

Why AWS and Well-Architected Review

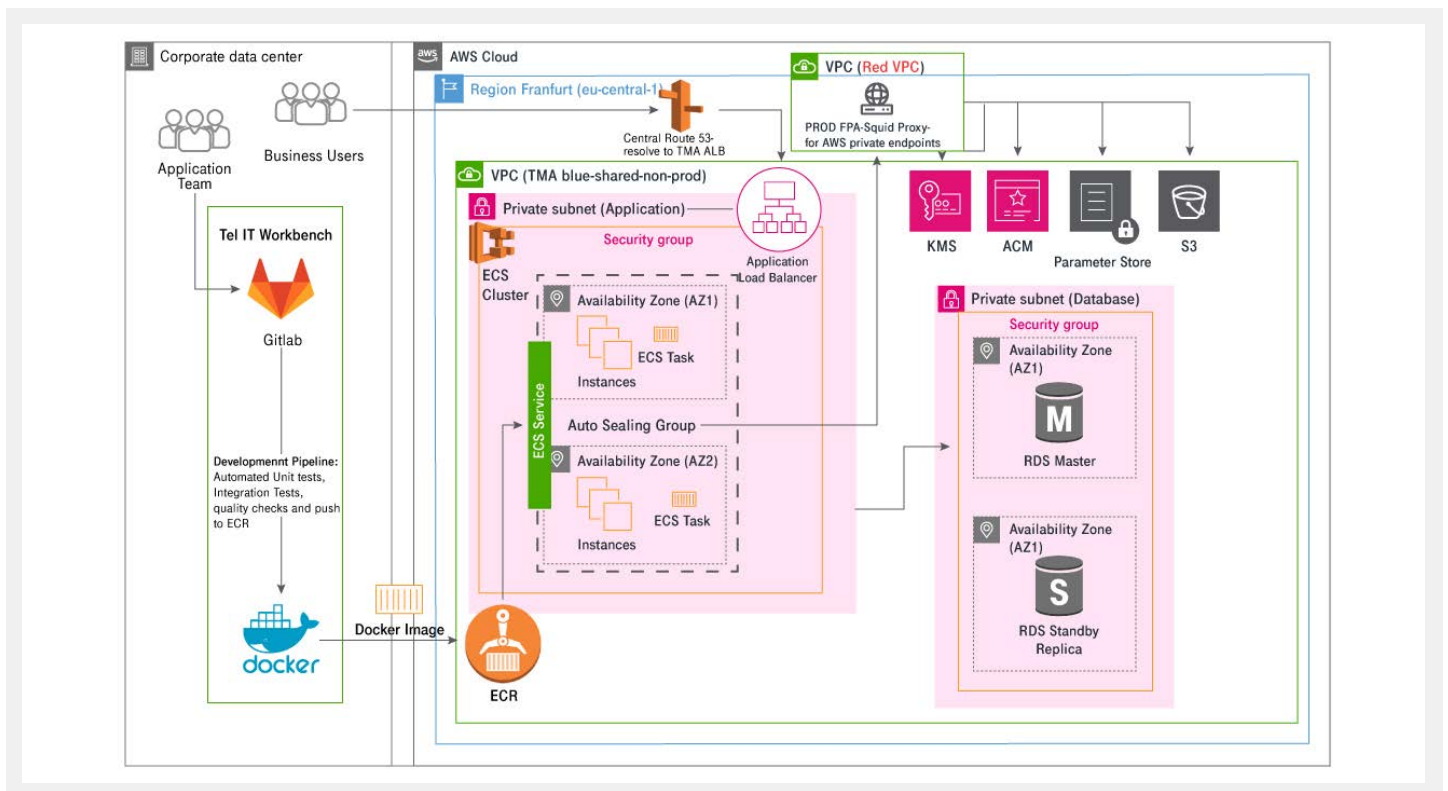
All the business requirements for the TMA system mentioned above can be met using AWS. The TMA application leverages a modern containerization solution (Docker) using Amazon Elastic Container Service. The latter is a fully managed container orchestration service for security, reliability, and scalability.

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

Architecture



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.

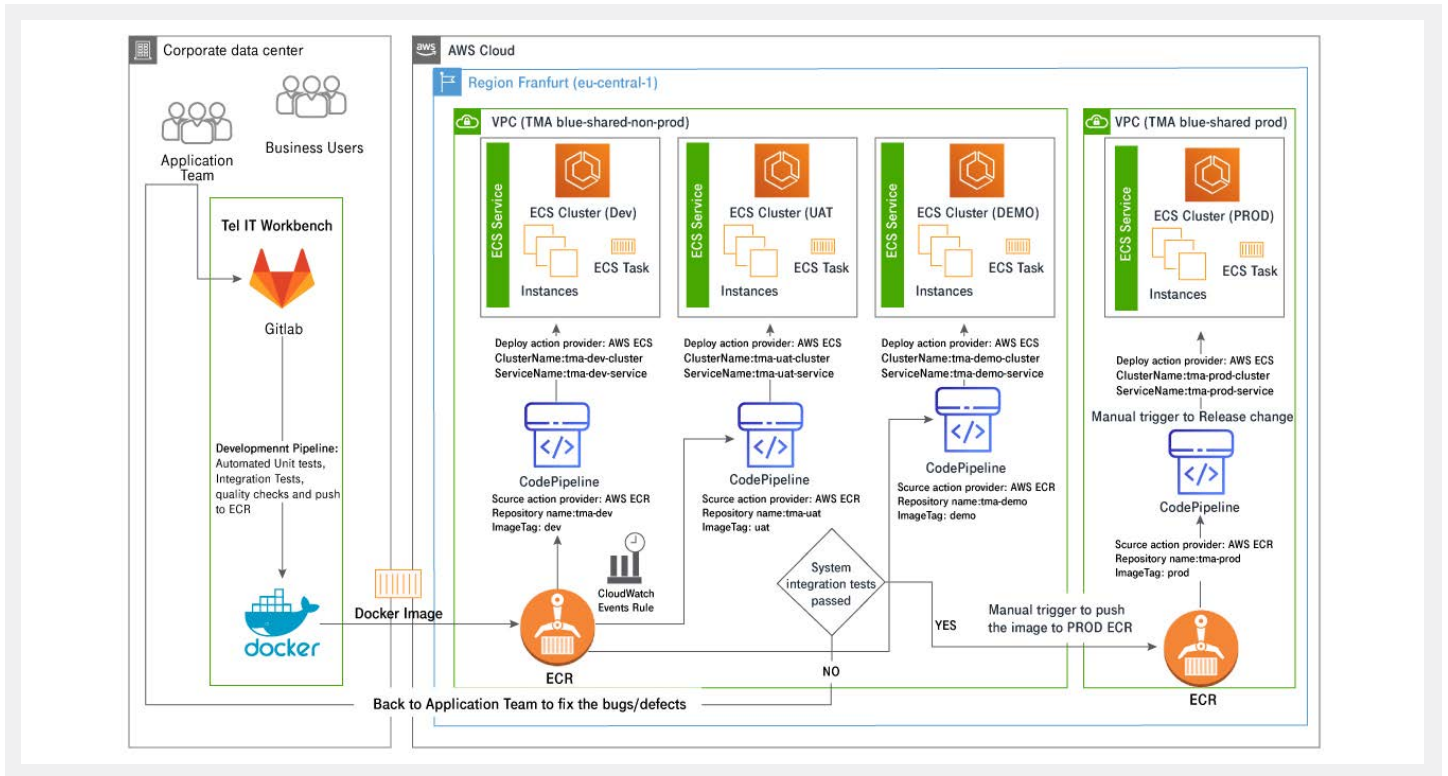
Deployments

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.

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: <https://www.t-systems.com/de/en/cloud-and-infrastructure/manage-it-efficiently/managed-cloud-services-for-aws>

Advanced Consulting Partner

- MSP Partner
- Well Architected
- AWS Direct Connect Partner
- Public Sector Partner
- Industrial Software Competency



Your Contact

Denise Becker
denise.becker@t-systems.com
www.t-systems.com/aws

Publisher

T-Systems International GmbH
 Hahnstraße 43d
 60528 Frankfurt am Main, Germany

