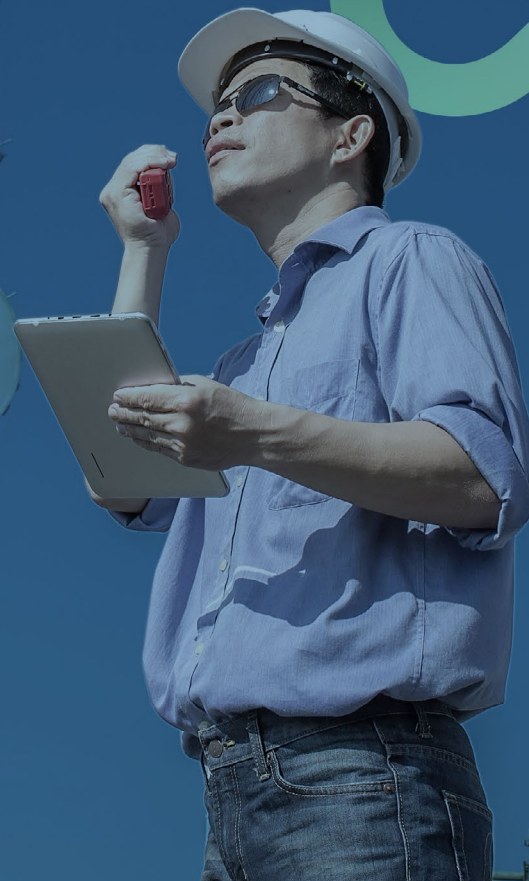




CUSTOMER SUCCESS STORIES

teagra deploys EDB Postgres Distributed to provide high availability for mission- critical Postgres databases





CUSTOMER: **TELEGRA**

EDB customer since 2018

Christian Blaesing
telegra's head of IT

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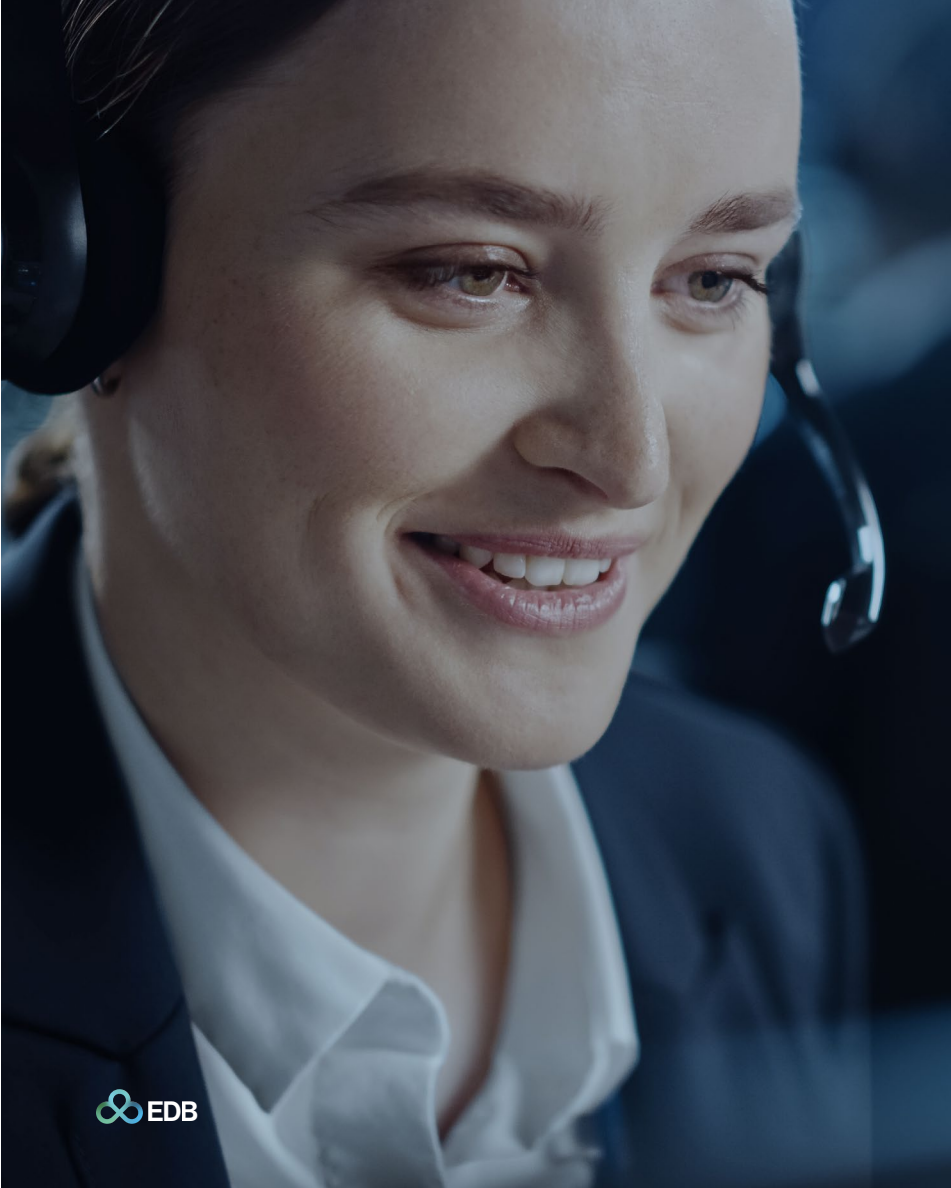
OVERVIEW

How Postgres is playing an integral role in driving innovation for next-generation German telecom provider

Downtime can be devastating for any business. In a 2020 survey conducted by Information Technology Intelligence, 88% of respondents reported that one hour of downtime cost more than \$300,000. No wonder that the same survey found that 87% of respondents deemed an uptime of 99.99% to be the minimum acceptable level of reliability for mission-critical systems.



When a provider of vital services to many businesses goes down, the multiplier effect kicks in to yield enormous total losses. At the outset of the COVID-19 pandemic, concern abounded that providers around the world might not be up to the task of shouldering the work-from-home workload. In Germany, for example, internet traffic shot up to between 15 and 20% from February to June 2020 according to a study by VDE Verlag.



The next-generation German telecom provider telegra, which specializes in delivering call center applications to business, was ready to meet the challenge. In 2018, telegra had begun the process of redesigning its IT infrastructure for more agile service development. Among other measures, this transformation involved moving away from commercially licensed databases, such as Oracle, and adopting an open source approach in their two German datacenters by deploying EDB Postgres offerings.

Seeking agility while maintaining 24/7 uptime

Starting in 2018, telegra kicked off a program called “Gruene Wiese” (German for “greenfield”). It built new datacenters in Dusseldorf and Cologne and adopted a new architectural approach as a foundation for its call-center applications.

While telegra’s VoIP infrastructure had always employed a primary-primary datacenter model, its web applications used a primary-failover datacenter model, which could not deliver quick enough response to changing customer demand and ensure 24/7 availability at the same time. To provide greater reliability and scalability, the company moved to a primary-primary setup for both applications and databases, with load balancing applied to all applications in both datacenters.

One of telegra’s successful products is a Web-based automatic call distribution (ACD) solution for call centers. The ACD offering enables organizations to centralize their entire telecommunication in telegra’s cloud and manage it through an integrated web-based interface. As part of the shift to a primary-primary datacenter model, telegra switched from Oracle to EDB Postgres Advanced Server (EPAS) with EDB Postgres Distributed in an effort to improve reliability, reduce cost, and simplify operations.

Embracing open source

In the past, telegra had used several different databases, including MySQL, Oracle, and Postgres. Oracle databases in particular incurred significant licensing costs and created a complex admin environment. The legacy primary-failover datacenter setup required shutting down the primary database and rebuilding it after shifting to the failover. This involved significant manual work and left telegra with only one primary datacenter at any given time, compromising reliability.

Early on, the company considered moving to the public cloud to procure redundant, distributed hot sites. However, telegra has many clients for whom data security is critical and who insist on their data being hosted in Germany by a local company. Additionally, telegra experienced high volumes of voice traffic across its network, which made delivery via the cloud prohibitively expensive compared to running services in its own data centers.

Moreover, as a telecoms operator, telegra is required to have a point of presence (PoP) to link up with the traditional carriers like Deutsche Telekom and BT, which do not connect to services through the cloud. telegra decided the most effective solution for its architecture modernization was to host the data itself and choose EPAS as its main database.

"We decided to embrace an open source software strategy, because we see it as far more transparent, reliable, and secure," said Christian Blaesing, telegra's head of IT. "We know we can review the software at any time, which gives us greater confidence in the functionality and its configurability. I would go as far as saying Postgres gives us greater security than with any closed source database, as well as far greater flexibility to switch vendors and avoid expensive, traditional, perpetual licensing."





Rolling out EDB Postgres Distributed

EDB Postgres Distributed was a critical element of telegra's primary-primary datacenter setup, providing true high availability for Postgres databases used in demanding industry verticals – such as telecommunications, where downtime is unacceptable. EDB Postgres Distributed provides primary-primary replication, which enables customers to build multi-primary clusters with mesh topology and write to any server with the changes sent row-by-row to all the other servers that are part of the same bi-directional replication (BDR) group.

In addition to improving availability, the implementation is cleaner, as there are no complications with a primary-primary when evaluating different setup scenarios. It makes it easier to integrate legacy apps, as changes are needed only for a small number of requirements, such as sequences. The availability of good documentation also enables developers to get up to speed and working with the database in two to three hours.

As a result of implementing EDB Postgres Distributed, telegra now has two datacenters running with load balancing, which helps to deal with the eventuality of a split-brain situation (a failure condition based on servers not communicating and synchronizing their data to each other). If the lines between the datacenters were to go down, they could continue to operate even in a split-brain scenario, because both datacenters are able to handle all call types.

Historically, telegra would have done this by closing down one datacenter, which would have caused a service interruption for customers. Using EDB Postgres Distributed, telegra is now able to scale their solution just by adding another BDR node to support the rapidly growing number of customers.

The benefits of expert support

Previously, telegra had managed Postgres in-house, but the decision to work with EDB gave telegra confidence that the setup would be accurate and clean. An EDB BDR specialist worked with telegra using its TPAexec tool to set up the database in two to three days. This tool, which uses Ansible to build Postgres clusters that follow Trusted Postgres Architecture (TPA), is also useful for ongoing support issues, because it enables EDB to duplicate what telegra is doing with the database to reproduce issues and see what might have gone wrong.

"Although Postgres is easy to use, it is always reassuring to have someone in the background with expertise to fix any potential challenges, especially as it is now our main database," said Blaesing. "EDB has always been very responsive if there were any issues. This has given telegra the confidence and peace of mind that it can support the business, as it can no longer cover the range of support requirements in-house."

Having adopted EPAS and EDB Postgres Distributed two years ago, telegra has not experienced significant downtime, while the replication capability has worked smoothly, which is essential for the high availability of telegra's services.





Establishing stability for a dynamic environment

A key element of telegra's competitive advantage is the next-generation software capabilities it offers its customers, which include call centers that can average between 300 to 600 call agents. The applications include AI-based, voice-enabled intelligent routing, which uses the caller's voice instructions to route calls in the most efficient manner.

Such innovations are valuable to customers only if the network remains stable. The pandemic further highlighted the importance of reliability and availability, as telegra's call center customers had to send their agents home to work remotely during various lockdowns. The modernization of telegra's IT infrastructure, including its primary-primary datacenter strategy, ensured that it was well-placed to provide the right support to those customers.

By adopting EPAS and EDB Postgres Distributed, telegra had the confidence that its core applications would be reliable, robust, and scalable. In a fast-moving world, this reassurance is critical. It also meant that telegra's team was no longer consumed with fixing the database and understanding its complexities. Instead, they're able to focus on building new functionality and better products, which has enabled them to become even more responsive to the evolving, dynamic demands of their customers.

Today, telegra handles 30 million calls and 90 million minutes of call time per month. Looking ahead, the company's goal is to grow the business across Europe. Given the team's experience with EDB, telegra believes Postgres will play an integral role in driving innovation across the business. As such, the company has decided to move all workloads to Postgres to support its growth plans.



EDB provides a data and AI platform that enables organizations to harness the full power of Postgres for transactional, analytical, and AI workloads across any cloud, any time. For more information, visit www.enterprisedb.com.

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