BLACKSKY: A DATA-ANALYTICS PLATFORM THAT JUST HAPPENS TO OWN A SATELLITE MANUFACTURER

Posted by Peter B. de Selding | Sep 14, 2020 | Ground Segment, Mobility, News, Satellite Operators

BlackSky Chief Executive Brian O'Toole. Credit: BlackSky

PARIS — Geospatial analytics provider **BlackSky** Chief Executive Brian O'Toole said the company is on track to have a 16-satellite constellation in orbit by mid-2021.

Despite launch and other delays from Covid-19, that's not far from what the company predicted when it open its **LeoStella** satellite manufacturing facility in early 2019: https://bit.ly/2Yk84Qu

BlackSky launched the first two fully LeoStella-built satellites aboard a **SpaceX** ride-share mission on Aug. 7 and has already integrated them into

what the company believes is the jewel in its crown, its **Spectra AI** analytics platform.

Spectra AI pulls data from multiple satellites and will continue to do so even after the full BlackSky constellation is in orbit, O'Toole said. The company is now integrating SAR radar and radio-frequency-surveillance data into **Spectra AI** in addition to BlackSky and other optical satellites and hundreds of sources of news sources and social media.

The idea is to give customers a complete package of data on what's going on in places where information is difficult to come by. Yemen comes to mind.

O'Toole isn't the only geospatial executive who understands that the center of gravity in the business has moved out of orbit and into the AI and machine-learning-driven analytics platforms.

Satellites are crucial elements, like wheels to a car. But the analytics platform is the engine and chassis.

BlackSky and its LeoStella co-investor, **Thales Alenia Space** of France and Italy, recently got what looks like a validation of their business model when startup constellation operator Loft Orbital contracted for several satellites: https://bit.ly/32U2xUu

In an industry already seen as accommodating too many satellite systems given the size of the business, the winners in the musical chairs game of elimination might be those with the best analytics platforms. The satellites come after.

O'Toole talked about how he sees a possible industry shakeup, competition with industry leaders **Maxar Technologies** and **Airbus Defence and Space** and why incorporating non-BlackSky-owned satellites into Spectra AI will not end once BlackSky's own fleet is operational.

Anyone coming out of a Spectra AI demonstration would conclude that the analytics platform is your Christmas tree. Satellites are ornaments.

We talk about BlackSky and others as space companies, but we're really moving toward intelligence and insight companies that have space assets. It's a

different narrative from what the industry's been used to. Until you see it, it's hard to get a grasp for what this can mean for customers and the industry, and ultimately what our strategy is all about, which is changing the way customers get information, and the type and quality and timeliness of that information.

Let's start with satellites anyway. You launched two BlackSky satellites in August. How are they?

They are doing great. We went from launch to first image in just 58 hours. SpaceX gave us a great ride and we communicated with the satellites within a few minutes. They have some upgrades in them that allow us to increase the speed of commissioning. Both are performing to all our expectations and we have started delivering imagery to select customers.

It's a real testament to the architecture we've built and our ability to get data in the hands of the customers within days. You can log to the browser and ask the satellite for a picture and get it within a few hours. We're pleased with the progress we're making.

You were getting data onto the platform and to customers before commissioning was completed?

Yes, we were able to do that while we went through a rigorous testing process. We've integrated them into their operations while we're testing them.
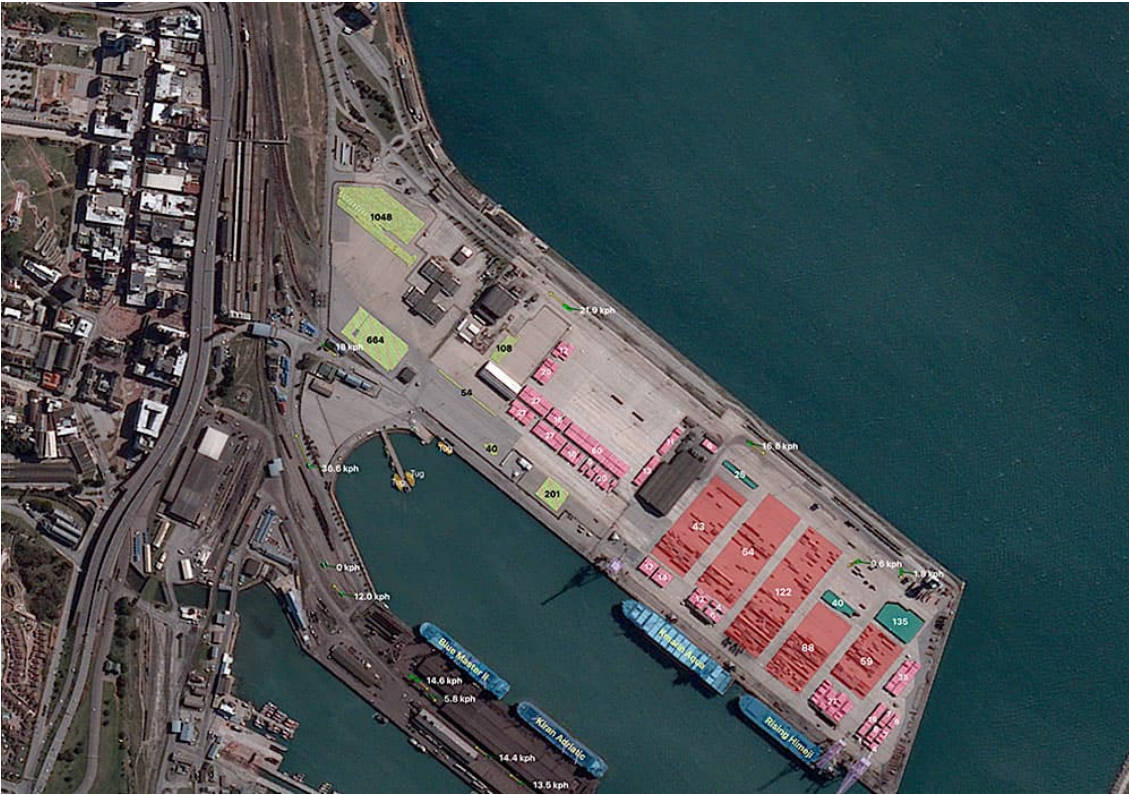
This BlackSky satellite image was taken at 11:31 a.m. Aug. 10, 2020, of Port Elizabeth, South Africa. Credit: BlackSky

On your website you have a picture of Port Elizabeth, South Africa, from the new spacecraft. Is that a native image or are you resampling to combine two or more images to produce that picture?

That's a single, native image that we've run algorithms against. That's the real image. It's in the area of 80-85 centimeters.

You don't need the full 60-satellite constellation in order to serve your top customers, is that right? You'll need the full 60 for redundancy and to handle demand when the customer set grows?

That's right. We've arrived at a base constellation size of 16-24 satellites that provide sufficient revisit and consistent collection capability. Going beyond that will be driven by market demand, customer demand.

We're building up to that 16-satellite constellation. We have another 18 satellites in production at LeoStella now coming off the production line at a rate of two a month. We'll continue to work to get those in orbit as fast as we can.

We've built a pretty good engine to drive the theme of speed to insight. It's the evolution of what is in space to the evolution of the ground segment to support global monitoring, to the Spectra AI platform that gets customers access to information in ways they never could before.

This was a big milestone for us. We are beyond talking about what we're going to do to talk about what we are doing and we're showing that it works. We're in a new era and we're a different kind of space company.

Launch remains tricky, with Covid-19 plus the usual delays. You are on an Indian PSLV vehicle, which has been grounded as India copes with Covid. How quickly can you get to that 16 satellites?

We had the Spaceflight business [since sold to Japan's **Mitsui**] that gave us good insight into an array of launch options. We have now launched on PSLV, on **Rocket Lab** and with SpaceX on SSO-A and now as part of their Starlink mission. Covid in India remains a significant issue but we have options with SpaceX and Rocket Lab that are available to us.

Access to space was a real challenge a few years ago. Now I think we have enough options to get our constellation up.

By when?

By the end of Q1 2021, so that by mid-year we'll be at our 16 satellites.

If I'm a satellite telecommunications fleet operator, there's a big difference in EBITDA between using my own satellites and using third-party spacecraft. Is that also true for your business? How important is it for you to reduce your dependence on others' satellites?

I don't look at it as reducing our dependency. It's what data we need to make available to provide the best insight to the customer. It's not about the pixels, it's about when you get it, the revisit you get and the insights that come from it, the ability to tip and cue from other sources and to combine other information with that at the same time.

Some companies worry about degrading their margins with third-party data. I don't worry about that. Because of the economics and the speed that we are

bringing to small satellites, we have plenty of margin and headroom there.

I want to make sure we're providing customers with a first-to-know advantage. That ultimately means we've got to combine our data with other data and make that streamlined and easy and available on demand.

If I'm a third-party satellite imagery provider to you, why would I continue to allow you to improve Spectra AI by integrating my capacity?

Certain competitors may not. We have other partners that will. Ultimately, customers will demand it. There is really a good opportunity around high-revisit capability combined with very high resolution foundational imagery. But the real insights come from the other data— IoT, news and social media that provides context.

There may be some competitors that may or may not want to work with us. I've also seen where customers want us to work with others, and have asked us to. We built a platform designed for speed to insight, with multiple data. We're going to keep pushing on integrating more data, improving the algorithm and making that customer experience the best in the industry.

An example: We've got quite a bit of work that we've closed this year in integrating synthetic-aperture radar into the platform. It expands the spectrum of data we use with the day-and-night capability. That's a real focus for us now.
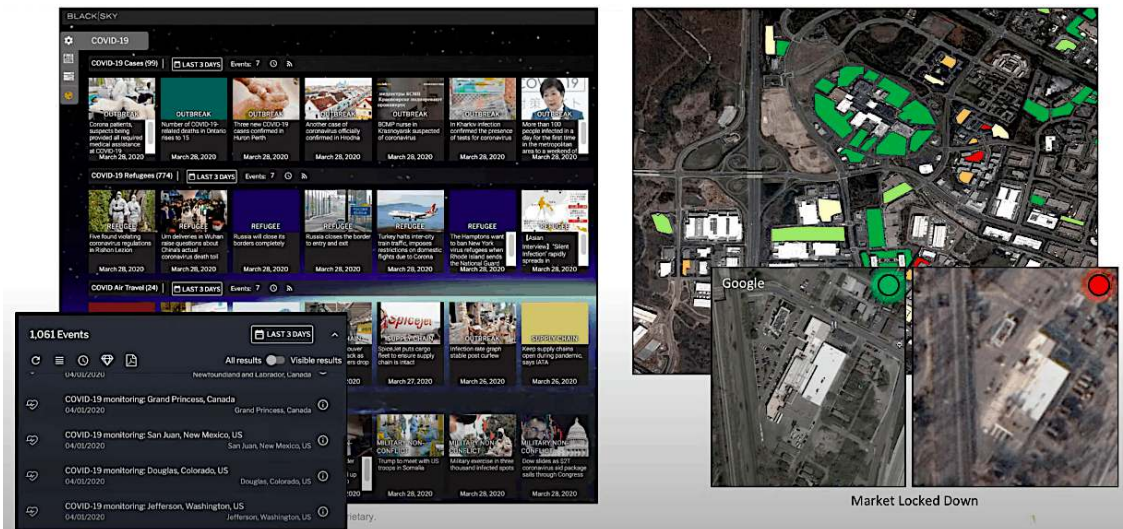
Market Locked Down

Put more bluntly: Isn't it hard to see how any company remains profitable in 5-10 years with just a constellation of satellites, and without a big data analytics platform?

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I think that's right. It's about the information and the insight. It's a bigger market and it's growing faster. The pixel will contribute to that but it's really about creating information streams available to a broad market on demand. Customers won't care who took the pictures. That's why the industry has been fairly flat. Just delivering pixels is ultimately not what the market wants.

That's why when I left GeoEye I started **OpenWare**, which is ultimately where this platform was conceived and built.

Are we passed the time when you needed to battle to persuade a customer like the U.S. NRO of the value of temporal resolution such as what you and Planet propose vs. spectral resolution that Maxar and Airbus propose?

There is a clear recognition that temporal performance matters. And time diversity matters. We are delivering pixels that are taken at 8 or 9 in the morning and at 5 in the afternoon, through a platform that makes it easily accessible. They don't get that right now.

In the last 12 months we have demonstrated to that community and to the market that this capability is real and is delivering value to end users. We're pretty excited about what that business [with the U.S. government] is going to look like going forward.

There are recurring questions about the sustainability of some players in this sector. But Maxar and Airbus are heavyweights that are here to stay. Both are moving to constellations of 30-cm satellites, Maxar's WorldView Legion and Airbus's Pleiades NEO. Does that take away some of your advantage?

I don't think so. Those constellations are replacing aging satellites now, with fleets coming out of service over the course of the nexts 18 months or so. What we're going to offer — high revisit, time to insight and the industry's leading temporal diversity and revisit — is going to position us very well in the market. What they're doing now is really just building out what they already have.

And part of this advantage is the 45- to 90-degree-inclination orbit you have selected, instead of polar?

That's right. It's more than just satellites. It's time and customer experience and providing insights that customers don't typically get today and that we're staring to deliver. I believe we're going to have a differentiated offer.

Is it a priority to move to higher resolution. You're at 80-cm ground sampling distance now. Is that resolution OK for awhile?

Right now we're focused on what the value of revisit is and the analytics. We'll get to the 16-satellite configuration and we're excited about what that's going to give to customers. You can assume that we'll rapidly evolve our space, ground and AI/machine learning capabilities. Gone are the days when you announce a satellite five years ahead of time and everybody waits around until it gets to orbit. It shouldn't take months to improve the service. I will improve in a daily, weekly, monthly cadence.

Capella Space is one of several startups launching radar satellites. Credit: Capella Space

Startups are now launching satellites for AIS maritime shipping surveillance, SAR radar observation, radio-frequency surveillance. Not all have your resources. Ultimately will they need to cut a deal with companies like yours with analytics platforms?

It makes sense. Combining optical with other data produces more-rigorous information and insights. There is a limited market for delivering SAR data. It's market- and mission-specific. There will be several customers that want that, but at the end of the day we're going to be better together and we're seeing that in some of the partnerships we have formed.

I think it opens up a larger market opportunity to partner with those types of companies to accelerate our way into these markets is going to be what happens naturally here.

How will this work: A provider of, say, SAR data, concludes an agreement with BlackSky for selling you imagery that you then agree will be the first choice for integration into Spectra AI?

I look at it differently. First, some customers just want the data and they'll be selective in who they want. And we'll help facilitate that. But it's really about who has the best data and I still see us working with multiple providers.

We built a platform that is agnostic as to just about any kind of source and can pick and choose among them for the best solution.

For example, we use multiple types of AI and machine learning algorithms for different problems. It doesn't mean I have to pick one and live with it for 10 years. I don't want to be limited on the tech or the data I use.

So an exclusivity deal would not be part of the package?

It's not part of the package. I won't rule out that there might be a certain application where our partnering with one company rather than another provides a specific advantage in a specific market. And we're going to lock arms for that.

I see having lots of partners that allow us to solve important problems for different customers.

I was thinking that ultimately the competitive landscape congeals into a few companies, each with its data analytics platform and its own satellite fleets, with satellite-only companies gradually dying away and trying to become part of one or other other of the analytics-platform players.

I don't think so. But we have to see how a lot of things play out in the next 18 months so I don't want to get into too many hypotheticals. Some of these companies are showing a lot of promise but they have things to do here over the next 12-18 months or so.

The PanGEO Alliance features an analytics platform owner, UrtheCast, and a half-dozen owners of imaging satellites — mainly from governments. Is that a model that appeals to you insofar as it could get you easier access to international markets?

There have been organizations in that past that have tried to build a marketplace — with limited success. Making all the data available to lots of people is challenging. The broader market wants information integrated and available around particular insights.

Something like an alliance is interesting, but the larger play is making that information value to a customer. It's a question of whether you are going after the information and insights market or the geospatial imagery market? Those are two different things.
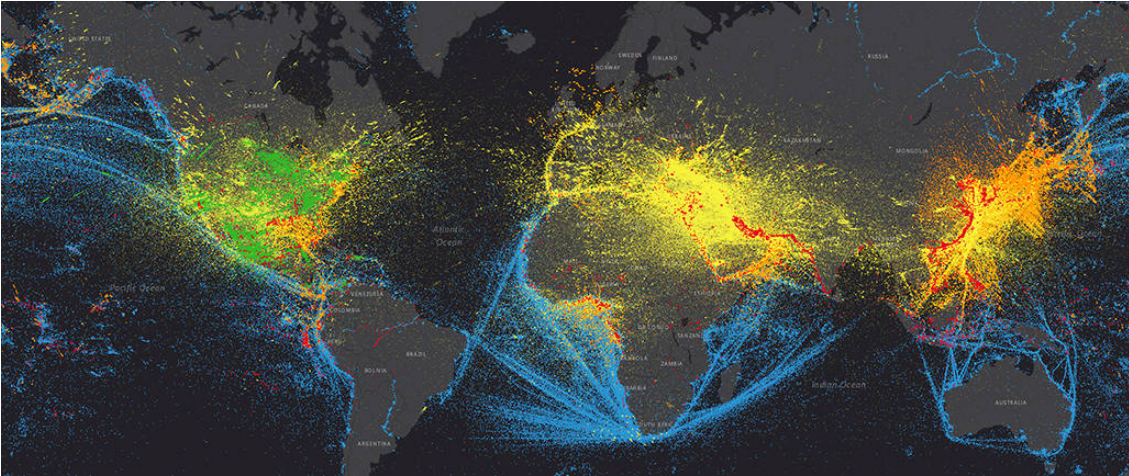
At least three companies are planning constellations of signals-intelligence satellites analyzing radio frequencies, including Hawkeye 360. Credit: Hawkeye 360

Thales Alenia Space had said when they purchased their stake in BlackSky that the purchase of Guavus by Thales Group would have lots of synergies with BlackSky. Has that been the case?

We've met that group and had some discussions. We think there are some opportunities but we haven't done anything material yet. We will partner with a lot of companies to put the right technology into our platform. They would potentially be one of them.

Intelsat has said there are many synergies with BlackSky, and that this accounts for their loan to you, and a right of first refusal in any future BlackSky sale. It's not obvious what those synergies might be.

If you look at the business today that would be a fair observation. But if you look ahead and at how both companies are going to evolve, you might have a different perspective.

I am not privy to their strategy. But having diversity in content and other sources of information available to a network that can deliver that information securely and rapidly to customers around the world — I see that as a pretty interesting strategy.

There is a sense that not everyone currently in this sector will survive, even if we assume market expansion. What can you say about your balance sheet — when you expect cash-flow break-even or whatever metric you use?

I am not going to get into the financial part. We're in a really good spot. This NewSpace thing has been going on for five years or so and we're in a different spot compared to others right now because of the investments we've made in manufacturing and the global architecture and the platform investments. And now the growing customer traction.

We have a robust business plan I am very comfortable with. We are working multiple options to assure the company is financed and gets to those key milestones. And we're not that far off. We are going to emerge as one of the survivors, and a really growing, relevant company in this market.

Government vs commercial: Do you spend a lot of your time growing the U.S. government market rather than dispersing your effort around the world?

We do spend a core amount of time on the global defense and intelligence sector. The US government is obviously important but we also spend a lot of time with international ministries of defense — large ones that have been traditional buyers of this type of capability.

But because of our platform's ease of use and flexibility, we can start offering services to second- and third-tier organizations that weren't able to access this type of capability easily.

Commercial is going to come a little bit later. But we are going to anchor this business on the government sector and we're making the progress we need to make there.