



RIPE NCC

RIPE NETWORK COORDINATION CENTRE

Using RIPE Atlas to Monitor and Troubleshoot Your Network

Semana de la Medición de Internet en México



Agenda

- RIPE Atlas: A measurement tool
- Getting started
- User Interface
 - Viewing measurements in RIPE Atlas
 - DEMO: View a measurement
 - Creating measurements in RIPE Atlas
 - DEMO: Create a measurement
- The REST API
- Command Line Interface
 - DEMO



RIPE Atlas

An Internet Measurement Tool

An Introduction



- RIPE Atlas is a **global active measurements platform**
- **Goal:** Measure the performance, connectivity, and stability of the Internet
- Probes (our vantage points) are hosted by **volunteers**
- Data **publicly available**
- **Users:** Network operators, researchers, etc.
- **Applications:** Route monitoring, DNS performance analysis, Latency mapping, Outage detection, Peering analysis, IPv6 deployment monitoring, DDoS attack analysis and more!



Probes and Anchors

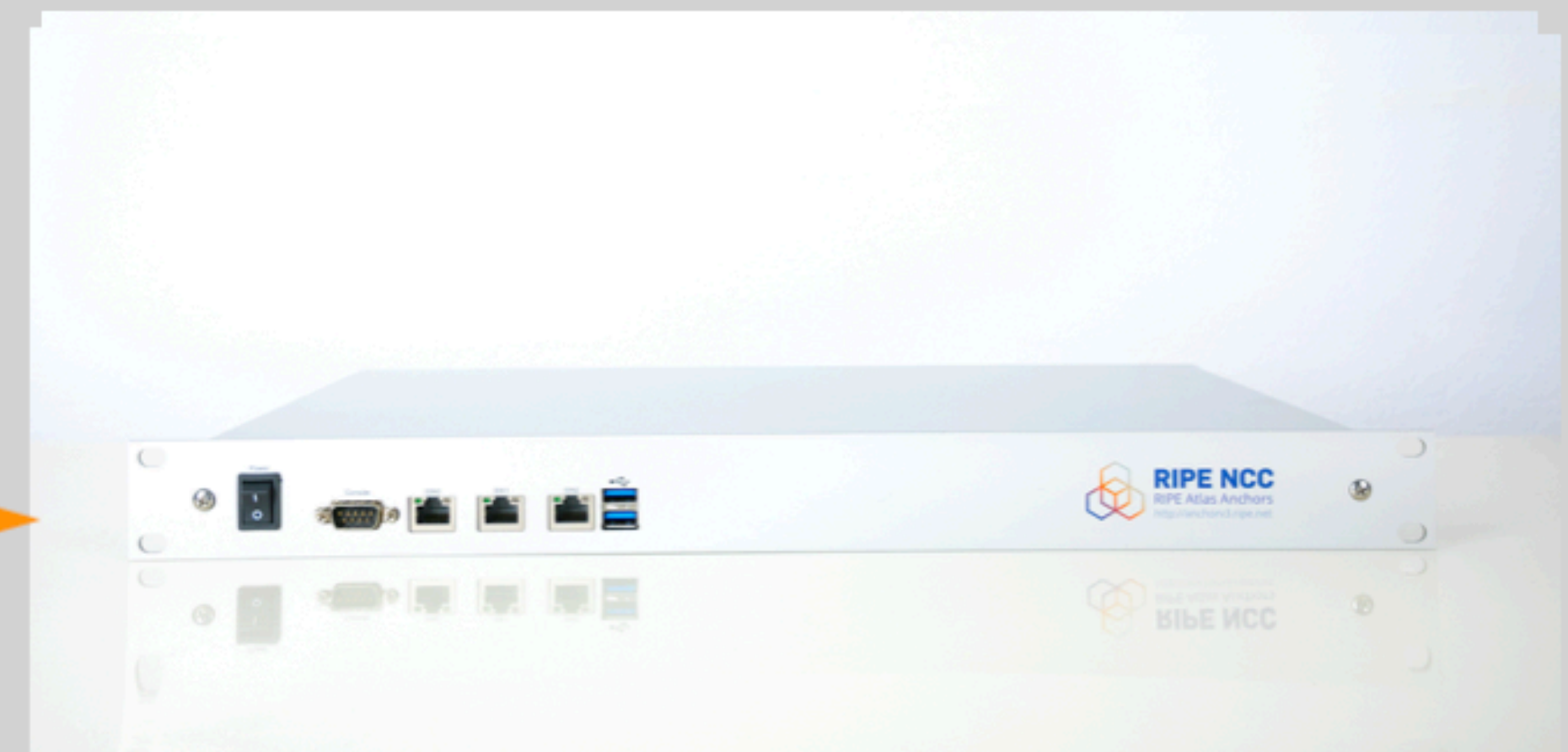
- **Hardware probes:** Small, USB-powered devices connected to routers
- **Software probes:** Can be installed on VMs, containers, or routers
- **Probe functionality:** Conduct measurements, relay data to RIPE NCC
- **Security:** Probes don't access local network traffic and can't measure local network devices (e.g. RFC1918)



RIPE Atlas probe V5

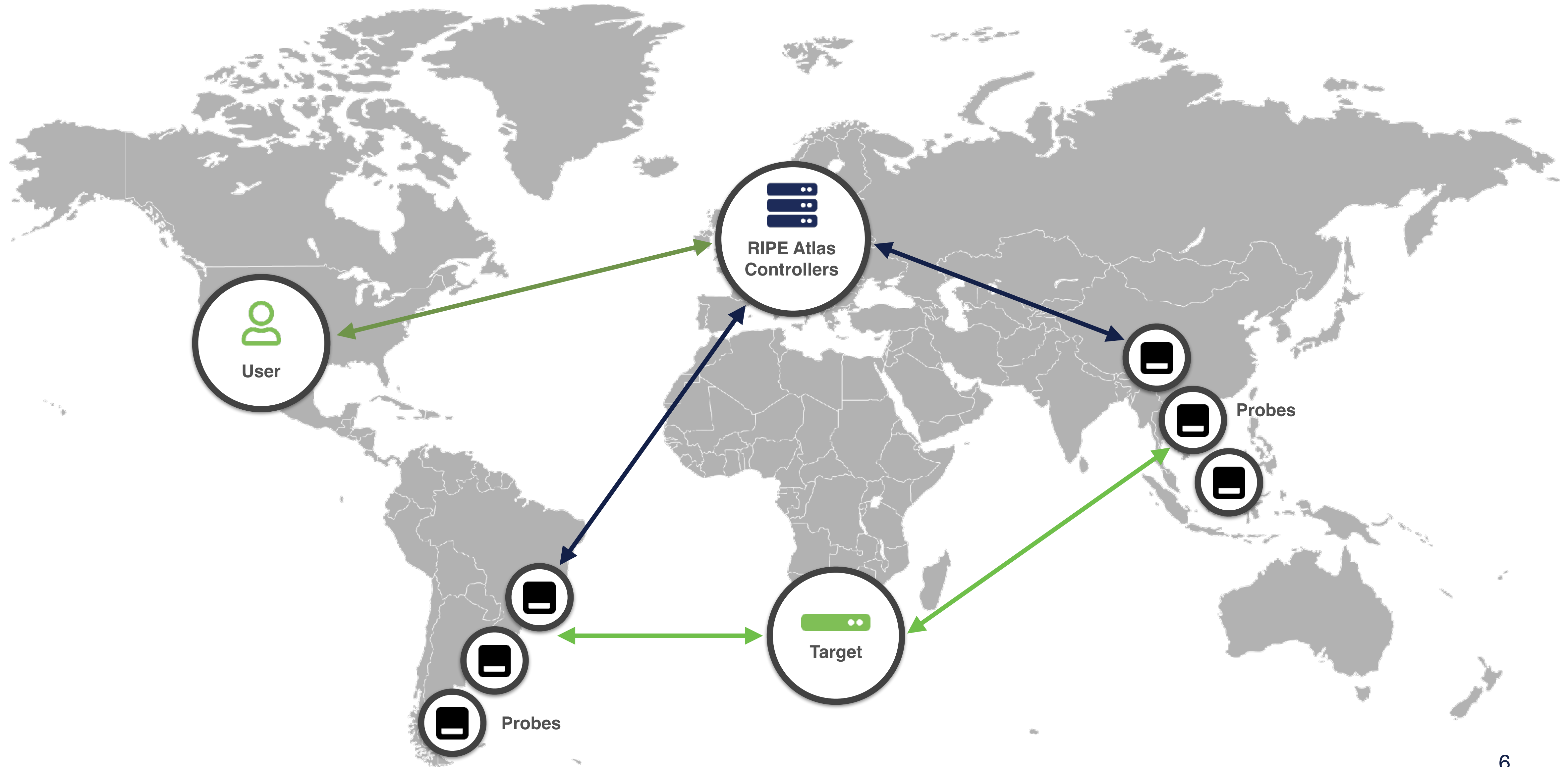
Also SW probes

For data centers.
Also VM.

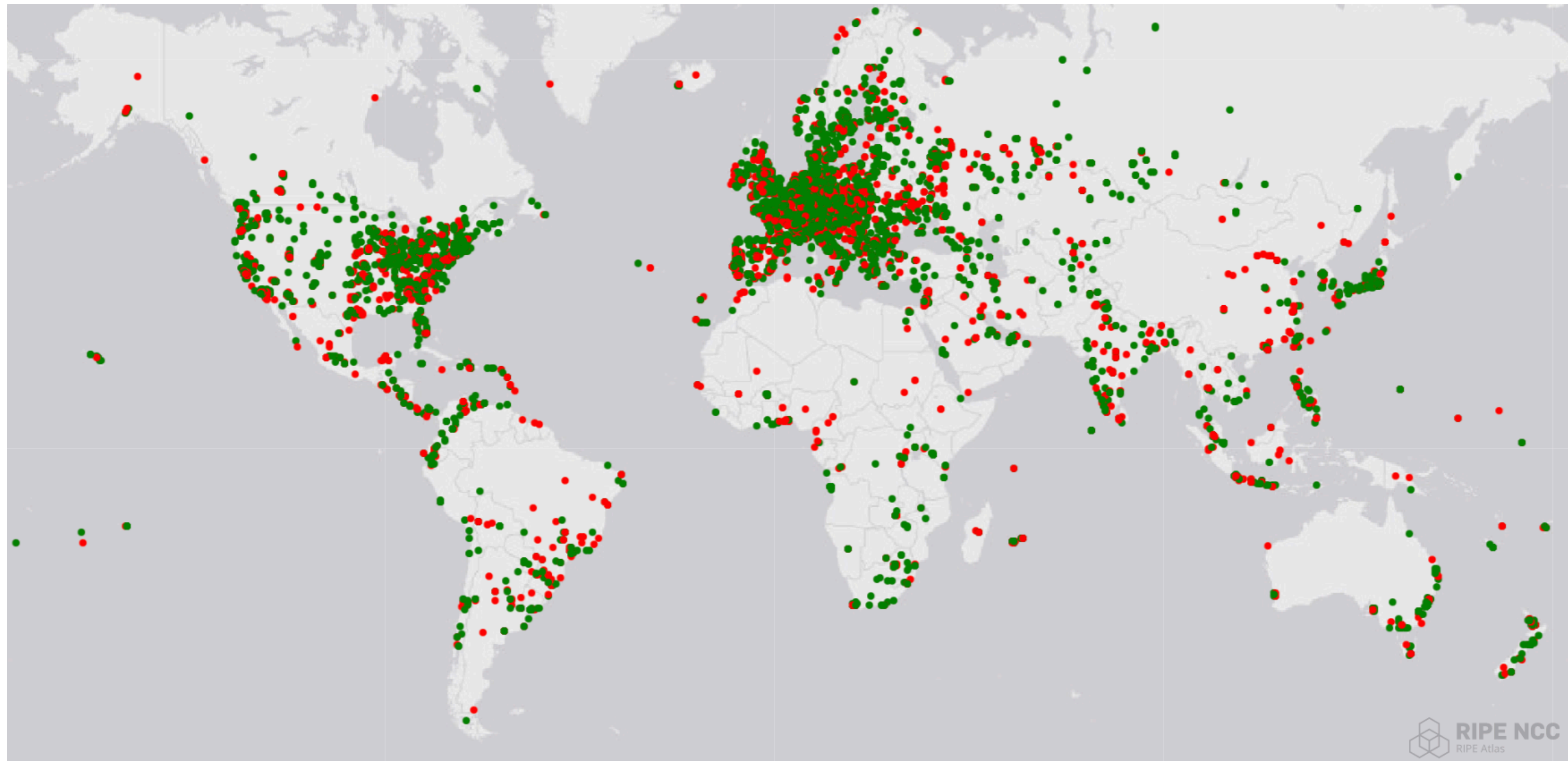


RIPE Atlas anchor V3

RIPE Atlas Concept

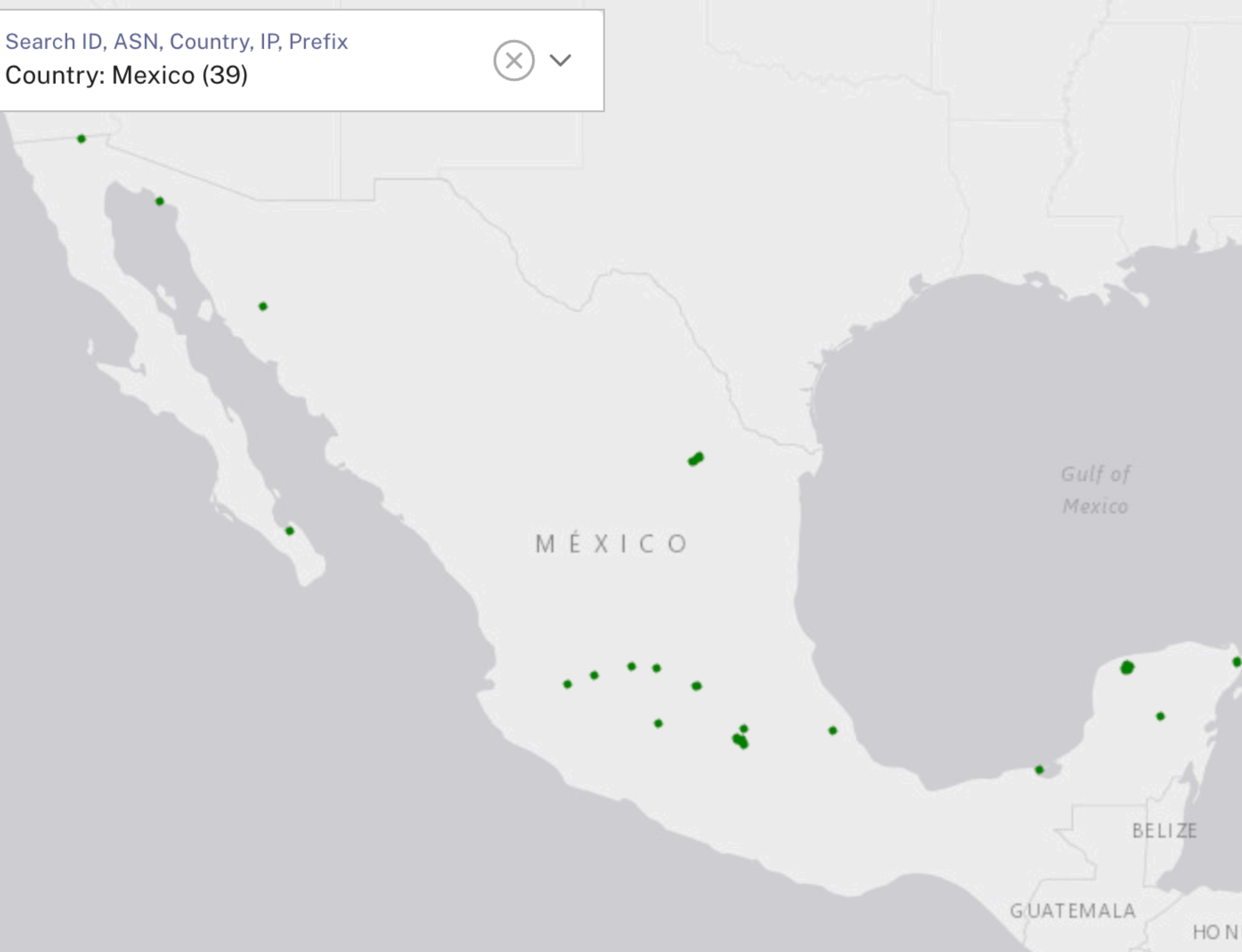


RIPE Atlas Coverage



<https://atlas.ripe.net/coverage/>

RIPE Atlas Coverage: MEXICO



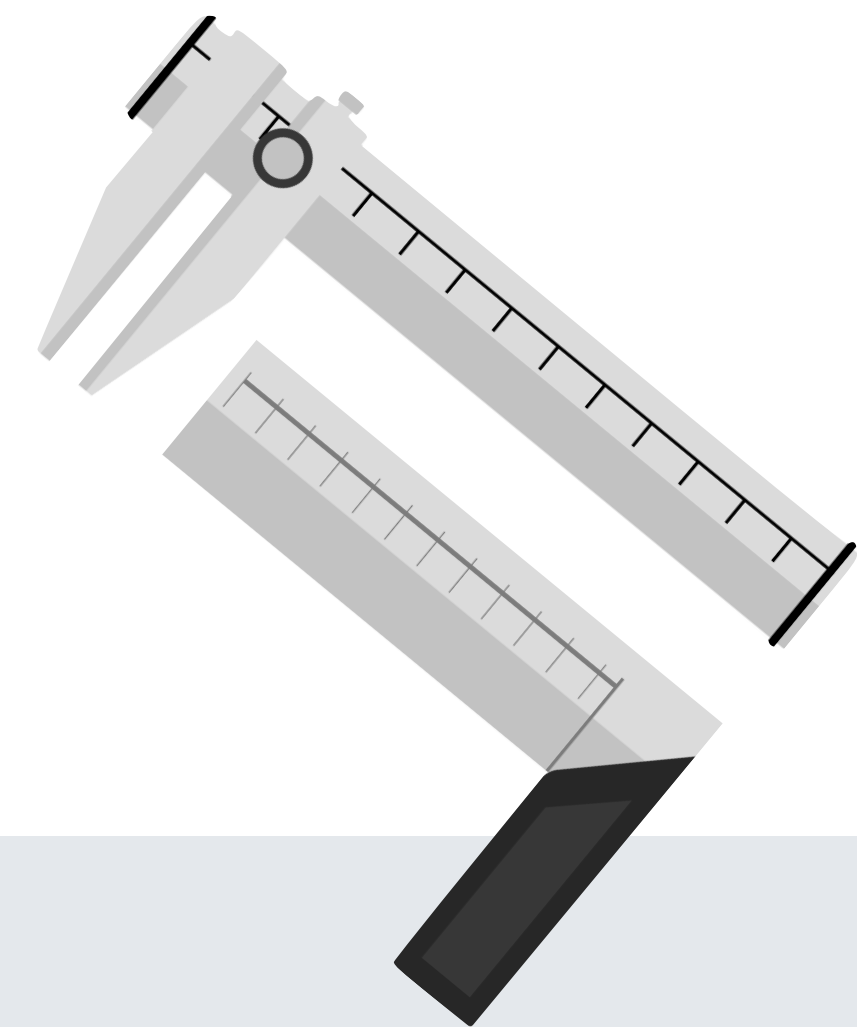
- 39 connected probes
- 4 anchors

ASN	Holder
11888	Television Internacional, S.A. de C.V.
14593	SPACEX-STARLINK
28403	RadioMovil Dipsa, S.A. de C.V.
28469	AT&T COMUNICACIONES DIGITALES S DE RL
28509	Cablemas Telecomunicaciones SA de CV
28548	Cablevision, S.A. de C.V.
265540	ALTAN REDES, S.A.P.I. de C. V.



Measurements

- **RIPE Atlas** performs **built-in** and **user-defined** measurements
- **Built-in measurements:** ping, traceroute, DNS, SSL/TLS, HTTP
- **User-defined measurements:** Six types available (ping, traceroute, DNS, SSL/TLS, NTP, HTTP*)
- **Targets:** Root DNS servers, RIPE Atlas anchors, user-defined targets



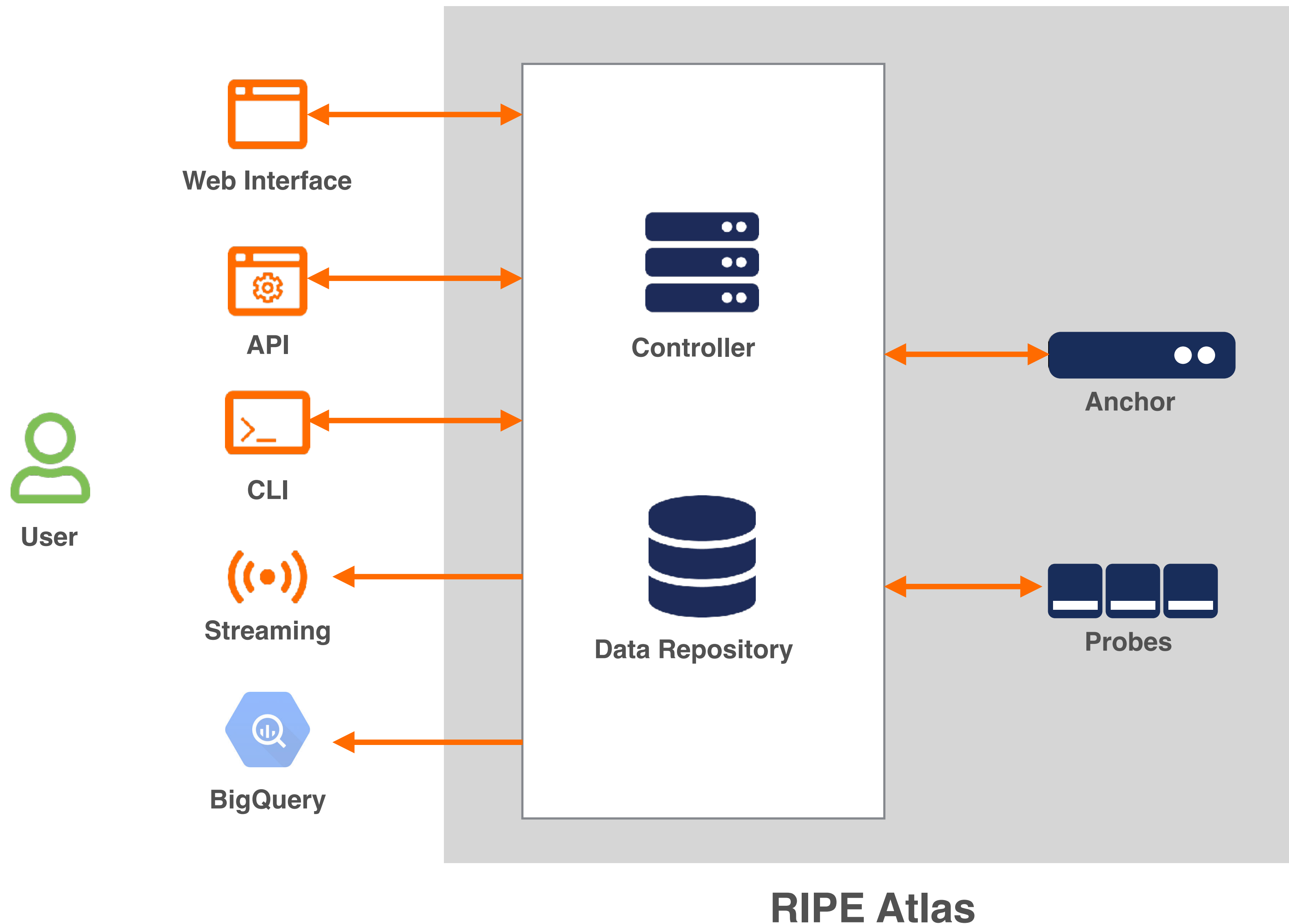


Credits System

- **Purpose of credits:** Ensure fairness and prevent system overload
- **Credit costs:** For different measurement types (e.g., ping = 10 credits, traceroute = 20)
- **Credit limits:** Spending limit and max number of measurements
- **Ways to earn credits:**
 - Hosting a RIPE Atlas probe
 - Hosting a RIPE Atlas anchor
 - Being a RIPE Atlas sponsor
 - Being a RIPE NCC member
 - Through credit transfer



RIPE Atlas Interfaces



RIPE Atlas



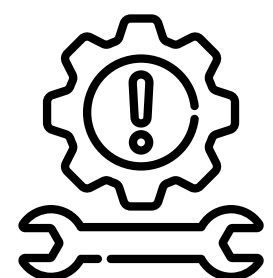
RIPE Atlas Use Cases

Practical Applications



Identifying Network Outages

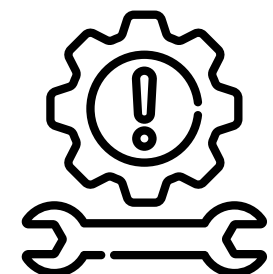
- **Use RIPE Atlas to detect and localise network outages**
 - **Create targeted measurements**
Set up specific tests (e.g., ping, traceroute) to suspected problem areas
 - **Analyse results from multiple probes**
Compare data from various global locations to pinpoint the issue
 - **Correlate data with BGP announcements**
Check if routing changes coincide with observed outages





DNS Resolution Issues

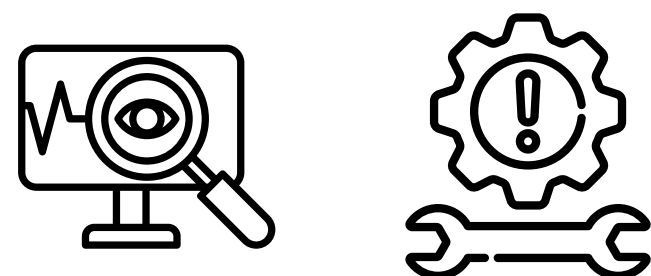
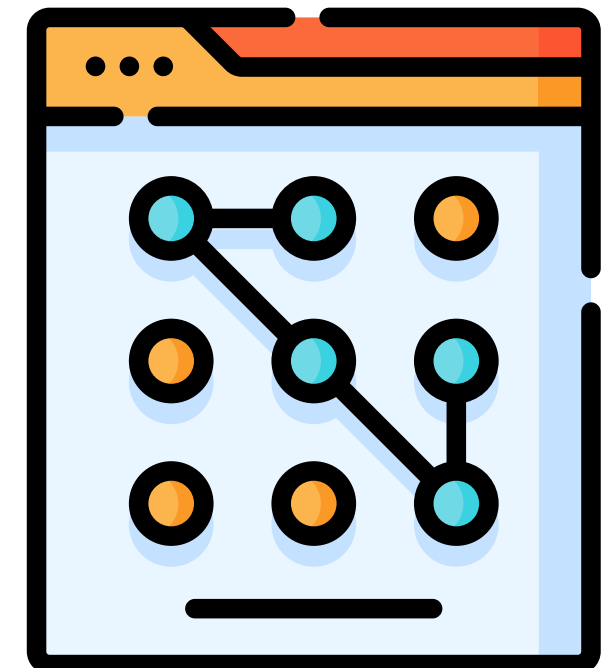
- **Use RIPE Atlas to identify and resolve DNS issues**
 - **Configure DNS measurements**
Set up tests querying multiple DNS servers to identify widespread or localised issues
 - **Analyse performance metrics**
Compare response times and failure rates to detect slow or unreliable DNS resolvers
 - **Detect response inconsistencies**
Look for discrepancies in returned IP addresses or other DNS record data across different resolvers





Routing Anomalies

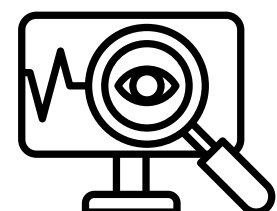
- **Detect and Analyse Routing Anomalies with RIPE Atlas**
 - **Map network paths**
Use traceroute measurements to identify unexpected path changes
 - **Compare routing perspectives**
Analyse AS paths from different global vantage points
 - **Integrate BGP data**
Correlate traceroute results with BGP announcements for comprehensive analysis
 - **Apply to real-world incidents**
Use these techniques to investigate potential route hijacking scenarios





Latency Tracking

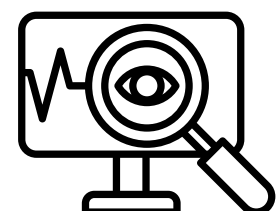
- **Implement Latency Monitoring with RIPE Atlas**
 - **Configure regular measurements**
Set up recurring ping tests to key network destinations
 - **Visualise latency data**
Create custom dashboards to display and analyse latency trends
 - **Implement proactive alerts**
Establish thresholds for automated notifications on latency spikes
 - **Optimise long-term tracking**
Apply best practices for sustained performance monitoring





IPv6 Deployment Monitoring

- **Monitor IPv6 Deployment with RIPE Atlas**
 - **Assess IPv6 reachability**
Set up measurements to test connectivity to key services over IPv6
 - **Conduct performance comparison**
Analyse and compare latency and packet loss between IPv4 and IPv6
 - **Evaluate transition mechanisms**
Identify and troubleshoot issues with IPv6 transition technologies like tunnels and translations





Questions



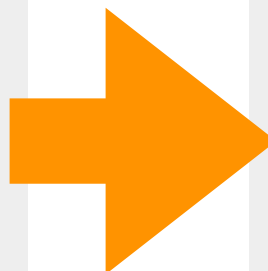
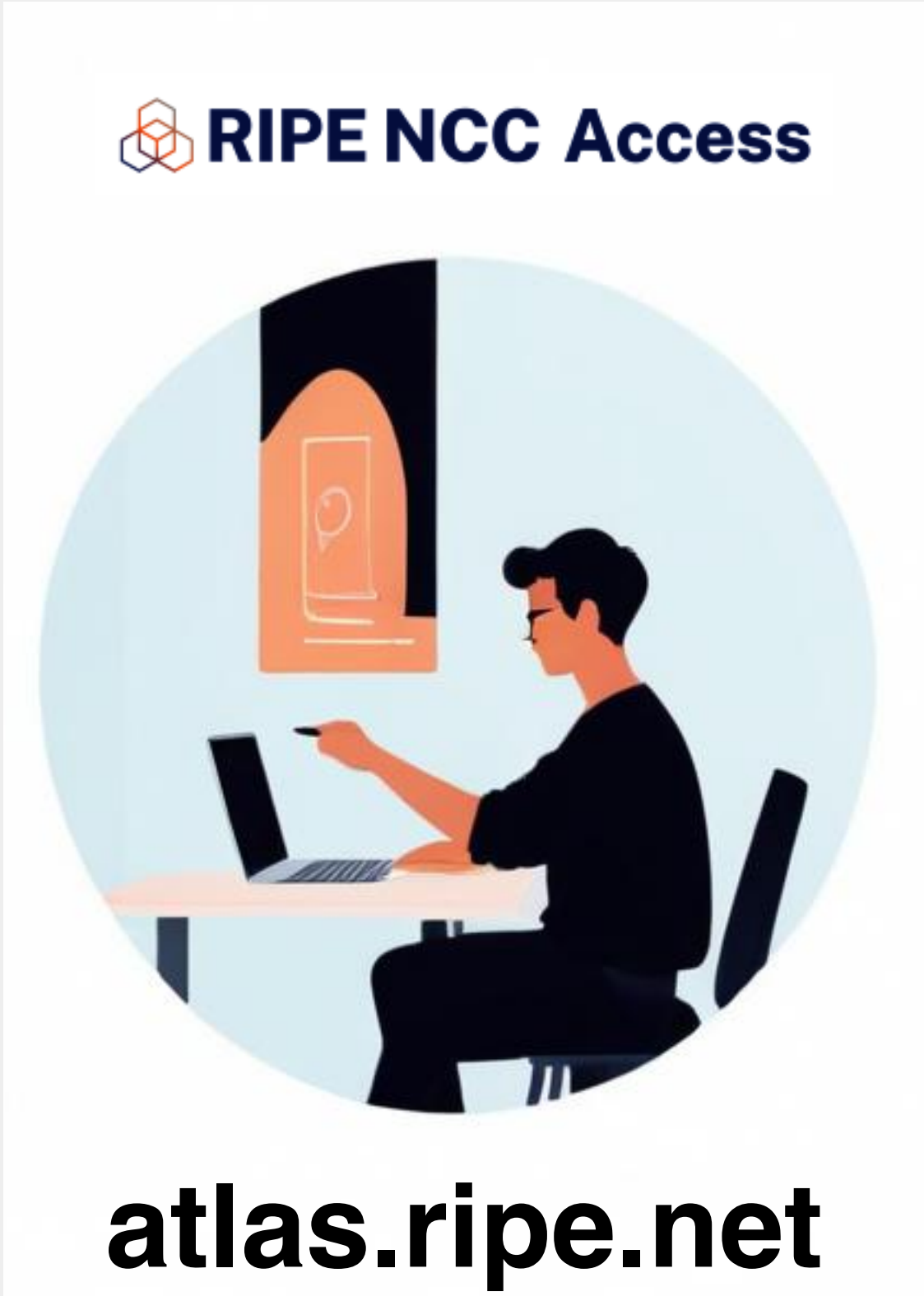


Getting Started

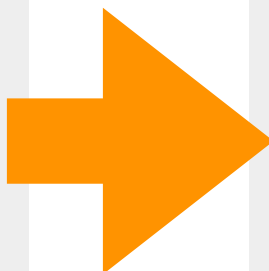
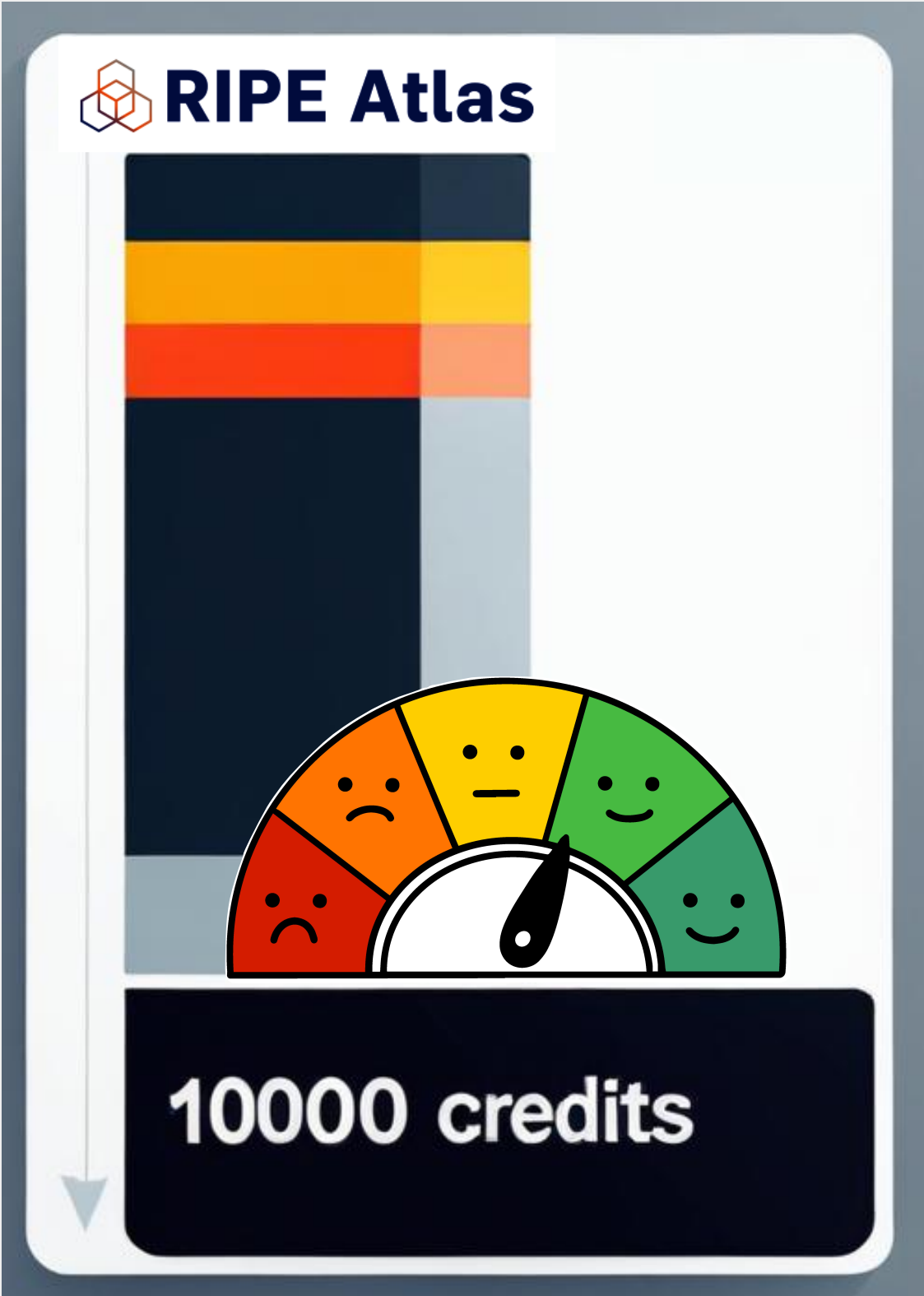
Getting Started with RIPE Atlas



Create Access account



Get enough credits



Use RIPE Atlas





- Dashboard
- Probes
- Anchors
- Measurements
- Internet Maps
- Statistics
- About RIPE Atlas

- Documentation
- Preferences
Settings and Prefs
- Feedback
Tell us what you think
- Legal
Copyright, Privacy, Terms and Cookies

Hello!

Current Status: ●

Please [log in](#) to see your personalised dashboard.

News Flash

Welcome to the new RIPE Atlas!

For a list of everything that has changed, check out the [release notes](#).

Mandatory 2FA on RIPE NCC Access Accounts

Two-factor authentication (2FA) is now mandatory on RIPE NCC Access accounts. If you have not already done so, please [enable 2FA on your account](#).

Get started with RIPE Atlas

New to RIPE Atlas? Our resources will help you get started.

[Learn about RIPE Atlas and what it can do here.](#)

Already familiar with the basics of RIPE Atlas but want to dig deeper?

[Go to our technical documentation.](#)

See how network operators and researchers are using RIPE Atlas.

[Read their use cases on RIPE Labs.](#)

Welcome to RIPE Atlas

With your help, the RIPE NCC is building the world's largest active Internet measurement network. RIPE Atlas employs a global network of probes that measure Internet connectivity and reachability, providing an unprecedented understanding of the state of the Internet in real time.

What is RIPE Atlas?

RIPE Atlas is the RIPE NCC's main Internet data measurement system. It is a global network of devices, called probes and anchors, that actively measure Internet connectivity. Anyone can access this data via Internet traffic maps, streaming data visualisations, and an API. RIPE Atlas users can also perform customised measurements to gain valuable data about their own networks.

Dashboard

With an account, you can do a lot more. [Log in](#) to see a dashboard tailored to your needs, with information on your credits, probes, measurements, and more.

You can create a RIPE NCC Access account for free. This will allow you to set

Claim your Atlas Credits!



Your voucher

MEXICO2024

RIPE Atlas ?

- Dashboard
- Probes
- Anchors
- Measurements
- Internet Maps
- Statistics
- About RIPE Atlas [↗](#)
- Documentation [↗](#)
- Preferences
Settings and Prefs
- Feedback
Tell us what you think
- Legal
Copyright, Privacy, Terms and Cookies

Credits

Here you can see the history of your credit use and current consumption, transfer credits to someone else, and redeem a voucher for credits if you have one.

4,514,212,946
46077 credits / hour

HISTORY	TRANSFER	STANDING ORDER	SHARE ACCESS	<u>REDEEM VOUCHER</u>
<h3>Redeem voucher</h3> <p>Your new credit balance will appear at the top right of this page once you have redeemed your voucher.</p> <p>Voucher code MEXICO2024</p> <p style="text-align: right;">REDEEM</p>				



Viewing Measurements

In RIPE Atlas

Measurements Page



PUBLIC

MINE

 Search Measurements

All Built-In Anchoring

ID	Type	IPv4/v6	Target	Description	Probes	Interval	Time (UTC)
<u>#####</u>	Which type	Protocol	IP or hostname	Some text to make it unique	###	one-off or ms	▶ When it started
<u>978321</u>	ping	6	www.ripe.net	Ping test to RIPE web server	75	one-off	▶ 2023-07-01 10:05
<u>978321</u>	trace	4	203.0.113.0	Some host with reachability issues	250	900	▶ 2023-02-18 12:30

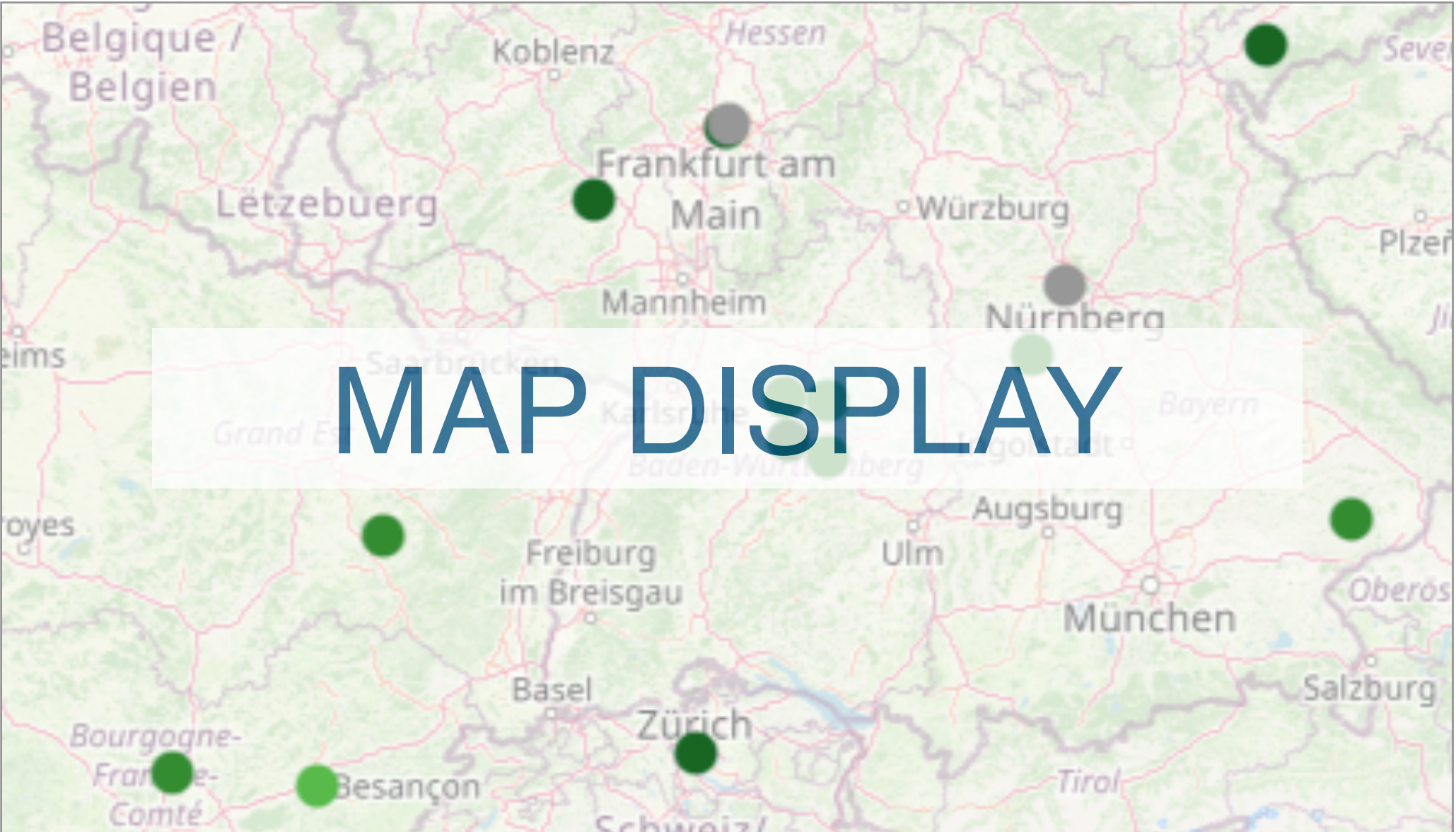
Measurement Overview



Measurement #####

Description of the measurement

OVERVIEW	RESULTS	DETAILS
----------	---------	---------



Result summary (latest, as of 2024-05-22 11:50 UTC):
43 probes reached their target.

7 probes did not.



RESULT SUMMARY

Min RTT: 0.666

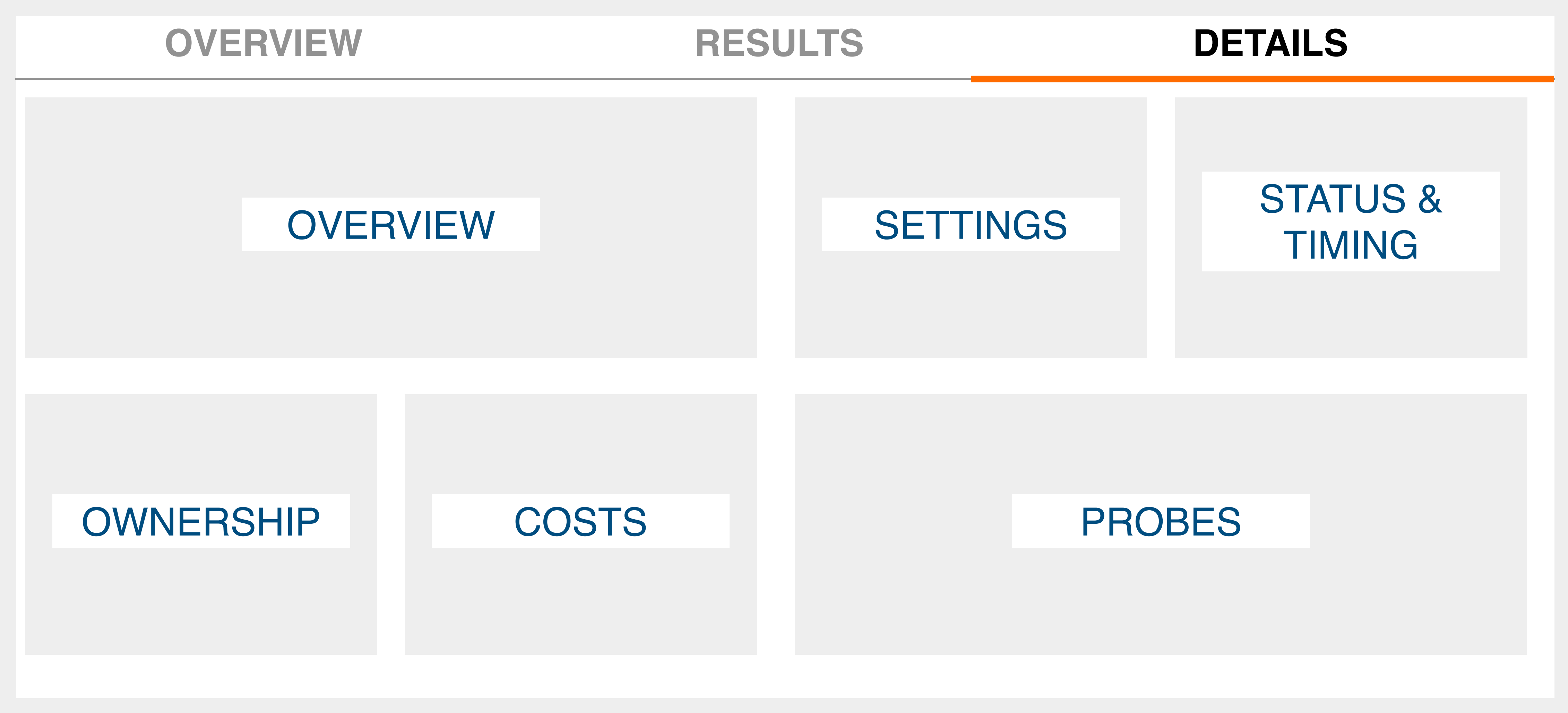
Mean RTT: 9.167

Measurement Results



OVERVIEW		RESULTS			DETAILS	
<input type="text" value="Search Results"/>				DOWNLOAD RESULTS		
Probe	ASN	Country	Time (UTC)	Min RTT	Packet Loss	
<u>#####</u>	<u>#####</u>	Where probe is located	When probe did it	RTT in milliseconds	Percent of packets lost	
<u>6025</u>	<u>8839</u>		2024-05-28 09:42:13	13.309 ms	0.00%	
<u>6352</u>	<u>13041</u>		2024-05-28 09:42:13	39.749 ms	0.00%	

Measurement Details



Measurement Management



OVERVIEW RESULTS DETAILS **MANAGE**

STOP MEASUREMENT **REMOVE PROBES** **ADD PROBES**

Participation Requests

ID	Created	Action	Type	Value
CHANGES TO THE PROBES				



Viewing Measurements

Demo

Exercise!

Let's look at a measurement...

We will look at the results of
measurement **74675224**





Questions





Creating a Measurement

Exercise 1

Let's create a quick measurement for this scenario:

- Find QuickLook Measurement Info Card
- How reachable is your network, your domain, your favorite website, locally?



Exercise 2!

Let's create a measurement for this scenario:

- How is the server performing where **your network** (or domain or favorite website) is hosted?
- How reachable is it from **three** countries in South America?
- How is the connectivity from these countries over a period of **24 hours**?





1. Click on **Measurements** on the left-side menu and then on the “**Create Measurement**” button in the top-left corner to start.
2. Select “**Ping**” as the measurement type.
3. Click on “**More Options**” and set the “**Frequency**” to 900 (900 seconds = 15 minutes) This will make Atlas do a ping every 15 minutes.
4. In the “**Target**” field, enter the IP address or hostname of the target server.
5. Under “**Probe Selection**” click the “**Search**” button. (You can also just *leave the random probes* and see what the results are)
6. Manually select 3 probes located in different countries in South America.
7. Set the measurement schedule to start ASAP and run for a few hours.
8. Review your probe selections and measurement configuration then click “**Create Measurement**” to start collecting data.



Questions





The REST API

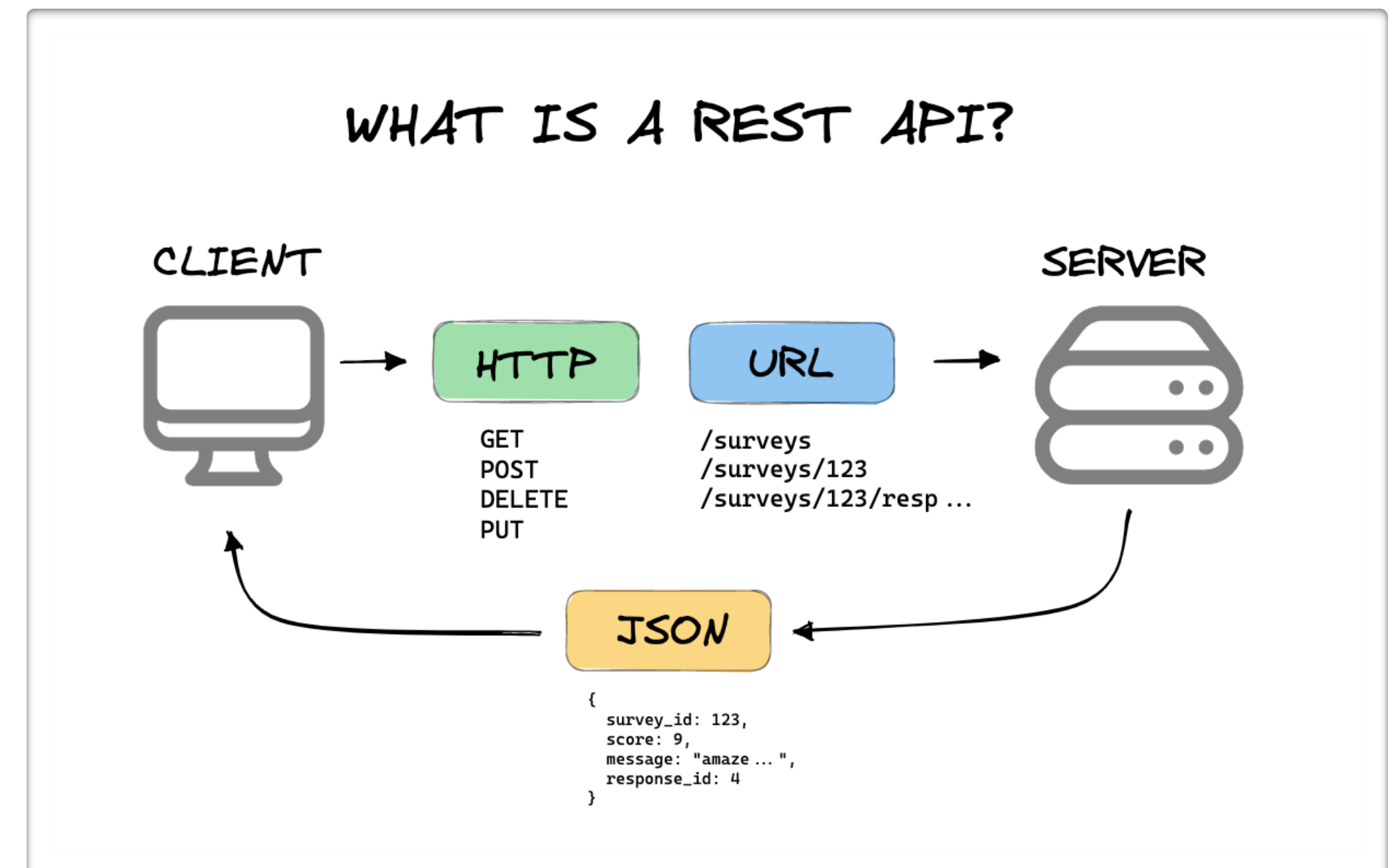
For Automation



The RIPE Atlas API

- Powerful tool for programmatic access to RIPE Atlas
- Key benefits:
 - Automate measurement creation and analysis
 - Integrate with your existing systems
 - Perform bulk operations efficiently

<https://atlas.ripe.net/docs/apis/rest-api-manual/>



Creating API Keys

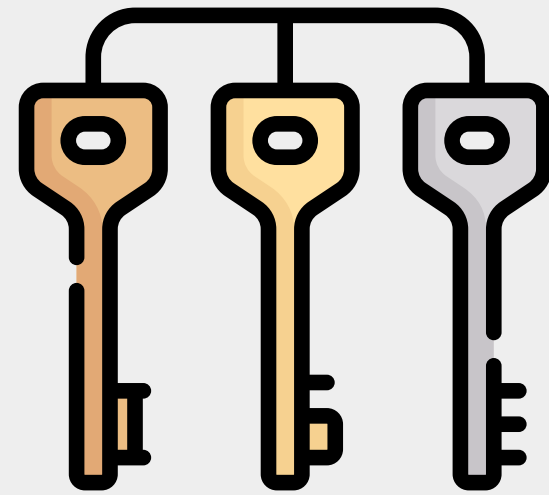
- **API keys:** Your secure access to RIPE Atlas
- Creating an API key:
 - Log in to RIPE Atlas
 - Go to the API Keys section: <https://atlas.ripe.net/keys/>
 - Generate a new key
 - Set key permissions
i.e. “*Schedule a new measurement*”



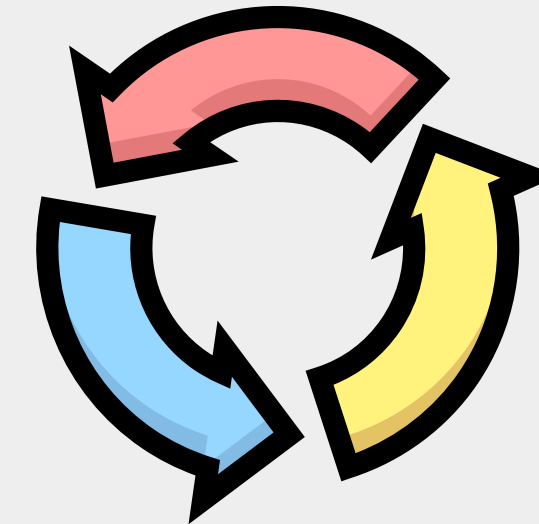
The screenshot shows a modal window titled "Create an API Key" with a close button (X) in the top right corner. The form contains the following fields and controls:

- Label:** A text input field.
- Created:** A date field showing "2024-07-22".
- UUID:** A text field showing the UUID "4150413c-5369-49c5-9f38-266961bb2cf6". To the right of the UUID is a "Copy UUID" button.
- Warning:** A message below the UUID: "This is the only time this key will be shown. Please copy it and keep it somewhere safe."
- Enabled:** A toggle switch labeled "ON".
- Valid From:** A date field showing "2024-07-22".
- Valid To:** A date field showing "2025-07-22".
- Permissions:** A dropdown menu currently showing "Permissions" with a plus sign (+) to its right.
- Buttons:** A red "DELETE" button and a green "SAVE" button at the bottom.

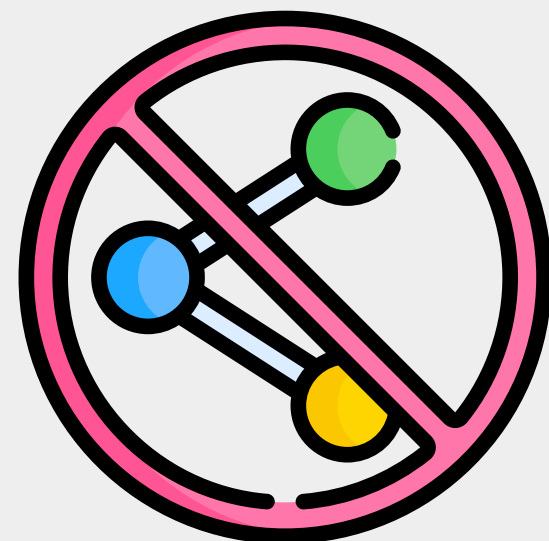
Best Practices for Managing API Keys



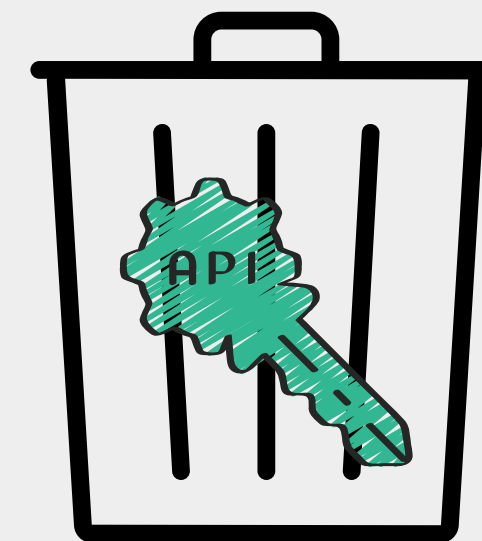
Use separate keys for different applications or projects



Regularly rotate keys for added security



Never share your API keys publicly



Revoke keys that are compromised or no longer used



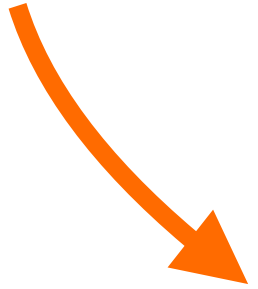
Using the RIPE Atlas API

- **Preparation:** Obtain API key
- **Compose measurement:** Define type, fields, and probes
- **Structure API request:** Create JSON payload
- **Send request:** POST to API endpoint (<https://atlas.ripe.net/api/v2/measurements/>)
- **Process the response:** Retrieve measurement ID(s)



A Simple Example

```
curl --location 'https://atlas.ripe.net/api/v2/measurements/' \  
  --header 'Content-Type: application/json' \  
  --header 'Authorization: Key *****-****-****-****-*****' \  
  --data @filename_of_JSON_payload
```



```
{  
  "definitions": [  
    {  
      "target": "www.lacnic.net",  
      "description": "My First Measurement",  
      "type": "ping",  
      "af": 4  
    }  
  ],  
  "probes": [  
    {  
      "requested": 50,  
      "type": "area",  
      "value": "WW"  
    }  
  ]  
}
```

JSON Payload with measurement definition



Status Checks

- Turn a measurement into a basis for an **alert** to gauge the **health of your network**
- **Quick start:**
 - Create a RIPE Atlas ping measurement using either the website or the API
 - Go to <https://atlas.ripe.net/api/v2/measurements/<measurement-id>/status-check>
 - Go to the URL again later to check whether anything changed
 - Define your alerts accordingly



Status Checks

- Get **basic information** about you measurement: <https://atlas.ripe.net/api/v2/measurements/23018851>
- The **new status check** system can be found in: <https://atlas.ripe.net/api/v2/measurements/23018851/status-check/>
- Check the HTTP response headers

```
$ curl -v "https://atlas.ripe.net/api/v2/measurements/23018851/status-check"
```

```
HTTP/1.1 200 OK
Server: nginx
Date: Tue, 08 Oct 2024 18:05:54 GMT
Content-Type: application/json
Content-Length: 51
Connection: keep-alive
X-RIPE-Atlas-Global-Alert: 0
Vary: Accept, Cookie
Allow: GET, HEAD, OPTIONS
```

**HTTP response header
based on the alert**





Status Checks

- Checking the response body

```
$ curl "https://atlas.ripe.net/api/v2/measurements/23018851/status-check" | jq
{
  "global_alert": false,
  "total_alerts": 0,
  "probes": {
    "6615": {
      "alert": false,
      "last": 0.245,
      "last_pachet_loss": 0,
      "source": "Probes: 6615"
    }
  }
}
```

Global alert ←

← **Per probe alert**



Status Checks

- The idea is to have your monitoring software parse this output and act accordingly.
 - `jq 'select(.global_alert==true)'`
- Fine-tuning:
 - https://atlas.ripe.net/docs/apis/rest-api-manual/measurements/status-checks/complex_example.html
 - If you're dealing with a **large subset** of probes
 - Argument: **permitted_total_alerts**
 - **Comparing** the current RTT value to past values
 - Argument: **lookback**



RIPE Atlas Cousteau

- Official **Python wrapper** around RIPE Atlas API: <https://ripe-atlas-cousteau.readthedocs.io/en/latest/index.html>
- You will need to have an **API key** in most of the cases
- **Easy installation:**

```
$ pip install ripe.atlas.cousteau
```

Probes

API call

```
from ripe.atlas.cousteau import (Traceroute, AtlasSource,
                                AtlasCreateRequest)

traceroute = Traceroute(
    af=4,
    target="www.ripe.net",
    description="Traceroute Test",
    protocol="ICMP",
)

source = AtlasSource(
    type="country",
    value="NL",
    requested=50,
    tags={"exclude": ["system-anchor"]}
)

ATLAS_API_KEY = ""
atlas_request = AtlasCreateRequest(
    start_time=datetime.utcnow(),
    key=ATLAS_API_KEY,
    measurements=[traceroute],
    sources=[source],
    is_oneoff=True
)

(is_success, response) = atlas_request.create()
```

Definitions



Questions





Using the CLI Tool

For Power Users

Command-Line Interface (CLI)

- Powerful alternative to the web interface
- **Key Benefits:**
 - Automate measurement tasks
 - Create and run scripts
 - Efficient for advanced users
- **Ideal for:**
 - Quick diagnose
 - Bulk operations
 - Integration with other tools
 - Customised workflows

<https://ripe-atlas-tools.readthedocs.io/>

```
$ ripe-atlas measure traceroute \  
--from-country py \  
--traceroute-show-asns \  
lacnic.net
```

Looking good! Measurement 80088803 was created and details about it can be found here:

<https://atlas.ripe.net/measurements/80088803/>

Connecting to stream...

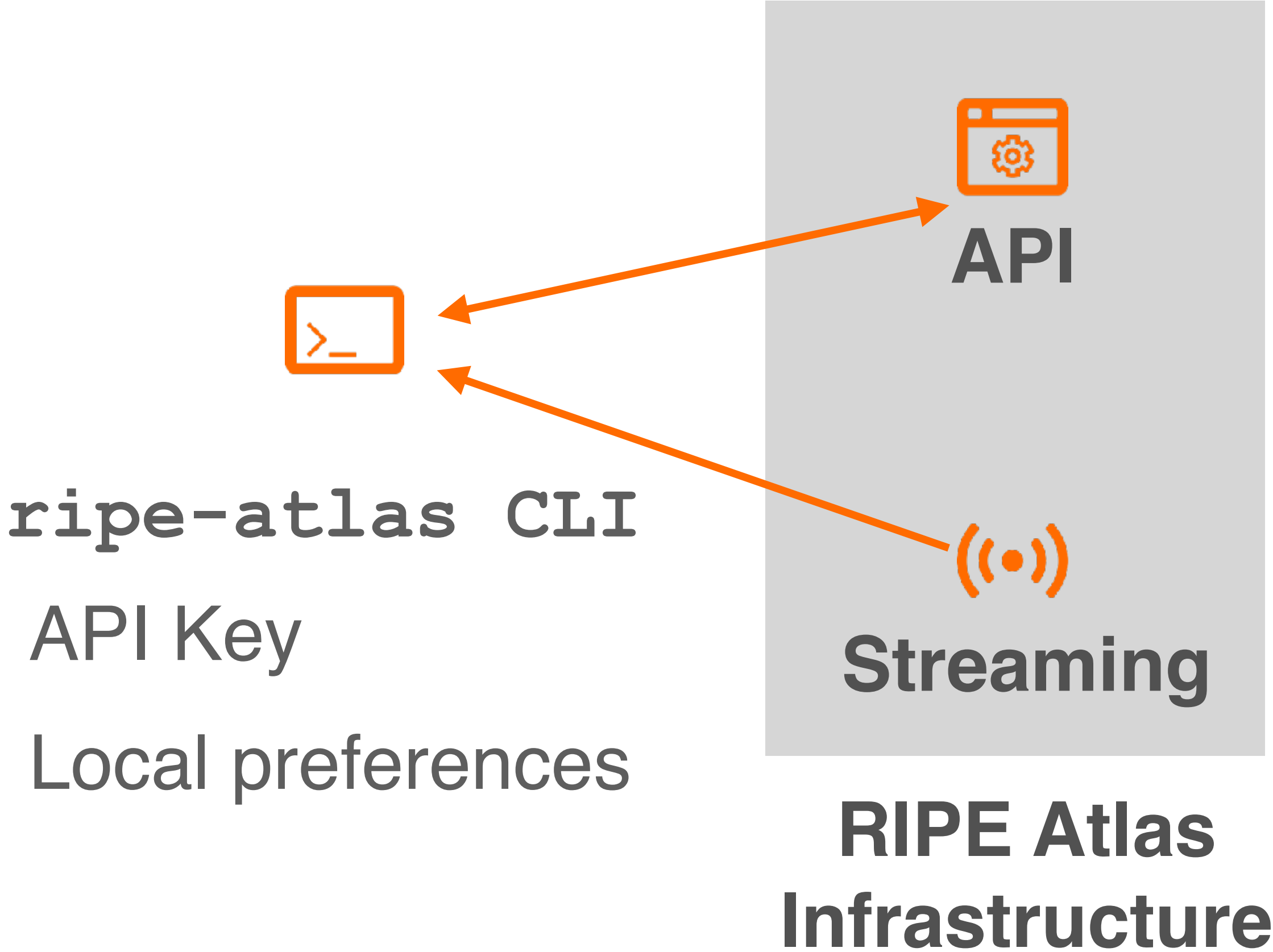
Probe #60680
Wed Oct 09 16:11:51 -03 2024

1	192.168.100.1		1.324
2	186.17.158.1	AS23201	4.796
3	10.135.131.45		3.636
4	181.40.43.70	AS23201	3.775
5	190.2.192.9	AS28008	28.361
6	187.16.216.61	AS9498	32.28
7	200.3.12.41	AS28001	28.437
8	*	AS28001	
9	200.3.14.10	AS28001	28.138

Probe #6637
Wed Oct 09 16:11:51 -03 2024

1	45.239.44.41	AS266858	0.348
2	45.239.44.1	AS266858	0.803

Behind the scenes



Troubleshooting

- Trouble: T0
 - It's not a matter of *if*, but *when*
- Let's focus on T-minus
 - T-plus should get easier :)
 - Prepare in advance
 - ▶ RIPE Access account
 - ▶ API key
 - ▶ Credits
 - ▶ Probe/s





Installation and Configuration

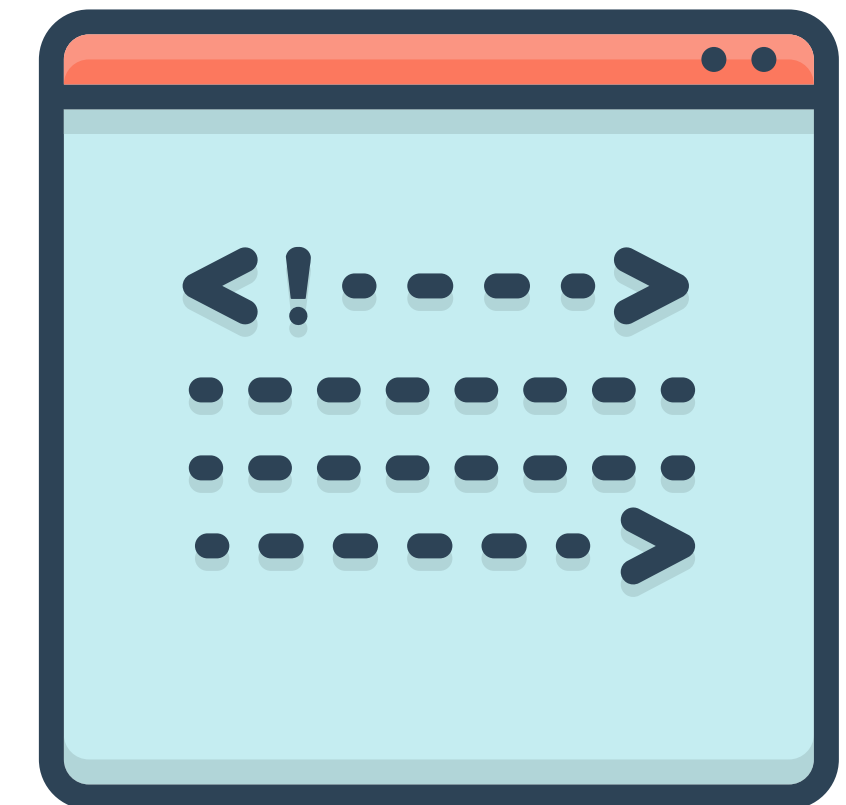
- **Install and configure virtualenv**
 - virtualenv is a tool for creating isolated virtual Python environments
 - <https://virtualenv.pypa.io/en/latest/installation.html>
- **Install RIPE Atlas Tools from within virtualenv**
 - `pip install ripe.atlas.tools`
 - Alternative methods are available
 - <https://ripe-atlas-tools.readthedocs.io/en/latest/installation.html>
- **Initial Setup**
 - Configure an API key
 - Set the default options





Using the CLI Tools

- **Basic syntax:** `ripe-atlas <command> [options] <arguments>`
 - **Commands:** measure, probe-search, report, etc.
 - **Options:** modify command behaviour (e.g., `--format`)
 - **Arguments:** specific to each command
- **Common structure:**
 - Specify the action (e.g., create measurement, search probes)
 - Define parameters (e.g., measurement type, target, probes)
 - Set additional options (e.g., output format, filters)
- **Get help:**
 - General help: `ripe-atlas --help`
 - Command-specific help: `ripe-atlas <command> --help`



The ripe-atlas command



```
$ ripe-atlas --help
```

```
Usage: ripe-atlas <command> [arguments]
```

Commands:

alias	Manage measurements' and probes' aliases
configure	Adjust or initialize configuration options
go	Visit the web page for a specific measurement
measure	Create a measurement and wait for the results
measurement-info	Return the meta data for one measurement
measurement-search	Fetch and print measurements fulfilling specified criteria based on given filters
probe-info	Return the meta data for one probe
probe-search	Fetch and print probes fulfilling specified criteria based on given filters
report	Report the results of an existing measurement from the API, a file or standard input
stream	Output the results of a public measurement as they become available

For help on a particular command, try `ripe-atlas <command> --help`



Example: Tool installation and Help

- Recommended --> python virtual environment: **python3 -m venv venv**
- Activate! **. venv/bin/activate**
- Tool installation: **pip install ripe.atlas.tools**
- **ripe-atlas --help**

```
Usage: ripe-atlas <command> [arguments]
```

```
Commands:
```

```
  alias           Manage measurements' and probes' aliases
  configure       Adjust or initialize configuration options
  go              Visit the web page for a specific measurement
  measure         Create a measurement and wait for the results
  measurement-info Return the meta data for one measurement
  measurement-search Fetch and print measurements fulfilling specified criteria based on given filters
  probe-info      Return the meta data for one probe
  probe-search    Fetch and print probes fulfilling specified criteria based on given filters
  report          Report the results of an existing measurement from the API, a file or standard input
  stream          Output the results of a public measurement as they become available
```

```
For help on a particular command, try ripe-atlas <command> --help
```




Example: Public information

- ripe-atlas probe-serch --country mx / --status 1 / aggregate-by asn_v4 (--asn & --ids-only)

```
Filters:
country_code: mx
```

id	asn_v4	asn_v6	country	status
264	-	-	mx	Abandoned
6398	22894	22894	mx	Disconnected
6406	22894	22894	mx	Connected
6420	42473	42473	mx	Connected
7233	4493	-	mx	Connected
7298	64112	64112	mx	Connected
7353	28408	28408	mx	Disconnected
10261	28548	-	mx	Abandoned
10324	7438	-	mx	Abandoned
10428	-	-	mx	Abandoned
10450	6503	-	mx	Abandoned
10697	7922	-	mx	Abandoned
10963	8151	8151	mx	Abandoned
13175	8151	-	mx	Abandoned
13183	-	-	mx	Abandoned
13687	8151	8151	mx	Abandoned
15263	8151	-	mx	Abandoned
15844	32098	-	mx	Abandoned
16838	8151	8151	mx	Disconnected
18034	-	18592	mx	Abandoned
18097	-	-	mx	Never Connected
19175	8151	-	mx	Written Off
19709	8151	8151	mx	Connected
19972	17072	-	mx	Abandoned
20466	5607	-	mx	Connected

Showing 25 of 224

```
Filters:
country_code: mx
status: 1
```

id	asn_v4	asn_v6	country	status
6406	22894	22894	mx	Connected
6420	42473	42473	mx	Connected
7233	4493	-	mx	Connected
7298	64112	64112	mx	Connected
19709	8151	8151	mx	Connected
20466	5607	-	mx	Connected
23000	8151	8151	mx	Connected
25182	270161	-	mx	Connected
27558	17072	17072	mx	Connected
32139	278	278	mx	Connected
33516	8151	8151	mx	Connected
33989	13999	13999	mx	Connected
35786	8151	8151	mx	Connected
51739	8151	8151	mx	Connected
51746	22884	-	mx	Connected
51975	8151	-	mx	Connected
60403	17072	-	mx	Connected
60714	8151	-	mx	Connected
60829	8151	8151	mx	Connected
60945	2549	-	mx	Connected
61873	8151	-	mx	Connected
62810	8151	8151	mx	Connected
63001	270200	-	mx	Connected
64085	8151	8151	mx	Connected
64714	17072	17072	mx	Connected

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```
Filters:
country_code: mx
status: 1
```

id	asn_v4	asn_v6	country	status
32139	278	278	mx	Connected
60945	2549	-	mx	Connected
7233	4493	-	mx	Connected
20466	5607	-	mx	Connected
19709	8151	8151	mx	Connected
23000	8151	8151	mx	Connected
33516	8151	8151	mx	Connected
35786	8151	8151	mx	Connected
51739	8151	8151	mx	Connected
51975	8151	-	mx	Connected
60714	8151	-	mx	Connected
60829	8151	8151	mx	Connected
61873	8151	-	mx	Connected
62810	8151	8151	mx	Connected
64085	8151	8151	mx	Connected
33989	13999	13999	mx	Connected
27558	17072	17072	mx	Connected
60403	17072	-	mx	Connected
64714	17072	17072	mx	Connected
51746	22884	-	mx	Connected
6406	22894	22894	mx	Connected
6420	42473	42473	mx	Connected
7298	64112	64112	mx	Connected
25182	270161	-	mx	Connected
63001	270200	-	mx	Connected

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Example: Configuration and Measurements

- `ripe-atlas configure --help`
- `ripe-atlas configure --set authorisation.create=<api_key>`
- `ripe-atlas measure --help`

```
Usage: ripe-atlas measure <type> [arguments]
```

```
Types:
```

```
  dns      Create a DNS measurement and wait for the results
  http     Create an HTTP measurement and wait for the results
  ntp      Create an NTP measurement and wait for the results
  ping     Create a ping measurement and wait for the results
  spec     Create a measurement from a JSON spec and wait for the results
  sslcert  Create a TLS (SSL) cert measurement and wait for the results
  traceroute Create a traceroute measurement and wait for the results
```

```
For extended options for a specific measurement type, try ripe-atlas measure <type> --help.
```



Example: Create PING Measurement

- `ripe-atlas measure ping lacnic.net`
 - `aping`
 - `aping --from-country mx lacnic.net`

```
Looking good! Measurement 82236402 was created and details about it can be found here:
```

```
https://atlas.ripe.net/measurements/82236402/
```

```
Connecting to stream...
```

```
PING 200.3.14.10 (resolved on server)
```

```
48 bytes from 200.3.14.10 via probe #20466 (90.202.255.106): ttl=51 times=202.776 ms, 199.931 ms, 203.166 ms
```

```
48 bytes from 200.3.14.10 via probe #6420 (131.100.0.158): ttl=48 times=161.716 ms, 157.912 ms, 157.846 ms
```

```
48 bytes from 200.3.14.10 via probe #61873 (187.155.18.193): ttl=52 times=137.548 ms, 137.62 ms, 136.348 ms
```

```
48 bytes from 200.3.14.10 via probe #64714 (189.203.87.215): ttl=51 times=159.345 ms, 159.144 ms, 159.159 ms
```

```
48 bytes from 200.3.14.10 via probe #1005021 (187.130.210.244): ttl=49 times=173.219 ms, 173.152 ms, 176.192 ms
```

```
48 bytes from 200.3.14.10 via probe #1004112 (189.172.58.239): ttl=50 times=186.65 ms, 185.255 ms, 185.833 ms
```

```
48 bytes from 200.3.14.10 via probe #7233 (148.225.112.222): ttl=46 times=189.504 ms, 189.409 ms, 189.505 ms
```

```
48 bytes from 200.3.14.10 via probe #35786 (187.223.244.157): ttl=51 times=188.775 ms, 189.576 ms, 192.559 ms
```

```
48 bytes from 200.3.14.10 via probe #65083 (45.191.52.128): ttl=36 times=161.721 ms, 161.32 ms, 158.632 ms
```

```
48 bytes from 200.3.14.10 via probe #1009403 (101.44.25.204): ttl=None times=None ms, None ms, None ms
```

```
48 bytes from 200.3.14.10 via probe #25182 (177.249.168.93): ttl=41 times=198.695 ms, 197.76 ms, 198.257 ms
```

```
48 bytes from 200.3.14.10 via probe #60829 (189.159.122.221): ttl=53 times=185.851 ms, 181.965 ms, 182.198 ms
```



Example: Create TRACEROUTE Measurement

- `atracrouteroute --from-country mx --traceroute-show-asns --probes 1 lacnic.net`

```
Looking good! Measurement 82236830 was created and details about it can be found here:
https://atlas.ripe.net/measurements/82236830/

Connecting to stream...

Probe #68714
Tue Nov 19 11:06:41 CET 2024

 1 * * *
 2 177.240.30.189 AS13999 2.535 ms 2.094 ms 2.191 ms
 3 10.3.7.137 3.919 ms 3.792 ms 3.884 ms
 4 10.3.7.82 3.722 ms 3.742 ms 3.653 ms
 5 187.247.254.226 AS13999 12.466 ms 12.251 ms 12.217 ms
 6 10.3.9.66 20.934 ms 20.972 ms 20.874 ms
 7 10.3.22.49 37.282 ms 36.99 ms 37.383 ms
 8 201.174.149.17 AS32098 36.877 ms 36.811 ms 36.839 ms
 9 * * *
10 201.174.244.192 AS32098 58.133 ms 58.134 ms 58.063 ms
11 157.238.231.210 AS2914 58.347 ms 58.578 ms 58.161 ms
12 129.250.3.46 AS2914 58.439 ms 58.29 ms 58.288 ms
13 * AS2914 * 87.754 ms
14 129.250.3.74 AS2914 91.941 ms 87.156 ms 87.24 ms
15 129.250.2.197 AS2914 202.892 ms 202.932 ms 202.724 ms
16 200.15.9.95 AS2914 198.028 ms 196.211 ms 196.333 ms
17 200.160.0.157 AS22548 214.102 ms 203.051 ms 203.082 ms
18 200.160.0.249 AS22548 202.863 ms 202.622 ms 202.644 ms
19 200.160.0.212 AS22548 196.867 ms 196.818 ms 196.799 ms
20 200.3.12.34 AS28001 196.494 ms 196.742 ms 196.647 ms
21 200.3.14.10 AS28001 197.81 ms 197.887 ms 197.742 ms
```



Questions





Other Resources for Internet measurements

- **RIPE NCC Internet Measurements**
<https://www.ripe.net/analyse/internet-measurements/>
- **LACNIC**
<https://www.lacnic.net/6712/1/lacnic/sondas-de-medicion-en-lac>
- **APNIC Labs**
<https://labs.apnic.net/measurements/>
- **Internet Society**
<https://www.internetsociety.org/action-plan/measuring-the-internet/>
- **Center for Applied Internet Data Analysis (CAIDA)**
<https://www.caida.org/>
- **M-LAB**
<https://www.measurementlab.net/>



Start now!

Activities for you
to do in your own time

Before you create anything...



Ask yourself these things:

- What is the goal of the measurement?
- Which measurement type helps me achieve this goal?
- Where do I want/need the probes to be located?
- How long should the measurement run? Enough credits?
- How will I analyse the data in the results?
- Is there an existing measurement I can use?





1) Search for a Measurement

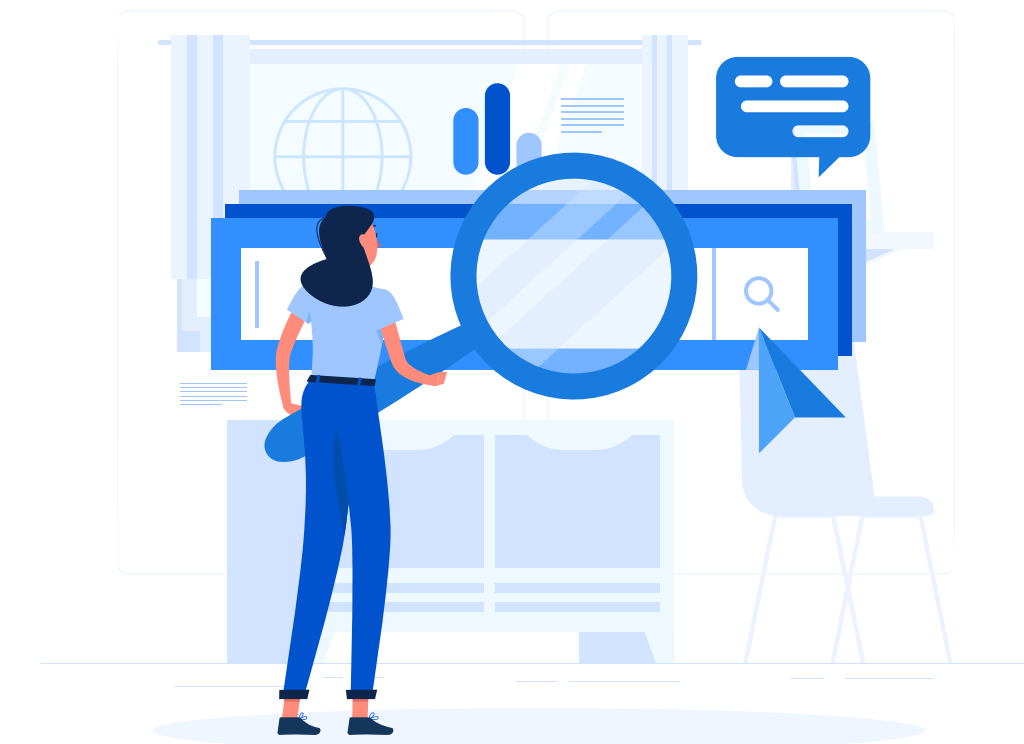
Before you create a measurement of your own, search an existing one!

Go to the RIPE Atlas Measurements page and search for a measurement to an IP or prefix you know.

Once you have found the measurement, click on it to view more information.

Here are some things you can do:

- Analyse the results of the measurement to identify trends or patterns
- Compare the results of the measurement to other measurements
- Troubleshoot network problems
- Track the performance of a network over time



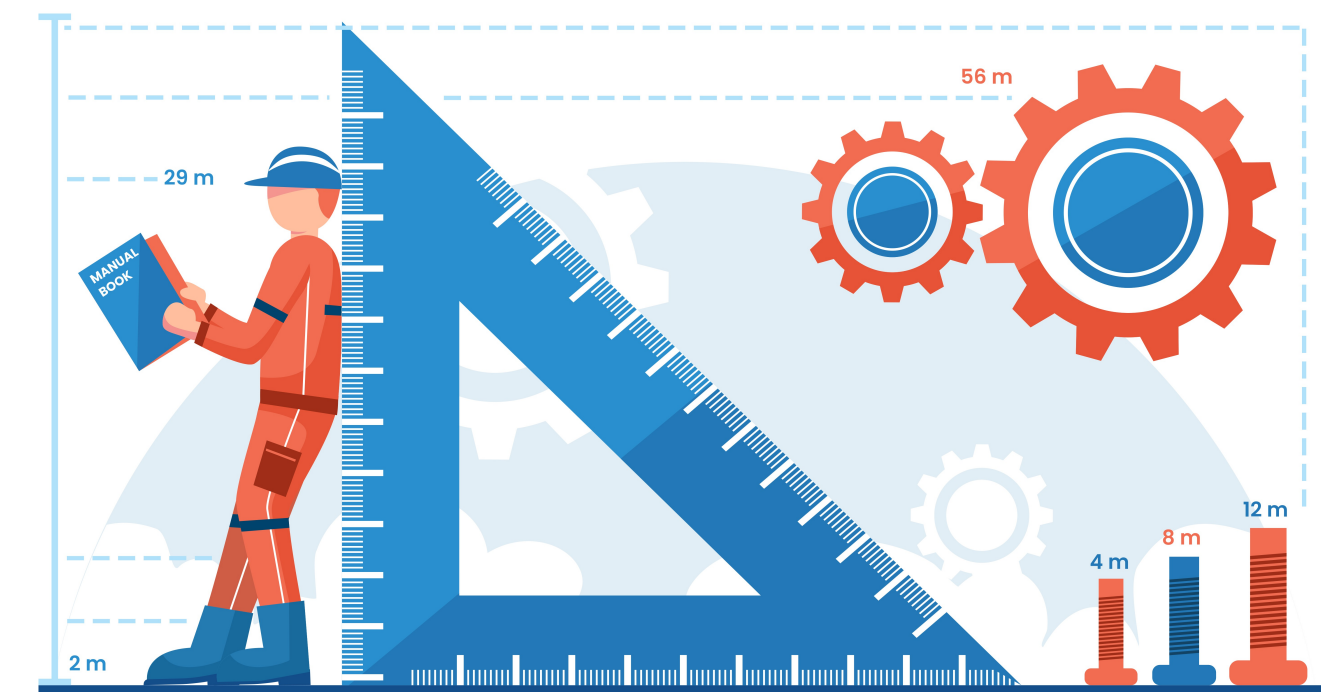


2) Create a Measurement

You now know enough to create your own measurement!

Get started by doing the following:

- Choose a target and define your goal: what do you want to find out?
- Choose the probes from locations of interest to you
- Create the measurement and wait for the results
- Analyse the results and see what you discover!

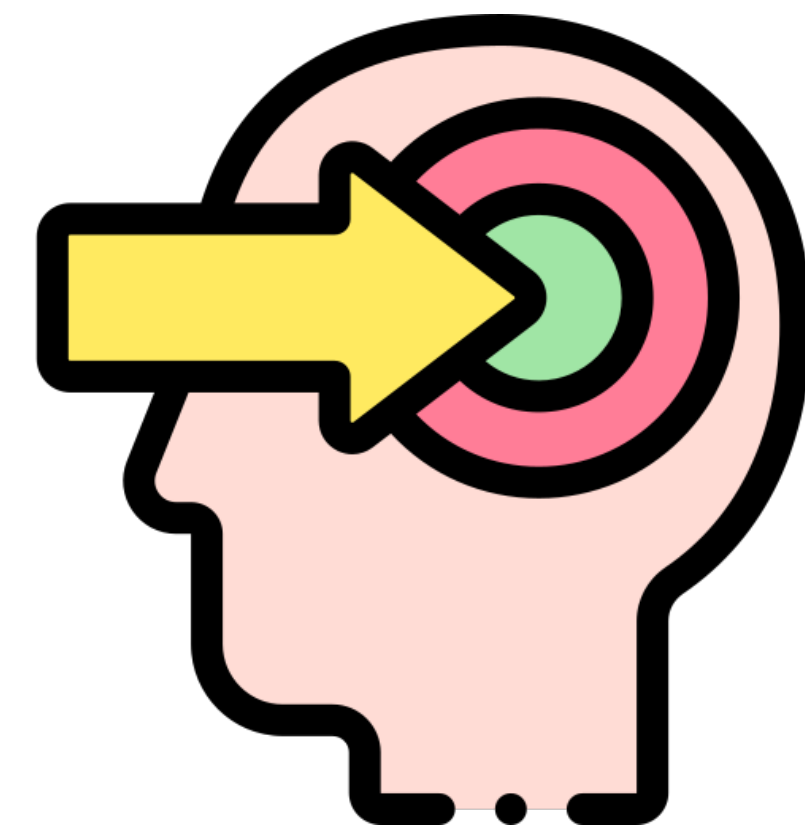




Remember...

Here are some questions to help you analyse the results:

- Are the results what you expected?
- Do any patterns or anomalies appear in the data?
- How do the results compare over time or from different vantage points?
- What conclusions can you draw and how might this data be useful?





Questions



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