

20130221 SLAC SEECS and UNIMAS Meeting

Attendees

Invitees: Anjum, Kashif, Johari, Nara, Abdullah, Badrul+, Hanan, Fidah, Saqib+, Les+, Raja+, Umar+ and Bebo+

+ attended. There was some trouble with Les understanding Skype at the start, so we missed connecting Raja who was available. I have added his email to the notes below. **In future if anyone is available but is not connected call riacottrell and Les will add them to the existing call.**

Chosen time:

Meeting time & date: Thursday 21 February 2013 7:30pm Pacific Daylight Time, Frida 22 February 2013 8:30am Pakistan time, Friday February 2013 11:30 am Malaysian time.

General

Johari is setting up a web landing site for the Malaysian collaboration. The start is at <http://pinger.unimas.my/pinger>. It will contain:

- brief history, description of the project and the objectives
- link to main SLAC page and also NUST
- list of names, contact details (email, etc), their affiliation, and they scope of job in the project
- a link to the data collected from UNIMAS and also other hosts in UM, USM, and UTM when they have their monitoring host running
- link to meeting minutes in Confluence
- we need to add Bebo as an advisor

Badrul at UM set up a Google Groups email list at pinger-my@googlegroups.com. All have been invited. It is in production use, please use it.

It would help to have an MoU between SLAC and UTM and possibly UM. Les has sent a request to his legal folks to ask how to proceed and whether he can share the UNIMAS MoU with UTM and UM. He hopes to hear back in the coming 10 days. We will also need agreement to share from UNIMAS.

Workshops

Johari is putting together a web site for the workshop at UNIMAS.

Johari recommended a future PingER workshop later this year. This time it would be in a Peninsular Malaysia site hosted at either UTM or UM. **Hanan at UTM has agreed to take the lead. We need to get 4 or 5 universities involved. We will need travel funding to fund Les.** Les has provided his CV to assist in the paper work. This may be associated with a thesis review or something similar. **Update?**

We need to set some dates. Anjum prefers it to be out of semester time but that is not critical. Les has a constraint starting July 12th through August 4th. Hanan may have a constraint early June. Malaysia has a lot of public holiday. What is the period that we are looking at? (June - July?),

A quick list: 10th July to 8th August is fasting month (Ramadhan); 25.05.2013 - 09.06.2013 School Holiday in Malaysia.

Apart from that, if we target a lot of academicians, then the best time would be during semester break, will get the dates for that.

Should we set up a Doodle page, see <http://doodle.com/?locale=en> (http://doodle.com/?locale=en*).?

Funding

Johari has submitted a proposal for FRGS (Fundamental Research Grant Scheme). There are 5 members of the proposal (5 is the max). Johari decided to get 2 more people from the group in UNIMAS to join the PingER project, thus we are unable to include our counterparts in UM and UTM (Dr Abdullah and Prof Hanan). We can go for a bigger project such as the eScience or LRGS (Long-term Research Grant Scheme) which can accommodate a larger number of people, more funding and encourage cross institutions collaboration.

At a later stage the infrastructure and data can be used for research in: anomaly detection; correlation of performance across multiple routes; and for GeoLocation. Johari would like to see UM and UTM, which are research universities, strongly engaged in the next round of research proposals. Anjum mentioned a paper on [Evaluation of IP Geolocation Algorithms on PingER and PlanetLab Infrastructures](#), by Fida Gilani et. al. submitted to IEEE INFOCOM 2011UNIMAS. This could be updated with new data and maybe submitted to a different venue. Anjum forwarded a copy of the paper to Johari, Abdullah and Hanan with copies to the team. The idea is to see whether there is interest at UTM, UM or UNIMAS. **Johari has put together a draft that has been reviewed by Anjum. It will need to be shared when closer to completion. Update?**

UNIMAS

There is a problem with the UNIMAS traceroute. It appears pinger.unimas.my is behind a NAT that is not passing the traceroute UDP probes. Other hosts at UNIMAS are not seeing the problem, so Johari believes it may have to do with the IPTABLES in pinger.unimas.my. Traceroute using the -I option (send the probes using ICMP rather than UDP) seems to work (but needs root access). Thus it would appear not to be in the return (ICMP "time exceeded") response. The probes (when not using the -I option are UDP packets using sequentially ports 33434 - 33465 for up to 30 hops). It is possible that ports > some number may be blocked.

Johari has set up a guest account for Anjum. Anjum logged on and reported some concerns about addresses and interfaces not matching. The traceroute /ping server is important for the TULIP trilateration project and also understanding routing within and from Malaysia.

Johari was out of town and had limited Internet connection until 21st feb 2013. Also he realized that the ssh and ftp server is not running since the previous reboot, thus he was not able to make any changes to the UNIMAS website until he gets back and manually start those two services.

UTM

Saqib has successfully installed pinger2.pl at UTM. It is working and we are successfully gathering data from it. **<HostList> has been installed and it is successfully running the latest version of pinger2.pl..**

The URL is http://161.139.146.158/cgi-bin/ping_data.pl. The host's name (pinger.fsksm.utm.my) is registered in DNS as of 2/14/2013 (a Valentine for Pinger) and is in the Pinger NODEDETAILS meta database..

The traceroute server is also running. It is at: <http://pinger.fsksm.utm.my/cgi-bin/traceroute.pl>, however it is not working, The ping server, i.e. <http://pinger.fsksm.utm.my/cgi-bin/traceroute.pl?function=ping> is working.

traceroute -I www.cern.ch works which suggest the UDP probes to UDP ports 33434 - 33465 are being blocked. **Saqib is working with the IT department to understand. The output is different from the web browser and the command line. The command line using traceroute www.cern.ch looks fine. The web server stops after the 4th hop. The web server issues the command traceroute -m 30 -q 3 137.138.144.168. The m is the max number of hops, the q is the number of probes per hop, 137.138.144.168 is the IP address of www.cern.ch. This also works from the command line. It could be a timeout problem (it would be good to time traceroute -m 30 -q 3 137.138.144.168 command). Saqib has provided the web server logs and nothing stands out. It may be a timing issue, Saqib will try running traceroute.pl from the command line and timing it.**

Anjum has postulated that there may a load balancer induced problem. Is the 4th hop at the load balancer?

The addresses assigned to the servers are:

physical ip : 161.139.68.188
external ip 1 : 161.139.146.158
external ip 2 : 161.139.194.158

Saqib is starting to look at Pingtable.pl anomalies as a start in a case study for Malaysia and S.E Asia. MIU looks interesting. The normal RTT to Malaysian hosts from UM and UMT is a few tens of ms, but to MIU its is > 100ms. The route goes via Hong Kong which accounts for the delay. Why does the route go via HK? Saqib needs to start documenting what he is finding and his results (RTTs, min-Rtts, Directivity, traceroutes) and conclusions. Another anomaly might be why SWU in the Philippines has long RTTs from UTM & UNIMAS but not UM. Also why does UPSI have a long RTT from UNIMAS but not UM or UTM, is it simply the distance from Borneo to Peninula Malaysia, look at the Directivity.

UM

Dr Nor Badrul Anuar Jumaat has installed Pinger on a cloud at UM. The machines are virtualized and running Ubuntu Linux. The name and address of the server is pinger.fsktm.um.edu.my (202.185.107.238). **Anjum pointed out that at NUST they are having a problem with a virtual machine running pinger2.pl and the /tmp/ disk space filling up.** Anjum is exploring this in more detail, so at the moment it is just a head's up. Johari has sent Kashif's workshop presentations to Dr. Nor. The UM monitoring host has been added to the NODELIST Pinger meta data base at SLAC and the <HostList> for Malaysian and S.E Asian hosts has been added to the pinger.xml file at UM. We need to get the latest pinger2.pl installed. **Since the traceroute is working, Badrul will work with some of his students to make a routing study similar to <https://confluence.slac.stanford.edu/display/IEPM/ Routing+from+UNIMAS>. he plans to have something for the meeting in 2 weeks time**

NUST

From Arshad: Rector has agreed to support one person visit to SLAC. Raja has been nominated. He has sent a cv to Les and has filled out the DoE form. Les crafted the invitation and it has been sent to upper management for signature Dec 21, 2012. Les briefed the SLAC Cybersecurity person on 1/10/2013. He has also filled out another form for hosting visitors from sensitive nations. Les has taken and passed the training on hosting visitors from sensitive nations. Cybersecurity want more details on what Raja can access and Les has provided it. **SLAC CyberSecurity say they do not approve or disapprove visitors so I have requested (2/8/2013) the CIO to sign and pass to the CEO for signature. Raja has completed his paperwork and is ready to submit. As soon as Les hears the letter has been signed by the CIO (and before it is sent to Raja), Les will get back to Raja to proceed. He has sent 2 reminders to the cybersecrity person and engaged the CIO in the latest.**

Raja reports that the code is working fine now without any underestimates. The problem was that he was using Alpha values that were above 80% of the data points (in Alpha Analysis) for each RTT range but now I have changed that to 95%.

He tried to geolocate a landmark in Europe i.e. icfamondl.ac.uk using both a fixed Alpha value (0.55 in this case) that was 95% above overall and also using a set of Alpha values which were used as a function of the RTT value. For the fixed Alpha value case the error distance was 746KM where as for the variable Alpha case the error was 530KM. For this test case, using Alpha values as a function of RTT looks promising. In both cases however the Error of geolocation is significant, this is probably due to the fact the target was not in the Convex Hull of the landmarks that responded. It turns out we should exclude icfamondl.ac.uk since we uncertain to with 150 miles where it is located (near Oxford or near Liverpool). Raja will repeat and process for different targets and different regions and see how well that goes.

Raja also reports that there are a lot of PlanetLab landmarks being used by reflector in Europe that have the same Lat Long (51 , 9). The min RTT of these landmarks to the target varied from 20ms to 45ms which would imply that they are not at the same location? Shouldn't we avoid using servers as landmarks unless we know their exact location? We recommend not using any such sites or sites that have no digits after the decimal point.

Potential projects

[See list of Projects](#)

Ipv6

With Malaysia moving quickly to IPv6 (already Nava at USM has sent Les an IPv6 address that he recommends monitoring), converting Pinger (especially the gathering, analysis) work with IPv6 is an interesting problem. Anjum believes he could provide an undergraduate to start on this.

Bebo's suggestions

- (1) Creative visualization of PINGer data including rich interaction;
- (2) Publication of PINGer data in Linked Open Data formats thereby increasing its usefulness to other researchers.

If these are of interest, Bebo is willing to work with students who come to SLAC and remotely with students at UNIMAS and NUST. Bebo believes that both of these areas have great potential for papers within the conference communities with which he is directly involved.

With PingER going back over a decade, its presentation tools tend to be a bit jaded having in some cases been developed in the 90's. New, modern ways to access display and navigate the data would be a big plus.

Coordinate and lead the installation of PingER monitoring at multiple Malaysian sites

Build and install a new <http://www-iepm.slac.stanford.edu/pinger/tools/pingER-2.0.2.tar.gz> file with the improved version of pinger2.pl

PingER at SLAC

The [annual report](#) to the International Committee for Future Accelerators (ICFA) Standing Committee on Inter-regional Connectivity (SCIC) has also been completed.

TULIP

Raja has completed the MATLAB script and used it to generate some input files for Pakistan and Europe. However using the alpha values (function of both region and RTT value) found through the alpha analysis the distances were underestimates in some cases. He is working on finding the cause and possible solution.

Future meeting - Les

Next meeting Wednesday 6 March 2013 8:00pm Pacific Daylight Time, Thursday 7th March 2013 9:00am Pakistan time, Thursday 7th March 2013 12:00 noon Malaysian time.

Future agenda items:

Workshop: dates, funding, other sites

UM progress

UTM progress

UNIMAS progress

IPv6 porting

Case studies: routing, performance for Malaysia and S.E. Asia. We need someone to take the lead on this for Malaysia.

Coordinates:

Institute	name and Email	Skype ID
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