

The Arab Spring 2011 and Internet instability seen by PingER

Introduction

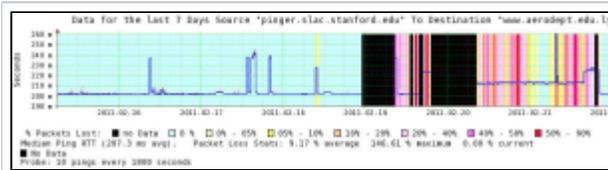
February 2011 saw much instability in North African and Middle Eastern countries including Tunisia, Egypt, Algeria, Bahrain, Libya, and Morocco. In some of these countries such as Egypt and Libya there were overt efforts to [limit Internet access](#). It is interesting to see the consequent impact of Internet performance to these countries.

Egypt

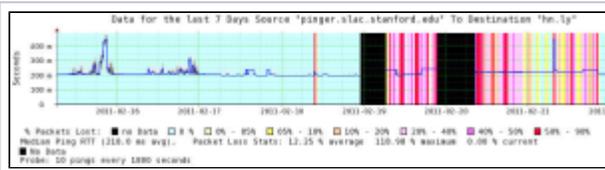
See [Egypt shuts down their Internet](#)

Libya

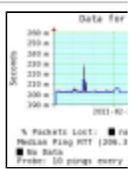
PingER monitors 3 hosts in Libya. Below we see smokeping plots of their performance around the 19 February. The plots show the loss rate (black = no access) as the background color, the blue line shows the median Round Trip Time (RTT) with the gray shading showing the jitter. The first major outage occurs for all 3 hosts between midnight and 0600hrs GMT on February 19th.



SLAC to Al-Fateh University, Aeronautical Engineering Department in Tripoli



SLAC to AWS Hotel Reservations in Tripoli

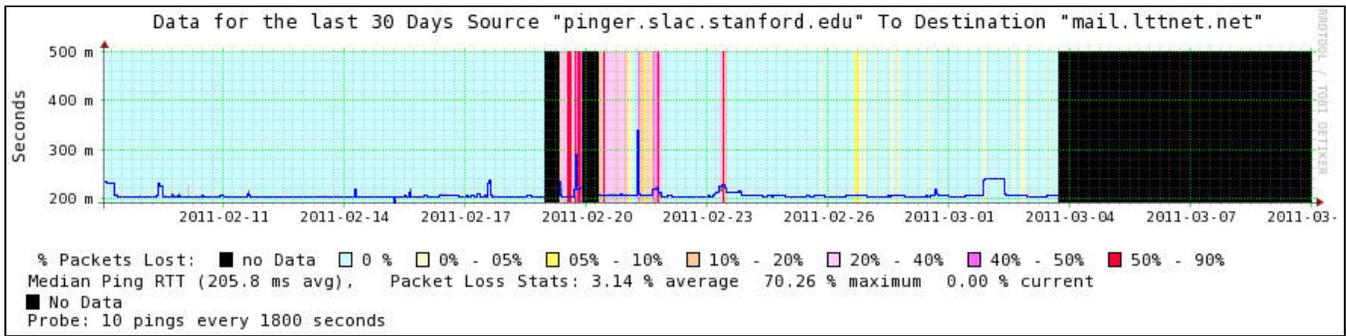


SLAC to Libya

The locations of the hosts is seen to be close to or in Tripoli

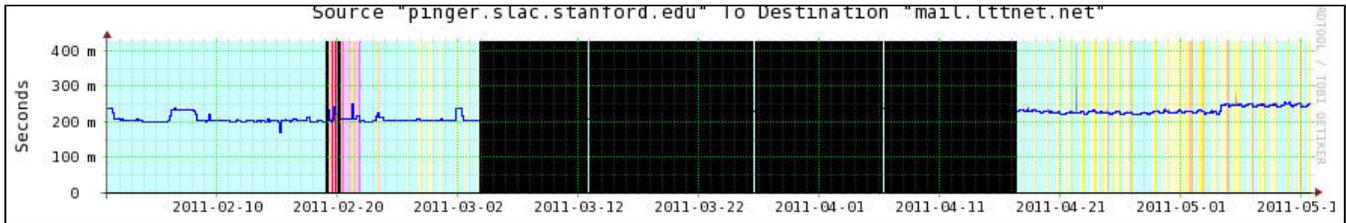


Internet access to all Libyan hosts that we monitor was lost on March 04-08, with access to Libya Telecom and Technology in Tripoli once again being accessible at 8:00pm GMT March 9th, 2011. The other nodes were still not accessible. More information on the Libyan Internet cut off can be found at: <http://www.reneways.com/blog/2011/02/libyan-disconnect-1.shtml>

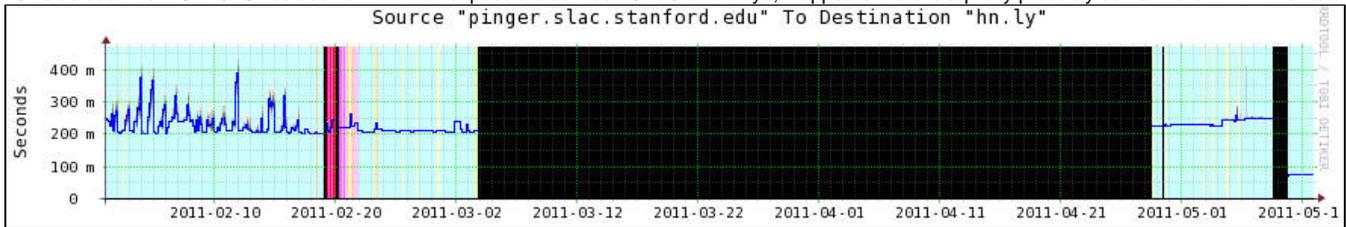


We tried adding more Libyan hosts to monitor. However, all were unreachable or like www.sadeem.com.ly, which used to be located in Libya, had moved the home sites to other countries. In the case of www.sadeem.com.ly the proxy home site was in the U.S.

By May 12, 2011 www.aerodept.edu.ly and www.bct.ly were still down. ltt.net.ly was once again reachable reliably (though with higher losses) on April 17, 2011.



hn.ly appeared to again be reachable on April 27, 2011. However there was further outage on May 8th 2011 when the RTT dropped from ~ 200ms to ~ 75ms as seen from SLAC. Since such an RTT is not possible between SLAC and Libya, it appears there is a proxy probably somewhere in N. America.

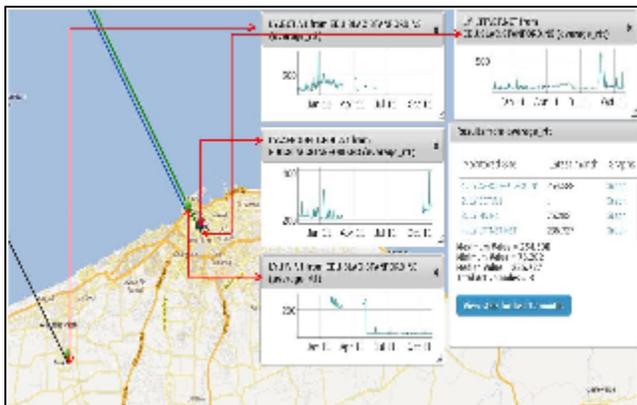


Later in the year, we looked at the Libya nodes and found that the host LY.BCT disappeared in March. One can see that for four random days, we were able to reach the node however, the node vanished in June with no contact till date.

Libya Telecom and Technology remained accessible all of the year however spikes in RTT were observed in September and in October.

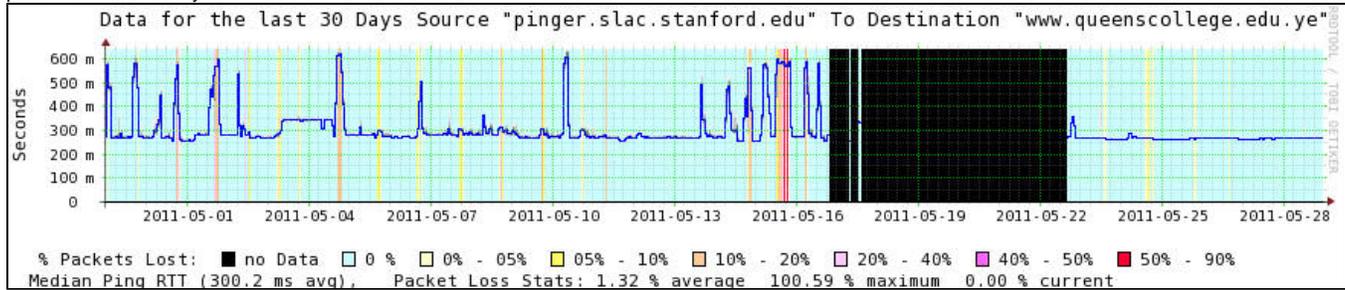
Libya Aero Department disappeared in March and reappeared in October with reasonable RTT. LY.HN had an RTT around 75ms from June till October. Since such a less RTT is not possible between SLAC and Libya, it is inferred that the said host has moved to somewhere in N.America.

In the figure below, the RTT graphs of Libya hosts is shown. Aero department is connected to SLAC with a green line where Green line shows that the RTT between the two lies in the range 200-300. LY.HN is represented with blue line showing the RTT to be below 100ms. LY.BCT is indicated with black line representing no measurement was made. The figure also highlights the location of the hosts on the geo-map.



Yemen

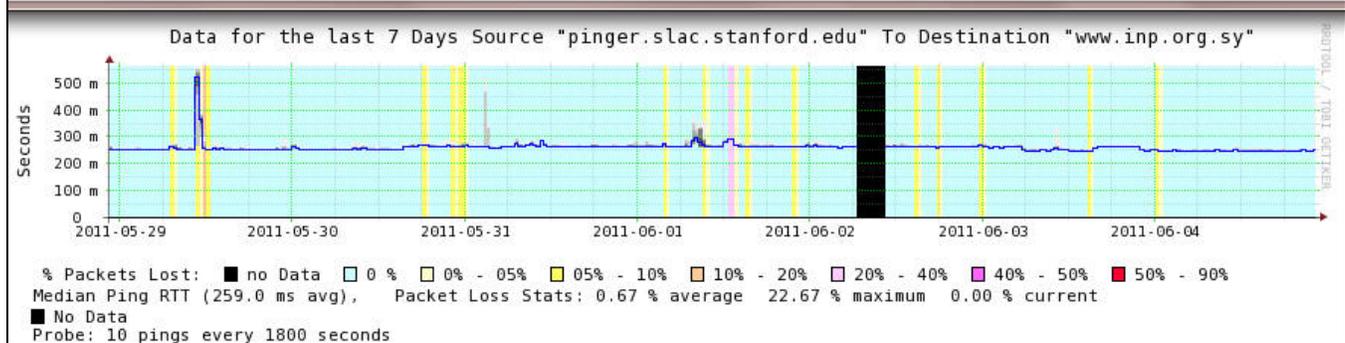
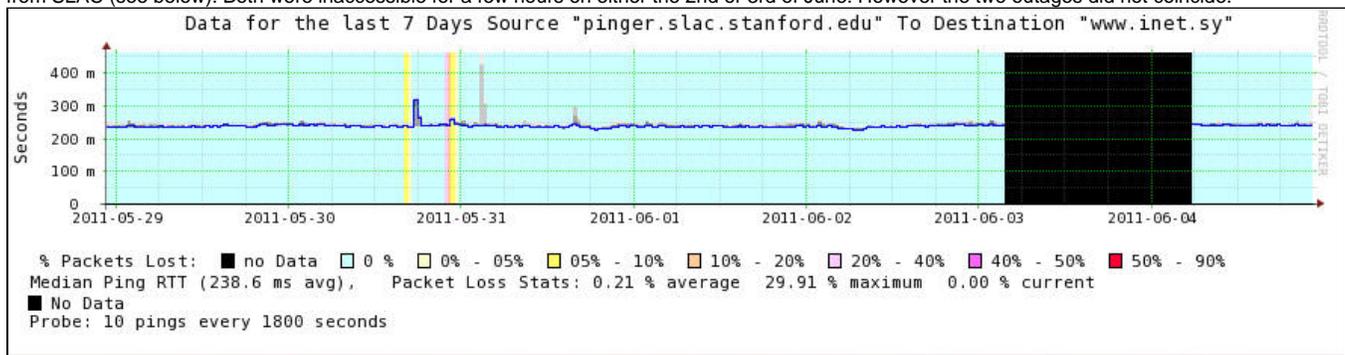
www.queenscollege.edu.ye in the capital of Yemen, Sanaa, was no longer accessible from May 16th to May 22 2011. The diurnal variation after May 22nd was less than before the outage, possibly indicating less congestion due to lighter Internet use. www.adencomplex.com.ye in Aden City saw a similar pattern of accessibility.



Syria

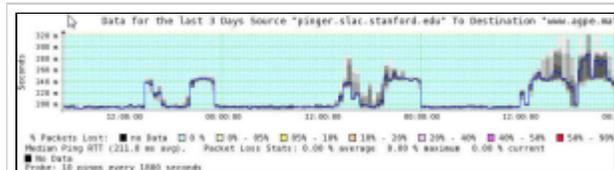
On 6/3/2011 [CNN reported](#), and James Cowie of Renesys — an oft-quoted source during the Egypt revolution and the Internet shutdown there in January blogged that only networks belonging to the Syrian government are still reachable (see [here](#)). The [Internet was restored](#) on June 4th 2011.

PingER monitors two hosts in Syria: www.inp.org.sy (bills itself as Syria's Information point) and www.inet.sy bill's itself as iNET and located at Al-Mohajreen, Damascus, Syria P.O.Box 3523). They are both located in Damascus. Both were responding to pings as of 23:30 June 2nd, 2011. As of June 3rd we were not able to ping www.inet.sy. However www.inp.org.sy was still responding. on June 5y we looked at the time series for the two hosts seen from SLAC (see below). Both were inaccessible for a few hours on either the 2nd or 3rd of June. However the two outages did not coincide.

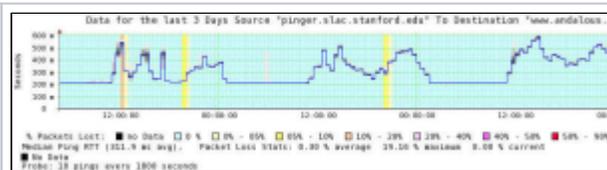


Algeria, Bahrain, Morocco, Tunisia

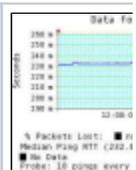
We have not seen inaccessibility of hosts in these countries as of the end of February 20th 2011. SLAC monitors 3 hosts in Morocco. Below we see the Smoking plots for the Moroccan hosts up to when we gathered the data (midnight + 1 second GMT time 2/21/2011).



SLAC to the Association du Gharb pour la Protection de L'Environnement in Kamitra



SLAC to a host in Fez, Morocco



SLAC to Maroc

We will also continue to monitor 3 hosts in Algeria, 1 in Bahrain, and 2 hosts in Tunisia to look for accessibility.