

CSC2231 – Internet Systems and Services

Paper Review – King

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King is a tool designed to measure the latency between arbitrary Internet hosts. This is accomplished by observing that hosts tend to be “close” to their authoritative name servers. King estimates the latency between two arbitrary hosts as the latency between their respective name servers. Briefly, the difference between a recursive and non-recursive request to a DNS server (server A) will give the latency between the server A and the DNS server that A forwarded the recursive request to.

This method produces significantly more accurate results than IDMaps and has the additional advantage of leveraging existing Internet protocols and infrastructure. The technique is therefore, much more universally applicable.

The key requirements are that the two hosts being measured must 1) have different authoritative name servers and 2) have a path between them that is “similar” to the path between their respective name servers (in terms of performance). Failure to meet the second condition would result in poor estimates. Because of this, I would expect that King is very accurate for servers but less accurate for regular Internet hosts. Indeed, the authors found that the last hop to Napster clients (residential hosts) were significantly slower than the paths to their respective name servers. This limitation may not have surfaced in their results (aside from testing Napster clients) since they used traceroute servers (which have fast connections as far as I know).

Additionally, King depends heavily on heuristics and certain assumptions (DNS server locations and recursive query support) that do not always hold. Although for time being in practice, this technique appears to be highly dependable in most situations.