Decentralized Broadband

Residents of a small town in Oregon experiment with a broadband network that rewards its investors in real time.

By Masha Zager / *Broadband Communities*

Clatskanie, Oregon, like many small, rural towns, had limited and unsatisfactory options for internet service. Many residents could connect to the internet only through their cellphones. So a group of frustrated but tech-savvy neighbors got together and created a wireless mesh network. The owner of the local computer repair shop, Deborah Simpier, purchased a commercial internet subscription and placed a sector antenna on the shop's roof to share her bandwidth with the other users on the network. Users can now get internet speeds up to 100 Mbps, depending on the type of equipment they have.

So far, this story isn't unusual. Community wireless mesh networks are widely used; some have tens of thousands of nodes. What's noteworthy about the Clatskanie network is the platform used to operate and fund it, called Althea.

Simpier is not only Althea's first beta tester but also a co-founder of the company. She's been interested for a long time in how a network could be "incentivized" – in other words, how it could appropriately reward investors and send correct signals to spur further investments.

In the standard model, an ISP invests in equipment, network operation and technical support, and customers pay monthly fees to the ISP. Customers and ISPs may disagree about how much investment the ISPs ought to make, which accounts for the dissatisfaction in towns such as Clatskanie. By contrast, the Althea platform incentivizes networks by allowing users to pay one another directly, using cryptocurrency, for two types of services: routing traffic and providing technical support. Any user who believes the network needs more investment can make – and potentially recoup – that investment. In essence, the market operates *inside* the network.

For example, any user can add an internet gateway, a wireless tower or a router to the network. (Legally, the Clatskanie network is structured as a cooperative, so the group can also make joint investments.) The owner of any network node can set a charge for routing traffic to or from the internet. The Althea platform then routes traffic based on the best combination of reliability, bandwidth and cost. Micropayments are automatically debited from one user's account to another. The owners of intermediary or gateway nodes compete with one another for traffic, and they can adjust their pricing – or add or move capacity – if their equipment is not optimally used. Similarly, knowledgeable users can offer themselves as tech support representatives and help others purchase, install and adjust equipment.

THE PRICING MODEL

In Clatskanie, both types of investors are emerging. People with property in strategic locations are preparing to put up towers and operate intermediary nodes. (In theory, any router can serve as an intermediary node, but Simpier says most locations wouldn't produce much revenue, so most nodes will be simply "user nodes.") Other people, who have technical skills, have stepped up to become "subnet organizers," or technical consultants.

The subnet organizers charge a monthly fee for each router they help administer, and the owners of intermediary and gateway nodes charge for each packet transmitted. This means the bulk of the pricing is metered. Historically, metered broadband pricing has been unpopular in the United States, largely because it is so unpredictable, but Simpier says the low prices have allayed users' fears. Fees vary based on usage and distance from the gateway, but a typical user pays about $40 per month. Payment is made in a type of cryptocurrency known as a stablecoin, which is pegged to the dollar; users can purchase the currency with credit cards and fill their accounts as needed, as one might do with an electronic toll collection account.

In addition to Clatskanie, Althea is conducting a trial in a neighborhood of Medellin, Colombia, where the network is partly wired and partly wireless. Jehan Tremback, CEO and co-founder of Althea, says the technology is medium agnostic and could conceivably even be used to operate FTTH networks. The company has received inquiries about potential projects both in the United States and internationally, but it is waiting until the two trials are complete to go forward with more projects. ❖

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