



Routing Traffic through the Internet

Understanding the way packets of information move through the Internet is a challenging problem. Internet traffic behaves quite differently from traditional phone-line traffic. Fractal-based modeling has been successful in describing aspects of Internet data traffic ranging from the inter-keystroke times of a person typing to the sizes of files transferred.

While the characteristics of phone calls are generally predictable, the Internet has features—like length of session—that are often unpredictable and behave nothing like voice traffic. For example, as the observed time period in a phone network increases, the traffic patterns smooth out. With Internet data, however, no smoothing out ever occurs—the traffic patterns show bursts over both long and short time scales. Describing the new Internet with new mathematics might make our experience with the Internet more predictable.

For More Information:

“Where Mathematics Meets the Internet,” Walter Willinger and Vern Paxson, *Notices of the American Mathematical Society*, September 1998.



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