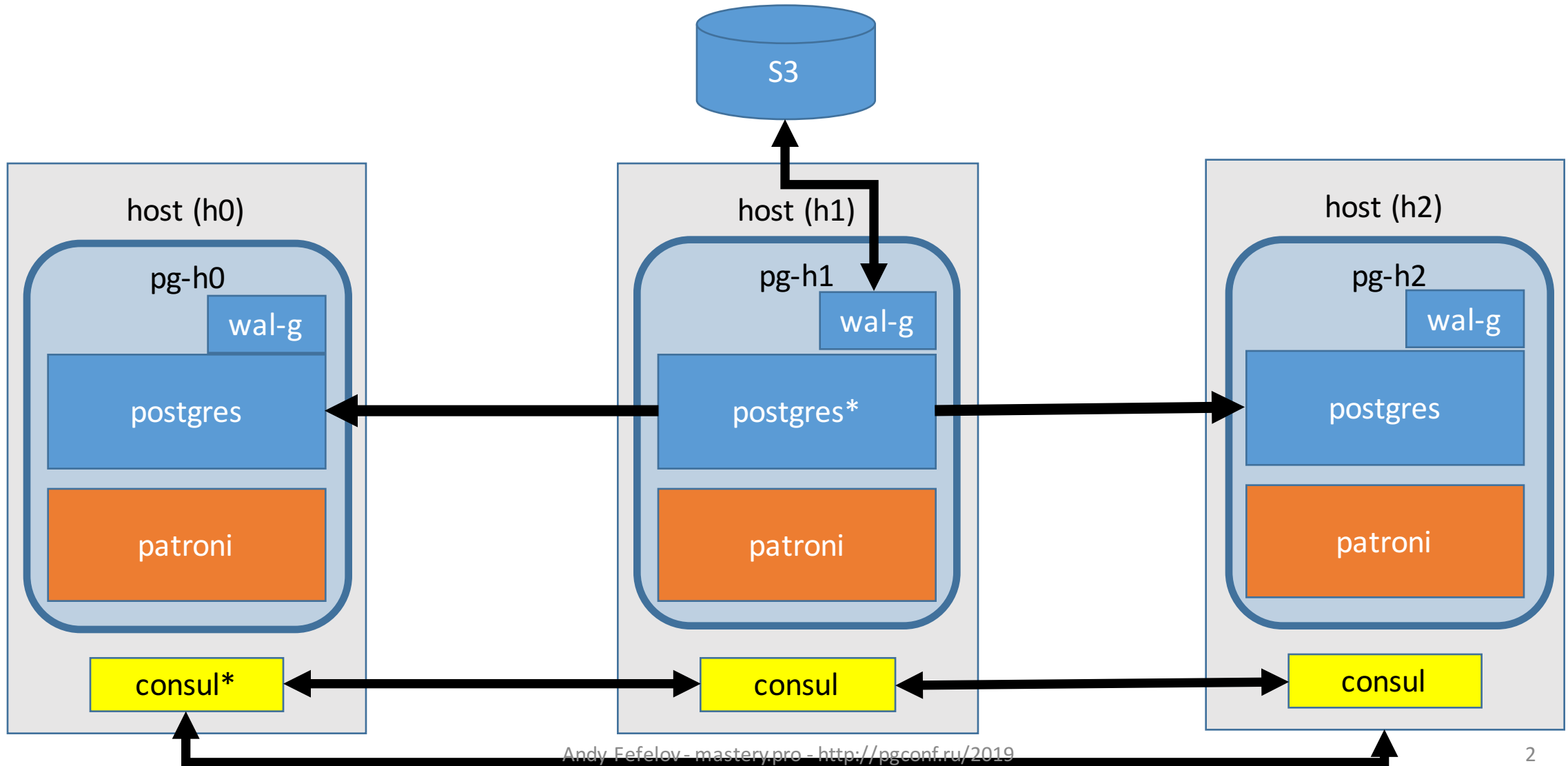


simple postgres HA
using patroni,
ansible, s3, wal-g

Андрей Фефелов
mastery.pro

postgres, patroni, wal-g, s3, ansible



our setup

pgconf.mastery.pro

http://userX:passwd@pgconf.mastery.pro:800X

dind (afefelov/masterclass-dind-gotty)

dind (afefelov/baseimage-dind) – [h0, h1, h2]

consul

postgres -> afefelov/patroni-class-pg-9.6-walg

commands

`docker version`

<http://github.com/afefelov/patroni-class>

`Ctrl+C`, `Ctrl+V`, `Shift+Ins`, `Ctrl+Ins`?

No extensions

our setup

ansible:

roles

infra (drop the world)

consul (1st class service)

patroni (postgres with patroni)

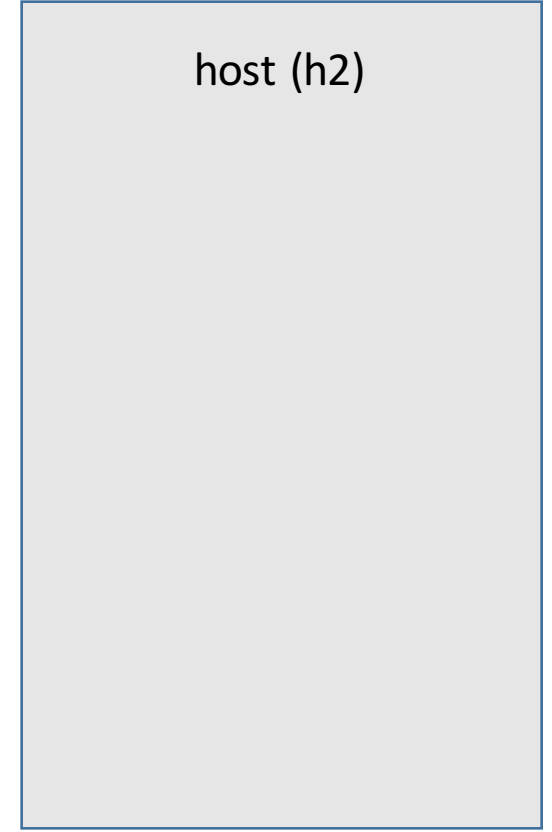
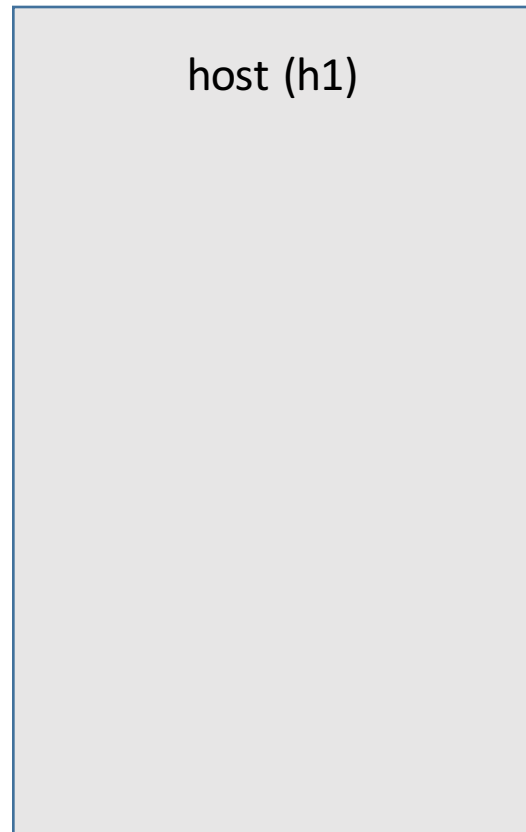
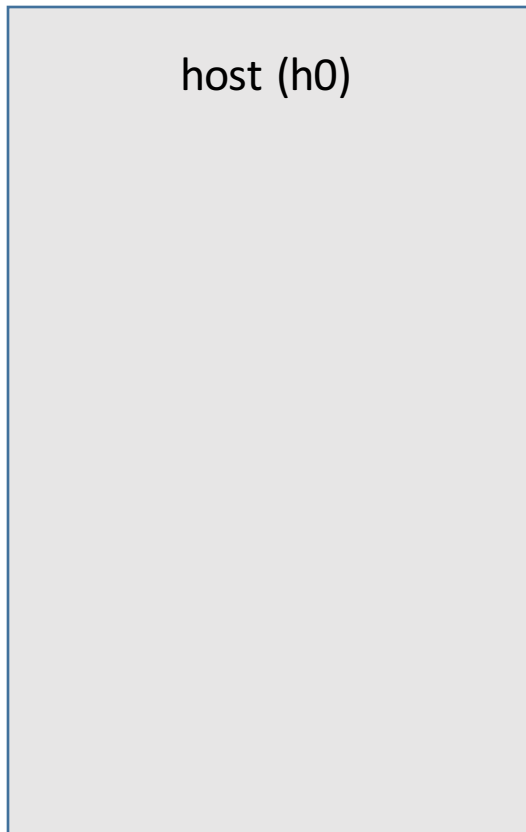
patroni by zalando

- “bot pattern” for postgres
- using DCS as storage (consul)
- failover
- switchover
- fencing
- sync/async mode

patroni by zalando

- patronictl
- custom bootstrap
- standby cluster
- hooks
- python based

setup




```
console
```

```
ansible-playbook -i inventory  
init.yml
```

```
docker ps
```

consul

- DCS

- kv

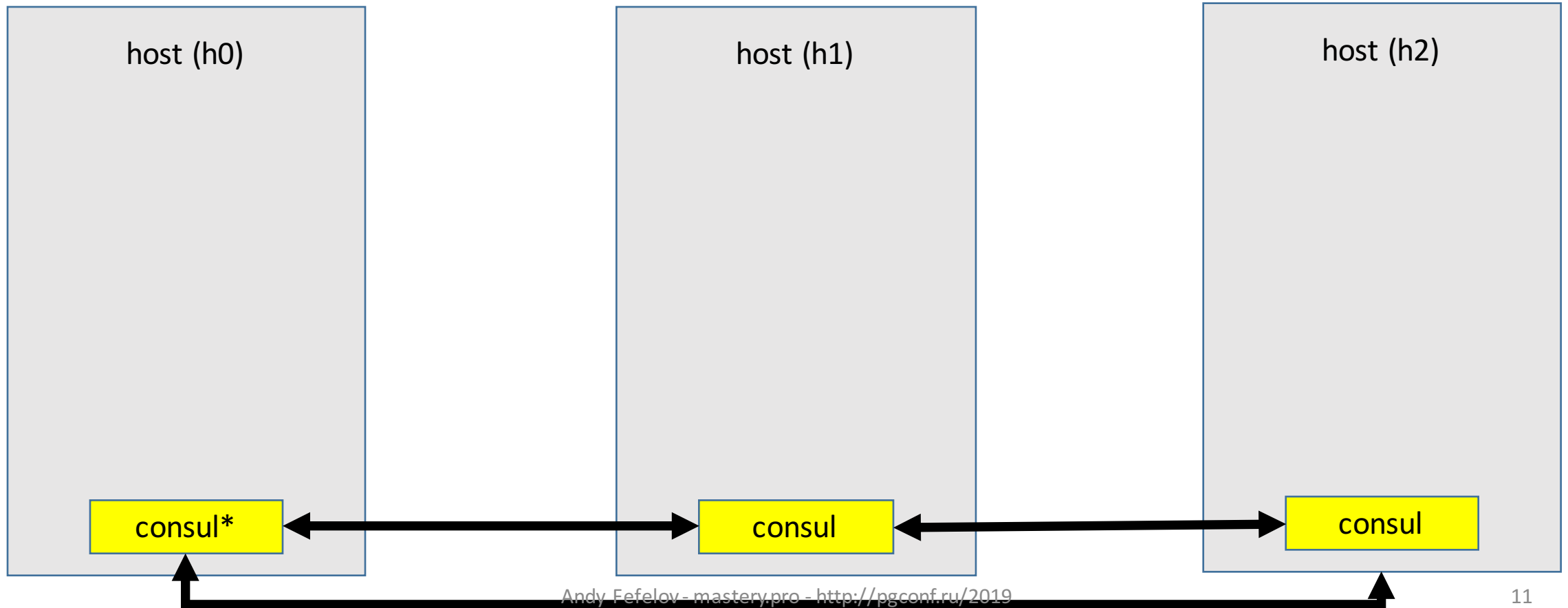
- dns resolver

- internal checks

- ui

- by hashicorp

consul



```
console - consul
```

```
./dynamic_inventory.py
```

```
ansible-playbook -i dynamic_inventory.py  
consul.yml
```

```
docker logs h0
```

patroni by zalando

- “bot pattern” for postgres
- using DCS as storage (consul)
- failover, switchover
- promoting, demoting, fencing
- hooks
- custom bootstrap
- python based

patroni by zalando

name: {{ patroni_node_name }}

scope: {{ patroni_scope }}

watchdog:

mode: off

consul:

host: "{{ ansible_host }}:8500"

register_service: true

restapi:

listen: 0.0.0.0:8008

connect_address: "{{ ansible_host }}:8008"

auth: 'username:password'

patroni by zalando

bootstrap:

 dcs:

 ttl: 30

 loop_wait: 10

 maximum_lag_on_failover: 1048576

 postgresql:

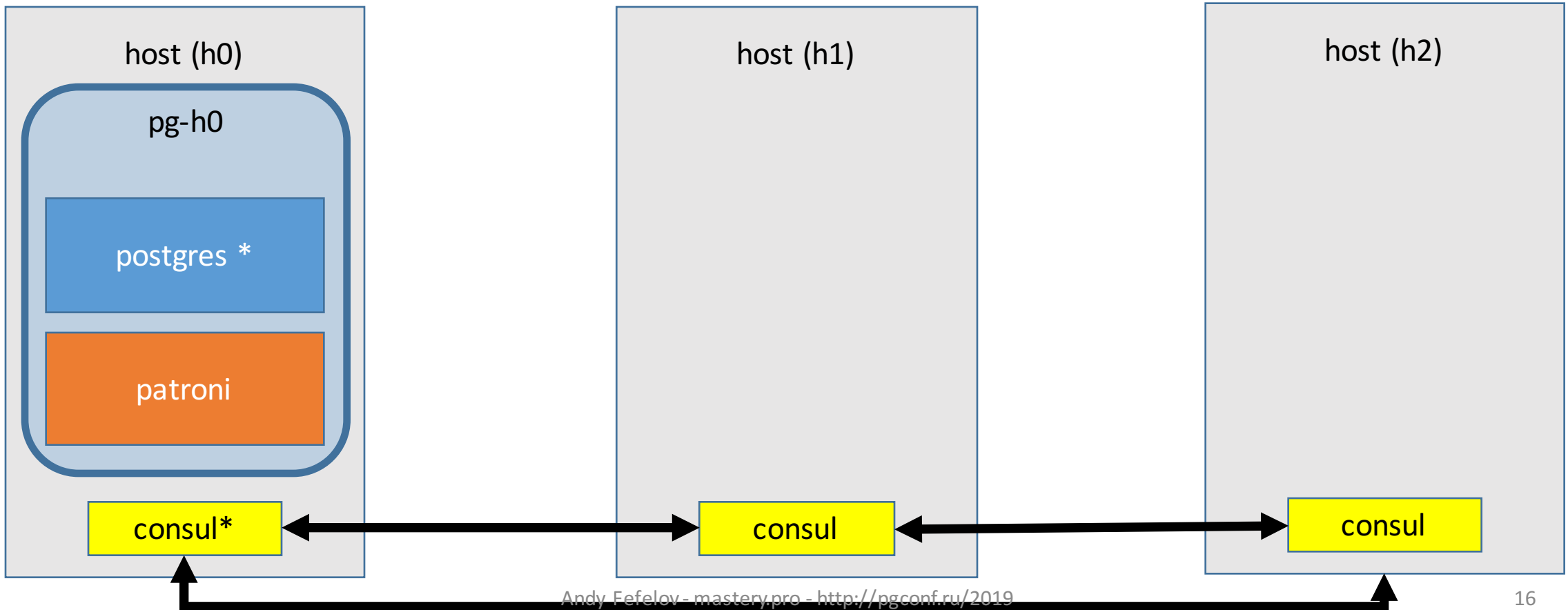
 use_pg_rewind: true

 use_slots: true

 parameters:

 ...

single master




```
console - patroni
```

```
./dynamic_inventory.py # h0->172.18.0.2
```

```
ansible-playbook -i dynamic_inventory.py  
patroni.yml --tags=patroni-init --limit=172.18.0.2
```

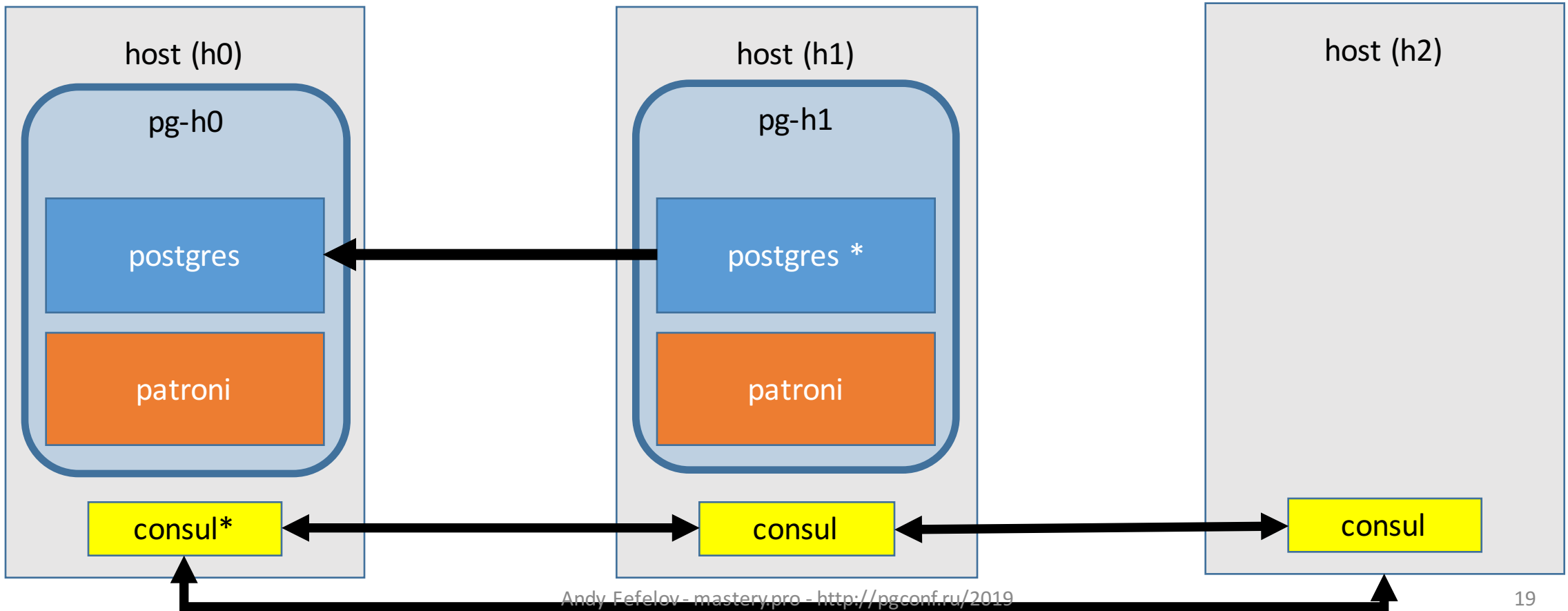
```
docker exec -it h0 docker ps
```

```
console - master
```

```
docker exec -it h0 docker logs pg-h0
```

```
docker exec -it h0 docker exec -it pg-h0 ping  
master.patroni-class.service.consul
```

master + slave



```
console - slave
```

```
ansible-playbook -i dynamic_inventory.py  
patroni.yml --tags=patroni-init --limit=172.18.0.3
```

```
docker exec -it h0 docker exec -it pg-h0 ping  
replica.patroni-class.service.consul
```

```
docker exec -it h1 docker logs --tail 100 pg-h1
```

console - check

```
docker exec -it h0 docker exec -it pg-h0 gosu  
postgres psql -c "CREATE TABLE bins AS  
SELECT * FROM GENERATE_SERIES(1, 10000)  
AS id; "
```

```
docker exec -it h1 docker exec -it pg-h1 gosu  
postgres psql -c "SELECT max(id) from bins;"
```

console - switchover

```
docker exec -it h1 docker exec -it pg-h1 bash patronictl --help
```

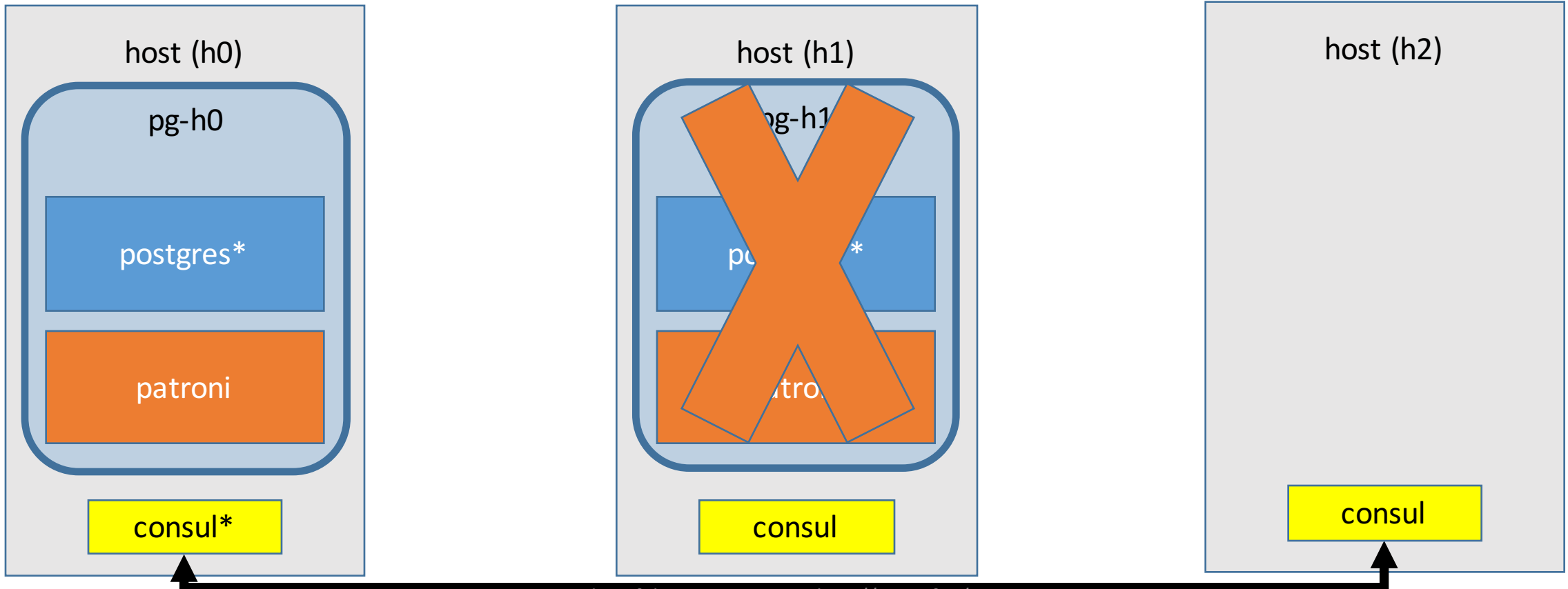
```
patronictl -c /var/lib/postgresql/patroni.yml list
```

```
patronictl -c /var/lib/postgresql/patroni.yml switchover
```

```
patronictl -c /var/lib/postgresql/patroni.yml list
```

```
ping master.patroni-class.service.consul exit
```

failover



console - fencing

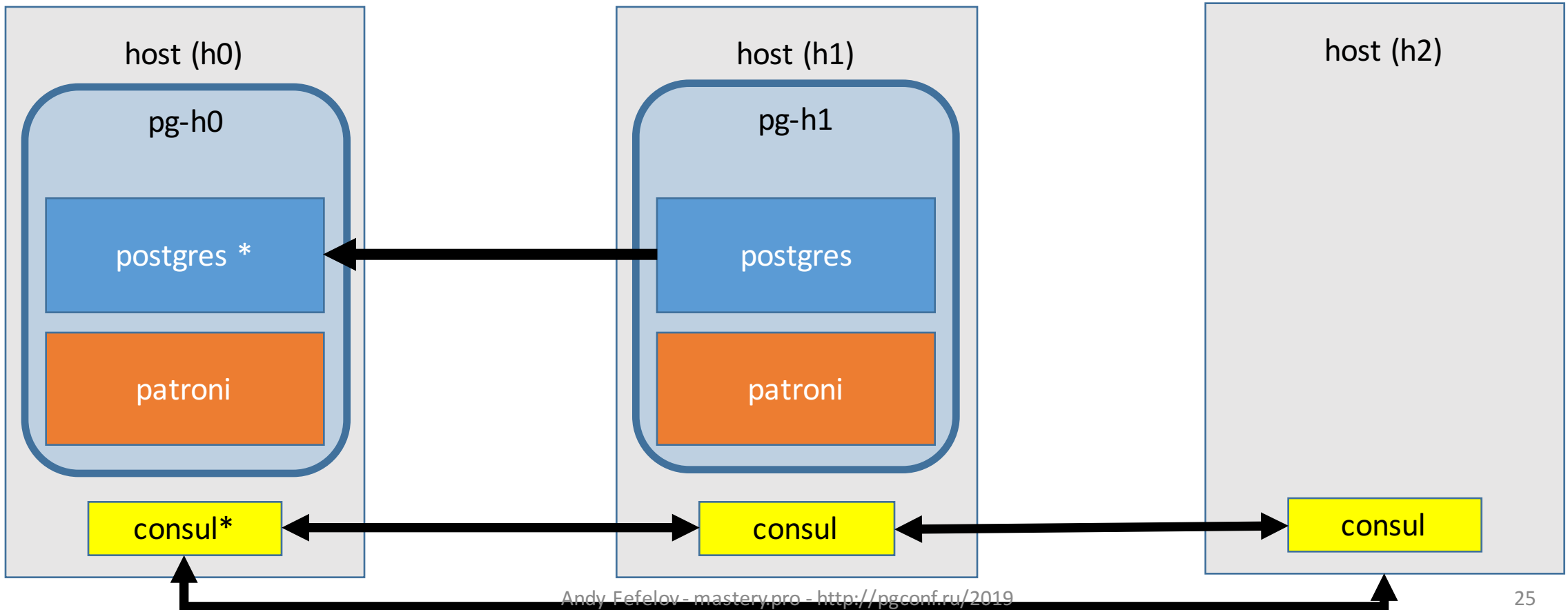
```
docker network disconnect bridge h1
```

```
docker exec -it h0 docker exec -it pg-h0 patronictl -c  
/var/lib/postgresql/patroni.yml list
```

```
docker network connect bridge h1
```

```
docker exec -it h0 docker exec -it pg-h0 patronictl -c  
/var/lib/postgresql/patroni.yml list
```


fencing



wal-g

- inspired by wal-e
- fast
- really fast
- simple
- well, production ready

custom init

bootstrap:

method: walg

walg:

command: "/usr/bin/restore_backup.sh"

keep_existing_recovery_conf: false

recovery_conf:

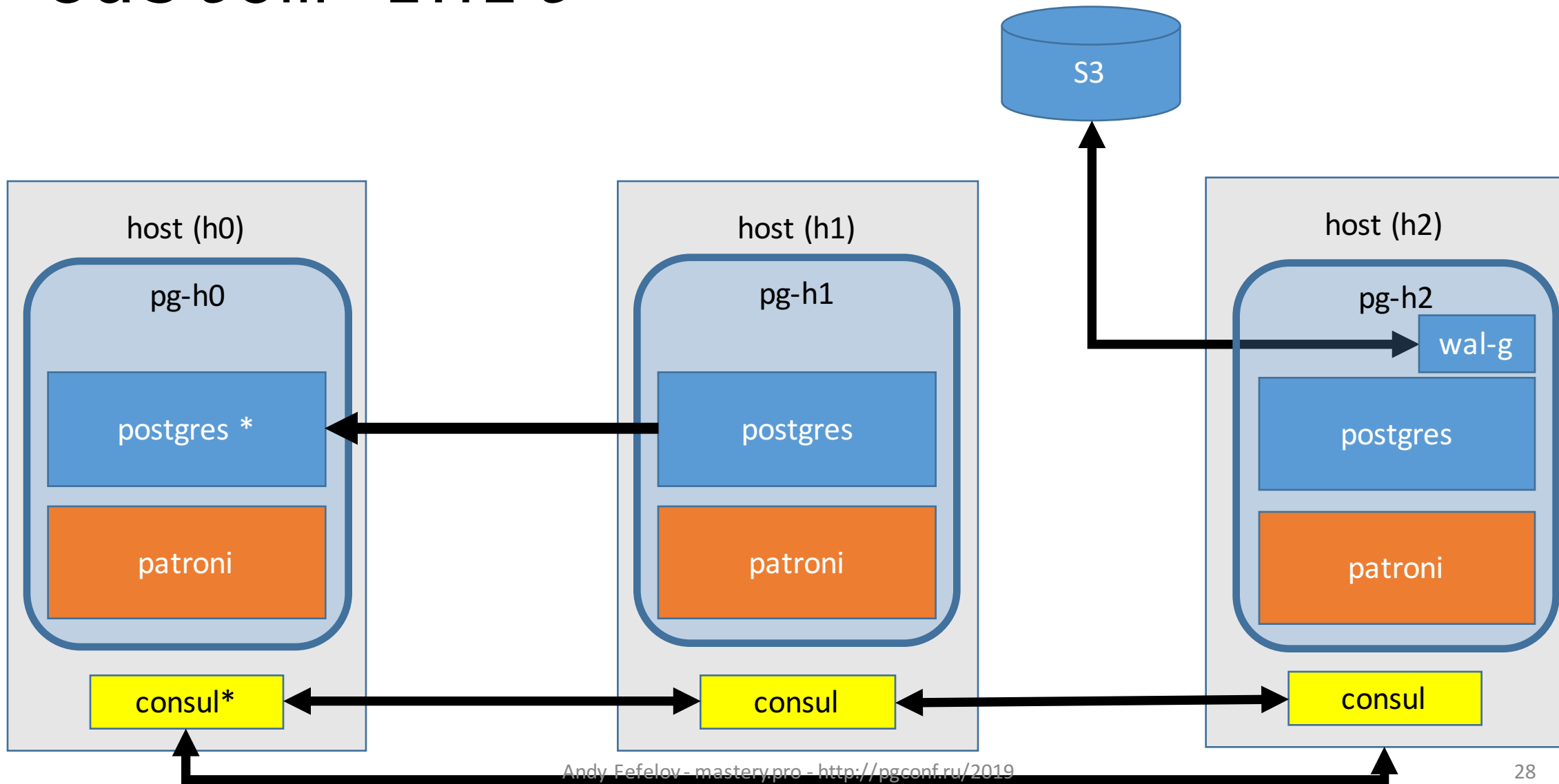
recovery_target_action: promote

recovery_target_timeline: latest

restore_command:

"/usr/bin/restore_command.sh %f %p"

custom init



console - custom init

Let's init cluster from s3# we changed scope from
patroni-class to patroni-class-walg

```
ansible-playbook -i dynamic_inventory.py patroni.yml  
--tags=patroni-init-walg --limit=172.18.0.4
```

```
docker exec -it h2 docker logs --tail 100 pg-h2
```

```
docker exec -it pg-h2 gosu postgres psql -c "SELECT  
max(id) from walg3;"
```

upcoming

- 6.02 – 13:00 – Андрей Бородин: [Резервные копии с WAL-G. Что там в 2019?](#)
- 6.02 – 17:00 Александр Кукушкин
[Типичные ошибки при построении высокодоступных кластеров и как их избежать](#)
- 5.02 – 11:45 Андрей Фефелов
[Как мы выбирали среди patroni, stolon, repmgr для нашего отказоустойчивого Постгреса](#)

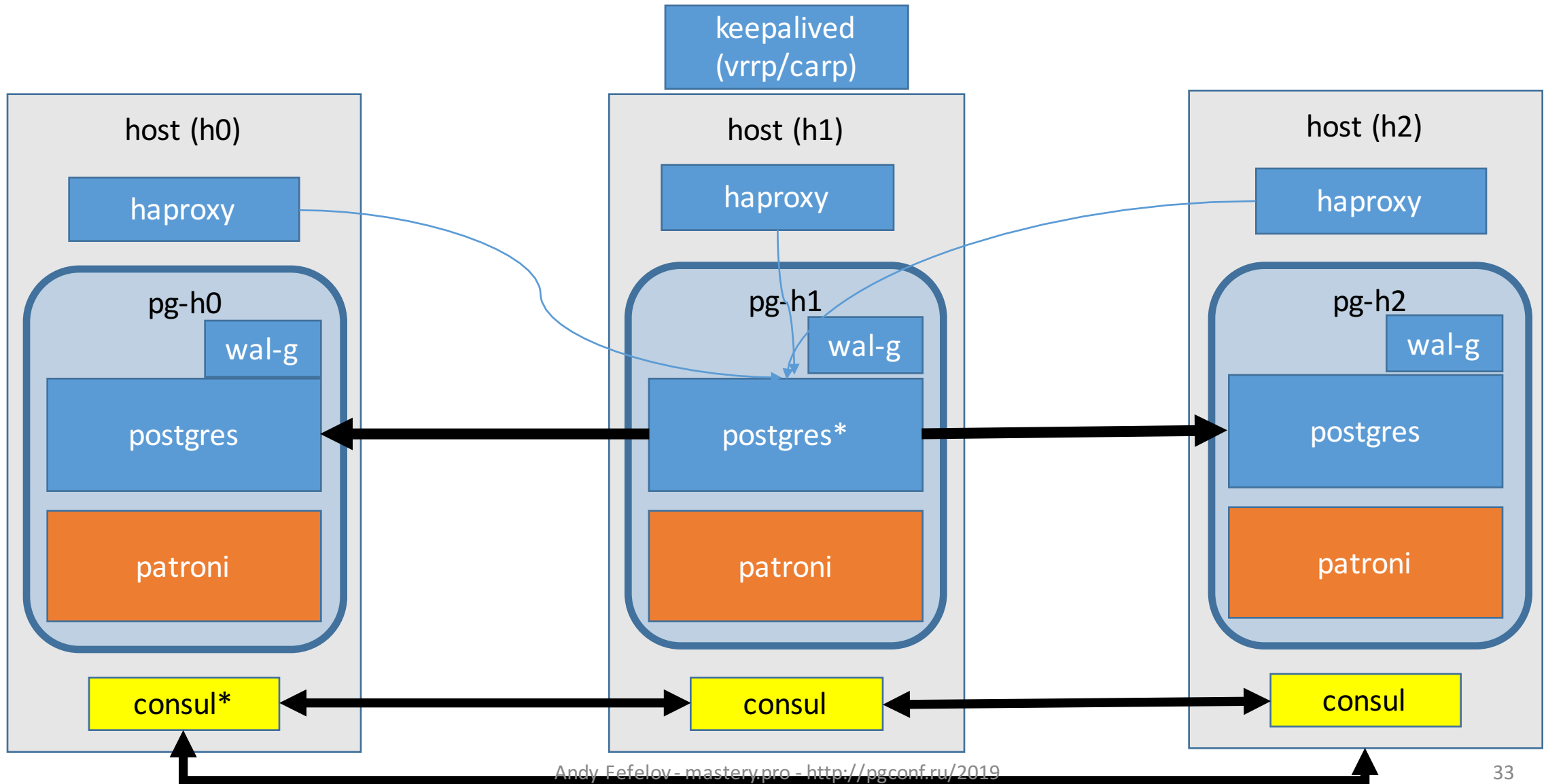
thank you

- Александр Кукушкин
- Андрей Бородин
- Алексей Лесовский -> Вахов
- mastery.pro team
- Selectel

telegram group

patroni-class

alternative: haproxy+keepalived



links

- patroni.readthedocs.io/
- github.com/wal-g/wal-g
- github.com/afefelov/patroni-class
- afefelov/**patroni-class-pg-9.6-walg**
- afefelov/**baseimage-dind**
- afefelov/**masterclass-dind-gotty**