Success Story

Terravesta grows better crops and a better business with IONOS Cloud

The flexible and scalable IONOS Cloud enables biomass supply chain company, Terravesta, to quickly and cost-effectively process high-resolution drone imagery, helping its growers to increase their yields and the company to meet ambitious production targets.

+++ *Featured learnings* +++

- Terravesta has reduced costs and increased the speed of its complex, high-volume image processing applications by moving them to the IONOS Cloud.

- The highly-visual IONOS Data Center Designer makes it easy for anyone in the company to understand and work with the new image processing solution.

- Access to timely, reliable, and expert support has enabled Terravesta to make the move to IONOS Cloud with confidence, and to plan for future system improvements.

Terravesta was founded in 2011 to help the UK meet its energy needs with a secure and futureproof supply of a high quality, sustainable, homegrown biomass source. Today, Terravesta helps hundreds of UK growers successfully farm crops of miscanthus, a carbon negative perennial grass used as a biomass fuel source by large energy providers. Terravesta chose to move its high-volume image processing application to the IONOS Cloud, so it could analyse high-density drone imagery quickly, easily, and cost-effectively, and deliver time-sensitive support to its growers. Terravesta also plans to work with IONOS to develop new, AI-based analysis systems.

The challenge

Slow, highly-manual image processing

Biomass company Terravesta gives growers an easy way to take advantage of Miscanthus – a hardy perennial grass that's commonly used as biomass – by working directly with growers to provide them with plants, planting support, and an assured, long-term market for the harvested grass. Terravesta provides an establishment guarantee to ensure crop quality, and also supports growers over the lifetime of the crop to ensure effective yields through the lifespan of the crop, which can last beyond 20 years.

In order to achieve this establishment guarantee, Terravesta must examine its growers' Miscanthus fields in detail at a specific time of year, to be able to suggest adjustments or remediation where needed. These growers are spread around the country, so Terravesta turned to drone imagery to meet the challenge of inspecting all the sites within the short window of time available.

Director of Science and Technology at Terravesta, Michael Squance, explains: "Drone imagery is commonly used in agronomy. But we take it to another level: Our establishment team wants and needs to see the detail of every plant in each field – we go to 1.5cm of visibility. The end result of our drone surveys is a lot of incredibly high-resolution images that we process and stitch together into a single image that represents the field."

Terravesta was using an off-the-shelf application running in the cloud as an AWS workload. But with up to 1,000 images per field, totalling approx. 3GB, processing the drone imagery was slow work, and often took 10-12 hours to process and stitch together all the field files into a single image. It also required constant human input, and image stitching had to take place sequentially, one field at a time.

All in all, it was taking Terravesta's team approximately a month to process images for fewer than 100 fields, which reduced the window for the establishment teams to get involved. And as the business expanded, and the number of fields Terravesta supported grew, these challenges were only getting worse.
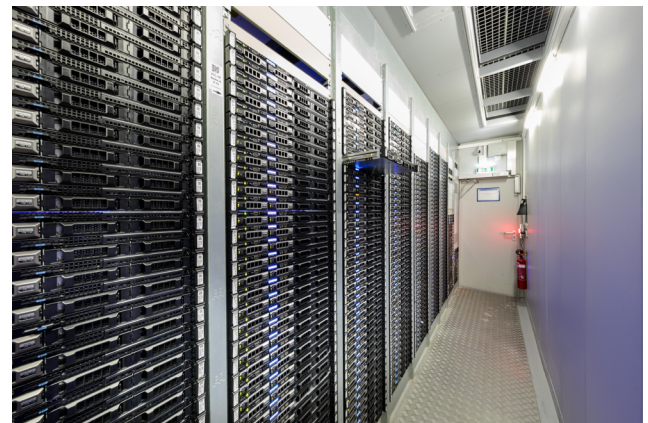
The solution

Better technology, faster processing

Squance knew that Terravesta needed a better solution. "As a small business, our time is stretched. There are only two of us who work on the data side of things, so we are a very small team trying to do a lot," he said.

So when IONOS Cloud approached Squance about running a trial with a solution that would speed up the process, he was keen to try it out. "IONOS knew that we were running on AWS infrastructure, but the team said they could do it faster, and they sat down with us and talked about all our different issues."

Terravesta first agreed to run a subset of their image processing with IONOS for a year as a test, and Squance explained how IONOS was able to quickly make a difference by:

- **Moving away from virtual cores to physical machines.** "The virtual cores under AWS weren't the most responsive at times, and this was exacerbated when faced with this incredibly data-intensive process."

- **Choosing Solid-State Drives (SSD) with fast access speeds.** "Moving to SSD has made a huge difference to the speed of the solution, because we're constantly accessing so many image files from data storage – sometimes a thousand or more per field we image."

- **Providing access to Data Center Designer.** "One of the challenges with AWS was how complicated it was to set up and manage – it's not easy to pick up and learn. But the IONOS Data Center Designer tool is incredibly clear. I was able to quickly log on, drag a server in, connect up the dots. Anyone can do it – which is really useful in a smaller company with people who aren't very technical."

Unrivalled support

It wasn't just the technology IONOS was able to improve for Terravesta – it was support too. "From day one, I've had all the support I needed to help me get up and keep running," Squance said. "And being able to lose some of the worry of managing infrastructure, by knowing we have a team we can pick up the phone to, was a great relief. If a server fell over, I could pick up the phone and say, 'Look, we're struggling. Can you guys help?'. That's really important to a business our size."

The benefits

Superior performance

As a result of moving its imagery application to IONOS Cloud, Terravesta has seen significant improvements in both performance and speed. A combination of faster storage access and better processing power means that stitched images are delivered much more quickly. In addition, multiple sets of imagery can now be processed in parallel – there's no need to wait for one image set to finish processing before starting another.

Reduced costs

The cost benefits of IONOS were apparent to Terravesta from early on in the trial. Squance said: "By my price calculations, IONOS is coming in at about the same price as AWS did last year, but with all the improved performance. Next year, when we have moved everything into IONOS Cloud, we expect to see a reduction in costs."

Dedicated support

The customer services side of IONOS has been really impressive for the Terravesta team, and is one of the main reasons they made the move. "The process of moving was really smooth. If I ever needed anything, the answer was there in a couple of minutes. We have a named contact, who calls me every month to make sure everything is OK. He puts me in touch with people who can help improve what I'm doing. So for example, we got a lot of help around turning image processing into a parallel process," Squance explained.

More time, more value

With faster processing and a reduction of manual work starting and checking images, the Terravesta data team has more time to invest in tasks with more business value, including developing artificial intelligence applications. An example is using drone photos to give a plant count for each field, or identify fields that need more urgent attention than others.

Conclusion

As well as being happy with what IONOS Cloud has already implemented for Terravesta, Squance knows IONOS can offer them more. "Our IONOS contact has given me a few ideas about making further changes to the specifications of our servers. So I think what we've seen was a very quick rough run of how we could do it. And now with the support of IONOS, I think we could do it even better and even quicker."

But the ongoing conversations don't just focus on technology. IONOS has helped Squance to understand the improvements they can make along the whole process, so that Terravesta can scale up operations to support its business in the future.

"We're now looking at transferring over our platform systems to IONOS Cloud, too, and I expect that in the next couple of years, IONOS will become our primary data infrastructure provider," Squance said.

He added: "Terravesta has a potentially massive growth period in the next few years. In the UK alone we expect to exceed 2,000 fields of miscanthus, and this is important to the government's net zero ambitions. We are also expanding our operations in Europe and the rest of the world. As a result, our IONOS Cloud solutions will be key to helping us achieve the scale we need as a business."

About IONOS

With over 8.5 million customer contracts, IONOS is a leading global provider of cloud infrastructure, cloud services, and hosting services.

Our product portfolio includes Compute Engine, an IaaS compute engine with its own virtualized code stack; Managed Kubernetes for container applications; a private cloud powered by VMware; and S3 object storage. Our solutions provide established medium-sized and large companies, regulated industries, the digital economy and the public sector with all the services they need to be successful in and with the cloud.

We are convinced that data sovereignty is essential for successful digitisation. That's why we are committed to ensuring that our customers retain control over their data and applications.

Treating our customers fairly is very important to us, so we offer transparent pricing and by-the-minute billing, no vendor lock-ins and the best price/performance ratio in the IaaS market. Ease of use is another priority, so we provide highly flexible solutions and easy, drag and drop configuration through our patented Data Center Designer and APIs.

We also attach great importance to customer needs. Dedicated account management, tailored cloud architecture consulting – including support with proof of concept by professional services – and free 24/7 enterprise-level support with certified system administrators are available to help users in any situation.

Our history

For over 30 years, IONOS has been developing innovative, reliable and high-quality solutions that help companies of all sizes to digitise their business processes.

These include web hosting products and office applications, proprietary data centres and innovative cloud solutions. In addition, we have continuously enhanced our portfolio through strategic acquisitions.

Since its foundation in 1988, IONOS (formerly 1&1) has become Europe's largest hosting provider. In 2010, Achim Weiß, the current CEO of IONOS, founded an IaaS provider, which is now the basis for IONOS Cloud. With 8 million customer contracts and georedundant data centres in Germany, Europe and the USA, we provide intelligently coordinated products for every phase of a company's development.

IONOS Cloud is a sub-brand of IONOS, a United Internet AG company.

More information is available at cloud.ionos.com.

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