

This Week

Virtually indestructible

Beware: old computer viruses can come back to haunt us

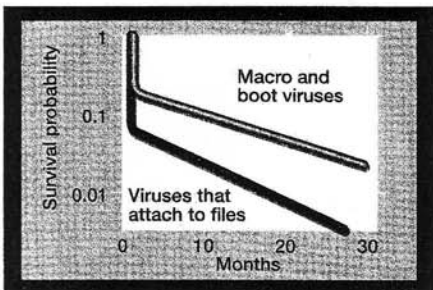
RIDDING your computer of a virus does not mean you can relax. It could return months or even years later—and researchers will tell a conference in Paris next week that this is much more likely to happen than was previously thought. What's more, things can only get worse as the Internet expands.

Until now, most analysis of the way computer viruses proliferate has been based on some of the ways biological viruses spread. Numbers of the virus either increase exponentially, with each computer infecting several others in a chain reaction, or it dies out quickly. Which of these paths is followed depends on whether a virus infects new victims faster or slower than it

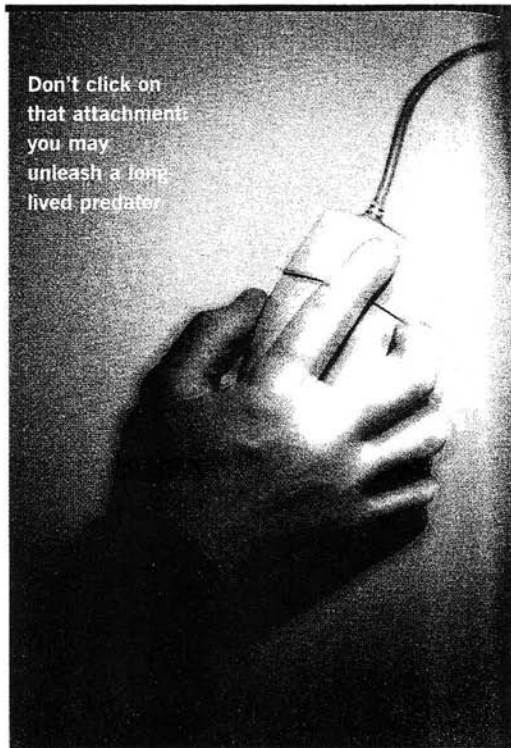
is purged by anti-virus software.

But physicists Romualdo Pastor-Satorras and Alessandro Vespignani at the Abdus Salam Centre in Trieste, Italy, now say this model doesn't reflect reality. The pair examined 814 persistent computer viruses reported in *Virus Bulletin* from 1996 to 2000. They found that none of the viruses spread exponentially. And contrary to expectations, viruses with very low infectivity rates stayed around for many months (see Graph). So Vespignani and Pastor-Satorras, now at the University of Barcelona, have devised a new model of virus epidemiology which takes into account the fact that the number of connections between computers on the Internet fluctuates wildly (*New Scientist*, 29 July, p 4).

"It means sometimes an infective virus will die out because it doesn't encounter enough connections, whereas a less infective one might spread," says Vespignani. He says safety measures which affect the connectedness of the network—such as telling people not to open e-mail attachments—are more important than the distribution of specific anti-virus software.



Don't click on
that attachment
you may
unleash a long
lived predator



However, Graham Cluley of the anti-virus company Sophos, based near Oxford, says the problem is that not enough people employ the anti-virus software that is available—and don't apply important software "patches" that keep viruses out. But according to Vespignani, unless almost everyone uses anti-virus software, a virus can become endemic.

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