1025-05-211 **Andre Kundgen**, **Michael Pelsmajer** and **Radhika Ramamurthi*** (ramamurt@csusm.edu), Department of Mathematics, Cal State San Marcos, 333 Twin Oaks Valley Road, San Marcos, CA 92069. *k-robust single message transmission.*

End-to-end communication considers the problem of sending messages between a sender s and a receiver r through an asynchronous, unreliable network, such as the Internet. We consider the problem of transmitting a single message from s to r through a network in which edges may fail and cannot recover. We assume that some s,r-path survives, but we do not know which path it is. A routing algorithm is k-robust if it ensures that a message sent by s will be received by r when at most k edges fail, and it will never generate an infinite number of messages. A forbidden minor characterization is known for graphs with a k-robust algorithm for all k. For any other graph, its robustness is the maximum k for which it has a k-robust algorithm. We provide general lower bounds for robustness by improving a natural algorithm obtained from Menger's Theorem. We determine robustness for several examples, such as complete graphs, grids, and hypercubes. (Received January 23, 2007)