



Case Study

SAP Solutions

Achmea

With its on-premises SAP HANA appliance approaching the end of its service life, Dutch insurer Achmea wanted to adopt a more adaptable and scalable solution for the future. Rejecting a new on-premises option as too costly and inflexible, Achmea chose to migrate its SAP HANA landscape to SUSE Linux Enterprise Server for SAP Applications running on the Microsoft Azure cloud. Following a smooth migration, the company is working with SUSE to deploy a full HANA System Replication high-availability solution for its scale-out SAP HANA landscape on Azure.



Overview

Founded in 1811 in the Netherlands, Achmea insures more than 10 million customers across four countries in Europe, as well as in Canada and Australia. Achmea offers insurance policies across multiple classes of risk including health, car, property, casualty, business, pets, life, disability, mortgages and pensions. It sells directly through its own ten brands, through Rabobank branches in the Netherlands, and through insurance intermediaries. Customers range from private individuals to large companies and government organizations. Achmea employs approximately 13,000 people in the Netherlands and a further 2,800 in other countries, collectively generating annual gross premium revenues of almost €20 billion.

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SACHA BOER

Team Manager Platform Operations Unix NL
Achmea

Challenge

Compared with on-premises infrastructure, the public cloud offers significant and well-known advantages in terms of flexibility, scalability and the speed of provisioning new resources. Initially, however, some enterprises were hesitant about migrating truly mission-critical environments to the public cloud, citing concerns around security, control and total cost of ownership. Years of positive experience for early adopters have dispelled these doubts, driving an accelerating trend for moving even the most important applications to the public cloud.

Like many of its peers in the insurance industry, Achmea wants to be as agile as possible in how it goes to market. To support this corporate agility, the company needs flexible IT services, making cloud infrastructure an attractive consideration. When Achmea’s existing SAP HANA database appliance reached the end of vendor support, the company naturally included a public-cloud approach in its analysis of possible solutions.

Sacha Boer, Team Manager Platform Operations Unix NL at Achmea, explains: “In general terms, we are examining all of our workloads for cloud capability. The



Achmea at a Glance:

Achmea is one of the leading insurance companies in Europe, serving 10 million people with health, life and non-life products and services. With annual gross premium revenues of almost €20 billion, Achmea sells through 18 brands and employs 15,000 people worldwide.

■ Industry and Location

Insurance. Netherlands.

■ Product and Services

SAP HANA Certified Virtual Machines on Microsoft Azure
SUSE Linux Enterprise Server for SAP Applications
SUSE Linux Enterprise High Availability Extension

■ Results

- + Provides a stable platform in the cloud for mission-critical SAP HANA workloads
- + Offers exceptional flexibility and speed of provisioning versus an on-premises model
- + Delivers an SAP-certified platform backed by expert global support
- + Increases availability for SAP HANA on Microsoft Azure from the standard 99.99% to 99.9999%

potential for cost savings is not a significant driver in most cases – rather, we want to create a more flexible infrastructure for the future. By moving production workloads to the cloud, we can make it easier to flex resources up and down as business needs change.”

He continues: “In the case of our SAP HANA appliance, which was hosted externally by a third party, the compelling event was that the hardware had reached end-of-life. As we were in the process of determining workloads to move to the cloud, the SAP HANA environment came up as a feasible option, granting us more flexible scalability options at the same time.”

Solution

Choice of solution

Based both on its existing relationship with Microsoft and on the Microsoft Azure platform’s reputation for performance, availability and security, Achmea made a quick decision on the target platform for its SAP HANA migration.

“On the cloud side, the only candidate we considered was Microsoft Azure,” says Sacha Boer. “We have a strategic relationship with Microsoft, and we knew also that Microsoft has a good relationship with SUSE, which provides the other critical elements of our HANA on Azure platform.”

In moving its SAP HANA databases to Microsoft Azure, Achmea chose to continue using SUSE Linux Enterprise Server for SAP Applications as its operating system (OS). “While our SAP HANA appliance was originally hosted externally, we had been managing it ourselves in the months leading up to the Azure migration,

and we were familiar with patching and other OS administration tasks,” says Sacha Boer. “SUSE Linux Enterprise Server is SAP’s own development platform for SAP HANA, so it also makes sense for us to run it from that perspective.”

Proving the concept

Achieving high availability for SAP HANA on Microsoft Azure was a critical requirement for Achmea. In a proof-of-concept (POC) exercise conducted jointly by SUSE and Microsoft, the team set up an environment in which it could test likely failover scenarios. “For example, we fired up some extra application servers, tried crashing the HANA server, and so on,” says Erik van Weert, Solution Architect at Achmea. “We determined that the high availability that we could achieve with SUSE Linux Enterprise Server for SAP Applications on Microsoft Azure gave us the ability to meet our SLAs we needed for our production SAP HANA landscape, and decided to go ahead.”

Microsoft ran two SAP Cloud Workshops for Achmea to help the company decide the optimal architecture for its SAP HANA on Azure environment. During the workshops, the joint team reviewed approved reference architectures, with a particular focus on achieving a setup that would meet SAP standards and enable rapid provisioning of workloads.

“One of the learning points during the POC stage was that we needed to switch from the standard build of the OS to the distribution of SUSE Linux Enterprise Server for SAP Applications that we were already using internally,” says Erik van Weert. “We also decided to bring our existing SUSE

Linux Enterprise subscriptions to Azure, though we plan later to source the OS subscriptions directly from Microsoft.”

Another potential sticking point addressed during the POC was network performance. The data-hungry nature of the applications that depend on SAP HANA at Achmea – SAP BW, SAP Fraud Management, and various SAP data marts on a native HANA database – meant that significant amounts of data would need to move between the on-premises SAP transactional databases and the cloud-based databases in Azure.

Achmea had sized a 1Gb/s Microsoft ExpressRoute dedicated connection between its own data center and the closest Azure site, but saw latency and throughput issues with the connection, which was initially topping out at only 300 to 400 Mb/s. The problem turned out to be an issue with traffic scans on an Achmea switch, which the team was then able to resolve.

A further question mark was the need to create connections between the cloud-based SAP HANA databases and some on-premises systems that had been tuned for the ultra-low-latency internal network at Achmea. These needed to be re-tuned to reflect the new long-distance (and therefore relatively high-latency) connection to Azure. Achmea also made changes in how it connects to SAP BW with SAP Data Services.

Migration

The POC stage was also an opportunity to determine the optimal approaches for installing and configuring the new Azure landscape, and in particular to plan for

significant automation during the actual migration. This started with Achmea setting up the target operating environment on Azure and deploying a SAP dev/test environment. The migration then proceeded in a phased manner from dev/test to QA to pre-prod and then production, with interfaces tested and validated along the way to ensure that there were no unexpected latency problems.

“The migration of the production SAP HANA environment took place over a single weekend and ran smoothly using the standard SAP tools,” says Daniel van den Bogaert, SAP Basis Team, Achmea. “Of course, in such a project it is the preparation that takes the time and effort – we spent six months making sure that we would achieve our goals and obtain the expected performance from connections between the cloud and our on-premises systems.”

High availability

On Microsoft Azure virtual machines running SAP HANA applications, the supported HA function is SUSE Pacemaker Clusters in combination with HANA System Replication – whereby all data is replicated to a separate SAP HANA system, for a recovery point objective of zero and a recovery time objective of almost zero.

To address its scalability needs, Achmea has deployed both scale-up and scale-out SAP HANA environments on Microsoft Azure virtual machines. The scale-up environment runs SAP Fraud Management and the native HANA database. High availability in this environment is assured through the use of HANA System Replication.

The largest scale-out HANA environment that Achmea has deployed consists of five SAP HANA Certified Virtual Machines for production, five fallback servers in a different Azure Availability Zone for high availability, and a majority-maker node. The latter is responsible for making sure that only one side of the cluster can act as the primary system, to avoid a dual-primary scenario in which both HANA environments could accept client connections, which would lead to a divergence between the data sets.

Two clustered SAP application servers for SAP BW sit in front of this landscape, and in front of them are two clustered SAP central instance servers and a replicated SAP enqueue (or lock) server.

Achmea is continuing to work with SUSE and Microsoft on a full scale-out cluster in combination with HANA on Azure Virtual Machines. “Before the migration, we worked on understanding the behavior of HANA scale-out clusters and ASCS/ERS replicated enqueue service,” says Erik van Weert. “There were a number of things that we still wanted to validate. It’s not just a question for high availability for the HANA side but also high availability for NFS, which provides some file systems to the HANA setup.

“Given time constraints, we decided to go ahead with the migration and delay the automated failover of the N+N Pacemaker Cluster scale-out solution. We have since built the NFS servers on SUSE Linux Enterprise Server and we are ironing out some issues with SUSE to ensure that resources get into the correct state between failover and fallback.”

Results

By migrating its SAP HANA landscape to Microsoft Azure, Achmea has gained a flexible, scalable, compliant and enterprise-class platform for running mission-critical workloads.

“We have achieved our targets for performance and stability in our SAP HANA landscape on Microsoft Azure, and we’ll continue to raise the standards when we move ahead with the full scale-out clustering solution,” says Daniel van den Bogaert. “We have already seen first-hand the flexibility benefits of running SAP HANA on the Microsoft Azure cloud. In just the first week after our production go-live, we needed to resize our SAP Fraud Management solution from 1TB to 2TB. Thanks to Azure, this was a fast, easy and non-disruptive change; it would have been significantly slower and more costly in an on-premises environment.”

Achmea is also satisfied that its SAP HANA systems are performing as well or better on Azure than on the previous on-premises solution, and users have reported a better experience with SAP BW than before. This is despite the fact that the BW database has grown from 4TB in the on-premises environment to a full 10TB on Azure.

The Azure portal gives Achmea a number of monitoring capabilities through tools such as Azure Advisor. The company also uses Azure Security Center to look into configurations and check for vulnerabilities. The Achmea team notes that managing SAP HANA on Azure is much the same as doing so on on-premises hardware.

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ERIK VAN WEERT
Solution Architect
Achmea

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“From the host perspective, you win some and you lose some, partly because there is naturally a longer response time because it’s a remote system,” says Sacha Boer. “But the flexibility and the ease of automation of Azure are a real plus. As we continue to get to grips with the new cloud-based way of working, we fully expect the advantages to increase.”

He adds: “From what we’ve seen, the SUSE support service handles calls quickly and resolves our issues correctly and in a super-fast way. In general terms, SUSE gives us rapid, high-quality technical support, and we’re also learning a lot from their support engineers.”

Having the joint backing of two global partners in Microsoft and SUSE was an important success factor for this SAP HANA migration at Achmea. “It was clear from our dealings with both companies that Microsoft and SUSE have a strong working relationship, and the cooperation between them meant that the migration ran smoothly,” says Erik van Weert. “The input from Microsoft on the architectural front

was especially helpful in enabling us to create the right environment for our SAP HANA systems on Azure.

“For their part, SUSE added value by helping us understand and deploy the cluster reference architecture, so that we could achieve our targets for high availability on Azure. Having these two recognized companies closely involved throughout the project also played a key role in reassuring the Achmea management team to give us the go-ahead to move forward with the project.”

Looking to the future, Achmea is continuing to work on its NFS set-up so that it can complete the adoption of full high availability for its scale-out HANA landscape on Azure. One of the main drivers for improving availability is to achieve more automation of administration tasks such as software patch deployment and updates. Currently, these require planned downtime for production systems, which is naturally difficult to schedule with the business. In the future, Achmea will be able to apply patches to each half of the cluster

consecutively, with no impact on users. Sacha Boer adds: “The other gain we expect from rolling out the full high-availability clustering in our scale-out landscape is more trust from the organization. We experienced some disk issues in the past, and the HA set-up will ensure that if that happens again on the production side, the failover will be available and fully automated.”

Meanwhile, Achmea’s main SAP ERP environment continues to run on on-premises hardware, with the potential to move to the Microsoft Azure Cloud at some point in the future. The migration of the SAP HANA systems can therefore be seen as something of a test case, particularly as SAP itself continues to promote the cloud route.

“Being in the cloud makes it easier to move to anything that’s HANA-based, which might include S/4HANA applications in the future,” says Sacha Boer. “Our business case for migrating SAP HANA to Azure was all about future flexibility, and this is certainly what we’ve achieved.”