

Review of A Comparison of Overlay Routing and Multihoming Route Control By Holly Esquivel

The authors present a comparison of overlay routing and multihoming in which they determine that the relative performance between the two is closer than other studies have shown. They conduct several experiments in which their conclusions are:

- Given 1-Overlay and 1-multihoming, the overlay outperforms in both RTT and throughput
- Given 1-Overlay and k-multihoming, the multihoming outperforms in both RTT and throughput. This occurs because the k-multihoming allows much greater flexibility in the paths that can be chosen by the BGP routing protocol in comparison to one overlay
- Given k-Overlays and k-multihoming, the overlays can provide the same or better performance than the multihoming. If you combine the two to simulate a network that already had multihoming in place then the results only improved slightly.

The authors also discuss several factors which could have slightly had an effect on their results such as the amount of traffic on a given day, the key ISPs which were present in the cities they selected and the fact that their test for path availability could not determine short term failures. Even with all of these factors though, the biggest point remains that their results indicate that the relative performance of overlays and multihoming is the same.

One of the pros of this paper is that they discuss the reality of these two routing protocols in practice. They explain who has to bear the responsibility of making these protocols functional if a customer wanted to use them. For example, if a customer wanted multihoming most of the burden of implementation would be placed on them and then they would have to pay an ISP for the use of additional resources. On the other hand the use of overlays requires communication and agreement between several ISPs regarding how packets can be routed through them in congested times. This can be complicated to reach an agreement on and some ISPs may not even want to participate in the overlay.

One of the cons of the paper is that the testbed ISPs that they conducted the experiments on do lack location diversity. It would be interesting to see how delays to overseas ISPs affect the performance of the routing protocols or if a different combination of overlays and multihoming results in more successful service to a customer. Of the locations that were picked though, it looks like they were able to explain most of the biases and potential threats to validity that they encountered.