

Pigsty

Postgres in Graphic STYLE

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Introduction

- Monitoring System is the cornerstone of DevOps
- PostgreSQL is great, except for the lack of a 'good enough' monitoring system
- Pigsty aims to solve this

PIGSTY

Postgres In Graphic STYle

- Fine grained **graphic user interface**
- Managing **large scale production** PG clusters
- Ultimate **observability**
- Based on **open source** infrastructure

- Public demo: <http://grafana.vonng.com>
- Local demo: <https://github.com/Vonng/pigsty>



Agenda

Observability

Production clusters

Graphic interface

Open source

Observability

Postgres Observability



Original Statements Metrics

dbname	query	calls	total_time	min_time	max_time	mean_time	stddev_time	rows	blk_io_time
putong-stats-agent	-27635598815648871	987	221975153.78622	1686110.42825	4107805.58707	2248938.402345	418131.875164583	0	11347976.888479
putong-stats-agent	-985531619944630970	927	208231576.575	1802636.82923	3790710.911204	218974.8226506	285933.458937214	0	56247996.040790
putong-stats-agent	2867865181292621452	986	183598835.46225	1416391.241801	2494466.22823	1188923.36253779	327034.331447038	0	95873985.634324
putong-stats-agent	778066672574368378	986	1715359621.14201	1363330.038193	242962.065291	173792.51252964	247663.334413721	0	955213727.949489
putong-stats-agent	-7201323157678344731	767	1571931817.08309	88136.793334	746232.157084	202393.69352428	159395.971431676	7767	14527.04291
putong-stats-agent	-1488439297320430311	986	1412484519.52971	1954579.746136	3249394.797151	1423540.99330901	1738307.20555561	0	442232620.3591710
putong-stats-agent	-3201767615601705615	985	89567905.338439	196376.488355	1933371.620959	909314.624709074	541967.072427278	914122854	8748482097.629715
putong-stats-agent	7614019132500879104	986	801767117.894764	704162.766565	935125.588562	813151.253182796	35514.897313417	986	421746484.132888
putong-stats-agent	-793213684165516077	767	801666171.96822	789995.95494	994999.115381	813040.85383126	39319.5872781624	31192	421793958.912217
putong-stats-agent	6243855300883599019	7767	798211862.15581	10731.466265	726456.437161	1032448.136192519	79218.6401799529	7767	63809338.8227943
putong-stats-agent	-791167141608733992	7767	798569212.000026	10724.117959	726318.30653	102815.67525431	75205.939783209	7767	638808809.043327
putong-stats-agent	-6529041768180621325	986	587842286.658078	535318.835238	654465.117796	595805.564561945	34147.1382714448	0	7781609.133465
putong-stats-agent	-72727930939777884	286787	40783035.456483	148697	4006639.880162	142.13021182254	14144.78986116259	840084564	15065337.553212
putong-stats-agent	5651626765990021817	986	376436104.182905	317785.715677	530997.482639	3181781.938729586	34433.588900925	0	5173567.393882
putong-stats-agent	6993847913026799962	1875	364640968.640044	1746.178858	436843.856263	194475.183274691	79399.973253818	928372	60222716.17988401
putong-stats-agent	-139425421407921786	2511	260863173.815349	94316.922425	204443.583886	186277.647356889	13045.7294067416	2511	1886.101304
putong-stats-agent	3016742246442270811	986	249336909.803766	156082.294202	330523.396265	232564.25038543	30316.964661072	0	13500073.808543
putong-stats-agent	-118133166709107877	286787	246683918.801801	0.828305	2483.010581	85.80034081242	137.63456094282	840084564	1946531277.815807
putong-stats-agent	-3786584307358188956	7767	235137607.696444	3711.660393	213672.599911	30273.929148596	28253.964417258	7767	151457667.993189
putong-stats-agent	-7173171175746593924	7767	235000095.958395	3703.512223	213621.509892	30256.2244878196	20248.0936448230	7767	151454823.629478

Query Statements Dashboards

Instance: pg-followshopard-01
Database: putong-followshopard
Query: 2948992270

Home
Node
PG Cluster
PG Instance
PG Overview
PG Shard

Query ID	mean_time	min_time	max_time	stderr_time	Calls (Since Reset)	Rows (Since Reset)	Time Spent (Since Reset)
2948992270	7.94 ms	2.97 ms	291.33 ms	3.22 ms	60807937	374601518	6.6h
445269795	45.17 ms	1.82 ms	3.0 s	120.68 ms	4112920	37081142	2.4d
603293402	9.26 ms	1.07 ms	98.78 ms	3.82 ms	4403204	89046072	11.1h
166114452	0.01 ms	0.01 ms	39.98 ms	0.07 ms	7421358	14231899	58.1m
134580193	0.01 ms	0.01 ms	1.24 ms	0.00 ms	70741023	76741023	11.1m
789723875	7.85 ms	3.52 ms	35.76 ms	3.38 ms	68315	3448308	9.1m
320001903	0.82 ms	0.01 ms	13.07 ms	1.80 ms	371694	371694	4.1m
1027439545	0.85 ms	0.01 ms	27.62 ms	2.88 ms	320776	320776	5.1m
320179299	0.76 ms	0.01 ms	28.40 ms	1.76 ms	354932	354932	4.1m
952786106	0.71 ms	0.01 ms	19.70 ms	2.00 ms	338605	338605	4.1m
87153079	0.64 ms	0.01 ms	44.98 ms	2.79 ms	317861	317861	3.1m

Instance Summary (71 panels)

Query Overview (4 panels)

Query Detail

Query:

```

WITH rep_elements AS (
  select
    *
  FROM
    pg_stat_replication
  AND
    id NOT IN (SELECT unnest(C2::bigint[]))
  AND
    user_id NOT IN (SELECT unnest(C3::int[]))
  AND
    status = 's4'
  AND
    (CASE WHEN $5 < 46 THEN (gender >= 57 OR user_id <= 85) ELSE $9 END)
  ORDER BY location <> st_point($10,$11) ASC
  LIMIT $12
)
  
```

RT Elements AS C

Created_time = \$1

id NOT IN (SELECT unnest(C2::bigint[]))

user_id NOT IN (SELECT unnest(C3::int[]))

status = 's4'

(CASE WHEN \$5 < 46 THEN (gender >= 57 OR user_id <= 85) ELSE \$9 END)

ORDER BY location <> st_point(\$10,\$11) ASC

LIMIT \$12

QPS: 90.22

RT Mean: 7.59 ms

Avg RT Rows: 90.87

Avg RT ID: 6.96 µs

RT Min: 3.2 ms

RT Max: 293 ms

10 Calls: 5758381

10 Rows: 437552379

10 Time: 68119324

10 RT: 11.90 hour

Ops

rep_elements_mv, user_search_users_mv

rep_user_id = user_id

AND

rep_status NOT IN ('s26', 's17', 's18', 's29')

AND

Statement RT Ranking

Statement Total Time Ranking

Statement Call

Statement RT

Statement Time Spent in Last 1h

Statement Time (DiskIO)

Statement RT Divergence

Query RT Stats

RT Divergence

Statement @ 8

Query	Database	Call	Call (10%)	Total	Total (10%)	RT	RT (10%)
20314615231231283	putong-bdts	31420	0.04	7.3m	0.1m	18.00m	0.17m
4251831831831831834	putong-bdts	142890	0.047	2.8m	0.1m	1.19m	0.00m
23211850138810820	putong-bdts	142890	0.047	0.0m	0.0m	0.72m	0.00m
2708102272727272728	putong-bdts	142891	0.047	1.2m	0.0m	0.54m	0.00m
8818381838183818382	putong-bdts	142890	0.047	1.0m	0.0m	0.43m	0.00m
88120032455032455	putong-bdts	142891	0.047	0.0m	0.0m	0.42m	0.00m
231646123164612316462	putong-bdts	142891	0.047	0.1m	0.0m	0.16m	0.00m
8818381838183818381	putong-bdts	142891	0.047	1.7m	0.0m	0.12m	0.00m
3221338813388133882	putong-bdts	142891	0.047	10.7m	0.0m	0.12m	0.00m
6844227684422768443	putong-bdts	142891	0.047	1.3m	0.0m	0.09m	0.00m
4512321321321321322	putong-bdts	142891	0.047	15.1m	0.0m	0.10m	0.00m
3131827218272182723	putong-bdts	142890	0.047	15.1m	0.0m	0.08m	0.00m
2217671676716767168	putong-bdts	142891	0.047	91.13m	0.0017	46.4m	0.00m
8052026218052026218	putong-bdts	2142504	0	9.4s	0m	10.0m	N/A
2051212121212121212	putong-bdts	2142504	0	9.4s	0m	10.0m	N/A
2182712182718271828	putong-bdts	2142504	0	9.4s	0m	10.0m	N/A
1218181818181818182	putong-bdts	2142504	0	9.4s	0m	10.0m	N/A

System Overview Dashboard

504 Alerts | 3.7 TB Memory | 63.06 TB Storage | 10.0 Gbps Network

6 CPU | 9 Memory | 1 Disk | 7 Network

44358 CPU Usage | 14% Load | 17% I/O | 0% CPU | 0% CPU | 0% CPU

Cluster Topology Diagram

System Health Metrics

100% CPU | 100% Memory | 95% Disk | 100% CPU | 100% CPU

100% CPU | 94% Memory

System Logs

Time	Message
2023-10-27 10:00:00	INFO: System started successfully.
2023-10-27 10:00:05	INFO: All services are running.
2023-10-27 10:00:10	INFO: Network connectivity established.

Network Performance

5.7% CPU | 6.0 Gbps | 29.8 Kbps | 89.5 Kbps

Network Traffic Analysis

Application Performance

Application Log Status

Application Log Data

Table Size

Table Name	Size	Type
table_001	100 MB	Table
table_002	200 MB	Table
table_003	300 MB	Table
table_004	400 MB	Table
table_005	500 MB	Table
table_006	600 MB	Table
table_007	700 MB	Table
table_008	800 MB	Table
table_009	900 MB	Table
table_010	1000 MB	Table

Relation Data

System Activity

Memory Active

CPU Usage

Process Data

System Performance

System Health

System Metrics

System Configuration

System Settings

System Parameters

Nodes

Nodes List

Nodes Status

pgtest-1

pgtest-1 Overview

pgtest-1 Metrics

pgtest-2

pgtest-2 Overview

pgtest-2 Metrics

pgtest-3

pgtest-3 Overview

pgtest-3 Metrics

System Logs

System Log Data

System Log Analysis

System Configuration

System Settings

System Parameters

System Performance

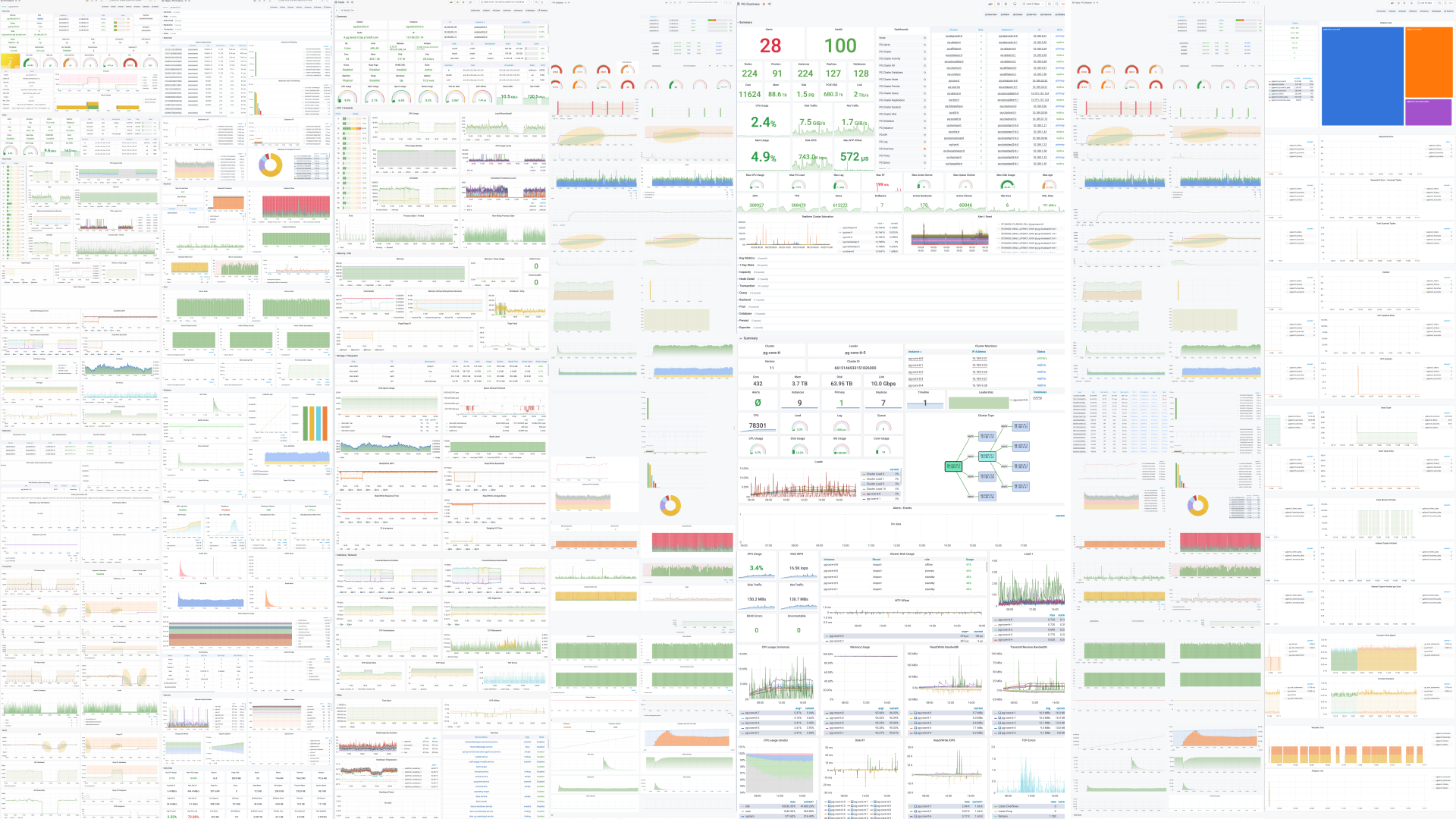
System Health

System Metrics

System Configuration

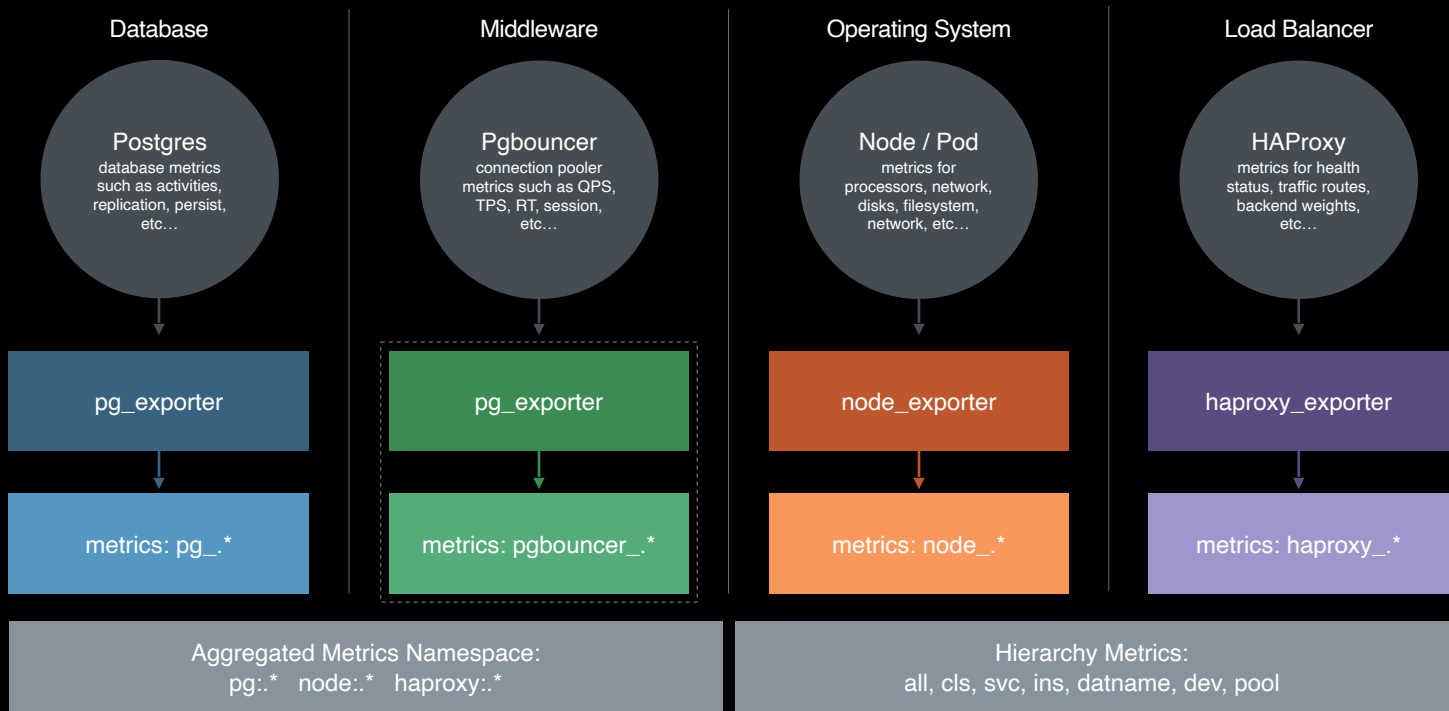
System Settings

System Parameters



Metrics Source

metrics data flow

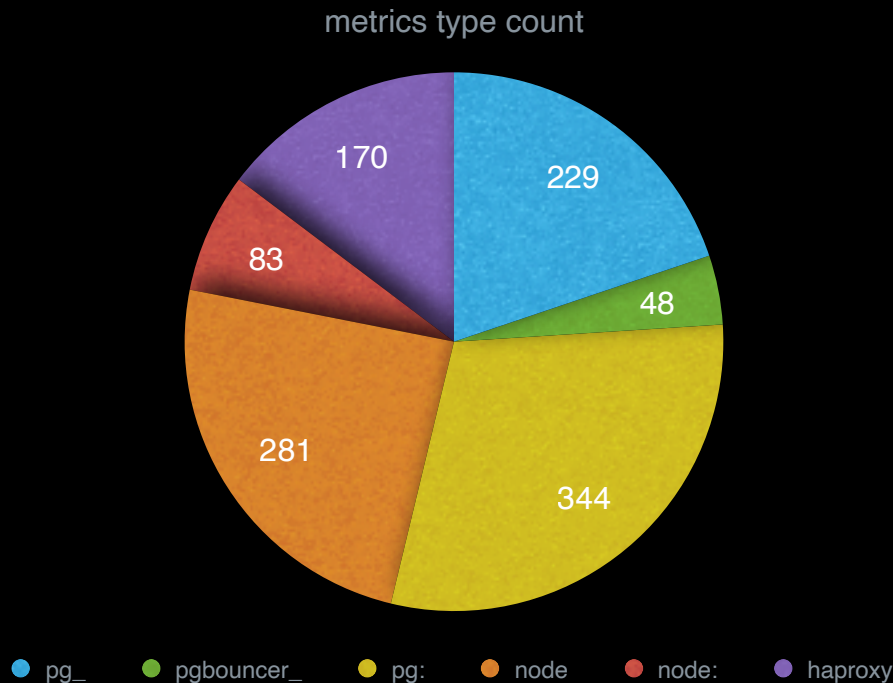


Metrics Ratio

metric type for a cluster

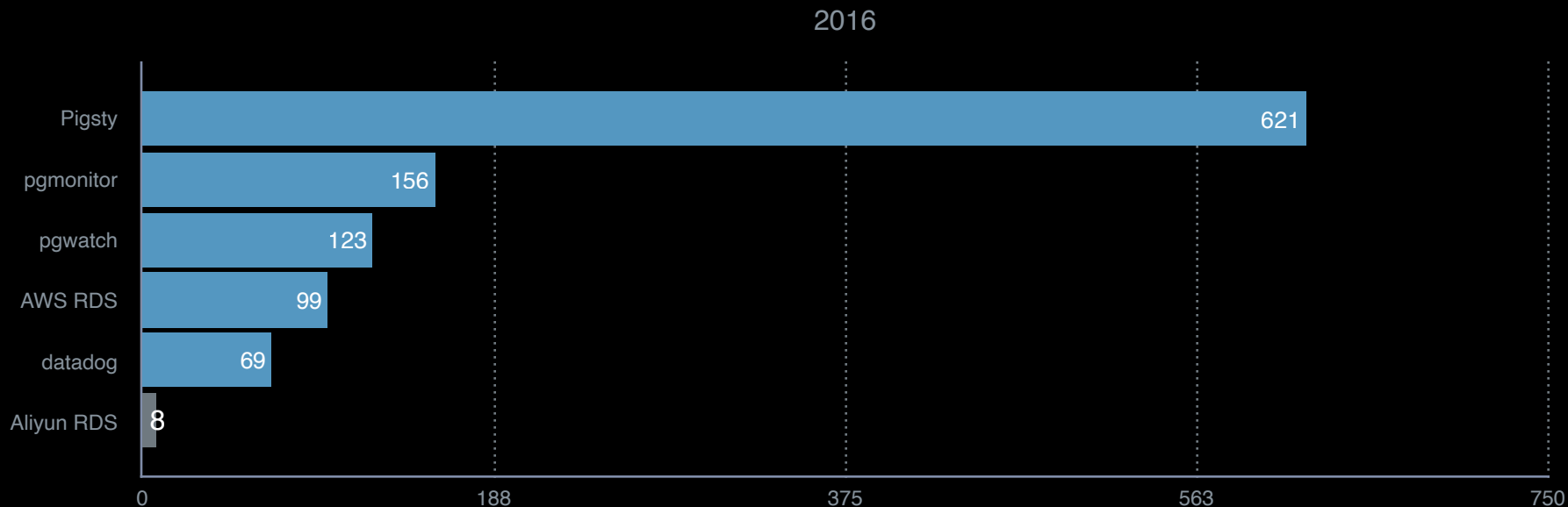
1155 metrics per env

3k~10k+ time-series per instance



Metrics Coverage

metrics numbers comparing to others



metrics related to database are counted (i.e: node metrics are excluded)

Catalogs

system catalog explorer

yet another pgadmin ?

🏠 Pigsty / PG Table Catalog ☆ ↶

Instance | isd | Relation | china_fences

Overview | Share | Cluster | Service | Instance | Database

~ Catalog

Namespace / Schema: **public**

Relation: **china_fences**

Relation Kind: **(r) Table**

Size	5.931 MB	Rows	2.861 K	Page	724	Age	351	Live Tuple	2861	Dead Tuple	0	Dead Ratio	0%	Bloat Ratio	0.2762%
Identifier	Value	Features	Value	Field	Value	Persist Feature	Value								
Relation OID	19065	Has Index	TRUE	Rel Pages	724	Unlogged	FALSE								
Schema OID	2200	Is Partitioned	FALSE	Rel Bytes	5931008	Temporary	FALSE								
Reltype OID	19067	Is Shared	FALSE	Rel Tuples	2861	ACL									
Comptype OID		Has Rule	FALSE	Rel All Visible	0	postgres=arwdDxt/postgres									
Owner OID	10	Has Trigger	FALSE	Columns	12	dbrole_readonly=r/postgres									
Access Method ID	2	Has Subclass	FALSE	Checks	0	dbrole_readwrite=awd/postgres									
Rel Filenode	19586	Row level security	FALSE	Frozen XID	900	dbrole_admin=Dxt/postgres									
Tablespace OID		Force RLS	FALSE	Age	351	Options									
Toast Table OID	19068	Is Populated	TRUE	Min XID	1										

Tuple	Value	Vacuum	Value	Analyze	Value	Blocks I/O	Value
Seq Scan	10	Vacuums	1	Analyzes	1	Heap Blocks Read	730
Seq Scan Tuples	0	Vacuum Count	0	Analyze Count	0	Heap Blocks Hit	3640
Index Scan	11	Last Vacuum		Last Analyze		Index Blocks Read	71
Index Scan Tuples	22	Since Last Vacuum		Last Analyze Elapse		Index Blocks Hit	26423
Inserted Tuples	2861	AutoVacuum Count	1	AutoAnalyze Count	1	Toast Blocks Read	39
Deleted Tuples	0	Last AutoVacuum	2020-11-04 11:18:19	Last AutoAnalyze	2020-11-04 11:18:19	Toast Blocks Hit	846
Updated Tuples	0	Since Last AutoVacuum	5 days 23:23:36	Last AutoAnalyze Elapse	5 days 23:23:36	Toast Index Blocks Read	2
Hot Updated Tuples	0	Inserts since Last Vacuum	0	Modify Since Analyze	0	Toast Index Blocks Hit	959

Seq #	Name	Storage	Align	NOT NULL	Null Frac	Arg Width	N Distinct	Correlation
1	id	p	i	true	0	4	-1	0.99
2	adcode	x	i	false	0	7	-1	0.99
3	name	x	i	false	0	10	-1	0.0065
4	center	x	i	false	0.0031	12	-1	0
5	population	m	i	false	0.0038	5	203	0
6	area	m	i	false	0.0038	5	-1	0.33

Schema	Index	Index ID	Table ID	Scan	Tup Rea	Tup Fct
public	china_fences_adcode_idx	19071	19065	0	0	0
public	china_fences_area_code_idx	19072	19065	0	0	0
public	china_fences_name_idx	19073	19065	0	0	0
public	china_fences_post_code_idx	19074	19065	0	0	0

Relation Size

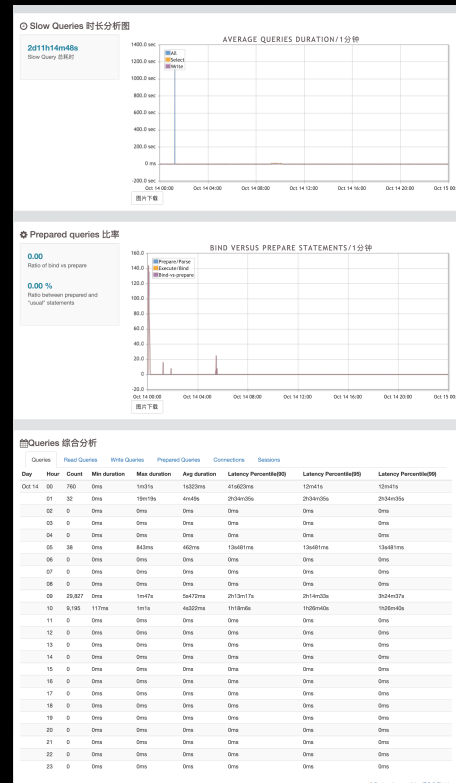
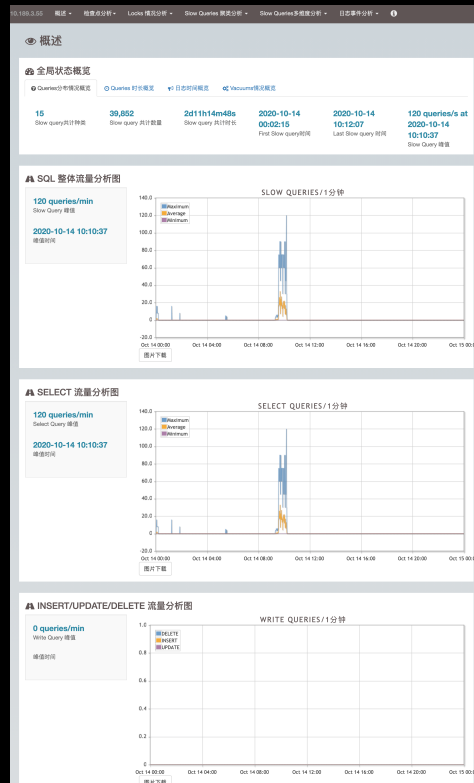
Log Events Summary based on pgbadger



最慢 Query TOP (N)

序号	耗时	Query 文本信息
1	19m19s	Query Text: SELECT id, user_id, ab_group_id, status::text, to_char(created_time + 'MF.J6fetYd')::int 'YYYY-MM-DD HH24:MI:SS.MS') AS created_time, to_char(updated_time + 'MF.J6fetYd')::interval, 'YYYY-MM-DD HH24:MI:SS.MS') AS updated_time, is_guest::text FROM public.ab_users WHERE 1 = 1 AND (id >= 2245466431 <= 44872044224) Seq Scan ON public.ab_users (COST = 0.00..19904905.25 ROWS = 364556341 width = 148) (= 0.137..925984.702 ROWS = 372513954 loops = 1) Output: id, user_id, ab_group_id, (status)::text, to_char((created_time + '3rumfxs46v')::interval, 'YYYY-MM-DD HH24:MI:SS.MS')::text), to_char((updated_time + '3rumfxs46v')::interval, 'YYYY-MM-DD HH24:MI:SS.MS')::text), (is_guest)::text Filter: ((ab_users.id >= 'GuSDGQCvz')::bigint) AND (ab_users.id <= 'F10vU0im0i')::bigint) ROWS Removed BY Filter: 71505215;

[Date: 2020-10-14 01:15:16 - Database: [REDACTED] - User: [REDACTED] - Remote: 10.[REDACTED] - Application: Pos



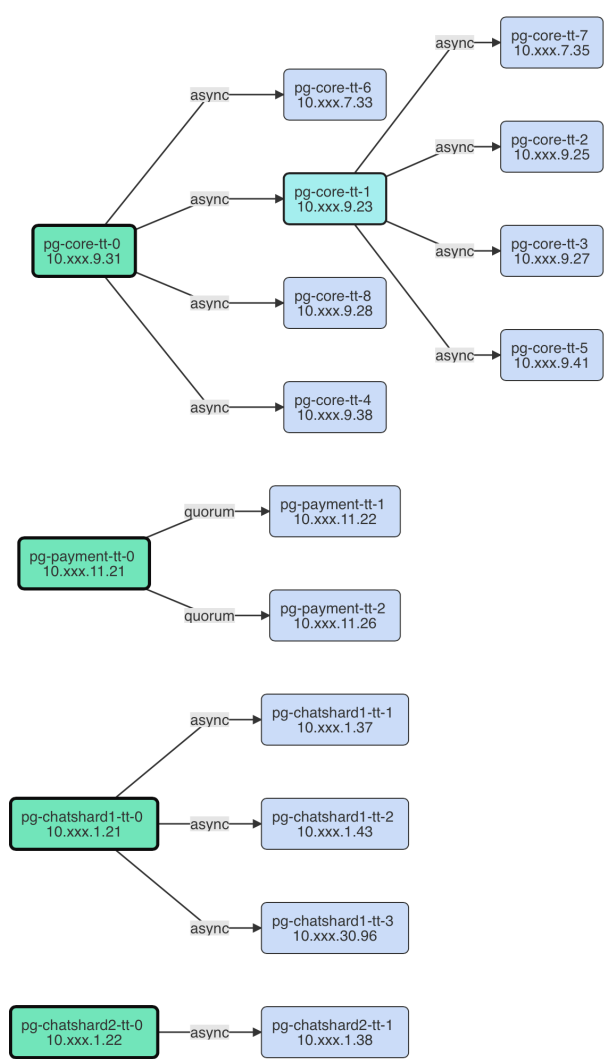
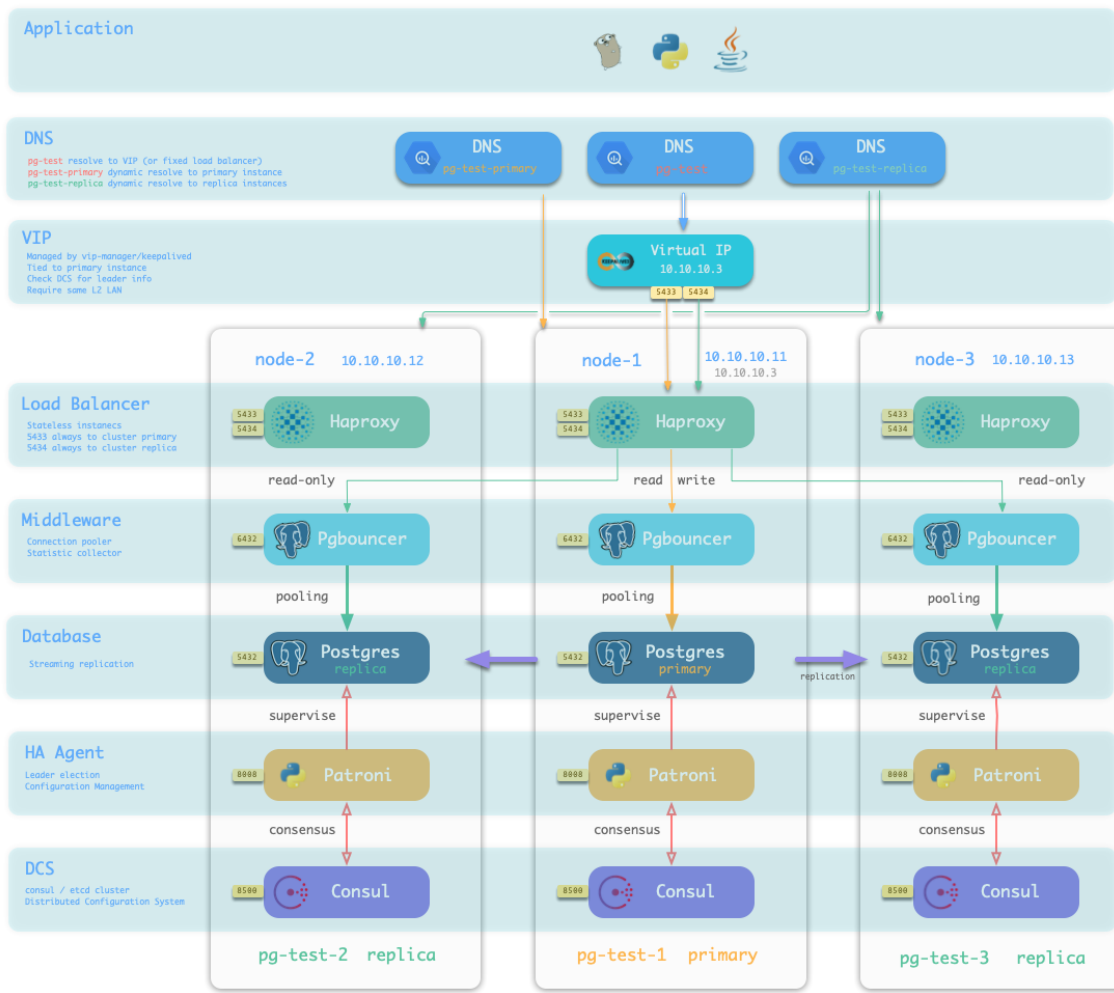
Production Clusters

Production Cluster Characteristics

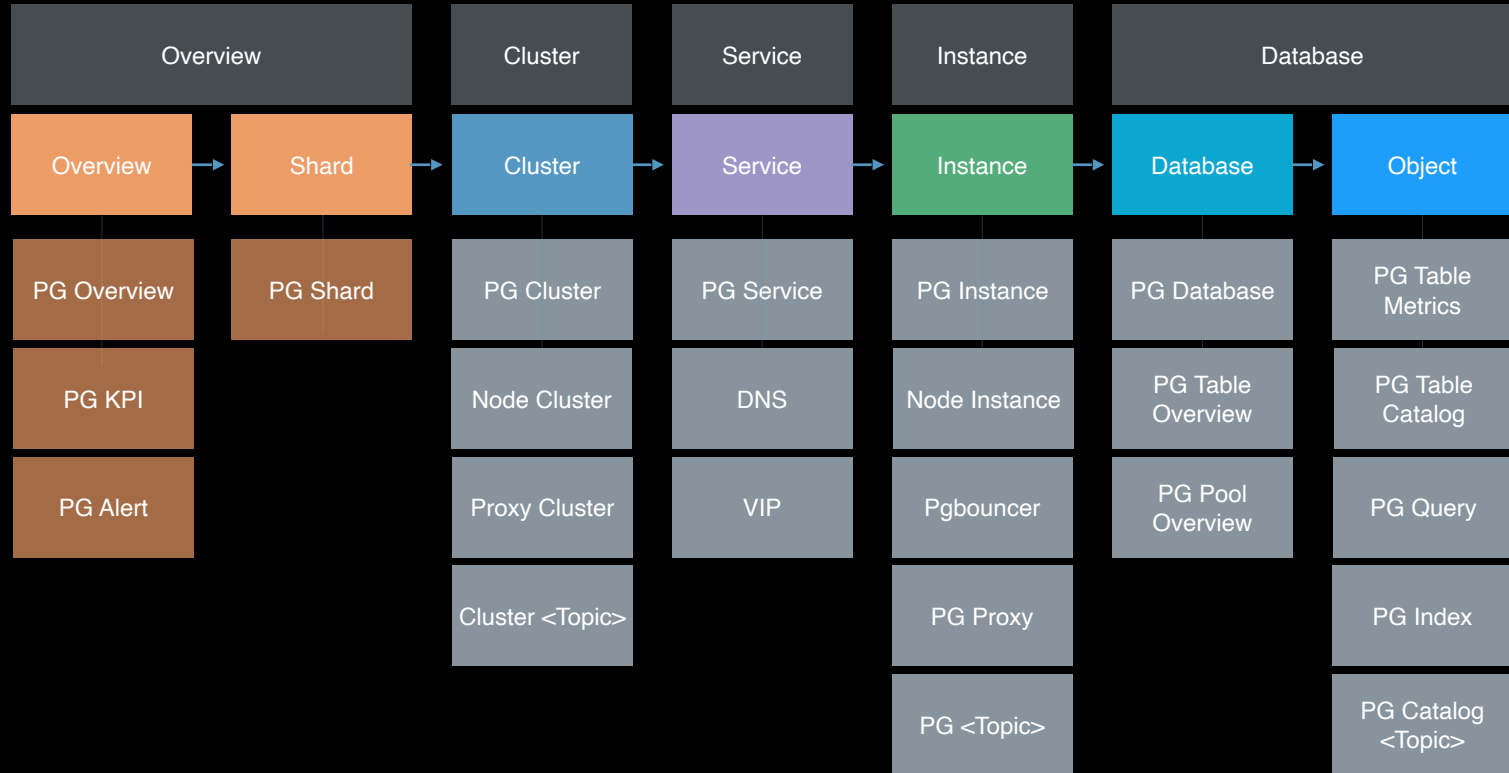
Clusters

Hierarchy

Changes



Hierarchy



Changes

- Cluster failover / switchover
- Add/Remove instances
- Add/Remove database
- Cascade replication
- Sharding clusters
- bare metal to cloud native

Naming is essential

Overview	→	<code>cls=~'pg-.*'</code>	<code>pg-.*</code>
Shard	→	<code>cls=~'pg-\w+shard.*'</code>	<code>pg-testshard0</code> <code>pg-testshard1</code>
Cluster	→	<code>cls=~'pg-.*'</code>	<code>pg-test</code>
Service	→	<code>cls=~'pg-.*'</code> <code>role=~'(primary replica)'</code> <code>svc='\${cls}-\${role}'</code>	<code>pg-test-primary</code> <code>pg-test-replica</code>
Instance	→	<code>cls=~'pg-.*'</code> <code>ins=~'\${cls}-(\d+)'</code>	<code>pg-test-0</code> <code>pg-test-1</code>
Database	→	<code>cls=~'pg-.*'</code> <code>ins=~'\${cls}-(\d+)'</code> <code>datname=~'.*'</code>	<code>datname=testdb</code>

Pigsty use independent naming system

Identity

From definition to labels

Service Template

```
"service": {
  "name": "postgres",
  "port": "{{ pg_port }}",
  "tags": [
    "{{ pg_role }}",
    "{{ pg_cluster }}"
  ],
  "meta": {
    "type": "postgres",
    "role": "{{ pg_role }}",
    "seq": "{{ pg_seq }}",
    "instance": "{{ pg_instance }}",
    "service": "{{ pg_service }}",
    "cluster": "{{ pg_cluster }}",
    "version": "{{ pg_version }}"
  },
  "check": {
    "tcp": "127.0.0.1:{{ pg_port }}",
    "interval": "15s",
    "timeout": "1s"
  }
}
```

Service

pg-exporter	
Service Name	Node Name
pg-exporter	pg-bench1-tt-1
Health Checks	
Tags & Meta	
Tags	
pg, exporter, pg-exporter	
Meta	
Key	Value
cluster	pg-bench1-tt
instance	pg-bench1-tt-1
role	primary
seq	1
service	pg-bench1-tt-primary
type	exporter

Service Discovery

Discovered Labels	Target Labels
<code>__address__="10.189.201.76:9099"</code>	<code>cls="pg-bench1-tt"</code>
<code>__meta_consul_address="10.189.201.76"</code>	<code>ins="pg-bench1-tt-1"</code>
<code>__meta_consul_dc="tt"</code>	<code>instance="10.189.201.76:9099"</code>
<code>__meta_consul_health="passing"</code>	<code>ip="10.189.201.76"</code>
<code>__meta_consul_node="pg-bench1-tt-1"</code>	<code>job="pg"</code>
<code>__meta_consul_service="node-exporter"</code>	<code>role="primary"</code>
<code>__meta_consul_service_id="node-exporter"</code>	<code>svc="pg-bench1-tt-primary"</code>
<code>__meta_consul_service_metadata_cluster="pg-bench1-tt"</code>	
<code>__meta_consul_service_metadata_instance="pg-bench1-tt-1"</code>	
<code>__meta_consul_service_metadata_role="primary"</code>	
<code>__meta_consul_service_metadata_seq="1"</code>	
<code>__meta_consul_service_metadata_service="pg-bench1-tt-primary"</code>	
<code>__meta_consul_service_metadata_type="exporter"</code>	
<code>__meta_consul_service_port="9099"</code>	
<code>__meta_consul_tagged_address_lan="10.189.201.76"</code>	
<code>__meta_consul_tagged_address_lan_ipv4="10.189.201.76"</code>	
<code>__meta_consul_tagged_address_wan="10.189.201.76"</code>	
<code>__meta_consul_tagged_address_wan_ipv4="10.189.201.76"</code>	
<code>__meta_consul_tags="pg,exporter,node-exporter"</code>	
<code>__metrics_path__="/debug/metrics"</code>	
<code>__scheme__="http"</code>	
<code>job="pg"</code>	

Labels

`pg_up{cls="pg-bench1-tt", ins="pg-bench1-tt-1", instance="10.189.201.76:9185", ip="10.189.201.76", job="pg", role="primary", svc="pg-bench1-tt-primary"}`

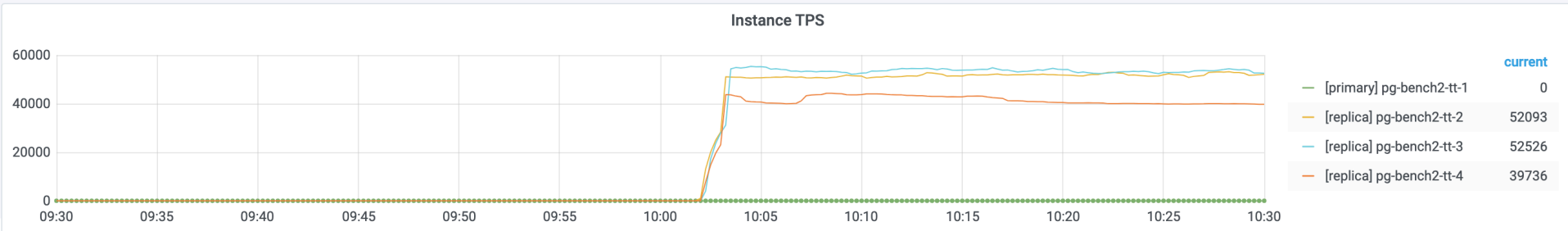
pgbouncer_stat_total_xact_count{cls="pg-bench2-tt", datname="pgbouncer", ins="pg-bench2-tt-1", instance="10.189.201.80:9127", ip="10.189.201.80", job="pg", role="primary", svc="pg-bench2-tt-primary"}	33439
pgbouncer_stat_total_xact_count{cls="pg-bench2-tt", datname="pgbouncer", ins="pg-bench2-tt-2", instance="10.189.201.74:9127", ip="10.189.201.74", job="pg", role="replica", svc="pg-bench2-tt-replica"}	33298
pgbouncer_stat_total_xact_count{cls="pg-bench2-tt", datname="pgbouncer", ins="pg-bench2-tt-3", instance="10.189.201.77:9127", ip="10.189.201.77", job="pg", role="replica", svc="pg-bench2-tt-replica"}	33432
pgbouncer_stat_total_xact_count{cls="pg-bench2-tt", datname="pgbouncer", ins="pg-bench2-tt-4", instance="10.189.201.83:9127", ip="10.189.201.83", job="pg", role="replica", svc="pg-bench2-tt-replica"}	33385
pgbouncer_stat_total_xact_count{cls="pg-bench2-tt", datname="putong-bench", ins="pg-bench2-tt-1", instance="10.189.201.80:9127", ip="10.189.201.80", job="pg", role="primary", svc="pg-bench2-tt-primary"}	113342730
pgbouncer_stat_total_xact_count{cls="pg-bench2-tt", datname="putong-bench", ins="pg-bench2-tt-2", instance="10.189.201.74:9127", ip="10.189.201.74", job="pg", role="replica", svc="pg-bench2-tt-replica"}	315569037
pgbouncer_stat_total_xact_count{cls="pg-bench2-tt", datname="putong-bench", ins="pg-bench2-tt-3", instance="10.189.201.77:9127", ip="10.189.201.77", job="pg", role="replica", svc="pg-bench2-tt-replica"}	326662649
pgbouncer_stat_total_xact_count{cls="pg-bench2-tt", datname="putong-bench", ins="pg-bench2-tt-4", instance="10.189.201.83:9127", ip="10.189.201.83", job="pg", role="replica", svc="pg-bench2-tt-replica"}	250227442

record: [pg:db:tps_realtime](#) | [pg:ins:tps_realtime](#) | [pg:cls:tps_realtime](#)
 expr: [irate\(pgbouncer_stat_total_xact_count\[1m\]\)](#) sum without(datname) (pg:db:tps_realtime) sum by(cls) (pg:ins:tps_realtime)

pg:ins:tps{cls="pg-bench2-tt", ins="pg-bench2-tt-1", instance="10.189.201.80:9127", ip="10.189.201.80", job="pg", role="primary", svc="pg-bench2-tt-primary"}	0
pg:ins:tps{cls="pg-bench2-tt", ins="pg-bench2-tt-2", instance="10.189.201.74:9127", ip="10.189.201.74", job="pg", role="replica", svc="pg-bench2-tt-replica"}	0
pg:ins:tps{cls="pg-bench2-tt", ins="pg-bench2-tt-3", instance="10.189.201.77:9127", ip="10.189.201.77", job="pg", role="replica", svc="pg-bench2-tt-replica"}	0
pg:ins:tps{cls="pg-bench2-tt", ins="pg-bench2-tt-4", instance="10.189.201.83:9127", ip="10.189.201.83", job="pg", role="replica", svc="pg-bench2-tt-replica"}	0

Cluster [pg-bench2-tt](#)

pg:cls:tps_realtime{cls="pg-bench2-tt"} **0.13333333333333333**



Metrics [pg:ins:tps{cls="\\$cls"}](#)

Graphic Interface

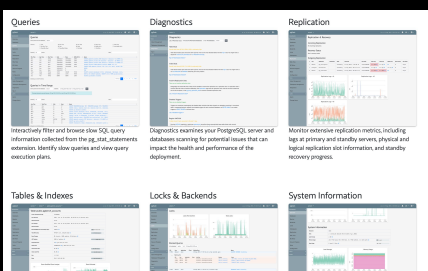
Graphic Interfaces candidates



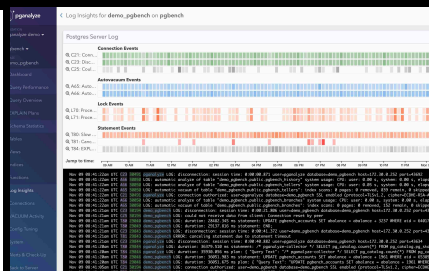
pgmonitor



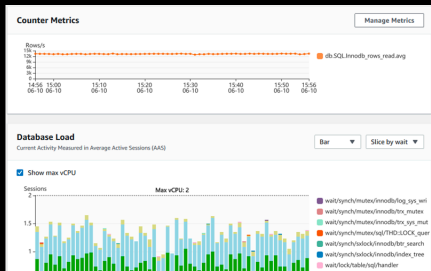
pgwatch



pgdash



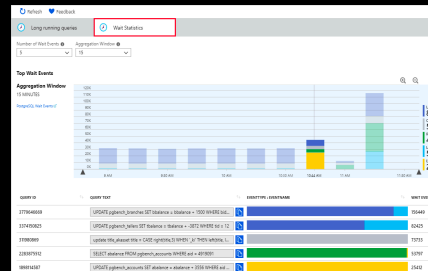
pganalyze



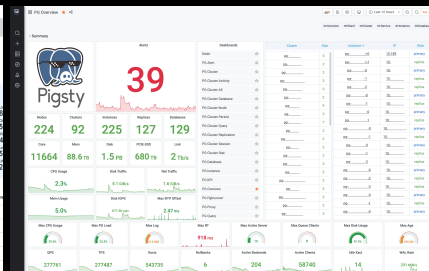
AWS RDS



Aliyun RDS



Azure RDS

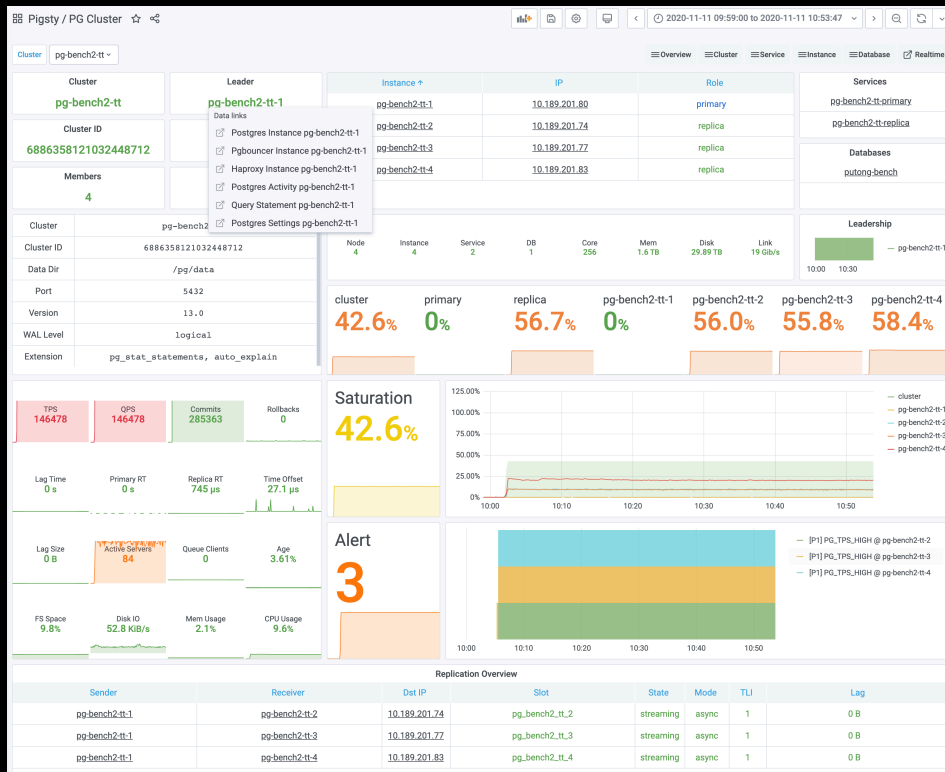


Pigsty

Magic with Grafana

Build sophisticated application with grafana dashboards

- Templates and variables
- Roll-up / Drill-down with links



PG Instance

the baseline dashboard

☰ Pigsty / PG Instance ☆ 🔗

    < 2020-10-22 15:09:01 to 2020-10-22 20:36:33 v > 🔍 ↻ v

Instance pg-bench2-tt-1 v

≡ Overview ≡ Shard ≡ Cluster ≡ Service ≡ Instance ≡ Database ↗ Realtime

> **Summary** (31 panels) ⋮

> **Node** (18 panels) ⋮

> **Node Detail** (25 panels) ⋮

> **Replication** (13 panels) ⋮

> **Transaction** (14 panels) ⋮

> **Query** (7 panels) ⋮

> **Statement** (7 panels) ⋮

> **Backend** (10 panels) ⋮

> **Pool** (8 panels) ⋮

> **Database** (8 panels) ⋮

> **Persist** (15 panels) ⋮

> **Exporter** (5 panels) ⋮

> **Daily Stats** (32 panels) ⋮

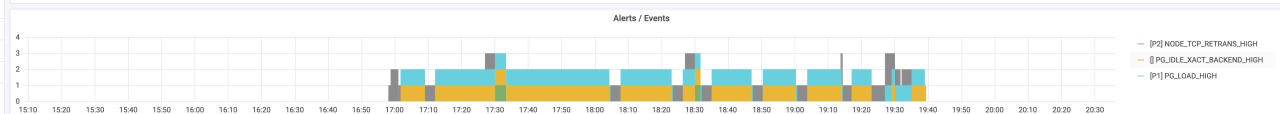
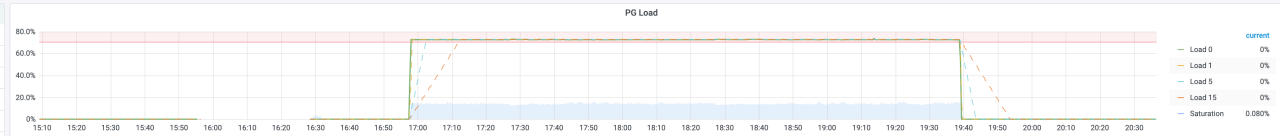
Summary of Instance

Summary

Instance pg-bench2-tt-1	Role primary	Instance ↑		IP	Role	Load	Services
Cluster pg-bench2-tt	Version 13.0	pg-bench2-tt-1	10.189.201.80	primary	<div style="width: 0%;"></div> 0%	pg-bench2-tt-primary	
Node 3.pg.bench.tt.bjs.p1staff.com	IP 10.189.201.80	pg-bench2-tt-2	10.189.201.74	replica	<div style="width: 0%;"></div> 0%	Databases ruteng-bench	
Status Primary : Up	PG Up	pg-bench2-tt-3	10.189.201.77	replica	<div style="width: 0%;"></div> 0%	PGB Exporter Up	
PG Uptime 4.2 hour	Node Uptime 10.3 week	pg-bench2-tt-4	10.189.201.83	replica	<div style="width: 0%;"></div> 0%		
		Pgbouncer Up	Node Up	PG Exporter Up			
		Sync Standby Disabled	Downstreams 3	Upstream IP ∅			



Info	Value
Cluster	pg-bench2-tt
Cluster ID	6886358121032448712
Data Dir	/pg/data
Port	5432
Conf Path	/pg/data/postgresql.conf
HBA Path	/pg/data/pg_hba.conf
Version	13.0
WAL Level	logical
Extension	pg_stat_statements, auto_explain

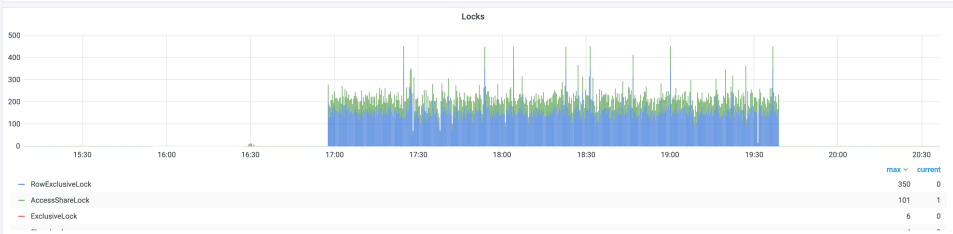
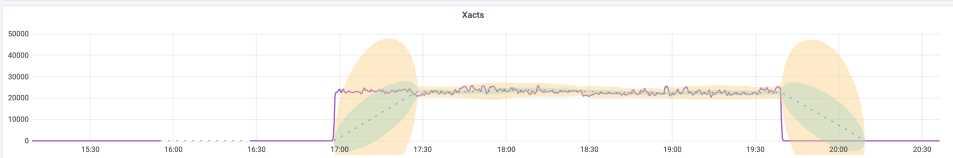
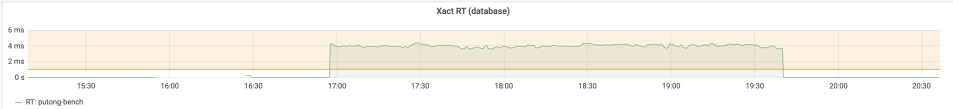
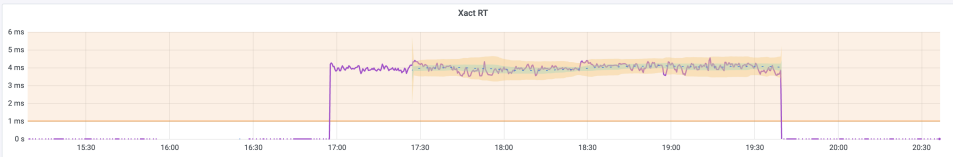
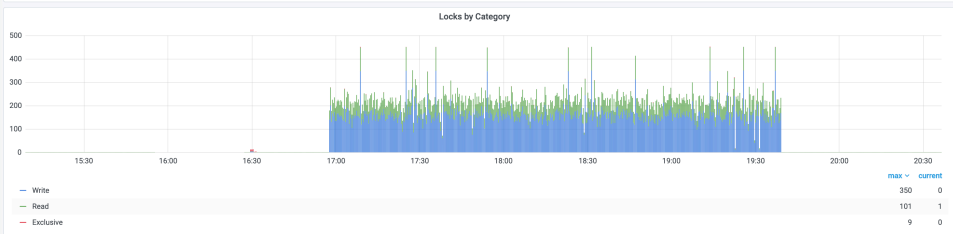
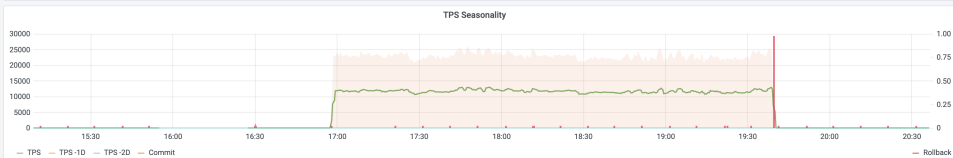
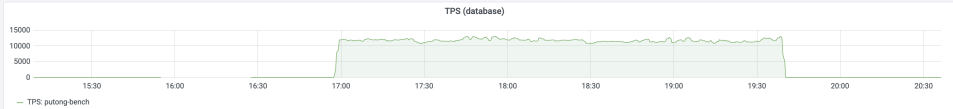
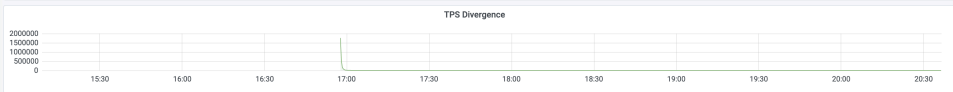
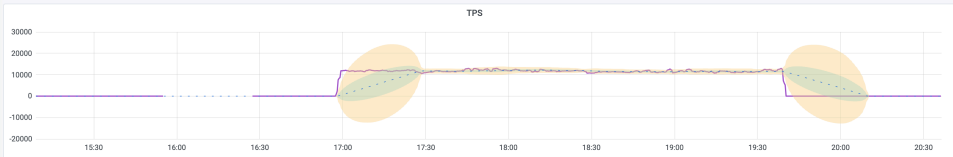
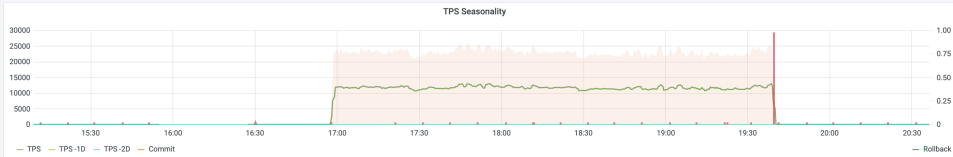


Node

Alerts 0	Aliveness Up	Uptime 10.3 week	Machine Physical	Disk /dev/sdb 3.598 TB	FS xfs	Mountpoint /var/backups	Avail 3.598 TB	Total 3.598 TB	Used <div style="width: 0.0%;"></div> 0.0%
Core 64	Mem 404.1 GB	Disk 7.9 TB	Link 20.0 Gb/s	rootfs 392 GB	rootfs /	/run 199 GB	417 GB	202 GB	<div style="width: 5.9%;"></div> 5.9%
Numa Disabled	Huge Page Disabled	NVME SSD Installed	Bond Active	tmpfs 2.842 TB	tmpfs /run	/export 2.842 TB	3.150 TB	<div style="width: 1.7%;"></div> 1.7%	<div style="width: 9.8%;"></div> 9.8%
CPU Usage 0.1%	Mem Usage 2.1%	Disk Traffic 1.2 MB/s	Net Traffic 21.9 kB/s	Interface	Mac	Broadcast	State	MTU	
				lo	00:00:00:00:00:00	00:00:00:00:00:00	unknown	65536	
				bond0	e4:43:4b:ce:53:50	ff:ff:ff:ff:ff:ff	up	1500	
				em1	e4:43:4b:ce:53:50	ff:ff:ff:ff:ff:ff	up	1500	
				em2	e4:43:4b:ce:53:50	ff:ff:ff:ff:ff:ff	up	1500	

Transaction

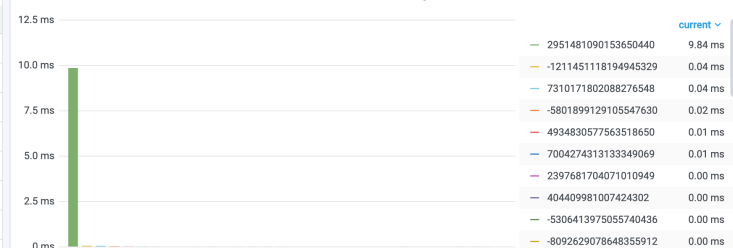
Transaction



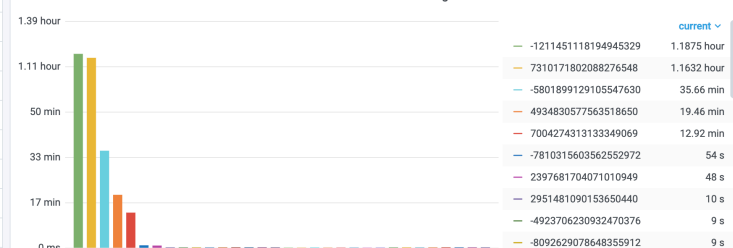
Instance Statements

Query	Database	Call	Call (rate1h)	Total	Total (rate1h)	RT
2397681704071010949	putong-bench	113,342,743	435	48.3 s	0.2 ms	0.00 ms
2951481090153650440	putong-bench	998	0.013	9.8 s	0.1 ms	9.84 ms
-8092629078648355912	putong-bench	2,168,704	8.4	9.4 s	0.0 ms	0.00 ms
-4923706230932470376	putong-bench	2,169,853	8.4	9.4 s	0.0 ms	0.00 ms
2788721198758318832	putong-bench	2,167,104	8.4	9.4 s	0.0 ms	0.00 ms
404409981007424302	putong-bench	2,167,422	8.3	9.4 s	0.0 ms	0.00 ms
6889589935041293338	putong-bench	2,166,171	8.3	9.4 s	0.0 ms	0.00 ms
-5306413975055740436	putong-bench	2,167,100	8.3	9.4 s	0.0 ms	0.00 ms
6536464278002642626	putong-bench	2,166,520	8.3	9.4 s	0.0 ms	0.00 ms
7424585686387853203	putong-bench	2,167,040	8.3	9.4 s	0.0 ms	0.00 ms
705717413705329971	putong-bench	2,167,494	8.3	9.4 s	0.0 ms	0.00 ms
-462252036383758422	putong-bench	2,166,081	8.3	9.4 s	0.0 ms	0.00 ms
2542143360725135881	putong-bench	2,166,065	8.3	9.4 s	0.0 ms	0.00 ms
3705418359037697713	putong-bench	2,166,062	8.3	9.4 s	0.0 ms	0.00 ms
7378823755771887209	putong-bench	2,167,063	8.3	9.4 s	0.0 ms	0.00 ms
-1291463353802802454	putong-bench	2,167,014	8.3	9.4 s	0.0 ms	0.00 ms
-1576044929010403223	putong-bench	2,165,653	8.3	9.4 s	0.0 ms	0.00 ms

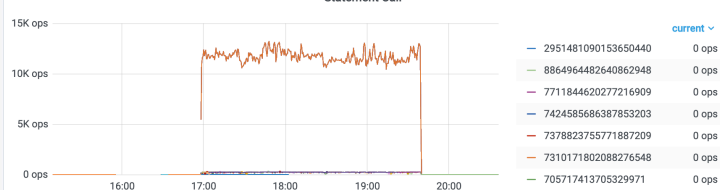
Statement RT Ranking



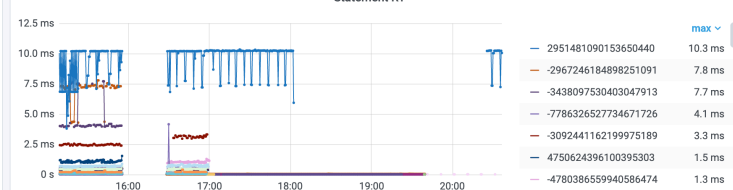
Statement Total Time Ranking



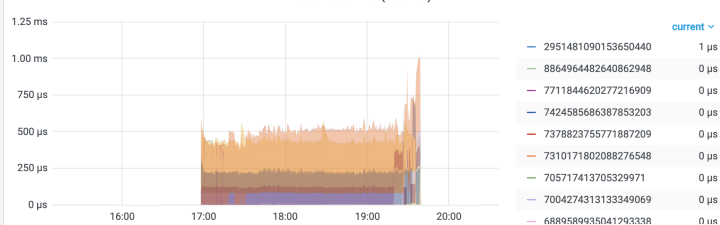
Statement Call



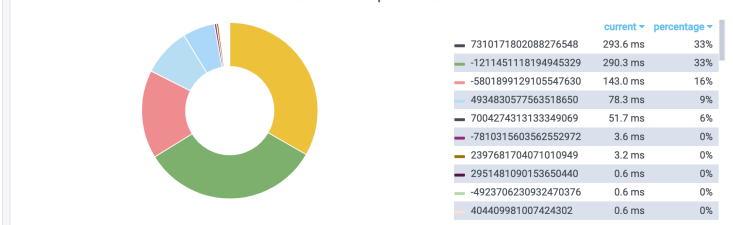
Statement RT



Statement Time (Stacked)



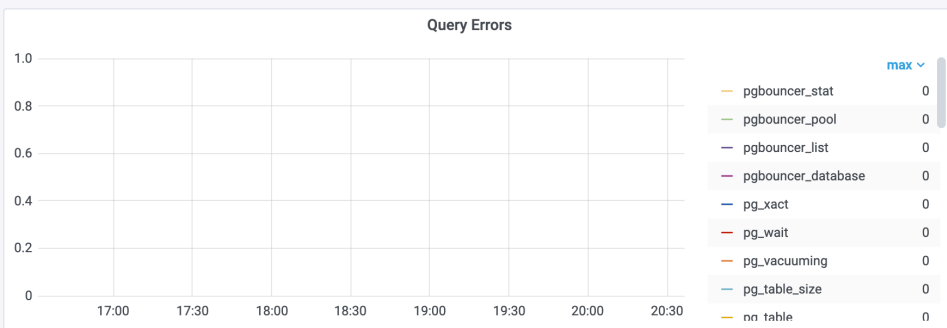
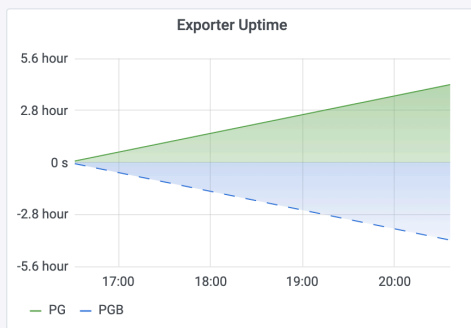
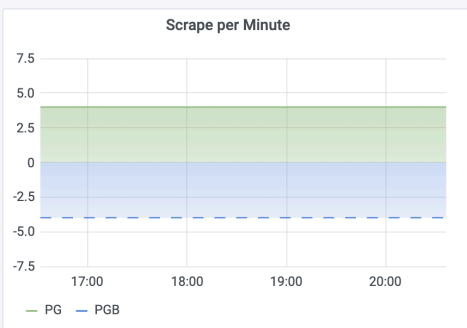
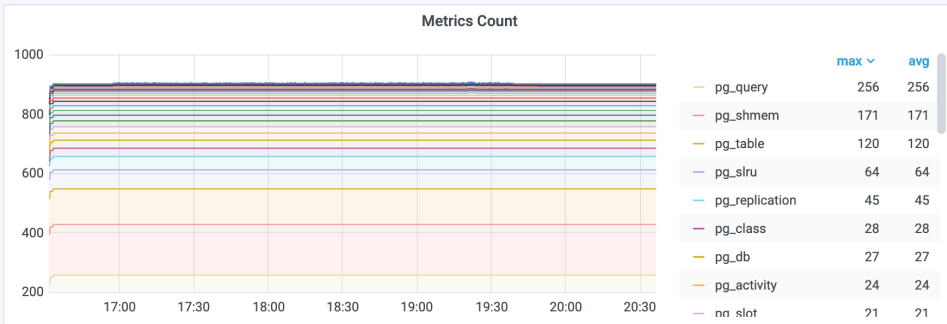
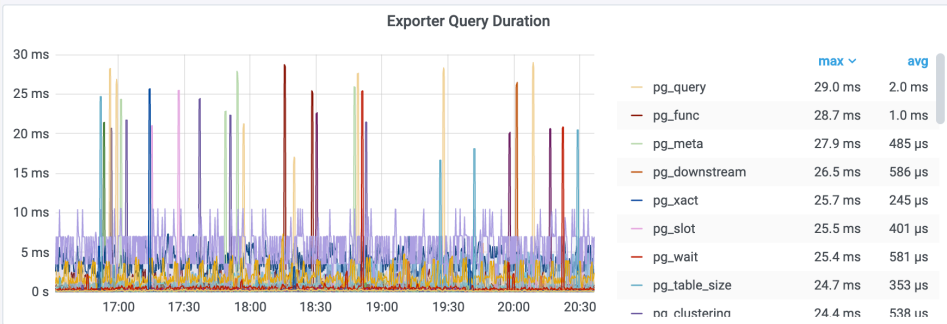
Statement Time Spent in Last 1h



PG Exporter

Self monitoring

▼ Exporter



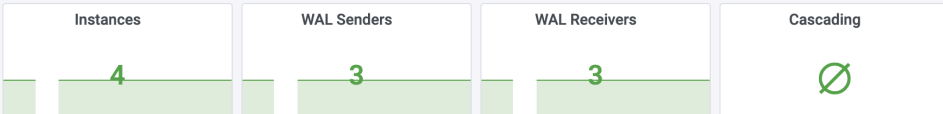
Replication Topo

Replication Topo

Sender	Receiver ↑	Dst IP	Slot	State	Mode	TLI	Lag
pg-bench2-tt-1	pg-bench2-tt-2	10.189.201.74	pg_bench2_tt_2	streaming	async	1	0 B
pg-bench2-tt-1	pg-bench2-tt-3	10.189.201.77	pg_bench2_tt_3	streaming	async	1	0 B
pg-bench2-tt-1	pg-bench2-tt-4	10.189.201.83	pg_bench2_tt_4	streaming	async	1	0 B

Primary Connection Info

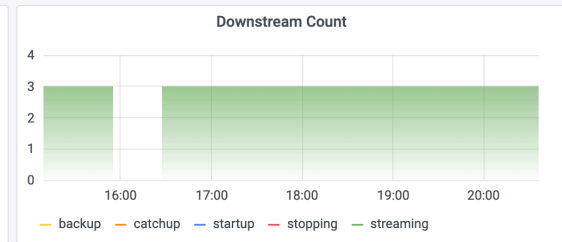
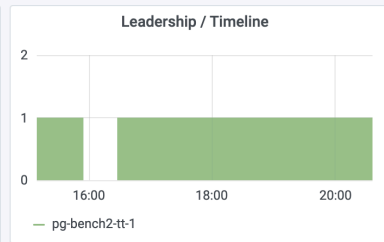
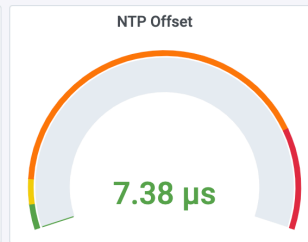
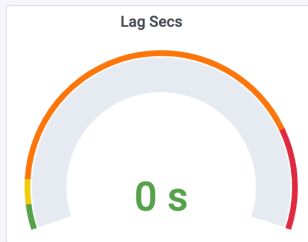
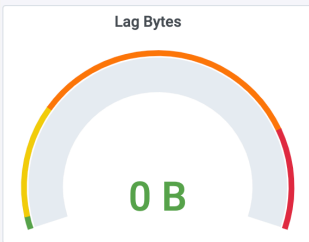
Instance	Upstream
pg-bench2-tt-1	
pg-bench2-tt-2	user=replicator passfile=/var/lib/pgsql/.pgpass host=10.189.201.80 port=5432 sslmode=prefer application_name=pg-bench2-tt-2 gssencmode=prefer channel_binding=prefer
pg-bench2-tt-3	user=replicator passfile=/var/lib/pgsql/.pgpass host=10.189.201.80 port=5432 sslmode=prefer application_name=pg-bench2-tt-3 gssencmode=prefer channel_binding=prefer



WAL Source (Primary/Bridge)			
Instance	IP	Role	Downstream
pg-bench2-tt-1	10.189.201.80	primary	3

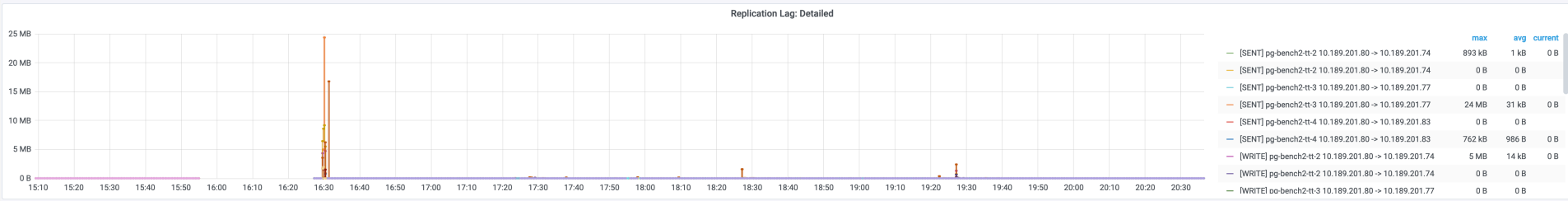
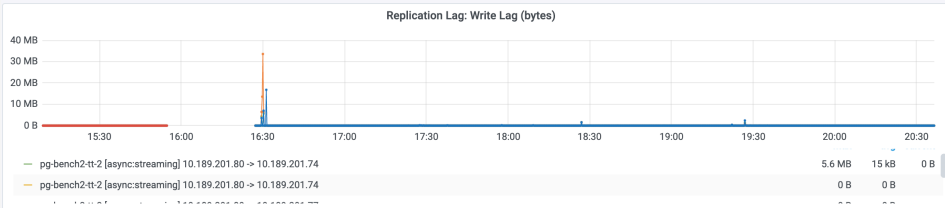
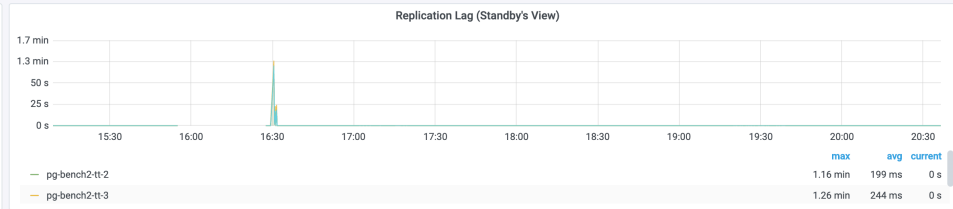
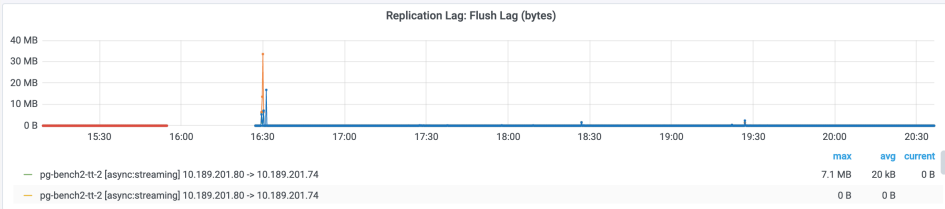
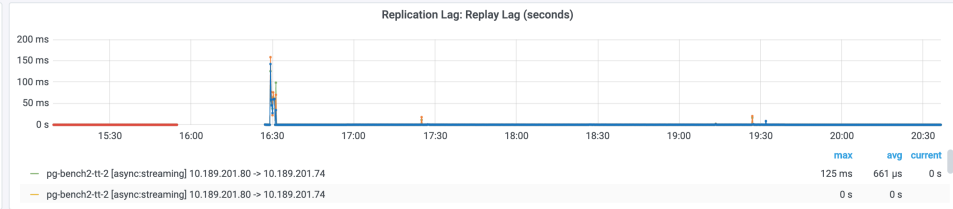
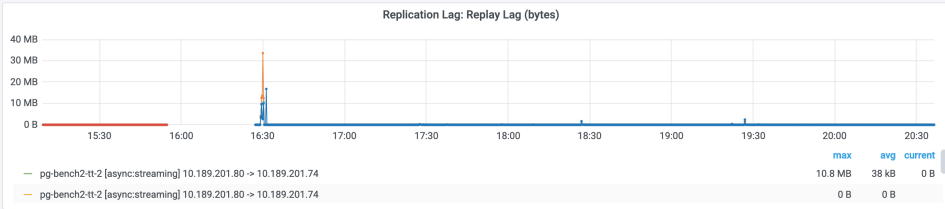
Sync Commit Mode
Disabled

Sync Standby Names
null



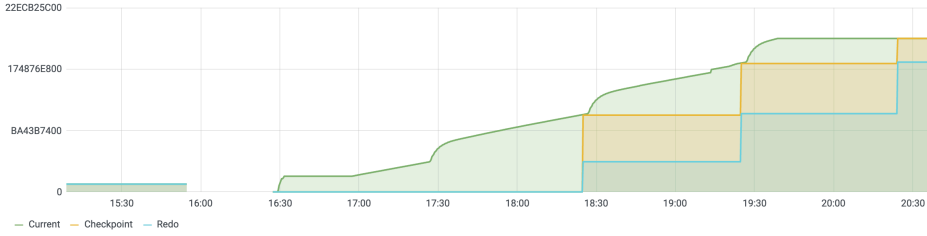
Replication Metrics

Replication Metrics

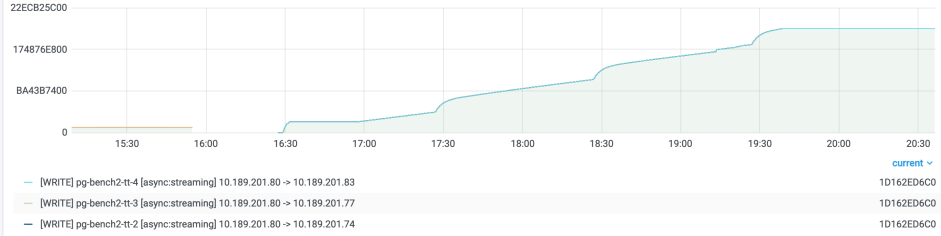


Replication Slot

Primary LSN Progress



Cluster LSN Progress



Replication Slots

Slot Name ↑	Retained Bytes	Restart LSN	XMIN	Active	Temporary
pg_bench2_tt_2	0 B	1D162ED6C0	113343815	Enabled	False
pg_bench2_tt_3	0 B	1D162ED6C0	113343815	Enabled	False
pg_bench2_tt_4	0 B	1D162ED6C0	113343815	Enabled	False

Max Slots

16

Slots

3

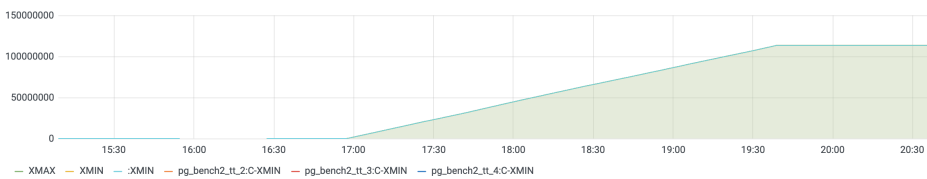
Active Slots

3

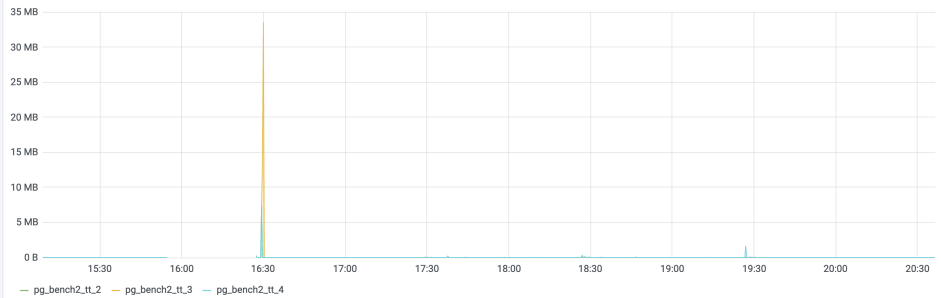
Temp Slots

0

Slot Retained XID



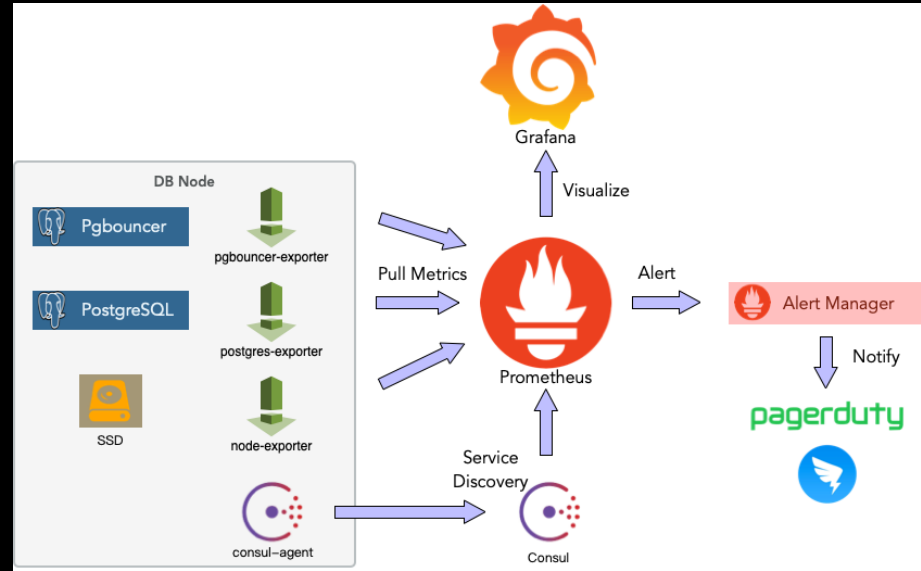
Slot Retained Bytes



Open Source

Pigsty loves open source embrace the open source monitoring stack

- Grafana
- Prometheus
- Alertmanager
- Consul / etcd
- PostgreSQL
- pg_exporter



Accessibility

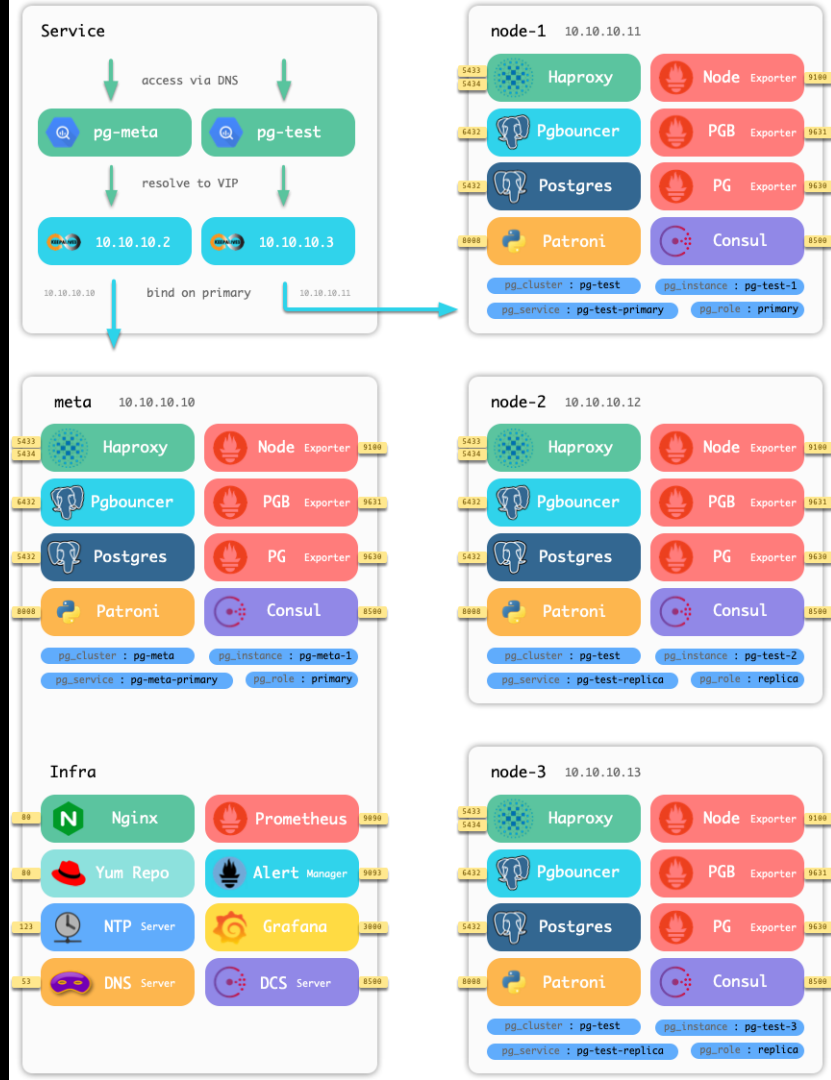
- Inner demo: <https://dba.p1staff.com>
- Public demo: <http://pigsty.cc>
- Local demo: <https://github.com/Vonng/pigsty>



Architecture

Open source, Best choice

- Sandbox based on vagrant
- Minimal four-node setup



Questions?



冯若航

克罗地亚



扫一扫上面的二维码图案，加我微信



Pigsty问题交流



该二维码7天内(11月23日前)有效，重新进入将更新