Internet Measurement Networks

Sunny Chendi

SANOG24, Delhi, India

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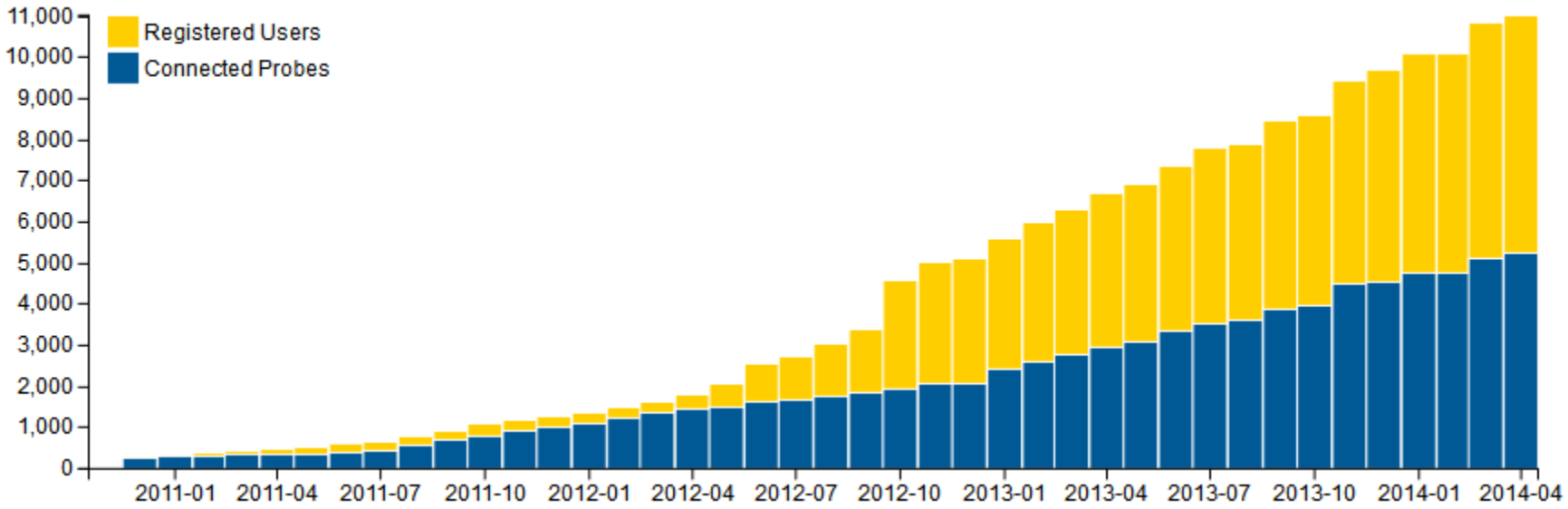
What is Internet Measurement Networks?

- A global network of “probes” anyone can participate
- Potentially the world's largest internet measurement network
- Measure Internet connectivity and reachability
- Provides an unprecedented understanding of the state of the Internet in real time

Statistics as of April 2014



- 5,300+ active probes
- 7,000+ active users

https://atlas.ripe.net/results/maps/network-coverage

Coverage


Map
Satellite
Greenland
Iceland
Canada
Russia
Kazakhstan
Mongolia
North Atlantic Ocean
North Pacific Ocean
Algeria
Libya
Egypt
Saudi Arabia
Iraq
Afghanistan
Pakistan
Mali
Niger
Chad
Sudan
Nigeria
Ethiopia
Venezuela
Colombia
Brazil
Peru
Bolivia
Argentina
Angola
Tanzania
Madagascar
South Africa
South Atlantic Ocean
Indian Ocean
Indonesia
Australia
New Zealand
Google
Terms of Use
Connected
Disconnected
Abandoned

Participation and Benefits

- Anyone can become a probe host
- Major personal and operational benefit:
  - See your network from the outside!
  - Have at your fingertips ~5,000 external vantage points to do customized measurements towards the destination of your choice
- Built-in measurements data available to everyone
  - Maps, data from public probes, API to download raw data
- Analyses and Use Cases

  https://atlas.ripe.net/results/analyses/

Security and Privacy

- Many built-in safeguards to prevent anyone from taking over the system
  - don't have any open ports that one can connect to (even locally)
  - only support outgoing connections
- Use mutual authentication between the probes and the infrastructure components
- It only talks to central infrastructure and executes active measurement commands towards the public Internet.
- you can put it behind a firewall, as long as that firewall does not prevent the probe from talking to the outside world

Security and Privacy

- Your personal information such as Mac address and email address will never be shown
  - Only your IP address will be displayed
- **Hosts** can see all available information about their own probes
- **The public** can see some information about the public probes in the Atlas network, including probe IDs, connection history and user-defined measurements.

Atlas Credit System

- Allows to recognise participants' contributions and consumption of resources in the Atlas system
- Credit system introduced to ensure fairness and protect system from overload
- By hosting a probe, you earn credits
- Receives 15 credits for each minute probe is connected to Atlas network,
  - you should earn roughly 21,600 credits every 24 hours, if connected continuously
- To perform measurements, you spend credits
  - Ping costs 10 credits, trace route costs 20 credits, etc.
- More details: https://atlas.ripe.net/doc/credits

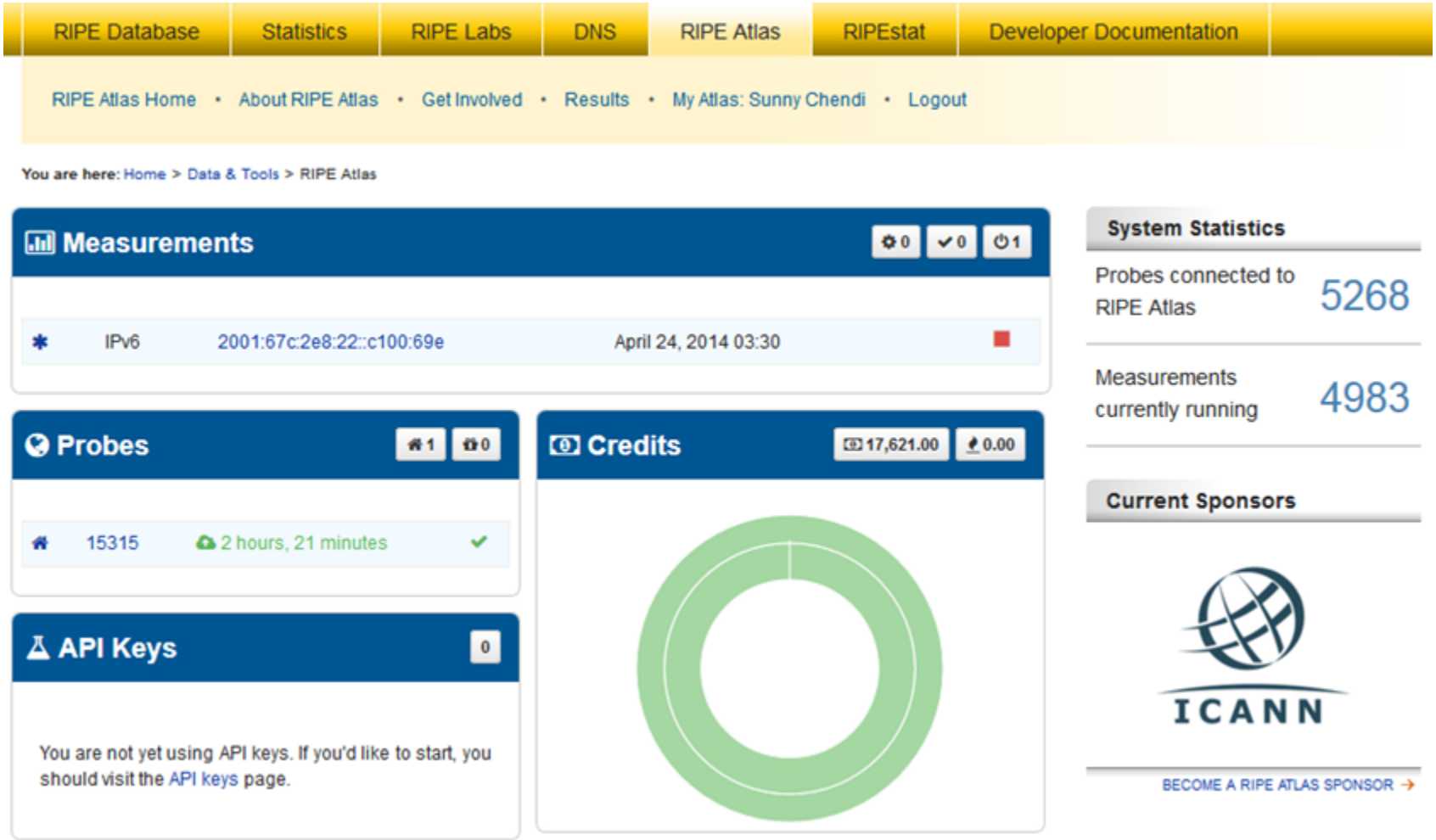
User-Defined Measurements

- Probe hosts perform customized measurements using the targets and frequency of their choice
- API available for creating measurements
  https://atlas.ripe.net/docs/measurement-creation-api/
- REST APIs for analyzing measurements
  https://labs.ripe.net/Members/wilhelm/ripe-atlas-code-for-analysis-and-statistics-reporting

How to Schedule a Measurement

- Log in to atlas.ripe.net
- Go to “My Atlas” and “My Measurements”
- Choose “New Measurement” or “One-off”
  - Most measurements are periodic & last a long time
  - Choose type, target, frequency, # of probes, region...
  - You will spend credits (next slides)
- To see results: “My Measurements”
- More details: https://atlas.ripe.net/doc/udm

Dashboard


RIPE Database
Statistics
RIPE Labs
DNS
RIPE Atlas
RIPEstat
Developer Documentation
RIPE Atlas Home • About RIPE Atlas • Get Involved • Results • My Atlas: Sunny Chendi • Logout
You are here: Home > Data & Tools > RIPE Atlas
Measurements
0
0
1
IPv6
2001:67c:2e8:22::c100:69e
April 24, 2014 03:30
Probes
1
0
15315
2 hours, 21 minutes
API Keys
0
You are not yet using API keys. If you'd like to start, you should visit the API keys page.
Credits
17,621.00
0.00
System Statistics
Probes connected to RIPE Atlas
5268
Measurements currently running
4983
Current Sponsors
ICANN
BECOME A RIPE ATLAS SPONSOR

Integration with Monitoring Systems

- Steps for Status Checks:
  - Create a Atlas ping measurement
    - You can use up to 1,024 probes

  https://atlas.ripe.net/api/v1/status-checks/MEASUREMENT_ID/
  - Come back later to see whether anything has changed
  - Define your alerts accordingly
- Creating Alerts in “Icinga”:
  - Make use of the built-in check_http plugin
- Documentation and examples:

  https://atlas.ripe.net/docs/status-checks/

Plans For The Future

- Integrating DNSMON into Atlas
- Tagging probes and measurements as “My Favorites” for easy viewing
- More IPv6-related features
- Feedback for feature requests
  http://roadmap.ripe.net/ripe-atlas/

Useful links

- Homepage: https://atlas.ripe.net/
- Internet maps: https://atlas.ripe.net/results/maps/
- Use cases: https://atlas.ripe.net/results/analyses/
- Security: https://atlas.ripe.net/docs/security/
- Widgets: https://stat.ripe.net/widgets/demo/atlas_probe_widgets.html
- Mailing list for active users: ripe-atlas@ripe.net
- Articles & updates: https://labs.ripe.net/atlas
- Questions: atlas@ripe.net
- Twitter: @RIPE_Atlas and #RIPEAtlas

RIPE Atlas Probe

- Small hardware device that runs measurements in the RIPE Atlas system
- Reports results to the data collection components
- TP-Link TL-MR3020 powered from USB port
- Does not work as a wireless router!

Interested in hosting a Probe?

Sunny@apnic.net