

# 50 years after internet conception, dark side stirs fear

13 October 2019, by Glenn Chapman



Leonard Kleinrock poses beside the first Interface Message Processor (IMP) in the lab where the first internet message was sent, at the University of California Los Angeles

On October 29, 1969, professor Leonard Kleinrock and a team at the University of California at Los Angeles got a computer to "talk" to a machine in what is now known as Silicon Valley.

The event gave birth to a network that later became known as the internet—hailed at first as a boon to equality and enlightenment, but with a [dark side](#) that has emerged as well.

As UCLA marks the anniversary, Kleinrock is opening a new lab devoted to all things related to the internet—particularly mitigating some of its unintended consequences on the internet which is now used by some four billion people worldwide.

"To some point it democratizes everyone," Kleinrock told AFP.

"But it is also a perfect formula for the dark side, as we have learned."

So much is shouted online that moderate voices are drowned out and extreme viewpoints are amplified, spewing hate, misinformation and abuse, he contended.

"As engineers, we were not thinking in terms of nasty behavior," said Kleinrock, 85.

"I totally missed the social networking side. I was thinking about people talking to computers or computers talking to computers, not people talking to people."

The new Connection Lab will welcome research on topics including machine learning, social networking, blockchain and the [internet of things](#), with an eye toward thwarting online evils.



The internet has grown to connect billions of users around the world, as seen in this Facebook map from 2010, but has also allowed malicious actors to operate on a wide scale

Kleinrock expressed particular interest in using blockchain technology to attach reputations to people or things online to provide a gauge of who or what to trust.

For example, someone reading an online restaurant review would be able to see how reliable

that author's posts have been.

"It is a network of reputation that is constantly up to date," Kleinrock said.

"The challenge is how to do that in an ethical and responsible fashion; anonymity is a two-edged sword, of course."

### Businesses being bad

He blamed many of the internet's ills on businesses hawking things that are outdated or unneeded, violating privacy to increase profit.

Instead of clever lone hackers that vexed the internet in its early days, bad actors now include [nation states](#), [organized crime](#) and powerful corporations "doing big, bad things," Kleinrock lamented.

"We were not the social scientists that we should have been," Kleinrock said of the internet's early days.

He regretted a lack of foresight to build into the very foundation of the internet tools for better authenticating users and [data files](#).



Computer scientists who created the system that became the internet say they did not foresee some of the ills that it would create

"It wouldn't have avoided the dark side, but it would

have ameliorated it," he said.

He remained optimistic about the internet's woes being solved with encryption, blockchain or other innovations.

"I do still worry. I think everyone is feeling the impact of this very dark side of the internet that has bubbled up," Kleinrock said.

"I still feel that the benefits are far more significant; I wouldn't turn off the internet if I could."

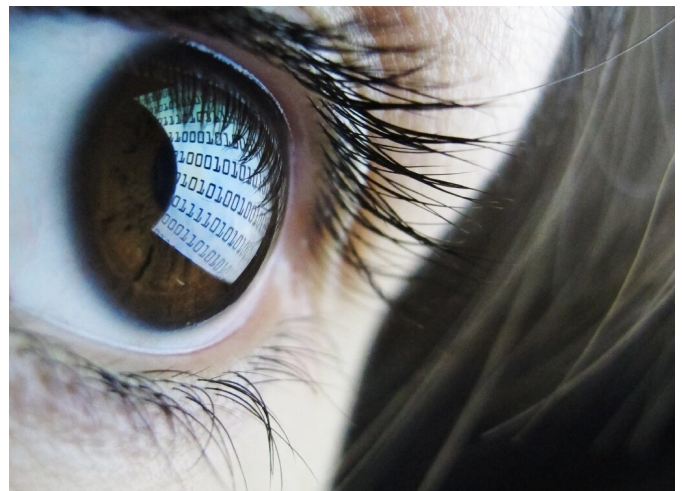
### What kind of beast?

In the early days, US telecom colossus AT&T ran the lines connecting the computers for ARPANET, a project backed with money from a research arm of the US military.

A key to getting computers to exchange data was breaking digitized information into packets fired between machines with no wasting of time, according to Kleinrock.

A grad student began typing "LOG" to log into the distant [computer](#), which crashed after getting the "O."

"So, the first message was 'Lo' as in 'Lo and behold,'" Kleinrock recounted. "We couldn't have a better, more succinct first message."



The scientist who sent the first message on the

forerunner to the internet says that the benefits have been greater than the harms it has created

Kleinrock's team logged in on the second try, sending digital data packets between computers on the ARPANET because funding came from the US Advanced Research Projects Agency (ARPA) established in 1958.

Credit for creating the internet is a topic of debate, since there are a series of key moments in its evolution including arrival of protocols for how data is routed, and creation of the World Wide Web system of online pages.

The name "internet" is a shortening of the "internetworking" allowed when one computer network could collaborate with another, according to Marc Weber, curatorial director at the Computer History Museum in Silicon Valley.

"The billion dollar question is, what kind of beast has the internet become?" Weber asked.

"It has become the default main way for humans to communicate, and that is not small."

While marking its 50th anniversary, the internet as we know it is a "rowdy teenager" in the eyes of Internet Society chief technology officer Olaf Kolkman.

"The [internet](#) has done more good than harm," Kolkman said.

"The biggest challenge we have in front of us is that while we cope with big problems enabled by global connectivity that we don't throw the baby out with the bath water."

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APA citation: 50 years after internet conception, dark side stirs fear (2019, October 13) retrieved 30 November 2020 from <https://techxplore.com/news/2019-10-years-internet-conception-dark-side.html>

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