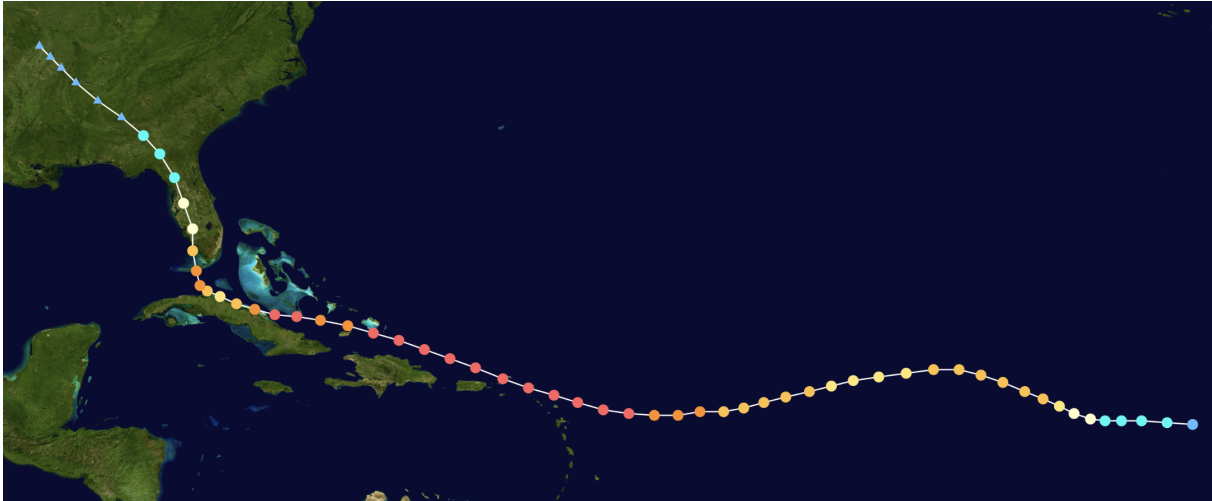


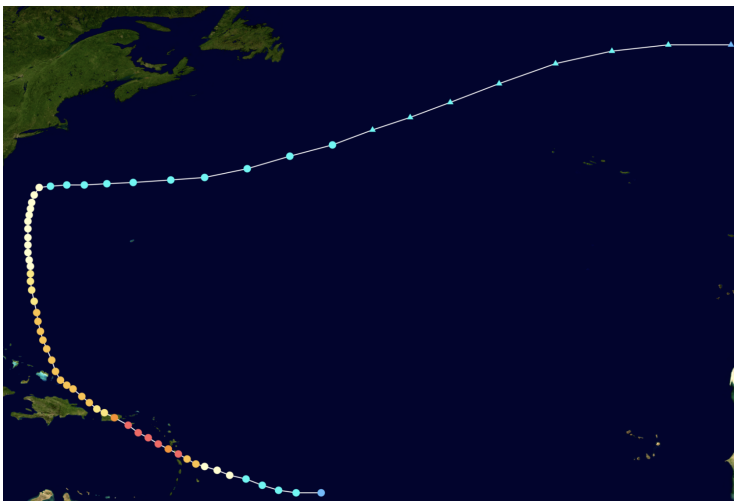
Hurricanes Irma and Maria 2017

See https://en.wikipedia.org/wiki/Hurricane_Maria and https://en.wikipedia.org/wiki/Hurricane_Irma for more details.

Track of Hurricane Irma



Track of Hurricane Maria



Basically 2095 were reported killed in Puerto Rico as a result hurricane Maria, It made landfall in Puerto Rico September 22nd 2017. It affected several islands in the Carribean.

Impact on Internet performance

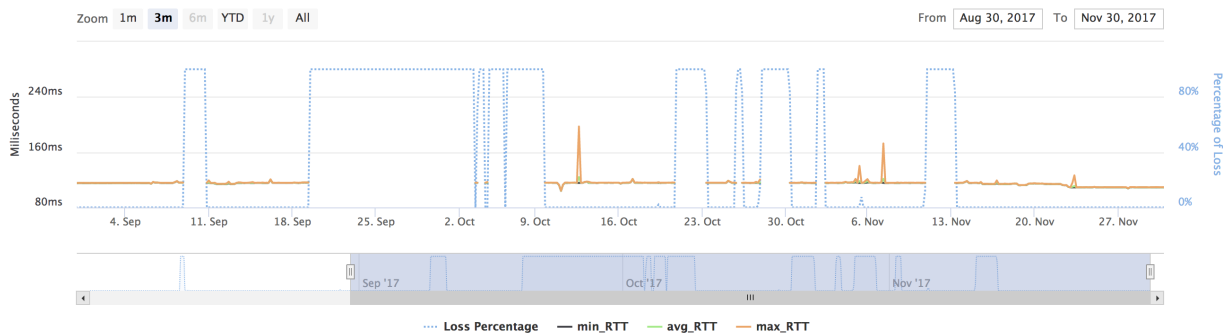
Puerto Rico

Below is seen a time series of the RTTs from SLAC to a target host in Puerto Rico starting September 1st, 2017 and ending October 31st 2017. This was the only target site in Puerto Rico being monitored by PingER at the time. The blue line shows the losses. It is seen that there is a several day outage (100% packet loss) starting just after midnight September 19th 2017 and ending at about 8:00pm October 9th 2017. There are more outages following this with stability being achieved on November 13th, 2017. The 100% loss starting late September 8th may be partly due to [hurricane Irma](#) which passed about 60 mi (97 km) north of [Puerto Rico](#) late September 6th 2017, and the outage starting just after midnight September 19th 2019 caused by hurricane Maria.

Distance between pinger.slac.stanford.edu(37.4177 -122.2035) and www.cfse.gov.pr(18.3999 -66.1296 at Corporacion del Fondo Del Seguro del Estado, Gobierno de Puerto Rico, Bo. Juan Sanchez, Bayamon, Puerto Rico, Puerto Rico)=5815.41 km(==58.15 ms) min_RTT=102.316 ms (time=Wed Oct 11 03:09:45 2017), directivity=0.568

[\[Form\]](#)[\[Add or Remove csv data\]](#) [\[Frequency Distribution\]](#) [\[Get csv data for Excel\]](#) [\[Help\]](#)

Comparison of minimum, average and maximum roundtrip times, plus losses
Monitor=pinger.slac.stanford.edu, remote Host(386)=www.cfse.gov.pr(PL.CFSE.GOV.WWW). Packet size is 100.
From Tue Aug 1 07:06:49 2017 GMT(1501571209) to Thu Nov 30 23:40:21 2017GMT(1512085221)
min RTT=102.316(ms), max RTT=766.608(ms), 5724 X axis points.



See http://wanmon.slac.stanford.edu/cgi-wrap/frequency.pl?monitor=pinger.slac.stanford.edu&sites=www.cfse.gov.pr&begin_day=1&begin_month=8&begin_year=2017&end_day=30&end_month=11&end_year=2017&plot=time&full=false&bin_width=1&metric=&

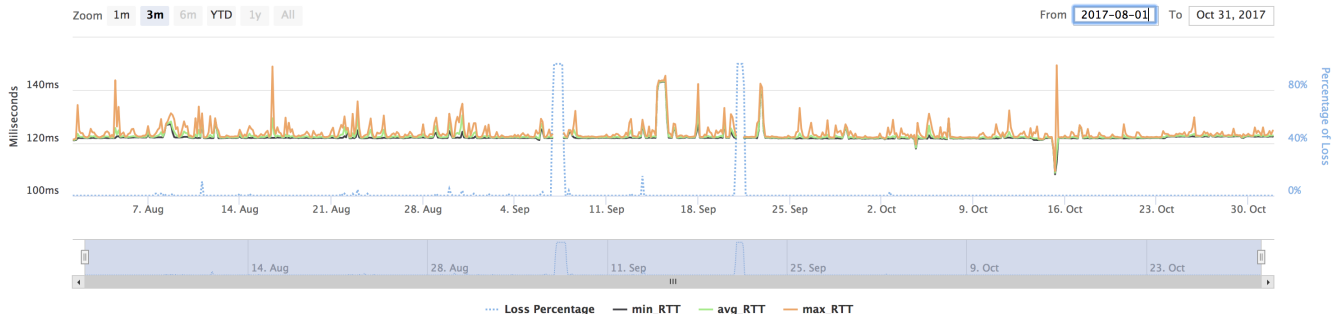
Dominican Republic

There are losses also reported for a target host in the Dominican Republic starting around 8:00pm September 6th 2017 (coinciding with hurricane Irma closely paralleled the north coast of [Hispaniola](#) throughout the day on September 7) and ending about 8:00pm September 7th 2017. Then again starting about at about 9:00pm September 20th 2017 and ending 3:00pm September 21st around 3:00pm 2017.

Distance between pinger.slac.stanford.edu(37.4177 -122.2035) and www.unibe.edu.do(18.4690 -69.9044 at Universidad Iberoamericana, France Ave # 129, Gazcue, Santo Domingo, Dominican Republic)=5479.47 km(==54.79 ms) min_RTT=107.982 ms (time=Sun Oct 15 10:10:18 2017), directivity=0.507

[\[Form\]](#)[\[Add or Remove csv data\]](#) [\[Frequency Distribution\]](#) [\[Get csv data for Excel\]](#) [\[Help\]](#)

Comparison of minimum, average and maximum roundtrip times, plus losses
Monitor=pinger.slac.stanford.edu, remote Host(884)=www.unibe.edu.do(DO.UNIBE.EDU.N1). Packet size is 100.
From Tue Aug 1 07:06:19 2017 GMT(1501571179) to Tue Oct 31 23:39:40 2017GMT(1509493180)
min RTT=107.982(ms), max RTT=324.915(ms), 4401 X axis points.



See http://wanmon.slac.stanford.edu/cgi-wrap/frequency.pl?monitor=pinger.slac.stanford.edu&sites=www.unibe.edu.do&begin_day=1&begin_month=8&begin_year=2017&end_day=31&end_month=10&end_year=2017&plot=time&full=false&bin_width=1&metric=&data=false

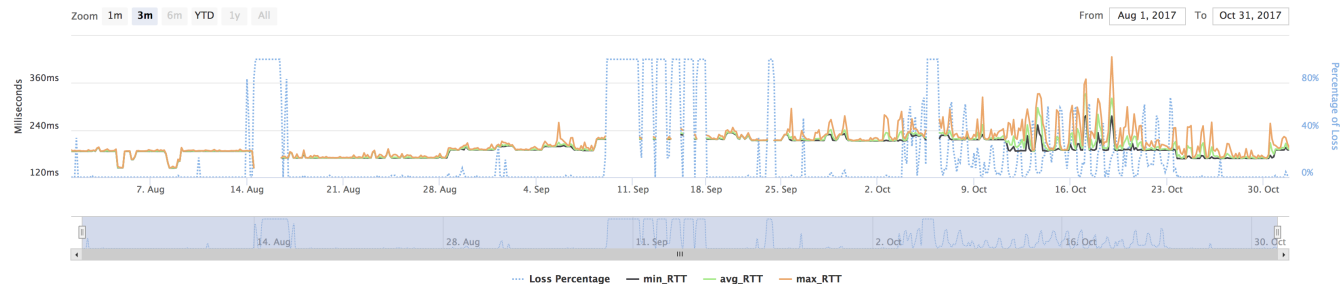
Cuba

The two target hosts in Cuba reported multiple day outages starting September 9th due to hurricane Irma

Distance between pinger.slac.stanford.edu(37.4177 -122.2035) and www.uclv.edu.cu(22.4367 -79.9006 at Universidad Central Marta Abreu de las Villas, Santa Clara, Cuba)=4365.08 km(==43.65 ms) min_RTT=143.363 ms (time= Tue Aug 8 17:06:27 2017), directivity=0.304

[Form][Add or Remove csv data] [Frequency Distribution] [Get csv data for Excel] [Help]

Comparison of minimum, average and maximum roundtrip times, plus losses
Monitor=pinger.slac.stanford.edu, remote Host(847)=www.uclv.edu.cu(CU.UCLV.EDU.N2). Packet size is 100.
From Tue Aug 1 07:06:16 2017 GMT(1501571176) to Tue Oct 31 23:39:28 2017 GMT(1509493168)
min RTT=143.363(ms), max RTT=826.479(ms), 4235 X axis points.

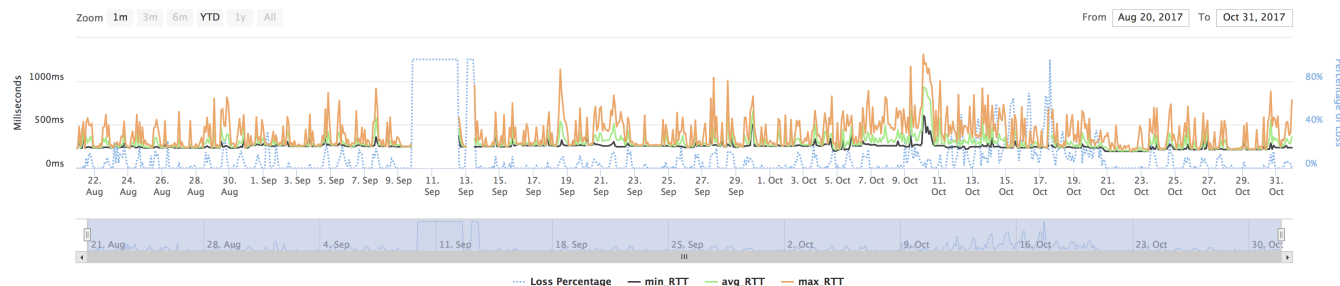


Se [http://wanmon.slac.stanford.edu/cgi-wrap/frequency.pl?monitor=pinger.slac.stanford.edu&sites=www.uclv.edu.cu&begin_day=1&begin_month=8&begin_year=2017&end_day=31&end_month=10&end_year=2017&plot=time&full=false&bin_width=1&metric=&data=fal](http://wanmon.slac.stanford.edu/cgi-wrap/frequency.pl?monitor=pinger.slac.stanford.edu&sites=www.uclv.edu.cu&begin_day=1&begin_month=8&begin_year=2017&end_day=31&end_month=10&end_year=2017&plot=time&full=false&bin_width=1&metric=&data=false) se

Distance between pinger.slac.stanford.edu(37.4177 -122.2035) and www.egrem.com.cu(23.1256 -82.3267 at Egrem La Puertas de la Musica, 3rd Street # 1008 e/10 and 12 Miramar, Havana, Cuba)=4113.46 km(==41.13 ms) min_RTT=192.346 ms (time= Sun Oct 22 11:10:06 2017), directivity=0.214

[Form][Add or Remove csv data] [Frequency Distribution] [Get csv data for Excel] [Help]

Comparison of minimum, average and maximum roundtrip times, plus losses
Monitor=pinger.slac.stanford.edu, remote Host(456)=www.egrem.com.cu(CU.EGREM.COM.N1). Packet size is 100.
From Sun Aug 20 23:35:38 2017 GMT(1503272138) to Tue Oct 31 23:39:32 2017 GMT(1509493172)
min RTT=192.346(ms), max RTT=2312.455(ms), 3455 X axis points.



See [http://wanmon.slac.stanford.edu/cgi-wrap/frequency.pl?monitor=pinger.slac.stanford.edu&sites=www.egrem.com.cu&begin_day=1&begin_month=8&begin_year=2017&end_day=31&end_month=10&end_year=2017&plot=time&full=false&bin_width=1&metric=&data=fal](http://wanmon.slac.stanford.edu/cgi-wrap/frequency.pl?monitor=pinger.slac.stanford.edu&sites=www.egrem.com.cu&begin_day=1&begin_month=8&begin_year=2017&end_day=31&end_month=10&end_year=2017&plot=time&full=false&bin_width=1&metric=&data=false) se

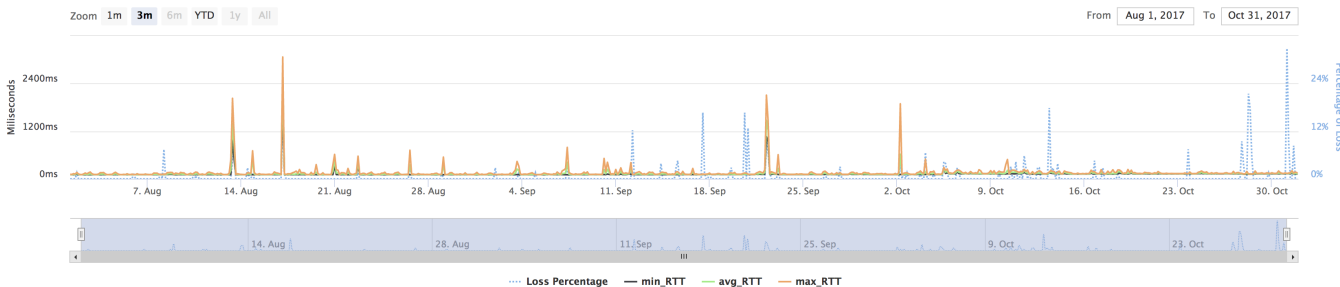
Haiti

The impact here is less clear:

Distance between pinger.slac.stanford.edu(37.4177 -122.2035) and www.brh.ht(18.5484 -72.3456 at Bank of the Republic of Haiti, Angle rues Pavee et du Quai, Port au Prince, Haiti)=5261.03 km(==52.61 ms) min_RTT=103.540 ms (time= Thu Aug 10 19:06:36 2017), directivity=0.508

[Form][Add or Remove csv data] [Frequency Distribution] [Get csv data for Excel] [Help]

Comparison of minimum, average and maximum roundtrip times, plus losses
Monitor=pinger.slac.stanford.edu, remote Host(357)=www.brh.ht(HT.BRH.WWW). Packet size is 100.
From Tue Aug 1 07:06:28 2017 GMT(1501571188) to Tue Oct 31 23:39:46 2017 GMT(1509493186)
min RTT=103.540(ms), max RTT=12034.153(ms), 4398 X axis points.

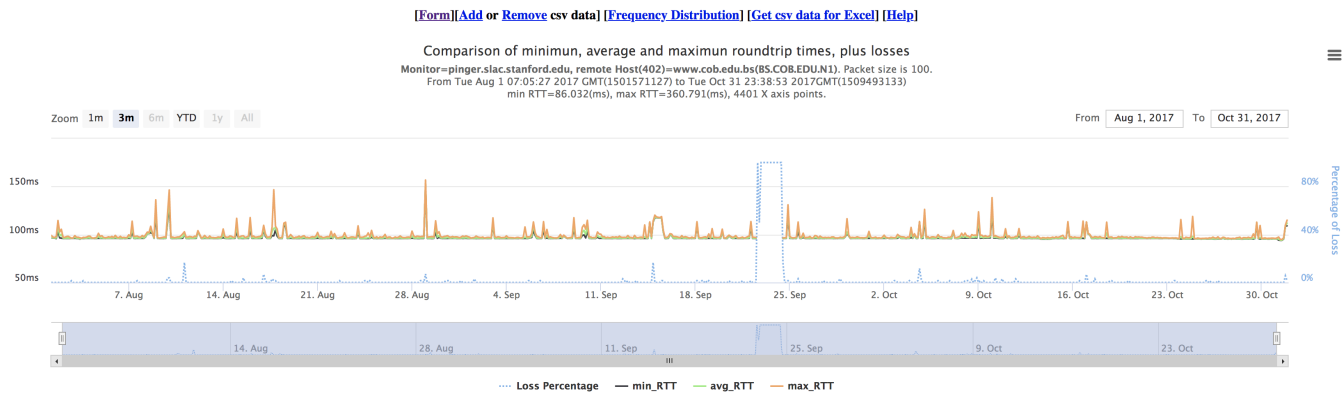


See [http://wanmon.slac.stanford.edu/cgi-wrap/frequency.pl?monitor=pinger.slac.stanford.edu&sites=www.brh.ht&begin_day=1&begin_month=8&begin_year=2017&end_day=31&end_month=10&end_year=2017&plot=time&full=false&bin_width=1&metric=&data=fal](http://wanmon.slac.stanford.edu/cgi-wrap/frequency.pl?monitor=pinger.slac.stanford.edu&sites=www.brh.ht&begin_day=1&begin_month=8&begin_year=2017&end_day=31&end_month=10&end_year=2017&plot=time&full=false&bin_width=1&metric=&data=false) se

Bermudas

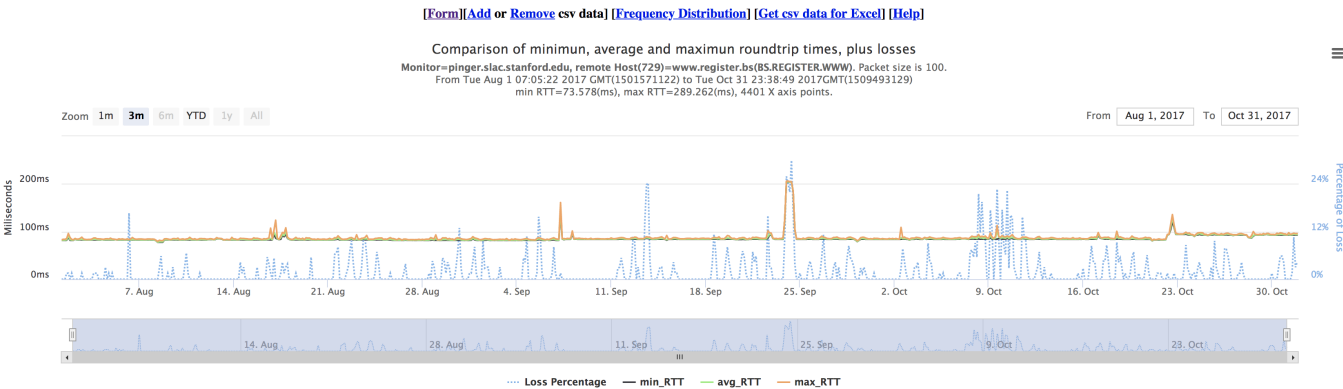
PingER monitored 3 target hosts in Bermudas during this time (August-0October 2017). Bermuda is not mentioned in the Wikipedia articles on hurricanes Irma and Maria. However, there do appear to be outages at this time.

Distance between [pinger.slab.stanford.edu](#)(37.4177 -122.2035) and [www.cob.edu.bs](#)(25.0833 -77.35 at College of the Bahamas, Nassau, Bahamas)=4438.40 km(==44.38 ms) min_RTT=86.032 ms (time= Tue Oct 31 18:39:10 2017), directivity=0.516



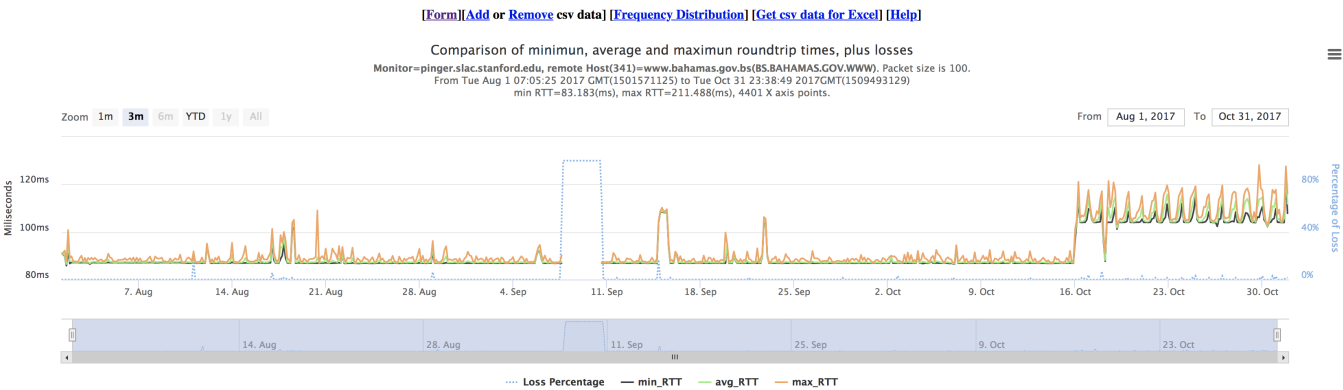
See http://wanmon.slab.stanford.edu/cgi-wrap/frequency.pl?monitor=pinger.slab.stanford.edu&sites=www.cob.edu.bs&begin_day=1&begin_month=8&begin_year=2017&end_day=31&end_month=10&end_year=2017&plot=time&data=false&full=false&bin_width=1

Distance between [pinger.slab.stanford.edu](#)(37.4177 -122.2035) and [www.register.bs](#)(25.0616 -77.3533 at Bahamas Network Information Center, The College of The Bahamas P.O. Box N-4912 Nassau, N.P., Bahamas , Bahamas)=4439.28 km(==44.39 ms) min_RTT=73.578 ms (time= Sat Oct 21 05:09:37 2017), directivity=0.603



See http://wanmon.slab.stanford.edu/cgi-wrap/frequency.pl?monitor=pinger.slab.stanford.edu&sites=www.register.bs&begin_day=1&begin_month=8&begin_year=2017&end_day=31&end_month=10&end_year=2017&plot=time&data=false&full=false&bin_width=1

Distance between [pinger.slab.stanford.edu](#)(37.4177 -122.2035) and [www.bahamas.gov.bs](#)(25.5 -76.65 at Commonwealth of the Bahamas, Dunmore Town, Bahamas)=4477.75 km(==44.78 ms) min_RTT=83.183 ms (time= Thu Aug 3 10:05:37 2017), directivity=0.538



See http://wanmon.slab.stanford.edu/cgi-wrap/frequency.pl?monitor=pinger.slab.stanford.edu&sites=www.bahamas.gov.bs&begin_day=1&begin_month=8&begin_year=2017&end_day=31&end_month=10&end_year=2017&plot=time&data=false&full=false&bin_width=1

Other countries

We could see no obvious impact for [nsi.ampath.net](#)(25.7581 -80.3762 at Florida International University, Miami, Florida, United States)

Target hosts

Using HostSearcher.pl I cannot find ping targets in: Dominica, Turks and Caicos, Antigua and Barbuda