



Engineering for Scale

Introducing Checkmk Relay for Large Scale
Distributed Deployments



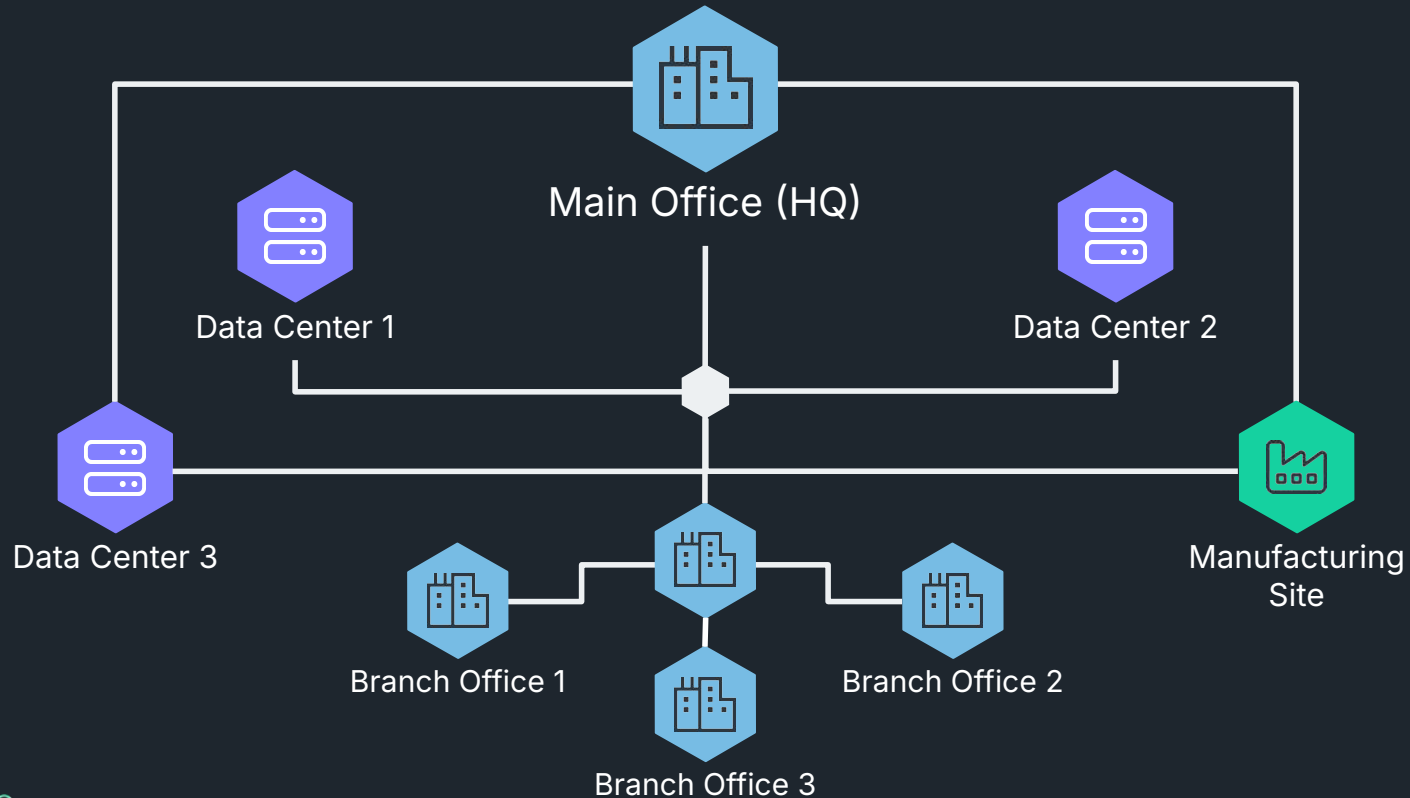
Moritz Kiemer
Staff Software Engineer
Checkmk



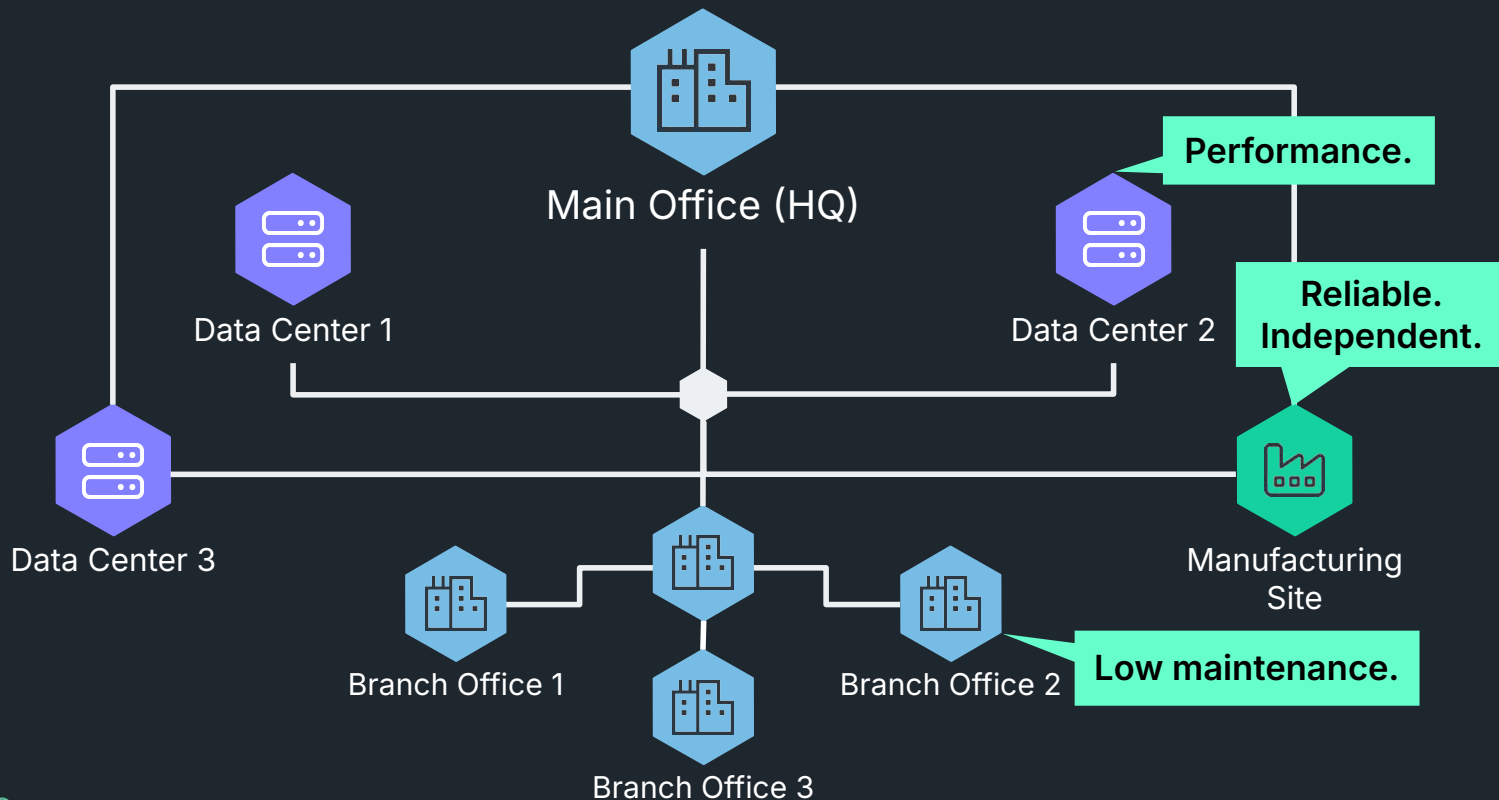


Form follows function...
Also in monitoring...
Ideally...

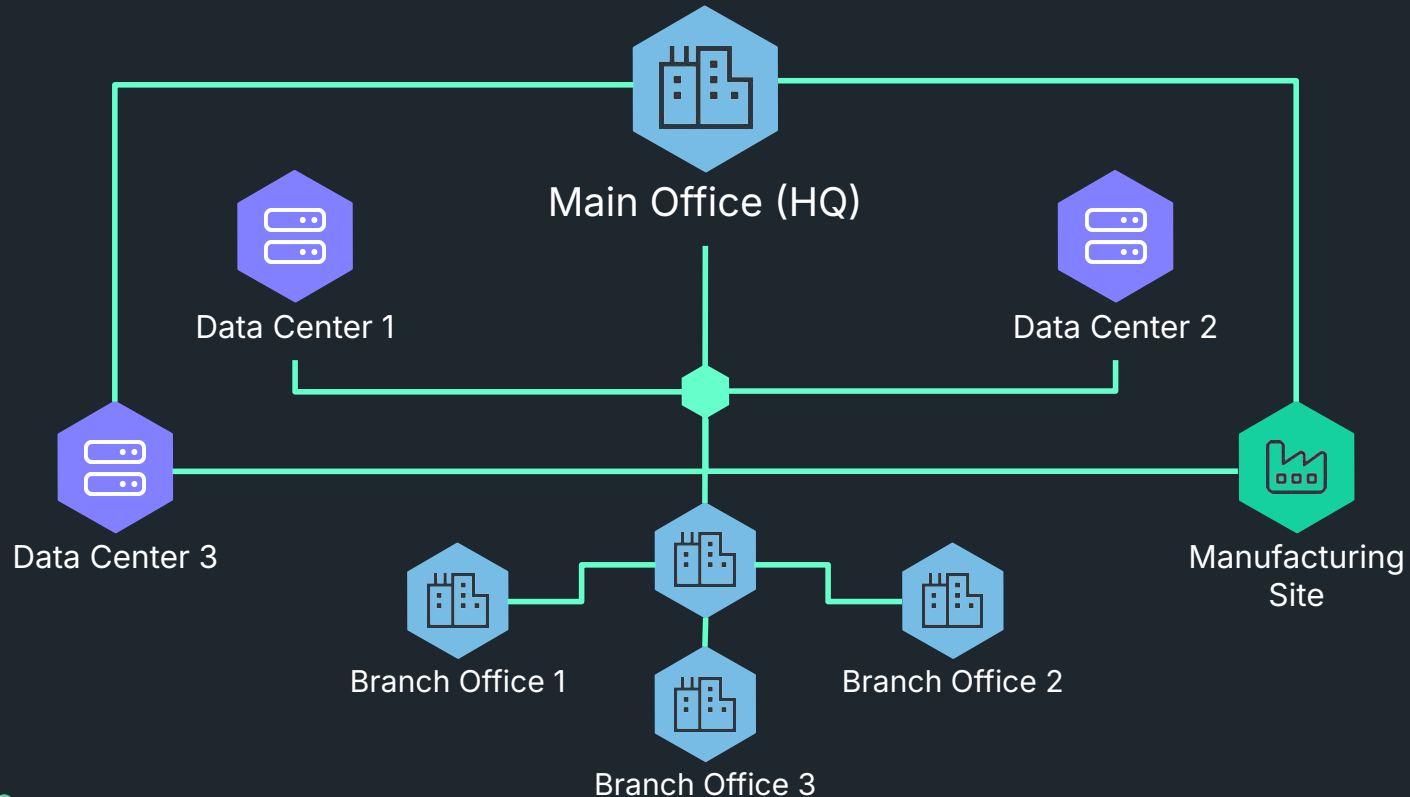
Company infrastructure overview - simplified view



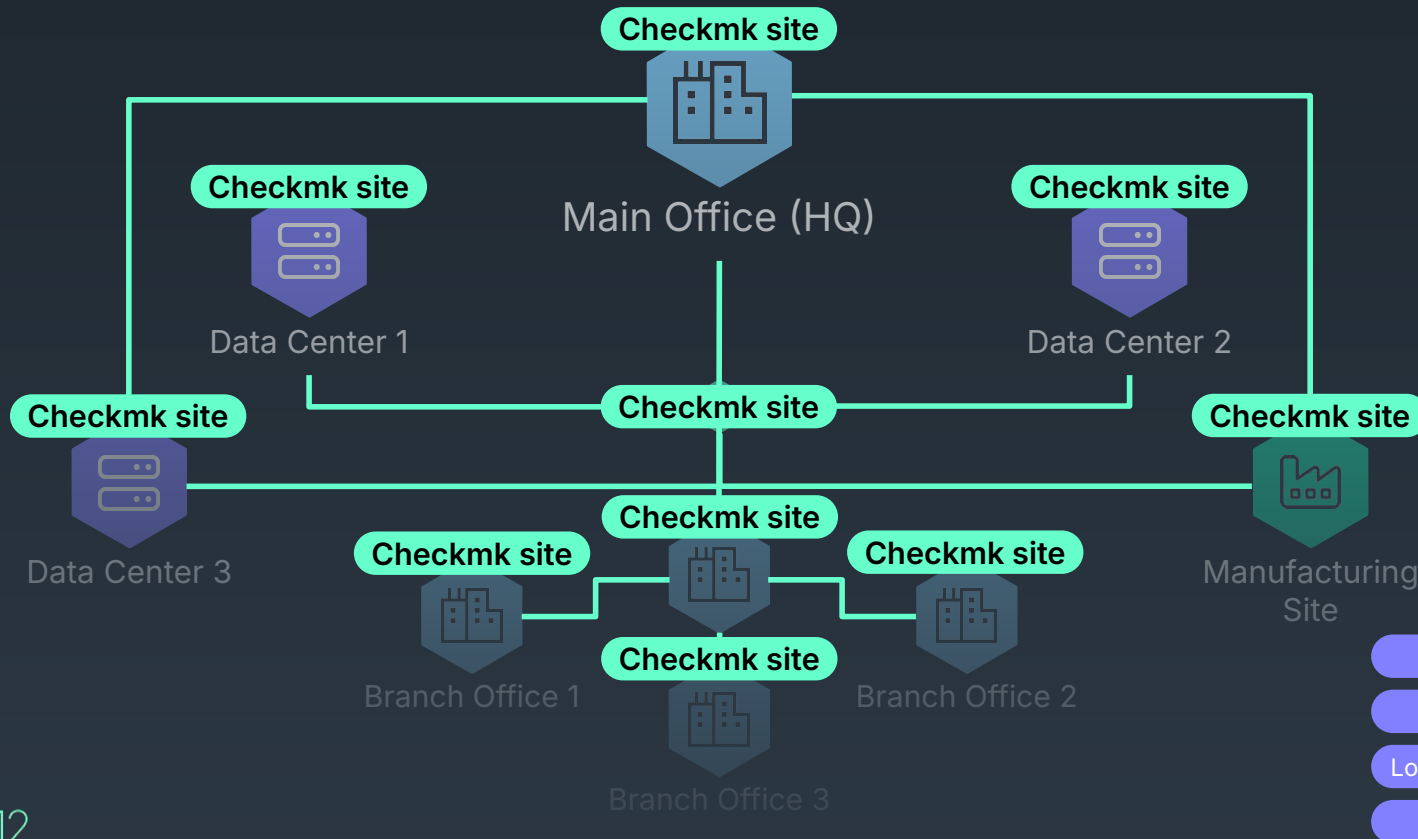
Company infrastructure overview - simplified view



Company infrastructure overview - simplified view



Company infrastructure overview - simplified view





Form follows function...
Also in monitoring...
Ideally...

Checkmk Site

Requirements

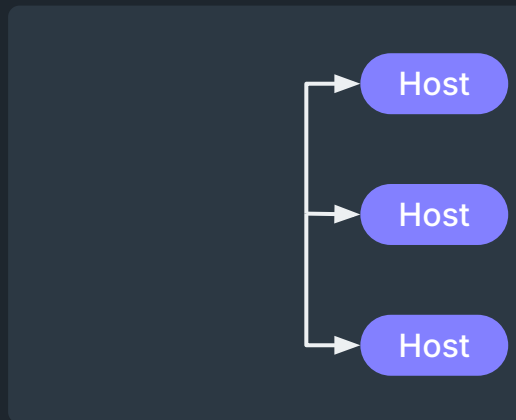
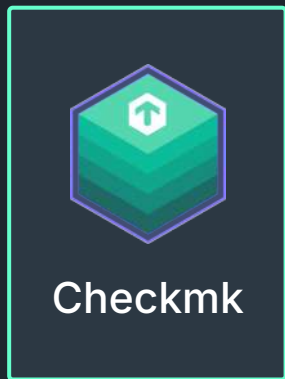
Independence.
Flexibility.

Cost

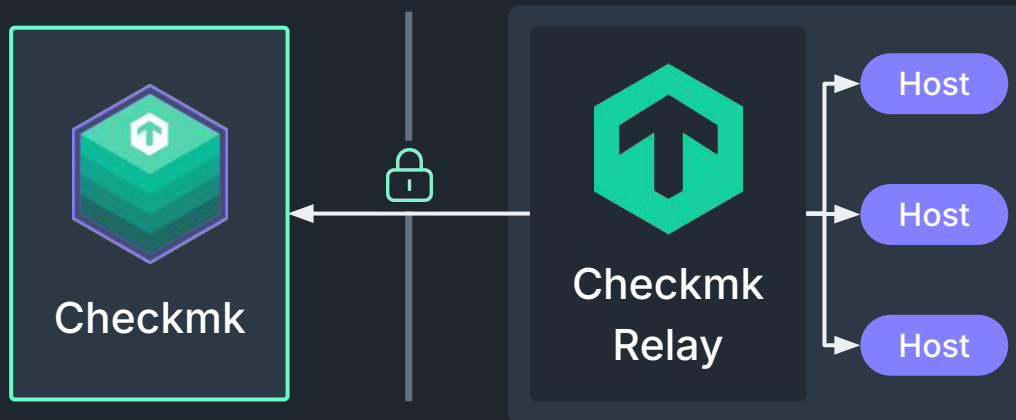
Maintenance.
Powerful, but fat application.

	Checkmk Site	Checkmk Relay New
Requirements	Independence. Flexibility.	"Just" collect data. No maintenance!
Cost	Maintenance. Powerful, but fat application.	Fewer features?

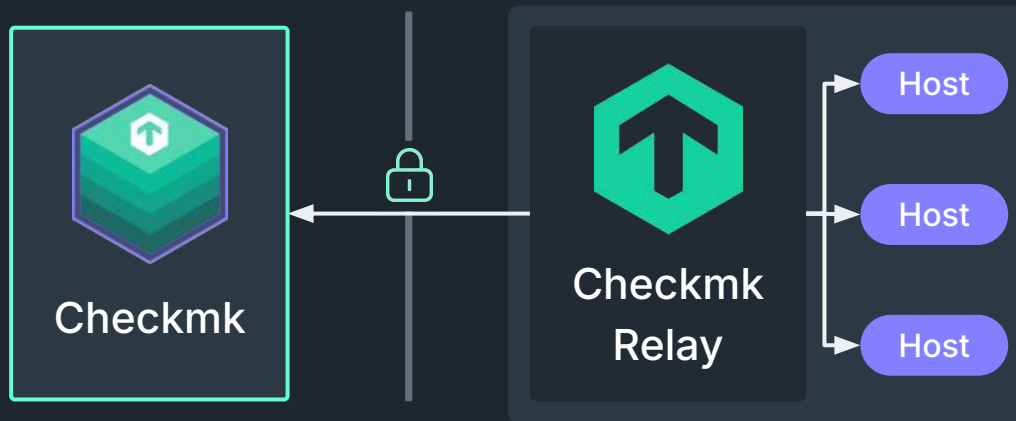
Introducing the Checkmk Relay



Introducing the Checkmk Relay



Introducing the Checkmk Relay



Lightweight

No monitoring logic



Maintenance-free

Centrally configured & automatically updated



Secure

Encrypted via mTLS



Cloud-ready

Outbound only

Central Site

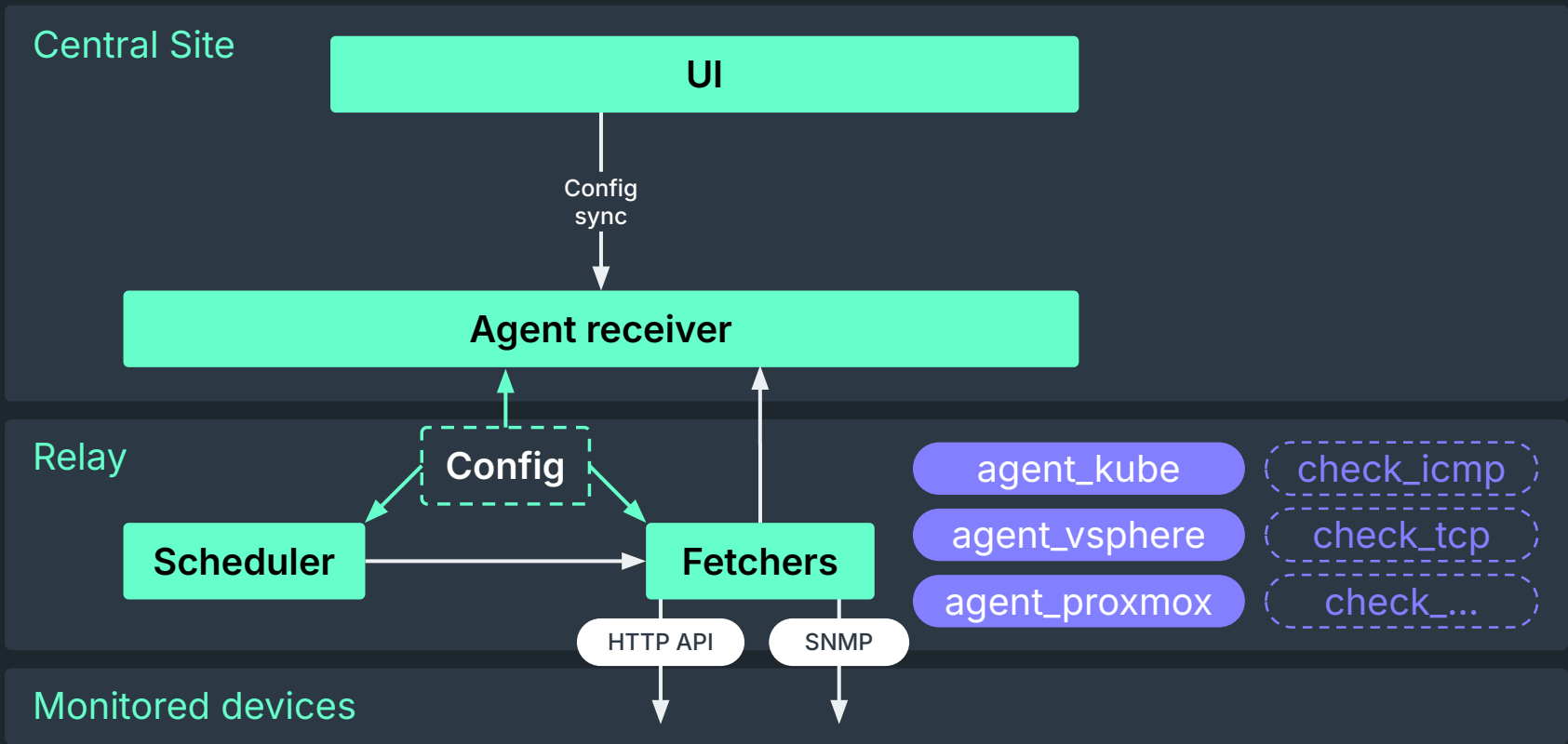
UI

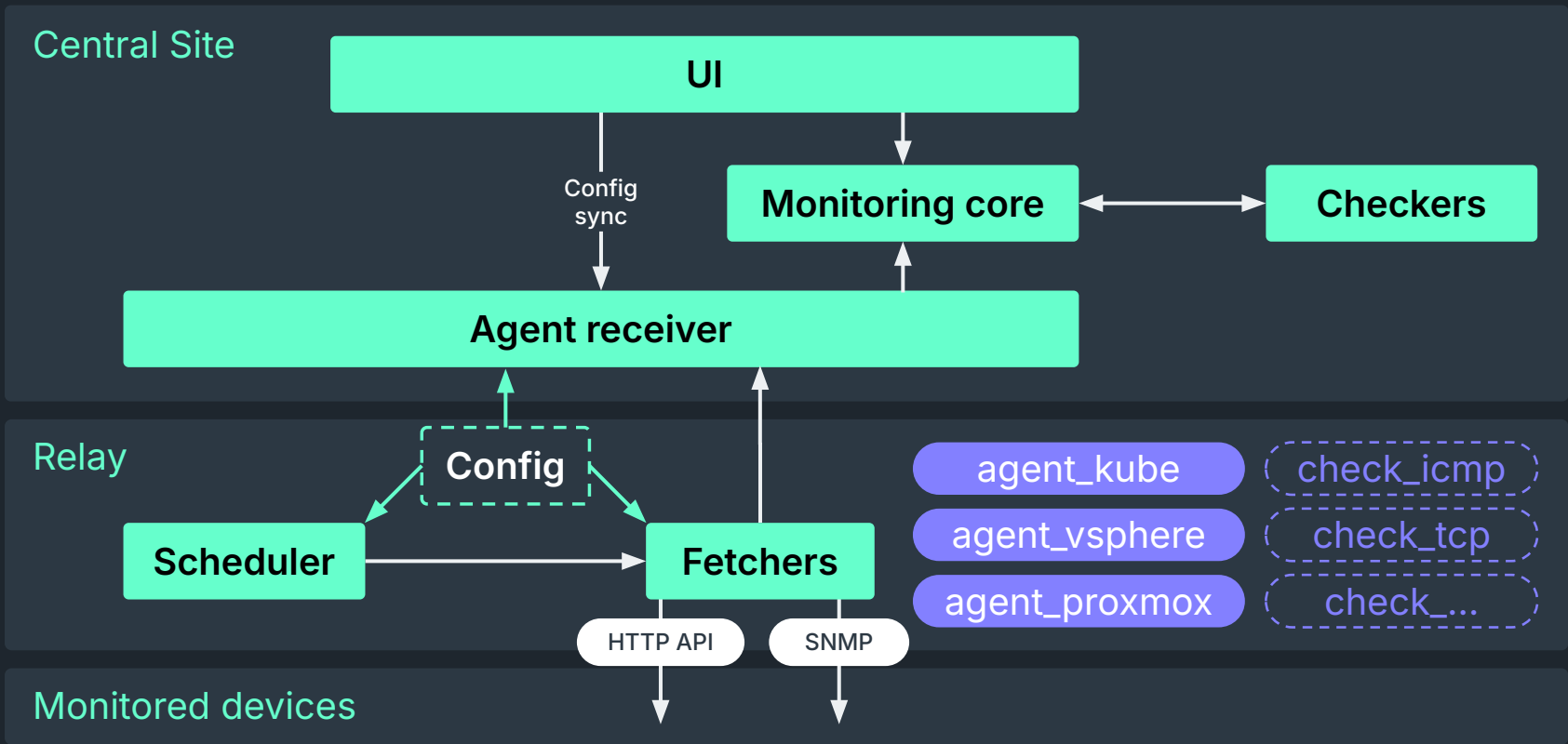
Central Site

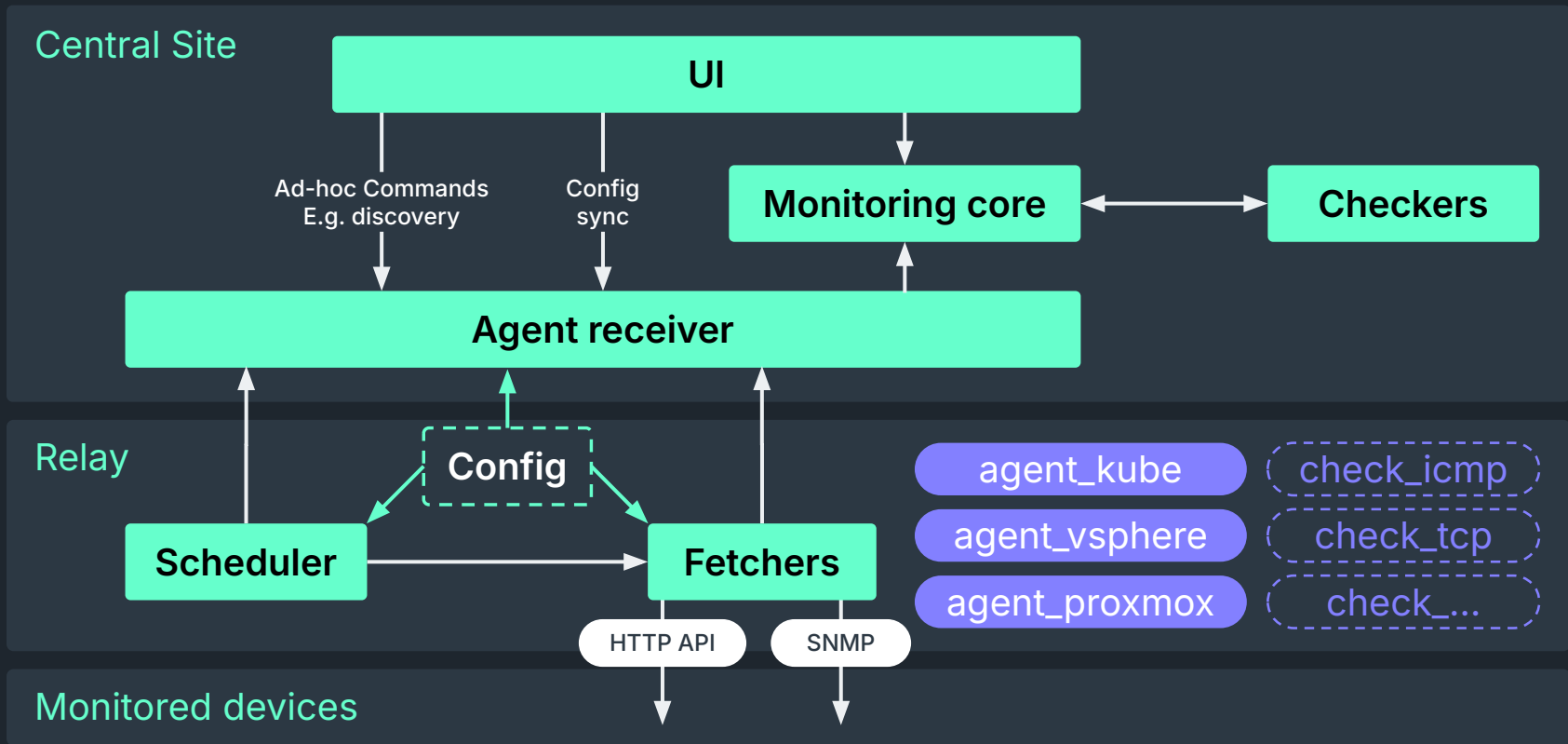
UI

Config
sync

Agent receiver







It's really simple to deploy. Also at scale.



Immutable container

Zero host-level dependencies*.



Powered by Podman

Daemonless.
Optimized for security.



Standard Linux Service

Managed cleanly native
via systemd

Add Relay configuration

Display Help ↕

Relays

The Relay is officially supported to run on the following operating systems:

- Ubuntu 24.04 LTS
- Red Hat Enterprise Linux (RHEL) 8.10+
- Red Hat Enterprise Linux (RHEL) 9.7+
- Red Hat Enterprise Linux (RHEL) 10

1 Download the Relay installation script

Run the command below to make the Relay installation script available to the machine on which the Relay will be running.

```
curl -O https://play-e2056645-42a3-45a1-80d4-98920adea987.eu-de.cher
```



Next step

2 Name the relay

3 Install Podman

4 Run the installation script

5 Registration results



checkmk



Search



Monitor



Customize



Setup



Changes



Help



User



Admin



Sidebar

Add Relay configuration

Display Help ↕

Relays

The Relay is officially supported to run on the following operating systems:

- Ubuntu 24.04 LTS
- Red Hat Enterprise Linux (RHEL) 8.10+
- Red Hat Enterprise Linux (RHEL) 9.7+
- Red Hat Enterprise Linux (RHEL) 10

1 Download the Relay installation script

2 Name the relay

Provide a display alias for your Relay. This alias can be changed later.
Relay alias (required)

i This alias will be used to identify your Relay. It will automatically be inserted into the command shown in the next steps.

Next step

Previous step

3 Install Podman

4 Run the installation script

5 Registration results



checkmk



Search



Monitor



Customize



Setup



Changes



Help



User



Admin



Sidebar

Add Relay configuration

Display Help ↕

Relays

The Relay is officially supported to run on the following operating systems:

- Ubuntu 24.04 LTS
- Red Hat Enterprise Linux (RHEL) 8.10+
- Red Hat Enterprise Linux (RHEL) 9.7+
- Red Hat Enterprise Linux (RHEL) 10

✓ Download the Relay installation script

✓ Name the relay

3 Install Podman

Ubuntu

Red Hat

Before deploying the Relay, ensure that Podman is installed on the machine on which the Relay will be running. The Relay is distributed as a container image and requires a functional Podman environment.

```
sudo apt-get update && sudo apt-get install -y podman
```



Next step

Previous step

4 Run the installation script

5 Registration results



checkmk



Search



Monitor



Customize



Setup



Changes



Help



User



Admin



Sidebar

Add Relay configuration

Display Help ↕

Relays

The Relay is officially supported to run on the following operating systems:

- Ubuntu 24.04 LTS
- Red Hat Enterprise Linux (RHEL) 8.10+
- Red Hat Enterprise Linux (RHEL) 9.7+
- Red Hat Enterprise Linux (RHEL) 10

✓ Download the Relay installation script

✓ Name the relay

✓ Install Podman

4 Run the installation script

On the machine on which the Relay will be running, run the command below to execute the downloaded installation script with the parameters shown. The script will automatically download and register the Relay to your Checkmk site and run it afterwards.

i Note that the installation requires root privileges.

This requires the generation of a registration token.

🔑 [Generate one-time token](#)

➡ [Next step](#)

⬅ [Previous step](#)

5 Registration results

checkmk

Search

Monitor

Customize

Setup

Changes

Help

User

Admin

Sidebar

Add Relay configuration

Display Help ↕

Relays

The Relay is officially supported to run on the following operating systems:

- Ubuntu 24.04 LTS
- Red Hat Enterprise Linux (RHEL) 8.10+
- Red Hat Enterprise Linux (RHEL) 9.7+
- Red Hat Enterprise Linux (RHEL) 10

✓ Download the Relay installation script

✓ Name the relay

✓ Install Podman

4 Run the installation script

On the machine on which the Relay will be running, run the command below to execute the downloaded installation script with the parameters shown. The script will automatically download and register the Relay to your Checkmk site and run it afterwards.

i Note that the installation requires root privileges.

✓ This token remains valid for 1 hour.

```
sudo bash install_relay.sh \  
  --relay-name 'office-atlanta' \  
  --initial-tag-version 2.5.0p2 \  
  --target-server play-e2056645-42a3-45a1-80d4-98920adea987.eu-de.cf \  
  --target-site-name play \  
  --token 0:162ae47b-e7b1-4b13-9d3b-2e8814b81454
```

Next step

Previous step

5 Registration results

checkmk

Search

Monitor

Customize

Setup

Changes

Help

User

Admin

Sidebar

```
martin@play-server:~$ curl -O https://play-e2056645-42a3-45a1-80d4-98920adea987.eu-de.checkmk.cloud/play/check_mk/relays/install_relay.sh
  % Total    % Received % Xferd  Average Speed   Time    Time     Time  Current
                                 Dload  Upload  Total   Spent    Left   Speed
100 31418  100 31418    0     0   389k    0  --:--:--  --:--:--  --:--:--  393k
martin@play-server:~$ sudo apt-get update && sudo apt-get install -y podman
[sudo] password for martin:
Get:1 http://security.ubuntu.com/ubuntu noble-security InRelease [126 kB]
Hit:2 http://de.archive.ubuntu.com/ubuntu noble InRelease
Get:3 http://de.archive.ubuntu.com/ubuntu noble-updates InRelease [126 kB]
Get:4 http://security.ubuntu.com/ubuntu noble-security/main amd64 Components [21.9 kB]
Get:5 http://de.archive.ubuntu.com/ubuntu noble-backports InRelease [126 kB]
Get:6 http://security.ubuntu.com/ubuntu noble-security/universe amd64 Components [74.2 kB]
Get:7 http://de.archive.ubuntu.com/ubuntu noble-updates/main amd64 Components [177 kB]
Get:8 http://de.archive.ubuntu.com/ubuntu noble-updates/universe amd64 Components [386 kB]
Get:9 http://de.archive.ubuntu.com/ubuntu noble-updates/multiverse amd64 Components [940 B]
Get:10 http://de.archive.ubuntu.com/ubuntu noble-backports/main amd64 Components [5796 B]
Get:11 http://de.archive.ubuntu.com/ubuntu noble-backports/universe amd64 Components [10.5 kB]
Fetched 1056 kB in 0s (2309 kB/s)
Reading package lists... Done
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
podman is already the newest version (4.9.3+ds1-1ubuntu0.2).
0 upgraded, 0 newly installed, 0 to remove and 11 not upgraded.
martin@play-server:~$ sudo bash install_relay.sh \
  --relay-name 'office-atlanta' \
  --initial-tag-version 2.5.0p2 \
  --target-server play-e2056645-42a3-45a1-80d4-98920adea987.eu-de.checkmk.cloud:8000 \
  --target-site-name play \
  --token 0:162ae47b-e7b1-4b13-9d3b-2e8814b81454
=== Checkmk Relay Installer ===
[2026-05-17 14:39:20] [INFO] Checking prerequisites...
[2026-05-17 14:39:20] [INFO] Setting up directories...
```

```
[2026-05-17 14:39:20] [INFO] Checking prerequisites...
[2026-05-17 14:39:20] [INFO] Setting up directories...
[2026-05-17 14:39:20] [INFO] Created trigger file at: /opt/checkmk_relay/update-trigger.conf
[2026-05-17 14:39:20] [INFO] Setting up Podman resources...
[2026-05-17 14:39:20] [INFO] Created Podman volume: relay
[2026-05-17 14:39:20] [INFO] Pulling image: docker.io/checkmk/check-mk-relay:2.5.0p2
Trying to pull docker.io/checkmk/check-mk-relay:2.5.0p2...
Getting image source signatures
Copying blob 59b54a3774c5 done |
Copying blob 36774d597c5f done |
Copying blob 00111f1d718f done |
Copying blob 354ed60d8023 done |
Copying blob 1f199f2dd788 done |
Copying config 93ba307e23 done |
Writing manifest to image destination
93ba307e23ecc813729242d066b64fca40b9384a74e9d26649e2b4a49127f69d
[2026-05-17 14:39:39] [INFO] Registering Relay with Checkmk server...
INFO Registration completed successfully
[2026-05-17 14:39:40] [INFO] Relay registered successfully.
[2026-05-17 14:39:40] [INFO] Installing update manager script...
[2026-05-17 14:39:40] [INFO] Update script written: /usr/local/bin/checkmk_relay-update-manager.sh
[2026-05-17 14:39:40] [INFO] Writting container unit...
[2026-05-17 14:39:40] [INFO] Container unit written: /etc/containers/systemd/checkmk_relay.container
[2026-05-17 14:39:40] [INFO] Writting path unit...
[2026-05-17 14:39:40] [INFO] Path unit written: /etc/systemd/system/checkmk_relay-update-manager.path
[2026-05-17 14:39:40] [INFO] Writting service unit...
[2026-05-17 14:39:40] [INFO] Service unit written: /etc/systemd/system/checkmk_relay-update-manager.service
[2026-05-17 14:39:40] [INFO] Reloading Systemd...
[2026-05-17 14:39:42] [INFO] Enabling service: checkmk_relay-update-manager.path
Created symlink /etc/systemd/system/multi-user.target.wants/checkmk_relay-update-manager.path → /etc/systemd/system/checkmk_relay-update-manager.path.
[2026-05-17 14:39:42] [INFO] Starting service: checkmk_relay.service
[2026-05-17 14:39:42] [INFO] Service status
[2026-05-17 14:39:42] [INFO] $ systemctl status checkmk_relay-update-manager.path --no-pager
```

Active: **active (waiting)** since Sun 2026-05-17 14:39:42 UTC; 138ms ago

Triggers: ● checkmk_relay-update-manager.service

May 17 14:39:42 play-server systemd[1]: Started checkmk_relay-update-manage...ile.

Hint: Some lines were ellipsized, use -l to show in full.

[2026-05-17 14:39:42] [INFO] \$ systemctl status checkmk_relay.service --no-pager

● checkmk_relay.service - Checkmk Relay Container

Loaded: loaded (/etc/containers/systemd/checkmk_relay.container; generated)

Active: **active (running)** since Sun 2026-05-17 14:39:42 UTC; 23ms ago

Main PID: 2930 (common)

Tasks: 2 (limit: 2263)

Memory: 5.4M (peak: 12.6M)

CPU: 66ms

CGroup: /system.slice/checkmk_relay.service

└─libpod-payload-b87f905428a4f1fdfff2c3403545ab5df8c7c0a9aac075d58d471e1f62d6d832

└─2934 python3 /opt/check-mk-relay/bin/cmk-relay daemon

└─runtime

└─2930 /usr/bin/common --api-version 1 -c b87f905428a4f1fdfff2c3...

May 17 14:39:42 play-server systemd[1]: Starting checkmk_relay.service - Ch...r...

May 17 14:39:42 play-server podman[2920]: 2026-05-17 14:39:42.766400957 +00...sync

May 17 14:39:42 play-server podman[2920]: 2026-05-17 14:39:42.776810825 +00...ice)

May 17 14:39:42 play-server podman[2920]: 2026-05-17 14:39:42.859164027 +00...ice)

May 17 14:39:42 play-server podman[2920]: 2026-05-17 14:39:42.864058612 +00...ice)

May 17 14:39:42 play-server systemd[1]: Started checkmk_relay.service - Che...ner.

May 17 14:39:42 play-server checkmk_relay[2920]: b87f905428a4f1fdfff2c340354...832

Hint: Some lines were ellipsized, use -l to show in full.

[2026-05-17 14:39:42] [INFO] Installation Complete.

Useful commands to check relay status:

Service: systemctl status checkmk_relay.service

Logs: journalctl -u checkmk_relay.service -f

Add Relay configuration

Display Help ↕

Relays

The Relay is officially supported to run on the following operating systems:

- Ubuntu 24.04 LTS
- Red Hat Enterprise Linux (RHEL) 8.10+
- Red Hat Enterprise Linux (RHEL) 9.7+
- Red Hat Enterprise Linux (RHEL) 10

✓ Download the Relay installation script

✓ Name the relay

✓ Install Podman

✓ Run the installation script

5 Registration results

The Registration of the Relay to the Checkmk site has been checked. Results are displayed here. In case of problems, read the [User Guide](#) for help with troubleshooting.

✓ Relay registered and saved successfully!

✓ Continue to add host

✖ Go to relay overview

⬆ Previous step



checkmk



Search



Monitor



Customize



Setup



Changes



Help



User



Admin



Sidebar



checkmk

Add host

Host Display Help

Save & run service discovery

Save & view folder

Save & run connection tests

network

Basic settings

show less

Host name (required)	<input type="text" value="switch-ug"/>
Alias	<input type="checkbox"/> empty(Default value)
Monitored on site	<input type="checkbox"/> play - Local site play(Default value)
Monitored on relay	<input type="checkbox"/> office-atlanta(Inherited fromatlanta)
Permissions	<input type="checkbox"/> empty(Default value)
Parents	<input type="checkbox"/> empty(Default value)

Network address

show less

IP address family	<input type="checkbox"/> IPv4 only(Default value)
IPv4 address	<input type="checkbox"/> empty(Default value)
Additional IPv4 addresses	<input type="checkbox"/> No entries(Default value)

Monitoring agents

show less

Checkmk agent / API integrations	<input type="checkbox"/> No API integrations, no Checkmk agent(Inherited fromnetwork)
SNMP	<input type="checkbox"/> SNMPv2 or v3(Inherited fromnetwork)
SNMP credentials	<input type="checkbox"/> *****(Inherited fromnetwork)
Piggyback	<input type="checkbox"/> Use piggyback data from other hosts if present(Default value)
OpenTelemetry data	<input type="checkbox"/> Disabled(Default value)

Custom attributes

Management board



Search



Monitor



Customize



Setup



Changes



Help



User



Admin



Sidebar

Services of host switch-ug

Actions Host Settings Display Help ↻

✓ Accept all
🔄 Rescan
+ Monitor undecided services
⊖ Remove vanished services
🔗 Properties of host switch-ug
✓ All data sources are OK

OK [snmp]: Success
OK [piggyback]: Success (but no data found for this host)

i Changed services: 0 | Undecided services: 11 | Vanished services: 0 | New host labels: 2 | Vanished host labels: 0 | Changed host labels: 0

✓ Services rescanned.

∨ Discovered host labels (2)

Status Host labels

 New cmk/device_type:switch cmk/l3v4_topology:singlehomed
∨ Undecided services - currently not monitored (11)

	State	Service	Summary
+ x	OK	CPU utilization	Total CPU: 84.00%
+ x	OK	Interface 00001	[Vlan-Interface1], (up), MAC: 3C:64:CF:DA:6C:29, Speed: unknown, In: 333 B/s, Out: 904 B/s
+ x	OK	Interface 49153	[gigabitEthernet 1/0/1], (up), MAC: 3C:64:CF:DA:6C:29, Speed: 1 GBit/s, In: 294 kB/s (0.24%), Out: 13.3 kB/s (0.01%)
+ x	OK	Interface 49159	[gigabitEthernet 1/0/7], (up), MAC: 3C:64:CF:DA:6C:29, Speed: 1 GBit/s, In: 13.4 kB/s (0.01%), Out: 308 kB/s (0.25%)
+ x	OK	Memory	Utilization: 41.00%
+ x	OK	POE1 consumption	Operational status of the PSE is OFF
+ x	OK	POE49153 consumption	Operational status of the PSE is OFF



checkmk



Search



Monitor



Customize



Setup



Changes



Help



User



Admin



Sidebar

Services of host switch-ug

Commands Host Services Export Display Help

✂ Acknowledge problems
🚨 Schedule downtimes
🔍 Filter
📄 Show checkboxes
🔗 switch-ug

13 rows

switch-ug

State	Service	Icons	Summary	Age	Checked	Perf-O-Meter
OK	Check_MK	☰ 📧 ⚙	[snmp] Success, [piggyback] Success (but no data found for this host), execution time 8.2 sec	13.9 s	919 ms	8.25 s
OK	Check_MK Discovery	☰ 📧 ⚙	Services: all up to date, Host labels: all up to date, execution time 15.3 sec	4.92 s	4.92 s	15.31 s
OK	CPU utilization	☰ 📧 ⚙	Total CPU: 89.00%	13.9 s	922 ms	89 %
OK	Interface 00001	☰ 📧 ⚙	[Vlan-interface1], (up), MAC: 3C:64:CF:DA:6C:29, Speed: unknown, In: 823 B/s, Out: 2.75 kB/s	13.9 s	923 ms	6.58 kbit/s / 21.98 kbit/s
OK	Interface 49153	☰ 📧 ⚙	[gigabitEthernet 1/0/1], (up), MAC: 3C:64:CF:DA:6C:29, Speed: 1 GBit/s, In: 598 kB/s (0.48%), Out: 17.8 kB/s (0.01%)	13.9 s	925 ms	4.78 Mbit/s / 142.63 kbit/s
OK	Interface 49159	☰ 📧 ⚙	[gigabitEthernet 1/0/7], (up), MAC: 3C:64:CF:DA:6C:29, Speed: 1 GBit/s, In: 18.2 kB/s (0.01%), Out: 673 kB/s (0.54%)	13.9 s	928 ms	145.73 kbit/s / 5.38 Mbit/s
OK	Memory	☰ 📧 ⚙	Utilization: 41.00%	13.9 s	930 ms	41 %
OK	POE1 consumption	☰ ⚙	Operational status of the PSE is OFF	13.9 s	931 ms	
OK	POE49153 consumption	☰ ⚙	Operational status of the PSE is OFF	13.9 s	932 ms	
OK	POE49154 consumption	☰ ⚙	Operational status of the PSE is OFF	13.9 s	932 ms	
OK	POE49155 consumption	☰ ⚙	Operational status of the PSE is OFF	13.9 s	933 ms	
OK	SNMP Info	☰ ⚙	Omada 8-Port Gigabit Smart Switch with 4-Port PoE+, ug-switch-tp, Tutzing, Martin	13.9 s	934 ms	
OK	Uptime	☰ 📧 ⚙	Up since 2026-04-14 08:02:23, Uptime: 33 days 8 hours	13.9 s	935 ms	33 d

Search

 Monitor

 Customize

 Setup

 Changes

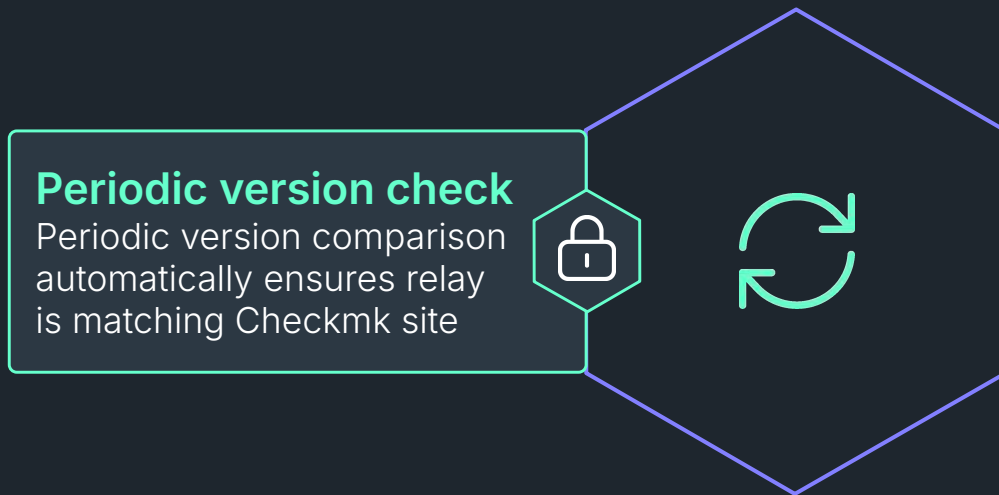
 Help

 User

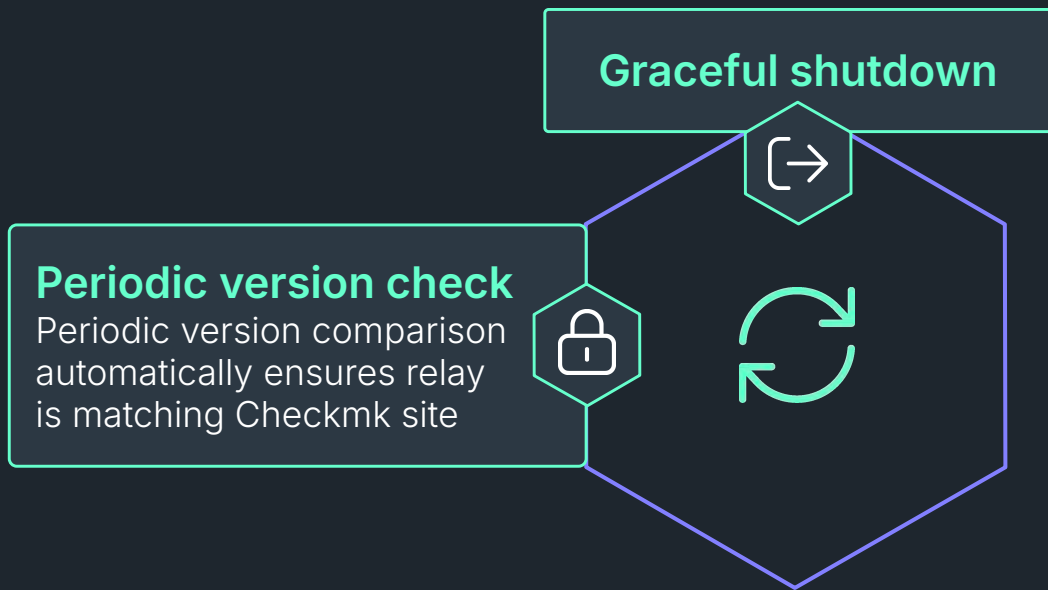
 Admin

 Sidebar

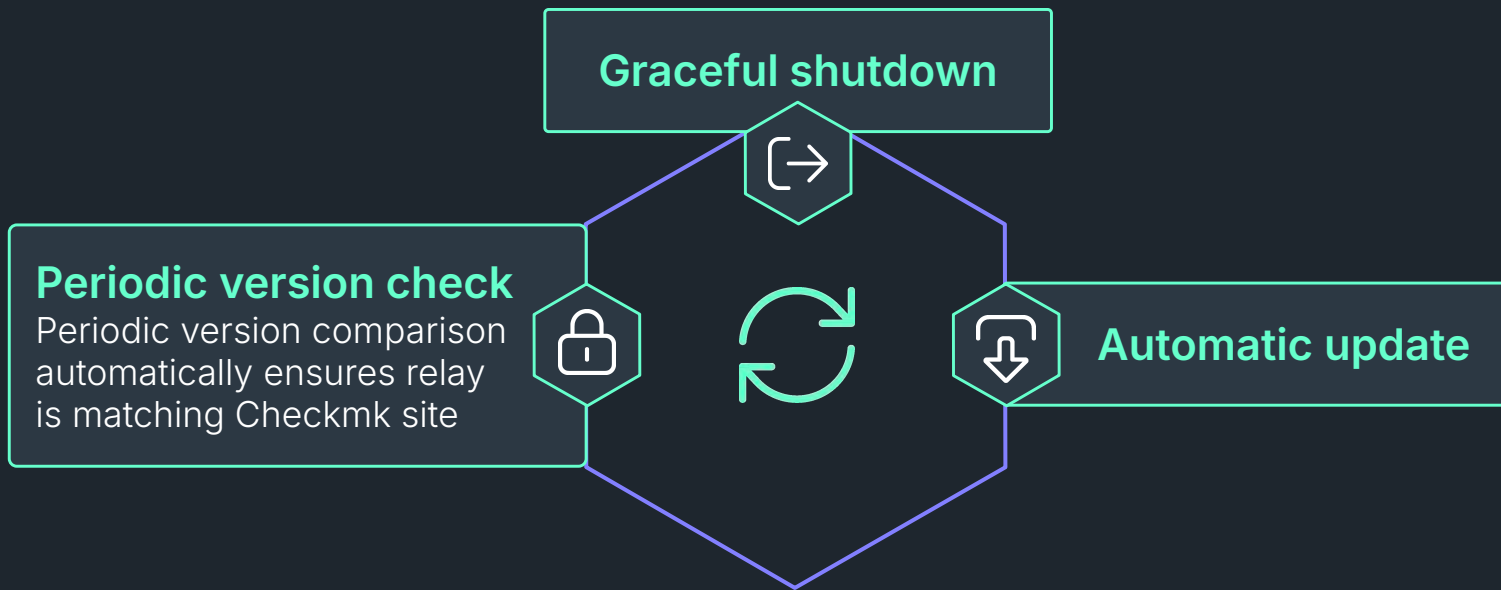
... and it updates itself. Zero maintenance!



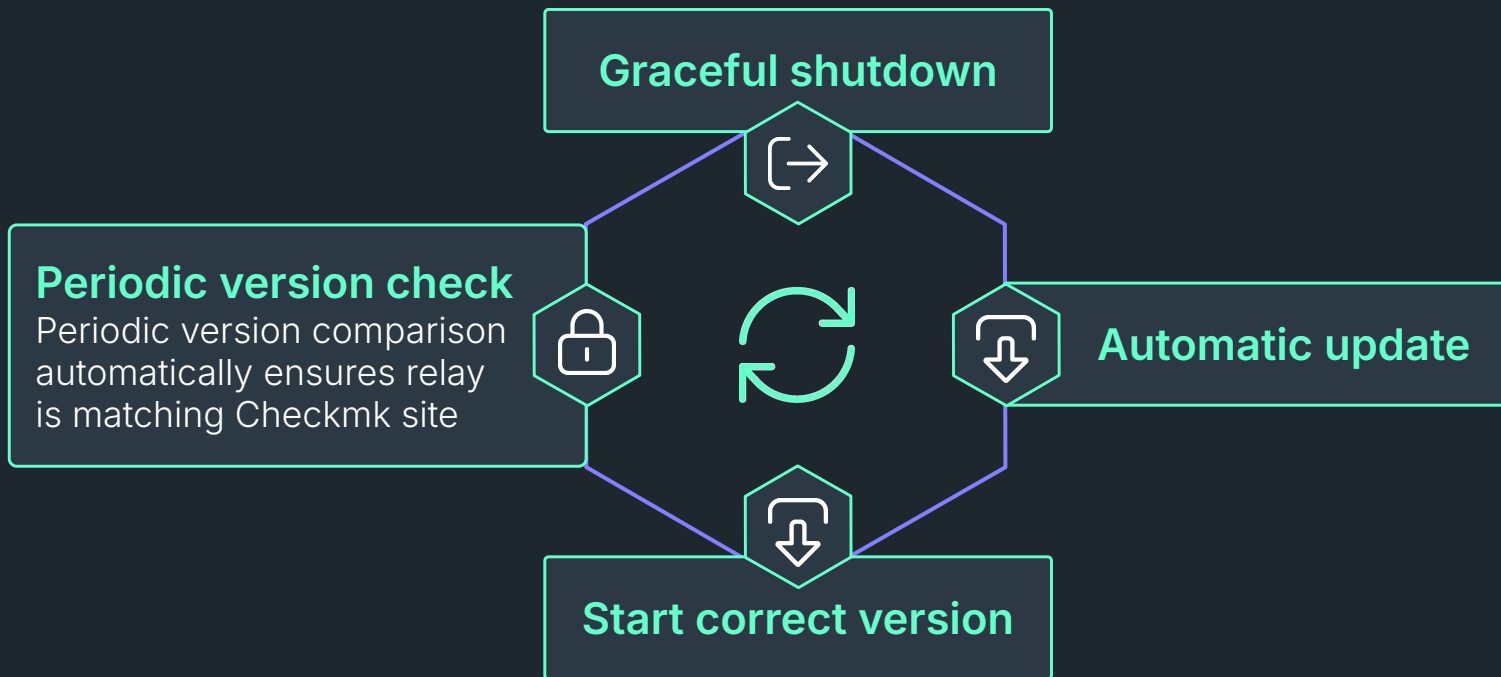
... and it updates itself. Zero maintenance!



... and it updates itself. Zero maintenance!



... and it updates itself. Zero maintenance!



Ingestion Reach: what the Relay monitors



SNMP

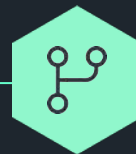


Anything Checkmk supports

Universal monitoring for network infrastructure and legacy hardware.

Full compatibility with existing SNMP check plugins.

HTTP API



Currently supported

Deep integration with modern cloud-native and enterprise platforms.



The last missing piece for Checkmk Cloud



Agents for OS



Native push support

Direct monitoring of servers
and workloads.

Relay for network / APIs



Pushing SNMP and HTTP responses

Full visibility into infrastructure
and endpoints.

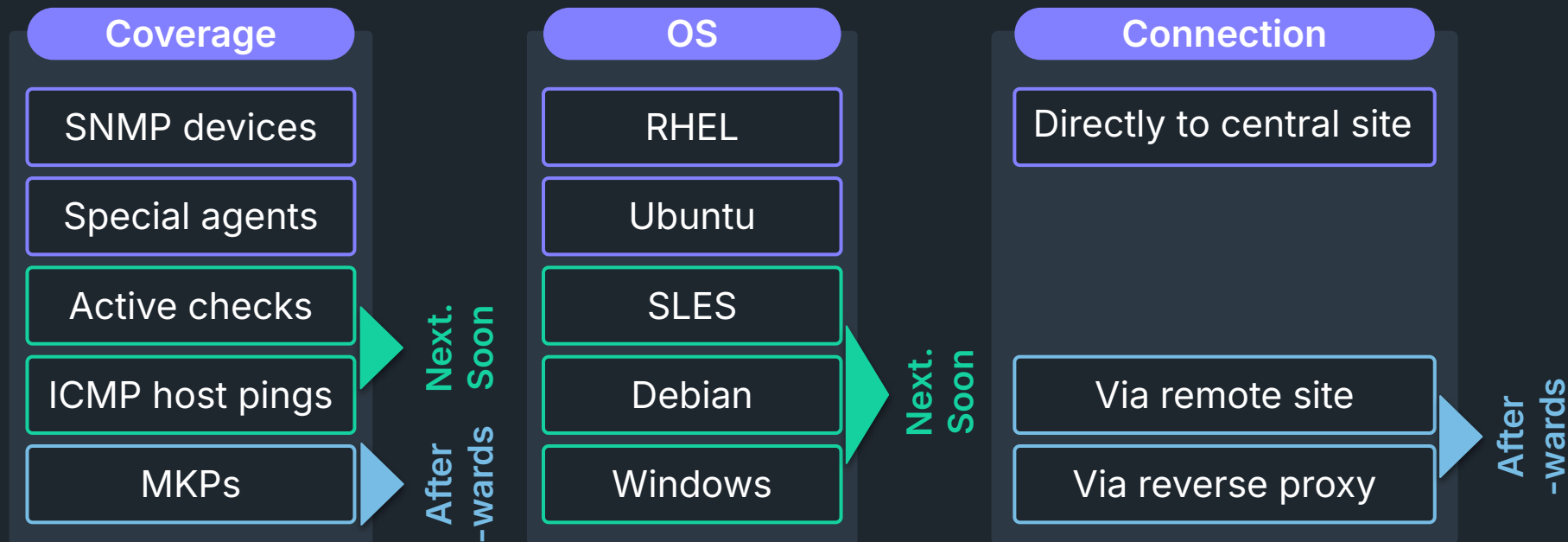


A lean cost-effective automated alternative to remote sites



Not a replacement for remote sites, if you have advanced requirements

What's next?



Checkmk #12

Conference