DXC Customer Story
Vodafone Germany

CUSTOMER
Vodafone Germany

LOCATION
Düsseldorf, Germany

INDUSTRY
Telecommunications

OFFERINGS
Applications, Cloud Infrastructure & ITO

PARTNER
Amazon Web Services (AWS)

Delivering exceptional customer service is crucial for success, particularly in consumer-centric industries such as telecommunications. Vodafone Germany, a subsidiary of Vodafone Group Plc, one of the largest telecommunication providers in the world, serves more than 35 million consumer and enterprise customers in Germany alone. In pursuit of reducing tech debt, reinvigorating speed and enhancing flexibility, Vodafone Germany sought to modernize its homegrown customer care and billing system by transitioning from legacy midrange servers to the cloud.

"With this modernization, we now operate the largest core IT stack in AWS across the entire Vodafone Group."

— **Reinhard Kreft**
Director of IT core stack at Vodafone Germany

Vodafone Germany modernizes customer service and transitions to the cloud

Many enterprises run legacy systems with aging software and infrastructure that hinder growth and innovation. But outdated components also mean increased costs, higher likelihood of downtime and security issues. In the case of Vodafone Germany, its customer care and billing system was running on obsolete hardware and software components that either were no longer supported or would stop being supported soon. Refreshing the hardware alone would have cost millions. Most of the tooling, libraries, deployment and operations processes have hardly changed in the last 20 years.

The telecom provider saw that moving its customer care and billing system to the cloud would result in a more stable and adaptable environment, by gradually adopting new and more efficient technologies. But upgrading to a new IT landscape that would benefit the company and its customers was no easy task.

Managing a complex transition

DXC Technology has a long relationship with Vodafone Germany, providing IT services such as application development and infrastructure support for almost 2 decades. Building upon this alliance, Vodafone turned to DXC to assess what it would take to modernize the platform and identify the best path to move from old infrastructure and tooling to a modern cloud platform. The process involved upgrading all

"The time of big transformations is over, and we need to be set-up for a constant modernization journey. Our Modernization Garage addresses the big refactoring of one of big applications towards cloud. Nobody thought this is possible, but we just made it happen"

— **Ulrich Irnich**
    CIO, Vodafone Deutschland

Key takeaways

- Conducted a complete system overhaul and cloud migration of a huge legacy app in only 3 years, with no business disruption.

- Reduced costs, decreased tech debt and increased stability, by moving from outdated, non-resilient hardware and software to modern solutions.

- Improved business agility to accommodate new innovative customer services more easily

the tooling and build processes, migrating the source code and adopting cloud features, introducing automated CI/CD processes, and thus transforming the deployment and operational processes. This all had to be accomplished without disrupting the ongoing business.

The application has more than 5 million lines of source code, mostly C++ and some PL/SQL. Since it was running on HP-UX, which is no longer in active development, components such as hardware, compilers, libraries, databases and tools were either difficult to update, or were so old that no upgrades were available.

To reduce the technical debt and improve the security, performance and maintainability of the application, Vodafone Germany, working closely with DXC, decided to migrate the application to Red Hat Linux and Kubernetes, refactoring it to use container technology and moving the supporting infrastructure to the Amazon Web Services (AWS) cloud. DXC compiled and built the new application on Linux with up-to-date tooling. The new compiler reported thousands of new errors and warnings. The Oracle database, along with all Oracle client libraries were upgraded, several third-party libraries replaced, and Oracle GoldenGate was introduced as the new replication mechanism. Proprietary protocols were replaced with https, which enabled the use of standard load balancers, meaning Vodafone Germany is equipped to leverage auto-scaling — key to optimizing cloud costs.

Communication is key

DXC took an agile development approach, taking various components into production in steps, starting with the small, less complex parts of the application. This made it possible to practice and mature new deployment processes, were automated using CI/CD and the GitOps approach, also making it possible to easily roll back components if needed, which significantly reducing risk. For major modifications, DXC conducted proofs of concept to validate assumptions and make sure complexities were fully understood before proceeding.

Critical to the transition was bringing together people who had the knowledge of how the old system worked with those who had expertise in how new technologies could help Vodafone Germany achieve its business goals. The legacy experts were trained in the new technologies and those familiar with cloud were educated on the specifics of the old system. Close collaboration between the teams led to sharing learnings, while avoiding siloes and inefficient ticket-based communication.

Benefits of a modernized cloud-based system

Vodafone Germany's customer care and billing system — essential to supporting Vodafone Germany's business — has been modernized with no business disruptions and now runs on fully supported hardware and

Key recommendations

- Conduct comprehensive and automated regression and load tests to provide the confidence that a change does not accidentally or adversely affect the system.

- Think ahead and plan your journey to avoid late changes and double work. Start small and dissect the journey in phases (milestones) and be prepared for changes. When in doubt, conduct PoCs to validate assumptions and confirm estimated complexities.

- Don't underestimate the people and process challenges of moving to new deployment and operational processes, if the existing teams have many years of experience in the old environment. Design, educate and mature/grow in the new target environment early.

- Work in integrated teams; avoid silos. Be mindful of the skill gaps (old vs. new). Communicate, communicate, communicate.

- Consider the value of carefully re-architecting certain aspects to maximize the benefits (for example, enable auto-scaling, improve resilience), to prepare to in preparation for developing innovations down the road.

software. The modernization didn't require a freeze on new business value, as is often the case when major overhauls like this are undertaken. DXC continued to deliver new business functionalities as part of the same releases.

The upgraded application is much more responsive and resilient and shows significantly better performance at highly increased efficiency. The system now runs on ten times less instances with much faster deployments and streamlined rollback procedures. In addition, the overall system performance significantly improved — for example, the maximum reconnect time was reduced by a factor of 10. Another benefit was moving the system from

a single data center to three AWS availability zones for greater resilience. Finally, Vodafone's dependency on expert know-how in aged technology is dramatically reduced.

Leveraging cloud provider services, with Kubernetes and AWS, now opens the opportunity to gradually introduce new technologies, such as microservices, to further accelerate innovation velocity.

The combination of DXC's knowledge of the existing system, application development and experience with implementing AWS cloud technology, resulted in a highly successful modernization.

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