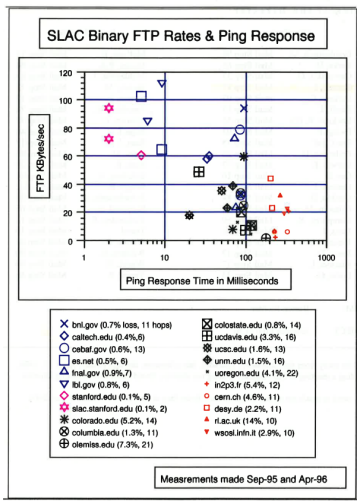
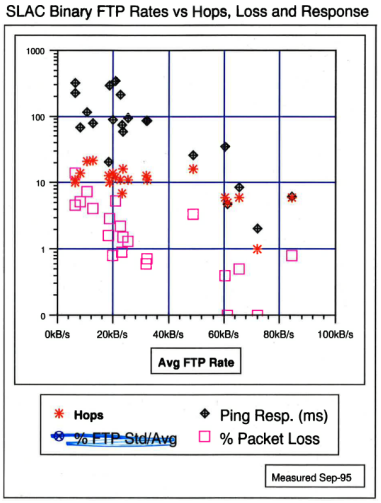
Ping Correlation with FTP

Ping RTT and Loss correlations with FTP





Correlations between FTP & Ping throughput

Two common ways to measure the data rates (kilo bytes/second or kB/s) between two nodes are to use the Internet File Transfer Protocol (FTP) and ping. Though FTP is closer to what may be expected by the user, it is also more complex to use, more intrusive on the network, and more dependent on end node loading. Ping is much more simple, it simply measures the round-trip response time for a given number of bytes. In order to get an idea of how well a ping measurement of data rate would correlate with an FTP measurement, we have measured the data rates by both methods to several sites and plotted the results below.

We derive the ping data rate in two ways:

1. Measure the average ping response time (t) for a packet of 1000 bytes. The average is taken over a 10 week interval on working days with 5 measurements every 3 minutes. The throughput = 2000 bytes / t. There are 2000 bytes since the packet has to go out and back. We call this the **P ing Data Rate** measure.
2. Measure the average ping response times (t100 and t1000) for packets of 100 bytes and 1000 bytes over the same 10 week interval. The byte rate is then = (2000 - 200) bytes / (t1000 - t100). We call this the **Ping Thruput** measure.

These two ping measures are plotted against the FTP data rate here:

It can be seen that there is a strong correlation. It is not clear which ping method gives the better correlation. Since the Ping Data Rate method is simpler (easier to calculate, less dependent on anomalies due to say t100 being > t1000), we tend to use the Data Rate method. More details as to which node saw what response can be seen below where the ping throughput is plotted in log form.

Feedback

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