SPAMHAUS

Spamhaus Quarterly Domain Reputation Update

Q4 2022

Spamhaus, the independent leader in IP and domain reputation, reviews the domain name ecosphere. From the number of newly registered domains to the domain abuse our researchers are observing, this update highlights trends and provides insights into the poor reputation of domains and champions providers where positive improvements are seen.

Welcome to the Spamhaus Quarterly Domain Reputation Update Q4 2022.

Enter

Contents

The Overview

01 02 03 04 05

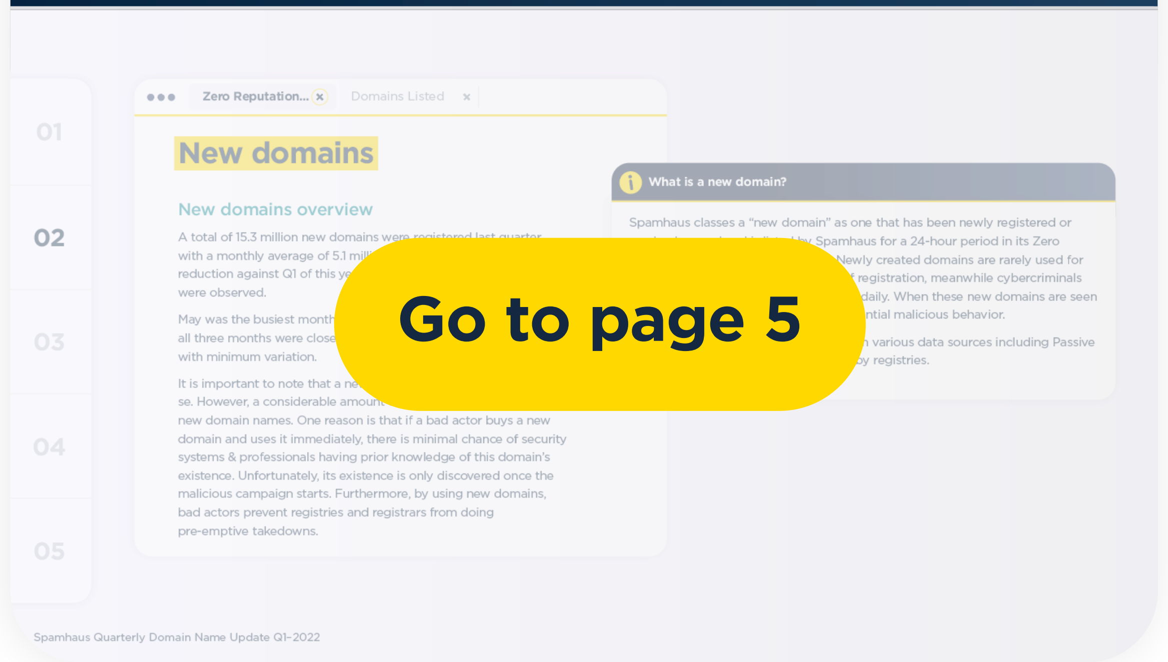
The Overview

So why do we look at domains and their associated reputation? Why does it make sense to use a domain name as a reputation marker in
decisions relate to em

Domains have a predicta
extract and act upon. M
use of domains (or host
This doesn't come as any
System (DNS) is fundame
the internet, and at its core,
DNS associate domain names with
(https://en.wikipedia.org/wiki/Domain_Name_System).

No matter what you're doing on the internet, legitimate or otherwise, you must (almost always) use a domain name. Without a domain name, most malicious activity wouldn't get started, let alone be successful.

Spamhaus Quarterly Domain Name Update Q1-2022



Zero Reputation... Domains Listed

01 02 03 04 05

New domains

New domains overview

A total of 15.3 million new domains were registered last quarter
with a monthly average of 5.1 mill
reduction against Q1 of this ye
were observed.

May was the busiest month
all three months were close
with minimum variation.

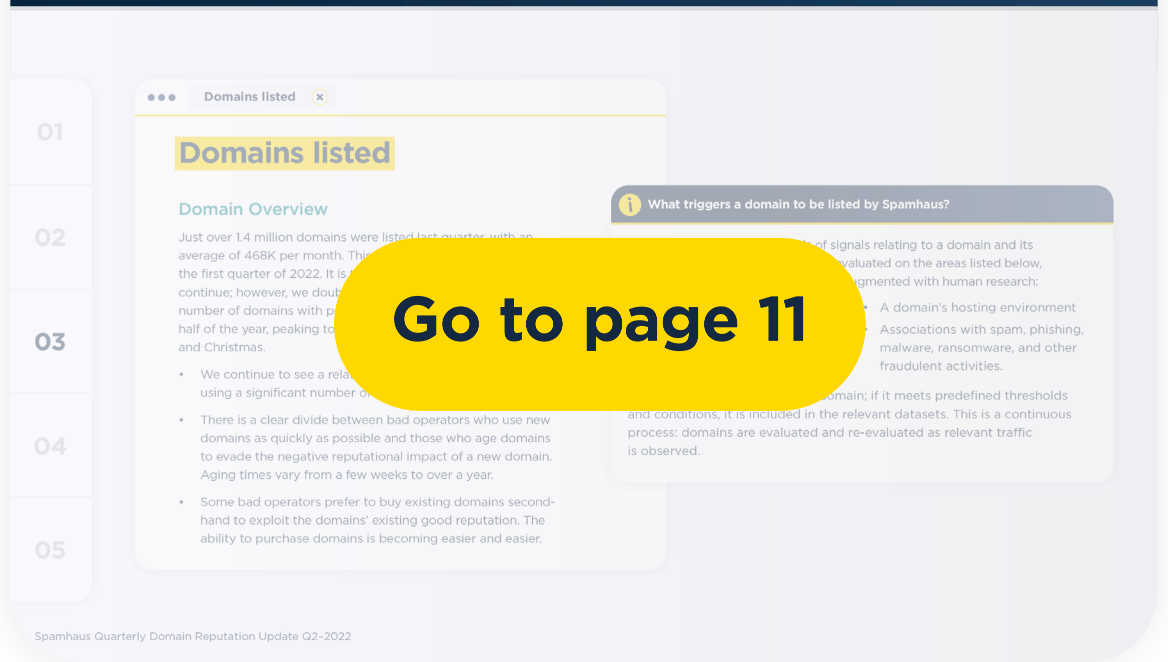
It is important to note that a ne
se. However, a considerable amount
new domain names. One reason is that if a bad actor buys a new domain and uses it immediately, there is minimal chance of security systems & professionals having prior knowledge of this domain's existence. Unfortunately, its existence is only discovered once the malicious campaign starts. Furthermore, by using new domains, bad actors prevent registries and registrars from doing pre-emptive takedowns.

What is a new domain?

Spamhaus classes a "new domain" as one that has been newly registered or
by Spamhaus for a 24-hour period in its Zero
Newly created domains are rarely used for
f registration, meanwhile cybercriminals
daily. When these new domains are seen
ntial malicious behavior.

n various data sources including Passive
by registries.

Spamhaus Quarterly Domain Name Update Q1-2022



Domains listed

01 02 03 04 05

Domains listed

Domain Overview

Just over 1.4 million domains were listed last quarter, with an
average of 468K per month. This
the first quarter of 2022. It is
continue; however, we doub
number of domains with p
half of the year, peaking to
and Christmas.

- We continue to see a rela
using a significant number o
- There is a clear divide between bad operators who use new domains as quickly as possible and those who age domains to evade the negative reputational impact of a new domain. Aging times vary from a few weeks to over a year.
- Some bad operators prefer to buy existing domains second-hand to exploit the domains' existing good reputation. The ability to purchase domains is becoming easier and easier.

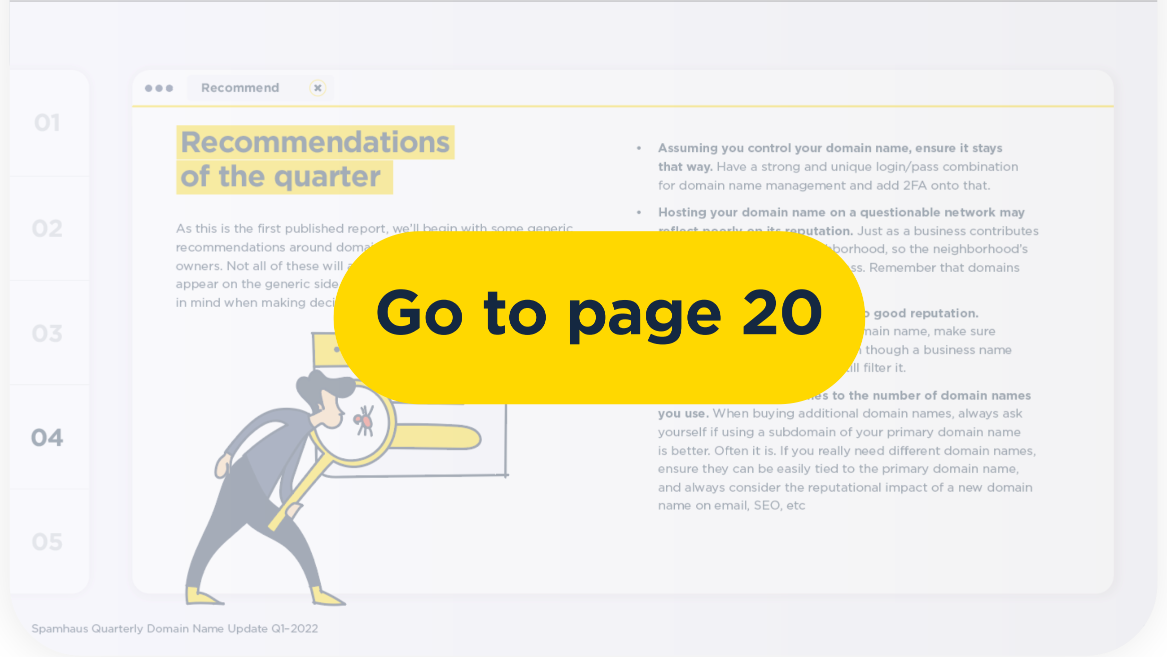
What triggers a domain to be listed by Spamhaus?

of signals relating to a domain and its
valuated on the areas listed below,
gmented with human research:

- A domain's hosting environment
- Associations with spam, phishing, malware, ransomware, and other fraudulent activities.

omain; if it meets predefined thresholds and conditions, it is included in the relevant datasets. This is a continuous process: domains are evaluated and re-evaluated as relevant traffic is observed.

Spamhaus Quarterly Domain Reputation Update Q2-2022



Recommend

01 02 03 04 05

Recommendations of the quarter

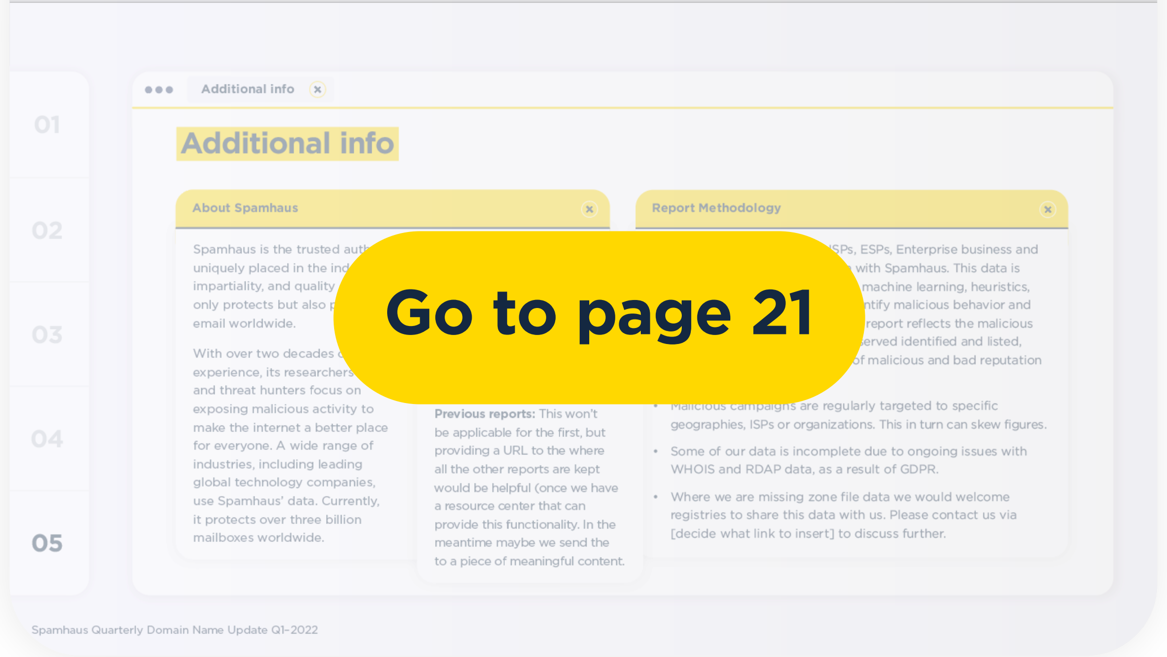
As this is the first published report, we'll begin with some generic
recommendations around doma
owners. Not all of these will a
appear on the generic side
in mind when making deci

- **Assuming you control your domain name, ensure it stays that way.** Have a strong and unique login/pass combination for domain name management and add 2FA onto that.
- **Hosting your domain name on a questionable network may reflect poorly on its reputation.** Just as a business contributes
borhood, so the neighborhood's
ss. Remember that domains

o good reputation.
main name, make sure
though a business name
ill filter it.

es to the number of domain names **you use.** When buying additional domain names, always ask yourself if using a subdomain of your primary domain name is better. Often it is. If you really need different domain names, ensure they can be easily tied to the primary domain name, and always consider the reputational impact of a new domain name on email, SEO, etc

Spamhaus Quarterly Domain Name Update Q1-2022



Additional info

01 02 03 04 05

Additional info

About Spamhaus

Spamhaus is the trusted auth
uniquely placed in the ind
impartiality, and quality
only protects but also p
email worldwide.

With over two decades o
experience, its researchers
and threat hunters focus on exposing malicious activity to make the internet a better place for everyone. A wide range of industries, including leading global technology companies, use Spamhaus' data. Currently, it protects over three billion mailboxes worldwide.

Previous reports: This won't be applicable for the first, but providing a URL to the where all the other reports are kept would be helpful (once we have a resource center that can provide this functionality. In the meantime maybe we send the to a piece of meaningful content.

Report Methodology

ISPs, ESPs, Enterprise business and
with Spamhaus. This data is
machine learning, heuristics,
ntify malicious behavior and
report reflects the malicious
served identified and listed,
of malicious and bad reputation

- Malicious campaigns are regularly targeted to specific geographies, ISPs or organizations. This in turn can skew figures.
- Some of our data is incomplete due to ongoing issues with WHOIS and RDAP data, as a result of GDPR.
- Where we are missing zone file data we would welcome registries to share this data with us. Please contact us via [decide what link to insert] to discuss further.

Spamhaus Quarterly Domain Name Update Q1-2022

01

02

03

04

05

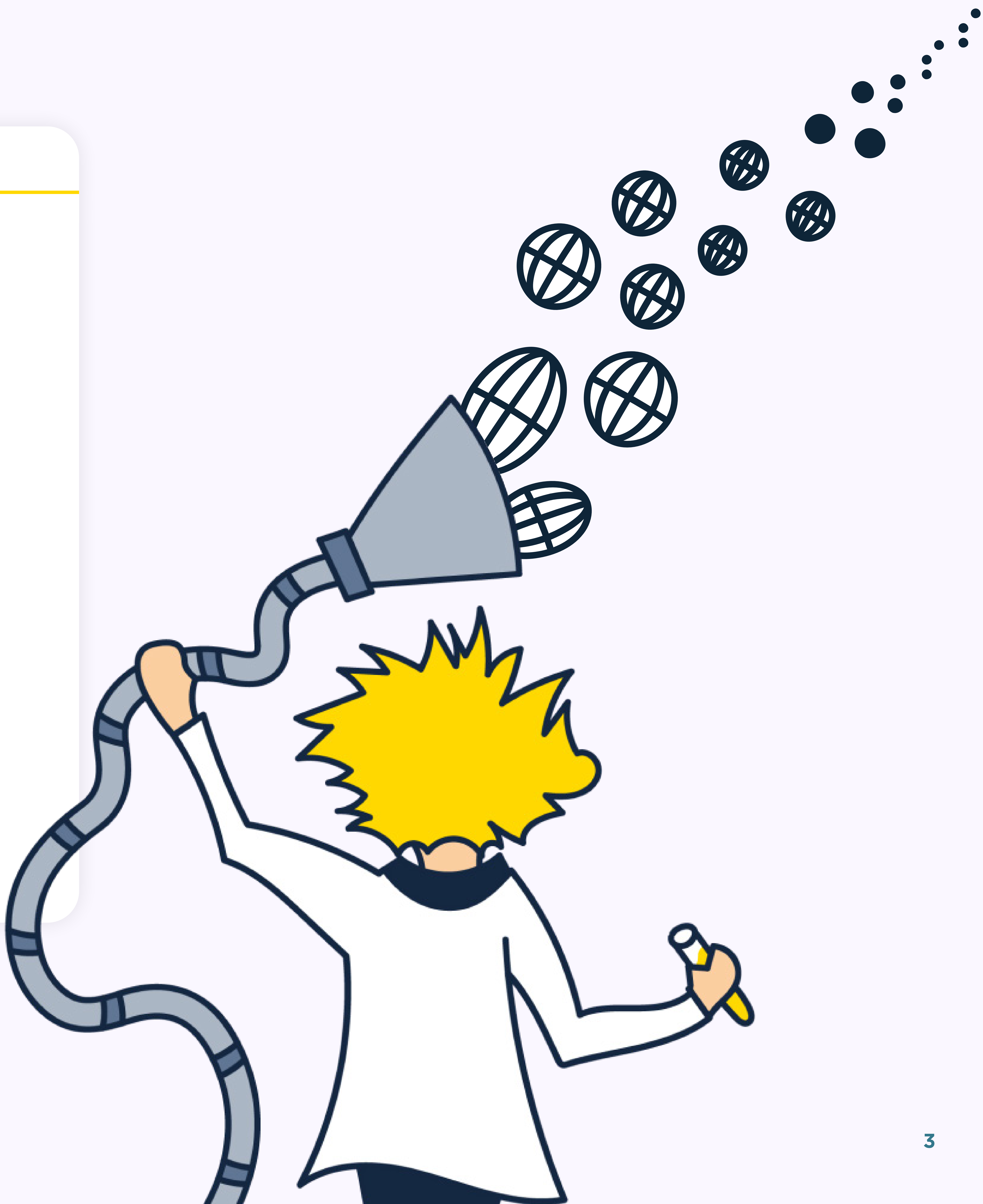
The Overview

The Overview

As anticipated, the number of newly observed and listed domains increased in Q4 2022. That's no surprise, given the increase in e-commerce activity which occurred every month during this quarter. This increased activity isn't just down to legitimate traders but also includes spammers, phishers, and other cybercriminals, all trying to capture the same money.

When considering the +7% domain listing increase in Q4, compared to last quarter, there isn't one issue to blame; it's just more of everything. More phishing targeting the same brands. More spam from the same spammers. But the increase was undoubtedly partially driven by some specific top level domains (TLDs) having aggressive sales campaigns that enabled bad actors to abuse a larger volume of domains for the same budget.

Overview continued



01
02
03
04
05

Overview cont.

This isn't anything out of the ordinary, of course. In the search for revenue before the end of the year, it's not unusual for even established bonafide companies to cut corners. They may, for example, send one more email to a segment of non-responsive customers one more time in the hope of making a sale. The bad operators are no different, although they will target more people with more communications overall.

The good news is while the domains listed for Q4 are up, they are still lower than Q4 2021, when Spamhaus had listed over 2.1 million domains. Before readers get too excited, this does not necessarily mean that there is less abuse. We still see a considerable amount of domain re-usage and abuse of free services in places where filtering happens (e.g, the body of an email). But we are hopeful this may quickly turn around again if some of the most commonly exploited free services clamp down on abuse by nefarious players.

01

02

03

04

05

New domains ×   Number of new... ×

New domains

New domains overview

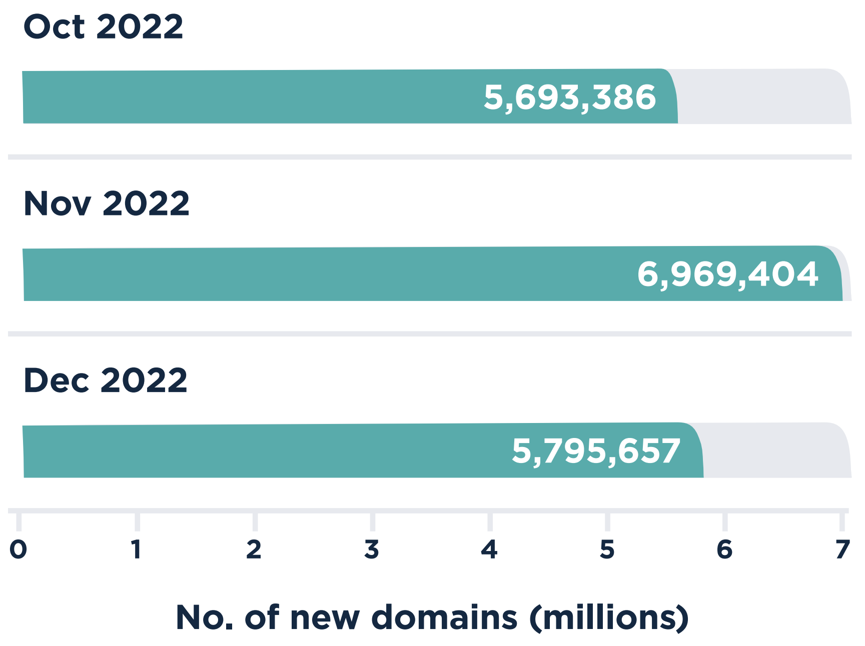
A total of 18.5 million new domains were registered last quarter, with a monthly average of 6.2 million. This was a reasonable increase of 18% against Q3 2022, when researchers observed 15.6 million new domains.

November was the busiest month of Q4, with close to 7 million new domains. That doesn’t come as a big surprise, given that there are notable shopping events in November – Black Friday, Cyber Monday – and the lead up to the festive holiday period begins.

It is important to note that a new domain is not a bad domain per se. However, a considerable amount of abuse is associated with new domain names. One reason is that if a bad actor buys a new domain and uses it immediately, there is minimal chance of security systems & professionals having prior knowledge of this domain’s existence. Unfortunately, its existence is only discovered once the malicious campaign starts. Furthermore, by using new domains, bad actors prevent registries and registrars from doing pre-emptive takedowns.

New domains ×   Number of new... ×

Number of new domains per month



Quarterly Total

18,458,447

▲ 18% ▲

Monthly Average

6,152,816

▲ 957,757 ▲

What is a new domain?

Spamhaus classes a “new domain” as one that has been newly registered or newly observed and is listed by Spamhaus for a 24-hour period in its Zero Reputation Domain (ZRD) dataset. Newly created domains are rarely used for legitimate purposes within 24 hours of registration, meanwhile cybercriminals register and burn hundreds of domains daily. When these new domains are seen in the wild it is a strong indicator of potential malicious behavior.

The research team compiles this list from various data sources including Passive DNS, SMTP data and zone files shared by registries. The new domain data, therefore, is not the exact number of new domains, but the number of new domains Spamhaus has visibility of.

New domains... TLD types...

New domains by top-level domain (TLD)

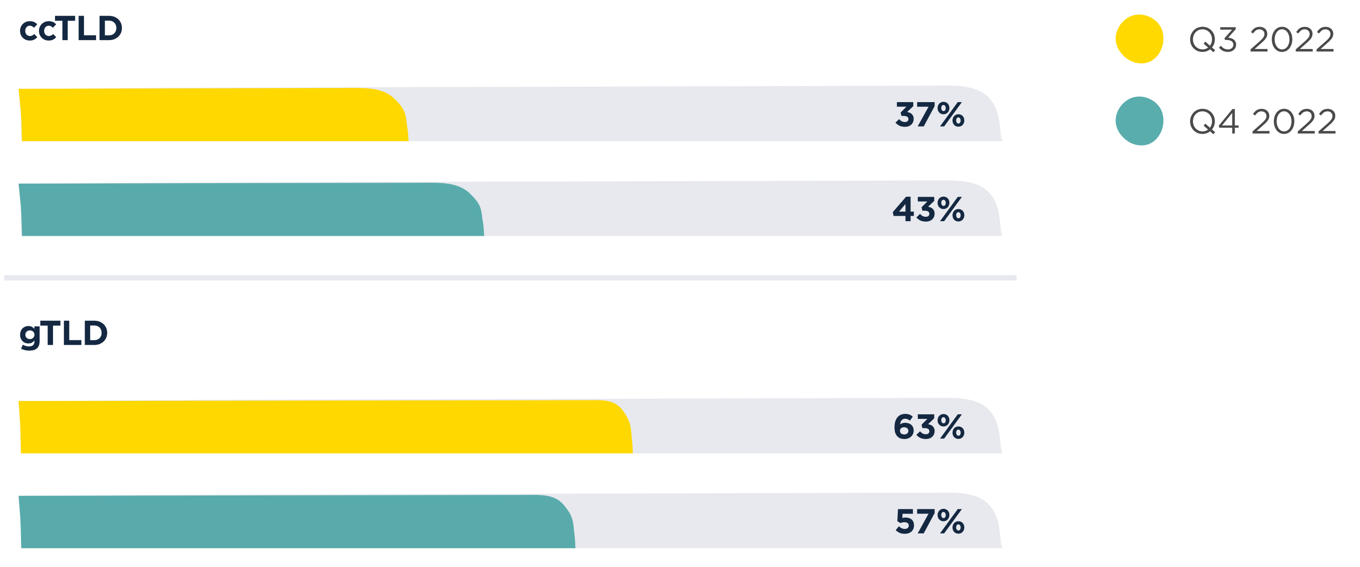
ccTLDs continued in popularity (rising from 37% in Q3 to 43% in Q4). However, it’s important to understand the ccTLD landscape. Some of the ccTLDs with the largest number of new domains are not only run as a gTLD (anyone, anywhere, can register a domain in these TLDs), but are given away for free. Unsurprisingly, a large amount of abuse can be connected to these registrations.

As mentioned, Black Friday, Cyber Monday, and Christmas all fall within Q4 and are associated with online shopping. It’s no wonder that there was a sharp increase of +47% in .shop domains. Another driver for that growth, along with .click’s (+33%), could be that these gTLDs were sold at select registrars for just over US $2, reducing to US $1.69 for bulk registrations. Historically TLDs with aggressive pricing have been targeted by operators that require large amounts of domains to enable their abuse.

We expect this to continue.

New domains... TLD types...

New domain TLD types comparison, quarter on quarter



Top-level domains – a quick explanation

There are a couple of different top-level domains (TLDs) including:

- **Generic TLDs (gTLDs)** - these are under ICANN jurisdiction. Some gTLDs are open i.e. can be used by anyone e.g., .com, some have strict policies regulating who and how they can be used e.g., .bank, and some are closed e.g., .honda.
- **Country code TLDs (ccTLDs)** - typically these relate to a country or region. Registries define the policies relating to these TLDs; some allow registrations from anywhere, some require local presence, and some license their namespace wholesale to others.

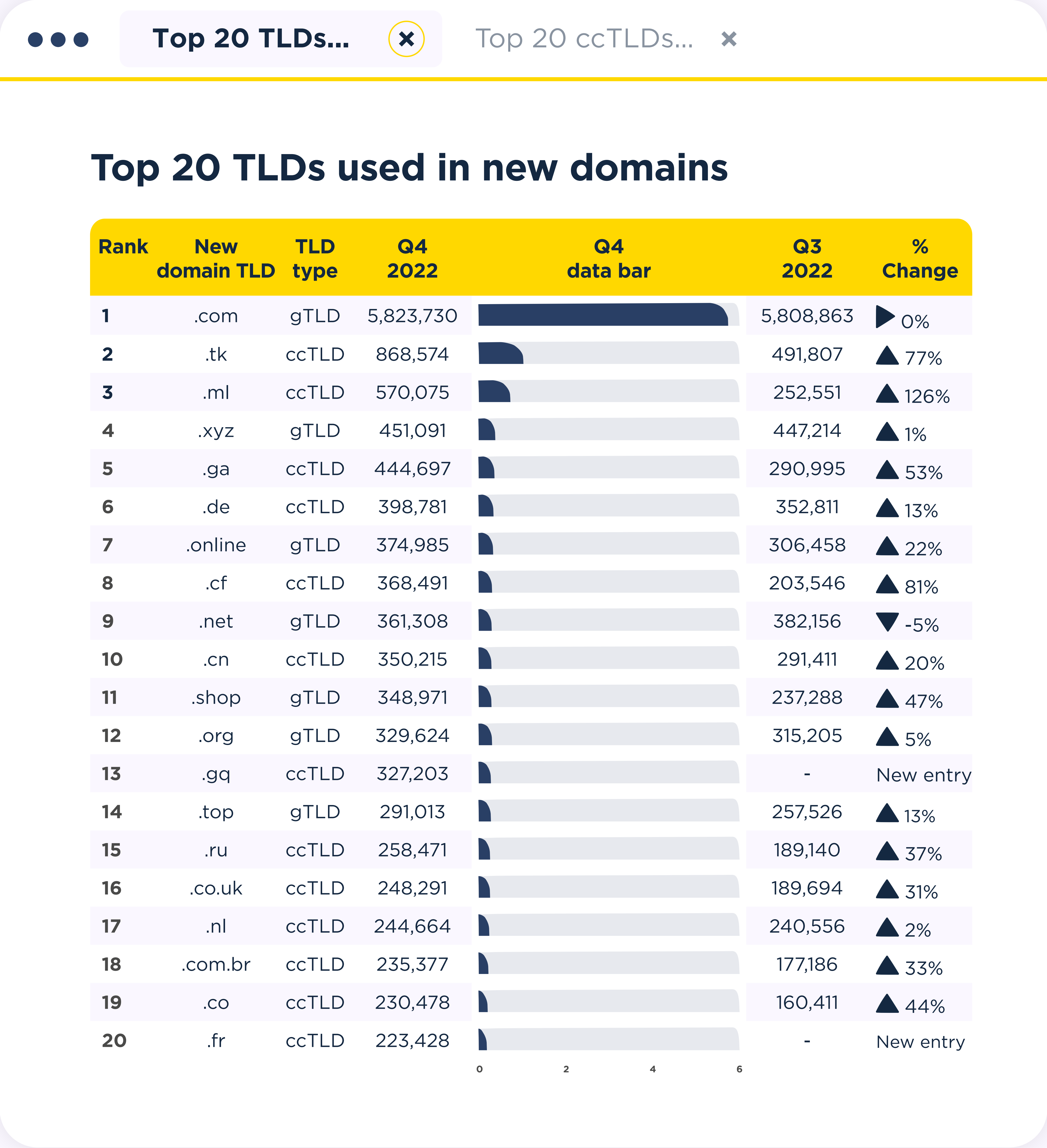
01

02

03

04

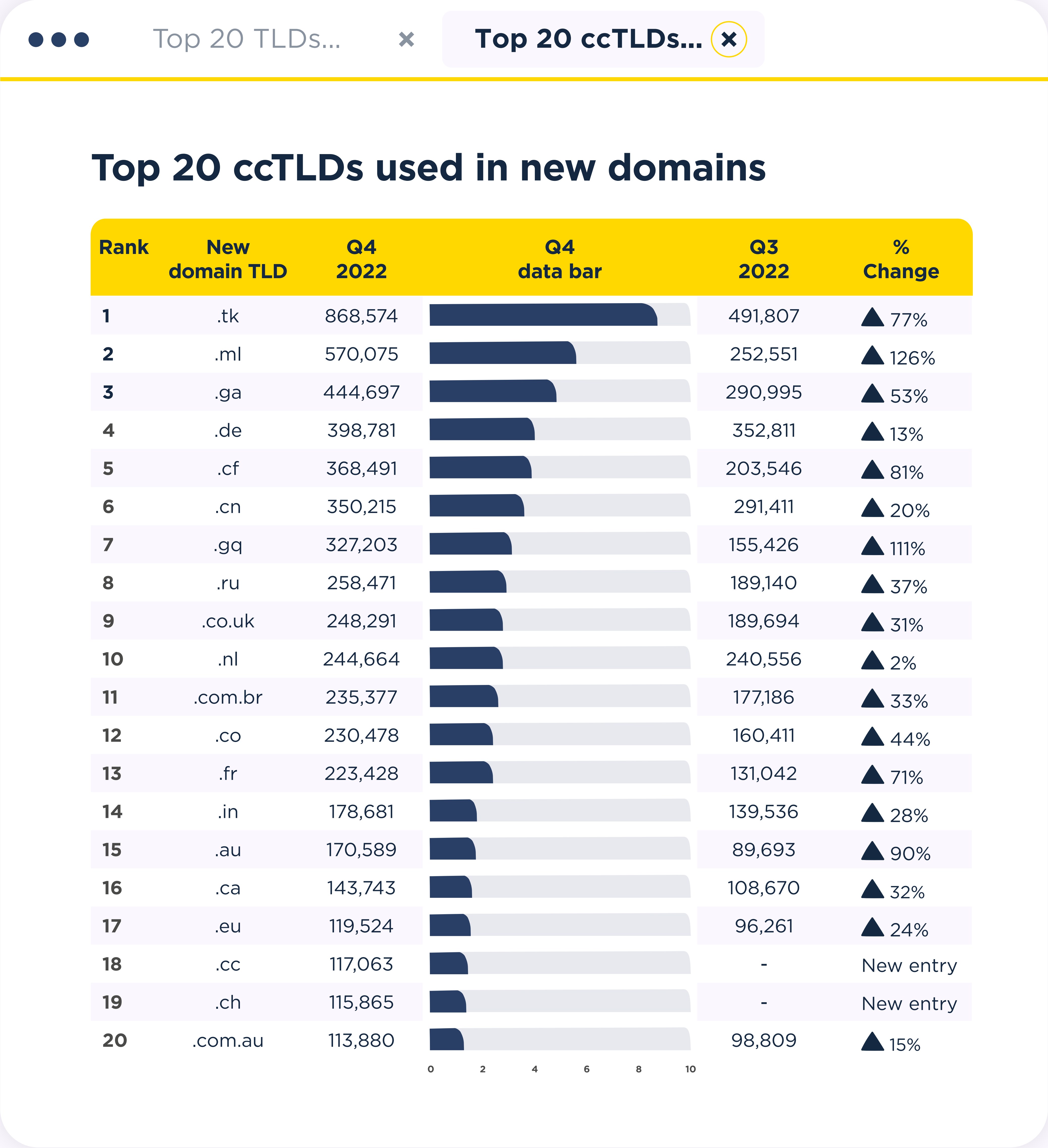
05



Top 20 TLDs...
Top 20 ccTLDs...
0
2
4
6

Top 20 TLDs used in new domains

Rank	New domain TLD	TLD type	Q4 2022	Q4 data bar	Q3 2022	% Change
1	.com	gTLD	5,823,730		5,808,863	▶ 0%
2	.tk	ccTLD	868,574		491,807	▲ 77%
3	.ml	ccTLD	570,075		252,551	▲ 126%
4	.xyz	gTLD	451,091		447,214	▲ 1%
5	.ga	ccTLD	444,697		290,995	▲ 53%
6	.de	ccTLD	398,781		352,811	▲ 13%
7	.online	gTLD	374,985		306,458	▲ 22%
8	.cf	ccTLD	368,491		203,546	▲ 81%
9	.net	gTLD	361,308		382,156	▼ -5%
10	.cn	ccTLD	350,215		291,411	▲ 20%
11	.shop	gTLD	348,971		237,288	▲ 47%
12	.org	gTLD	329,624		315,205	▲ 5%
13	.gq	ccTLD	327,203		-	New entry
14	.top	gTLD	291,013		257,526	▲ 13%
15	.ru	ccTLD	258,471		189,140	▲ 37%
16	.co.uk	ccTLD	248,291		189,694	▲ 31%
17	.nl	ccTLD	244,664		240,556	▲ 2%
18	.com.br	ccTLD	235,377		177,186	▲ 33%
19	.co	ccTLD	230,478		160,411	▲ 44%
20	.fr	ccTLD	223,428		-	New entry



Top 20 TLDs...
Top 20 ccTLDs...
0
2
4
6
8
10

Top 20 ccTLDs used in new domains

Rank	New domain TLD	Q4 2022	Q4 data bar	Q3 2022	% Change
1	.tk	868,574		491,807	▲ 77%
2	.ml	570,075		252,551	▲ 126%
3	.ga	444,697		290,995	▲ 53%
4	.de	398,781		352,811	▲ 13%
5	.cf	368,491		203,546	▲ 81%
6	.cn	350,215		291,411	▲ 20%
7	.gq	327,203		155,426	▲ 111%
8	.ru	258,471		189,140	▲ 37%
9	.co.uk	248,291		189,694	▲ 31%
10	.nl	244,664		240,556	▲ 2%
11	.com.br	235,377		177,186	▲ 33%
12	.co	230,478		160,411	▲ 44%
13	.fr	223,428		131,042	▲ 71%
14	.in	178,681		139,536	▲ 28%
15	.au	170,589		89,693	▲ 90%
16	.ca	143,743		108,670	▲ 32%
17	.eu	119,524		96,261	▲ 24%
18	.cc	117,063		-	New entry
19	.ch	115,865		-	New entry
20	.com.au	113,880		98,809	▲ 15%

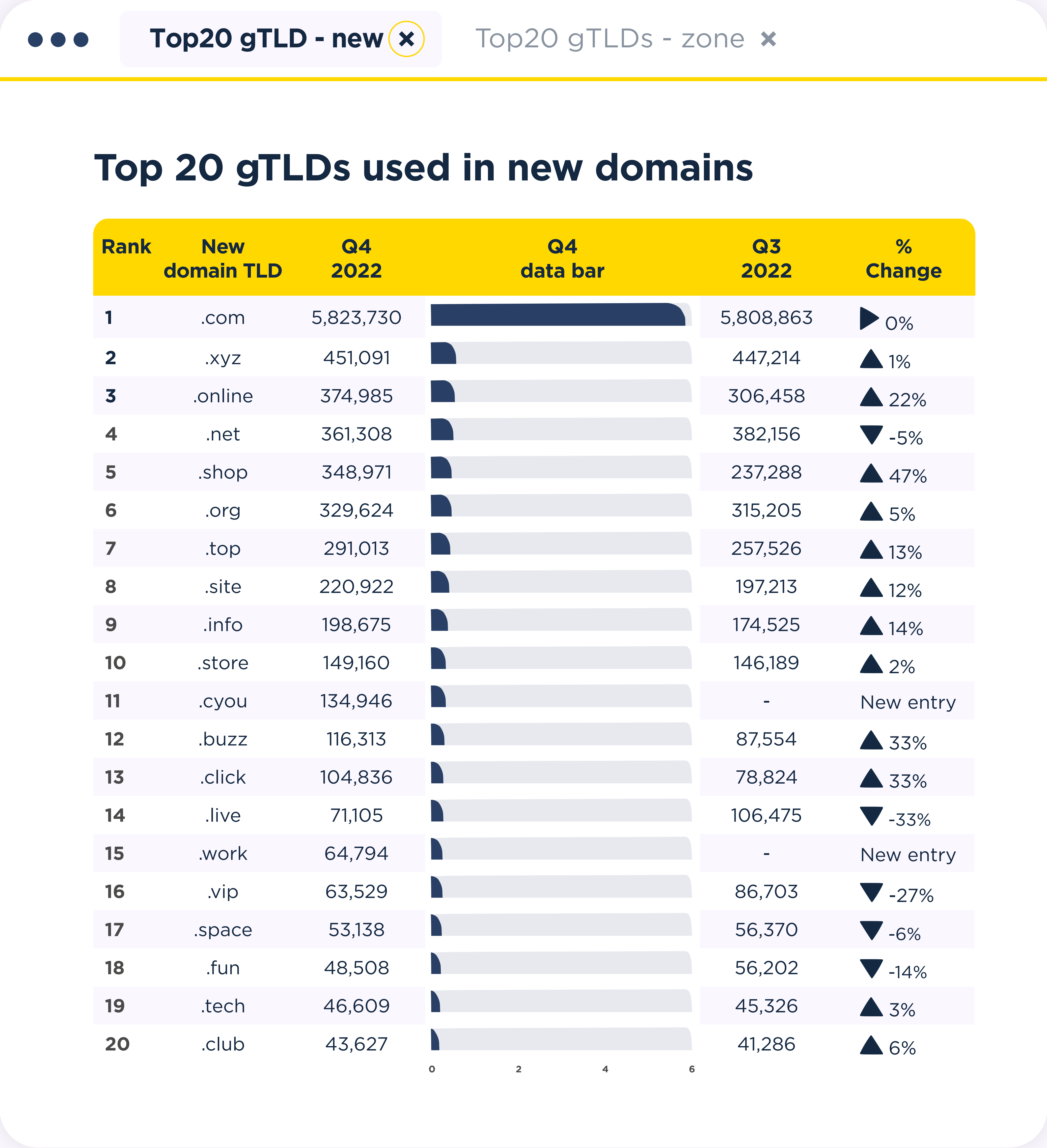
01

02

03

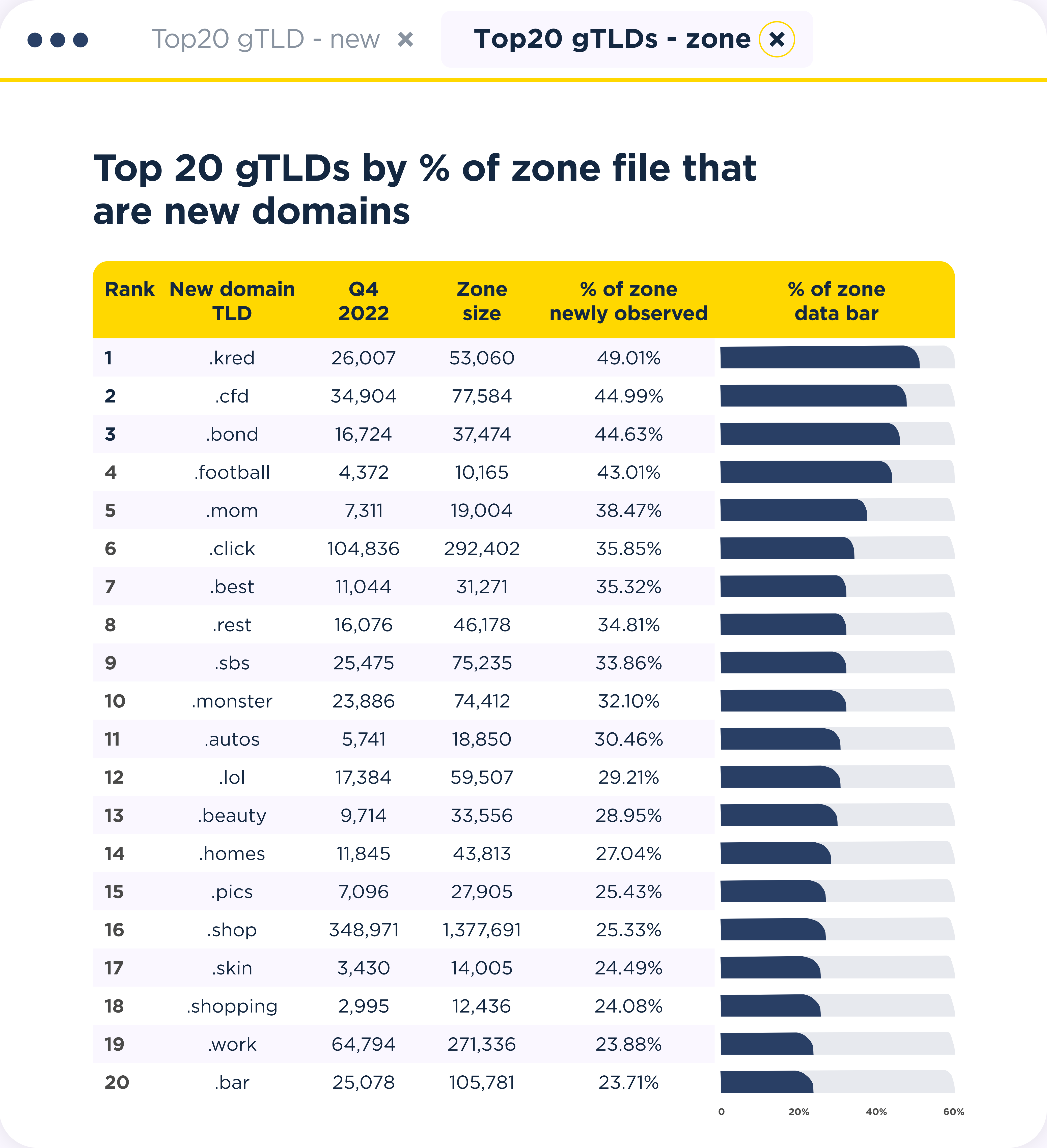
04

05



Top 20 gTLDs used in new domains

Rank	New domain TLD	Q4 2022	Q4 data bar	Q3 2022	% Change
1	.com	5,823,730		5,808,863	▶ 0%
2	.xyz	451,091		447,214	▲ 1%
3	.online	374,985		306,458	▲ 22%
4	.net	361,308		382,156	▼ -5%
5	.shop	348,971		237,288	▲ 47%
6	.org	329,624		315,205	▲ 5%
7	.top	291,013		257,526	▲ 13%
8	.site	220,922		197,213	▲ 12%
9	.info	198,675		174,525	▲ 14%
10	.store	149,160		146,189	▲ 2%
11	.cyou	134,946		-	New entry
12	.buzz	116,313		87,554	▲ 33%
13	.click	104,836		78,824	▲ 33%
14	.live	71,105		106,475	▼ -33%
15	.work	64,794		-	New entry
16	.vip	63,529		86,703	▼ -27%
17	.space	53,138		56,370	▼ -6%
18	.fun	48,508		56,202	▼ -14%
19	.tech	46,609		45,326	▲ 3%
20	.club	43,627		41,286	▲ 6%



Top 20 gTLDs by % of zone file that are new domains

Rank	New domain TLD	Q4 2022	Zone size	% of zone newly observed	% of zone data bar
1	.kred	26,007	53,060	49.01%	
2	.cfd	34,904	77,584	44.99%	
3	.bond	16,724	37,474	44.63%	
4	.football	4,372	10,165	43.01%	
5	.mom	7,311	19,004	38.47%	
6	.click	104,836	292,402	35.85%	
7	.best	11,044	31,271	35.32%	
8	.rest	16,076	46,178	34.81%	
9	.sbs	25,475	75,235	33.86%	
10	.monster	23,886	74,412	32.10%	
11	.autos	5,741	18,850	30.46%	
12	.lol	17,384	59,507	29.21%	
13	.beauty	9,714	33,556	28.95%	
14	.homes	11,845	43,813	27.04%	
15	.pics	7,096	27,905	25.43%	
16	.shop	348,971	1,377,691	25.33%	
17	.skin	3,430	14,005	24.49%	
18	.shopping	2,995	12,436	24.08%	
19	.work	64,794	271,336	23.88%	
20	.bar	25,078	105,781	23.71%	

01
02
03
04
05

Trending terms... ✕

Trending terms in new domains

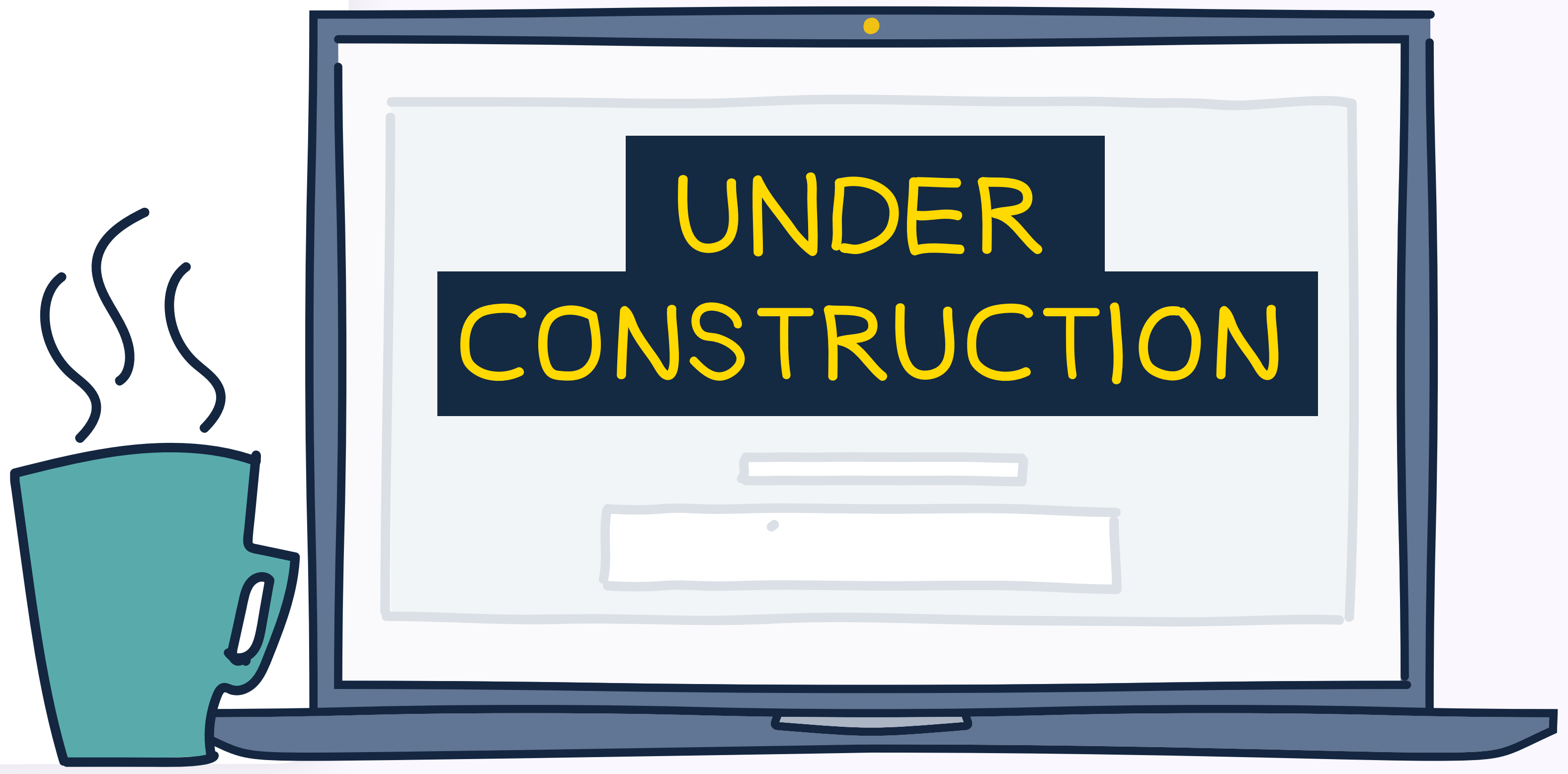
With the year's final quarter so heavily focused on shopping, it wasn't surprising to see the term 'store' climbing from #9 in Q3 to #6 in Q4, with a 21% increase. However, there were no vast increases or decreases in other trending terms, compared to Q3. Most of the key words were reasonably generic. This happens when the initial desired term (which is usually in high demand) is no longer available.

The second most popular term was "ation". Here's a breakdown of the top 15 words containing "ation" we saw in Q4:

- innovations **1,875**
- aviation **1,984**
- location **2,046**
- formation **2,057**
- renovation **2,127**
- transportation **2,146**
- corporation **2,247**
- information **2,317**
- vacation **2,395**
- automation **2,863**
- creation **3,114**
- innovation **3,273**
- association **3,315**
- station **4,333**
- national **4,476**

Methodology for trending terms

We use a text vectorizer to find the most common strings in new domain names and break the counts down by date, which highlights trends in domain name themes. For example, we saw a spike in domain names containing "ukraine" following the Russian invasion.



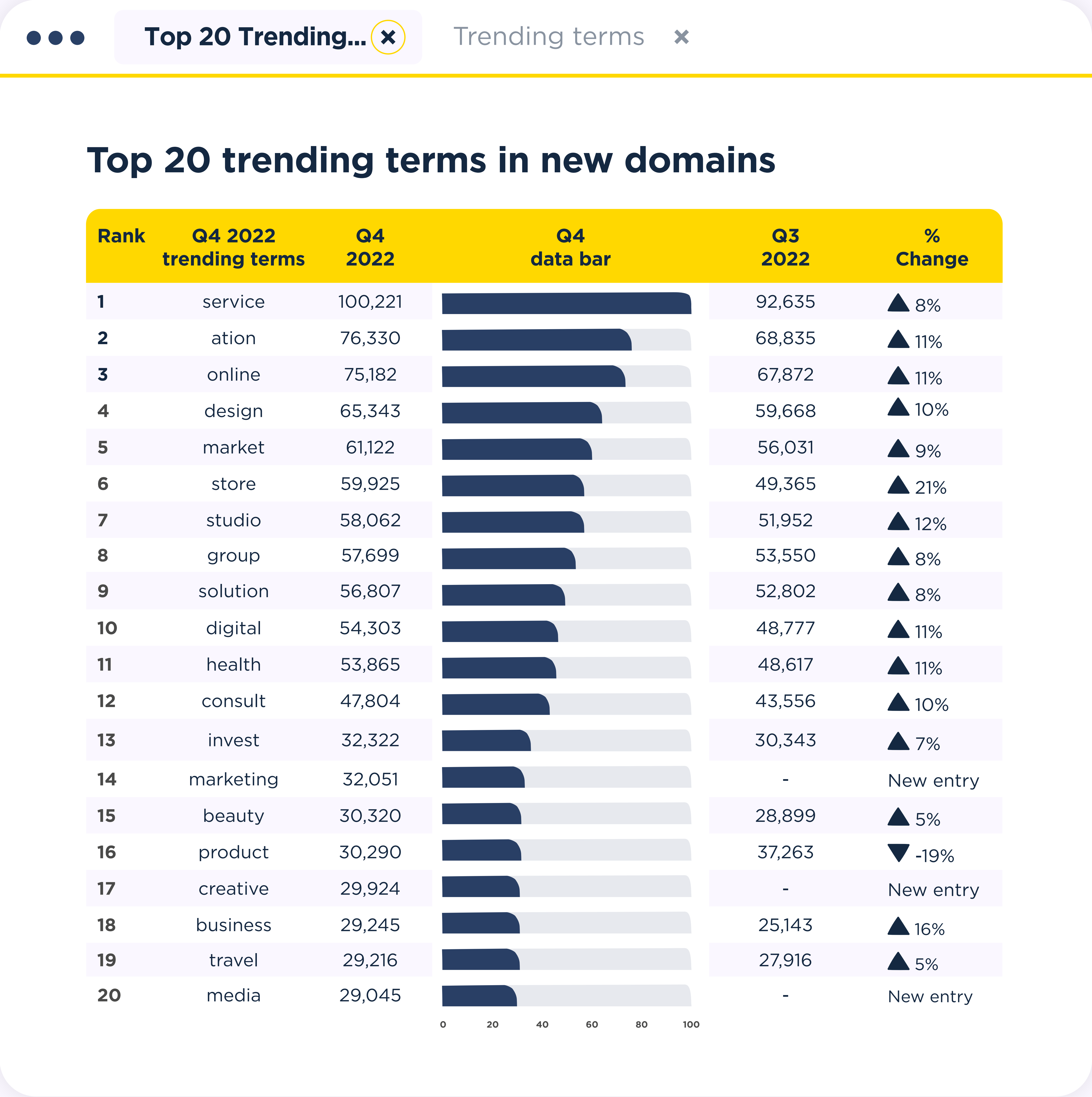
01

02

03

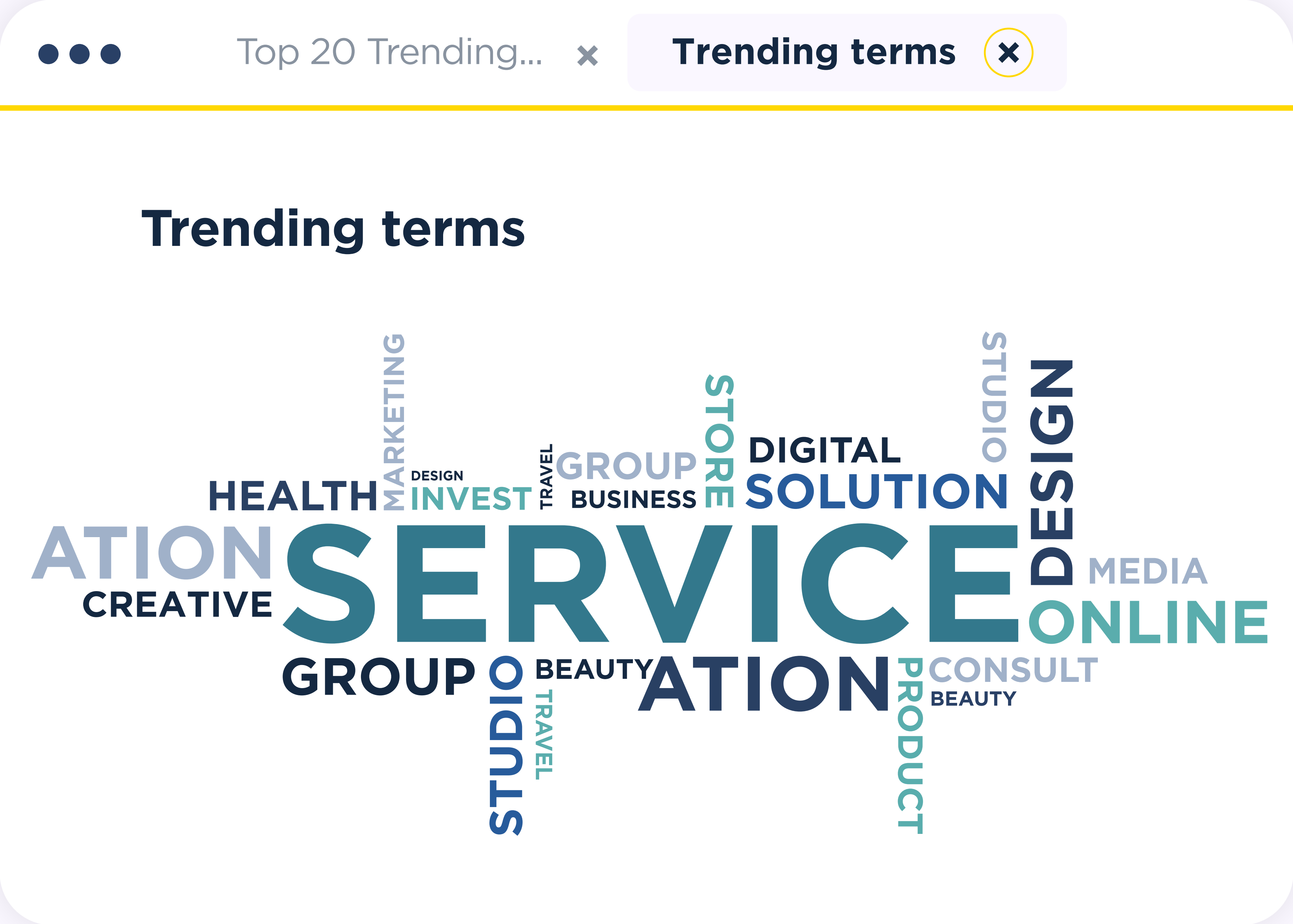
04

05


Top 20 Trending... ×
Trending terms ×
0
20
40
60
80
100

Top 20 trending terms in new domains

Rank	Q4 2022 trending terms	Q4 2022	Q4 data bar	Q3 2022	% Change
1	service	100,221		92,635	▲ 8%
2	ation	76,330		68,835	▲ 11%
3	online	75,182		67,872	▲ 11%
4	design	65,343		59,668	▲ 10%
5	market	61,122		56,031	▲ 9%
6	store	59,925		49,365	▲ 21%
7	studio	58,062		51,952	▲ 12%
8	group	57,699		53,550	▲ 8%
9	solution	56,807		52,802	▲ 8%
10	digital	54,303		48,777	▲ 11%
11	health	53,865		48,617	▲ 11%
12	consult	47,804		43,556	▲ 10%
13	invest	32,322		30,343	▲ 7%
14	marketing	32,051		-	New entry
15	beauty	30,320		28,899	▲ 5%
16	product	30,290		37,263	▼ -19%
17	creative	29,924		-	New entry
18	business	29,245		25,143	▲ 16%
19	travel	29,216		27,916	▲ 5%
20	media	29,045		-	New entry



Trending terms

01
02
03
04
05

Domains listed × Listings per month ×

Domains listed

Domain Overview

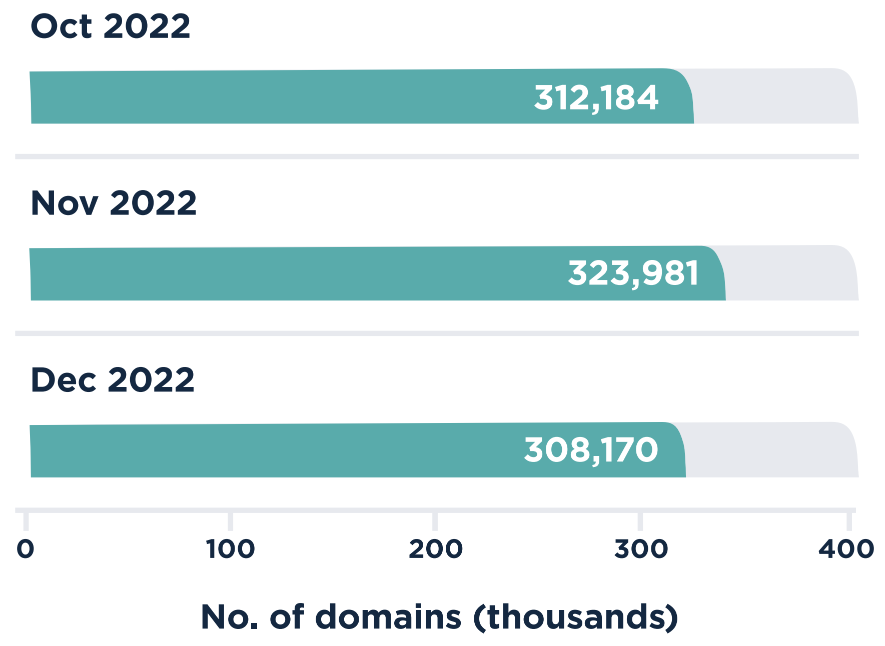
Over 940K domains were listed in Q4, with an average of 315K per month. This was a marginal increase of 7% against the third quarter of 2022.

Most phishing, business email compromise (BEC) fraud, and related cybercrime still favors new domain names. This, no doubt, is because the domain name involved in this type of abuse must be similar to the company or brand name the bad actor is targeting, so specific new domains need to be purchased. In cases where this is less important, we do see a slow but steady increase in the use of older, more established domain names.

As discussed last quarter, the latter concerns us the most when aged domains are used to facilitate spamming that delivers malware by email. Using established domain names with good reputation makes it harder for these malicious emails to be identified and dealt with.

Domains listed × Listings per month ×

Number of Domain listings per month



Quarterly Total

944,335

▲ 7% ▲

Monthly Average

314,778

▲ 20,541 ▲

What triggers a domain to be listed by Spamhaus?

Our systems evaluate hundreds of signals relating to a domain and its associated behaviors. Domains get evaluated on the areas listed below, using various automated techniques augmented with human research:

- Authentication and encryption
- Domain ownership
- Signals from large-scale internet traffic
- A domain's hosting environment
- Associations with spam, phishing, malware, ransomware, and other fraudulent activities.

The reputation engine scores a domain; if it meets predefined thresholds and conditions, it is listed in the relevant datasets. This is a continuous process: domains are evaluated and re-evaluated as relevant traffic is observed.

01

02

03

04

05

Trending terms... ×

TLDs listed in our domain data

All Freenom pseudo gTLDs experienced sharp increases in the number of domains listed, but the surge (+172%) in .ml domains stands out. Jump to Types of Abuse to find out why.

When it comes to nonsense names, these come in various shapes and sizes. Some of them immediately look suspicious. Domain-generated algorithms (DGAs) can easily create random nonsensical names, which ensures that an outsider (such as a threat researcher) can't guess the next domain name in the sequence.

When we can attribute a TLD's growth almost entirely to these nonsense strings, we question the validity of these registrations. Such is the case for .co, which experienced a +112% increase in listings in Q4. While .co is technically the country TLD for Colombia, it has an open registration and is actively promoted as an alternative to .com. We have seen many questionable new registrations inside the .co space, consisting of these random strings. We suspect these are all owned by one or, at most, a handful of owners.

It's worth mentioning that not all malicious bulk registrations are as easy to identify. Some operators go to great lengths to make correlations almost impossible to spot. This allows them to fly below the radar for as long as possible.

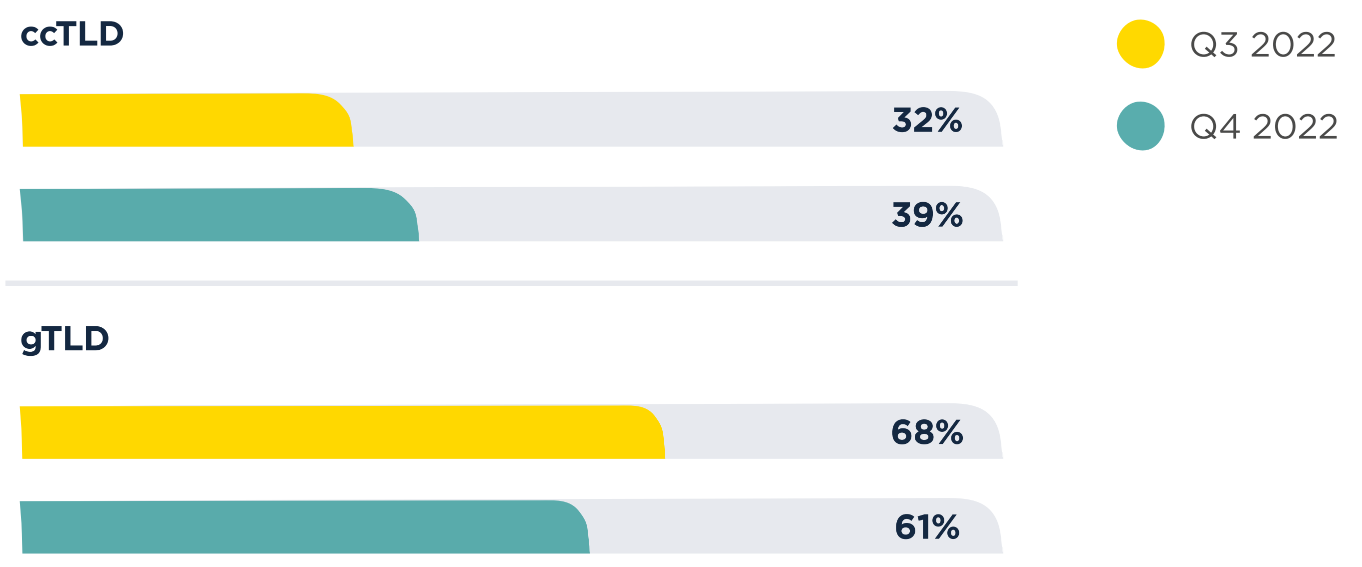
Interpreting the data ×

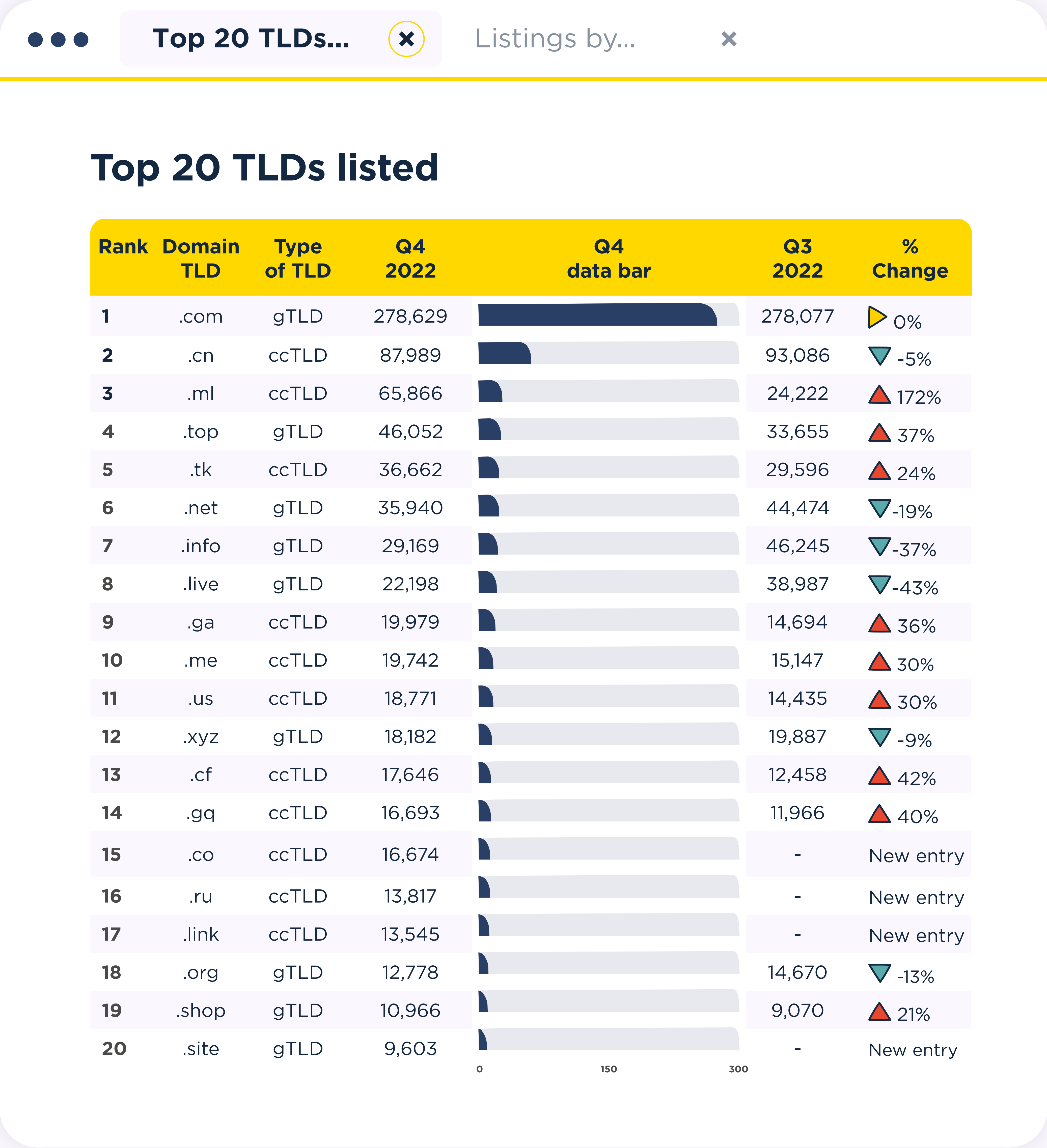
Registries with a greater number of active domains have greater exposure to abuse. For example, in Q4 2022, .click had almost 300k domains in its zone, of which 1.7% were listed.

Meanwhile, .beauty had just over 33.5k domains in its zone, with 6.37% listed in our domain dataset. Both are in the Top 20 of our listings. Still, one had a much higher percentage of active domains listed than the other.

Domain listing... ×

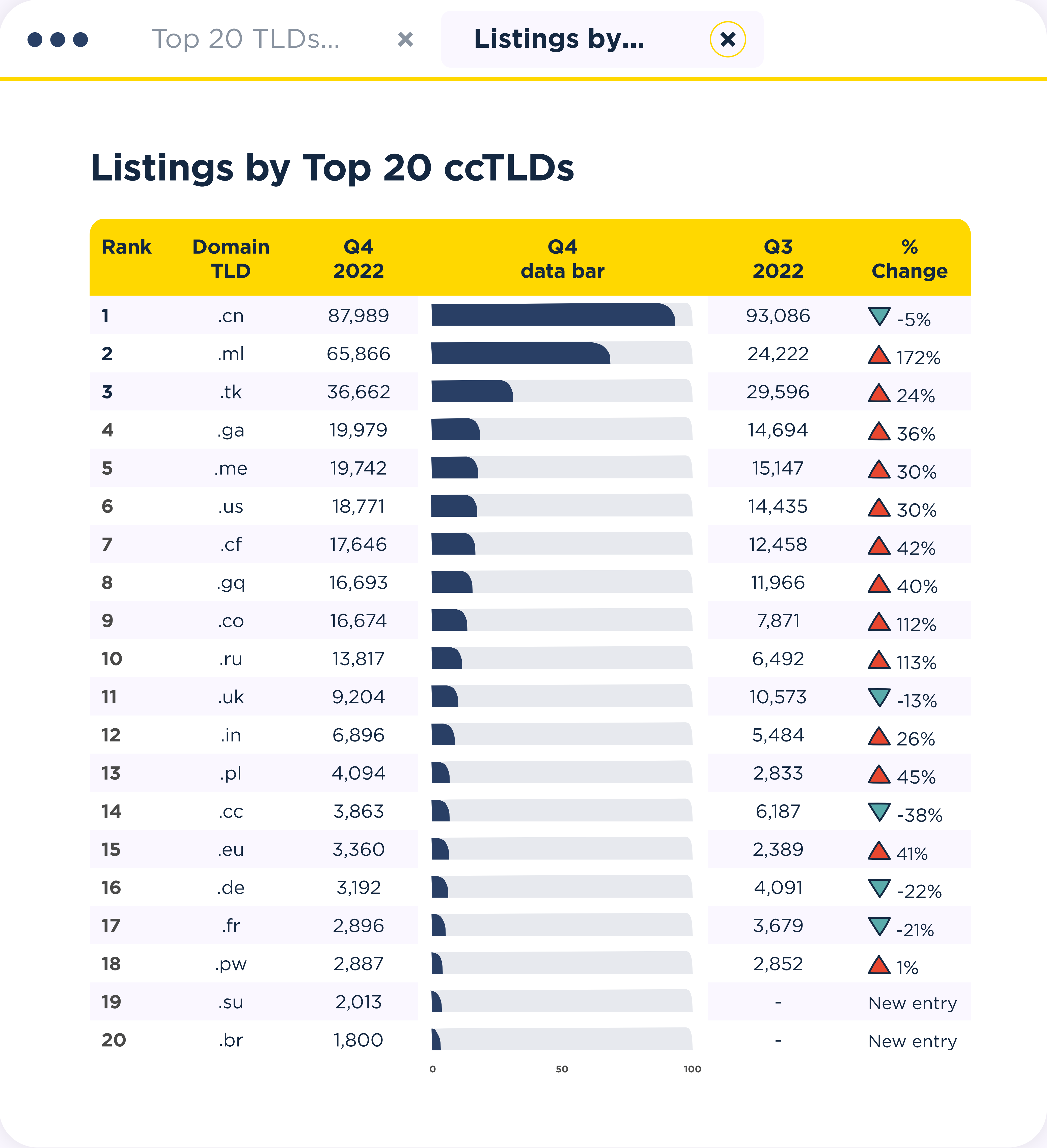
Domain listing TLD type comparison, quarter on quarter




Top 20 TLDs...
Listings by...
0
150
300

Top 20 TLDs listed

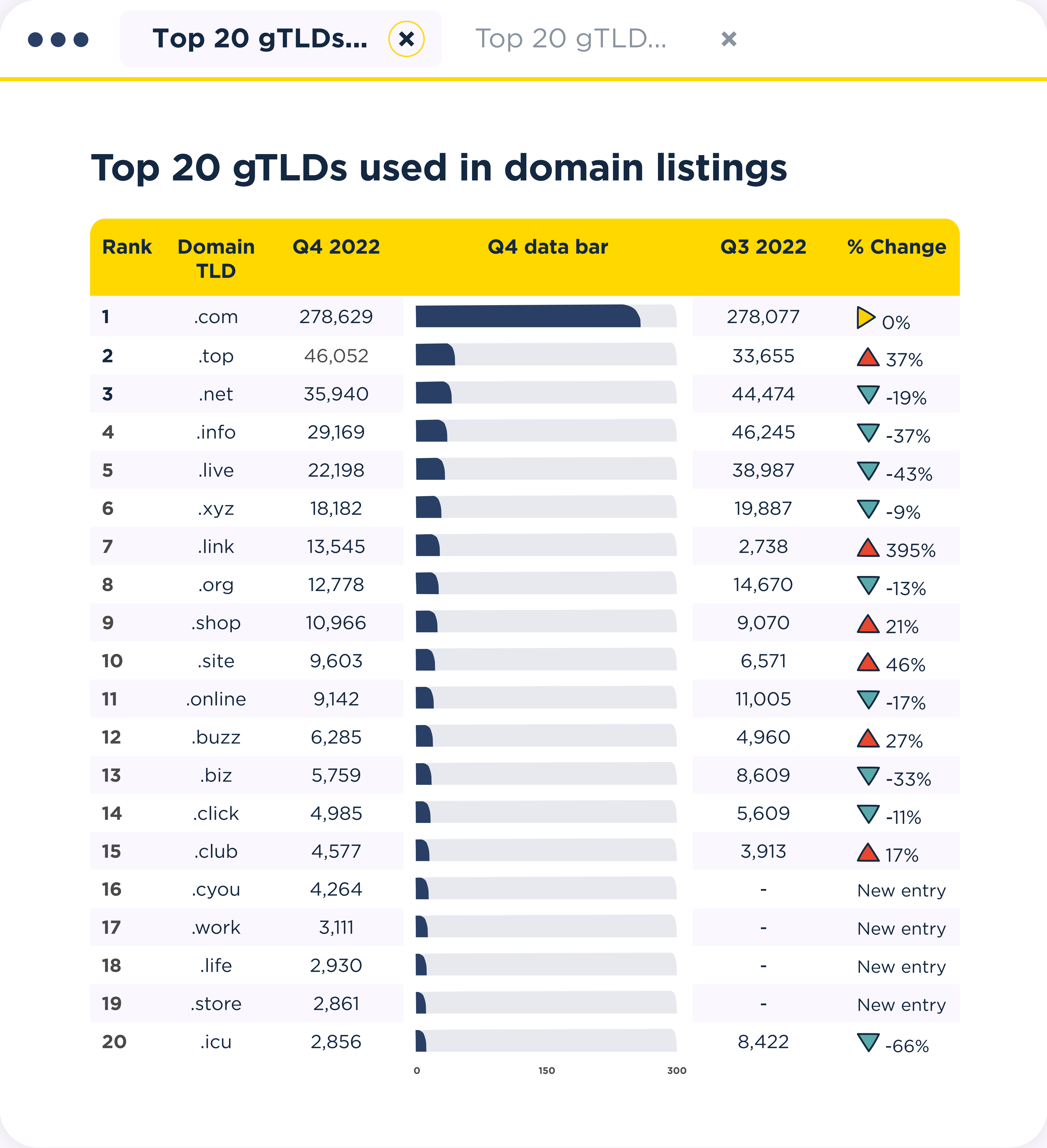
Rank	Domain TLD	Type of TLD	Q4 2022	Q4 data bar	Q3 2022	% Change
1	.com	gTLD	278,629		278,077	▷ 0%
2	.cn	ccTLD	87,989		93,086	▼ -5%
3	.ml	ccTLD	65,866		24,222	▲ 172%
4	.top	gTLD	46,052		33,655	▲ 37%
5	.tk	ccTLD	36,662		29,596	▲ 24%
6	.net	gTLD	35,940		44,474	▼-19%
7	.info	gTLD	29,169		46,245	▼-37%
8	.live	gTLD	22,198		38,987	▼-43%
9	.ga	ccTLD	19,979		14,694	▲ 36%
10	.me	ccTLD	19,742		15,147	▲ 30%
11	.us	ccTLD	18,771		14,435	▲ 30%
12	.xyz	gTLD	18,182		19,887	▼ -9%
13	.cf	ccTLD	17,646		12,458	▲ 42%
14	.gq	ccTLD	16,693		11,966	▲ 40%
15	.co	ccTLD	16,674		-	New entry
16	.ru	ccTLD	13,817		-	New entry
17	.link	ccTLD	13,545		-	New entry
18	.org	gTLD	12,778		14,670	▼ -13%
19	.shop	gTLD	10,966		9,070	▲ 21%
20	.site	gTLD	9,603		-	New entry


Top 20 TLDs...
Listings by...
0
50
100

Listings by Top 20 ccTLDs

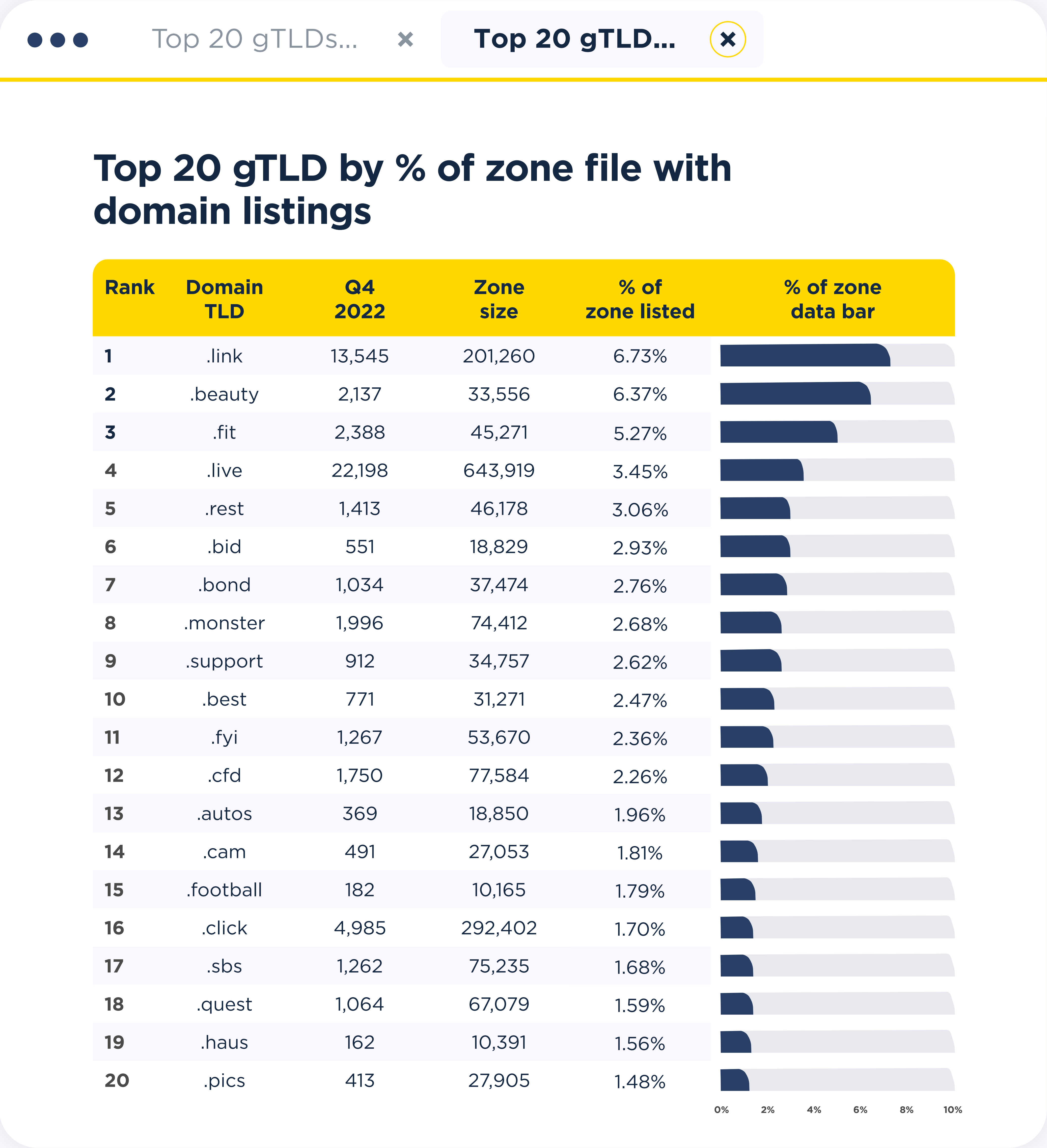
Rank	Domain TLD	Q4 2022	Q4 data bar	Q3 2022	% Change
1	.cn	87,989		93,086	▼ -5%
2	.ml	65,866		24,222	▲ 172%
3	.tk	36,662		29,596	▲ 24%
4	.ga	19,979		14,694	▲ 36%
5	.me	19,742		15,147	▲ 30%
6	.us	18,771		14,435	▲ 30%
7	.cf	17,646		12,458	▲ 42%
8	.gq	16,693		11,966	▲ 40%
9	.co	16,674		7,871	▲ 112%
10	.ru	13,817		6,492	▲ 113%
11	.uk	9,204		10,573	▼ -13%
12	.in	6,896		5,484	▲ 26%
13	.pl	4,094		2,833	▲ 45%
14	.cc	3,863		6,187	▼ -38%
15	.eu	3,360		2,389	▲ 41%
16	.de	3,192		4,091	▼ -22%
17	.fr	2,896		3,679	▼ -21%
18	.pw	2,887		2,852	▲ 1%
19	.su	2,013		-	New entry
20	.br	1,800		-	New entry

01
02
03
04
05


Top 20 gTLDs...
Top 20 gTLD...
0
150
300

Top 20 gTLDs used in domain listings

Rank	Domain TLD	Q4 2022	Q4 data bar	Q3 2022	% Change
1	.com	278,629		278,077	▷ 0%
2	.top	46,052		33,655	▲ 37%
3	.net	35,940		44,474	▼ -19%
4	.info	29,169		46,245	▼ -37%
5	.live	22,198		38,987	▼ -43%
6	.xyz	18,182		19,887	▼ -9%
7	.link	13,545		2,738	▲ 395%
8	.org	12,778		14,670	▼ -13%
9	.shop	10,966		9,070	▲ 21%
10	.site	9,603		6,571	▲ 46%
11	.online	9,142		11,005	▼ -17%
12	.buzz	6,285		4,960	▲ 27%
13	.biz	5,759		8,609	▼ -33%
14	.click	4,985		5,609	▼ -11%
15	.club	4,577		3,913	▲ 17%
16	.cyou	4,264		-	New entry
17	.work	3,111		-	New entry
18	.life	2,930		-	New entry
19	.store	2,861		-	New entry
20	.icu	2,856		8,422	▼ -66%


Top 20 gTLDs...
Top 20 gTLD...
0%
2%
4%
6%
8%
10%

Top 20 gTLD by % of zone file with domain listings

Rank	Domain TLD	Q4 2022	Zone size	% of zone listed	% of zone data bar
1	.link	13,545	201,260	6.73%	
2	.beauty	2,137	33,556	6.37%	
3	.fit	2,388	45,271	5.27%	
4	.live	22,198	643,919	3.45%	
5	.rest	1,413	46,178	3.06%	
6	.bid	551	18,829	2.93%	
7	.bond	1,034	37,474	2.76%	
8	.monster	1,996	74,412	2.68%	
9	.support	912	34,757	2.62%	
10	.best	771	31,271	2.47%	
11	.fyi	1,267	53,670	2.36%	
12	.cfd	1,750	77,584	2.26%	
13	.autos	369	18,850	1.96%	
14	.cam	491	27,053	1.81%	
15	.football	182	10,165	1.79%	
16	.click	4,985	292,402	1.70%	
17	.sbs	1,262	75,235	1.68%	
18	.quest	1,064	67,079	1.59%	
19	.haus	162	10,391	1.56%	
20	.pics	413	27,905	1.48%	

01

02

03

04

05

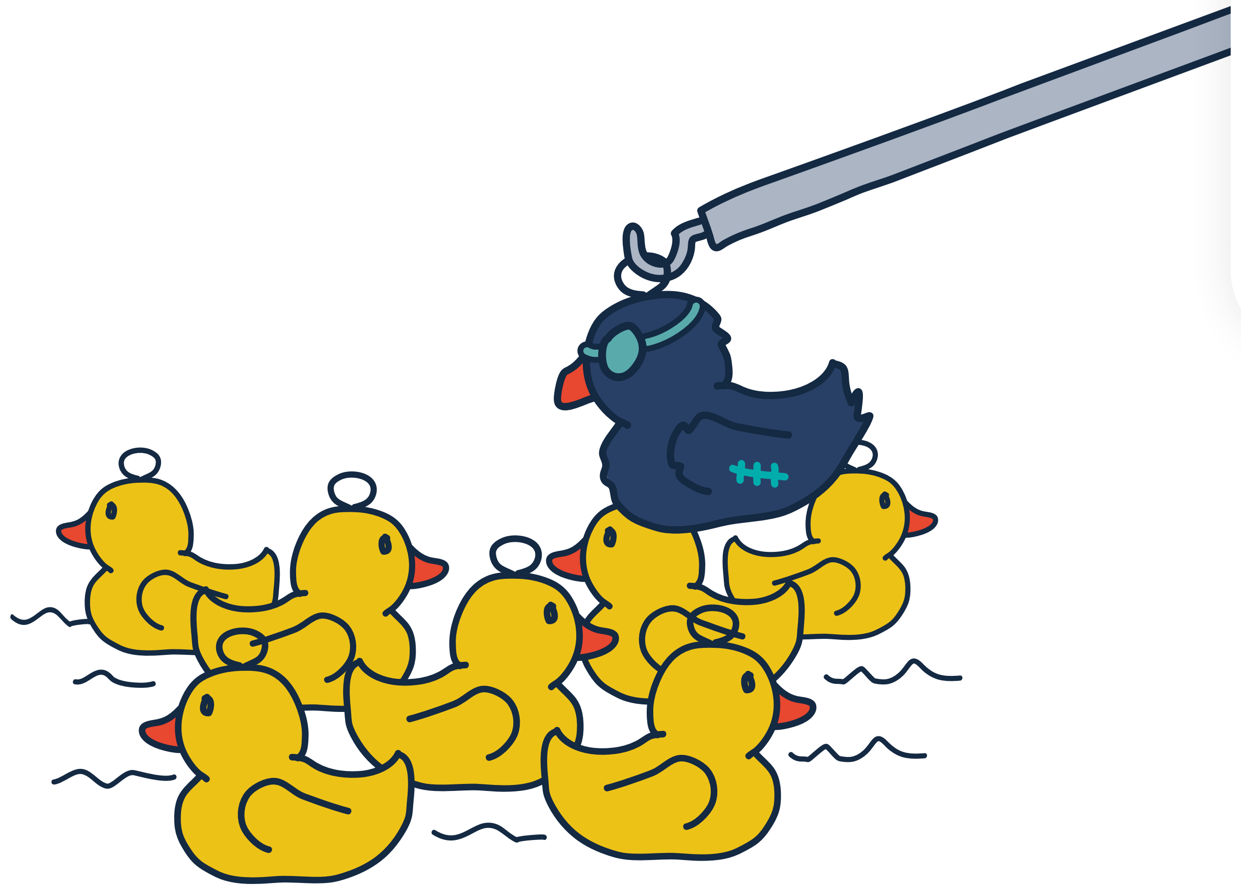
Trending phishing terms in domain listings

With fraudulent phishing domains, most bad actors try to create something that looks somewhat legitimate. As the actual target brand names, e.g, Amazon, are obviously unavailable, many resort to creating URLs with domains that convey a sense of urgency. These names can usually be split into three types, each of which are aimed at luring the victim in:

- **The brand name** - (icloud, amazon, paypal, etc.) This attracts the eye and conveys legitimacy.
- **The context** - (id, account, service, etc.) This provides the user with the subject matter.
- **The action** - (update, verify, check, resolve, payment) This is the call to action to make the victim click.

The Top 20 terms in phishing domains change position constantly, but are usually the same. Despite being as generic as most of the other terms, we attribute the increase in "sign-in" almost entirely to phishing campaigns connected with the .ml TLD, which we discuss in greater detail later in this report.

As the terms detailed in our Top 20 are relatively constant and predictable, it should be possible for registrars and registries to be more proactive in pinpointing these domains and applying extra verification measures. This would significantly limit fraudulent registrations and malicious use.



What terms do bad actors use for domain names?

Some miscreants don't care what a domain name looks like; however, others do. When it comes to the latter, they favor one of two options:

1. Try to look like a legitimate brand with the inclusion of a well-known brand name, e.g., "amazon".
2. Use words in the domain name that read like a call to action, e.g. "update now" and "verify your account".

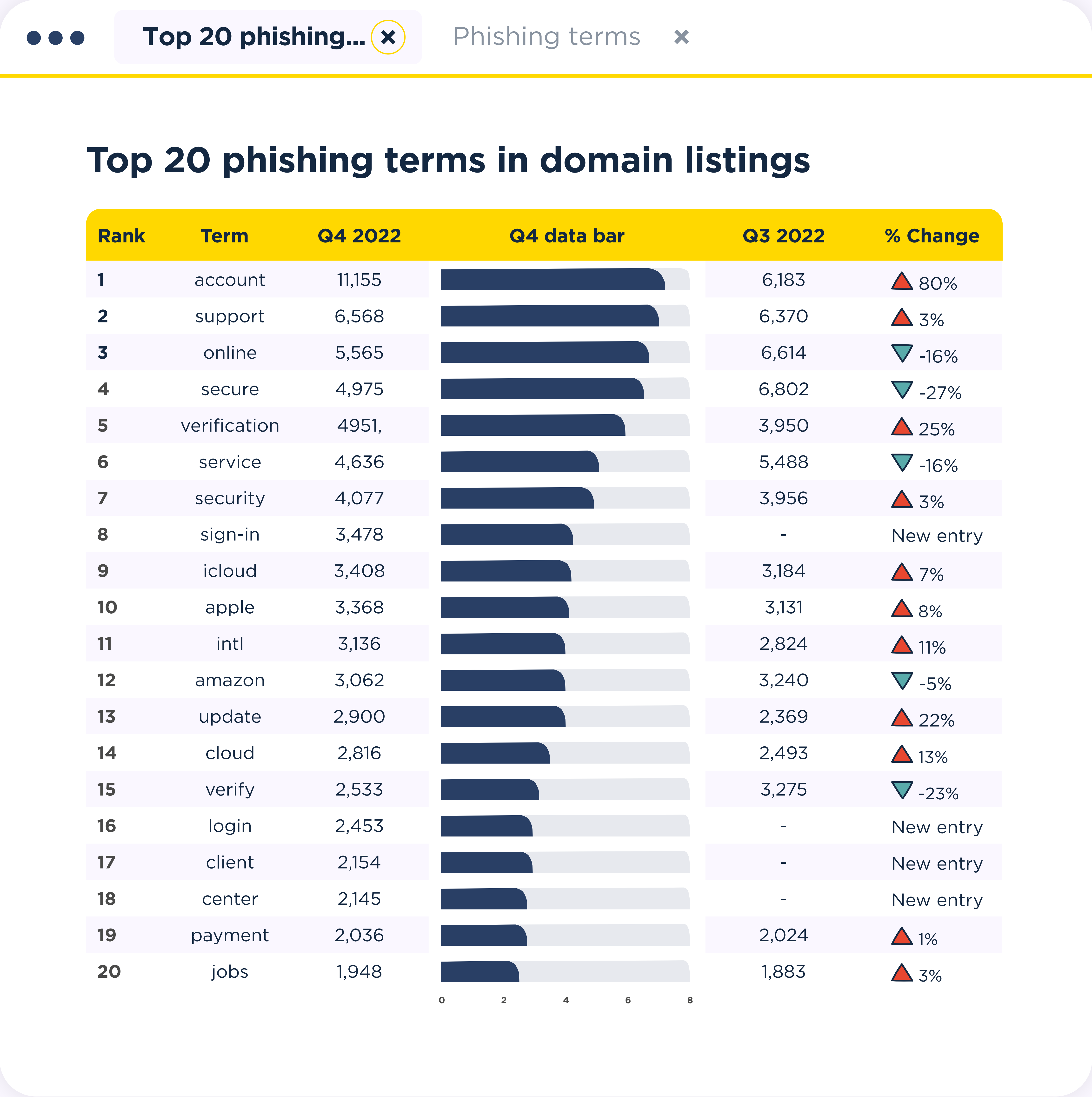
01

02

03

04

05


Top 20 phishing...
Phishing terms
0
2
4
6
8

Top 20 phishing terms in domain listings

Rank	Term	Q4 2022	Q4 data bar	Q3 2022	% Change
1	account	11,155		6,183	▲ 80%
2	support	6,568		6,370	▲ 3%
3	online	5,565		6,614	▼ -16%
4	secure	4,975		6,802	▼ -27%
5	verification	4951,		3,950	▲ 25%
6	service	4,636		5,488	▼ -16%
7	security	4,077		3,956	▲ 3%
8	sign-in	3,478		-	New entry
9	icloud	3,408		3,184	▲ 7%
10	apple	3,368		3,131	▲ 8%
11	intl	3,136		2,824	▲ 11%
12	amazon	3,062		3,240	▼ -5%
13	update	2,900		2,369	▲ 22%
14	cloud	2,816		2,493	▲ 13%
15	verify	2,533		3,275	▼ -23%
16	login	2,453		-	New entry
17	client	2,154		-	New entry
18	center	2,145		-	New entry
19	payment	2,036		2,024	▲ 1%
20	jobs	1,948		1,883	▲ 3%

Phishing terms

01

02

03

04

05

Types of listings

In Q4, there was a noticeable increase in the number of domains contained in the URLs hosting QakBot. This, in part, caused the steep increase in both compromised malware (+616%) and botnet command and controller (C&C) (+828%) listings. Anyone who reads our Malware or Botnet updates will know of the significant increases in Qakbot activity over the past quarter.

In Q4, we attributed around 36% of all reported compromised malware URLs to Qakbot. This malware is generally used by Initial Access Brokers (IABs), who compromise large corporate networks, and often sell access to cybercriminals who launch ransomware attacks. Operators of Qakbot prefer to host their malware operations on compromised devices, which explains the significant increase in Q4's compromised figures.

There was also a 14% rise in malicious phishing domains. When reduced to its most basic concept, a domain name is like an entry in a global internet phonebook, under which the owner can publish additional names that point to IP addresses (in the case of DNS, A records).

As with the somewhat redundant phone directory, a large part of a domain's functionality ensures that humans can find or utilize services offered on an IP address. With this in mind, the existence of domain names that consist of long strings of numbers, such as "5656320259656314.ml" is somewhat puzzling. After all, what user types in 16 digits into their browser address bar to navigate to a website?

Once we analyzed the host names observed, the picture became clearer – they're all part of phishing campaigns. To the general masses, the difference between a fraudulent and legitimate host name is hard to recognize, particularly when it boils down to the location of a dot and/or a forward slash. We've seen tens of thousands of these kinds of domains listed in Q4 across multiple TLDs. Still, the largest proportion was associated with .ml.

Differences between compromised and malicious domains

A **compromised domain** is where it is evident to our research team that the domain has a legitimate owner; however, a bad actor has compromised it. One example is where a content management system (CMS) is hacked, and the domain is being used to send spam resulting in the listing of the domain. Within Spamhaus these types of listings are referred to as "abused-legit".

A **malicious domain** is where a domain is registered by the person committing the internet abuse.

01

02

03

04

05

●●● Types of listings ⊗

Types of listings

Bad reputation

Malicious	Compromised
436,320	5,949
▶ 0% ◀	-43% ▼

A domain’s reputation score has exceeded policy limits.

Botnet C&C

Malicious	Compromised
3,724	269
▲ 3% ▲	▲828%▲

A domain is registered for use for a botnet command and controller (C&C). (A subset of bad reputation.)

Malware

Malicious	Compromised
7,205	25,519
▲ 39% ▲	▲616%▲

A domain observed to be used in the distribution of malware. (A subset of bad reputation.)

Phishing

Malicious	Compromised
359,916	5,949
▲ 14% ▲	▼-29%▼

A domain is associated with phishing activities. (A subset of bad reputation.)

01

02

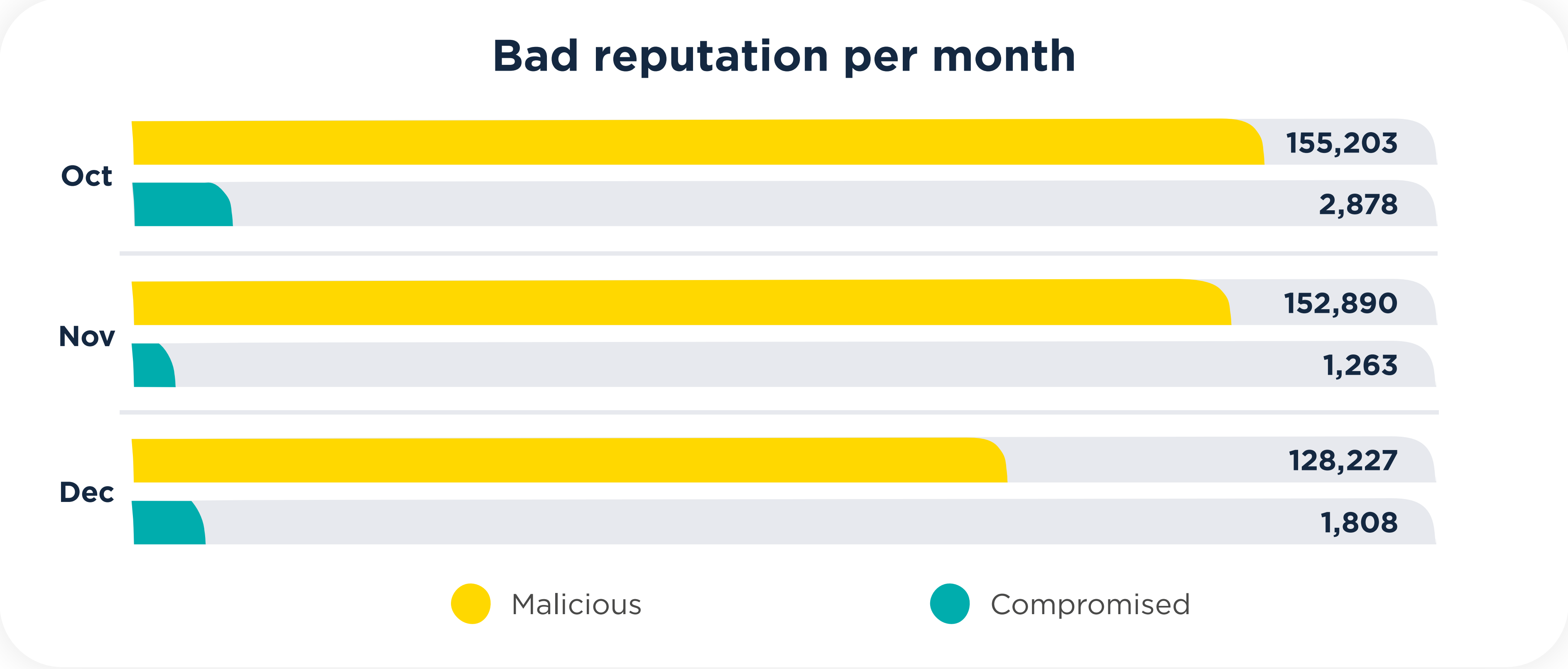
03

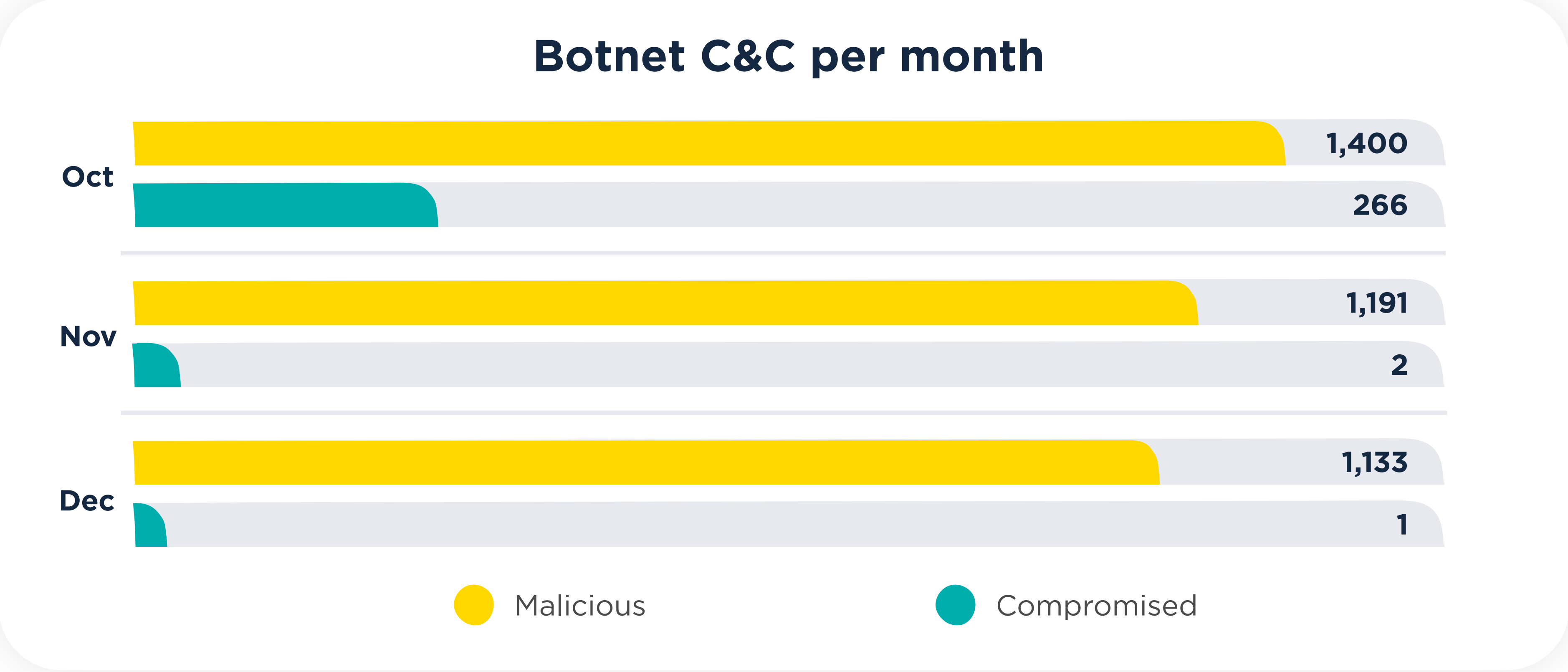
04

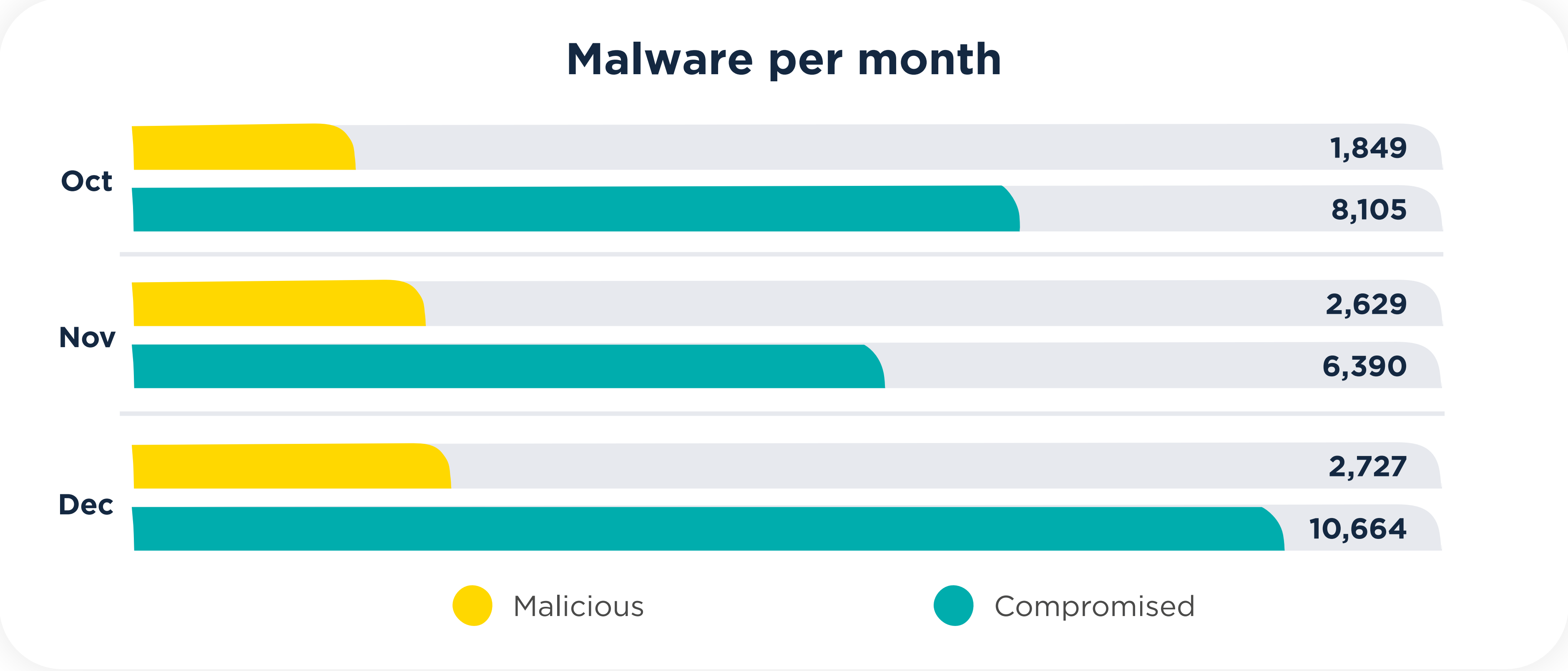
05

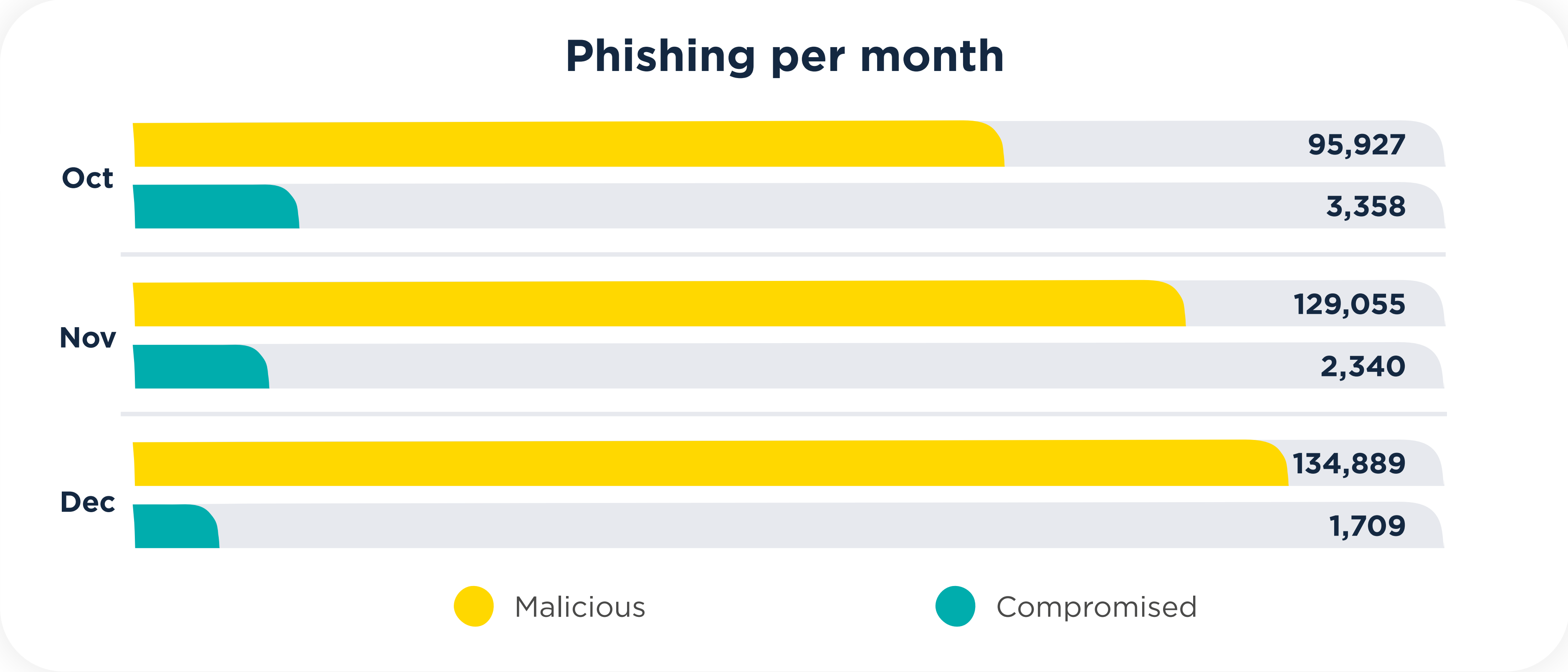
Types of abuse ×

Types of abuse


Bad reputation per month


Botnet C&C per month


Malware per month


Phishing per month

Recommendations of the quarter

As this report is read by many different people in many different roles, providing recommendations that will benefit everyone is almost impossible. So this quarter, we're taking a slightly different approach, and addressing our recommendations to those registering and hosting domain names. We realize this might be considered wishful thinking, but the bar needs to be raised.

If a layman saw what we and others see, they would quite rightly ask why this type of abuse is allowed to continue. How can miscreants create thousands upon thousands of unpronounceable, nonsense names to facilitate serious cybercrime such as phishing? Why do hosting and content delivery network (CDN) providers permit their systems to keep this abuse online?

A big part of the answer to those questions is automation. As you would expect, most new domains or accounts get approved automatically. But we hope that providers can apply this "automation focus" to finding and dealing with the kind of criminal activity detailed above.

Part of the bigger picture is that many companies continue to see abuse as a cost center, where spending less money is the prevailing aim. It will be no surprise that we at Spamhaus vehemently disagree with this. And as much as we think the industry could do a much better job of dealing with abuse without regulation, it is fast becoming clear that the threat of enforcement may be required to move the needle in the right direction.

01

02

03

04

05

Additional info

About Spamhaus

Spamhaus is the trusted authority on IP and domain reputation, uniquely placed in the industry because of its strong ethics, impartiality, and quality of actionable data. This data not only protects but also provides insight across networks and email worldwide.

With over two decades of experience, its researchers and threat hunters focus on exposing malicious activity to make the internet a better place for everyone. A wide range of industries, including leading global technology companies, use Spamhaus' data. Currently, it protects over three billion mailboxes worldwide.

Report Methodology

- Various sources, including ISPs, ESPs, Enterprise business and research specialists share data with Spamhaus. This data is analyzed by our researchers via machine learning, heuristics, and manual investigations to identify malicious behavior and poor reputation. The data in this report reflects the malicious domains that Spamhaus has observed identified and listed, it does not reflect the entirety of malicious and bad reputation domains on the internet.
- Malicious campaigns are regularly targeted to specific geographies, ISPs or organizations. This in turn can skew figures.
- Due to ongoing issues outside of our control to do with WHOIS and RDAP data, some of our data is incomplete. This is a direct result of GDPR.
- Where we are missing zone file data we welcome registries to contact us and share this data.