

The background of the slide features a series of concentric, overlapping circles in various shades of dark teal and blue, creating a tunnel-like or spiral effect that draws the eye towards the center.

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Evidian SafeKit for K3S

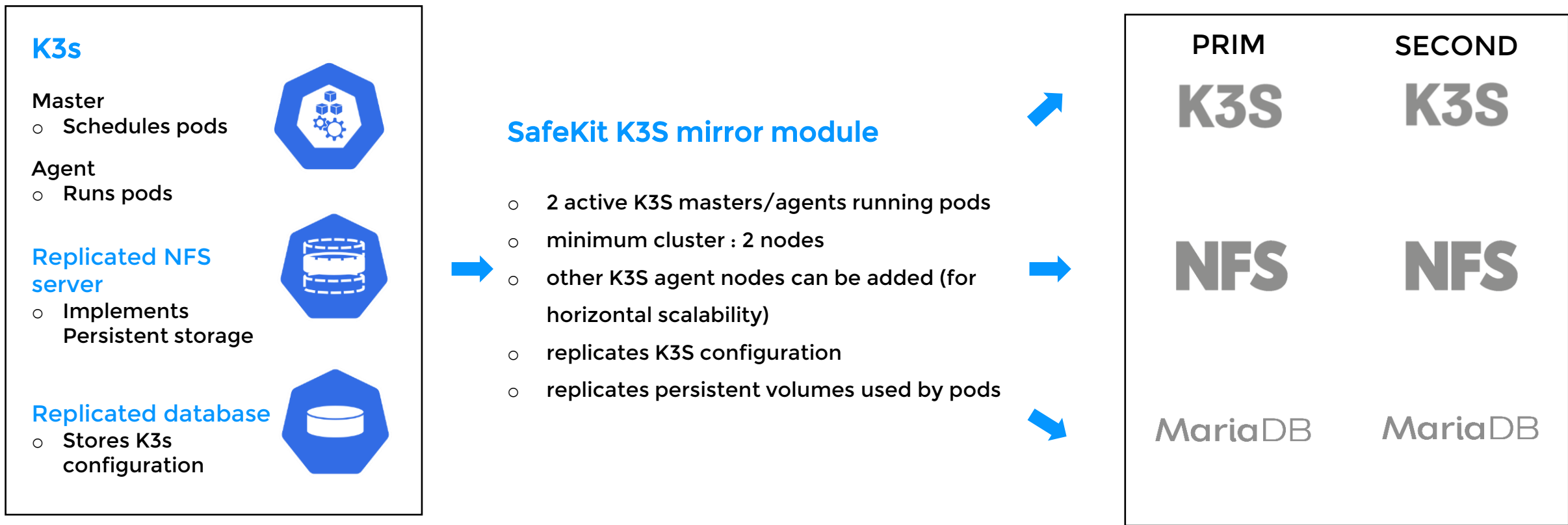
Kubernetes cluster with only 2 nodes without shared storage

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Introduction

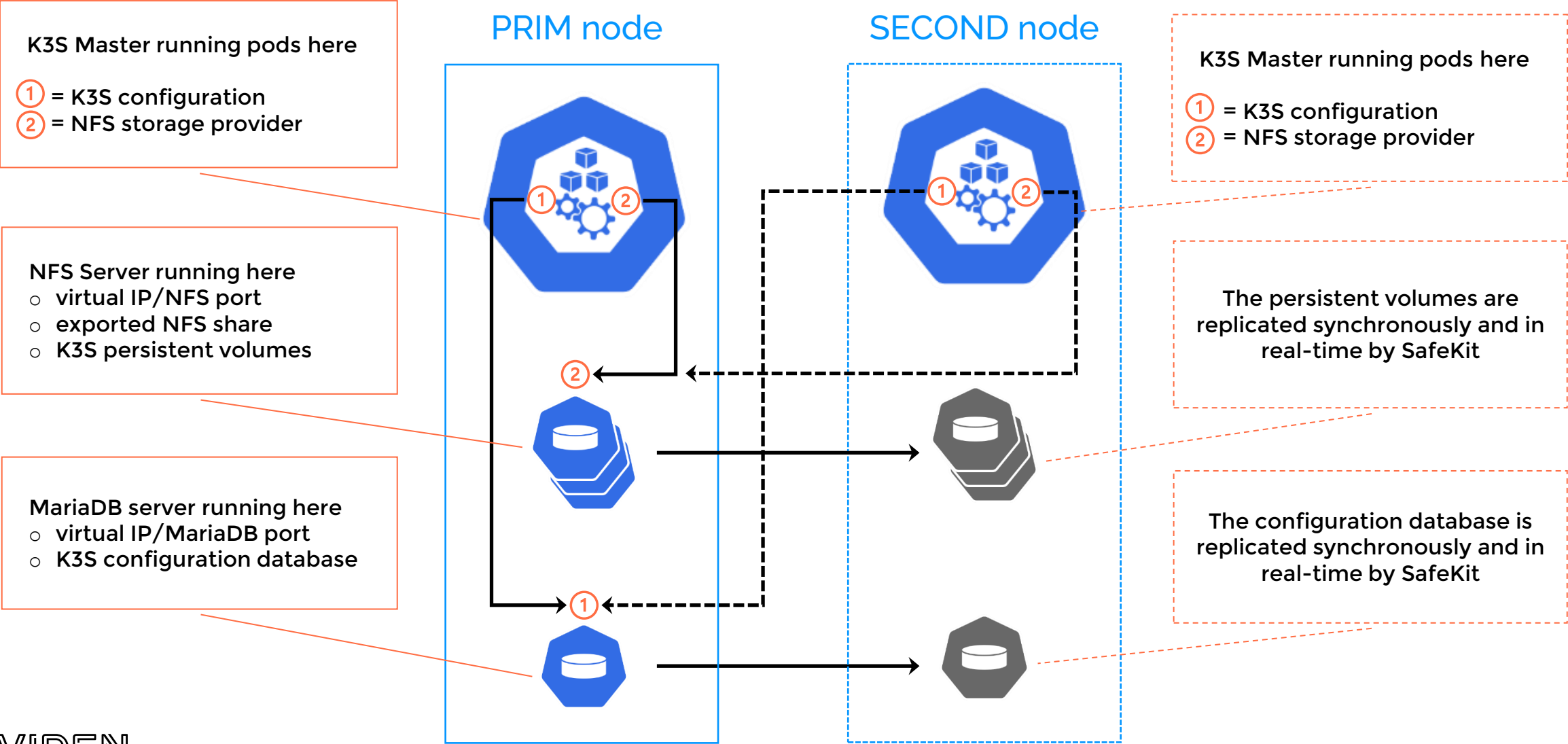
K3S / SafeKit Architecture

Target: Kubernetes cluster on premises

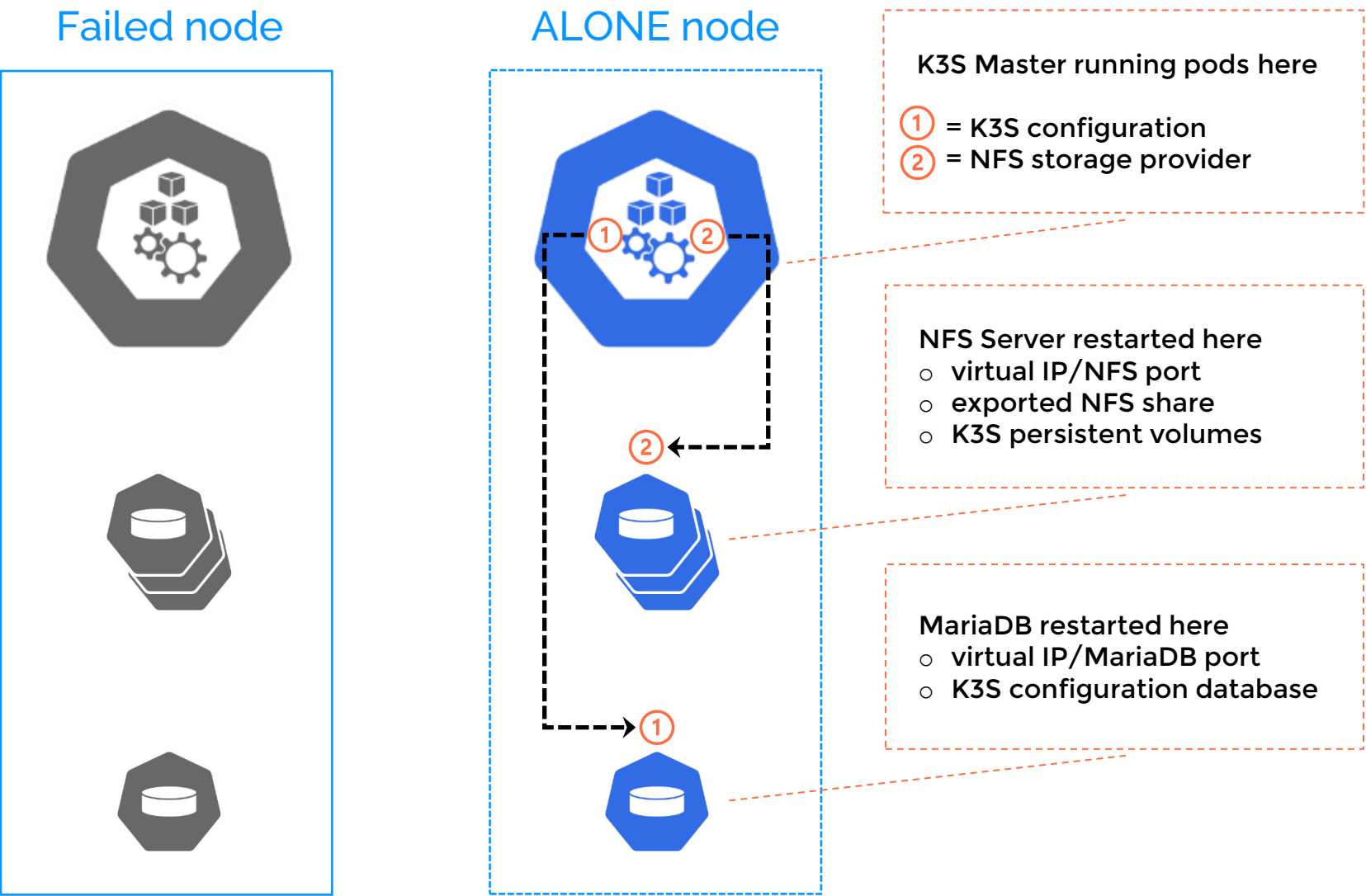


Easiest solution on the market because K3S and SafeKit are lightweight solutions

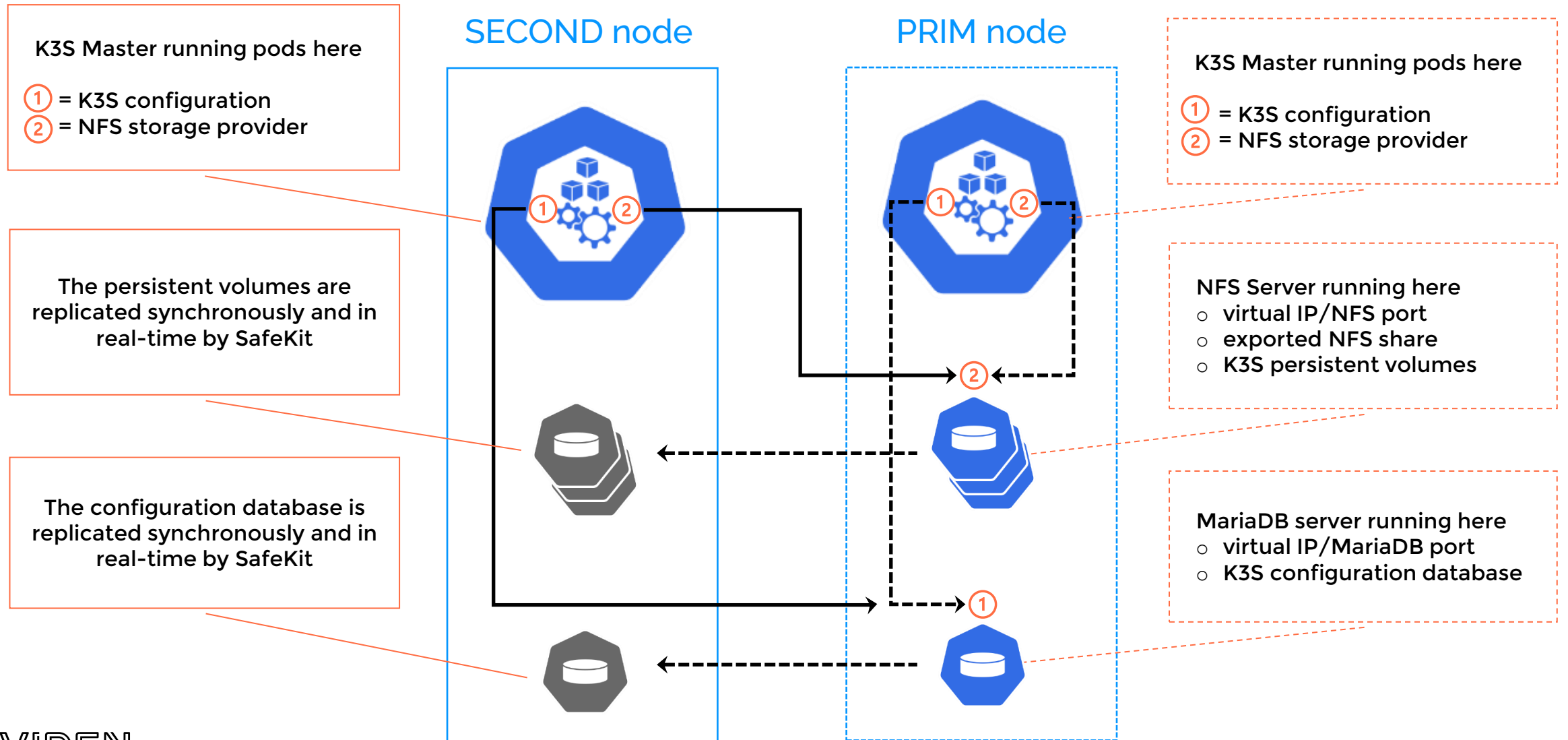
K3S / SafeKit / Normal Operation



K3S / SafeKit / Automatic failover



K3S / SafeKit / Automatic failback



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Distinctive advantages

Distinctive advantages

SafeKit against competition

SafeKit advantages - all HA features on 2 nodes	Benefits
Synchronous real-time replication for persistent volumes	No external NAS/NFS storage for persistent volumes
Only 2 nodes for HA of Kubernetes	No need for 3 nodes like with etcd database
Same simple product for virtual IP address, replication, failover, failback, administration, maintenance	Avoid different technologies for virtual IP (metal-lb, BGP), HA of persistent volumes, HA of configuration database
Supports disaster recovery with two remote nodes	Avoid replicated NAS storage
The simplest high availability solution for running Kubernetes applications on 2 nodes and on premise	

The Worst Use Cases

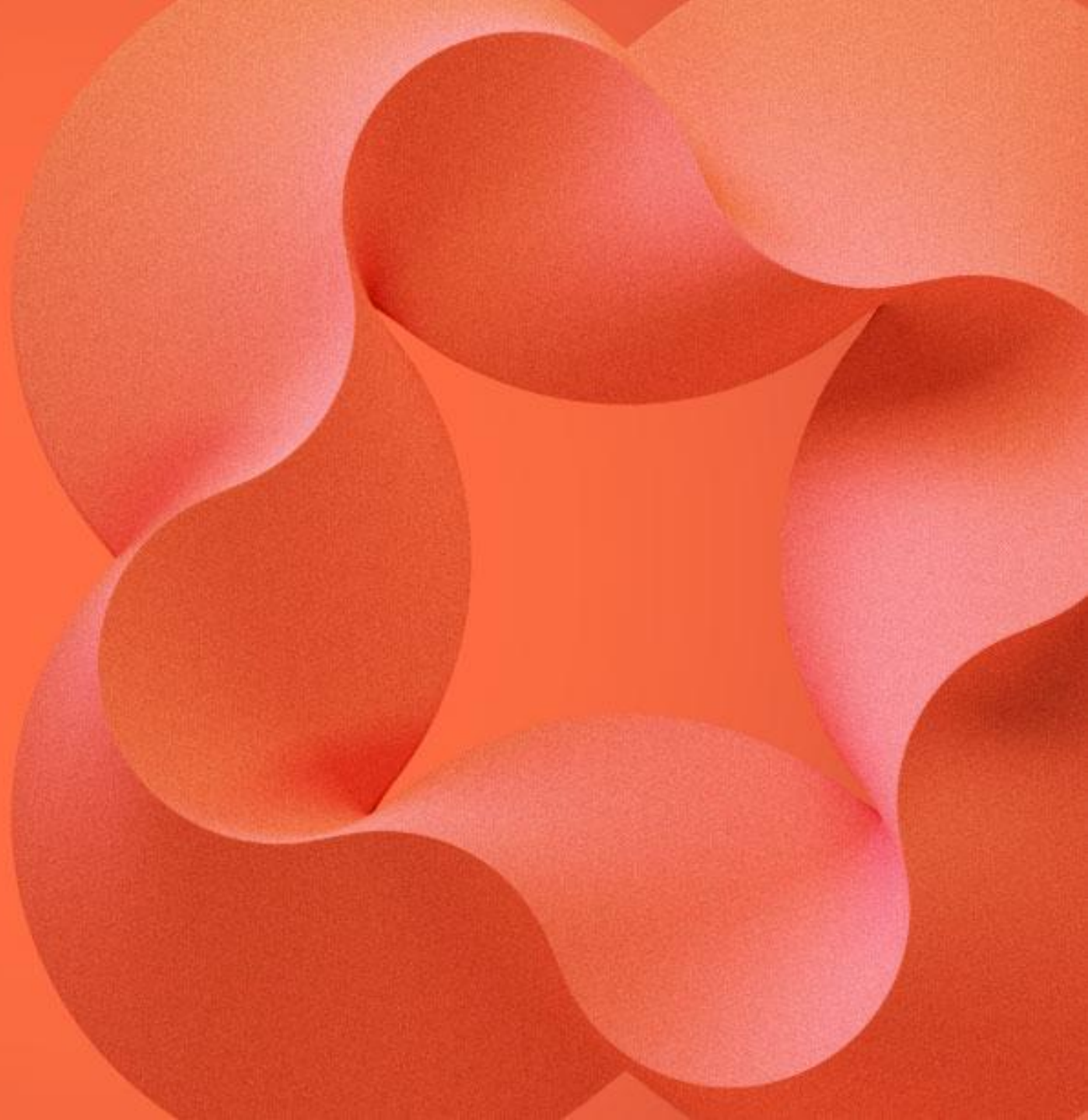
SafeKit High Availabilty

Worst use cases	Solution (not SafeKit)
Large volume of data to replicate	External storage
Low bandwidth / high latency network	Backup solutions (asynchronous replication)

Typical usage with SafeKit
a few Terabytes
1Gb/s or 10 G/s LAN or extended LAN

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Installation



Installation: Prerequisites

On 2 Linux Ubuntu 24.04 nodes, as root:

- Make sure the node has internet access (could be through a proxy).
- Copy k3sconfig.sh, k3s.safe and the safekit package as "safekit.bin" into a directory and cd into it.
- Make sure k3sconfig.sh and safekit.bin are executable.
- Edit the k3sconfig.sh script and customize the environment variables according to your environment
- Execute on both nodes: `./k3sconfig.sh prereq`

The script will :

- Install required debian packages: alien, nfs-kernel-server, nfs-common, mariadb-server
- Secure mariadb installation
- Create directories for file replication
- Prepare the NFS server for sharing replicated directories
- Install SafeKit

Installation on the first node

Execute on the first node: `./k3sconfig.sh first`

The script will:

- Create the K3S configuration database and the k3s user
- Create the replicated storage volume file (sparse file) and format it as an xfs filesystem
- Create the safekit cluster configuration and apply it
- Install and configure the k3s.safe module on the cluster
- Start the k3s module as "prim" on the first node
- Download, install and start k3s
- Download and install nfs-subdir-external-provisioner Helm chart
- Display K3S token (to be used during second node installation phase)

Installation on the second node

Execute on the second node: `./k3sconfig.sh second <token>`

- <token> is the string displayed at the end of the "k3sconfig.sh first" execution on the first node.

The script will

- Make sure the k3s module is started as prim on the first node
- Install k3s on the second node
- Start the k3s module

Check that the SafeKit k3s module is running on both nodes

Check with this command: `/opt/safekit/safekit -H "*" state`

The reply should be similar to:

```
----- Server=http://10.0.0.20:9010 -----
```

```
admin action=exec
```

```
----- k3s State -----
```

```
Local (127.0.0.1) : PRIM (Service : Available)(Color : Green)
```

```
Success
```

```
----- Server=http://10.0.0.21:9010 -----
```

```
admin action=exec
```

```
----- k3s State -----
```

```
Local (127.0.0.1) : SECOND (Service : Available)(Color : Green)
```

```
Success
```

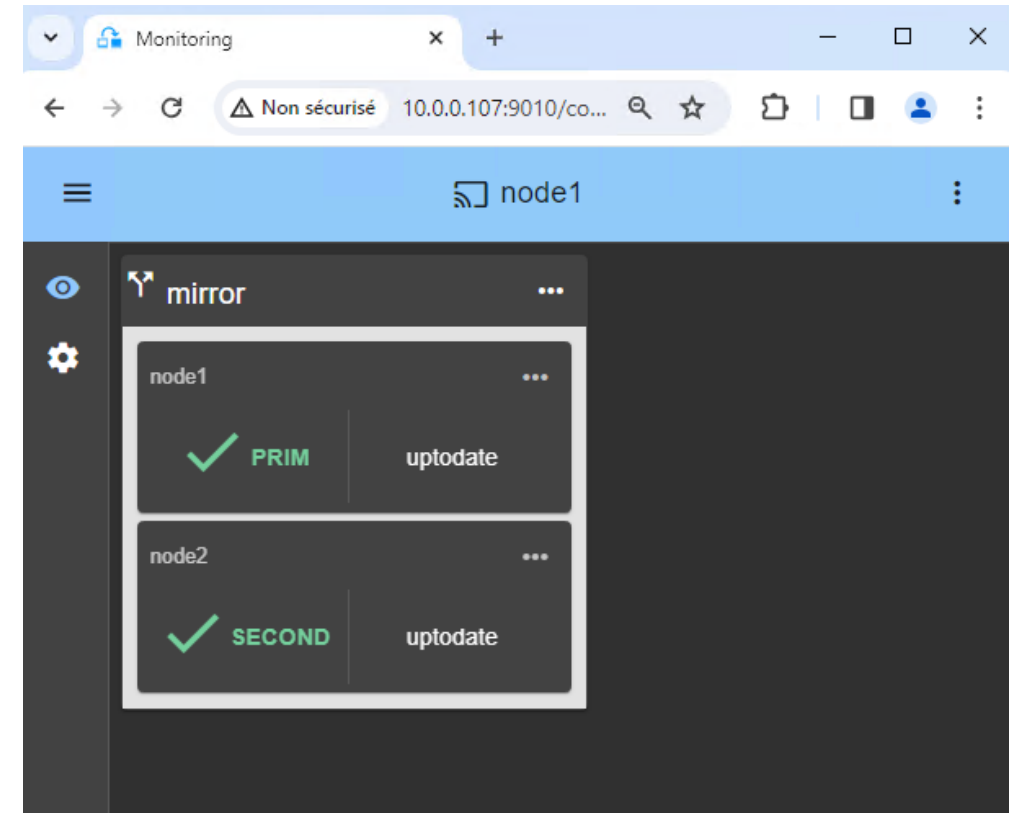

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Administration

Start the SafeKit web console

Connect a browser to the SafeKit web console url <http://server0-IP:9010>

- You should see a page similar to the following
- See the [training](#) for more information on the console



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Thank you !

[Contact us here](#)