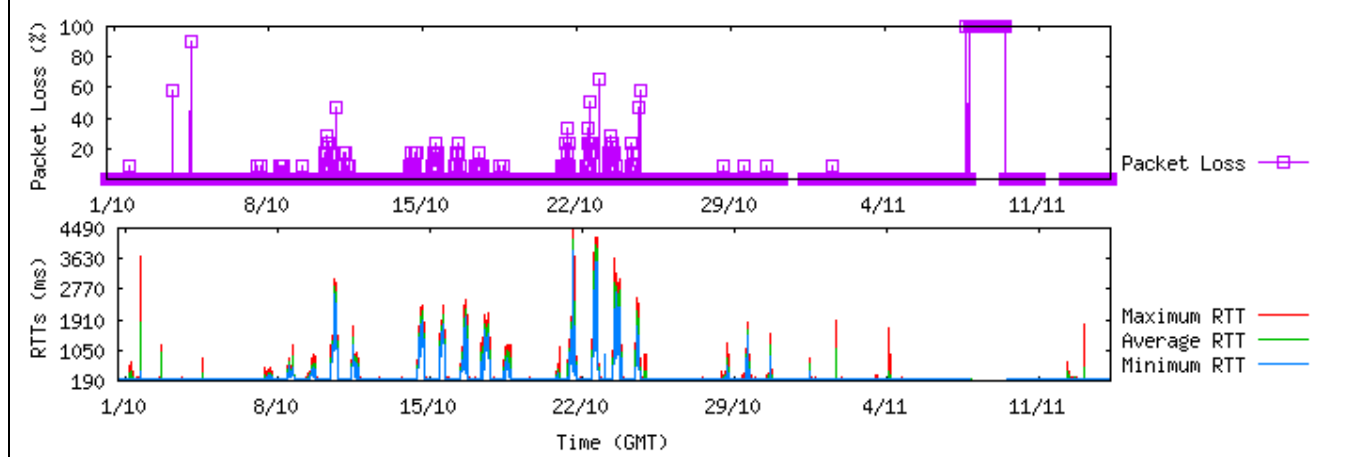


Congestion at UNIMAS

Introduction

We worked with UNIMAS folks to set up a monitoring host at `pinger.unimas.my`. We noticed that there were severe diurnal variations to most hosts measured from UNIMAS. We suspected that maybe UNIMAS itself is congested. Since congestion is usually an edge effect since the backbones are well provisioned, We looked at the Round Trip Times (RTTs) from SLAC which is not congested.

Monitor=`pinger.slac.stanford.edu`, remote Host(419) is `pinger.unimas.my`(MY.UNIMAS.N4), packet size is 100, from Mon Oct 1 0:13:23 2012 (1349075603) to Thu Nov 15 15:43:34 2012 (1353023014), min RTT=203.054(ms), max RTT=4462.433(ms) . there is an x-axis time interval every week. [\[Form\]](#). [\[Frequency Distribution\]](#).



this was reported by Nara to their network folks

Dear Harun,

We are doing a joint project with Stanford and looks like their testing indicates that our network is congested. Can you check?

I don't want them to move their main link to UM because of this.

Harun responded Nov 8:

Thanks to let us know. The network capacity to internet 200Mbps is almost fully utilised especially during office hour. everyday an average of 170 -180Mbps is being used. but so far the performance still ok because we shape the bandwidth accordingly and we are monitoring the usage.

FYI, TM has already agreed in giving us 500Mbps POC bandwidth for a period of one week. the exercise will be done on the 3rd till 9th December 2012.

The POC will roughly show us the actual bandwidth for the community and to be discussed in TECIS for upgrade proposal.

Thanks & Regards

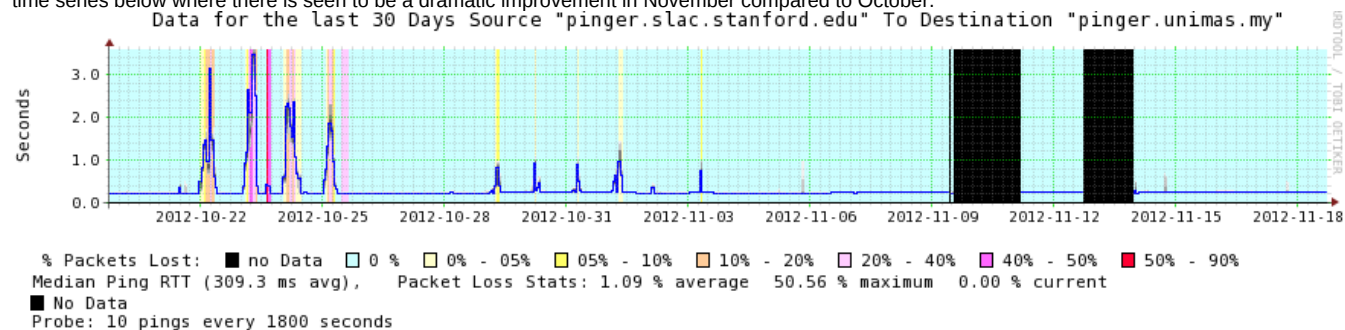
HARUN MAKSOM
Head
Centre for ICT Services (CICTS)
Universiti Malaysia Sarawak

Les responded

That sounds very interesting. I assume all traffic will take the new, faster link. Otherwise I hope you will be able to route the pinger traffic via the faster link. Harun says you are shaping the traffic which avoids some of the problems. Looking at the RTT plots (see below) from SLAC to UNIMAS the diurnal changes were much larger (200ms light use periods and multiple seconds heavy use periods) in October. I wonder if the shaping was applied in late October early November, thus accounting from the lower diurnal changes (indicating less congestion) recently. If so identifying the changes in performance maybe a bit more interesting, i.e. improvement with 100Mbps link by adding traffic shaping, and improvement with 500Mbps link with and without shaping. Can this be done, i.e. add and remove the shaping for the PingER host. This will be an interesting application of the use of PingER.

Resolution

It turns out that the traffic shaping was applied at the end of October. This is the likely cause for the reduced diurnal changes and congestion. Also see the time series below where there is seen to be a dramatic improvement in November compared to October.



More details are shown in the time series below. It is seen there are three occurrences of high RTT. they are at about 12:20am 2012-11-14 GMT, and at 18:00 on 2012-11-14 and 2012-11-18. The latter two are at 2:00am Malaysia time (GMT +8). maybe this is due to jobs scheduled (e.g. backup) scheduled at off hours.

