



PostNL
Customer Case Study
Commissioned by: Amazon Web Services

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Summary

PostNL enlisted Amazon Web Services (AWS) to help them move and run part of their IT application landscape into the public cloud. AWS is now running a significant part of the business critical logistics applications that are at the core of the Dutch Postal incumbent. As a result, PostNL has access to a reliable, flexible IT infrastructure that can scale up and down with the demands of the business. IT costs have been significantly reduced, but more importantly, the move to the cloud resulted in a major decrease of the time-to-market and it has helped PostNL IT to focus on delivering business value.

Embarking on a radical public cloud journey is not without its challenges. PostNL was able to navigate the challenges as a result of the full support of the Board, a strong internal build-up of cloud integration skills, in-depth partnering, and flexibility to incorporate the rapid changes and innovations in the cloud.

While the last few applications are now leaving the near-empty datacentre, PostNL is shifting the focus towards the consolidation of its complex cloud landscape. And again the eyes are turning to AWS as one of the possibilities to run more business critical workloads, provide additional support, and find out how AWS's evolving portfolio and roadmap can play a role in making PostNL's cloud architecture even more robust and providing increasing value to the business.

About PostNL

PostNL's roots go back more than 200 years, as the incumbent postal company for the Netherlands. In 1998, PostNL, then TNT Post Group N.V., was split off from the Dutch PTT. By then, the impact on mail activities from the rise of the Internet was already apparent. PostNL had already acquired the Australian TNT in order to diversify and grow internationally. The international strategy has been scaled back, but to this day, PostNL operates over ten networks across thirteen countries with close to 50.000 employees.

The growing internet usage is having a very strong effect on PostNL's business. Traditional mail volumes will continue to decline. But the volume of parcels is growing and developing very rapidly. This leaves PostNL with the challenge of managing a declining and a growing business at the same time. This brings very specific challenges for IT and led to a very radical move.

Key challenges

With the combination of decline and growth and a rapid transformation of the company, this generated a burning platform for radical change, also for the IT infrastructure. The costs were high and IT was unable to keep up with the changes to the business. PostNL had started outsourcing application development in 2000, since it was a challenge to manage the required skills in-house effectively. But in 2010, to meet the IT transformation requirements of cost effectiveness and flexibility, PostNL started to rethink its outsourcing strategy to also include the IT infrastructure.



The key goals of rethinking the outsourcing strategy were to lower costs 20-%25%, make IT more flexible, and to provide scalability within the infrastructure. Early experiments with AWS encouraged PostNL to also look at the potential of cloud services. After carefully considering the alternatives, PostNL took a leap from the burning platform and boldly chose to move completely into the cloud, with a strong preference for the public cloud. PostNL opted for a full cloud approach compared to the often more popular hybrid approach, as it firmly believes that a hybrid approach comes with a significant amount of fixed costs are are not easy to scale down. The new strategy was rolled out in late 2013. This decision turned PostNL into a cloud pioneer. Even in 2016, three years later, no other large, Dutch organisation has dared to follow in PostNL's footsteps.

Getting started with AWS

PostNL started working with AWS in 2011. At the time, there were a number of independent IT islands within PostNL. One of these islands started lifting the first applications into the AWS cloud. At first, this caused a lot of resistance within the organisation. But it motivated the new CIO, Marcel Krom, who believed that innovation often doesn't come from the top, but starts at the edges.

Since PostNL was also looking into creating a new outsourcing strategy, and decided to move into the cloud, PostNL started to engage in conversations with AWS on a more strategic level. From the start, AWS was one of the key providers that PostNL was targeting to include in the desired architecture. Important arguments for looking at AWS were the sheer amount of investments in building cloud services, their superior understanding of the technology, their vision about how the cloud will develop, and the potential for future market leadership. PostNL preferred to partner with "cloud-native" providers directly, since most system integrators, certainly at that time, didn't understand the cloud very well. As opposed to training the system integrators, PostNL decided to work directly with cloud-native providers and to build up the integration capabilities in-house.

The latter was a major and very challenging effort that took about 18 months. Part of that journey for PostNL was to set up a cloud Integration Competence Center (ICC). About 10 employees are part of this group. The ICC has developed a kernel activity with the connections between the clouds. This group is building several services that are managed by the business process coordinator. For example, when a new cloud is added, they will take care of the connection (VPN, replication, resiliency, etc.), compliance management, management (think about where QoS-lines may be in order as opposed to the Internet), and identity and access management. These services continue to be an internal responsibility and you need to continue to manage them yourself.

Working with AWS

For IaaS and PaaS, PostNL has two major contracts directly with AWS and Microsoft (for the .NET stack and for IaaS services), and hires additional external vendors for technical application management (on top of those infrastructure services) as needed. Apart from that, PostNL also deploys a number of more specific cloud solutions, often very specific custom built solutions, and SaaS solutions.



PostNL is using AWS for business critical custom built applications that are crucial for PostNL's primary processes. This includes the following:

- *Field services*: includes services such as AWS Elastic Beanstalk, Amazon RDS(MySQL), AWS Elastic Load Balancing, and is hosted from the AWS Region in Ireland.
- *PostNL Virtual Private Cloud (VPC) environment*: enables applications to be connected to PostNL's network with guaranteed bandwidth, thanks to direct connections.
- *Parcel Preregistration*: several applications within the preregistering chain for parcels run on the VPC.
- *Web coding platform*: the data entry activities from e.g. Manilla.
- *Fulfilment*: PostNL's Warehouse Management System is hosted from the AWS environment, on two Amazon EC2 instances.
- *Internal transport management*: the Transport Management System is located in PostNL's VPC environment, using Amazon EC2 instances within this environment.
- *Commercial channels*: a number of channels, PostNL's consumer platform (app), PostWeb, retail support, and others, are using Amazon's IaaS services such as Amazon EC2.

The Benefits

PostNL believes that the transition to the cloud is bringing strong cost savings in the IT infrastructure. But more importantly, it has aligned the IT infrastructure much more closely to the business needs. Specifically for AWS, PostNL sees the following primary benefits:

- With the flexibility of the cost model and the easy design and deployment of new infrastructure, *time-to-market* is significantly reduced. Even more important, PostNL can now skip the entire discussion about the specifics of the infrastructure.
- With a business that is dealing with fairly rapid growth and declines, the on-demand scalability ensures that IT volumes are easy and quickly aligned with business demand.
- With AWS taking care of a large part of the technical concerns, PostNL is able to move to a governance-based IT model and can shift the focus to delivering business value.

Moving towards cloud 2.0

PostNL has almost finished a major transition into the public cloud. Out of 500, only 15 applications are still on premises. In 6 to 12 months, PostNL's datacentre should be empty. Despite the challenges of this major endeavour, Marcel Krom can proudly say that at least 90% of the projects were finished within time and budget. When these final applications are moved into the cloud, PostNL will start to focus on consolidating the vendor and cloud landscape that has emerged over the last three years. This process is expected to take place within the next 24 to 36 months.

While changes in software applications have business related goals, changes in the IT infrastructure have one simple goal: it has to work. Making the environment more stable,



requires a continuous focus on standardization and simplification. When PostNL was in the process of moving all applications from the datacentre into the cloud, the complexity of the application landscape became apparent. Therefore, the *cloud 2.0* step for PostNL will be consolidation. The cloud landscape will be further standardized and the number of vendors – - will be reduced significantly. There are still quite a lot of different platforms in use that can be consolidated onto AWS.

PostNL is also looking into bringing applications that frequently interface physically closer together, on the same cloud platform. This will reduce costs, latency and put it in a standardized environment. For example, for the commercial environment, PostNL wants to consolidate applications into Salesforce. For the logistics solutions, PostNL is looking to consolidate probably on AWS. Since logistics are the core of the business, this decision will not be made lightly. This decision will be made in 2017. PostNL is very satisfied with AWS, it also wants to make sure that AWS continues to offer excellent services and competitive pricing. An exit strategy must be at hand, but also a multicloud strategy could be part of the strategy.

Changing role of AWS

PostNL considers AWS as one of its most crucial platforms for further consolidation. This does not only mean that more workloads may be moved into AWS, it also means that PostNL is evaluating what types of cloud services from AWS they will be deploying, and what kind of additional support AWS can bring to PostNL.

PostNL is currently using Amazon's services on a relatively low level of the stack. PostNL and AWS are jointly studying the possibility of moving higher in the stack. Specifically, they are looking into what additional services from AWS's portfolio and roadmap might be useful, and what benefits would that bring. By the end of 2016 it should become clear what new services PostNL would want to put in place.

One of those concepts is serverless computing (AWS Lambda), which may be an attractive concept as it makes the life of developers so much easier by automating all infrastructure decisions around capacity, scaling, patching, and administration. For PostNL it first needs to be clear which applications are scalable according to the AWS model, and how big the effort is to changing these applications. If the required change is too big, serverless may not be seen as an option. Especially for new applications, serverless computing and other new services may prove very beneficial.

In terms of support, PostNL has thus far handled most of the technical support together with partners. Since the AWS platform is becoming increasingly important, they are now discussing moving technical support from AWS to a higher level, meaning that AWS would offer more dedicated support in order to make the right infrastructure decision.

Lessons learned

When you are on a burning platform, you will have to make a leap. Moving the IT infrastructure completely into the cloud is a huge leap for a company like PostNL. It is not a fancy, cloud born startup; it has survived for more than two centuries and is operating in the



highly regulated postal market. For PostNL, the journey was a successful one, but also challenging and not without risks. Along the way, PostNL learned the following lessons:

- In many aspects, a migration to the cloud is just like any other migration: not everything will go as smoothly as planned. If you are moving 500 applications, as PostNL has done, this will lead to resistance within the organisation. In order to navigate that successfully, you will need the full support of the Board. And you will always need to be able to quickly backtrace your steps, when an application turns out to be unstable.
- Also financially, moving workloads into the cloud will not always go as planned. Although that is true for most IT projects, there tend to be more unforeseen events as cloud technology is changing rapidly, functionality is added on regular basis, and if you want to use that, you need to be skilled and aware of these new functionalities. When this happens, you must be flexible enough from both sides to draw up a new contract that better represents the changed reality.
- You need to understand IT to work with IaaS. The cloud is not a magical solution. You need to understand IT and must be willing to invest in IT knowledge. You will need to invest in integration capabilities and services. These services are an ongoing internal responsibility and you need to continue to manage them yourself.
- Cloud platforms such as AWS's are evolving very rapidly. A strong relationship with the vendor is required to keep up and to make sure they consider your specific needs. Also, avoid making exceptions to the vendor's standards. If your application does not use these standards, you will often not be able to benefit from enhancements to the platform. You need to be able to put your trust in the technical decisions of the cloud vendor and abide by the standards that are offered. If you are not able to submit to that fully, don't go there.
- Most application partners also need to become accustomed to working in the cloud. They will often need to change their own business model from application maintenance (on a project basis) to application management, taking responsibility for the design, testing, implementation and finally the ongoing management. PostNL found that most of them had to go through a steep learning curve, since the cloud on one hand and the managed services model on the other hand are often also new to them. Most partners are starting to adapt and develop more skills. But it requires a true willingness to partner and jointly discover this new world.

Conclusion

PostNL made an unprecedented total move towards the public cloud. It is not only unprecedented, but since their decision in 2013, no other Dutch enterprise has dared to follow in PostNL's footsteps. The truth is, PostNL made it work. It took a lot of hard work, strong support from the Board, and required IT partners to completely change their business model, but they were able to achieve the goals: IT costs and time-to-market were reduced significantly, and IT has become a scalable environment for a business that grows and shrinks at the same time.

AWS has proven to be a key partner, providing cloud services to support the most critical logistics workloads. For PostNL, working with AWS means getting access to a service provider that offers market leading, robust and reliable cloud services, is always ahead of the innovation curve, and goes the extra mile. PostNL and AWS are now discussing how they can leverage these innovations for their ongoing journey into the cloud.

