on hard coded URL

- Internal redirect <http://localhost/redirect/>
- <http://www.google.com/adsense/> , <http://clients1.google.com/ocsp> , <https://safebrowsing.google.com/safebrowsing/> , <https://safebrowsing-cache.google.com/safebrowsing/>
- <https://fbstatic-a.akamaihd.net/rsrc.php>
- <https://tiles.services.mozilla.com/>

- SQL 2nd domain

15 domén

- ocsp.pki.goog (3972 záznamů), google.com, gstatic.com, googlesyndication.com, google-analytics.com, google.cz, googleapis.com, googleadservices.com
- cloudfront.net, doubleclick.net, mozilla.com, w3.org, digicert.com
- mozilla.net, mozilla.org

- prefs.js

detectportal.firefox.com (10942 záznamů)



Stats – 10 997 domains

- origins (7 522) × 3rd parties (8 206) × ip combinations: 43 996
 - incl. origins × 3rd parties: 36 931



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- redirects to ,www': 2 577
- another 3rd redirects: 95



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- redirects to ,www': 2 577
- another 3rd redirects: 95
 - www3, w1, w17
 - img, static, cdn, media
 - admin
 - api, files, geo, legacy
 - jmeno.prijmeni.cz, public.relations.cz
 - 4th domains: www.fotbal

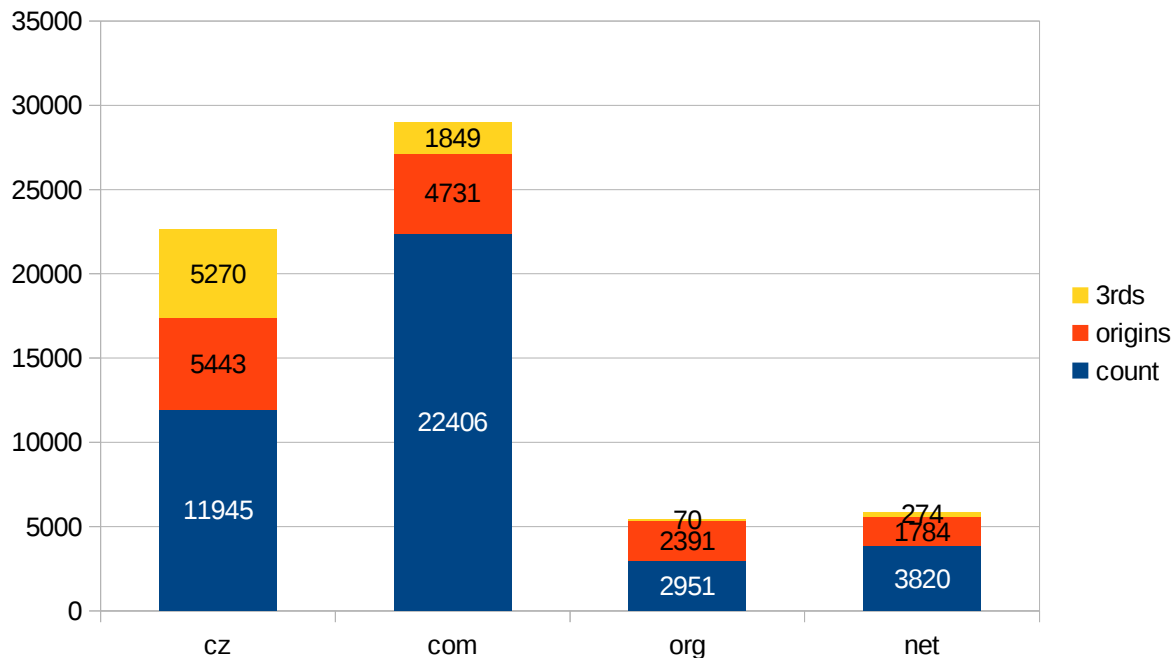


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 - 4th domains: www.fotbal
- timeouts: à 1400, without redirects: à 2000, redirect to self only: 593



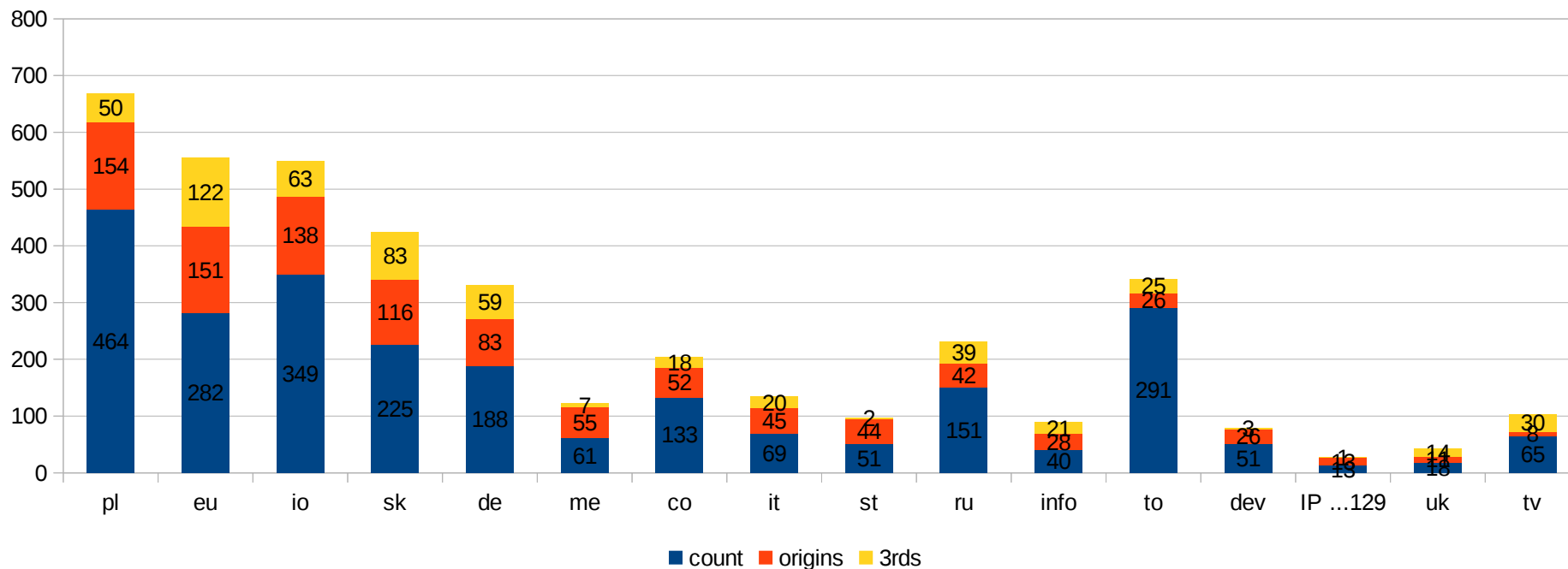
Group by TLD charts



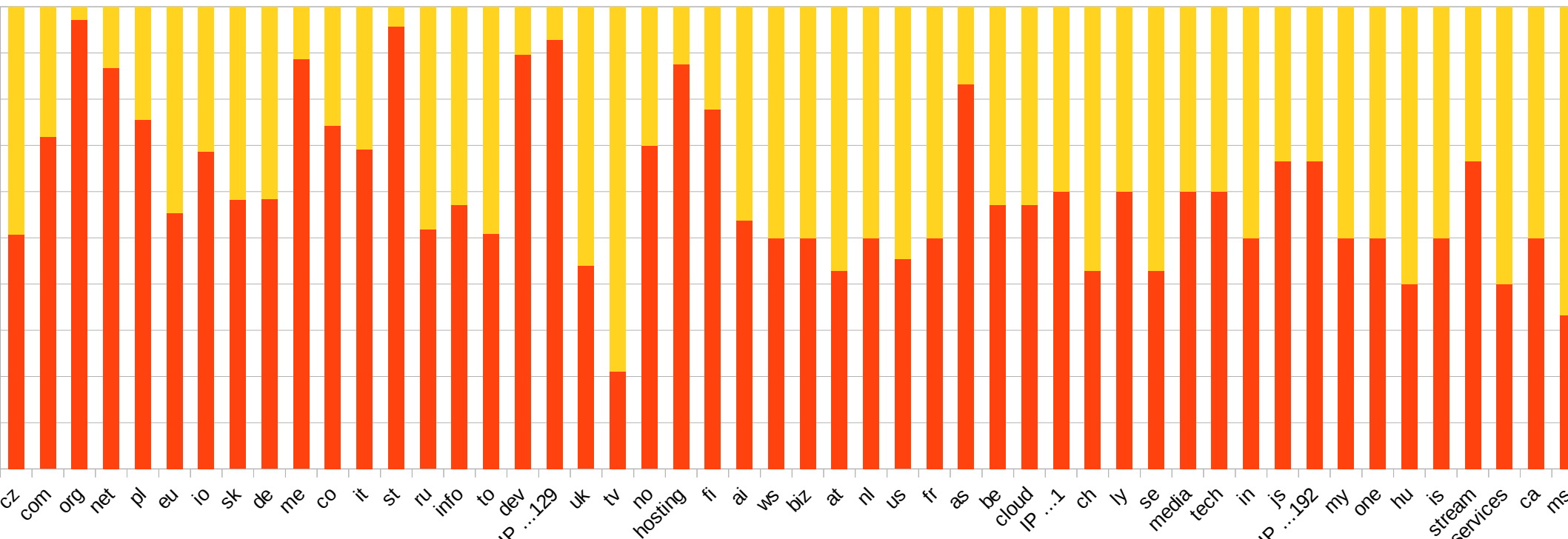
TLD	count	origins	3rds
cz	11945	5443	5270
com	22406	4731	1849
org	2951	2391	70
net	3820	1784	274
pl	464	154	50
eu	282	151	122
io	349	138	63
sk	225	116	83
de	188	83	59
me	61	55	7
co	133	52	18
it	69	45	20
st	51	44	2
ru	151	42	39



Group by TLD charts



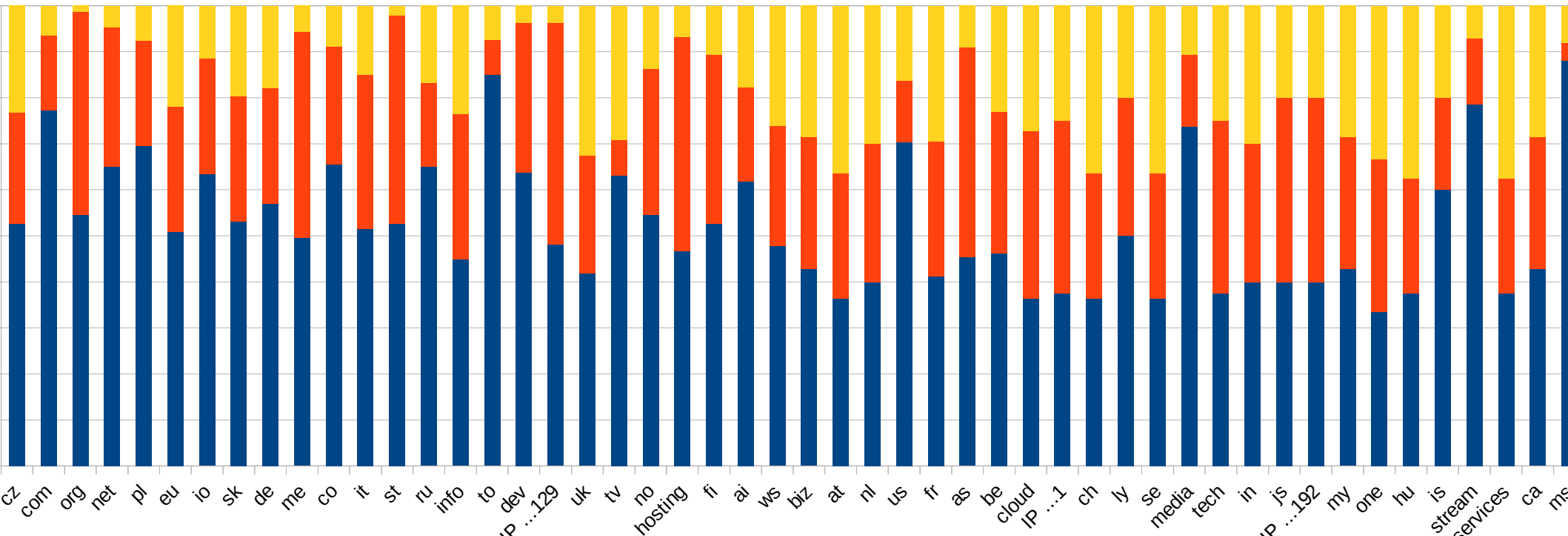
Group by TLD charts (percent)



origins 3rds



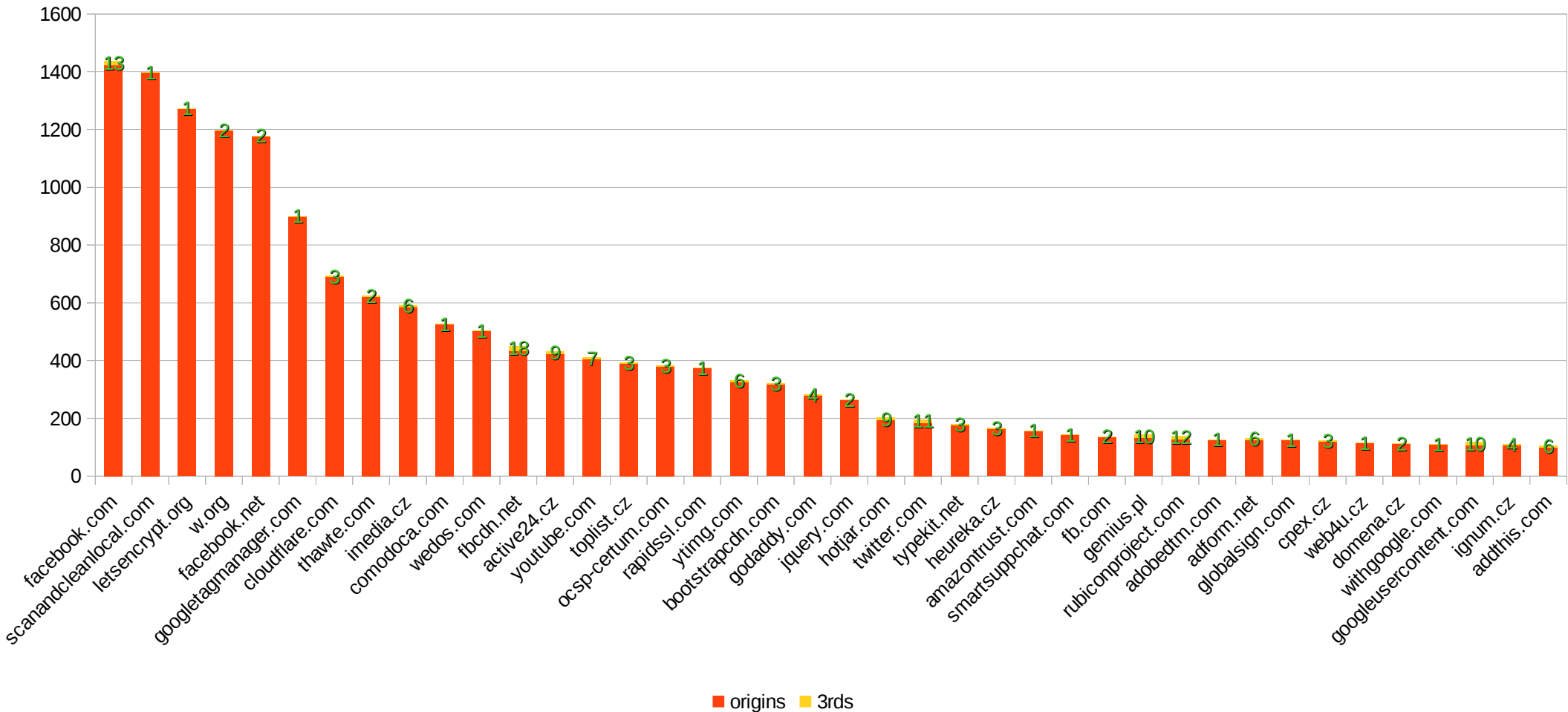
Group by TLD charts (percent)



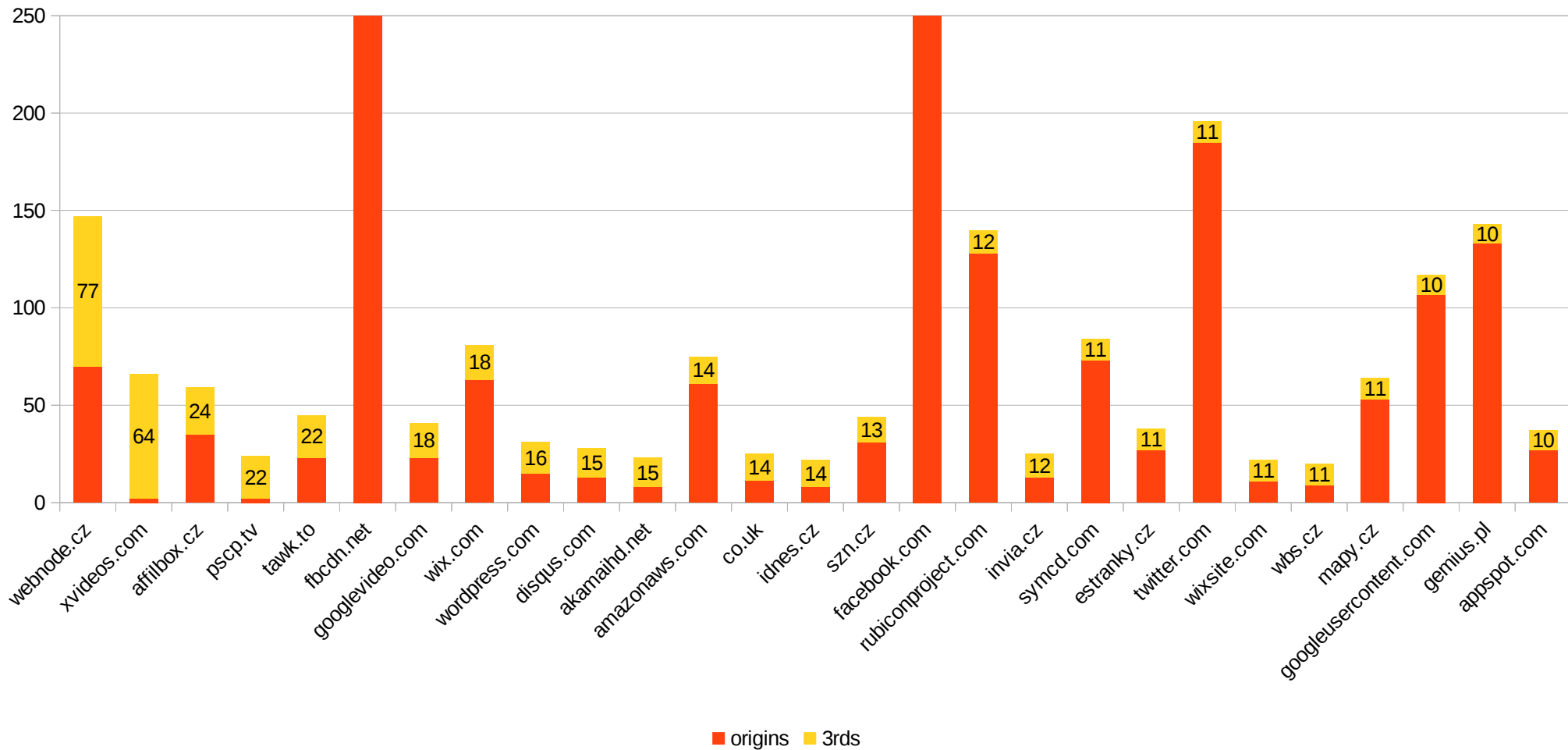
count origins 3rds



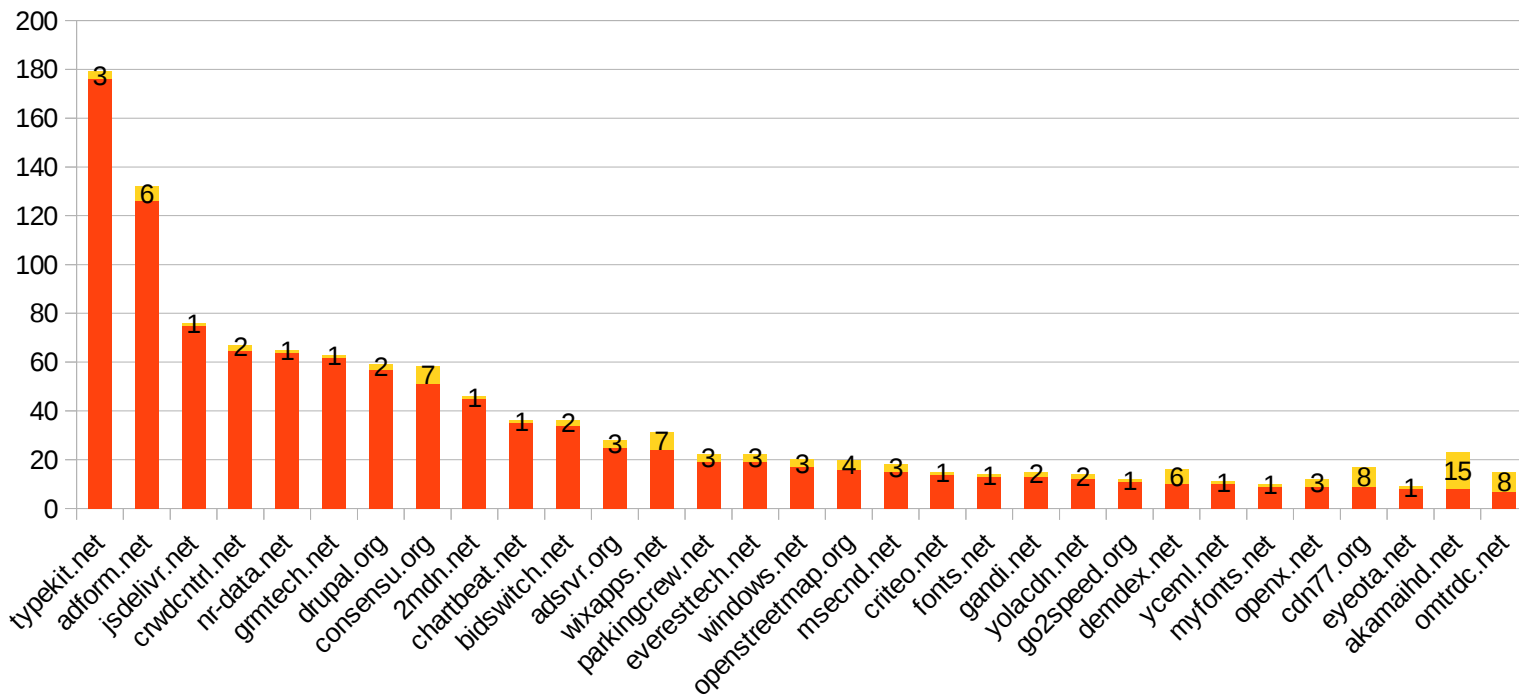
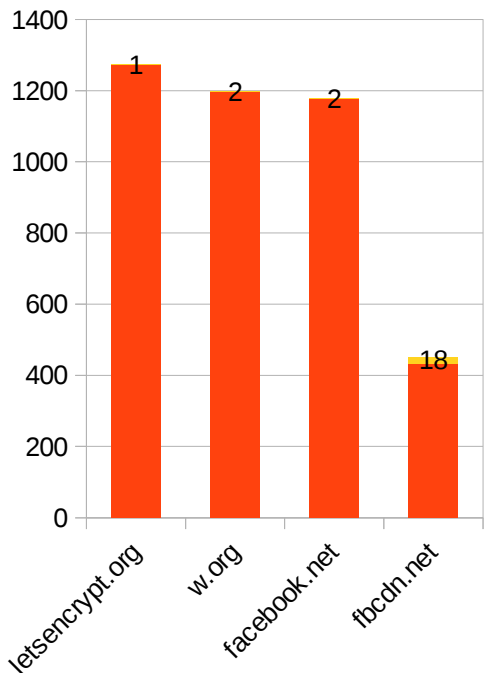
Group by 2nd LD (order by origins count)



Group by 2nd LD (order by 3rd parties count)



TLD .org, .net (order by origins count)

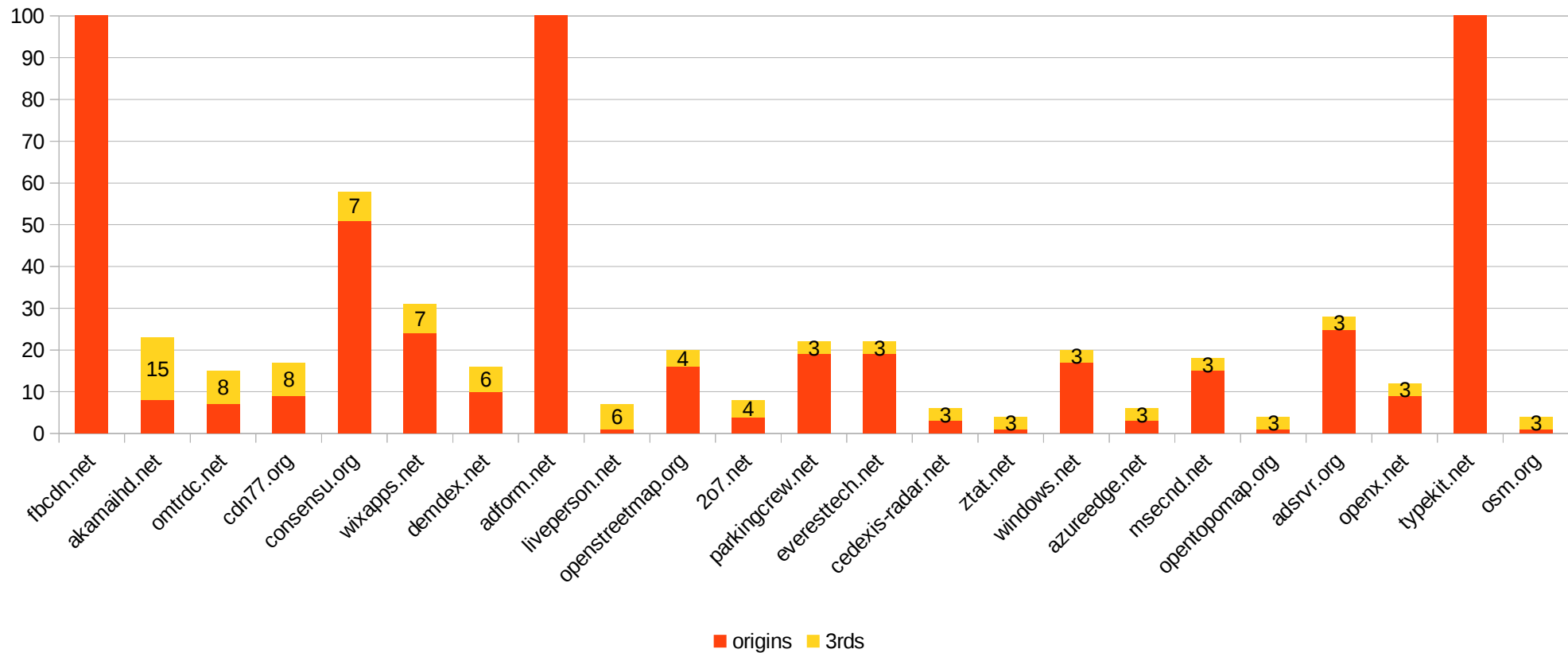


origins 3rds

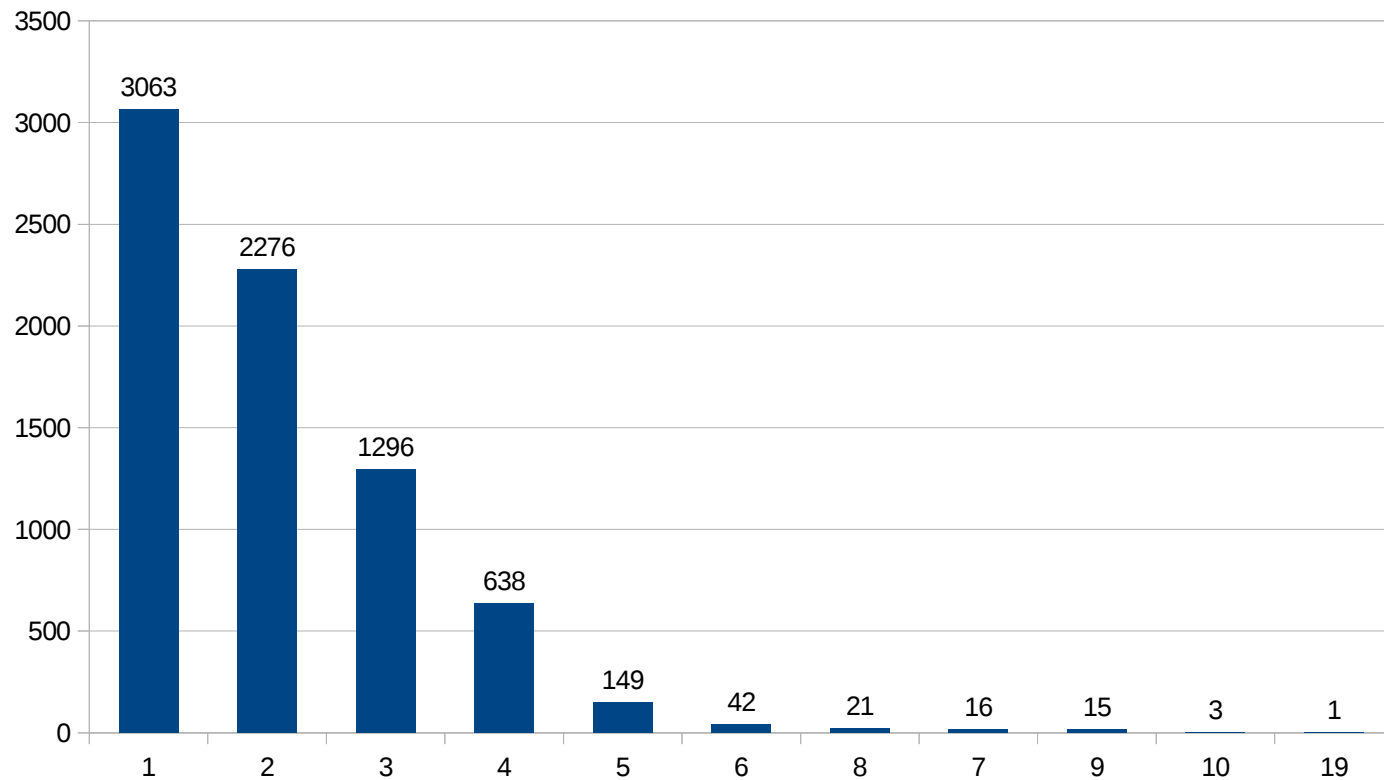
origins 3rds



TLD .org, .net (order by 3rd parties count)



TLDs count



TLDs count

tlds_count	tlds
19	com,net,be,dk,uk,pl,cz,it,au,sk,de,ca,fr,in,hk,sg,nl,ie,my
10	net,com,co,org,fi,eu,de,cz,pl,io
10	io,com,eu,de,cz,net,co,st,org,pl
10	com,co,uk,nl,ro,net,de,cz,hu,it
9	net,org,com,eu,ai,de,cz,st,pl
9	net,com,eu,cz,de,co,st,org,pl
9	com,net,cz,sk,org,eu,ru,de,io
9	net,com,eu,de,cz,co,st,org,pl
9	com,co,net,eu,de,cz,it,org,pl
9	cz,com,tv,io,net,pl,us,me,org
9	com,co,org,net,eu,cz,de,st,pl
9	com,org,eu,cz,de,net,co,st,pl
9	com.net.eu.de.cz.co.st.org.pl

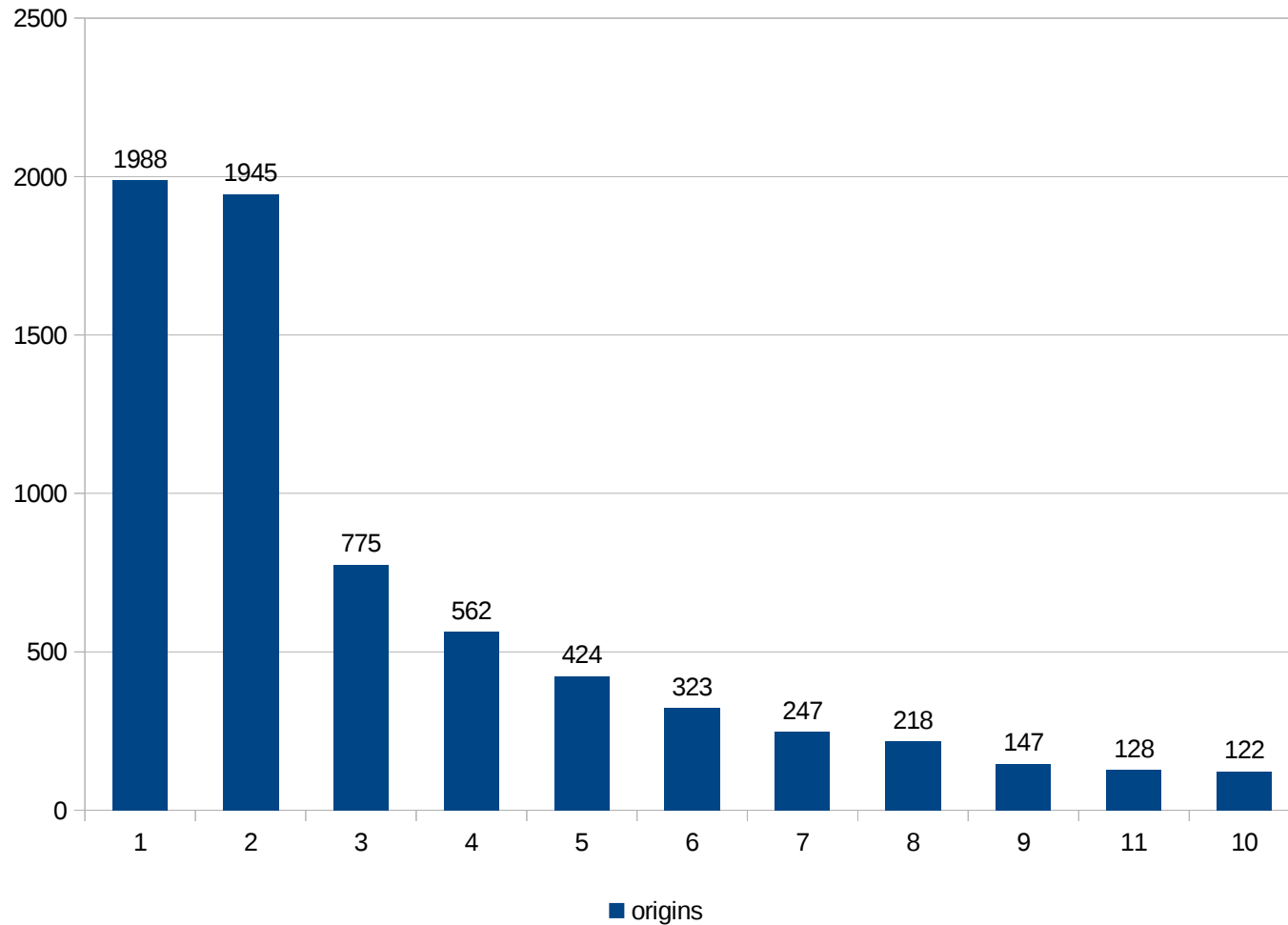
19× TLD champion

x	host	ip
10	hello.staticstuff.net	2400:cb00:2048:1::6810:7888
4	static-cdn.responsetap.com	13.32.99.132
4	cdn.siteimprove.net	143.204.101.11
4	s.trustpilot.com	143.204.101.7
4	siteimproveanalytics.com	2606:4700:20::6819:8976
4	static-ssl.responsetap.com	13.32.99.240
4	insights.hotjar.com	13.32.99.26
3	ocsp.affirmtrust.com	2a02:26f0:dc:2ac::1b01
3	try.abtasty.com	2a02:26f0:40:29f::1eae
3	win.staticstuff.net	198.145.13.11
2	accdn.lpsnmedia.net	2a03:6400:16:0:178:249:101:99
2	dcinfos.abtasty.com	52.215.65.63

2	www.google.co.uk	2a00:1450:400e:806::2003
2	www.google.com.my	2a00:1450:400e:806::2003
2	www.google.fr	2a00:1450:400e:806::2003
2	ssl.comodo.com	2a02:1788:4fd:cd::c742:cdf2
2	www.google.de	2a00:1450:400e:806::2003
2	www.google.nl	2a00:1450:400e:806::2003
2	www.google.com.hk	2a00:1450:400e:806::2003
2	www.google.ca	2a00:1450:400e:806::2003
2	lpcdn.lpsnmedia.net	2a03:6400:10:0:178:249:97:98
2	www.google.sk	2a00:1450:400e:806::2003
2	www.google.com.sg	2a00:1450:400e:806::2003
2	www.google.dk	2a00:1450:400e:806::2003
2	www.google.co.in	2a00:1450:400e:806::2003
2	eu2.siteimprove.com	52.58.236.177
2	static.hotjar.com	147.75.205.155
2	www.google.pl	2a00:1450:400e:806::2003
2	www.google.io	2a00:1450:400e:806::2003

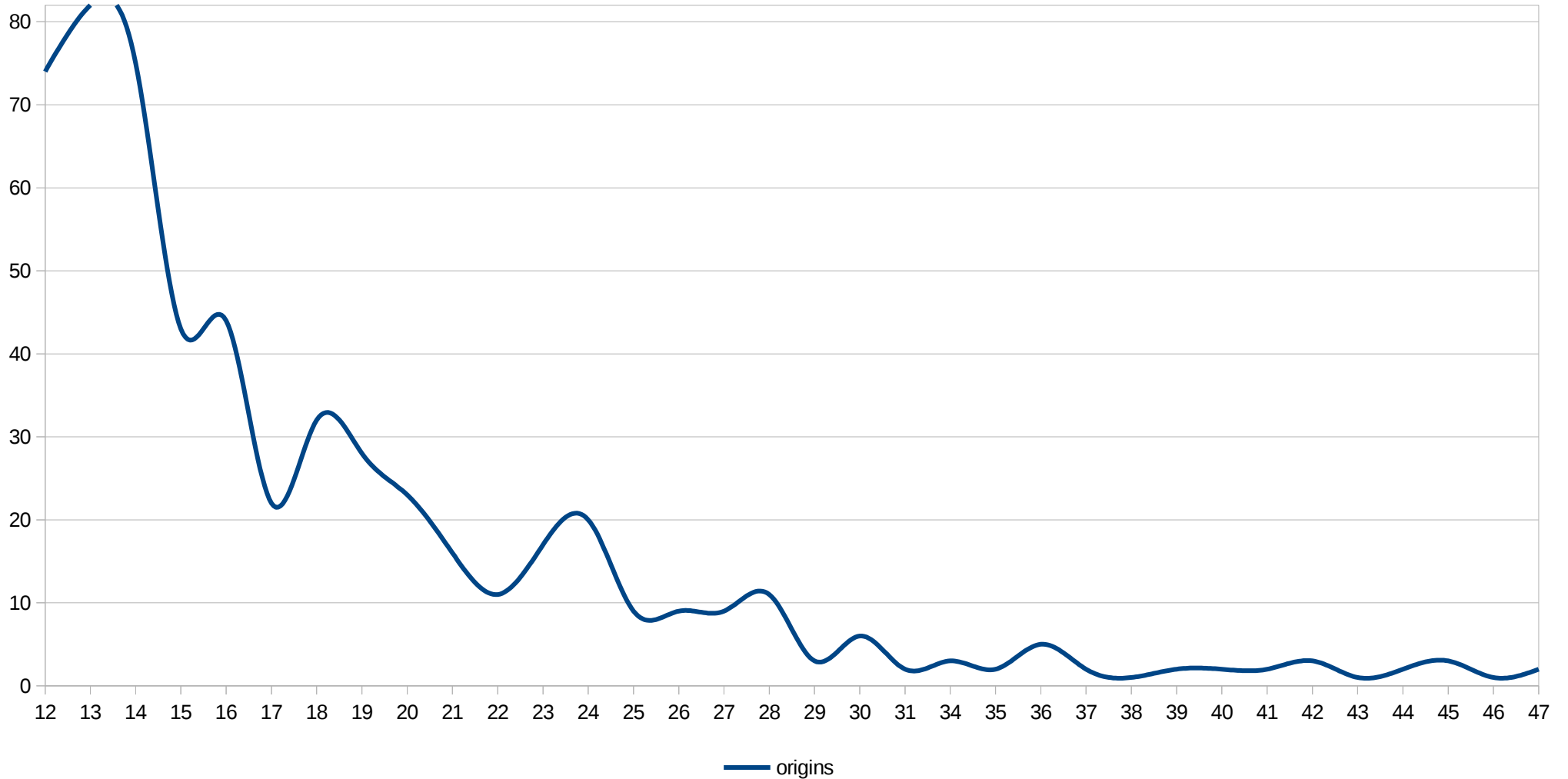
u.heatmap.it	app.everyonesocial.com	www.dynamicnumbers.mediahawk.co.uk
m.addthisedge.com	youtube.com	40691190.lo.cobrowse.liveperson.net
report-uri.cloudflare.com	vars.hotjar.com	graylog.hotjar.com
www.facebook.com	use.typekit.net	gtrk.s3.amazonaws.com
widget.trustpilot.com	services.postcodeanywhere.co.uk	pixel.powerlinks.com
app2.salesmanago.pl	script.hotjar.com	cdn.mouseflow.com
lptag.liveperson.net	s7.addthis.com	eu3.heatmap.it
connect.facebook.net	fb.scanandcleanlocal.com	cdn.daddyanalytics.com
vxml4.delacon.com.au	t.leady.com	status.thawte.com
www.youtube.com	my2.siteimprove.com	youtu.be
bfs.bibbyfs.net	chatcon5.liveperson.net	pi.pardot.com
m.addthis.com	track.leady.cz	t.leady.cz
dev.visualwebsiteoptimizer.com	cdnjs.cloudflare.com	i.ctnsnet.com
lo.v.liveperson.net	script.crazyegg.com	www.googletagmanager.com
tags.liveperson.net	go.pardot.com	id.siteimprove.com
ict.infinity-tracking.net		

3rd parties count *(1988 origins ~ 1× 3rd party)*

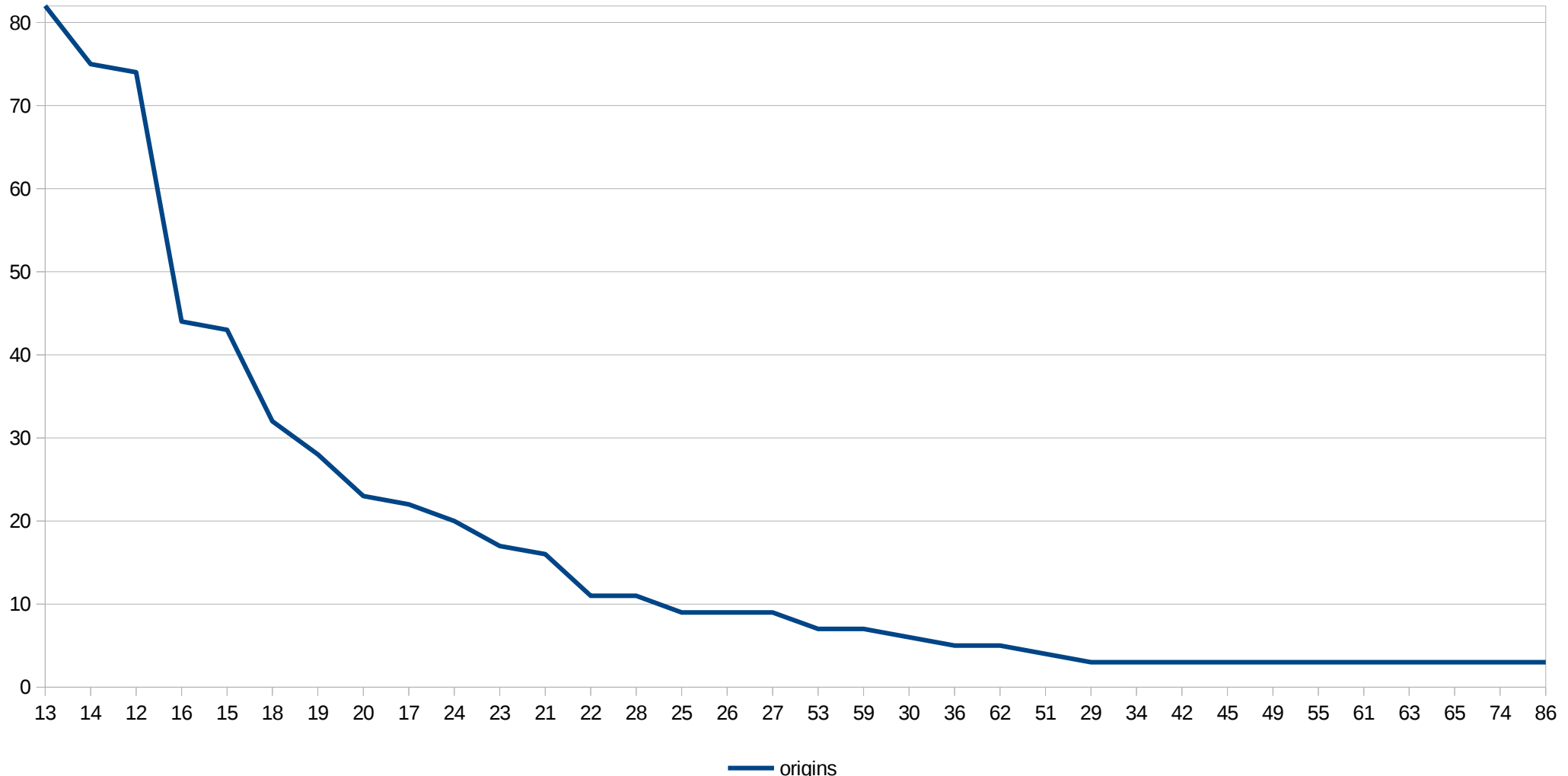


87	1
86	3
85	2
84	1
81	1
78	2
74	3
73	1
72	1
71	2
70	1
69	2
68	2
67	1
66	1
65	3

3rd parties count (82 origins ~ 13× 3rd party)



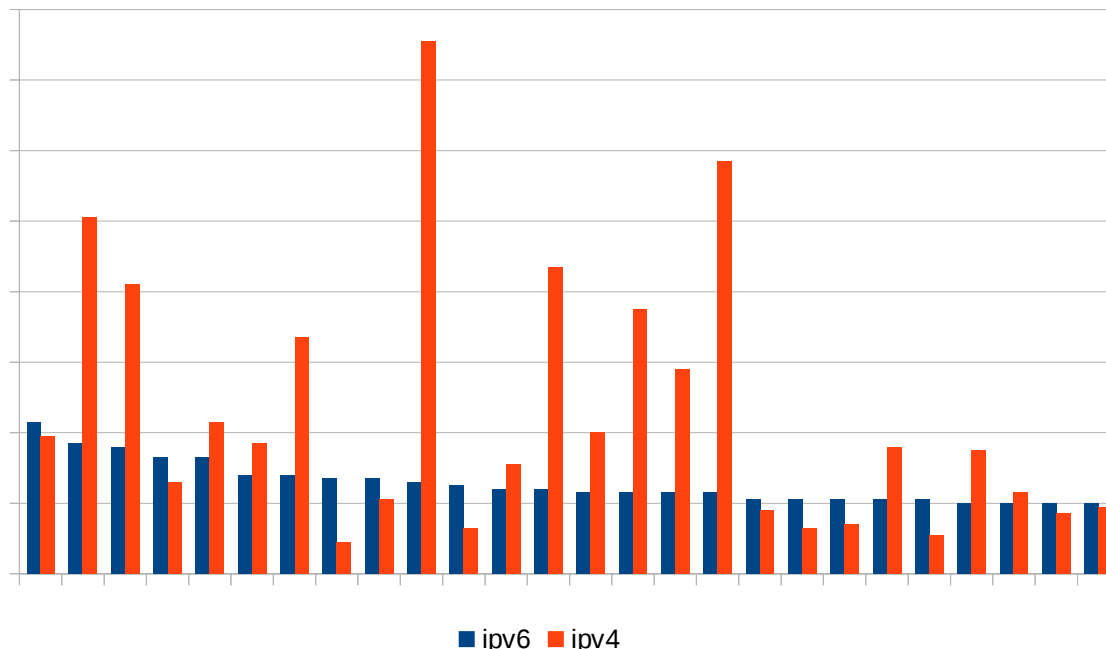
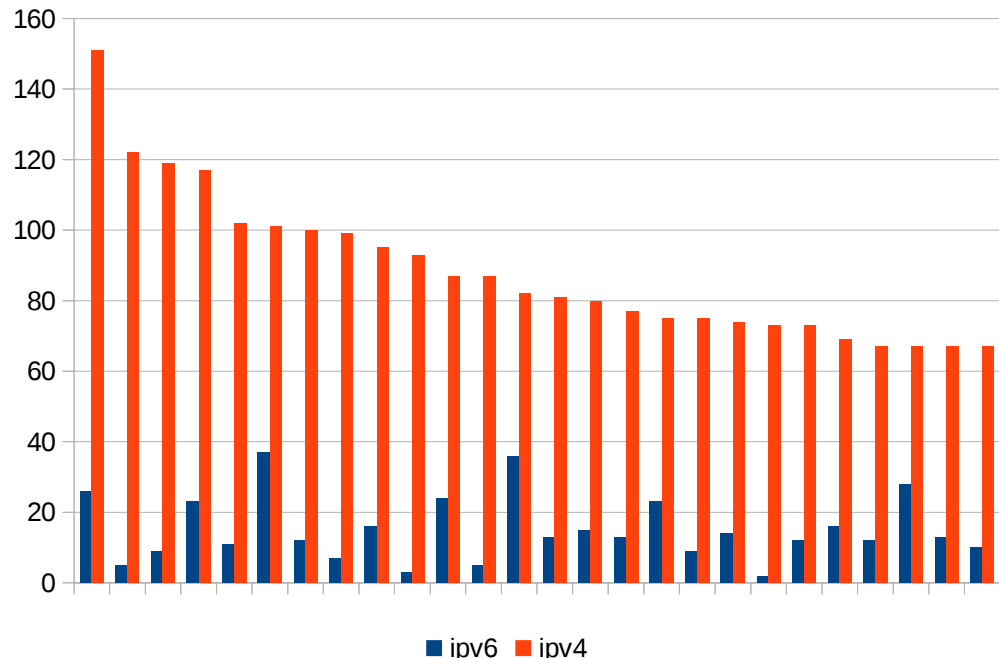
3rd parties count (82 origins ~ 13× 3rd party)



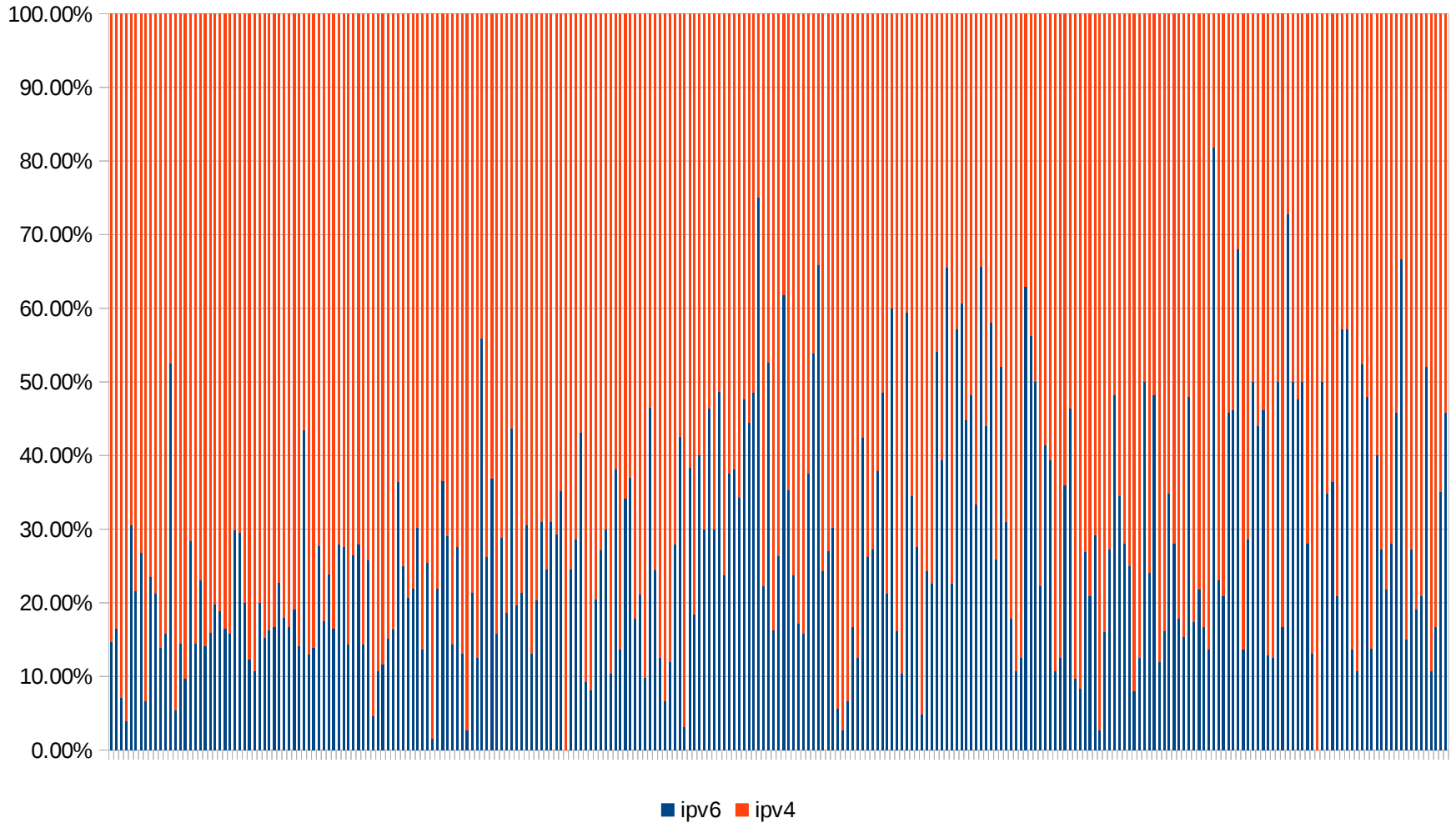
Sort by IPv4

/

by IPv6



IPv4 vs IPv6



Spy module

```
var unescape = mdmaugWrapper(unescape);
var mdmaugWrapper = function (fn) {
  var swap = fn;
  return function () {
    mdmaugSquawk(swap.name, arguments);
    return swap.apply(null, arguments);
  };
};
```

```
document.write = function (str) {
  mdmaugSquawk("document.write", str);
  document.getElementsByTagName("html")[0].innerHTML = str;
};
```

```
var evalClone = window.wrappedJSObject.eval;
var eval = function (cmd) {
  mdmaugSquawk("eval", cmd);
  if (arguments.length > 0) {
    if (arguments[0].indexOf("arguments.callee") !== -1) {
      arguments[0] = arguments[0].replace("arguments.callee", arguments.callee.caller.name);
    }
  }
  return evalClone(cmd);
};
```



```
exportFunction(unescape, window.wrappedJSObject, {defineAs: "unescape"});
exportFunction(eval, window.wrappedJSObject, {defineAs: "eval"});
exportFunction(evalClone, window.wrappedJSObject, {defineAs: "evalClone"});
exportFunction(document.write, window.wrappedJSObject, {defineAs: "document.write"});
```

Interface

localhost:5000

Mdmaug

Analyze **Aggregate**

analyze

Multiple URLs

Cache max age

Google Safebrowsing

PDNS

Geoip

Autoprune

Creation spree

Requests

11 threads

No pending requests.



localhost:5000

Mdmaug

Analyze Aggregate

08.11.2018 01:25 - 15.11.2018 01:25

Order origins count

Paging 100

Filter -

Host regex .org\$

Host regex not .(cz|com|org|net)\$



Demopage



```
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8">
  <title>Demo page</title>
</head>
<body>
```

This page has a lot of suspicious code. It serves as demo for MDMAug scanner.

```
<iframe src="another-page"></iframe>
<object>strange object</object>
<img src='strange-dir/image-link' onclick='suspicious-js-function' />



<script>
  eval("This internal script uses eval.");
  window.location.href +2;
</script>
<script src="demoscript.js"></script>

</body>
</html>
```



Demopage



http://127.0.0.1:5000/static/demopage.html

05.10.2018 03:26 05.10.2018 03:38

○ ○ ● ○ n/a 127.0.0.1

- :5000/static/demopage.html
- :5000/static/
- :5000
- :5000/static/strange-dir/image-link
- :5000/static/demoscript.js
- :5000/static/another-page
- :5000/favicon.ico
- /static/another-page →
- /static/demopage.html →
- /static/demoscript.js →
- /static/demopage.html spy
- eval "This internal script uses eval." ,
- eval "This external script has a suspicious eval call"

○ ○ ● ○ n/a example.cz

93.185.104.64

- /test

○ ○ ● ○ n/a pipni.cz

93.185.104.4 example.cz

- /404

Demopage

```
127.0.0.1:5000/api/nicify/opt/mdmaug/.cache/mdmaug-s 110% ... ☆ 🔍 se

http://127.0.0.1:5000/static/demopage.html

<meta charset="utf-8"/>
<iframe src="another-page"></iframe>
<object>strange object</object>

<img src=strange-dir/image-link />
<img src=http://example.cz/test />
<script></script>
eval("This internal script uses eval.");
window.location.href +2;
<script src="demoscript.js"></script>
```

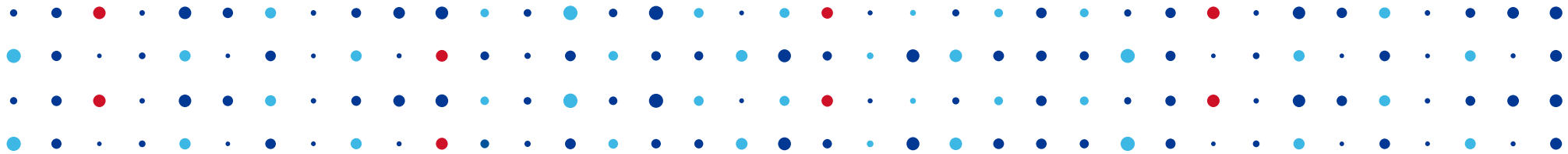


Installation

Installation

1. Download `git clone git@gitlab.labs.nic.cz:csirt/mdmaug.git /tmp/mdmaug````
2. Edit `mdmaug/lib/config.py`
3. You should generate a certificate to `mdmaug/cert-mdmaug.pem``, at least a self-signed one (non recommended): `openssl req -x509 -newkey rsa:4096 -nodes -out cert-mdmaug.pem -keyout key-mdmaug.pem``
4. Perform installation: ```/tmp/mdmaug/INSTALL```
5. Everything should be located in `/opt/mdmaug``.
6. For testing purposes, launch it under newly created `mdmaug`` user:
`su - mdmaug -c 'python3 -m mdmaug'``
7. Connect in the browser at: **`https://127.0.0.1:5000`**
8. Try analysing `https://127.0.0.1:5000/static/demopage.html`` on local server
9. For deployment, configure nginx properly to be used with flask





Děkuji za pozornost

Edvard Rejthar • edvard.rejthar@nic.cz



