

perfSONAR and MaDDash deployment: EaPConnect experience

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EaPConnect – what is it about?



€13.7M
(95%)

European Commission
co-funded project

1 July - 30 June
2015 2020

5-year project



Reduction of
digital divide



Support of the
science, research and
education sectors

EaP project partners / EaP NRENs



UIIP NASB / BASNET – Belarus

URAN - Ukraine

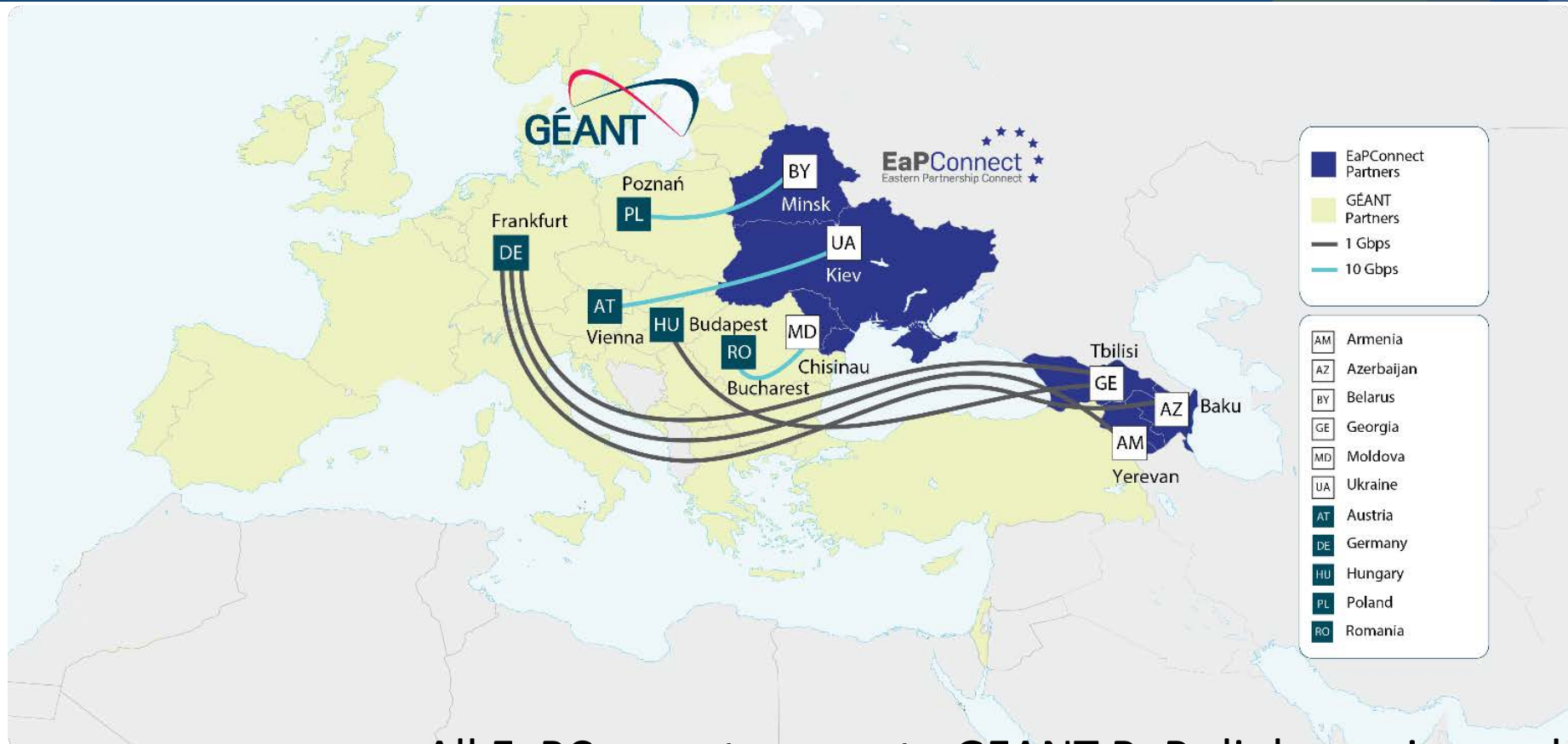
RENAM – Moldova

GRENA – Georgia

IIP NAS RA / ASNET-AM – Armenia

IIT of ANAS / AzScienceNet - Azerbaijan

Connectivity topology



All EaPConnect access to GEANT PoPs links are in good shape. What does perfSONAR tool view end-to-end?

perfSONAR installation and initial configuration

Organization Name
UIIP NAS of Belarus / BASNET

Administrator Name

Administrator Email
noc@basnet.by

City
Minsk

Country: Belarus | State/Province: BY | ZIP/Postal Code: 220012

Latitude: 53.916476 | Longitude: 27.602368 |

I agree to the perfSONAR Privacy Policy

All the information you provide on this page will be sent, recorded and made publicly available on the global perfSONAR Lookup Service. For privacy reasons, we recommend you use a role or group name and related email address to be registered. Any personal information you would provide will be on your own responsibility and will by no means represent an obligation for the perfSONAR project. See our [Privacy Policy](#) for more information.

Resources

- [Editing Host Information](#)
- [Managing Communities](#)
- [Privacy Policy](#)

Metadata

Node Role: Select a node role | Node Access Policy: Public

Access Policy Notes:

Communities

[+ Add a community](#)

perfSONAR test types and settings

Configure Test

Cancel

OK

Test parameters

Test name/description

EaP Connect - Throughput

Test Status



Enabled

Interface

Default

Protocol

TCP

Time between tests

12

Units

Hours

Test duration

20

Units

Seconds

+ Advanced Parameters

Tool(s), in order of preference

× iperf3

× iperf

Direction

Send and Receive

Use Autotuning



Enabled

Number of Parallel Streams

1

Omit Interval (sec)

3

Use Zero Copy







Disabled

TOS bits

0

Test members

HOST	DESCRIPTION	IPV	
perfsonar.grena.ge	Georgia	IPv4 <input checked="" type="checkbox"/> IPv6 <input type="checkbox"/>	
perfsonar-nas.asnet.am	Armenia	IPv4 <input checked="" type="checkbox"/> IPv6 <input type="checkbox"/>	
212.111.192.62	Ukraine SB	IPv4 <input checked="" type="checkbox"/> IPv6 <input type="checkbox"/>	
81.180.64.40	Moldova	IPv4 <input checked="" type="checkbox"/> IPv6 <input type="checkbox"/>	

- GIGABYTE BRIX
 - GB-BACE-3160
- 1 x SO DIMM DDR3L 1.35 — 8GB RAM
- 1Gb/s RJ45 LAN Realtek
- WiFi + BT
- VGA, HDMI
- 4 x USB 3.0
- Micro SD
- External power supply



miniPCs cloning and fast deployment

```
clonezilla.org, clonezilla.nchc.org.tw
Clonezilla live (Default settings, UGA 1024x768)
Other modes of Clonezilla live >
Local operating system in harddrive (if available)
Mentest & FreeDOS >
Network Boot >
```

Press [Tab] to edit options

* Clonezilla live version: 1.2.4-28-686, (C) 2003-2010, NCHC, Taiwan
* Disclaimer: Clonezilla comes with ABSOLUTE NO WARRANTY

Clonezilla

Free Software Labs, NCHC, Taiwan

自由軟體實驗室

國家高速網路與計算中心

```
Partclone
Partclone v0.2.22 http://partclone.org
Starting to restore image (-) to device (/dev/sda1)
Calculating bitmap... Please wait... done!
File system: EXTFS
Device size: 8.6 GB
Space in use: 3.7 GB
Free Space: 4.9 GB
Block size: 4096 Byte
Used block : 896421

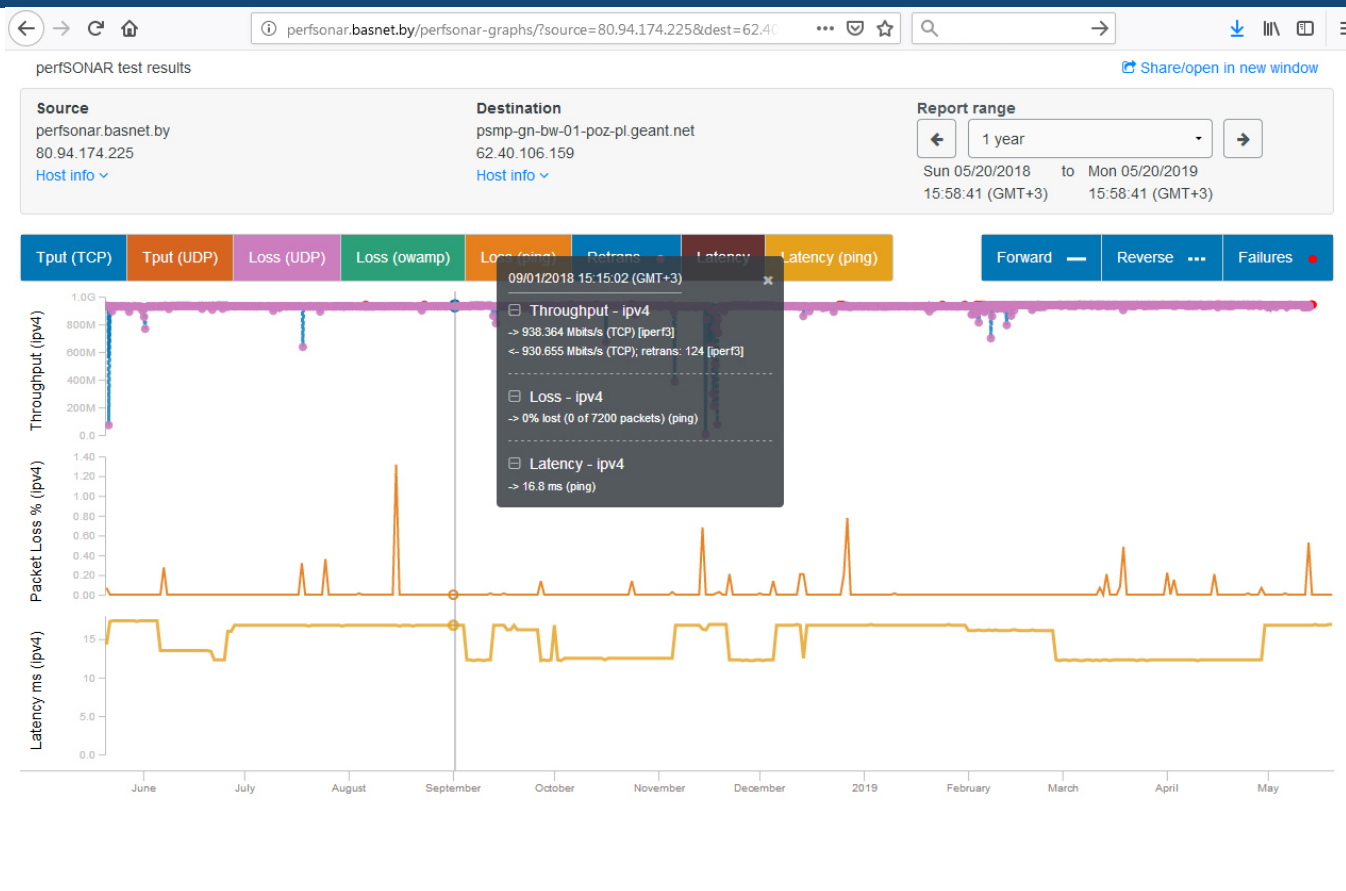
Elapsed: 00:00:06
Remaining: 00:00:46
Rate: 4.20GB/min

11% 11.44%
```


Manual monitoring tests with perfSONAR

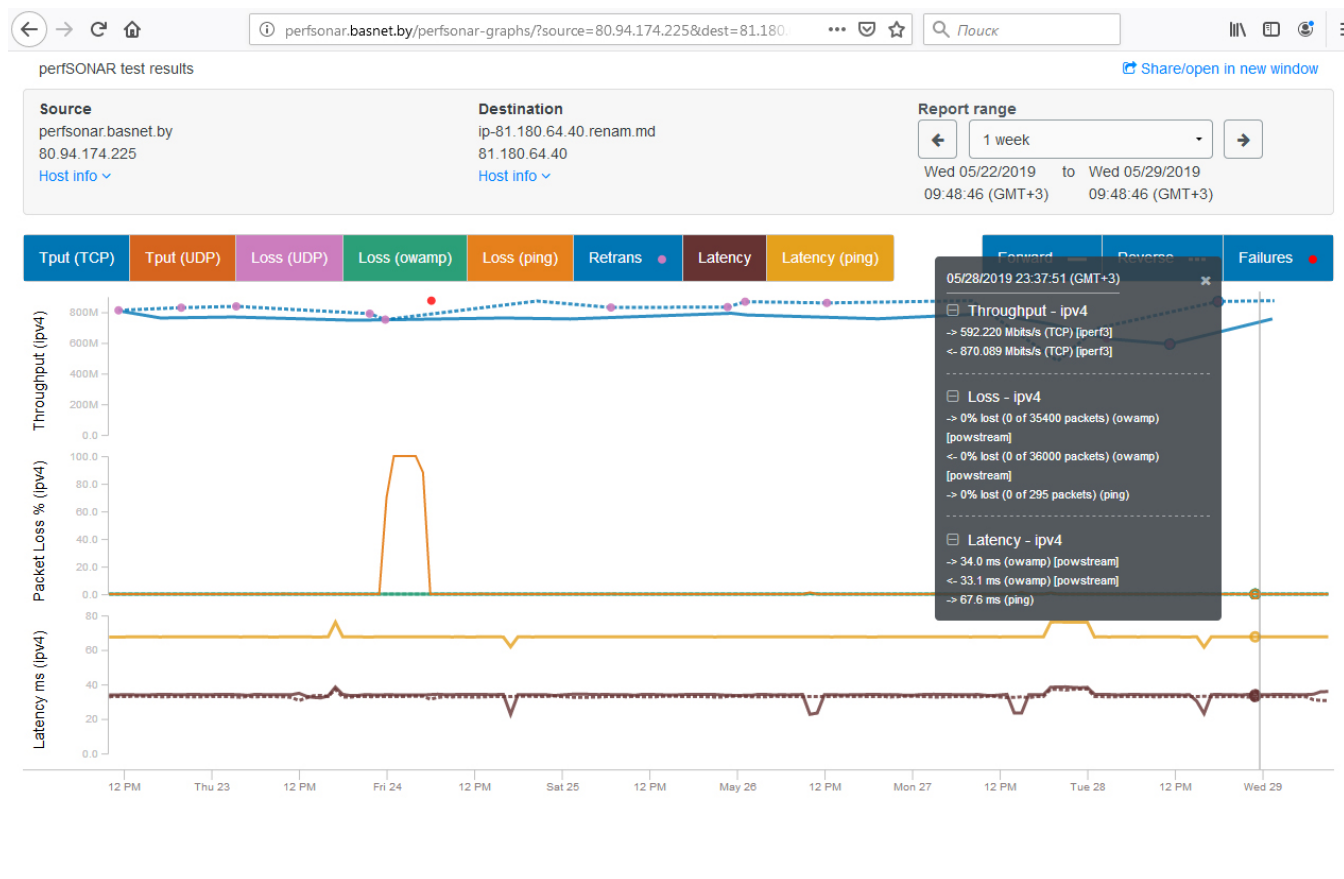
```
root@perfsonar:~  
Файл Правка Вид Поиск Терминал Справка  
[root@perfsonar ~]# pscheduler task throughput --duration PT20S --source 80.94.174.225 --ip-version 4 --dest ip-81.180.64.40.renam.m  
d --parallel 1  
Submitting task...  
Task URL:  
https://80.94.174.225/pscheduler/tasks/19942d3c-9859-4cf4-a539-7eef42a6b4c9  
Running with tool 'iperf3'  
Fetching first run...  
  
Next scheduled run:  
https://80.94.174.225/pscheduler/tasks/19942d3c-9859-4cf4-a539-7eef42a6b4c9/runs/fcea3e68-766b-44af-aef5-96ba31d970ac  
Starts 2019-05-24T16:37:21+03:00 (~7 seconds)  
Ends 2019-05-24T16:37:50+03:00 (~28 seconds)  
Waiting for result...  
  
* Stream ID 5  
Interval Throughput Retransmits Current Window  
0.0 - 1.0 9.44 Mbps 0 181.00 KBytes  
1.0 - 2.0 66.08 Mbps 0 870.25 KBytes  
2.0 - 3.0 247.88 Mbps 0 3.09 MBytes  
3.0 - 4.0 545.26 Mbps 0 7.27 MBytes  
4.0 - 5.0 901.78 Mbps 0 8.88 MBytes  
5.0 - 6.0 880.80 Mbps 0 8.89 MBytes  
6.0 - 7.0 901.71 Mbps 0 8.99 MBytes  
7.0 - 8.0 891.35 Mbps 0 9.06 MBytes  
8.0 - 9.0 891.29 Mbps 0 9.06 MBytes  
9.0 - 10.0 880.80 Mbps 0 9.06 MBytes  
10.0 - 11.0 891.29 Mbps 0 9.06 MBytes  
11.0 - 12.0 880.81 Mbps 0 9.06 MBytes  
12.0 - 13.0 870.31 Mbps 0 9.06 MBytes  
13.0 - 14.0 912.26 Mbps 0 9.07 MBytes  
14.0 - 15.0 880.80 Mbps 0 9.08 MBytes  
15.0 - 16.0 870.32 Mbps 0 9.08 MBytes  
16.0 - 17.0 901.77 Mbps 0 9.08 MBytes  
17.0 - 18.0 870.32 Mbps 0 9.08 MBytes  
18.0 - 19.0 901.77 Mbps 0 9.08 MBytes  
19.0 - 20.0 870.31 Mbps 0 9.09 MBytes  
  
Summary  
Interval Throughput Retransmits  
0.0 - 20.0 753.32 Mbps 0  
  
No further runs scheduled.  
[root@perfsonar ~]#
```

Performance and characteristics of existing channels



- Minsk (BY) – PoP GEANT Poznan (PL) year perfSONAR graph
- 1Gb – 1Gb tests
- Packet path travel Poznan - Minsk is about 728 km (RTT 17 ms)

Performance and characteristics of existing channels



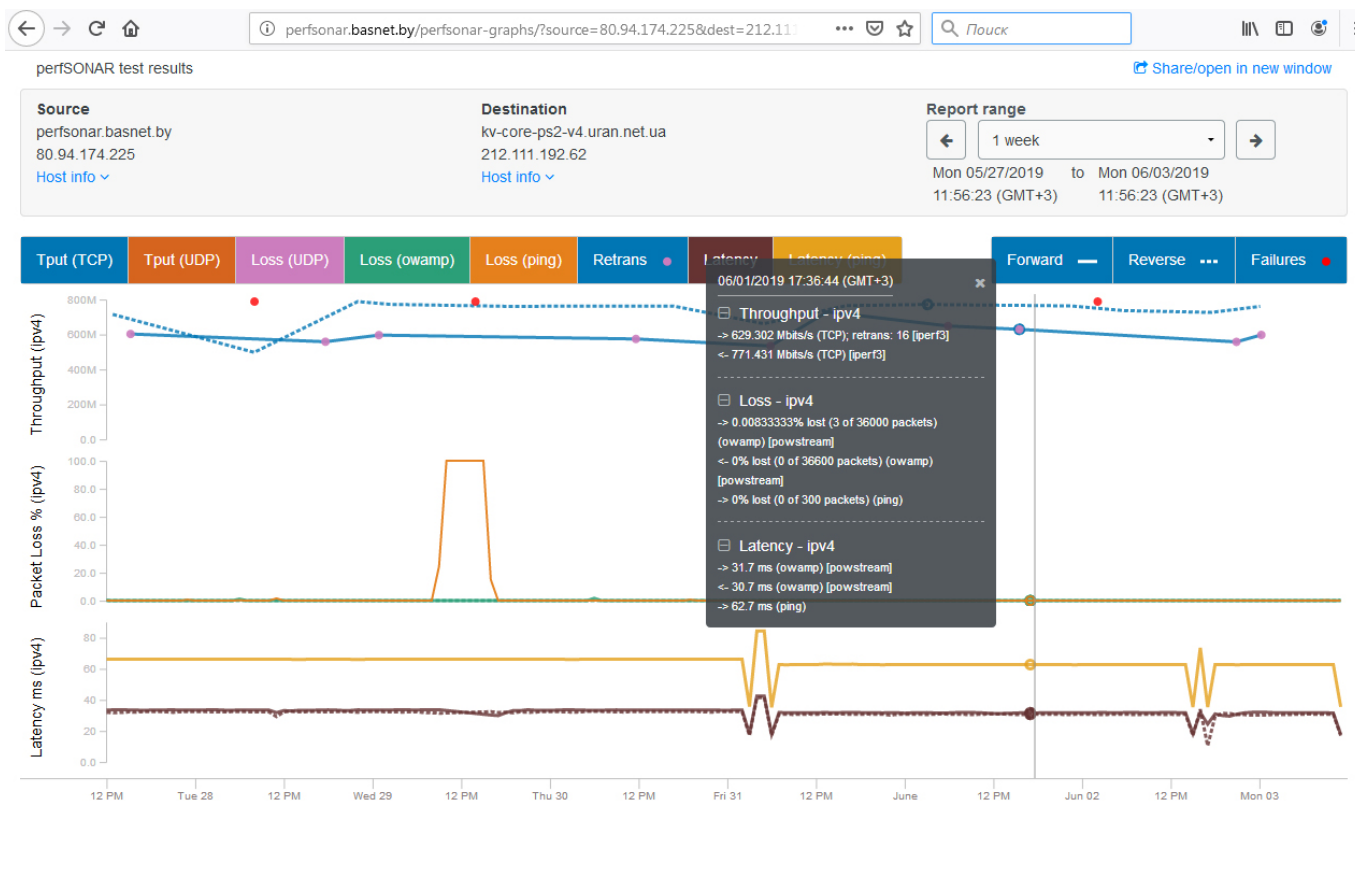
- Minsk (BY) – Chisinau (MD) week perfSONAR graph
- 1Gb – 1Gb tests
- Packet path travel Minsk – Chisinau (via Poznan, Frankfurt, Budapest, Bucharest) is about 3242 km (67 ms)

Performance and characteristics of existing channels



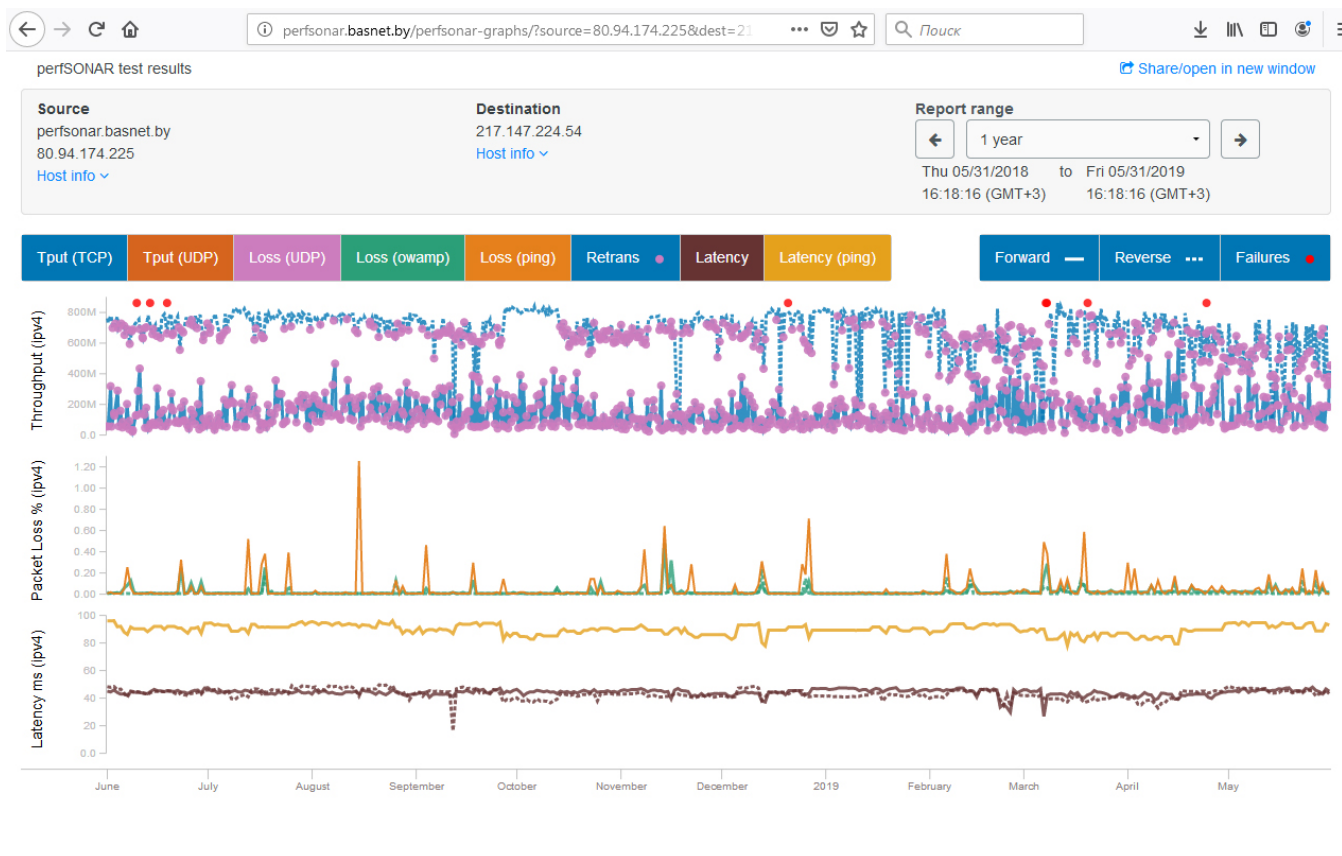
- Minsk (BY) – Kiev (UA) year perfSONAR graph
- 1Gb – 1Gb tests
- Packet path travel Minsk – Kiev (via Poznan, Vienna) is about 2268 km (RTT 66 ms)

Performance and characteristics of existing channels



- Minsk (BY) – Kiev (UA) week perfSONAR graph

Performance and characteristics of existing channels



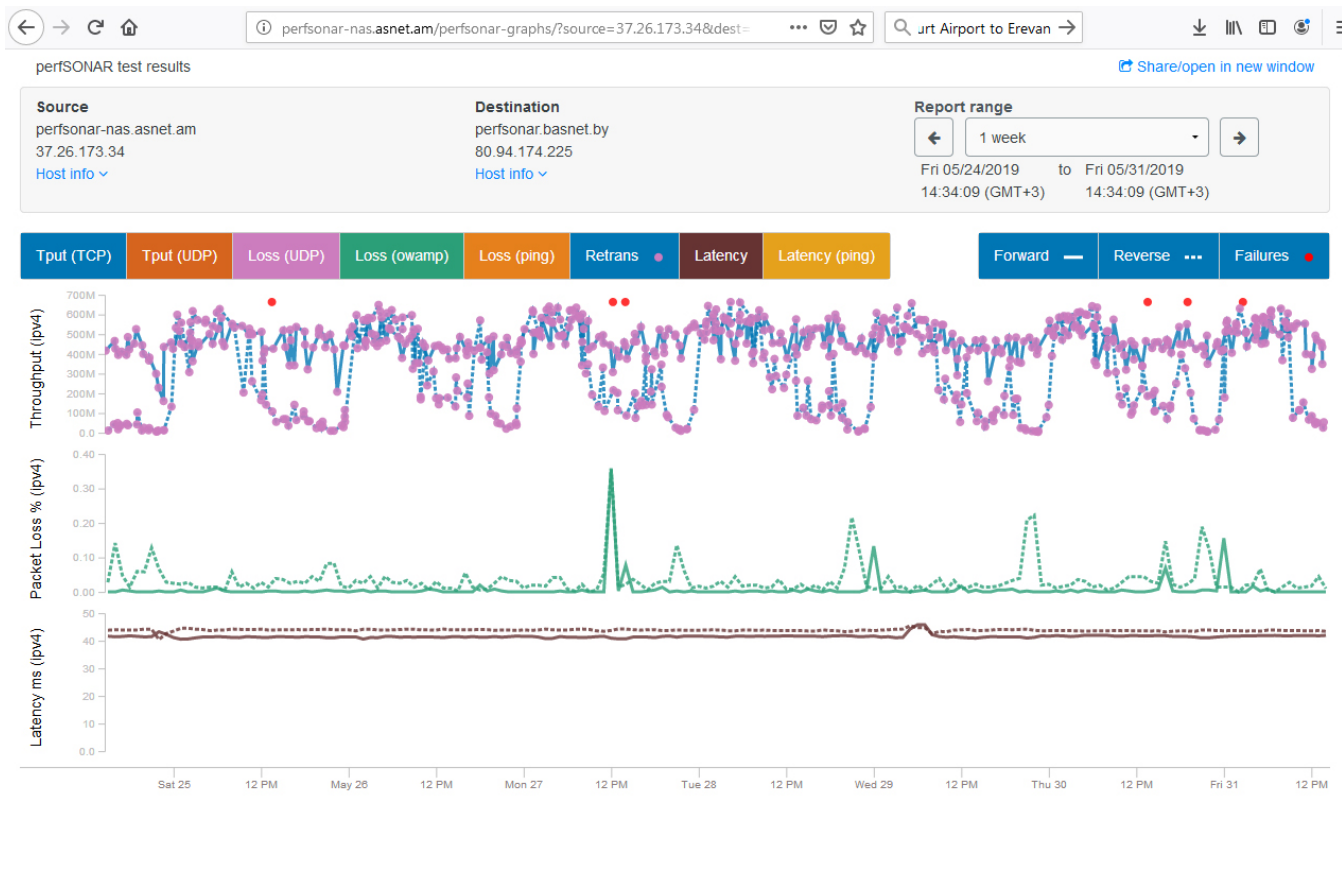
- Minsk (BY) – Tbilisi (GE) year perfSONAR graph
- 1Gb – 1Gb tests
- Packet path travel Minsk – Tbilisi (via Poznan, Frankfurt) is about 4308 km (94 ms)

Performance and characteristics of existing channels



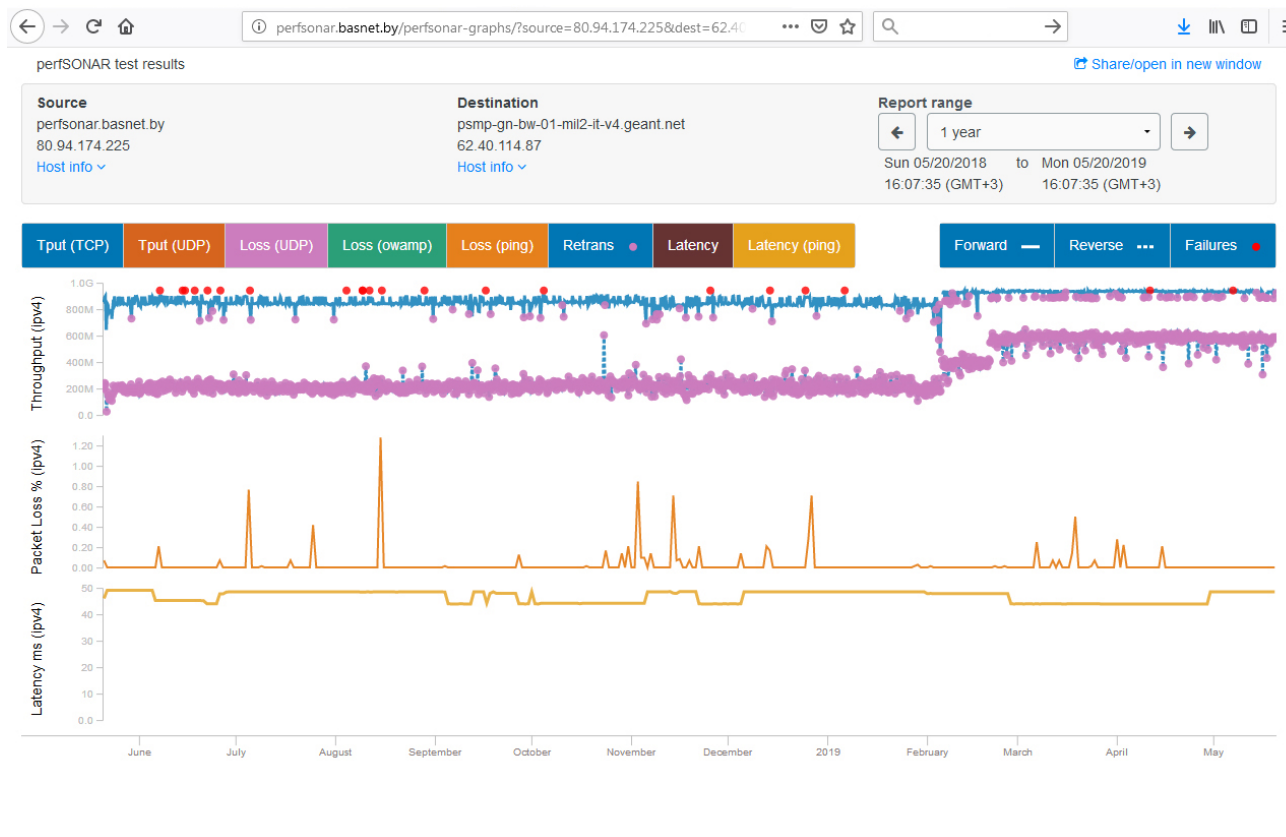
- Minsk (BY) – Yerevan (AM) year perfSONAR graph
- 1Gb – 1Gb tests
- Packet path travel Minsk – Yerevan (via Poznan, Frankfurt) is about 4345 km (RTT 89 ms)

Performance and characteristics of existing channels



- Yerevan (AM) - Minsk (BY) week perfSONAR graph

Performance and characteristics of existing channels



- Minsk (BY) – Milan (IT) year perfSONAR graph
- 1Gb – 10Gb tests
- 20 sec-30 sec-40 sec test duration

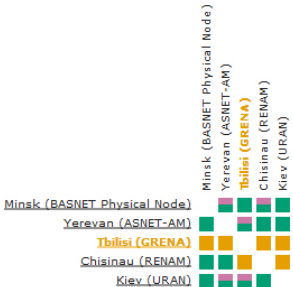
EaPConnect monitoring with MaDDash tool

80.94.174.224/maddash-webui/index.cgi?dashboard=BASNET

EaPConnect Members OWAMP (One-Way Ping)

Loss is 0 Loss is greater than 0 Unable to retrieve data Check has not yet run

⚠ Found a total of 1 problem involving 1 host in the grid

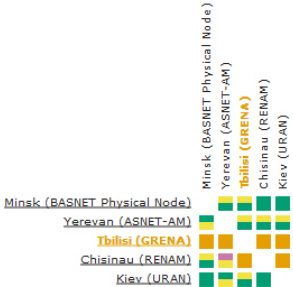


Node	Loss is 0	Loss is greater than 0	Unable to retrieve data	Check has not yet run
Minsk (BASNET Physical Node)	1	0	0	0
Yerevan (ASNET-AM)	1	0	0	0
Tbilisi (GRENA)	1	0	1	0
Chisinau (RENAM)	1	0	0	0
Kiev (URAN)	1	0	0	0

EaPConnect Members BWCTL (Bandwidth Test Controller)

Throughput >= 300Mbps Throughput >= 100Mbps Throughput < 100Mbps Unable to retrieve data Check has not yet run Down for maintenance

⚠ Found a total of 1 problem involving 1 host in the grid



Node	Throughput >= 300Mbps	Throughput >= 100Mbps	Throughput < 100Mbps	Unable to retrieve data	Check has not yet run	Down for maintenance
Minsk (BASNET Physical Node)	1	0	0	0	0	0
Yerevan (ASNET-AM)	1	0	0	0	0	0
Tbilisi (GRENA)	1	0	0	1	0	0
Chisinau (RENAM)	1	0	0	0	0	0
Kiev (URAN)	1	0	0	0	0	0



Thank you!
Any questions?

