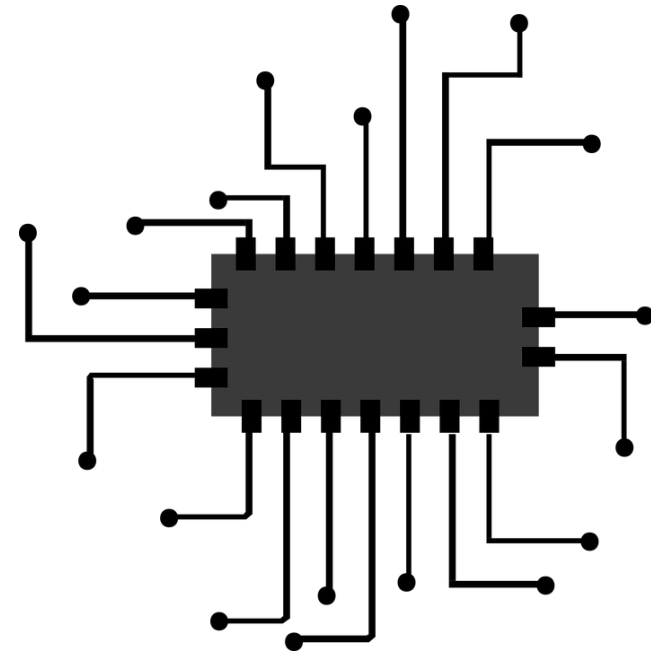


# Zabbix native HA: Lessons learned and Tips & Tricks



# Who am I?



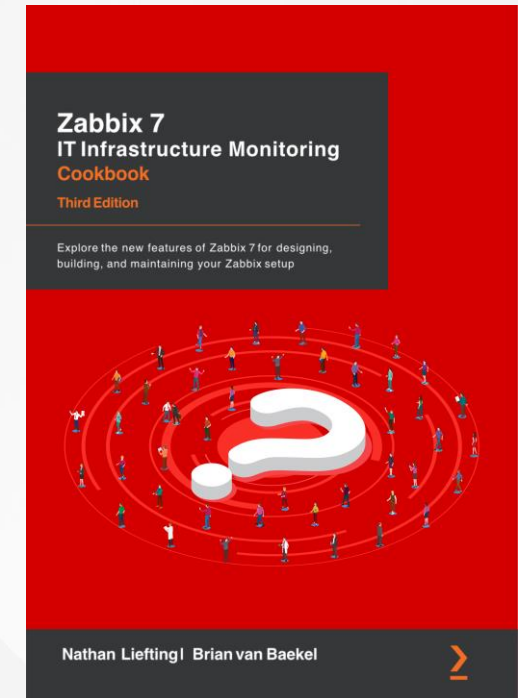
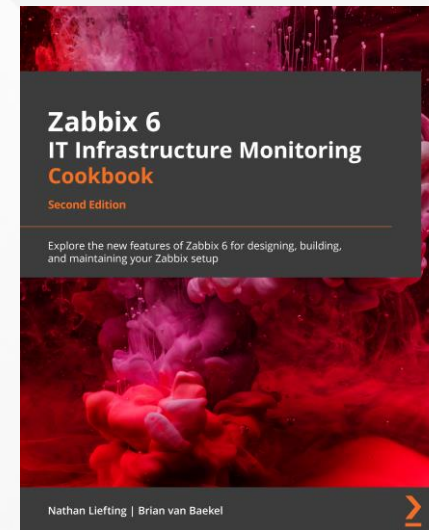
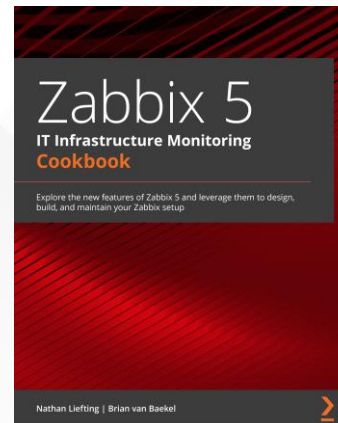
Nathan Liefting  
Zabbix Consultant / Trainer



# Opensource ICT Solutions



- Zabbix support
- Zabbix training
- Zabbix consultancy
- And more...



<https://www.linkedin.com/company/opensource-ict-solutions/>



# Introduction



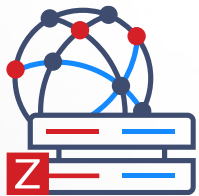
- Zabbix server



- Zabbix frontend



- Zabbix database



- Zabbix proxies

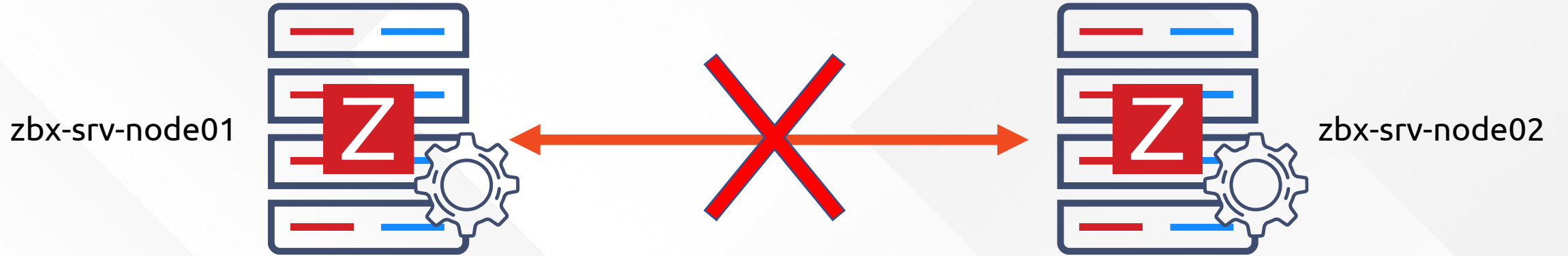
Natively built by Zabbix

Use industry best practices

Look at database options

Nothing available or is there?

# Zabbix server



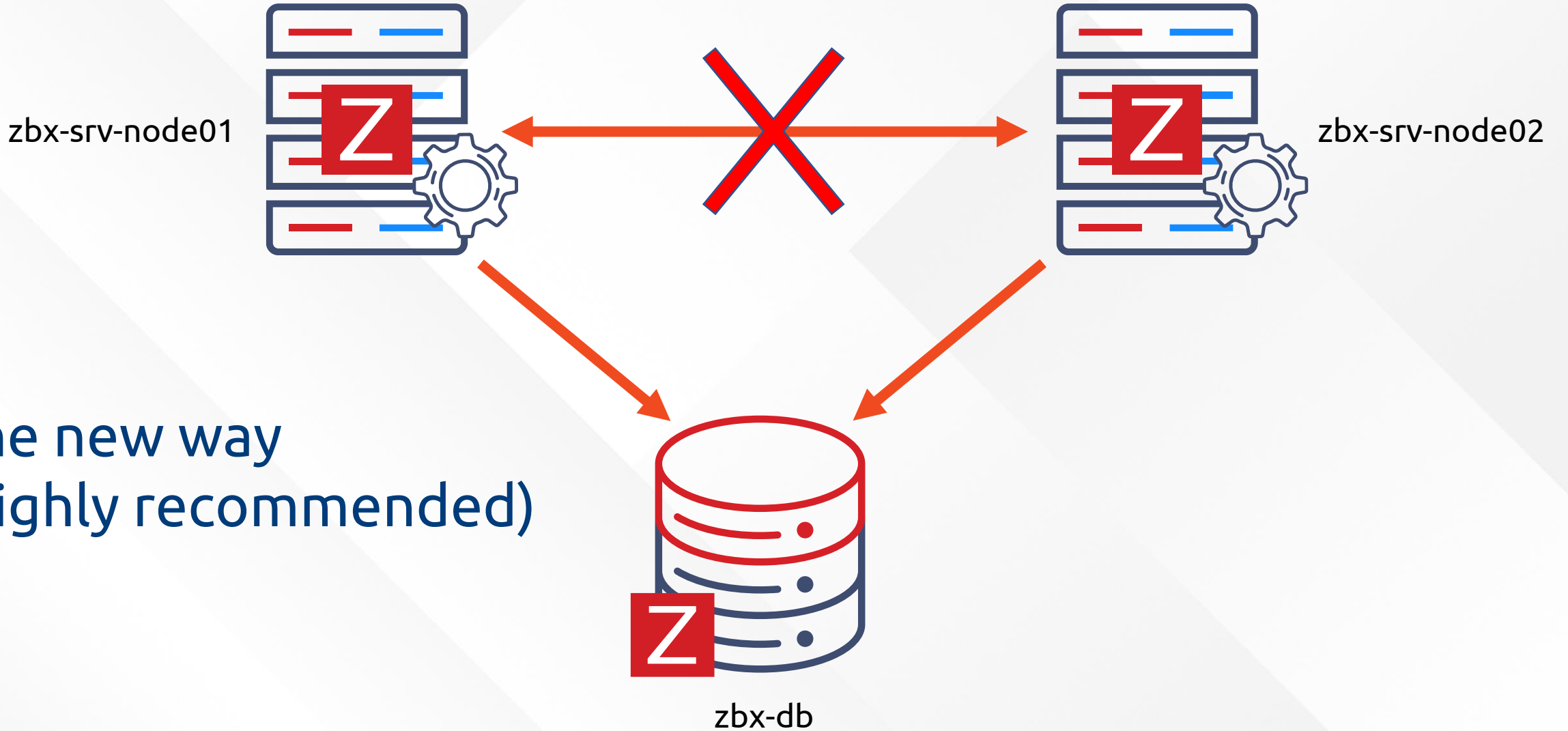
- Two servers, but how will they know each other their states?

# Zabbix server < 6.0



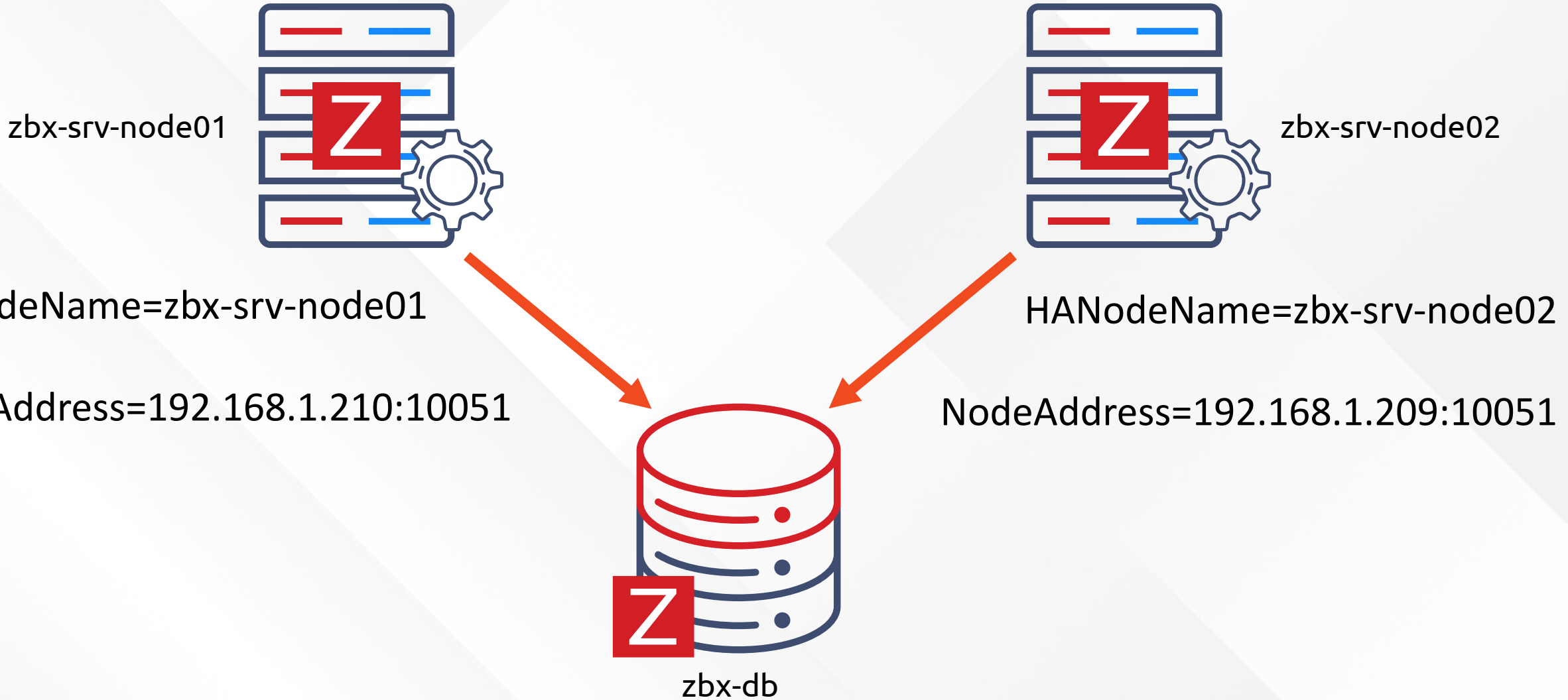
- The old way, still an option but..

# Zabbix server > 6.0



The new way  
(highly recommended)

# Zabbix server > 6.0





# Zabbix server > 6.0

## Table within the database

```
MariaDB [zabbix]> use zabbix;
Database changed
MariaDB [zabbix]> select * from ha_node;
+-----+-----+-----+-----+-----+-----+-----+
| ha_nodeid          | name          | address      | port  | lastaccess | status | ha_sessionid          |
+-----+-----+-----+-----+-----+-----+-----+
| clfgpwcl10001oe1e82ns6f4t | zbx-srv-node01 | 192.168.1.210 | 10051 | 1679313103 | 0      | clfggrn99w0000x91e27sdayc0 |
| clfgriuy00001fk1fpaix3itw | zbx-srv-node02 | 192.168.1.209 | 10051 | 1679313103 | 3      | clfgriuxn0000fj1fxu39bedr |
+-----+-----+-----+-----+-----+-----+-----+
2 rows in set (0.000 sec)
```

## 'zabbix\_server -R ha\_status' command

```
[root@zbx-srv-node01 ~]# zabbix_server -R ha_status
Failover delay: 60 seconds
Cluster status:
#  ID                               Name                Address              Status      Last Access
1. clfgpwcl10001oe1e82ns6f4t zbx-srv-node01     192.168.1.210:10051 active      1s
2. clfgriuy00001fk1fpaix3itw zbx-srv-node02     192.168.1.209:10051 standby    1s
```



# Zabbix server > 6.0

Session ID

ha_nodeid	name	address	port	lastaccess	status	ha_sessionid
clfgpwcl10001oe1e82ns6f4t	zbx-srv-node01	192.168.1.210	10051	1679313103	0	clfggrn99w0000x91e27sdayc0
clfgriuy00001fk1fpaix3itw	zbx-srv-node02	192.168.1.209	10051	1679313103	3	clfgriuxn0000fj1fxu39bedr

Unique ID

Unique NAME

Address:port  
For frontend

Heartbeat

Current Status

#	ID	Name	Address	Status	Last Access
1.	clfgpwcl10001oe1e82ns6f4t	zbx-srv-node01	192.168.1.210:10051	active	1s
2.	clfgriuy00001fk1fpaix3itw	zbx-srv-node02	192.168.1.209:10051	standby	1s



# Zabbix server > 6.0

zbx-srv-node01  
**active**



```
● zabbix-server.service - Zabbix Server
  Loaded: loaded (/usr/lib/systemd/system/zabbix-server.service; enabled; vendor preset: disabled)
  Active: active (running) since Mon 2023-03-20 12:51:14 CET; 35min ago
  CGroup: /system.slice/zabbix-server.service
          └─2493 /usr/sbin/zabbix_server -c /etc/zabbix/zabbix_server.conf
             └─2494 /usr/sbin/zabbix_server: ha manager
                └─2498 /usr/sbin/zabbix_server: configuration syncer [synced configuration in 0.030167 sec, idle 10 sec]
                   └─2499 /usr/sbin/zabbix_server: alert manager #1 [sent 0, failed 0 alerts, idle 5.002117 sec during 5.002159 sec]
                      └─2500 /usr/sbin/zabbix_server: alerter #1 started
                         └─2501 /usr/sbin/zabbix_server: alerter #2 started
                            └─2502 /usr/sbin/zabbix_server: alerter #3 started
                               └─2519 /usr/sbin/zabbix_server: poller #1 [got 0 values in 0.000004 sec, idle 1 sec]
                                  └─2520 /usr/sbin/zabbix_server: poller #2 [got 2 values in 0.000395 sec, idle 1 sec]
                                     └─2521 /usr/sbin/zabbix_server: poller #3 [got 0 values in 0.000007 sec, idle 1 sec]
                                        └─2522 /usr/sbin/zabbix_server: poller #4 [got 0 values in 0.000011 sec, idle 1 sec]
                                           └─2523 /usr/sbin/zabbix_server: poller #5 [got 0 values in 0.000005 sec, idle 1 sec]
                                              └─2524 /usr/sbin/zabbix_server: unreachable poller #1 [got 0 values in 0.000017 sec, idle 5 sec]
                                                 └─2525 /usr/sbin/zabbix_server: trapper #1 [processed data in 0.000058 sec, waiting for connection]
```

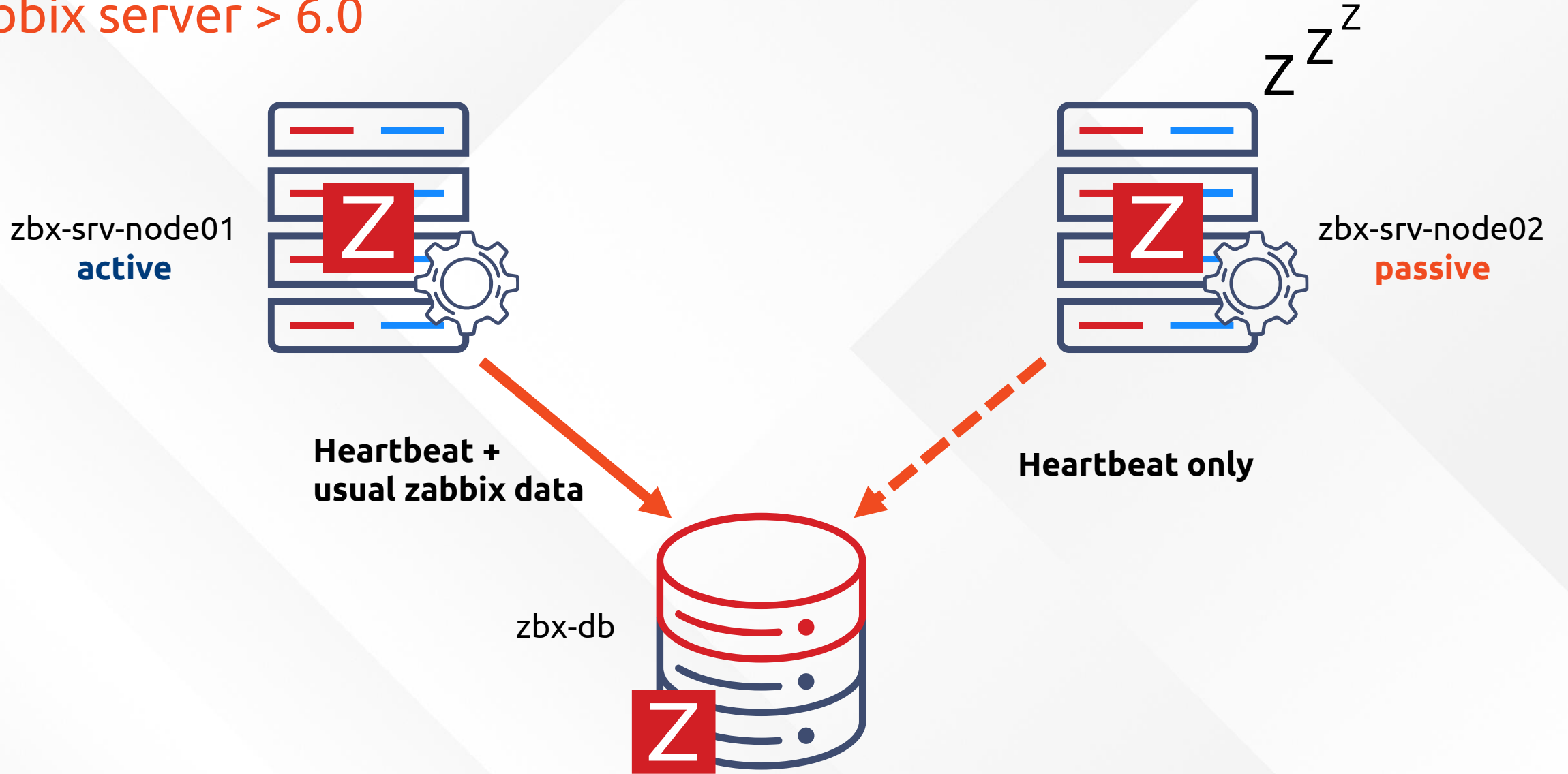
zbx-srv-node02  
**passive**



```
● zabbix-server.service - Zabbix Server
  Loaded: loaded (/usr/lib/systemd/system/zabbix-server.service; enabled; vendor preset: disabled)
  Active: active (running) since Mon 2023-03-20 12:52:08 CET; 30min ago
  CGroup: /system.slice/zabbix-server.service
          └─3211 /usr/sbin/zabbix_server -c /etc/zabbix/zabbix_server.conf
             └─3212 /usr/sbin/zabbix_server: ha manager
```



# Zabbix server > 6.0



## Zabbix server: Notes

- Failover at restart
- Failover at lost node  
Default failover delay: 1 min

Active node went -> **STOPPED**  
Standby node takes over instantly

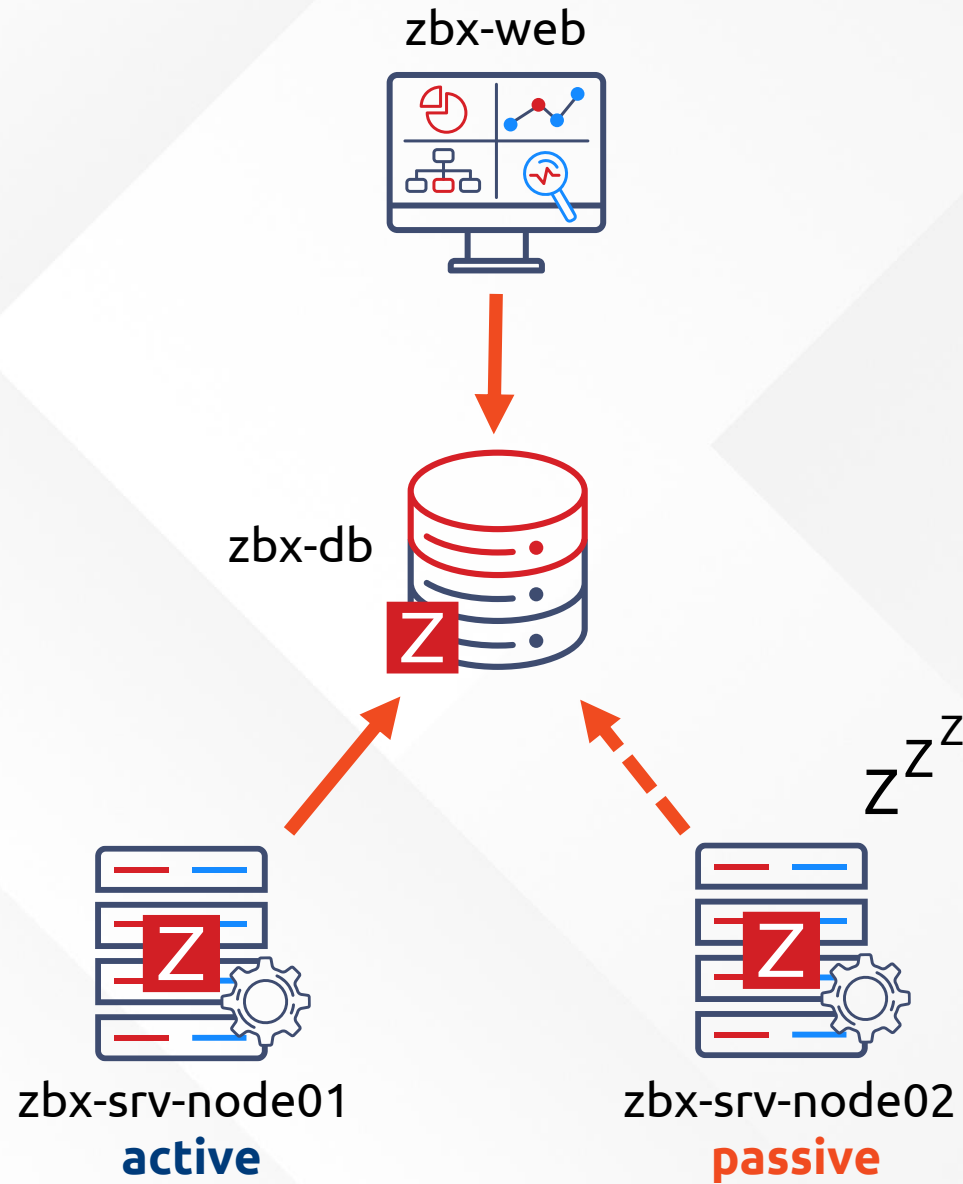
Active node went -> **UNAVAILABLE**  
Standby node takes over after 1 minute

Failover delay can be changed

```
[root@zbx-srv-node01 ~]# zabbix_server -R ha_set_failover_delay=5m  
HA failover delay set to 300 seconds
```



# Zabbix frontend



# Zabbix frontend

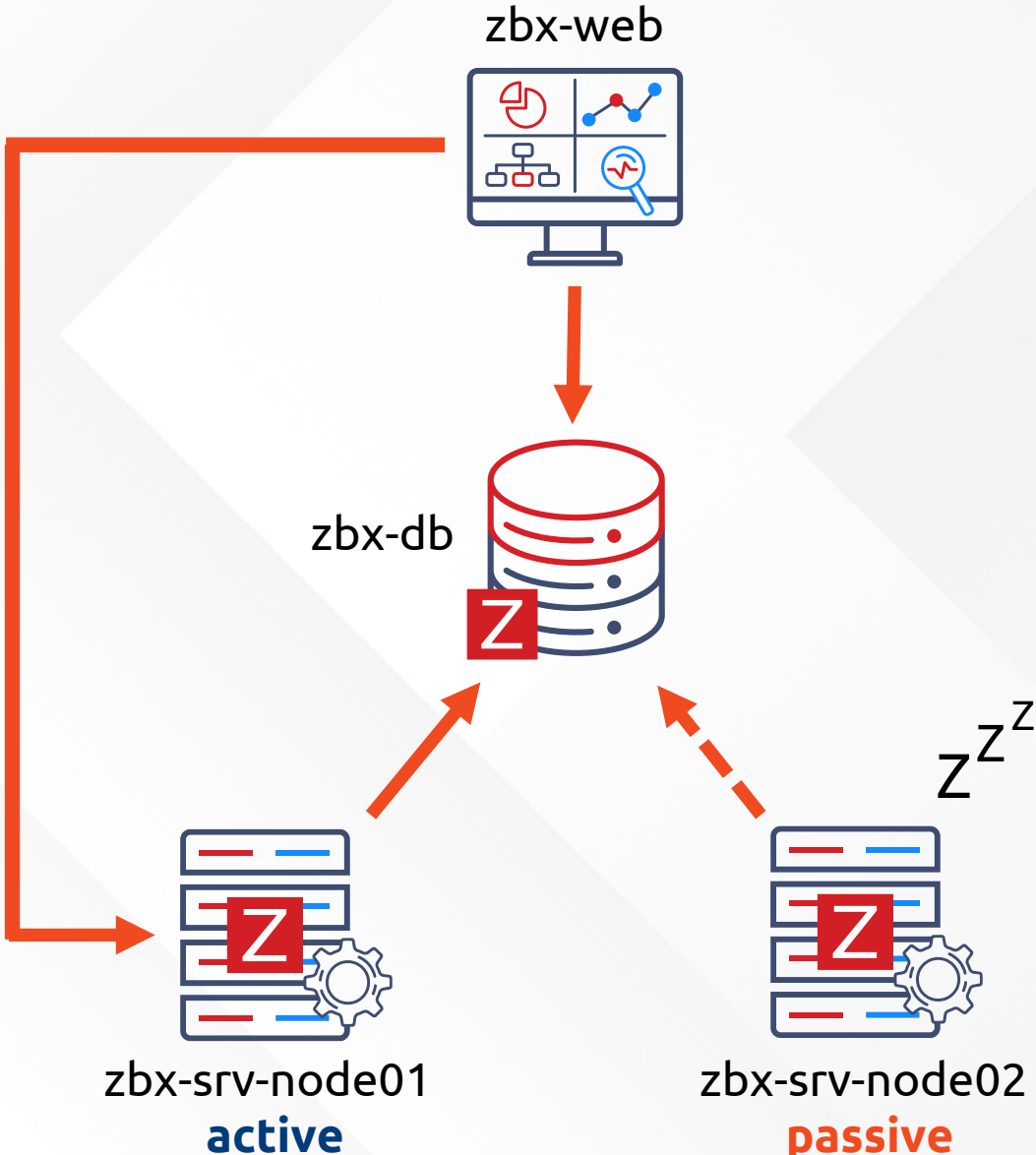
```
MariaDB [zabbix]> select * from ha_node;
+-----+-----+-----+-----+-----+-----+-----+
| ha_nodeid | name | address | port | lastaccess | status | ha_sessionid |
+-----+-----+-----+-----+-----+-----+-----+
| clfgpwcl10001oe1e82ns6f4t | zbx-srv-node01 | 192.168.1.210 | 10051 | 1679313103 | 0 | clfgrn99w0000x91e27sdayc0 |
| clfgriuy00001fk1fpaix3itw | zbx-srv-node02 | 192.168.1.209 | 10051 | 1679313103 | 3 | clfgriuxn0000fj1fxu39bedr |
+-----+-----+-----+-----+-----+-----+-----+
```

IF status == 0 (active)

Parameter	Value	Details
Zabbix server is running	Yes	192.168.1.210:10051
Number of hosts (enabled/disabled)	1	1 / 0
Number of templates	270	
Number of items (enabled/disabled/not supported)	141	133 / 0 / 8
Number of triggers (enabled/disabled [problem/ok])	74	74 / 0 [2 / 72]
Number of users (online)	2	1
Required server performance, new values per second	1.59	
High availability cluster	Enabled	Fail-over delay: 1 minute

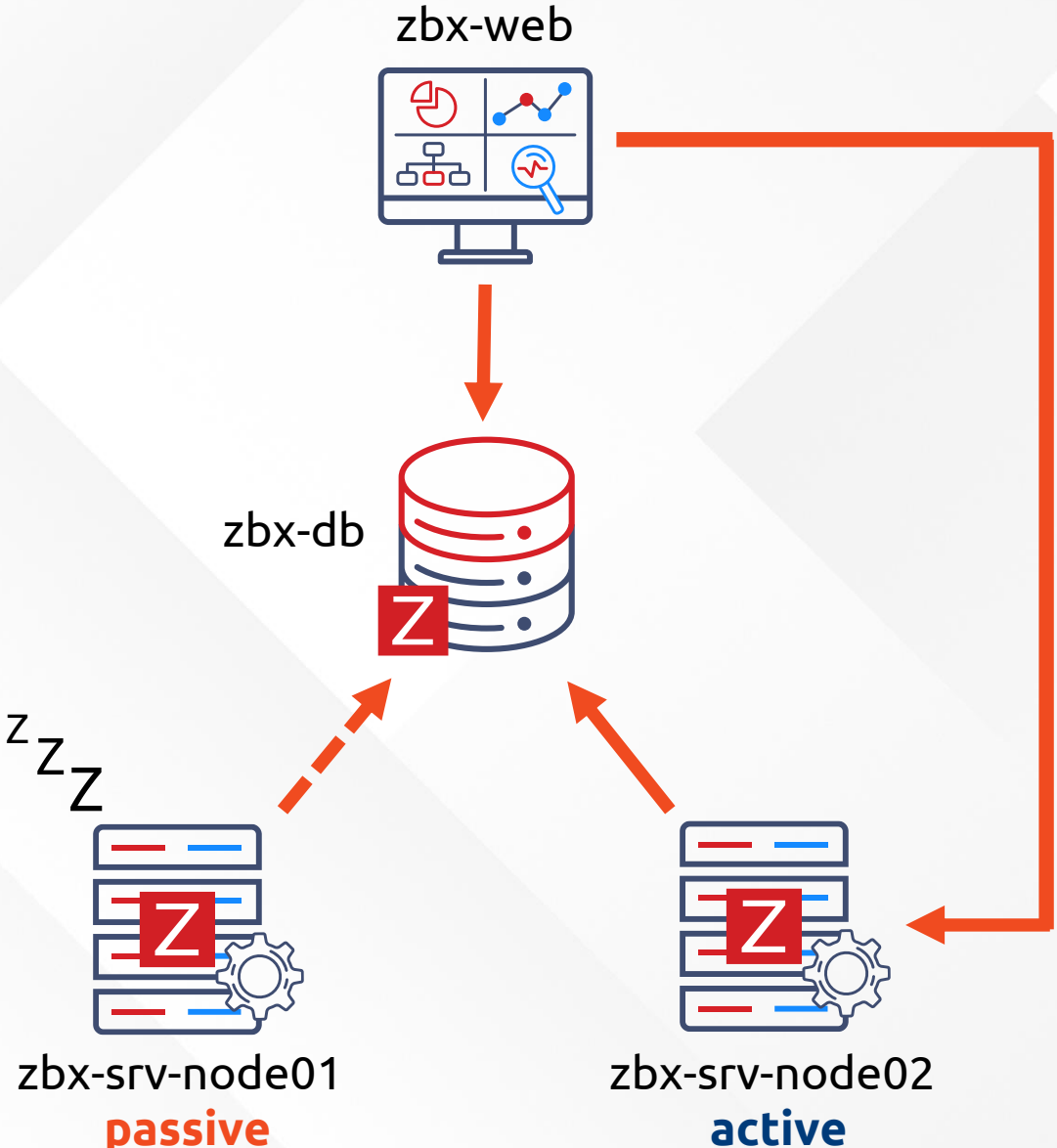


# Zabbix frontend



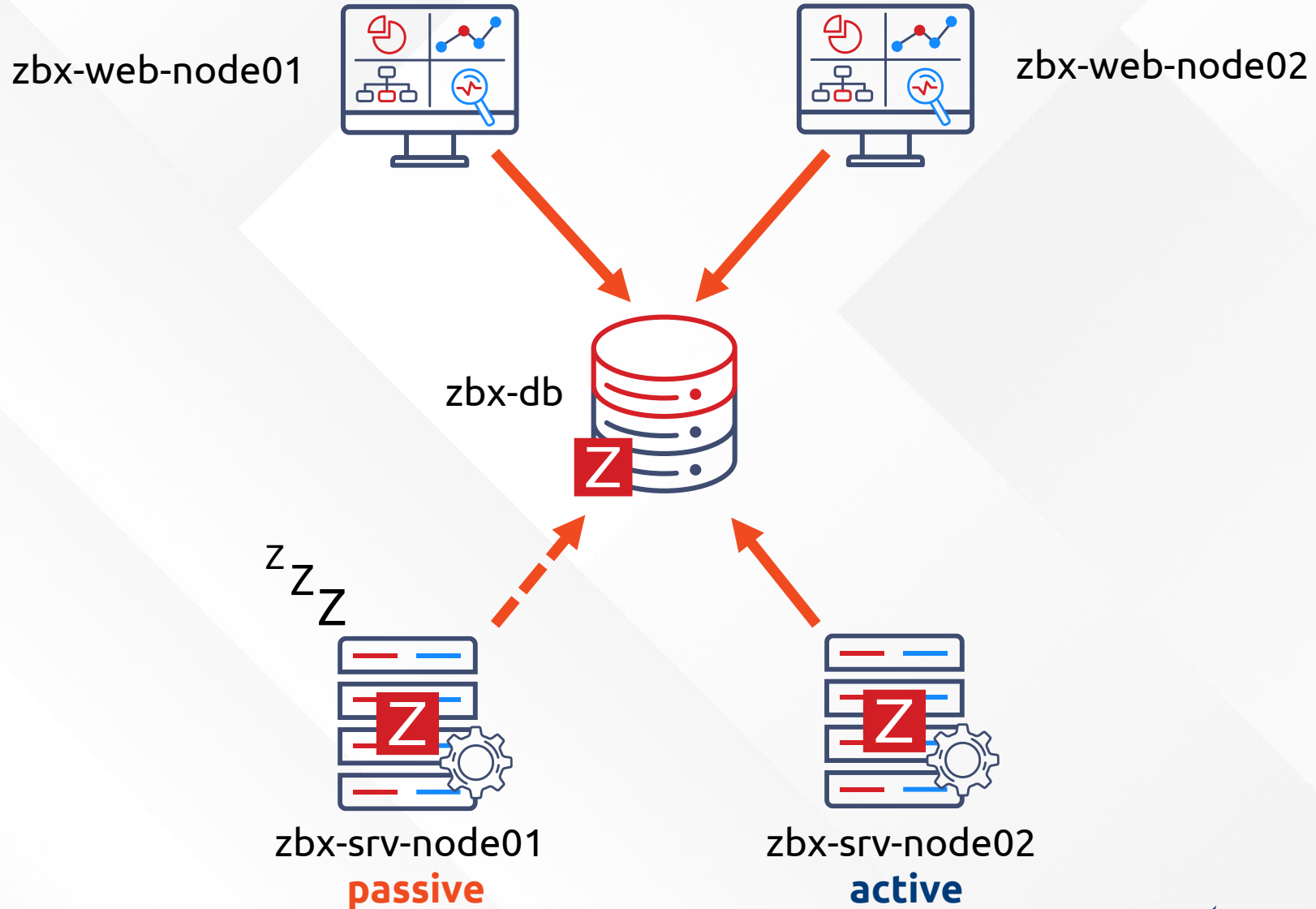


# Zabbix frontend

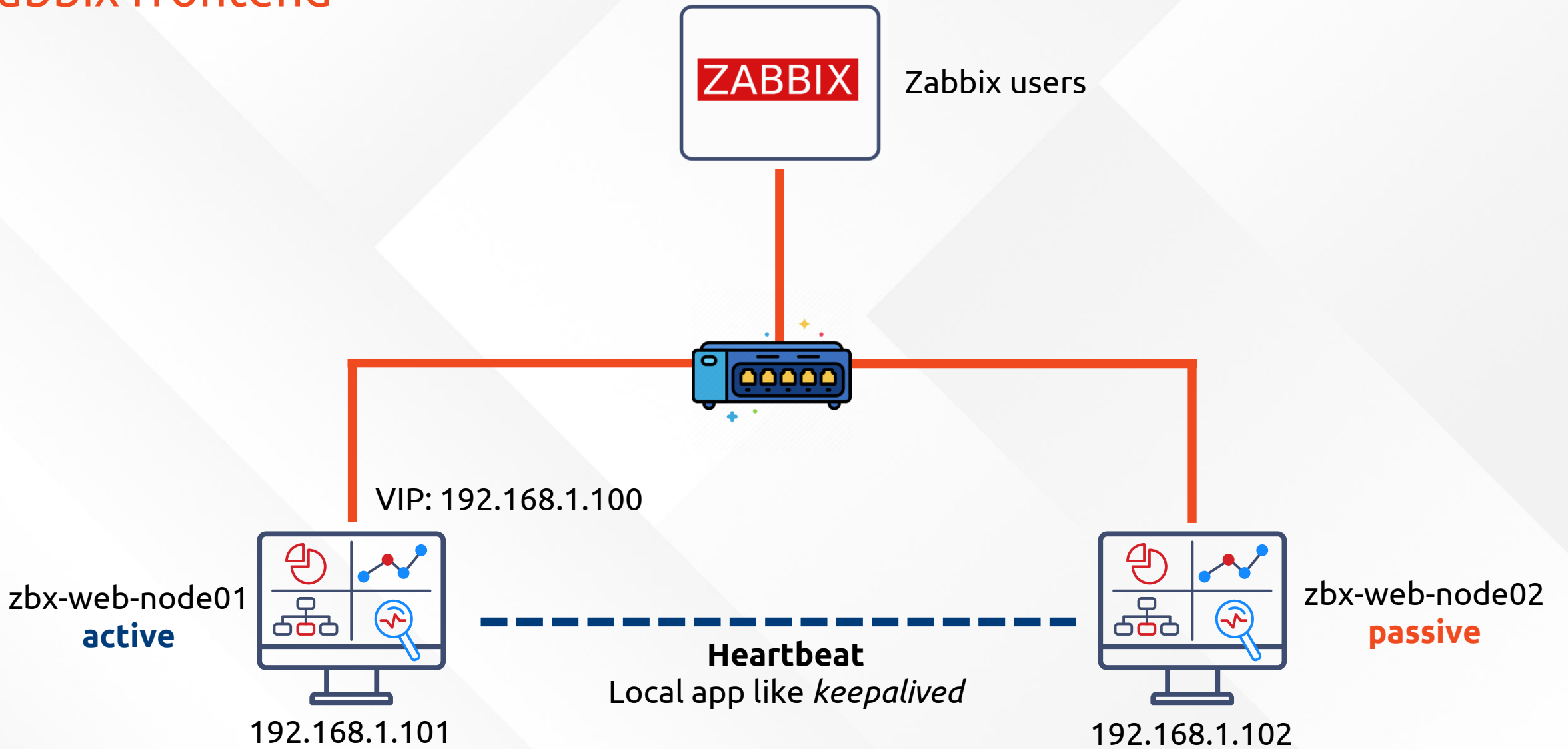


# Zabbix frontend

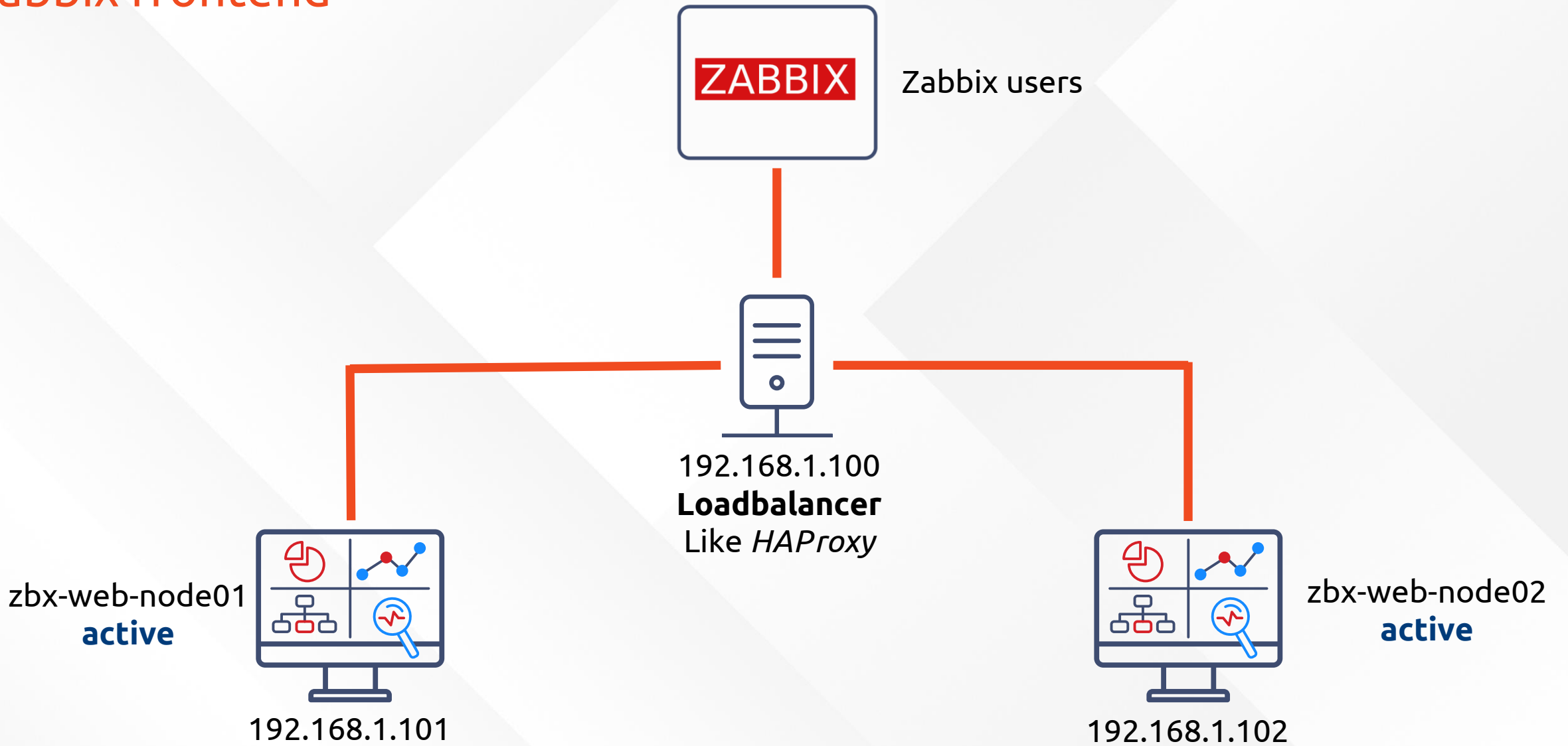
Doesn't matter how many frontends!



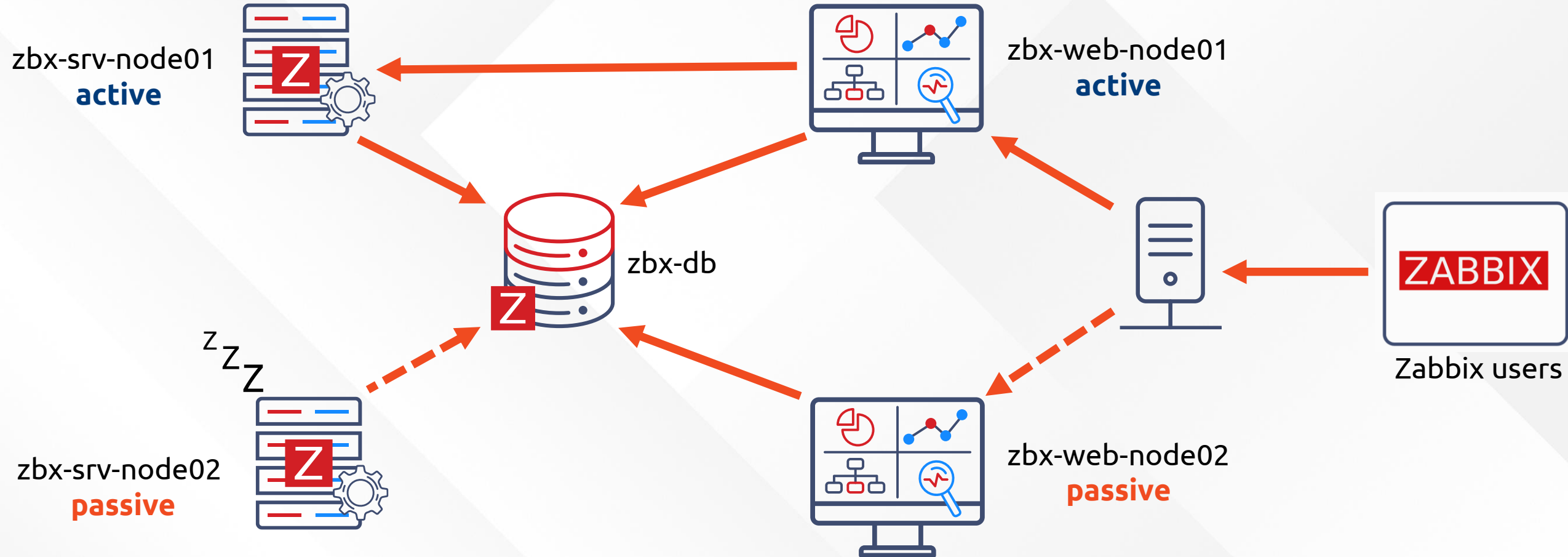
# Zabbix frontend



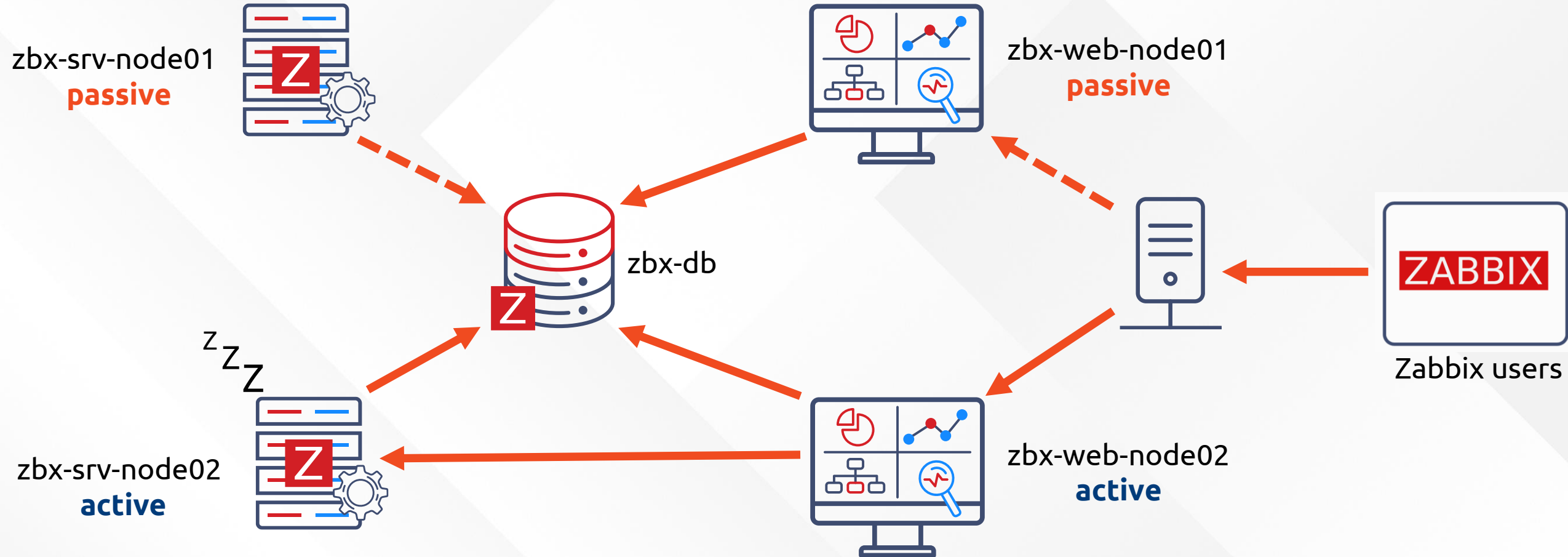
# Zabbix frontend



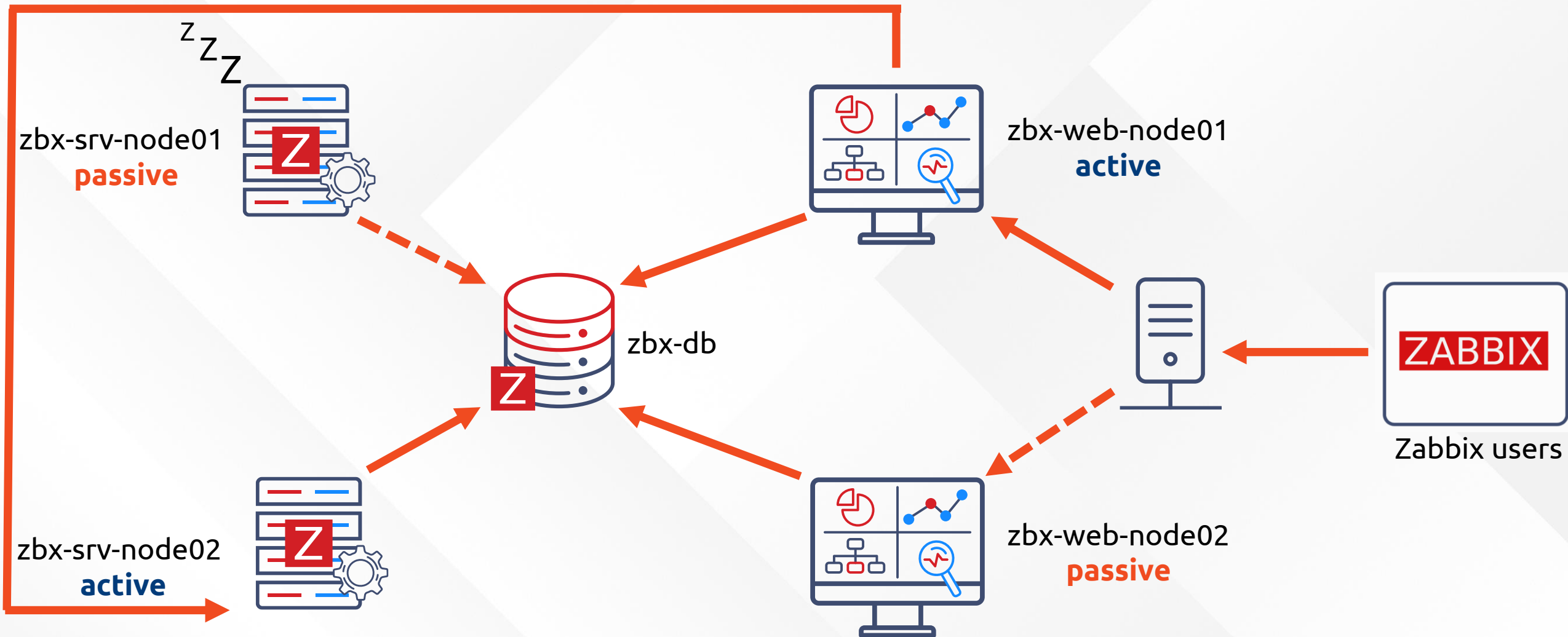
# Zabbix server + frontend



# Zabbix server + frontend



# Zabbix server + frontend



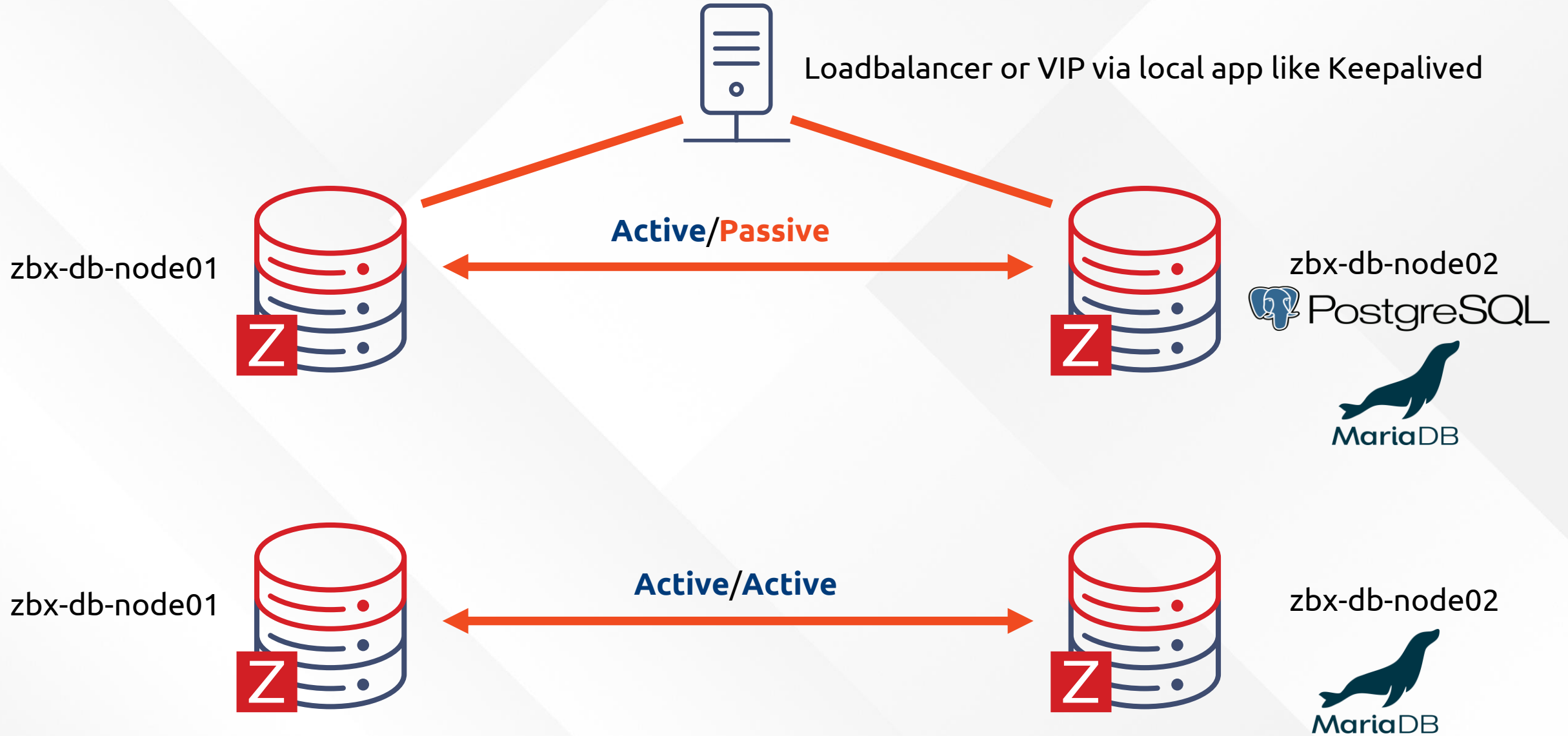
# Zabbix frontend: Notes

- A Load balancer adds more **complication** to your environment
  - Another things that can **break/cause issues**
- VIP via local application like Keepalived is **simple** but..
  - It's a **less scalable** solution as you only connect to **1 frontend at the time**

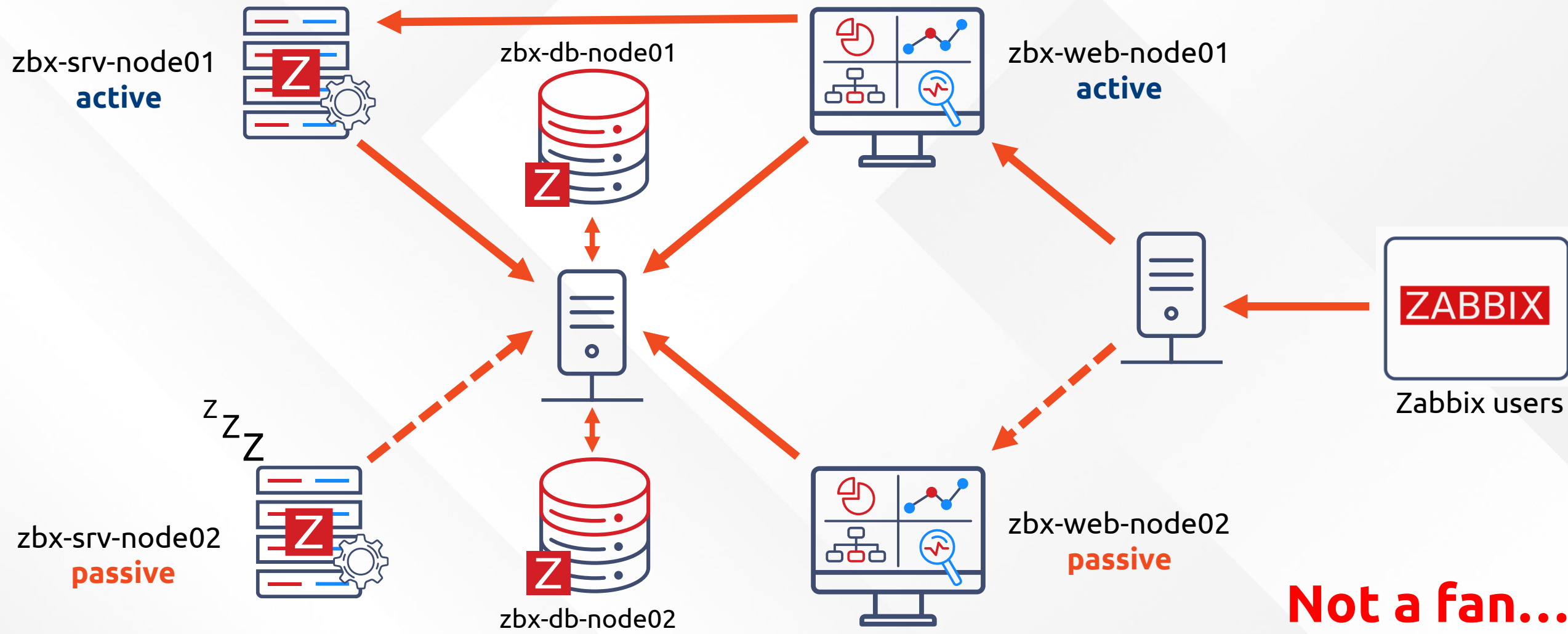




# Zabbix database

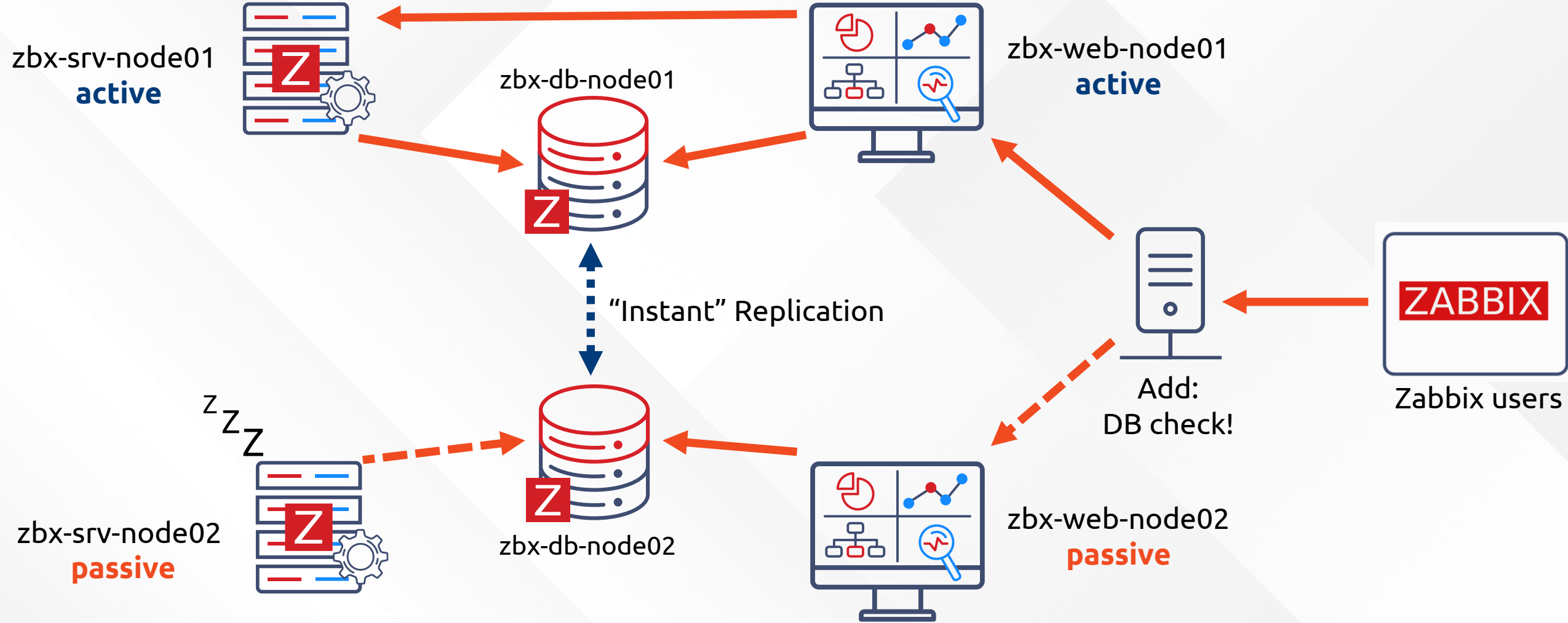


# Zabbix database: Active/Passive

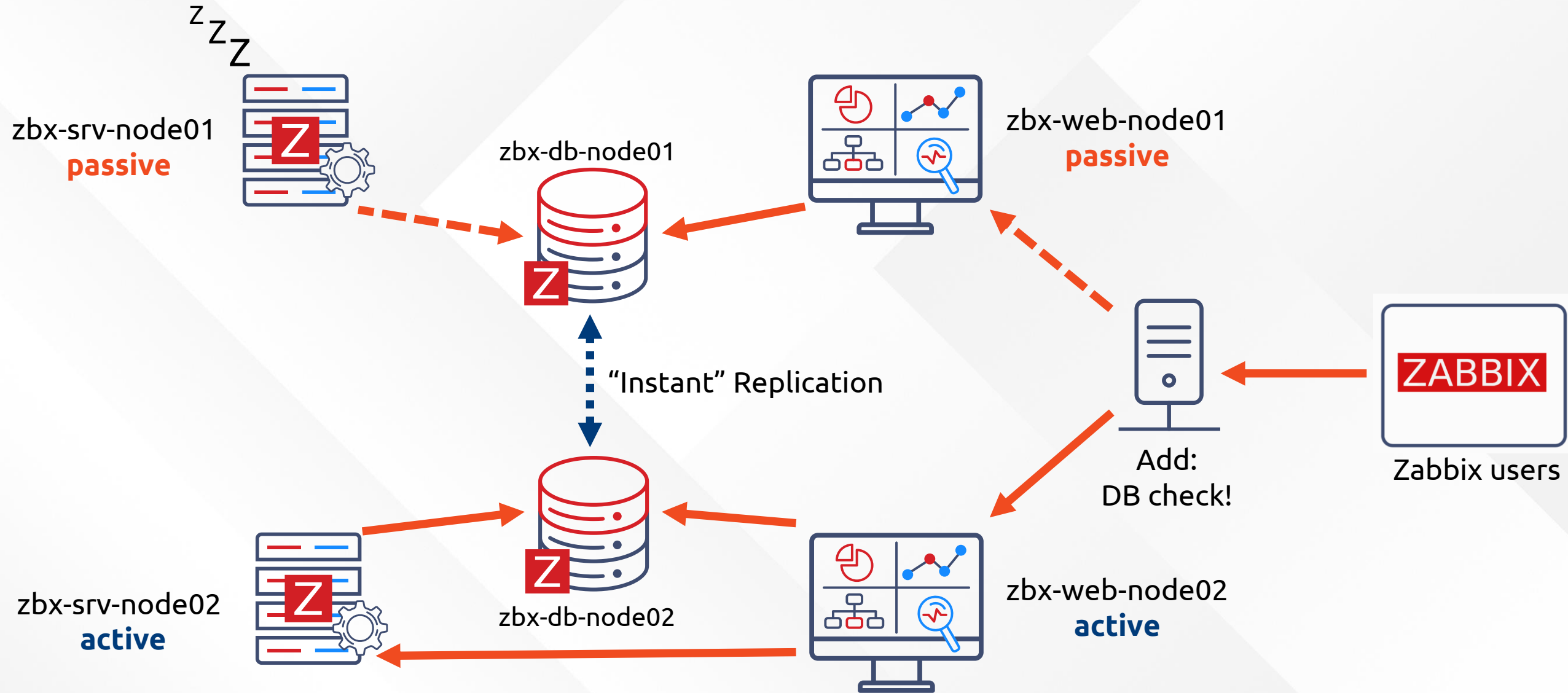


**Not a fan...**

# Zabbix database: Active/Active



# Zabbix database: Active/Active



# Zabbix database: Notes

- A Load balancer adds more **complication** to your environment
  - Another things that can **break/cause issues**
  - More complicated to **maintain** and **tune** for a database, a lot of data will pass through it
- VIP via local application like Keepalived is **simple** but..
  - It still adds an **additional application** to setup and maintain
  - Possibly less scalable than a load balancer
- Direct database connections are super **simple** in **Active/Active**
  - At failover, simply use a **different database** as well
  - Possibly less scalable than a load balancer

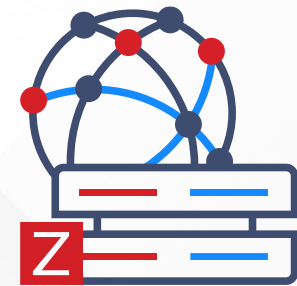


# Zabbix proxies/agents: Configuration

zbx-srv-node01  
**active**



zbx-srv-node02  
**passive**



**Zabbix Proxy  
(or Agent)**

## Proxy

```
vim /etc/zabbix/zabbix_proxy.conf  
Server=192.168.1.209,192.168.1.210  
Server=192.168.1.209;192.168.1.210
```

## Agent

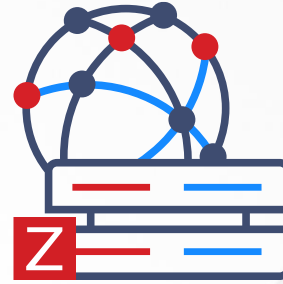
```
vim /etc/zabbix/zabbix_agent2.conf  
Server=192.168.1.209,192.168.1.210  
ServerActive=192.168.1.209;192.168.1.210
```



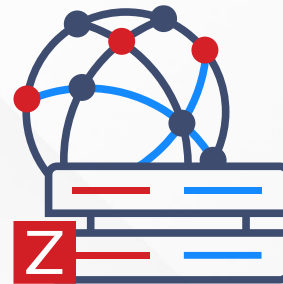
# Zabbix proxies

**NO OFFICIAL SUPPORTED SOLUTION**

zbx-px-node01  
**active**



zbx-srv-node01  
**active**



zbx-px-node02  
**active???**



# Zabbix proxies

**NO OFFICIAL SUPPORTED SOLUTION**

\* Host name

Visible name

Templates

Name	Action
<a href="#">Linux by Zabbix agent</a>	<a href="#">Unlink</a> <a href="#">Unlink and clear</a>

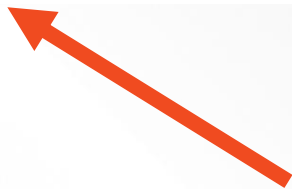
\* Host groups

Interfaces	Type	IP address	DNS name	Connect to	Port	Default
Agent	<input type="text" value="127.0.0.1"/>	<input type="text"/>	<input type="button" value="IP"/> <input type="button" value="DNS"/>	<input type="text" value="10050"/>	<input checked="" type="radio"/> <a href="#">Remove</a>	

[Add](#)

Description

Monitored by proxy



**Monitored by proxy determines the actual active node**





# Zabbix proxies

**NO OFFICIAL SUPPORTED SOLUTION**

Action Operations

\* Name

Type of calculation  A and B and C

Label	Name	Action
A	Tag name equals <i>counterpart</i>	<a href="#">Remove</a>
B	Host group equals <i>Zabbix proxies</i>	<a href="#">Remove</a>
C	Trigger name contains <i>Zabbix proxy: Down</i>	<a href="#">Remove</a>

[Add](#)

Enabled

Action Operations 1

\* Default operation step duration

Steps	Details	Start in	Duration	Action
1	Run script "Proxy failover by Python" on current host	Immediately	Default	<a href="#">Edit</a> <a href="#">Remove</a>

[Add](#)

**Failover will be executed by using problems, actions and a custom Python script**



# Zabbix proxies: Notes

- In house solution, created by Opensource ICT Solutions
  - Not available publicly **as of right now**
- No load balancing with this option
- Official proxy HA + load balancing is on the roadmap

## Zabbix 7.0 LTS

Planned release date: Q4 2023

### High availability, performance and scalability

- Proxies to provide automatic load balancing and HA  
[ZBXNEXT-5911](#) ★ Top voted!



# Zabbix proxies: Notes



Community How To Integrations

How to setup redundant Zabbix proxies, without complex cluster configurations.

By Brian van Baekel — October 13, 2020

<https://blog.zabbix.com/how-to-setup-redundant-zabbix-proxies-without-complex-cluster-configurations/12092/>



# Questions?

