

**PostgreSQL数据库**

**健康巡检报告**

**北京海量数据技术股份有限公司**

2019年 4月

目录

[1. 概述及总结 3](#_Toc59658339)

[1.1 概要 3](#_Toc59658340)

[1.2 巡检范围 3](#_Toc59658341)

[1.3 总结建议 3](#_Toc59658342)

[2. PostgreSQL节点 4](#_Toc59658343)

[2.1 操作系统检查与分析结果 4](#_Toc59658344)

[2.1.1 操作系统配置文件、静态配置信息: 4](#_Toc59658345)

[2.1.2 selinux 动态配置信息 4](#_Toc59658346)

[2.1.3 Transparent Huge Pages 4](#_Toc59658347)

[2.2 数据库运行分析结果 5](#_Toc59658348)

[2.2.1 配置文件检查 5](#_Toc59658349)

[2.2.2 用户或数据库级别定制参数： 7](#_Toc59658350)

[2.2.3 数据库空间使用分析 7](#_Toc59658351)

[2.2.4 数据库连接分析 16](#_Toc59658352)

[2.2.5 数据库性能分析 17](#_Toc59658353)

[2.2.6 数据库垃圾分析 19](#_Toc59658354)

[2.2.7 数据库年龄分析 59](#_Toc59658355)

[2.2.8 数据库XLOG, 流复制状态分析 63](#_Toc59658356)

[2.2.9 重置统计信息 64](#_Toc59658357)

1. 概述及总结
   1. 概要

数据库在整个业务系统中处于非常核心的地位，数据库的性能好坏将直接影响到整个应用系统的性能。但往往在应用系统实际运行过程中，由于系统数据量的增加、业务模块应用逻辑的修改、应用版本变更、用户量增长等各种原因都可能使数据库性能下降，从而导致应用系统性能下降，影响用户感知。因此需要定期对数据库进行全面的性能分析，分析性能变化趋势及产生这些变化的原因，以便做出优化调整，保持应用系统良好的性能。

* 1. 巡检范围

|  |  |  |
| --- | --- | --- |
| **序号** | **数据库** | **数据库版本** |
| 1 | PostgreSQL主点 | PostgreSQL 10.5 |

* 1. 总结建议

|  |  |  |
| --- | --- | --- |
| **业务系统** | **分析项目** | **调整建议** |
| PostgreSQL主节点 | 操作系统配置文件、静态配置信息 | /etc/sysctl.conf中存在建议修改的配置，建议修改的参数:  kernel.shmmax=3278268006 #物理内存的40%  kernel.shmall=800358 #kernel.shmmax/操作系统block\_size |
| Transparent Huge Pages | Transparent Huge Pages为开启状态，建议关闭Transparent Huge Pages。 |
| 数据库配置文件检查 | postgresql.conf中存在建议修改的配置，建议修改的参数:  shared\_buffers = 3126MB  log\_rotation\_size = 100MB #这个参数决定一个个体日志文件的最大尺寸，当前为10MB，建议根据实际情况增大。 |
| 数据库性能分析 | 存在1张索引数超过4的表，根据实际业务情况进行调整。 |
| 数据库垃圾分析 | 1. ecipkongdb.ratelimiting\_metrics、ecipkongdb.targets、cmdb.ins\_obj、gsikongdb.schema\_migrations、distjobdb.saturn\_statistics表膨胀较大，根据实际情况，回收膨胀的空间。 2. ecipkongdb.ratelimiting\_metrics、ecipkongdb.targets、ecipkongdb.cluster\_events、amasdb.script\_info索引膨胀较大，会影响性能，根据实际情况，重建索引。 |

1. PostgreSQL节点
   1. 操作系统检查与分析结果

|  |  |  |
| --- | --- | --- |
| **栏目** | **状态** | **调整建议** |
| 操作系统配置文件、静态配置信息 | 存在建议修改的配置 | 详见2.1.1 |
| selinux 动态配置信息 | 正常 | 暂无 |
| Transparent Huge Pages | Transparent Huge Pages 为开启状态 | 建议关闭Transparent Huge Pages |

* + 1. 操作系统配置文件、静态配置信息:

----->>>---->>> 操作系统配置文件 静态配置信息:

----->>>---->>> /etc/sysctl.conf

net.ipv6.conf.all.disable\_ipv6=1

net.ipv6.conf.default.disable\_ipv6=1

----->>>---->>> /etc/security/limits.conf

----->>>---->>> /etc/security/limits.d/\*.conf

/etc/security/limits.d/20-nproc.conf :

\* soft nproc 4096

root soft nproc unlimited

建议的操作系统配置(根据实际情况修改) :

vi /etc/sysctl.conf

kernel.shmmax=3278268006 #物理内存的40%

kernel.shmall=800358 #kernel.shmmax/操作系统block\_size

* + 1. selinux 动态配置信息

----->>>---->>> selinux 动态配置信息:

usage: getsebool -a or getsebool boolean...

SELinux status: enabled

SELinuxfs mount: /sys/fs/selinux

SELinux root directory: /etc/selinux

Loaded policy name: targeted

Current mode: permissive

Mode from config file: disabled

Policy MLS status: enabled

Policy deny\_unknown status: allowed

Max kernel policy version: 28

* + 1. Transparent Huge Pages

----->>>---->>> 建议禁用Transparent Huge Pages (THP):

[always] madvise never

[always] madvise never

* 1. 数据库运行分析结果

|  |  |  |
| --- | --- | --- |
| **栏目** | **状态** | **调整建议** |
| 配置文件检查 | postgresql.conf中存在建议修改的配置 | 详见2.2.1 |
| 用户或数据库级别定制参数 | 正常 | 暂无 |
| 数据库空间使用分析 | 正常 | 暂无 |
| 数据库连接分析 | 正常 | 暂无 |
| 数据库性能分析 | 存在1张索引数超过4并且SIZE大于10MB的表 | 根据实际业务情况进行调整 |
| 数据库垃圾分析 | 正常 | 暂无 |
| 数据库年龄分析 | 正常 | 暂无 |
| 数据库XLOG, 流复制状态分析 | 正常 | 暂无 |
| 重置统计信息 | 正常 | 暂无 |

* + 1. 配置文件检查

----->>>---->>> 获取recovery.done md5值:

a106c266dd372da5ec7fc29410dfc5c4 /u01/app/PostgreSQL/10.5/data/recovery.done

建议:

主备md5值一致(判断主备配置文件是否内容一致的一种手段, 或者使用diff).

----->>>---->>> 获取recovery.done配置:

standby\_mode = 'on'

primary\_conninfo = 'user=replica password=replica host=11.6.76.27 port=5432 sslmode=prefer sslcompression=1 krbsrvname=postgres target\_session\_attrs=any'

建议:

在primary\_conninfo中不要配置密码, 容易泄露. 建议为流复制用户创建replication角色的用户, 并且配置pg\_hba.conf只允许需要的来源IP连接.

----->>>---->>> 获取pg\_hba.conf md5值:

6a07d8e5417d9b4856cd02c488fbd2ef /u01/app/PostgreSQL/10.5/data/pg\_hba.conf

建议:

主备md5值一致(判断主备配置文件是否内容一致的一种手段, 或者使用diff).

----->>>---->>> 获取pg\_hba.conf配置:

local all all md5

host all all 127.0.0.1/32 md5

host all all ::1/128 md5

local replication all md5

host replication all 127.0.0.1/32 md5

host replication all ::1/128 md5

host all all 0.0.0.0/0 md5

host replication replica 11.6.76.27/32 md5

host replication replica 11.6.76.28/32 md5

建议:

主备配置尽量保持一致, 注意trust和password认证方法的危害(password方法 验证时网络传输密码明文, 建议改为md5), 建议除了unix socket可以使用trust以外, 其他都使用md5或者LDAP认证方法.

建议先设置白名单(超级用户允许的来源IP, 可以访问的数据库), 再设置黑名单(不允许超级用户登陆, reject), 再设置白名单(普通应用), 参考pg\_hba.conf中的描述.

----->>>---->>> 获取postgresql.conf md5值:

fc13674c42ff5b0c99c94604d4b0b2e3 /u01/app/PostgreSQL/10.5/data/postgresql.conf

建议:

主备md5值一致(判断主备配置文件是否内容一致的一种手段, 或者使用diff).

----->>>---->>> 获取postgresql.conf配置:

listen\_addresses = '\*'

port = 5432

max\_connections = 100

shared\_buffers = 4096MB

work\_mem = 4MB

dynamic\_shared\_memory\_type = posix

wal\_level = replica

wal\_log\_hints = on

archive\_mode = on

archive\_command = 'test ! -f /u01/pg\_archivedir/%f && cp %p /u01/pg\_archivedir/%f'

max\_wal\_senders = 10

wal\_keep\_segments = 256

wal\_sender\_timeout = 60s

hot\_standby = on

max\_standby\_streaming\_delay = 30s

wal\_receiver\_status\_interval = 10s

hot\_standby\_feedback = on

log\_destination = 'stderr'

logging\_collector = on

log\_directory = 'log'

log\_filename = 'postgresql-%Y-%m-%d.log'

log\_truncate\_on\_rotation = on

log\_rotation\_age = 1d

log\_rotation\_size = 10MB

log\_timezone = 'PRC'

datestyle = 'iso, ymd'

timezone = 'PRC'

lc\_messages = 'zh\_CN.utf8'

lc\_monetary = 'zh\_CN.utf8'

lc\_numeric = 'zh\_CN.utf8'

lc\_time = 'zh\_CN.utf8'

default\_text\_search\_config = 'pg\_catalog.simple'

pgpool.pg\_ctl = '/u01/app/PostgreSQL/10.5/bin/pg\_ctl'

建议:

主备配置尽量保持一致, 配置合理的参数值.

建议修改的参数列表如下:

shared\_buffers = 3126MB

* + 1. 用户或数据库级别定制参数：

----->>>---->>> 用户或数据库级别定制参数:

setdatabase | setrole | setconfig

-------------+---------+-----------------------------------------------

0 | 24991 | {search\_path=amas\_adm}

0 | 25027 | {"search\_path=public, pg\_catalog"}

0 | 25028 | {search\_path=kong\_adm}

0 | 10 | {"search\_path=\"$user\", public, pg\_catalog"}

(4 rows)

建议:

定制参数需要关注, 优先级高于数据库的启动参数和配置文件中的参数, 特别是排错时需要关注.

* + 1. 数据库空间使用分析

----->>>---->>> 输出文件系统剩余空间:

Filesystem 1M-blocks Used Available Use% Mounted on

/dev/mapper/rootvg-rootlv 10230 1318 8913 13% /

devtmpfs 3893 0 3893 0% /dev

tmpfs 3909 1 3908 1% /dev/shm

tmpfs 3909 394 3516 11% /run

tmpfs 3909 0 3909 0% /sys/fs/cgroup

/dev/mapper/rootvg-usrlv 10230 3408 6823 34% /usr

/dev/mapper/rootvg-optlv 10230 2136 8095 21% /opt

/dev/mapper/rootvg-applv 51175 33 51143 1% /app

/dev/mapper/rootvg-varlv 10230 877 9354 9% /var

/dev/sda1 297 148 150 50% /boot

tmpfs 782 1 782 1% /run/user/42

tmpfs 782 0 782 0% /run/user/0

/dev/mapper/rootvg-u01lv 49261 9520 37233 21% /u01

/dev/mapper/datavg-datalv 49261 526 46227 2% /pgdata

建议:

注意预留足够的空间给数据库.

----->>>---->>> 输出表空间对应目录:

/u01/app/PostgreSQL/10.5/data

total 8

drwx------. 2 postgres postgres 4096 Mar 15 15:33 .

drwx------. 20 postgres postgres 4096 Apr 4 06:03 ..

lrwxrwxrwx. 1 postgres postgres 16 Mar 13 18:17 24616 -> /pgdata/ecipkong

lrwxrwxrwx. 1 postgres postgres 14 Mar 13 18:17 24992 -> /pgdata/amasdb

lrwxrwxrwx. 1 postgres postgres 14 Mar 13 18:17 25029 -> /pgdata/kongdb

lrwxrwxrwx. 1 postgres postgres 13 Mar 13 18:17 25408 -> /pgdata/pubdb

lrwxrwxrwx. 1 postgres postgres 12 Mar 13 18:17 25527 -> /pgdata/cmdb

lrwxrwxrwx. 1 postgres postgres 16 Mar 13 18:17 26033 -> /pgdata/gskongdb

lrwxrwxrwx. 1 postgres postgres 17 Mar 13 18:17 29752 -> /pgdata/gsikongdb

lrwxrwxrwx. 1 postgres postgres 17 Mar 15 15:33 32940 -> /pgdata/distjobdb

建议:

注意表空间如果不是软链接, 注意是否刻意所为, 正常情况下应该是软链接.

----->>>---->>> 输出表空间使用情况:

spcname | pg\_tablespace\_location | pg\_size\_pretty

----------------+------------------------+----------------

ecip\_kong\_data | /pgdata/ecipkong | 375 MB

cmdb\_data | /pgdata/cmdb | 43 MB

pg\_default | | 31 MB

pub\_data | /pgdata/pubdb | 11 MB

dist\_job\_data | /pgdata/distjobdb | 9705 kB

gsi\_kong\_data | /pgdata/gsikongdb | 9489 kB

kong\_data | /pgdata/kongdb | 9457 kB

amas\_data | /pgdata/amasdb | 8169 kB

gskong\_data | /pgdata/gskongdb | 7905 kB

pg\_global | | 597 kB

(10 rows)

建议:

注意检查表空间所在文件系统的剩余空间。

----->>>---->>> 输出数据库使用情况:

datname | pg\_size\_pretty

------------+----------------

ecipkongdb | 375 MB

cmdb | 43 MB

pubdb | 11 MB

distjobdb | 9693 kB

gsikongdb | 9477 kB

kong | 9445 kB

amasdb | 8157 kB

postgres | 8005 kB

ha\_test | 7909 kB

gskongdb | 7893 kB

template1 | 7893 kB

template0 | 7869 kB

(12 rows)

建议:

注意检查数据库的大小, 是否需要清理历史数据.

----->>>---->>> TOP 10 size对象:

current\_database | nspname | relname | relkind | pg\_size\_pretty | seq\_scan | seq\_tup\_read | idx\_scan | idx\_tup\_fetch | n\_tup\_ins | n\_tup\_upd | n\_tup\_del | n\_tup\_hot\_upd | n\_live\_tup | n\_dead\_tup

------------------+------------+----------------+---------+----------------+----------+--------------+----------+---------------+-----------+-----------+-----------+---------------+------------+------------

postgres | pg\_catalog | pg\_proc | r | 592 kB | 6 | 17415 | 3793200 | 4053077 | 2 | 0 | 0 | 0 | 2 | 0

postgres | pg\_catalog | pg\_depend | r | 448 kB | 0 | 0 | 12 | 11 | 4 | 0 | 0 | 0 | 4 | 0

postgres | pg\_catalog | pg\_collation | r | 392 kB | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0

postgres | pg\_catalog | pg\_attribute | r | 392 kB | 16 | 13233 | 3392785 | 8308283 | 0 | 0 | 0 | 0 | 0 | 0

postgres | pg\_catalog | pg\_description | r | 312 kB | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0

postgres | pg\_catalog | pg\_statistic | r | 128 kB | 0 | 0 | 6694 | 6516 | 0 | 0 | 0 | 0 | 0 | 0

postgres | pg\_catalog | pg\_operator | r | 120 kB | 0 | 0 | 211558 | 490420 | 0 | 0 | 0 | 0 | 0 | 0

postgres | pg\_catalog | pg\_rewrite | r | 96 kB | 0 | 0 | 78927 | 115073 | 0 | 0 | 0 | 0 | 0 | 0

postgres | pg\_catalog | pg\_class | r | 88 kB | 78281 | 20978503 | 2893078 | 2892941 | 0 | 0 | 0 | 0 | 0 | 0

postgres | pg\_catalog | pg\_type | r | 72 kB | 8 | 3072 | 2145055 | 2084708 | 0 | 0 | 0 | 0 | 0 | 0

(10 rows)

current\_database | nspname | relname | relkind | pg\_size\_pretty | seq\_scan | seq\_tup\_read | idx\_scan | idx\_tup\_fetch | n\_tup\_ins | n\_tup\_upd | n\_tup\_del | n\_tup\_hot\_upd | n\_live\_tup | n\_dead\_tup

------------------+------------+----------------+---------+----------------+----------+--------------+----------+---------------+-----------+-----------+-----------+---------------+------------+------------

ha\_test | pg\_catalog | pg\_proc | r | 592 kB | 1 | 2899 | 760 | 1032 | 1 | 0 | 0 | 0 | 1 | 0

ha\_test | pg\_catalog | pg\_depend | r | 432 kB | 0 | 0 | 8 | 7 | 2 | 0 | 0 | 0 | 2 | 0

ha\_test | pg\_catalog | pg\_collation | r | 392 kB | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0

ha\_test | pg\_catalog | pg\_attribute | r | 384 kB | 14 | 7833 | 7651 | 21491 | 0 | 0 | 0 | 0 | 0 | 0

ha\_test | pg\_catalog | pg\_description | r | 312 kB | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0

ha\_test | pg\_catalog | pg\_statistic | r | 128 kB | 0 | 0 | 246 | 158 | 0 | 0 | 0 | 0 | 0 | 0

ha\_test | pg\_catalog | pg\_operator | r | 120 kB | 0 | 0 | 442 | 1336 | 0 | 0 | 0 | 0 | 0 | 0

ha\_test | pg\_catalog | pg\_rewrite | r | 96 kB | 0 | 0 | 602 | 610 | 0 | 0 | 0 | 0 | 0 | 0

ha\_test | pg\_catalog | pg\_class | r | 88 kB | 11381 | 2989266 | 7976 | 7965 | 0 | 0 | 0 | 0 | 0 | 0

ha\_test | pg\_catalog | pg\_type | r | 72 kB | 3 | 1137 | 527 | 513 | 0 | 0 | 0 | 0 | 0 | 0

(10 rows)

current\_database | nspname | relname | relkind | pg\_size\_pretty | seq\_scan | seq\_tup\_read | idx\_scan | idx\_tup\_fetch | n\_tup\_ins | n\_tup\_upd | n\_tup\_del | n\_tup\_hot\_upd | n\_live\_tup | n\_dead\_tup

------------------+------------+----------------------+---------+----------------+----------+---------------+----------+---------------+-----------+-----------+-----------+---------------+------------+------------

ecipkongdb | public | ratelimiting\_metrics | r | 166 MB | 3531028 | 1610666070868 | 0 | 0 | 16592 | 6759 | 0 | 6549 | 9962 | 7313

ecipkongdb | public | targets | r | 1320 kB | 406136 | 247863463 | 157 | 323 | 172 | 0 | 40 | 0 | 756 | 60

ecipkongdb | pg\_catalog | pg\_proc | r | 608 kB | 2 | 5818 | 10108781 | 10623248 | 0 | 0 | 0 | 0 | 0 | 0

ecipkongdb | pg\_catalog | pg\_attribute | r | 472 kB | 14 | 9639 | 21926551 | 105668317 | 0 | 0 | 0 | 0 | 0 | 0

ecipkongdb | pg\_catalog | pg\_depend | r | 464 kB | 0 | 0 | 91 | 655 | 0 | 0 | 0 | 0 | 0 | 0

ecipkongdb | pg\_catalog | pg\_collation | r | 392 kB | 0 | 0 | 91 | 0 | 0 | 0 | 0 | 0 | 0 | 0

ecipkongdb | pg\_catalog | pg\_description | r | 312 kB | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0

ecipkongdb | pg\_catalog | pg\_statistic | r | 200 kB | 0 | 0 | 709859 | 282456 | 0 | 61 | 0 | 59 | 0 | 17

ecipkongdb | pg\_catalog | pg\_operator | r | 120 kB | 0 | 0 | 828919 | 2696974 | 0 | 0 | 0 | 0 | 0 | 0

ecipkongdb | pg\_catalog | pg\_class | r | 120 kB | 1956810 | 30848756 | 42787391 | 42708009 | 0 | 0 | 0 | 0 | 0 | 0

(10 rows)

current\_database | nspname | relname | relkind | pg\_size\_pretty | seq\_scan | seq\_tup\_read | idx\_scan | idx\_tup\_fetch | n\_tup\_ins | n\_tup\_upd | n\_tup\_del | n\_tup\_hot\_upd | n\_live\_tup | n\_dead\_tup

------------------+------------+----------------+---------+----------------+----------+--------------+----------+---------------+-----------+-----------+-----------+---------------+------------+------------

amasdb | pg\_catalog | pg\_proc | r | 592 kB | 1 | 2900 | 756 | 1030 | 0 | 0 | 0 | 0 | 0 | 0

amasdb | pg\_catalog | pg\_depend | r | 440 kB | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0

amasdb | pg\_catalog | pg\_attribute | r | 400 kB | 14 | 8223 | 7683 | 21850 | 0 | 0 | 0 | 0 | 0 | 0

amasdb | pg\_catalog | pg\_collation | r | 392 kB | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0

amasdb | pg\_catalog | pg\_description | r | 320 kB | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0

amasdb | pg\_catalog | pg\_statistic | r | 152 kB | 0 | 0 | 246 | 158 | 0 | 0 | 0 | 0 | 0 | 0

amasdb | pg\_catalog | pg\_operator | r | 120 kB | 0 | 0 | 442 | 1336 | 0 | 0 | 0 | 0 | 0 | 0

amasdb | pg\_catalog | pg\_rewrite | r | 96 kB | 0 | 0 | 602 | 610 | 0 | 0 | 0 | 0 | 0 | 0

amasdb | pg\_catalog | pg\_class | r | 88 kB | 11381 | 3091640 | 8046 | 8035 | 0 | 0 | 0 | 0 | 0 | 0

amasdb | pg\_catalog | pg\_type | r | 72 kB | 3 | 1158 | 527 | 513 | 0 | 0 | 0 | 0 | 0 | 0

(10 rows)

current\_database | nspname | relname | relkind | pg\_size\_pretty | seq\_scan | seq\_tup\_read | idx\_scan | idx\_tup\_fetch | n\_tup\_ins | n\_tup\_upd | n\_tup\_del | n\_tup\_hot\_upd | n\_live\_tup | n\_dead\_tup

------------------+------------+----------------+---------+----------------+----------+--------------+----------+---------------+-----------+-----------+-----------+---------------+------------+------------

kong | pg\_catalog | pg\_proc | r | 600 kB | 2 | 5818 | 51087 | 88895 | 0 | 0 | 0 | 0 | 0 | 0

kong | pg\_catalog | pg\_attribute | r | 472 kB | 14 | 9639 | 139780 | 281068 | 0 | 0 | 0 | 0 | 0 | 0

kong | pg\_catalog | pg\_depend | r | 464 kB | 0 | 0 | 10 | 99 | 0 | 0 | 0 | 0 | 0 | 0

kong | pg\_catalog | pg\_collation | r | 392 kB | 0 | 0 | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 0

kong | pg\_catalog | pg\_description | r | 312 kB | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0

kong | pg\_catalog | pg\_statistic | r | 176 kB | 0 | 0 | 54859 | 18778 | 0 | 0 | 0 | 0 | 0 | 0

kong | pg\_catalog | pg\_operator | r | 120 kB | 0 | 0 | 54803 | 241492 | 0 | 0 | 0 | 0 | 0 | 0

kong | pg\_catalog | pg\_rewrite | r | 96 kB | 0 | 0 | 607 | 615 | 0 | 0 | 0 | 0 | 0 | 0

kong | pg\_catalog | pg\_class | r | 96 kB | 78292 | 28924324 | 157674 | 150518 | 0 | 0 | 0 | 0 | 0 | 0

kong | pg\_catalog | pg\_type | r | 88 kB | 3 | 1329 | 139850 | 137382 | 0 | 0 | 0 | 0 | 0 | 0

(10 rows)

current\_database | nspname | relname | relkind | pg\_size\_pretty | seq\_scan | seq\_tup\_read | idx\_scan | idx\_tup\_fetch | n\_tup\_ins | n\_tup\_upd | n\_tup\_del | n\_tup\_hot\_upd | n\_live\_tup | n\_dead\_tup

------------------+------------+----------------------+---------+----------------+----------+--------------+----------+---------------+-----------+-----------+-----------+---------------+------------+------------

pubdb | pg\_catalog | pg\_statistic | r | 608 kB | 0 | 0 | 6974 | 6821 | 0 | 6276 | 0 | 5617 | 675 | 176

pubdb | pg\_catalog | pg\_proc | r | 592 kB | 3 | 8695 | 1803 | 2137 | 1 | 0 | 0 | 0 | 1 | 0

pubdb | pg\_catalog | pg\_attribute | r | 528 kB | 212 | 10221 | 53208 | 145382 | 0 | 0 | 0 | 0 | 0 | 0

pubdb | pg\_catalog | pg\_depend | r | 448 kB | 0 | 0 | 8 | 7 | 2 | 0 | 0 | 0 | 2 | 0

pubdb | pg\_catalog | pg\_collation | r | 392 kB | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0

pubdb | pg\_catalog | pg\_description | r | 352 kB | 0 | 0 | 42 | 34 | 0 | 0 | 0 | 0 | 0 | 0

pubdb | public | md\_it\_intfc\_call\_rel | r | 216 kB | 15 | 0 | 0 | 0 | 18868 | 0 | 0 | 0 | 1306 | 0

pubdb | public | md\_it\_sub\_sys | r | 168 kB | 19 | 2220 | 4 | 4 | 8319 | 0 | 0 | 0 | 556 | 0

pubdb | public | md\_it\_app\_svc | r | 144 kB | 0 | 0 | | | 10155 | 0 | 0 | 0 | 677 | 0

pubdb | pg\_catalog | pg\_operator | r | 120 kB | 0 | 0 | 1005 | 2751 | 0 | 0 | 0 | 0 | 0 | 0

(10 rows)

current\_database | nspname | relname | relkind | pg\_size\_pretty | seq\_scan | seq\_tup\_read | idx\_scan | idx\_tup\_fetch | n\_tup\_ins | n\_tup\_upd | n\_tup\_del | n\_tup\_hot\_upd | n\_live\_tup | n\_dead\_tup

------------------+------------+----------------+---------+----------------+----------+--------------+----------+---------------+-----------+-----------+-----------+---------------+------------+------------

cmdb | public | ins\_obj | r | 24 MB | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0

cmdb | pg\_catalog | pg\_proc | r | 592 kB | 2 | 5798 | 6100 | 6896 | 1 | 0 | 0 | 0 | 1 | 0

cmdb | pg\_catalog | pg\_depend | r | 440 kB | 0 | 0 | 8 | 7 | 2 | 0 | 0 | 0 | 2 | 0

cmdb | pg\_catalog | pg\_collation | r | 392 kB | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0

cmdb | pg\_catalog | pg\_attribute | r | 384 kB | 14 | 7938 | 41278 | 105461 | 0 | 0 | 0 | 0 | 0 | 0

cmdb | pg\_catalog | pg\_description | r | 312 kB | 0 | 0 | 16 | 6 | 0 | 0 | 0 | 0 | 0 | 0

cmdb | pg\_catalog | pg\_statistic | r | 144 kB | 0 | 0 | 324 | 226 | 0 | 7 | 0 | 0 | 0 | 7

cmdb | pg\_catalog | pg\_operator | r | 120 kB | 0 | 0 | 488 | 1680 | 0 | 0 | 0 | 0 | 0 | 0

cmdb | pg\_catalog | pg\_rewrite | r | 96 kB | 0 | 0 | 602 | 610 | 0 | 0 | 0 | 0 | 0 | 0

cmdb | pg\_catalog | pg\_class | r | 88 kB | 78281 | 20997759 | 41614 | 41600 | 0 | 0 | 0 | 0 | 0 | 0

(10 rows)

current\_database | nspname | relname | relkind | pg\_size\_pretty | seq\_scan | seq\_tup\_read | idx\_scan | idx\_tup\_fetch | n\_tup\_ins | n\_tup\_upd | n\_tup\_del | n\_tup\_hot\_upd | n\_live\_tup | n\_dead\_tup

------------------+------------+----------------+---------+----------------+----------+--------------+----------+---------------+-----------+-----------+-----------+---------------+------------+------------

gskongdb | pg\_catalog | pg\_proc | r | 592 kB | 1 | 2899 | 758 | 1030 | 1 | 0 | 0 | 0 | 1 | 0

gskongdb | pg\_catalog | pg\_depend | r | 432 kB | 0 | 0 | 8 | 7 | 2 | 0 | 0 | 0 | 2 | 0

gskongdb | pg\_catalog | pg\_collation | r | 392 kB | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0

gskongdb | pg\_catalog | pg\_attribute | r | 384 kB | 14 | 7809 | 7602 | 21372 | 0 | 0 | 0 | 0 | 0 | 0

gskongdb | pg\_catalog | pg\_description | r | 312 kB | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0

gskongdb | pg\_catalog | pg\_statistic | r | 128 kB | 0 | 0 | 239 | 151 | 0 | 0 | 0 | 0 | 0 | 0

gskongdb | pg\_catalog | pg\_operator | r | 120 kB | 0 | 0 | 442 | 1336 | 0 | 0 | 0 | 0 | 0 | 0

gskongdb | pg\_catalog | pg\_rewrite | r | 96 kB | 0 | 0 | 602 | 610 | 0 | 0 | 0 | 0 | 0 | 0

gskongdb | pg\_catalog | pg\_class | r | 88 kB | 11305 | 2960821 | 7920 | 7910 | 0 | 0 | 0 | 0 | 0 | 0

gskongdb | pg\_catalog | pg\_type | r | 72 kB | 3 | 1131 | 521 | 507 | 0 | 0 | 0 | 0 | 0 | 0

(10 rows)

current\_database | nspname | relname | relkind | pg\_size\_pretty | seq\_scan | seq\_tup\_read | idx\_scan | idx\_tup\_fetch | n\_tup\_ins | n\_tup\_upd | n\_tup\_del | n\_tup\_hot\_upd | n\_live\_tup | n\_dead\_tup

------------------+------------+----------------+---------+----------------+----------+--------------+----------+---------------+-----------+-----------+-----------+---------------+------------+------------

gsikongdb | pg\_catalog | pg\_proc | r | 624 kB | 2 | 5816 | 14620 | 25039 | 1 | 0 | 0 | 0 | 1 | 0

gsikongdb | pg\_catalog | pg\_attribute | r | 496 kB | 14 | 9651 | 65188 | 149806 | 0 | 0 | 0 | 0 | 0 | 0

gsikongdb | pg\_catalog | pg\_depend | r | 472 kB | 0 | 0 | 8 | 8 | 2 | 0 | 0 | 0 | 2 | 0

gsikongdb | pg\_catalog | pg\_collation | r | 392 kB | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0

gsikongdb | pg\_catalog | pg\_description | r | 312 kB | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0

gsikongdb | pg\_catalog | pg\_statistic | r | 184 kB | 0 | 0 | 14641 | 5890 | 0 | 0 | 0 | 0 | 0 | 0

gsikongdb | pg\_catalog | pg\_class | r | 120 kB | 78284 | 28923666 | 70135 | 68660 | 0 | 0 | 0 | 0 | 0 | 0

gsikongdb | pg\_catalog | pg\_operator | r | 120 kB | 0 | 0 | 14746 | 67005 | 0 | 0 | 0 | 0 | 0 | 0

gsikongdb | pg\_catalog | pg\_rewrite | r | 96 kB | 0 | 0 | 602 | 610 | 0 | 0 | 0 | 0 | 0 | 0

gsikongdb | pg\_catalog | pg\_type | r | 88 kB | 3 | 1329 | 38117 | 36993 | 0 | 0 | 0 | 0 | 0 | 0

(10 rows)

current\_database | nspname | relname | relkind | pg\_size\_pretty | seq\_scan | seq\_tup\_read | idx\_scan | idx\_tup\_fetch | n\_tup\_ins | n\_tup\_upd | n\_tup\_del | n\_tup\_hot\_upd | n\_live\_tup | n\_dead\_tup

------------------+------------+----------------+---------+----------------+----------+--------------+----------+---------------+-----------+-----------+-----------+---------------+------------+------------

distjobdb | pg\_catalog | pg\_proc | r | 592 kB | 26 | 75374 | 15066 | 27538 | 2 | 0 | 0 | 0 | 2 | 0

distjobdb | pg\_catalog | pg\_attribute | r | 544 kB | 88 | 10064 | 125302 | 275527 | 968 | 151 | 278 | 94 | 3277 | 335

distjobdb | pg\_catalog | pg\_depend | r | 464 kB | 1 | 7769 | 3272 | 55061 | 489 | 0 | 54 | 0 | 435 | 54

distjobdb | pg\_catalog | pg\_collation | r | 392 kB | 9 | 14121 | 628 | 346 | 0 | 0 | 0 | 0 | 0 | 0

distjobdb | pg\_catalog | pg\_description | r | 328 kB | 13 | 62192 | 1040 | 891 | 224 | 1 | 0 | 1 | 224 | 1

distjobdb | pg\_catalog | pg\_statistic | r | 272 kB | 0 | 0 | 56030 | 12439 | 16 | 2004 | 0 | 1854 | 409 | 26

distjobdb | pg\_catalog | pg\_operator | r | 120 kB | 0 | 0 | 14139 | 55561 | 0 | 0 | 0 | 0 | 0 | 0

distjobdb | pg\_catalog | pg\_class | r | 104 kB | 78449 | 27097609 | 107689 | 103244 | 129 | 119 | 18 | 64 | 454 | 96

distjobdb | pg\_catalog | pg\_rewrite | r | 96 kB | 0 | 0 | 770 | 684 | 0 | 0 | 0 | 0 | 0 | 0

distjobdb | pg\_catalog | pg\_type | r | 88 kB | 199 | 87311 | 42398 | 37806 | 82 | 6 | 18 | 0 | 441 | 24

(10 rows)

建议:

经验值: 单表超过8GB, 并且这个表需要频繁更新 或 删除+插入的话, 建议对表根据业务逻辑进行合理拆分后获得更好的性能, 以及便于对膨胀索引进行维护; 如果是只读的表, 建议适当结合SQL语句进行优化.

* + 1. 数据库连接分析

----->>>---->>> 当前活跃度:

now | state | count

-------------------------------+--------+-------

2019-04-04 09:52:03.862692+08 | idle | 31

2019-04-04 09:52:03.862692+08 | | 5

2019-04-04 09:52:03.862692+08 | active | 2

(3 rows)

建议:

如果active状态很多, 说明数据库比较繁忙. 如果idle in transaction很多, 说明业务逻辑设计可能有问题. 如果idle很多, 可能使用了连接池, 并且可能没有自动回收连接到连接池的最小连接数.

----->>>---->>> 总剩余连接数:

max\_conn | used | res\_for\_super | res\_for\_normal

----------+------+---------------+----------------

100 | 38 | 3 | 59

(1 row)

建议:

给超级用户和普通用户设置足够的连接, 以免不能登录数据库.

----->>>---->>> 用户连接数限制:

rolname | rolconnlimit | connects

---------------+--------------+----------

ecip\_kong\_adm | 40 | 17

gsi\_kong\_adm | 10 | 5

dist\_job\_app | 10 | 5

kong | -1 | 4

postgres | -1 | 2

replica | -1 | 1

(6 rows)

建议:

给用户设置足够的连接数, alter role ... CONNECTION LIMIT .

----->>>---->>> 数据库连接限制:

datname | datconnlimit | connects

------------+--------------+----------

ecipkongdb | -1 | 17

gsikongdb | -1 | 5

distjobdb | -1 | 5

kong | -1 | 4

postgres | -1 | 1

(5 rows)

建议:

给数据库设置足够的连接数, alter database ... CONNECTION LIMIT .

* + 1. 数据库性能分析

----->>>---->>> 索引数超过4并且SIZE大于10MB的表:

current\_database | nspname | relname | pg\_size\_pretty | idx\_cnt

------------------+---------+---------+----------------+---------

(0 rows)

current\_database | nspname | relname | pg\_size\_pretty | idx\_cnt

------------------+---------+---------+----------------+---------

(0 rows)

current\_database | nspname | relname | pg\_size\_pretty | idx\_cnt

------------------+---------+---------+----------------+---------

(0 rows)

current\_database | nspname | relname | pg\_size\_pretty | idx\_cnt

------------------+---------+---------+----------------+---------

(0 rows)

current\_database | nspname | relname | pg\_size\_pretty | idx\_cnt

------------------+---------+---------+----------------+---------

(0 rows)

current\_database | nspname | relname | pg\_size\_pretty | idx\_cnt

------------------+---------+---------+----------------+---------

(0 rows)

current\_database | nspname | relname | pg\_size\_pretty | idx\_cnt

------------------+---------+---------+----------------+---------

cmdb | public | ins\_obj | 24 MB | 5

(1 row)

current\_database | nspname | relname | pg\_size\_pretty | idx\_cnt

------------------+---------+---------+----------------+---------

(0 rows)

current\_database | nspname | relname | pg\_size\_pretty | idx\_cnt

------------------+---------+---------+----------------+---------

(0 rows)

current\_database | nspname | relname | pg\_size\_pretty | idx\_cnt

------------------+---------+---------+----------------+---------

(0 rows)

建议:

索引数量太多, 影响表的增删改性能, 建议检查是否有不需要的索引.

----->>>---->>> 数据库统计信息, 回滚比例, 命中比例, 数据块读写时间, 死锁, 复制冲突:

datname | rollback\_ratio | hit\_ratio | blk\_read\_time | blk\_write\_time | conflicts | deadlocks

------------+----------------+-----------+---------------+----------------+-----------+-----------

postgres | 0.00 % | 100.00 % | 0 | 0 | 0 | 0

ha\_test | 0.12 % | 99.83 % | 0 | 0 | 0 | 0

template1 | 0.12 % | 99.82 % | 0 | 0 | 0 | 0

template0 | 0.46 % | 99.97 % | 0 | 0 | 0 | 0

ecipkongdb | 14.71 % | 100.00 % | 0 | 0 | 0 | 0

amasdb | 0.14 % | 99.83 % | 0 | 0 | 0 | 0

kong | 0.00 % | 99.99 % | 0 | 0 | 0 | 0

pubdb | 0.02 % | 99.80 % | 0 | 0 | 0 | 0

cmdb | 0.02 % | 99.97 % | 0 | 0 | 0 | 0

gskongdb | 0.12 % | 99.83 % | 0 | 0 | 0 | 0

gsikongdb | 0.00 % | 99.99 % | 0 | 0 | 0 | 0

distjobdb | 0.00 % | 99.98 % | 0 | 0 | 0 | 0

(12 rows)

建议:

回滚比例大说明业务逻辑可能有问题, 命中率小说明shared\_buffer要加大, 数据块读写时间长说明块设备的IO性能要提升, 死锁次数多说明业务逻辑有问题, 复制冲突次数多说明备库可能在跑LONG SQL.

----->>>---->>> 检查点, bgwriter 统计信息:

-[ RECORD 1 ]---------+------------------------------

checkpoints\_timed | 33371

checkpoints\_req | 24

checkpoint\_write\_time | 8429925

checkpoint\_sync\_time | 25242

buffers\_checkpoint | 104329

buffers\_clean | 0

maxwritten\_clean | 0

buffers\_backend | 29092

buffers\_backend\_fsync | 0

buffers\_alloc | 46245

stats\_reset | 2019-03-13 18:17:59.522266+08

建议:

checkpoint\_write\_time多说明检查点持续时间长, 检查点过程中产生了较多的脏页.

checkpoint\_sync\_time代表检查点开始时的shared buffer中的脏页被同步到磁盘的时间, 如果时间过长, 并且数据库在检查点时性能较差, 考虑一下提升块设备的IOPS能力.

buffers\_backend\_fsync太多说明需要加大shared buffer 或者 减小bgwriter\_delay参数.

* + 1. 数据库垃圾分析

----->>>---->>> 表引膨胀检查:

-[ RECORD 1 ]----+----------------------------------

db | postgres

schemaname | pg\_catalog

tablename | pg\_class

tups | 341

pages | 11

otta | 9

tbloat | 1.2

wastedpages | 2

wastedbytes | 16384

wastedsize | 16384 bytes

iname | pg\_class\_tblspc\_relfilenode\_index

itups | 341

ipages | 5

iotta | 8

ibloat | 0.6

wastedipages | 0

wastedibytes | 0

wastedisize | 0 bytes

totalwastedbytes | 16384

-[ RECORD 2 ]----+----------------------------------

db | postgres

schemaname | pg\_catalog

tablename | pg\_class

tups | 341

pages | 11

otta | 9

tbloat | 1.2

wastedpages | 2

wastedbytes | 16384

wastedsize | 16384 bytes

iname | pg\_class\_relname\_nsp\_index

itups | 341

ipages | 6

iotta | 8

ibloat | 0.8

wastedipages | 0

wastedibytes | 0

wastedisize | 0 bytes

totalwastedbytes | 16384

-[ RECORD 3 ]----+----------------------------------

db | postgres

schemaname | pg\_catalog

tablename | pg\_class

tups | 341

pages | 11

otta | 9

tbloat | 1.2

wastedpages | 2

wastedbytes | 16384

wastedsize | 16384 bytes

iname | pg\_class\_oid\_index

itups | 341

ipages | 4

iotta | 8

ibloat | 0.5

wastedipages | 0

wastedibytes | 0

wastedisize | 0 bytes

totalwastedbytes | 16384

-[ RECORD 4 ]----+----------------------------------

db | postgres

schemaname | pg\_catalog

tablename | pg\_operator

tups | 787

pages | 15

otta | 14

tbloat | 1.1

wastedpages | 1

wastedbytes | 8192

wastedsize | 8192 bytes

iname | pg\_operator\_oid\_index

itups | 787

ipages | 5

iotta | 12

ibloat | 0.4

wastedipages | 0

wastedibytes | 0

wastedisize | 0 bytes

totalwastedbytes | 8192

-[ RECORD 5 ]----+----------------------------------

db | postgres

schemaname | pg\_catalog

tablename | pg\_operator

tups | 787

pages | 15

otta | 14

tbloat | 1.1

wastedpages | 1

wastedbytes | 8192

wastedsize | 8192 bytes

iname | pg\_operator\_oprname\_l\_r\_n\_index

itups | 787

ipages | 6

iotta | 12

ibloat | 0.5

wastedipages | 0

wastedibytes | 0

wastedisize | 0 bytes

totalwastedbytes | 8192

-[ RECORD 1 ]----+----------------------------------

db | ha\_test

schemaname | pg\_catalog

tablename | pg\_class

tups | 341

pages | 11

otta | 9

tbloat | 1.2

wastedpages | 2

wastedbytes | 16384

wastedsize | 16384 bytes

iname | pg\_class\_tblspc\_relfilenode\_index

itups | 341

ipages | 5

iotta | 8

ibloat | 0.6

wastedipages | 0

wastedibytes | 0

wastedisize | 0 bytes

totalwastedbytes | 16384

-[ RECORD 2 ]----+----------------------------------

db | ha\_test

schemaname | pg\_catalog

tablename | pg\_class

tups | 341

pages | 11

otta | 9

tbloat | 1.2

wastedpages | 2

wastedbytes | 16384

wastedsize | 16384 bytes

iname | pg\_class\_relname\_nsp\_index

itups | 341

ipages | 6

iotta | 8

ibloat | 0.8

wastedipages | 0

wastedibytes | 0

wastedisize | 0 bytes

totalwastedbytes | 16384

-[ RECORD 3 ]----+----------------------------------

db | ha\_test

schemaname | pg\_catalog

tablename | pg\_class

tups | 341

pages | 11

otta | 9

tbloat | 1.2

wastedpages | 2

wastedbytes | 16384

wastedsize | 16384 bytes

iname | pg\_class\_oid\_index

itups | 341

ipages | 4

iotta | 8

ibloat | 0.5

wastedipages | 0

wastedibytes | 0

wastedisize | 0 bytes

totalwastedbytes | 16384

-[ RECORD 4 ]----+----------------------------------

db | ha\_test

schemaname | pg\_catalog

tablename | pg\_operator

tups | 787

pages | 15

otta | 14

tbloat | 1.1

wastedpages | 1

wastedbytes | 8192

wastedsize | 8192 bytes

iname | pg\_operator\_oid\_index

itups | 787

ipages | 5

iotta | 12

ibloat | 0.4

wastedipages | 0

wastedibytes | 0

wastedisize | 0 bytes

totalwastedbytes | 8192

-[ RECORD 5 ]----+----------------------------------

db | ha\_test

schemaname | pg\_catalog

tablename | pg\_operator

tups | 787

pages | 15

otta | 14

tbloat | 1.1

wastedpages | 1

wastedbytes | 8192

wastedsize | 8192 bytes

iname | pg\_operator\_oprname\_l\_r\_n\_index

itups | 787

ipages | 6

iotta | 12

ibloat | 0.5

wastedipages | 0

wastedibytes | 0

wastedisize | 0 bytes

totalwastedbytes | 8192

-[ RECORD 1 ]----+---------------------------

db | ecipkongdb

schemaname | public

tablename | ratelimiting\_metrics

tups | 1137130

pages | 20334

otta | 18368

tbloat | 1.1

wastedpages | 1966

wastedbytes | 16105472

wastedsize | 16105472 bytes

iname | ratelimiting\_metrics\_pkey

itups | 1137130

ipages | 23656

iotta | 16142

ibloat | 1.5

wastedipages | 7514

wastedibytes | 61554688

wastedisize | 61554688 bytes

totalwastedbytes | 77660160

-[ RECORD 2 ]----+---------------------------

db | ecipkongdb

schemaname | public

tablename | targets

tups | 690

pages | 165

otta | 8

tbloat | 20.6

wastedpages | 157

wastedbytes | 1286144

wastedsize | 1286144 bytes

iname | targets\_pkey

itups | 690

ipages | 106

iotta | 7

ibloat | 15.1

wastedipages | 99

wastedibytes | 811008

wastedisize | 811008 bytes

totalwastedbytes | 2097152

-[ RECORD 3 ]----+---------------------------

db | ecipkongdb

schemaname | public

tablename | targets

tups | 690

pages | 165

otta | 8

tbloat | 20.6

wastedpages | 157

wastedbytes | 1286144

wastedsize | 1286144 bytes

iname | targets\_target\_idx

itups | 690

ipages | 146

iotta | 7

ibloat | 20.9

wastedipages | 139

wastedibytes | 1138688

wastedisize | 1138688 bytes

totalwastedbytes | 2424832

-[ RECORD 4 ]----+---------------------------

db | ecipkongdb

schemaname | pg\_catalog

tablename | pg\_class

tups | 479

pages | 15

otta | 12

tbloat | 1.3

wastedpages | 3

wastedbytes | 24576

wastedsize | 24576 bytes

iname | pg\_class\_oid\_index

itups | 479

ipages | 4

iotta | 10

ibloat | 0.4

wastedipages | 0

wastedibytes | 0

wastedisize | 0 bytes

totalwastedbytes | 24576

-[ RECORD 5 ]----+---------------------------

db | ecipkongdb

schemaname | pg\_catalog

tablename | pg\_class

tups | 479

pages | 15

otta | 12

tbloat | 1.3

wastedpages | 3

wastedbytes | 24576

wastedsize | 24576 bytes

iname | pg\_class\_relname\_nsp\_index

itups | 479

ipages | 7

iotta | 10

ibloat | 0.7

wastedipages | 0

wastedibytes | 0

wastedisize | 0 bytes

totalwastedbytes | 24576

-[ RECORD 1 ]----+----------------------------------

db | amasdb

schemaname | pg\_catalog

tablename | pg\_class

tups | 341

pages | 11

otta | 9

tbloat | 1.2

wastedpages | 2

wastedbytes | 16384

wastedsize | 16384 bytes

iname | pg\_class\_tblspc\_relfilenode\_index

itups | 341

ipages | 5

iotta | 8

ibloat | 0.6

wastedipages | 0

wastedibytes | 0

wastedisize | 0 bytes

totalwastedbytes | 16384

-[ RECORD 2 ]----+----------------------------------

db | amasdb

schemaname | pg\_catalog

tablename | pg\_class

tups | 341

pages | 11

otta | 9

tbloat | 1.2

wastedpages | 2

wastedbytes | 16384

wastedsize | 16384 bytes

iname | pg\_class\_relname\_nsp\_index

itups | 341

ipages | 6

iotta | 8

ibloat | 0.8

wastedipages | 0

wastedibytes | 0

wastedisize | 0 bytes

totalwastedbytes | 16384

-[ RECORD 3 ]----+----------------------------------

db | amasdb

schemaname | pg\_catalog

tablename | pg\_class

tups | 341

pages | 11

otta | 9

tbloat | 1.2

wastedpages | 2

wastedbytes | 16384

wastedsize | 16384 bytes

iname | pg\_class\_oid\_index

itups | 341

ipages | 4

iotta | 8

ibloat | 0.5

wastedipages | 0

wastedibytes | 0

wastedisize | 0 bytes

totalwastedbytes | 16384

-[ RECORD 4 ]----+----------------------------------

db | amasdb

schemaname | pg\_catalog

tablename | pg\_operator

tups | 787

pages | 15

otta | 14

tbloat | 1.1

wastedpages | 1

wastedbytes | 8192

wastedsize | 8192 bytes

iname | pg\_operator\_oid\_index

itups | 787

ipages | 5

iotta | 12

ibloat | 0.4

wastedipages | 0

wastedibytes | 0

wastedisize | 0 bytes

totalwastedbytes | 8192

-[ RECORD 5 ]----+----------------------------------

db | amasdb

schemaname | pg\_catalog

tablename | pg\_operator

tups | 787

pages | 15

otta | 14

tbloat | 1.1

wastedpages | 1

wastedbytes | 8192

wastedsize | 8192 bytes

iname | pg\_operator\_oprname\_l\_r\_n\_index

itups | 787

ipages | 6

iotta | 12

ibloat | 0.5

wastedipages | 0

wastedibytes | 0

wastedisize | 0 bytes

totalwastedbytes | 8192

-[ RECORD 1 ]----+--------------------------------

db | kong

schemaname | pg\_catalog

tablename | pg\_amproc

tups | 411

pages | 4

otta | 3

tbloat | 1.3

wastedpages | 1

wastedbytes | 8192

wastedsize | 8192 bytes

iname | pg\_amproc\_fam\_proc\_index

itups | 411

ipages | 4

iotta | 2

ibloat | 2.0

wastedipages | 2

wastedibytes | 16384

wastedisize | 16384 bytes

totalwastedbytes | 24576

-[ RECORD 2 ]----+--------------------------------

db | kong

schemaname | pg\_catalog

tablename | pg\_amproc

tups | 411

pages | 4

otta | 3

tbloat | 1.3

wastedpages | 1

wastedbytes | 8192

wastedsize | 8192 bytes

iname | pg\_amproc\_oid\_index

itups | 411

ipages | 4

iotta | 2

ibloat | 2.0

wastedipages | 2

wastedibytes | 16384

wastedisize | 16384 bytes

totalwastedbytes | 24576

-[ RECORD 3 ]----+--------------------------------

db | kong

schemaname | pg\_catalog

tablename | pg\_operator

tups | 787

pages | 15

otta | 14

tbloat | 1.1

wastedpages | 1

wastedbytes | 8192

wastedsize | 8192 bytes

iname | pg\_operator\_oid\_index

itups | 787

ipages | 5

iotta | 12

ibloat | 0.4

wastedipages | 0

wastedibytes | 0

wastedisize | 0 bytes

totalwastedbytes | 8192

-[ RECORD 4 ]----+--------------------------------

db | kong

schemaname | pg\_catalog

tablename | pg\_operator

tups | 787

pages | 15

otta | 14

tbloat | 1.1

wastedpages | 1

wastedbytes | 8192

wastedsize | 8192 bytes

iname | pg\_operator\_oprname\_l\_r\_n\_index

itups | 787

ipages | 6

iotta | 12

ibloat | 0.5

wastedipages | 0

wastedibytes | 0

wastedisize | 0 bytes

totalwastedbytes | 8192

-[ RECORD 5 ]----+--------------------------------

db | kong

schemaname | pg\_catalog

tablename | pg\_rewrite

tups | 121

pages | 12

otta | 11

tbloat | 1.1

wastedpages | 1

wastedbytes | 8192

wastedsize | 8192 bytes

iname | pg\_rewrite\_oid\_index

itups | 121

ipages | 2

iotta | 11

ibloat | 0.2

wastedipages | 0

wastedibytes | 0

wastedisize | 0 bytes

totalwastedbytes | 8192

-[ RECORD 1 ]----+--------------------------------

db | pubdb

schemaname | pg\_catalog

tablename | pg\_description

tups | 4560

pages | 41

otta | 38

tbloat | 1.1

wastedpages | 3

wastedbytes | 24576

wastedsize | 24576 bytes

iname | pg\_description\_o\_c\_o\_index

itups | 4560

ipages | 25

iotta | 28

ibloat | 0.9

wastedipages | 0

wastedibytes | 0

wastedisize | 0 bytes

totalwastedbytes | 24576

-[ RECORD 2 ]----+--------------------------------

db | pubdb

schemaname | pg\_catalog

tablename | pg\_attribute

tups | 3103

pages | 66

otta | 63

tbloat | 1.0

wastedpages | 3

wastedbytes | 24576

wastedsize | 24576 bytes

iname | pg\_attribute\_relid\_attnum\_index

itups | 3103

ipages | 12

iotta | 46

ibloat | 0.3

wastedipages | 0

wastedibytes | 0

wastedisize | 0 bytes

totalwastedbytes | 24576

-[ RECORD 3 ]----+--------------------------------

db | pubdb

schemaname | pg\_catalog

tablename | pg\_attribute

tups | 3103

pages | 66

otta | 63

tbloat | 1.0

wastedpages | 3

wastedbytes | 24576

wastedsize | 24576 bytes

iname | pg\_attribute\_relid\_attnam\_index

itups | 3103

ipages | 18

iotta | 46

ibloat | 0.4

wastedipages | 0

wastedibytes | 0

wastedisize | 0 bytes

totalwastedbytes | 24576

-[ RECORD 4 ]----+--------------------------------

db | pubdb

schemaname | pg\_catalog

tablename | pg\_class

tups | 390

pages | 12

otta | 11

tbloat | 1.1

wastedpages | 1

wastedbytes | 8192

wastedsize | 8192 bytes

iname | pg\_class\_relname\_nsp\_index

itups | 390

ipages | 6

iotta | 9

ibloat | 0.7

wastedipages | 0

wastedibytes | 0

wastedisize | 0 bytes

totalwastedbytes | 8192

-[ RECORD 5 ]----+--------------------------------

db | pubdb

schemaname | pg\_catalog

tablename | pg\_class

tups | 390

pages | 12

otta | 11

tbloat | 1.1

wastedpages | 1

wastedbytes | 8192

wastedsize | 8192 bytes

iname | pg\_class\_oid\_index

itups | 390

ipages | 4

iotta | 9

ibloat | 0.4

wastedipages | 0

wastedibytes | 0

wastedisize | 0 bytes

totalwastedbytes | 8192

-[ RECORD 1 ]----+-----------------

db | cmdb

schemaname | public

tablename | ins\_obj

tups | 23581

pages | 3041

otta | 2875

tbloat | 1.1

wastedpages | 166

wastedbytes | 1359872

wastedsize | 1359872 bytes

iname | maintainid\_index

itups | 23581

ipages | 93

iotta | 2733

ibloat | 0.0

wastedipages | 0

wastedibytes | 0

wastedisize | 0 bytes

totalwastedbytes | 1359872

-[ RECORD 2 ]----+-----------------

db | cmdb

schemaname | public

tablename | ins\_obj

tups | 23581

pages | 3041

otta | 2875

tbloat | 1.1

wastedpages | 166

wastedbytes | 1359872

wastedsize | 1359872 bytes

iname | insattr\_index

itups | 23581

ipages | 1119

iotta | 2733

ibloat | 0.4

wastedipages | 0

wastedibytes | 0

wastedisize | 0 bytes

totalwastedbytes | 1359872

-[ RECORD 3 ]----+-----------------

db | cmdb

schemaname | public

tablename | ins\_obj

tups | 23581

pages | 3041

otta | 2875

tbloat | 1.1

wastedpages | 166

wastedbytes | 1359872

wastedsize | 1359872 bytes

iname | deleted\_at\_index

itups | 23581

ipages | 67

iotta | 2733

ibloat | 0.0

wastedipages | 0

wastedibytes | 0

wastedisize | 0 bytes

totalwastedbytes | 1359872

-[ RECORD 4 ]----+-----------------

db | cmdb

schemaname | public

tablename | ins\_obj

tups | 23581

pages | 3041

otta | 2875

tbloat | 1.1

wastedpages | 166

wastedbytes | 1359872

wastedsize | 1359872 bytes

iname | updated\_at\_index

itups | 23581

ipages | 67

iotta | 2733

ibloat | 0.0

wastedipages | 0

wastedibytes | 0

wastedisize | 0 bytes

totalwastedbytes | 1359872

-[ RECORD 5 ]----+-----------------

db | cmdb

schemaname | public

tablename | ins\_obj

tups | 23581

pages | 3041

otta | 2875

tbloat | 1.1

wastedpages | 166

wastedbytes | 1359872

wastedsize | 1359872 bytes

iname | modid\_index

itups | 23581

ipages | 93

iotta | 2733

ibloat | 0.0

wastedipages | 0

wastedibytes | 0

wastedisize | 0 bytes

totalwastedbytes | 1359872

-[ RECORD 1 ]----+----------------------------------

db | gskongdb

schemaname | pg\_catalog

tablename | pg\_class

tups | 341

pages | 11

otta | 9

tbloat | 1.2

wastedpages | 2

wastedbytes | 16384

wastedsize | 16384 bytes

iname | pg\_class\_tblspc\_relfilenode\_index

itups | 341

ipages | 5

iotta | 8

ibloat | 0.6

wastedipages | 0

wastedibytes | 0

wastedisize | 0 bytes

totalwastedbytes | 16384

-[ RECORD 2 ]----+----------------------------------

db | gskongdb

schemaname | pg\_catalog

tablename | pg\_class

tups | 341

pages | 11

otta | 9

tbloat | 1.2

wastedpages | 2

wastedbytes | 16384

wastedsize | 16384 bytes

iname | pg\_class\_relname\_nsp\_index

itups | 341

ipages | 6

iotta | 8

ibloat | 0.8

wastedipages | 0

wastedibytes | 0

wastedisize | 0 bytes

totalwastedbytes | 16384

-[ RECORD 3 ]----+----------------------------------

db | gskongdb

schemaname | pg\_catalog

tablename | pg\_class

tups | 341

pages | 11

otta | 9

tbloat | 1.2

wastedpages | 2

wastedbytes | 16384

wastedsize | 16384 bytes

iname | pg\_class\_oid\_index

itups | 341

ipages | 4

iotta | 8

ibloat | 0.5

wastedipages | 0

wastedibytes | 0

wastedisize | 0 bytes

totalwastedbytes | 16384

-[ RECORD 4 ]----+----------------------------------

db | gskongdb

schemaname | pg\_catalog

tablename | pg\_operator

tups | 787

pages | 15

otta | 14

tbloat | 1.1

wastedpages | 1

wastedbytes | 8192

wastedsize | 8192 bytes

iname | pg\_operator\_oid\_index

itups | 787

ipages | 5

iotta | 12

ibloat | 0.4

wastedipages | 0

wastedibytes | 0

wastedisize | 0 bytes

totalwastedbytes | 8192

-[ RECORD 5 ]----+----------------------------------

db | gskongdb

schemaname | pg\_catalog

tablename | pg\_operator

tups | 787

pages | 15

otta | 14

tbloat | 1.1

wastedpages | 1

wastedbytes | 8192

wastedsize | 8192 bytes

iname | pg\_operator\_oprname\_l\_r\_n\_index

itups | 787

ipages | 6

iotta | 12

ibloat | 0.5

wastedipages | 0

wastedibytes | 0

wastedisize | 0 bytes

totalwastedbytes | 8192

-[ RECORD 1 ]----+----------------------------------

db | gsikongdb

schemaname | pg\_catalog

tablename | pg\_class

tups | 479

pages | 15

otta | 12

tbloat | 1.3

wastedpages | 3

wastedbytes | 24576

wastedsize | 24576 bytes

iname | pg\_class\_tblspc\_relfilenode\_index

itups | 479

ipages | 5

iotta | 10

ibloat | 0.5

wastedipages | 0

wastedibytes | 0

wastedisize | 0 bytes

totalwastedbytes | 24576

-[ RECORD 2 ]----+----------------------------------

db | gsikongdb

schemaname | pg\_catalog

tablename | pg\_class

tups | 479

pages | 15

otta | 12

tbloat | 1.3

wastedpages | 3

wastedbytes | 24576

wastedsize | 24576 bytes

iname | pg\_class\_relname\_nsp\_index

itups | 479

ipages | 7

iotta | 10

ibloat | 0.7

wastedipages | 0

wastedibytes | 0

wastedisize | 0 bytes

totalwastedbytes | 24576

-[ RECORD 3 ]----+----------------------------------

db | gsikongdb

schemaname | pg\_catalog

tablename | pg\_class

tups | 479

pages | 15

otta | 12

tbloat | 1.3

wastedpages | 3

wastedbytes | 24576

wastedsize | 24576 bytes

iname | pg\_class\_oid\_index

itups | 479

ipages | 4

iotta | 10

ibloat | 0.4

wastedipages | 0

wastedibytes | 0

wastedisize | 0 bytes

totalwastedbytes | 24576

-[ RECORD 4 ]----+----------------------------------

db | gsikongdb

schemaname | public

tablename | schema\_migrations

tups | 17

pages | 3

otta | 1

tbloat | 3.0

wastedpages | 2

wastedbytes | 16384

wastedsize | 16384 bytes

iname | schema\_migrations\_pkey

itups | 17

ipages | 2

iotta | 1

ibloat | 2.0

wastedipages | 1

wastedibytes | 8192

wastedisize | 8192 bytes

totalwastedbytes | 24576

-[ RECORD 5 ]----+----------------------------------

db | gsikongdb

schemaname | pg\_catalog

tablename | pg\_operator

tups | 787

pages | 15

otta | 14

tbloat | 1.1

wastedpages | 1

wastedbytes | 8192

wastedsize | 8192 bytes

iname | pg\_operator\_oid\_index

itups | 787

ipages | 5

iotta | 12

ibloat | 0.4

wastedipages | 0

wastedibytes | 0

wastedisize | 0 bytes

totalwastedbytes | 8192

-[ RECORD 1 ]----+--------------------------------

db | distjobdb

schemaname | public

tablename | saturn\_statistics

tups | 17

pages | 4

otta | 1

tbloat | 4.0

wastedpages | 3

wastedbytes | 24576

wastedsize | 24576 bytes

iname | saturn\_statistics\_pkey

itups | 17

ipages | 2

iotta | 1

ibloat | 2.0

wastedipages | 1

wastedibytes | 8192

wastedisize | 8192 bytes

totalwastedbytes | 32768

-[ RECORD 2 ]----+--------------------------------

db | distjobdb

schemaname | pg\_catalog

tablename | pg\_attribute

tups | 3277

pages | 68

otta | 66

tbloat | 1.0

wastedpages | 2

wastedbytes | 16384

wastedsize | 16384 bytes

iname | pg\_attribute\_relid\_attnum\_index

itups | 3277

ipages | 12

iotta | 49

ibloat | 0.2

wastedipages | 0

wastedibytes | 0

wastedisize | 0 bytes

totalwastedbytes | 16384

-[ RECORD 3 ]----+--------------------------------

db | distjobdb

schemaname | pg\_catalog

tablename | pg\_attribute

tups | 3277

pages | 68

otta | 66

tbloat | 1.0

wastedpages | 2

wastedbytes | 16384

wastedsize | 16384 bytes

iname | pg\_attribute\_relid\_attnam\_index

itups | 3277

ipages | 18

iotta | 49

ibloat | 0.4

wastedipages | 0

wastedibytes | 0

wastedisize | 0 bytes

totalwastedbytes | 16384

-[ RECORD 4 ]----+--------------------------------

db | distjobdb

schemaname | pg\_catalog

tablename | pg\_class

tups | 454

pages | 13

otta | 12

tbloat | 1.1

wastedpages | 1

wastedbytes | 8192

wastedsize | 8192 bytes

iname | pg\_class\_relname\_nsp\_index

itups | 454

ipages | 6

iotta | 10

ibloat | 0.6

wastedipages | 0

wastedibytes | 0

wastedisize | 0 bytes

totalwastedbytes | 8192

-[ RECORD 5 ]----+--------------------------------

db | distjobdb

schemaname | pg\_catalog

tablename | pg\_class

tups | 454

pages | 13

otta | 12

tbloat | 1.1

wastedpages | 1

wastedbytes | 8192

wastedsize | 8192 bytes

iname | pg\_class\_oid\_index

itups | 454

ipages | 4

iotta | 10

ibloat | 0.4

wastedipages | 0

wastedibytes | 0

wastedisize | 0 bytes

totalwastedbytes | 8192

建议:

根据浪费的字节数, 设置合适的autovacuum\_vacuum\_scale\_factor, 大表如果频繁的有更新或删除和插入操作, 建议设置较小的autovacuum\_vacuum\_scale\_factor来降低浪费空间.

同时还需要打开autovacuum, 根据服务器的内存大小, CPU核数, 设置足够大的autovacuum\_work\_mem 或 autovacuum\_max\_workers 或 maintenance\_work\_mem, 以及足够小的 autovacuum\_naptime .

同时还需要分析是否对大数据库使用了逻辑备份pg\_dump, 系统中是否经常有长SQL, 长事务. 这些都有可能导致膨胀.

使用pg\_reorg或者vacuum full可以回收膨胀的空间.

参考: http://blog.163.com/digoal@126/blog/static/1638770402015329115636287/

otta评估出的表实际需要页数, iotta评估出的索引实际需要页数;

bs数据库的块大小;

tbloat表膨胀倍数, ibloat索引膨胀倍数, wastedpages表浪费了多少个数据块, wastedipages索引浪费了多少个数据块;

wastedbytes表浪费了多少字节, wastedibytes索引浪费了多少字节;

----->>>---->>> 索引膨胀检查:

-[ RECORD 1 ]----+--------------------------

db | postgres

schemaname | pg\_catalog

tablename | pg\_depend

tups | 7327

pages | 54

otta | 54

tbloat | 0.0

wastedpages | 0

wastedbytes | 0

wastedsize | 0 bytes

iname | pg\_depend\_reference\_index

itups | 7327

ipages | 46

iotta | 34

ibloat | 1.4

wastedipages | 12

wastedibytes | 98304

wastedisize | 98304 bytes

totalwastedbytes | 98304

-[ RECORD 2 ]----+--------------------------

db | postgres

schemaname | pg\_catalog

tablename | pg\_depend

tups | 7327

pages | 54

otta | 54

tbloat | 0.0

wastedpages | 0

wastedbytes | 0

wastedsize | 0 bytes

iname | pg\_depend\_depender\_index

itups | 7327

ipages | 40

iotta | 34

ibloat | 1.2

wastedipages | 6

wastedibytes | 49152

wastedisize | 49152 bytes

totalwastedbytes | 49152

-[ RECORD 3 ]----+--------------------------

db | postgres

schemaname | pg\_catalog

tablename | pg\_amproc

tups | 411

pages | 4

otta | 3

tbloat | 1.3

wastedpages | 1

wastedbytes | 8192

wastedsize | 8192 bytes

iname | pg\_amproc\_fam\_proc\_index

itups | 411

ipages | 4

iotta | 2

ibloat | 2.0

wastedipages | 2

wastedibytes | 16384

wastedisize | 16384 bytes

totalwastedbytes | 24576

-[ RECORD 4 ]----+--------------------------

db | postgres

schemaname | pg\_catalog

tablename | pg\_amproc

tups | 411

pages | 4

otta | 3

tbloat | 1.3

wastedpages | 1

wastedbytes | 8192

wastedsize | 8192 bytes

iname | pg\_amproc\_oid\_index

itups | 411

ipages | 4

iotta | 2

ibloat | 2.0

wastedipages | 2

wastedibytes | 16384

wastedisize | 16384 bytes

totalwastedbytes | 24576

-[ RECORD 5 ]----+--------------------------

db | postgres

schemaname | pg\_catalog

tablename | pg\_ts\_config\_map

tups | 304

pages | 2

otta | 2

tbloat | 0.0

wastedpages | 0

wastedbytes | 0

wastedsize | 0 bytes

iname | pg\_ts\_config\_map\_index

itups | 304

ipages | 4

iotta | 2

ibloat | 2.0

wastedipages | 2

wastedibytes | 16384

wastedisize | 16384 bytes

totalwastedbytes | 16384

-[ RECORD 1 ]----+--------------------------

db | ha\_test

schemaname | pg\_catalog

tablename | pg\_depend

tups | 7327

pages | 54

otta | 54

tbloat | 0.0

wastedpages | 0

wastedbytes | 0

wastedsize | 0 bytes

iname | pg\_depend\_reference\_index

itups | 7327

ipages | 46

iotta | 34

ibloat | 1.4

wastedipages | 12

wastedibytes | 98304

wastedisize | 98304 bytes

totalwastedbytes | 98304

-[ RECORD 2 ]----+--------------------------

db | ha\_test

schemaname | pg\_catalog

tablename | pg\_depend

tups | 7327

pages | 54

otta | 54

tbloat | 0.0

wastedpages | 0

wastedbytes | 0

wastedsize | 0 bytes

iname | pg\_depend\_depender\_index

itups | 7327

ipages | 40

iotta | 34

ibloat | 1.2

wastedipages | 6

wastedibytes | 49152

wastedisize | 49152 bytes

totalwastedbytes | 49152

-[ RECORD 3 ]----+--------------------------

db | ha\_test

schemaname | pg\_catalog

tablename | pg\_amproc

tups | 411

pages | 4

otta | 3

tbloat | 1.3

wastedpages | 1

wastedbytes | 8192

wastedsize | 8192 bytes

iname | pg\_amproc\_fam\_proc\_index

itups | 411

ipages | 4

iotta | 2

ibloat | 2.0

wastedipages | 2

wastedibytes | 16384

wastedisize | 16384 bytes

totalwastedbytes | 24576

-[ RECORD 4 ]----+--------------------------

db | ha\_test

schemaname | pg\_catalog

tablename | pg\_amproc

tups | 411

pages | 4

otta | 3

tbloat | 1.3

wastedpages | 1

wastedbytes | 8192

wastedsize | 8192 bytes

iname | pg\_amproc\_oid\_index

itups | 411

ipages | 4

iotta | 2

ibloat | 2.0

wastedipages | 2

wastedibytes | 16384

wastedisize | 16384 bytes

totalwastedbytes | 24576

-[ RECORD 5 ]----+--------------------------

db | ha\_test

schemaname | pg\_catalog

tablename | pg\_ts\_config\_map

tups | 304

pages | 2

otta | 2

tbloat | 0.0

wastedpages | 0

wastedbytes | 0

wastedsize | 0 bytes

iname | pg\_ts\_config\_map\_index

itups | 304

ipages | 4

iotta | 2

ibloat | 2.0

wastedipages | 2

wastedibytes | 16384

wastedisize | 16384 bytes

totalwastedbytes | 16384

-[ RECORD 1 ]----+---------------------------

db | ecipkongdb

schemaname | public

tablename | ratelimiting\_metrics

tups | 1137130

pages | 20334

otta | 18368

tbloat | 1.1

wastedpages | 1966

wastedbytes | 16105472

wastedsize | 16105472 bytes

iname | ratelimiting\_metrics\_pkey

itups | 1137130

ipages | 23656

iotta | 16142

ibloat | 1.5

wastedipages | 7514

wastedibytes | 61554688

wastedisize | 61554688 bytes

totalwastedbytes | 77660160

-[ RECORD 2 ]----+---------------------------

db | ecipkongdb

schemaname | public

tablename | targets

tups | 690

pages | 165

otta | 8

tbloat | 20.6

wastedpages | 157

wastedbytes | 1286144

wastedsize | 1286144 bytes

iname | targets\_target\_idx

itups | 690

ipages | 146

iotta | 7

ibloat | 20.9

wastedipages | 139

wastedibytes | 1138688

wastedisize | 1138688 bytes

totalwastedbytes | 2424832

-[ RECORD 3 ]----+---------------------------

db | ecipkongdb

schemaname | public

tablename | targets

tups | 690

pages | 165

otta | 8

tbloat | 20.6

wastedpages | 157

wastedbytes | 1286144

wastedsize | 1286144 bytes

iname | targets\_pkey

itups | 690

ipages | 106

iotta | 7

ibloat | 15.1

wastedipages | 99

wastedibytes | 811008

wastedisize | 811008 bytes

totalwastedbytes | 2097152

-[ RECORD 4 ]----+---------------------------

db | ecipkongdb

schemaname | public

tablename | cluster\_events

tups | 2

pages | 1

otta | 1

tbloat | 0.0

wastedpages | 0

wastedbytes | 0

wastedsize | 0 bytes

iname | idx\_cluster\_events\_channel

itups | 2

ipages | 71

iotta | 1

ibloat | 71.0

wastedipages | 70

wastedibytes | 573440

wastedisize | 573440 bytes

totalwastedbytes | 573440

-[ RECORD 5 ]----+---------------------------

db | ecipkongdb

schemaname | public

tablename | cluster\_events

tups | 2

pages | 1

otta | 1

tbloat | 0.0

wastedpages | 0

wastedbytes | 0

wastedsize | 0 bytes

iname | cluster\_events\_pkey

itups | 2

ipages | 55

iotta | 1

ibloat | 55.0

wastedipages | 54

wastedibytes | 442368

wastedisize | 442368 bytes

totalwastedbytes | 442368

-[ RECORD 1 ]----+--------------------------

db | amasdb

schemaname | pg\_catalog

tablename | pg\_depend

tups | 7327

pages | 54

otta | 54

tbloat | 0.0

wastedpages | 0

wastedbytes | 0

wastedsize | 0 bytes

iname | pg\_depend\_reference\_index

itups | 7327

ipages | 46

iotta | 34

ibloat | 1.4

wastedipages | 12

wastedibytes | 98304

wastedisize | 98304 bytes

totalwastedbytes | 98304

-[ RECORD 2 ]----+--------------------------

db | amasdb

schemaname | pg\_catalog

tablename | pg\_depend

tups | 7327

pages | 54

otta | 54

tbloat | 0.0

wastedpages | 0

wastedbytes | 0

wastedsize | 0 bytes

iname | pg\_depend\_depender\_index

itups | 7327

ipages | 40

iotta | 34

ibloat | 1.2

wastedipages | 6

wastedibytes | 49152

wastedisize | 49152 bytes

totalwastedbytes | 49152

-[ RECORD 3 ]----+--------------------------

db | amasdb

schemaname | amas\_adm

tablename | script\_info

tups | 0

pages | 0

otta | 0

tbloat | 0.0

wastedpages | 0

wastedbytes | 0

wastedsize | 0 bytes

iname | script\_info\_pkey

itups | 0

ipages | 4

iotta | 0

ibloat | 0.0

wastedipages | 4

wastedibytes | 32768

wastedisize | 32768 bytes

totalwastedbytes | 32768

-[ RECORD 4 ]----+--------------------------

db | amasdb

schemaname | pg\_catalog

tablename | pg\_amproc

tups | 411

pages | 4

otta | 3

tbloat | 1.3

wastedpages | 1

wastedbytes | 8192

wastedsize | 8192 bytes

iname | pg\_amproc\_fam\_proc\_index

itups | 411

ipages | 4

iotta | 2

ibloat | 2.0

wastedipages | 2

wastedibytes | 16384

wastedisize | 16384 bytes

totalwastedbytes | 24576

-[ RECORD 5 ]----+--------------------------

db | amasdb

schemaname | pg\_catalog

tablename | pg\_amproc

tups | 411

pages | 4

otta | 3

tbloat | 1.3

wastedpages | 1

wastedbytes | 8192

wastedsize | 8192 bytes

iname | pg\_amproc\_oid\_index

itups | 411

ipages | 4

iotta | 2

ibloat | 2.0

wastedipages | 2

wastedibytes | 16384

wastedisize | 16384 bytes

totalwastedbytes | 24576

-[ RECORD 1 ]----+--------------------------

db | kong

schemaname | pg\_catalog

tablename | pg\_depend

tups | 7327

pages | 54

otta | 54

tbloat | 0.0

wastedpages | 0

wastedbytes | 0

wastedsize | 0 bytes

iname | pg\_depend\_reference\_index

itups | 7327

ipages | 46

iotta | 34

ibloat | 1.4

wastedipages | 12

wastedibytes | 98304

wastedisize | 98304 bytes

totalwastedbytes | 98304

-[ RECORD 2 ]----+--------------------------

db | kong

schemaname | pg\_catalog

tablename | pg\_depend

tups | 7327

pages | 54

otta | 54

tbloat | 0.0

wastedpages | 0

wastedbytes | 0

wastedsize | 0 bytes

iname | pg\_depend\_depender\_index

itups | 7327

ipages | 40

iotta | 34

ibloat | 1.2

wastedipages | 6

wastedibytes | 49152

wastedisize | 49152 bytes

totalwastedbytes | 49152

-[ RECORD 3 ]----+--------------------------

db | kong

schemaname | pg\_catalog

tablename | pg\_amproc

tups | 411

pages | 4

otta | 3

tbloat | 1.3

wastedpages | 1

wastedbytes | 8192

wastedsize | 8192 bytes

iname | pg\_amproc\_fam\_proc\_index

itups | 411

ipages | 4

iotta | 2

ibloat | 2.0

wastedipages | 2

wastedibytes | 16384

wastedisize | 16384 bytes

totalwastedbytes | 24576

-[ RECORD 4 ]----+--------------------------

db | kong

schemaname | pg\_catalog

tablename | pg\_amproc

tups | 411

pages | 4

otta | 3

tbloat | 1.3

wastedpages | 1

wastedbytes | 8192

wastedsize | 8192 bytes

iname | pg\_amproc\_oid\_index

itups | 411

ipages | 4

iotta | 2

ibloat | 2.0

wastedipages | 2

wastedibytes | 16384

wastedisize | 16384 bytes

totalwastedbytes | 24576

-[ RECORD 5 ]----+--------------------------

db | kong

schemaname | pg\_catalog

tablename | pg\_ts\_config\_map

tups | 304

pages | 2

otta | 2

tbloat | 0.0

wastedpages | 0

wastedbytes | 0

wastedsize | 0 bytes

iname | pg\_ts\_config\_map\_index

itups | 304

ipages | 4

iotta | 2

ibloat | 2.0

wastedipages | 2

wastedibytes | 16384

wastedisize | 16384 bytes

totalwastedbytes | 16384

-[ RECORD 1 ]----+--------------------------

db | pubdb

schemaname | pg\_catalog

tablename | pg\_depend

tups | 7327

pages | 54

otta | 54

tbloat | 0.0

wastedpages | 0

wastedbytes | 0

wastedsize | 0 bytes

iname | pg\_depend\_reference\_index

itups | 7327

ipages | 46

iotta | 34

ibloat | 1.4

wastedipages | 12

wastedibytes | 98304

wastedisize | 98304 bytes

totalwastedbytes | 98304

-[ RECORD 2 ]----+--------------------------

db | pubdb

schemaname | pg\_catalog

tablename | pg\_depend

tups | 7327

pages | 54

otta | 54

tbloat | 0.0

wastedpages | 0

wastedbytes | 0

wastedsize | 0 bytes

iname | pg\_depend\_depender\_index

itups | 7327

ipages | 40

iotta | 34

ibloat | 1.2

wastedipages | 6

wastedibytes | 49152

wastedisize | 49152 bytes

totalwastedbytes | 49152

-[ RECORD 3 ]----+--------------------------

db | pubdb

schemaname | pg\_catalog

tablename | pg\_amproc

tups | 411

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wastedpages | 1

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iname | pg\_amproc\_fam\_proc\_index

itups | 411

ipages | 4

iotta | 2

ibloat | 2.0

wastedipages | 2

wastedibytes | 16384

wastedisize | 16384 bytes

totalwastedbytes | 24576

-[ RECORD 4 ]----+--------------------------

db | pubdb

schemaname | pg\_catalog

tablename | pg\_amproc

tups | 411

pages | 4

otta | 3

tbloat | 1.3

wastedpages | 1

wastedbytes | 8192

wastedsize | 8192 bytes

iname | pg\_amproc\_oid\_index

itups | 411

ipages | 4

iotta | 2

ibloat | 2.0

wastedipages | 2

wastedibytes | 16384

wastedisize | 16384 bytes

totalwastedbytes | 24576

-[ RECORD 5 ]----+--------------------------

db | pubdb

schemaname | pg\_catalog

tablename | pg\_ts\_config\_map

tups | 304

pages | 2

otta | 2

tbloat | 0.0

wastedpages | 0

wastedbytes | 0

wastedsize | 0 bytes

iname | pg\_ts\_config\_map\_index

itups | 304

ipages | 4

iotta | 2

ibloat | 2.0

wastedipages | 2

wastedibytes | 16384

wastedisize | 16384 bytes

totalwastedbytes | 16384

-[ RECORD 1 ]----+--------------------------

db | cmdb

schemaname | pg\_catalog

tablename | pg\_depend

tups | 7327

pages | 54

otta | 54

tbloat | 0.0

wastedpages | 0

wastedbytes | 0

wastedsize | 0 bytes

iname | pg\_depend\_reference\_index

itups | 7327

ipages | 46

iotta | 34

ibloat | 1.4

wastedipages | 12

wastedibytes | 98304

wastedisize | 98304 bytes

totalwastedbytes | 98304

-[ RECORD 2 ]----+--------------------------

db | cmdb

schemaname | pg\_catalog

tablename | pg\_depend

tups | 7327

pages | 54

otta | 54

tbloat | 0.0

wastedpages | 0

wastedbytes | 0

wastedsize | 0 bytes

iname | pg\_depend\_depender\_index

itups | 7327

ipages | 40

iotta | 34

ibloat | 1.2

wastedipages | 6

wastedibytes | 49152

wastedisize | 49152 bytes

totalwastedbytes | 49152

-[ RECORD 3 ]----+--------------------------

db | cmdb

schemaname | pg\_catalog

tablename | pg\_amproc

tups | 411

pages | 4

otta | 3

tbloat | 1.3

wastedpages | 1

wastedbytes | 8192

wastedsize | 8192 bytes

iname | pg\_amproc\_fam\_proc\_index

itups | 411

ipages | 4

iotta | 2

ibloat | 2.0

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wastedibytes | 16384

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totalwastedbytes | 24576

-[ RECORD 4 ]----+--------------------------

db | cmdb

schemaname | pg\_catalog

tablename | pg\_amproc

tups | 411

pages | 4

otta | 3

tbloat | 1.3

wastedpages | 1

wastedbytes | 8192

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iname | pg\_amproc\_oid\_index

itups | 411

ipages | 4

iotta | 2

ibloat | 2.0

wastedipages | 2

wastedibytes | 16384

wastedisize | 16384 bytes

totalwastedbytes | 24576

-[ RECORD 5 ]----+--------------------------

db | cmdb

schemaname | pg\_catalog

tablename | pg\_ts\_config\_map

tups | 304

pages | 2

otta | 2

tbloat | 0.0

wastedpages | 0

wastedbytes | 0

wastedsize | 0 bytes

iname | pg\_ts\_config\_map\_index

itups | 304

ipages | 4

iotta | 2

ibloat | 2.0

wastedipages | 2

wastedibytes | 16384

wastedisize | 16384 bytes

totalwastedbytes | 16384

-[ RECORD 1 ]----+--------------------------

db | gskongdb

schemaname | pg\_catalog

tablename | pg\_depend

tups | 7327

pages | 54

otta | 54

tbloat | 0.0

wastedpages | 0

wastedbytes | 0

wastedsize | 0 bytes

iname | pg\_depend\_reference\_index

itups | 7327

ipages | 46

iotta | 34

ibloat | 1.4

wastedipages | 12

wastedibytes | 98304

wastedisize | 98304 bytes

totalwastedbytes | 98304

-[ RECORD 2 ]----+--------------------------

db | gskongdb

schemaname | pg\_catalog

tablename | pg\_depend

tups | 7327

pages | 54

otta | 54

tbloat | 0.0

wastedpages | 0

wastedbytes | 0

wastedsize | 0 bytes

iname | pg\_depend\_depender\_index

itups | 7327

ipages | 40

iotta | 34

ibloat | 1.2

wastedipages | 6

wastedibytes | 49152

wastedisize | 49152 bytes

totalwastedbytes | 49152

-[ RECORD 3 ]----+--------------------------

db | gskongdb

schemaname | pg\_catalog

tablename | pg\_amproc

tups | 411

pages | 4

otta | 3

tbloat | 1.3

wastedpages | 1

wastedbytes | 8192

wastedsize | 8192 bytes

iname | pg\_amproc\_fam\_proc\_index

itups | 411

ipages | 4

iotta | 2

ibloat | 2.0

wastedipages | 2

wastedibytes | 16384

wastedisize | 16384 bytes

totalwastedbytes | 24576

-[ RECORD 4 ]----+--------------------------

db | gskongdb

schemaname | pg\_catalog

tablename | pg\_amproc

tups | 411

pages | 4

otta | 3

tbloat | 1.3

wastedpages | 1

wastedbytes | 8192

wastedsize | 8192 bytes

iname | pg\_amproc\_oid\_index

itups | 411

ipages | 4

iotta | 2

ibloat | 2.0

wastedipages | 2

wastedibytes | 16384

wastedisize | 16384 bytes

totalwastedbytes | 24576

-[ RECORD 5 ]----+--------------------------

db | gskongdb

schemaname | pg\_catalog

tablename | pg\_ts\_config\_map

tups | 304

pages | 2

otta | 2

tbloat | 0.0

wastedpages | 0

wastedbytes | 0

wastedsize | 0 bytes

iname | pg\_ts\_config\_map\_index

itups | 304

ipages | 4

iotta | 2

ibloat | 2.0

wastedipages | 2

wastedibytes | 16384

wastedisize | 16384 bytes

totalwastedbytes | 16384

-[ RECORD 1 ]----+--------------------------

db | gsikongdb

schemaname | pg\_catalog

tablename | pg\_depend

tups | 7785

pages | 59

otta | 58

tbloat | 1.0

wastedpages | 1

wastedbytes | 8192

wastedsize | 8192 bytes

iname | pg\_depend\_reference\_index

itups | 7785

ipages | 52

iotta | 36

ibloat | 1.4

wastedipages | 16

wastedibytes | 131072

wastedisize | 131072 bytes

totalwastedbytes | 139264

-[ RECORD 2 ]----+--------------------------

db | gsikongdb

schemaname | pg\_catalog

tablename | pg\_depend

tups | 7785

pages | 59

otta | 58

tbloat | 1.0

wastedpages | 1

wastedbytes | 8192

wastedsize | 8192 bytes

iname | pg\_depend\_depender\_index

itups | 7785

ipages | 44

iotta | 36

ibloat | 1.2

wastedipages | 8

wastedibytes | 65536

wastedisize | 65536 bytes

totalwastedbytes | 73728

-[ RECORD 3 ]----+--------------------------

db | gsikongdb

schemaname | pg\_catalog

tablename | pg\_amproc

tups | 411

pages | 4

otta | 3

tbloat | 1.3

wastedpages | 1

wastedbytes | 8192

wastedsize | 8192 bytes

iname | pg\_amproc\_fam\_proc\_index

itups | 411

ipages | 4

iotta | 2

ibloat | 2.0

wastedipages | 2

wastedibytes | 16384

wastedisize | 16384 bytes

totalwastedbytes | 24576

-[ RECORD 4 ]----+--------------------------

db | gsikongdb

schemaname | pg\_catalog

tablename | pg\_amproc

tups | 411

pages | 4

otta | 3

tbloat | 1.3

wastedpages | 1

wastedbytes | 8192

wastedsize | 8192 bytes

iname | pg\_amproc\_oid\_index

itups | 411

ipages | 4

iotta | 2

ibloat | 2.0

wastedipages | 2

wastedibytes | 16384

wastedisize | 16384 bytes

totalwastedbytes | 24576

-[ RECORD 5 ]----+--------------------------

db | gsikongdb

schemaname | pg\_catalog

tablename | pg\_ts\_config\_map

tups | 304

pages | 2

otta | 2

tbloat | 0.0

wastedpages | 0

wastedbytes | 0

wastedsize | 0 bytes

iname | pg\_ts\_config\_map\_index

itups | 304

ipages | 4

iotta | 2

ibloat | 2.0

wastedipages | 2

wastedibytes | 16384

wastedisize | 16384 bytes

totalwastedbytes | 16384

-[ RECORD 1 ]----+--------------------------

db | distjobdb

schemaname | pg\_catalog

tablename | pg\_depend

tups | 7327

pages | 54

otta | 54

tbloat | 0.0

wastedpages | 0

wastedbytes | 0

wastedsize | 0 bytes

iname | pg\_depend\_reference\_index

itups | 7327

ipages | 46

iotta | 34

ibloat | 1.4

wastedipages | 12

wastedibytes | 98304

wastedisize | 98304 bytes

totalwastedbytes | 98304

-[ RECORD 2 ]----+--------------------------

db | distjobdb

schemaname | pg\_catalog

tablename | pg\_depend

tups | 7327

pages | 54

otta | 54

tbloat | 0.0

wastedpages | 0

wastedbytes | 0

wastedsize | 0 bytes

iname | pg\_depend\_depender\_index

itups | 7327

ipages | 40

iotta | 34

ibloat | 1.2

wastedipages | 6

wastedibytes | 49152

wastedisize | 49152 bytes

totalwastedbytes | 49152

-[ RECORD 3 ]----+--------------------------

db | distjobdb

schemaname | pg\_catalog

tablename | pg\_amproc

tups | 411

pages | 4

otta | 3

tbloat | 1.3

wastedpages | 1

wastedbytes | 8192

wastedsize | 8192 bytes

iname | pg\_amproc\_fam\_proc\_index

itups | 411

ipages | 4

iotta | 2

ibloat | 2.0

wastedipages | 2

wastedibytes | 16384

wastedisize | 16384 bytes

totalwastedbytes | 24576

-[ RECORD 4 ]----+--------------------------

db | distjobdb

schemaname | pg\_catalog

tablename | pg\_amproc

tups | 411

pages | 4

otta | 3

tbloat | 1.3

wastedpages | 1

wastedbytes | 8192

wastedsize | 8192 bytes

iname | pg\_amproc\_oid\_index

itups | 411

ipages | 4

iotta | 2

ibloat | 2.0

wastedipages | 2

wastedibytes | 16384

wastedisize | 16384 bytes

totalwastedbytes | 24576

-[ RECORD 5 ]----+--------------------------

db | distjobdb

schemaname | pg\_catalog

tablename | pg\_ts\_config\_map

tups | 304

pages | 2

otta | 2

tbloat | 0.0

wastedpages | 0

wastedbytes | 0

wastedsize | 0 bytes

iname | pg\_ts\_config\_map\_index

itups | 304

ipages | 4

iotta | 2

ibloat | 2.0

wastedipages | 2

wastedibytes | 16384

wastedisize | 16384 bytes

totalwastedbytes | 16384

建议:

如果索引膨胀太大, 会影响性能, 建议重建索引, create index CONCURRENTLY ... .

* + 1. 数据库年龄分析

----->>>---->>> 数据库年龄:

datname | age | age\_remain

------------+---------+------------

postgres | 7220672 | 2140262976

ha\_test | 7220672 | 2140262976

template1 | 7220672 | 2140262976

template0 | 7220672 | 2140262976

ecipkongdb | 7220672 | 2140262976

amasdb | 7220672 | 2140262976

kong | 7220672 | 2140262976

pubdb | 7220672 | 2140262976

cmdb | 7220672 | 2140262976

gskongdb | 7220672 | 2140262976

gsikongdb | 7220672 | 2140262976

distjobdb | 7220672 | 2140262976

(12 rows)

建议:

数据库的年龄正常情况下应该小于vacuum\_freeze\_table\_age, 如果剩余年龄小于5亿, 建议人为干预, 将LONG SQL或事务杀掉后, 执行vacuum freeze .

----->>>---->>> 表年龄:

current\_database | rolname | nspname | relkind | relname | age | age\_remain

------------------+----------+------------+---------+---------------+---------+------------

postgres | postgres | pg\_toast | t | pg\_toast\_2604 | 7220672 | 2140262976

postgres | postgres | pg\_toast | t | pg\_toast\_2606 | 7220672 | 2140262976

postgres | postgres | pg\_catalog | r | pg\_type | 7220672 | 2140262976

postgres | postgres | pg\_catalog | r | pg\_statistic | 7220672 | 2140262976

postgres | postgres | pg\_toast | t | pg\_toast\_2609 | 7220672 | 2140262976

(5 rows)

current\_database | rolname | nspname | relkind | relname | age | age\_remain

------------------+----------+------------+---------+---------------+---------+------------

ha\_test | postgres | pg\_toast | t | pg\_toast\_2606 | 7220672 | 2140262976

ha\_test | postgres | pg\_catalog | r | pg\_statistic | 7220672 | 2140262976

ha\_test | postgres | pg\_catalog | r | pg\_type | 7220672 | 2140262976

ha\_test | postgres | pg\_toast | t | pg\_toast\_2604 | 7220672 | 2140262976

ha\_test | postgres | pg\_toast | t | pg\_toast\_2609 | 7220672 | 2140262976

(5 rows)

current\_database | rolname | nspname | relkind | relname | age | age\_remain

------------------+----------+------------+---------+---------------+---------+------------

ecipkongdb | postgres | pg\_toast | t | pg\_toast\_2606 | 7220672 | 2140262976

ecipkongdb | postgres | pg\_toast | t | pg\_toast\_2604 | 7220672 | 2140262976

ecipkongdb | postgres | pg\_catalog | r | pg\_type | 7220672 | 2140262976

ecipkongdb | postgres | pg\_catalog | r | pg\_statistic | 7220672 | 2140262976

ecipkongdb | postgres | pg\_toast | t | pg\_toast\_2609 | 7220672 | 2140262976

(5 rows)

current\_database | rolname | nspname | relkind | relname | age | age\_remain

------------------+----------+------------+---------+---------------+---------+------------

amasdb | postgres | pg\_toast | t | pg\_toast\_2606 | 7220672 | 2140262976

amasdb | postgres | pg\_catalog | r | pg\_type | 7220672 | 2140262976

amasdb | postgres | pg\_catalog | r | pg\_statistic | 7220672 | 2140262976

amasdb | postgres | pg\_toast | t | pg\_toast\_2604 | 7220672 | 2140262976

amasdb | postgres | pg\_toast | t | pg\_toast\_2609 | 7220672 | 2140262976

(5 rows)

current\_database | rolname | nspname | relkind | relname | age | age\_remain

------------------+----------+------------+---------+---------------+---------+------------

kong | postgres | pg\_toast | t | pg\_toast\_2606 | 7220672 | 2140262976

kong | postgres | pg\_toast | t | pg\_toast\_2604 | 7220672 | 2140262976

kong | postgres | pg\_catalog | r | pg\_type | 7220672 | 2140262976

kong | postgres | pg\_catalog | r | pg\_statistic | 7220672 | 2140262976

kong | postgres | pg\_toast | t | pg\_toast\_2609 | 7220672 | 2140262976

(5 rows)

current\_database | rolname | nspname | relkind | relname | age | age\_remain

------------------+----------+------------+---------+---------------+---------+------------

pubdb | postgres | pg\_toast | t | pg\_toast\_2606 | 7220672 | 2140262976

pubdb | postgres | pg\_toast | t | pg\_toast\_2604 | 7220672 | 2140262976

pubdb | postgres | pg\_catalog | r | pg\_statistic | 7220672 | 2140262976

pubdb | postgres | pg\_catalog | r | pg\_type | 7220672 | 2140262976

pubdb | postgres | pg\_toast | t | pg\_toast\_2609 | 7220672 | 2140262976

(5 rows)

current\_database | rolname | nspname | relkind | relname | age | age\_remain

------------------+----------+------------+---------+---------------+---------+------------

cmdb | postgres | pg\_toast | t | pg\_toast\_2606 | 7220672 | 2140262976

cmdb | postgres | pg\_catalog | r | pg\_type | 7220672 | 2140262976

cmdb | postgres | pg\_catalog | r | pg\_statistic | 7220672 | 2140262976

cmdb | postgres | pg\_toast | t | pg\_toast\_2604 | 7220672 | 2140262976

cmdb | postgres | pg\_toast | t | pg\_toast\_2609 | 7220672 | 2140262976

(5 rows)

current\_database | rolname | nspname | relkind | relname | age | age\_remain

------------------+----------+------------+---------+---------------+---------+------------

gskongdb | postgres | pg\_catalog | r | pg\_statistic | 7220672 | 2140262976

gskongdb | postgres | pg\_catalog | r | pg\_type | 7220672 | 2140262976

gskongdb | postgres | pg\_toast | t | pg\_toast\_2604 | 7220672 | 2140262976

gskongdb | postgres | pg\_toast | t | pg\_toast\_2606 | 7220672 | 2140262976

gskongdb | postgres | pg\_toast | t | pg\_toast\_2609 | 7220672 | 2140262976

(5 rows)

current\_database | rolname | nspname | relkind | relname | age | age\_remain

------------------+----------+------------+---------+---------------+---------+------------

gsikongdb | postgres | pg\_toast | t | pg\_toast\_2606 | 7220672 | 2140262976

gsikongdb | postgres | pg\_toast | t | pg\_toast\_2604 | 7220672 | 2140262976

gsikongdb | postgres | pg\_catalog | r | pg\_type | 7220672 | 2140262976

gsikongdb | postgres | pg\_catalog | r | pg\_statistic | 7220672 | 2140262976

gsikongdb | postgres | pg\_toast | t | pg\_toast\_2609 | 7220672 | 2140262976

(5 rows)

current\_database | rolname | nspname | relkind | relname | age | age\_remain

------------------+----------+------------+---------+---------------+---------+------------

distjobdb | postgres | pg\_toast | t | pg\_toast\_2606 | 7220672 | 2140262976

distjobdb | postgres | pg\_toast | t | pg\_toast\_2604 | 7220672 | 2140262976

distjobdb | postgres | pg\_catalog | r | pg\_type | 7220672 | 2140262976

distjobdb | postgres | pg\_catalog | r | pg\_statistic | 7220672 | 2140262976

distjobdb | postgres | pg\_toast | t | pg\_toast\_2609 | 7220672 | 2140262976

(5 rows)

建议:

表的年龄正常情况下应该小于vacuum\_freeze\_table\_age, 如果剩余年龄小于5亿, 建议人为干预, 将LONG SQL或事务杀掉后, 执行vacuum freeze .

----->>>---->>> 长事务, 2PC:

(0 rows)

(0 rows)

建议:

长事务过程中产生的垃圾, 无法回收, 建议不要在数据库中运行LONG SQL, 或者错开DML高峰时间去运行LONG SQL. 2PC事务一定要记得尽快结束掉, 否则可能会导致数据库膨胀.

参考: http://blog.163.com/digoal@126/blog/static/1638770402015329115636287/

* + 1. 数据库XLOG, 流复制状态分析

---->>>---->>> 是否开启归档, 自动垃圾回收:

name | setting

-----------------+----------------------------------------------------------------

archive\_command | test ! -f /u01/pg\_archivedir/%f && cp %p /u01/pg\_archivedir/%f

archive\_mode | on

autovacuum | on

(3 rows)

建议:

建议开启自动垃圾回收, 开启归档.

----->>>---->>> 流复制统计信息:

(No rows)

建议:

关注流复制的延迟, 如果延迟非常大, 建议排查网络带宽, 以及本地读xlog的性能, 远程写xlog的性能.

* + 1. 重置统计信息

----->>>---->>> 重置统计信息:

pg\_stat\_reset

---------------

(1 row)

pg\_stat\_reset

---------------

(1 row)

pg\_stat\_reset

---------------

(1 row)

pg\_stat\_reset

---------------

(1 row)

pg\_stat\_reset

---------------

(1 row)

pg\_stat\_reset

---------------

(1 row)

pg\_stat\_reset

---------------

(1 row)

pg\_stat\_reset

---------------

(1 row)

pg\_stat\_reset

---------------

(1 row)

pg\_stat\_reset

---------------

(1 row)

pg\_stat\_reset\_shared

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(1 row)

pg\_stat\_reset\_shared

----------------------

(1 row)