



How can I **backup** my
PostgreSQL databases?

custom scripts,
pg_backrest, WAL-G,
pg_probackup, Barman, ...?

As technical people we
have a tendency to focus
on the **means** (tools)



Means without **goals**
are useless

What are the **business continuity goals** of my **PostgreSQL infrastructure?**



With **clear goals**
any tool is fine

2ndQuadrant[®] 
PostgreSQL

Barman in action

PGDay.IT 2019 - May 17

Gabriele Bartolini



About myself

- Open Source passionate and programmer since 1995
- First time with Postgres in 1997, regular from ~2000
- Co-Founder of ITPUG and PostgreSQL Europe
- With 2ndQuadrant since 2008
 - Head of Global Support
- Co-Founder and developer of Barman
- Lean and DevOps practitioner



Barman 2.8 released today!

DevOps culture: release any time, even on Friday 17th
*(In Italian culture, **Friday 17th** is a day of bad luck)*



Goals

Recovery Point Objective (RPO)

“How much data the business can afford to lose”

Recovery Time Objective (RTO)

“How long it takes to restore the business service”

“From 0 to 100: Business continuity with PostgreSQL”:

<https://www.youtube.com/watch?v=-EuVjj3zqE8>



Incremental approach

- Keep our **goals** in mind (RPO and RTO)
- Focus on **Disaster Recovery** (DR)
- Incrementally build a solid DR solution for PostgreSQL based on Barman
- *What better approach than a practical one?*



Playground used in this talk

<https://github.com/2ndquadrant-it/ansible-postgresql-barman-playground>

4 machine Vagrant playground environment with Ansible Playbooks for provisioning of PostgreSQL and Barman

Available under GNU GPL 3

After the talk explore the playbook and “play” with it



JOHN



PAUL



GEORGE



RINGO



The “Beatles” cluster

- 4 CentOS pre-configured virtual machines:
 - **Paul:** PostgreSQL 11 + barman-cli on 192.168.33.10
 - **John:** PostgreSQL 11 + barman-cli on 192.168.33.11
 - **George:** Barman 2.8 on 192.168.33.12
 - **Ringo:** Barman 2.8 on 192.168.33.13

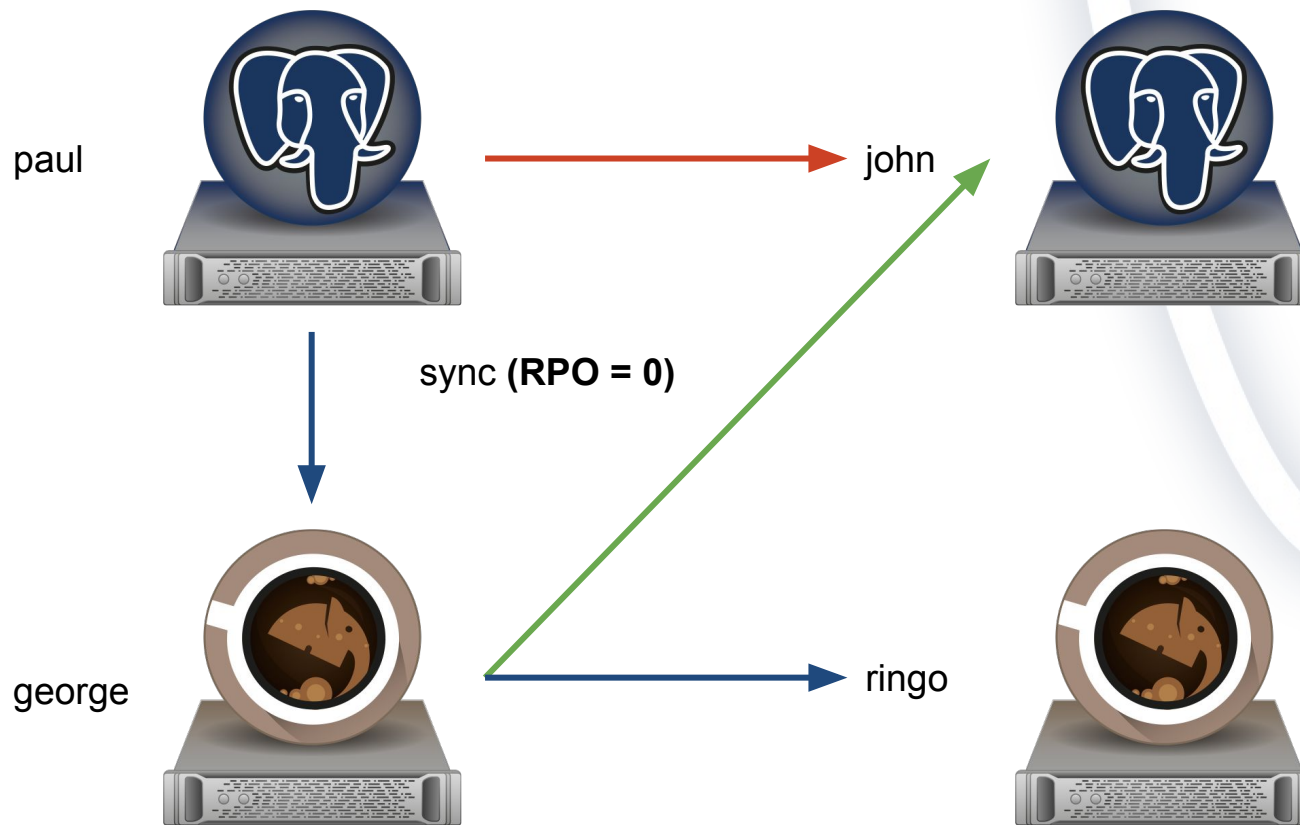


What Ansible did for us

- Basic PostgreSQL configuration
 - PGDATA initialised with data checksums
 - Archive mode enabled
 - Syslog destination for logs
 - Enable md5 access from 192.168.33.x in pg_hba
 - Empty database for pgbench
- Paul and John have a running PostgreSQL instance
- SSH key exchange between *postgres* and *barman* users



What we will be doing today





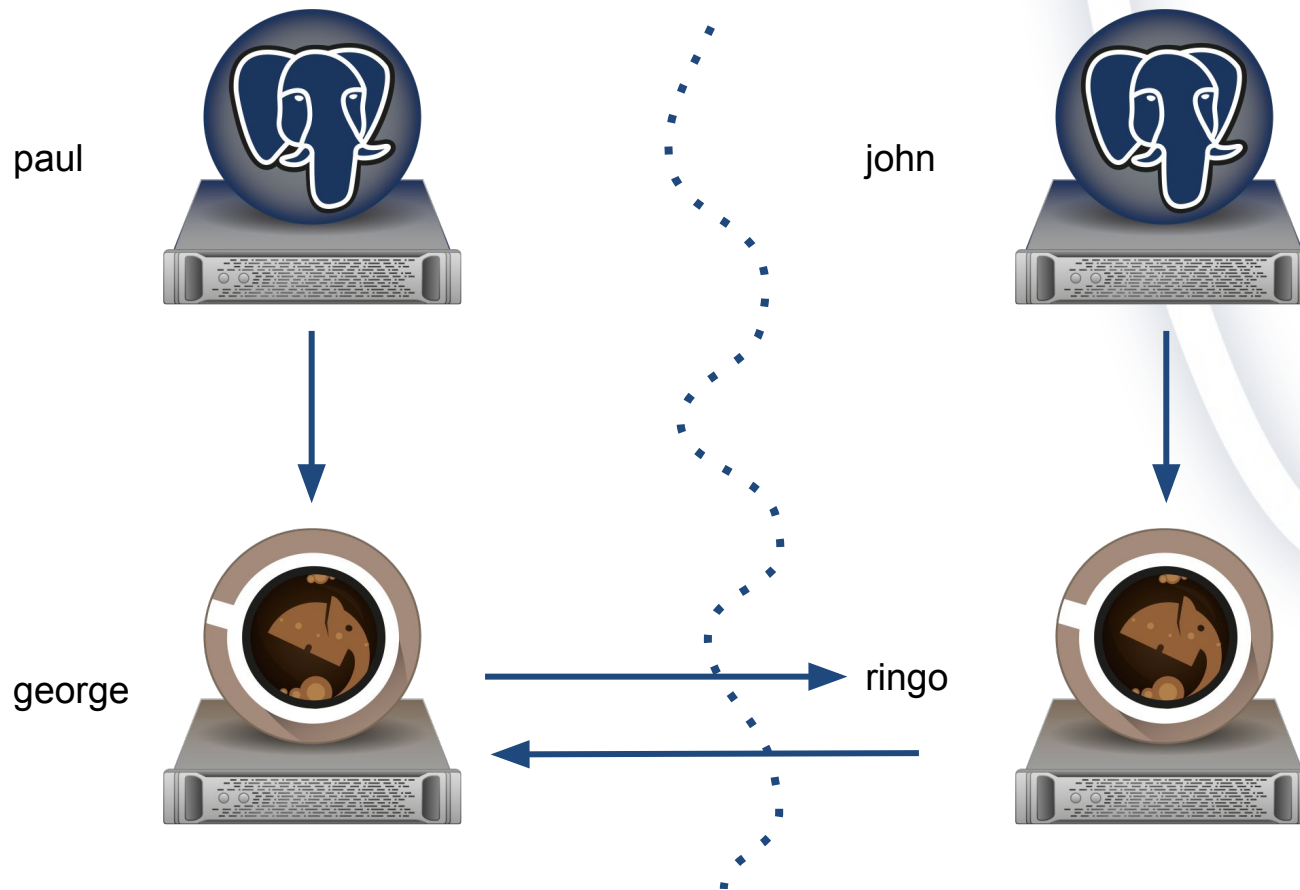


Hands-on now

- No live performance
 - “Playback” (I know, “boo”)
 - Using *asciinema* recorded casts
 - <https://asciinema.org>



There's more ...





There's more

- Backup frequency (cron for “barman backup”)
- Retention policies
 - Redundancy (number of backups)
 - Point of Recoverability (based on time)
- Archive command (barman-wal-archive)
- Streaming backup
- Point In Time Recovery (define a target)
- Monitoring, monitoring, monitoring



Future

- Direct cloud storage (starting with AWS S3) - 2.9
 - barman-cloud-wal-archive
 - barman-cloud-wal-restore
 - barman-cloud-backup
 - barman-cloud-recover
- Integration of the above with Barman - 2.10/3.0?
- Multi-tier setups, based on retention policies:
 - Tier 2: Local compressed backups
 - Tier 3: Cloud storage



DR Through the Beatles

I'm down. Yesterday my PostgreSQL cluster had a storage problem. I can't bring it up. **Don't let me down! You can't do that! I should have known better**, I have no backups! It's been a **hard day's night** ...

Help! Please **get back** my Postgres database! **I've got a feeling**: I've lost all my data. **I'll cry instead**.

Recovery is now a **long and winding road**. **Do you want to know a secret?** I have learnt my lesson now. **We can work it out**, it is going to be a **revolution**. I will now take backups **eight days a week**.

Oh, **Here comes the sun!** And with geo-redundancy and cloud storage it is going to be **here, there and everywhere**. **From me to you**: now **I feel fine**.

Sincerely yours,

The fool on the hill

(You: "**All you need is love** Barman")



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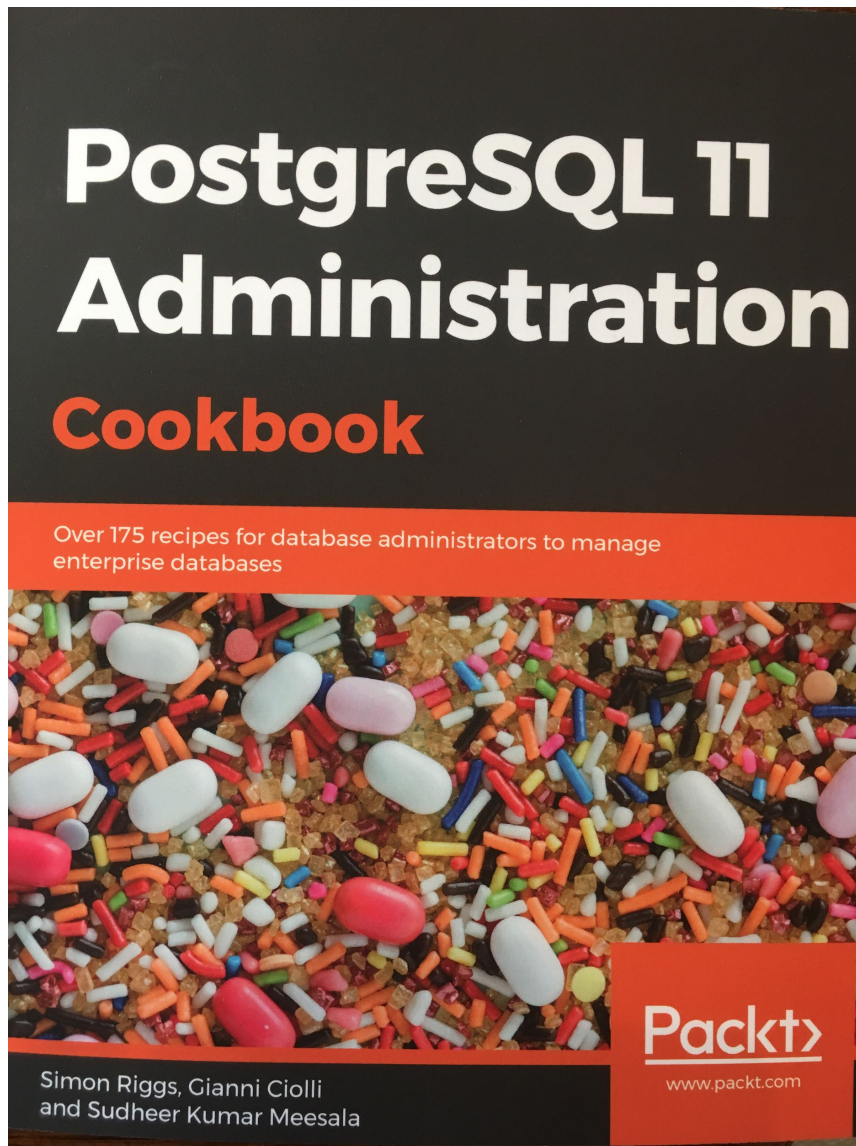
Thanks to

- Barman development team
- For Ansible automation:
 - Rubens Souza
 - Anna Bellandi
- Benjamin Zander for Rule #6
 - <https://www.youtube.com/watch?v=M-HG6X6fpBM>



We're hiring

- PostgreSQL DBA in Global Production Support
 - European timezone
 - Follow the sun
 - Reactive and proactive contributions



Released today too!

(Simon and Gianni say “hi”)



Asciinema recordings

- <https://asciinema.org/a/CO270x2NNfBi9vZPS6orM5zRE>
- <https://asciinema.org/a/rz3edZ07RoagH0rZ2M3oid85x>
- <https://asciinema.org/a/cNdxNdIZQE5x0f1vBVhbM27ft>
- <https://asciinema.org/a/KXRk5NE8DcXaScElXTfXji7vT>
- <https://asciinema.org/a/fuC4xNVGbyfHQZH9UgEShhzYu>
- <https://asciinema.org/a/qEFfCDpPxxzz6cAktbBb92otZ>
- <https://asciinema.org/a/0NEYGKrwUeqtxF940neWdOR2t>
- <https://asciinema.org/a/2QGItjUKHhYfA70vX3FDIMxfb>
- <https://asciinema.org/a/eG5168n1xLPpFApl9UvvP4jSZ>



Thank you!
Questions?

pgbarman.org - docs.pgbarman.org

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