

SpaceX has packed 60 satellites onto one rocket to advance its big internet plan

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SpaceX's plan to provide broadband access will take a big step forward Thursday night as the Elon Musk-led firm prepares to launch five dozen small satellites on a single rocket. They will eventually become part of a network of potentially thousands of internet-beaming spacecraft.

The launch was initially scheduled for Wednesday at 10:30 p.m. Eastern time from Cape Canaveral Air Force Station in Florida, but was scrubbed due to high upper-level winds. SpaceX will instead attempt to launch Thursday night at 10:30 p.m. Eastern time. After the launch, Hawthorne, Calif.-based SpaceX plans to land the rocket's first-stage booster on a floating platform in the Atlantic Ocean.

The 60 satellites, which weigh about 500 pounds each, are expected to deploy from the rocket's second stage about an hour after liftoff, when they reach a point about 273 miles above the Earth. The satellites will then propel themselves with tiny ion thrusters toward their final destination—an altitude of about 341 miles.

Together, the satellites weigh about 18.5 tons, marking the heaviest load a Falcon 9 or Falcon Heavy rocket has ever carried, Musk said Wednesday during a pre-launch call with reporters.

Last year, SpaceX launched two demonstration satellites for its proposed Starlink broadband satellite constellation. The company has said those satellites, known as Tintin A and B, communicated with ground stations on Earth and remain in operation.

The satellites set to launch Thursday, however, are a bit different. Musk tweeted last week that these are "production design" satellites, rather than the demonstration versions that launched last year.

But don't expect the company to offer service immediately—Musk said service could begin with 400 satellites, but 800 would be needed for "significant" operational capability. SpaceX has said it plans to provide coverage in the U.S. and around the world.

Musk on Wednesday tried to tamp down expectations, saying Starlink satellite development was "one of the hardest engineering projects."

"There is a lot of new technology here," he said, referring to Wednesday night's batch of spacecraft. "It's possible that some of these satellites may not work. In fact ... there's a small possibility that all of the satellites may not work."

SpaceX's plan to offer [internet service](#), particularly in unconnected

areas, is crucial to the company's future success.

When SpaceX announced layoffs earlier this year, it said in a statement that it needed to become a "leaner" company, in part, to succeed at its "global space-based internet" initiative. On Wednesday, Musk said the endeavor would be a "multi-billion dollar" effort; in 2015, he estimated that the project could cost \$10 billion to \$15 billion.

"This is a very difficult thing," he said Wednesday. "I do believe we will be successful but it is ... far from a sure thing." But he noted that "at this point, it looks like we have sufficient capital to get to an operational level."

Musk said Wednesday that the company would need the revenue from Starlink to fund its Mars spaceship development, but the company said in a statement in January that developing a satellite-based internet system and a Mars spaceship would bankrupt other organizations "even when attempted separately."

Musk described the constellation as a "key stepping stone" to establishing a city on Mars and a moon base. He said he believed SpaceX could access about 3% or 5% of total global internet connectivity revenue, which he estimated at \$1 trillion.

The broadband service would be aimed at people in remote areas who don't have connectivity or have only expensive or unreliable broadband, as well as users in more developed regions that want cheaper options. A SpaceX official said last year that services will be aimed at individual households and small businesses.

Musk said he didn't think the company would be "displacing" [telecommunications companies](#) with this effort, saying SpaceX was interested in speaking about partnership with global telecommunications

firms.

But SpaceX has competition. Amazon.com Inc., OneWeb and Canadian [satellite](#) operator Telesat, among others, have all announced their intentions to develop similar constellations of hundreds or even thousands of satellites to beam internet to Earth.

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