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Analysis Space

Why did SpaceX just apply to launch 1 million satellites?

Elon Musk's proposal to deploy a huge number of data centres in orbit may not be entirely serious, finds **Jonathan O'Callaghan**

WE ARE only a little over a month into 2026, yet it is already clear what one of the major space stories of the year is going to be: mega-constellations, and the ongoing attempts to launch thousands of satellites into Earth's orbit.

The latest development is that SpaceX has asked the US Federal Communications Commission (FCC) for permission to launch 1 million orbital data centre satellites. The request is unprecedented. The previous largest filing with the FCC, also by SpaceX, was for 42,000 Starlink satellites in 2019.

"This is beyond what's been proposed by any constellation," says Victoria Samson at the Secure World Foundation in the US.

SpaceX already operates the largest fleet of satellites in orbit, the Starlink internet constellation, which makes up about 9500 of the 14,500 satellites in orbit – but the fleet represents just 1 per cent of SpaceX's planned orbital data centre satellites. Those Starlink satellites alone already face a crowded orbital environment, with SpaceX having to dodge 300,000 collisions in 2025.

In the company's latest filing on 30 January, and also shared in an update written by CEO Elon Musk, SpaceX said it wants to develop vast orbital data centres in space to power AI.

The idea of launching data centres into space, where they can get uninterrupted sunlight, has grown in popularity over the past few years as energy demands for AI have skyrocketed. In November 2025, the US company Starcloud launched a demonstration data centre into space containing an advanced Nvidia chip, while the European Commission recently conducted a study that said orbital data centres were achievable.

Musk said launching the constellation would be possible using SpaceX's reusable Starship rocket that is currently under development, the most powerful rocket in history. "With launches every hour carrying 200 tons per flight, Starship will deliver millions of tons to orbit and beyond per year, enabling an exciting future where humanity is out exploring amongst the stars," he wrote.

> **"It could just be for shock and awe, with the true number of satellites likely to be much lower"**

The filing preceded the announcement on 2 February that SpaceX would acquire xAI, another of Musk's companies that owns the social media site X and the controversial Grok chatbot. "If AI is what they want the orbital data centres for, then it's a bit of a bundled package," says Ruth Pritchard-Kelly, an expert in satellite regulation in the US.

SpaceX isn't alone in its ambition to put many more satellites into orbit. On 29 December, China submitted an application with the International Telecommunications Union (ITU), a United Nations body that allocates portions of the radio spectrum in space, to launch 200,000 satellites into orbit. While there is no defined limit on how many satellites can safely be launched, previous studies have suggested it might be possible to operate millions of satellites in orbit, although anything above 100,000 is considered to become extremely hard to manage.

It will take the FCC months to decide whether to approve SpaceX's request, during which time it will open the application to public comments, while a separate filing will also need to be made with the ITU. If the FCC does approve it, SpaceX would normally be given a deadline of six years to deploy half the constellation – a requirement usually stipulated by the FCC – but SpaceX has asked for this requirement to be waived because it argued the satellites would mostly communicate by optical link, and not cause interference in radio.

SpaceX said it would operate the satellites between 500 and 2000 kilometres in altitude on slightly polar orbits, mostly above where Starlink currently operates. The size of each proposed satellite is unknown but, presuming they are similar in size to current Starlink satellites and each Starship could carry about 100 such satellites, it would take 10,000 launches to complete the constellation.

A significant impact

Presuming a launch every hour, as suggested by Musk, it would take just over a year to deploy 1 million satellites.

Musk's proposed mega-constellation would have a significant impact on astronomy. SpaceX said in its application that it would "continue its long track record of successful collaboration and innovation with the scientific and astronomy community".

However, in December, Alejandro Borlaff at NASA Ames Research Center in California and his colleagues found that adding 500,000 satellites to Earth's orbit would mean "nearly every single telescope image obtained from the ground or space will be contaminated by satellites", says Borlaff.

Whether SpaceX is serious about launching 1 million satellites is another question: it might instead be something of a joke by Musk, says Pritchard-Kelly, given the absurdity of the number. "It's gobsmackingly large," she says. "It could just be for shock and awe", with the true number of planned satellites likely to be much lower. SpaceX and the FCC did not reply to a request for comment.

GEOPIX/ALAMY

SpaceX has extensive experience in launching satellites into orbit