

HOW TO MAKE THE MOST OF CLOUD

Factors to consider for a successful cloud transformation



T Systems

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higher performance

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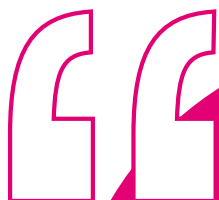
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1. INTRODUCTION



Cloud computing continues to evolve, progressing from being just a technology disruptor, to where, in 2028, it will be a necessity. By then, 70 % of workloads will be running in a cloud environment, compared to 25 % in 2023.”

Dennis Smith, Distinguished VP Analyst, Gartner¹

The cloud market now has an abundance of providers and solutions that are constantly changing. When selecting a provider, companies must not only consider technical and cost aspects, but also bear in mind long-term strategic goals such as resource optimization, performance enhancement, innovation and transformation, and security and compliance. The key to these goals lies in the company's applications. However, in the expansive landscapes of IT infrastructures, where myriad applications flourish, the intricacies often lie scattered across various departments. Application owners, who possess invaluable insights into the finer details, are dispersed among multiple departments, making it challenging to consolidate a comprehensive understanding. Planning a seamless cloud migration

under such circumstances becomes a formidable task, especially when the central IT department can only oversee the broad strokes, focusing primarily on the larger and more critical cases. Legacy applications, for instance, being more complex and critical, are often prioritized as large and significant (L&S) cases. To derive genuine value from cloud solutions, specificity regarding individual applications becomes imperative. A detailed comprehension of each application's nuances is essential to meticulously craft an architecture that not only accommodates the existing intricacies but also leverages the full potential of cloud technologies. Only by delving deeply into the specifics of applications can organizations truly unlock the promised benefits of cloud migration and optimization.

Customized infrastructures with multi-cloud

Multi-cloud infrastructures offer several strategic advantages. Companies do not bind themselves to one provider and instead put together a solution from the offerings of several cloud providers that best suit their needs. In this way, the various user groups in companies get their IT resources, such as virtual machines, storage, and applications, according to their needs. These can be hosted on different cloud platforms according to governance and security requirements. In addition, with cloud computing, companies only pay for the IT capacities that they actually use.

Challenges on the migration path: uncontrolled growth and legacy systems

In many cases, companies seem to “stumble” into multi-cloud transformation projects rather than planning them well. The reason for this is often a lack of overview of their IT landscapes. In many companies, structures have grown over the years – making it difficult for anyone to have a complete overview. Another challenge is posed by outdated technologies and architectures, which are often not well-suited to cloud environments. Legacy systems have often been developed over many years. They are often highly interlinked and can have complex dependencies. The extent to which a legacy system can be moved to the cloud needs to be clarified. As companies’ critical applications often run on legacy systems, their migration therefore poses a certain risk to business operations. It is important to plan carefully to ensure that the migration runs smoothly and that downtime is minimized.

Numerous questions that need to be addressed:

- How can companies obtain a complete overview of their IT landscape over the longterm?
- What are the differences between cloud providers, and which solution best fits the requirements?
- What are the migration and operating costs for each cloud provider?
- What factors must be considered to ensure a robust and secure cloud transformation?
- Does the technology partner have sufficient expertise and experience not only to implement all cloud solutions but also to manage them permanently?



2. CLOUD ASSESSMENT: IT'S ALL ABOUT THE APPLICATIONS

Businesses increasingly recognize the necessity of cloud computing for digital transformation. Consequently, they are transitioning their focus from incremental gains to transformational benefits derived from their investments in the cloud. In order to succeed in their efforts, a coherent strategy for cloud initiatives is essential for strategy and execution to harmonize with business objectives across functions. The focus should be on leveraging cloud technologies to drive strategic business outcomes rather than simply transitioning existing systems to the cloud.

Here, the companies' applications come into play: Cloud migration projects can easily fail when they neglect to systematically evaluate the relevance of their applications. This especially implies understanding and prioritizing

applications during the migration process. Without this application-led approach, organizations risk encountering several pitfalls. Firstly, failing to assess application dependencies and performance requirements may result in incompatible configurations and performance issues post-migration. Secondly, without proper prioritization based on business value and complexity, critical applications may be neglected, leading to disruptions in operations. Additionally, overlooking application-specific considerations such as data security and compliance can expose organizations to significant risks. Moreover, without aligning cloud migration with business objectives and focusing solely on infrastructure-level changes, organizations may miss opportunities to drive transformative benefits and achieve desired outcomes.

APPLICATION-LED TRANSFORMATION 101



FOCUS ON APPLICATIONS

The central focus should lie in comprehending the significance of each application within the organization. This entails delving beyond the technology stack to grasp how each application intricately contributes to business processes and objectives. Through prioritizing applications, organizations can streamline resource allocation and guarantee that pivotal applications receive the requisite attention throughout the migration process. This strategic approach ensures that the migration efforts are aligned with business priorities and objectives, thereby enhancing the likelihood of successful transformation.



ASSESSMENT OF APPLICATIONS

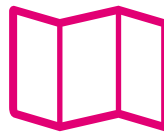
The assessment phase involves gathering detailed information about each application, including its architecture, dependencies, data flows, performance characteristics, and integration points. This helps identify any potential challenges or dependencies that may arise during the migration process. It also provides insights into the level of effort required to migrate each application to the cloud.



MAPPING TO CLOUD SERVICES

Once the assessment is complete, organizations can determine the most appropriate cloud services and deployment models for each application.

This may involve choosing between Infrastructure as a Service (IaaS), Platform as a Service (PaaS), or Software as a Service (SaaS) offerings, depending on the specific requirements of the application. For some applications, a simple “lift-and-shift” approach may be sufficient, while others may require more extensive re-architecting or optimization to fully leverage cloud-native capabilities.



PRIORITIZATION AND ROADMAPMING

Prioritization involves identifying which applications should be migrated first – based on factors such as business criticality, regulatory compliance, and technical complexity. A roadmap outlines the sequence of migrations, along with timelines, milestones, and resource requirements for each phase of the project. This roadmap provides a clear plan for executing the migration process and ensures that key stakeholders are aligned on objectives and expectations.



OPTIMIZATION AND CONTINUOUS IMPROVEMENT

Once applications are migrated to the cloud, the focus shifts to optimizing their performance, scalability, and cost-effectiveness. This may involve implementing auto-mated scaling mechanisms, optimizing resource utilization, and leveraging cloud-native services to improve efficiency. Continuous monitoring and optimization help ensure that applications remain aligned with evolving business requirements and technological advancements.

APPLICATIONS AT A CROSSROADS: CONSIDERING PLAN B

During the process of migrating to the cloud, the fate of applications becomes a pivotal concern. It's crucial to acknowledge that not all applications from legacy systems can seamlessly be transitioned to the new cloud environment. Each one demands scrutiny to determine its suitability for migration. Some applications may be tightly coupled with on-premises infrastructure or rely on specific configurations that are challenging to replicate in the cloud.

In the cloud migration journey, organizations often encounter a spectrum of challenges ranging from compatibility issues to performance concerns. While some legacy applications can be rehosted or refactored for the cloud, others might require significant redesign or even replacement with cloud-native alternatives.

Furthermore, the landscape of cloud applications might not always align perfectly with the specific requirements of a company. Off-the-shelf cloud solutions may lack certain functionalities or fail to integrate seamlessly with existing

systems. This discrepancy necessitates careful evaluation and sometimes custom development or integration work to bridge gaps and ensure a cohesive IT ecosystem.

However, the migration process presents an opportune moment for IT modernization and digital transformation. It provides organizations with the chance to reassess their application portfolio, retire redundant systems, and explore innovative cloud-native solutions. Embracing cloud-native applications not only enhances scalability and agility but also fosters a culture of continuous improvement and adaptation in the face of evolving business needs.

In essence, cloud migration isn't merely a shift in infrastructure but a strategic initiative to optimize operations, enhance flexibility, and drive innovation. It empowers organizations to leverage the full potential of cloud technologies while addressing the intricacies of their unique business requirements.



3. A GUIDE TO CLOUD ADOPTION

As the cloud lays the foundation for innovation and transformation, it is crucial that companies truly leverage and benefit from its potential. Whether it is driving productivity via AI-supported process automation or improving customer experience – the cloud is a starting point and a foundation for success.

However, there are many questions that companies without external expertise cannot reasonably answer (e.g. how do I start, what are the priorities, what data is required, how can I proceed efficiently to keep my company running and costs low, but especially how do other customers in similar segments deal with this?). This is where Cloud Assessment from T-Systems comes in – a service that enables companies to analyze their IT landscape to consolidate and modernize it, and benefit from the best offer for them in the long term – with a focus on transparency and sustainability. To achieve this, T-Systems relies on a combination of proven software tools and the experience of highly specialized experts. Anyone can install the tools, but the expertise and understanding of the customer is a value that even AI-based tools cannot replace.

First, T-Systems scans the entire IT and application landscape: data centers, virtual machines, servers, applications, and IT services of all kinds. The result is a complete inventory that shows exactly which IT resources are in use in the company and what project and operating costs

are incurred. Shadow IT is uncovered during this process. Based on this information, T-Systems' cloud experts draw up a sound recommendation for how the company can modernize its IT infrastructure, applications, and operations with the help of multiple cloud services from different providers. A Cloud Assessment shows companies a clear migration path to a professional hybrid- and multi-cloud infrastructure, which saves time and money, considers different security requirements, and provides scope for driving digitalization, developing innovations, and opening new business areas.

DATA CAN REMAIN WITHIN THE COMPANY

A large part of the inventory of infrastructure and application landscapes at customers is now automated with the help of intelligent tools, often in a public and multi-cloud. However, some companies have high demands in terms of compliance, security and data protection and do not want data about their IT landscape to be transferred to a public cloud. T-Systems has the solution and can use a tool for the cloud assessment that is installed within the customer's IT environment. A kind of "on-premises deployment", whereby no information leaves the company and the customer retains full control over their data. This method also meets the requirements for private and sovereign cloud environments that handle sensitive data in the public or healthcare sector.



WHAT ARE THE

STEPS INVOLVED

TO MAKE IT WORK?

Inventory and overview

of the complete IT landscape with a proven software tool: automated scan of the existing IT landscape and the resources used (data centers, virtual machines, servers, applications and services). This shows which concrete project and operating costs are currently incurred in the cloud.

Development of recommendations

for all the applications in a company-specific migration plan – taking into account the security strategy best suited to your company.

Identification of savings potentials

based on automatic capacity planning. With T-Systems' Cloud Assessment, time savings of up to 65 percent can be achieved and costs are reduced by up to 45 percent (on the basis of more than 1,000 Cloud Assessments performed).

Intelligent simulation of business cases

for applications that are to be migrated to the cloud, which ones are to be migrated to which cloud (also for different cloud providers, if requested) – and which are to be rebuilt or shut down and replaced by cloud services?

4. APPLICATION EXAMPLES

From a heterogeneous IT landscape to the ideal cloud set-up

A global packaging company has expanded enormously in recent years. As a result, the IT landscape has become increasingly heterogeneous. Previously, the company managed its IT in-house and in a decentralized manner in more than 40 locations. This was not only very time-consuming, but also expensive. The packaging specialist decided to consolidate its IT on a uniform basis and to use the cloud as an opportunity for innovation and greater sustainability.

With the help of T-Systems, a suitable cloud strategy was developed, including migration and operation in a suitable private or public cloud. The focus was on 900 mainly VMware-based systems, 50 of which were already in the Azure Cloud. The approach: Together with the customer, T-Systems analyzed the current situation of the infrastructure and applications and ran through various target scenarios. This showed that a complete migration of the systems to the Azure Cloud would not be advisable. A hybrid cloud concept was developed, taking into account the application requirements and privacy aspects. The

Future Cloud Infrastructure (FCI), a modern private cloud solution from T-Systems, promised great advantages for this. As the majority of the IT systems are based on VMware technology – as is the FCI – they could be migrated completely.

The next step was to analyze the application landscape in detail and develop an optimized target image. As part of the Cloud Migration Framework of T-Systems, various scenarios were planned for the servers – depending on the technical and privacy requirements of the applications. Some remained in their current state, while others were migrated to new platforms: systems with high dynamics and a need for innovation were migrated to the Azure Cloud. Less dynamic systems, which continue to be operated on VMware, remain on FCI.

The benefits for the packaging specialist: the new solution ensures greater transparency regarding costs, higher operational efficiency and uniform governance. By using modern cloud services, the company now has a future-proof IT architecture and application landscape and can advance important aspects of sustainability.



Overall, the cloud experts analyzed

In **49 cases** they considered moving to a cloud environment (lift & shift or lift & re-shape) as the best solution, while they saw no further use for **7 applications**. For **15 systems**, they recommended restructuring (refactoring) the software.

132 Server systems

21 SQL servers

1.27 Petabytes of memory
File Storage



5. THE RIGHT PARTNER FOR YOUR CLOUD JOURNEY

To modernize your company's IT infrastructure in the long term, it is advisable to have a partner that has both the appropriate software tools and sufficient cloud and security expertise inhouse to be able to provide adequate advice. Because one thing is clear: Only with the right cloud strategy, which also takes security aspects into account from the start, can migration succeed, and the potential be leveraged. As an enabler for multi-cloud and digitalization, T-Systems has reliably supported companies on their path to greater performance and security for decades.

As a digitalization partner T-Systems provides the right cloud solution for every need – from infrastructure to platform to software-as-a-service (IaaS, PaaS, SaaS). Beyond that, T-Systems has its own cloud offerings such as the Open Telekom Cloud, hosted in German data centers and the private cloud solution, Future Cloud Infrastructure. And when it comes to taking advantage of the public cloud without compromising on data security and

compliance requirements, the T-Systems Sovereign Cloud powered by Google Cloud offers full compliance with the requirements of regulators – while retaining the public cloud functionality and flexibility of a hyperscaler.

The cloud journey doesn't end with selecting and migrating to a specific cloud platform. The real challenges begin after the transformation, focusing on building a robust cloud operating model, driving organizational change, and establishing a sustainable IT organization to not only enable customers' businesses but also to enable completely new solutions thanks to disruptive technologies. Most customers struggle with the consequences of a cloud transformation when they seek to establish a new cloud operating model and lack the necessary resources or experience. In this regard, partners like T-Systems can assist in building an operating model derived from the cloud assessment and incorporating the respective results for the future model.

EXTENSIVE EXPERTISE ON BOARD

The experts at T-Systems support companies in every phase of their cloud journey and always find exactly the cloud solution that meets their individual business and security requirements. Together with those responsible, they map out the best approach for the migration, define their cloud security strategy, find the right target platform and help with implementation and cloud sizing. This ensures that companies are optimally prepared for the future.

The experts also keep an eye on costs. They not only compare the fees of different cloud platforms, but also the

costs of the company's existing and future infrastructure. As part of FinOps, they take care of long-term cost planning and can calculate the total cost of ownership.

T-Systems' comprehensive end-to-end services support companies in modernizing their applications and workloads and migrating them to the cloud. Not least of all, the T-Systems experts ensure the right operating model and establish a Cloud Center of Excellence (CCoE), for example. After all, an optimally defined cloud operating model is a decisive success factor for the company's effectiveness.



NEXT STEPS

To help you plan your migration needs and gain an overview of your landscape's maturity, we recommend a Cloud Assessment. Because no matter where you are in your cloud migration journey, there is support at every stage.

STILL HAVE QUESTIONS?

Do you need more in-depth advice?
Don't hesitate to get in touch with us:

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SOURCES

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