ULA chief Tory Bruno on competing with Blue Origin, SpaceX rocket landings

Enlarge / Jeff Bezos (right), the founder of Blue Origin and Amazon.com, and Tory Bruno, CEO of United Launch Alliance, display the BE-4 rocket engine during a press conference in 2014.
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In part one of our interview with United Launch Alliance Chief Executive Tory Bruno, we talked about the company's efforts to develop the Vulcan rocket, its Centaur upper stage, and other projects at the Colorado-based rocket builder. In part two, below, we asked Bruno about the company's collaboration with new space company Blue Origin and its ongoing rivalry with SpaceX.

These two relatively new launch companies have taken different approaches with United Launch Alliance, which was founded by legacy aerospace firms in 2006 to provide national security launches for the US government. Blue Origin has sought to work with ULA, reaching an agreement in 2014 to provide BE-4 rocket engines for the Vulcan booster. But the companies are also competing, amicably, as Blue Origin's New Glenn rocket will also bid for national security launches, and there is some overlap in the commercial market interests.

SpaceX has taken a significantly more confrontational posture toward United Launch Alliance from the beginning, suing to stop the formation of ULA in 2005 and battling for government business in the years since, both for military and civil space missions.

Ars Technica: *Let's talk about the decision to buy BE-4 engines from Blue Origin. How difficult was it to convince your stakeholders that this is something ULA should consider?*

Tory Bruno: It certainly took time. It wasn't arrived at quickly or capriciously. We knew we needed a new engine because the government told us, OK, we're done with RD-180 engine. It was the right thing for the country at one time, but now it's not. We surveyed (I personally participated in that) every engine that was out there—engines that existed, engines that people had drawn on napkins. And we looked at everything. We had everyone come and brief us and all of the rest of it. So there was a lot of data, and it was a pretty thorough review. I would say that most of the time was involved in doing that homework so that we could narrow our list of choices. Really, economics and schedule came into this. There were other engines that were perfectly good, but they just did not look like they would very well support the mandate for when RD-180 had to be retired.

And then we had to build a business case. Unlike many of the new entrants that you talk about coming in today, we're not a startup company living off investor capital; we're a mature business. We have to close a business case on Vulcan itself. So where our strategic partners [*Editor's note: This is a reference to Blue Origin*] brought investment as well as schedule, that was a pretty important factor. It became pretty obvious what the right choice was, and we arrived at it with our stakeholders. Now the next part of that was sharing with people who are basically our customers the technical risks involved in moving to a novel, new propellant, and how those would be addressed and retired. It got a lot easier once we

started having a lot of test data. And as we moved up in scale and put in lots and lots of minutes on the engines, pretty much all of those concerns went away.

Did the cost and schedule benefits of the BE-4 engine outweigh any concerns you had about competing against Blue Origin with their own engine?

Yes, that's true. You report on it, so you know that space launch, and space in general, is a different kind of industry. It's small. There aren't that many of us. We all know each other. We compete. We're in each other's supply chains all at the same time. Northrop Grumman is no different. They're providing my solid rocket motors, and it's really not all that unusual.

What I look for in an important strategic partnership like that is really two things. I'm looking to see that there is some differentiation in terms of the parts of the market that we're going to focus on. I'm also looking for a mutual need, so that we both sort of need each other in a way. The BE-4 engine is a good example of that. I need an engine. They need the volume of production that our launch service model brings. There's a lot of BE-4s on a New Glenn, but there aren't intended to be that many New Glenns because of their model and their plans to be able to reuse that. Together, we make the engine affordable so that our different markets that we're really centered on can work for us. So they kind of need us as much as they need them.

And then we put together a good deal; you know good fences make good neighbors. Long-term pricing agreements, and preferred customer arrangements, and things like that so that they know they have a stream of production they can count on, and we know we're going to get engines on time, and what they're going to cost.

Do you have any interest in personally flying on New Shepard?

Was that part of the BE-4 deal, you get six comp'd seats?

No we didn't do that. Too bad. I would love to ride on it. I don't know what it will cost, but I have a feeling I won't be able to afford it.

I'm curious about when SpaceX first came on your radar.

I've been doing rockets my whole career, so the instant they started flying, I was aware of them. I have been watching them all that time while I was running my businesses over at another company.

So when they were starting to fly the Falcon 1 rocket, you were paying attention?

Oh yes, definitely.

From back then, did you think they would get to where they are today?

So when they were still flying Falcon 1, I think I felt the jury was out. When they switched to Falcon 9, I thought OK, these guys have the potential to be a provider in this marketplace, especially when they started getting sizable contracts from NASA that would give them the resources to develop their capability. So yeah, I took them seriously almost from day one.

I'm not going to draw you into a discussion on reusability. I understand different business cases call for different plans. But when you saw them land on a boat, the drone ship, for the first time, did you look at that as an aerospace geek and think it was pretty cool? Or were you like, "Wow, they just landed on a boat"?

The first one. You can't see that and not think it was a cool thing to see. It was a really neat piece of engineering. I'm pretty sure I sent Gwynne [Shotwell, SpaceX President] flowers and congratulated her on that accomplishment. I personally

worked on the X-33 VentureStar. Damn, too bad we couldn’t get those tanks to work.

Anyway, I thought that was really something to watch. You know that we have a different approach to reusability, driven entirely by our assessment of the economics and the lack of our need to have a vertical landing and take-off model for Mars. That’s not something that’s in our equation. They have a different problem than the one we’re trying to solve. I remain confident in our model, and that’s why we’re sticking to our approach.

Enlarge / SpaceX’s first droneship landing occurred in April, 2016.

Are they good neighbors at Cape Canaveral and Vandenberg Air Force Base?

(Bruno laughs) They are definitely our neighbors, and we work with—the 45th Space Wing does a good job of keeping everybody fair and aligned. It's hard for them, I think, because there are a lot of launches happening at the Cape right now and SpaceX is burning down that big backlog that they had built up over about five years or so. And we just really appreciate the Air Force doing the right thing.

I'm not sure you want to comment on this, but it seems to me that if you really wanted to open up the Solar System to exploration in a low-cost way, with a powerful rocket to reach a lot of different destinations, you might use a Falcon Heavy with a Centaur upper stage. They can get a lot of mass to LEO cheaply. You have a really high performing upper stage. Have there ever been any discussions about that?

Actually, no. I've never had a conversation with Gwynne or anyone on her team about sharing that. I don't know that I have been asked by any other third parties, either.

Let's say you have my job, and you're a reporter on this industry. My interest is in getting things right, but also really trying to tell readers what is actually happening. How do I do my job better?

Oh, you're asking me to tell you how to do your job better? I have never been asked that question. Well, you know, when I look at a journalist, I say this person is a really good journalist if they have taken the time to do the research. Like you're asking me questions, you would ask other people those questions who might know something about it, too, and see where the truth lies. And you'd go talk to my competitor and see what they say.

I think there's a big challenge for you guys now that didn't exist years ago when I first started interacting with the press. News cycles are really short now. You guys have to turn out stories fast. So when you guys are able to do your

research and be pretty balanced I think that’s hard work, it takes effort, and I respect it. I never expect a publication or a reporter to be my marketing staff. When I read a story and there’s something not complimentary about us in there, if it’s accurate, that doesn’t bother me at all.

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