

BEYOND THE DATASHEETS:

VENDOR-INDEPENDENT TESTING FOR VODAFONE GERMANY



Being one of Germany's leading communications providers, Vodafone offers internet, mobile, landline and television services for businesses and private customers. In addition to a nationwide fibre-optic cable network and a machine network for industry and commerce, it operates a large-scale 4G system and, since mid-2019, Germany's first 5G network. With its state-of-the-art mobile communications network, no other company connects more people and machines across all of Germany than Vodafone.

Continuous development and innovation

To maintain this track record of success, Vodafone constantly develops its infrastructure. "Making sure that our mobile network performs well and is equipped with sufficient capacity is crucial for us, especially since there is an increasing trend towards more mobile data traffic", as Ralf Hornhues, Head of IP Core Engineering at Vodafone Germany, puts it. "To achieve that, we regularly opt for innovative technologies. They are the key to ensuring high-level performance and long-term customer satisfaction."

Against this backdrop, in 2019 the Vodafone team decided to qualify the use of new Virtual Application Delivery Controllers (vADC) in order to be prepared for future data throughput requirements.

Jens-Olaf Schmidt from the Group Network Engineering and Delivery (GNE&D) team explains: "So far, the Vodafone network has used ADC hardware appliances from several different vendors." The devices are typically connected upstream of the servers that provide the services. This is done to distribute the incoming data load to different instances, since a single host can only answer a limited number of requests at a time.

Following the general trend away from proprietary, dedicated hardware and towards Virtual Network Functions (VNFs), the future aim is to have software-based ADC functionality run in a virtual environment. "We now had to determine to what extent the virtual counterparts of our current ADC systems are compatible with the virtual sphere of the Vodafone network", Schmidt continues. "And we wanted to take a closer look at other vendors, especially ones that were new to us, to ultimately identify the best possible option for us."

PROJECT OVERVIEW

Customer:
Vodafone Deutschland

Industry:
Service-Provider

Vendor:
various

Products:
Virtual Application
Delivery
Controller (vADC)

BACKGROUND

- neutral qualification of different vADCs from different vendors for future network expansion
- Sensuring interoperability in the productive network

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Agile support with cross-sector expertise

In order to be able to scrutinise the vendors' options over and above their specifications and parameters, Vodafone decided to bring on board an independent expert in the field of network technology: Xantaro, a long-standing, trusted partner in the development of the Vodafone network and its innovative applications. Years of close-knit cooperation have laid a solid foundation of great confidence in its service and competence as an integrator. Another advantage: As a maintenance partner for the components of a whole host of vendors, Xantaro also provides support at operational level and knows the Vodafone network inside out.

In Frankfurt, Xantaro operates its own technology laboratory, the **XT³Lab**, where it realistically simulates high-performance customer scenarios. Equipped with high-capacity test systems, the lab covers a wide range of use cases: From hardware to virtual equipment and software, the infrastructure is designed to simulate large parts or complete network topologies and allows for proof-of-concepts as well as performance and scaling tests, evaluations and troubleshooting.

The operation of the environment is largely automated to ensure that the components are easily managed, controlled and configured. In doing so, Xantaro can provide agile and cost-effective test services such as the ones for Vodafone.

Detailed qualification in a neutral environment

In order to allow Vodafone to conveniently compare the vendors and their different implementation concepts, extensive tests are carried out to provide a precise and in-depth qualification detailing the functionality of the vADCs. All essential scenarios are mapped including health checking for different services, IPv4/IPv6 translation and diameter, http/2, multitenancy and automation/API functionality as well as load tests analysing data throughput, encryption performance and parallel sessions, among other things.

The implementation essentially takes place in four steps:

- To start with, both functional and load scenarios are agreed with the customer, test set-ups are defined and tailored to the customer's needs, and a corresponding test topology is created in the **XT³Lab**.
- Xantaro then refers back to the vendor to ensure that the device under test (DUT) is optimally configured from the vendor's perspective too.
- In the next step, the tests are carried out in the **XT³Lab** using the Ixia load generator, with the option to include direct support provided by Ixia, a key partner of Xantaro, if required.
- Once this process is completed, the results regarding the various functions and performance values are processed into a suitable format and made available to Vodafone.

PROJECT OVERVIEW

REALISATION

- coordination of functional as well as load scenarios and definition of customer-specific tests
- agile and cost-optimized implementation of realistic testing in the **XT³Lab**
- preparation and provision of the results for functions and performance values

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Security for future decisions

The verdict: “The processing of the results was very good indeed”, Jens-Olaf Schmidt summarises. “The thoroughly detailed information on the functionality and performance of the vADC systems gives us exactly what we need to plan and make decisions for the future.”

Based on the test results, any upcoming projects and requirements can be evaluated at short notice to identify and use the most suitable systems. The results pay off not only for the colleagues in Düsseldorf or in fact Germany: Vodafone Group teams worldwide benefit from getting to know the strengths and weaknesses of the different vADC options.

PROJECT OVERVIEW

RESULT

- detailed knowledge of the functionality and performance of the vADC systems
- reliable, short-term evaluation and implementation of future projects and requirements with the best-fitting system in each case
- Vodafone Group-wide benefit through relevant test results

To quote Ralf Hornhues: “Testing the many different vendors with Xantaro’s help was without a doubt an absolutely sensible investment for us, saving the team time with an immediate positive effect. We will certainly continue to use Xantaro’s testing capacities for other topics, too – especially when the aim is to obtain objective results for a large variety of vendors!”

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