

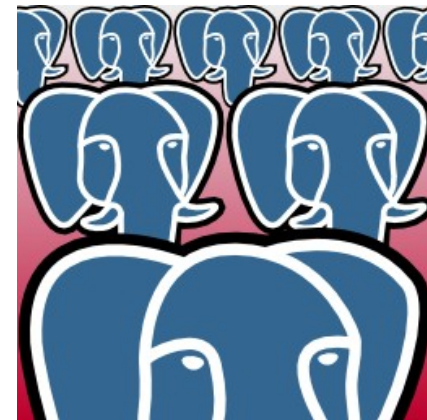
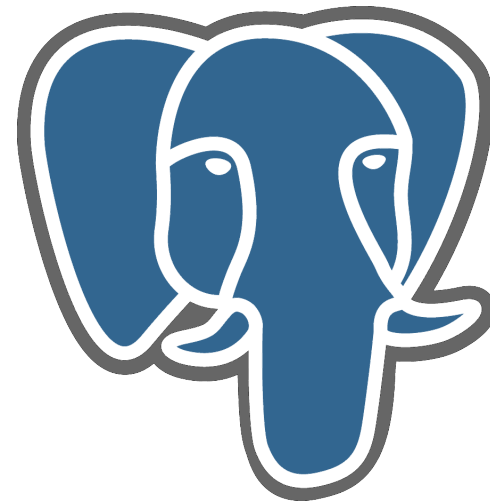
How have PostgreSQL community and Market evolved in Japan

Tatsuo Ishii
SRA OSS, Inc. Japan



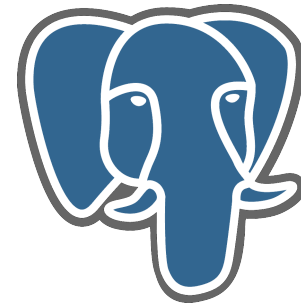
Who am I?

- OSS developer
 - PostgreSQL committer
 - pgpool-II community lead
- Community activity
 - Co founder of Japan PostgreSQL Users Group
 - Secretary general of PostgreSQL Enterprise Consortium
- Branch manager of SRA OSS, Inc. Japan



About SRA OSS, Inc.

- Running PostgreSQL business from 1999
- Established in 2005 as SRA OSS, 100% owned by SRA, Inc.
- Our main businesses areas are follows:
 - Open source software support
 - PostgreSQL, pgpool-II, Hinemos, Zabbix and many more
 - No MySQL:-)
 - 600 support contracts
 - PostgreSQL based product: PowerGres
 - Transparent encryption of data, redundant WAL
 - Training and Consulting
- Contributions
 - pgbench
 - multi byte characters
 - Windows port
 - Recursive query



PowerGres



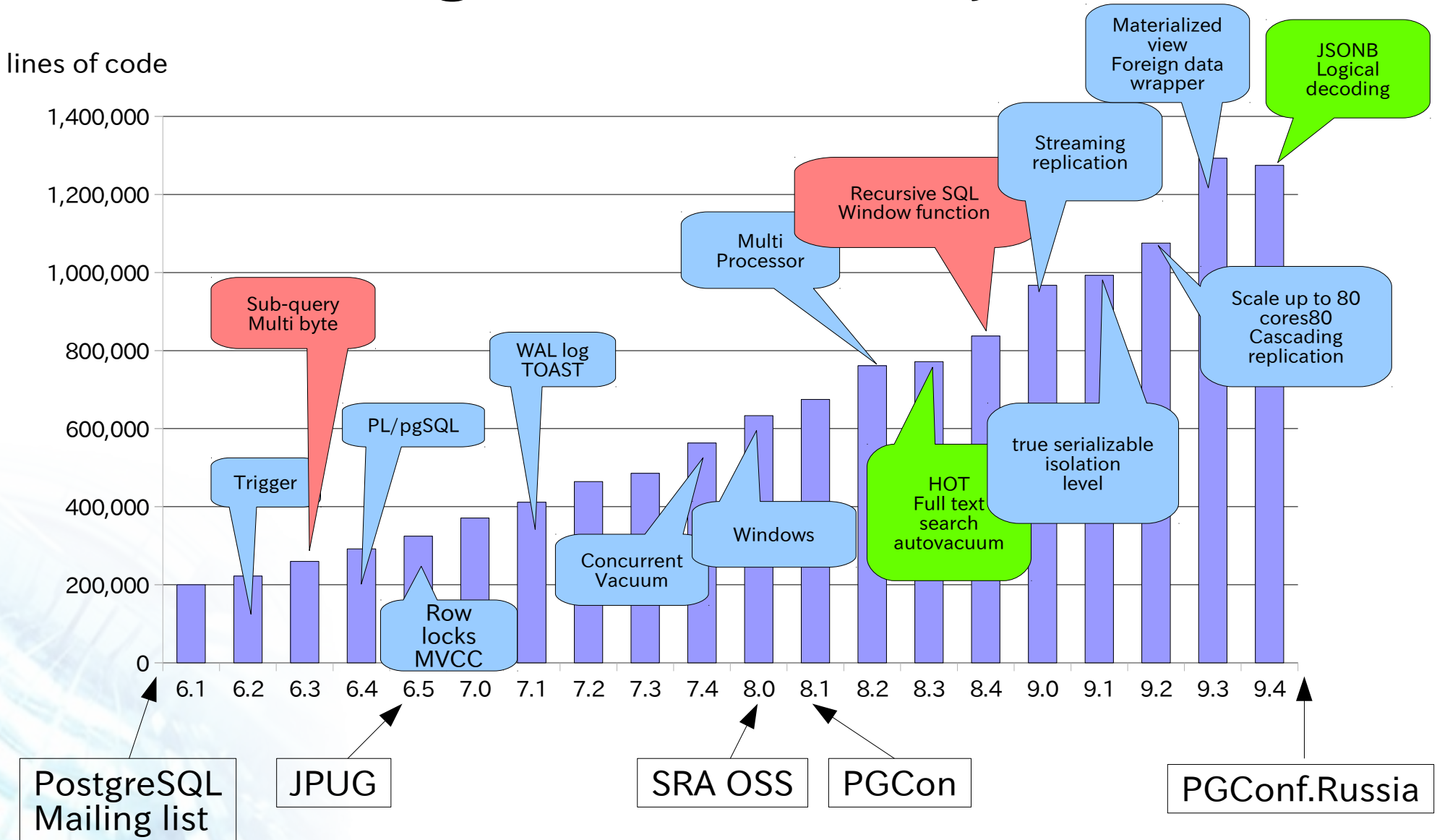
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PostgreSQL community history in Japan

- In 1995 Postgres95 mailing list started (turned into PostgreSQL mailing list in 1996)
- In 1998 PostgreSQL 6.3.1 merged the multi byte patch
- PostgreSQL documentation translated into Japanese
- In 1998 the first PostgreSQL book published
- In 1999 Japan PostgreSQL User's Group established
- In 2012 PostgreSQL Enterprise Consortium established



PostgreSQL history



Japan PostgreSQL Users Group

The screenshot shows the website of the Japan PostgreSQL Users Group (JPUG) in a Firefox browser window. The browser title is "NPO法人 日本PostgreSQLユーザ会 - Fx ウェブブラウザ". The address bar shows "www.postgresql.jp". The website features a navigation menu with links for Home, Users, Branches, Events, Subgroups, Downloads, and News. The main content area includes a large image of a woman in a white lab coat, a section for the "Japan PostgreSQL Users Group" with a notice about the 2012 PostgreSQL Day conference, and several columns of news and updates. The news section lists events like "9.1.5 Japanese Document Release" and "Open Source Conference DB 2012". The "Latest Version" section lists PostgreSQL versions from 8.1.23 to 9.2.0. The "PostgreSQL Portal" section provides information about the portal's purpose and recent updates for pgpool-II and xlogdump.

日本 PostgreSQL ユーザ会

2012/11/30(Fri)
PostgreSQL Day 2012
【秋】～Technical Conference～
東京品川にて開催決定！
JPUGイベント

ニュース

- 9.1.5 日本語ドキュメント公開
2012年09月02日
- オープンソースカンファレンス.DB 2012
2012年07月26日
- オープンソースカンファレンス 2012 Kansai@Kyoto
2012年07月25日
- 9.1.4 日本語ドキュメント公開
2012年06月16日
- オープンソースカンファレンス2012 Hokkaido
2012年06月11日

次ニュース

最近の更新

- PostgreSQL 9.2 プレスキット
2012年09月15日
- PostgreSQL 9.2.0
2012年09月13日

日本PostgreSQLユーザ会

日本 PostgreSQL ユーザ会は、PostgreSQL の普及促進を目的に活動する特定非営利活動（NPO）法人です。

- 本会の目的
- 協賛会員
- 理事会 / 総会
- 会員制度について / Web 会員申し込み
- メーリングリスト
- JPUG感謝賞

PostgreSQL

PostgreSQLはフリー（料金、ライセンス、2次配布）で利用できるオープンソースのオブジェクトリレーショナルデータベース管理システム(ORDBMS)です。
PostgreSQL Global Development Groupにより開発されています。

最新バージョン

- 9.2.0(9.2シリーズの最新版)
- 9.1.5(9.1シリーズの最新版)
- 9.0.9(9.0シリーズの最新版)
- 8.4.13(8.4シリーズの最新版)
- 8.3.20(8.3シリーズの最新版)
- 8.2.22(8.2シリーズの最新版)
- 8.1.23(8.1シリーズの最新版)

PostgreSQLポータル

PostgreSQLの更なる普及促進を目指して情報提供をするポータルサイト「Let's Postgres」の更新情報を表示しています。
PostgreSQL 9.2 リリース！
更新 2012年09月11日

- pgpool-II 3.2 の新機能 (2) オンメモリクエリキャッシュ
更新 2012年09月03日
- pgpool-II 3.2 の新機能 (3) Watchdog
更新 2012年09月03日
- pgpool-II 3.2 の新機能 (1) 概要
更新 2012年09月05日
- xlogdumpによるトランザクションログの解析
更新 2011年12月13日

PostgreSQLポータル
Let's Postgres

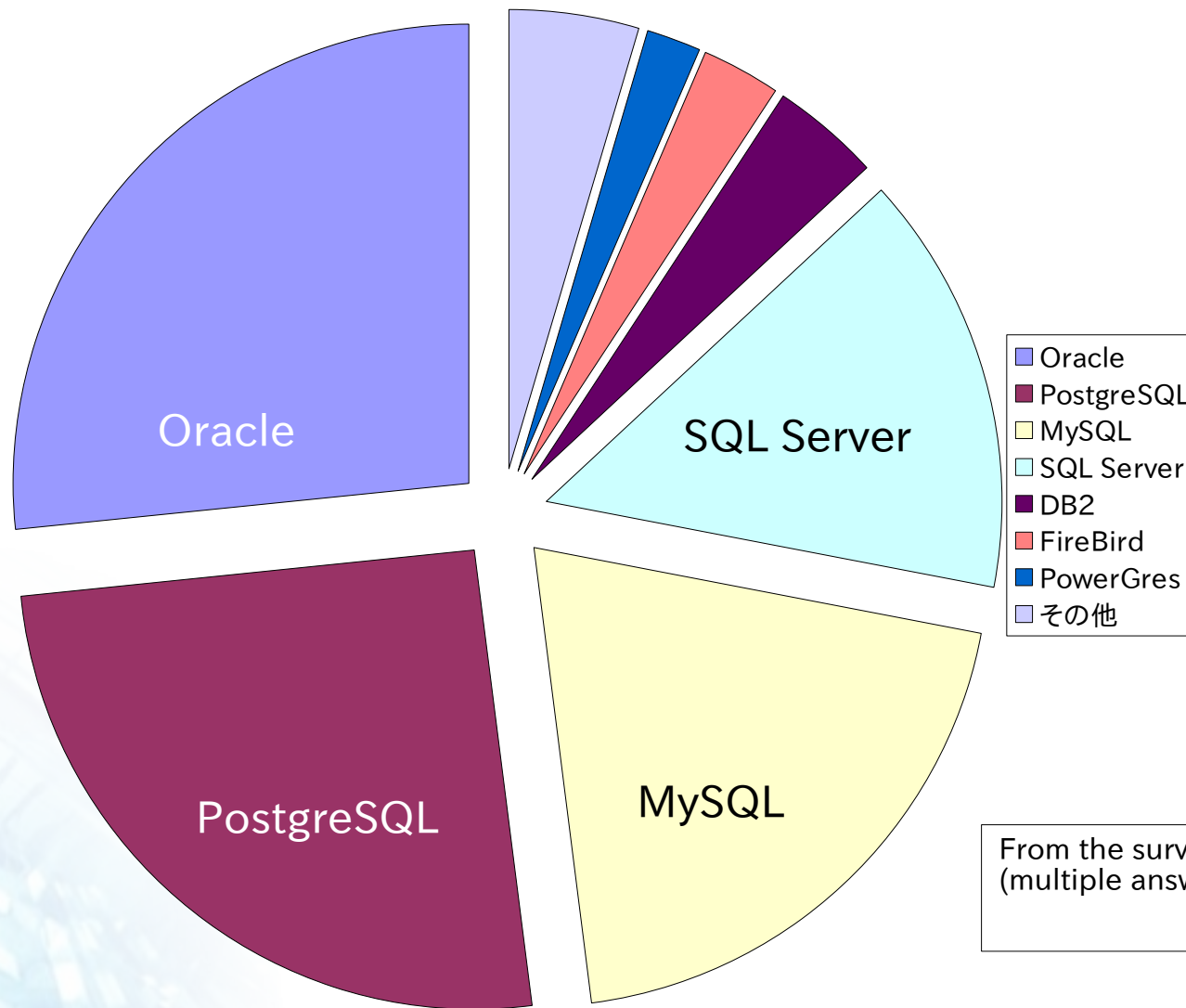
Activity of Japan PostgreSQL Users Group (JPUG)

7

- Established in 1999
- Major activities include:
 - Translating PostgreSQL documents
 - Mailing lists
 - Seminars
 - Regional branches
 - Tech blogs
- JPUG helps:
 - to promote PostgreSQL to people who are not familiar with English
 - beginners of PostgreSQL in ML and seminars
 - Beginners are often spoiled in OSS community :-)
 - to promote PostgreSQL in the early days of OSS in Japan



PostgreSQL is in the second position in the Japan's database market



From the survey result of "Linux World 2007"
(multiple answers was permitted)

PostgreSQL Enterprise Consortium

The screenshot shows a web browser window displaying the PostgreSQL Enterprise Consortium website. The browser's address bar shows the URL www.pgecons.org. The website features a blue header with the PGECcons logo and navigation links for Home, Contact, Site Map, and Login. A search bar is also present. The main content area includes a menu on the left and a central section titled "PostgreSQL エンタープライズ・コンソーシアム" (PostgreSQL Enterprise Consortium). This section contains a paragraph describing the consortium's mission and a "最近のお知らせ" (Recent News) section with two entries: one from 2012.8.28 regarding member company additions and another from 2012.8.10 regarding updated PostgreSQL-related information.

PostgreSQL エンタープライズ・コンソーシアム

本団体は、PostgreSQLがエンタープライズの業務システムに適用できるようにするため、PostgreSQL本体および各種ツールの情報収集と提供、整備などの活動を通じて、ミッションクリティカル性の高いエンタープライズ領域へのPostgreSQLの普及を推進することを目的として設立された団体です。

最近のお知らせ

- 2012.8.28 [会員企業追加のお知らせ](#)
2012年4月11日に10社で発足した PostgreSQLエンタープライズ・コンソーシアムですが、8月になり、2社が参加されました。2012年8月28日の参加企業は下記の通りです。・株式会社マインド（一般会員）・ [...]
- 2012.8.10 [PostgreSQL関連情報をUPしました](#)

About PostgreSQL Enterprise Consortium

- What is PostgreSQL Enterprise Consortium?
 - PostgreSQL Enterprise Consortium (PGECons) is a non-profit organization aiming at promoting PostgreSQL in production use, especially in mission critical area
- Who are the members of PGECons?
 - Leading IT/OSS companies in Japan
 - 17 regular members and 30 general members (as of 2015/1/26)



富士通ソーシャルサイエンスラボラトリー



NEC NEC Soft, Ltd.



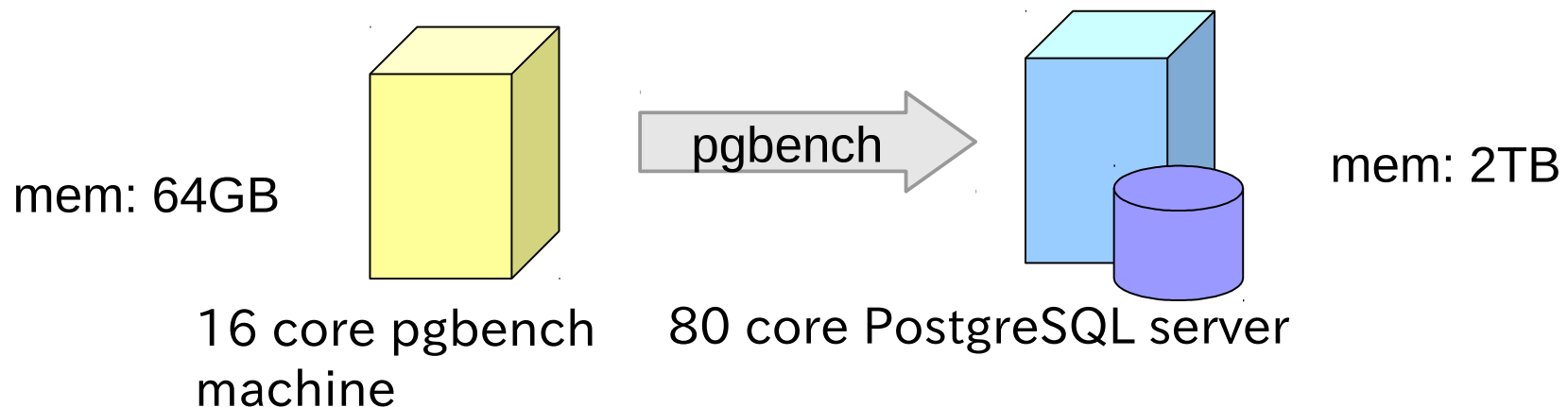
Major activities of PGECons

- Collaborative verification
 - PGECons performs necessary verification collaboratively by using resources provided by our member companies
- Promoting PostgreSQL
 - Through seminars PGECons presents technical reports created by the activities above. Also PGECons provides various case studies, which are important for those who are trying to adopt PostgreSQL.
- <http://www.pgecons.org/en/about>



Evaluation details

- Increase the number of concurrent clients on many core machines
- `pgbench -h [host] -p [port] [dbname] -c [c] -j [j] -T 30 -n -f custom.sql`
 - Increase number of clients (-c)
 - Number of threads is $\frac{1}{2}$ of -c
 - pgbench dedicated machine is prepared

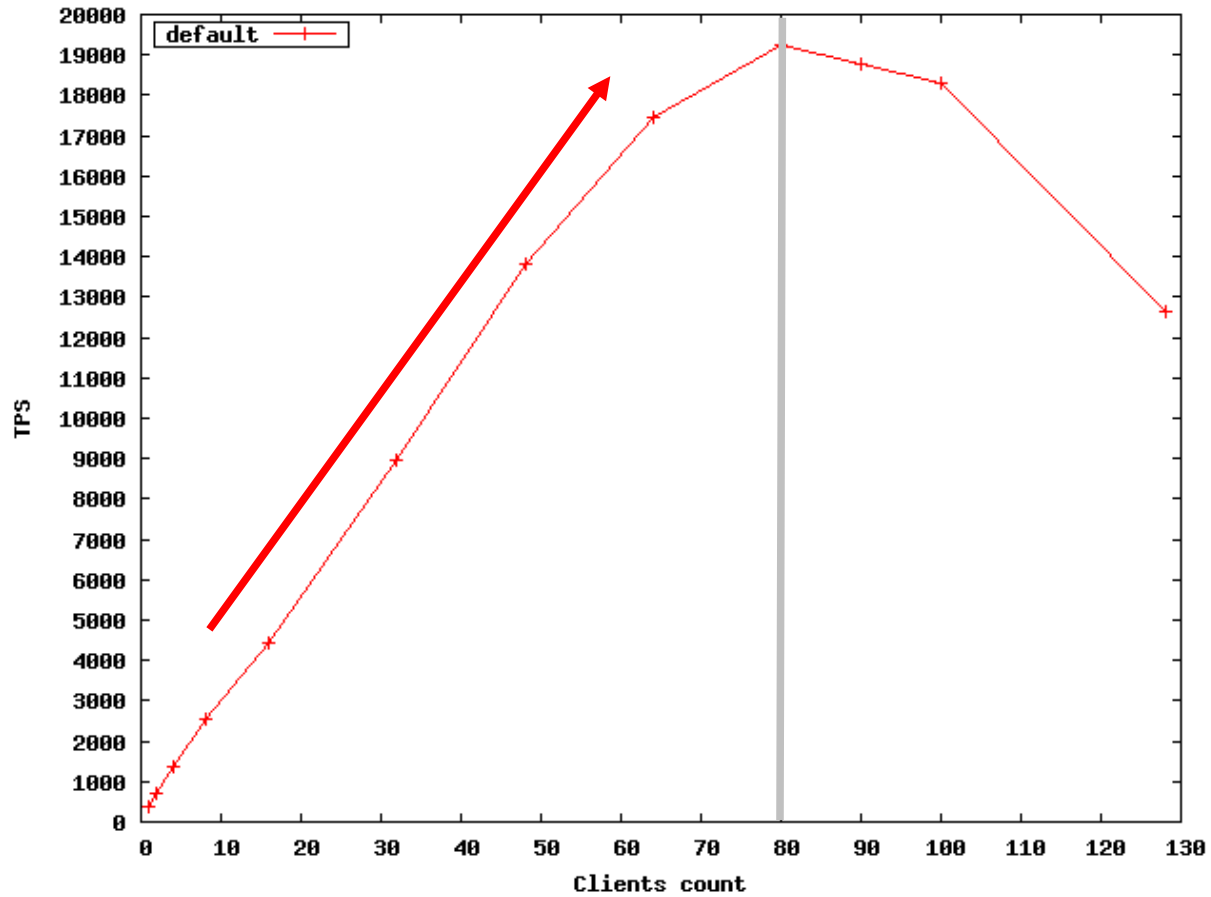


Custom.sql

```
\set nbranches :scale
\set ntellers 10 * :scale
\set naccounts 100000 * :scale
\set row_count 10000
\set aid_max :naccounts - :row_count
\setrandom aid 1 :aid_max
\setrandom bid 1 :nbranches
\setrandom tid 1 :ntellers
\setrandom delta -5000 5000
```

```
SELECT count(abalance) FROM pgbench_accounts WHERE
aid BETWEEN :aid and :aid + :row_count;
```

The result!



Scale factor: 1000
Number of rows:
a hundred million(15GB)

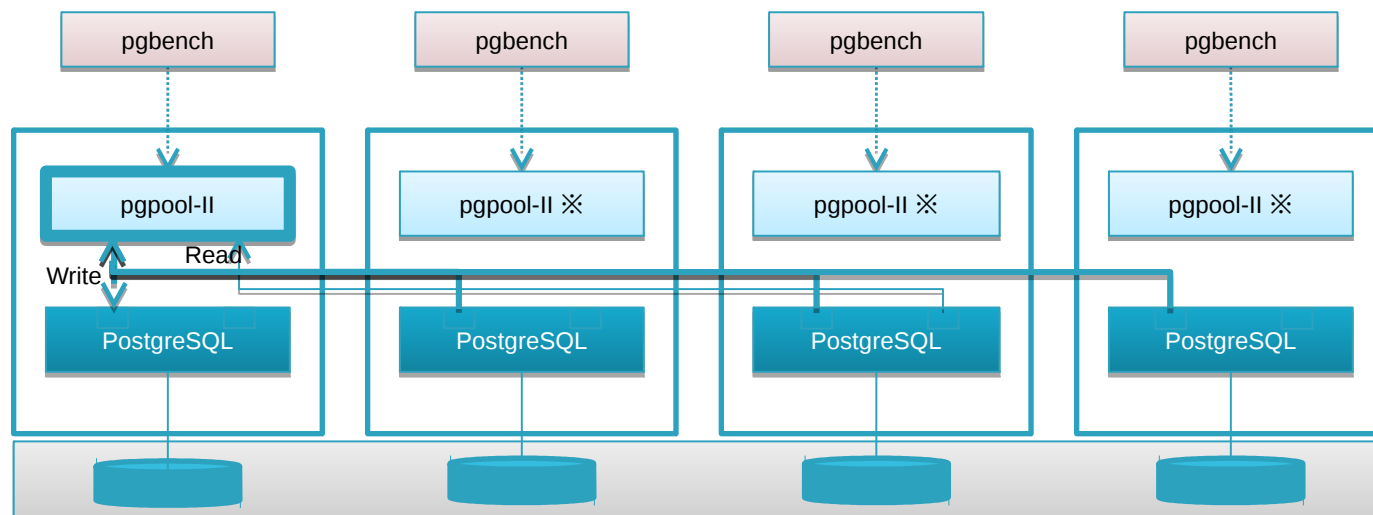
Benchmarking with shared nothing clusters

■ pgpool-II configuration

- Using pgpool-II(3.2.1) & PostgreSQL(9.2.1)
- Pgpool-II is configured to use native replication mode(synchronous replication)

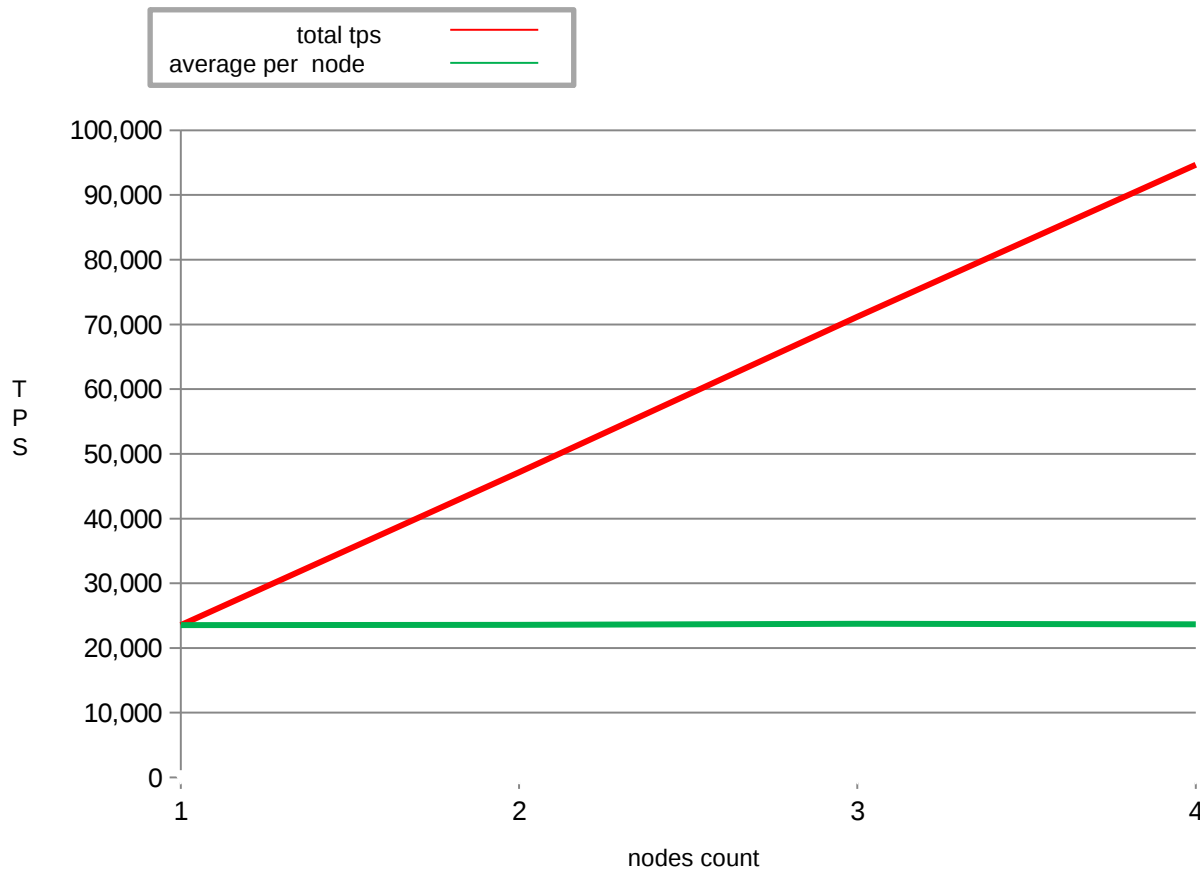
■ Pgbench configuration

- Up to 4 pgbench clients used. TPS is defined as the summary of each pgbench TPS
- Pgbench default scenario is used for write query test
- Read test uses custom scenario because default scenario(-S) is too subtle



✘ Arrows for second node or above is omitted to avoid complexity of the figure

Read query result



Settings

- PostgreSQL shared memory: 32GB
- Pgbench scale factor: 1,000
- Each duration(-T): 300 seconds
- Number of concurrent sessions (-c): 100
- Number of worker threads (-j): 20

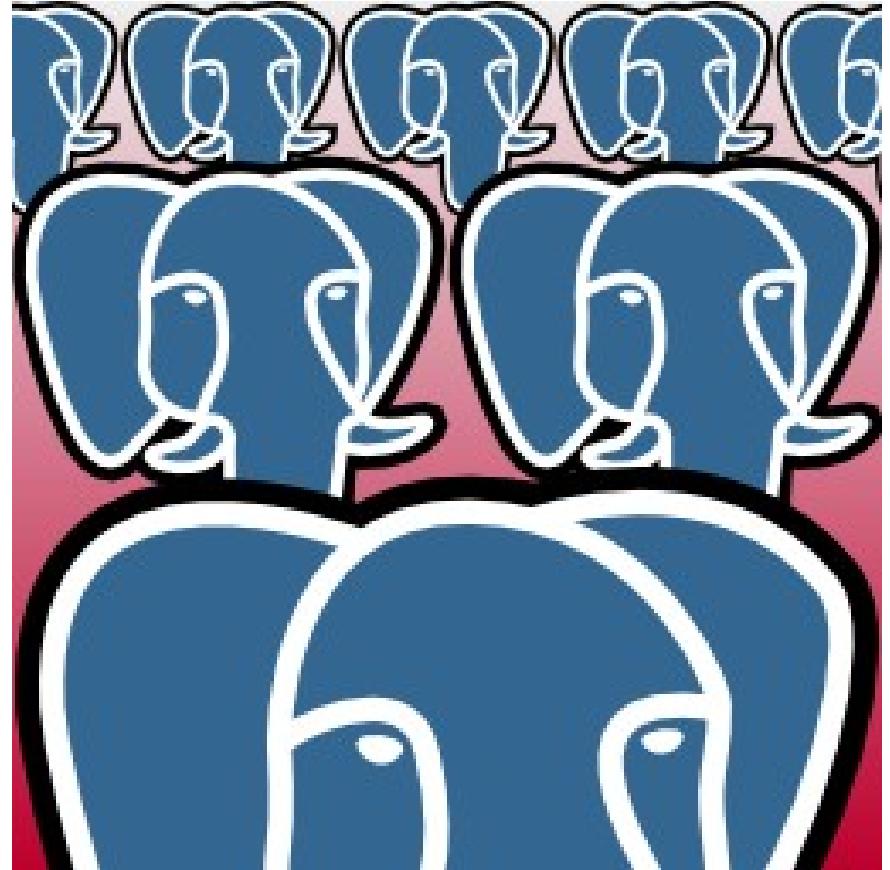
The custom scenario. Randomly extracts 2,000 rows.

```
\set nbranches :scale
\set ntellers 10 * :scale
\set naccounts 100000 * :scale
\set range 2000
\set aidmax :naccounts - :range
\setrandom aid 1 :aidmax
\setrandom bid 1 :nbranches
\setrandom tid 1 :ntellers
\setrandom delta -5000 5000
SELECT count(abalance) FROM
pgbench_accounts WHERE aid
BETWEEN :aid and :aid + :range;
```

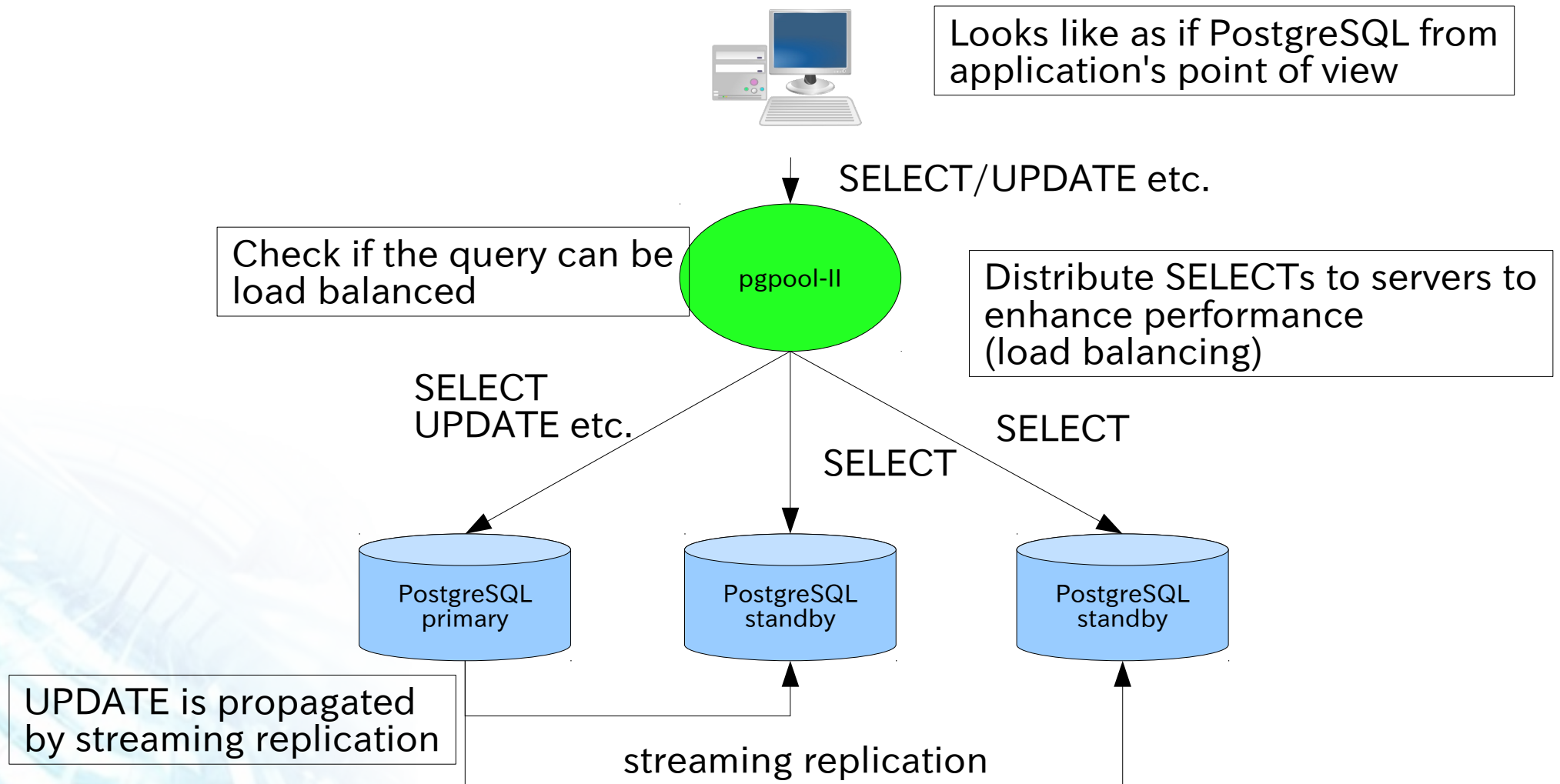
- Total TPS increases as number of nodes increases(scale out)

What is pgpool-II?

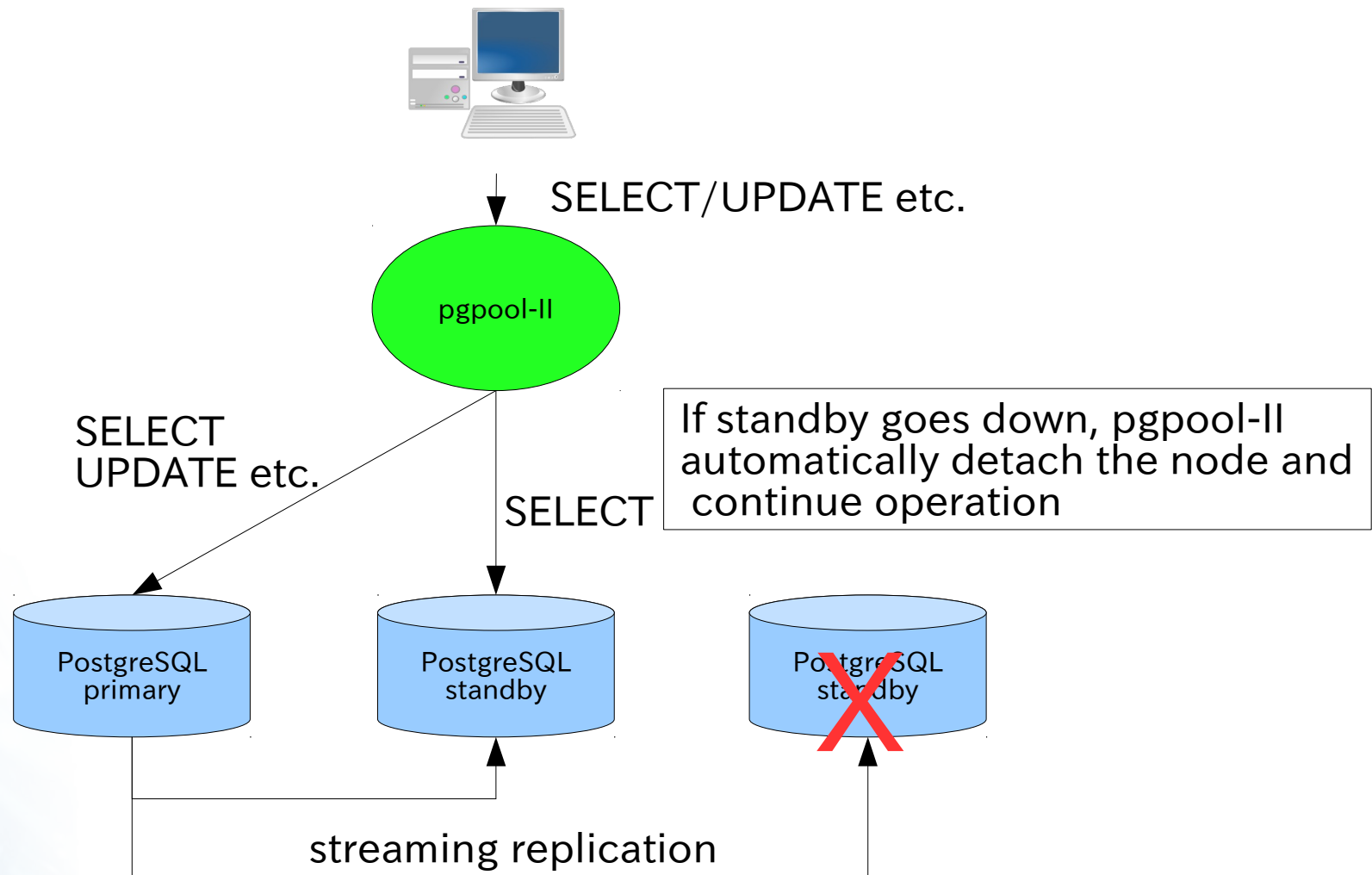
- Proxy like cluster management tool for PostgreSQL and compatible servers
- BSD licensed OSS
- Completely separated from PostgreSQL (not modified PostgreSQL like Postgres-XC)
- Can be used with wide variety of PostgreSQL versions
- Rich function sets to enhance performance and availability of PostgreSQL
- Actively developed
 - Once a year major version up
 - 2-3 times a year of minor version up



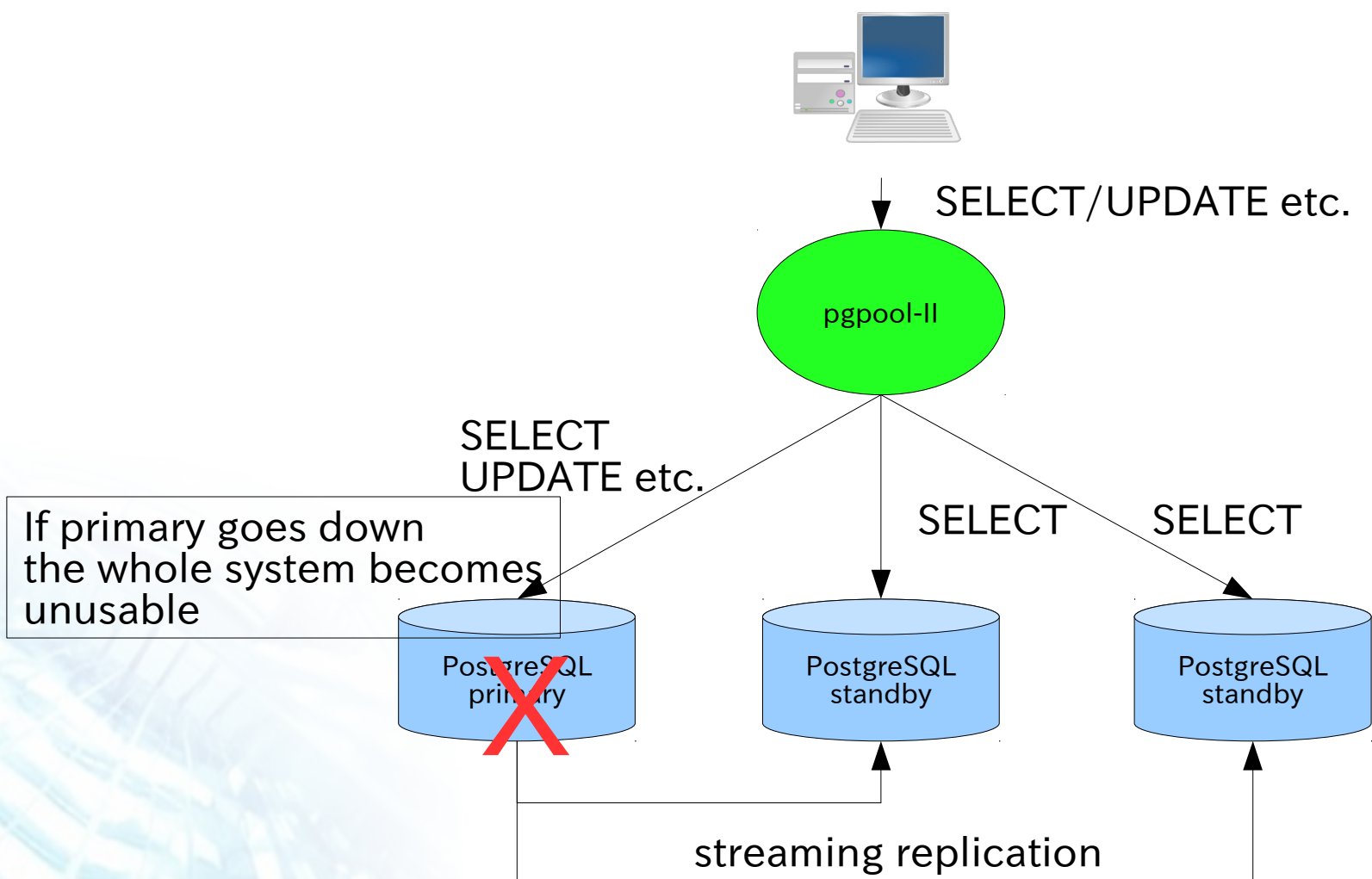
How pgpool-II works(1)



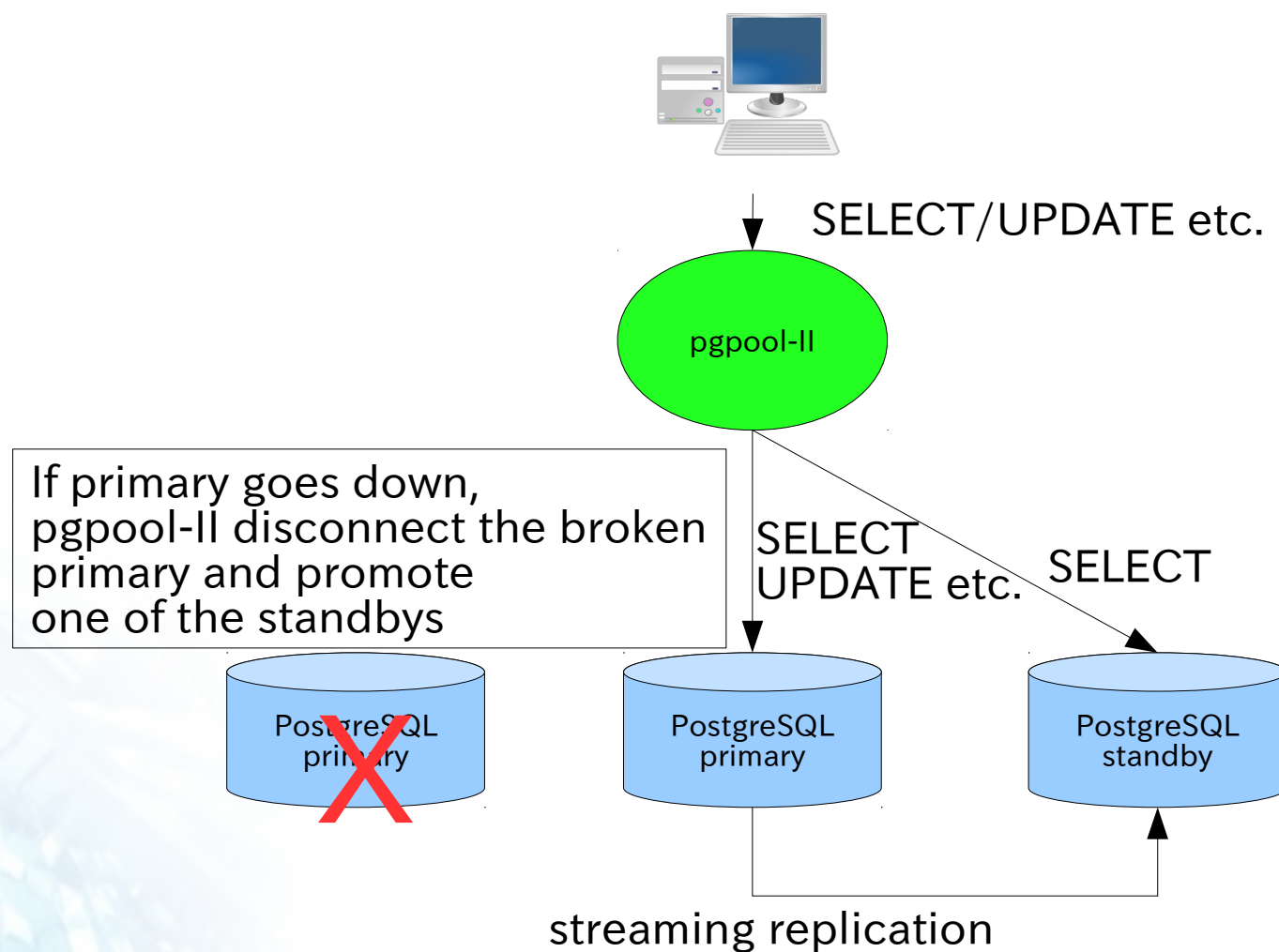
How pgpool-II works(2)



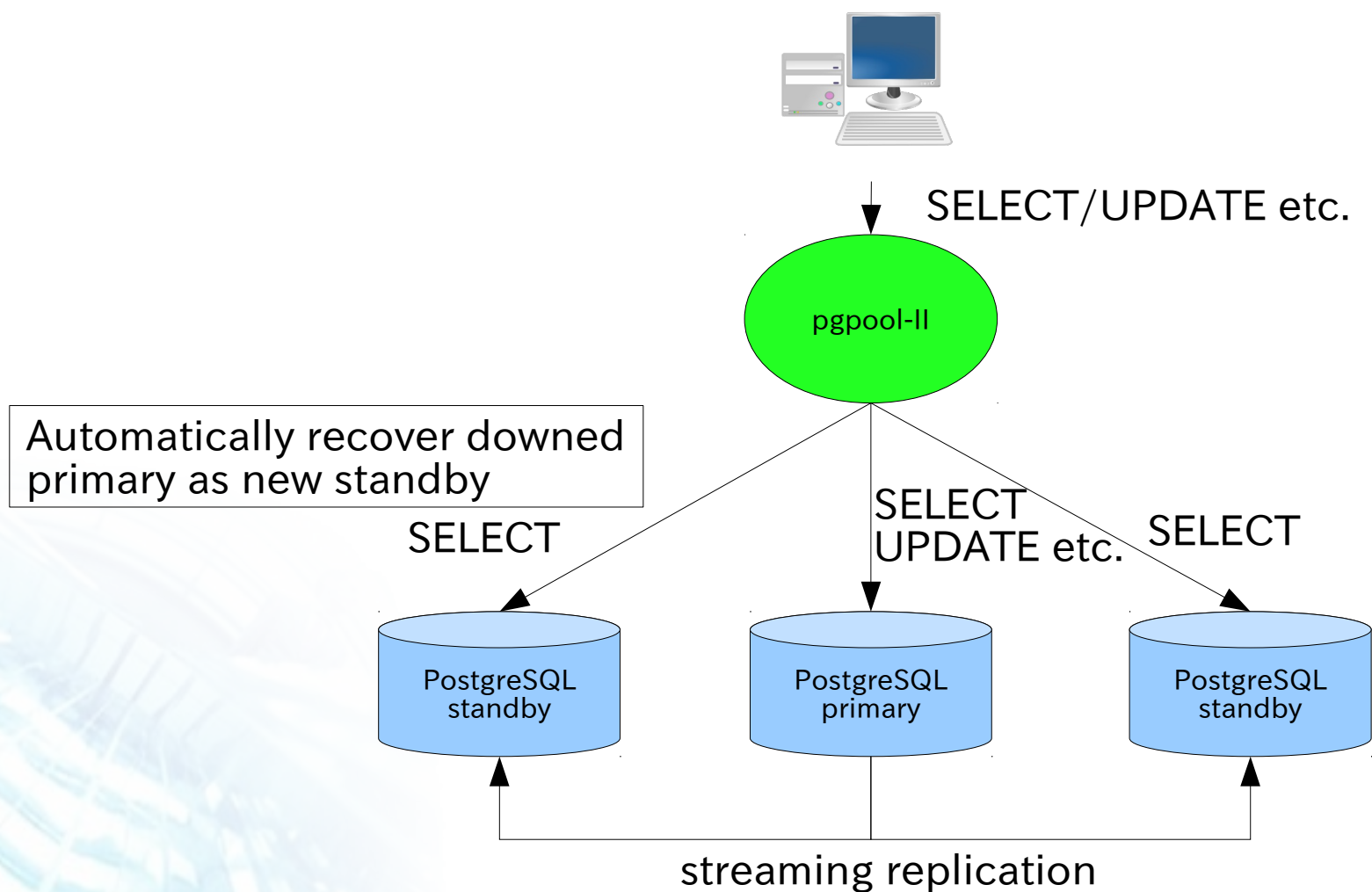
How pgpool-II works(3)



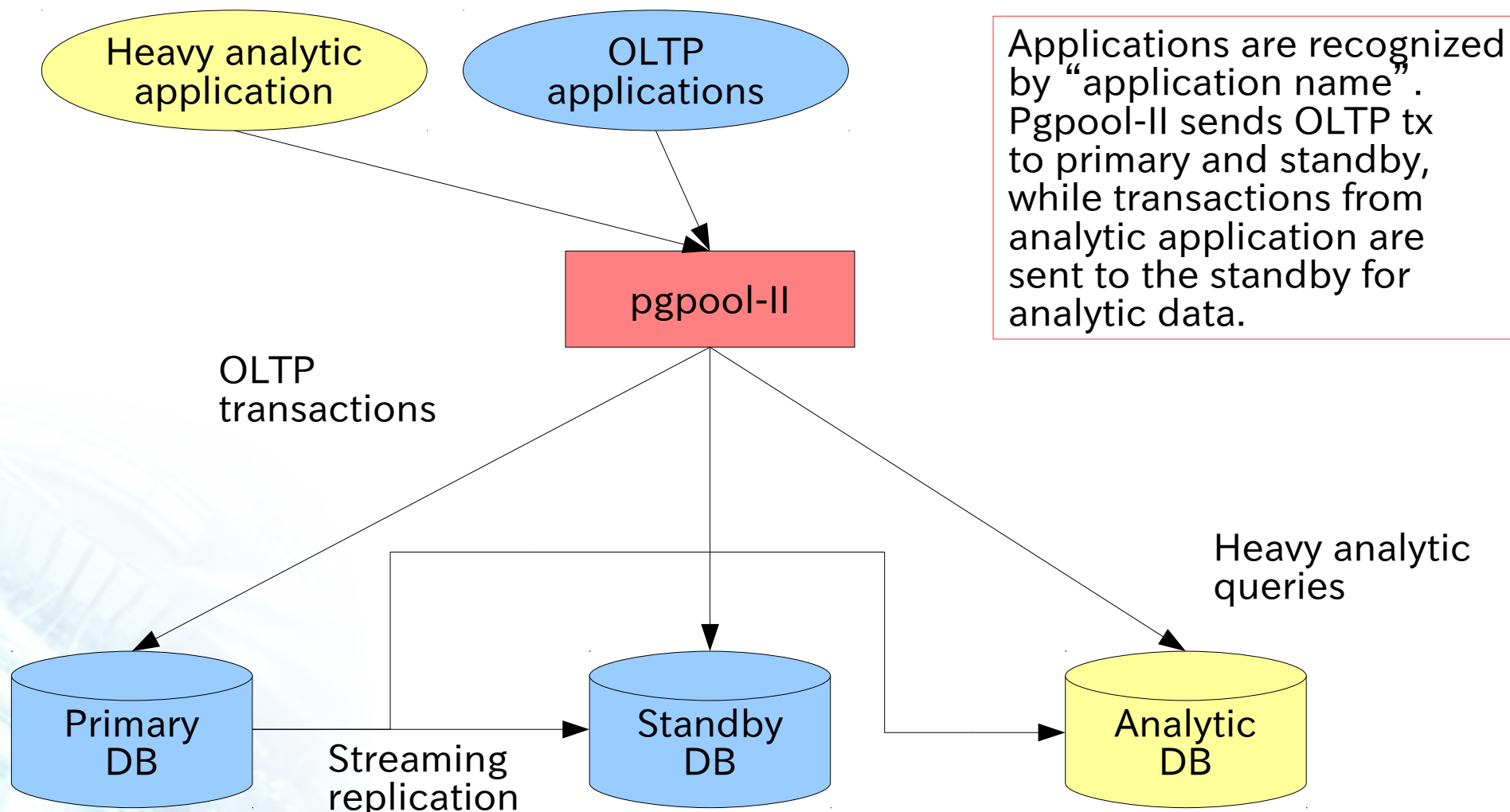
How pgpool-II works(4)



How pgpool-II works(5)



Run heavy analytic queries without disturbing OLTP transactions

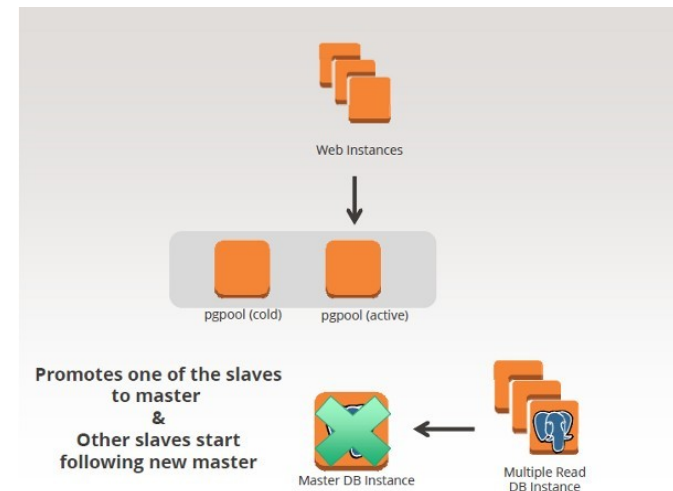


How to use query redirect in pgpool-II

- Parameters to control read query load balancing
 - `database_redirect_preference_list`
 - `DB_name:node_spec,DB_name:node_spec...`
 - Regular expression can be used for DB name
 - “Node spec” can be either of:
 - “primary”, “standby”, or node number
 - `app_name_redirect_preference_list`
 - `app_name:node_spec,app_name:node_spec...`
 - Regular expression can be used for app name
 - “Node spec” can be either of:
 - “primary”, “standby”, or node number
 - If `database_redirect_preference_list` and `app_name_redirect_preference_list` conflicts each other, `app_name_redirect_preference_list` is used

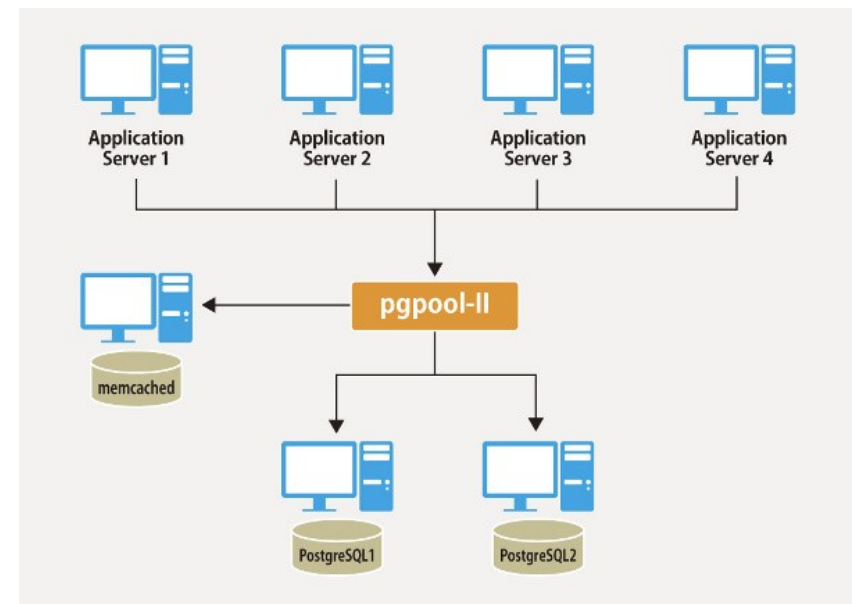
Case study:Gengo

- Provides translation service via Web or API for over 37 languages. 13,000 translators all over the world
- All servers are running on Amazon Web Services (AWS) using PostgreSQL
- Had troubles w occasional DB down and performance problem
- To achieve more reliability and performance, **pgpool-II** is used with **streaming replication**
- In addition to this they need to move to the recent PostgreSQL version
- All migration efforts went smoothly in the planned maintenance window
- http://www.sraoss.co.jp/case_study/gengo_en.php



Case study: DAI-ICHI HOKI

- DAI-ICHI HOKI co., Ltd. is a company that sells law-related books and provides online data
- They employed PostgreSQL as a database, and pgpool-II for redundancy and to improve performance
- Before the data update was **once a month** which was frustrating for their customers
- With the new system data update is **once a day!**
- The **auto fail over** is managed by pgpool-II, which allows the system to continue the operation when the master DB goes down (it actually happened)
- pgpool-II's **in memory query cache** boosts the performance
- http://www.sraoss.co.jp/case_study/daiic_hihoki_en.php



Summary

- PostgreSQL is quite popular in Japan
- The reason behind this is user's community (JPUG) and company's community (PGECcons)
- pgpool-II
 - pgpool-II: <http://pgpool.net>
- Case studies
- URLs

