

ASK THE EXPERT:

Chasing unicorns: How to avoid “Zero” data loss

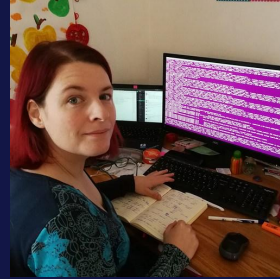
13th October 2022

OUR SPEAKERS



HOST

Kevin Li
Director Sales
Engineer, EMEA



SPEAKER

Lætitia Avrot
Field CTO

AGENDA

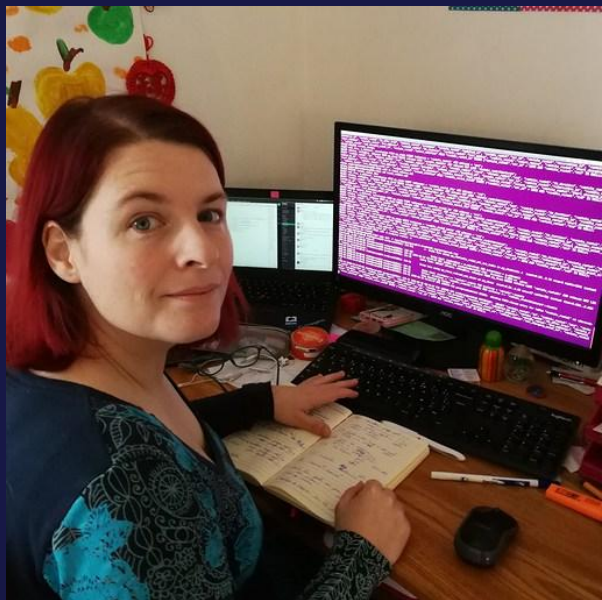
- Maintaining high availability and minimizing data loss in PostgreSQL?
- Does “Zero” data loss exist?
- How do you figure out what your RPO/RTO are?
- What are the CAP and PACELC theorems?
- What is the ideal architecture for maintaining uptime and avoiding data loss?



Best question to win €25 giftcard!

Winner to be selected at the end of the webinar by the speaker.

About me



- Lætitia Avrot is a Field CTO at EDB and a passionate advocate for women working in technology.
- Working with PostgreSQL since 2007, Lætitia has had a lot of exciting experiences with high availability, production crashes, disaster recovery plan, load balancing and spatial data.
- Committed to the PostgreSQL community, she is a recognized Postgres contributor, the treasurer of PostgreSQL Europe and the founder of #PostgresWomen
- mydbanotebook.org
- psql-tips.org

0 data loss and
99.9999%
availability

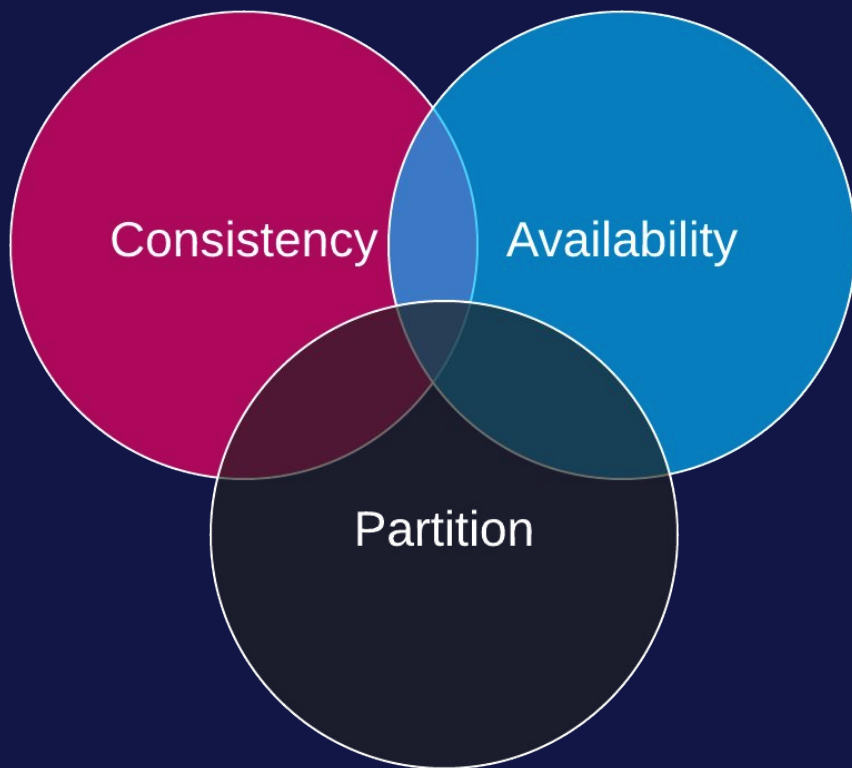
0 dataloss

Does not exist
Sorry :-)
Different meanings

CAP theorem

When designing **distributed web services**, there are three properties that are commonly desired: **consistency**, **availability**, and **partition tolerance**. It is impossible to achieve all three.

CAP theorem



PACELC theorem

In case of **network partitioning** (P) in a distributed computer system, one has to choose between **availability** (A) and **consistency** (C),

but else (E), even when the system is running normally in the absence of partitions, one has to choose between **latency** (L) and **consistency** (C).



Blueprints

A good architecture is a KISS architecture!

- PostgreSQL
- These are only examples
- Check the weakest link

Dataloss

RPO	Architecture
$\geq 15\text{min}$	Physical backup + WALs archiving
$\geq 1\text{min}$	Physical backup + WALs archiving + Asynchronous standby
$\geq 200\text{ms}$	Physical backup + WALs archiving + Synchronous standby (+ asynchronous standby)
0	Not possible 😊

High availability

RTO	Architecture
≥ 24h	Physical backup + WALs archiving (depending on the time to restore)
≥ 30min	Standby + manual failover
≥ 5min	Standby + automatic failover
≥ 1min/30s	Multi-primary
0	Not possible 🤔

- #1 The database is not the only element that can fail
- #2 You are not Facebook (use case)
- #3 Figure out what your RPO is
- #4 Figure out what your RTO is

“Unicorns are more real than 0-dataloss and 99.999% availability.”

Gülçin Yıldırım Jelínek, Prague, 2019-08-27



WHY IS THIS HAPPENING?

What changed?

- We are less patient
- We can't work without IT anymore
- The competition is worldwide

Why EDB

EDB IN SUMMARY

EDB is the world's largest software, support, and services company focused exclusively on PostgreSQL. With over 5,000 customers, we are proud to serve some of the world's leading financial services, government, media & communications, and information technology organisations. Our 16 offices worldwide enable us to deploy our global expertise in all your business locations.

POSTGRESQL **COMMUNITY** LEADERSHIP

- **30%** of Postgres code contributed
- **>300** Dedicated Postgres engineers
- **3 of 7** Postgres Core Team Members

EDB **SUPPORT**

- 24/7 world-class support
- Experienced support engineers, with the world's leading Postgres contributors
- Remote DBA Service, Technical Account Management, CTO Office

EDB **PLATFORM** (SOFTWARE & TOOLS)

- Databases: PostgreSQL, EPAS
- Tools: Variety of supported open source and proprietary tools for High availability, backup, monitoring and migration

EDB **SERVICES**

- Services offerings and packages:
 - PostgreSQL deployment, design, migration
 - Postgres Optimization: Best practices
 - Enterprise Strategy: Use-case driven PostgreSQL architectures
 - Embedded PostgreSQL experts

Q&A

Remember best question
wins a €25 giftcard!



THANK YOU FOR
ATTENDING!