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Cover: A new picture—at atomic resolution—provides insight into how two molecular chaperones help proteins fold. The snapshot reveals that, upon capturing a protein, the molecules twist dramatically and completely renovate the chemical environment in which the protein resides. (Image: Zhaohui Xu)

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Letters

Give Dad his due

The mitochondrial DNA study of Neandertals rules out only maternal inheritance of this DNA by modern humans ("Neandertals make big splash in gene pool," SN: 7/19/97, p. 37). Until male-linked DNA analysis is possible, some degree of Neandertal ancestry for modern humans through the male lineage cannot be ruled out.

Lynn Hawley Bootes
Redlands, Calif.

Congestion suggestions stir storms

Concerning "Internet congestion stirs up data storms" (SN: 7/26/97, p. 53) and its proposed solution to usage spikes, the assertion that equations exist to describe such phenomena does nothing to validate either the equations themselves or the assertion that data charges are the way to go. The funda-

mental assumption that everyone, or even a significant proportion of users, will suck up bandwidth all day because it's free needs some closer examination as well. Let me mention a few actual problems.

First, it is not the amount of usage that creates congestion spikes, it is the fact that the usage is random.

Next, users indeed do not differentiate between low and high data transmission requirements. For one thing, the advertisers who insist on swamping us with elaborate graphics at every turn of the page are not charged in proportion to their excesses. How will a pricing algorithm distinguish between wanted and unwanted data? For another thing, it is a mistake to suppose that the average user will base his or her demand for service on charges for use of the available bandwidth. The average adult will use as much as seems necessary—or in the case of teenagers, what they can get away with.

Finally, the article cites spikes that are fre-

quent and last a fraction of a second. They must be really, really frequent for the user to notice them without specialized electronic equipment. My impression is that the server addressed gets swamped long before the transmission lines do.

As for the answer, it is provided in the article. Users tend to avoid delays by trying later or by timing their access to periods of low usage. This is called smoothing, and it happens automatically.

We already have a somewhat regressive pricing structure for the Internet, and we don't need one that favors institutional users (who are unlikely to lose their free ride in any case). Can you imagine a grad student paying punitive charges for graphics essential to his scientific endeavors? Or the government saving any money at all?

Last, how will an equitable pricing structure be implemented? First, you have to get

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