

The Rise and Fall of an Undelegated Domain: The Impact of a Global Misconfiguration

roy.arends@icann.org

RIPE 89

October 2024

Network Working Group
Request for Comments: 2606
BCP: 32
Category: Best Current Practice

D. Eastlake
A. Panitz
June 1999

Reserved Top Level DNS Names

Status of this Memo

This document specifies an Internet Best Current Practices for the Internet Community, and requests discussion and suggestions for improvements. Distribution of this memo is unlimited.

Copyright Notice

Copyright (C) The Internet Society (1999). All Rights Reserved.

Abstract

To reduce the likelihood of conflict and confusion, a few top level domain names are reserved for use in private testing, as examples in documentation, and the like. In addition, a few second level domain names reserved for use as examples are documented.

Network Working Group
Request for Comments: 2606
BCP: 32
Category: Best Current Practice

D. Eastlake
A. Panitz
June 1999

Reserved Top Level DNS Names

Status of this Memo

This document specifies:

For example, without guidance, a site might set up some local additional unused top level domains for testing of its local DNS code and configuration. Later, these TLDs might come into actual use on the global Internet. As a result, local attempts to reference the real data in these zones could be thwarted by the local test versions. Or test or example code might be written that accesses a

To reduce the likelihood of conflict and confusion, a few top level domain names are reserved for use in private testing, as examples in documentation, and the like. In addition, a few second level domain names reserved for use as examples are documented.

Introduction of new TLD's prior to 2012

aero	info	name
asia	jobs	pro
biz	mobi	tel
cat	museum	travel
coop		

Since 2012 over a thousand new TLDs added.
There are currently 1502 top level domains.

SSAC reports and more info

- SAC057: SSAC Advisory on Internal Name Certificates
- SAC062: SSAC Advisory Concerning the Mitigation of Name Collision Risk
- SAC066: SSAC Comment Concerning JAS Phase One Report on Mitigating the Risk of DNS Namespace Collisions
- <https://www.icann.org/resources/pages/name-collision-2013-12-06-en>



DNS Magnitude

Comparing .at with .at with .at

2019-05-10 · Alex Mayrhofer · R&D

Count hosts, not queries

ICANN DNS Symposium · public



nic.at

DNS Magnitude
Comparing .at with .at with .at

2019-05-10 · Alex Mayrhofer · R&D

    1 · www.nic.at

Count hosts, not queries

Domains requested by 100
hosts are more popular than
domains requested 100 times
by a single host

Count hosts, not queries

DNS Magnitude - A Popularity Figure for Domain Names,
and its Application to L-root Traffic

Alexander Mayrhofer, Michael Braunöder, Aaron Kaplan - nic.at GmbH*

August 5, 2020

DNS Statistics for Monday, 21 October 2024

(generated on Sunday, 27 October 2024)

- Hide delegated top-level domains
- Hide special-use top-level domains
- Hide other top-level domains

Magnitude ▼	Top-Level Domain ▲▼	status ▲▼	Daily Rank ▲▼	Weekly Rank ▲▼	Monthly Rank ▲▼	Quarterly Rank ▲▼	Coverage ▲▼	Unique Sources ▲▼	Queries Per Thousand ▲▼	Query Volume ▲▼	Avg Query/Source ▲▼
9.696	com	delegated	1	1	1	1	64%	1,093,361	159%	1,680,692,309	1,537
9.577	net	delegated	2	2	2	2	54%	921,682	112%	1,184,217,071	1,284
9.206	arpa	delegated	3	3	3	3	32%	541,026	121%	1,285,133,239	2,375
9.194	org	delegated	4	4	4	4	31%	532,142	9%	103,521,083	194
8.986	uk	delegated	5	5	5	5	23%	395,008	3%	32,969,783	83
8.931	info	delegated	6	6	6	6	21%	364,661	2%	21,150,343	58
8.761	io	delegated	7	7	7	7	16%	286,038	5%	56,527,104	197
8.741	de	delegated	8	8	8	8	16%	278,060	1%	20,107,157	72
8.728	local	special-use	9	9	9	9	16%	272,818	79%	840,968,395	3,082
8.676	biz	delegated	10	10	10	10	14%	253,142	1%	11,079,800	43
8.674	cz	delegated	11	11	11	11	14%	252,243	0%	9,086,545	36
8.642	cn	delegated	12	▲ 12	13	13	14%	241,130	22%	240,584,691	997
8.612	xyz	delegated	13	▼ 13	12	12	13%	230,884	1%	12,727,782	55
8.605	me	delegated	14	14	14	14	13%	228,652	1%	11,824,474	51
8.590	eu	delegated	15	15	15	15	13%	223,897	1%	12,095,569	54
8.536	co	delegated	16	16	16	16	12%	207,126	1%	17,766,353	85

(generated on Tuesday, 21 May 2024)

- Hide delegated top-level domains
- Hide special-use top-level domains
- Hide other top-level domains

Magnitude ▼	Top-Level Domain ▲▼	status ▲▼	Daily Rank ▲▼	Weekly Rank ▲▼	Monthly Rank ▲▼	Quarterly Rank ▲▼	Coverage ▲▼	Unique Sources ▲▼	Queries Per Thousand ▲▼	Query Volume ▲▼	Avg Query/Source ▲▼
9.699	com	delegated	1	1	1	1	64%	1,083,845	152%	1,559,010,178	1,438
9.547	net	delegated	2	2	2	2	52%	872,099	100%	1,026,707,781	1,177
9.215	arpa	delegated	▲ 3	4	4	4	32%	541,608	153%	1,570,528,692	2,899
9.211	org	delegated	▼ 4	3	3	3	32%	538,818	9%	98,527,939	182
9.005	uk	delegated	5	5	5	5	24%	400,793	3%	39,580,677	98
8.939	info	delegated	6	6	6	6	21%	365,002	1%	20,160,576	55
8.780	io	delegated	7	7	7	7	17%	290,357	3%	40,052,871	137
8.746	de	delegated	8	8	8	8	16%	276,818	2%	22,535,974	81
8.737	local	special-use	9	9	9	9	16%	273,287	81%	833,490,585	3,049
8.720	biz	delegated	10	10	10	10	15%	266,560	1%	12,118,454	45
8.678	cz	delegated	11	11	11	11	15%	250,991	0%	8,249,160	32
8.629	cn	delegated	12	12	▲ 12	13	14%	234,172	23%	235,063,065	1,003
8.618	eu	delegated	13	13	▼ 13	12	13%	230,362	1%	14,453,231	62
8.608	me	delegated	14	14	▲ 14	15	13%	226,944	1%	11,416,975	50
8.600	co	delegated	15	15	▼ 15	14	13%	224,406	1%	12,391,469	55
8.561	us	delegated	▲ 16	▲ 18	▲ 21	25	12%	212,422	1%	11,048,593	52
8.559	scloud		▲ 17	▲ 25	▲ 54	635	12%	211,575	1%	13,626,406	64

DNS Statistics for Wednesday, 15 May 2024

(generated on Tuesday, 21 May 2024)

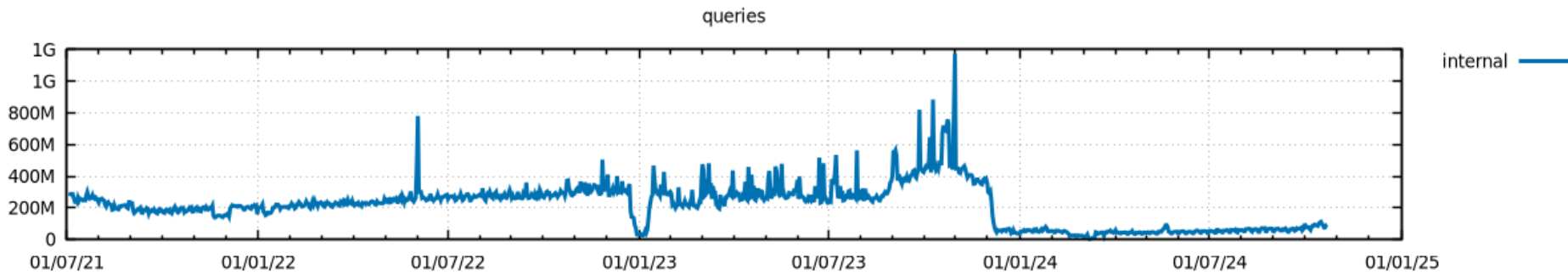
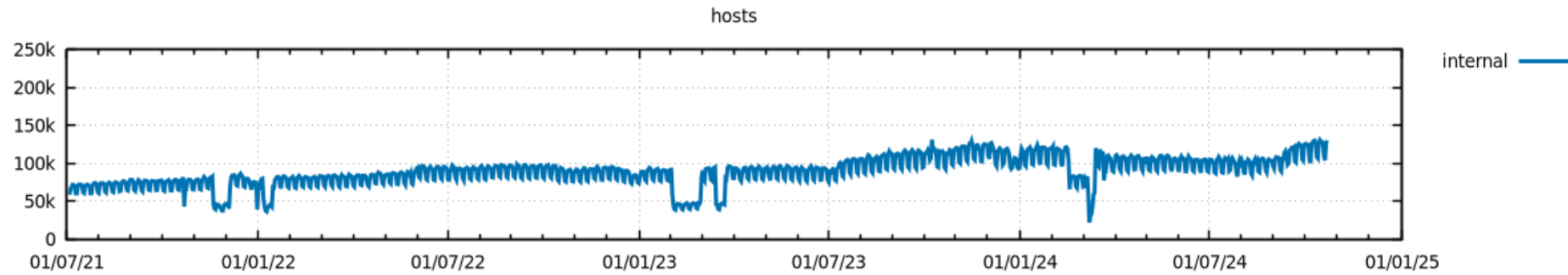
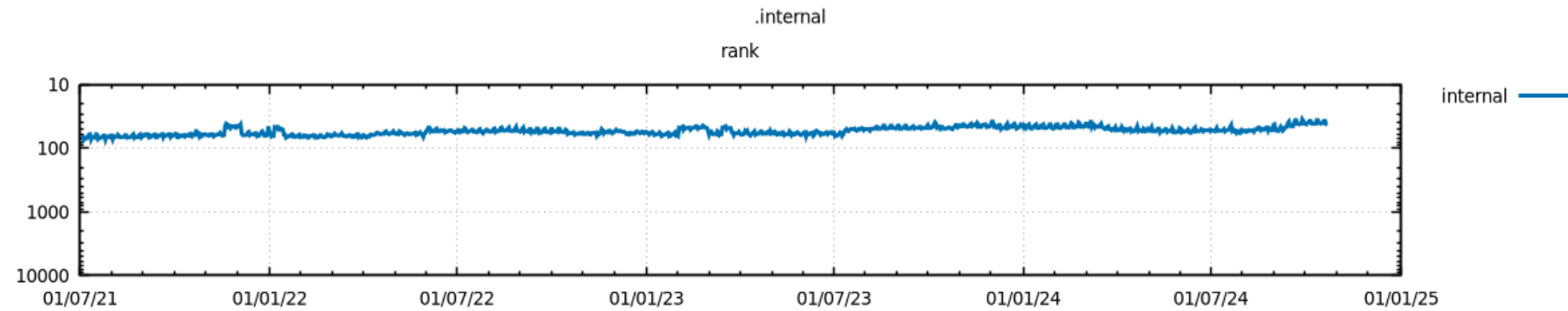
- Hide delegated top-level domains
- Hide special-use top-level domains
- Hide other top-level domains

Magnitude ▼	Top-Level Domain ▲▼	status ▲▼	Daily Rank ▲▼	Weekly Rank ▲▼	Monthly Rank ▲▼	Quarterly Rank ▲▼	Coverage ▲▼	Unique Sources ▲▼	Queries Per Thousand ▲▼	Query Volume ▲▼	Avg Query/Source ▲▼
8.559	scloud		▲ 17	▲ 25	▲ 54	635	12%	211,575	1%	13,626,406	64
8.102	internal		▼ 54	52	▼ 52	49	6%	110,051	5%	51,042,498	463
8.049	localdomain		▼ 58	▲ 56	▼ 57	54	6%	102,007	5%	60,454,317	592
7.829	lan		▼ 98	▲ 94	▼ 97	91	4%	74,432	10%	110,322,600	1,482
7.767	olk		▲ 113	▼ 164	▲ 151	152	4%	68,040	0%	1,592,366	23
7.597	home		▲ 142	▲ 143	▼ 145	135	3%	53,376	12%	126,017,670	2,360
7.429	unifi		▼ 207	▲ 197	▼ 201	182	2%	41,966	1%	12,564,460	299
7.244	wpad		▼ 284	▼ 282	▼ 281	272	1%	32,185	0%	6,458,489	200
7.205	server		▼ 294	▲ 284	▼ 288	280	1%	30,423	0%	1,506,514	49
7.201	initplayback		▼ 295	293	▼ 293	269	1%	30,229	0%	1,556,141	51
7.181	corp		▲ 299	▼ 306	▼ 304	298	1%	29,389	4%	49,930,720	1,698
7.069	tcs		▲ 320	▼ 340	▲ 337	343	1%	25,024	0%	500,949	20
7.063	https		▲ 322	331	▼ 331	320	1%	24,823	0%	1,734,176	69
6.997	null		▲ 341	345	▼ 345	338	1%	22,589	0%	3,392,489	150
6.978	bind		▼ 348	▲ 342	▼ 344	335	1%	21,971	0%	6,826,154	310
6.973	undefined		▲ 350	▲ 352	▲ 354	360	1%	21,819	0%	2,613,210	119

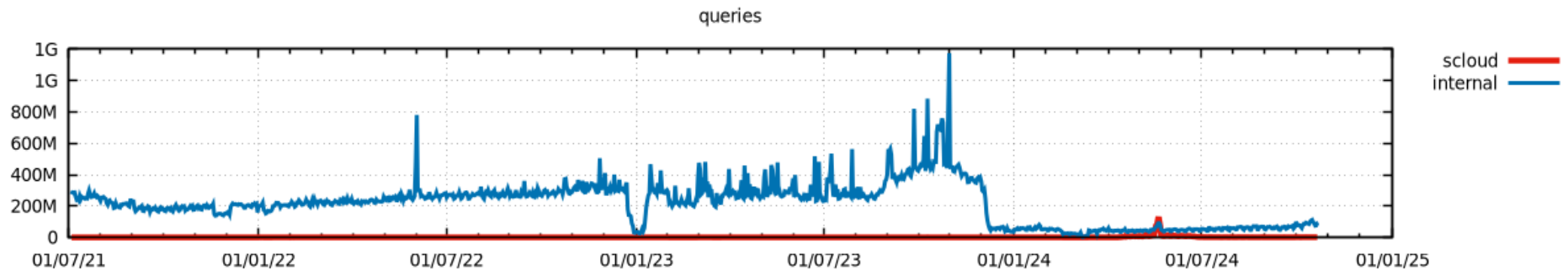
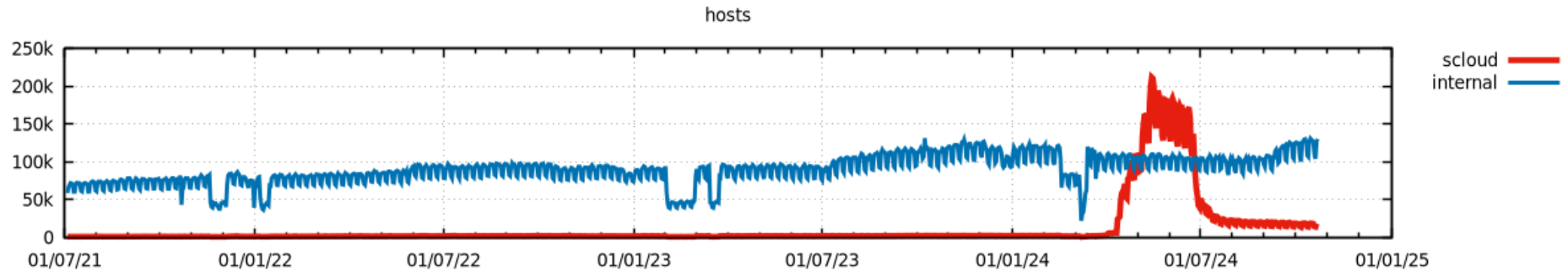
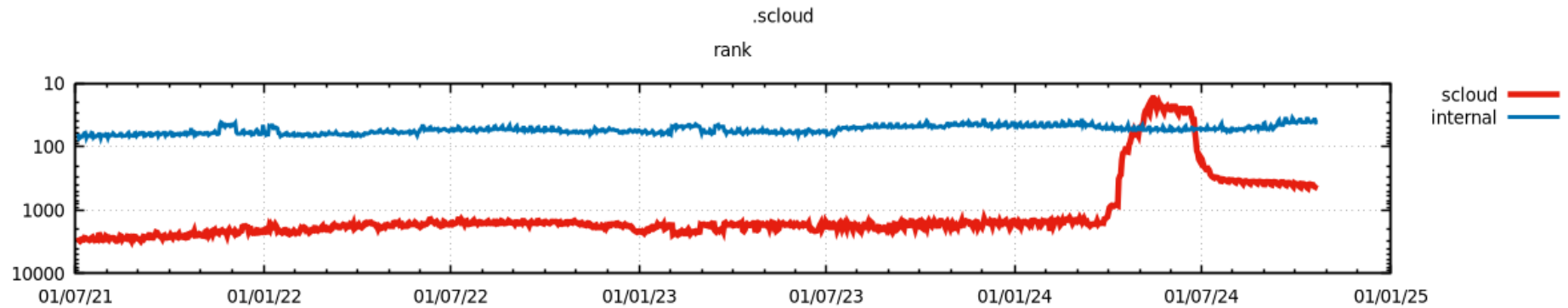
Further analysis

- Packet capture reveals millions of queries for “collector.azure.microsoft.scloud”.
- Many other microsoft.scloud strings observed.
- Culprit seems to be:
 - Microsoft Teams versions
 - Releases around April and May 2024

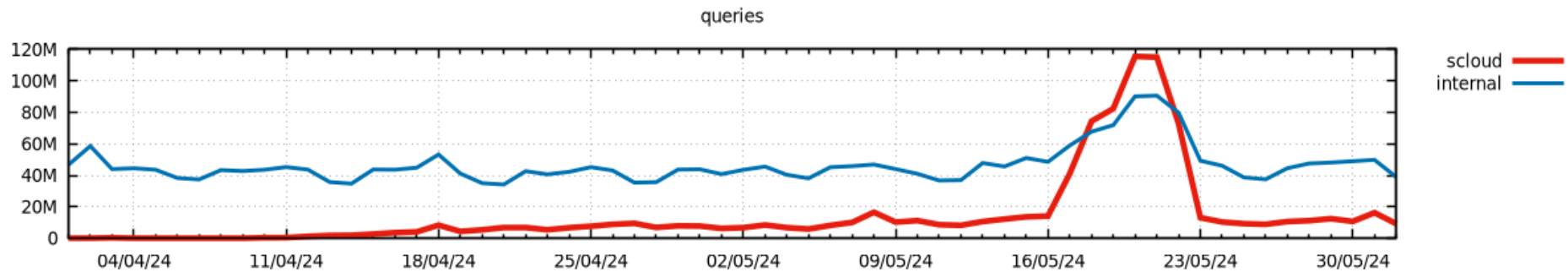
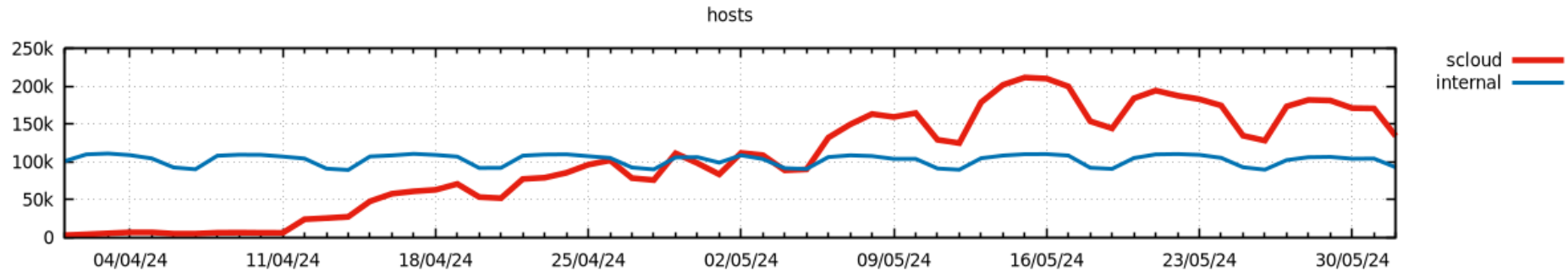
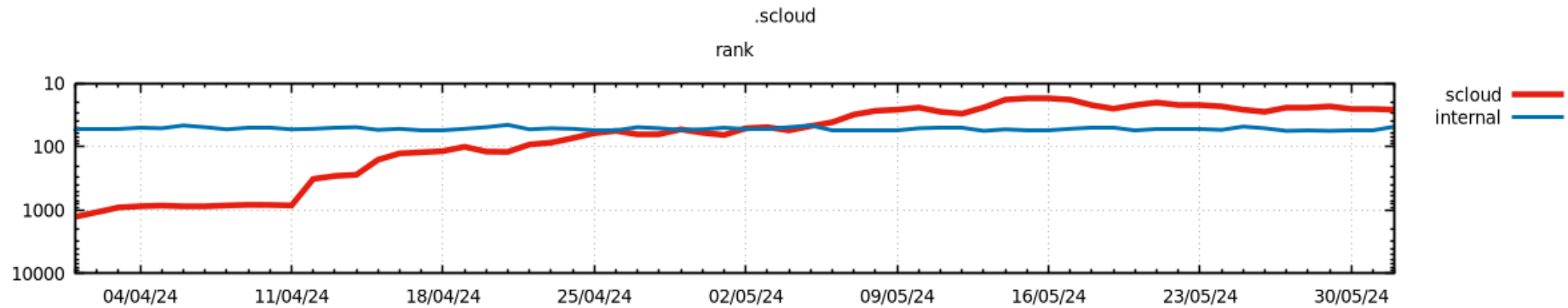
Steady state



Internal vs scloud

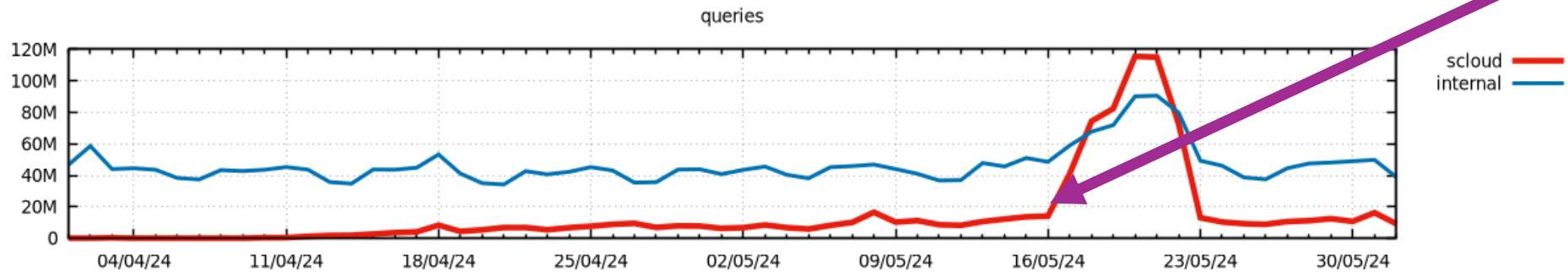
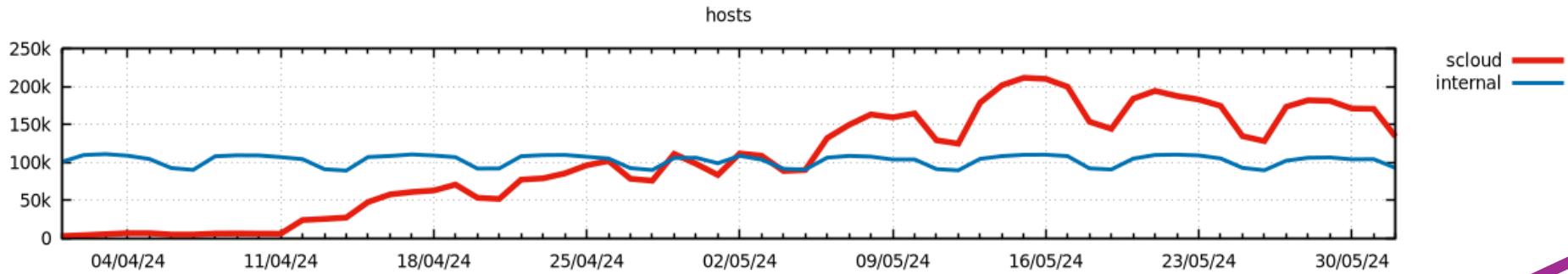
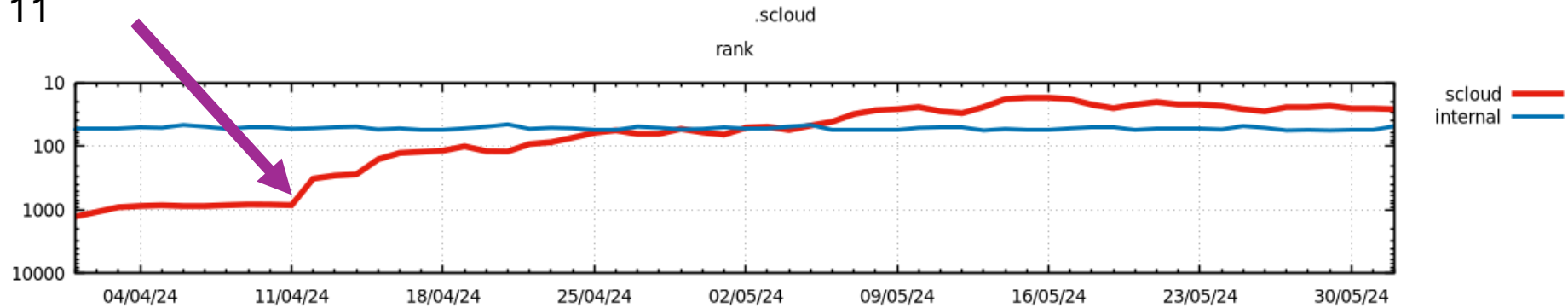


Internal vs scloud



Internal vs scloud

April 11



May 16

Mobile: iOS version history

 Expand table

Release year	Release date	Teams version	Slimcore version
2024	June 10	6.10.1 (100772024102601)	2024.05.20.02
2024	May 29	6.9.2 (100772024093903)	2024.13.01.05
2024	May 16	6.8.1 (100772024083501)	2024.13.01.05
2024	April 30	6.7.1 (100772024073003)	2024.09.01.03
2024	April 11	6.6.1 (100772024062901)	2024.09.01.03
2024	March 26	6.5.1 (100772024053003)	2024.05.01.02

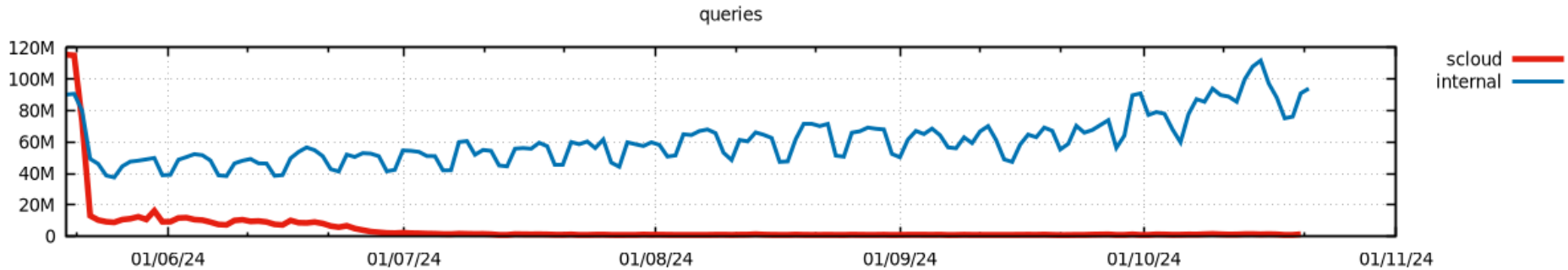
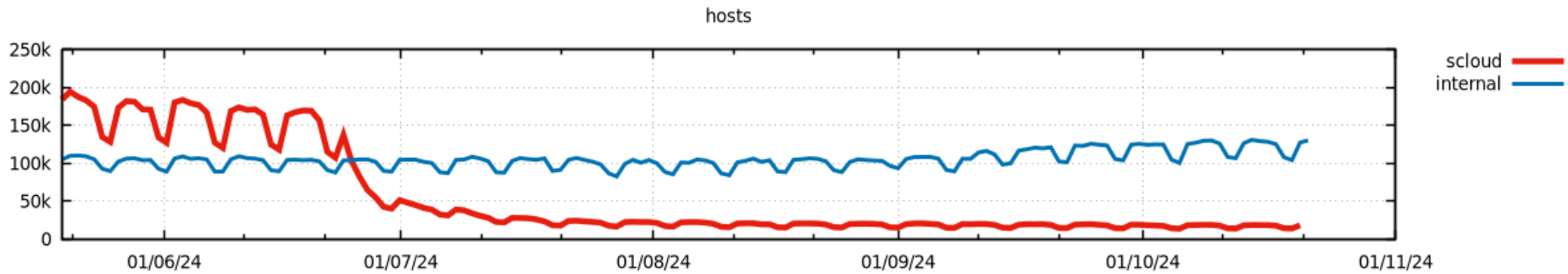
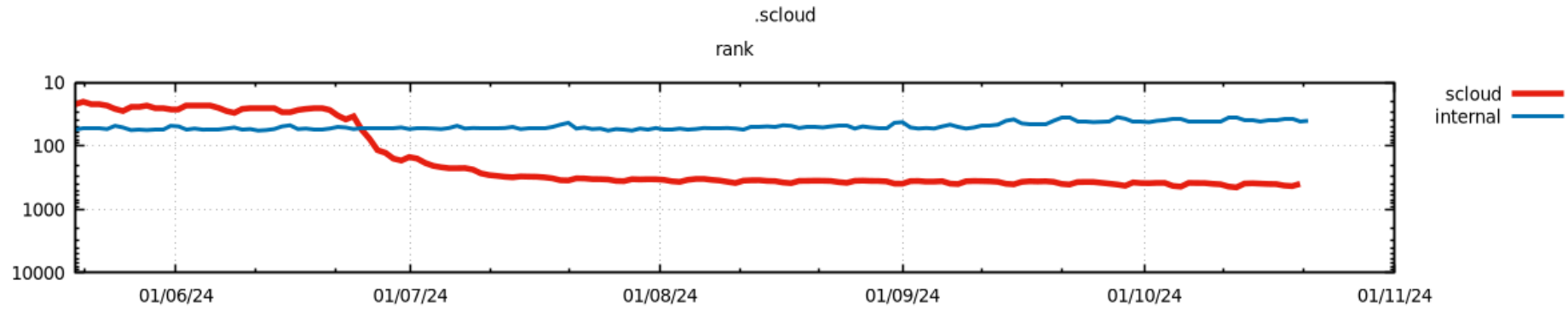
<https://learn.microsoft.com/en-us/officeupdates/teams-app-versioning>

Note that the IOS version is just one of 36 variations of "Teams" on this page

Outreach

- Reached out to a friend at Microsoft on May 13th
- Shared traffic samples, graphs and magnitude data
- They confirmed it was a bug
- Will be fixed in subsequent releases

Internal vs scloud, currently



Questions?

RFC2606

datatracker.ietf.org/doc/html/rfc2606

SAC057/062/066

icann.org/en/ssac/publications

IDS2019

icann.org/ids-2019

Magnitude Paper

icann.org/en/system/files/files/dns-magnitude-05aug20-en.pdf

DNS Magnitude

magnitude.research.icann.org

(historic info)

magnitude.research.icann.org/historic

Name Collisions

icann.org/resources/pages/name-collision-2013-12-06-en

MS Teams Version Info

learn.microsoft.com/en-us/officeupdates/teams-app-versioning

roy.arends@icann.org