

## Backup options for Internet lines can be costly, complicated

March 27 2015, by David A. Lieb

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Cables connecting phone, cable and Internet service come out of a wall connector in the home space exploration engineering office of Mike Loucks Thursday, March 26, 2015, in Friday Harbor, Wash., in the San Juan Islands. Loucks lost Internet and phone service during a 10-day outage on the island in 2013. Other regions around the country also have fallen dark in recent years, sometimes for days at a time, because of failures or accidents affecting the nation's broadband infrastructure. The failures have revealed vulnerabilities in the backbone of the nation's high-speed Internet highway, which often lacks the detour routes necessary to quickly restore service when outages occur outside of major cities. (AP Photo/Elaine Thompson)

Hunter Newby describes himself as a real estate entrepreneur, even if he's not marketing houses or land. Instead, he's selling space on a new fiber-optic transmission line to Internet providers, telecommunications companies and anyone wanting high-speed data.

Newby is chief executive of Allied Fiber, a New York firm that is nearing completion of a broadband route from Miami to Atlanta. His long-range vision is to build a new fiber-optic loop around the entire U.S. that is physically distinct from existing Internet routes but connects to them.

Newby's network is just one of the potential solutions to what experts describe as a lack of redundancy that makes the nation's high-speed Internet highway [vulnerable to outages](#) if a fiber-optic cable gets cut or a key connection site gets damaged. That is particularly true in rural areas and smaller cities.

How many broadband lines have backup systems is unclear because the industry has been largely unregulated and Internet providers will not divulge details about their networks.

Newby said the Internet "has numerous single points of failure all over the place." His goal, he said, "is to create physical diversity" around those spots.

One of those weak points was exposed last month when vandals sliced a fiber-optic cable in the Arizona desert between Phoenix and Flagstaff, leaving some people and businesses without Internet service for up to 15 hours. There was no backup system.

Industry analysts say there are several ways around such problems:

— Companies can build a second fiber-optic [transmission line](#) between

cities, allowing Internet traffic to be rerouted when one line goes down. But that could double the cost of extending service into a particular area.

— Networks can be designed with switches that reroute traffic along other existing routes. In one hypothetical scenario, Internet traffic from Phoenix could follow a detour to Los Angeles and Las Vegas to get to Flagstaff. But those alternative paths would need enough capacity to handle the suddenly enlarged load.

— A satellite or microwave system can be installed to serve as a backup to a fiber-optic cable between two places. But the service could be slower and a relatively expensive insurance policy.

"There almost always are options. The question is whether the other routes are economically viable," said Bill Woodcock, executive director of the Packet Clearing House, a San Francisco nonprofit that supports Internet infrastructure.

Newby said his customers typically already have access to another fiber-optic route. Some are choosing his line as a new primary path, others as a backup plan.

"How they build protection in their network architecture is up to them," he said.

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