



**RIPE NCC**  
RIPE NETWORK COORDINATION CENTRE

# Using RIPE Atlas

Webinar

RIPE NCC Learning & Development

# Take the Poll!

How much experience do you have with **RIPE Atlas**?

# Take Another Poll!

What is an “**active measurement**”?





# Prerequisites

- We assume you have already used RIPE Atlas
- Do you have a **RIPE NCC Access** account?
  - If not - quickly create one: *[access.ripe.net](https://access.ripe.net)*
- Do you have credits to spend?





# Overview

Introduction to RIPE Atlas

Creating a Measurement

**Demo A:** Creating a Measurement

Command Line Interface (CLI) Toolset

**DEMO B:** Using RIPE Atlas CLI

Monitoring

**Exercise A:** Kahoot



# Introduction to RIPE Atlas

## Section 1

# An Introduction



- RIPE Atlas is a **global active measurements platform**
- Goal: view Internet reachability
- Probes hosted by volunteers
- Data **publicly available**

# RIPE Atlas Measurements



- **Built-in** global measurements towards root nameservers
  - Visualised as Internet traffic maps
- **Built-in** regional measurements towards “anchors”
- **Users** can run customised measurements
  - ping, traceroute, DNS, SSL/TLS, NTP and HTTP\*



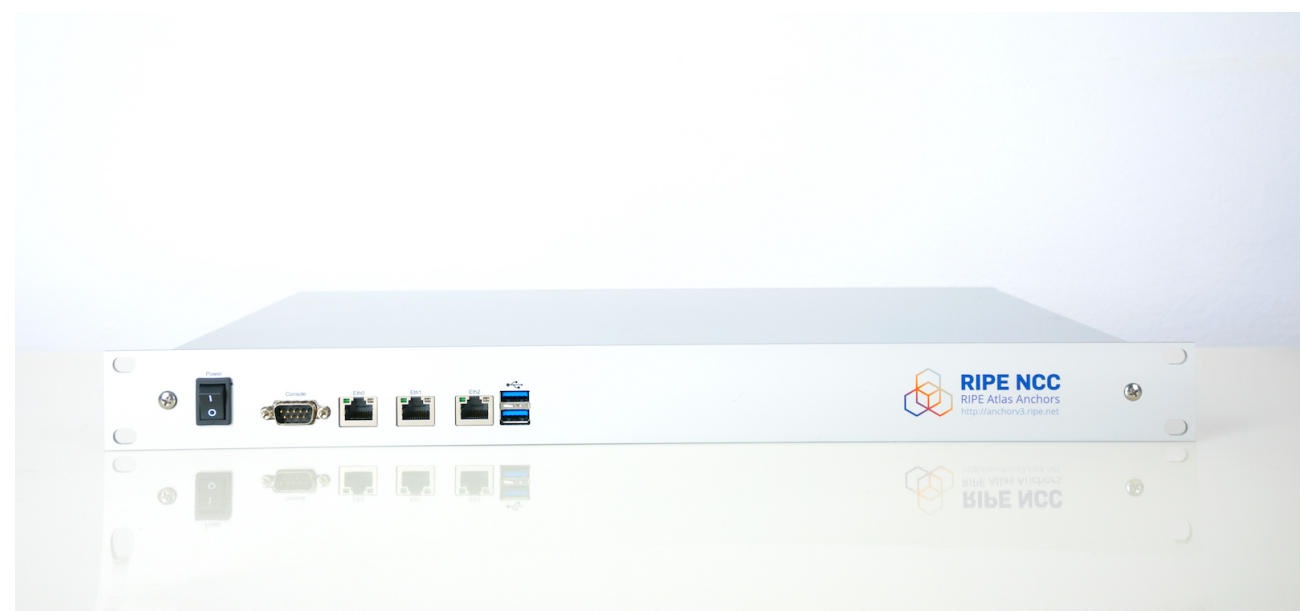


# Probes and Anchors

- **11,000+** probes connected (**600+** RIPE Atlas Anchors)
- **10,000+** results collected per second
- **23,000+** measurements currently running



*RIPE Atlas probe*



*RIPE Atlas anchor*

# New: RIPE Atlas Software Probes

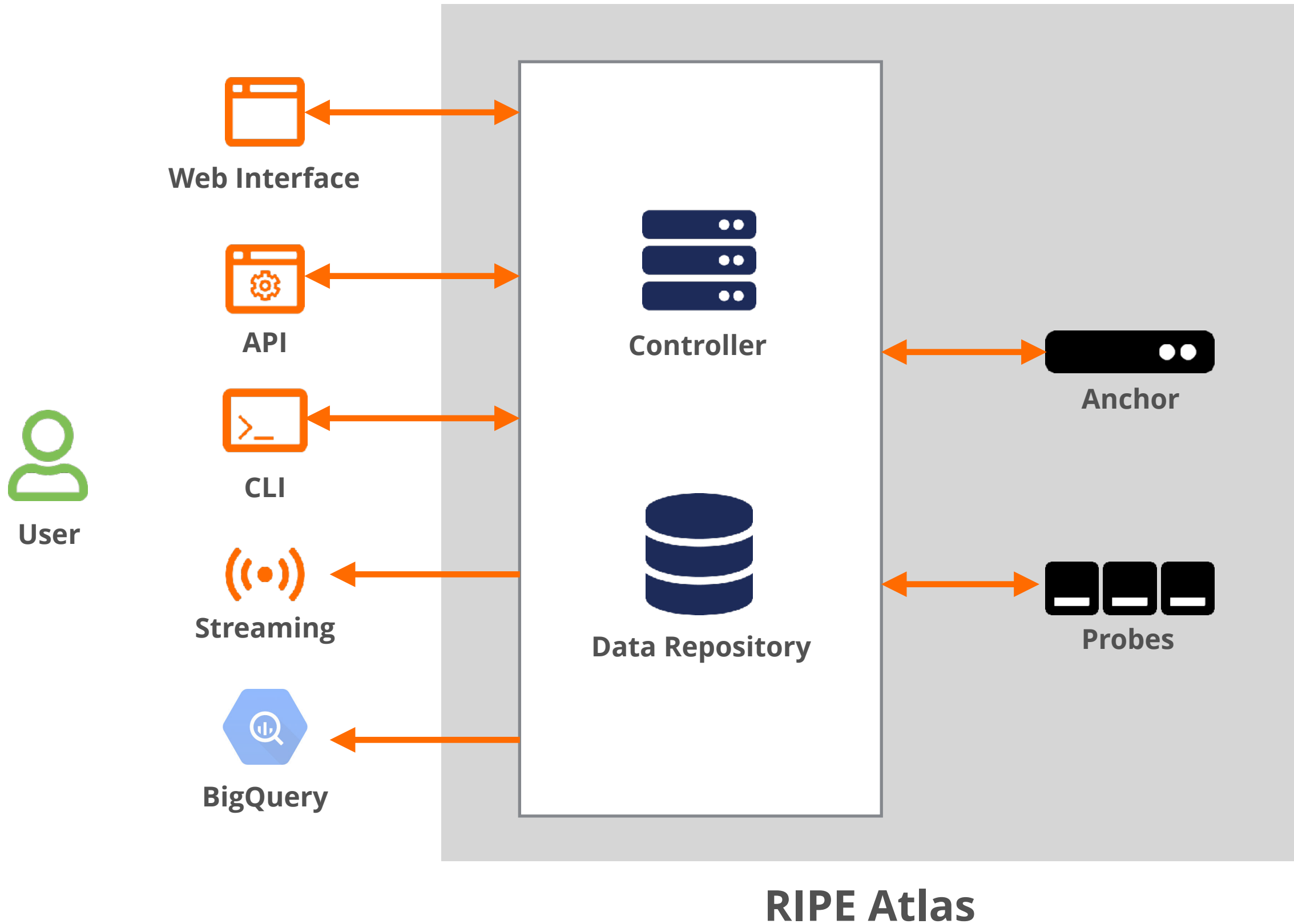


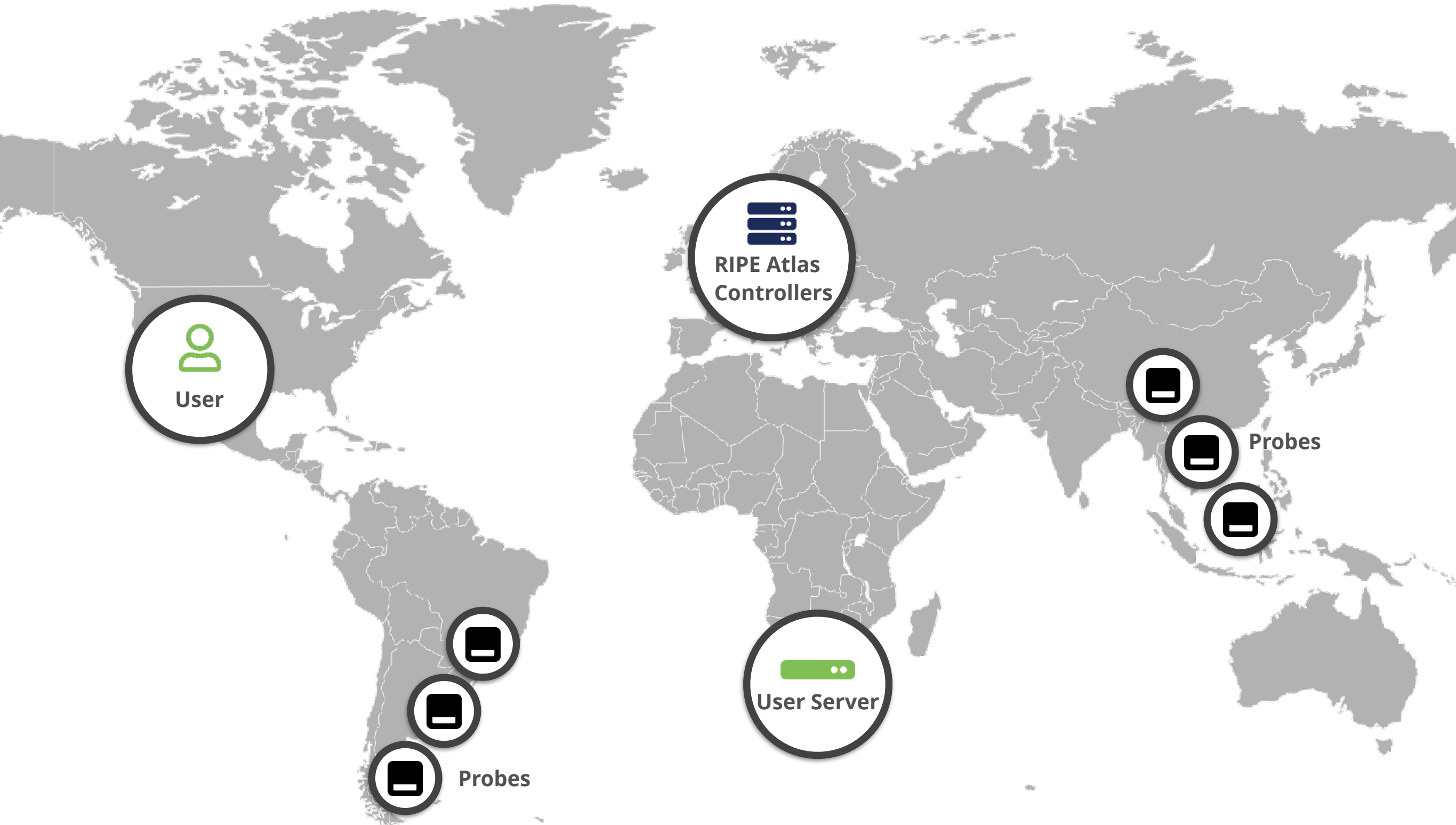
- Software packages that work like regular probes
- Install and run on your (virtual), machines, routers, servers etc
- Currently supporting:
  - CentOS 7 and 8; Debian (9 and 10) and Raspbian; Docker; Turris Routers
- Further information: [atlas.ripe.net/docs/software-probe/](https://atlas.ripe.net/docs/software-probe/)

Apply to host a software probe:  
<https://atlas.ripe.net/apply/>

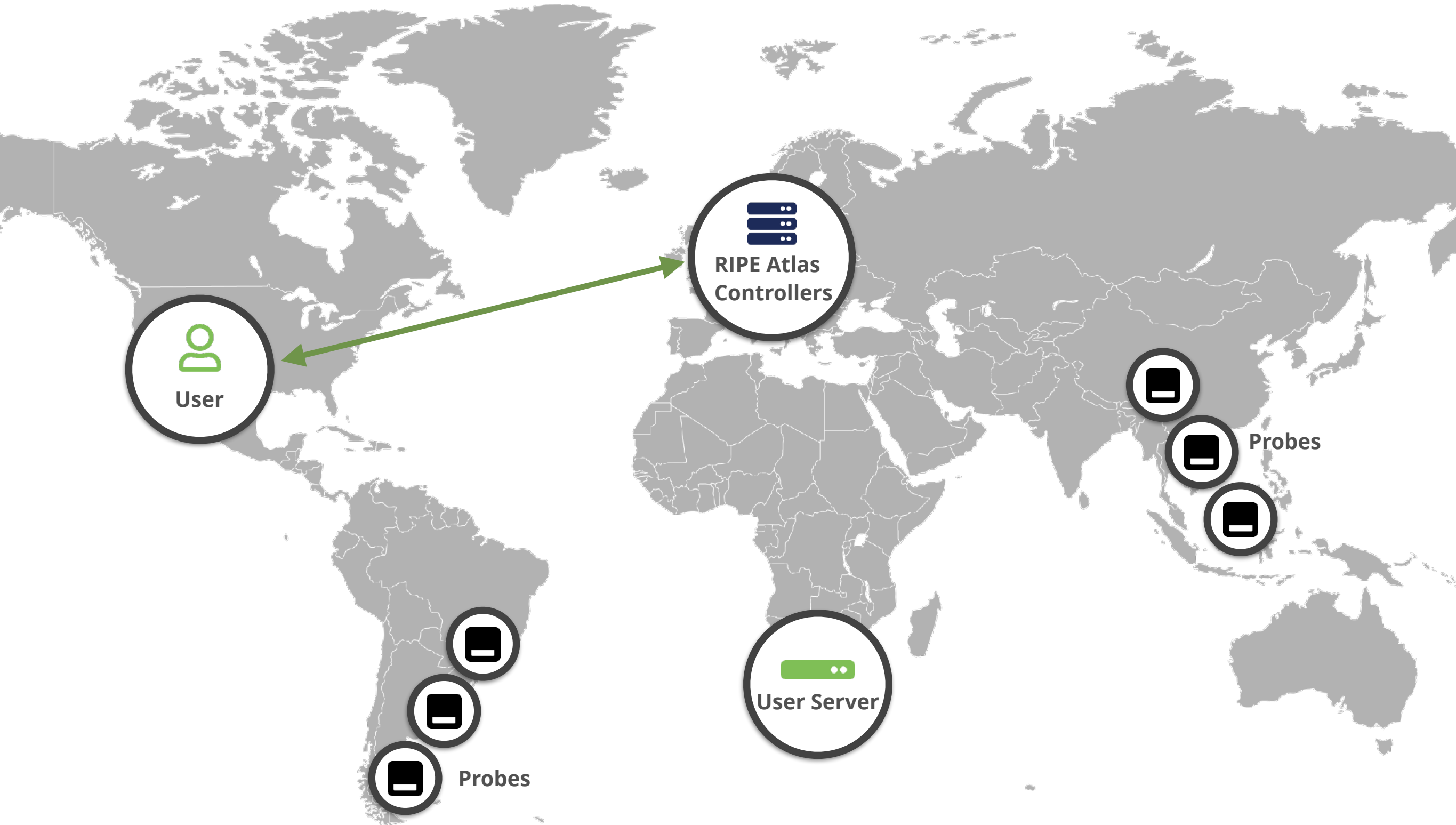
```
~ atlas ➔ yum install atlasswprobe
```

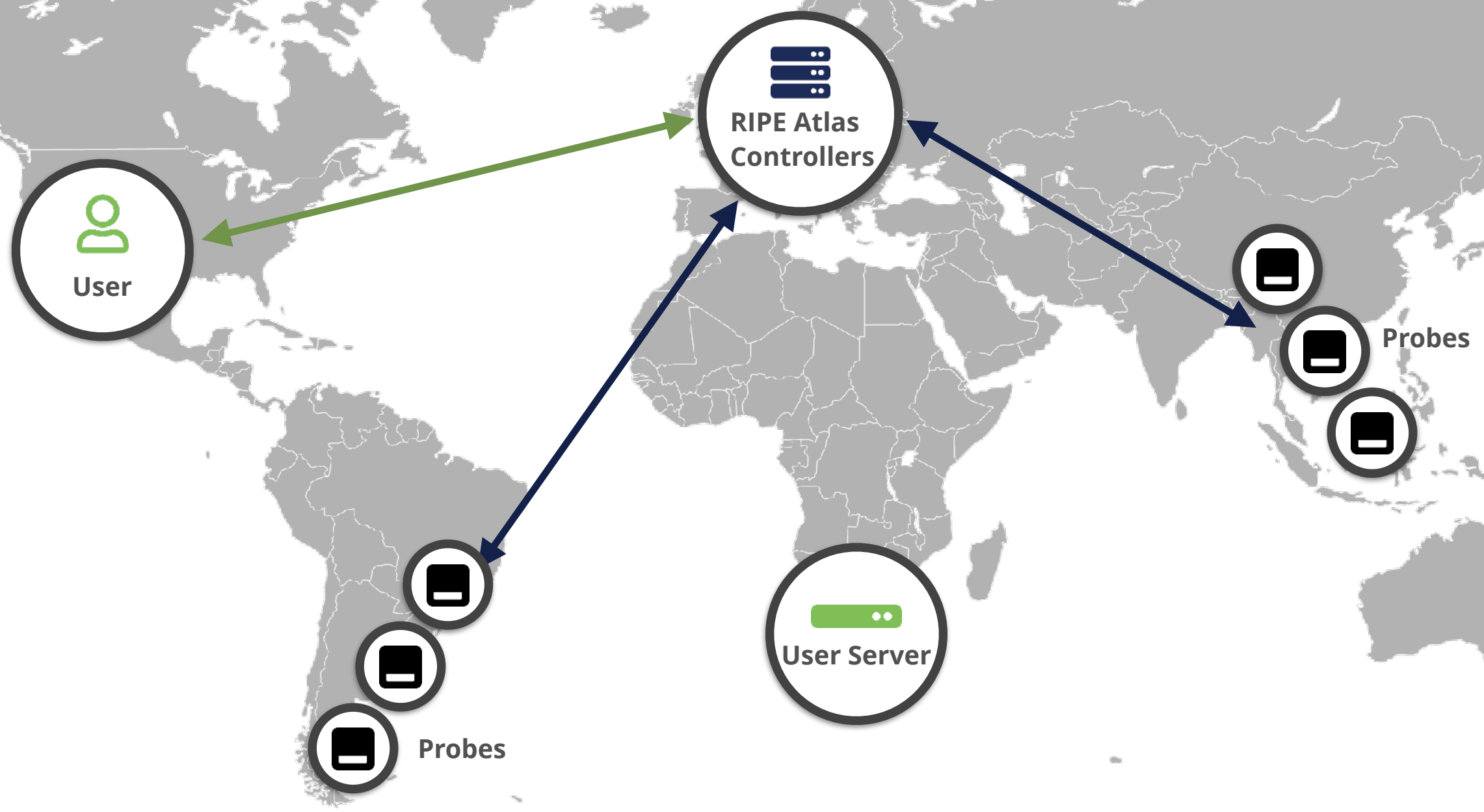
The terminal window shows a dark blue background with a yellow prompt character and a cyan arrow pointing to the command. Below the command, there are several horizontal bars of varying lengths and colors (white, grey, yellow) representing progress or output. At the bottom, there is another prompt character and a cyan arrow pointing to a vertical bar.

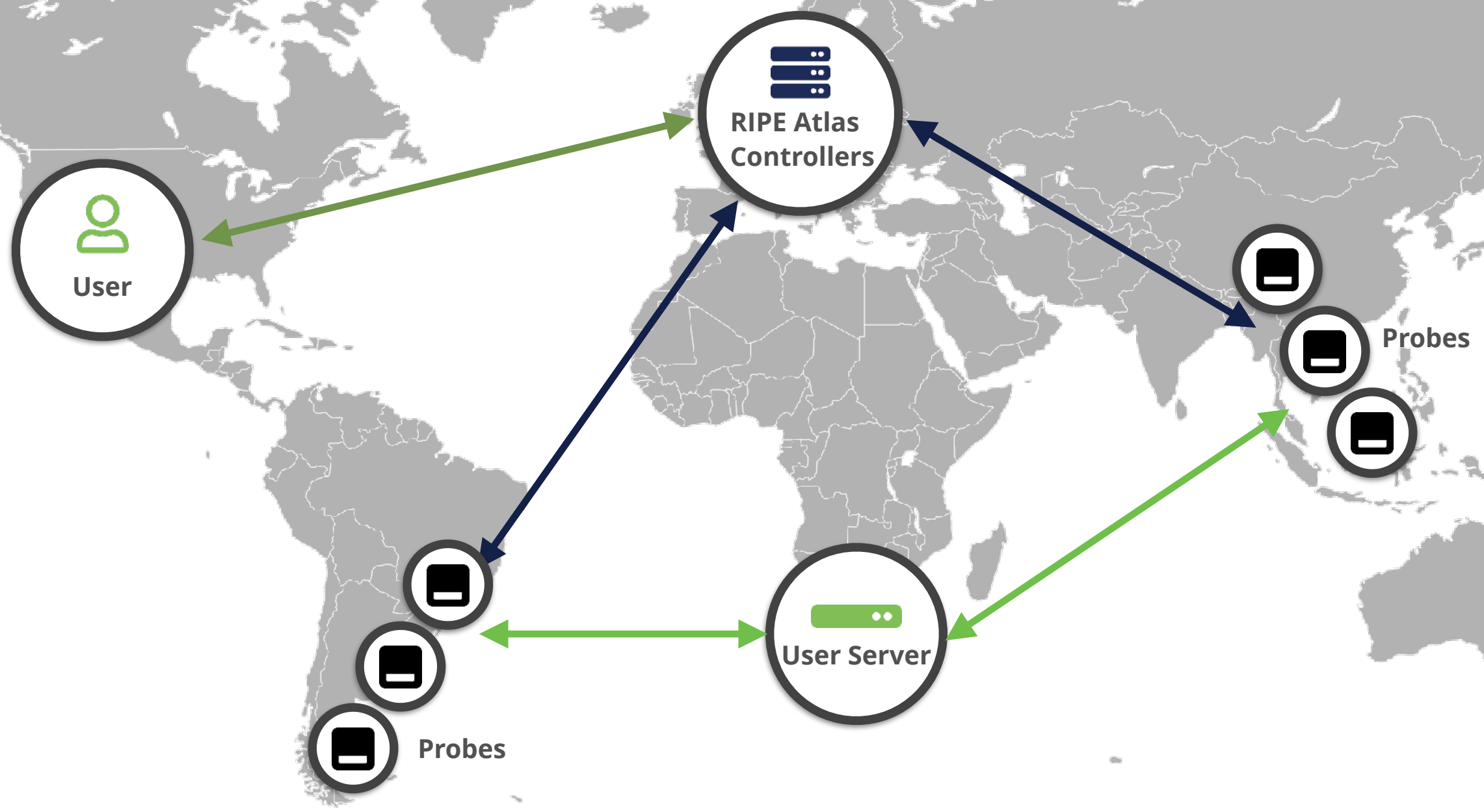















# Steps to Take

1. Get a probe (optional)
2. Get a **RIPE NCC Access** account
3. Register the probe (if you received one)
4. Get credits
5. **Create measurements** as needed
6. **Troubleshoot and monitor** your network



# Take the Poll!

Can you get a  
**RIPE Atlas probe** for free?

 2 min.



P3

# Why?



- Why get a free RIPE Atlas probe?
  - to help the community effort in building the largest Internet measurement network: RIPE Atlas
  - to help everyone and yourself to create better measurements
- Why get credits and create a RIPE NCC Access Account?
  - to be able to create measurements and troubleshoot



# Questions





# Creating a Measurement

## Section 2



# Benefits of Your Own Measurements



- *Customer problem: cannot reach your server*
  - Schedule measurements (**pings** or **traceroutes**) from up to **1,000** RIPE Atlas probes **worldwide** to verify where the problem is;
- **Measuring** packet loss on suspected “bad” link;
- **Testing** anycast deployment.



# Credits System

- Measurements cost credits
  - ping = **10 credits**, traceroute = **20**, etc.
- Why? **Fairness** and to **avoid overload**
- Spending limit
- Max number of measurements

# How Can you Earn Credits?



- Hosting a RIPE Atlas probe
- Being a RIPE NCC member
- Hosting an anchor
- Sponsoring probes

# Credits Overview



## My Atlas > Credits

**RIPE Atlas**

**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.

**3,478,722**  
-3,600.00 credits / hour

History | Charts & Archives | **Transfer** | Standing Order | Share Access | Redeem voucher

Time	Comment	Change	Balance
2020-11-17 12:19:30 UTC		-3,459	3,478,722
2020-11-17 06:19:30 UTC		-2,778	3,482,181
2020-11-17 00:19:30 UTC		-3,258	3,484,959
2020-11-16 18:19:30 UTC		-3,510	3,488,217
2020-11-16 17:01:01 UTC	Probe ID: 4989 Probe uptime Ambassador	2,160	3,491,727
2020-11-16 12:19:19 UTC	Measurement: 25611198 Samples: 1174	-3,522	3,489,567
2020-11-16 06:21:16 UTC	Measurement: 25611198 Samples: 1170	-3,510	3,493,089
2020-11-16 00:19:46 UTC	Measurement: 25611198 Samples: 1170	-3,510	3,496,599
2020-11-15 18:20:41 UTC	Measurement: 25611198 Samples: 1170	-3,510	3,500,109
2020-11-15 17:00:58 UTC	Probe ID: 4989 Probe uptime Ambassador	2,160	3,503,619
2020-11-15 12:19:30 UTC	Measurement: 25611198 Samples: 1189	-3,567	3,501,459
2020-11-15 06:19:38 UTC	Measurement: 25611198 Samples: 1151	-3,453	3,505,026
2020-11-15 00:19:30 UTC	Measurement: 25611198 Samples: 1169	-3,507	3,508,479
2020-11-14 18:19:24 UTC	Measurement: 25611198 Samples: 1171	-3,513	3,511,986
2020-11-14 17:00:58 UTC	Probe ID: 4989 Probe uptime Ambassador	2,160	3,515,499
2020-11-14 12:19:30 UTC	Measurement: 25611198 Samples: 1170	-3,510	3,513,339
2020-11-14 06:19:33 UTC	Measurement: 25611198 Samples: 1172	-3,516	3,516,849

**Give credits to someone**

**My Atlas > Credits**

# Scheduling a Measurement



- Log in to [atlas.ripe.net](https://atlas.ripe.net)
- Four methods:
  1. Quick and easy
  2. Advanced GUI usage
  3. API (curl and JSON code)
  4. CLI

# 1. Quick and Easy



## Create a New Measurement

### Step 1 Definitions

1 **Ping measurement to bbc.co.uk**

2 **Target:**  An IP address or hostname

**Description:**

**Address Family\*:**

**Interval:**  How often this should be done (seconds between samples). Note that this value is ignored for one-off measurements.

**Packets:**

**Size:**

**Resolve on Probe:**  Force the probe to do DNS resolution

[Advanced Options](#)

[+ Ping](#) [+ Traceroute](#) [+ DNS](#) [+ SSL](#) [+ HTTP](#) [+ NTP](#)

### Step 2 Probe Selection

**Worldwide** 10

[+ New Set - wizard](#) [+ New Set - manual](#) [+ IDs List](#) [+ Reuse a set from a measurement](#)

### Step 3 Timing

This is a One-off:

**Start time (UTC):**

**Stop time (UTC):**

[Measurement API Compatible Specification](#)

3 **Create My Measurement(s)**

### Costs summary

Daily cost: 10800 credits

You will run out of credits in about 124 days

Users who will supply credits for this measurement:



## 2. Use GUI

- Mostly used for a periodic, long-term measurement
  - Or “One-off”
- Choose type, target, frequency, start/end time, # of probes, region...
- Each measurement will have **unique ID**
- “**API Compatible Specification**” is generated too



# 2. Advanced GUI



### Create a New Measurement

**Step 1 Definitions**

**A**  Ping measurement to bbc.co.uk

**B** Target:  An IP address or hostname

Address Family\*:

**C** Packets:

Size:

**D** [Advanced Options](#)

Description:

Interval:  How often this should be done (seconds between samples). Note that this value is ignored for one-off measurements.

Resolve on Probe:  Force the probe to do DNS resolution

**E**

**Step 2 Probe Selection**

**Step 3 Timing**

This is a One-off:

Start time (UTC):

Stop time (UTC):

[Measurement API Compatible Specification](#)

**G**

### Costs summary

Daily cost: 10800 credits

You will run out of credits in about 124 days

Users who will supply credits for this measurement:



## 3. Use API

- **Using command-line and scripting:**
  - Application Programming Interface (API)
  - <https://atlas.ripe.net/docs/api/v2/manual/measurements/types/>
  - <https://atlas.ripe.net/keys/>
- **You will need API keys**
  - To create measurements without logging in
  - To securely share your measurement data

# 3. API Compatible



## Create a New Measurement

### Step 1 Definitions

▼ Ping measurement to bbc.co.uk

**Target:**  
bbc.co.uk  
An IP address or hostname

**Address Family\*:**  
IPv4

**Packets:**  
3

**Size:**  
48

**Description:**  
Ping measurement to bbc.co.uk

**Interval:**  
240  
How often this should be done (seconds between samples). Note that this value is ignored for one-off measurements.

**Resolve on Probe:**   
Force the probe to do DNS resolution

[Advanced Options](#)

+ Ping + Traceroute + DNS + SSL + HTTP + NTP

### Step 2 Probe Selection

Worldwide 10

+ New Set - wizard + New Set - manual + IDs List + Reuse a set from a measurement

### Step 3 Timing

This is a One-off:

**Start time (UTC):** As soon as possible

**Stop time (UTC):** Never

**> Measurement API Compatible Specification**

Create My Measurement(s)

### Costs summary

Daily cost: 10800 credits

You will run out of credits in about 124 days

Users who will supply credits for this measurement:  
ferenc@ripe.net

# [cont...] 3. API Compatible



## Measurement API Compatible Specification

```
curl --dump-header - -H "Content-type: application/json" -H "Accept:
application/json" -X POST -d '{
  "definitions": [
    {
      "target": "nrc.nl",
      "af": 4,
      "packets": 3,
      "size": 48,
      "description": "Ping measurement to nrc.nl",
      "interval": 240,
      "resolve_on_probe": false,
      "skip_dns_check": false,
      "type": "ping"
    }
  ]
}
```

Copy to clipboard



# Create API Key

1. Go to MyAtlas
2. Click on “Create an API Key”
3. Choose type: “create a new user-defined measurement”
4. “Object” is not applicable (N/A) for this type
5. Give it a label

# Looking Up Measurements Results



Go to “Measurements, Maps and Tools” > “Measurements”

RIPE Atlas

Home  
About RIPE Atlas  
Get Involved  
Probes and Anchors  
Measurements, Maps...  
**Measurements**  
Internet Maps  
Tools  
Resources  
RIPE NCC Members  
My Atlas  
Credits  
API Keys  
Messages  
Anchors

Measurements [+ Create a Measurement](#)

Search by target Search... Any Status IPv4/v6 All types Of all time

ID	Type	Target	Description	Probes	Interval	Time (UTC)	Status
<a href="#">27416667</a>	Ping	wikipedia.org	Ping measurement to wikipedia.org	49	one-off	2020-10-05 09:35 2020-10-05 09:45	■ <a href="#">👁</a> <a href="#">★</a>
<a href="#">27416368</a>	Ping	nu.nl	Ping measurement to nu.nl	91	240 s	2020-10-05 09:19 Never	■ <a href="#">👁</a> <a href="#">★</a>
<a href="#">26285821</a>	Ping	wikipedia.org	Ping measurement to wikipedia.org	50	one-off	2020-07-14 09:50 2020-07-14 10:00	■ <a href="#">👁</a> <a href="#">★</a>
<a href="#">26285799</a>	Ping	bbc.co.uk	Ping measurement to bbc.co.uk	10	240 s	2020-07-14 09:42 2020-07-16 12:00	■ <a href="#">👁</a> <a href="#">★</a>
<a href="#">26285798</a>	Ping	bbc.co.uk	Ping measurement to bbc.co.uk	10	240 s	2020-07-14 09:42 2020-07-16 12:00	■ <a href="#">👁</a> <a href="#">★</a>
<a href="#">26285752</a>	Ping	trouw.nl	Ping measurement to trouw.nl	2	240 s	2020-07-14 09:31 Never	■ <a href="#">👁</a> <a href="#">★</a>
<a href="#">26285730</a>	Ping	nu.nl	Ping measurement to nu.nl	10	240 s	2020-07-14 09:22 Never	■ <a href="#">👁</a> <a href="#">★</a>
<a href="#">26190071</a>	Traceroute	wikipedia.org	Traceroute measurement to wikipedia.org	20	one-off	2020-07-07 09:29 2020-07-07 09:35	■ <a href="#">👁</a> <a href="#">★</a>
<a href="#">26190047</a>	Ping	wikipedia.org	Ping measurement to wikipedia.org	49	one-off	2020-07-07 09:22 2020-07-07 09:30	■ <a href="#">👁</a> <a href="#">★</a>
<a href="#">26189995</a>	Traceroute	trouw.nl	Traceroute measurement to trouw.nl	76	900 s	2020-07-07 19:05 2020-07-09 10:05	■ <a href="#">👁</a> <a href="#">★</a>
<a href="#">26189976</a>	Ping	nu.nl	Ping measurement to nu.nl	10	240 s	2020-07-07 08:57 Never	■ <a href="#">👁</a> <a href="#">★</a>
<a href="#">25622447</a>	Ping	wikipedia.org	Ping measurement to wikipedia.org	50	one-off	2020-06-04 13:46 2020-06-04 13:55	■ <a href="#">👁</a> <a href="#">★</a>
<a href="#">25611198</a>	Ping	nu.nl	Ping measurement to nu.nl	13	240 s	2020-06-03 12:55 Never	○ <a href="#">👁</a> <a href="#">★</a>

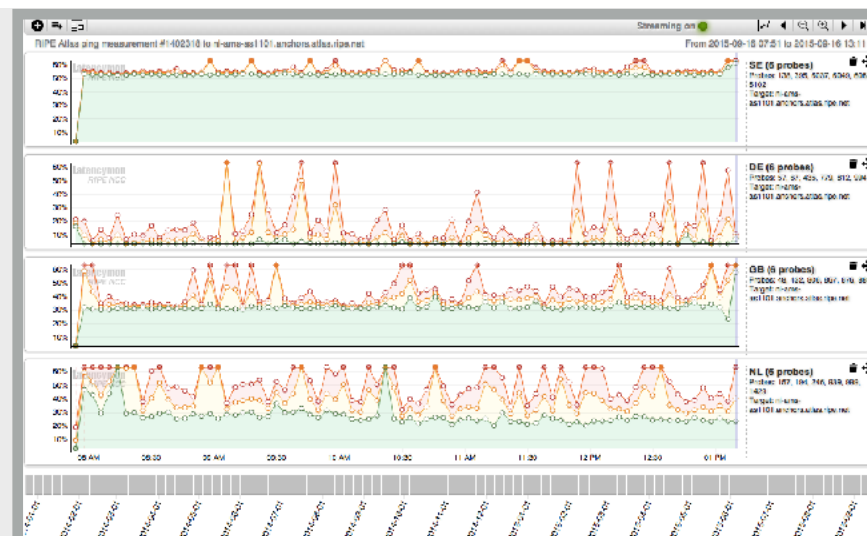
# Available Visualisations: Ping



Probe	ASN (v4)	ASN (v6)		Time	RTT
6019	3333	3333		2015-05-19 09:23	1.157
6069	59469	59469		2015-05-19 09:23	15.253
6111	198068	198068		2015-05-19 09:23	37.760
6112	197216	197216		2015-05-19 09:23	35.494
10008	3851			2015-05-19 09:23	24.664
10218	6876			2015-05-19 09:23	37.952
10246	39608			2015-05-19 09:23	36.313
10252	50288			2015-05-19 09:23	62.441
10267	12322			2015-05-19 09:23	31.498
10296	51214			2015-05-19 09:23	✗ Unreachable

*List of probes  
sortable by RTT*

*Map  
colour-coded by RTT*



*LatencyMON  
compare multiple latency trends*

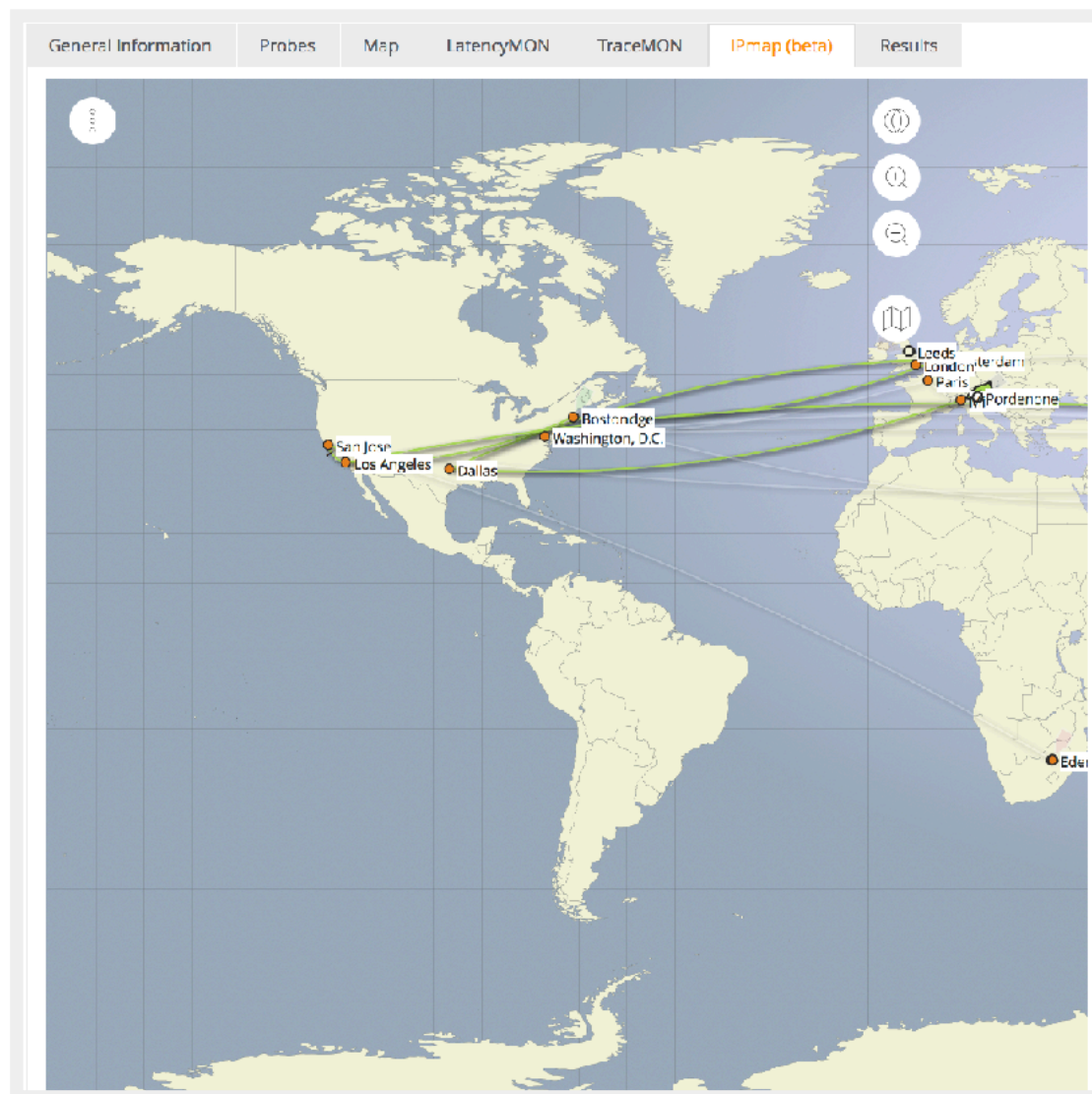
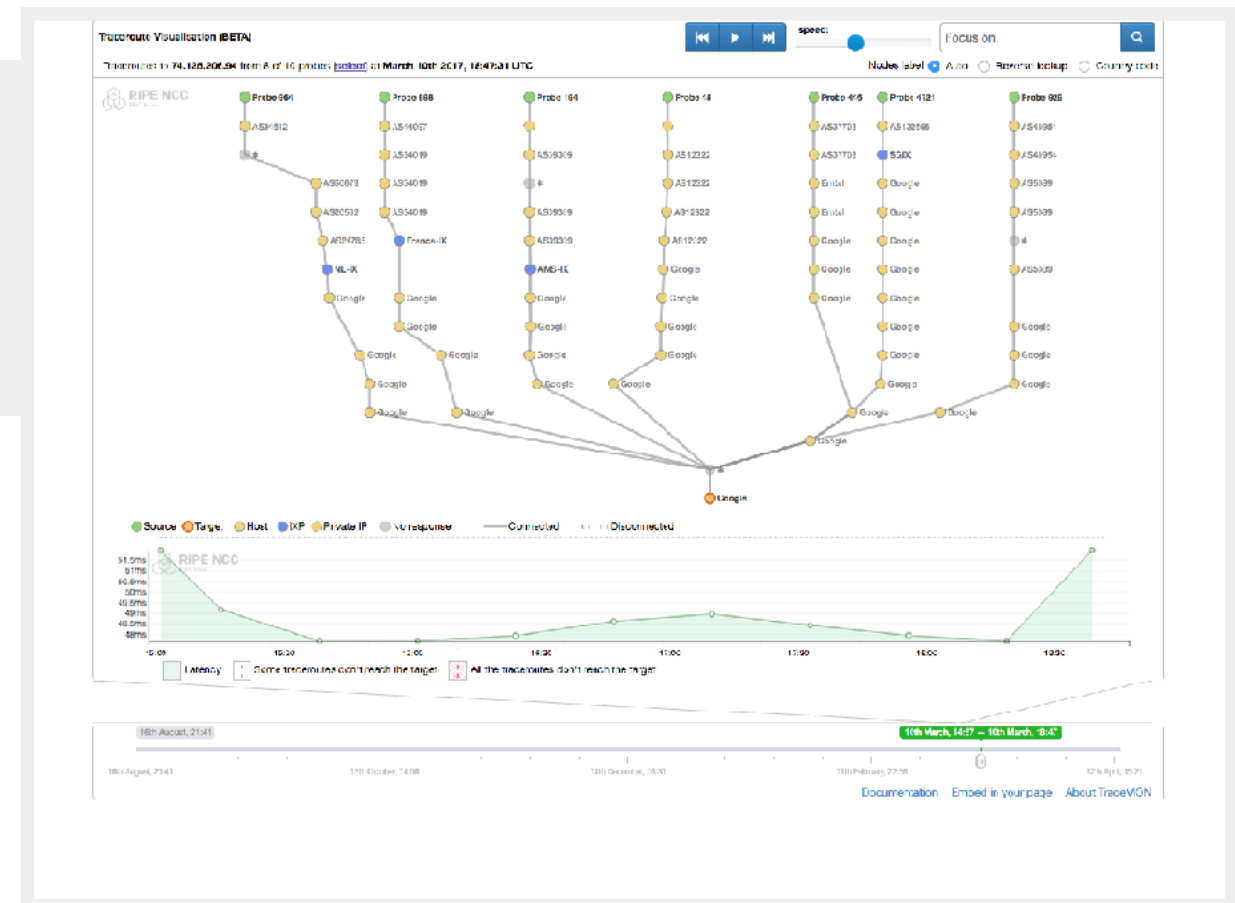


# Available visualisations: traceroute



## TraceMON:

*network topology, latency and nodes information*



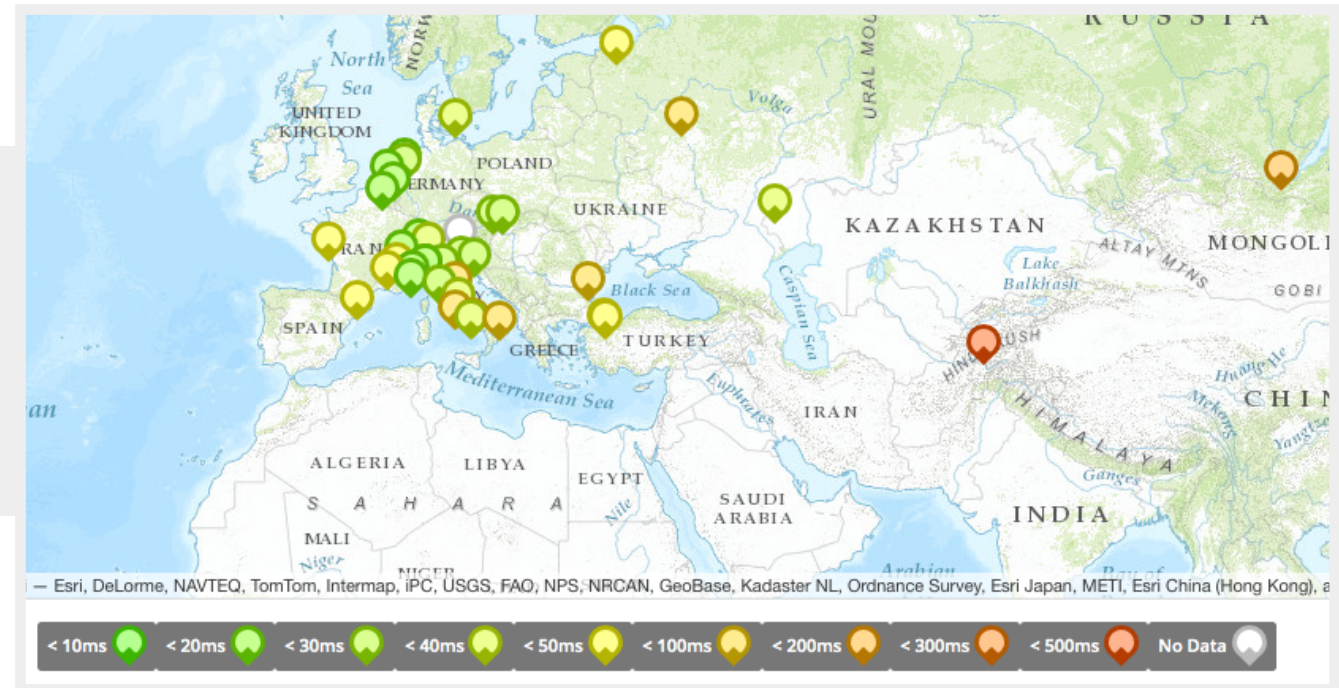
## IPMap(beta):

*hops geolocation on map (prototype)*

# Available visualisations: DNS



**Map:**  
*colour-coded response  
 time or diversity*



## DNS measurement to ns1.opteamax.de

Probe	ASN (v4)	ASN (v6)	Time	Name	Response Time
17840	6327		2015-05-19 09:38	null	362.009
18035	43030		2015-05-19 09:50	null	347.39
18129	327805		2015-05-19 09:49	null	207.743
15844	32098		2015-05-19 09:48	null	184.237
17857	852		2015-05-19 09:37	null	177.694
19894	6327		2015-05-19 09:36	null	168.689
19204	21513		2015-05-19 09:50	null	141.199
15922	30036		2015-05-19 09:47	null	133.309

**List of probes:**  
*sortable by response time*

# Raw Measurement Data download



You are here: [Home](#) > [Analyse](#) > [Internet Measurements](#) > [RIPE Atlas](#) > [Measurements](#) > Measurement #13027

- RIPE Atlas <<
- About RIPE Atlas >
- Get Involved >
- Probes and Anchors >
- Measurements, Maps and Tools >
- Resources >
- RIPE NCC Members

Settings & Status    Map    Latencymon    **Downloads**

## Download the raw measurement result data here.

You can use this form to download the data through your browser, or use the preview on the right to help you query the REST API directly.

### Select Your Timeframe

Start Date\*:

2038-01-14 UTC

*All dates are start-of-day*

Stop Date\*:

2038-01-14 UTC

*All dates are end-of-day*

Format:

json

Download

### URL Preview

```
/api/v2/measurements/13027/results/?start=2147040000&stop=2147126399&format=json
```

# RIPE Atlas Data on BigQuery



- RIPE Atlas measurement results available via Google BigQuery
- General purpose data warehouse
- SQL query language on top
- Great for rapid investigation
- Build complex analyses, or just heavy filtering prior to local analysis

<https://github.com/RIPE-NCC/ripe-atlas-bigquery/>

<https://labs.ripe.net/tools/>

The screenshot shows the Google Cloud Platform BigQuery interface. The top navigation bar includes 'Google Cloud Platform', 'Serious Research Project', and a search bar. Below the navigation, there are tabs for 'BigQuery', 'FEATURES & INFO', and 'SHORTCUT'. The main interface is divided into several sections:

- Query history**: A sidebar menu with options like 'Saved queries', 'Job history', 'Transfers', 'Scheduled queries', 'Reservations', and 'BI Engine'.
- Resources**: A section with a search bar and a tree view showing the project structure: 'serious-research-project' > 'ripence-atlas' > 'measurements' (with sub-items: dns, http, ntp, ping, sslcert, traceroute) and 'samples' (with sub-items: dns, http, ntp, ping, sslcert, traceroute).
- Query editor**: A text area containing a SQL query:

```
1 select msm_id, count(*) result_count
2 from `ripence-atlas`.samples.ping
3 group by msm_id
4 order by result_count desc
```
- Query results**: A section showing the execution status 'Valid.' and a table of results. The table has columns 'Row', 'msm\_id', and 'result\_count'. The results are as follows:

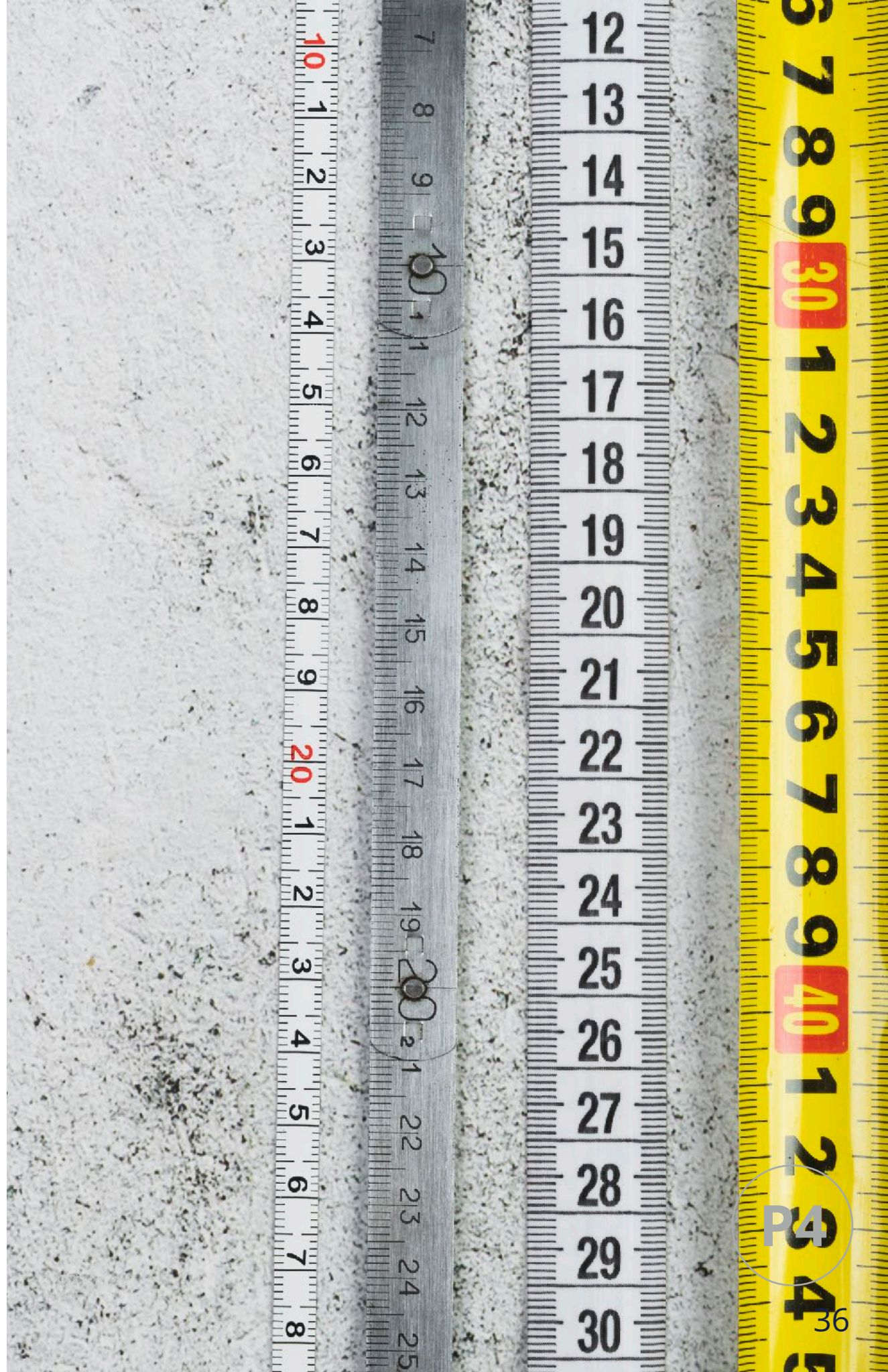
Row	msm_id	result_count
1	1012	40299
2	1016	40185
3	1015	40102
4	1004	40058
5	1030	40046
6	1009	40038
7	1010	39993
8	1019	39992
9	1005	39924
10	1013	39906
11	1031	39878

At the bottom of the results section, there are controls for 'Rows per page' (set to 100) and '1 - 100 of 9206' rows.



# Take the Poll!

Can you create as many measurements as you want?





# Questions







# Demo A

Create a Measurement



# Exercise



We will create a **ping** measurement:

- Involving **ten probes**
- To a target of your choice
- Source is **your country**
- Duration of **two days**

# Tasks



1. *Warm-up:* Create a measurement using the GUI
2. Create API Key
3. Schedule a measurement using the API



# Task 1: Use Web Interface

- Once you generate a measurement, copy **“API Compatible Specification”** to text file
- Take note of the **measurement ID!**

create  
measurement

The screenshot displays the RIPE Atlas web interface. On the left is a dark blue sidebar with navigation options: Home, About RIPE Atlas, Get Involved, Probes and Anchors, Measurements, Maps..., Measurements (with a dropdown arrow), Create Measurement (highlighted with an orange circle), Internet Maps, Tools, Resources, RIPE NCC Members, and My Atlas (Credits, Keys and more). The main content area is titled 'Create a New Measurement' and is divided into three steps: Step 1: Definitions, Step 2: Probe Selection, and Step 3: Timing. Step 1 includes buttons for '+ Ping', '+ Traceroute', '+ DNS', '+ SSL', '+ HTTP', and '+ NTP'. Step 2 shows 'Worldwide' and '10' probes selected, with buttons for '+ New Set - wizard', '+ New Set - manual', '+ IDs List', and '+ Reuse a set from a measurement'. Step 3 includes a checkbox for 'This is a One-off', and input fields for 'Start time (UTC)' (set to 'As soon as possible') and 'Stop time (UTC)' (set to 'Never'). A 'Create My Measurement(s)' button is at the bottom. On the right, a 'Costs summary' panel shows 'Please define a measurement' and a dropdown for 'Users who will supply credits for this measurement:' with 'ferenc@ripe.net' selected. A 'Measurement API Compatible Specification' link is visible at the bottom of the main area.



# Task 2: Create API key

1. Click on "Create an API Key"
2. Permission: "schedule a new measurement"
3. "Target" is not applicable (N/A) for this type

RIPE Atlas

API Keys [+ Create an API key](#)

API keys let you access restricted data and perform certain actions without signing in. [\[Read more\]](#)

Show 10 entries Search:

UUID	Created	Grants	Label	Valid From	Valid To	Enabled
7cc1aaf7-...	2020-10-05 09:24:01 UTC		null			✓
6ea5e00d-...	2020-07-14 09:44:15 UTC	Schedule a new measurement	Test-KSA-course	2020-07-13 01:40:09 UTC		✓
50c65257-...	2020-07-07 09:14:36 UTC	Schedule a new measurement	Test-IQ-Course	2020-07-06 05:10:26 UTC		✓
146d0950-...	2020-06-02 08:42:00 UTC	Schedule a new measurement	Green-test-in-june	2020-06-01 01:40:49 UTC		✓
fb77ff5d-...	2020-04-21 09:18:34 UTC	Schedule a new measurement	Dubai-course	2020-04-20 11:15:19 UTC		✓
049acbb7-...	2019-12-05 10:20:16 UTC		null			✓
1fc42a8e-...	2019-10-15 09:24:28 UTC	Schedule a new measurement	15octAMST	2019-10-14 05:20:00 UTC		✓
28e7dafc-...	2019-10-01 11:41:28 UTC	Schedule a new measurement	Helsinki Course	2019-10-01 09:40:14 UTC		✓
f48de57a-...	2019-07-12 12:04:38 UTC	Schedule a new measurement	Nijntje	2019-07-10 01:00:25 UTC		✓
c8584c43-...	2019-07-03 12:57:31 UTC	Schedule a new measurement	Ferenc-Ankara-training	2019-07-03 12:00:23 UTC		✓

Showing 1 to 10 of 31 entries

Previous 1 2 3 4 Next

API key

API Keys

# [cont...] Task 2: Create API key



4. Give it a label
5. Give it a duration of validity (leave empty for defaults)
6. "Key" value to be passed on to the API call (next step)



# Task 3: Use API

## Schedule a measurement using API

- Use the “key” you just generated
- Hint: copy and past API call syntax from the measurement generated by the GUI

### An example:

```
curl -H "Content-Type: application/json" -H "Accept: application/json" -X
POST -d '{ "definitions": [ { "target": "ping.xs4all.nl", "description":
"My First API Measurement", "type": "ping", "af": 4 } ], "probes":
[ { "requested": 10, "type": "country", "value": "RS" } ] }' https://
atlas.ripe.net/api/v1/measurement/?key=YOUR_API_KEY
```

# Task 3: Use API



```
Terminal Shell Edit View Window Help 0 b/s 0 b/s [icons] 100% wo 12:
becha — bash — 72x24
air-becha:~ becha$ curl -H "Content-Type: application/json" -H "Accept:
application/json" -X POST -d '{ "definitions": [ { "target": "ping.xs4al
l.nl", "description": "My First Measurement", "type": "ping", "af": 4 }
], "probes": [ { "requested": 10, "type": "country", "value": "RS" } ] }
' https://atlas.ripe.net/api/v1/measurement/?key=7b4c3441-4504-4d83-9ed7
-fbf1a007d060
{"measurements": [2421551]}air-becha:~ becha$
```





# Questions



**Let's take a  
5 minute  
break!**





WELCOME  
WE ARE  
**OPEN**  
PLEASE COME IN





# **Command-line Interface (CLI) Toolset**

Section 3



# RIPE Atlas CLI

- Familiar output (ping, dig, traceroute)
- **Linux/OSX**
  - <http://ripe-atlas-tools.readthedocs.org/en/latest/installation.html#requirements-and-installation>
- **Windows** [experimental]
  - <https://github.com/chrisamin/ripe-atlas-tools-win32>

**Installing the CLI tool**



# RIPE Atlas CLI

- Open source
  - RIPE NCC led community contribution
- Documentation
  - <https://ripe-atlas-tools.readthedocs.org/>
- Source, if you want to contribute:
  - <https://github.com/RIPE-NCC/ripe-atlas-tools/>

**Installing the CLI tool**



# Install RIPE Atlas Tools

- **OSX:**
  - `sudo easy_install pip`
  - `sudo pip install ripe-atlas-tools`
- **Linux:**
  - Available from many package repositories
  - ...or same as in OSX

**Installing the CLI tool**



# Configure RIPE Atlas CLI

- Reuse the API key of the previous exercise
  - Or create a new one at <https://atlas.ripe.net/keys/>
- Configure your CLI
  - `ripe-atlas configure --set authorisation.create=MY_API_KEY`



# Fetch an Existing Measurement

Fetch the ping measurement **2340408**

- ripe-atlas report 2340408





# Search probes

- **Search all probes in AS 3333**
  - ripe-atlas probe-search --asn 3333
- **Show specific fields**
  - ripe-atlas probe-search --asn 3333 --field asn\_v6 --field country --field description --field status



# Create a Measurement

## Create a ping measurement to wikipedia.org

- One-off, default parameters
- `ripe-atlas measure ping --target wikipedia.org`

Looking good! Your measurement was created and details about it can be found here:

<https://atlas.ripe.net/measurements/3499718/>

Connecting to stream...

```
48 bytes from probe #18433 94.112.176.45 to 91.198.174.192 (91.198.174.192): ttl=50 times:41.979, 41.492, 40.769,
48 bytes from probe #20111 37.151.230.180 to 91.198.174.192 (91.198.174.192): ttl=57 times:100.511, 100.136, 100.325,
48 bytes from probe #25003 176.193.48.211 to 91.198.174.192 (91.198.174.192): ttl=59 times:47.967, 47.476, 47.403,
48 bytes from probe #20313 5.199.160.9 to 91.198.174.192 (91.198.174.192): ttl=58 times:36.501, 36.245, 36.285,
48 bytes from probe #22573 89.176.43.44 to 91.198.174.192 (91.198.174.192): ttl=52 times:28.747, 27.712, 28.446,
48 bytes from probe #19413 89.71.47.56 to 91.198.174.192 (91.198.174.192): ttl=51 times:49.89, 49.779, 50.277,
48 bytes from probe #18635 78.52.132.137 to 91.198.174.192 (91.198.174.192): ttl=57 times:37.462, 38.095, 37.73,
48 bytes from probe #23223 62.65.126.46 to 91.198.174.192 (91.198.174.192): ttl=53 times:23.169, 23.412, 33.067,
48 bytes from probe #17511 87.81.148.2 to 91.198.174.192 (91.198.174.192): ttl=56 times:13.281, 12.885, 13.039,
48 bytes from probe #12584 46.175.22.202 to 91.198.174.192 (91.198.174.192): ttl=59 times:36.073, 35.788, 35.883,
```



# Other Examples of Ping

## Geo-specific from 20 probes from Canada:

- `ripe-atlas measure ping --target example.com --probes 20 --from-country ca`

## 20 Canadian probes that definitely support IPv6:

- `ripe-atlas measure ping --target example.com --probes 20 --from-country ca --include-tag system-ipv6-works`

## Create a recurring measurement:

- `ripe-atlas measure ping --target example.com --interval 3600`



# Take a Poll!

How do you identify yourself (for credit accounting) when using CLI?



# Questions





# Demo B

Using RIPE Atlas CLI



# Search Probes

Use the **traceroute** command to test the reachability of

- **wikipedia.org**
- on TCP port **443**
- from **20 probes**
- in **France.**





# Search Probes

Use the **traceroute** command to test the reachability of

- **wikipedia.org**
- on TCP port **443**
- from **20 probes**
- in **France**.

```
ripe-atlas measure  
traceroute --protocol TCP  
--target wikipedia.org --  
port 443 --probes 20 --  
from-country fr
```





# Questions





# Take a Poll!

Which method gives you greater **flexibility** in creating measurements and in looking up results?



# Demo C

Installing a RIPE Atlas software Probe

# Installing the RIPE Atlas SW Probe



- All info over installing SW probes:
  - <https://atlas.ripe.net/docs/software-probe/>
  - instructions, videos
- Many different platforms
- We will now demo one of them

- <https://atlas.ripe.net/docs/software-probe/>



## Good to Know

The (future) host of a RIPE Atlas software probe is expected to:

- Understand what it means to operate a probe for the RIPE Atlas network, including what benefits they themselves gain from this and what services they thereby provide to the RIPE network and its users. You can read more on the [RIPE Atlas about page](#).
- **Install the software package** that is applicable for their **intended target hardware and OS**. This software package can come from a variety of sources such as an official repository on GitHub. At the moment the **RIPE NCC maintains a binary RPM package**.
- **Register their probe** following the [software probe application](#) procedure.
- Keep the version of their **software up-to-date** by upgrading to newer versions as they become available.
- Should the **access credentials for their probe change** (for example after having to reinstall a server that runs the software probe), they need to **re-register the new access credentials**.

# Platform Specific Installation Instructions

- <https://atlas.ripe.net/docs/software-probe/>

## Platform-specific Installation Instructions

Below you can find help with installing the RIPE Atlas software probes.

Platform	Support	Installation Manuals	Installation Videos
CentOS 7 (binary)	RIPE NCC	English Indonesian	English
CentOS 8 (binary).	RIPE NCC	English Indonesian Arabic	Russian
CentOS 7 & 8 (source)	RIPE NCC	English Indonesian Arabic	Your video here?
Debian 9 (source)		English Indonesian Arabic	Your video here?
Debian 10 (source)		English Indonesian Arabic	English
Raspbian (source)		English Indonesian Arabic	Your video here?
Docker	Community	English (Jamesit) English (Knight1)	English
OpenWRT			
Turris	Vendor (NIC.CZ)	English	English

We are maintaining a [Github repo](#) for manuals in different languages. Please let us know (open an issue, or even a PR) if you'd like to contribute.

# DEMO



- We will demo the RIPE Atlas Probe installation on CentOS 7
- <https://atlas.ripe.net/docs/software-probe/>
- Instructions:  
<https://github.com/RIPE-NCC/ripe-atlas-probe-doc/blob/master/manuals/CentOS-7-binary.en.md>
- Instruction video: <https://youtu.be/SNecvbNYi20>





# Monitoring

Section 4

# Question!

- Do you use **network monitoring**?
- If yes, what kind?

*Type your answer in the chat window.*





# Network Monitoring

- Integrate “**status checks**” with existing monitoring tools (Icinga, Nagios)
- Using **real-time data streaming**
  - Server monitoring
  - Detecting and visualising outages



# Steps for Integration

1. Create a RIPE Atlas ping measurement
2. Go to “status checks” URL (RESTful API call)
  - [https://atlas.ripe.net/api/v2/measurements/2340408/status-check?max\\_packet\\_loss=20](https://atlas.ripe.net/api/v2/measurements/2340408/status-check?max_packet_loss=20)
3. Documentation:
  - <https://atlas.ripe.net/docs/api/v2/manual/measurements/status-checks.html>
4. Add your alerts in Nagios or Icinga

# Security Aspects



- Probes:
  - Hardware trust material (regular server address, keys)
  - No open ports; initiate connection; NAT is okay
  - Don't listen to local traffic
  - No passive measurements
- Measurements triggered by “command servers”
  - SSH connections from probe to server
  - initiated by probe
- Measurement code published



# Contact Us

- <https://atlas.ripe.net>
- Users' mailing list: [ripe-atlas@ripe.net](mailto:ripe-atlas@ripe.net)
- Articles and updates: <https://labs.ripe.net/atlas>
- In the works: <https://atlas.ripe.net/docs/in-the-works/>
- Questions and bugs: [atlas@ripe.net](mailto:atlas@ripe.net)
- Twitter: @ripencc and #RIPEAtlas



# Questions





# We want your feedback!



What did you think about this session?

Take our survey at:

<https://www.ripe.net/feedback/mat2>







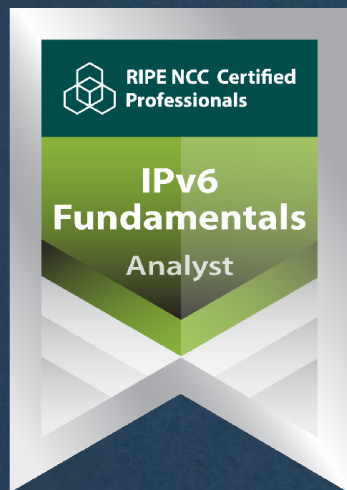
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# RIPE NCC Certified Professionals



<https://getcertified.ripe.net/>





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Vége      Endir      Finvezh      Ende      Koniec  
Son      დასასრული      Finvezh      қтiрз      Ende      Koniec  
Lõpp      Amaia      תסוה      Tmíem      Кінець      Finis  
Sfârșit      Loppu      Liðugt      Крај  
Kraj      النهاية      Конец      Fund  
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