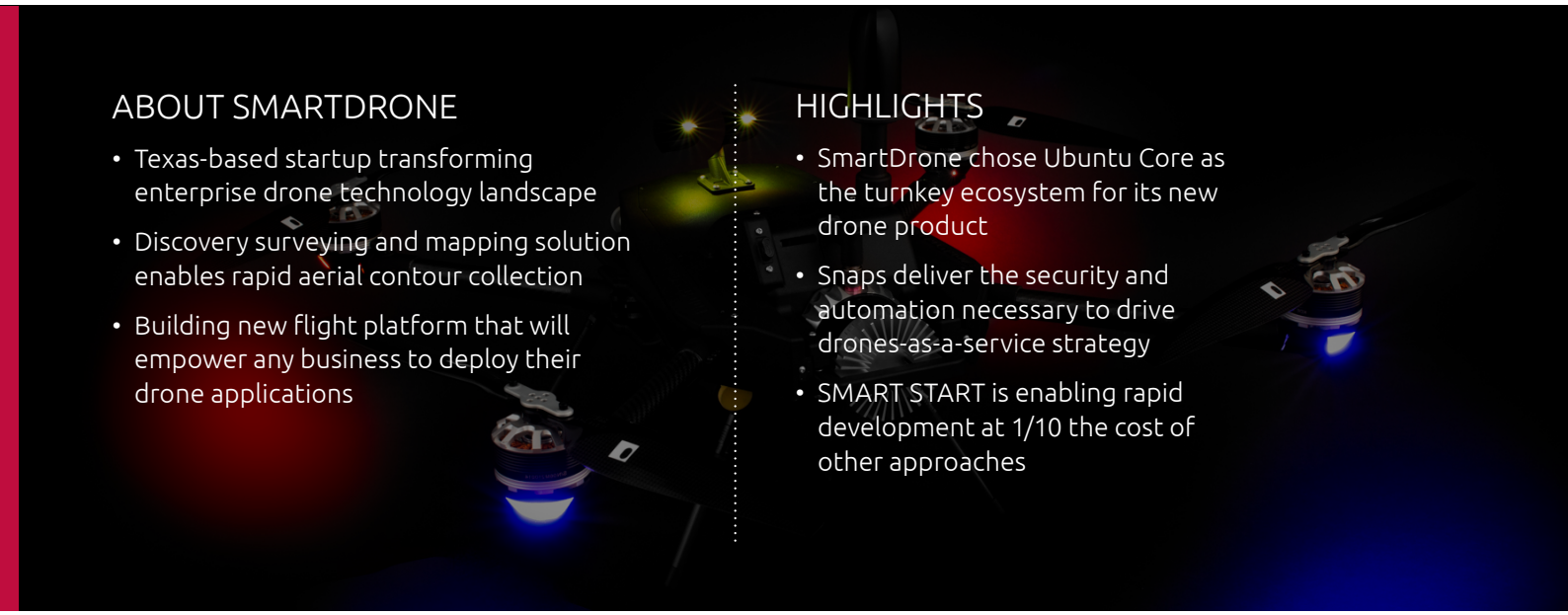
CANONICAL

SmartDrone fast-tracks drone revolution with Ubuntu Core



ABOUT SMARTDRONE

- Texas-based startup transforming enterprise drone technology landscape
- Discovery surveying and mapping solution enables rapid aerial contour collection
- Building new flight platform that will empower any business to deploy their drone applications

HIGHLIGHTS

- SmartDrone chose Ubuntu Core as the turnkey ecosystem for its new drone product
- Snaps deliver the security and automation necessary to drive drones-as-a-service strategy
- SMART START is enabling rapid development at 1/10 the cost of other approaches

SMARTDRONE™

An enterprise-grade drone platform needs an enterprise-grade technology ecosystem.

With its surveying and mapping solution already in production, SmartDrone was looking to take its business to the next level by creating a platform capable of housing any drone-based technology. To make this vision a reality, SmartDrone needed a way to pull together a wide array of fragmented components and open source software into a secure and cohesive platform. Ubuntu Core and snaps were the perfect fit, and Canonical's SMART START program is accelerating the drone specialist's journey to market.



SmartDrone Discovery

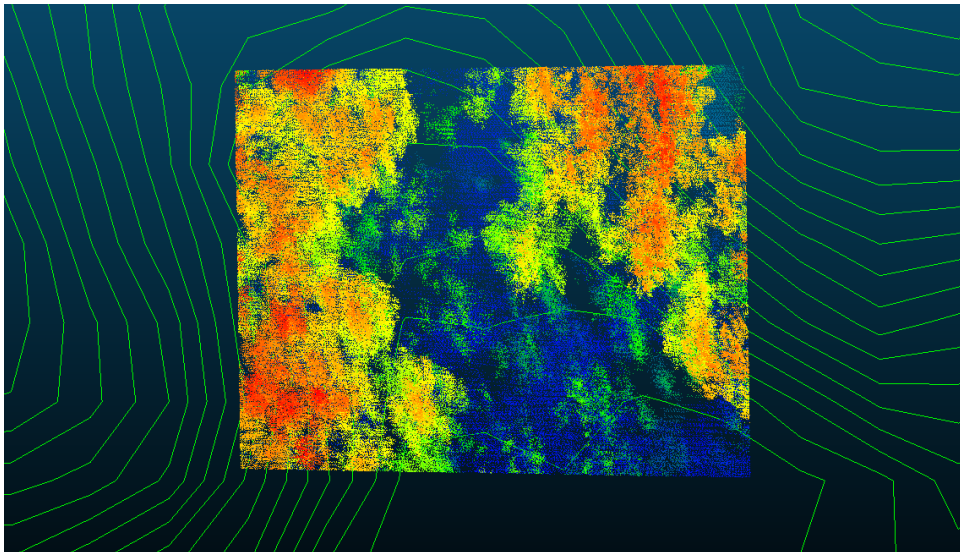
Challenge

SmartDrone is already well on its way to revolutionizing aerial contour collection. The company's first product, Discovery, enables a single person to survey up to 500 acres a day, making it 10-100 times faster than traditional methods. However, the surveying and mapping solution is only the first step in SmartDrone's roadmap – its long-term strategy centres around creating a use case-agnostic flight platform to drive a drones-as-a-service business model.

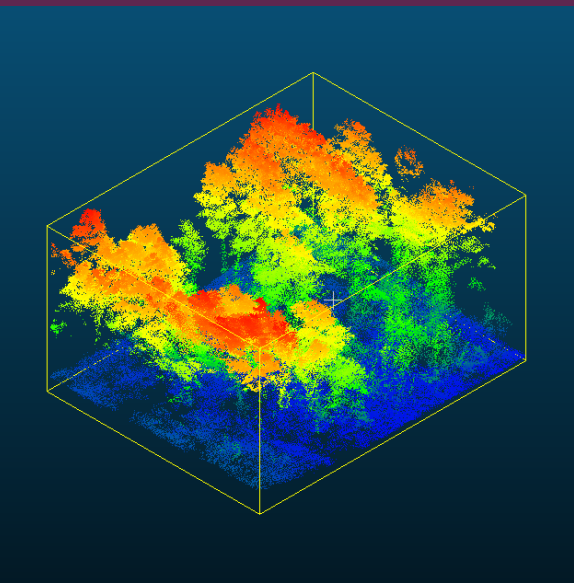
"Our goal is to empower people," explains Drew Whitehurst, VP Engineering at SmartDrone. "We want to provide a drone sandbox where all of the infrastructure and IoT stuff is taken care of. You don't have to learn how to fly a drone, or set it up. Just bring the intellectual property, and if it belongs on a drone, we'll put it on a drone."

But building this kind of platform is easier said than done. Within the drone sector, companies typically rely on an amalgam of open source, hobby-based technologies and independently sourced components, and there is no consistent industry standard. This makes creating a secure, universal platform a considerable challenge.

"The drone industry is the Wild West," confirms Drew Whitehurst. "There are a lot of fragmented environments and drones are always different from product to product. What we needed was a turnkey solution to bring all the open source elements together, with a quality ecosystem for deploying, managing, and updating the software."



> “I think SMART START is a great deal. The biggest benefits are that we’ve been able to go fast right out of the gate, and it’s cost-effective. The ability to do IoT DevOps without scaling our headcount is huge.”
>
> –Drew Whitehurst, VP Engineering, SmartDrone



Solution

While SmartDrone could have built the capabilities it needed in-house, doing so would have been a major drain on time and resources, and would likely have required hiring additional developers as the company scales up. With that in mind, the company was keen to utilise an existing solution and leverage the established expertise of a trusted third-party partner.

“Ubuntu Core and snaps were the obvious answer,” says Drew Whitehurst. “I’ve been using Ubuntu for 15 years and have a lot of confidence in Canonical. After familiarising myself with the snaps documentation, experimenting with them on an embedded device, and speaking with Canonical, I was ready to bet the farm on it.”

Ubuntu Core is a lightweight, transactional version of Ubuntu designed specifically for embedded environments and robotics. The fundamental units of Ubuntu Core are snaps: containerised software packages designed for edge devices that bundle applications together with all of their dependencies. This containerised approach leads to an inherently secure ecosystem, since each snap is isolated from the others, and, out-of-the-box, it includes all the interfaces needed to interact securely with the host machine.

What’s more, Ubuntu Core’s automatic update functionality provides SmartDrone with a prebuilt mechanism for seamlessly pushing security patches and feature updates to its software, even on deployed drones.

Drew Whitehurst continues: “What I really like about snaps is how they align with our vision of an open ecosystem. In my mind, snaps let us give customers a sandbox to come and play in our environment. Containerisation means that they can access all the things they need to bring their project to life, without being able to see our secret sauce.”

To hit the ground running with Ubuntu Core and accelerate its journey to market, SmartDrone opted to take advantage of Canonical’s SMART START program. With SMART START, Canonical experts are helping to guide SmartDrone through some of the most time-consuming aspects of launching an IoT product: factory process and containerization, hardware selection, infrastructure development, and risk management.

“I think SMART START is a great deal,” comments Drew Whitehurst. “The biggest benefits are that we’ve been able to go fast right out of the gate, and it’s cost-effective. The ability to do IoT DevOps without scaling our headcount is huge.”

Results

With Ubuntu Core and snaps powering its software ecosystem, SmartDrone is successfully overcoming the challenges of disparate open source technologies to create a truly secure, industrial-grade flight platform fit for almost any drone-based project. And thanks to SMART START, SmartDrone expects to be able to launch its new product in a fraction of the time – and at a fraction of the cost – of alternative approaches.

Drew recalls: "When we wanted to add a SaaS feature at a previous company, we were told it would be a $1 million project despite already having infrastructure in place. With Ubuntu Core and SMART START, we're at a tenth of that cost building from scratch.

"For other companies in a similar position, I'd definitely recommend SMART START. So many promising businesses burn up trying to set up IoT infrastructure, processes, quality controls, and small manufacturing details. But with SMART START, you can focus on your idea and let the experts take care of the rest."

"So many promising businesses burn up trying to set up IoT infrastructure, processes, quality controls, and small manufacturing details. But with SMART START, you can focus on your idea and let the experts take care of the rest."

–Drew Whitehurst, VP Engineering, SmartDrone



For more information about Ubuntu in robotics, please visit: ubuntu.com/robotics

© Canonical Limited 2021. Ubuntu, Kubuntu, Canonical and their associated logos are the registered trademarks of Canonical Ltd. All other trademarks are the properties of their respective owners. Any information referred to in this document may change without notice and Canonical will not be held responsible for any such changes.

Canonical Limited, Registered in England and Wales, Company number 110334C Registered Office: 12-14 Finch Road, Douglas, Isle of Man, IM99 1TT VAT Registration: GB 003 2322 47

ubuntu
Delivered by Canonical