

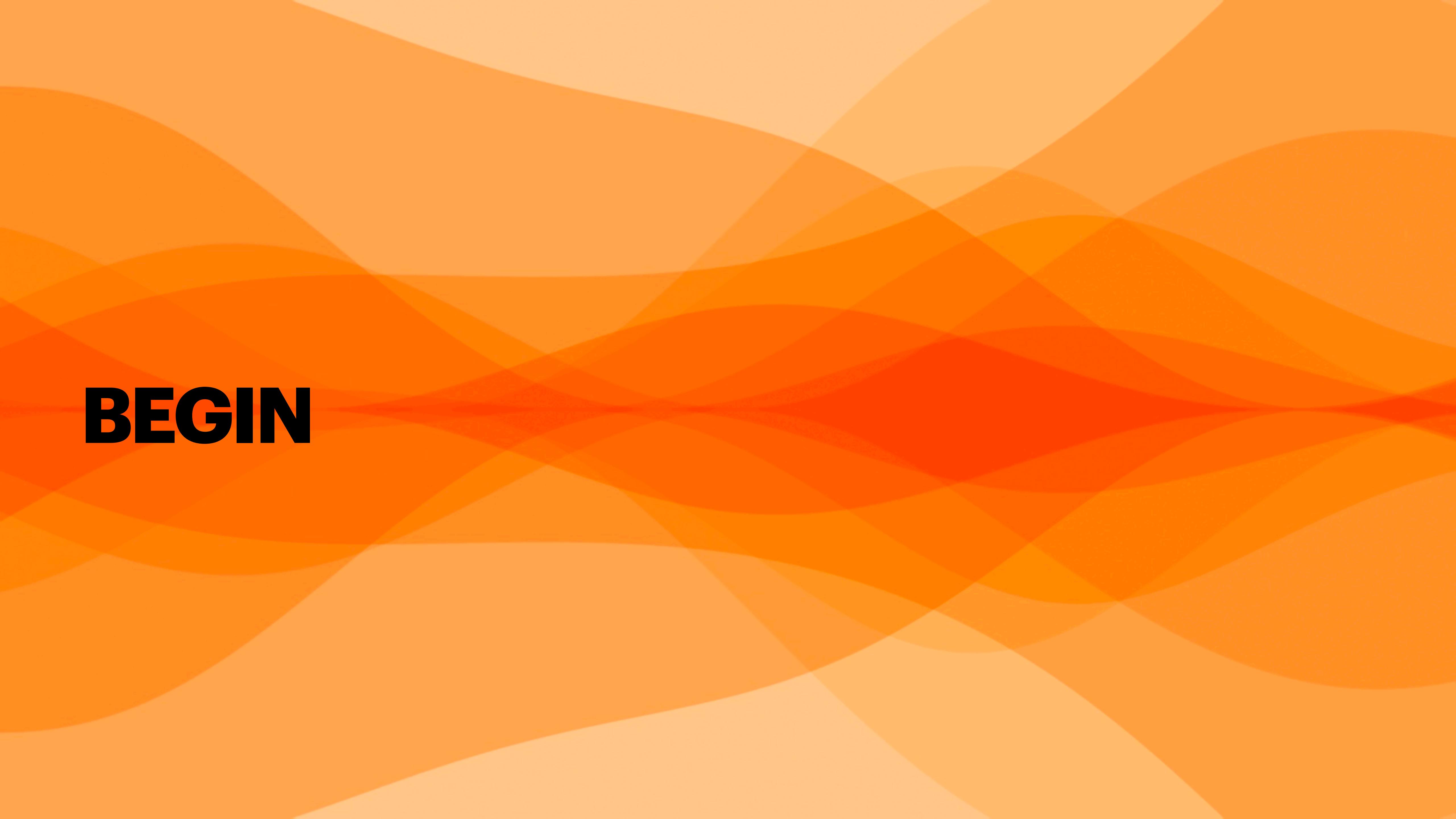


POSTGRESQL EXTENSION ECOSYSTEM MINI SUMMIT

STATE OF THE POSTGRES EXTENSION ECOSYSTEM

PAST, PRESENT, AND FUTURE

David E. Wheeler
PGXN, Tembo
2025-03-12

The background features a series of overlapping, wavy layers in shades of orange and yellow, creating a sense of depth and motion.

BEGIN

LEGACY

Long history of extensibility

Two approaches

shared_preload_libraries

Pure SQL (including PLs)

A few intrepid adopters

PostGIS

BioPostgres

PL/R

PL/Proxy

pgTAP

POSTGRES 9.1

Dimitri Fontaine adds extensions

Key features:

Compile and install

CREATE/UPDATE/DROP EXTENSION

pg_dump and pg_restore

The background features a series of overlapping circles in various shades of green, creating a dynamic and layered effect. The colors range from bright lime green to darker forest green, with some areas appearing more saturated than others. The circles overlap in a non-uniform pattern, with some being larger and more prominent than others.

OPPORTUNITY



Distribution

Source Code

Registration

Namespacing

Discovery

Search

Documentation

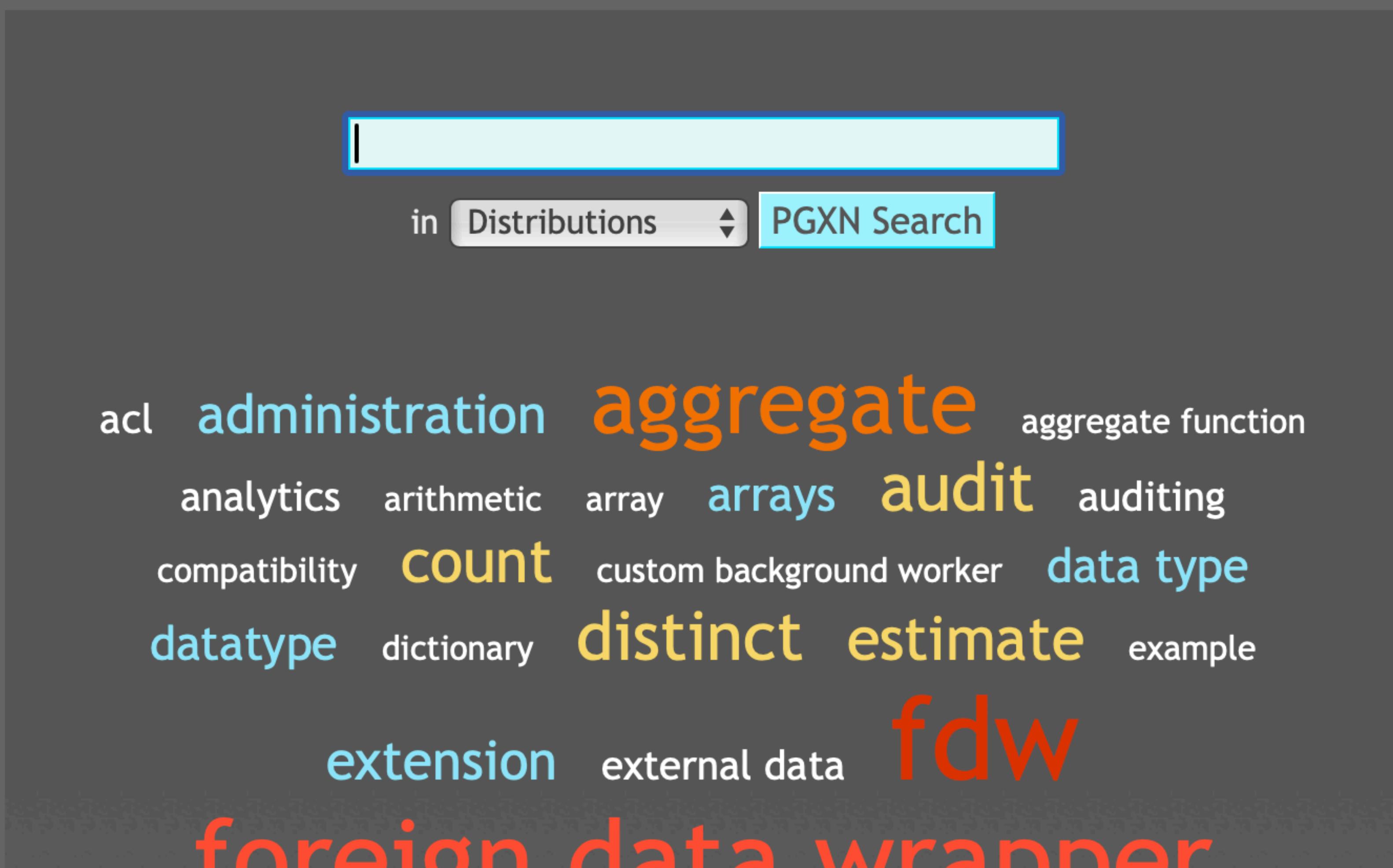
Tags

Installation

CLI

Compile & install

PGXS or Configure

[users](#) [tags](#) [recent](#)

The screenshot shows a search interface for PostgreSQL extensions. At the top, there is a search bar with a placeholder 'Search' and a dropdown menu set to 'in Distributions'. Below the search bar is a list of extension names categorized by color: blue (acl, administration, analytics, compatibility, datatype), orange (aggregate, arithmetic, array, arrays, audit, COUNT, custom background worker, distinct, estimate, fdw, foreign data wrapper), yellow (audit, data type, example, fdw, foreign data wrapper), and red (foreign data wrapper). The background features a dark gradient with a faint grid pattern.

PGXN, the PostgreSQL Extension network, is a central distribution system for open-source PostgreSQL extension libraries.

Recent Releases

[pg_task 2.1.16](#)
PostgreSQL and Greenplum job scheduler pg_task allows to execute any sql command at any specific time at background asynchronously

[pg_mustach 1.0.16](#)
PostgreSQL mustach

[uint128 1.0.1](#)

INTERIM

CLOUDY DAYS

Non-Core Extension Counts:

Azure: 38

GCP 44

AWS: 51

PGXN: 420

[joelonsql/PostgreSQL-EXTENSIONS.md](#): 1,190

The background features a series of overlapping, wavy shapes in shades of teal and dark blue, creating a sense of depth and motion.

FILLING THE GAPS



TLE

TRUSTED LANGUAGE EXTENSIONS

Goal: Empower app developers

Easy install via SQL functions

Portable (no compilation)

Hooks into CREATE EXTENSION

Supports custom data types

Plans for FDWs, background workers

From AWS & Supabase

PGRX

Native Rust extensions

Build shared object libraries

Full access to Postgres features

Developer-friendly tooling

Lots of community excitement

Under active development

From PgCentral Foundation

NEW REGISTRIES

EMPHASES

Ease of use

Platform neutrality

Stats

Curation

Architecture

x86-64 ⓘ

Operating system

Debian/Ubuntu ⓘ

Downloads

20 all time downloads

0 downloads in the last 30 days

1 download in the last 90 day

9 downloads in the last 180 days

```
> curl -sfL https://install.pgx.sh | sh
🎉🎊 pgxman successfully installed

> pgxman install pgvector
The following Debian packages will be installed:
postgresql-14-pgxman-pgvector=0.5.1

> Do you want to continue? [Y/n] y

pgvector has been successfully installed
```

Featured

7

Analytics

13

Auditing / Logging

7

Change Data Capture

6

Connectors

27

Data / Transformations

49

Debugging

2

Index / Table Optimizations

14

Machine Learning

4

Metrics

18

Orchestration

9

Procedural Languages

16

Query Optimizations

5

Search

11

Security

11

Tooling / Admin

14

STATE OF THE ECOSYSTEM

LOST OPPORTUNITIES

POSTGRES EXTENSIONS:

Difficult to find and discover

Under-documented and difficult to understand

Maturity difficult to gauge

Hard to configure and install

No comprehensive binary packaging

Painful dependency management

Centralized source distribution insufficient

OPPORTUNITIES (NEW)

PGXN V2

The New World Order

Started last year

Made possible by Tembo

Consider emerging patterns

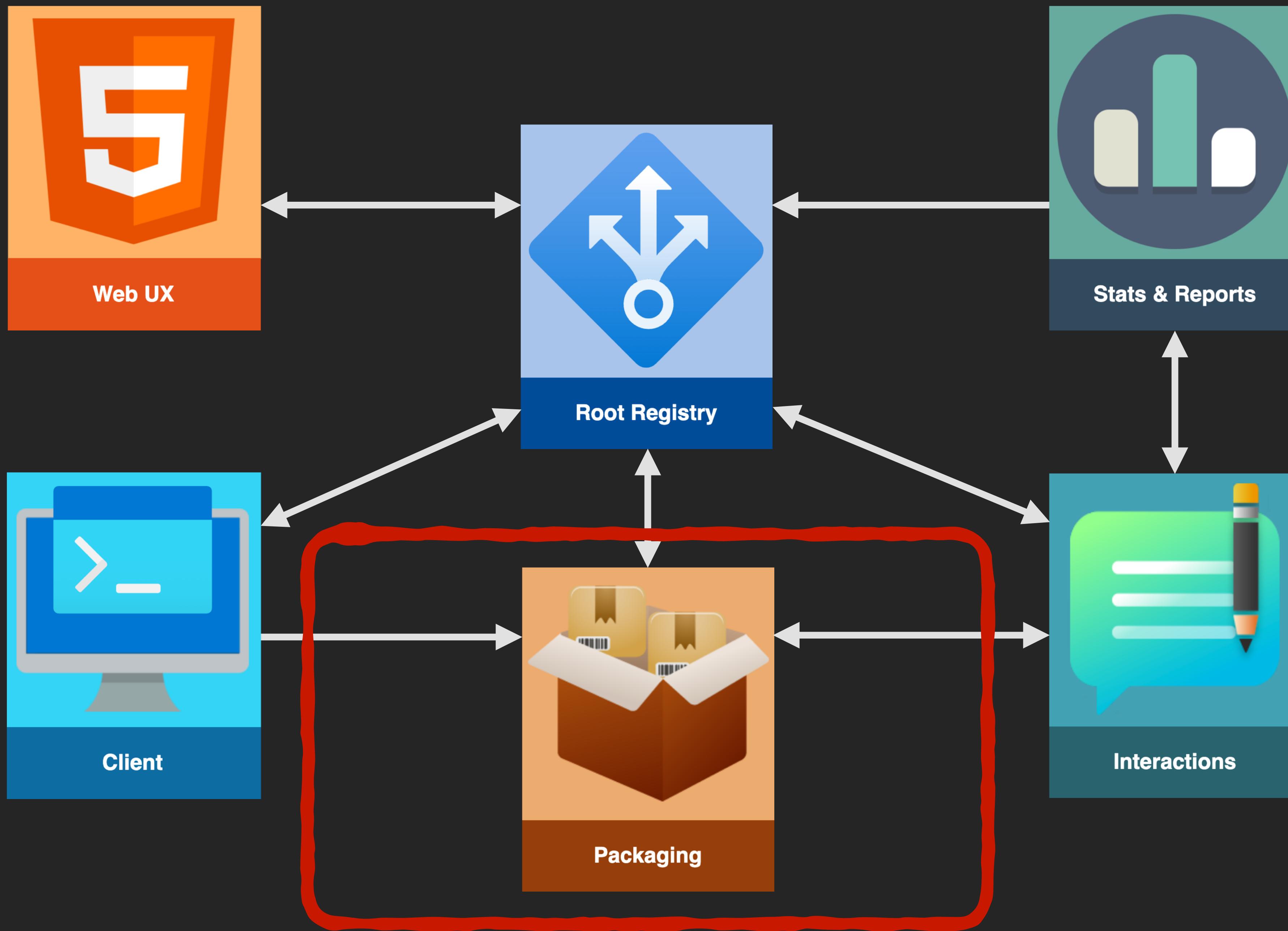
Meditate on deficiencies

Engage deeply with the community

Design and implement new architecture

Serve the community for next decade

ARCHITECTURE SKETCH





EXTENSION ECOSYSTEM SUMMIT

Collaborate to examine the ongoing work on PostgreSQL extension distribution, examine its challenges, identify questions, propose solutions, and agree on directions for execution.



SINCE LAST YEAR

EXTENSION METADATA

Topics:

Packaging & Discoverability

Extension Development and Compatibility

Taxonomies

Versioning

PGXN Metadata v2 RFC

github.com/pgxn/rfcs/pull/3

BINARY DISTRIBUTION FORMAT

Topics:

Multiple versions at once

Python Wheel format

Open Container Initiative

Versioning

Binary Distribution Format RFC

github.com/pgxn/rfcs/pull/2

```
› docker compose up -d
[+] Running 3/3
✓ Network pgxnnet    Created
✓ Container zot       Started
✓ Container linux      Started
```

pg-semver on ↗ **trunk-oci** [!?] via 🐕 **desktop-linux** via 🐫 **v5.38.2**

› █



ABI/API COMPATIBILITY

Topics:

Definition of ABI/API

Use of internal APIs

Categorize: green, red, in-between

More hooks

Server API and ABI Stability Guidance

postgresql.org/docs-devel/xfunc-c.html

2025 GSoC Project: ABI Checker service

INCLUDING/EXCLUDING EXTENSIONS IN CORE

Topics:

When to add to core

When to remove from core

Move contrib into core

Move metadata to catalog

Multiple versions

Revisit?

BONUS: PACKAGING & LOOKUP

Only one path to extensions

Complicates packager testing

And CNPG immutability

And Postgres.app immutability

Developments

Extension Search Path patch

CNPG Mount extension OCI images

Packaging & Lookup RFC (justattheory.com/2024/11/rfc-extension-packaging-lookup)



PostgreSQL Extension Summit

PGConf.dev
13 May 2025

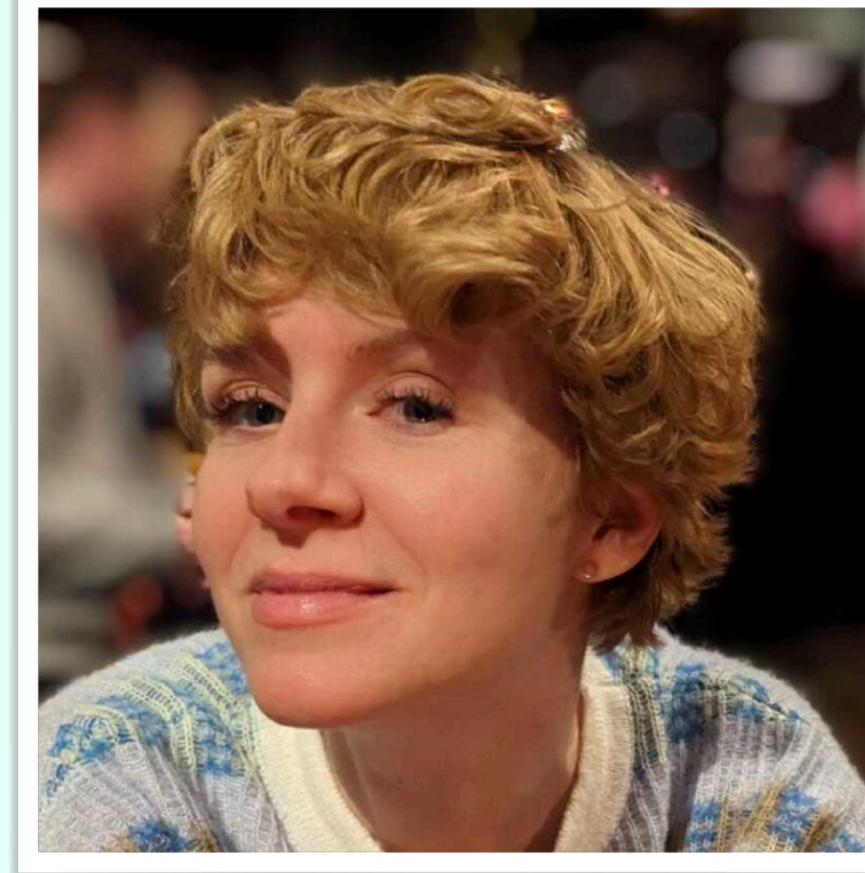
An Unconference



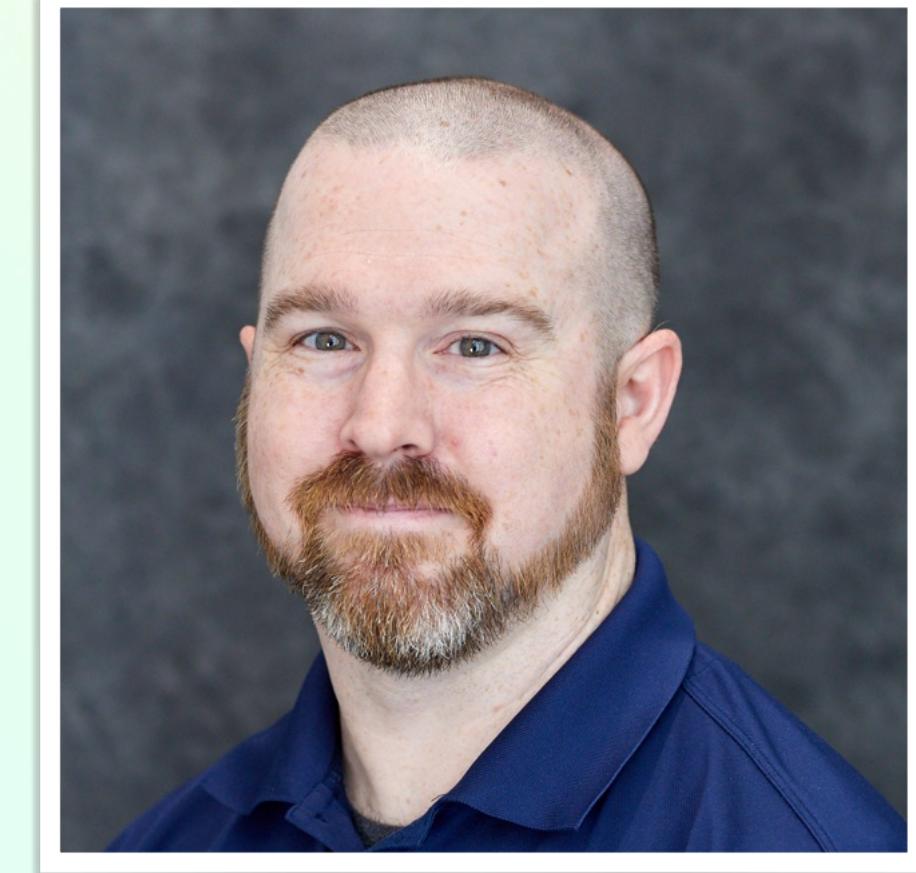
YOUR SUMMIT ORGANIZERS



David Wheeler
Tembo, PGXN



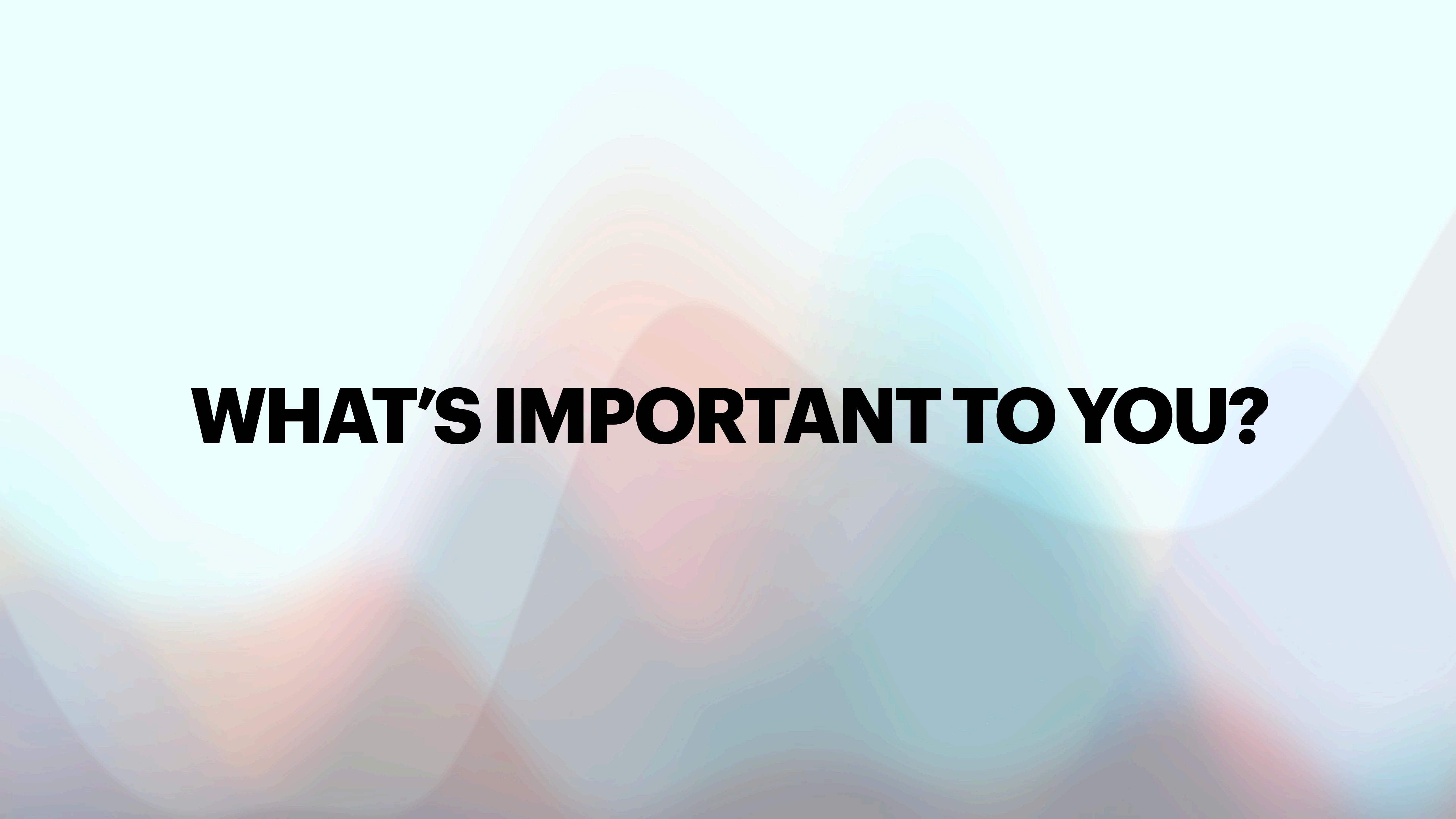
Floor Drees
PGDay Lowlands,
EnterpriseDB



Keith Fiske
Crunchy Data,
pg_partman



Yurii Rashkovskii
Omingres

The background of the slide features a subtle, abstract design composed of numerous overlapping, semi-transparent colored waves. These waves are primarily in shades of light blue, teal, orange, and yellow, creating a soft, flowing pattern that covers the entire slide.

WHAT'S IMPORTANT TO YOU?

COMMUNITY OPPORTUNITIES

What are the community opportunities for the extension ecosystem?

Improved dev tools

Canonical registry

Easy publishing

Continuous Delivery

File-free installation

Documentation

File management

Improved metadata

Library Dependencies

Platform Dependencies

Build pipelines

Artifacts

Classification

Extension Types

Derived Services

Binary Packaging

Ratings & Reviews

Aggregated Stats

Smoke Testing

Security Scanning

Badging & Curation



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THANK YOU

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