
Public Review for Measured Impact of Crooked Traceroute

Matthew Luckie, Amogh Dhamdhere, kc claffy, and David Murrell

The research community has applied traceroute-style probing to measure Internet topologies for more than a decade with systems such as Skitter/Ark, Dimes, or Rocketfuel. These topologies are the basis of many other research efforts. Unfortunately, recent studies showed that classic traceroute can report false links when a router in the path performs load balancing. Although new probing techniques correct measurement artifacts under per-flow load balancing, we cannot correct topologies that have already been collected using classic traceroute and no prior work has studied how these errors affect inferred topologies. A natural question is then: how accurate are the topologies that we have all been using in our research?

This paper gives us a mixed answer. Measurement artifacts due to per-flow load balancing introduce only few errors when traceroute is used to discover a macroscopic topology (i.e., an Internet-wide topology), but they introduce significant errors when discovering the topology of an ISP. Such a sharp difference in the fraction of false links between the macroscopic topology and the ISP topology suggests that the error really depends on the set of vantage points and the networks traversed. This paper studies only one source of errors in inferred Internet topologies. As the authors point out: "the state of the art in Internet topology measurement is essentially and necessarily a set of hacks, which introduce many sources of possible errors". Hopefully, new studies will follow to understand the caveats of measured Internet topologies and to measure more accurate topologies. In the mean time, this paper confirms that we should be cautious when using inferred Internet topologies.

Public review written by

Renata Teixeira

*Laboratoire d'Informatique de Paris 6 (LIP6)
CNRS and UPMC Sorbonne Universit s, France*

