

# KPN

## Containers: Creating the Telco of the Future

3.5m

mobile customers

3m

broadband customers

2m

interactive TV subscribers

### Who is KPN?

KPN has been helping to accelerate technological innovation across the Netherlands since 1881. From the telegraph and fixed-line telephony to 5G and the Internet of Things, KPN is the leading telecommunications and IT provider in the Netherlands. With fixed and mobile networks for telephony, data and TV, the company serves private and business customers, at home and abroad. In addition, it offers enterprise cloud and data centre solutions, and grants access to other telecom providers to its widespread networks.

**“Providing DevOps to over 60 different teams within KPN, mobilising projects rapidly and at-scale is critical. Containers are becoming the de facto way of achieving this.”** Dennis Eijkelenboom, Transformation Lead Infra & Platform, KPN

KPN has over 3.5 million mobile customers, nearly 3 million broadband customers, provides fixed-mobile phone plans to 1.3 million customers and has over 2 million interactive TV subscribers.



# The journey to containers

Dennis Eijkelenboom is Infrastructure and Platform Transformation Lead at KPN Technium . After a period of transformation KPN's IT and digital programs combined to become Technium - KPN's central IT department. Technium develops and maintains all IT applications within KPN.

As well as enterprise-class IT support, Technium builds agile development environments for KPN's developers to create, test and deploy new software and services. Dennis and the team develop and maintain platforms for 80 DevOps teams distributed throughout KPN. These teams manage and run all of KPN's systems; website; e-commerce platform; CRM; finance; and internal IT systems.

**“Moving into containers has automated many of the processes that, traditionally, absorb time and effort. Without automation, and without Rancher, we would be overloaded.”** - Dennis Eijkelenboom, Transformation Lead Infra & Platform, KPN Technium

Working in the mass market, consumer-facing side of the business (mobile, TV, fixed-line), the team is constantly looking for ways to streamline processes; building agility and efficiency into the organisation. Historically, KPN Digital ran its own private cloud in a traditional VM-based environment. Whilst adequate, this became unreliable, difficult, and costly to manage.

The team started experimenting with containers in 2017. Starting with Mesos, Dennis soon realised Kubernetes was shaping up to be a longer-term option. After switching to Kubernetes, they managed the platform with KPN's own tooling. At this point, they realised the technology was fit for purpose, but that it may prove more efficient to work with a partner to manage the orchestration layer. Rancher started working alongside KPN soon after.

Now, KPN runs 50 production applications on Rancher, running on its advanced private cloud - TCloud. TCloud is now the default platform by which KPN containerizes, develops, hosts and manages its applications and systems.



# What were the problems KPN was trying to solve?

## Increasing scale and velocity of development

As the demands on Technium grew, speed, scale and velocity became priorities. They were working with multiple teams and numerous projects, each consuming valuable time in development and testing. Dennis and his team needed a way to automate large parts of the cycle. He also saw an opportunity to KPN's private cloud to become a more powerful platform for DevOps teams, but needed a scalable way to accelerate development.

KPN's private cloud has always been critical; hosting the estate of VMs, website, databases, connectivity and other key functions. Availability and reliability, therefore, were important factors. As the team started experimenting with containers, Kubernetes became an obvious choice.

Kubernetes, and Rancher, offered the team a way to automate development, experiment freely, and build a more robust cloud architecture. The team found major economies working with Rancher immediately. Compared to managing an estate of VMs, the time and effort taken to manage the platform was vastly reduced. Compared to 12 full-time employees managing the VM platform, only three are needed for TCloud.

**“TCloud is the containerised cloud of the future. A fifth of the company’s development teams are now managing projects in containers in TCloud – we expect to see the rest follow.”** - Dennis Eijkelenboom, Transformation Lead Infra & Platform, KPN Technium

The team would be responsible for patching and testing manually - these processes are now automated. The team can self-service the entire platform from one central point and, whilst still responsible for configuring and deploying new VMs, basic functions happen automatically within the platform.

This has accelerated program development; hastening the time it takes for teams to deploy new services. Working with Rancher has also enabled KPN to position TCloud as its central management platform. TCloud hosts multiple critical IT services such as the API, self-care environment and KPN's Inspire project - a dynamic, customer-facing entertainment guide for film, TV and music.



KPN is now planning the next wave of migration to TCloud, gradually moving the entire IT infrastructure to containers. Department in just three months.

## Developing Critical New Services

One of KPN's biggest requirements was to free the team from the historical management burden so they could innovate around new services for KPN's devops community. Eijkelenboom has been working on a major cloud migration project as a result.

## AWS: Managing the Migration to Public Cloud

Another key mission is to move TCloud into the public cloud - specifically AWS - to allow devops teams to access the functionality that exists within AWS' cloud ecosystem. Developers can continue to benefit from the security, privacy and functionality of TCloud, whilst being able to bring AWS tool sets into TCloud.

Historically, a major migration project like this would take the team away from its core business. It would also take vital services out of play and risk the stability of the core platform during testing.

**“Working with Rancher means we’re not limited to a solution set. Our developers want privacy and security our bespoke cloud brings, whilst accessing the best parts of the public cloud.”** - Dennis Eijkelenboom, Transformation Lead Infra & Platform, KPN Technium

In a containerised environment, migration 'dev and test' can be managed in a separate environment and, because core platform management is reduced, the team can hasten project completion. In this environment, migration progresses gradually and safely - with a few key applications migrated from TCloud to AWS where certain services are needed. The team plans to have several critical applications running on AWS by the end of 2019.



# What were their requirements from their chosen platform vendor?

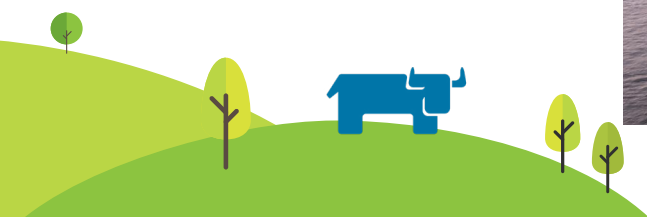
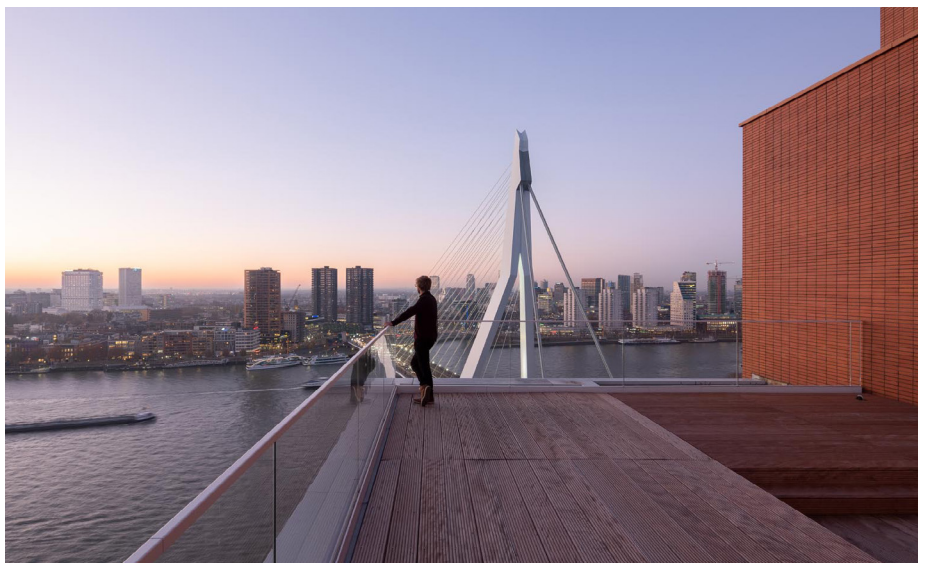
Technium provides a unique set of services to its growing community of internal developers. KPN needed a way to rapidly scale its technology infrastructure in order to service the business efficiently. The team also wanted to build resilience and high availability into its systems to ensure they meet performance KPIs, whilst affording engineers time to innovate.

Crucially, KPN needed a partner to help it get the most out of Kubernetes, and to plan the long-term future of TCloud. Alongside Rancher, KPN is finding it easy to experiment with new ideas. The team can spin up, and take down new instances at a moment's notice; in isolation, with no impact on KPN's core infrastructure.

This freedom allows the team to think more creatively about how TCloud can grow and evolve for the benefit of KPN's devops teams. By creating a flexible environment, they've been able to kickstart plans for public cloud migration much quicker than would have been possible before, and at a fraction of the cost.

**“Working with Rancher has inspired many other parts of KPN's technology team to view containers as an effective way of working. In the future, containers will be the norm.”** - Dennis Eijkelenboom, Transformation Lead Infra & Platform, KPN Technium

Most of all, Rancher has become a trusted partner for KPN, helping to galvanise excitement within KPN for containers and their benefits. Working alongside Rancher, KPN plans to accelerate the adoption of containers within the business, and further migrate the company's systems to TCloud.



# How did they plan their migration to Rancher? What have been the benefits?

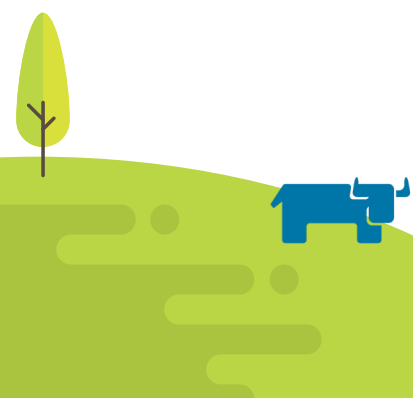
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## How did they plan their migration to Rancher?

### Journey

1. Early 2017 started looking at containers
2. Started with Mesos; four-month period
3. Mid 2017, migrated to Kubernetes with own toolset
4. Started working with Rancher soon afterwards
5. Developed and launched TCloud with Rancher
6. Plans to add AWS integration
7. Long-term plan to migrate KPN's remaining systems/ teams to TCloud, running on Rancher

## What have been the benefits?

### Benefits

- 80% reduction in management time; through automation
- Dramatic decrease in time to test, freeing engineers to innovate; containers enable rapid development of new services;
- Improved availability; only one outage in twelve months compared to many historically
- New instances created in minutes compared to working with legacy hardware;
- Self service; teams can create and projects themselves on being depended on other parties
- Reducing complexity in public cloud migration

For more information about KPN or other public reference customers in production with Rancher, please contact us at [sales@rancher.com](mailto:sales@rancher.com).

