MySpeedTest: Active and Passive Measurements of Cellular Data Network Performance

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Motivation

• To study the effect of several possible parameters on performance

• Understand if and how network performance affects user behavior on other applications

Help applications developers and service providers identify key quality metrics and areas for improvement
Measurement details

• Active measurements
  • Ping times to 5 servers
  • TCP throughput
  • Loss
  • Inter-packet delay variation (IPDV)

• Passive measurements
  • Network usage data per installed application

• Metadata
  • Device specific information, battery information, cellular network information, time, location - ?? (maybe)
Statistics of Deployment

- 4000 total installs
- 900 Active Installs
- 115 countries
- 1.5 million+ measurements

Statistics from Google Play Store Developer Console
Ping times by signal strength

Network Latency decreases as Signal Strength increases
GSM seems to outperform CDMA in terms of network latency.
Ping times by time of day

Median values of Latency by Hour of the day

Median values of Standard deviation over 5 pings by Hour of the day
Open issues

• Sharing data
  • We’re working with M-Lab to make the data publicly available. The issue is what subset of the data should be publicly available

• User privacy
  • What combination of information could potentially serve to identify users. What level of anonymization and/or aggregation is a good idea

• Validating measurements
  • Absence of standard tools such as iperf for estimation of TCP throughput

• What other tests would you like to see?
Questions and Suggestions

• Please try the app – My Speed Test on Google play store
• Work in progress so for any suggestions, bugs or general feedback please send me an email–
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