

# Monitoring root DNS prefixes

NANOG 96

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# Border Gateway Protocol (BGP)

BGP

“The glue that holds the Internet together” Why is it vulnerable to attacks?

- Original specification dates back to 1989 (RFC 1105)
- The Internet primarily consisted of universities, research institutions, and governmental networks that operated on mutual trust
- As a result, there was no need to incorporate security mechanisms such as authentication and authorization into the protocol

# Root DNS Servers

Authoritative name servers

Name	IPv4	IPv6	Operator
A-Root	198.41.0.4	2001:503:ba3e::2:30	Verisign, Inc.
B-Root	170.247.170.2	2801:1b8:10::b	USC, Information Sciences Institute
C-Root	192.33.4.12	2001:500:2::c	Cogent Communications
D-Root	199.7.91.13	2001:500:2d::d	University of Maryland
.....			
M-Root	202.12.27.33	2001:dc3::35	WIDE Project

# Root DNS Server Prefixes

## Why monitor them?

- Critical Internet infrastructure, worth protecting
- These prefixes are heavily anycasted. BGP anomalies (e.g. exact prefix hijacks) can go largely unnoticed, due to their limited impact on the data plane

# Root DNS Server Prefixes

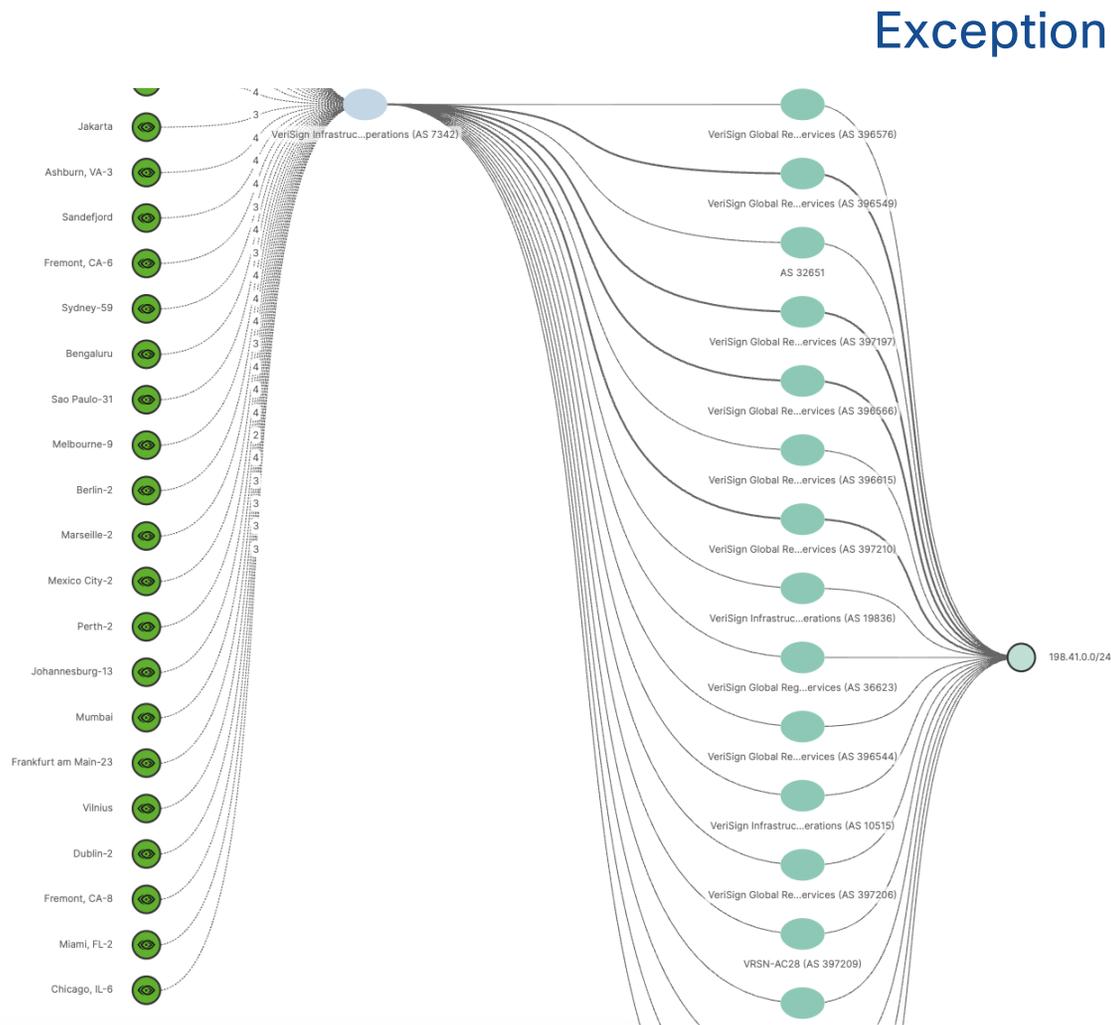
## How we alert on events?

- Identify the covering prefix of each root DNS server's IP address in the Default-Free Zone (DFZ)
  - For example, B-Root's IPv4 address (170.247.170.2) is covered by its announced prefix, 170.247.170.0/24
  - Identify the ASN that announces it
- Create alert rule - "This prefix is allowed to be announced only by this ASN"

# Verisign

Creating alert rules is more complex – requires use of the API

- Verisign uses a unique ASN per node (RFC 6382)



# Jan 27, 2023 – F-Root

Events

- AS 24028 appeared as origin of 2001:500:2f::/48 - ISC (AS 3557)

The screenshot shows the Code BGP Platform interface. The left sidebar contains navigation options: Overview, Setup, AS Filters, Prefix Filters, Alert Rules, Data Services, State (selected), and API. The main content area is titled 'State' and has tabs for Prefixes, Autonomous Systems, Peerings, Routes (selected), and RPKI ROAs. A filter 'Origin AS: 24028' is applied. The main table displays route information:

Prefix	Origin AS	Neighbor AS	AS Path	RPKI Status	First Detected ↓	Last Update
2001:500:2f::/48	24028	38001	38001 24028	Invalid	Jan 27, 2023, 11:48:20	Jan 27, 2023, 11:48:18

Below the main table, a section titled 'Data Sources of Route 2001:500:2f::/48 - 38001 24028' shows a detailed view of the data source:

Data Service	Route Collector	IP	ASN	City	Country	Continent	Last Update ↓
RIS Live	RRC00	2406.1400.8.34-1	38001	Singapore		Asia	Jan 27, 2023, 11:48:18

Both tables include pagination controls at the bottom right, showing 'Rows per page: 10' and '1-1 of 1'.

# Feb 25, 2023 – E and F-Root

Events

- AS 17639 appeared as origin of 2001:500:2f::/48 - ISC (AS 3557)

The screenshot shows the Code BGP Platform interface. The main content area displays route information for the prefix 2001:500:2f::/48. The route is shown as invalid, with its origin AS being 17639. Below the main route table, two data source tables are visible, showing the origin of the route from other ASes.

Prefix	Origin AS	Neighbor AS	AS Path	RPKI Status	Last Update
2001:500:2f::/48	17639	396998	396998 17639	Invalid	Feb 25, 2023, 01:47:35

Data Service	Route Collector	IP	ASN	City	Country	Continent	Last Update
RIS Live	RRC11	2001:504:1::3539:6998:1	396998	New York	USA	North America	Feb 25, 2023, 01:47:35

Data Service	Route Collector	IP	ASN	City	Country	Continent	Last Update
Code BGP Monitor		103.170.233.249	57695	Tokyo	Japan	Asia	Feb 25, 2023, 01:47:35
Code BGP Monitor		194.156.163.203	57695	Singapore	Singapore	Asia	Feb 25, 2023, 01:47:35

# Feb 25, 2023 – E and F-Root

Events

- The same AS 17639 appeared as origin of 2001:500:a8::/48 - NASA (AS 21556)

Code BGP Platform

Letteris Manassakis editor | publicdemo

State Info

Prefixes Autonomous Systems Peerings Routes RPKI ROAs

Origin AS: 17639

Prefix	Origin AS	Neighbor AS	AS Path	RPKI Status	First Detected ↓	Last Update
> 2001:500:a8::/48	17639	1239	1239 17639	NotFound	Feb 25, 2023, 01:47:48	Feb 25, 2023, 01:47:46
> 2001:500:a8::/48	17639	396998	396998 17639	NotFound	Feb 25, 2023, 01:47:43	Feb 25, 2023, 01:47:35
> 2001:500:a8::/48	17639	1239	205148 9002 1239 17639	NotFound	Feb 25, 2023, 01:47:43	Feb 25, 2023, 01:47:36
> 2001:500:2f::/48	17639	396998	396998 17639	Invalid	Feb 25, 2023, 01:47:43	Feb 25, 2023, 01:47:35
> 2001:500:a8::/48	17639	1239	9002 1239 17639	NotFound	Feb 25, 2023, 01:47:43	Feb 25, 2023, 01:47:35
> 2001:500:2f::/48	17639	137409	57695 137409 17639	Invalid	Feb 25, 2023, 01:47:35	Feb 25, 2023, 01:47:35
> 2001:500:a8::/48	17639	137409	57695 137409 17639	NotFound	Feb 25, 2023, 01:47:34	Feb 25, 2023, 01:47:35

Rows per page: 10 1-7 of 7

# June 12, 2023 – K-Root

Events

- AS 201333 appeared as origin of 193.0.14.0/24 – RIPE NCC (AS 25152)

The screenshot shows the 'Code BGP Platform' interface. The user is logged in as 'Lefteris Manassakis' (editor | publicdemo). The main view is 'Looking Glass' with the 'Routes' tab selected. A filter for 'Origin AS: 201333' is applied. The main table shows route information for 193.0.14.0/24, with one entry showing an 'Invalid' RPKI status and origin AS 201333. An expanded view shows 'Data Sources of Route 193.0.14.0/24 - 59919 201333' with one entry from 'RIS Live' in Massa, Italy, Europe, with an 'Invalid' RPKI status.

Prefix	Origin AS	Neighbor AS	AS Path	RPKI Status	Last Update
193.0.14.0/24	201333	59919	59919 201333	Invalid	12 Jun 2023, 05:44:18

Data Service	Peer IP	ASN	City	Country	Continent	Last Update
RIS Live	5.178.95.254	59919	Massa	Italy	Europe	12 Jun 2023, 05:44:18

Prefix	Origin AS	Neighbor AS	AS Path	RPKI Status	Last Update
193.0.14.0/24	201333	12637	12637 201333	Invalid	12 Jun 2023, 05:43:59
193.0.14.0/24	201333	57111	57111 201333	Invalid	12 Jun 2023, 05:43:58

# Apr 28, 2023 – L-Root

- AS 137661 appeared as origin of 199.7.83.0/24 - ICANN (AS 20144)

The screenshot shows the 'Code BGP Platform' interface. The left sidebar contains navigation options: Overview, Setup, Looking Glass (selected), API, Alerts, and Dashboards. The main content area is titled 'Looking Glass' and has tabs for Prefixes, Autonomous Systems, Peerings, Routes (selected), and RPKI ROAs. A search filter 'Origin AS: 137661' is applied. A table displays route information:

Prefix	AS Path	RPKI Status	First Detected ↓	Last Update
199.7.83.0/24	57695 60068 9498 9829 (7) 137661	NotFound	Apr 28, 2023, 14:15:06	Apr 28, 2023, 14:15:06

Below the table, a section titled 'Data Sources of Route 199.7.83.0/24 - 57695 60068 9498 9829 (7) 137661' contains another table:

Data Service	IP	ASN	City	Country	Continent	Last Update ↓
Code BGP Monitor	194.156.163.203	57695	Singapore	Singapore	Asia	Apr 28, 2023, 14:15:06

At the bottom of the interface, there are pagination controls: 'Rows per page: 10' and '1-1 of 1'.

# Apr 28, 2023 – L-Root

- Superprefix (199.7.82.0/23) was announced by the same AS

```
Twelve99 Looking Glass
1299:431 (RPKI state Unknown)
1299:2009 (DO NOT announce to ANY peer in Europe)
1299:1000 1299:37000 1299:37200
15412 4826 0790 20144
62.115.181.143 from 62.115.181.143 (62.116.137.100)
Origin IGP, metric 0, localpref 200, IGP metric 0, weight 0, tag 0
Received 10:22:02 ago, valid, external, AS Origin not found
Communities:
1299:431 (RPKI state Unknown)
1299:1000 1299:37000 1299:37200
04849 55836 133296 133296 133296 133296 133296 133296 20144
62.115.177.11 from 62.115.177.11 (49.44.5.216)
Origin IGP, metric 0, localpref 200, IGP metric 0, weight 0, tag 0
Received 11:45:57 ago, valid, external, ECHP head, ECHP, AS Origin not found
Communities:
1299:431 (RPKI state Unknown)
1299:1000 1299:37000 1299:37200
04849 55836 133296 133296 133296 133296 133296 133296 20144
62.115.11.247 from 62.115.11.247 (49.44.5.217)
Origin IGP, metric 0, localpref 200, IGP metric 0, weight 0, tag 0
Received 11:46:01 ago, valid, external, ECHP, AS Origin not found
Communities:
1299:431 (RPKI state Unknown)
1299:1000 1299:37000 1299:37200
0400 0820 0820 0820 0820 0820 0820 0820 137661
62.115.49.157 from 62.115.49.157 (203.193.87.220)
Origin IGP, metric 0, localpref 200, IGP metric 0, weight 0, tag 0
Received 5d17h ago, valid, external, ECHP head, ECHP, AS Origin not found
Communities:
1299:431 (RPKI state Unknown)
1299:1000 1299:37000 1299:37200 9408:1 9408:33 9408:91 9408:0820 34111:0408 34911:0408 40512:0408
0408 0820 0820 0820 0820 0820 0820 0820 137661
62.115.49.99 from 62.115.49.99 (203.193.87.241)
Origin IGP, metric 0, localpref 200, IGP metric 0, weight 0, tag 0
Received 5d17h ago, valid, external, ECHP, AS Origin not found
Communities:
1299:431 (RPKI state Unknown)
1299:1000 1299:37000 1299:37200 9408:1 9408:33 9408:91 9408:0820 34111:0408 34911:0408 40512:0408
3491 20144
62.115.188.81 from 62.115.188.81 (63.223.34.5)
Origin IGP, metric 0, localpref 150, IGP metric 0, weight 0, tag 0
Received 43d19h ago, valid, external, AS Origin not found
Communities:
1299:431 (RPKI state Unknown)
1299:1000 1299:4000 1299:27000 1299:27200 3491:500 3491:522 3491:9081 3491:0800 3491:0881 3491:0087 3491:62218 3491:62228
0762 38880 20144
93.186.133.134 from 93.186.133.134 (213.144.176.126)
Origin IGP, metric 0, localpref 150, IGP metric 0, weight 0, tag 0
Received 43d00h ago, valid, external, AS Origin not found
Communities:
```

# Apr 28, 2023 – L-Root

- Other announcements of the same AS were not prepended

The screenshot shows the 'Looking Glass' application interface. The left sidebar contains navigation options: Overview, Setup, Looking Glass (selected), API, Alerts, and Dashboards. The main content area is titled 'Looking Glass Info' and has tabs for Prefixes, Autonomous Systems, Peerings, Routes (selected), and RPKI ROAs. A search filter 'Origin AS: 137661' is applied. The table below displays route information with columns for Prefix, Origin AS, Neighbor AS, AS Path, RPKI Status, First Detected, and Last Update.

Prefix	Origin AS	Neighbor AS	AS Path	RPKI Status	First Detected ↓	Last Update
> 199.7.83.0/24	137661	9829	57695 60068 9498 9829 (7) 137661	NotFound	Apr 30, 2023, 15:02:02	Apr 30, 2023, 15:02:55
> 103.122.36.0/24	137661	55824	57695 137409 64049 55836 9885 55824 137661	Valid	Apr 30, 2023, 15:01:14	Apr 30, 2023, 15:01:43
> 103.122.36.0/24	137661	9829	57695 60068 6762 6453 9829 137661	Valid	Apr 30, 2023, 15:01:14	Apr 30, 2023, 15:01:43
> 103.122.36.0/24	137661	55824	6939 64049 55836 9885 55824 137661	Valid	Apr 30, 2023, 15:01:14	Apr 30, 2023, 15:01:43
> 103.122.36.0/24	137661	9829	57695 48024 137443 174 9829 137661	Valid	Apr 30, 2023, 15:01:14	Apr 30, 2023, 15:01:43
> 103.122.36.0/24	137661	55824	44684 64049 55836 9885 55824 137661	Valid	Apr 30, 2023, 15:01:14	Apr 30, 2023, 15:01:43
> 103.122.36.0/24	137661	55824	60011 3356 64049 55836 9885 55824 137661	Valid	Apr 30, 2023, 15:01:14	Apr 30, 2023, 15:01:43
> 103.122.36.0/24	137661	9829	61317 6762 6453 9829 137661	Valid	Apr 30, 2023, 15:01:14	Apr 30, 2023, 15:01:43
> 103.122.36.0/24	137661	55824	57695 9009 64049 55836 9885 55824 137661	Valid	Apr 30, 2023, 15:01:14	Apr 30, 2023, 15:01:43
> 103.122.36.0/24	137661	55824	42473 8529 64049 55836 9885 55824 137661	Valid	Apr 30, 2023, 15:01:14	Apr 30, 2023, 15:01:43

Rows per page: 10 51-60 of 379

# Apr 28, 2023 – L-Root

- A9498 was propagating the announcement to all their public peering points

IP Range	AS Name	Peering Point
199.7.83.0/24	Angola Cables	RSL.LON1 (IPv4)
199.7.83.0/24	Brightsolid Online Technology Ltd.	RSL.LON1 (IPv4)
199.7.83.0/24	Tenat	RSL.LON1 (IPv4)
199.7.83.0/24	Infonias Ltd	RSL.LON1 (IPv4)
199.7.83.0/24	Team Cymru, Inc.	RSL.LON1 (IPv4)
199.7.83.0/24	aq Limited	RSL.LON1 (IPv4)
199.7.83.0/24	IP-Max	RSL.LON1 (IPv4)
199.7.83.0/24	Bahnhof	RSL.LON1 (IPv4)
199.7.83.0/24	SEACOM	RSL.LON1 (IPv4)
199.7.83.0/24	VimpelCom PJSC	RSL.LON1 (IPv4)
199.7.83.0/24	Bharti Airtel Ltd	RSL.LON1 (IPv4)
199.7.83.0/24	GBI HQ Cooperatief UA	RSL.LON1 (IPv4)
199.7.83.0/24	vstream	RSL.LON1 (IPv4)
199.7.83.0/24	Internea	RSL.LON1 (IPv4)
199.7.83.0/24	SEACOM	RSL.LON1 (IPv4)
199.7.83.0/24	Bharti Airtel Ltd	RSL.LON1 (IPv4)
199.7.83.0/24	Brightsolid Online Technology Ltd.	RSL.LON1 (IPv4)
199.7.83.0/24	vstream	RSL.LON1 (IPv4)
199.7.83.0/24	Bahnhof	RSL.LON1 (IPv4)
199.7.83.0/24	Aine Networks del Mediterraneo S.L.U	RSL.LON1 (IPv4)

# Apr 28, 2023 – L-Root

- Notable exception was DE-CIX, they were dropping the announcement

DE-CIX Route Server Interface Screenshot

Search: 199.7.83.0/24

Found 157 received and 8 filtered routes. Query took 7146.61 ms to complete. Routes cache was built an hour ago and will be refreshed in 43 minutes.

Network	Next Hop	AS Path	ASN	Neighbor	RS
199.7.83.0/24 BGP lookup: Unable to resolve prefix for origin AS	80.81.194.250	9498 9829 9829 9829 9829 9829 9829	9498	Bharti Airtel Limited	rs1.fra.de-cix.net (IPv4)
199.7.83.0/24 BGP lookup: Unable to resolve prefix for origin AS	80.81.196.112	9498 9829 9829 9829 9829 9829 9829	9498	Bharti Airtel Limited	rs1.fra.de-cix.net (IPv4)
199.7.83.0/24 BGP lookup: AS SET does not include origin AS	80.81.195.242	47734 41494 39107 20144	47734	Telecom IT Solutions	rs1.fra.de-cix.net (IPv4)
199.7.83.0/24 BGP lookup: Unable to resolve prefix for origin AS	185.1.147.7	9498 9829 9829 9829 9829 9829 9829	9498	Bharti Airtel Limited	rs2.mms.de-cix.net (IPv4)
199.7.83.0/24 BGP lookup: Unable to resolve prefix for origin AS	185.1.147.7	9498 9829 9829 9829 9829 9829 9829	9498	Bharti Airtel Limited	rs1.mms.de-cix.net (IPv4)
199.7.83.0/24 BGP lookup: Unable to resolve prefix for origin AS	80.81.194.250	9498 9829 9829 9829 9829 9829 9829	9498	Bharti Airtel Limited	rs2.fra.de-cix.net (IPv4)
199.7.83.0/24 BGP lookup: Unable to resolve prefix for origin AS	80.81.196.112	9498 9829 9829 9829 9829 9829 9829	9498	Bharti Airtel Limited	rs2.fra.de-cix.net (IPv4)
199.7.83.0/24 BGP lookup: AS SET does not include origin AS	80.81.195.242	47734 41494 39107 20144	47734	Telecom IT Solutions	rs2.fra.de-cix.net (IPv4)

Network	Next Hop	AS Path	ASN	Neighbor	RS
199.7.83.0/24	145.112.27.3	6939 20144	6939	Hurricane Electric	rs2.phx.de-cix.net (IPv4)
199.7.83.0/24	185.1.172.4	6939 20144	6939	Hurricane Electric	rs2.seecix.net (IPv4)
199.7.83.0/24	185.1.148.9	34084 20144	34084	Superonline IteGim Hometel A.S.	rs1.lis.de-cix.net (IPv4)
199.7.83.0/24	185.1.148.16	6939 20144	6939	Hurricane Electric	rs1.lis.de-cix.net (IPv4)
199.7.83.0/24	185.1.148.7	25091 20144	25091	IP-Max SA	rs1.lis.de-cix.net (IPv4)
199.7.83.0/24	80.81.193.13	8218 20144	8218	Zayo Infrastructure France SA	rs1.fra.de-cix.net (IPv4)
199.7.83.0/24	80.81.194.197	6097 20144	6097	Beltelecom	rs1.fra.de-cix.net (IPv4)

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# Cover dark corners

where public sources lack visibility

- This event was not detected by RIPE RIS due to its very long AS Path (11 hops).  
However, it was picked up by our monitors

# Well known research topic

- Security/Visibility: Research has shown that carefully crafted hijacks to avoid detection by public sources are feasible [1]
- [1] “On the Effectiveness of BGP Hijackers That Evade Public Route Collectors”, 2023

# Event lasted more than a year

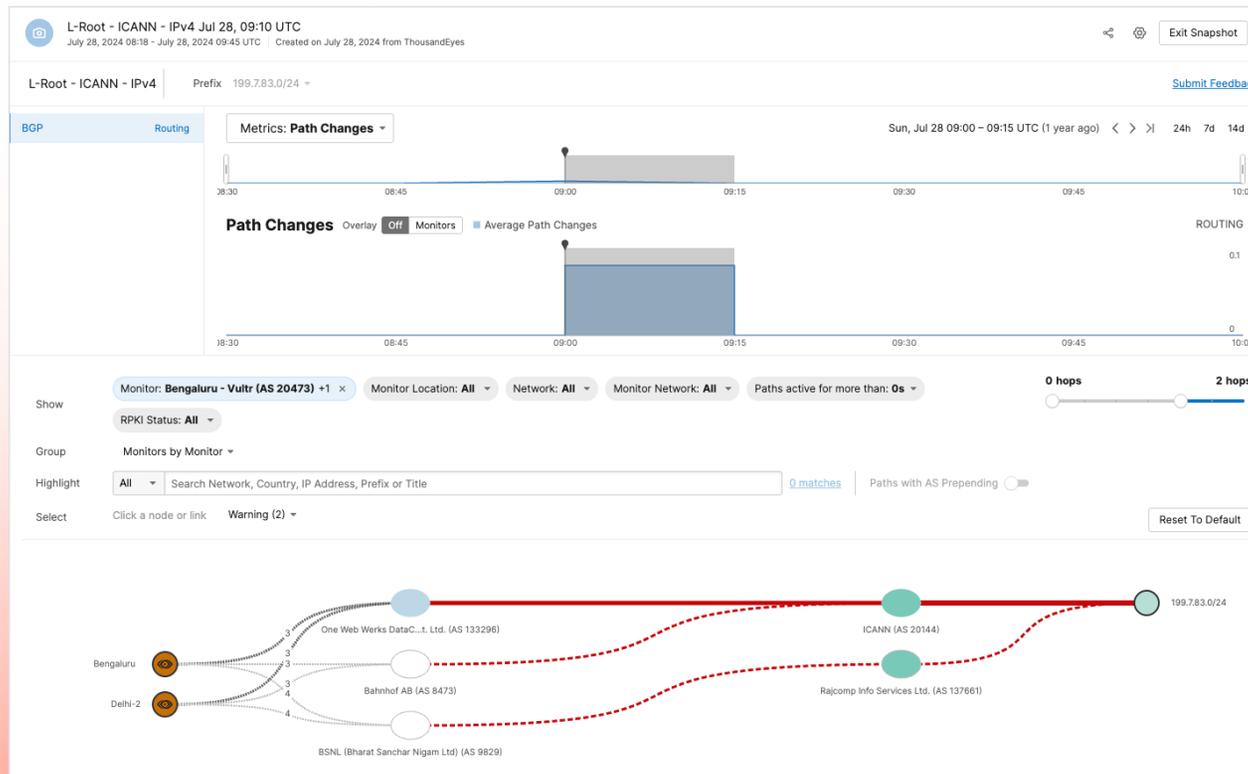
- We started monitoring again in the summer of 2024, and the event was still ongoing!

Duration

# Visualization of AS paths

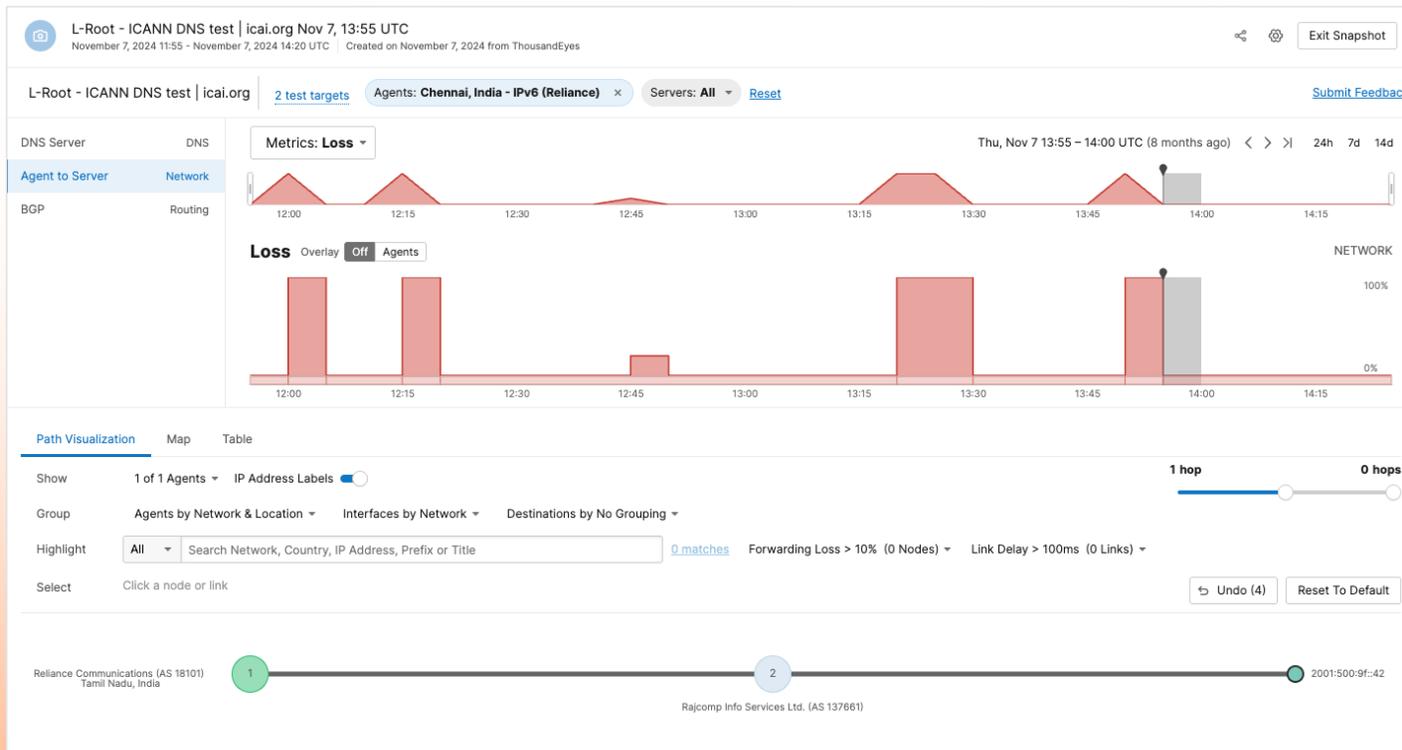
Visibility

Event was picked up by only two BGP monitors in India



# Only 3 probes in India Data plane impact

were forwarding DNS queries via the offending ASN



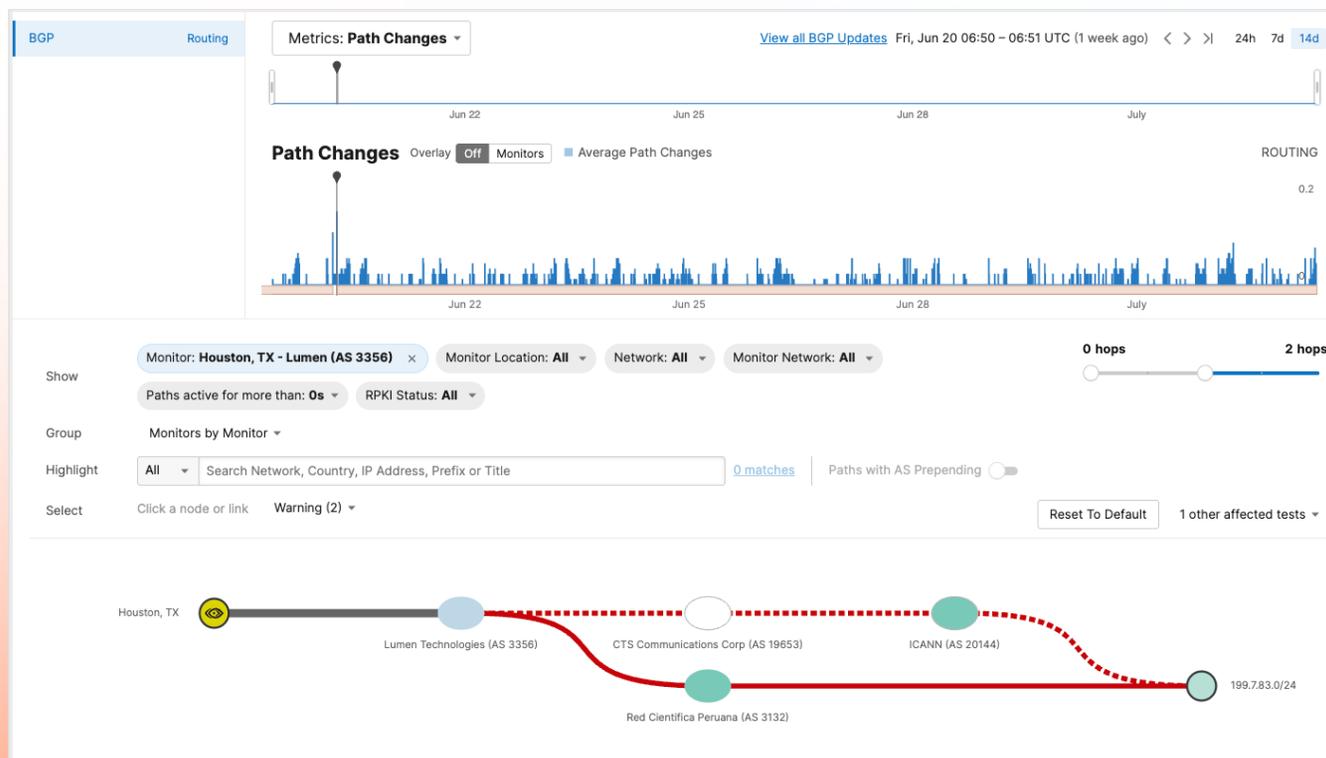
# Jun 20, 2025 – L-Root

- AS 3132 appeared as origin of 199.7.83.0/24 - ICANN (AS 20144)

L-Root - ICANN - Prefix Hijack								
Start	Jun 20, 2025 06:52:00	Scope	19 monitors	Impacted Tests	L-Root - ICANN - IPv4	Severity	Critical	Suppress
Any	Filter by test name or scope...							
Scope	Prefix	Start (UTC)	Metrics at start	Current metric	Duration			
Frankfurt am ...	199.7.83.0/24	Jul 2, 2025 07:06...	BGP Path #1: - BGP Origin: (ASN: 3132)	Active				
Houston, TX -...	199.7.83.0/24	Jul 2, 2025 07:03...	BGP Path #1: - BGP Origin: (ASN: 3132)	Active				
Buenos Aires ...	199.7.83.0/24	Jun 27, 2025 05:...	BGP Path #1: - BGP Origin: (ASN: 3132)	Active				
Milwaukee, W...	199.7.83.0/24	Jun 26, 2025 20:...	BGP Path #1: - BGP Origin: (ASN: 3132)	Active				

# Visualization of AS paths

Event was “seen” by only 19 (out of many 100s) BGP monitors



# BGP updates table

AS 3356 was picking up and propagating the announcement

Prefix	AS Path	Communities	Update Type	Monitor	RPKI Status	Timestamp (UTC) ↓
199.783.0/24	3356 - 3132	3356:5 - 3356:22 - 3356:100 - 3356:12...	Announcement	Frankfurt am Main-30	NotFound	2025-07-02 07:01:52
199.783.0/24	3356 - 3132	3356:5 - 3356:22 - 3356:100 - 3356:12...	Announcement	Houston, TX	NotFound	2025-07-02 07:01:24
199.783.0/24	42473 - 3356 - 3132	3356:5 - 3356:22 - 3356:100 - 3356:12...	Announcement	Buenos Aires	NotFound	2025-07-02 07:01:24
199.783.0/24	3356 - 3132	3356:5 - 3356:22 - 3356:100 - 3356:12...	Announcement	New York, NY-7	NotFound	2025-07-02 07:01:24
199.783.0/24	3356 - 3132	3356:5 - 3356:22 - 3356:100 - 3356:12...	Announcement	Chicago, IL-10	NotFound	2025-07-02 07:01:24
199.783.0/24	3356 - 3132	3356:5 - 3356:22 - 3356:100 - 3356:12...	Announcement	Newark, NJ	NotFound	2025-07-02 02:17:36
199.783.0/24	42473 - 3356 - 3132	3356:5 - 3356:22 - 3356:100 - 3356:12...	Announcement	Buenos Aires	NotFound	2025-07-02 02:17:08
199.783.0/24	3356 - 3132	3356:5 - 3356:22 - 3356:100 - 3356:12...	Announcement	New York, NY-7	NotFound	2025-07-02 02:17:08
199.783.0/24	3356 - 3132	3356:5 - 3356:22 - 3356:100 - 3356:12...	Announcement	Chicago, IL-10	NotFound	2025-07-02 02:17:08
199.783.0/24	3356 - 3132	3356:5 - 3356:22 - 3356:100 - 3356:12...	Announcement	Houston, TX	NotFound	2025-07-02 02:17:08
199.783.0/24	3356 - 3132	3356:5 - 3356:22 - 3356:100 - 3356:12...	Announcement	Las Vegas, NV-5	NotFound	2025-07-01 22:12:22
199.783.0/24	20473 - 3356 - 3132	20473:100 - 20473:3356 - 64515:44	Announcement	Dallas, TX-5	NotFound	2025-06-30 13:12:16

# Setting up a suitable DNS test

Querying a .org domain – L-root IPs as lookup servers

< Test Settings

**Basic Configuration** **Advanced Settings**

Test Name: L-Root - ICANN DNS test | wikipedia.org

Test Description: Optional

Domain: wikipedia.org IN A

Interval: 5 minutes

Agents: 999 of 1035 selected

DNS Servers: 199.7.83.42 2001:500:9f::42 Q Lookup Servers

Alerts:  Enable  
2 of 17 alert rules selected [Edit Alert Rules](#)

Cancel Run Once Save Changes

**General Information**

Labels: Add Labels

Sharing: 0 of 4 account groups [Share with other customers](#)

Created: By ThousandEyes Oct 7, 2024

Modified: By ThousandEyes May 15, 2025

**Views Enabled for This Test**

DNS: [DNS Server](#)

Network: [Overview](#)  
[Path Visualization](#)

Routing: [BGP Route Visualization](#)

Data plane impact

# Setting up an alert rule

Alerting when AS 3132 shows up anywhere in the AS path

The screenshot shows the configuration page for an alert rule titled "AS 3132 anywhere in the path". The interface is divided into "Settings" and "Alert Conditions" sections.

**Settings:**

- GENERAL:** Rule Name: "AS 3132 anywhere in the path".
- Direction:** "Source to Target".
- Tests:** "3 of 5 test(s) selected".
- Agents:** "All agents".
- Severity:** "Info", "Minor", "Major", "Critical" (selected).

**ALERT CONDITIONS:**

- Introducing Adaptive Alert Detection:** A message box stating: "Try the new patented anomaly detection model, proven to reduce false positives and surface more accurate issues, select 'Adaptive.'" with a "Learn More" link.
- Alert Detection:** "Adaptive" (selected) and "Manual" buttons.
- Manual alerting lets you configure when to trigger alerts.**
- All conditions are met by:** "any of" 1 "agent" 1 "of" 1 "time in a row:"
- Any Hop:** "meets all of:"
- Condition:** "ASN" "in" "3132".
- Buttons:** "+ Add Nested Condition", "Collapse All", "+ Add Alert Condition", "Cancel", "Save Changes".

Data plane impact

# 104 (out of 1000+) probes were forwarding DNS queries via the offending ASN

**AS 3132 anywhere in the path** ✕

Start Jun 20, 2025 06:50:00 | Scope 104 agents | Impacted Tests | L-Root - ICANN DNS test | wikipedia.org | Severity **Critical** Suppress

Any

Scope ↑	Server ↑	Start (UTC) ↓	Metrics at start ↑	Current metric ↑	Duration ↑
Kansas City, ...	199.7.83.42	Jul 3, 2025 10:55...	Path Trace #1: (Hop #5: (ASN: 3,132))	Active	
The Dalles, O...	199.7.83.42	Jul 3, 2025 10:55...	Path Trace #1: (Hop #5: (ASN: 3,132))	Active	
Ashburn, VA (...)	199.7.83.42	Jul 3, 2025 10:55...	Path Trace #1: (Hop #4: (ASN: 3,132))	Active	
London, Engl...	199.7.83.42	Jul 3, 2025 10:55...	Path Trace #1: (Hop #4: (ASN: 3,132))	Active	
Madrid, Spain...	199.7.83.42	Jul 3, 2025 10:55...	Path Trace #1: (Hop #5: (ASN: 3,132))	Active	
Dammam, Sa...	199.7.83.42	Jul 3, 2025 10:50...	Path Trace #1: (Hop #4: (ASN: 3,132))	Active	

# Conclusion

Takeaways

- For the networks who haven't yet, please create your ROAS
- In BGP, the more you look, the more you find
  - Need for quality BGP monitoring

# Questions?

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