



perfSONAR for Wigner

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- Two servers per site
 - One for throughput (*-bw)
 - One for latency (*-lt)

Site	Bandwidth	Throughput
Meyrin	perfsonar-bw	perfsonar-lt
Wigner	perfs-wigner-bw	perfs-wigner-lt

- Dual-stack service (IPv4 + IPv6)
- Toolkit access (https with Grid Certificate)
 - Bandwidth:
 - Homepage: <https://perfs-wigner-bw.cern.ch/toolkit/>
 - Measurements: <https://perfs-wigner-bw.cern.ch/serviceTest/psGraph.cgi>
 - Latency:
 - Homepage: <https://perfs-wigner-lt.cern.ch/toolkit/>
 - Measurements: <https://perfs-wigner-lt.cern.ch/serviceTest/psGraph.cgi>

Bandwidth measurements

Source ▲	Destination	Throughput		Latency (ms)		Loss (%)	
		src-dst	dst-src	src-dst	dst-src	src-dst	dst-src

<https://perfs-wigner-bw.cern.ch/serviceTest/psGraph.cgi>

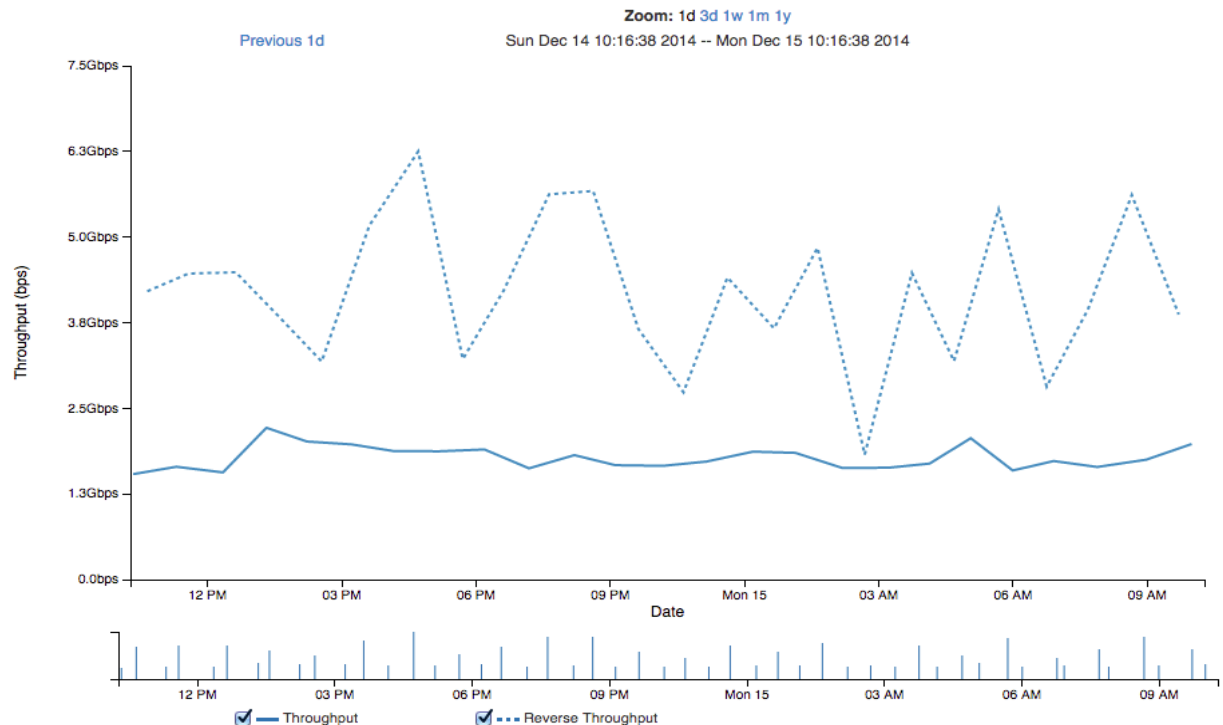
perfsonar-01.cern.ch (128.142.223.246)	perfs-wigner-01.cern.ch (188.185.224.216)	1.46 Gbps	3.28 Gbps	n/a	n/a	n/a	n/a
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perfsonar-01.cern.ch (2001:1458:301:a7bc::100:14)	perfs-wigner-01.cern.ch (2001:1459:301:19::100:18)	1.44 Gbps	3.12 Gbps	n/a	n/a	n/a	n/a
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Source: perfsonar-01.cern.ch - 128.142.223.246 -- Destination: perfs-wigner-01.cern.ch - 188.185.224.216
 Capacity: 10G MTU: 9000

[Link to this chart](#)

<https://perfs-wigner-bw.cern.ch/serviceTest/graphWidet.cgi?source=128.142.223.246&dest=188.185.224.216&url=http%3A%2F%2Flocalhost%2Fesmond%2Fperfsonar%2Farchive%2F#timeframe=1d>



Latency measurements

Source ▲	Destination	Throughput		Latency (ms)		Loss (%)	
https://perfs-wigner-lt.cern.ch/serviceTest/psGraph.cgi		src-dst	dst-src	src-dst	dst-src	src-dst	dst-src
perfs-wigner-02.cern.ch (188.185.224.217)	perfsonar-02.cern.ch (128.142.223.247)	n/a	n/a	14.07	10.48	0.00	0.00
perfsonar-02.cern.ch (2001:1458:301:a7bc::100:15)	perfs-wigner-02.cern.ch (2001:1459:301:19::100:19)	n/a	n/a	10.54	15.08	0.00	0.00

<https://perfs-wigner-lt.cern.ch/serviceTest/graphWidget.cgi?source=188.185.224.217&dest=128.142.223.247&url=http%3A%2F%2Flocalhost%2Fesmond%2Fperfsonar%2Farchive%2F#timeframe=1d>



- perfSONAR 3.4 release notes:
 - “A new Measurement Archive (MA) now stores all throughput, owamp, ping and traceroute data and publishes it via a REST interface. It is implemented with ESnet's time series database called [esmond](#)”
- Client guide:
 - <https://code.google.com/p/perfsonar-ps/wiki/MeasurementArchiveClientGuide>
- Python libraries API:
 - http://software.es.net/esmond/perfsonar_client.html

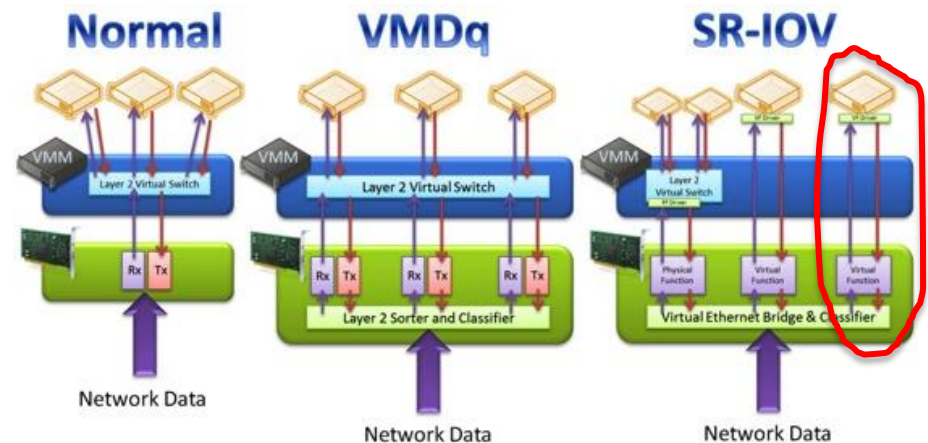
<http://perfs-wigner-lt.cern.ch/esmond/perfsonar/archive/?format=json>

```
{
  destination: "128.142.223.247",
  event-types: [
    - {
      base-uri: "/esmond/perfsonar/archive/aff4e0c0a35a4195aa76ee610f376b09/time-error-estimates/base",
      event-type: "time-error-estimates",
      summaries: [ ],
      time-updated: 1418390589
    },
    - {
      base-uri: "/esmond/perfsonar/archive/aff4e0c0a35a4195aa76ee610f376b09/packet-duplicates/base",
      event-type: "packet-duplicates",
      summaries: [ ],
      time-updated: 1418390588
    },
    - {
      base-uri: "/esmond/perfsonar/archive/aff4e0c0a35a4195aa76ee610f376b09/histogram-ttl/base",
      event-type: "histogram-ttl",
      summaries: [
        - {
          summary-type: "statistics",
          summary-window: "0",
          time-updated: 1418390588,
          uri: "/esmond/perfsonar/archive/aff4e0c0a35a4195aa76ee610f376b09/histogram-ttl/statistics/0"
        }
      ],
      time-updated: 1418390588
    },
    - {
      base-uri: "/esmond/perfsonar/archive/aff4e0c0a35a4195aa76ee610f376b09/packet-count-sent/base",
      event-type: "packet-count-sent",
      summaries: [ ],
      time-updated: 1418390588
    },
    - {
      base-uri: "/esmond/perfsonar/archive/aff4e0c0a35a4195aa76ee610f376b09/packet-count-lost/base",
      event-type: "packet-count-lost",
      summaries: [ ],
      time-updated: 1418390589
    },
  ],
}
```

<http://perfs-wigner-lt.cern.ch/esmond/perfsonar/archive/69296e18a98046f9b46e24303a1408ec/packet-loss-rate/aggregations/300?format=json>

```
ts: 1418386500,
val: 0
},
- {
  ts: 1418386800,
  val: 0
},
- {
  ts: 1418387100,
  val: 0
},
- {
  ts: 1418387400,
  val: 0
},
- {
  ts: 1418387700,
  val: 0
},
- {
  ts: 1418388000,
  val: 0
},
- {
  ts: 1418388300,
  val: 0
},
},
```

- VM's for flexible management: KVM hypervisor
- VM's settings
 - CPU pinning to 4 physical cores of the same CPU
 - 8 G RAM
- Direct access to NIC
 - SR-IOV
 - PCI pass-through



```
# cat /etc/modprobe.d/ixgbe.conf
options ixgbe max_vfs=2
# lspci | grep Ether
04:00.0 Ethernet controller: Intel Corporation 82599ES 10-Gigabit SFI/SFP+ Network Connection (rev 01) # ← eth0
04:00.1 Ethernet controller: Intel Corporation 82599ES 10-Gigabit SFI/SFP+ Network Connection (rev 01)
04:10.0 Ethernet controller: Intel Corporation 82599 Ethernet Controller Virtual Function (rev 01) # ← virtual adapter on eth0
04:10.1 Ethernet controller: Intel Corporation 82599 Ethernet Controller Virtual Function (rev 01)
04:10.2 Ethernet controller: Intel Corporation 82599 Ethernet Controller Virtual Function (rev 01) # ← virtual adapter on eth0
04:10.3 Ethernet controller: Intel Corporation 82599 Ethernet Controller Virtual Function (rev 01)
```