

20190212 PingER Team Meeting

Time & date

This meeting: Tuesday, February 12th, 10 pm Pacific time (Nb now on winter time); a day later 11:00 am Pakistan time; 11:30 am India time; 2:00 pm Malaysian & Guangzhou time; 1:00 pm Thailand time; 8:00 am Jordan time. We moved the time forward by 2 hours to accommodate the time in Jordan.

Doodle poll invites sent 1/26/2019.

Format

New items and updates are in boldface.

Coordinates of team members:

See: <http://pinger.unimas.my/pinger/contact.php>

- Need to add Umar and Dr. Taha - Johari

Attendees

Invitees:

Wajahat Hussain+ (SEECs), Saqib+ (GZHU); Johari+ (UNIMAS); Adib (Turkey); Dr. Charnsak Srisawatsakul (Ubru), Eyad Ayoubi+ (Jordan), Bara a Muslmani+ (Jordan), Dr. Shadi Jawarneh (Jordan), Bebo White+, Umar Kalim-, Les Cottrell+

- **Email addresses (all the following are in pinger-my):**
 - wajahat.hussain@seecs.edu.pk; saqibutm@outlook.com; johari.abdullah@gmail.com; adibhabbal@karabuk.edu.tr; charnsak.s@ubru.ac.th; eyadayoubi@gmail.com; b.muslmani@yahoo.com; shadi.jawarneh@yahoo.com; bebo@slac.stanford.edu; kalim@slac.stanford.edu; cottrell@slac.stanford.edu
 - wajahat.hussain@seecs.edu.pk; saqibutm@outlook.com; johari.abdullah@gmail.com; adibhabbal@karabuk.edu.tr; charnsak.s@ubru.ac.th; eyadayoubi@gmail.com; b.muslmani@yahoo.com; shadi.jawarneh@yahoo.com; bebo@slac.stanford.edu; kalim@slac.stanford.edu; cottrell@slac.stanford.edu
- + Responded via Doodle will attend; - Responded via Doodle but unable to attend on this date; ? extra email sent asking if attending

Actual Attendees

Wajahat, Saqib, Eyad, Barra, Bebo, Les

Others

Administration

- **Membership of pinger-my** is in <https://groups.google.com>.
- **Set up email list** pinger-am@googlegroups.com in <https://groups.google.com> for the Amity PingER team including Aayush Jain, James David, Naman Madan, Dr Sai Sabitha. Sent invites 1/26/2018.
- **Updated Adib's email address in pinger-my Google email group**
- Bebo pointed out that the International Web Conference will be in San Francisco in 2019 (see <http://www.wikicfp.com/cfp/servlet/event.showcfp?eventid=77195©ownerid=85335>). There are a whole range of topics. He would love to see something submitted related to PingER.
 - Maybe something on Android PingER and potential uses.
 - **Bebo will send an email reminder to pinger-my. Did this happen?**
- **This meeting was scheduled with the aid of a Doodle poll.**
 - It was by Zoom

Use of Zoom

IMPORTANT NOTE: The meeting is setup to record automatically. By joining the meeting you are agreeing to being recorded. (see [details](#).)

What: PingER Standing Meeting

When: Feb 12, 2019 10:00 PM Pacific Time (US and Canada)

Where: Join from PC, Mac, Linux, iOS or Android: <https://stanford.zoom.us/j/811437823>

Or iPhone one-tap (US Toll): +18333021536,,811437823# or +16507249799,,811437823#

Or Telephone:

Dial: +1 650 724 9799 (US, Canada, Caribbean Toll) or +1 833 302 1536 (US, Canada, Caribbean Toll Free)

Meeting ID: 811 437 823

International numbers available: <https://zoom.us/u/acKQGp4oHV>

Meeting ID: 811 437 823

SIP: 811437823@zoomcrc.com

<https://support.zoom.us/hc/en-us/articles/201362033-Getting-Started-on-PC-and-Mac>

How to setup and use Zoom:

- To use the software, you would have to download the Zoom client (and install if prompted). The instructions to do so are listed here: https://zoom.us/download#client_4meeting
- The instructions about setting up the software are listed at the URL below. You may want to create an account if you do not have one already. If you are invited to a meeting (i.e., you are not hosting the meeting), you are not required to create an account; you can simply join the meeting using the meeting ID.
- <https://support.zoom.us/hc/en-us/articles/201362033-Getting-Started-on-PC-and-Mac>

Recording

- To start local recording, the host has to join and approve. (See <https://support.zoom.us/hc/en-us/articles/204101699-Recording-without-the-Host>)
- However, we can also set up the automatic recording of the entire meeting. (See <https://support.zoom.us/hc/en-us/articles/202921119-Automatic-Recording#meetings>.) Umar will try this the next time we schedule the meeting.
- Here are the instructions to access the recorded meetings: <https://support.zoom.us/hc/en-us/articles/206277393-How-Do-I-Find-My-Recording->

Jordan (Updated 2/14/2019)

We had a Zoom [meeting with Eyad and Baraa of the Jordan team](#).

- They will install the PingER traceroute server, the data gatherer (ping_data.pl) and the Measurement Agent (MA, pinger2.pl).
 - Les updated the [web page on requirements](#).
- In response to Email sent 1/26/2019 they say "We have just finished exams. We will be starting the setup and hopefully estimated to finish by the end of this week."
 - 1/30/2019: there is a challenge that they do not have DNS service so we will have to use the IP address as the name.
 - 2/3/2019: Another challenge is that we will need to use port 8771.
 - The site is up and running 2/7/2019.
 - http://212.118.12.186:8771/cgi-bin/ping_data.pl is working from SLAC. The data looks good.
 - <http://212.118.12.186:8771/cgi-bin/traceroute.pl?target=www.slac.stanford.edu&function=ping> is also working
 - It needs to be entered into the meta database, but we need and have requested some information
 - The latitude and longitude (as decimal numbers) of the site. Within 100 metres is fine.
 - A street address would be nice.
 - The official name of the University/site.
 - The web URL for the university/site. If the university site has a domain then the node name is probably www. If it does not have a domain name then invent one.
 - Baraa provided the information 2/14/2019, and Les added it to the Oracle NODEDETAILS meta database.
 - It would be a good idea to download and install the most recent version of [pinger2.pl](#) available at www.slac.stanford.edu/compo/net/mon/tool/pinger2.pl in case you need to monitor IPv6 nodes. Baraa agreed to do this.
- Baraa is interested in monitoring other Jordanian hosts. There are 4 other targets in Jordan. They are:
 - <http://www.slac.stanford.edu/cgi-wrap/dbprac.pl?alias=JO.EDU.GJU.WWW&monalias=EDU.SLAC.STANFORD.PINGER>
 - <http://www.slac.stanford.edu/cgi-wrap/dbprac.pl?alias=JO.GOV.CBJ.WWW.N1&monalias=EDU.SLAC.STANFORD.PINGER>
 - <http://www.slac.stanford.edu/cgi-wrap/dbprac.pl?alias=JO.JUST.EDU.N1&monalias=EDU.SLAC.STANFORD.PINGER>
 - <http://www.slac.stanford.edu/cgi-wrap/dbprac.pl?alias=JO.NEXT.WWW&monalias=EDU.SLAC.STANFORD.PINGER>
 - If there are other sites in Jordan that should be monitored from say SLAC and Jordan please let Les know the details and he can add them to the PingER Oracle NODEDETAILS database, so they are monitored from SLAC. If they are to be monitored from Telephonics then they will need to be added to the <HostList> stanza of the Telephonics pinger.xml.
- Les invited the 3rd member of the Jordanian team (xsaifahmadx@gmail.com) to join the pinger-my Google group.
- Eyad has moved to Istanbul Turkey. After he has settled down he will be looking to do a PhD in Turkey. He will look at installing a PingER MA there.

Amity (Updated 2/14/2018).

Amity team photo:



Email list (pinger-am in <https://groups.google.com>) set up for the Amity PingER team including Aayush Jain, James David, Naman Madan, Dr Sai Sabitha. Invites sent 1/26/2019

Dr. Sai Sabitha Topher sent the final copy of paper Id 255: "[Network Performance of PingER data with respect to growth of the Telecom Industry in India](#)" that was presented at [Amity Confluence conference 1/10/2019](#).

Requested final copy of the paper ID 256: "Extension of the PingER project onto Mobile Devices using Android Applications" for the SLAC archives, by email 1/26/2019.

From the meeting with Amity last month:

We (Topher and the PingER team) agreed to request Amity to share the App and instructions with us; we will look at installing on a jailbroken Android phone at the San Francisco end and try it out.

- Instructions from Aayush to load the application are at [ePingER Functional prototype](#) (for Androids only)
 - Topher was able to make the prototype work on an android phone prior to our last call. They might have an updated app, in which case he can further test it, but he'd need to know where to get it. He offered to put it in an android phone and drop it off for you at SLAC where we can also test it, in early February.
 - Email sent to Amity 1/27/2019 asking if there is a newer version of the App.

Email sent to Amity 1/26/2019: "We also need to finish up the proxy acquisition of data from the Android MAs. According to the notes from the recent meeting

- We will use the amity anonymous FTP server to gather the data.
- They will add the GPS coordinates (lat/long) to the MA data. This will enable looking at mobile PingER measurements.
- Is this correct? What will be the address to fetch the data from by anonymous FTP? If so there any progress? Do you need anything from our end?"

Bebo will contact Topher, and look at installing on a spare Android at Bebo's home in San Francisco. We could also do that at SLAC.

Adib (Updated 2/14/2018)

- Adib moved to Karabuk University in Turkey where he is an Associate Professor.
- He will discuss with the department head about installing a PingER MA there.
- Regarding the paper, it has been submitted to Journal: **Computer Communications**

Title: Socio-economic Development Indices and Their Reflection on Internet Performance in ASEAN Countries

Corresponding Author: Adib Habbal

Co-Authors: Les Cottrell, Emmanuel Mkpojiogu, Bebo White, Suhaidi Hassan, Faisal Zulhumadi

Unfortunately, it was rejected.

Adib, Bebo and Les are looking for another journal, some possibilities include: <https://webscience-journal.net/webscience>,

<https://www.journals.elsevier.com/business-horizons>, <https://www.journals.elsevier.com/government-information-quarterly>

Adib is wondering about

1. **Journal of Computer Information Systems** <https://www.tandfonline.com/action/journalInformation?show=aimsScope&journalCode=ucis20>
2. **The Information Society** <https://www.tandfonline.com/action/journalInformation?show=aimsScope&journalCode=utis20>
3. Bebo will review and respond to Adib

NUST: (Updated 2/14/2019)

Unable to gather data from maggie1@seecs.edu.pk and monitor@seecs.edu.pk. Email sent 1/26/2019

- `results[monitor@seecs.edu.pk][0]` not defined, unable to gather data for 11 consecutive days this month
- Skipping monitor@seecs.edu.pk(5) does not ping by name or address 111.68.101.10. Wajahat will look at it.
- Wajahat fixed maggie@seecs.edu.pk 2/29/2019, Les sent email 2/3/2019 to Wajahat asking about monitor1@seecs.edu.pk.
- pinger@isra.edu.pk is not pingable and unable to gather data starting 2/11/2019. We will wait a few days and see if it recovers.

Wajahat provided the following update 12/8/2018

- "We have been aggressively pursuing the three nodes(121.52.146.180 (kohat@edu.pk) down since Nov 22/2017; cae@seecs.edu.pk last time we were able to gather any data was September 2nd 2018; and pinger@isra.edu.pk no data since 5th Sept 2018, so it is a candidate to Disable). It appears to me that the participating institutes have started to lose interest in the project. Anyhow, we will keep pushing. Maybe a letter of appreciation from SLAC might rejuvenate their energies. What is your opinion?
- **Wajahat raised the topic: We also need to formulate some research problems that have the potential of appearing in some well-known places. This might help in attracting NUST students which is getting harder these days. I need your help in this regard.**

Discussion:

- There is a web page at [Future PingER Projects](#) which was last updated July 2018. Topics that currently stand out include:
 - Applying Blockchain to PingER data, see the paper by Saqib, [here](#).
 - Graphical traceroute maps. Note currently when one looks up the location of a router, it usually gives the location of the home site that is managing the routers, e.g. ESnet routers in the US and Europe are all identified as being at LBL. Using ping minimum RTTs to a router from multiple sites (e.g. the perfSONAR traceroute servers in the US, Canada, and Europe, see <http://www.slac.stanford.edu/comp/net/wan-mon/viper/tulipmap.html>) one can use trilateration to identify the location of the router. Earlier work on this can be found at <http://www.slac.stanford.edu/comp/net/tulip/>
 - Deploying Android/Pinger devices, understand how their low cost (cheap enough to be disposable), low power (e.g. use of solar power) and potential mobility may be used, i.e. the risks, mitigations, and benefits.
 - Linked Open Data applied to PingER data.
 - Using PingER data as a source of big data to search anomalies, trends etc.
 - Case studies, e.g. can one identify the impact on networking of social unrest such as the current Venezuela difficulties, or of other events such as earthquakes or Tsunamis.
 - I have increased the number of working Venezuelan target hosts monitored from SLAC from 3 to 8, to possibly assist in this.
 - Another interesting case study would be to look at the impact of hurricanes on Internet connectivity in say the Caribbean, see for example [Hurricanes Irma and Maria 2017](#).
 - Compare and contrast IPv6 with IPv4 behavior, identify outliers and understand - Umar, Les, and Saqib are looking at this.
- Also, see [PingER Papers and Presentations](#) for some topics that have recently resulted in papers.

UAF/GHZU (Updated 2/14/2019)

- Saqib's current contract expires February 2019. Saqib reports that things are still unsure, his current contract cannot be renewed. He will return to Pakistan February 15th 2019. He has applied to multiple places in China, Pakistan, etc. **He will probably join the University of Agriculture in Faisalabad. He plans to pursue the blockchain paper.**

Thailand (No update 8/9/2018, No update 9/6/2018, No update 11/19/2018, 1/15/2019, 2/12/2019)

Charnsak is looking at a host in Champasak University, Chan Parsa province in Laos as a potential site for a PingER MA. Charnsak just got approved to make contact with the Champasak University. He expects to set up the MA in the next 4-5 months (say towards end 2018). It also depends on the partner university, and there may be a lot of paperwork.

Email requesting update sent 12/6/2018.

UNIMAS (No update 8/9/2018, no update 9/6/2018, no update 10/7/2018, no update 11/19/2018, 12/11/2018, 1/15/2019, 2/12/2019)

Need to add Umar Kalim to <http://pinger.unimas.my/pinger/contact.php>. From the 7/5/2018 meeting: Johari can't ssh into the server so he will go to it on Monday. He will also upload the new UNIMAS PingER website next week.

Sent reminder emails 8/6/2018. 9/3/2018.

PingER at SLAC

PingER IPV6 support

Host	State	last seen	Status
pingersonar-um.myren.net.my, perfsonar-usm.myren.net.my, pingersonar-utm.myrec.net.my	Unable to gather data since mid-November, unable to ping, unable to contact Fizi Jalil, so they have been Disabled.	Mid-November 2018	Disabled
pinger.nwfpuet.edu.pk/cgi-bin	The hostname did not resolve from SLAC, DESY and CERN, however it does resolve from some other places. Email sent to Wajahat and to SLAC net-admin 1/12/2019. No responses, on 1/13/2019 it was fixed, no idea how. It appears that the DNS resolution is intermittently failing. Therefore Les modified getdata.pl to first try DNS and if it fails try getting the data from the IP address in the configuration file. As of 1/18/2019 it appears to be working reliably.	Started 1/7/2019	Working again. Recovered missing data.
pinger.isra.edu.pk	Down, it came up Sep 2-4, 2018. It is pinging, however, all the targets are not responding after 31 tries, email sent to Wajahat 9/18/2018. As of 10/14/2018 it is not pingable. Working again as of 1/5/2019. It started again 1/26/2019. It does not respond to pings from SLAC but does respond to http://pinger.isra.edu.pk/cgi-bin/ping_data.pl ? which is used to get the data. However, the data indicate that none of the pings respond, e.g. <code>pinger.isra.edu.pk 121.52.154.228 pinger.fsktm.um.edu.my 103.18.2.152 100 1548633600 31 0</code> i.e. all 31 pings fail and 0 give any response. When one tries to ping from pinger.isra.edu.pk using http://pinger.isra.edu.pk/cgi-bin/traceroute.pl?function=ping&target=www.wanmon.slac.stanford.edu&options=-i%200.2 the web page responds but all pings from isra fail. Email sent to Wajahat 1/28/2019. Started working again 1/30/2019. Stopped being pingable and unable to gather data 2/11/2019.	March 6, 2018	Fixed 1/5/2019 Failed again starting 1/26/2019. Working again 1/30/2019
maggie1.seecs.edu.pk	results[maggie1.seecs.edu.pk][0] not defined, unable to gather data for 11 consecutive days this month, Skipping maggie1.seecs.edu.pk (3) does not ping by name or address 111.68.101.45 Wajahat fixed 1/14/2019. Went back and gathered missing data.	1/14/2019	Wajahat fixed 1/29/2019.
monitor.seecs.edu.pk	results[monitor.seecs.edu.pk][0] not defined, unable to gather data for 11 consecutive days this month Skipping monitor.seecs.edu.pk (5) does not ping by name or address 111.68.101.10, email sent to Wajahat 1/26/2019, 2/3/2019.	1/14/2019	
pinger.fsktm.um.edu.my	Sent email to Nor Badrual Anuar 1/5/2018. Recommend replacing the pinger.xml file from the master at http://www.iepm.slac.stanford.edu/pinger/pinger.xml and editing it. Nor Badrual Anuar replied saying he will look at it. The file pinger.xml does not close the HostList with a </HostList>. Nor Badrual Anuar edited the pinger.xml file, but the problem was that the hard disk space was full. There are data files going back to 2012. Recommended he deletes all data files up through October 2018. He did this. Then the version of pinger2.pl he was using (ca. 2012) needed SrcIP to be in the pinger.xml file. He added SrcIP to pinger.xml and also updated pinger2.pl. This fixed it. Also recommended he install the data trimmer (see http://www.iepm.slac.stanford.edu/pinger/tools/install2.html) and enter it in the cronjob.	12/28/2018	Badrul fixed 1/30/2019.

Context:

- Is there any statistical difference between ICMP and TCP Ping? The context here is the Internet (not data center). This is important because the network stack is different (e.g., MPI over infiniband) and latencies are significantly less.

Questions:

- Why should we focus on minimum RTT instead of average RTT
 - Min RTT essentially reflects fixed delay, while average RTT subsumes variations and path load
 - Link to raw results with minRTT results:
<https://drive.google.com/open?id=1ZPgJFCDFcsVUxEFA6NYMjhayqYtMYi>
- Are the R plots generated using minRTT?
 - Averages and computed. Min RTT is available. Scripts need to be updated to use minRTT.
- What is the breakdown of latency between endpoints? If there is a difference, is it because of the type or location of the source? What if the source of traffic was not SLAC? Is there a correlation with the distance between the endpoints?
 - Latency for an echo packet to travel up the stack and back down is about 3.75 micro seconds (see StackMap <https://www.usenix.org/conference/atc16/technical-sessions/presentation/yasukata>). As expected, this is negligible when considered with milli second latencies. The remaining components would be propagation and queuing delay. As we can not breakdown the two in a public network without using an active look like
 - To replicate use system tap. See: <https://unix.stackexchange.com/questions/419449/how-can-i-determine-if-a-latency-is-due-to-a-driver-or-the-scheduler>
 - pathchirp etc, we'll continue to consider these as a single component.
- Are the differences limited to a particular region? How do we determine/understand if traffic prioritization is implemented? Test in a controlled environment to avoid variables such as traffic prioritization, queuing delay due to cross traffic. Review the time series of latencies for both ICMP and TCP ping, instead of averages? Is there a difference between IPv4 measurements vs. IPv6.
 - It may be that end hosts which are farther away have larger variances and thus the pronounced differences.

Next Meeting

Next meeting: There will be a Doodle poll, March week 11-14th 10 pm Pacific time ; a day later 11:00 am Pakistan time; 11:30 am India time; 2:00 pm Malaysian & Guangzhou time; 1:00 pm Thailand time; 8:00 am Jordan time. We moved the time forward by 2 hours to accommodate the time in Jordan.

Old information