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Regional crises threaten undersea fiber networks - how close are we to internet disruptions?



Any conflict involving major maritime routes could potentially threaten undersea cables. For example, if the emerging conflict between Taiwan and China became violent, the resulting conflagration would almost certainly impact cables in the South China Sea and East China Sea regions.

The consequences would be severe internet disruptions—and untold economic impacts on a global scale. Any intentional targeting of cables would have severe consequences for both global telecommunications systems, and the internet's complex infrastructure.

Taiwan is connected to the global internet through 14 undersea fiber optic cables, many of which are only slightly wider than a garden hose and stretch thousands of miles.

These cables are highly **vulnerable** to disruption, whether through intentional sabotage, accidents, or natural disasters. Past incidents, like the 2006 earthquake off Taiwan's coast that severed 9 cables, have caused major internet and communications outages.

Experts have warned that a conflict with China could result in Taiwan being "cut off from the world" if these critical undersea cables are severed or disrupted.

Southeast Asia at risk

A disruption to Taiwan's undersea cables would have very severe economic consequences. Looking just at the consequences for Taiwan itself, this event would potentially cost up to \$55.63 million per day, or \$1.69 billion per month based on Taiwan's population.

The impacts would extend beyond Taiwan, as these cables also carry bandwidth for users throughout Southeast Asia. This could disrupt international businesses and financial markets.

Taiwan relies on these cables for critical communications, so their disruption could also

impact military and government operations, as well as the flow of information during a conflict.

China considers Taiwan a breakaway province and has ramped up military and political pressure on the island. Experts believe China has extensively planned for potential invasion scenarios, including targeting Taiwan's critical digital infrastructure like undersea cable landing stations.

In the past, China has been suspected of involvement in incidents that damaged undersea cables

In the past, China has been suspected of involvement in incidents that damaged undersea cables, such as the 2013 attempt to cut a cable near Egypt. While China may also suffer economic consequences from disrupting the cables, experts warn it may be "willing to pay a price for its strategic aims" in a conflict with Taiwan.

Taiwan's heavy reliance on a small number of vulnerable undersea cables makes its connectivity to the global internet and economy a prime target in any conflict with China. Disrupting these cables could have severe economic and strategic consequences for Taiwan and the surrounding region.

How to protect the network in the Red Sea zone?

The ongoing conflict in the Red Sea region poses a significant threat to the vital undersea fiber optic cables that carry a substantial portion of global internet traffic. Here are the key points:

The majority of internet traffic between Europe and East Asia runs through undersea cables that pass through the narrow strait at the southern end of the Red Sea.

At least four major undersea cables (SEACOM,

TGN, Africa Asia Europe-One, and Europe India Gateway) have been **damaged** in the Red Sea, impacting around 25% of internet traffic between Asia, Europe, and the Middle East.

Repairing the damaged cables is complicated by the ongoing conflict in Yemen, as operators need permits from authorities on both sides

The damage is suspected to be caused by the sinking of a cargo ship (Rubymar) that was attacked by Houthi rebels in Yemen and left adrift, potentially dragging its anchor across the cables.

Repairing the damaged cables is complicated by the ongoing conflict in Yemen, as operators need permits from authorities on both sides, which could take up to 8 weeks to obtain.

Disruptions to these critical undersea cables can lead to widespread internet outages and significant economic disruption, as they carry the vast majority (97%) of intercontinental internet traffic.

Previous incidents, like the 2013 attempt to cut a cable near Egypt, resulted in a 60% drop in internet speeds in the country.

Cutting or damaging major cable routes could eliminate internet access across vast areas, impacting trillions of dollars in daily financial transactions and communications.

Undersea network security crucial to digital economies

While the Houthis have denied responsibility for the recent cable damage, the ongoing instability and conflict in the region pose a serious threat to the security and integrity of these vital undersea cable systems.

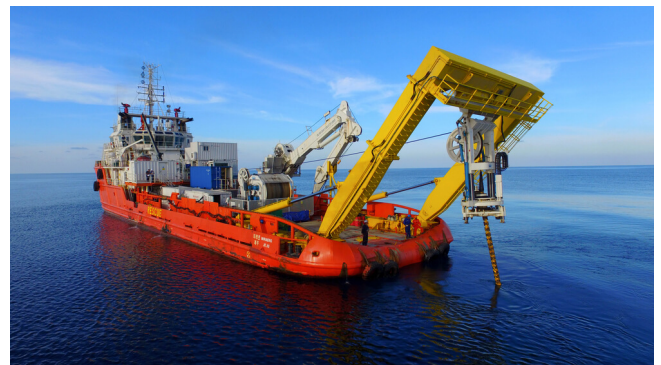
The consequences of any disruption to the principal undersea fiber optic cable routes would be severe. The majority of

intercontinental internet traffic, over 95%, is carried by these undersea cables.

Disruptions could lead to widespread internet outages, slow speeds, and a loss of connectivity across vast regions. This would have significant economic consequences, impacting trillions of dollars in daily financial transactions, international trade, and business operations that rely on high-speed data transmission.

Undersea cables carry communications for governments, militaries, and essential services like healthcare and disaster management. Disruptions could severely impact these critical functions.

For example, the U.S. Department of Defense's global information grid and net-centric warfare capabilities rely on these undersea cable networks, so outages could undermine military operations.



Repairing damaged cables in conflict zones is extremely challenging and can take weeks or months, prolonging the severe consequences of outages

Repairing damaged undersea cables is almost always extremely challenging, especially in conflict zones, and can take weeks or months to complete. The need to obtain permits from authorities on both sides of a conflict further complicates and delays the repair process, prolonging the outages.

The difficulty and delays in repairing these cables would exacerbate the problems. Maintaining the resilience of these vital communications networks is crucial for 21st century digital economies and global security.

The fragility of undersea fiber optic cables

poses a significant risk to global internet connectivity and economic stability. These vital cables are vulnerable to intentional sabotage, accidents, and natural disasters, as evidenced by incidents like the 2006 Taiwan earthquake and the recent Red Sea cable damage.

Maintaining the resilience and security of undersea cable networks is crucial for the digital economies and national security of the 21st century. Repairing damaged cables in conflict zones is extremely challenging and can take weeks or months, prolonging the severe consequences of outages.

All key players—governments, militaries, enterprises, and international organizations—must prioritize protecting these vital communication arteries from potential threats. These threats arise not only from the malicious actions of state actors and terrorist groups but also from environmental factors.

We can mitigate the risks posed by our shared reliance on these fragile undersea lifelines, but that will require us to collectively do hard things, such as investments in redundancy, alternative routing, and rapid repair capabilities.