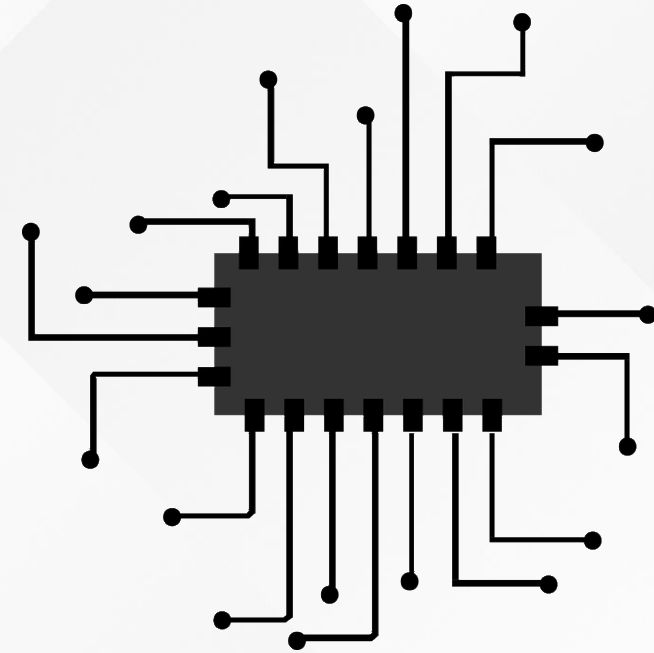


Zabbix native HA: Lessons learned and Tips & Tricks



Who am I?

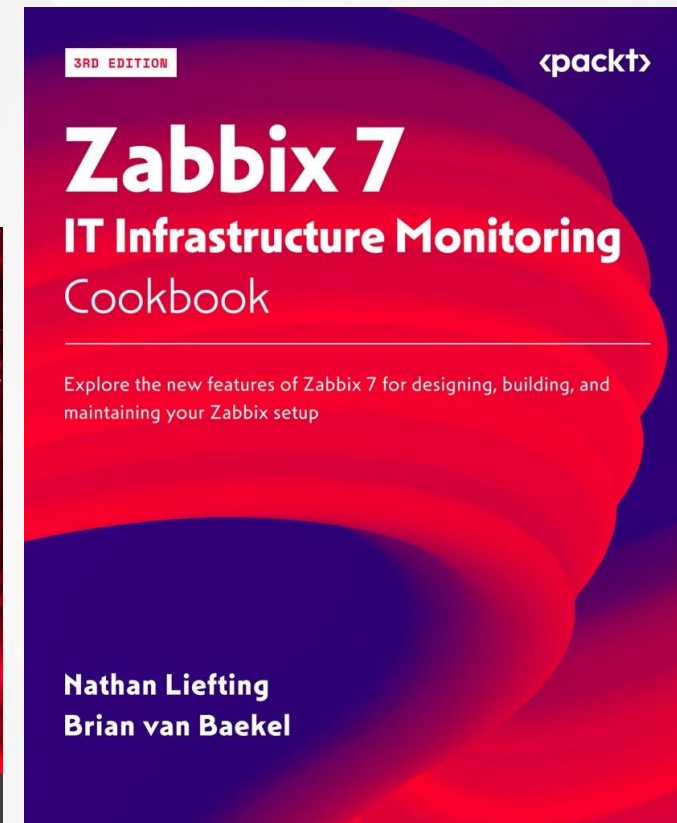
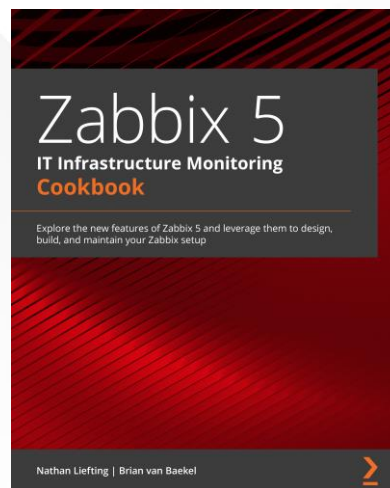


Nathan Liefing
Zabbix Consultant / Trainer



Opensource ICT Solutions

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



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



Introduction



- Zabbix server

Natively built by Zabbix



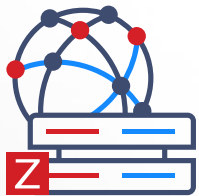
- Zabbix frontend

Use industry best practices



- Zabbix database

Look at database options

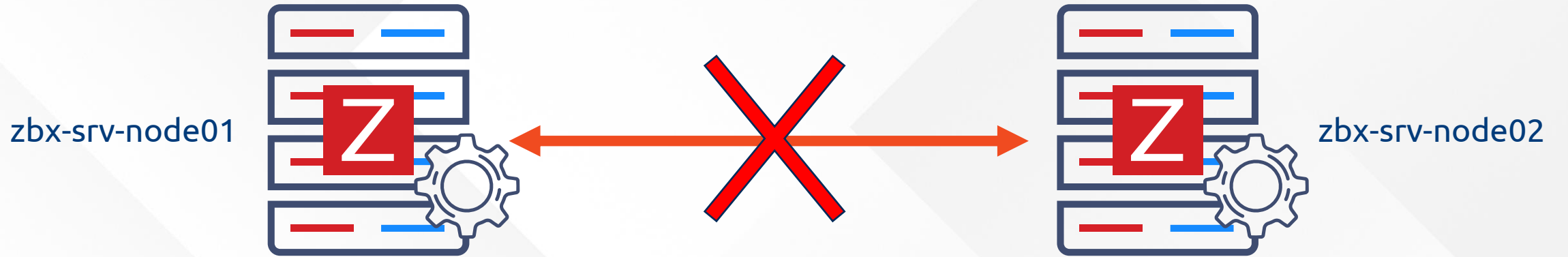


- Zabbix proxies

Nothing available or is there?

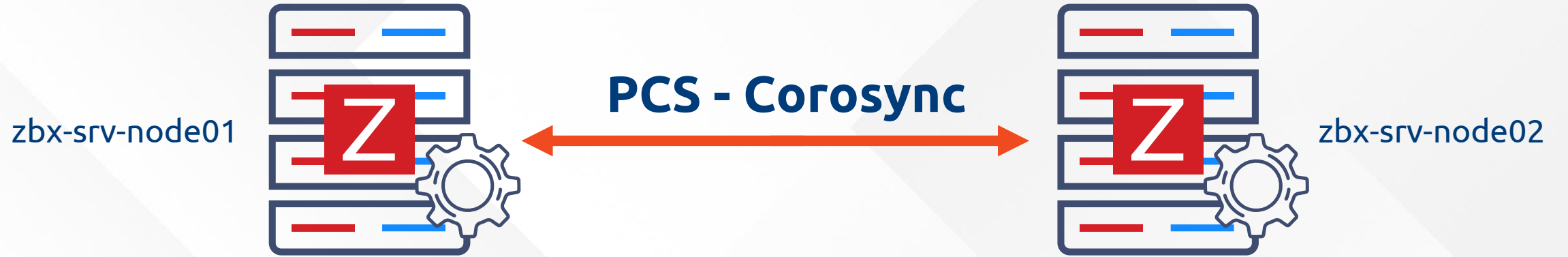


Zabbix server



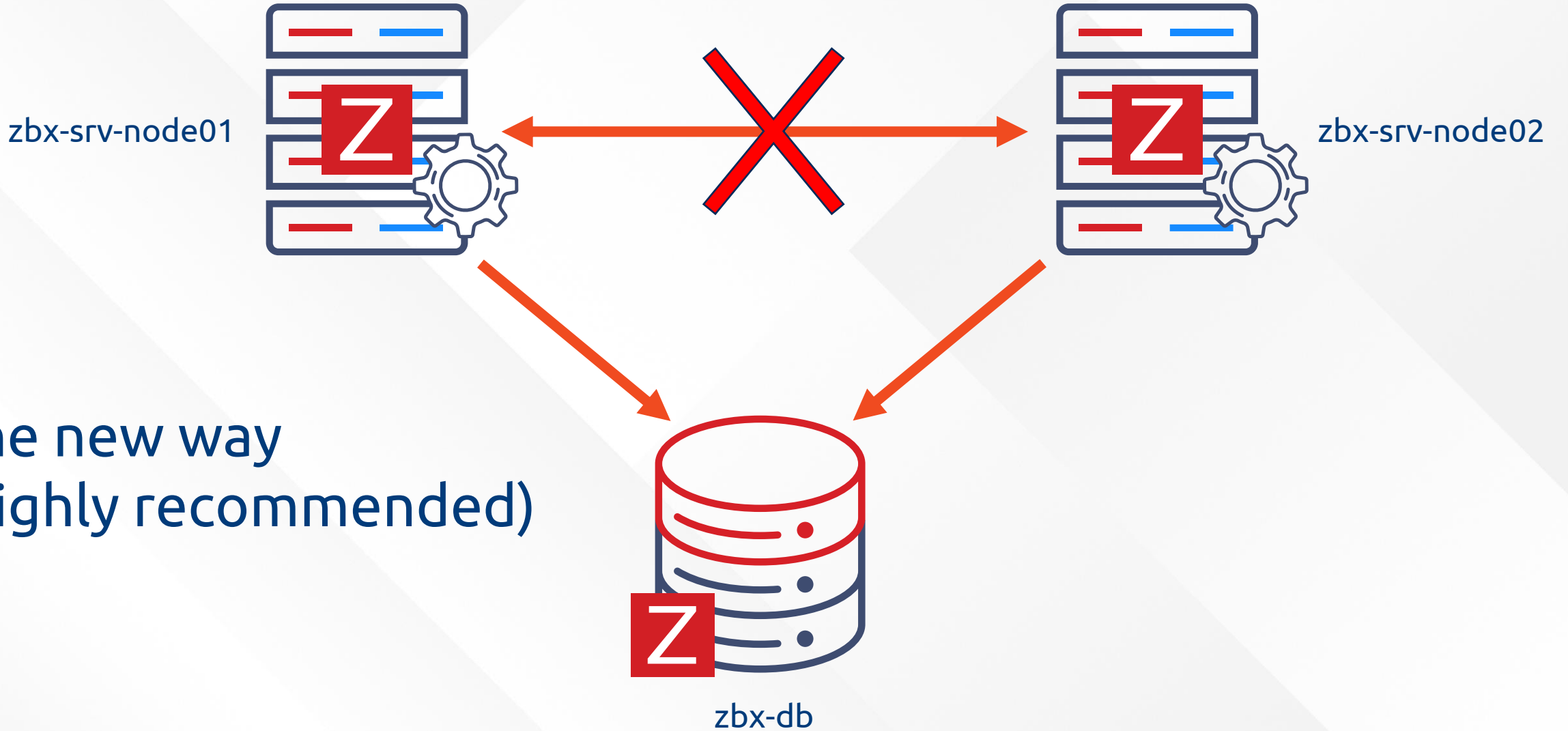
- Two servers, but how will they know each other their states?

Zabbix server < 6.0



- The old way, still an option but..

Zabbix server > 6.0



The new way
(highly recommended)

Zabbix server > 6.0



zbx-srv-node01

zbx-srv-node02

HANodeName=zbx-srv-node01

HANodeName=zbx-srv-node02

NodeAddress=192.168.1.210:10051

NodeAddress=192.168.1.209:10051



zbx-db

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

zbx-srv-node01
active



Heartbeat +
usual zabbix data



zbx-db



zbx-srv-node02
passive

Heartbeat only



Zabbix server: Notes

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

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

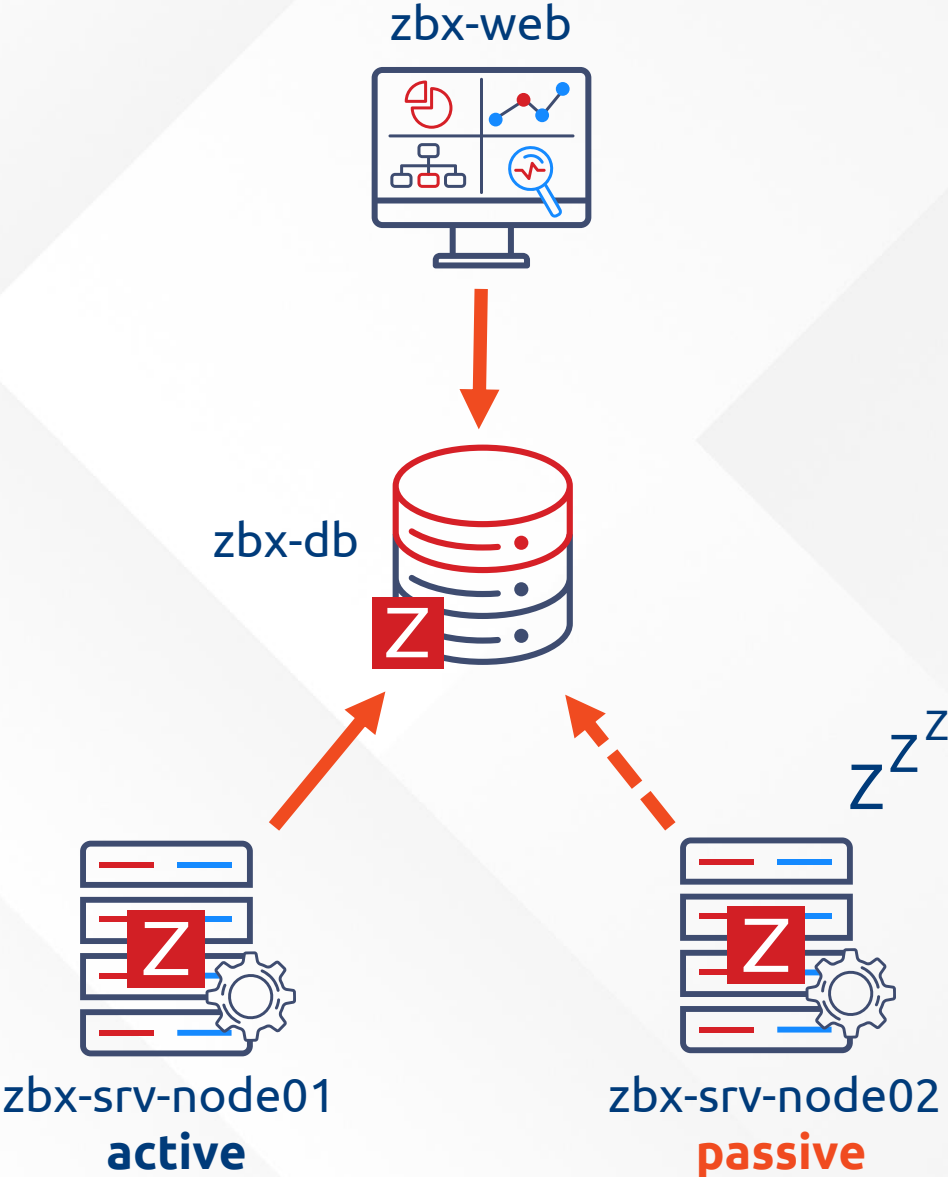
Active node went -> **UNAVAILABLE**
Standby node takes over after 1 minute

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

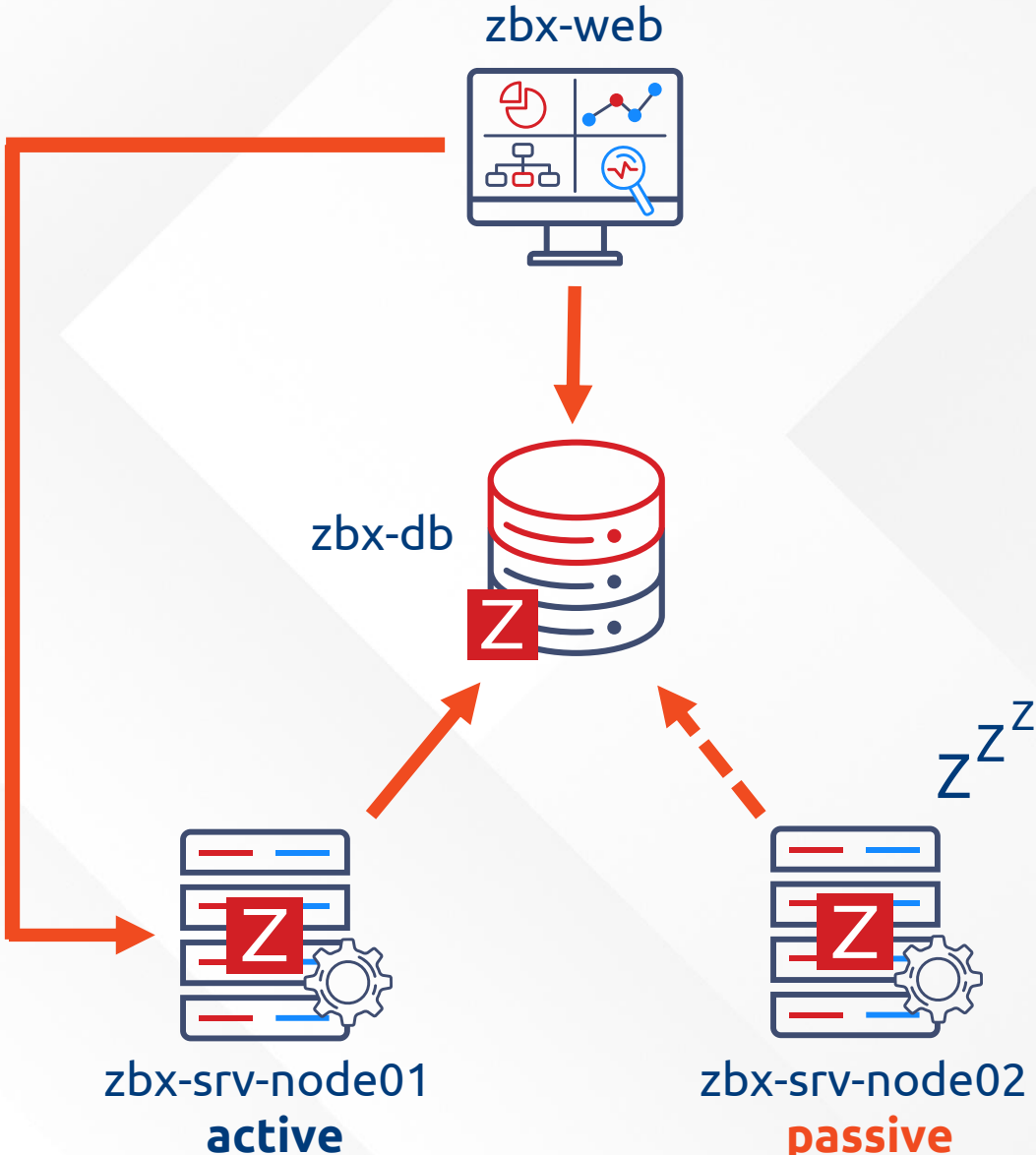
```
MariaDB [zabbix]> select * from ha_node;
+-----+-----+-----+-----+-----+-----+-----+
| ha_nodeid | name | address | port | lastaccess | status | ha_sessionid |
+-----+-----+-----+-----+-----+-----+-----+
| clfgpwcl10001oe1e82ns6f4t | zbx-srv-node01 | 192.168.1.210 | 10051 | 1679313103 | 0 | clfgrn99w0000x91e27sdayc0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

IF status == 0 (active)

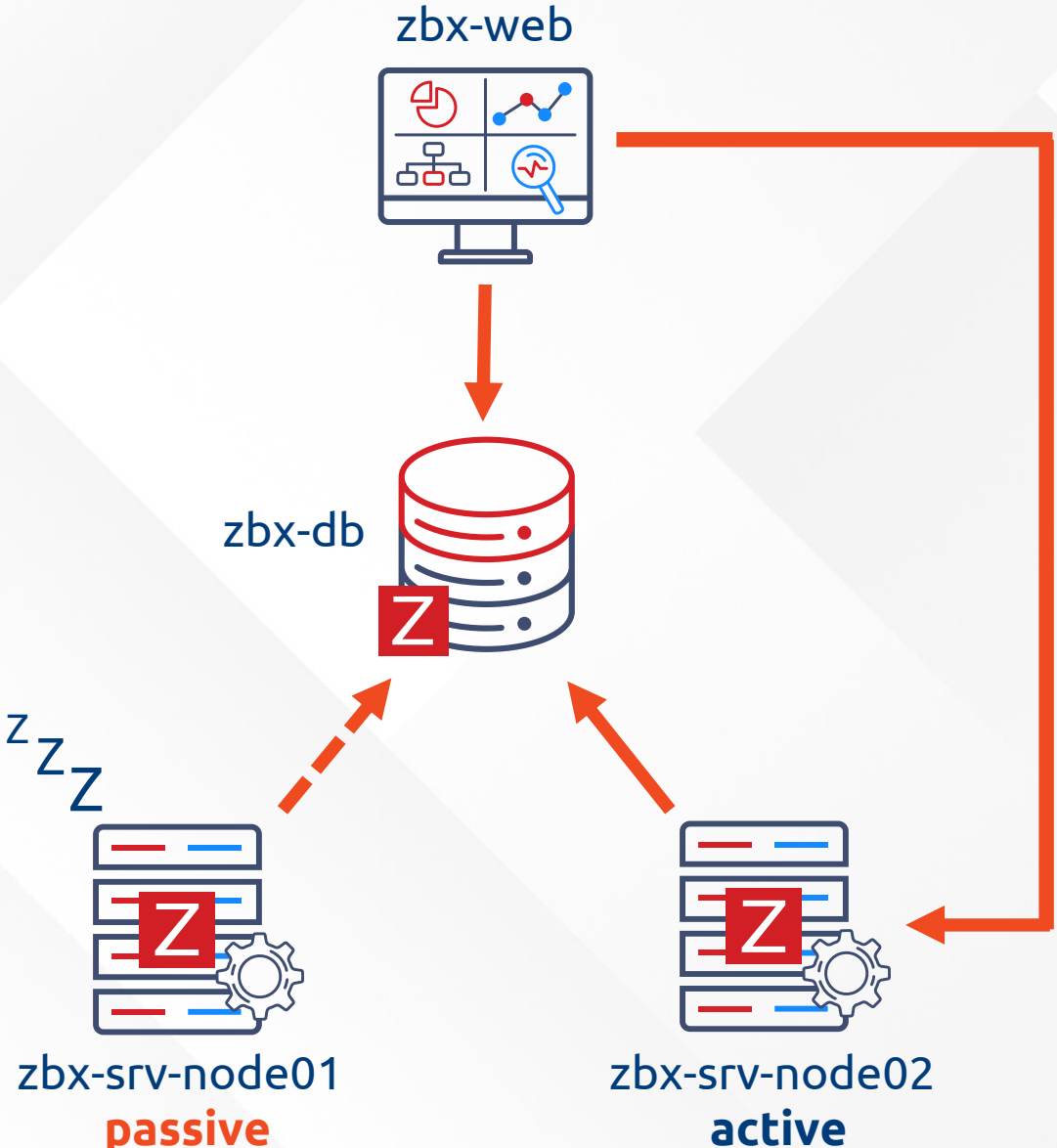
Parameter	Value	Details
Zabbix server is running	Yes	192.168.1.210:10051
Number of hosts (enabled/disabled)	1	1 / 0
Number of templates	270	
Number of items (enabled/disabled/not supported)	141	133 / 0 / 8
Number of triggers (enabled/disabled [problem/ok])	74	74 / 0 [2 / 72]
Number of users (online)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



Zabbix frontend

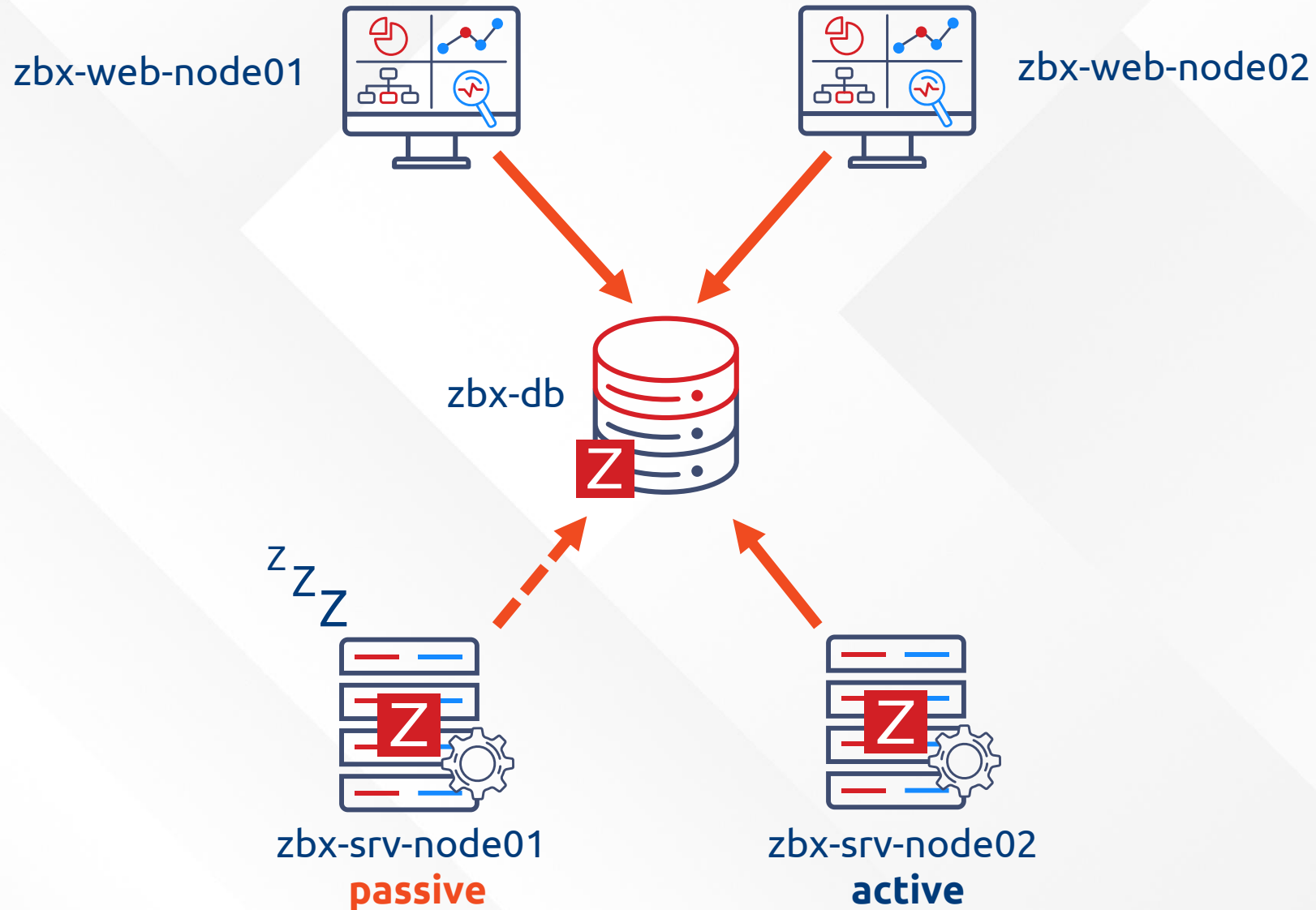


Zabbix frontend



Zabbix frontend

Doesn't matter how many frontends!



Zabbix frontend



Zabbix users



VIP: 192.168.1.100

zbx-web-node01
active



192.168.1.101



Heartbeat
Local app like *keepalived*

zbx-web-node02
passive



192.168.1.102



Zabbix frontend



Zabbix users



192.168.1.100
Loadbalancer
Like *HAProxy*



zbx-web-node01
active

192.168.1.101

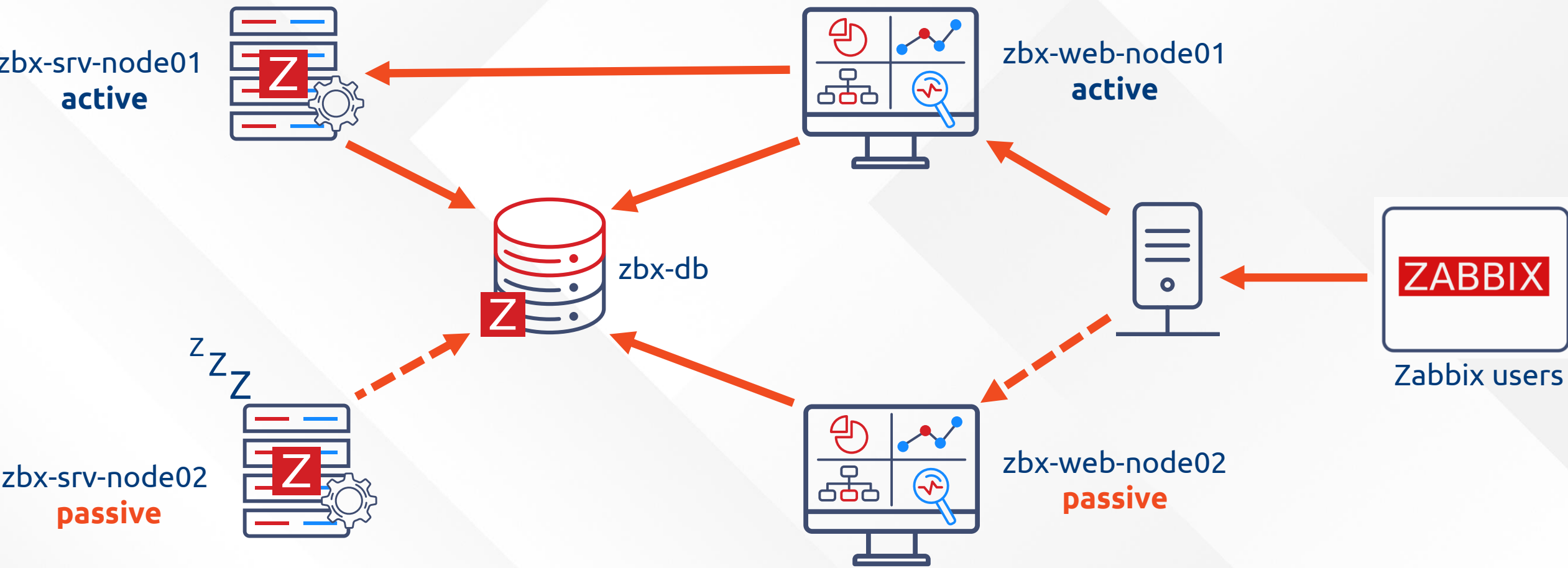


zbx-web-node02
active

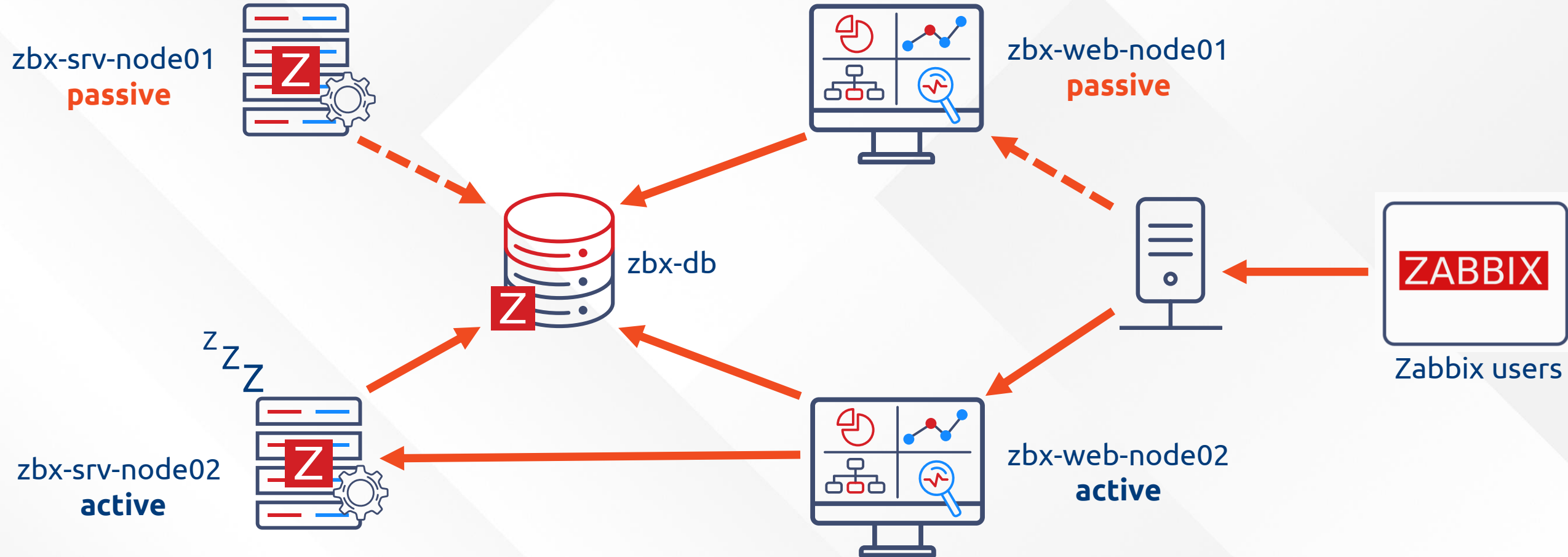
192.168.1.102



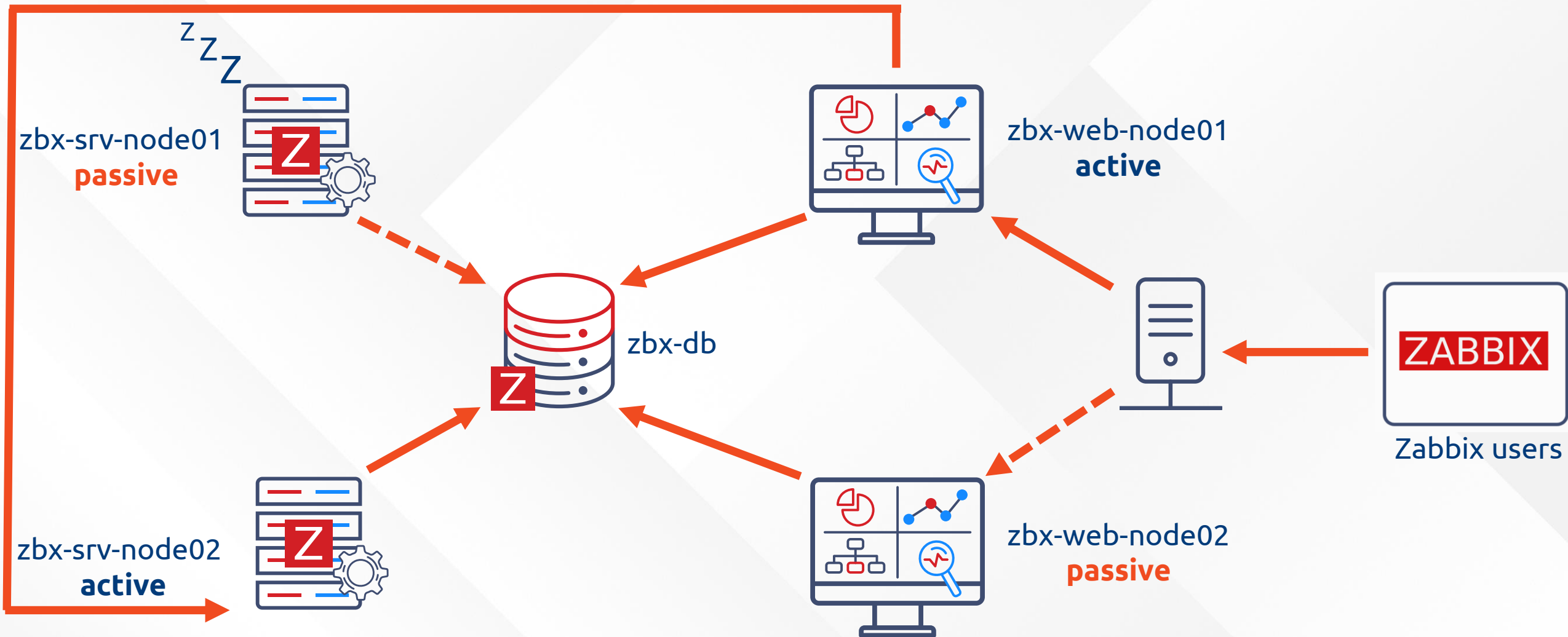
Zabbix server + frontend



Zabbix server + frontend



Zabbix server + frontend

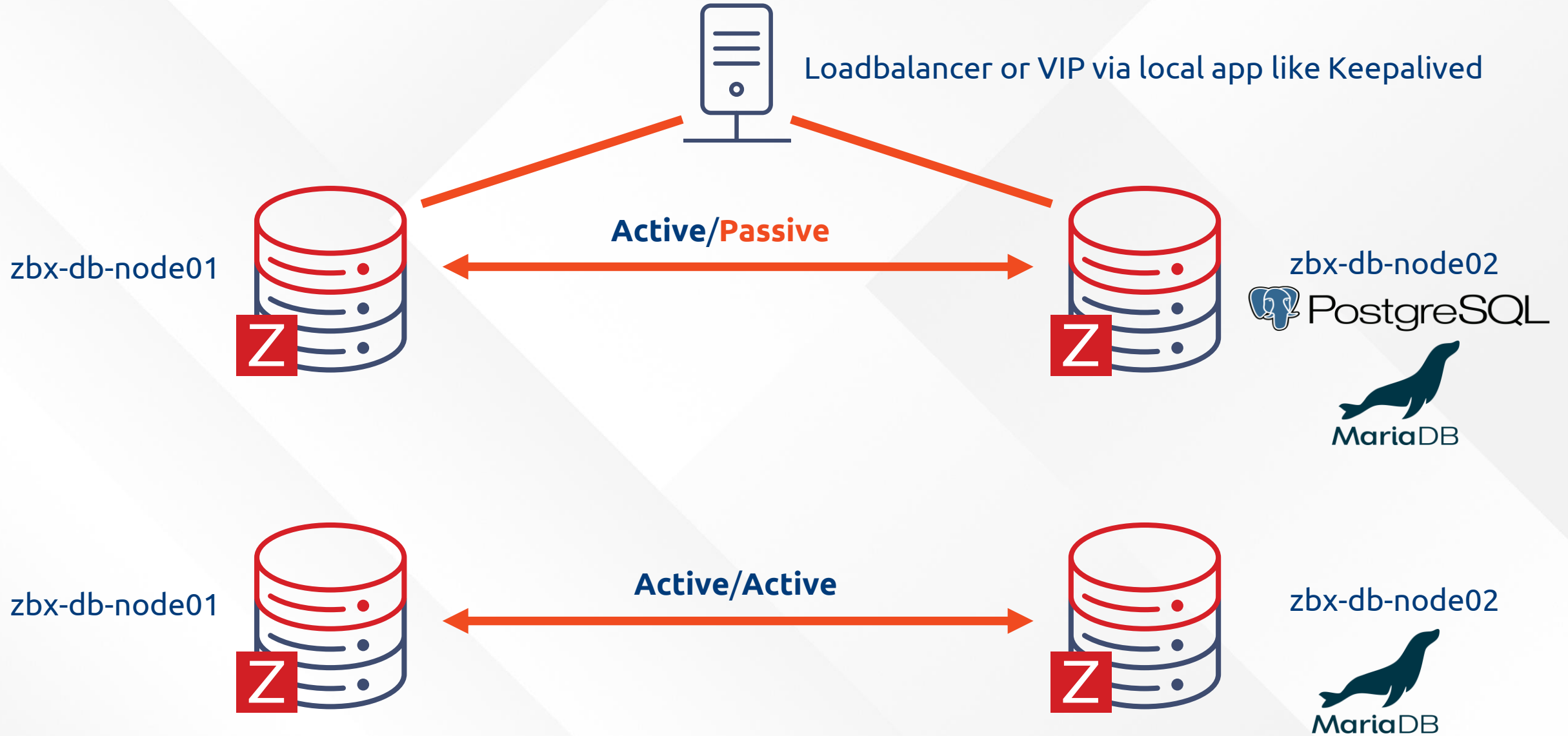


Zabbix frontend: Notes

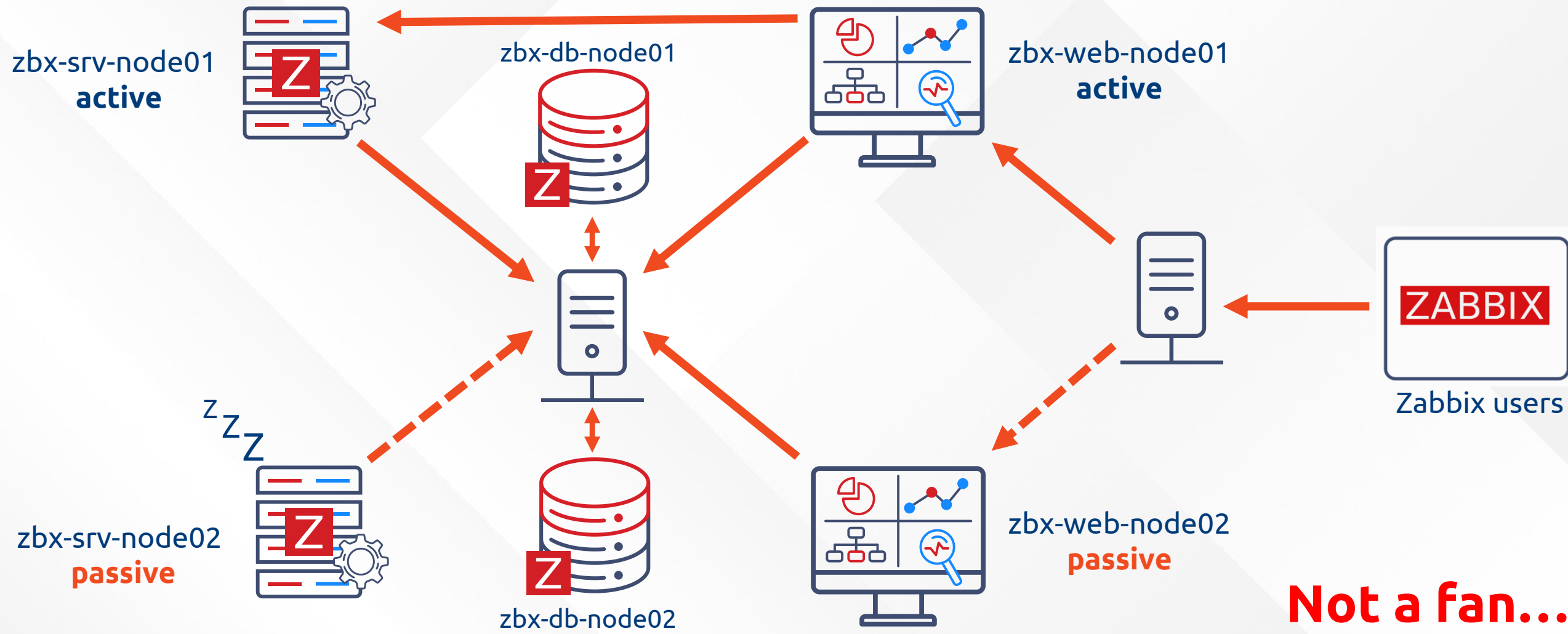
- A Load balancer adds more **complication** to your environment
 - Another things that can **break/cause issues**
- VIP via local application like Keepalived is **simple** but..
 - It's a **less scalable** solution as you only connect to **1 frontend at the time**



Zabbix database

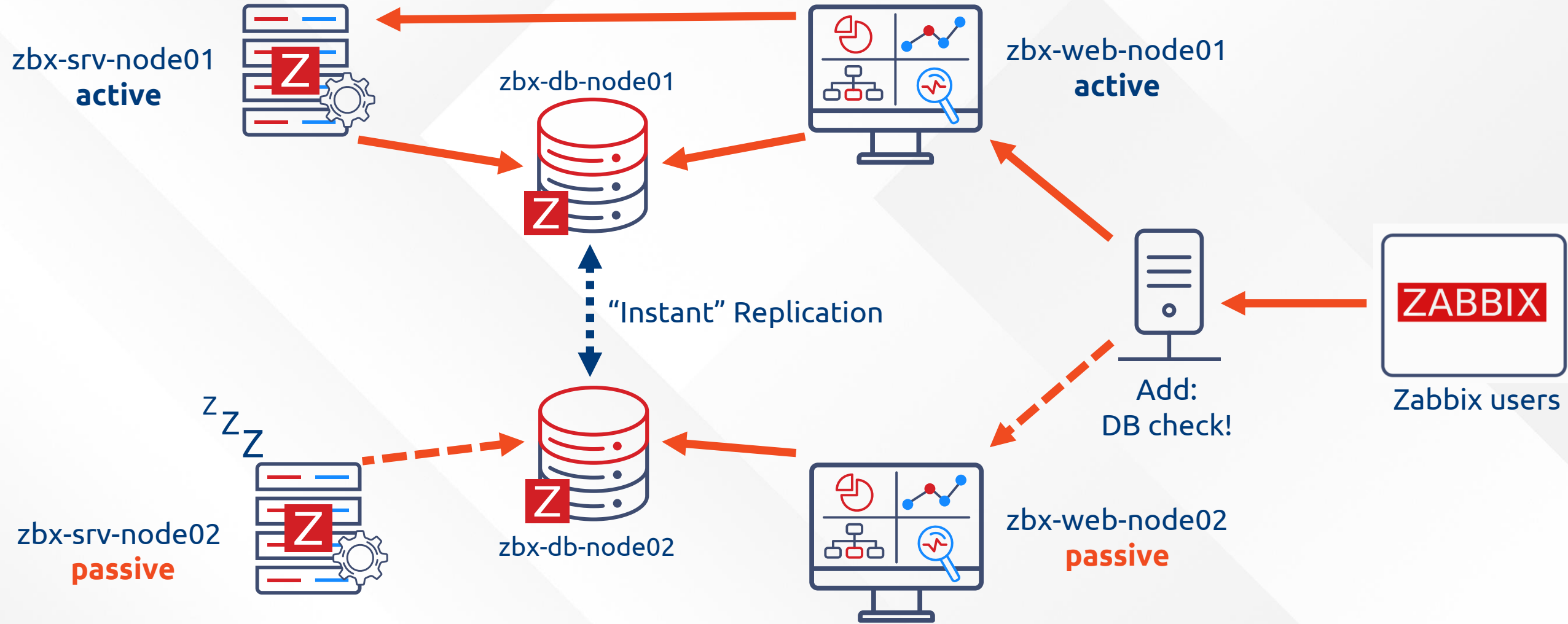


Zabbix database: Active/Passive

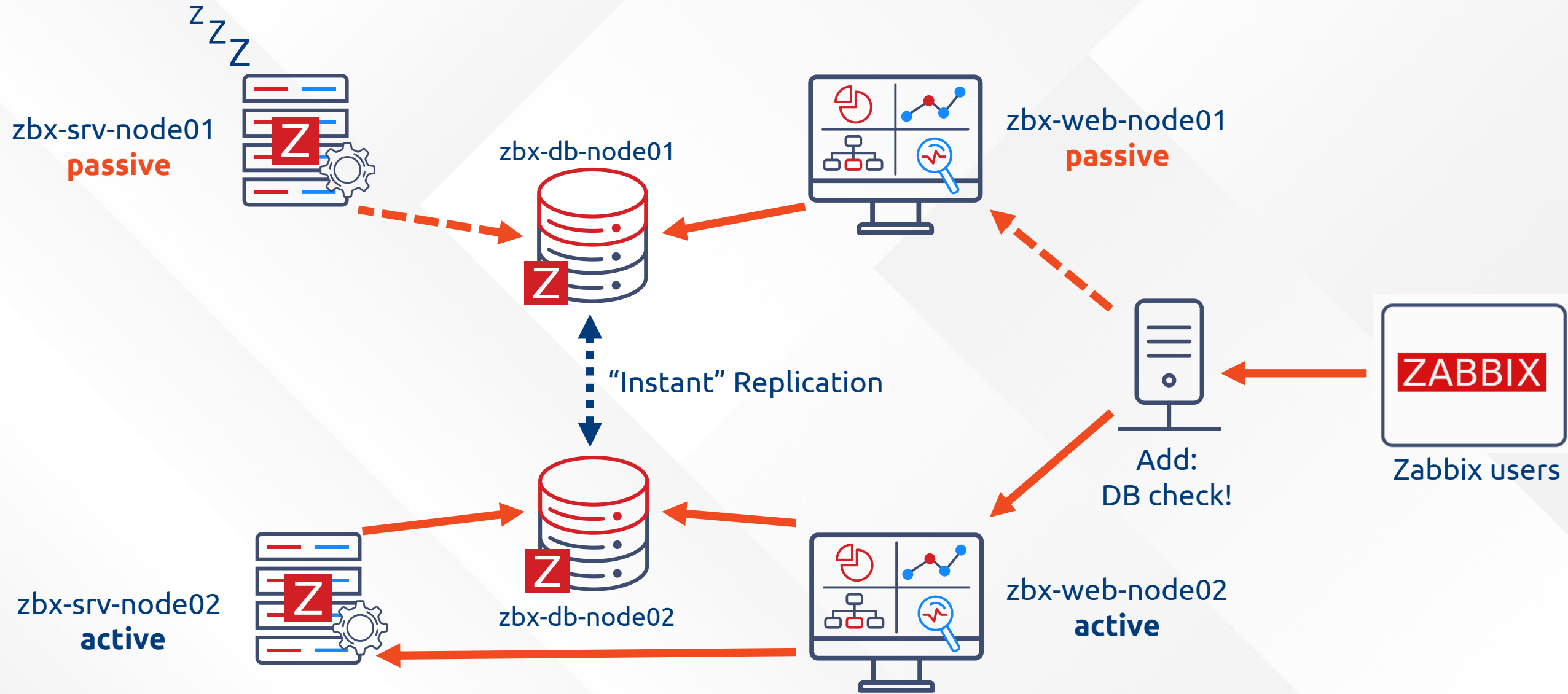


Not a fan...

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

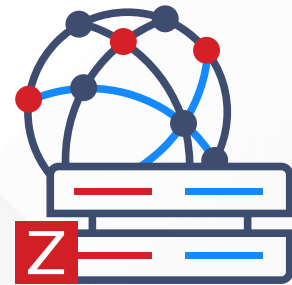


Zabbix proxies/agents: Configuration

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

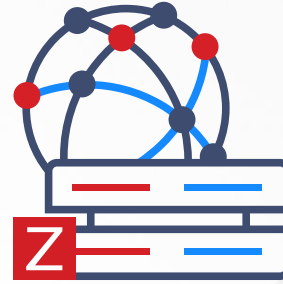
```
vim /etc/zabbix/zabbix_agent2.conf  
Server=192.168.1.209,192.168.1.210  
ServerActive=192.168.1.209;192.168.1.210
```



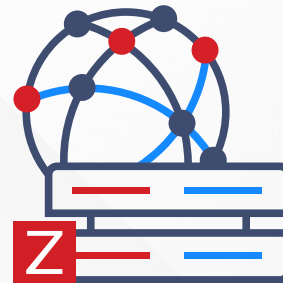
Zabbix proxies

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
Linux by Zabbix agent	Unlink Unlink and clear

* 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 checked="" type="radio"/> IP <input type="radio"/> DNS	<input type="text" value="10050"/>	<input checked="" type="radio"/> Remove

[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>	Remove
B	Host group equals <i>Zabbix proxies</i>	Remove
C	Trigger name contains <i>Zabbix proxy: Down</i>	Remove

[Add](#)

Enabled

Action Operations 1

* Default operation step duration

Operations	Steps	Details	Start in	Duration	Action
	1	Run script "Proxy failover by Python" on current host	Immediately	Default	Edit Remove

[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?

