

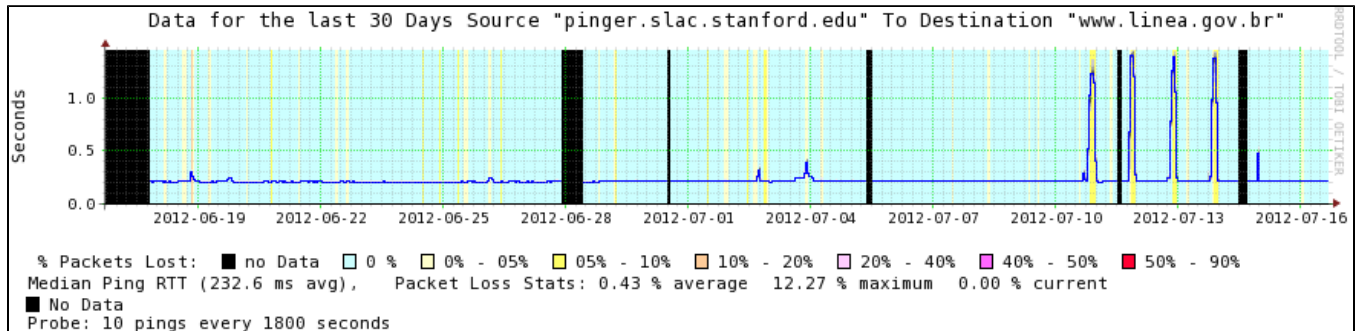
Brazilian LineA host access with SLAC & FNAL

Introduction

LineA is a Brazilian National laboratory in Rio de Janeiro. It was created to support the Brazilian participation in scientific experiments using data from large astronomical surveys - the Dark Energy Survey projects and Sloan Digital Sky Survey III. There is a requirement to download 2 Tbytes/year until 2017 from SLAC to LineA. This is ~ 500kbits/sec averaged over a year. The physicist customer at SLAC appears to be Wechsler, Risa H. <risa@slac.stanford.edu>.

At first glimpse the throughput required to SLAC seems pretty minimal. However from our monitoring of the connection from SLAC to LineA the performance does not look good. There is a lot of congestion at times as exhibited by massively elongated RTTs (factor of two going from 200ms to 400ms).

Assuming they are using TCP (Reno) with no large windows then with 400ms RTT throughput is limited to 1.3Mbits/sec. Also the link from SLAC to LineA (see below) is sometimes experiencing losses of over 5% (yellow background, black means no connectivity) which can dramatically degrade performance, e.g. at 5% the max throughput is about 76kbits/sec (see http://wand.net.nz/~perry/max_download.php).



Thus if the dedicated circuit can be provisioned to not get congested then the RTT will stay close to ~ 200msec so increasing throughput by a factor of 2. You can further improve by opening up your Unix TCP windows (see http://en.wikipedia.org/wiki/TCP_tuning) assuming you have not already done this. I would hope also that the dedicated circuit would not experience the large losses. Thus a dedicated may make sense in this case.

Possible solution

The current plan is to leverage OSCARS to create an end-to-end layer 2 (ethernet VLAN) service between LineA and FNAL/SLAC. We will need to coordinate VLAN IDs for these circuits, but more importantly, you guys will have to coordinate the last mile connectivity (i.e. routing) between the site /ESnet DMZ and the host.

LineA Host information

```
NODENAME: ms01.linea.gov.br
IPADDRESS: 186.232.60.129
SITENAME: linea.gov.br
NICKNAME: BR.LINEA.GOV.N3
FULLNAME: Laboratorio Interinstitucional de e-Astronomia
LOCATION: Rua General Jose Cristino, 77 St. Kitts, Rio de Janeiro, RJ
COUNTRY: Brazil
CONTINENT: Latin America
LATANDLONG: -22.9035 -43.2096
PROJECTTYPE: NOT-SET
PINGSERVER: NOT-SET
TRACESERVER: NOT-SET
DATASERVER: NOT-SET
URL: http://www.linea.gov.br
CONTACTS: Angelo Fausti Neto <angelofausti@linea.gov.br>
COMMENTS: Dark matter Search collaborator, add by Cottrell 6/19/2012.
```

Contacts & Requirements

Traceroutes between SLAC and LineA

The route goes from SLAC to ESnet at Sunnyvales, to REDCLARA (the South American network) to RNP at Sao Paulo and then to Rio de Janeiro.

From SLAC

```
www-wanmon.slac.stanford.edu_to_ms01.linea.gov.br_2012_07_14
1 rtr-servcore1-serv01-webserv.slac.stanford.edu (134.79.197.130) 0.402 ms
2 rtr-core1-p2p-servcore1.slac.stanford.edu (134.79.252.166) 0.322 ms
3 rtr-border1-p2p-core1.slac.stanford.edu (134.79.252.133) 0.335 ms
4 slac-mr2-p2p-rtr-border1.slac.stanford.edu (192.68.191.245) 0.279 ms
5 sunnsdn2-ip-slacmr2.es.net (134.55.217.2) 0.604 ms
6 sunnncr1-sunnsdn2.es.net (134.55.209.98) 3.191 ms
7 *
8 panama-tijuana.core.redclara.net (200.0.204.13) 81.344 ms
9 200.0.204.49 (200.0.204.49) 202.135 ms
10 rnp-br-spau.peer.redclara.net (200.0.204.130) 202.563 ms
11 sp-rj-10g-oi.bkb.rnp.br (200.143.252.70) 210.139 ms
12 sc-sp-10g-oi.bkb.rnp.br (200.143.255.66) 210.343 ms
```

From RNP

```
Router: Rio de Janeiro, RJ
Command: traceroute inet www.slac.stanford.edu
traceroute to www1.slac.stanford.edu (134.79.18.188), 30 hops max, 40 byte packets
1 rj-df-10g-oi.bkb.rnp.br (200.143.252.78) 19.613 ms 19.354 ms 34.689 ms
2 df-mg-10g-oi.bkb.rnp.br (200.143.252.81) 36.967 ms 36.886 ms 36.975 ms
3 mg-sp-10g-oi.bkb.rnp.br (200.143.252.73) 45.780 ms 46.172 ms 45.820 ms
4 200.0.204.197 (200.0.204.197) 46.228 ms rnp-br-spau.core.redclara.net (200.0.204.129) 46.231 ms 47.587 ms
5 miami-saopaulo.core.redclara.net (200.0.204.42) 153.647 ms 153.621 ms 153.689 ms
6 clara-max.es.net (198.124.216.209) 184.468 ms 184.606 ms 194.856 ms
7 atlasdn1-ip-washsdn2.es.net (134.55.221.5) 214.808 ms 197.982 ms 197.974 ms
8 houscr1-ip-atlasdn1.es.net (134.55.39.105) 221.371 ms 221.443 ms 221.354 ms
9 elpacr1-ip-houscr1.es.net (134.55.220.149) 247.446 ms 247.588 ms 248.671 ms
10 sunnncr1-ip-elpacr1.es.net (134.55.38.186) 247.683 ms 249.602 ms 249.117 ms
11 sunnsdn2-sunnncr1.es.net (134.55.209.97) 247.554 ms 249.389 ms 247.524 ms
12 slacmr2-ip-sunnsdn2.es.net (134.55.217.1) 251.040 ms 248.080 ms 248.099 ms
13 rtr-border1-p2p-slac-mr2.slac.stanford.edu (192.68.191.246) 248.623 ms 248.084 ms 248.149 ms
```

Looking Glass and Weathermap at RNP

- [Looking Glass](#)
- [Weathermap](#)

Meetings

- [20120716 Meeting at Joint Techs Stanford](#)