

# Cloud Over Data Center



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**In an exceptional large-scale project, a German insurance company succeeded in migrating over 600 legacy systems to the cloud, laying the foundation for new digital products. How did they manage such a project, and why is moving to the cloud worthwhile?**

The DAX-listed company renovated its IT infrastructure on a grand scale: all web applications migrated to the public cloud. After only four years, the last of the 600 applications was activated in the cloud for production on time on December 28, 2020. The insurer's data center had already been dismantled in 2018. Nearly five percent of the applications were also decommissioned on the way to the new infrastructure, a welcome side effect.

The technical and strategic advantages of migrating systems to the cloud are significant. For example, the time it takes for new code to be delivered from the developer to the user has been drastically reduced, and the systems run very stably.

The migration program was completed on time, thanks to the Munich-based IT service provider and cloud-native specialist QAware. The costs also remained within the budget. The project is profitable: after only three years of operation, the savings in operating costs exceeded the costs of migrating the systems.

For a program of this magnitude, such success is unusual. The IT service provider attributes the success to six factors.

## 1. Creating transparency with careful analysis

An accurate picture of reality is the basis for migration to the cloud. Essential questions must be answered beforehand: which applications are in the portfolio? How complex are they? What technologies are used? What are the relationships and dependencies? Who are the stakeholders?

First, the QAware project team gathered context and detail knowledge directly from the insurance company's subject matter experts. Additionally, they validated and completed the data in several documentation tools.

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For all technical analyses, the principle was that the truth lies in the code. The cloud specialists collected the necessary information automatically using their own analysis tools to link with information from questionnaires, EAM systems, and several other data sources.

Stored as a single source of truth in a migration database, this information allowed for a robust bottom-up assessment of the effort, planning of migrations, and the fast and reliable identification of possible problem sources. New insights can be incorporated on the go and immediately applied to all applications.

## 2. Enabling alignment of the organization

The entire organization must pull together - this is hard work, especially in a corporation. Especially at the beginning of a cloud journey, there is uncertainty because migration affects not only the infrastructure but also requires all processes and habits to be rethought.

Building experience with cloud technologies is costly but obligatory. Fears and doubts must be overcome, not only beforehand but also during the migration. The project team closely supported the different stakeholders to strengthen their trust in the endeavor.

QAware pursues two approaches to align the organization: creating confidence that the migration to the cloud will work and transparency about how the path to the cloud is designed. A realistic goal is the basis for winning all stakeholders for the project.

Closed-backing from management is critical to success. Because one thing is clear: such a large program must be adequately resourced with time and money.

To ensure a feasible schedule, QAware meticulously validated effort and timelines. A systematic bottom-up estimate was developed, and based on this, shutdown dates were set. The deadlines were not softened during the program and were ultimately met.

Hard deadlines alone do not get a conservative organization moving. The crucial factor was the combination of a bottom-up-validated, credible goal, active support from the central team, and unity in management.

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## 3. Ensuring compliance and security

Insurance companies are regulated entities. They must meet numerous requirements regarding the security of personal data and confidentiality. These range from GDPR and DSGVO to §203 StGB. In addition, there are norms to be followed for maintaining business operations, storage obligations, and regulatory restrictions on outsourcing. This list may seem quite impressive for outsiders: KRITIS, §8a BStG, §147 AO, BaFin, etc. This requires an appropriate contract with the cloud provider, in this case in the form of a special agreement.

Good compromises help to reduce fears of contact with new technology. The focus was on getting the project moving while offering the best possible security. At the beginning, data storage in the cloud was avoided. Initially, only time-limited caching was allowed: This meant that only active user data was in the cloud. Data-carrying core systems remained on-premise for the time being. This compromise significantly shortened the discussions on data protection and business continuity.

A distance keeper from the cloud provider ensures that the services of the cloud provider are not directly exposed. This enabled the Munich cloud specialist to present a credible migration and exit strategy while creating the basis for a multi-provider strategy.

## 4. Industrialization as a migration approach

To scale across the entire application landscape, the team of Munich IT specialists chose an industrialization approach: a central industrialization and coaching team enabled application teams to migrate their applications in parallel. Program management coordinated the activities and involved stakeholders. In addition to the migration program, a central CloudOps created the backbone for scalability, stability, and DevOps culture.

The Continuous Migration approach allowed the insurance group's teams to gain early hands-on experience with new technologies and infrastructure. The basis for this was the uniform technical foundation and support from the central team. All applications used the same operational infrastructure and processes for continuous integration and delivery.

The industrialization team has anticipated, coordinated, and collected architectures, security measures, and guidelines in a blueprint and carried them through the committees. The approach, solutions, and design of the target architecture were summarized in a central migration guide, the "cookbook."

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The cookbook is an open document in the sense of living documentation. It has significantly contributed to unlocking the knowledge and learnings of all stakeholders. Where sensible and possible, central technical tools were built. Cross-sectional problems were solved only once and in high quality.

The central coaching team continuously supported applications during migration, enabled knowledge exchange, and stimulated the steady progress of migration. This gave the application teams the confidence to carry out the migration autonomously.

Clear responsibilities of the teams with intensive communication, helpfulness, and uncomplicated mutual support across teams and service providers were crucial for the success of this strategy.

## 5. "Cloud-friendly" as a migration strategy

There are different strategies for migrating applications to the cloud. With a lift & shift migration, applications are moved completely and as much as possible without changes to the cloud. There is a risk of making applications cloud aliens: dangerous foreign bodies in the cloud.

In contrast to lift & shift migration, the complete re-engineering of applications as cloud-native microservices is the strategy. In such a large migration program, this strategy was not considered due to the high costs.

The insurer opted for the middle ground. A technical baseline was jointly established that each application must reach to be considered cloud-friendly. This cloud maturity level defined that an application is sufficiently robust, secure, and diagnostic in the cloud to benefit from a cloud-native environment. Where appropriate, the applications were re-built from scratch to meet these requirements.

## 6. Approaching legacy with courage

Beyond cloud-friendliness, the renovation was done as well as possible: A wide range of different applications, whose development spans up to the past 20 years, contain various legacy technologies. The industrialization team has explicitly taken the time for these technologies: Only a thorough examination of security, maintenance, and quality issues provides the

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framework for upgrades. With this foundation, experts can find the right tactics for each technology. Many applications have achieved a higher level of cloud maturity and significant improvements in quality, stability, and scalability.

## Conclusion

Over the course of four years, the German insurance company accompanied more than 600 applications of various colors on their way to the cloud, bringing its entire organization to cloud-native and DevOps and laying the groundwork for new digital products. The key factors were the systematic and pragmatic approach, the will and support of management, and the courage and ability to solve difficult technical challenges. So the conclusion of all involved is: The path to the cloud is feasible – and worthwhile.

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**QAware GmbH** is a German software company with offices in Munich, Mainz, and Rosenheim. The company was founded in 2006 and offers services in the areas of software development and IT consulting. A special focus is on cloud-native engineering. QAware employs around 200 people and has been repeatedly awarded as a top employer.

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