# TULIP Distance Error (Apollonius) based on Alpha

Internet nodes spread all over the world are not uniformly distributed and Landmark density in each region varies. And these factors are impact the speed with which data travels between them. Using RTT as our delay factor we calculate distance by dist=(minRTT/2)*Alpha

Previously the value use for alpha was 100 for all regions in the world. This value was based on speed with which light travels in cable. But after doing analysis on results collected for each region of world over a long period we analyzed that the Standard Deviation of average values for each landmark of particular region is quite high. High SD convinced us to not go for static Alpha value.

Analysis based on data collected over long period , we selected Dynamic Alpha values for each region instead of static Alpha value(i.e 100). see Dynamic Alpha values

The results showed significance reduction in Distance Error (Comparing to GeoIPtool) for each region.

see Dynamic Alpha Impact on Distance Error

## Dynamic Vs Static Alpha Comparion

Europe And North America

For Other Regions Test in Progress!

## Region by Region Dynamic Alpha Impact

Europe

North America

For Other Regions Test in progress!