

# 20120118 SLAC SEECS meeting

## Minutes for SLAC-SEECS Meeting January 18th, 2012.

### General

Ghulam has an SID. Sadia has submitted his computer account form - Sadia

### IPv6 - Anjum and Ghulam (this has been de-prioritized until new database PingER is working)

IPv6 machine is working fine. Ghulam installed pinger2 on it and tried to collect data. But it was unable to resolve the IPv6 address. Seems like we need to do some changes in the whole architecture to make it workable with IPv6. Les looked at pinger2.pl, it verifies the address is IPv4 4 octets. He made a suggestion to use valid\_ip.pl to verify both ipv4 and ipv6 addresses. Ghulam are there other parts of pinger2.pl that need modifying. It already can access ping6. In addition one will need a copy of pinger.xml with IPv6 hosts and their addresses.

A possible project would be to make traceroute.pl work on a dual stack IPv6 host (say to traceroute to ipv6.google.com). Will need to look at gethostbyname etc. Is there any interest?

Another is to make pingtable.pl and getdata.pl IPv6 capable, again this could use valid\_ip.pl. Since Ghulam is working on these it would be good for him to add this.

### pinger2.pl

There is a bug in pinger2.pl that results in the <BeaconList> being empty. Les has made a fix that may help. **Sadia has created a new tar file /afs/slac/g/www/www-iepm/pinger/tools/pinger-2.0.3.tar.gz. It has been sent to Joun who is currently installing pinger2.pl on various machines. He said that its working fine right now but require more days to be sure of its working .**

### Traceroute Archive - Sadia

It is now in production. [Try](#) it, suggest improvements.

### ICFA Report - Les and Amber

- It will be released to Harvey before or on Jan 20th.
- Amber has summarized the status of Pakistani monitoring
- Amber is adding something on the Explorer tool
- Les added the [Happy Planet Index](#).
- Proof read it. Sadia and Amber

### HEC Report - Anjum and Amber

HEC report will have three sections:

1. POP to POP Analysis: This will further have two parts
  - a. Inter-Regional POP to POP analysis: This will include analysis from ISL FJWU POP to all the POPs in different regions of Pakistan.
  - b. Intra-Regional POP to POP analysis: This will include POP to POP performance within a region. Only three regions have more than one POP nodes, Karachi, Lahore and Islamabad. Analysis will be carried out for these regions only.
2. PoP to Non POP Analysis: This will include two parts
  - a. Inter Regional POP to Non POP Analysis: A POP node in each of the 5 regions will be chosen and the analysis from these POP nodes to all the Non POP nodes of other regions will be carried out.
  - b. Intra-Regional POP to Non POP Analysis: A POP node in each of the 5 regions will be chosen and the analysis from these POP nodes to their own regions will be carried out.
3. Outliers: This section will include some interesting POP to POP and PoP to Non POP outliers with their behavior analyzation using traceroutes.
  - Overall network link performance will be considered as good or bad based on Standard metric values for VOIP as mentioned in Pinger Tutorial.
  - Amber and Imdad had a meeting at 8:30pm on 9th January. Imdad is now working on PoP to POP analysis section with ISL FJWU as monitoring POP instead of ISL HEC POP. **He has sent this to Amber which she will be adding in report.**
  - Amber is working on Inter-Region PoP to Non POP analysis.

### Pinger Explorer - Amber

- Amber has put together an email list of Pinger contacts to send the video to. We will send email about Explorer to the list.

### Status of Pakistani Pinger hosts - Amber

1. There is a discrepancy between the PERN monitors reported by Joun as not working and those SLAC is able to gather data from (reported in [chek kdata](#), [here](#)). It was reported a couple of weeks ago. Kashif were Joun are looking at. For example we are unable to gather data from pinger.pern.edu.pk, there is something strange with the wget not working (see [here](#)). This maybe tied to some improvements to security installed on Dec 14th. **Les confirmed there are still problems affecting 4 PERN POP nodes and 12 other Pakistani monitors. See [Hosts pingable from some regions but not others](#) for more details.**
  - a. Currently pinger.pern.edu.pk is not pingable so we are unable to test further. **Progress**

- b. All nodes deployed at PERN PoPs are being upgraded to enhance security. Anjum had discussed with Umar as to what security features should be implemented on these nodes.
2. In addition some PERN POP monitoring hosts (pingerisl-fjwu.fern.edu.pk, pingerisl-qau.fern.edu.pk, nuisb.seecs.edu.pk, nukhimain.seecs.edu.pk and pinger.fern.edu.pk ) are only pingable from Pakistan and Jordan. This may or may not be related. This needs to be resolved. Using reflector.pl to ping nukhimain.seecs.edu.pk and also www.cern.ch, the number of landmarks able to ping nukhimain was 26, while for cern it was 106. It appears only landmarks in Pakistan, Algeria, India, Brazil, and Russia can ping nukhimain. Kashif and Joun are looking at. **Progress**
3. Kashif reports we need a system for air university because they have a shortage of systems.

As updated on 01/18/2011.

Responsible person: Joun Muhammad

**HEC is sending out letters to the contact persons (who are non-cooperative) after which the nodes will be more reliable. 2-3 weeks will show much more stable nodes.**

Node	Status	Description
pinger.ustb.edu.pk	UP	Pinging by another IP. Data not collected. Issue will be resolved soon.
pinger.giki.edu.pk	Down	Off because of network issues.
hu.seecs.edu.pk	Down	Pinging but not fetching data. Trouble shooting in progress.
pinger.uaar.edu.pk	Down	Network issue, will be up soon.
airuniversity.seecs.edu.pk	Down	System issue, will be up soon.

**Joun is looking at archiving the reports where we can get at them if we need to mine them.**

**Send an email to Joun asking why cant we ping mentioned nodes. Its probably not a SLAC problem, we need to look into them in further detail. We are also unable to ping them from other countries. This problem needs to be explored.**

## PingER Archive Site - Ghulam

Ghulam has rebuilt the database.

After all the discussion, it is decided to try the database scheme for any previous one month data to see the further steps required for sharding and managing the data. As PerfSonar has some fields which are not measured/needed by pingER, they can be left NULL. PerfSonar libraries will take that a NULL. The fields which are required by pingER but not applicable in PerfSonar, will be added in table. PerfSonar libraries will ignore these new added columns.

Current Schema :

There will be three tables(just like Seecs schema)

1. host table: will have PerfSonar host table fields and location\_location fields (only which are required by PingER) plus pingER required feilds.
2. data table will be the same as new proposed one. However packet recieved/sent if used by pingER packet loss calculation or in anywhere can be added in data table. (Sadia believes there might be some PerfSonar library which will deal with it. She will see and tell Ghulam if there exist any)
3. Add "by-class" field as required by pingER in metadata table.

2. Raw data for one month will be dumped into database and aggregation will done only for monthly data( which means one extra table for selected month for time being)

Ghulam:

1. Build database based on new schema(Send it to Sadia as well so same database can be built at SLAC)
2. Modify getdata.pl(fine if its without parallel loops or threads as long a sit takes less than 5-6hours)
3. Run and test the getdata.pl
4. Test it with queries as if one gives from pingtable.pl html page and measure the performance

Sadia

1. Modify getdata.pl to shift data from flat files to database

Future concerns:(Will be considered once the performance of above monthly aggregated data is observed)

1. How to store raw data for one year
2. How should it be sharded
3. For how long data should be in database

**Sadia :Adding max RTT and Alpha to pingtable.pl and the analyze scripts**

- We need the alpha for identifying strange Pakistani routes. This will be done before we move to the new schema, it cannot wait anymore. In the meantime Amber is looking at using the PingER map with coloring of links by min RTT to spot anomalies by eye. **Sadia has done most of it, however there is some bug or problem in analysis script and derived output like throughput, alpha and unpredictability output files are showing NULL values (as ".") . she is debugging the analysis hourly script on the whole.**
- Analysis scripts to add Mean Opinion Score and Alpha, some things need to be correctly configured. It has been deployed at <http://pinger.seecs.edu.pk/cgi-bin/pingtable.pl> for testing. **Ghulam there was some problem in pingtable.pl alpha value . For some links alpha was having value of 200 . As we know alpha can have maximum of value 2. So there must be something wrong in calculation.**

## TULIP - Bilal

Following table lists the targets in Europe which are not plotted on maps. For example the first target can be explored [here](#) . This can be compared to a [target which can be plotted on the map](#). Bilal looked into it and found that nodes are plotted using other GeoIP and IP tracking tools.

Country Name	IP Address	Progress
Austria	62.218.39.47	1/10/2012: Fails due to an unreachable host in Germany 212.201.44.81
Austria	212.33.36.188	1/10/2012: Fails due to an unreachable host in Germany 212.201.44.81
Italy	193.206.84.12	1/10/2012: Can be plotted successfully
Ukraine	193.29.220.3	1/10/2012: Can be plotted successfully

Amber looked at the host 212.201.44.81 (in Germany) in Pinger and Tulip database to find out why this host is unreachable. We do not have this host in Pinger Database, however, in Tulip database we only have one information about this host which is its IP. **Amber and Les decided to delete this host from Tulip database. Bilal has to rerun the script to find out if Austria still gets plotted or not.**

Deleting the unreachable host is a temporary solution. We still need to find out a permanent solution for plotting a landmark whose one of the nearest host is not working; Tulip should consider the other nearest landmark to plot it.

One is to change the appollonius code, and the other is to give up on appollonius as we have already proved that Appollonius is useless.

Bilal:

1. Remove appollonius

## CBG TULIP Integration -- FYP (Bilal)

- Bilal did some stress testing. The landmarks are 331 while the targets will be the ones generated by Sadia. He will compare the results with the 4 month old results with 59 hosts.
- **From the latest results it is apparent that if the landmark is also the target then we can get 0 error. Bilal has modified the tests to filter out such cases. Les has sent him the URL to the Landmarks file so he knows to filter out measurements from a landmark to itself. He will rerun the tests for N. America, Europe, S. Asia, E. Asia and Australia and will send the new results before Sunday.**
- **Stress testing results for Europe are now complete and available at:** <https://confluence.slac.stanford.edu/display/IEPM/Tulip+CBG+Stress+testing+for+Europe>
- It is seen that Asia performs better than Europe.

## PerfSONAR (Pakistan)

- **PerfSONAR at SEECS:** PerfSONAR throughput and latency nodes are now up and running at SEECS. Hostnames and corresponding IP addresses are:
  - throughput measurement node: <http://psbw.seecs.edu.pk/> (http:115.186.132.154/toolkit/)
  - latency measurement node: <http://psla.seecs.edu.pk/> (http://115.186.132.155/toolkit/)
- Select options under "Service Graphs" to view throughput or latency graphs. Added 5 Stratum 1 NTP servers to cater for clock delay and everything seems to work fine.
- There are some interesting one-way latency graphs at 115.186.132.155 (SEECS PerfSONAR Latency node). **Dst to Src (e.g MIT to SEECS) latency is less than Src to Dst (e.g SEECS to MIT) latency.** This might uncover some trends in outbound network traffic from Pakistan.
- Bilal and Ghulam will have a meeting with Zafar to know about PerfSonar and to maintain it in future. **Update?**

## Possible projects

- There can be a paper kind of talking on Pinger if we could just find the right conference. MCN, ICC and Globecom do provide network monitoring topics. We can talk of GEO-Location experiences. For example within Pakistan it works fine, however as we go within regions or continents this gets worse. We can publish some stats on that for example. We are yet not ready for Tulip paper.
- See [<https://confluence.slac.stanford.edu/display/IEPM/Future+Projects>].
- Extend the NODEDETAILS data base to allow entry support for whether the host is currently pingable.
- Extend Checkdata to provide emails automatically, see [<https://confluence.slac.stanford.edu/display/IEPM/Extend+checkdata+to+make+it+more+useful>]. Many of the ideas in the script node-contacts.pl are a step in this direction.
- Improve the PingER2 installation procedures to make it more robust. This might be something for the person(s) in Pakistan who are responsible for installing PingER2 at the Pakistani monitoring sites. They probably have found where the failures occurs. Also look at the FAQ, and ping\_data.pl which has been improved to assist in debugging, could it be further improved (e.g. provide access to the httpd.conf file so one can see if it properly configured)? There are 2 students working on the PingER archive. Is this something they could work on?
- **[Fix PingER archiving/analysis package to be IPv6 conformant]** IEPM: Make PingER IPv6 compliant]. Will build a proposal for an IPv6 testbed. They will try various transition techniques. A proposal has been prepared and that has been submitted to PTA. Adnan is a co PI. It is being

evaluated today. A small testbed has been established in SECS and the plan to shift some of the network to IPv6. Bilal is part of 3 students involved with PingER and they will be involved with IPv6. They are porting the PingER archive site to using a database. They have redeveloped the archive site using Umar's documentation. They have set up a small test archive site. They have gathering, archiving, analysis. They will design a new database. They will also try a port of PingER to IPv6.

- Look at RRD event detection based on thresholds and how to extend, maybe adding plateau algorithm. Umar's algorithm did not work in a predictable manner.
- Provide near realtime plots of current pinger data using `getdata_all.pl/wget`. It will work as a CGI script with a form to select the host, the ping size, and the time frame to plot. It will use `wget` or `getdata_all.pl` to get the relevant data and possibly RRD/smokeying to display the data.

## **Future meeting time - Les**

1. Next meeting on Wednesday 18th January, 2012 at 8:00 pm in US and Thursday 19th January, 2012 at 9:00am in Pakistan.