EaPConnect
Eastern Partnership Connect

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

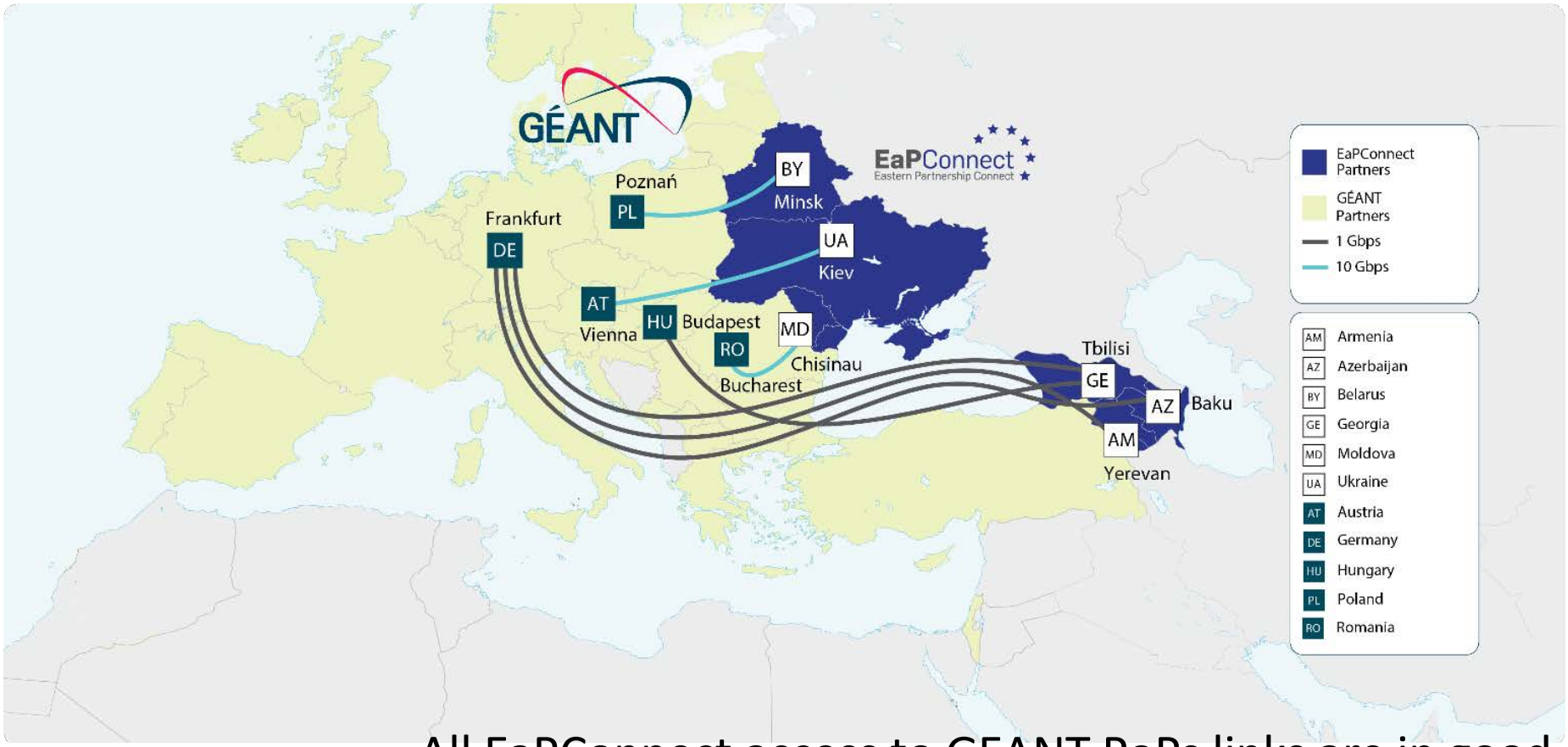
RENAM – Moldova

GRENA – Georgia

IIP NAS RA / ASNET-AM – Armenia

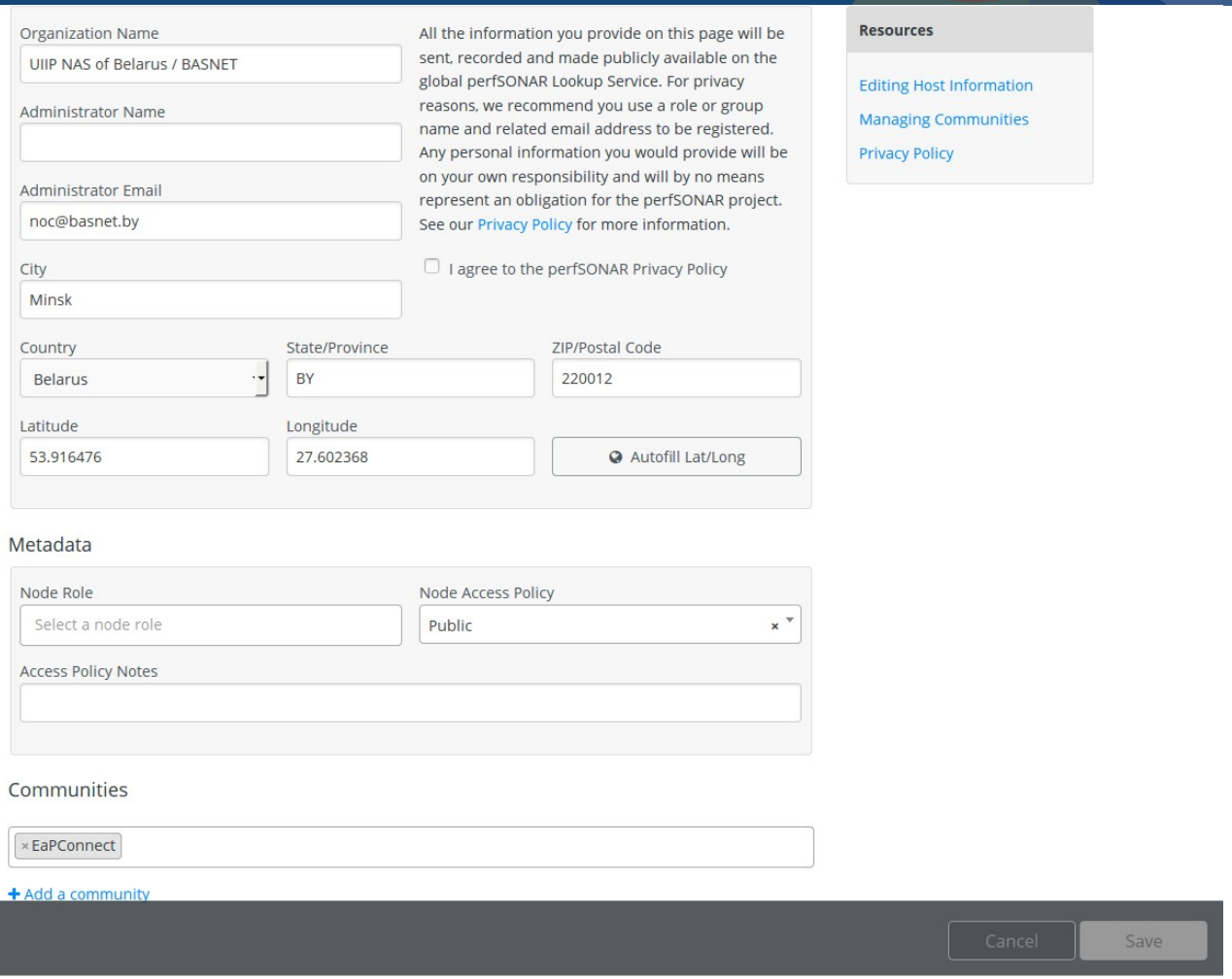
IIT of ANAS / AzScienceNet - Azerbaijan

Connectivity topology

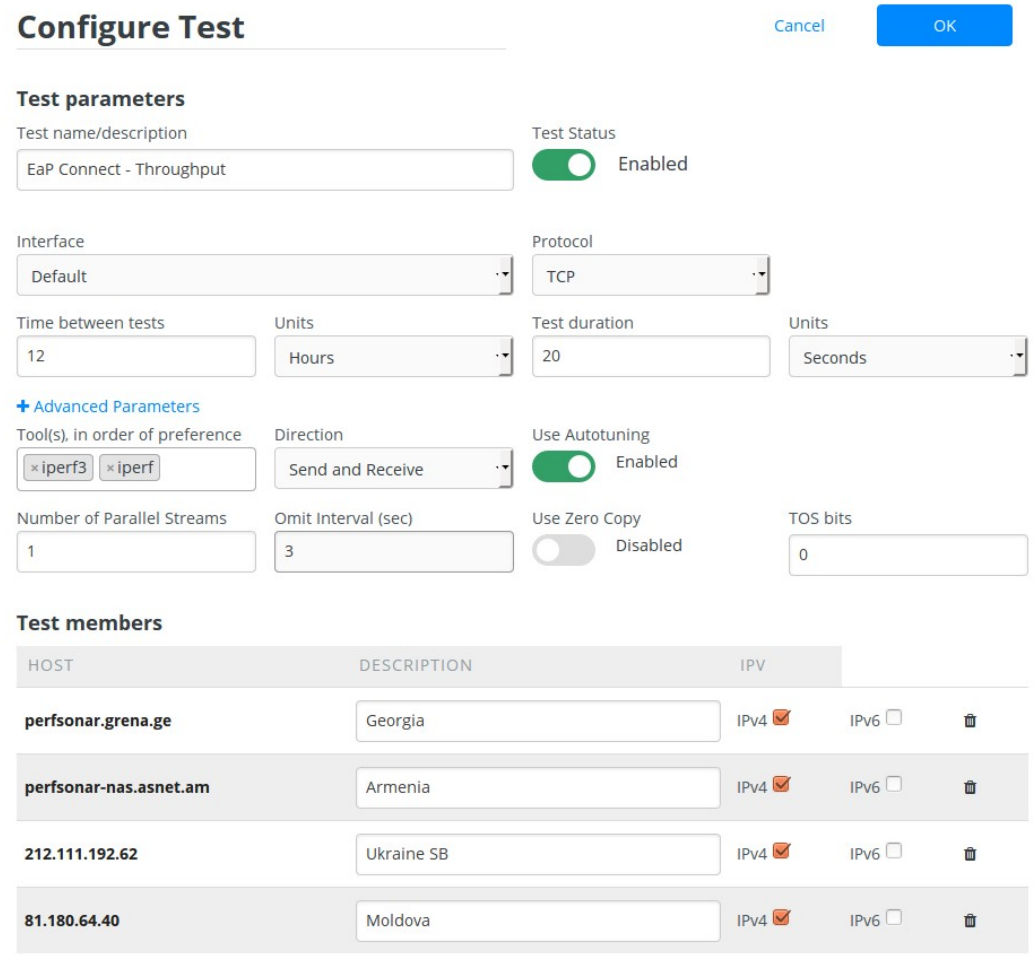


All EaPConnect access to GEANT PoPs links are in good shape. What does perfSONAR tool view end-to-end?

perfSONAR installation and initial configuration



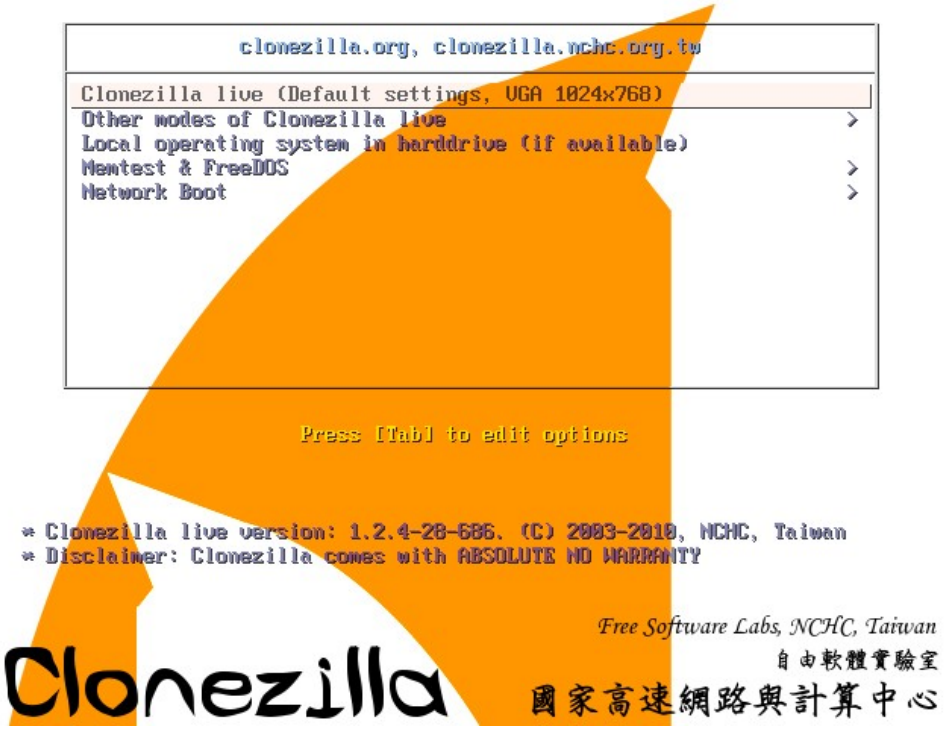
perfSONAR test types and settings

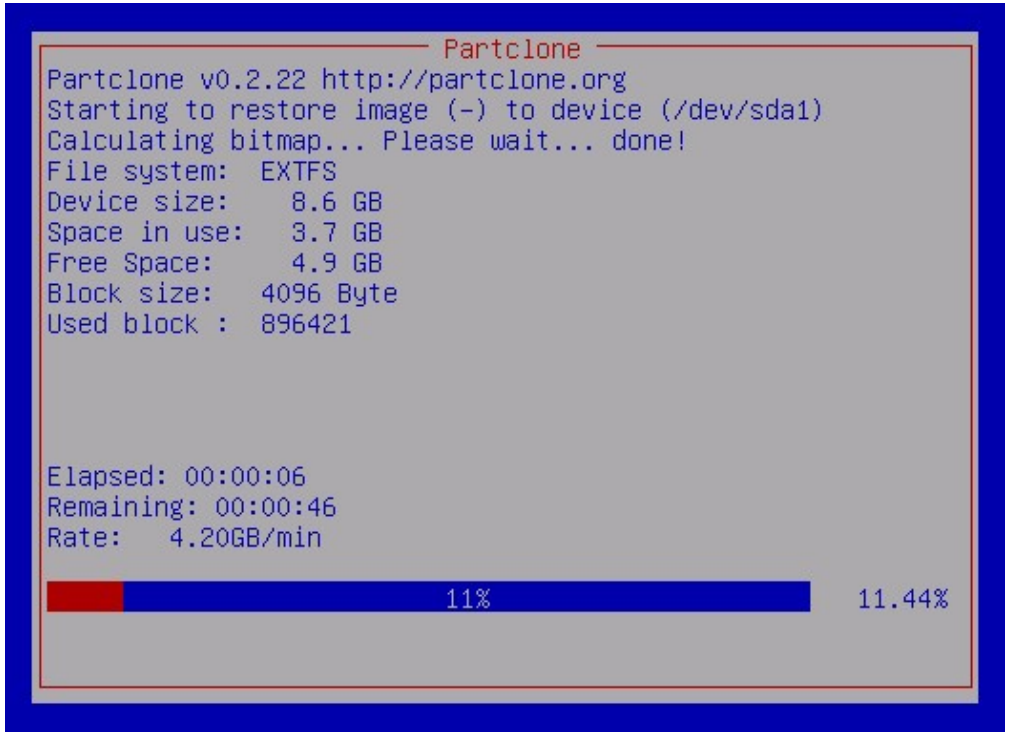


MiniPC hardware chosen for EaPConnect perfSONAR testbed

- 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





Manual monitoring tests with perfSONAR

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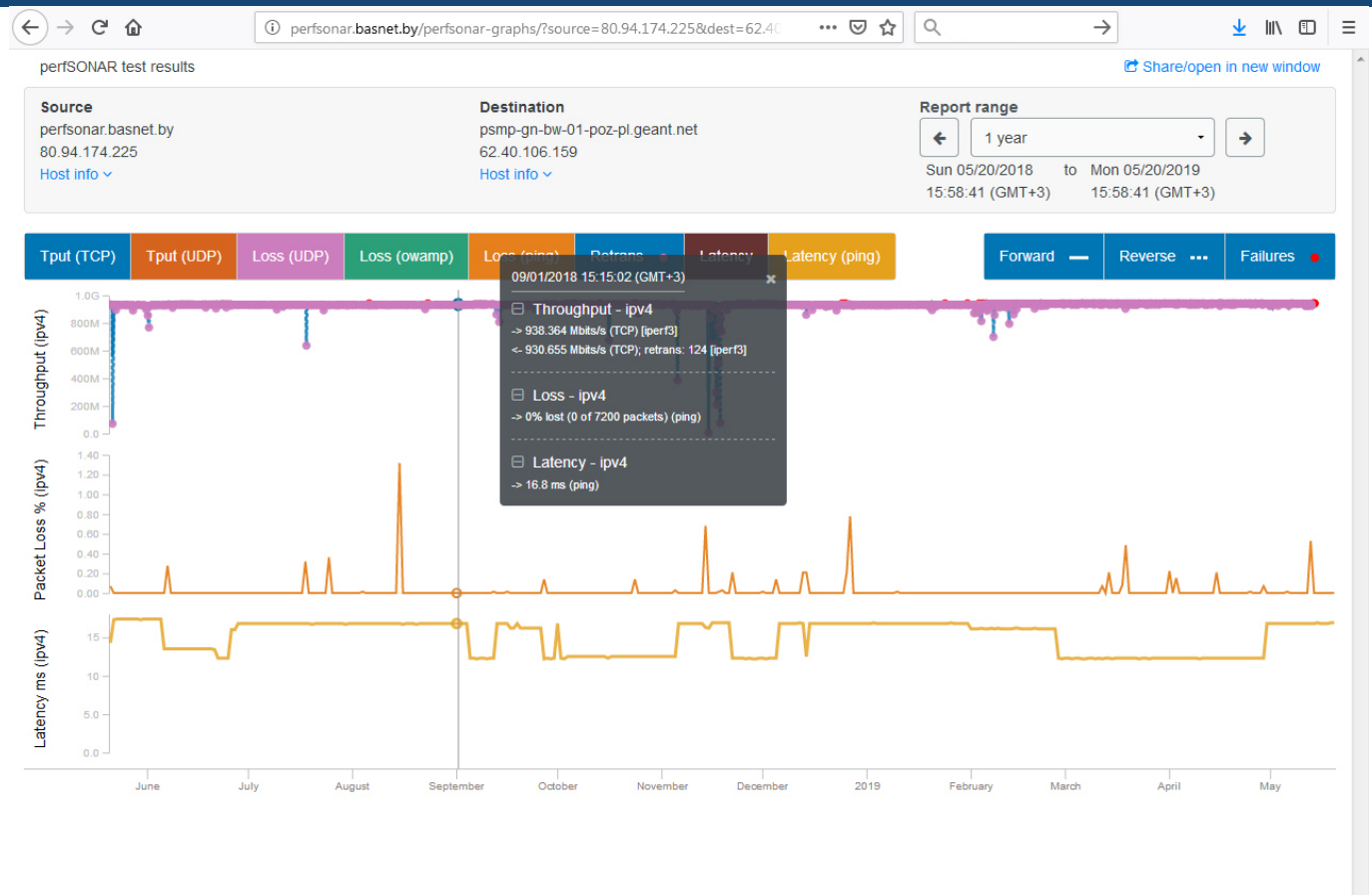
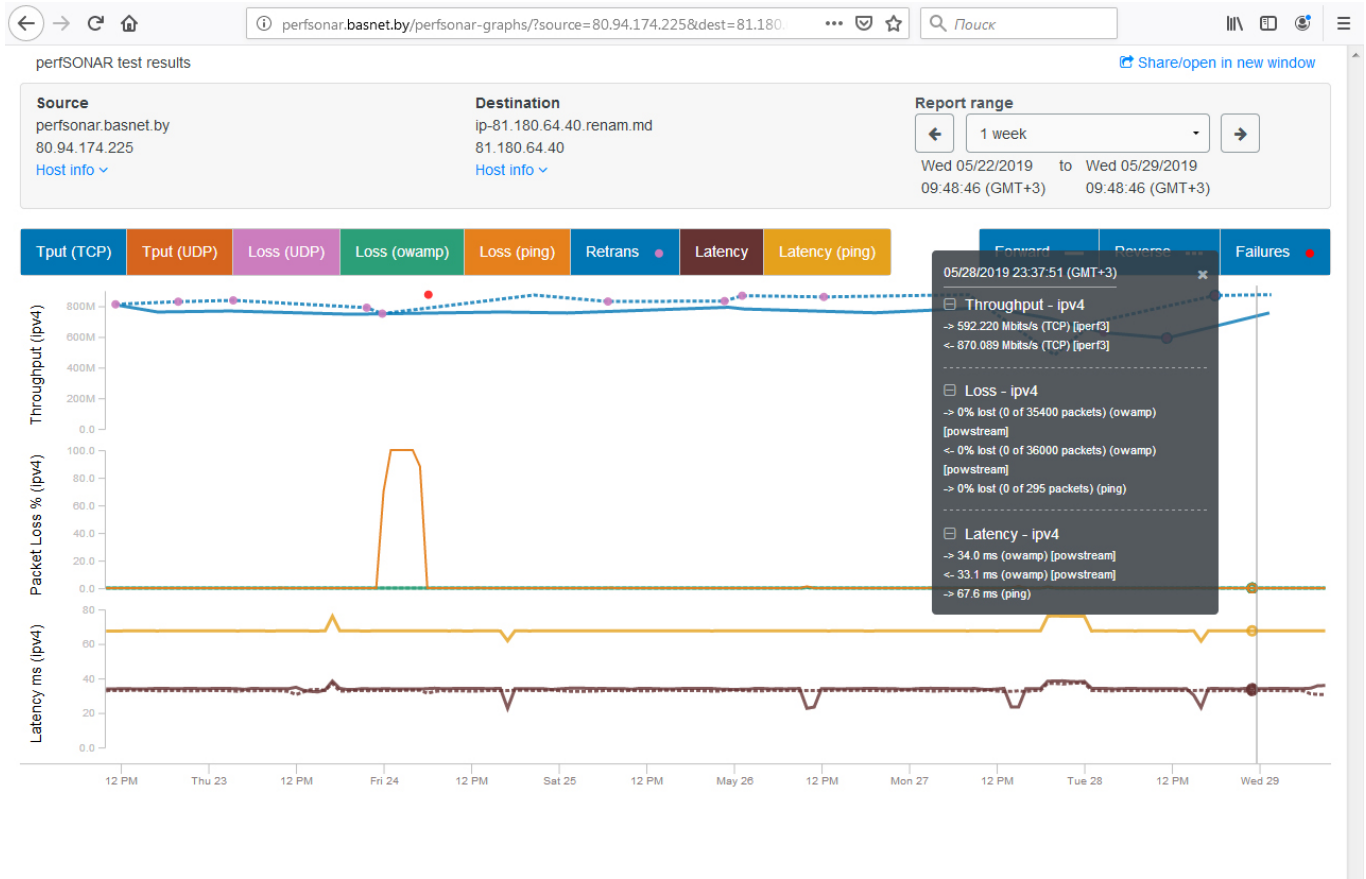
```
root@perfsonar:~
Файл  Правка  Вид  Поиск  Терминал  Справка
[root@perfsonar ~]# pscheduler task throughput --duration PT20S --source 80.94.174.225 --ip-version 4 --dest ip-81.180.64.40.renam.m
d --parallel 1
Submitting task...
Task URL:
https://80.94.174.225/pscheduler/tasks/19942d3c-9859-4cf4-a539-7eef42a6b4c9
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

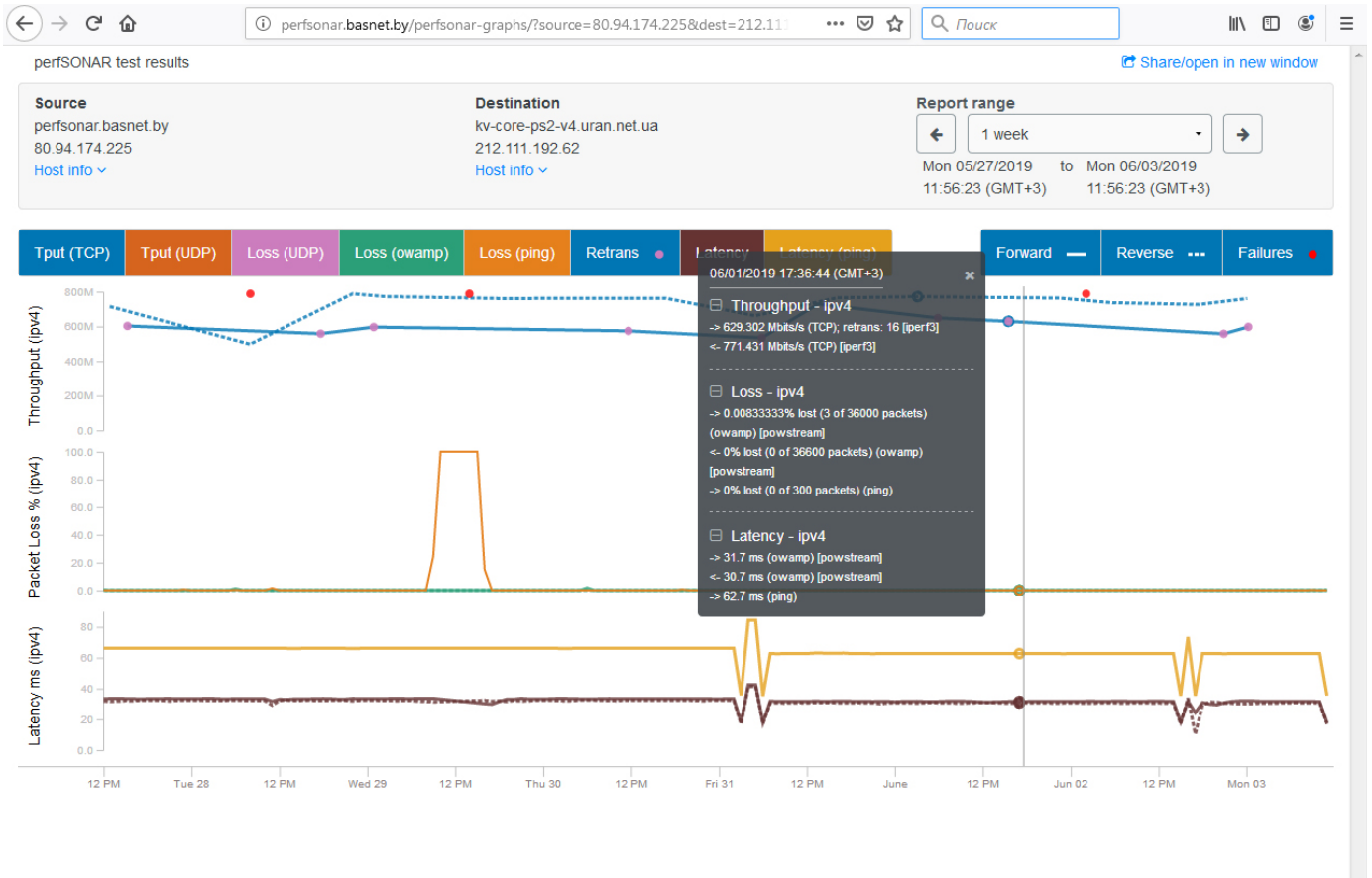


- Minsk (BY) – Chisinau (MD) week perfSONAR graph
- 1Gb – 1Gb tests
- Packet path travel Minsk – Chisinau (via Poznan, Frankfurt, Budapest, Bucharest) is about 3242 km (67 ms)

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

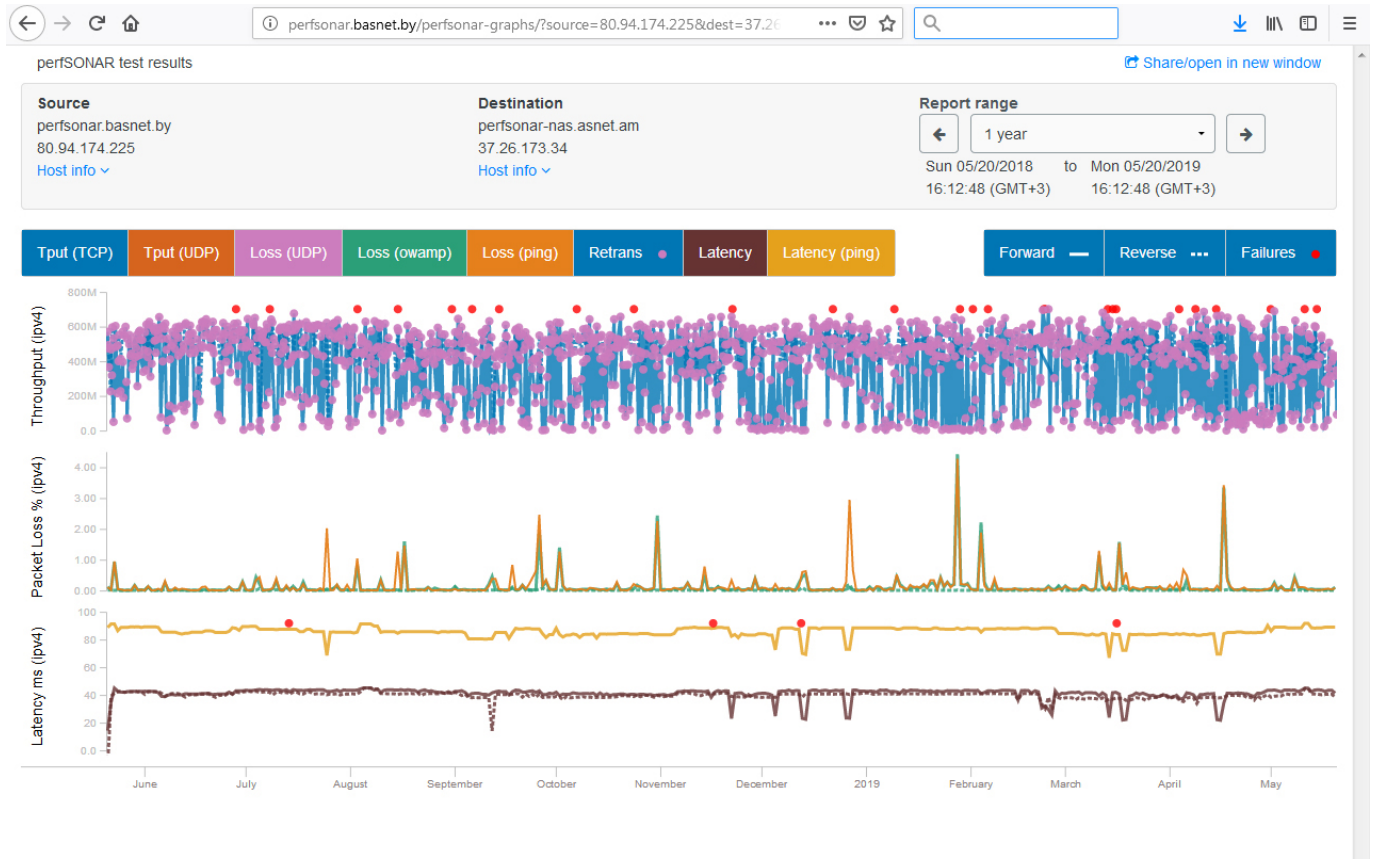


- Minsk (BY) – Kiev (UA) week perfSONAR graph

Performance and characteristics of existing channels

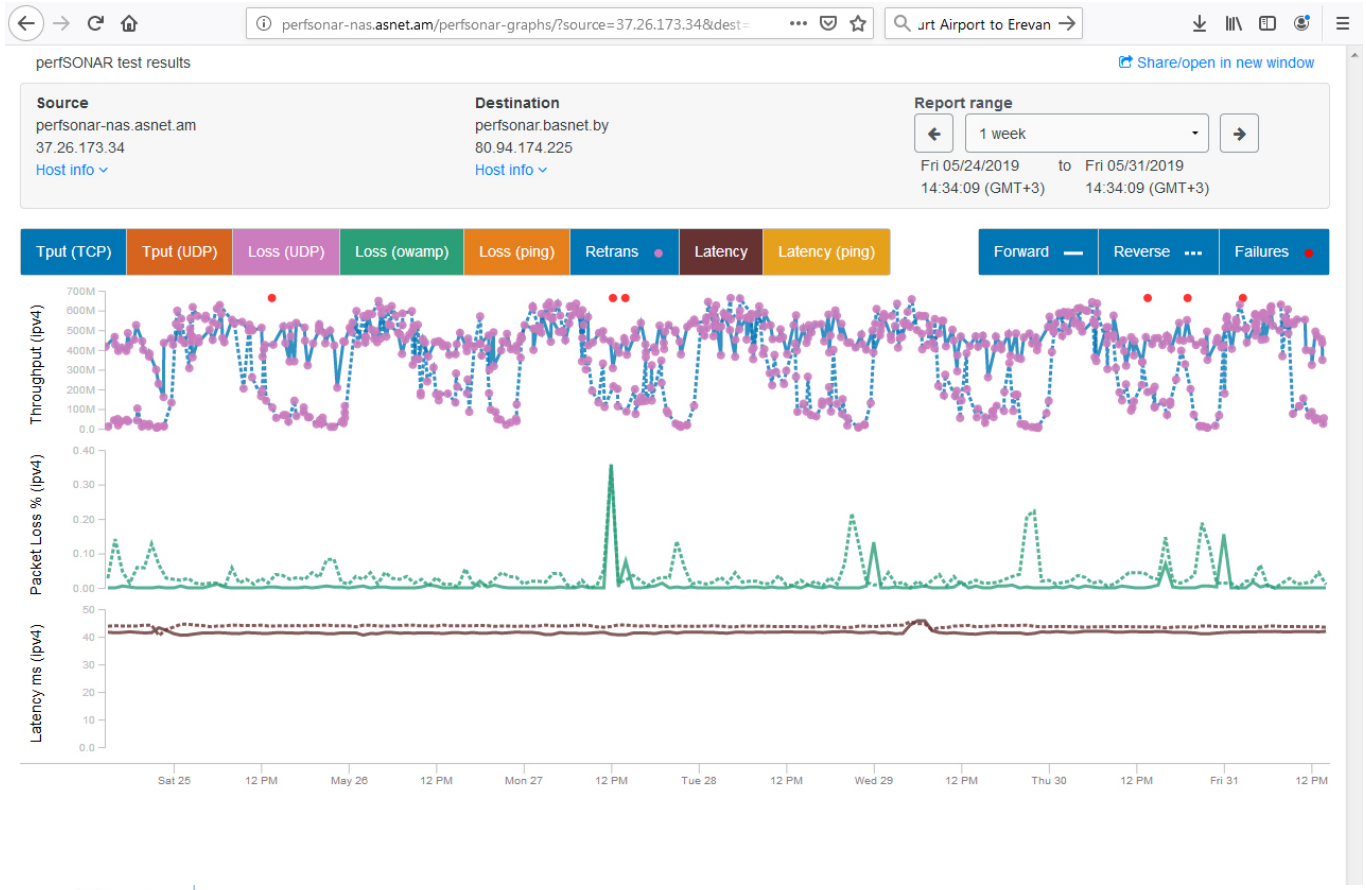
- Minsk (BY) – Tbilisi (GE) year perfSONAR graph
- 1Gb – 1Gb tests
- Packet path travel Minsk – Tbilisi (via Poznan, Frankfurt) is about 4308 km (94 ms)

Performance and characteristics of existing channels



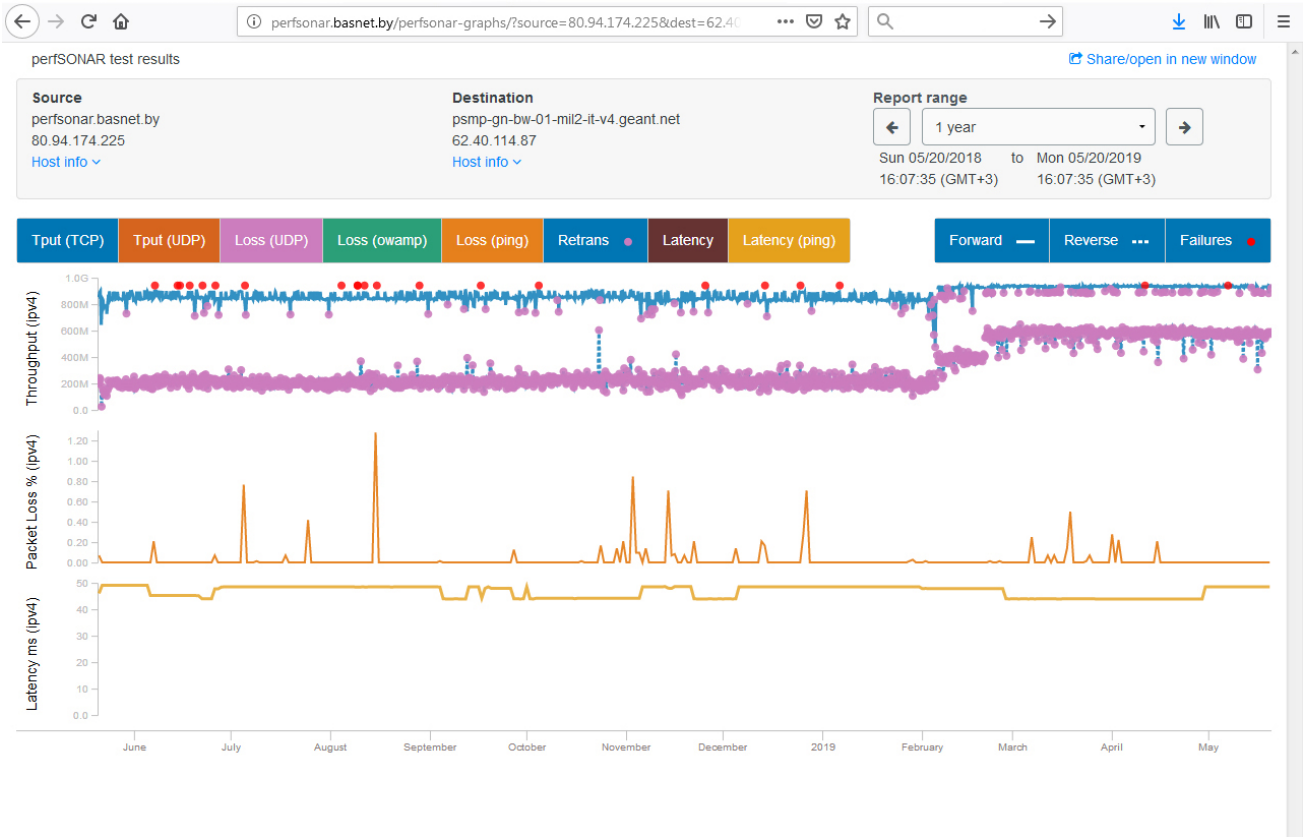
- Minsk (BY) – Yerevan (AM) year perfSONAR graph
- 1Gb – 1Gb tests
- Packet path travel Minsk – Yerevan (via Poznan, Frankfurt) is about 4345 km (RTT 89 ms)

Performance and characteristics of existing channels



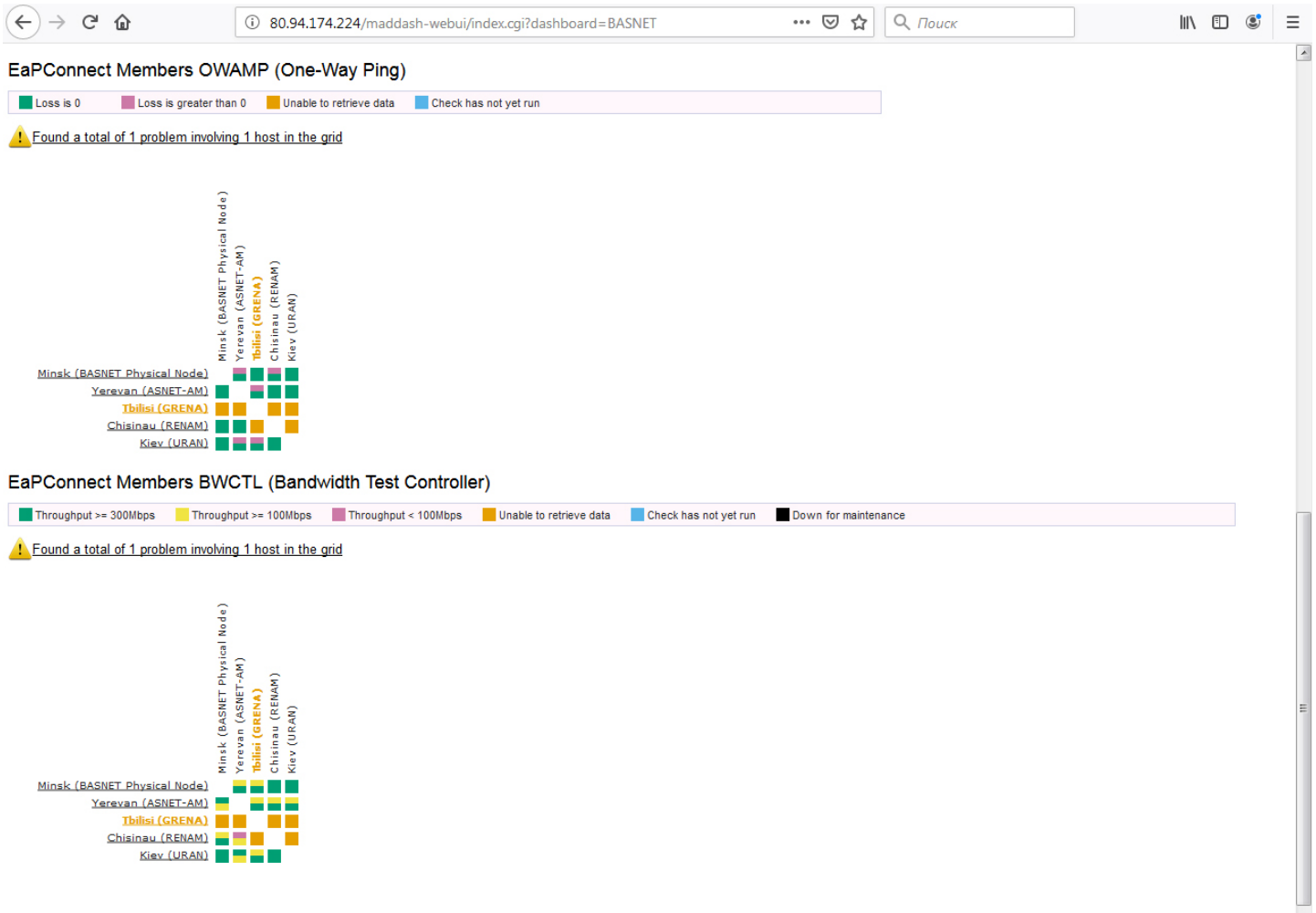
- Yerevan (AM) - Minsk (BY) week perfSONAR graph

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



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Thank you!
Any questions?

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