



# Tools for Network Operators

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# Overview

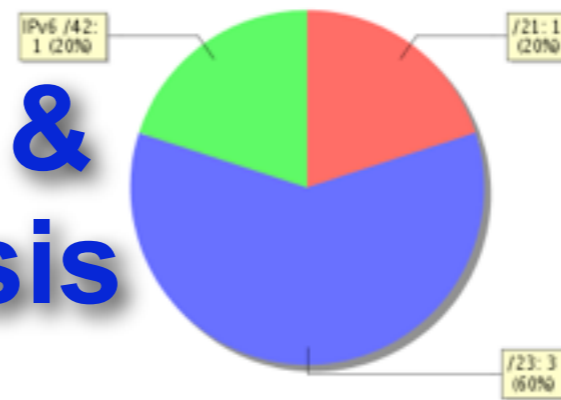
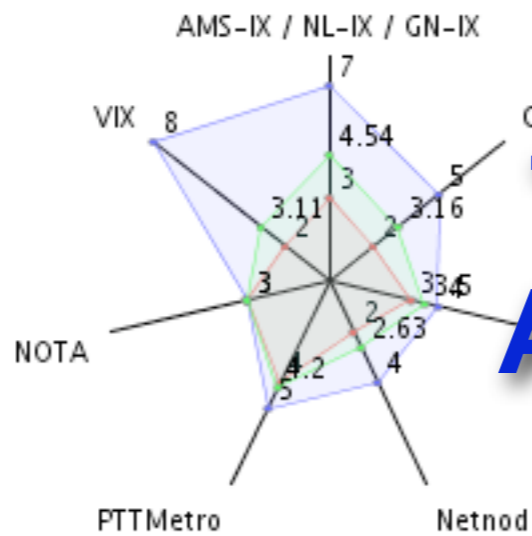
## Measurement Network



## Collected Data



## Tools & Analysis



# Measurement Network

## Active Measurements

- 75 Test Traffic Boxes
- Located at commercial ISPs and research institutions
- Full Mesh

## Passive Measurements

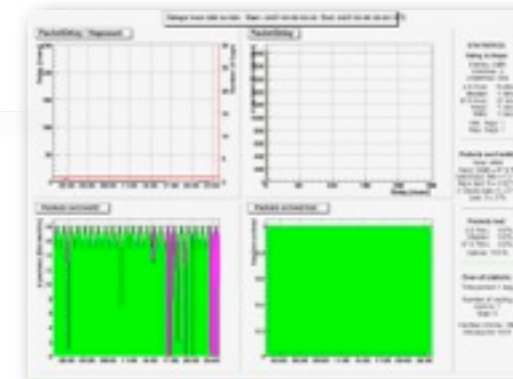
- 15 Remote Route Collectors
- Located at major Internet Exchanges
- BGP Routing Information





# Collected Data (1)

- BGP Routing Information
  - Full routing table dumps 4 times per day
  - Updates collected every 5 minutes
  - Data for almost 10 years
- One-Way Delays, Loss & Traceroutes
  - 2 measurements per minute
  - Full mesh between 70+ locations
  - Data for almost 10 years





# Collected Data (2)

- DNS

- Monitoring 27 TLDs & tier-1 enum domains
- All Root DNS servers



- Hostcount

- Counting the number of DNS records in the RIPE region
- Aggregated data for almost 20 years





# Infrastructure

**Covering 80+ sites  
around the globe**



# Infrastructure

**More than 300 GB of  
raw data**



# Infrastructure

**10+ years of  
information**

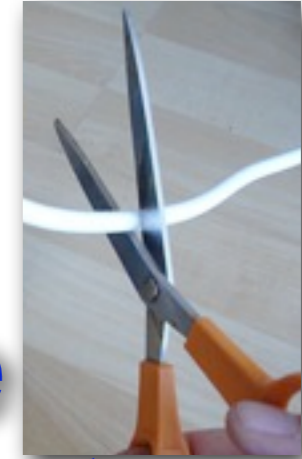


# What can you do with it?

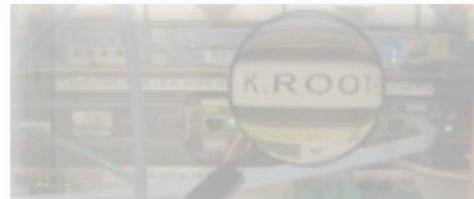
**Diagnose  
network problems**



**Analyse  
critical events**



**See performance  
of your networks**



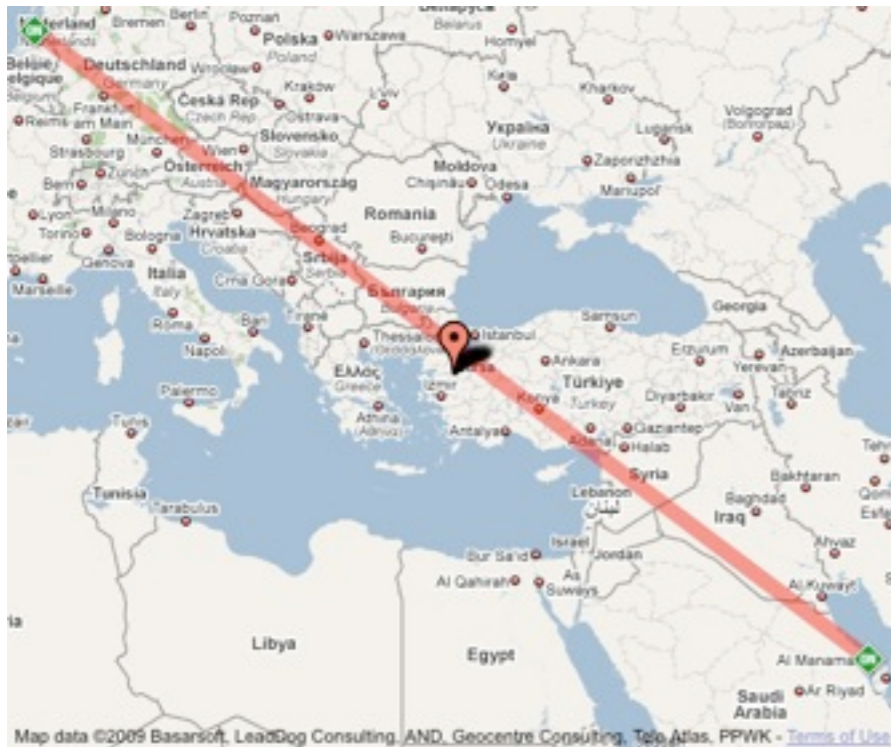
**Improve your  
routing**





# Middle East Cable Cuts

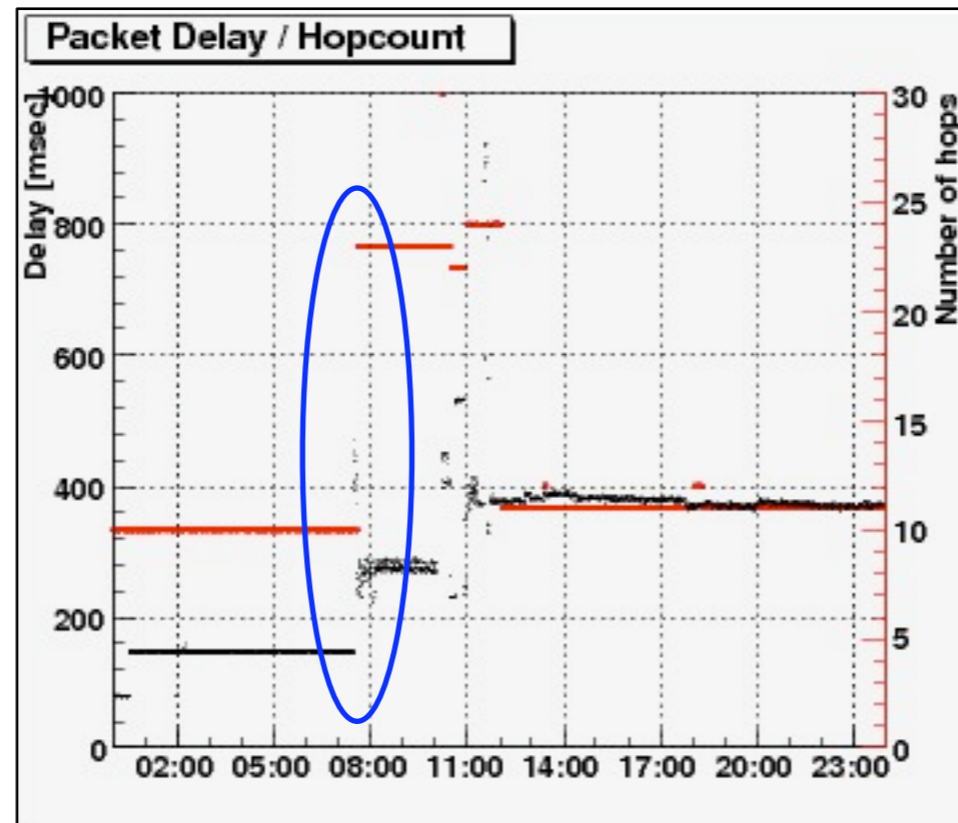
**On 19 Dec 2009 Sea-Me-We 3/4 and FLAG FEA undersea cables were cut**



## Plots On Demand

SRC:	tt01: RIPE NCC at AMS-IX, Amsterdam, NL			
DST:	tt138: 2Connect, Manama, BH			
Min Delay (ms):	<input type="text" value="0"/>	Start Date	<input type="text" value="20081219"/>	Start Time <input type="text" value="00:00"/> <a href="#">UTC</a>
Max Delay (ms):	<input type="text" value="1000"/>	End Date	<input type="text" value="20081219"/>	End Time <input type="text" value="23:59"/> <a href="#">UTC</a>

# Middle East Cable Cuts



## The Cuts occurred around 7:30 AM

Measurements taken on 29 Dec 2009  
between Manama and Amsterdam



# Middle East Cable Cuts

## 7:30 UTC

AS3333	Netherlands
AS1200	Netherlands
AS5384	UAE
AS35019	Bahrain
AS35313	Bahrain

## 8:00 UTC

AS3333	Netherlands
AS1200	Netherlands
AS3356	US
AS7473	Singapore
AS5384	UAE
AS35019	Bahrain
AS35313	Bahrain

## 13:00 UTC

AS3333	Netherlands
AS1200	Netherlands
AS5384	UAE
AS35019	Bahrain
AS35313	Bahrain

**Routes changed to send data  
around the globe**

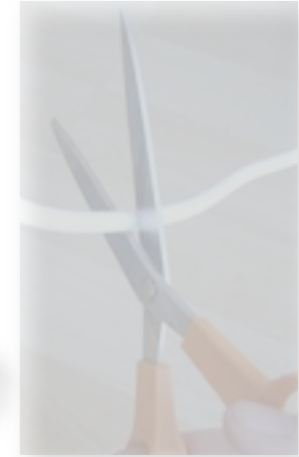


# What can you do with it?

Diagnose  
network problems



Analyse  
critical events



See performance  
of your networks



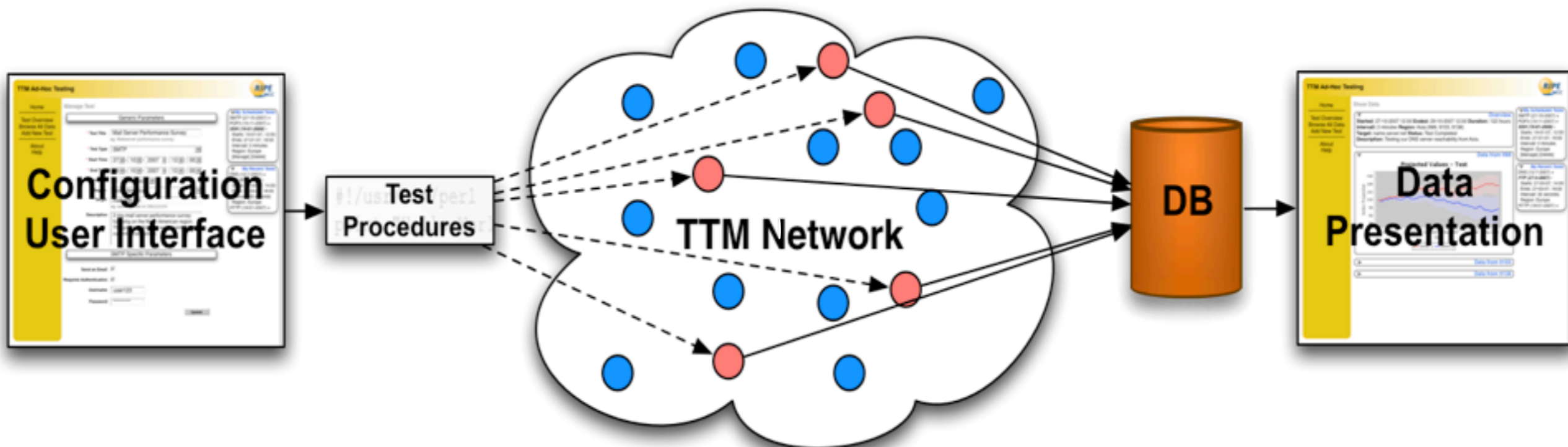
Improve your  
routing





# Tools - IPv6 Performance

## Run your own on-demand measurements



Available for hosts of Test Traffic Boxes



# Tools - IPv6 Performance

## Define your measurement

**Configuration**

Test Title:   
*Eg. Webserver performance survey*

Test Type:    
*Select a test type.*

Timezone:    
*Select timezone*

Start time:  at   
*Eg. 25/12/2012 and 10:55*

End time:  at   
*Eg. 26/12/2012 and 12:35*

Interval:     
*Select a test interval.*

Region:    
*Select a region.*

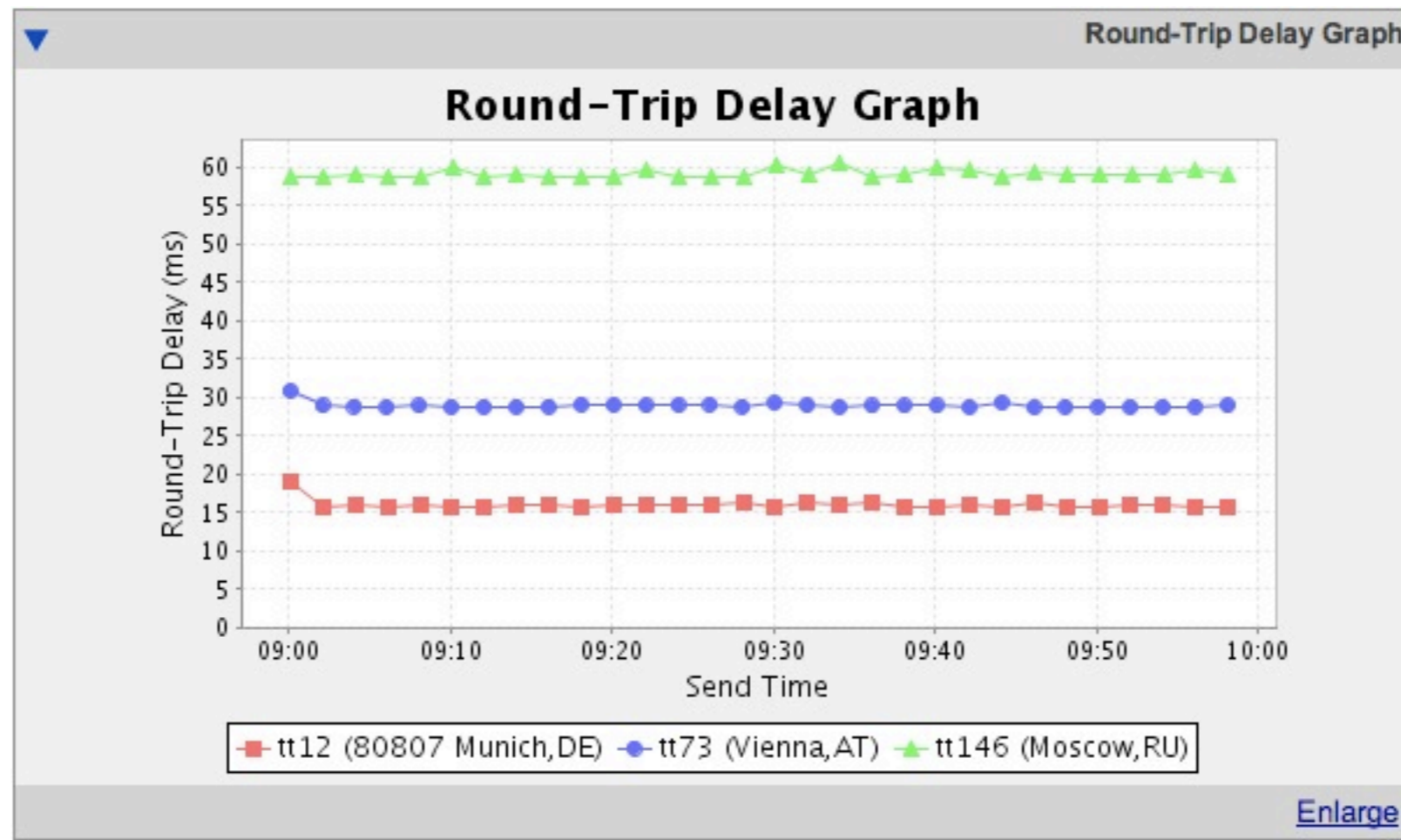
Host:

Use IPv6:



# Tools - IPv6 Performance

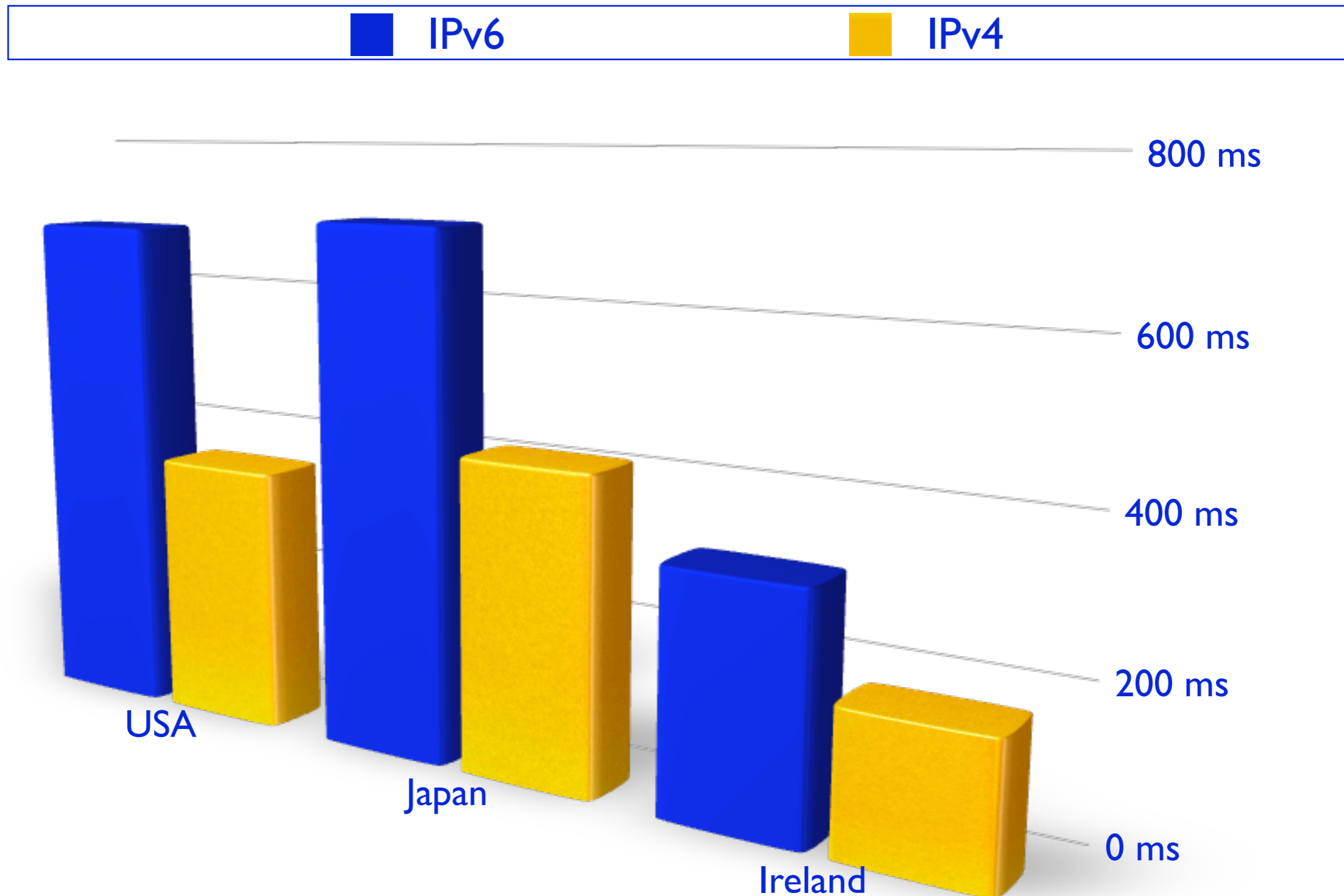
## Review results instantly in real-time



## Download CSV for further analysis



# Comparison - RIPE NCC Website



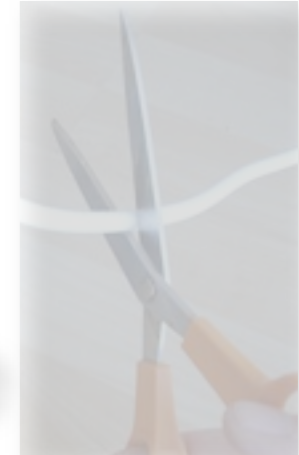


# What can you do with it?

Diagnose  
network problems



Analyse  
critical events



See performance  
of your networks



Improve your  
routing

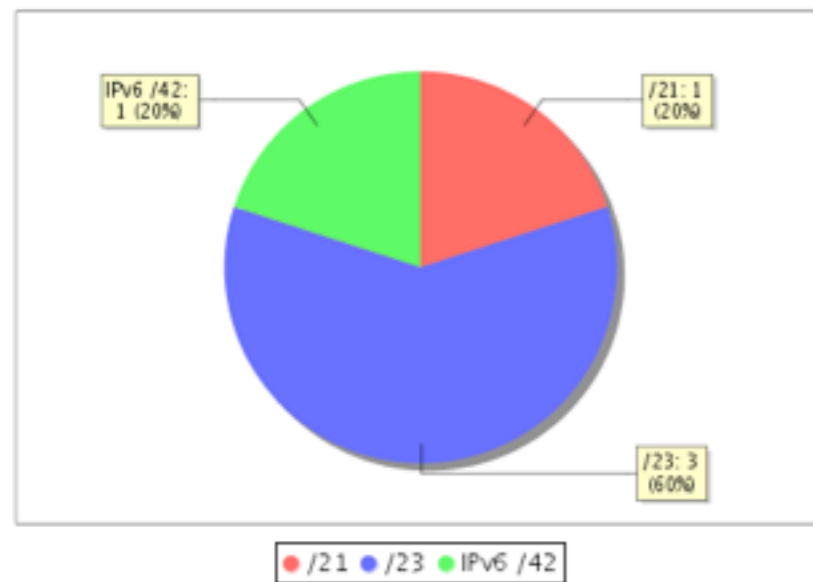




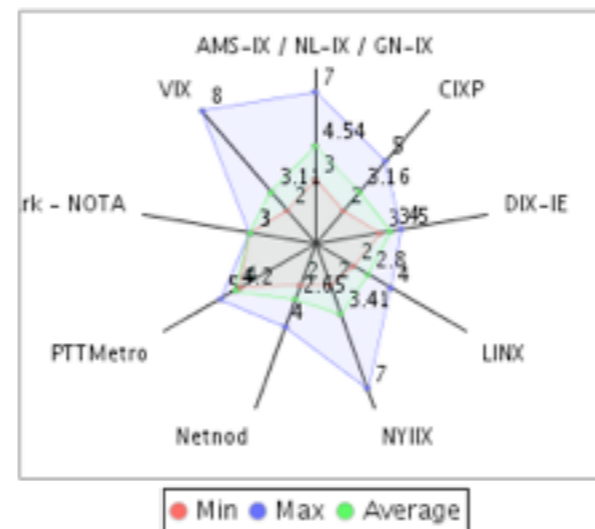
# Routing Dashboards

## Enter your AS number

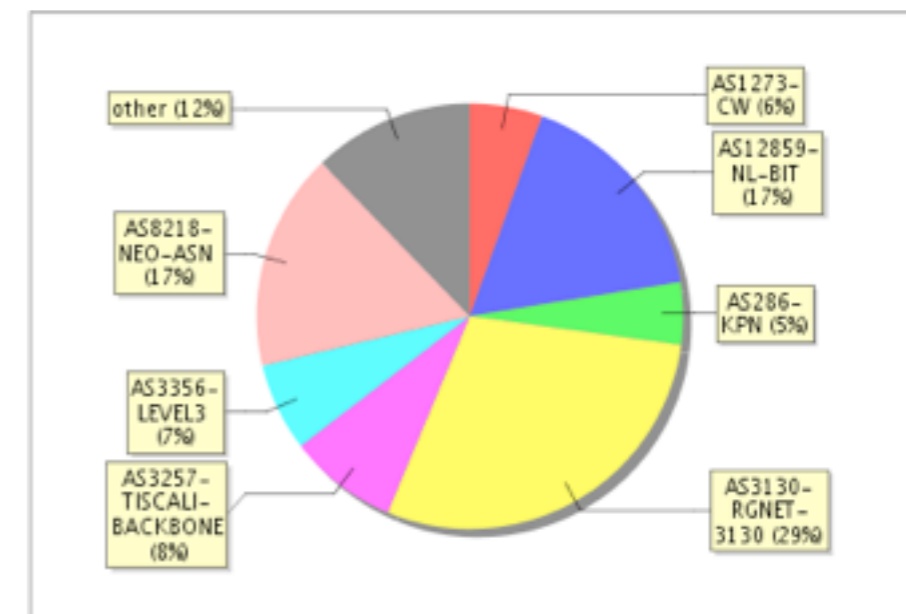
Prefix size distribution  
AS3333



AS path length to RIS collectors  
AS3333



Transits distribution  
AS3333



Screenshots taken from a new development version



# Routing Dashboards

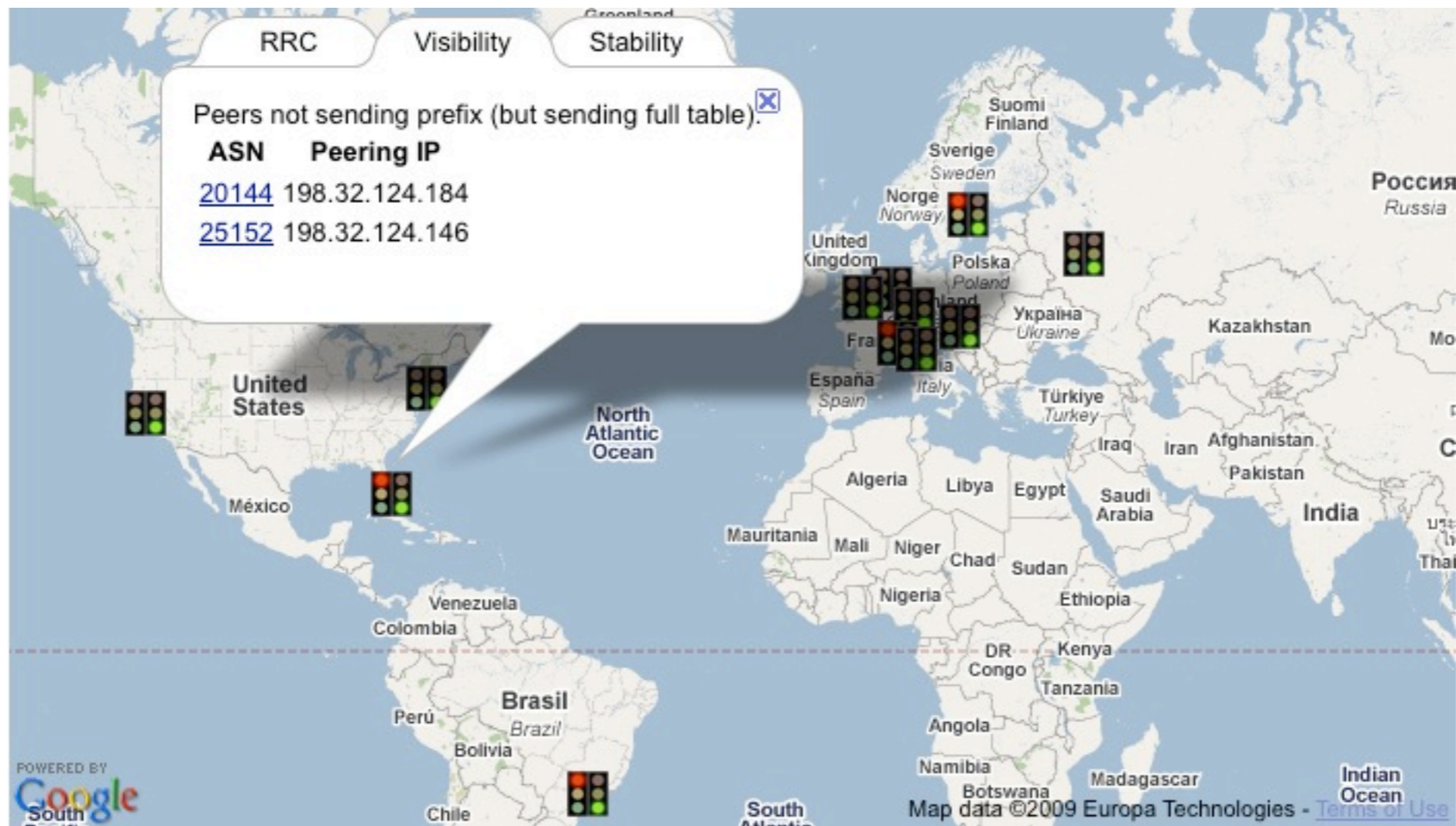
## Look Closer

Prefix	Size ↓	Last seen	First seen	Whois	Registry	Peers seeing
<a href="#">172.16.0.0/16</a>	16	2009-04-02 07:59:00 UTC	2009-02-01 07:59:00 UTC	<a href="#">W</a>	ARIN	6
<a href="#">212.248.128.0/17</a>	17	2009-04-02 13:42:14 UTC	2008-09-01 08:00:00 UTC	<a href="#">W</a>	RIPE NCC	80
<a href="#">212.248.128.0/18</a>	18	2009-04-02 13:42:14 UTC	2008-09-01 08:00:00 UTC	<a href="#">W</a>	RIPE NCC	80

Prefixes marked **red** are **Martians**  
Private Networks in this case

# Routing Dashboards

## See the visibility of your Prefix





# Latest Developments

- New BGP Visualisation Tool
- First DNS Monitoring subscriber in the Middle East
- First probe location in Africa (Kenya)
- Reworking our database back-end
- Outreach to new users



# Get Involved!

- Use our tools!
- Provide feedback!
- Host a probe!
- Collect Hostcount data if you are a TLD!





# Resources

- Overview of our services
  - <http://is-portal.ripe.net>
- Test Traffic Measurement (Active Measurements)
  - <http://www.ripe.net/ttm>
- Routing Information Service (Passive Measurements)
  - <http://ris.ripe.net>
- Information Service Brochure
  - [http://www.ripe.net/is-portal/is\\_brochure.pdf](http://www.ripe.net/is-portal/is_brochure.pdf)
- Contact
  - [franz@ripe.net](mailto:franz@ripe.net)
  - [is@ripe.net](mailto:is@ripe.net)



# Questions?

