

Review of The End-to-End Effects of Internet Path Selection

Gwendolyn Stockman

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This paper demonstrates that a large portion of paths followed by packets on the Internet are sub-optimal in terms of round-trip time, bandwidth, and loss rate. They do this by comparing the average performance of default routes to the average performance of alternate paths. The alternate paths are composed of multiple hops for which long-term average pairwise performance measurements are known.

While they did address the affect of the time-of-day on the measurements as well as the affect of the measurements being taken on a weekday or weekend day, the times of the day for the weekend were lumped together. No mention of whether or not the time-of-day had any effect on weekend measurements. Even if no plot was provided it would be reassuring to know that they had examined it. Also, it is questionable as to whether or not the study accurately reflects the Internet. Also, while two of the datasets were previously shown to be representative of the Internet and the results of those are similar to the results of the three new datasets, whether or not the study accurately reflects the Internet is still questionable. One reason for this is that the two aforementioned datasets are old and reflect a different routing infrastructure. Further, the number of hosts used is relatively small compared to the number of hosts that compose the Internet. This severely limits the number of possible paths examined.

This paper is primarily measurement-based. Rather than proposing new ideas, facts are presented to show that routing in the Internet is largely inefficient in terms of round-trip time, bandwidth, and loss rate. The results show that the problem of how to route more efficiently must be addressed. It is noted that to address this problem every AS must have the incentive and ability to maximize performance of packets without interference. The answer to this problem most likely lays in a completely new infrastructure, because today's Internet does not provide the necessary incentives and abilities.