TULIP Tasks

Triangulate position of an unknown host (see http://www.slac.stanford.edu/comp/net/wan-mon/tulip): Shahryar, Les

1. Visualization
   a. When zooming maintain size of dots (awaits TULIP2)
2. Bugs/questions (await TULIP2):
   a. How do Sno correlate when there are landmarks from SLAC and PlanetLab. It appears Sno for PlanetLab in Ping Results is not same as Sno in PlanetLab landmarks? (currently it is by order of of appearance in Ping Results 10/2/07):
   b. The alpha optimization using PingER data seems to do nothing useful:
   c. Confidence Estimates table does not sort on table heading (what does it mean, what are units, will replace with IQR/Median 10/2/07):
   d. Location History needs headings or something to explain what the columns are:
   e. Change Ladnmarks to Landmarks on tab in Ping window (reported 9/21/07, will be done in future release 10/2/07):
   f. Sort of LG/SLAC ping results for target = www.cern.ch of sort of Min RTT gives the top entry as 1 (SWITCH,Switzerland), the next is 0.820 (CERN, Geneva), i.e. it has mis-sorted (reported 10/8/07):
   g. PlanetLab ping results table does not sort by table heading (reported 10/8/07):
   h. The alpha test under Discovery Statistics needs to throw away useless values of RTT else plot scaling can be useless:
   i. The alpha optimization using PingER seems to do nothing useful:
   j. South Africa landmark only accepts IP addresses so need to accommodate:
   k. What is fixed vs Min RTT under DiscoveryStatistics (Faran will talk to Asif 10/2/07, not needed now):
   l. Sometimes fails, maybe because when tulip starts it downloads Site.txt from niit server. If that be the case the left side table on the main frame should be empty and status bar should say "Error downloading config. file."
3. **Improvements/TULIP2 with Centralized Reflector**
   a. ~~Modify reflector.cgi to use the new sites.xml file, install at SLAC (done 1/12/08): Shahryar, Les~~
   b. **Modify client to use new sites.xml file: Shahryar**
   c. Redo NODEDETAILS database to clean up data , improve schema and generate the sites.xml file (done for landamrks only 11/30/07, awaits analyze hourly and ICFA year end report): Jared
      i. Clean up and add rest of PingER data: Jared
      ii. Provide user interface
      iii. Migrate from old to new version
   d. Allow alpha to change (lot of work, many changes, could improve, need analysis & understanding)
   e. **Look at using PingER historical data to optimize alpha (agreed 4/12/07):**
   f. Evaluate whether using traceroute data helps (Suggested by Umar & Les 2/26/07, could add 3 more RTTs to minimize from):
   g. Add traceroute location:
   h. Add results from GeoIP:
4. Landmarks
   a. Get more landmarks for TULIP, ideally need at least one landmark in all major developing countries that do not have direct connections to nearby countries.:
      i. **Is IHEP in list?**
5. Documentation
   a. Add information on the interpretive script sent to PlanetLab hosts: Shahryar
   b. **Update thesis documentation and make it available online**: Umar
6. **Analysis**
   a. **Provide API (agreed 6/28/07, changes to TULIP mean current API is not working):**
   b. Literature search on triangulation, multi-lateration:
   c. Optimize alpha by landmark (after have new location algorithm working, will try 1:2 for US, 1:3 for Europe, 2:15 Africa, done at NIIT, need to deploy at SLAC 4/10/07, Faran is worried about how to group nodes by region etc. and anomalies 6/13/07), hope to review results by 6/5/07): Faran
   d. **Map TULIPs accuracy by region. This will help in identifying where to add new landmarks : Shahryar**
   e. **Analyze Speedtest sites with and without PlanetLabs landmarks. Also study results for North America using all 150 sites, will report results by 03/16/08: Shahryar**
      i. ~~Determine which sites have the highest frequency of being selected as one of the top 3 landmarks.~~
      ii. Observe why some nodes are showing results with errors greater than 1000 Km.
      iii. ~~(Data used for analysis should be available to everyone (to allow them to conduct analysis)~~
      iv. Why isn't SLAC listed in the list of sites?
      v. Why in the worst cases, the landmarks in the vicinity of the target failed to respond?
      vi. Why do the results worsen (in some cases) when using both Planet Lab and PingER nodes?
      vii. What values of alpha to use for each tier?
      viii. Does the alpha value vary with increase in distance between the landmark and the target, how much and why?
      ix. Document the findings
   f. Compare with GeoIP Tool & Hostip.info
      i. Find cases where TULIP beats GeoIP Tool [Done 4.68.116.16, probably backbone routers too]
      ii. Compare with MaxMind (see http://www.maxmind.com/app/geolitecountry): Faran
      iii. **Document comparison in Wiki (is this done?): Shahryar**
      iv. Confidence estimates of accuracy
      v. Applied to PingER hosts
      vi. Outside triangles, area coverage
      vii. Effect/need to vary alpha: Faran
      viii. Look at big discrepancies
   g. **Provide bubble maps of accuracy: Shahryar**
   h. What area/population is covered by TULIP
   i. Show accuracy by region and country: Shahryar
7. Look at publication
   a. Find conference: all
   b. Can we get Cisco interested?: Arshad, Faran

   c. Update documentation: Les, Faran
   d. Read paper at http://research.microsoft.com/%7Epadmanab/papers/sigcomm2001.pdf:
   e. Put Faran's final year project documentation online: Faran, Umar