# What causes Long-Tail traffic?[*]

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If the distribution of file sizes is heavy-tailed then the superposition of many file transfers in a client/server network environment will be long-range dependent. This remains the case even when there are changes in network resources like bandwidth, buffer capacity and also in network topology. (Wikipedia)

It can be shown that long-range dependence could arise in the queue length dynamics at a given node (an entity which transfers traffic) within a communications network even when the traffic sources are free of long-range dependence. The mechanism for this is believed to relate to feedback from routing effects in the simulation. (Wikipedia)

For example:

In the heavy-tailed distribution of file sizes observed, the decision on whether a small file or a large file is sent is simply a feature of the human requirement to send a file of that size at that time.

Exercise:

Give possible suggestions of any other scenarios that can be modelled by the heavy-tailed distribution? Answer[1]

References:

Wikipedia. "Long-tail traffic", Wikimedia Foundation Inc, http://en.wikipedia.org/wiki/Long-tail_traffic, Last accessed 11 February 2006.

Self-Similarity in World Wide Web Traffic: Evidence and Possible Causes Mark E. Crovella, Member, IEEE, and Azer Bestavros, Member, IEEE.

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[1]http://cnx.rice.edu/GroupWorkspaces/wg412/module.2006-02-15.2549521145/module_text?portal_status_message=Metadata%20updated./