Facebook may soon join SpaceX and OneWeb in the rush to deliver the Internet from orbit. A recent filing with the U.S. Federal Communications Commission (FCC) revealed details of a multimillion-dollar experimental satellite from a stealthy company called PointView Tech. The satellite, named Athena, will boast a data speed 10 times as fast as that of SpaceX’s Starlink Internet satellites, the first of which launched in February.

However, PointView appears to exist only on paper. In fact, the tiny company seems to be a new subsidiary of Facebook, formed last year to keep secret the social media giant’s plans to storm space.

Many technology companies believe the future of the Internet is orbital. Around half the people on the planet lack a broadband Internet connection. SpaceX aims to put nearly 12,000 Starlinks into low Earth orbit (LEO), to deliver gigabit-speed Internet to most of Earth’s surface. Rival OneWeb, funded by Japan’s SoftBank, chipmaker Qualcomm, and Richard Branson’s Virgin Group, plans similar global coverage using perhaps 2,500 LEO satellites.

In early 2019, PointView’s Athena will also head out to LEO, on an Ariane space Vega rocket. Athena is about the same size as a typical Starlink satellite, about the same mass, and it uses the same sunlight-mirroring solar panels. The big difference: Facebook’s satellite is much faster. It will stream data at 10 gigabits per second, 10 times faster than Starlink’s data rate of 1 gigabit per second. That’s enough to provide a 5G-like experience to any internet user. PointView’s satellite will stream data at 10 gigabits per second, 10 times faster than Starlink’s data rate of 1 gigabit per second. That’s enough to provide a 5G-like experience to any internet user.
size and weight (150 kilograms) as SpaceX’s and OneWeb’s satellites, but Athena will use high-frequency millimeter-wave radio signals, which promise much faster data rates. The company estimates that its system, which will operate in the E band (from 60 to 90 gigahertz), will deliver data at download speeds of up to 10 gigabits per second, with uplink speeds topping 30 Gb/s. PointView now wants to find out if that system could provide fixed and mobile broadband service to underserved areas, according to its FCC application.

Space companies based in the United States must get permission from the FCC before launching any technology into orbit, and they often start building satellites and ground stations long before filing the paperwork. According to records in Delaware, PointView was incorporated there in April 2017. The company has filed no annual reports and has no named directors or shareholders. Instead, a paper trail leads to Facebook, in California.

To start, PointView Tech has the same corporate agent in Delaware as other Facebook subsidiaries, including FCL Tech, the company that managed its early connectivity tests. PointView’s application to the FCC was also filed by the same Washington, D.C., law firm—and even the same lawyer—that wrote previous FCC applications for Facebook. (Neither the law firm nor Facebook responded to requests for comment).

PointView specifies in its application three ground stations in the Los Angeles area that will send data to Athena in orbit and receive it in turn. One is a so-called satellite teleport near Ventura that is shared by a number of satellite companies. The second is Mount Wilson Observatory, in the hills above L.A., another popular site for communications hardware. But the third location, described in the application as housing a backup antenna, is an anonymous business park in the Northridge area of the city. Facebook was reported to have leased nearly 7,500 square meters of office space there in October last year, and the building is currently undergoing refurbishment.

In May, Facebook listed three job openings for its Northridge office, all related to communications and connectivity. An extraterrestrial product manager, for instance, is expected to have “in-depth technical knowledge of satellite [and]...millimeter-wave communication systems.” One current Facebook staff member’s LinkedIn profile says that he is working on “millimeter-wave communication product design & development” for satellites.

Facebook has long been interested in millimeter-wave systems. As early as 2015, FCL Tech filed an FCC application to “test potential new communication applications using the E band” from drones, in and around Los Angeles. In 2016, Facebook and its global connectivity spin-out Internet.org announced the first flights of its high-altitude solar-powered Aquila drones using E-band technology, and tests continued through 2017.

The company has also been thinking about satellites. In a 2016 letter to the FCC, the company wrote, “Facebook recognizes the important role that satellite plays in improving and expanding connectivity.... In remote, sparsely populated areas, where there are significant gaps in infrastructure and the economic barriers of installing that infrastructure are considerably higher, satellite services may provide the most efficient means to connect.”

There are technical barriers to using E-band radio from orbit, however. High-frequency millimeter waves fade quickly and are easily absorbed by rain and particles in the air. Part of Athena’s two-year mission will be to determine just how big of a problem that is. “PointView plans to publish many of its experimental findings,” including measurements of atmospheric attenuation, says its application.

And because Athena is in low Earth orbit, it will fly above the three ground stations only a couple of times each day, and for less than 8 minutes at a time. If Facebook is serious about providing global connectivity, it will need to copy SpaceX and OneWeb and have thousands of satellites in orbit simultaneously.

—MARK HARRIS

An extended version of this article appears in our Tech Talk blog.