20110309 SLAC SEECS Meeting

Agenda for SEECS/SLAC meeting February 23rd, 2011.

Bold face, topics for coming meeting that we need to address

Future

- The electronic letters of invitation for Sadia and Amber have been sent. **They have received hard copies?** Current plan is for arrival April 1st**.**
- Zafar received his DS-2019 on Dec 10 (Fri). Applied for visa on Dec 13 (Mon). Interview date was Jan 3, delayed to Jan 24. Visa accepted now await clearance. **He heard from Embassy and hopes it will be ready in another week. Hope to start early April/mid-April**. Make a flight booking for late March/early April.

Pakistani case study - Zafar, Anjum

- Anjum, Arshad, Zafar, Sadia, Zeeshan and Amber met with PERN. Several suggestions were made:
  - Put all monitors on UPS with PERN's routers to provide reliability. **PERN will assist in setting this up. For the time being this is not being done but this could be done. Umar disagrees with this idea as the nodes would then have 0% unreachability and it would not measure the user experience.**
    - **Anjum explains what Anwar Amjad wants: 1) Measure performance from PERN to PERN with UPS at both ends. 2) Measure performance from PERN to PERN with UPS at one end. 3) Measure performance from non-PERN/outside PERN to PERN network.**
    - **This needs to be carried out in phases.**
    - **Zafar, Amber and Sadia can add hosts to PERN/non-PERN.**
  - Add the 15 POPS of HEC. **Machines will be provided by SEECS by mid-March. PERN will assist in setting these up. Zeeshan is handling work from SEECS side and is mostly responsible for paper-work. Umar suggests giving someone from HEC this responsibility.**
  - Separate the analysis presentation of the PERN from non PERN connected nodes. **I have emailed some information on how to do this. Amber and Sadia are working on this.**
  - Get an up to date map of PERN network topology. **Anjum will get the current map.**
  - PERN wants MOS further broken down by PERN and non PERN. **Anwar Amjad wants an inter-city analysis. VoIP calls are relatively bad for inter-city links within Pakistan as compared to VoIP calls made outside of Pakistan (such as USA). Anwar Amjad is most interested in Islamabad to Quetta, Islamabad to Karachi and Islamabad to Lahore links. Umar mentions that it is completely fine doing this but asks whether HEC can provide us with statistics. Anjum says HEC is using fluke for measurements and they will share their data.**
  - PERN does not understand/agree with throughput measurements. **A more understanding of bandwidth and achievable throughput shall be put in the case study.**
- Faisal has a new user interface with a Pakistan bias. **It needs work to add a bar at the top with pull downs to pages in the various areas. Also the initial page is a bit bare until one scrolls left or right.**
- Zafar has started taking and archiving traceroutes between Pakistani monitoring hosts on a daily bases. **View these at <http://pinger.seecs. nust.edu.pk/cgi-bin/displayautotrace.cgi>. Some improvements are required to be made .. these will be made over time (diff among traceroutes from multiple dates - a table can be used to display day to day differences).**
- Sadia has finished MOS for prm.pl. She is now working on adding alpha. She needs the lat/longs, Les provided information on dbprac.pl and how it gets data such as lat/longs from NODEDETAILS. **Zafar suggests using nodes.cf since it is updated more than once everyday. Moreover the lat/lons do not change automatically so database access is not really critical.**

Other Case studies

- There is case study on Mid east instability and effect on Internet connectivity. it is at https://confluence.slac.stanford.edu/display/IEPM /Internet+performance+seen+by+PingER+and+Mid-East+instability. Umar tried to get a link from ??

PingER

- Traceroute is working at Sarawak. Faisal has added it to TULIP. For PingER2.pl the pinger.xml page looks OK but it looks like teh cronjob is not running.
- **PingER archive site: Final Year Project of Ghulam and Farhan.**
  - Revised the schema according to Umar's recommendations.
  - Change in Nodes table of archive site database schema - included all information of **nodes.cf** file in Nodes table. Information of nodes comes in this table through NODEDETAILS table at SLAC.
  - Data from NODEDETAILS table is collected by a script node.pl and we changed this script to store data in Nodes table instead of nodes. cf file.
  - **getdata.pl** script has been changed to collect data from monitoring nodes and store it in to Ping_data table of archive site database instead of files.
  - Also changed **getdata.pl** script to collect nodes data from Nodes table instead of **nodes.cf** file because it will not be used in new architecture. The fields where sequence number or rtt is not present, NULL is used.
  - The main analysis script is **analyze-hourly.pl** which executes daily on archive site and does analysis. This script has also been changed to get input for analysis from ping_data table instead of files. Testing and optimizing this script.
  - The other scripts **analyze-daily.pl, analyze-monthly.pl, analyze-allmonths.pl, analyze-allyears.pl** will be changed to get nodes information from nodes table instead of **nodes.cf** file. Remember these scripts are using the same data that **analyze-hourly.pl** is inserting into the analysis table.
- Faisal is working on a home page for PingER. (Paused)
- PingER Map (Feature Requests)
  - **Chrome is showing lines in weird manner, use Firefox instead.**

- ○ **Assuming it is easy do not remove a box if one clicks on something else, leave that to be done manually by clicking on the x in the top RH corner**
- ○ **Add auto ranging**
- ○ **The ability to save a color range setting**
- ○ **Make it less browser dependent**

TULIP

- With the move to the new host Faisal had to get a new cookie to allow scriptroute to run scripts on the PlanetLab infrastructure. **Still needs testing.**
- **CBG Integration with TULIP: Final Year Project of Bilal.**
    - ○ TULIP and CBG are currently configured on one machine. TULIP needs to be configured to maggie2 (some configuration issues which will be resolved soon).
    - ○ We changed TULIP code to write output in a file which will be used as input to the CBG code.
    - ○ We transfer this file from TULIP to CBG through sockets.
        - ■ Sockets are written in perl scripts to send and receive input and output files.
        - ■ Perl script at MATLAB machine reads this file and runs CBG code with required parameters.
        - ■ Next step will be to have CBG code generate results and save its output to a file.
        - ■ This output file is again transferred to TULIP through perl scripts (Sockets).
        - ■ At this time TULIP code is not running properly because only two landmarks are available and at least three active landmarks are required to run this code properly.

IPv6 activities at NUST SEECS, Pakistan

PingER2 works with IPv6, could start taking data and see what breaks.

Here is the list of activities we have been doing at the moment:

Training and Awareness:

- We have conducted a workshop and a seminar on IPv6
- Another Seminar is planned in the coming weeks.

Collaborations:

- We have created a tunnel with cybernet (local ISP) for global IPv6 connectivity.
- We have been allocated public IPv6 addresses by PSEB for R & D usage.

Implementation:

- We are currently working for participation in world IPv6 day.
- Some of the services that we are currently working on are Webserver, DNS and local connectivity of IPv6 for SEECS users.
- We are short of dedicated hardware for this part and for this our proposal is under review. We hope to have full range of hardware covered once it is approved.

Research:

- We have a team of 3-4 people working on Transition Mechanisms
- Open source implementation of these mechanisms
- Mobility Extensions
- LISP for IPv6
- Hands on implementation on NS2, GNS3

PerfSONAR

Problems were fixed. NTP servers were causing considerable clock delay. Added close-by Stratum 1 NTP servers to solve the problem. Nodes were updated to PerfSONAR version 3.2 (Fedora distro). Nodes however are offline since they were disrupting normal traffic. We are waiting for 10 Mbps dedicated connection to switch the nodes back on. - **Update**

1. Faisal is working with Yee.## Moving XML responses to json arrays (parsing).
    a. A Datagrid module to display tests from all the result set hosts for a selected
    b. Ability for datagrid module to share data and calls with map.
    c. Documentation available here
       https://confluence.slac.stanford.edu/display/IEPM/Google+Maps+for+PerfSONAR
2. Zafar deployed PerfSONAR at SEECS. It was working and gathering data. However the Network Operations Center at SEECS had to shut it down since it was flooding the network and disrupting normal traffic (education/research). Sent an application to HQ NUST to approve 10 Mbps bandwidth link. The proposal was rejected. Now waiting to utilize 2 Mbps from a 10 Mbps research network link. PERN will deploy perfSONAR at HEC/Quetta. Someone is working on this. The university is close by HEC/Quetta. Hope in 4 weeks to have PingER monitoring node in 4 universities i the Quetta region. More of a research project than a deployment project.

Possible projects

See [https://confluence.slac.stanford.edu/display/IEPM/Future+Projects]. Zafar will talk to the students about these projects.

1. Extend the NODEDETAILS data base to allow entry support for whether the host is currenty pingable.
2. 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.

3. 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?*
4. [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 SEECS 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 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.
5. 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.
6. 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/smokeping to display the data. **Adnan thinks one of the students working on the archive site may take this on**
7. **Provide analysis of the traceroutes in particular identifying changes**
8. **Provide support for affinity groups**

Paper - Umar, Fida, Zafar

1. SVN for paper, Umar has set it up and it is working. Umar will send out the accounts. Not critical at the moment.
2. Umar will take as the main/first author of the paper. Ali Khayam has put together an introduction
   identifying the main points. Umar will send in the first draft and put together with feedback from Ali. Umar hopes to be done by Mid December. Umar is currently overwhelmed. Zero progress 11/10/2011. Umar has to submit a camera ready copy in the next couple of days.
3. Adnan is also interested in working on the paper and will talk to Umar.
4. Umar sent draft to Adnan. Umar will be in Pakistan later this month and will get together with Adnan. Fida will be available after December 16th.
5. Fida will send review comment to Adnan
6. Meeting between Adnan, Umar, Ali Khayam did not come to pass due to Adnan being sick. It is believed we need a re-write, the technical details are OK. Adnan will get to more rigorously.

AOB

Future meeting time - Les

The next meeting in **Wednesday March 16th 2011** (8 pm) for people in US and **Thursday March 17rd** (8 am) for people in Pakistan.