RANCHER

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ABAX

Transforming Telematics with Kubernetes

90%	2 months	75%
recovery time reduction	engineering time saved	reduction manned support

Who are ABAX?

Founded in 2003 and headquartered in Norway, ABAX Group has become one of Europe's fastest-growing technology businesses. The company has around 350 employees, over 26,500 customers and over 250,000 active subscriptions connecting a variety of vehicles and industrial equipment subscriptions.

ABAX develops and delivers sophisticated fleet tracking, electronic mileage logs and equipment and vehicle control systems. This innovation saves ABAX customers millions every year - preventing the loss and theft of valuable machinery and equipment, and through monitoring the performance of corporate fleets.

"As we extend our leadership position in Europe, it's never been more important to put containers at the heart of our growth strategy. The flexibility and scale that Rancher brings is the obvious solution for high-growth companies like ours." Thomas Ornell, IT Infrastructure Engineer, ABAX

Charting the path towards containers

Owned by global investment company Investcorp, ABAX is priming itself for significant growth over the next three years. As a result, the team has transformed its innovation strategy, putting containers - and Rancher - at the heart of its expansion.

Headquartered in Larvik, Norway, the company has offices in Sweden, Finland, Denmark, the Netherlands, Poland, and Great Britain.

Thomas Ornell, ABAX's Senior IT Infrastructure Engineer and his team, are the technical linchpin for ABAX and its customers. The team is responsible for the development, deployment and management of all monitoring software. In tandem, the wider company manufactures its own 'black box' in-vehicle tracking units, deployed across large customer fleets.

Tracking the position of vehicles and equipment is the bedrock of ABAX's business - the company tracks approximately 120 million GSM and GPS 'positions' a day via its tracking units. The data produced, processed by Ornell and his team, is the company's true currency. For its customers, the stability and scalability of the technical framework are of paramount importance.

As the company and customer base expanded, the need to modernise and scale became critical. Having started experimenting with Kubernetes containers in 2017, Ornell and his team opted to manage upstream Kubernetes internally.

"Managing our Kubernetes platform in-house was a valuable learning experience. I'm guessing, however, we would probably have saved a couple of months of work if we had started working with Rancher's support team earlier." Thomas Ornell, IT Infrastructure Engineer, ABAX

Almost immediately, the team realised the barriers to effective utilisation were high. Whilst the investment in support was desirable, it wasn't deemed essential so the team went through an educational but painful adoption process. They invested large amounts of time debugging and learning how to manage Kubernetes on the job; struggling to get the most out of it. When they tried to spin up a full instance of SQL Server databases, for example, this would drain the entire cluster, resulting in outages and downtime.

With tens of thousands of customers, and over 250,000 real-time connections to maintain, Ornell's primary focus was to regain control over his Kubernetes platform, and the cluster, by working closely with a supplier that could guide them through the complexity. Ornell soon realised Rancher's fully supported Kubernetes management platform and experienced team would help them mobilise quickly and help automate basic processes.

Ornell noticed immediate improvements upon starting the two-month proof-of-concept (PoC). Stability was dramatically improved - to the degree the team started to move services into staging environments within Rancher, before the PoC was complete.

What was ABAX trying to solve?

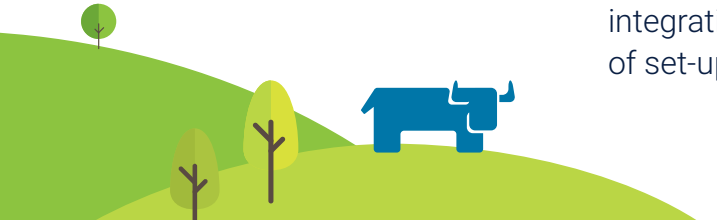
Legacy Transformation: Windows Containers

A large proportion of the tracking data that ABAX units generate is received and processed by outdated legacy software - a familiar scenario. Running previously on VMs, this legacy code must run in Windows and so it was essential that the container platform Ornell chose would work agnostically and seamlessly regardless of software flavour.

In response to growing demand for Kubernetes distributions on Windows platforms, in October 2019, Rancher Labs became the first Kubernetes provider to make a distribution available on Windows containers. Support for Windows containers arrived as part of version 2.3 of the Rancher platform, which also added support for the Istio service mesh and Cluster Templates that make it easier to secure Kubernetes clusters at scale.

"Being able to manage Linux and Windows containers side-by-side in one platform hasn't been possible before. This will dramatically simplify our management processes and, as a result, speed up development velocity." Thomas Ornell, IT Infrastructure Engineer, ABAX

Rancher 2.3 has enabled Ornell to complete a successful PoC which will see his legacy software running in Windows Containers in Kubernetes, within the Rancher platform. This is a major step for the team - what would have been a lengthy, complex and expensive engineering project, is now a more straightforward integration process. The team estimates it has saved two months of set-up time working in Rancher.



Ornell has found that, in Rancher, instances of Kubernetes on both Windows and Linux platforms can be centrally managed, regardless of whether they are deployed on-premise or in the cloud. This is critical because deploying Kubernetes in a Windows environment still requires a master node to be deployed on Linux.

Enabling International Expansion

ABAX is on a steep growth trajectory. Building on its experience with Fleetmatics, SageQuest and Arvento, ABAX's parent company Investcorp, plans to support ABAX's international growth by capitalizing on the growing importance of telematics in the smart city ecosystem.

"ABAX's continued growth into new European markets highlights the progression that we are making as a company. Harnessing the right technology is a bit part of this progression and sits at the heart of our ongoing strategy" Thomas Ornell, IT Infrastructure Engineer, ABAXK

Having entered multiple markets in quick succession and, later, winning a major, multi-year, multi-territory contract to monitor Hitachi's fleet of excavators, the move to containers has been crucial. Ornell knew his infrastructure needed to be flexible enough to allow the rapid onboarding of new customers in new territories. Crucially, the team knew it had to speed up development cycles in order to keep pace and drive greater stability.

Key to this was giving ABAX's development teams the right tools and access to the platform; lowering the learning curve through automation and a common, intuitive user interface (UI). Access control had, for example, was a major headache for the development team - abilities varied - not everyone was suited to a command-line interface.

By automating many functional, onboarding processes - role-based access control (RBAC); Namespace-as-a-Service (NaaS); authentication; Application Catalog etc. - the developers have been able to reduce management time and get closer to the architecture. Working within a common framework and a consistent UI, this has resulted in a more rapid migration the ability to innovate and speed and scale.

"We will significantly reduce costs if we maintain a flexible architecture that offers the best both cloud and on-premise computing has to offer. Rancher allows is this flexibility."

Thomas Ornell, IT Infrastructure Engineer, ABAX

Working in containers means that clusters can be replicated and deployed as new territories are added. The team can create new instances of the ABAX site automatically, allowing them to spend more time on the localisation of online assets, and expanding its connectivity network to cater to its new customers.

Creating Stability and Efficiency

As the company expanded, stability became increasingly important. During the period Ornell and his engineers were managing raw Kubernetes internally, the stability of and trust in the infrastructure were at an all-time low. Issues and outages occurred every two to three weeks. In Rancher, incidents almost disappeared. Ornell ran his infrastructure within Rancher for two months without a single incident or crash. At that point, he knew they had the right platform.

When issues occur in future Ornell knows that, by virtue of working in containers, recovery will be significantly easier and quicker than before. Whereas the team would spend between two and seven days recovering a cluster, in Rancher they can reprovision a new, identical cluster within hours. Being able to bring systems back online within the same day reassures customers and internal stakeholders of ABAX's inherent reliability. This has cemented trust and boosted reputation.

"Rancher is a lot simpler than running bare-bones Kubernetes, but it's still not super simple. Working alongside Rancher has significantly hastened the velocity of development whilst making the process a more enjoyable one." Thomas Ornell, IT Infrastructure Engineer

Driving efficiencies, particularly in cloud computing, has also been a major focus for Ornell. As important as cloud migration is, there will always be a requirement for on-premise servers to do some of the heavy lifting. When using ABAX's Open Street Map service, for example, reverse geocoding (looking up addresses and locations) can be expensive when carried out in the cloud. Rancher gives ABAX the option to run intensive geocoding exercises both in the cloud and on-premise. What could cost in the region of £5000 a month to manage in the cloud becomes significantly less in a hybrid model. Managing such a complex and varied infrastructure would, historically, be impossible. Rancher brings an agnostic approach not only to containers but also to cloud and hybrid methodologies.

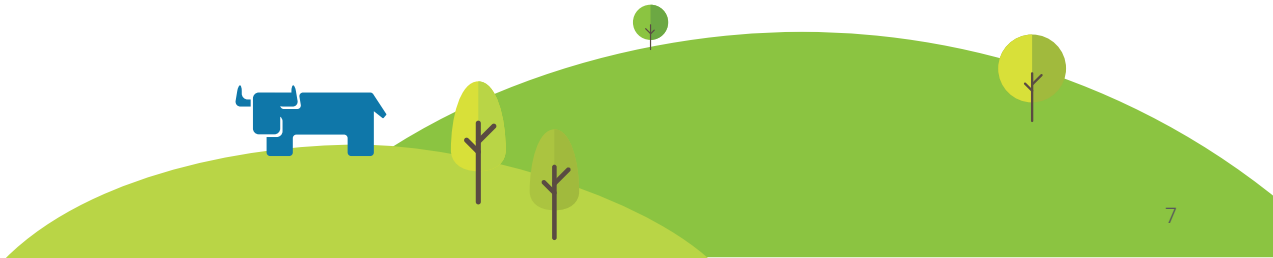
What were their requirements from their chosen platform vendor?

For Ornell, taking the decision to work in a supported environment alongside Rancher's team of engineers and service delivery specialists was a vital step.

Kubernetes, in any flavour, is complex - particularly when managing it yourself. Even when bringing in the Rancher platform, whilst dramatically easier to use than 'bare-bones' Kubernetes, knowledge and expertise is required. It's at the point Ornell decided to engage Rancher's support team the true value of Kubernetes was revealed.

As the team discovered, many of the early issues the team encountered would have been avoided by working alongside Rancher to onboard the platform. What felt like a major investment, in the early days, would have saved the teams months of time and paid for itself long term by introducing sense and cohesion to ABAX's infrastructure.

The result is a robust, stable and agile infrastructure that will allow ABAX to scale efficiently and rapidly over the next few years.



How did they plan their migration to Rancher?

Journey

1. Discovered Rancher early 2017 after managing raw Kubernetes
2. Two-month PoC held with Rancher mid-2017
3. Improvements in stability so marked started working with Rancher before PoC completed
4. Started successful Windows PoC June 2019, completed August 2019; now migrating legacy systems to Windows containers

What have been the benefits?

Benefits

- Two months' engineering time saved through access to support for Windows containers in Rancher 2.3
- No major outages or failures (in Kubernetes) since moving to Rancher; compared to several per month
- Up to 90 percent reduction in recovery time (from 2 - 7 days to just one)
- 75 percent reduction in manned support when using containers
- 75 per cent reduction in testing time: a dramatic decrease in the time it takes to test; from 15 - 16 weeks per year to just four weeks.
- Customer base growing and innovation hastening