

PostgreSQL

Competitors

(past, present and future)



PGDay.Seoul 2024

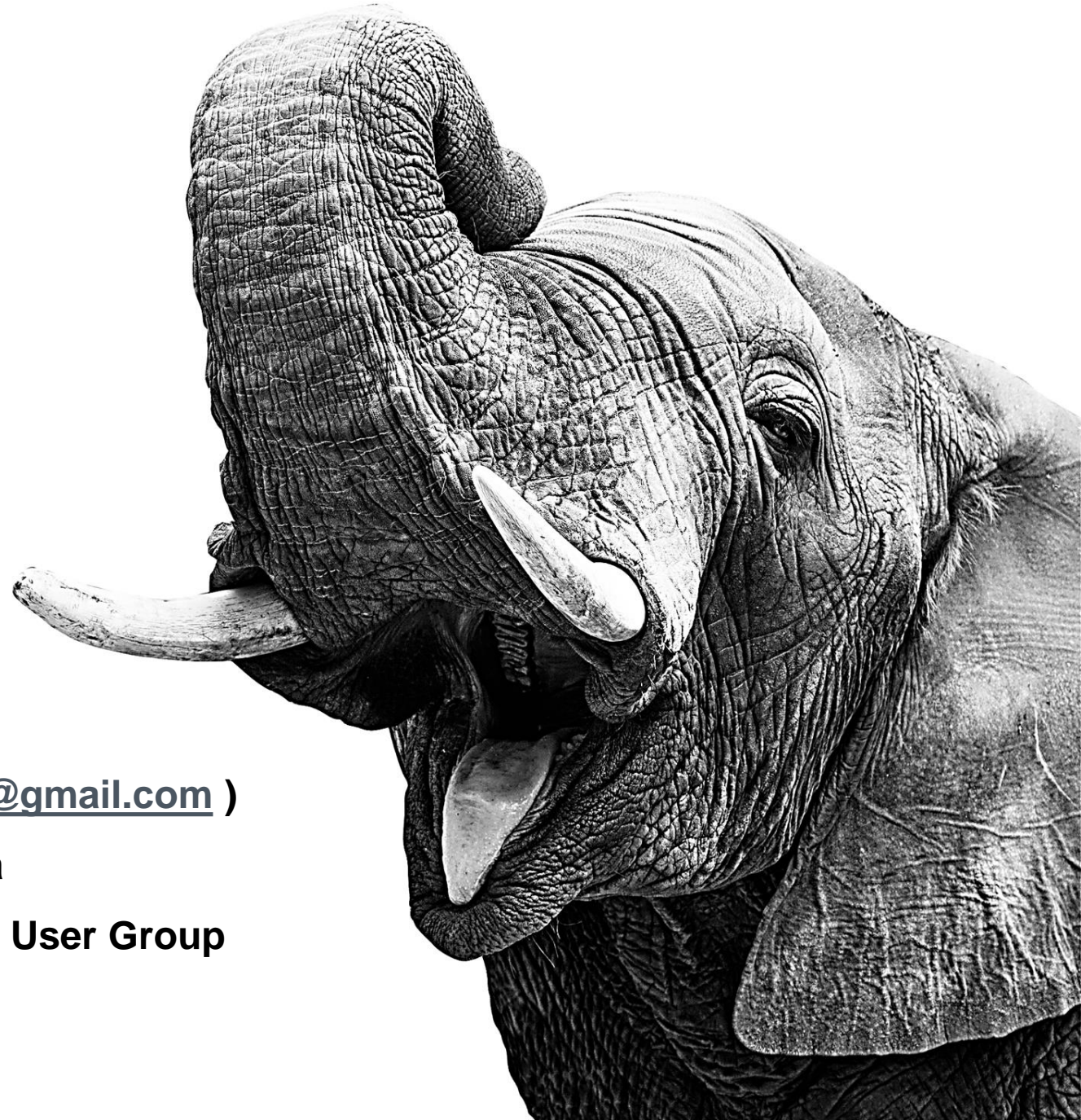
About me



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PostgreSQL Korea

MySQL Korea User Group

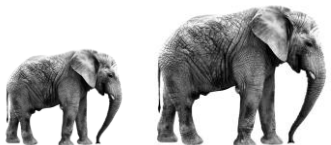


MySQL

A composite image featuring a man with glasses in a thinking pose, a dolphin on the left, and an elephant on the right. The text 'MySQL' is overlaid on the top left and 'PostgreSQL' on the bottom right.

PostgreSQL

Past, Present and Future : PostgreSQL vs MySQL | Maria



- ✓ Sun MySQL → Oracle MySQL
- **MySQL is Dead (2010)**
- ✓ FAANG → MySQL 5.4/5.6 branch
- ✓ MariaDB License → MariaDB
Business Source License (BSL)
- ✓ Oracle Cloud → HeatWave MySQL
- ✓ AWS → PostgreSQL
→ **PostgreSQL is Dead (2017)**

Past, Present and Future : PostgreSQL vs Oracle



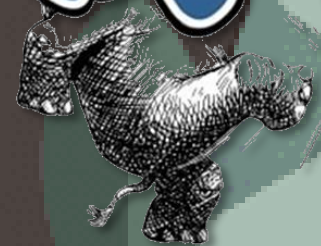
ORACLE 11^g
DATABASE

Past, Present and Future : PostgreSQL (JSONB) vs MongoDB (BSON)

百八煩惱

OLAP
ETL

Ops



Dev

Shard

OLTP

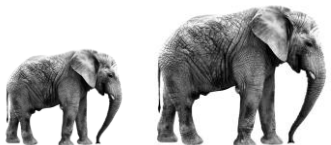
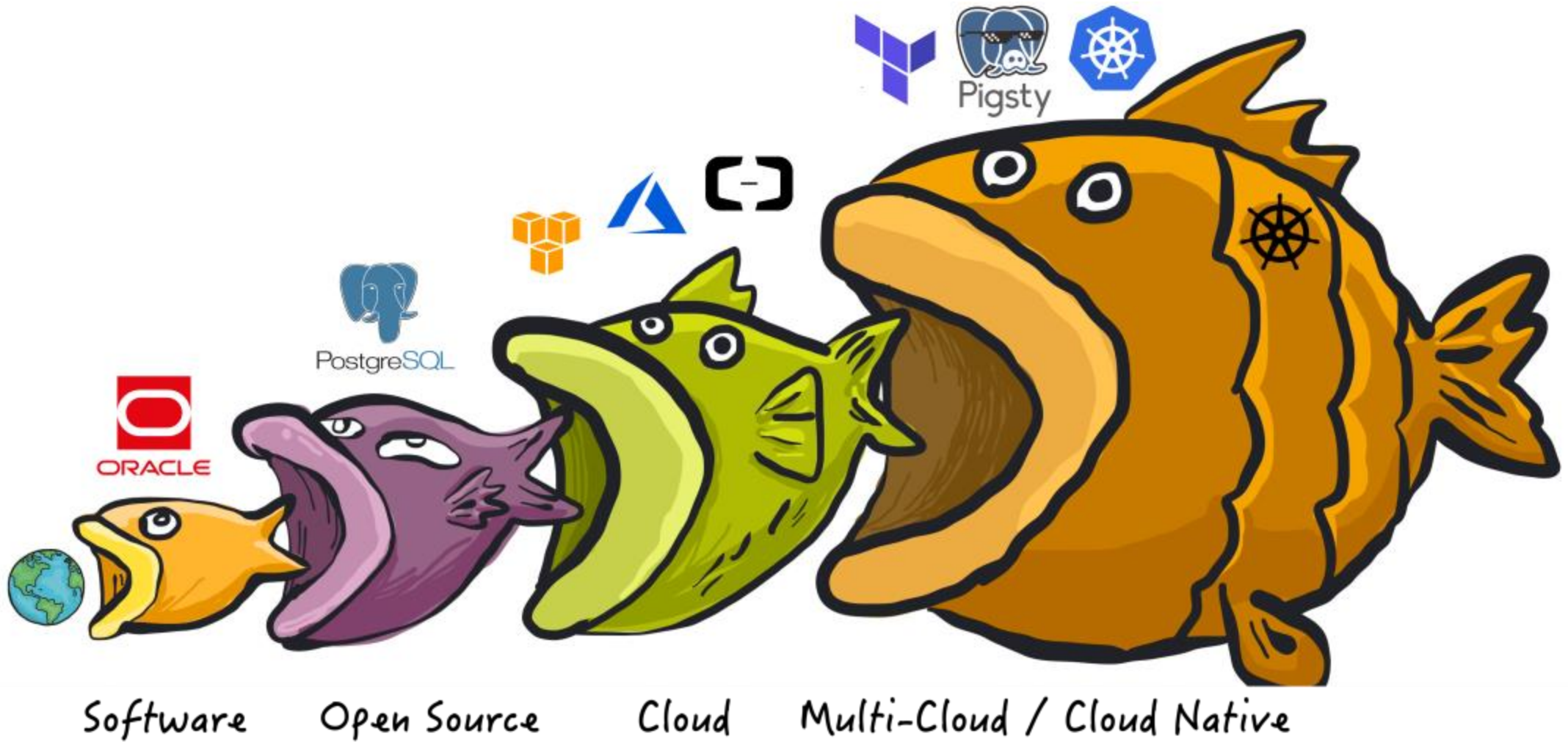
無想
無念

無想
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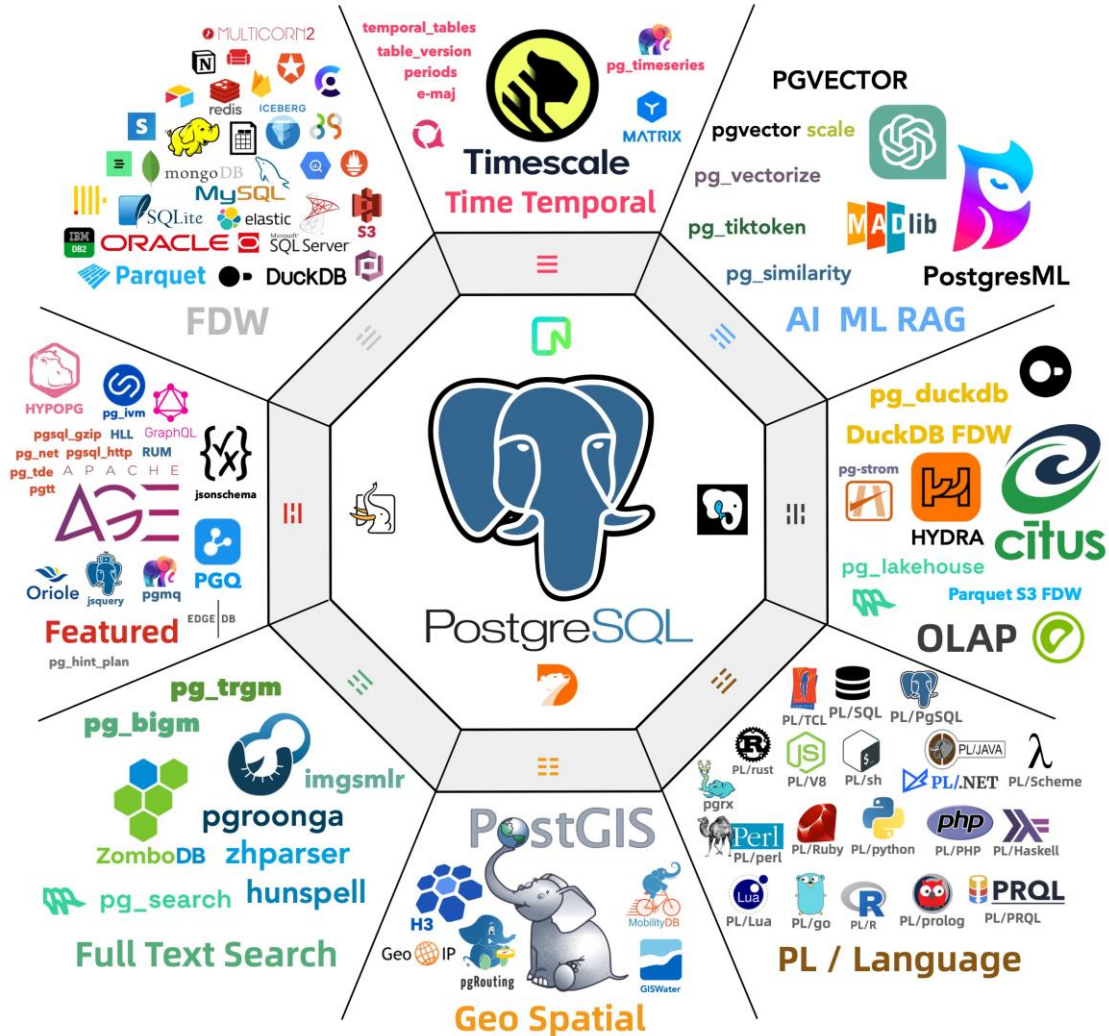
Scale-out

無
無

Past, Present and Future : PostgreSQL vs AWS vs K8s



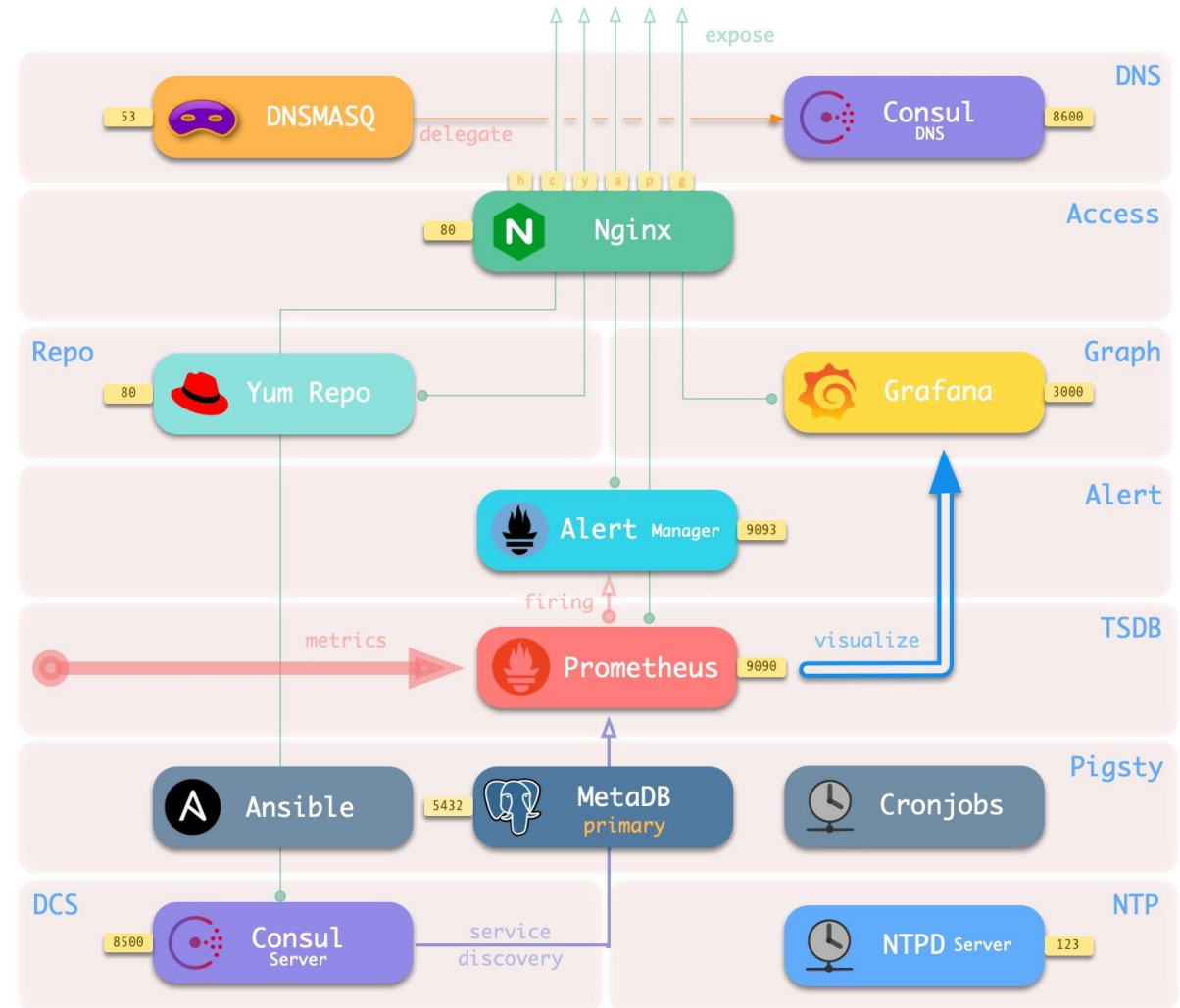
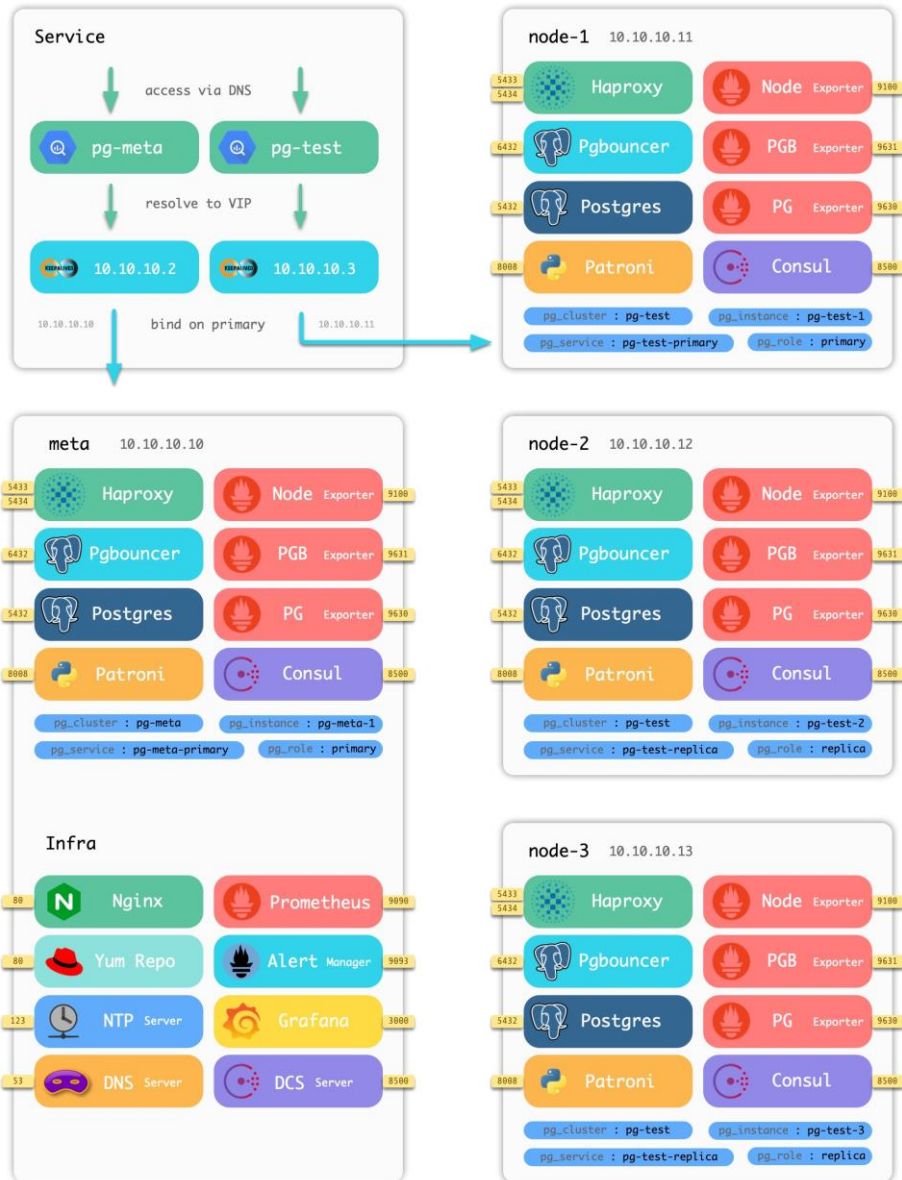
Pigsty : 팔괘(八卦) – 건태리진손감간곤 / 동서남북 (東西南北)



Extension Category	Pigsty RDS & PGDG	AWS RDS PG	Aliyun RDS PG
Add Extension	✓ Free to Install	✗ Not Allowed	✗ Not Allowed
Geo Spatial	✓ PostGIS 3.4.2	✓ PostGIS 3.4.1	✓ PostGIS 3.3.4
Time Series	✓ TimescaleDB 2.14.2	✗	✗
Distributive	✓ Citus 12.1	✗	✗
AI / ML	✓ PostgresML 2.8.1	✗	✗
Columnar	✓ Hydra 1.1.1	✗	✗
Vector	✓ PGVector 0.6	✓ PGVector 0.6	✓ pase 0.0.1
Sparse Vector	✓ PG Sparse 0.5.6	✗	✗
Full-Text Search	✓ pg_bm25 0.5.6	✗	✗
Graph	✓ Apache AGE 1.5.0	✗	✗
GraphQL	✓ PG GraphQL 1.5.0	✗	✗
Message Queue	✓ pgq 3.5.0	✗	✗
OLAP	✓ pg_analytics 0.5.6	✗	✗
DuckDB	✓ duckdb_fdw 1.1	✗	✗
CDC	✓ wal2json 2.5.3	✓ wal2json 2.5	✗
Bloat Control	✓ pg_repack 1.5.0	✓ pg_repack 1.5.0	✓ pg_repack 1.4.8
Point Cloud	✓ PG PointCloud 1.2.5	✗	✓ Ganos PointCloud 6.1



Pigsty 2.0 : Architecture



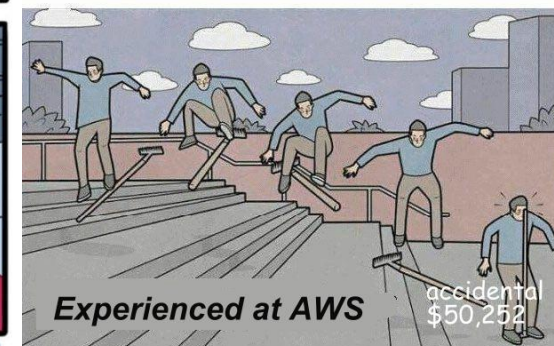
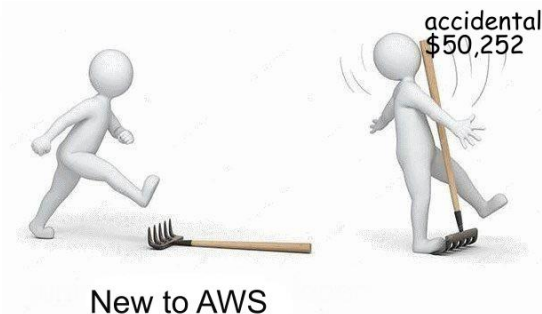
Pigsty 2.0 : Grafana Dashboard



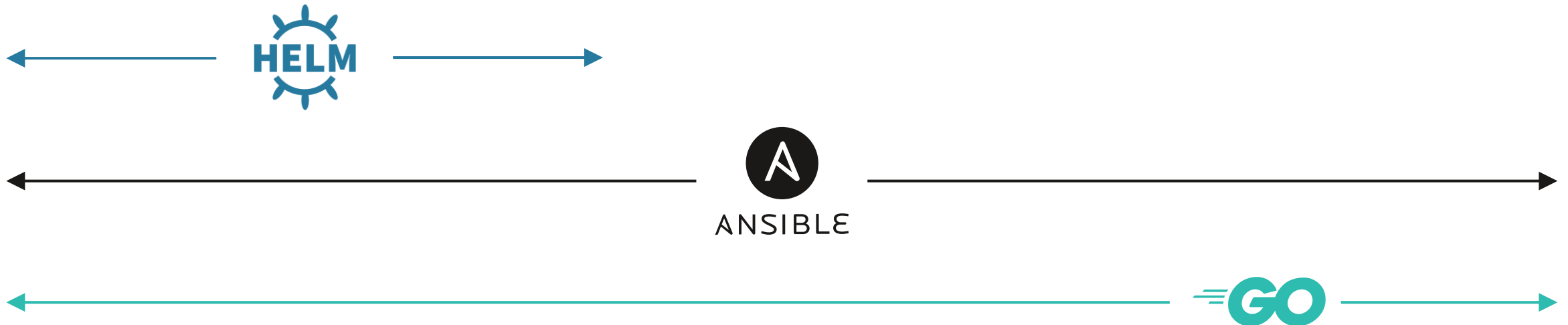
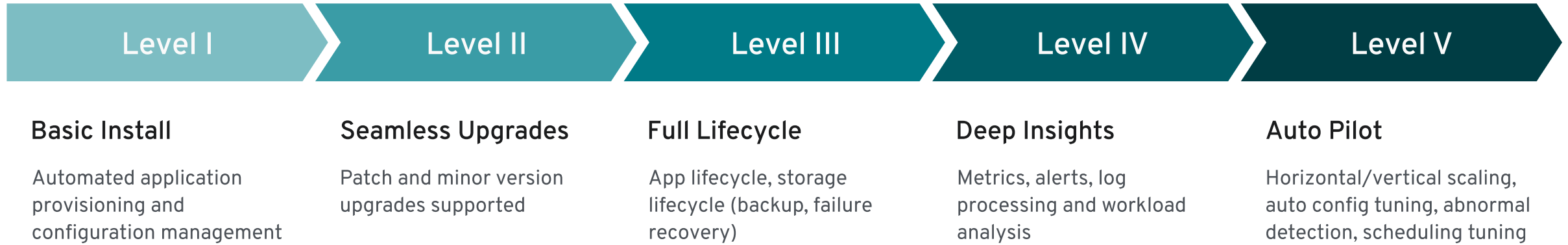
Pigsty : Cost Reference (Managed Service vs Salary)

EC2	vCPU-Month	RDS	vCPU-Month
DHH's self-hosted core-month price (192C 384G)	25.32	Junior open-source DBA reference salary	15K / person-month
IDC self-hosted data center (exclusive physical machine: 64C384G)	19.53	Intermediate open-source DBA reference salary	30K / person-month
IDC self-hosted data center (container, oversold 500%)	7	Senior open-source DBA reference salary	60K / person-month
UCloud Elastic Virtual Machine (8C16G, oversold)	25	ORACLE database license	10000
Alibaba Cloud Elastic Server 2x memory (exclusive without overselling)	107	Alibaba Cloud RDS PG 2x memory (exclusive)	260
Alibaba Cloud Elastic Server 4x memory (exclusive without overselling)	138	Alibaba Cloud RDS PG 4x memory (exclusive)	320
Alibaba Cloud Elastic Server 8x memory (exclusive without overselling)	180	Alibaba Cloud RDS PG 8x memory (exclusive)	410
AWS C5D.METAL 96C 200G (monthly without upfront)	100	AWS RDS PostgreSQL db.T2 (2x)	440

Payment Model	Price	Cost Per Year (¥10k)
Self-hosted IDC (Single Physical Server)	¥75k / 5 years	1.5
Self-hosted IDC (2-3 Server HA Cluster)	¥150k / 5 years	3.0 ~ 4.5
Alibaba Cloud RDS (On-demand)	¥87.36 / hour	76.5
Alibaba Cloud RDS (Monthly)	¥42k / month	50
Alibaba Cloud RDS (Yearly, 15% off)	¥425,095 / year	42.5
Alibaba Cloud RDS (3-year, 50% off)	¥750,168 / 3 years	25
AWS (On-demand)	\$25,817 / month	217
AWS (1-year, no upfront)	\$22,827 / month	191.7
AWS (3-year, full upfront)	\$120k + \$17.5k / month	175
AWS China/Ningxia (On-demand)	¥197,489 / month	237
AWS China/Ningxia (1-year, no upfront)	¥143,176 / month	171
AWS China/Ningxia (3-year, full upfront)	¥647k + ¥116k / month	160.6



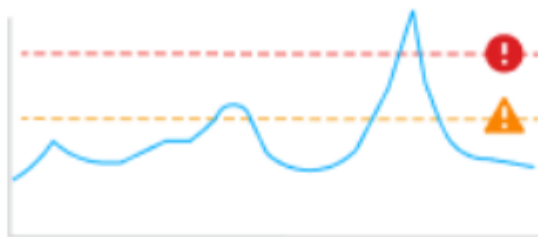
OperatorHub.io : CAPABILITY LEVEL



OperatorHub.io : LEVEL 4 - 5

Metric Monitor

Set the high and low parameters that will trigger an alert if exceeded



Use when you know the upper and lower operating range

Log Monitor

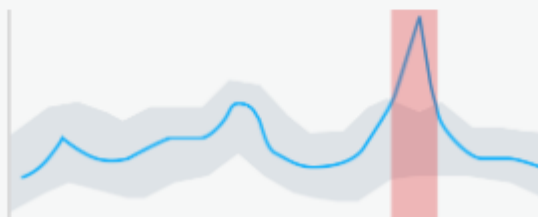
Monitor logs and configure alerts



Use when you want to trigger alerts in response to log activity

Anomaly Detection Monitor

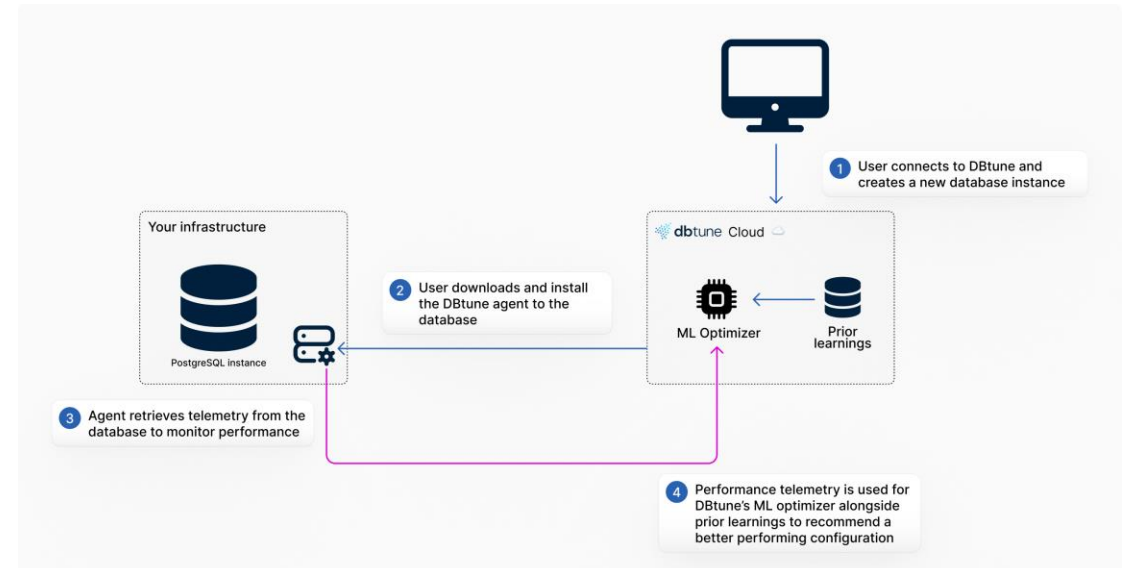
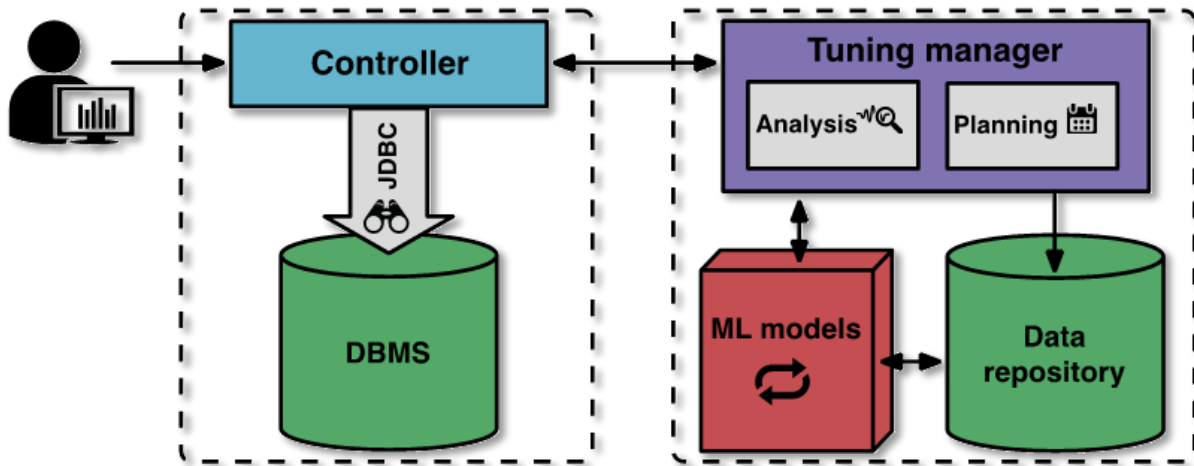
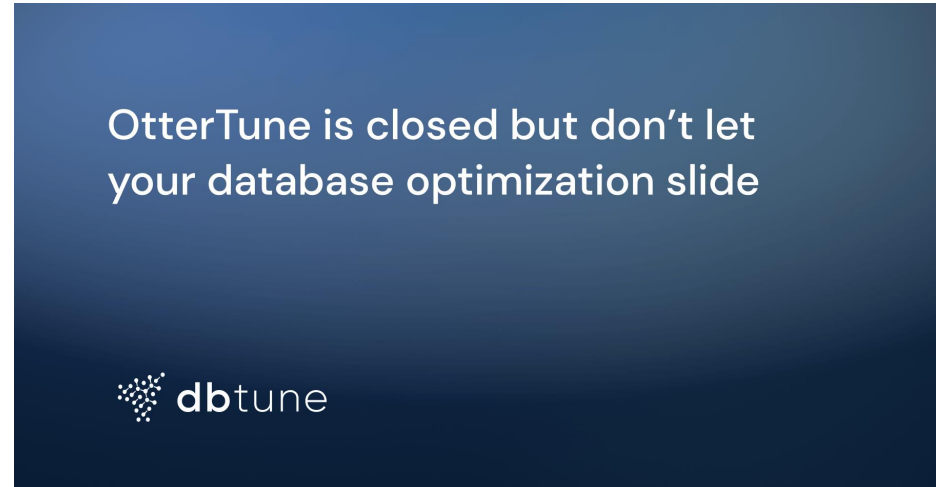
Detect and be alerted to abnormal performance changes



Use when you want to trigger alerts against performance spikes and drops



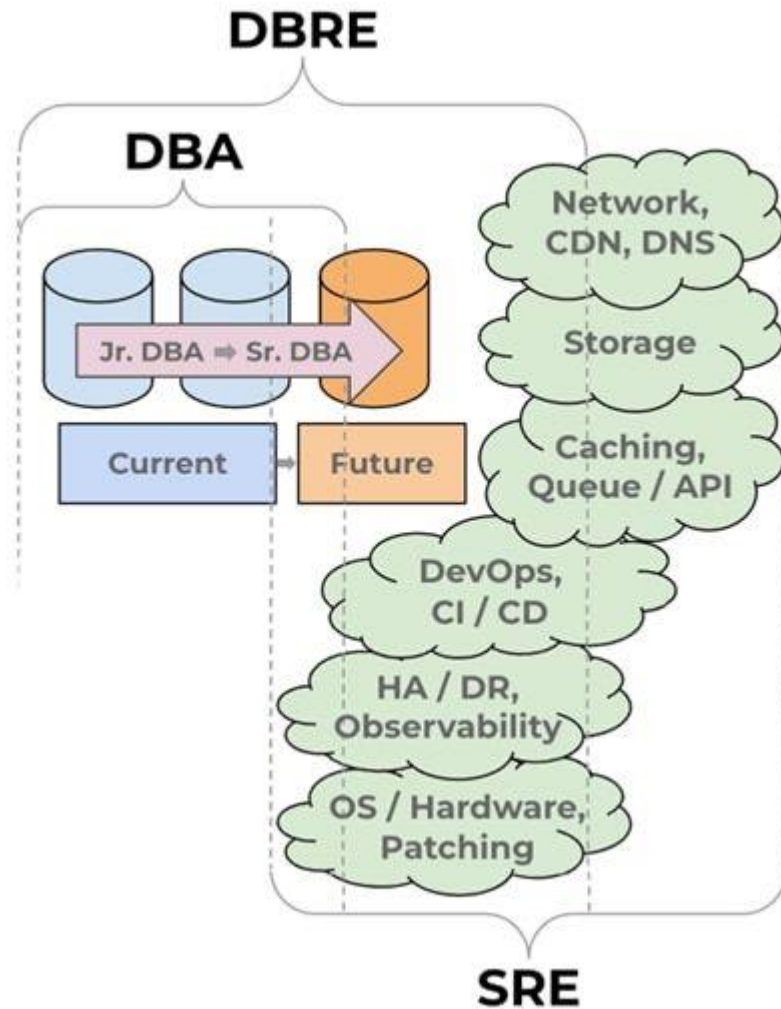
OperatorHub.io : LEVEL 5



<https://ottertune.com> (2020 ~ 2024)

<https://www.dbtune.com/blog/ottertune>

DBA is Dead !!



Do you know ?

- ✓ **scott/tiger** → **ec2-user**
- ✓ **DBLink** → **DBZ (Debezium)**
- ✓ **RMAN** → **s3**
- ✓ **ETL** → **Kafka**
- ✓ **GRANT ALL ...** → **IAM**
- ✓ **hba.conf** → **SG (SecurityGroup)**
- ✓ **What is OOM Killer** → **OOM Killer**
- ✓ **.deb .rpm .sh** → **.tf**



Q?!A

