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# IoT From Space? Tracking Endangered Rhinos Via Tiny Satellites



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[Consumer Tech](#)

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A satellite orbits the earth. New micro and nanosatellites are enabling a global internet of things ... [+] PHOTO BY NASA ON UNSPLASH

Every 90 minutes a 11-pound 500-mile-high nanosatellite in polar orbit zips around the planet, picking up status signals, alarms, and other messages from wind farms, ships, farms, and rhinos.

Endangered rhinos, specifically.

But eventually, billions of different objects.

Myriota is a global internet of things technology provider that says it offers unique technology that makes tracking objects all over the globe, including places that don't have internet connectivity, cheap and accessible. And, just like SpaceX's Starlink is offering [terrestrial internet access](#) from low-earth orbit, [Myriota](#) is offering a planetary internet of things from space: something the company is calling the world's first low power, ultra-low cost, global IoT solution.

“Basically what we have is [an] affordable, long battery life, high data rate, high security system that enables customers whether they're on land, earth, or sea,” Steve Winnall, VP of Engineering at Myriota, told me recently on the [TechFirst podcast](#).

“Existing systems are plagued with things like low battery life, or insecure data

transmission, or the inability to work everywhere ... so, out at sea, in remote areas, in cities.”

## Global IoT from space: tracking endangered rhinos via microsatellite



Myriota is building a constellation of 25 nanosatellites, though the company is cagey about how many it has in operation right now. Customers purchase tracking modules

for \$50 that include batteries with a decade or so of usability, and within a few hours are live and collecting data. Such as, for instance, where endangered rhinos are at the moment, and whether they're still moving around — and hence alive — and safe.

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Of course, while the rhinos are a high-profile and buzzy application of the technology, most customers of space-based IoT are ship owners or industrial equipment owners.

Or farmers, Winnall says.

“Imagine you're a farmer and you have to travel each day 90 miles to check the water level in a water tank,” he says. “We're disrupting that with technology at the moment, so that the farmer is able to check the water level on his or her browser, so they don't have to go drive all that way.”

## Listen to the interview behind this story on the **TechFirst** podcast:



Another growing use case is wind farms.

Wind farms are critical to an energy-rich clean economy, but they're expensive. Generally, they're far from urban areas in remote locations with no access to the internet, and travel to and from them can be expensive. Each tower might cost \$3-5 million, and replacing a turbine or making a repair can have a big bill: \$300,000.

But on-board diagnostics can assess current conditions and mechanical states, and the Myriota module can squirt that data up to a nanosatellite, giving managers advance warning of potential issues or all-clear signals, saving time, trips, and money.

Each satellite is amazingly tiny: about the size of a loaf of bread.

They're built by companies like [Tyvak](#), out of Irvine, California, and launched via the space equivalent of a Lyft or Uber: ride-sharing boosts to space via launch partners like SpaceX. Despite their small size, each satellite can process 100 million messages a day, making it capable of communicating to millions of ground-based Myriota modules simultaneously.

The company is equally cagey on the cost, but did tell me that the cost of communicating with your equipment wherever it is on the planet is “pennies per message.”

How big can this grow?

“With our plans to develop a global constellation of 25 nanosatellites, we're focused on scaling to billions of devices across the globe,” Myriota says. “We recently acquired four satellites operated from our partner exactEarth, increasing our capability to process a huge number of messages at ultra-low cost on a global scale.”

This is a growing space (pun totally unintended).

Myriota is competing with other companies like Inmarsat, probably the grandfather of the category, which has been in operation since 1979 (ancient times, in space industries). Other, younger competitors include Kepler Communications, RigNet, and Sky and Space Global. According to a recent [report](#), the space economy has grown to over \$420 billion in annual value and employs almost 200,000 people in the U.S. Myriota, which is based in Australia, has raised almost \$40 million to achieve its goal of serving IoT capability to billions of devices, according to [Owler](#). The company is planning an expansion to the U.S. in 2021, Winnall says.

And while the rhinos might be a particularly newsy application, there are others that are not your standard oil-and-gas, shipping, industrial, or renewable energy uses.



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“Some of the conversations we’ve had in the past have been things like measuring ocean currents — so measuring temperatures and ocean currents underneath the ocean, and tracking things like turtle migration,” Winnall told me.

The interesting part of this is that making global IoT affordable isn’t just good for tracking and managing high-value commercial assets. It’s also good for tracking high-value natural assets.

And hopefully managing them better than we have in the past.

*Get a full transcript of the interview for this story here.*

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