Iran net outage first to effectively isolate a whole nation

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In this Nov. 20, 2019, file photo, a gas station that was attacked during protests over rises in government-set gasoline prices is reflected in a puddle, in Tehran, Iran. Internet connectivity is trickling back in Iran after the government shut down access to the rest of the world for more than four days in response to unrest apparently triggered by a gasoline price hike. (AP Photo/Ebrahim Noroozi, File)

Internet connectivity is trickling back in Iran after the government shut down access to the rest of the world for more than four days in response to unrest apparently triggered by a gasoline price hike.

The shutdown across a nation of 80 million people was the first to effectively isolate a modern, highly developed domestic network, experts say. That makes it a milestone in efforts by authoritarian governments to censor online communications.

Other governments—such as Ethiopia's—have imposed longer internet shutdowns. And Russia is headed in the same direction. But nothing to date equals Iran's shutdown in logistical complexity, the experts say.

"There is a desperate move to control all information in the country and to ensure that the government has a monopoly on information," said Adrian Shahbaz, research director for technology and democracy at Freedom House, a democracy watchdog group.

Despite the open nature of the internet, a combination of technical measures and political pressure in repressive states can isolate large populations from free-flowing information.

Some governments, especially during unrest, have been accused of trying to prevent the spread of videos and images showing police violence against protesters. They do so by throttling, or slowing down, internet connectivity or blocking access to specific applications such as Google search. It's happened on multiple occasions in Venezuela.

Iran acted to staunch demonstrations in a reported 100 cities and towns. After gas prices were increased, demonstrators abandoned cars along major highways and joined mass protests in the capital, Tehran, and elsewhere. Some protests turned violent.
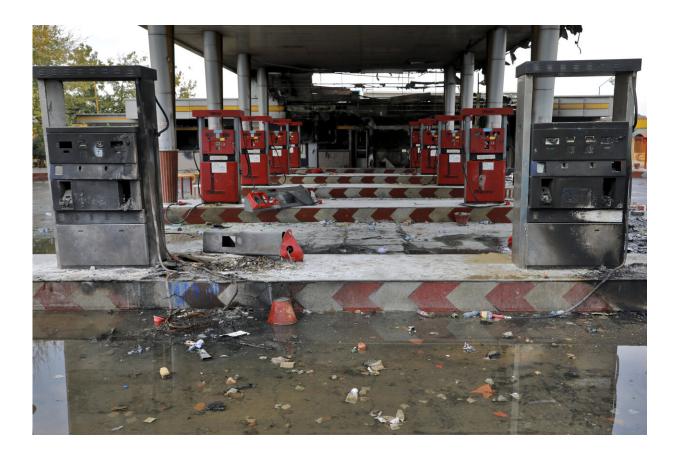
The Iranian government can throttle or block access because there are just two principal gateways, known as exchanges, that connect the country to the global internet, and the government controls both.

By Thursday, some fixed-line access to homes was coming back, said Mahsa Alimardani, a doctoral student at the Oxford Internet Institute and activist with the human rights group Article 19.

Unlike China, which has long exerted central control of the internet, Iranians grew a decentralize internet. But authorities have gradually reined it in following protests over a disputed presidential election in 2009.

An independent group that monitors worldwide internet access calculates the economic impact of this week's outage at $300 million, based on the Iranian information technology sector's share of domestic productivity.

In this Nov. 20, 2019, file photo, rainwater pools at a gas station attacked during protests over government-set gasoline prices in Tehran, Iran. Internet connectivity is trickling back in Iran after the government shut down access to the rest of the world for more than four days in response to unrest apparently triggered by a gasoline price hike. (AP Photo/Ebrahim Noroozi, File)

What remained active—after some early glitches—was the National Information Network, in which authorities have invested heavily in recent years. It amounts to a closed, domestic internet that can be nearly isolated from the rest of the world. That system allows banks, government agencies and universities to continue to function.

Some of those institutions—such as the central bank—retained access to the global internet even as mobile networks and homes had no

connectivity.

Economic damage would have been far worse if Iran were not already hobbled by international sanctions over its nuclear program.

Nevertheless, many Iranians have come to depend on outside services such as Telegram, an encrypted communications app, to do business internationally.

The government's efforts to develop domestic alternatives to Western internet services have not been very successful, Alimardani said.

Alternatives include a homegrown version of the Google-owned traffic app Waze and a messaging and social networking app called Soroush. Iranians tend to shun such apps, assuming them to be monitored by police and intelligence agents. That's in contrast to China, where home-grown apps such as WeChat have thrived.

The Iranian government moved to censor Telegram in 2018, but people have found ways to circumvent the censorship, as they have in Russia.

Virtual private network programs, in which users connect to the internet through encrypted tunnels with gateways abroad, are used to try to foil government censors, with mixed results.

Expert say there will likely be more efforts by governments to exert control over the internet, effectively destroying its open global architecture.

Russia is already moving toward what the Kremlin calls "internet sovereignty."

Under a new law, Russia is pushing filtering equipment on internet

service providers that will serve a double purpose—blacklisting outside websites and services the government doesn't want people to see and surveilling their activity. University of Michigan researchers say the model can be easily exported, challenging the notion that decentralized internet service can prevent large-scale censorship.

On Monday, the U.N. General Assembly's human rights committee approved a resolution drafted by Russia that independent rights groups call an effort by the Kremlin to expand its model of state control. Approval by the 193-member assembly in December is thus virtually certain.