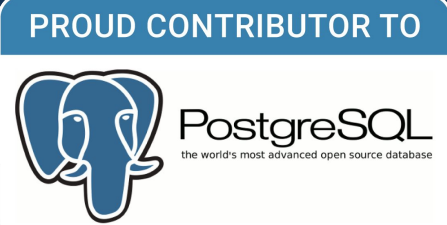


Sponsored session:

What we built with Open Source

Hans-Jürgen Schöning

Riga, 2025



CYBERTEC

Database excellence

- 25 years of experience
- Operating worldwide
- Independent, professional, and honest

AUSTRIA (HQ)

CYBERTEC POSTGRESQL
INTERNATIONAL (HQ)

ESTONIA

CYBERTEC POSTGRESQL
NORDIC

SWITZERLAND

CYBERTEC POSTGRESQL
SWITZERLAND

POLAND

CYBERTEC POSTGRESQL
POLAND

URUGUAY

CYBERTEC POSTGRESQL
SOUTH AMERICA

INDIA

CYBERTEC POSTGRESQL
INDIA PRIVATE LIMITED

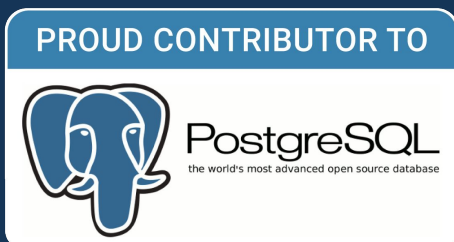
SOUTH AFRICA

CYBERTEC POSTGRESQL
SOUTH AFRICA



Motivation for this talk

Making enterprises work



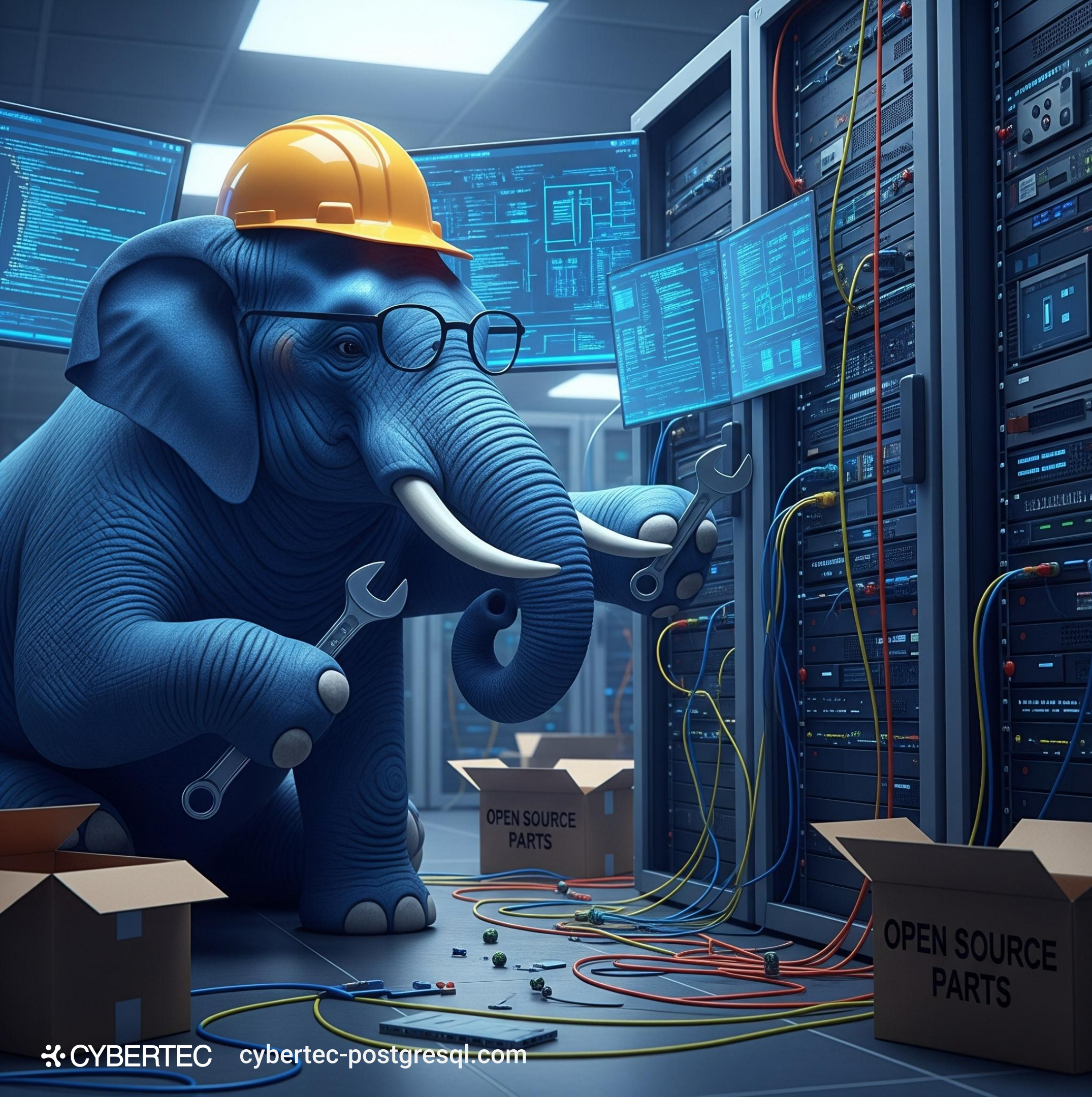


Open Source provides ...

- All base technology
 - PostgreSQL database
 - GUI libraries
 - Other components
- Quality
 - Portability
 - Reliability

Important for “fully stack” deployments





Sometimes more is needed

“Integration, special requirements”

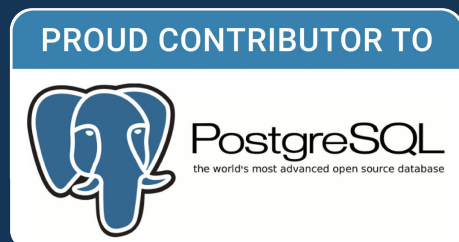
- Not all can be upstream
 - Often way too specific
 - Time to delivery matters
 - Often just not “interesting”
- Special purpose integration
 - Handling of specific business logic
 - Usability matters (GUIs, etc.)

Room for special offerings and tooling



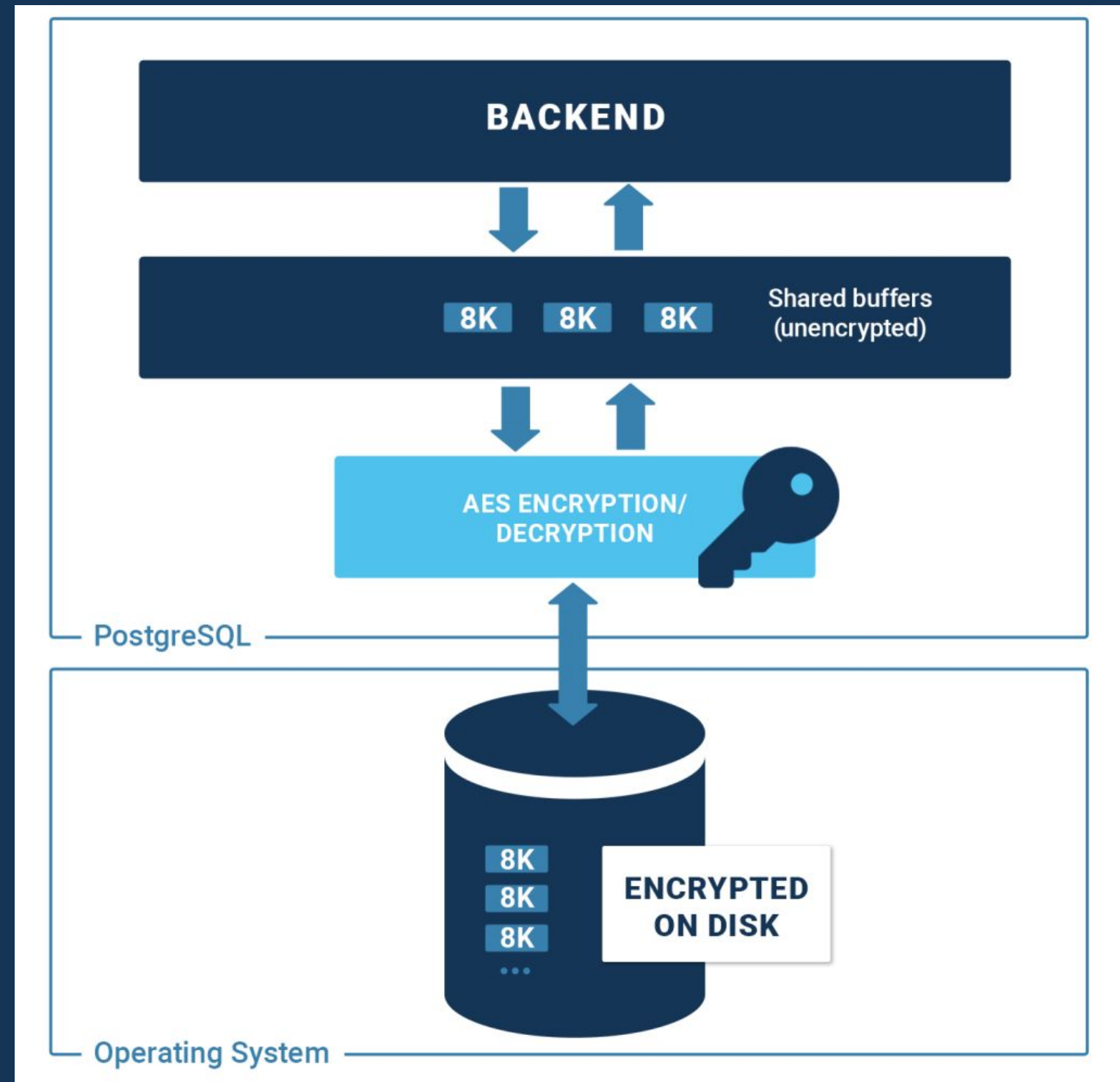
Let me share some examples

What people sometimes need





- Provides encryption
- Additional optimizer patches
- More security tooling



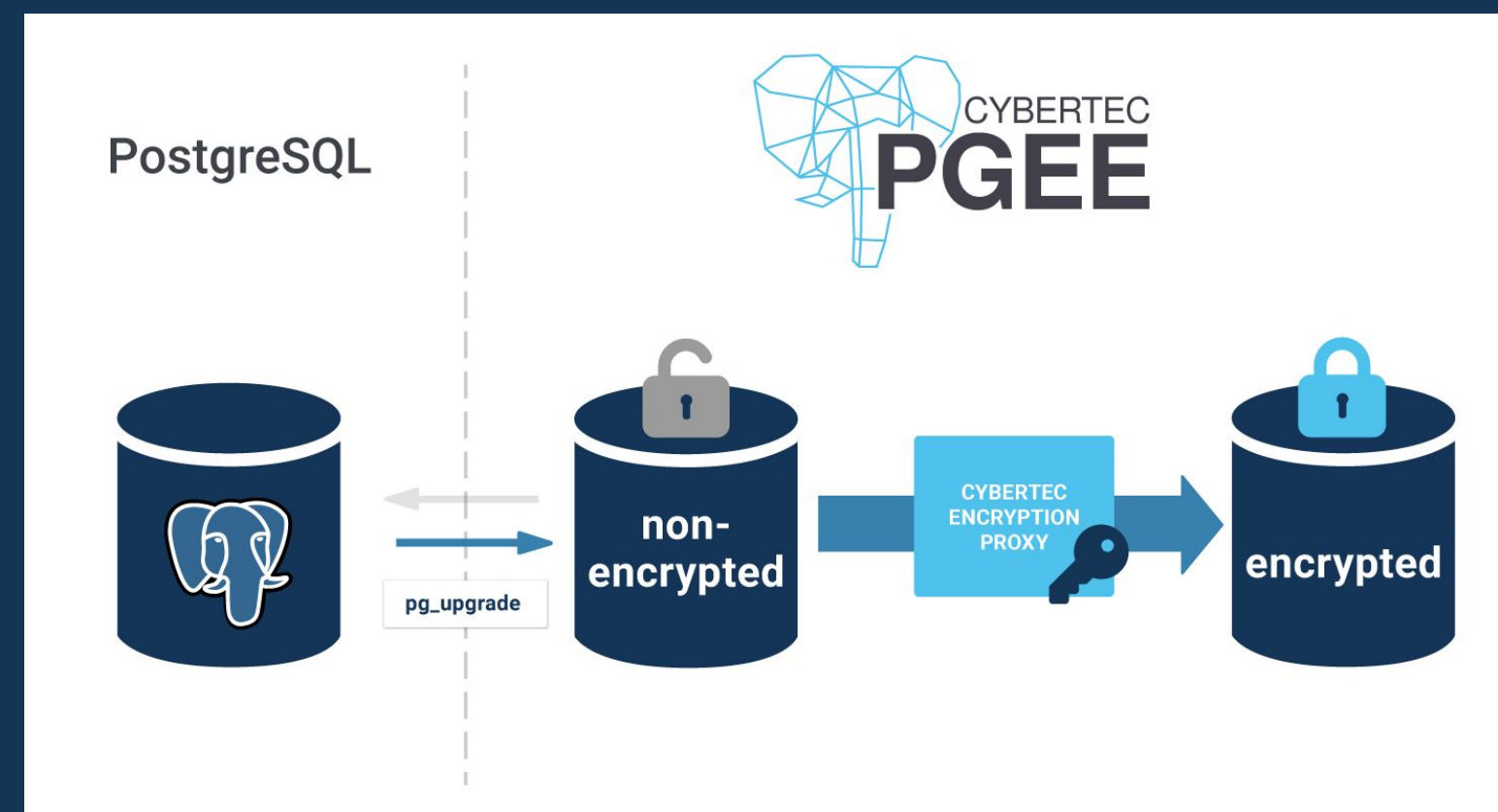
TDE: Data at Rest encryption

Fixing practical issues ...

```

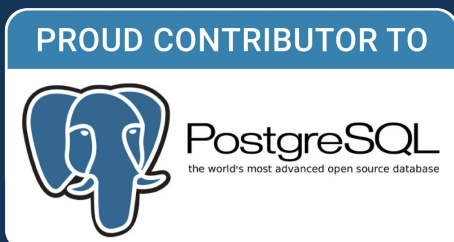
1| # /usr/lib/postgresql/17/bin/repl_proxy --help
2| repl_proxy is a tool to modify data during replication.
3|
4| Usage:
5|   repl_proxy [OPTION]...
6|
7| Options:
8|   -h, --master-host=HOSTNAME    connect to master on this
                                   host (default: "local socket")
9|   -p, --master-port=PORT         connect to master on this
                                   port (default: "5432")
10|  -H, --proxy-host=HOSTNAME       run proxy on this host
                                   (default: "localhost")
11|  -P, --proxy-port=PORT           run proxy on this port
                                   (default "5433")
12|  -K, --encryption-key-command=COMMAND
                                   command that returns encryption key
13|  -k, --decryption-key-command=COMMAND
                                   command that returns decryption key
14|  -v, --verbose                   output additional debugging information
15|  -?, --help                      show this help, then exit

```



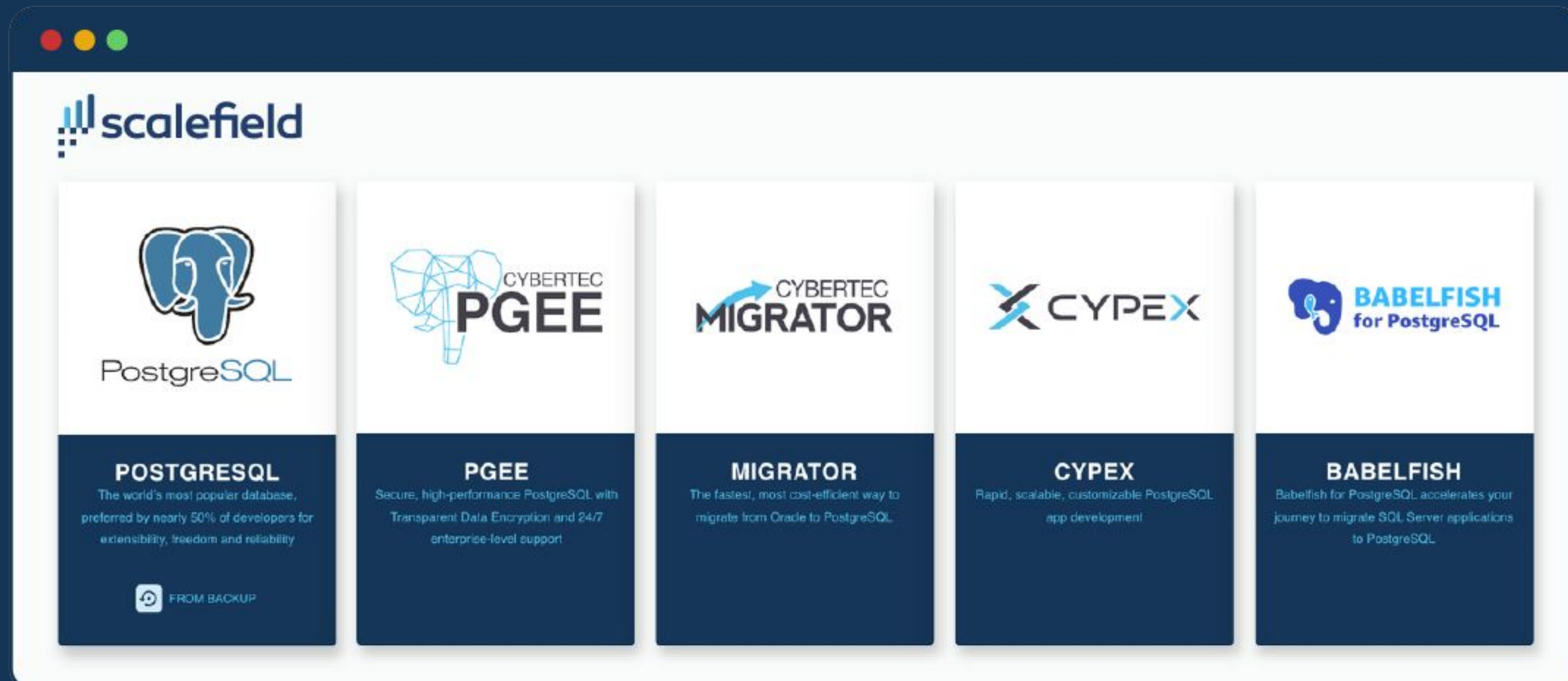


Full PostgreSQL Automation



SCALEFIELD: PostgreSQL automated

- PostgreSQL / PGEE
- CYBERTEC Migrator
- CYPEX Low Code



The screenshot displays the Scalefield website interface. At the top left is the Scalefield logo. Below it, five product cards are arranged horizontally. Each card features a logo at the top, a title in bold, a descriptive paragraph, and a small icon at the bottom left.

Product	Description
POSTGRES SQL	The world's most popular database, preferred by nearly 50% of developers for extensibility, freedom and reliability.
PGEE	Secure, high-performance PostgreSQL with Transparent Data Encryption and 24/7 enterprise-level support.
MIGRATOR	The fastest, most cost-efficient way to migrate from Oracle to PostgreSQL.
CYPEX	Rapid, scalable, customizable PostgreSQL app development.
BABELFISH	Babelfish for PostgreSQL accelerates your journey to migrate SQL Server applications to PostgreSQL.





CYBERTEC PRODUCTS ARE AVAILABLE IN SCALEFIELD

Enterprise ready

The screenshot displays the Scalefield web interface. On the left, a sidebar shows the organization 'CYBERTEC PostgreSQL Int. GmbH' and a list of projects including 'Database systems', 'Encrypted test instance', 'Dashboard database', 'hr-is-pg-prod', 'Migrator Systems', and 'Software Development'. The main content area shows the 'Dashboard database' configuration page. At the top, there's a 'CREATE' button and a breadcrumb trail: 'Home / CYBERTEC PostgreSQL Int. GmbH / Database systems / Dashboard database'. The database is represented by an elephant icon and is in a 'RUNNING' state. Below this, it lists specifications: '3 Nodes | 1 Core | 1 GB | 10 GB | 15% storage used | PostgreSQL 16'. A row of tabs includes 'Summary' (selected), 'Plan', 'Parameters', 'ACL', 'Nodes', and 'Backups'. The 'CONNECTION DETAILS' section provides connection strings for 'Primary' and 'Read-only' instances, the username 'cybertec', and a masked password with a 'GENERATE NEW' link. At the bottom, a 'STORAGE USAGE' section features a donut chart showing '15% (121 GB) Used' and '85% (738 GB) Available'.

- ✓ Full service automation
 - ✓ Can be used directly
 - ✓ Operated by MTN
- Backed by CYBERTEC support

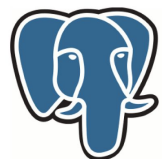




CYBERTEC MIGRATOR

From Oracle to PostgreSQL

PROUD CONTRIBUTOR TO



PostgreSQL
the world's most advanced open source database





CYBERTEC MIGRATOR

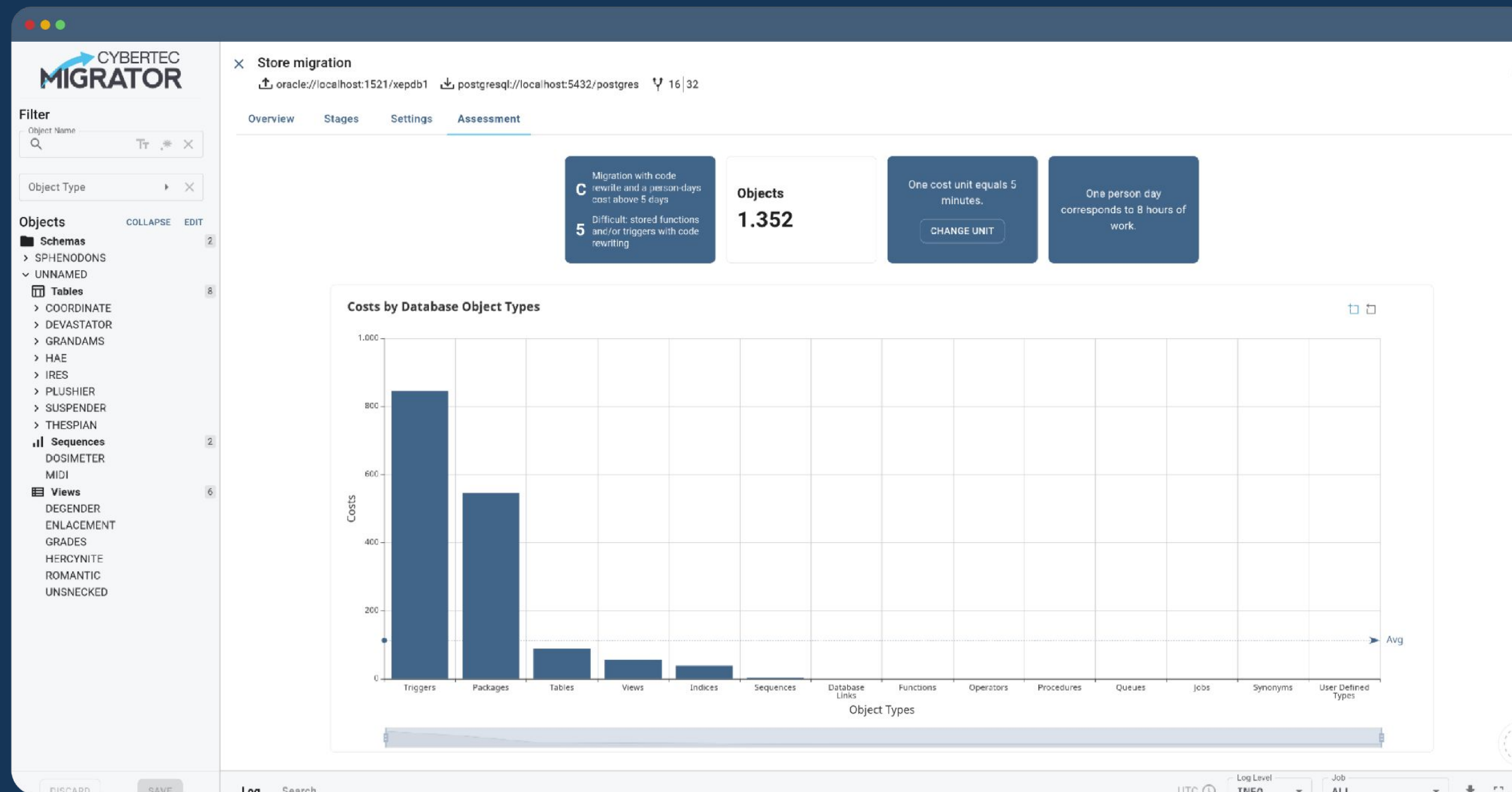
Moving to PostgreSQL

“Stop the bleeding”

Migrating to a more
sustainable platform



Project assessment and scoping



- **Analyze source system**
 - Fetch Oracle information
- **Gather information**
 - Analyze automatically
 - Instant overview
- **Develop project plans**
 - Plan project intelligently
 - Save cost at every level



Managing data types

Filter database objects

The screenshot displays the Cybertec Migrator application interface. On the left, the 'Filter' panel is active, showing a search bar for 'Object Name' and a list of 'Object Type' filters. The 'Tables' and 'Views' filters are selected. The main window, titled 'Showcase HR Migration', shows the migration configuration between an Oracle database (oracle://lixoracle19-t00:1521/pdb2) and a PostgreSQL database (postgresql://lixpostgres-t00:5432/renee). The 'Stages' and 'Settings' tabs are visible. The 'Object Type' table lists the objects to be migrated, and the 'Data Types' table lists the corresponding data types in the target database.

Object Type	Count	Data Types
Schemas	1	CHAR
User Defined Types	0	DATE
Sequences	3	NUMBER
Tables	7	VARCHAR2
Columns	35	
Partitions	0	
Functions	2	
Triggers	1	
Views	1	
Indices	11	
Keys	8	



AI assisted code translation

↑ HR Demo Hans

↑ oracle://lixoracle19-t00:1521/pdb2 ↓ postgresql://lixpostgres-t00:5432/hans

HR > ADD_JOB_HISTORY ✓ SHOW DIFFERENCE Exclude

```
1 CREATE PROCEDURE add_job_history
2   ( p_emp_id      job_history.employee_id%type
3     , p_start_date job_history.start_date%type
4     , p_end_date   job_history.end_date%type
5     , p_job_id     job_history.job_id%type
6     , p_department_id job_history.department_id%type
7   )
8 IS
9 BEGIN
10  INSERT INTO job_history (employee_id, start_date, end_date, job_id, department_id)
11    VALUES(p_emp_id, p_start_date, p_end_date, p_job_id, p_department_id);
12
13 END add_job_history;
```

```
1 CREATE PROCEDURE add_job_history
2   ( p_emp_id      job_history.employee_id%type
3     , p_start_date job_history.start_date%type
4     , p_end_date   job_history.final_date%type
5     , p_job_id     job_history.job_id%type
6     , p_department_id job_history.department_id%type
7   )
8 IS
9 BEGIN
10  INSERT INTO job_history (employee_id, start_date, end_date, job_id, department_id)
11    VALUES(p_emp_id, p_start_date, p_end_date, p_job_id, p_department_id);
12
13 END add_job_history;
```

- **AI code translation**
 - Saves time
 - Cut costs
- **Code explanation**
 - Understand legacy code
 - Learning faster
- **Visual editing**
 - Easy interactive editor
 - Managing changes



Code analysis made easy

hr > secure_dml

```
1 CREATE PROCEDURE secure_dml
2 IS
3 BEGIN
4   IF TO_CHAR (SYSDATE, 'HH24:MI') NOT BETWEEN '08:00' AND '18:00'
5     OR TO_CHAR (SYSDATE, 'DY') IN ('SAT', 'SUN') THEN
6     RAISE_APPLICATION_ERROR (-20205,
7       'You may only make changes during normal office hours');
8   END IF;
9 END secure_dml;
```

✓ SHOW DIFFERENCE

📖 EXPLAIN

🔗 TRANSLATE

Exclude ☐

AI-Powered Explanation

This is a PL/SQL procedure named `secure_dml` that serves as a security mechanism to control data manipulation language (DML) operations. Here's a breakdown of what the code does:

CREATE PROCEDURE: This statement creates a new stored procedure in the Oracle database.

secure_dml: The name of the procedure, which is `secure_dml`.

IS: This keyword introduces the declaration section of the procedure, where variables and parameters are defined.

BEGIN: This keyword marks the beginning of the executable code section of the procedure.

The IF statement inside the BEGIN block checks two conditions:

- TO_CHAR(SYSDATE, 'HH24:MI') NOT BETWEEN '08:00' AND '18:00':** This condition checks if the current time (SYSDATE) falls outside the normal office hours (8:00 AM to 6:00 PM). The `TO_CHAR` function converts the SYSDATE timestamp into a string in the format HH24:MI (24-hour clock with minutes). The `NOT BETWEEN` clause checks if this time is not within the specified range.
- OR TO_CHAR(SYSDATE, 'DY') IN ('SAT', 'SUN'):** This condition checks if the current day of the week (SYSDATE) is Saturday or Sunday.

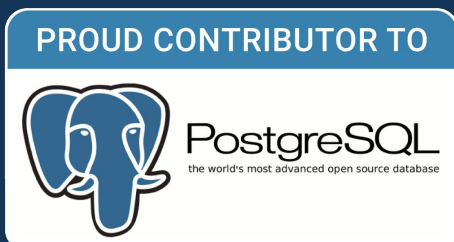
If either of these conditions is true, the procedure raises an application error with a code of -20205 and a message indicating that changes may only be made during normal office hours. The `RAISE_APPLICATION_ERROR` statement is used to raise this exception.

Free version available!



Compliance and regulations

“The not so cool but necessary stuff”





Compliance and more

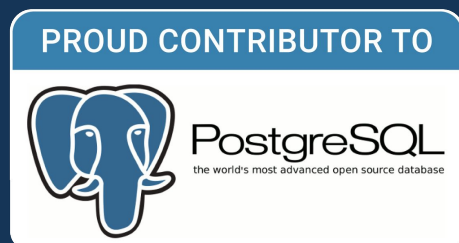
“Will grow in the future”

- Highly regulated environments
 - Banking
 - Critical infrastructure
 - Medical
- Legal requirements
 - Not loved but mandatory





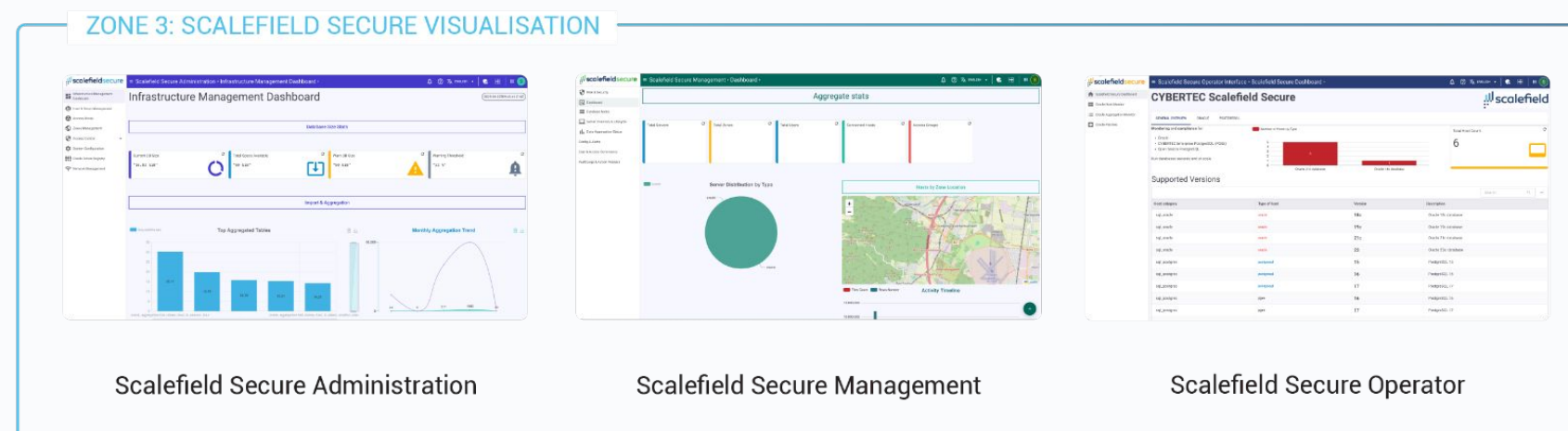
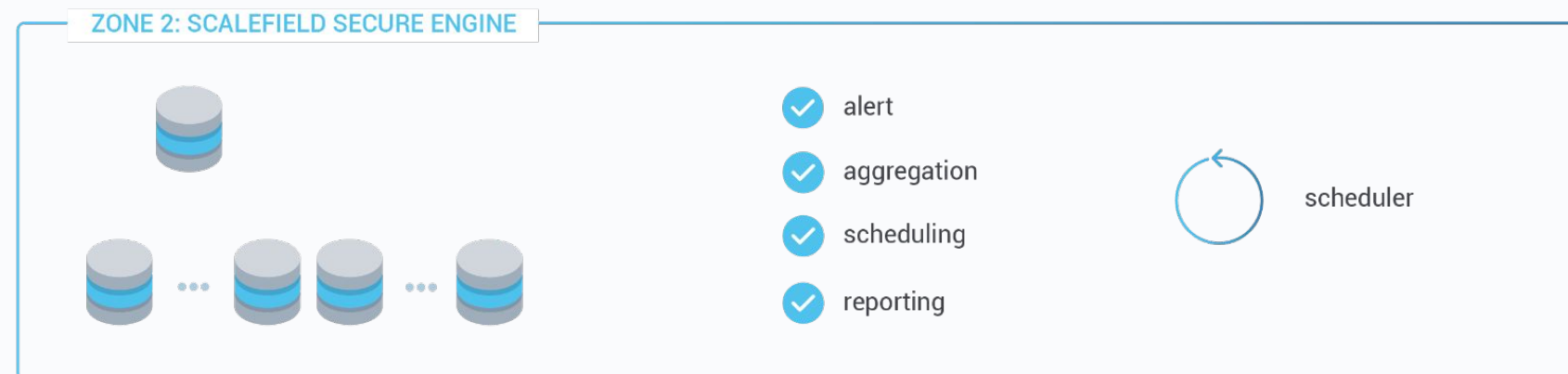
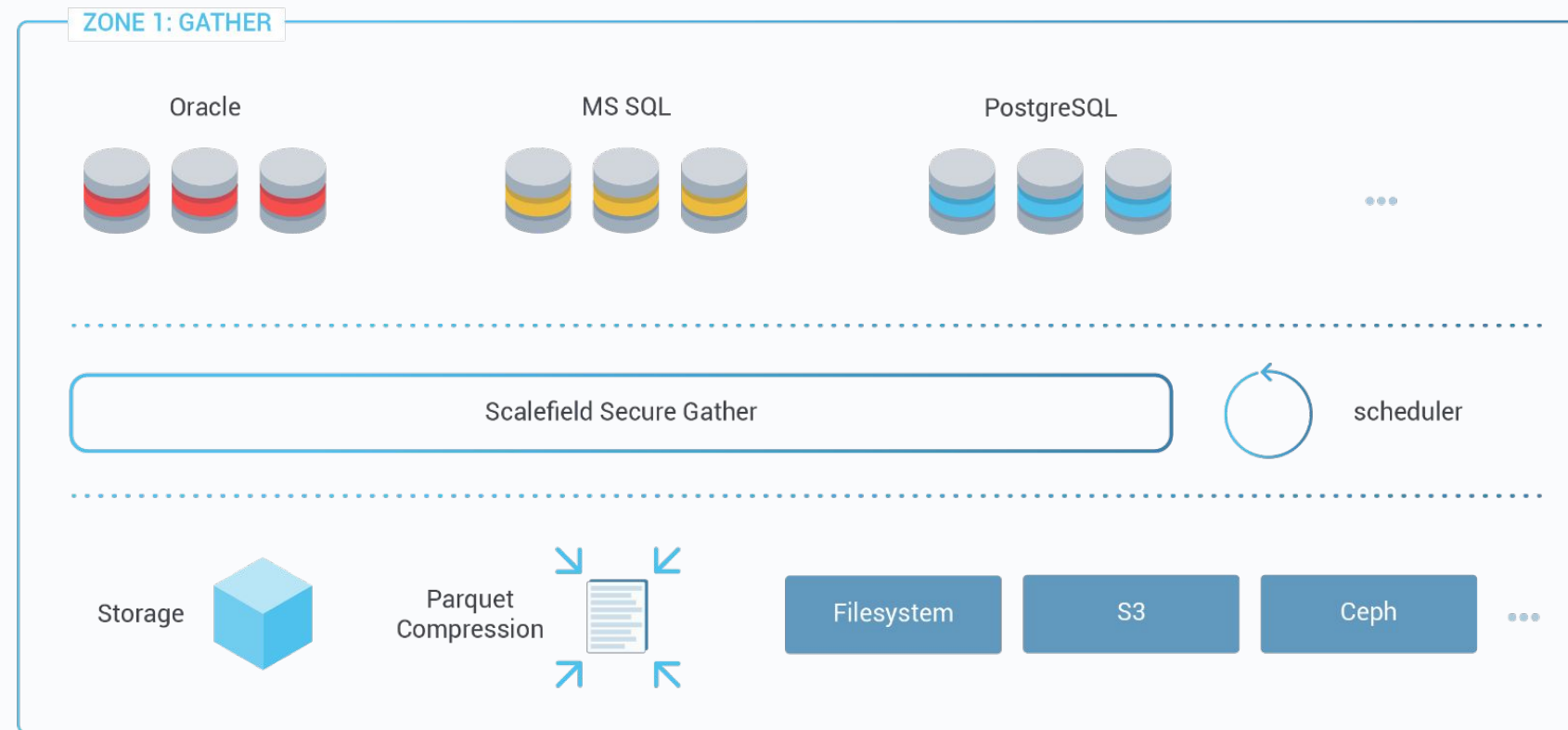
Professional audit at a glance



Scalable and resilient

“Because uptime matters”

- Gather audit data @ scale
- Aggregate efficiently
- Report findings quickly
 - Visual interface
 - Integrated alerting



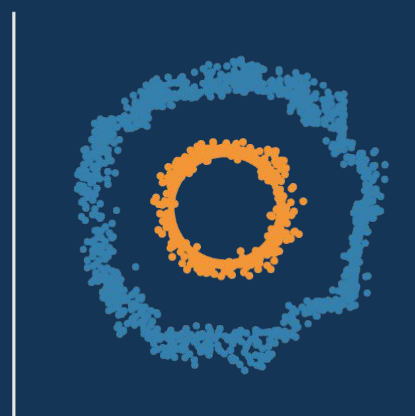
“Make auditors happy”



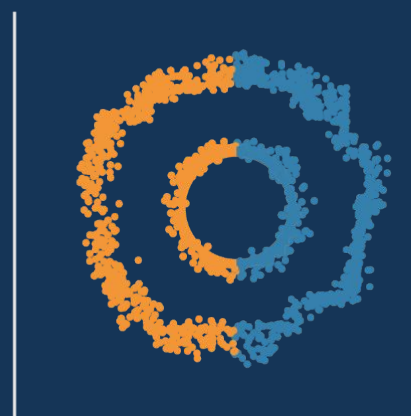
Apply modern technology

“Algorithms put to use”

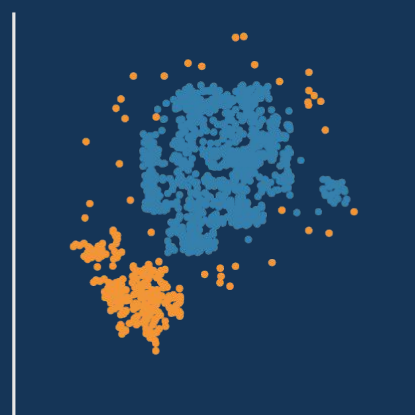
- Intelligent analysis
- Using technology that matters
- Achieving results



DBSCAN



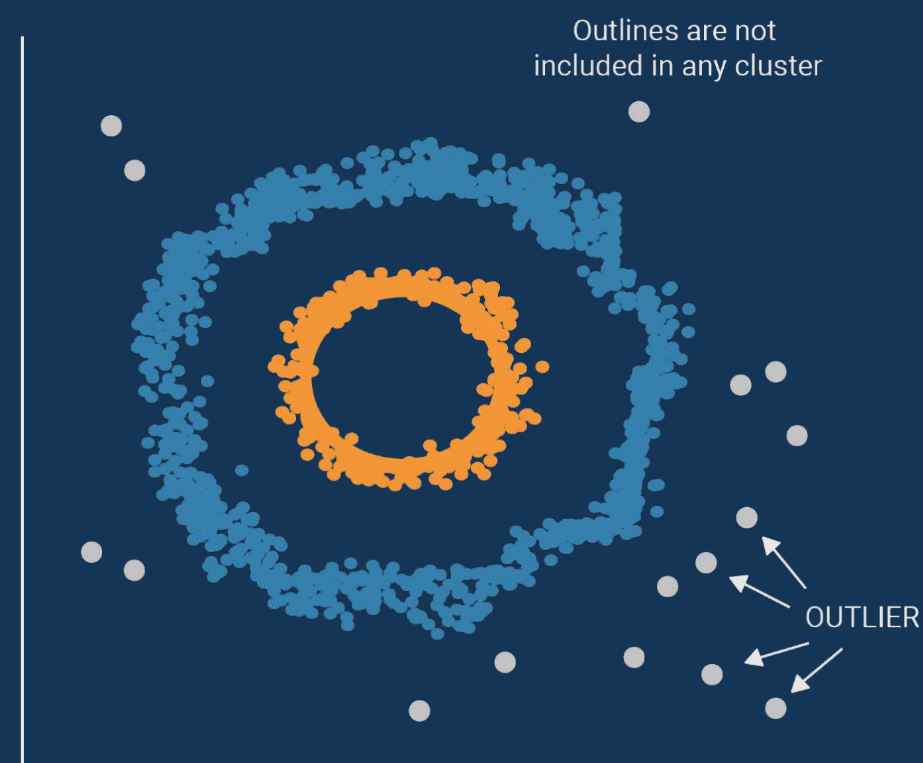
K-MEANS



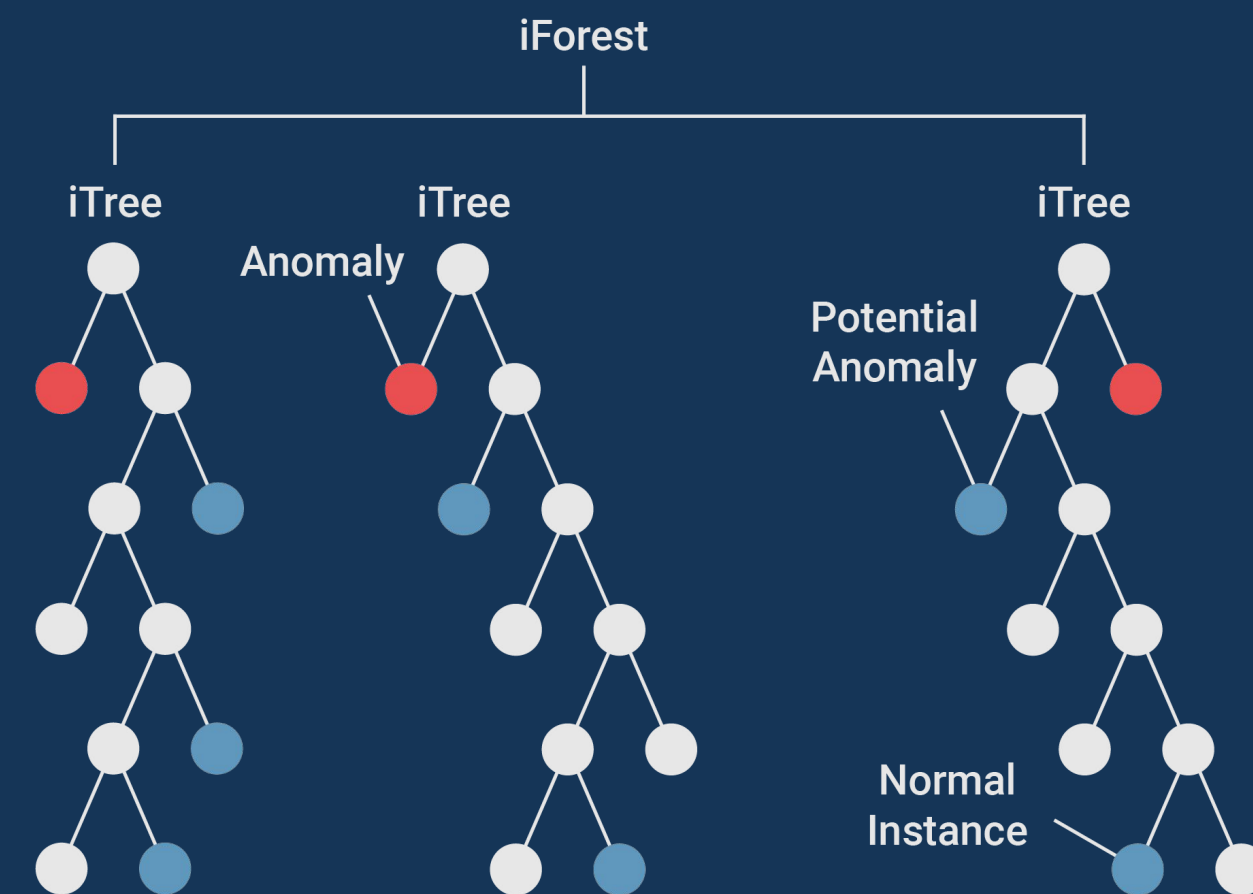
DBSCAN



K-MEANS

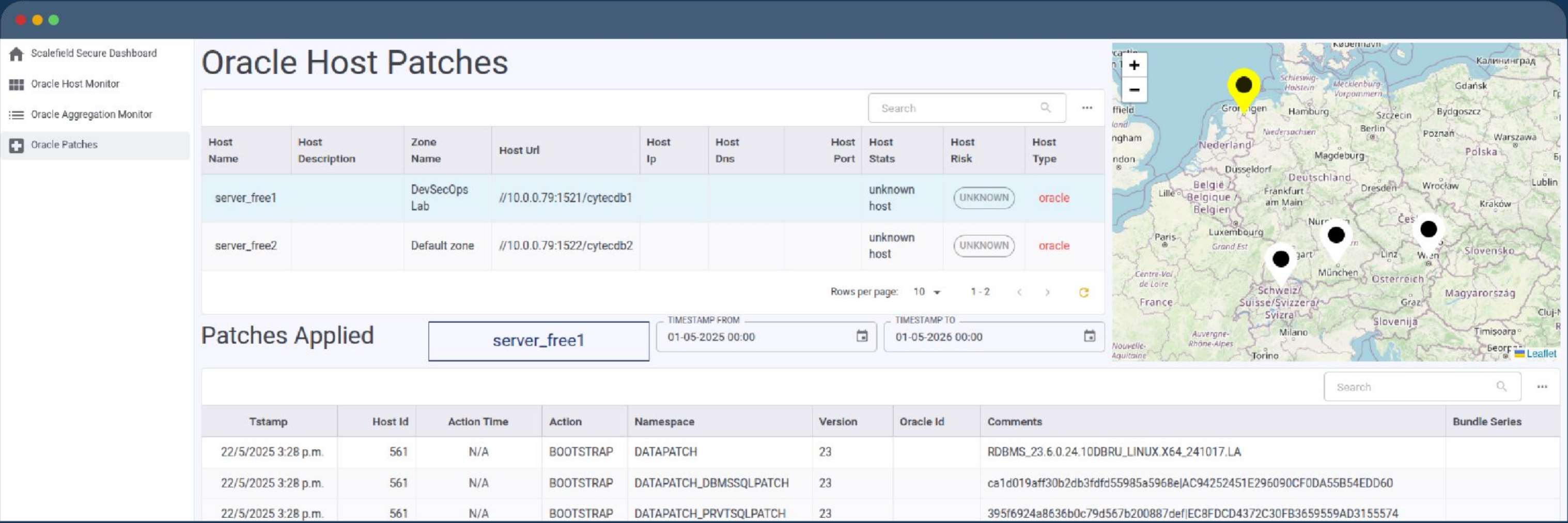


DBSCAN

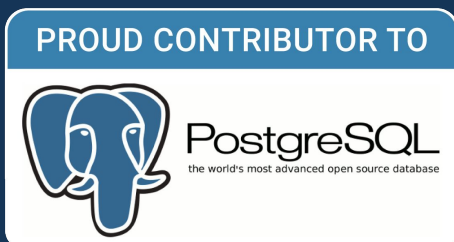


Presenting data to end users

Quick insights



Extensions for Patroni



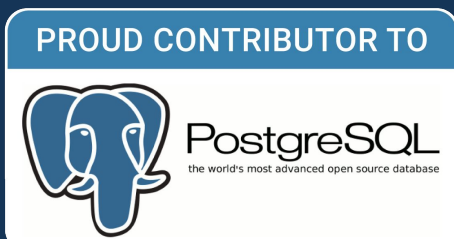
Running Patroni @ scale

- **Multi Data Center Kubernetes operator**
 - Distributed Patroni
 - Enable multiple Kubernetes cluster
 - Consensus over consensus
- **Efficient upgrades**
 - No resync after upgrades
 - Important for MASSIVE databases

← Open Source initiative

← Merged soon

← Currently worked on



Our comprehensive offering



Security features



Compliance made easy

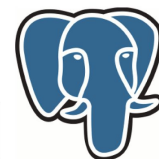


24x7 Enterprise support



Technology that solves problems

PROUD CONTRIBUTOR TO



PostgreSQL
the world's most advanced open source database



Our partners at PGConf.EU





Open Alliance

For PostgreSQL Education

Your Pathway to Verified PostgreSQL Skills

Scan for Updates



oapg-edu.org



PGDay Austria returns in 2026

Scan for updates



pgday.at



Email

sales@cybertec-postgresql.com

Phone

+43 2622 930 22 - 0



www.cybertec-postgresql.com



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