Protecting Employees

Introducing AWS Cloud as a digital foundation for Employee Threat Management (TMA) for Deutsche Telekom

What is TMA?

Since 2014, Deutsche Telekom AG (DTAG) has established threat management within the company. The threat management deals with all kinds of violence. The highest aim of the threat management is to ensure that each employee is treated with dignity and respect to prevent further harm for the company and the employees. To achieve this goal the threat management works in three different steps:

Recognize: All kinds of violence have a history. There are specific warning behaviors, which help each employee to recognize violence. Each employee can report such warning behavior to the threat management.

Assess: It is the task of the threat management to assess the criticality of the issue.

Defuse: The threat management implements countermeasures with all involved people to reduce the risk for the employee and the company.

Migration Challenge

In all these steps mentioned above, the collaboration with different experts such as labor law, compliance, HR, etc. is essential for the threat management. Currently, all steps are monitored with word documents and e-mails, which is manual and very difficult to manage. To enhance the collaboration and the documentation, the Threat Management Assistant (TMA) should be implemented.

The TMA system should increase the collaboration and documentation. The new system should also enhance the structure of an assessment because scientific models are implemented in the TMA. Those scientific models will be continuously developed so the new system needs to support continuous integration, boost agility, scale and improve business continuity. Furthermore, due to the nature of the project, the new system should be built in a secure environment to store and share documents.

About T-Systems International (TSI)

With locations in more than 20 countries, 37,900 employees, and an external turnover of 6.8 billion euros (2019), T-Systems is one of the world's leading digital service providers with a European headquarter. The market analysts of Gartner positioned T-Systems as a leader in its Magic Quadrant for Data Center Outsourcing and Hybrid Infrastructure Management Europe for ten consecutive years.

T-Systems provides hybrid and multi-cloud services, be it based on hyperscalers' public clouds, OpenStack public cloud or private clouds.

In this area, T-Systems provides end-to-end support for cloud migration, operations (e.g. multi-cloud management and governance) and integration of cloud services into existing IT infrastructures, such as legacy systems, and ensures the scalability of IT services.

The cloud ecosystem of T-Systems includes around 150 partner solutions. Cloud solutions by T-Systems conforms to strict German resp. European data protection policies.



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Why AWS and Well-Architected Review

All the business requirements for the TMA system mentioned above can be met using AWS. The TMA application leverages a modern containerization solution (Docker) using Amazon Elastic Container Service. The latter is a fully managed container orchestration service for security, reliability, and scalability.

The points below reflect the re-architected results based on the security recommendations and improvements suggested by the AWS Well-Architected Review:

- Ruby on Rails as a web-application framework introduced containerization using Docker process
- Deployments via CodePipeline managed by Elastic Container Service

- RDS PostgreSQL for data tier multi-AZ for high availability and failover support
- Elastic Container Service for running WordPress (documentation)
- GitLab (Workbench)/CodePipeline for versioning and CI/CD
- SSM Parameter Store for passwords and parameters
- Elastic Load Balancing Application Load Balancer for availability
- AWS Key Management Service encryption for data at rest
- AWS Certificate Manager for certificate management
- AWS CloudFormation Infrastructure as Code
- Amazon CloudWatch Monitoring



How T-Systems used AWS to achieve a high level of security and zero downtime deployments

Security

Due to the nature of the project, the TMA data should be fully protected. AWS services like Key Management Service (KMS) and AWS Certificate Manager (ACM) helped us to encrypt the data at rest and data in transit. EBS volumes and RDS PostgreSQL databases are encrypted using AWS KMS keys.

Deployments

In order to achieve minimal disruption to business, we have adopted zero downtime deployments using AWS Elastic Container Service. In the rolling update deployment type, the service has a desired number of two tasks and a maximum value of 200 percent, i.e. the scheduler may start two new tasks before stopping the two older tasks. We made sure that the cluster resources required to do this are available. The Application Load Balancer performs health checks on the new version of the application before the old version is replaced.

Using AWS CodePipeline/Elastic Container Service, we are able to achieve Continuous Integration (CI) and Continuous Delivery (CD). This helped us in providing much faster feedback to project teams, thus adopting Agile/DevOps culture.

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Architecture

CI/CD Pipeline



The Benefits

Today, threat management is an integral part of Telekom personnel security in Germany. In fact, DTAG is the first company in Europe with a professional and firmly established Threat Management Assistant system.

Migrating the TMA System to AWS fulfilled all the business requirements, including flexibility, security, boost agility, scalability and improved business continuity. It also accelerated development of new features. Zero downtime deployments and AWS automated solutions for creating TMA cloud infrastructure with ease for operations.

The methodology of the AWS well-architected framework cannot only be applied to greenfield containerization projects but, as well for migration topics within Brownfield approaches.

About T-Systems International

T-Systems is committed to continuous innovation, technology, and platform improvements to create a great experience for its customers. With locations in over 20 countries, 37,900 employees, and an external turnover of 6.8 billion euros (2019), T-Systems is one of the world-leading vendor-independent digital service providers with a European headquarters.

T-Systems offers a scalable public cloud infrastructure based on AWS with full cost transparency.

For more information, please visit our website: <u>https://www.t-systems.com/de/en/cloud-and-infrastructure/manage-it-efficiently/managed-cloud-services-for-aws</u>









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