

How America will launch more rockets, and faster

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In the 1960s, a rocket launch was big news all over the world. Sixty years later, it's still a big deal. Sure, SpaceX has leaped forward with reusable vehicles, but the ability to make space travel a reliable, everyday event is still a way off.

The U.S. government and some private companies want to change that. The Pentagon's Defense Advanced Research Projects Agency, or DARPA, is putting up \$10 million to encourage launch firms to get faster and nimbler about traveling to [space](#). The goal of the Rapid Launch Challenge is to hurl a small [satellite](#) into orbit with only a day's notice—or less—from virtually anywhere in the country. In doing so, the agency hopes to accomplish a necessary next step in humankind's path to other worlds.

"The real goal has always sort of been to enable a more real-time, tactical use of space," Todd Master, a program manager in Darpa's tactical technology office, said in an interview. "And that's something we've been envisioning as a future need."

One of the earliest goals of SpaceX and its billionaire owner, Elon Musk, was to make rockets not just reusable but to relaunch them quickly, on consecutive days. Other companies, such as Arizona-based Vector Launch Inc., also see reusable rocketry and frequent, low-cost launches as the key to successfully commercializing space.

For the Department of Defense, space is now considered a contested domain. The array of top-secret spy, communications and missile-detection satellites are the most probable targets for an enemy, and both China and Russia have demonstrated their ability to obliterate satellites with ground-based missiles.

The U.S. satellite fleet's vulnerability has spurred talk in Congress and the White House of a new "space corps" with the ability to react quickly if a

satellite is destroyed or fails. One concept gaining purchase among military planners is using a constellation of smaller satellites instead of larger, more sophisticated birds that can be easily destroyed. If one is lost, another can be quickly sent to replace it.

"There's a lot of emerging and present threats out there in the space domain," Master said. There's "a concern that we have a fragile architecture." Such a smaller orbital fleet change would represent "a move away from larger, more expensive, more capable satellites."

However, using rapid launch capabilities to place smaller, less-expensive satellites in orbit to maintain defensive and civilian capabilities may help obviate risks posed by space adversaries, said Shaun Coleman, chief marketing officer at Vector Launch.

"We'll put them up faster than you can take them out," he said.

Vector executives said their business model suits Darpa's needs well, with each launch costing \$1 million to \$1.5 million. "We feel like we're the best-positioned, just by virtue of how we designed the product from the get-go," said Alex Rodriguez, vice president of government affairs at Tucson-based Vector.

Darpa was to host a forum with interested space companies on Wednesday in Los Angeles. By year-end, companies will need to present a detailed plan as to how they'd get a government's payload into low-Earth orbit.

In 2019, Darpa will give each launch company 30 days' notice for a [launch site](#), at which time they must quickly and safely transport launch vehicles and support materials to the location. At 14 days before launch, they will receive additional details about the [launch pad](#), payload and orbit. After the

first launch, a second launch will be scheduled a few days later in a different location, with a different payload and orbit. To win the top prize, both launches must be successful.

Among the challenge's goals is "to show that we can be indifferent to the launch infrastructure," Master said.

Part of that challenge, however, will be coordinating with the Federal Aviation Administration, which licenses all U.S. commercial space launches. To launch rapidly, the regulatory process will need to change, a focus of the Trump administration's National Space Council.

"Every launch we do today is still a national event. We're closing airspace, we're closing [launch](#) sites," Master said. "A lot of things will need to be addressed."

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