



# New in Checkmk 2.2

Automating Checkmk







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- 01  Agent push and auto-registration
- 02  Extended and reworked REST API
- 03  Single sign-on via SAML
- 04  Run Checkmk in the cloud



# Hybrid monitoring: need to address new paradigms

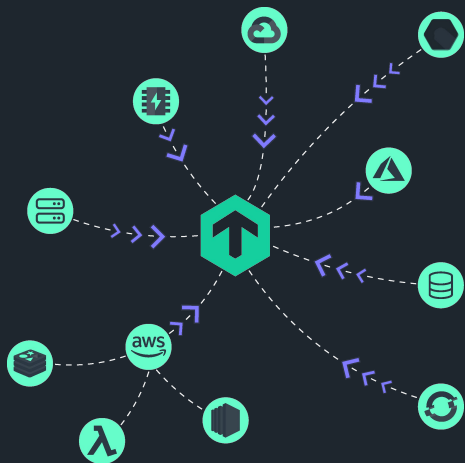


Workloads via public internet

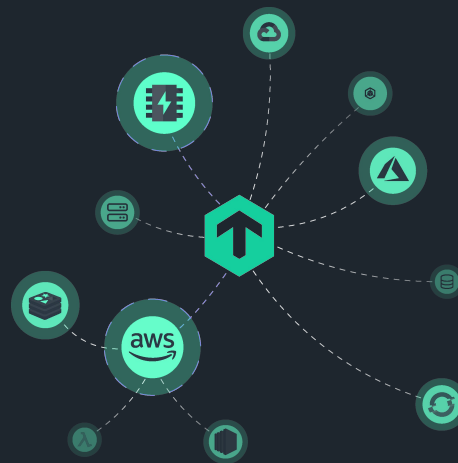


More dynamic infrastructures  
("ephemeral")

# Cloud-ready monitoring agents

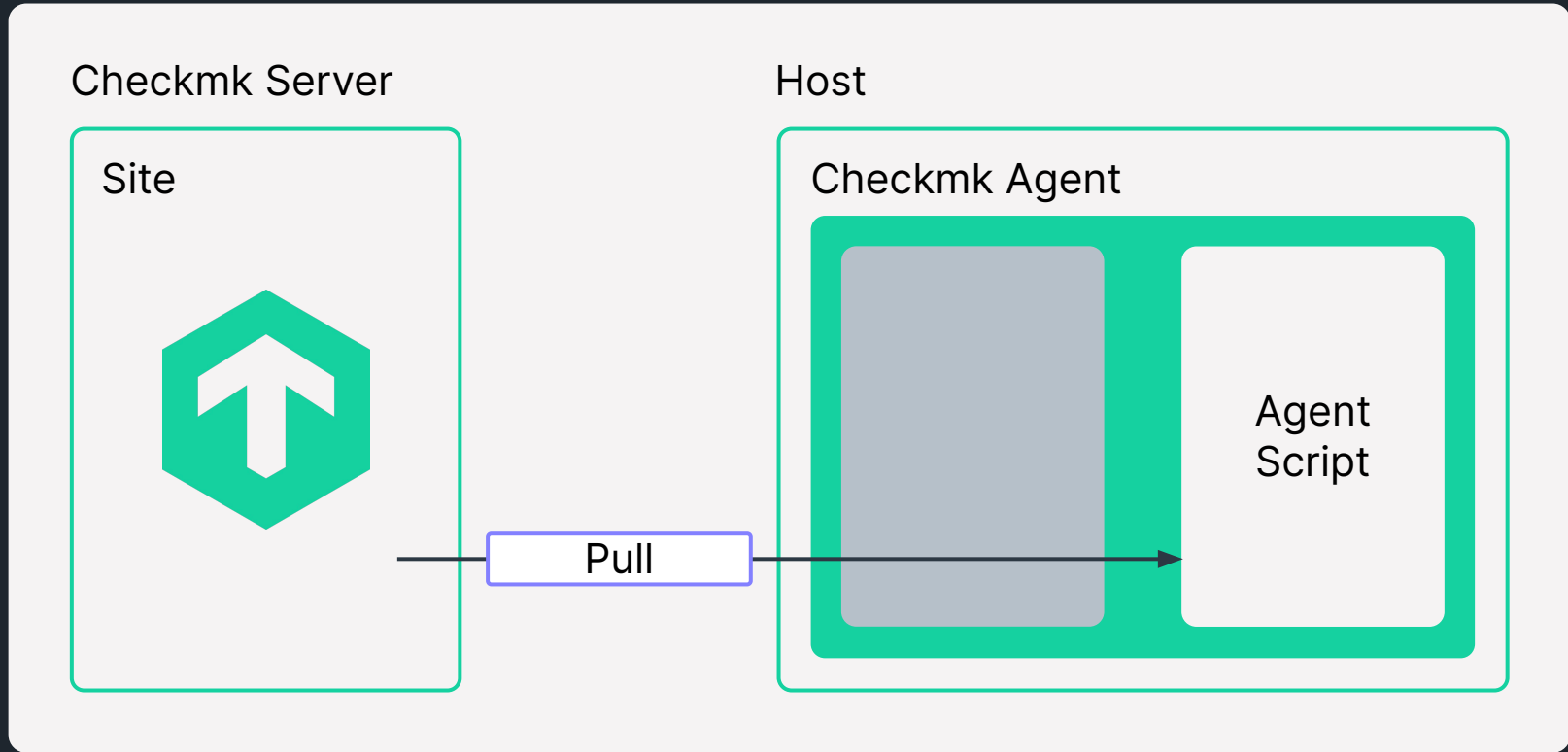


**Push your monitoring data  
to Checkmk**

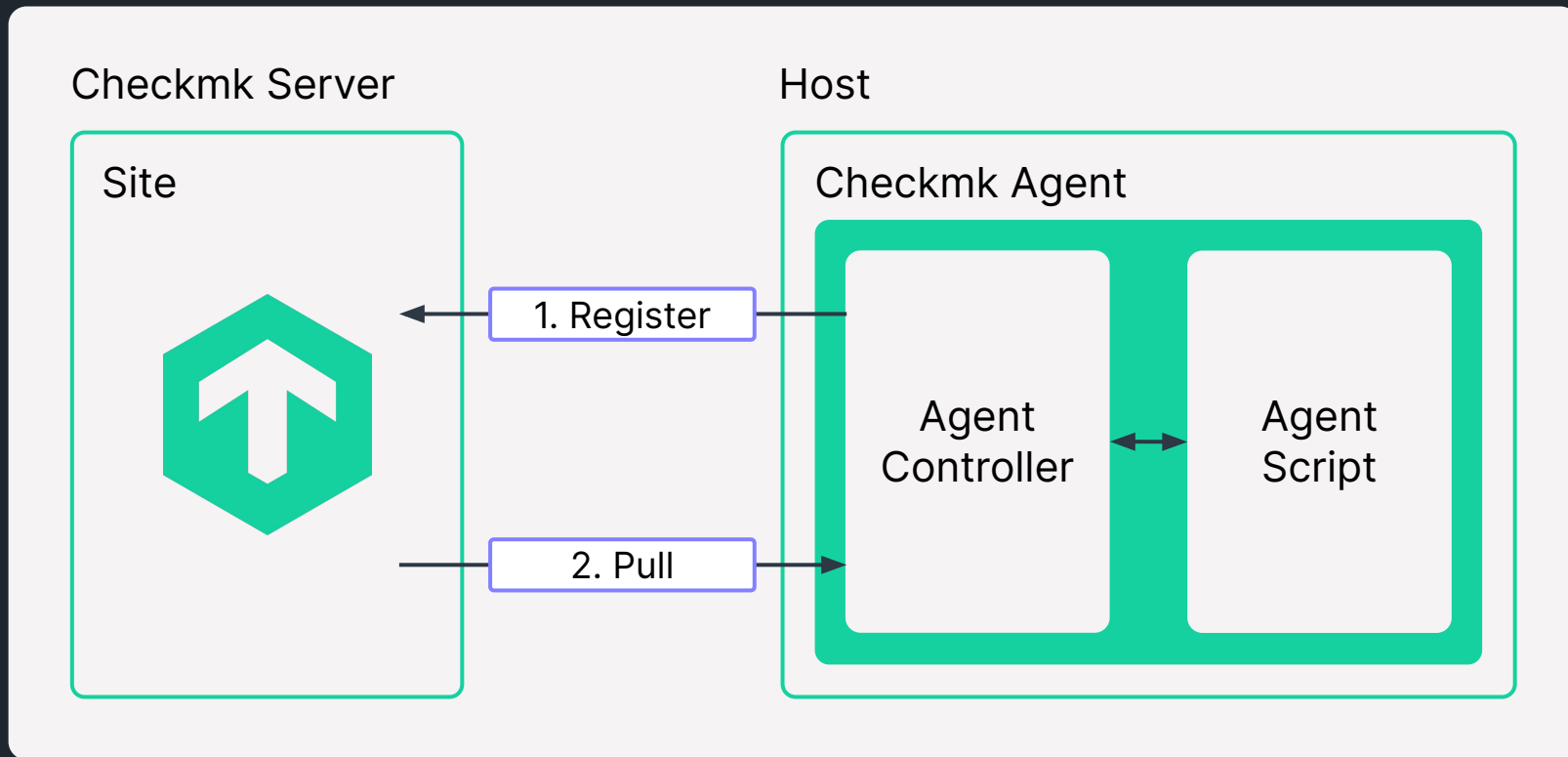


**Auto-creation and  
discovery of hosts**

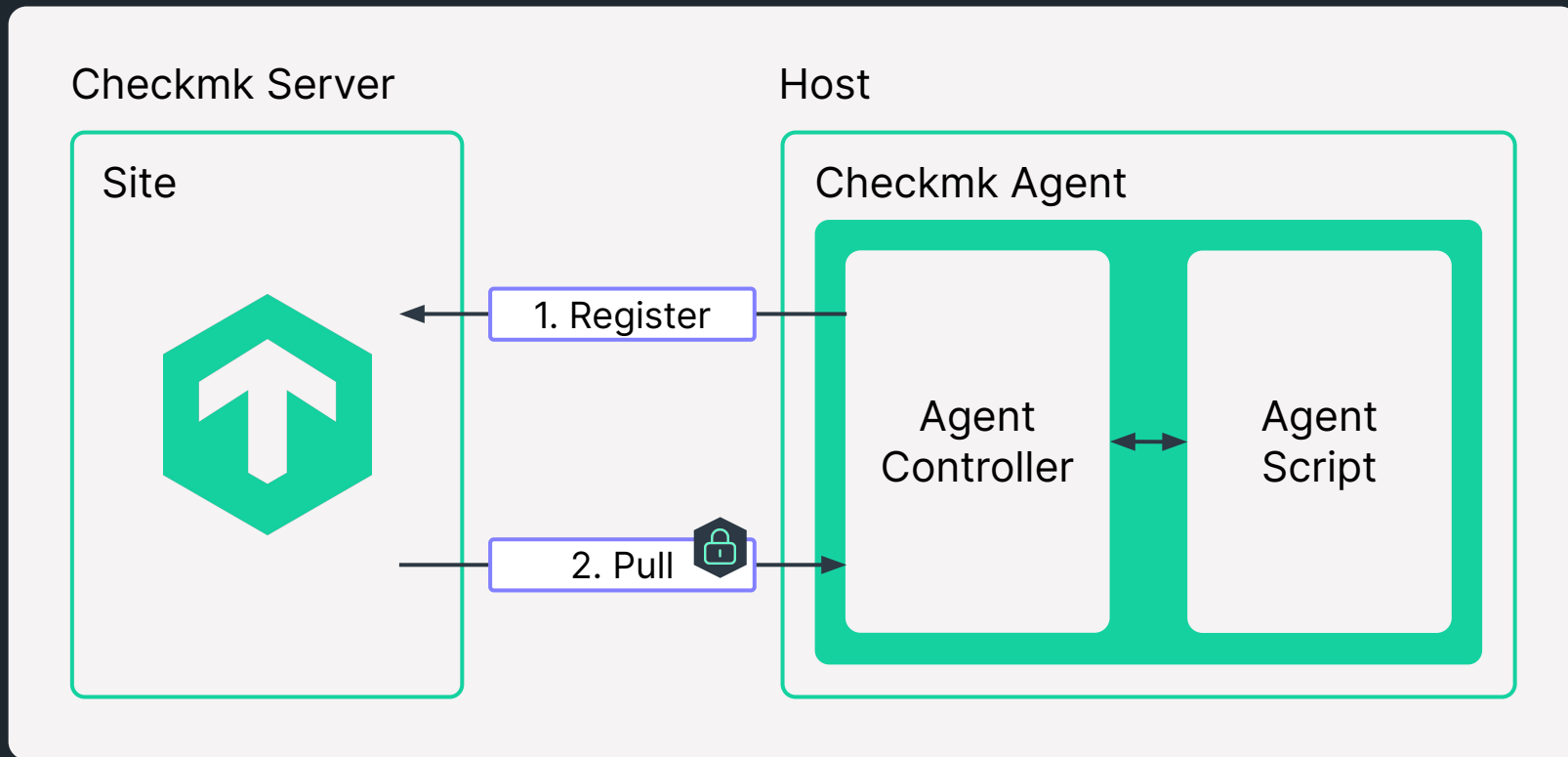
# Before: Only pulling data from agents possible



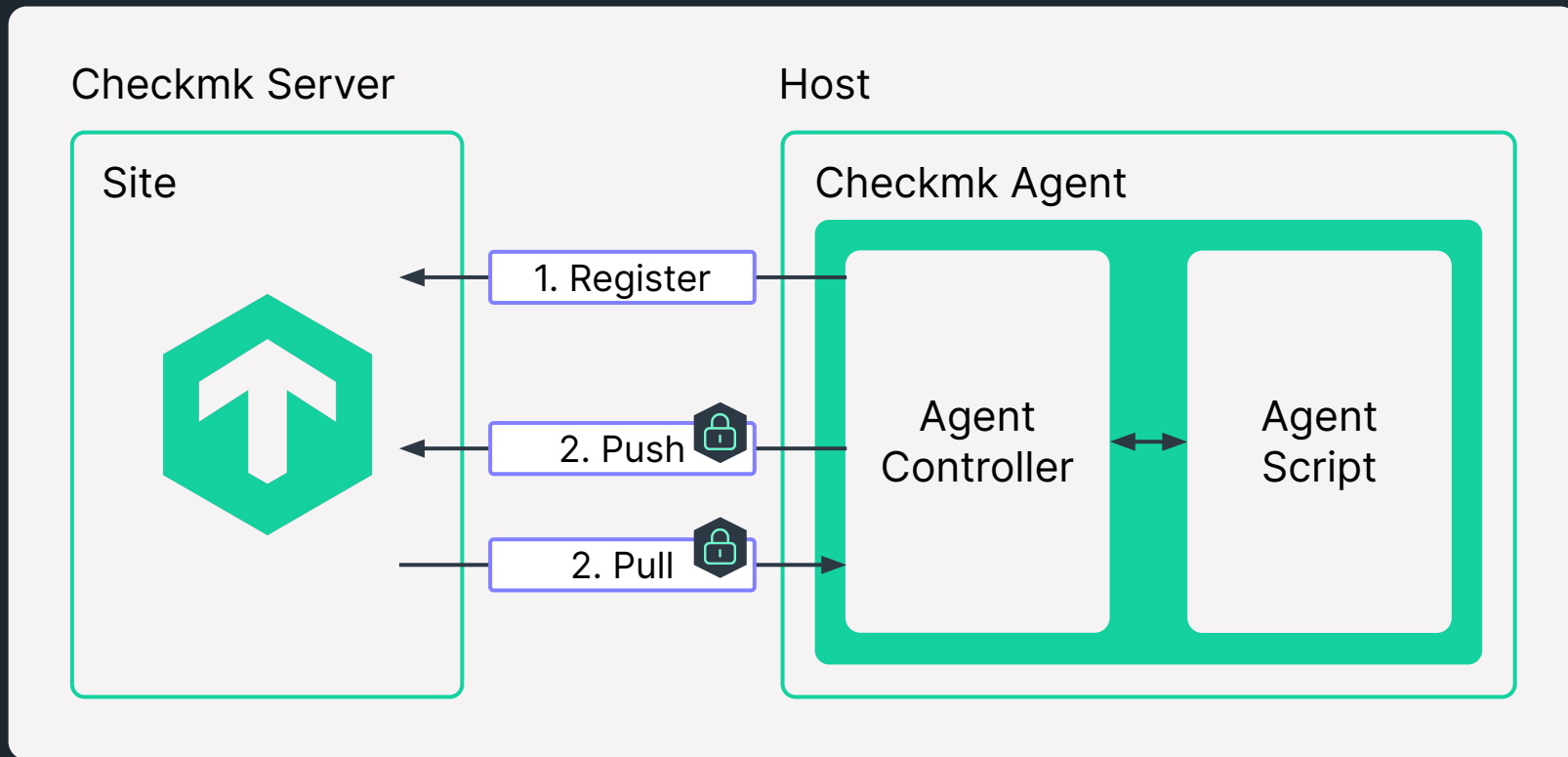
# New agent architecture introduced in 2.1



# Already enabled new features like encryption



# Building on this, push is now also possible



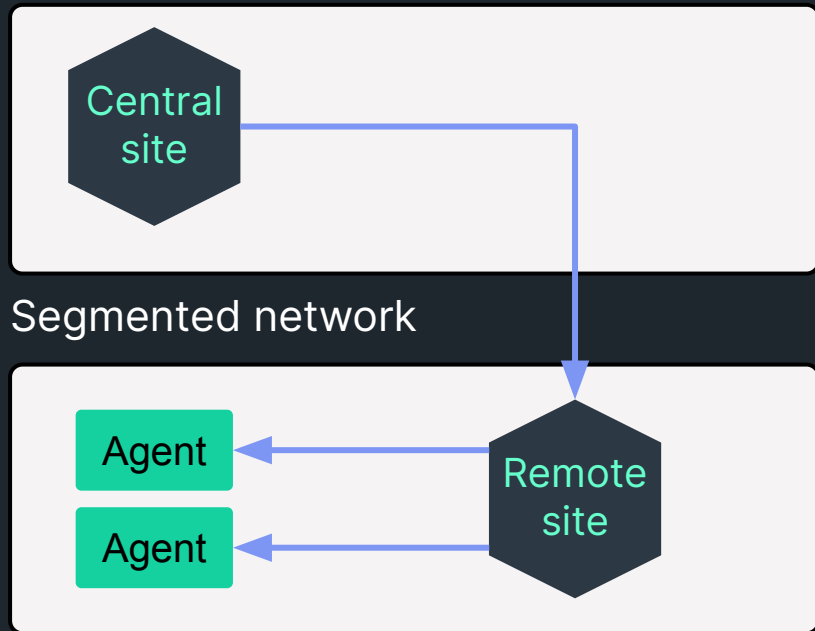
Note: Push is available in Checkmk Cloud Edition only



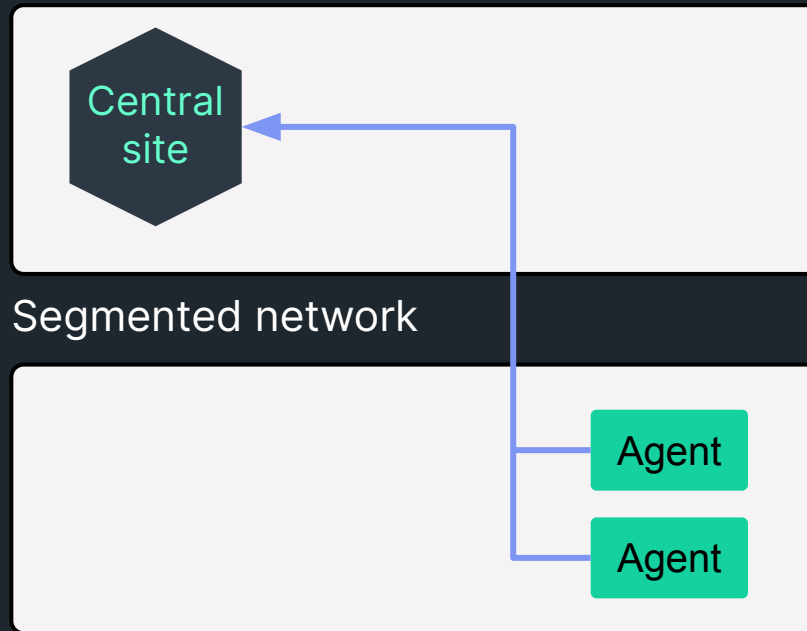
# Monitor segmented networks from the outside



## Typical set-up with pull-only



## Agent push with Checkmk 2.2



# Push mode relevant for cloud & on-premises



## Hybrid

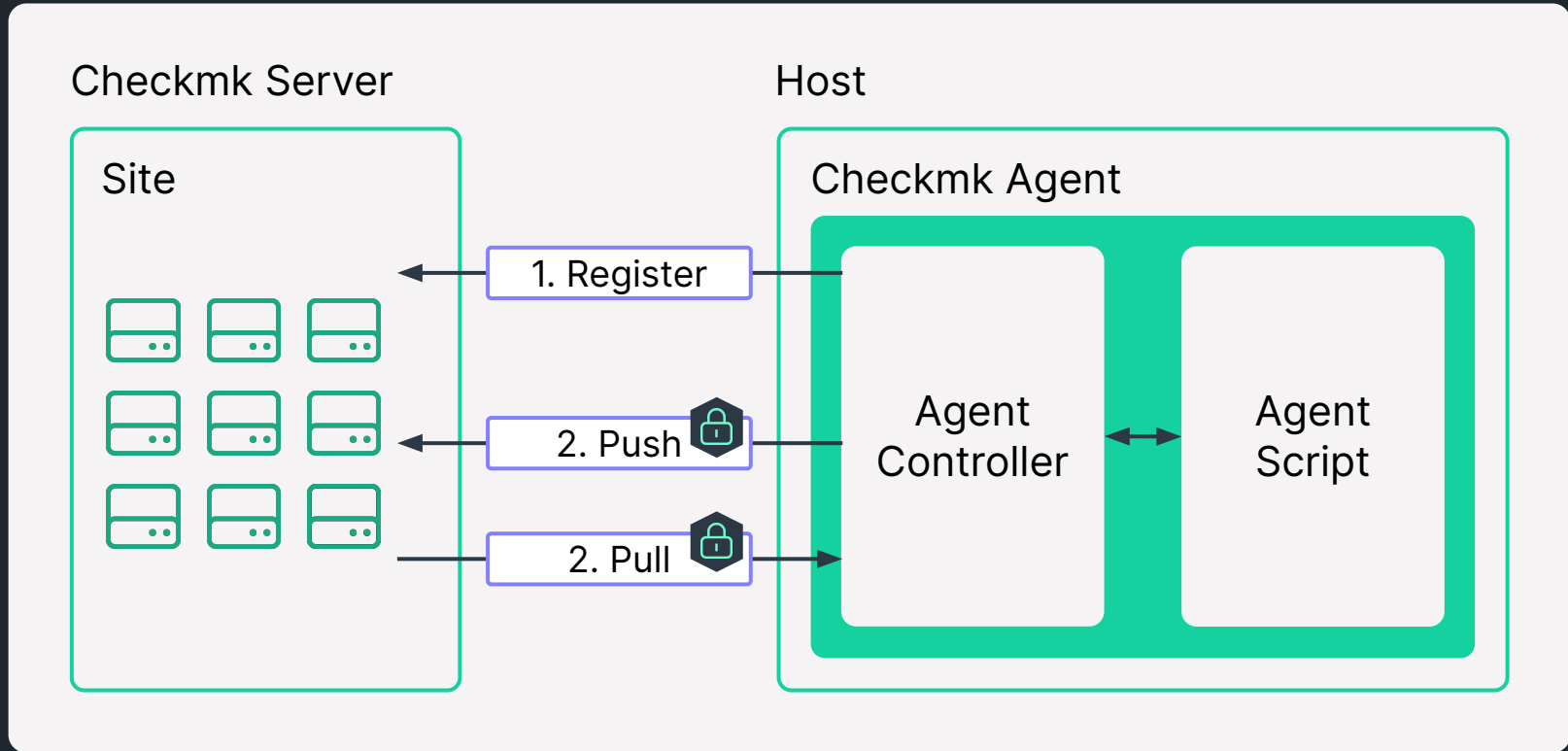
Your monitoring server is in the cloud



## On-premises

For highly segmented networks

# Standard registration: Host has to pre-exist



Note: Push is available in Checkmk Cloud Edition only

# Auto-creation and discovery of hosts



1

Agent controller contacts monitoring site with a registration request

2

Site processes request, **creates host, discovers services** and activates changes

# Infrastructure continues to get more dynamic



## Cloud-native infrastructure

- Instant (self-service) VMs
- Infrastructure follows workload
- No need - delete!
- Automated deployments

## API-based monitoring

Handling dynamic IT already possible via Dynamic Config (vSphere, Kubernetes, ...)

→ Provides standard services

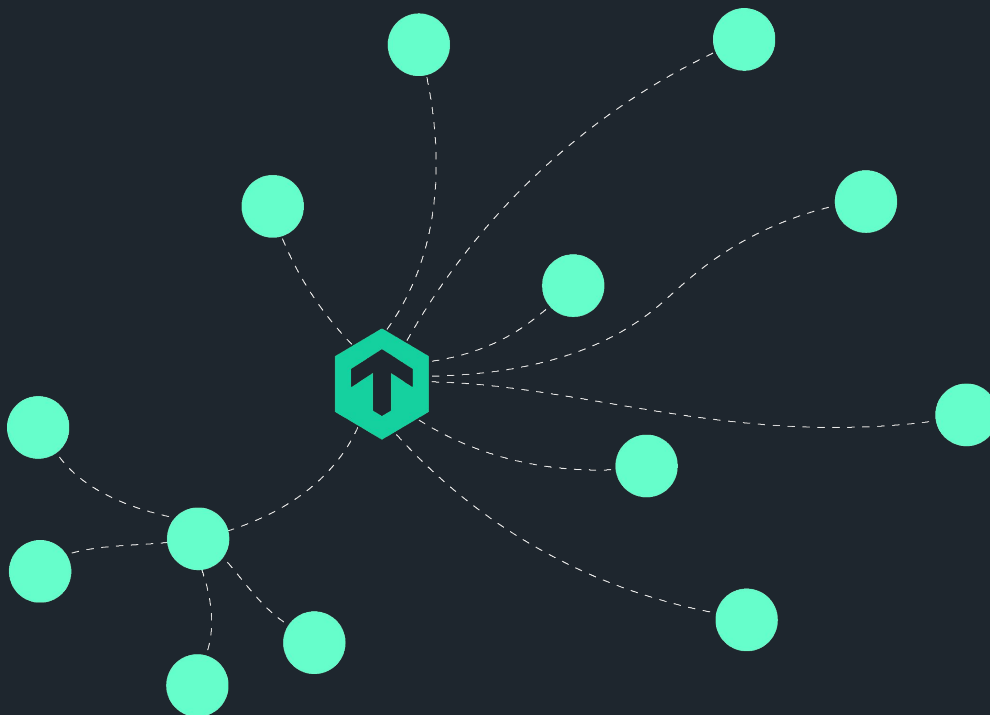


## Agent-based monitoring

→ For detailed, extensible monitoring

Now also natively supports dynamic IT

# Add at least up to 1000 hosts at 1 per second



# Configuring the host auto-creation



## ▼ Matching criteria

Match agent labels (required) .....

	Name	Value
✕	cmk/hostname-simple	Exists
✕	cmk/os-family	Equals linux

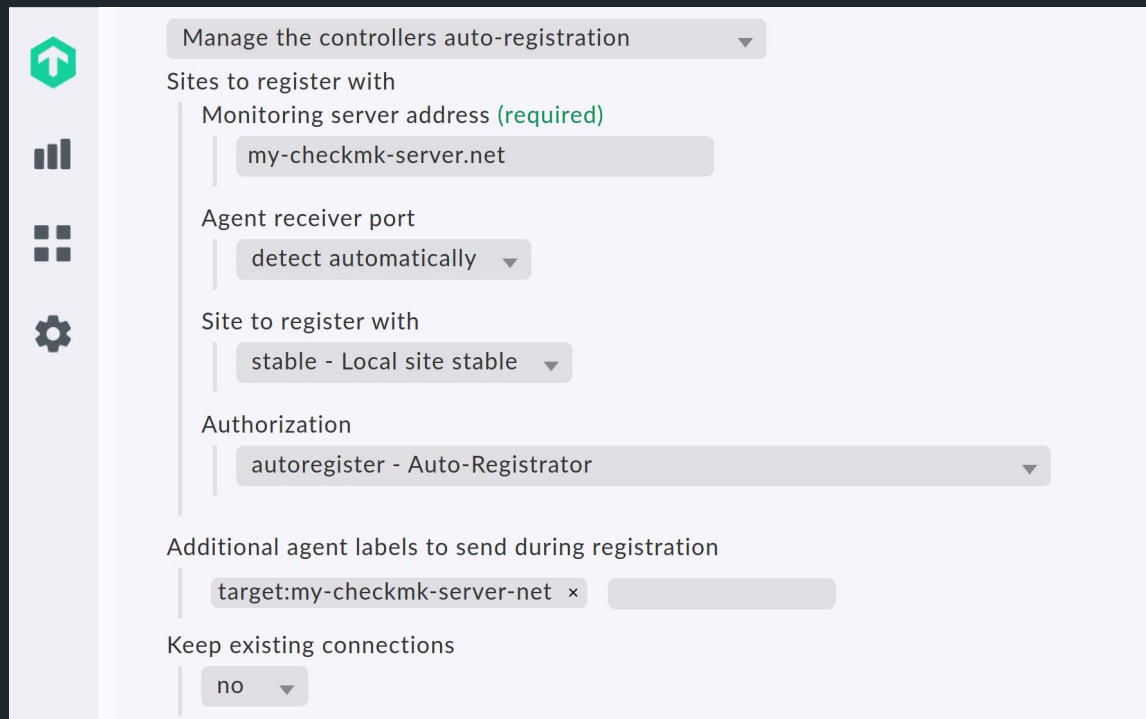
Add new label



# Build pre-configured agents via agent bakery

- ◆ Bake agent packages with all the config required for auto-registration
- ◆ Fine-grained customization possible
- ◆ No further configuration on host needed

→ **One-click installation & registration**









The screenshot shows the configuration interface for the agent bakery. On the left is a sidebar with icons for home, dashboard, overview, and settings. The main area is titled 'Manage the controllers auto-registration' and contains the following fields:

- Sites to register with:**
  - Monitoring server address (required): my-checkmk-server.net
  - Agent receiver port: detect automatically
  - Site to register with: stable - Local site stable
- Authorization:** autoregister - Auto-Registrator
- Additional agent labels to send during registration:** target:my-checkmk-server-net
- Keep existing connections:** no



# Bake agents for folders



Available agent configurations		Windows	Linux	Agent type
▲ Configuration				
<i>Default configuration</i>		 MSI	 RPM	Vanilla (factory settings) Folders: / (root folder) Hosts: k8s-staging, localhost
OpenHardwareMonitor (Windows):	Deploy OpenHardwareMonitor (headless)	 MSI	 RPM	Folders: /windows/ Hosts: windows.foo
SSH daemon configuration (Linux):	Deploy the SSH daemon configuration plugin	 MSI	 RPM	Folders: /linux/

**New!**

- Agents can be baked for folders, independent of hosts
- 'Hosts' column now named 'Agent type' with more info and easier to understand
- Agents can be downloaded via REST API for a folder

# Register agents via new built-in role



- New permission structure to separate agent registration from administration
- New built-in role:  
**Agent registration user**

	admin	agent_registration
<b>NEW</b> Register new hosts in managed folders	✓	✓
<b>NEW</b> Register managed existing host	✓	✓
<b>NEW</b> Register any new host	✓	✓
<b>NEW</b> Register any existing host	✓	✓
<b>NEW</b> Configuration of agent registration rules	✓	

# Remove non-responsive hosts automatically



## ▼ Automatic host removal

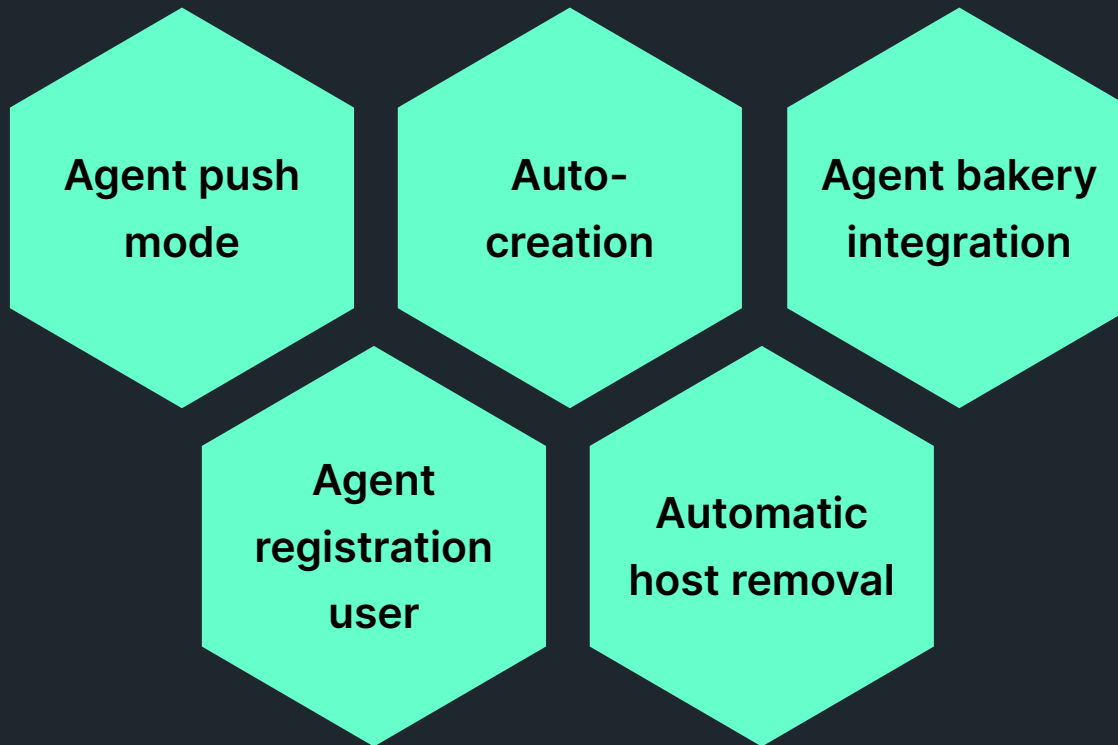
Enable automatic host removal ▼

Duration of CRITICAL state of 'Check\_MK' service

0 days 0 hours 0 mins

- Remove hosts which are not responsive: Check\_MK service going CRITICAL
- Relevant especially for dynamic environments
- Restrict, e.g. with `cmk/agent_auto_registered:yes`

# Agent-based monitoring of hybrid, dynamic IT



# Improved agent certificate management



## Agent controller certificate lifetime

- Now configurable (5y default)
- Agent controller automatically renews agent certificate



## Dedicated CA for agent certificates


- Before: used site-local CA (also used for distributed monitoring)
- Agent signing CA also configurable (you can use your own)

**On certificate renewal, will also switch to new CA**

# Encryption for agent data simplified

## Before: One rule mixing several topics


Use TLS encryption (Linux) ▾

- ✘ Encryption for Realtime Updates
  - Enforce (drop unencrypted data) ▾
- ✘ Encryption secret for Realtime Updates
  - 

---

Allow non-TLS connections ▾

Encryption secret (required)



Use the following setting for non-TLS connections

- Disable (drop encrypted data) ▾


Encryption for Realtime Updates

- Enforce (drop unencrypted data) ▾

## Now: Dedicated rules for agent

### Symmetric encryption (Linux, Windows)

Configure shared secret and apply symmetric encryption ▾



### Enforce agent data encryption

Server side handling of unencrypted data

- Accept all incoming data, including unencrypted ▲
- Accept TLS encrypted connections only
- Accept all types of encryption
- Accept all incoming data, including unencrypted**

# Extended and improved agent bakery



## New configuration options

- ◆ **Text logfiles:** Retention period, further logfile filtering, APPEND message classification (for multi-line stack traces)
- ◆ **Redis:** Connect via Unix socket
- ◆ **MySQL:** Multiple sockets & aliases



## Quality of Life improvements

- ◆ No more need for repeated bake & sign to fix “signature #n is invalid”
- ◆ Logging for Bakery (enable in global settings)

# Extended and reworked REST API



# Extended and reworked REST API



## New API calls

### Monitoring

Event Console  
Comments  
Service Level Agreements  
Metrics

### Setup

Site management  
Auxiliary Tags  
User roles

## Improvements

- 'Fixed' service discovery
- Better usable API requests
- More useful API responses

# New REST API calls for monitoring (I/IV)



## Event Console

## Comments

POST	Archive events	POST	Create a host comment
POST	Change event state	POST	Create a service comment
POST	Change multiple event states	POST	Delete comments
GET	Show an event	GET	Show a comment
GET	Show events	GET	Show comments
POST	Update & acknowledge an event		
POST	Update & acknowledge events		

# New REST API calls for monitoring (II/IV)



## Service Level Agreements

POST

Compute the SLA data

## Metrics

POST

Get metrics

POST

Get a custom graph

# New REST API calls for setup (III/IV)



## Site management

POST

Delete a site connection

POST

Create a site connection

GET

Show all site connections

PUT

Update a site connection

GET

Show a site connection

POST

Login to a remote site

POST

Logout from a remote site

## Auxiliary Tags

POST

Create auxiliary tag

GET

Show auxiliary tags

POST

Delete an auxiliary tag

PUT

Update an auxiliary tag

GET

Show an auxiliary tag

# New REST API calls for setup (IV/IV)



## User roles

POST

Create / clone a user role

GET

Show all user roles

DEL

Delete a user role

PUT

Edit a user role

GET

Show a user role

# Service Discovery calls reflect GUI interaction now



## More granular steps instead of one combined result



- New endpoint: Wait for service discovery completion
- New endpoint: Show the current service discovery result

Execute a service discovery on a host now also with **tabula\_rasa** mode

---



Description of individual endpoints closer to GUI now.

---



## Execute a service discovery on a host

now works as expected

# Improved also many existing calls



## Better usable API requests

- ◆ **Show host** can now return all **effective attributes**, not just attributes set explicitly on a host
- ◆ **Custom attributes** of users can now be handled for **creating and show users**

## More useful API responses

- ◆ **Activate pending changes** now returns more information, e.g. changes made, sites affected
- ◆ **Show host tag groups** now returns tags in tag group and topic
- ◆ **Improved crash reporting** for HTTP 5xx errors

# Web-API is dead! Long live the REST API



## Monitoring

SLA

Acknowledgements

Comments

Downtimes

Event Console

Host status

Metrics

Service status

## Setup

Agents

Activate changes

Auxiliary tags

Business Intelligence

Contact groups

Folders

Hosts

Host groups

Host tag groups

## Setup

Password store

Rules

Rule sets

Service discovery

Service groups

Site Mgmt

Time periods

Users

User roles

REST API

Largely covered by Web API

Only partially covered by Web API



# Single sign-on via SAML



Login with Azure

or

Username:

Password:

Login

## Single sign-on into Checkmk

e.g. using Azure AD



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# Native SAML support to enable single sign-on



## SAML

Popular standard supported by Azure AD, ADFS, Google Workspace and many more

Configure directly in UI

Automatic user creation on login

Attribute & contact group mapping

Role mapping

Multiple connections possible

Fallback: Login with user / pw

# Complemented by user connector migration option



- ◆ SAML integration creates new users on login ...  
... and rejects users already existing
- ◆ Solution: Bulk migration of existing users to another connector, e.g. SAML

The screenshot shows a user migration interface. At the top, there are two buttons: 'Migrate selected users' (with a green hexagon icon) and 'Users' (with a blue circle icon). Below these buttons, a message states: 'You have selected 1 user for migration: **move-me**'. Underneath, there is a section titled '▼ Properties'. The first property is 'Choose target user connector ....., ' followed by a dropdown menu showing 'SAML2: Company-A-AzureAD'. The second property is 'Unset user attributes on migration ..', followed by a list of checkboxes: 'Email address', 'Pager address', 'Contact Groups', 'Receive fallback notifications', and 'Roles'. The 'Unset user attributes on migration ..' checkbox is currently checked with an 'x' icon.

# Run Checkmk in the cloud

# Checkmk available in AWS and Azure Marketplace



- Deploy Checkmk in minutes in AWS or Azure
- Latest edition available in the respective Marketplace
- Bring-your-own-license
- First month free trial

aws marketplace

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## Checkmk Cloud Edition 2.2.0

By: [Checkmk GmbH](#) Latest Version: 2.2.0p1

Checkmk Cloud is the monitoring platform for all major cloud use cases and hybrid IT setups, with powerful automation, cloud-ready agents, and unparalleled coverage of IT workloads thanks to 2,000+ plug-ins.

[Show less](#)

Linux/Unix  
BYOL

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Typical Total Price  
**\$0.076/hr**

Total pricing per instance for services hosted on c6a.large in US East (N. Virginia). [View Details](#)

### Overview

#### Product Overview

The Checkmk Cloud Edition is a state-of-the-art monitoring platform for cloud and hybrid infrastructures. With features like cloud agents and pull agents, and built-in dashboards, it allows you to monitor your cloud workloads and IT assets.

CLOUD AND HYBRID MONITORING

Checkmk keeps up with the dynamic nature of cloud environments. Through automatic registration, it will automatically map your infrastructure. You can add or remove containers, pods, VMs, and more.

```
Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by applicable law.

[...]
```

Cloud Monitoring

```
To create a new site run

sudo omd create <name of site>
sudo omd start <name of site>

The omd command will show you the password for the default admin account.

IMPORTANT: The Apache web server currently uses a self signed certificate that must be considered insecure. Please read the documentation in the Official User Guide located at https://docs.checkmk.com/2.2.0/en/omd_https.html to learn how to replace the certificate with your own or use certbot to automatically obtain certificates. When finished, restart the Apache process with the command

systemctl restart apache2
root@ip-172-31-14-206:~#
```



# Backup your Checkmk into the cloud now

- New backup targets
  - AWS S3 bucket
  - Azure blob storage
- Cheapest backup option in the cloud
- Can also be used as offsite backup for Checkmk on-premises

▼ Backup target

Unique ID (required) ..... aws-s3

Title (required) ..... Backup to AWS S3

Destination ..... AWS S3 Bucket ▼

Remote configuration

Access key (required)  
AKIAJNMQRDN73LQJS324A

Secret key  
From password store ▼ AWS S3 Backup ▼

Bucket name (required)  
checkmk-backup

# Thank you!

Vielen Dank!



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