

Synthetic vision and safety

Assessing the tech gap

Iridium's Matt Desch

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YOUR NEW CYBER ALLIES



Working with, instead of against, gray-hat hackers. **PAGE 24**

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Satellite strategist

Of all the possible achievements in 2020, Matt Desch didn't think mastering Microsoft Teams would be one of them. Like most companies, Iridium has largely shifted to telework during the coronavirus pandemic, limiting personnel in the Virginia operations center to those monitoring Iridium's NEXT constellation. The pandemic "demonstrates how essential satellite communications are," Desch says, but even so, some satcom companies won't survive, he predicts. The bankruptcy of aspiring megaconstellation operator OneWeb spells an uncertain future for the remaining broadband ventures. Having emerged from bankruptcy itself in the mid-2000s, Iridium is now carving out its own niche in this increasingly crowded low-Earth orbit. I spoke with Desch from his Virginia home office about these plans. — *Cat Hofacker*

MATT DESCH

POSITIONS: CEO of Iridium Communications since 2006; CEO of telecommunications software provider Telcordia Technologies, 2002-2005; president of global wireless networks at telecommunications equipment manufacturer Nortel Networks, 1996-2000.

NOTABLE: As Iridium CEO, oversaw the deployment of Iridium NEXT and safe disposal of the original constellation. In 2011, Iridium and four air navigation providers created Aireon, a joint venture to track aircraft via Automatic Dependent Surveillance-Broadcast. Under this surveillance method, aircraft broadcast their locations and identities via antenna to receivers on Iridium NEXT satellites, which then beam that information to air traffic controllers on the ground.

AGE: 62

RESIDENCE: McLean, Virginia

EDUCATION: Bachelor of Science in computer science, Ohio State University, 1980; Master of Business Administration, University of Chicago, 1986



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IN HIS WORDS

The secret to Iridium's success

If there is a commonality to my strategy over the last 15 years here, it's been "try to do stuff that nobody else can do or wants to do." That will keep us protected from too much investments or too much competition. It will make people attracted to our network because this won't be racing to see who can provide the cheapest service amongst five, six, 10, 20 different companies. That's the reason why we're here. It's the reason why we were able to get through Iridium NEXT and climb that financial mountain. It's the reason why the next 10 years are looking really rosy.

Minimal impact from covid-19

I'd say overall from a business perspective, I'm really glad that if it's going to happen, it happened in 2020. If this would have happened in 2017 or 2018, we would have had a lot higher challenges as we were in the middle of launching our [NEXT] network and climbing the final peak of our financial transformation and everything. With our financing complete, and we're generating cash, and how the network is very solid and working extremely well, we're kind of in a very good place overall. From a customer perspective, certainly we're seeing a little bit of an effect around the edges of different parts of our business. Actually, our sat phone business was doing pretty well with first responders and people trying to get off the grid. We're seeing certainly some effect in some of the aviation business, which is a small part, but traffic is down; airplanes are not flying. We're not on cruise ships; we're more on merchant vessels. They're still sailing, and people still need to call home and connect. Overall, we're not seeing a big impact to our business. We probably won't grow quite as fast as we otherwise would have in the year, but we're going to grow nonetheless, and that's a place where a few companies are right now, particularly if you're in the hospitality or restaurant or travel or any other kind of business. We're weathering it quite well.

The benefits of autonomy

Because of the way we've designed our network and having flown a low-Earth orbit constellation for over 20 years now, anybody who visits us will know that one of our hallmarks is automation. We really automate tons of stuff. You need to do that if you're going to have so many satellites at one time. It's amazing how few people are needed to really be on site and run things. Even now, we've moved our customer care [employees] to their homes and are able to sort of distribute calls from customers and partners straight to them at home. So, people can do that role. But we still have someone, for example, on that team in the office so that they can reference documents or get to something that's necessary. It's all working really smoothly. I think even when [the virus] starts to decline, we're going to be very careful about forcing people to get back together. I think everybody's going to be very careful during that time. That will be interesting to just see how we get started back up — if we really go back to normality quickly, or whether it just takes a little time to do that. We definitely want to keep safe. We want to keep our employees safe. We're just watching it and listening and paying attention like everyone else does.

"No, you can't do videos. No, you can't have real-time streaming. That's what other companies are good at. That's not what we do. We think that's a unique and valuable market."

"Not shocked" by OneWeb bankruptcy

It's always been hard to develop satellite systems of any type. A lot of people don't appreciate that the big profitable mature companies like Eutelsat and SES and Inmarsat, they are financially mature. For the first 15 to 20 years of their lives as they were building their initial systems and getting started, they were owned by, almost in all cases, by governments. They were private companies who were a public-private partnership with governmental entities, and probably weren't profitable and wouldn't be in business, but they were heavily government subsidized. They all got big enough, and now they can finance their ongoing capital expenses carefully. It's not exciting to some of them, because they're not growing very fast like Iridium is, but they're still financially secure. That's the challenge with all these new startups. These guys are all about where we were in 1995 and 1996 with the launches ahead of us. But you think of the million things we've had to do to create an ecosystem of partners and tons of different products, and a global distribution network of, in our case, over 450 partners who all take us to market and embed us into thousands of solutions. We're quite robust because of just how diverse we are. It took us 30 years to get to that point. We're at 1.3 million and 1.4 million devices on the network, growing at 15-20% a year. That didn't happen overnight. These guys all have to re-create something like that, the equivalent to the broadband world, all in just a few years.

The challenge for megaconstellations

I'm not sure that New Space works all that well for space constellations. When this whole New Space thing came about, the idea of building a lot more lower-resolution imaging satellites instead of a few satellites that cost hundreds of millions of dollars kind of made sense to me because you could start making money taking pictures pretty quickly. Skybox Imaging spent \$110 million and got sold to Google for \$600 million. [Editor's note: Google purchased Skybox in 2014 for \$500 million.] All the venture capitalists at the time thought, "Hey, there's money in the space business. If we could



Before social distancing, Iridium's Satellite Network Operations Center in Virginia.
Iridium

make [satellites] for tens of millions of dollars and take really, really good pictures, we'll just have to build more of them and then they won't last as long." It seemed like that made sense, but they tried to apply that same principle to communications satellites. The problem with building constellations in space is you've got to put maybe hundreds if not thousands of satellites into space before you even can start turning on customers. Otherwise you're telling people, "If you ever launched your Verizon FIOS service, we can use it six to 10 times per day. We can't tell you exactly what it's going to be, but it's going to be really great when you get it." We just wouldn't buy a service like that. These companies are in the same boat right now. That's the challenge. We'll see. Certainly, we have a myriad of challenges that we went through over the last 30 years.

Billionaires beware

That's the challenge with all these new startups, is how do you get to that place in your development career that takes probably 15-20 years with a bunch of impatient investors who are expecting to get returns for all this money that they need to give you to get started?

Obviously, what's happening since is that people are going, "Well, billionaires. They're the ones that are going to survive." It is true. Billionaires do have deeper pockets and possibly more patience, but they became billionaires for a reason. Whether it's Elon Musk or whether it's Jeff Bezos or others, they're also going to be very careful about what they spend and how much money of their billions they do spend before they can figure out if this is going to provide the rate of return fast enough for them to do what they really want to do. Unless they're philanthropists, which I don't really recommend long term as the business model; in this business it can be pretty expensive. You can become a millionaire very quickly from a billionaire in that way.

Not a repeat of the big and little LEOs

I think what's happened this time around, there was a lot of enthusiasm starting five or six years ago with Skybox Imaging, and then the investments into all these constellations. As you notice, nobody has gotten the full funding. No one is putting themselves on the stock exchanges. There's not "irrational exuberance," using



the term from the '90s. If anything, people are a lot more careful. I think investors are investing in a lot of small space, but most of the investments are pretty modest still. I don't think you could say that anybody has lost their minds quite yet. OneWeb was probably the furthest along when SoftBank committed the dollars that they did to it. Beyond that, we're still waiting on exactly how much Amazon is putting into it, if at all. It's hard to tell. SpaceX has basically three launches [seven as of May], so they're not being that crazy by testing their ideas carefully. They haven't come out to the public to raise \$10 billion or anything to buy into the network. I think people are being a lot more careful this time around. There's history that they're looking back on. I think there is still opportunity, and people are just being careful not to invest as wildly as they did in the '90s.

Iridium's future: internet of things

We're kind of going exactly the opposite direction that everybody else in the industry has done, which has put us in

this unique place perfectly suited for this fast growing area where everything wants to be tracked, where information wants to be sent from all kinds of places, devices, application services — whether it's buoys on the ocean or people in a remote place, or oil and gas pipelines, or vehicles of every type and shape. That's where we see the future right now, is to improve and expand on that area. We're only sending little bits of data back and forth, maybe location, temperature, pressure, all kinds of little bits of information. Now with these new devices we're building this year and we'll be building in the future, we can expand the pipe there but keeping very small, low cost, tiny antennas, the thing that you can carry around with you easily in a pocket. You can put it on an animal collar. You could put it in a remote place where the battery would last a long time and still be able to take a picture and send rich data back and forth. No, you can't do videos. No, you can't have real-time streaming. That's what other companies are good at. That's not what we do. We think that's a unique and valuable market. It's really important applications and services that people would want, and there's not anybody doing what we're doing in any kind of significant way. We have sort of a clear

runway into the future, which gives us a lot of confidence that we can keep growing and innovating.

Eyes on small sats

We're looking at some partnerships. We're looking at other things. Particularly, I'm more intrigued right now with what I would call the very small sat IoT [internet of things] market. It's kind of complementary to our IoT business. These are companies that are trying to sort of serve the extreme low end of the satellite IoT space. These are things that have really long battery lives, devices that don't need real-time two-way information. They're just basically one way. They just need to send some data and don't care exactly when it is delivered. There's companies that are looking to develop systems that can do that, and maybe only cost \$50 million to \$100 million of total investment to make that network happen. That's interesting to me. They're not going to need to raise billions of dollars before they get into services. Those are companies that make more sense to me.

No clear solution on space debris

My biggest concern was getting people to understand that there has to be ways of understanding exactly what the reliability of these broadband satellites are going to be and their ability to be controlled. I've been sort of on that more than anything else. As far as we're also seeing that people keep saying, "These are exciting; maybe we can get these debris tugs and bring things down" — I'm all for the development of that sort of technology. Where I'm struggling is who's going to pay for that. Unfortunately, there isn't a solution that's low cost enough that we can put our faith in, will fix the problem after the fact. I put all my energy into encouraging people not to make any more debris. The good thing is gravity will eventually take care of a lot of this over many, many years. But if we can avoid making any more debris, then eventually the problem will go away. If we make it faster than it's getting cleaned up, then we will never be able to fix the problem.

Lining up future launch providers

Certainly, SpaceX would get the first crack. We did select them before they even had a successful launch. We took a big bet to buy seven rockets. It turned out to be eight in the end. We feel like we grew up together and really got to know each other intimately and learned to trust each other and communicate very well. That's a fantastic relationship out in the future. I obviously would hope someday if we have to do this again, that we'll be able to utilize them again. In the end, as an operator, you want to get into the space as safely and as reliably, as inexpensively as you possibly can. That's your goal. As long as they've stayed the leaders in that space, there'd be no reason why we wouldn't want to utilize them. You don't look around and say, "Oh, there's somebody else," for example, Rocket Lab. I think they're doing great, great stuff right now, but their rocket is too small for our satellites. Relativity Space, we've been talking to them and are intrigued with what they're doing. I'm just sort of intrigued personally to see what it's like to 3D-print something that's large. That's their role. I'm sure they'll be not just printing rockets, but planes and airplanes, and other really large structures if they get really good at that. I think that's kind of cool, but we'll keep an eye on the industry. ★