



Trusted Postgres Architect

Automation for
Deployment and Testing

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Before joining EnterpriseDB in 2022, Nick had been working at IBM Canada for more than 10 years as a database and cloud application architect. He has experience with database design, performance tuning, HA&DR implementation, migration on multiple database platforms, primarily PostgreSQL and Db2. He's based in Toronto, Canada.

What is Trusted Postgres Architect?

- Configures and deploys PostgreSQL HA clusters
- Infrastructure as code
- Embodies years of experience and best practices
- Repeatable deployments
- Production grade



Infrastructure As Code

- Describe what you want
- TPA makes it happen
- Ansible is the engine

```
architecture: M1
cluster_name: demo
cluster_tags: {}

cluster_vars:
  failover_manager: repmgr
  postgres_flavour: postgresql
  postgres_version: '16'

locations:
- Name: main
- Name: dr
- Name: witness
```



Infrastructure As Code

- Describe what you want
- TPA makes it happen
- Ansible is the engine
 - Installs appropriate packages
 - Sets up configuration files based on roles

```
instances:  
- Name: pg1  
  location: main  
  node: 1  
  role:  
    - primary  
- Name: pg2  
  location: main  
  node: 2  
  role:  
    - replica  
  upstream: pg1  
- Name: pg3  
  location: dr  
  node: 3  
  role:  
    - replica  
  upstream: pg1
```



Life of an HA Cluster

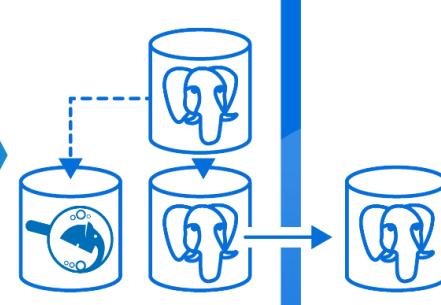
```
>tpaexec configure mycluster \  
--architecture M1 \  
--postgresql 15 \  
--enable-patroni_
```



```
>tpaexec provision \  
mycluster_
```



```
>tpaexec deploy \  
mycluster_
```



Supported Platforms

- Docker — for local development and testing
- AWS — uses AWS Python API
- “Bare metal” — anything else fits



Supported Software Components

Database server	PostgreSQL, EDB Postgres Extended, EDB Postgres Advanced Server
HA architecture	Physical streaming replication, EDB Postgres Distributed
Cluster management	repmgr, Patroni, EFM
Connection pooling	PgBouncer
Proxy	HAProxy
Backup	Barman
Monitoring	Postgres Enterprise Manager



Not Only Deployment

- Manage configuration changes
- Configuration version control
- Automated upgrades
- Automated regression testing
- Anything else that Ansible can do



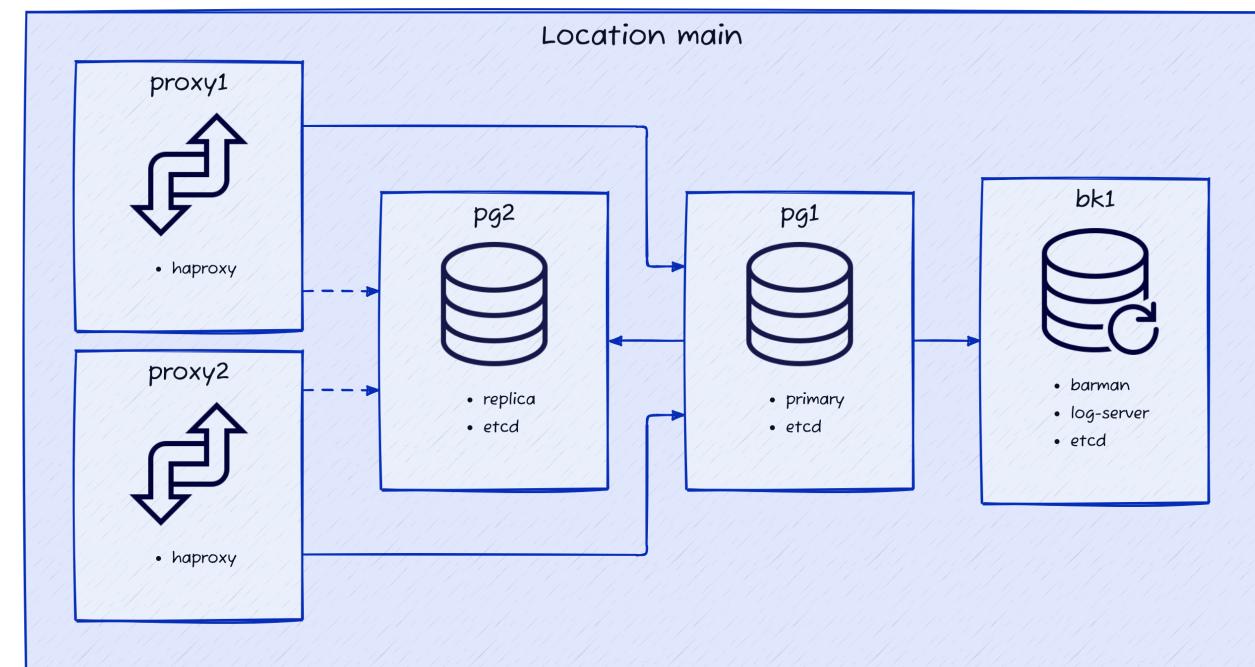
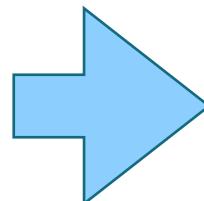
TPA Benefits

- Test once, deploy many
- Fewer human errors → better quality
- Years of experience built in
 - Opinionated, yes, but...
 - you can tweak it to your needs via hooks
- Continuously improved by the community

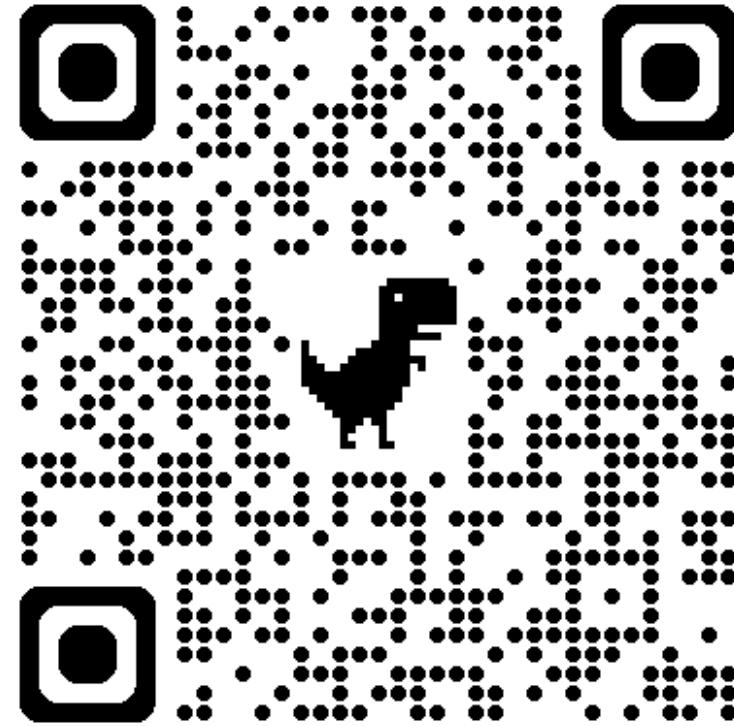


Documentation As Code (or the other way around)

```
instances:  
- Name: pg1  
  location: main  
  node: 1  
  role:  
    - primary  
    - etcd  
  backup: pg3  
- Name: pg2  
  location: main  
  node: 2  
  role:  
    - replica  
    - etcd  
  upstream: pg1  
- Name: pg3  
  location: main  
  node: 3  
  role:  
    - backup  
    - etcd
```



Give it a try!



<https://github.com/EnterpriseDB/tpa>

#PASSDataSummit



<https://github.com/nick-ivanov-edb/presentations>

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Thank you

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