**Review of the "End-to-end arguments in system design", Saltzer, Reed and Clark, ACM TOCS, 1984.**

This paper is a presentation of the end-to-end argument in relation to system designs. In short, the end-to-end argument proposes that, "a function should not be provided in the lower level of the system unless it can be completely and correctly implemented at that level". The paper argues the pros and cons (mostly the pros) of this argument and provides examples supporting this design principle.

The strengths of the paper:

Formalizes the end-to-end design principle, that has already been widely in use at the time of publishing, but not well documented.

The design principle presented in this paper is general enough to be applied to areas other than communications network.

It provides detailed examples in diverse areas of system design, such as security, message suppression, delivery acknowledgement, and crash and error recovery.

Sole Weakness:

While the entire paper is very well written and provides a strong argument in favor of the end-to-end design principle, it does not provide any quantifiable proof in support. There are no facts or figures that demonstrate that putting functionality at a lower layer is more costly or only good for performance. It only vaguely addresses the other approach to move functionality into the lower layers. Instead, it appeals to the reader’s common sense to accept their argument.

Overall this is a very well thought out and well written paper. While it does not put forward new ideas, it does a good job of consolidating the existing thought process behind adopting this approach. Is this approach the correct one? Looking at the current state of the Internet, it seems the answer is yes. Specifically if you look at how the foundation of the Internet is organized, specifically the TCP/IP stack, the advantages of this approach are immediately obvious.