

What would happen if the Internet went down?

1. What is the Internet?

The internet (“inter-network”) is a massive network of networks. It connects millions of computers together around the world. Any computer can communicate with any other computer in the network. To access the “world wide web” (www) we use “browsers” such as Google Chrome, Edge, Firefox, Safari and Opera, to view web pages. Until today, the internet has never completely “gone down”. However, parts of the internet have broken in the past, causing temporary chaos and economic losses.

2. Today’s Threats

a) Solar flares

When a large solar flare erupts, it can cause geomagnetic storms on Earth. The largest solar flare recorded was in 1859. It was called the “Carrington Event”, named after the British astronomer Richard Carrington. The flare caused auroras to appear all over the globe, and sparks to leap from telegraph operators’ equipment. If a flare of that magnitude occurred today, it could destroy transformers and computer systems and could disable the entire internet! The sun’s activity follows an 11-year cycle called the “solar cycle”. During “solar maximum” solar flares can occur. The last solar maximum occurred in 2024. In May and October, regions as far south as Portugal and California saw colourful auroras in the skies over many nights due to powerful solar flares. In 2002 a solar flare caused power outages in Sweden and damaged power transformers in South Africa.



b) Cable cutting

Physically, the internet is a network of copper cables, fiber-optic cables and undersea cables. The wires that form the internet are spread across every continent and ocean. A single sub-oceanic cable is around three inches in diameter. In March 2018, an Australian bore operator shut down many internet channels in New Zealand when he accidentally cut through some cables. 99% of global web traffic passes through deep-sea fibre-optic cables, and the other 1% passes through satellites. So, if somebody wanted to take down part of the internet, they would just need to cut an undersea cable. If enough cables were cut in a coordinated effort, the entire internet could be taken down. Sharks are also a problem. They can be attracted to electromagnetic fields, and they sometimes bite on undersea cables.



c) Cyber warfare

Cyber warfare is everywhere. Could a cyber attack really take down the entire internet? Unfortunately, the answer is “yes”. In fact, this threat is very close to becoming reality. Hackers have successfully disabled small parts of the internet, or gained access to the servers of large companies. To take down the entire internet, hackers would have to attack all the companies that run critical parts of the internet simultaneously. According to some cyber security experts, hackers have been “testing” the defences of many such companies for many years.

3. What would happen if the whole Internet went down?

In 1909, the novelist E.M. Forster wrote a short story called “The Machine Stops”, describing a civilization that is completely dependent on a giant machine. He wrote “*There came a day when, without any warning, without any previous sign of weakness, the entire communication system broke down all over the world, and the world, as they understood it, ended.*”

Today, if the internet went down, it’s no exaggeration to say that the world, as we know it, would end. The severity of the effects would depend on how long the internet was down. If the entire internet went down for just a few hours, the economic effects would be enormous. On 19th July, 2024, an update to the software that the security company CrowdStrike provides to thousands of companies using MicroSoft operating systems, contained a bug which crashed millions of computers around the world. The services affected were emergency services, airlines (thousands of flights were cancelled or delayed), flight reservation systems, public transportation services (trains and buses experienced delays), customer information systems, medical and hospital systems (appointments and operations were delayed), and numerous Fortune 500 companies, including many large banks (many banking mobile apps failed to work for many hours). Once the update was rolled back, the economic damage was estimated to be about 5.4 billion dollars. So one bug in one program created by one person in one company temporarily disabled millions of computers around the world. This demonstrates the vulnerability of the internet. If this can happen accidentally, imagine what a hacker could do, with access to specific software.

A global internet blackout for one week would be an economic catastrophe.

If the internet were to go down forever, companies such as Google, Microsoft, Facebook and Amazon would cease to exist. The global economy would have to reorganise itself – a process that would cost trillions of dollars and create massive global unemployment. The world would see a global economic crisis as never seen before.

Also, due to immediate overload, telecommunications services would come under enormous strain and quickly fail. Countries and communities would become isolated from each other. All air traffic, metro systems and train networks would immediately stop, causing major disruption to travel. All satellites would shut down, meaning many services such as TV and GPS would be unavailable.

Enormous queues would form inside and outside banks due to ATM failures. The banking system would face the massive administrative task of manually transferring money. Eventually the service would collapse and the global stock market would cease to operate. Companies would not be able to conduct business with each other, meaning that it wouldn’t take long before the supermarket shelves become empty.

In summary, if the whole internet disappeared, the world would change substantially. As a species, we would be thrown back in time, and faced with fixing the biggest problem the world has ever seen. It would, without doubt, be a nightmare!