

Lanka Education and Research Network

Network Monitoring & Measurements

Quick Overview of NMM from NREN of Sri Lanka

20th October 2017

Lanka Network Operators Group (LkNOG) 1

Thilina Pathirana

Overview

- What is Monitoring:

- Check the status of a network

- What to Monitor:

- Infrastructure – Routers, Switches, Servers, Environment, Physical Connections, etc
 - Services – DNS, HTTP, SMTP etc

- Why to Monitor:

- Check their Reachability, Availability
 - Check their Utilization?
 - What's their Performance
 - Figure out their Faults and Outages

Overview

- Why Measuring

- Identifying amount and type of traffic on the network
- Identifying possible attacks
- Billing
- Troubleshoot

- What to Measure

- Latency
- Path
- Bandwidth
- Loss
- Host instrumentation
- Traffic monitoring

- How to Measure

- Active Measurements
- Passive Measurements

Monitoring

•Tools we Use:

- Cacti
- Nagios
- LibreNMS
- NFSens
- Nmon
- Htop
- Munin

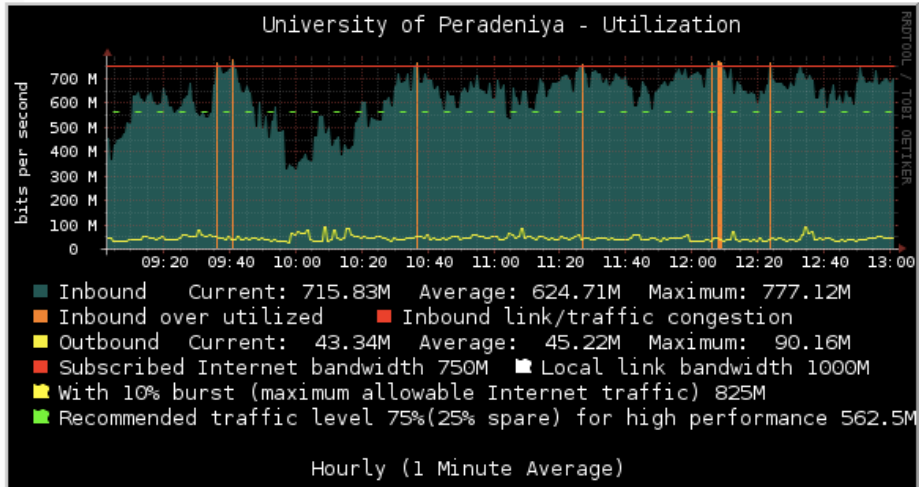
Measuring

- Tools we Use:

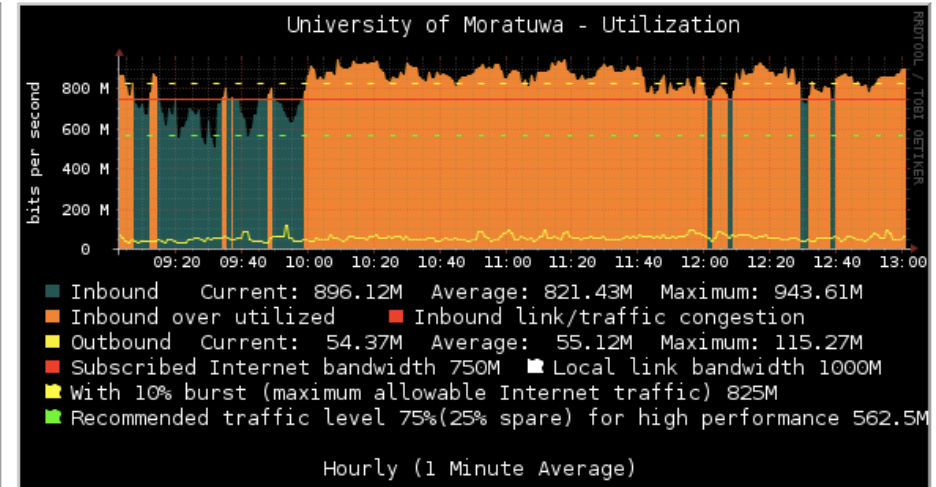
- Smokeping
- PerfSonar
- iPerf
- BWCTL
- RIPE Atlas

Monitoring

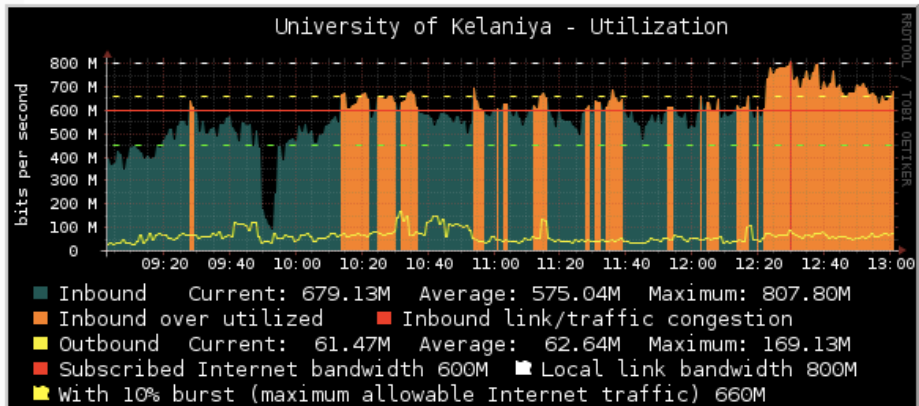
[University of Peradeniya \(D61429\)](#)



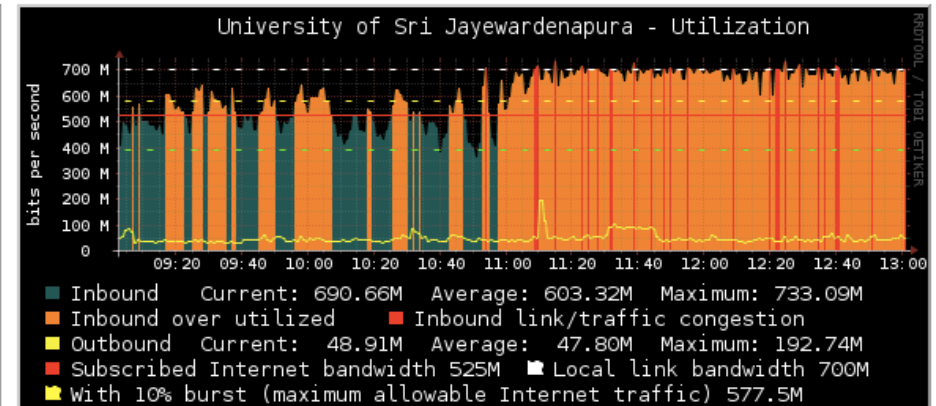
[University of Moratuwa \(D61427\)](#)



[University of Kelaniya \(D61428\)](#)



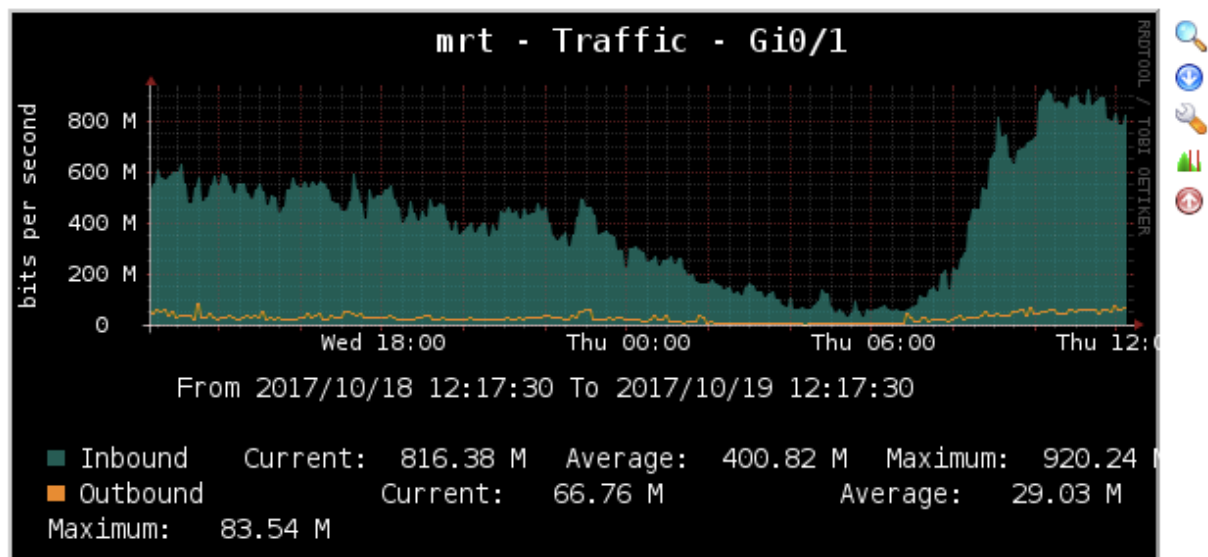
[University of Sri Jaywardenapura \(D61380\)](#)



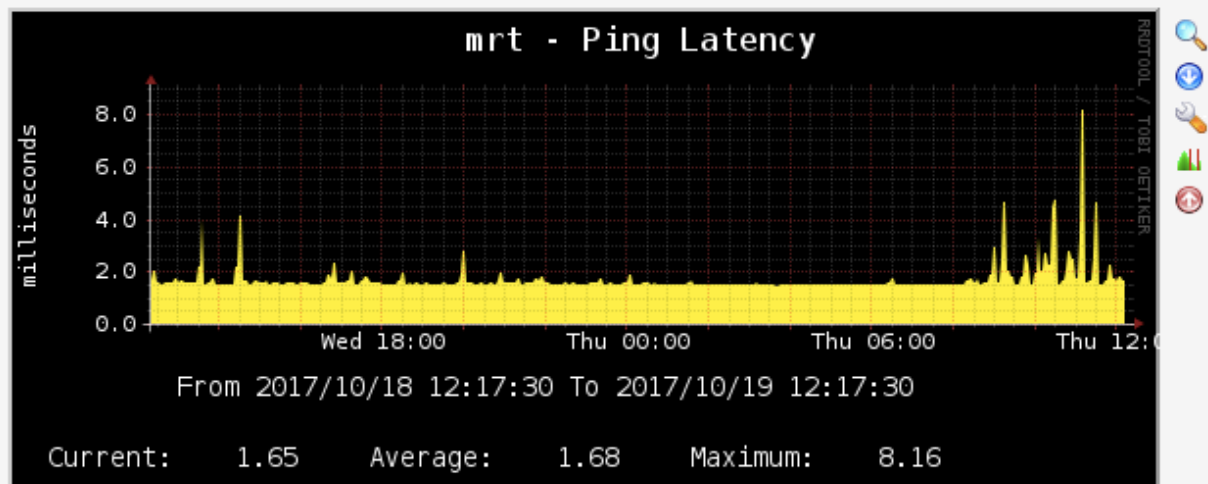
Monitoring



Monitoring



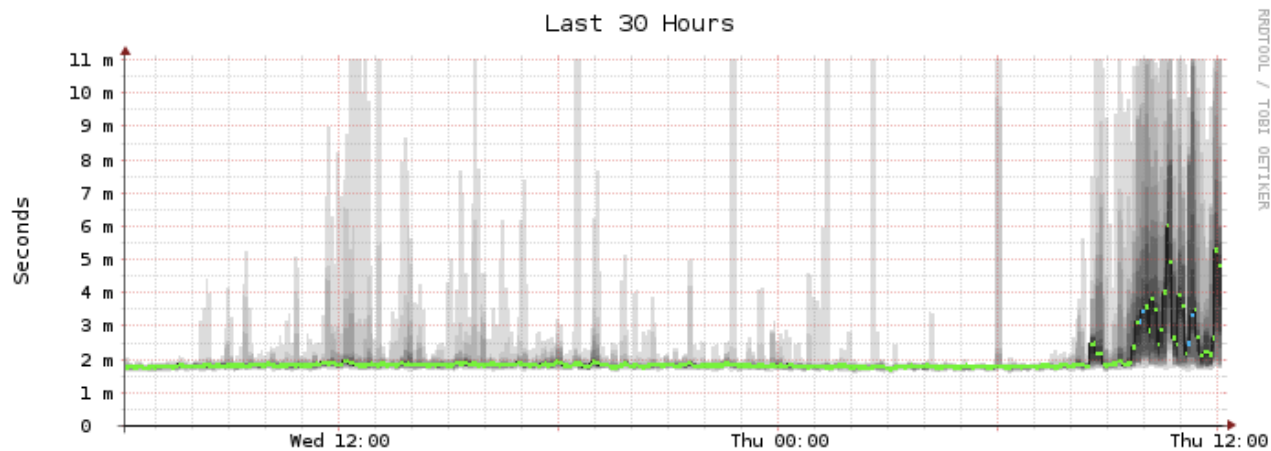
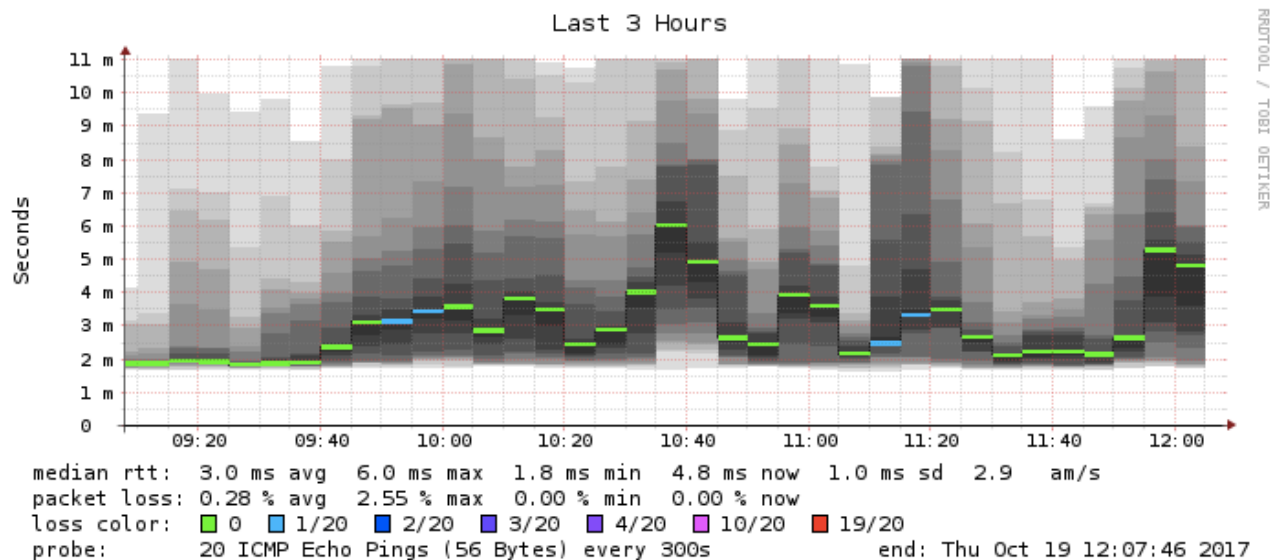
Graph Template: Unix - Ping Latency



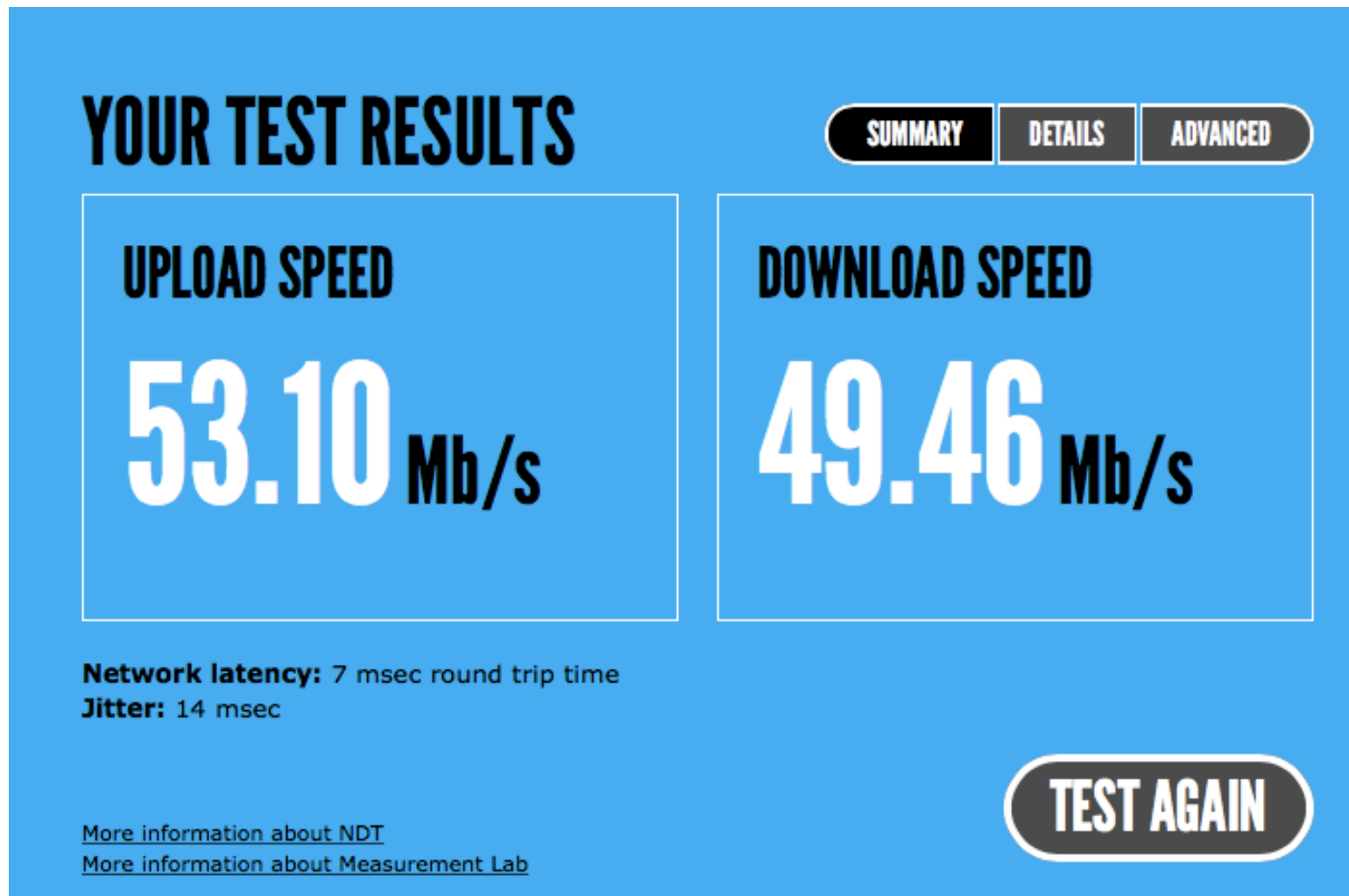
Traffic Load Legend:

- 0-1%
- 1-10%
- 10-25%
- 25-40%
- 40-55%
- 55-70%
- 70-85%
- 85-100%

Measurements



Measurements



Measurements

Please select a test server

Sri Lanka - Colombo ▾



Colombo, [University of Kelaniya](#) (~ 82 km)

Test again

Do you want to help us by running a test server in your area ?
If you think you can, please [contact us](#) !

IPv4 speed

Address 192.248.4.

ISP Learn

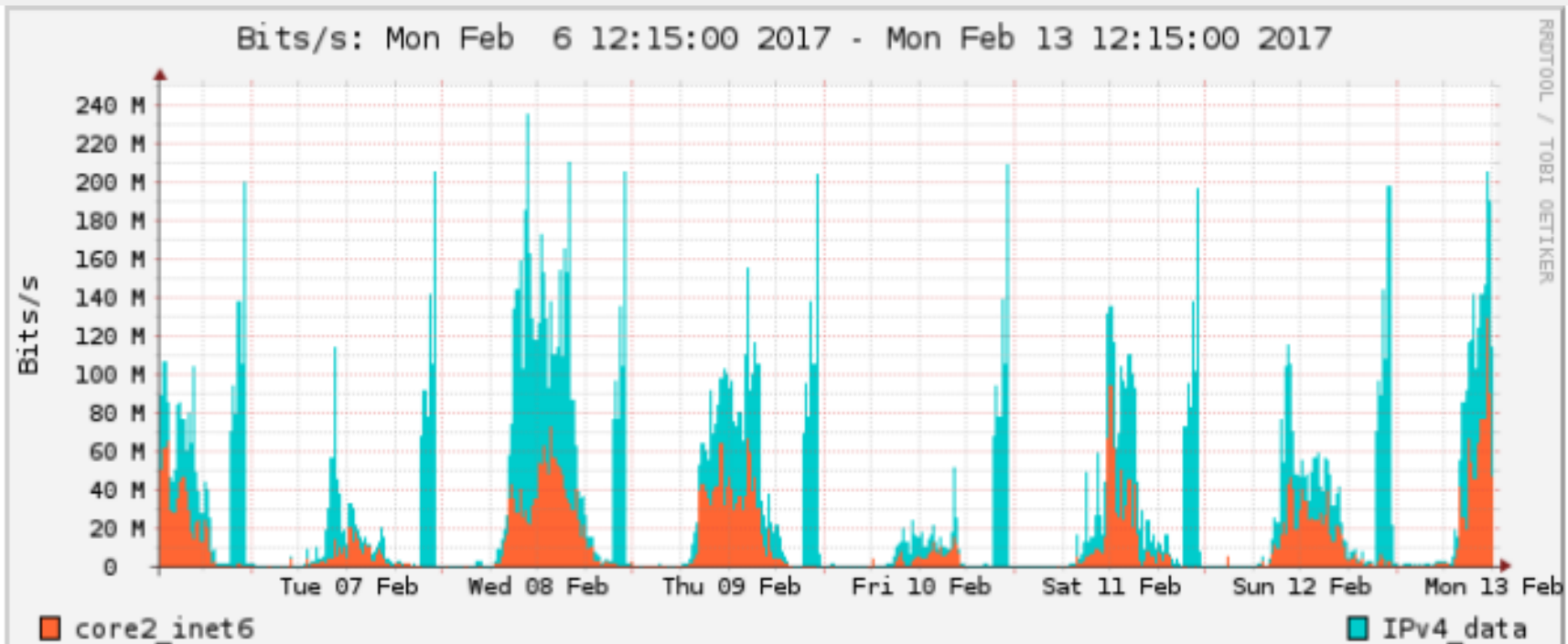
Speed 90.8 Mbit/s

IPv6 speed

Address 2401:dd00:1:128:4

ISP Learn

Speed 88.6 Mbit/s



LEARN

National Research and Education Network of Sri Lanka

Measurements

Top 10 IP Addr ordered by bytes:

Date first seen	Duration	Proto	IP Addr	Flows(%)	Packets(%)	Bytes(%)	pps	bps	bpp
2017-02-06 08:18:11.803	574676.185	any	192.248.24.51	61.7 M(29.5)	16.7 G(58.0)	15.5 T(58.3)	28984	215.6 M	929
2017-02-06 08:18:38.234	574652.156	any	192.248.24.50	43.3 M(20.7)	5.3 G(18.5)	5.3 T(19.9)	9263	73.5 M	991
2017-02-06 10:51:29.765	565478.026	any	192.248.3.78	1.3 M(0.6)	1.9 G(6.7)	1.9 T(7.2)	3405	27.1 M	995
2017-02-06 08:36:05.615	573585.479	any	192.248.3.76	1.1 M(0.5)	1.9 G(6.6)	1.9 T(7.2)	3313	26.5 M	998
2017-02-06 08:36:00.745	573579.389	any	192.248.3.77	1.9 M(0.9)	1.8 G(6.4)	1.8 T(6.9)	3188	25.6 M	1002
2017-02-06 11:50:02.818	561879.157	any	2401:dd00:3:64::e	246356(0.1)	985.4 M(3.4)	891.5 G(3.4)	1753	12.7 M	904
2017-02-06 11:50:02.358	561893.617	any	2401:dd00:3:64::c	239356(0.1)	957.4 M(3.3)	875.9 G(3.3)	1703	12.5 M	914
2017-02-06 11:50:01.818	561893.157	any	2401:dd00:3:64::d	228991(0.1)	916.0 M(3.2)	835.2 G(3.1)	1630	11.9 M	911

inet6

Top 10 IP Addr ordered by bytes:

Date first seen	Duration	Proto	IP Addr	Flows(%)	Packets(%)	Bytes(%)	pps	bps	bpp
2017-02-06 13:45:00.186	593399.293	any	2401:dd00:3:64::e	252744(17.9)	1.0 G(17.9)	912.6 G(18.2)	1703	12.3 M	902
2017-02-06 13:45:00.186	593397.263	any	2401:dd00:3:64::c	243337(17.2)	973.3 M(17.2)	888.8 G(17.7)	1640	12.0 M	913
2017-02-06 13:45:00.611	593398.868	any	2401:dd00:3:64::d	233835(16.5)	935.3 M(16.5)	851.8 G(17.0)	1576	11.5 M	910
2017-02-06 13:45:07.611	593389.146	any	2a03:2880:f026:14:face:b00c:0:1823	68081(4.8)	272.3 M(4.8)	269.7 G(5.4)	458	3.6 M	990
2017-02-06 13:46:08.078	593331.679	any	2a01:111:2003::50	52504(3.7)	210.0 M(3.7)	221.7 G(4.4)	353	3.0 M	1055
2017-02-08 09:42:14.100	435162.344	any	2404:f000:0:e:face:b00c:0:358e	53051(3.8)	212.2 M(3.8)	209.2 G(4.2)	487	3.8 M	986
2017-02-06 13:45:05.540	593391.537	any	2a03:2880:f026:19:face:b00c:0:3	39581(2.8)	158.3 M(2.8)	135.6 G(2.7)	266	1.8 M	856
2017-02-12 08:10:19.544	16239.459	any	2401:dd00:20:2003:84ad:af10:10c0:ea13	23513(1.7)	94.1 M(1.7)	103.7 G(2.1)	5791	51.1 M	1103
2017-02-08 01:20:09.535	465279.826	any	2404:f000:0:e:face:b00c:0:a7	25734(1.8)	102.9 M(1.8)	87.9 G(1.8)	221	1.5 M	854
2017-02-06 14:10:10.851	505976.127	any	2404:6800:4003:808::2001	19093(1.4)	76.4 M(1.4)	83.4 G(1.7)	150	1.3 M	1091

Measurements

perfSONAR Toolkit on kirigal.learn.ac.lk

📍 **kirigal.learn.ac.lk** at 192.248.1.167, 2401:dd00:1::167

Organization: Lanka Education & Research Network

Address: Colombo LK ([map](#))

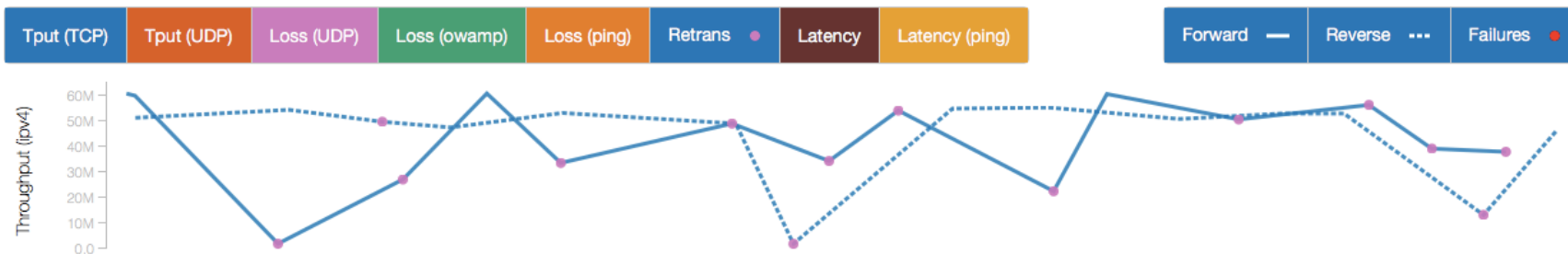
Administrator: Network Operations Center (noc@learn.ac.lk)

Source
ps.ac.lk
192.248.1.167
[Host info](#) ▾












Destination
perfsonar.nsrc.org
128.223.157.44
[Host info](#) ▾

Report range

← 1 week →
Thu 10/12/2017 12:21:37 (GMT+5.5) to Thu 10/19/2017 12:21:37 (GMT+5.5)



Measurements

Id	ASN v4	ASN v6	Country	Description
20449	132045			Bharti Airtel Lanka
20410	38229	38229		LEARN, Kandy
18794	38229	38229		Eastern University, Sri Lanka
18790	38229	38229		IT Division - Open University of Sri Lanka, Nawala, Nugegoda.
18729	38229	38229		University of the Visual & Performing Arts , Colombo 07
18719	38229	38229		University of Moratuwa
18643	38229	38229		ICT Centre, University of Kelaniya, Sri Lanka
18185	9329			
17119	133051			
17081	5087			Lanka Communications Services (Pvt) Ltd.
14564	17470			Etisalat Sri Lanka

Showing 11 probes



Lanka Education and Research Network

Questions

Lanka Education and Research Network

Thank You

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