



What's next for Checkmk



Martin Hirschvogel

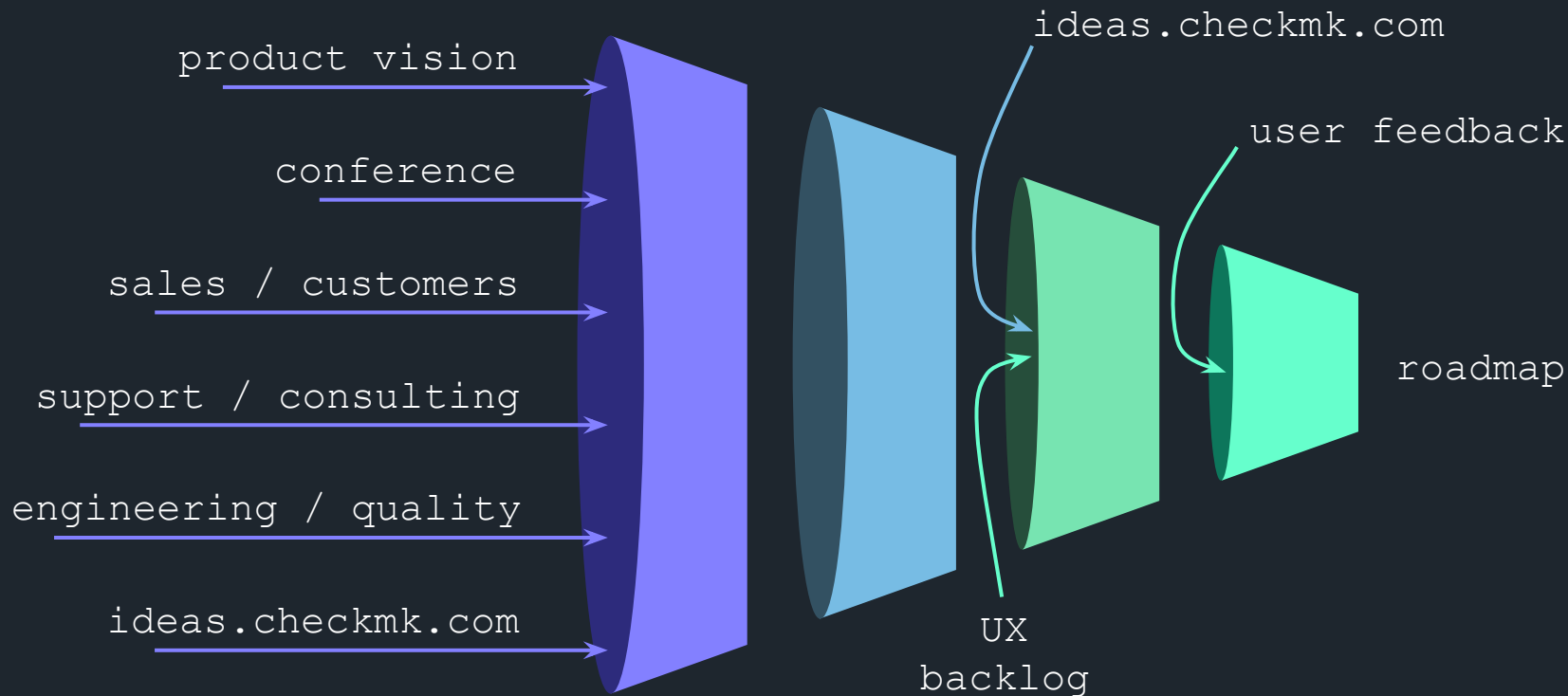
Chief Product Officer
Checkmk GmbH



Disclaimer

Roadmap is subject to change

Making of the Checkmk roadmap



116 ideas already implemented!

ideas.checkmk.com



☆ Top 🕒 New ↗️ Trending Released (116) ▾ All tags ▾ ADD SUGGESTION

260
votes

Support AND, OR and NOT for labels in filters

Currently, a host needs to have all labels of a filter, so it is an AND operation. It would be very helpful, if a OR operation can be used, so hosts of either of ...

Suggested by: [Ralf Schwarzmaier](#) (18 Apr, '22) • Upvoted: 2 days ago • [Comments: 15](#)

📌 Pin this Released

238
votes

Support PiggyBack data from remote hosts

Implement a feature to leverage piggyback data, which are shared by a product integrated way from remote sites

Suggested by: [Thomas](#) (02 May, '22) • Upvoted: 03 May • [Comments: 16](#)

📌 Pin this Released #Checks&Agents

133
votes

"Fake check results" should create hard state to test notifications

"Fake check results" should create hard state. This would allow to test the notifications

Suggested by: [Thomas](#) (30 May, '22) • Upvoted: 27 Feb • [Comments: 14](#)

📌 Pin this Released #Notifications

130
votes

check_httpv2: Add ability to check a vhost on an IP/host that differs from the vhost's DNS record

As per <https://forum.checkmk.com/t/cre-2-3-new-httpv2-check-missing-option-for-different-hostname-ip/46595> : With the old check_http check, it was possible to ...

Suggested by: [Jay2k1](#) (11 Jun, '24) • Upvoted: 24 Apr • [Comments: 10](#)

📌 Pin this Released #Checks&Agents

- Great source of inspiration for us!
- Ideas do matter – we look at them and consider them!
- Managing expectations:
 - Not all can be done.
 - Votes help, but are not the only criteria
 - We do not work on ideas top-down

User experience

Synthetic Monitoring

Applications



Hybrid
IT Monitoring



Self-
hosted

SaaS

Infrastructure

Full Stack
Observability

Data center



Cloud



User experience

Applications

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Cloud



Full Stack
Observability

Our principles for Checkmk



Cloud



Data Center



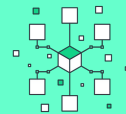
IoT

Great user experience

for beginners and experts



Monitor anything



Powerful configuration



Alerts & analytics



Extensible interfaces

for automation & development



Monitoring platform

Secure & scalable

Our principles for Checkmk



Cloud



Data Center



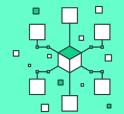
IoT

Great user experience

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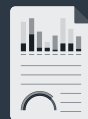
Monitor anything



Powerful configuration



Alerts & analytics



Extensible interfaces

for automation and development

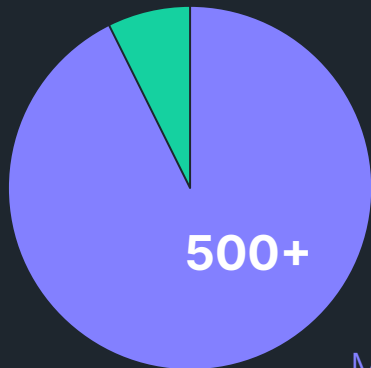


Monitoring platform

Secure & scalable

Commissioned projects & support requests, code contributions

New plug-ins



Minor improvements / fixes

Strategic developments

Focus for today

Strategic roadmap for monitoring integrations



Applications

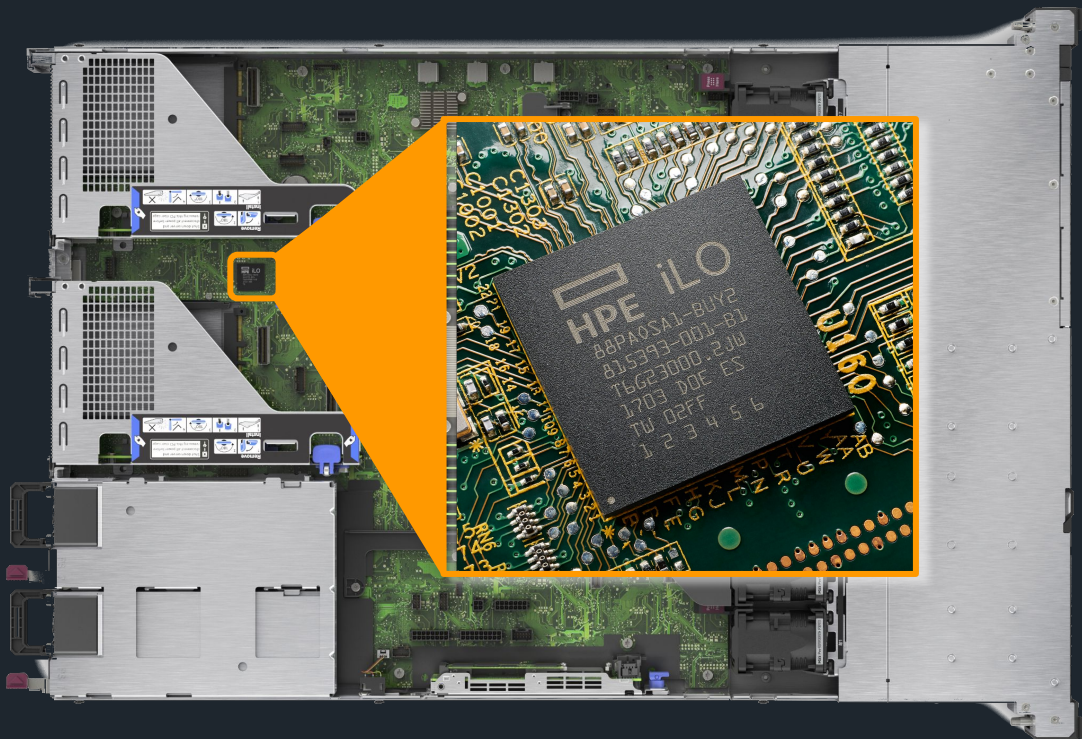
Infrastructure

Hardware

Data center

Cloud

Out-of-band management and monitoring



Baseboard management controller

- For remote management, e.g. if server is turned off / crashed
- Often embedded on server, but **independent component** with dedicated network connection
- Provides hardware sensor information (fan speed, power voltages, chassis intrusion)

▼

Basic settings

Host name (required)

my.server

▼

Network address

IP address family

☐

IPv4 only (Default value)

IPv4 address

☒

10.0.1.127

▼

Management board

Protocol

☒

IPMI ▼

Address

☒

10.0.99.3

SNMP credentials

☐

empty (Default value)

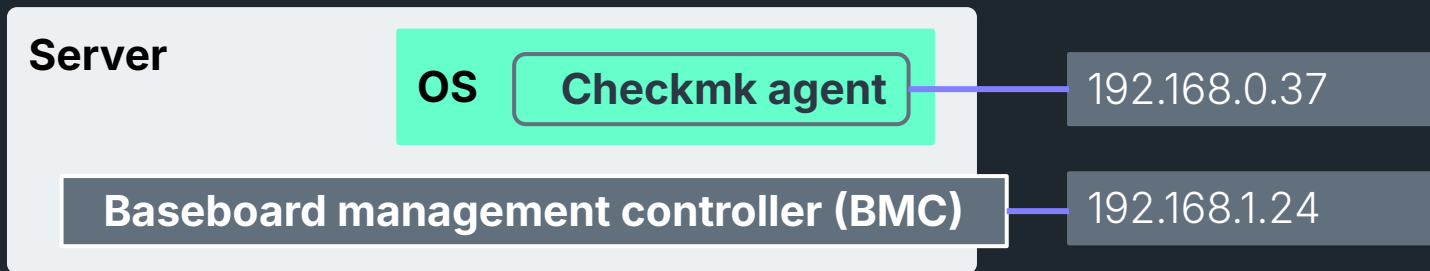
IPMI credentials

☒

IPMI credentials ▼

Checkmk #11 Conference

Two different objects shouldn't be one host



UP

pve-nyc-001.unified.com

- ⬢ Unclear monitoring state: what about unreachable OS vs. BMC?
- ⬢ Duplicate services

UP

pve-nyc-001-ipmi.split.com

DOWN

pve-nyc-001.split.com

- ⬢ One can be DOWN, while the other is UP

Recommended path

Monitor as dedicated host

- ❖ Dedicated host via SNMP
- ❖ Dedicated host via IPMI
- ❖ Dedicated host via Redfish

Drawback

- ❖ Server (hardware) and OS will appear as two different hosts.

➡ **Need to solve underlying need:
Still have information in one place**

Let's imagine how that could look like ...



Mock-up

All hosts

Monitor > Overview > All hosts

Commands Hosts Export Display Help ^

Acknowledge problems Schedule downtimes Filter Show checkboxes

Local site stable

State	Host	Icons	OK	Wa	Un
UP	pve-nyc-001.split.com	≡	10	1	0
UP	pve-nyc-001-ipmi.split.com	≡	10	1	0
UP	checkmk.com	≡	6	6	6
UP	Cloud-shell-storage-westeuropa	≡	6	6	6
UP	azurekubernetes	≡	6	6	6
UP	pve-nyc-001.split.com	≡	6	6	6
UP	pve-nyc-001-ipmi.split.com	≡	6	6	6
UP	azure-vm-demo-3	≡	6	6	6
UP	azure-vm-demo-4	≡	6	6	6
UP	azure-vm-demo-1	≡	6	6	6

Let's imagine how that could look like ...



Services of host pve-nyc-001.split.com

Monitor > Overview > All hosts > pve-nyc-001.split.com > Services of host

Commands Host Services Export Display Help ↕

✖ Acknowledge problems

🚧 Schedule downtimes

🔍 Filter

🔍 Show checkboxes

🔍 pve-nyc-001.split.com

Mock-up

UP pve-nyc-001.split.com

UP pve-nyc-001-ipmi.split.com

State	Service	Icons	Summary	Age	Checked	Perf-O-
CRIT	IPMI Sensor Summary	☰	19 sensors in total, 17 sensors ok, 2 sensors critical	2024-01-01 14:00:00	10m	
WA OK	See all (11)					

All that wasted space... 🤔

State	Service	Icons	Summary	Age	Checked	Perf-O-
WARN	Check_MK	☰ 📧	Success, [piggyback] Success, execution time 0.4 sec	2024-01-01 14:00:00	10m	
OK	Check_MK Discovery	☰	Services: all up to date, Host labels: all up to date	2024-01-01 12:00:00	5 m	
OK	Check_MK Agent	☰	Version: 2.3.0p4, OS: linux, Last update: 2024-05-31 08:50:05, Agent plug-ins:7, Local checks: 1	2024-01-01 12:00:00	5 m	
OK	CPU load	☰ 📧	15 min load:2.37 (predefined reference:0.65) (warn/crit at 1.47/2.26)	2024-01-01 12:00:00	5 m	
OK	CPU utilization	☰ 📧	Total CPU: 24.83%	2024-01-01 12:00:00	5 m	

Let's imagine how that could look like ...

Services of host pve-nyc-001.split.com




















Monitor > Overview > All hosts > pve-nyc-001.split.com > Services of host

Commands Host Services Export Display Help 



 Acknowledge problems  Schedule downtimes  Filter  Show checkboxes  pve-nyc-001.split.com

Mock-up

UP Host services pve-nyc-001.split.com (9)

State	Service	Icons	Summary	Age	Checked	Perf-O-Meter
OK	Check_MK	 	Success, [piggyback] Success, execution time 0.4 sec	2024-01-01 14:00:00	10m	 5.2
OK	Check_MK Discovery		Services: all up to date, Host labels: all up to date	2024-01-01 12:00:00	5 m	 5.8
OK	Check_MK Agent		Version: 2.3.0p4, OS: linux, Last update: 2024-05-31 08:50:05, Agent plug-ins:7, Local checks: 1	2024-01-01 12:00:00	5 m	 5.8
WARN	CPU load	 	15 min load:2.37 (predefined reference: 0.65) (warn/crit at 1.47/2.26) WARN 15 min load per core: 0.13 (4 cores)	2024-01-01 12:00:00	5 m	 5.8
OK	CPU utilization	 	Total CPU: 24.83%	2024-01-01 12:00:00	5 m	 5.8
OK	Disk IO SUMMARY	 	Read: 650 B/s, Write: 115 kB/s, Latency: 10 milliseconds	2024-01-01 12:00:00	5 m	 5.8
OK	Filesystem /	 	Used: 64.58% - 13.3 GB of 20.6 GB	2024-01-01 12:00:00	5 m	 5.8

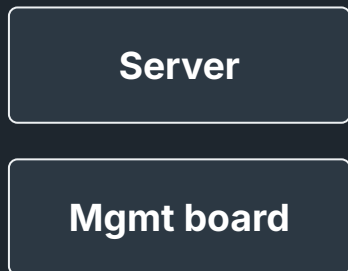
UP Management board services pve-nyc-001-ipmi.split.com (12)

State	Service	Icons	Summary	Age	Checked	Perf-O-Meter
CRIT	IPMI Sensor Summary		19 sensors in total, 17 sensors ok, 2 sensors critical CRIT	2024-01-01 14:00:00	10m	 5.2
OK WA	See all (11)					

Modelling host relationships

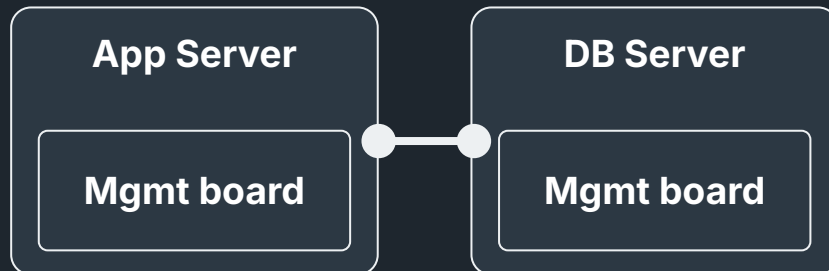
Configuration

Dedicated objects



UI

Connected objects



Setting relationship explicitly



Add host

Setup > Hosts > Main > Add host

Host Display Help ^

Save & run service discovery

Save & view folder

Save & run connection tests

Main

Basic settings

Host name (required) pve-nyc-001.split.com

Alias empty (Default value)

Monitored on site cce_2_3 - Local site cce_2_3 (Default value)

Permissions empty (Default value)

Network address

IP address family IPv4 only (Default value)

IPv4 address empty (Default value)

Additional IPv4 addresses No entries (Default value)

> Monitoring agents


Related hosts


Parents empty (Default value)


Related host X I am a management board (Select hostname)


[Add host](#)

Setting relationship explicitly – on the fly


checkmk


Monitor

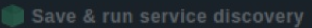

Customize



Setup

Add host

Setup > Hosts > Main > Add host

Host Display Help

 Save & run service discovery

 Save & view folder

Basic settings

Host name (required) pve-nyc-001.split.com

Alias empty (Default value)

Monitored on site cce_2_3 - Local site c

Permissions empty (Default value)

Network address

IP address family IPv4 only (Default value)

IPv4 address empty (Default value)

Additional IPv4 addresses No entries (Default value)

Monitoring agents

Related hosts

Parents empty (Default value)

Related host X I am a management t

Add related host



Save



Cancel

Basic settings

Host name (required) pve-nyc-001-ipmi.split.com

Alias empty (Default value)

Monitored on site cce_2_3 - Local site cce_2_3 (Default value)

Permissions empty (Default value)

Network address

IP address family IPv4 only (Default value)

IPv4 address empty (Default value)

Additional IPv4 addresses No entries (Default value)

Monitoring agents

Checkmk agent / API integrations ... API integrations if configured, else Checkmk agent (Default value)

Checkmk agent connection mode ... Pull: Checkmk server contacts the agent (Default value)


SNMP No SNMP (Default value)


IPMI No IPMI (Default value)


Piggyback Use piggyback data from other hosts if present (Default value)


Custom attributes

Setting relationship explicitly – on the fly


checkmk


Monitor



Customize



Setup


Add host


Setup > Hosts > Main > Add host

Host Display Help ⌵

 Save & run service discovery

 Save & view folder

 Save & run connection tests

 Main

▼ Basic settings

Host name (required) pve-nyc-001.split.com

Alias ☐ empty (Default value)

Monitored on site ☐ cce_2_3 - Local site cce_2_3 (Default value)

Permissions ☐ empty (Default value)

▼ Network address

IP address family ☐ IPv4 only (Default value)

IPv4 address ☐ empty (Default value)

Additional IPv4 addresses ☐ No entries (Default value)

> Monitoring agents

▼ Related hosts

Parents ☐ empty (Default value)

Related host ☐ I am a management board pve-nyc-001-ipmi.split.com

[Add host](#)

Setting relationship dynamically



checkmk



Monitor



Customize



Setup



Setup

Add rule: Modelling host relationships

Setup > Agents > Access to agents > Modelling host relationships > Add rule: Modelling host relationships hosts

Rule Related Display Help ^

✓ Save

✗ Cancel

⬇ Modelling host relationships

> Rule properties

▼ Modelling host relationships

✗ Set host relationship dynamically

Type of relationship

Management board ▼



Assign following hosts to ...

(.*)-ipmi(.*)

... these hosts

\\1\\2

Add expression

Checkmk 2.5

Connect hosts in the UI

Checkmk 2.x

Utilize relationships for alerting

Strategic roadmap for monitoring integrations



Applications

Infrastructure

Virtualization

Hardware

Management boards

Data center

Cloud

What's next for VMware?





PAAS + IAAS 65 

Research suggests more than half of VMware customers are looking to move

Price rises, uncertainty after Broadcom takeover forcing users to look elsewhere for virtualization needs

 [Richard Speed](#) Wed 11 Sep 2024 // 12:45 UTC

Research published by Civo indicates that more than half of VMware customers are considering leaving the platform under Broadcom's ownership.

And now what?

Checkmk users are migrating to other virtualization options

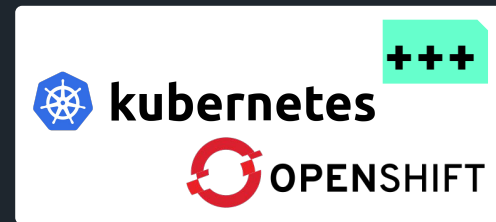
Commercial alternatives




Open-source alternative



Cloud(-native) alternatives


























































The existing monitoring isn't bad. But ...



Services of host forum.checkmk.com

Monitor > Overview > All hosts > forum.checkmk.com > Services of host







Commands	Host	Services	Export	Display	Help	     
OK	Memory	   	Total virtual memory: 31.33% - 3.64 GiB of 11.6 GiB, 9 additional details available			41.49 %
OK	Mount options of /	  	Mount options exactly as expected			
OK	Number of threads	   	558, Usage: 0.89%			558
OK	PING 45.133.11.10	   	OK - 45.133.11.10 rta 6.933ms lost 0%			6.93 ms
OK	Process nginx	   	Processes: 1, Virtual memory: 52.6 MiB, Resident memory: 5.65 MiB, CPU: 0%, Running for: 206 days 18 hours			1
OK	Process Qemu Agent	   	Processes: 1, Virtual memory: 6.43 MiB, Resident memory: 2.63 MiB, CPU: 0%, Running for: 179 days 3 hours			1
OK	Proxmox VE Memory Usage	   	Usage: 94.09% - 7.53 GiB of 8.00 GiB			94.09 %
OK	Proxmox VE VM Backup Status	   	Age: 14 hours 51 minutes, Server local start time: 2025-05-08 20:30:04+02:00, Duration: 7 minutes 17 seconds, Bandwidth: 28.7 MB/s			14 h 52 min
OK	Proxmox VE VM Info	  	VM ID: 101, Status: running, Type: qemu, Host: pve-  -002			
OK	Proxmox VE VM Snapshot age	   	No snapshot found			
OK	shorewall6_status	  	OK shorewall6 status is OK			
OK	shorewall_status	  	OK shorewall status is OK			
OK	Systemd Service Summary	  	Total: 157, Disabled: 4, Failed: 0			
















































The existing monitoring isn't bad. But ...



Services of host pve-██████████.com

Monitor > Overview > All hosts > pve-██████████.com > Services of host







Commands Host Services Export Display Help      

OK	Ceph Pool nvme1	   	Used: 48.58% - 14.3 TiB of 29.4 TiB (warn/crit at 95.37%/97.69% used), trend per 1 day 0 hours: +59.4 GiB, trend per 1 day 0 hours: +0.20%, Time left until disk full: 260 days 10 hours, Objects: 4085834.00, Read IOPS: 2335.87, Write IOPS: 1625.63, Read Throughput: 125 MiB, Write Throughput: 78.6 MiB	<div><div></div></div> 48.58 %
OK	Ceph Status	   	Overall health OK, Used: 38.45% - 43.0 TiB of 112 TiB (warn/crit at 96.46%/98.23% used), trend per 1 day 0 hours: +181 GiB, trend per 1 day 0 hours: +0.16%, Time left until disk full: 1 year 23 days, Objects: 4085840, Placement groups: 129, PGs in active+clean: 128, PGs in active+clean+scrubbing+deep: 1	<div><div></div></div> 38.45 %
OK	CPU load	   	15 min load: 7.13, 15 min load per core: 0.15 (48 cores)	<div><div></div></div> 7.29
OK	CPU utilization	   	Total CPU: 14.59%	<div><div></div></div> 14.59 %
OK	Kernel Performance	   	Process Creations: 37.52/s, Context Switches: 199848.34/s, Major Page Faults: 0.01/s, Page Swap in: 0.00/s, Page Swap Out: 0.00/s	<div><div></div></div> 0.01/s
OK	Memory	   	Total virtual memory: 24.18% - 124 GiB of 512 GiB, 9 additional details available	<div><div></div></div> 24.56 %
OK	NTP Time	   	Offset: 0.0000 ms, Stratum: 2, Time since last sync: 8 minutes 52 seconds	<div><div></div></div> 0.008 μs
OK	Proxmox VE Memory Usage	   	Usage: 25.44% - 128 GiB of 504 GiB	<div><div></div></div> 25.44 %
OK	Proxmox VE Node Info	  	Status: online, Subscription: active, Version: 8.4.1, Hosted VMs: 16x LXC, 120x Qemu	
OK	PVE Cluster State	  	Name: corosync_votequorum, Nodes: 4, No faults	
OK	PVE Node pve-████-001	  	ID: 1, Votes: 1	
OK	PVE Node pve-████-002	  	ID: 2, Votes: 1	
OK	PVE Node pve-████-003 (local)	  	ID: 3, Votes: 1	

... pales vs. our Nutanix (and vSphere) monitoring



Cluster monitoring

OK	NTNX Alerts	—	2 alerts, Last worst on 2022-10-06 16:16:27: 'It is recommended that NGT on the VM SRV-APP-01 with uuid 2da80b43-fe19-4750-bbc6-17eef8d90935 should be upgraded to the latest version supported by the cluster. NGT update contains bug fixes and improvements, which will improve the overall product experience.'
OK	NTNX Cluster	≡	Name: Cluster, Version: 5.20.4.6, Nodes: 3
OK	NTNX Cluster Controller IO	≡ 📁	I/O Bandwidth: 0.21 MB/s, IOPS: 0.01, I/O Latency: 1.5 ms
OK	NTNX Cluster CPU	≡ 📁	Total CPU: 13.95% 
OK	NTNX Cluster Memory	≡ 📁	Total Memory Usage: 27.26% 
OK	NTNX Container NutanixManagementShare	≡ 📁	Used: 0.08% - 12.4 GB of 16.2 TB, trend per 1 day 0 hours: +0 B, trend per 1 day 0 hours: +0% 
OK	NTNX Container SelfServiceContainer	≡ 📁	Used: 0.04% - 5.77 GB of 16.2 TB, trend per 1 day 0 hours: +0 B, trend per 1 day 0 hours: +0% 
OK	NTNX Container VMs	≡ 📁	Used: 22.35% - 4.66 TB of 20.8 TB, trend per 1 day 0 hours: +0 B, trend per 1 day 0 hours: +0% 
OK	NTNX Host SRV-AHV-01	≡	has state NORMAL, Number of VMs 4, Memory 376 GiB, Boottime 2022-08-11 15:40:02
OK	NTNX Remote Tunnel	≡	Remote Tunnel is disabled
OK	NTNX Storage StoragePool	≡ 📁	Used: 22.42% - 9.35 TB of 41.7 TB, trend per 1 day 0 hours: +0 B, trend per 1 day 0 hours: +0%, SSD capacity: 41.7 TB, SSD free: 32.3 TB 
OK	NTNX VM NTNX-SRV-AHV-01-CVM	≡	with status on - on Host SRV-AHV-01
WARN	NTNX VM Nutanix-Move	≡	with status off - on Host None WARN

... pales vs. our Nutanix (and vSphere) monitoring



Cluster monitoring

OK	NTNX Alerts	—	2 alerts, Last worst on 2022-10-06 16:16:27: 'It is recommended that NGT on the VM SRV-APP-01 with uuid 2da80b43-fe19-4750-bbc6-17eef8d90935 should be upgraded to the latest version supported by the cluster. NGT update contains bug fixes and improvements, which will improve the overall product experience.'	
OK	NTNX Cluster	≡	Name: Cluster, Version: 5.20.4.6, Nodes: 3	
OK	NTNX Cluster (
OK	NTNX Cluster (CPU: 11.64%	
OK	NTNX Cluster I	OK	NTNX HW Disk 1	≡ Model: SAMSUNG MZ7LH3T8HMLT-00005, Serial: S456NW0R504280, State: healthy, Mount
OK	NTNX Containe NutanixManage	OK	NTNX HW Disk 2	≡ Model: SAMSUNG MZ7LH3T8HMLT-00005, Serial: S456NW0R504279, State: healthy, Mount
OK	NTNX Containe SelfServiceCor	OK	NTNX HW Disk 4	≡ Model: SAMSUNG MZ7LH3T8HMLT-00005, Serial: S456NW0R504283, State: healthy, Mount
OK	NTNX Containe	OK	NTNX HW Disk 5	≡ Model: SAMSUNG MZ7LH3T8HMLT-00005, Serial: S456NW0R504275, State: healthy, Mount
OK	NTNX Host SR	OK	NTNX I/O	≡ 📁 is 4.88 KiB read and 11.7 KiB write
OK	NTNX Remote	OK	NTNX Memory	≡ 📁 Usage: 30.61% - 115 GiB of 376 GiB
OK	NTNX Storage			
OK	NTNX VM NTN CVM	OK	NTNX Storage Capacity	≡ 📁 Used: 23.96% - 3.33 TB of 13.9 TB, trend per 1 day 0 hours: +0 B, trend per 1 day 0 hours: + SAS: 0 B, Total SSD: 13.9 TB, Free SSD: 10.6 TB
WARN	NTNX VM Nutanix-Move	≡	with status off - on Host None WARN	

... pales vs. our Nutanix (and vSphere) monitoring



Cluster monitoring

OK	NTNX Alerts	2 alerts, Last worst on 2022-10-06 16:16:27: 'It is recommended that NGT on the VM SRV-APP-01 with uuid 2da80b43-fe19-4750-bbc6-17eef8d90935 should be upgraded to the latest version supported by the cluster. NGT update contains bug fixes and improvements, which will improve the overall product experience.'
OK	NTNX Cluster	Name: Cluster, Version: 5.20.4.6, Nodes: 3

Node monitoring

OK	NTNX Cluster (CPU: 11.64%)	
OK	NTNX Cluster (NTNX HW Disk 1)	Model: SAMSUNG MZ7LH3T8HMLT-00005, Serial: S456NW0R504280, State: healthy, Mount
OK	NTNX Cluster (NTNX HW Disk 2)	Model: SAMSUNG MZ7LH3T8HMLT-00005, Serial: S456NW0R504279, State: healthy, Mount
OK	NTNX Cluster (NTNX HW I/O)	
OK	NTNX Cluster (NTNX HW I/O)	
OK	NTNX Cluster (NTNX I/O)	usage: 5.61%, CPU ready: <0.01%
OK	NTNX Cluster (NTNX I/O)	is 10.7 KiB read and 8.79 KiB write
OK	NTNX Cluster (NTNX Memory)	Usage: 95.89% - 76.7 GiB of 80.0 GiB (warn/crit at 80.00%/90.00%)
OK	NTNX Cluster (NTNX VM State)	is in state on, defined on SRV-AHV-03, CPUs: 16, Memory: 80.0 GiB
OK	NTNX Cluster (NTNX VMTTools)	Tools with version 2.1.5 installed, Tools enabled
WARN	NTNX VM Nutanix-Move	

We help you in your hypervisor migration journey



2.4



2.5



Podman Container Plugin & Checks

201

votes



Voted up

Redhat is trying hard to establish Podman as a replacement for Docker, by pushing it as default container engine for Redhat Enterprise products (RHEL, Openshift...). Sadly, as of today, there is no support for Podman Checks in CMK.

Although there is some compatibility to Docker (docker commands can be aliased to podman), the Docker python module, which agent plugin uses, does not work with Podman. So a new agent plugin would be needed for Podman support.

In progress

#Checks&Agents

Suggested by: Mario Sommer (02 Jun, '22) • Upvoted: today • [Comments: 10](#)

Podman engine and container monitoring



podman_engine_host							
State	Service	Icons	Summary	Age	Checked	Perf-O-Meter	
OK	Podman containers	☰ 📁	Total: 7, Running: 5, Created: 1, Paused: 1, Stopped: 0, Exited: 0	2024-01-01 14:00:00	1 m	<div></div>	7
OK	Podman disk usage: containers	☰ 📁	Size: 100 GiB, Reclaimable: 20 GiB (20%)	2024-01-01 12:00:00	1 m	<div></div>	100 GiB
OK	Podman disk usage: images	☰ 📁	Size: 100 GiB, Reclaimable: 20 GiB (20%)	2024-01-01 12:00:00	1 m	<div></div>	100 GiB
OK	Podman disk usage: volumes	☰ 📁	Size: 100 GiB, Reclaimable: 20 GiB (20%)	2024-01-01 12:00:00	1 m	<div></div>	100 GiB
OK	Podman engine	☰	Running, Version: 4.0.0, Rootless: True	2024-01-01 12:00:00	1 m		
OK	Podman pods	☰ 📁	Total: 3, Running: 3, Created: 0, Stopped: 0, Exited: 0, Dead: 0	2024-01-01 12:00:00	1 m	<div></div>	3

podman_container_host							
State	Service	Icons	Summary	Age	Checked	Perf-O-Meter	
OK	CPU utilization	☰ 📁	Total CPU: 1.27%	2024-01-01 12:00:00	1 m	<div></div>	1.27%
OK	Disk IO SUMMARY	☰ 📁	Read: 21.0 B/s, Write: 21.0 B/s	2024-01-01 12:00:00	1 m	<div></div>	21.0 B/s / 21.0 B/s
OK	Health	☰	Status: Healthy	2024-01-01 14:00:00	1 m		
OK	Memory	☰ 📁	RAM: 0.30% - 23.3 MiB of 7.57 GiB	2024-01-01 12:00:00	1 m	<div></div>	23.28 MiB
OK	Restarts	☰ 📁	Total: 8, Last hour: 4	2024-01-01 12:00:00	1 m		
OK	Status	☰	Running, Host: podman_engine_host, Pod: Pod_1	2024-01-01 12:00:00	1 m		
OK	Uptime	☰ 📁	Up since 2023-11-11 23:29:20, Uptime: 1 year 156 days	2024-01-01 12:00:00	1 m	<div></div>	521 d

Strategic roadmap for monitoring integrations



Applications

OS

Infrastructure

Virtualization



podman

 PROXMOX

 Microsoft
Hyper-V

Hardware

Management boards

Data center

Cloud

Are you using Windows Log monitoring?

Windows agent ships 'integrated logwatch' for all event logs



windows-server.company.com

State	Service	Icons	Summary	Age	Checked
OK	Log Amazon EC2Launch	≡	No error messages	2023-06-13 13:04:15	15.0 s
CRIT	Log Application	≡	8 CRIT messages (Last worst: "Jul 02 09:06:42 49152.8198 Software_Protection_Platform_Service License Activation (slui.exe) failed with the following error code: hr=0x8007139F Command-line arguments: RuleId=502ff3ba-669a-4674-bbb1-601f34a3b968;Action=AutoActivateSilent;AppId=55c92734-d682-4d71-983e-d6ec3f16059f;Skuld=ef6cfc9f-8c5d-44ac-9aad-de6a2ea0ae03;NotificationInterval=1440;Trigger=TimerEvent")	2024-05-07 11:06:18	15.0 s
OK	Log HardwareEvents	≡	No error messages	2022-07-25 10:10:47	15.0 s
OK	Log Internet Explorer	≡	No error messages	2022-07-25 10:10:47	15.0 s
OK	Log Key Management Service	≡	No error messages	2022-07-25 10:10:47	15.0 s
CRIT	Log System	≡	1 CRIT messages (Last worst: "Aug 31 16:42:39 49152.7001 Service_Control_Manager The Microsoft Defender Antivirus Network Inspection Service service depends on the Microsoft Defender Antivirus Network Inspection System Driver service which failed to start because of the following error: %%1062")	2023-08-31 18:42:48	15.0 s

Are you using Windows Log monitoring?

Windows agent ships 'integrated logwatch' for all event logs



```
224 logwatch:
225     # enabled: yes
226
227     # sendall: no    # this is MANDATORY, yes is useful only for debugging
228     # vista_api: no # this is RECOMMENDED
229     # skip_duplicated: no # if yes the same messages will be replaced with text [the above message]
230     # max_size: 500000 # default value
231     # max_line_length: -1 # -1 to ignore, or any positive, max length of the line
232     # max_entries: -1     # -1 to ignore, or any positive, max count of lines to receive
233     # timeout: -1         # -1 to ignore, or any positive, max time to wait for a message
234
235     # entries in the windows eventlog
236
237     logfile:
238         # - 'EventLogName': <crit|warn|all|off> + [context|nocontext]
239         # - 'Application': crit context # example
240         # - 'System': warn nocontext    # another example
241         # - 'YourOwn': all nocontext     # yet another example
242         # - '*': warn nocontext          # This is default params for not missing entries
```

How to filter messages already on agent side???

Isn't there an option already?

mk_logwatch can filter messages already



checkmk



Monitor







Customize



Setup

Edit rule: Text logfiles (Windows, Linux, Solaris, AIX)

Setup > Agents > Windows, Linux, Solaris, AIX > Agent rules > Text logfiles (Windows, Linux, Solaris, AIX) > Edit

Rule Related Display Help    

Regular expressions for message classification

		State IGNORE	Pattern (Regex) filter me out
		State CRITICAL	Pattern (Regex) critical message
		State WARNING	Pattern (Regex) this should be a warning

Filtering functionality to come to built-in Windows agent logwatch!

Things that just have to be done



No more VBS

It's done. All replaced by Powershell scripts.



Replace Windows System Time

With a proper timesync and time quality check



Replace netstat with ss

It's just time.



Migrate check_mail monitoring for Exchange to Microsoft Graph

Microsoft will start blocking EWS requests to Exchange Online from Oct 1st 2026

Strategic roadmap for monitoring integrations



Applications

Applications

OS

Windows, ps1, ss

Infrastructure

Virtualization



podman



Hardware

Management boards

Data center

Cloud

One of the best Oracle monitoring solutions



Oracle Performance Monitoring

Monitor > Workplace > Oracle Performance Monitoring

Commands Add to Export Display Help



82 rows

State	Host	SID	Version	Uptime	Filesystem	Processes	Sessions	Recovery	Recovery
UP	oracle-instance-1	QALUS1	18.0.0.0.0	<div><div></div></div> 4.9 d	<div><div>79.94%</div></div>	<div><div>746</div></div>	<div><div>729</div></div>	OK	<div><div></div></div> 11 m / 0.00 s
UP	oracle-instance-1	TALUS1	18.0.0.0.0	<div><div></div></div> 4.5 d	<div><div>79.44%</div></div>	<div><div>356</div></div>	<div><div>355</div></div>	OK	<div><div></div></div> 6 h / 0.00 s
UP	oracle-instance-1	TALUS1	12.2.0.1.0	<div><div></div></div> 8 h	<div><div>79.14%</div></div>	<div><div>313</div></div>	<div><div>312</div></div>	OK	<div><div></div></div> 6 h / 0.00 s
UP	oracle-instance-1	DALUS1	12.2.0.1.0	<div><div></div></div> 15 h	<div><div>79.16%</div></div>	<div><div>312</div></div>	<div><div>311</div></div>	OK	<div><div></div></div> 146 m / 0.00 s
UP	oracle-instance-1	DALUS1	18.0.0.0.0	<div><div></div></div> 4.6 d	<div><div>79.4%</div></div>	<div><div>275</div></div>	<div><div>274</div></div>	OK	<div><div></div></div> 153 m / 0.00 s
UP	oracle-instance-1	DALUS1	12.2.0.1.0	<div><div></div></div> 15 d	<div><div>79.62%</div></div>	<div><div>221</div></div>	<div><div>220</div></div>	OK	<div><div></div></div> 20 m / 0.00 s
UP	server-solus-oracle	ASHET1D1	11.2.0.4.0	<div><div></div></div> 31 d	<div><div>1.4%</div></div>	<div><div>210</div></div>	<div><div>226</div></div>	OK	<div><div></div></div> 354 m / 0.00 s
UP	server-solus-oracle-2	ASHET1D1	11.2.0.4.0	<div><div></div></div> 31 d	<div><div>1.4%</div></div>	<div><div>210</div></div>	<div><div>226</div></div>	OK	<div><div></div></div> 354 m / 0.00 s
UP	oracle-instance-1	DALUS1	18.0.0.0.0	<div><div></div></div> 4.5 d	<div><div>79.4%</div></div>	<div><div>187</div></div>	<div><div>186</div></div>	OK	<div><div></div></div> 13 h / 0.00 s
UP	oracle-instance-1	DALUS1	18.0.0.0.0	<div><div></div></div> 4.6 d	<div><div>79.4%</div></div>	<div><div>183</div></div>	<div><div>182</div></div>	OK	<div><div></div></div> 71 m / 0.00 s
UP	server-solus-oracle-2	ASHET1D1	11.2.0.4.0	<div><div></div></div> 52 d	<div><div>1.4%</div></div>	<div><div>171</div></div>	<div><div>188</div></div>	OK	<div><div></div></div> 17 m / 0.00 s
UP	oracle-instance-1	DALUS1	18.0.0.0.0	<div><div></div></div> 4.6 d	<div><div>79.4%</div></div>	<div><div>152</div></div>	<div><div>151</div></div>	OK	<div><div></div></div> 54 m / 0.00 s

Handling almost all Oracle setups & peculiarities



▼ Oracle databases (Linux, Solaris, AIX, Windows)

- ☐ Activation
- ☐ Host uses xinetd or systemd (Linux/AIX/Solaris only)
- ☐ Login Defaults
- ☐ Login for selected databases
- ☐ Login for ASM
- ☐ Instances to monitor
- ☐ Add pre or postfix to TNSALIASEs (Linux/AIX/Solaris only)
- ☐ Sections - data to collect
- ☐ Exclude some sections on certain instances
- ☐ Cache age for background checks
- ☐ Sqlnet Send timeout
- ☐ Remote instances (Linux/AIX/Solaris only)
- ☐ ORACLE_HOME to use for remote access (Linux/AIX/Solaris only)
- ☐ TNS_ADMIN to use for sqlnet.ora and tnsnames.ora (Linux/AIX/Solaris only)
- ☐ sqlnet.ora permission group (Linux/AIX/Solaris only)
- ☐ Oracle binaries permissions check (Windows only)

Initially developed 14 years ago

By Thorsten Bruhns (thanks!) & Mathias Kettner



☰

Checkmk / checkmk

▾

▾

<> Code

Pull requests 31

Actions

Security 25

Insights

Settings

Commit 9db80eb

Browse files

MathiasKettner committed on Jan 27, 2011

mk_oracle: new oracle agent plugin and first check

master · v2.4.0 ... gerrit_performance_test

1 parent [ba6ecb2](#) commit 9db80eb

ChangeLog

agents/plugins

mk_oracle

5 files changed +184 -1 lines changed

> ChangeLog

+4 -1



▼ agents/plugins/mk_oracle


+64







Initially developed 14 years ago


By Thorsten Bruhns (thanks!) & Mathias Kettner







 Checkmk / checkmk


Q Type  to search




<> Code 

 robin-checkmk Fix typos  


Commit 


 MathiasKet


mk_oracle: r

 master

Q Filter files.

 ChangeL

 agents/p

 mk_oracle

Code Blame Executable File **3394 lines (3039 loc)** · 137 KB

```
1  #!/bin/bash
2  # Copyright (C) 2019 Checkmk GmbH - License: GNU General Public License v2
3  # This file is part of Checkmk (https://checkmk.com). It is subject to the terms and
4  # conditions defined in the file COPYING, which is part of this source code package.
5
6  # Reason for this no-op: shellcheck disable=... before the first command disables the error for the
7  # entire script.
8  :
9
10 # Disable unused variable error (needed to keep track of version)
11 # shellcheck disable=SC2034
12 CMK_VERSION="2.5.0b1"
13
14 # Checkmk agent plugin for monitoring ORACLE databases
15 # This plugin is a result of the common work of Thorsten Bruhns
16 # and Mathias Kettner. Thorsten is responsible for the ORACLE
17 # stuff, Mathias for the shell hacking...
```

Checkmk #
Conference

State of mk_oracle



3000+ lines of bash code



Hard to code

Even harder to test

mk_oracle will be rewritten



Our plan

- ❖ Rewrite in non-bash language
- ❖ Extend test coverage strongly

Your benefits

Nothing.

... except ...

the same checks. Same services.

You only need to migrate the agent plugin.

Don't worry. You will also get ...

- ❖ more stability
- ❖ faster delivery of new features

Strategic roadmap for monitoring integrations



Applications

Applications

ORACLE

O/S

Windows, ps1, ss

Infrastructure

Virtualization



podman

PROXMOX



Microsoft
Hyper-V

Hardware

Management boards

Data center

Cloud

Enhanced Cisco Meraki monitoring

thl-cmk has waited long enough.

Manage >

Code >

Help

Cisco Meraki special agent

This is an enhanced version of the build in Cisco Meraki special agent.

- ▶ Cisco Meraki special agent
- ▶ Appliance Utilization
- ▶ Appliance Uplinks
- ▶ Appliance VPNs
- ▶ Device Info
- ▶ Device Status
- ▶ Device Uplinks
- ▶ Licenses Overview
- ▶ Networks
- ▶ Organisation API
- ▶ Switch Port Status
- ▶ Wireless Devices Status
- ▶ Wirelss Ethernet Status
- ▶ Sensor Readings

CMK version 2.2

CMK version 2.3

141 Commits

2 Branches

0 Tags

README

GNU General Public License v2.0 or later

CHANGELOG

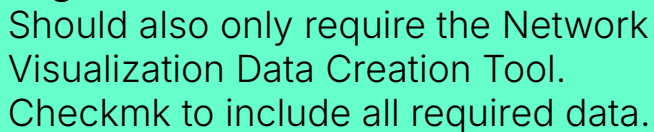
CONTRIBUTING

Created on

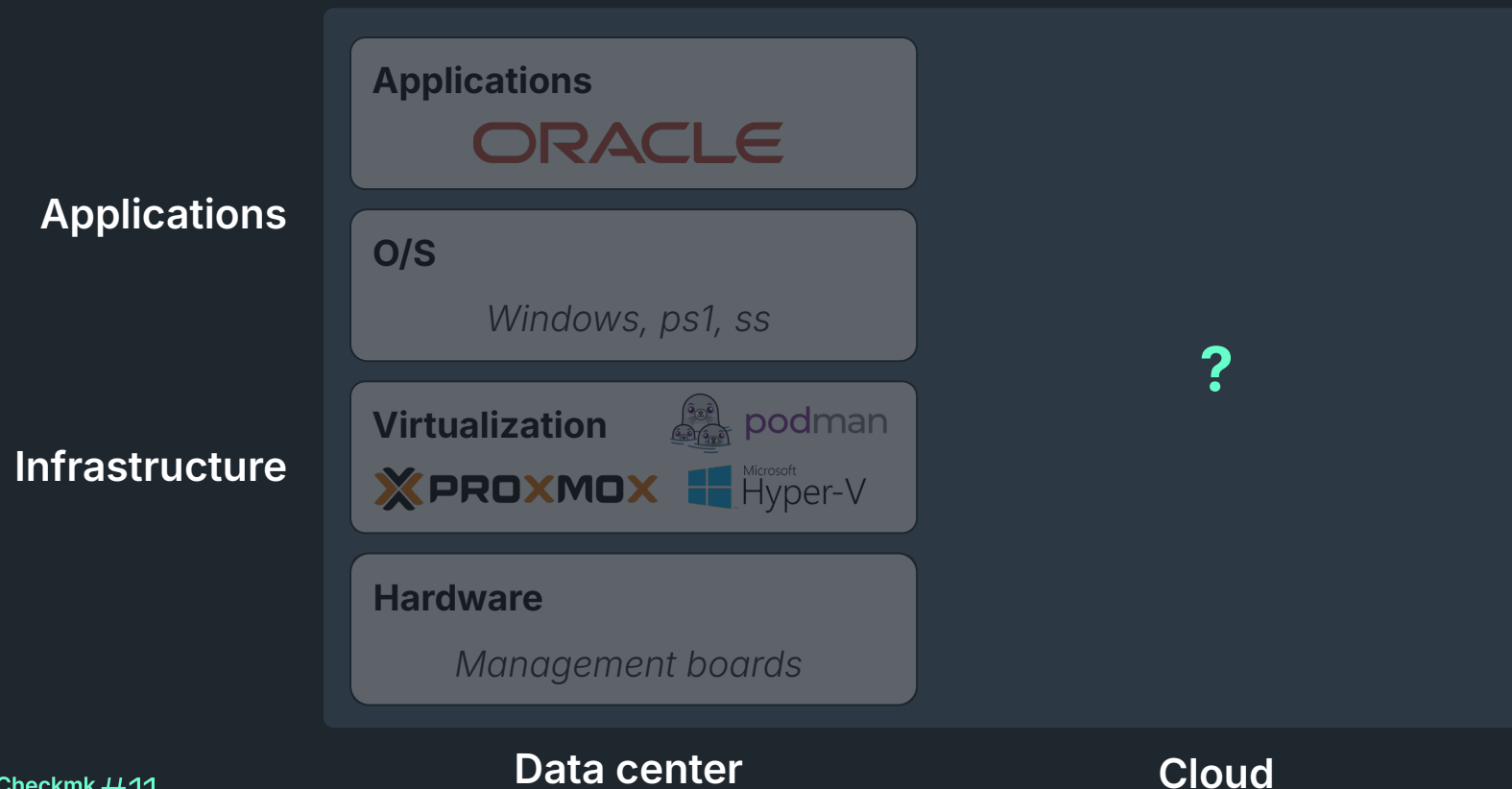
November 06, 2023

Collection of CheckMK checks (see <https://checkmk.com/>). All checks and plugins are provided as is. Absolutely no warranty. Send any comments to [thl-cmk\[at\]outlook\[dot\]com](mailto:thl-cmk[at]outlook[dot]com)

Topology for Lldp



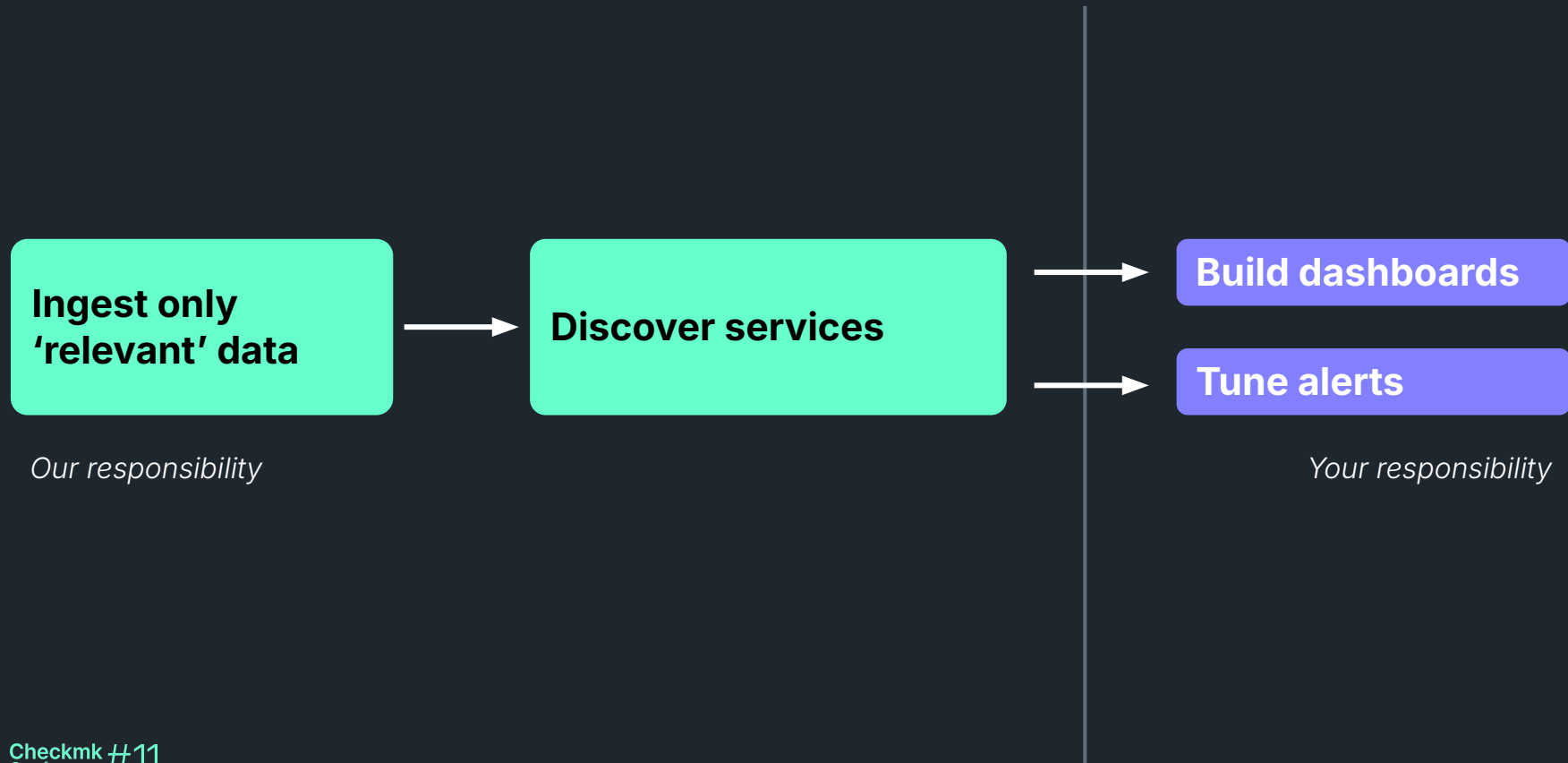
Strategic roadmap for monitoring integrations



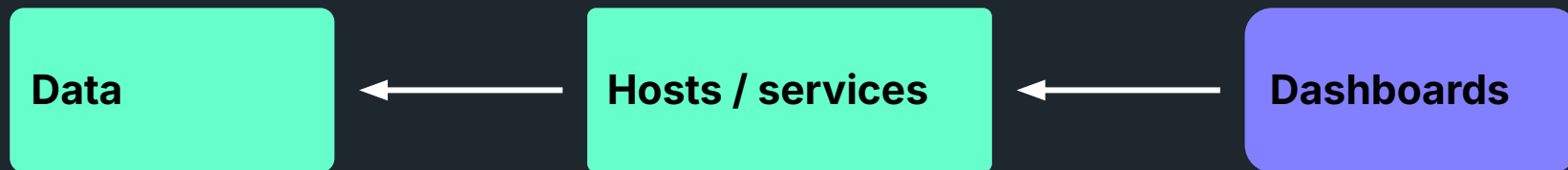


Compute / VM	EC2	Compute Engine	Virtual Machine
Storage & Backup	Elastic Block Storage S3 and S3 Glacier	Cloud Storage Filestore	Blob Storage Storage Accounts Recovery Service Vaults
Database	RDS DynamoDB	Cloud SQL	DB for PostgreSQL DB for MySQL
Load Balancer	Application ELB Network ELB	Load Balancer	Load Balancer
Management	Cost and Usage	Cost	Usage Details (cost)
Containers & Kubernetes	Container Service (ECS) Kubernetes Service (EKS)	Cloud Run Kubernetes Engine	Kubernetes Service (AKS)
Functions	Lambda	Cloud Functions	
Networking	Route53 CloudFront WAF		VPN Gateway Traffic Manager
Cache	ElastiCache for Redis	Memorystore	
Other	SNS		AD Connect App Gateway Web Apps

The Checkmk logic

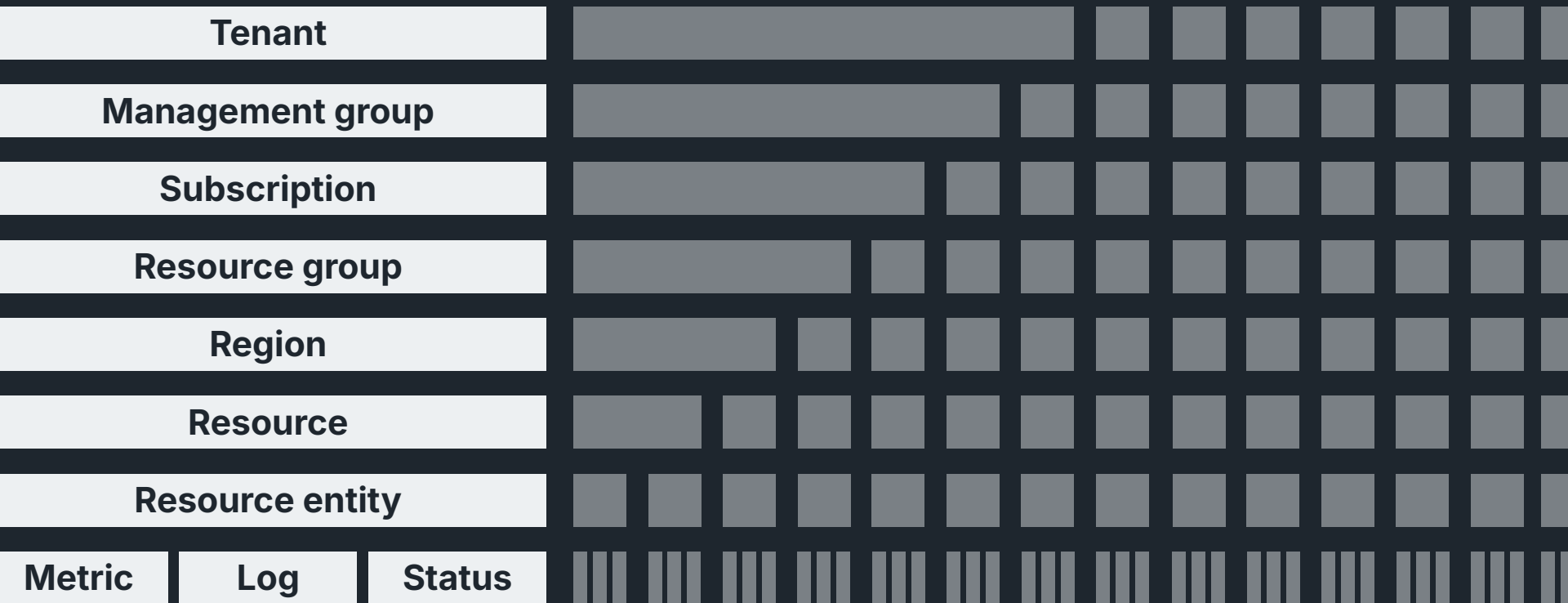


Complex systems require reversal thought process

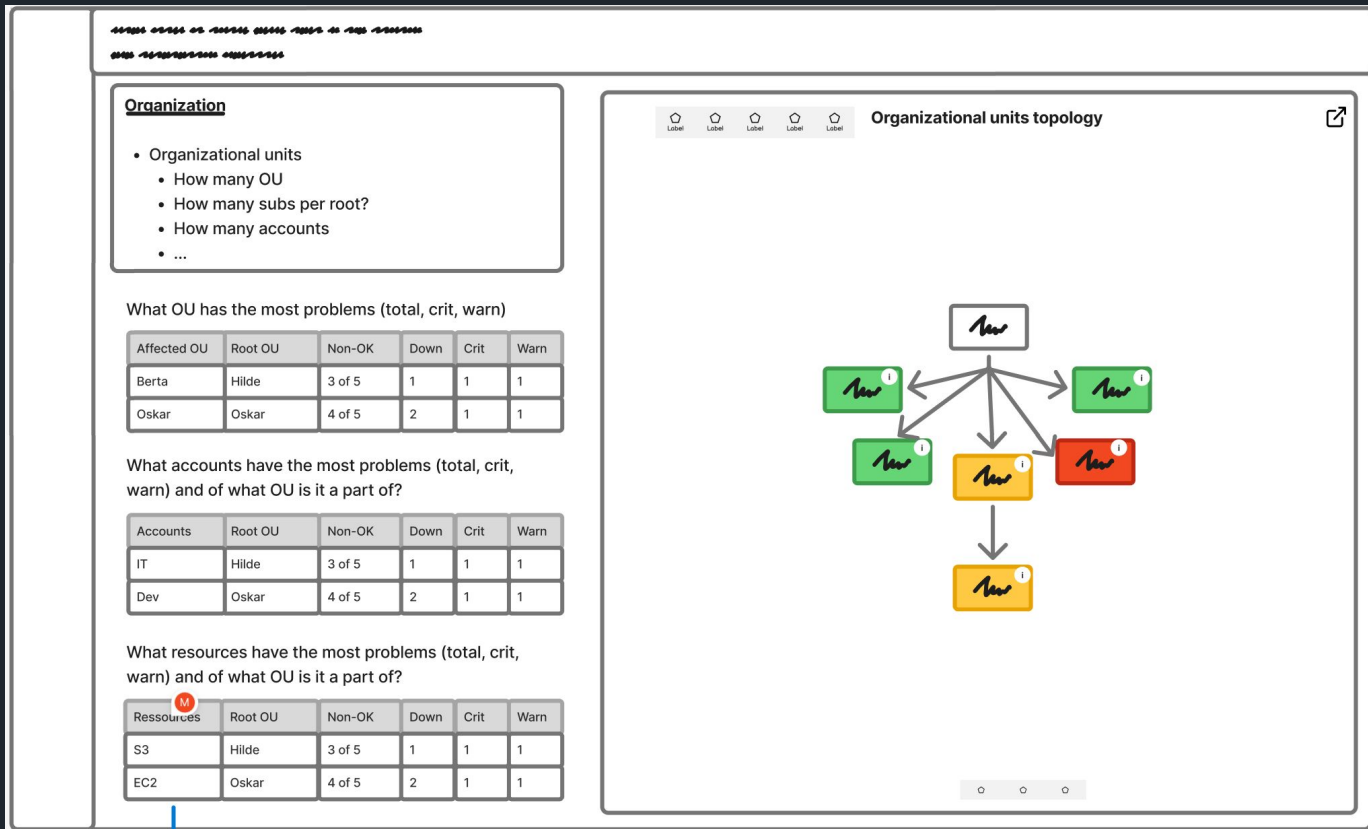


Azure is complex from a data architecture ...

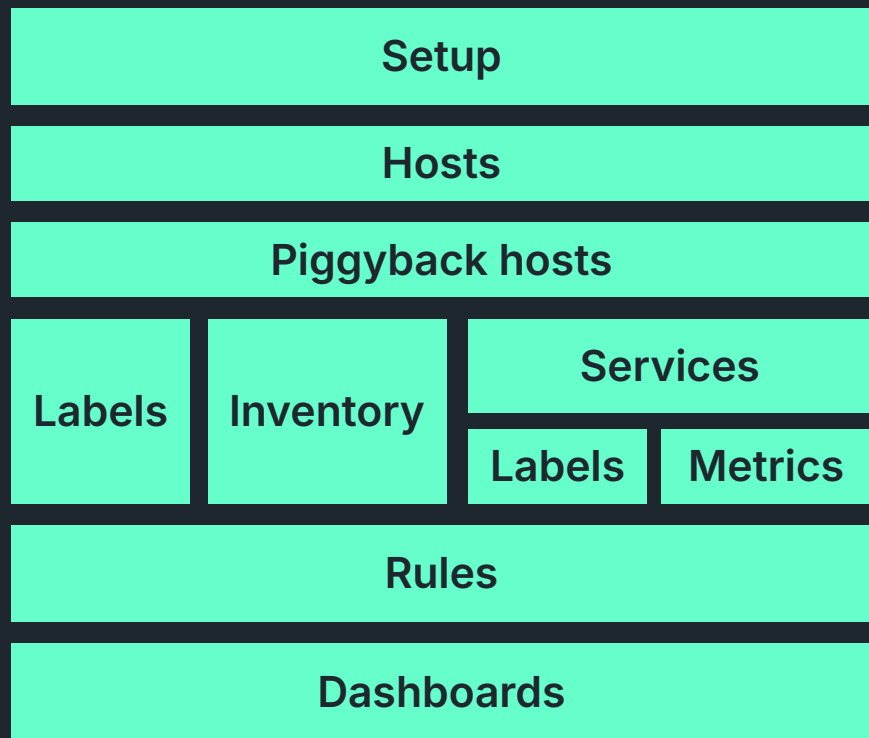
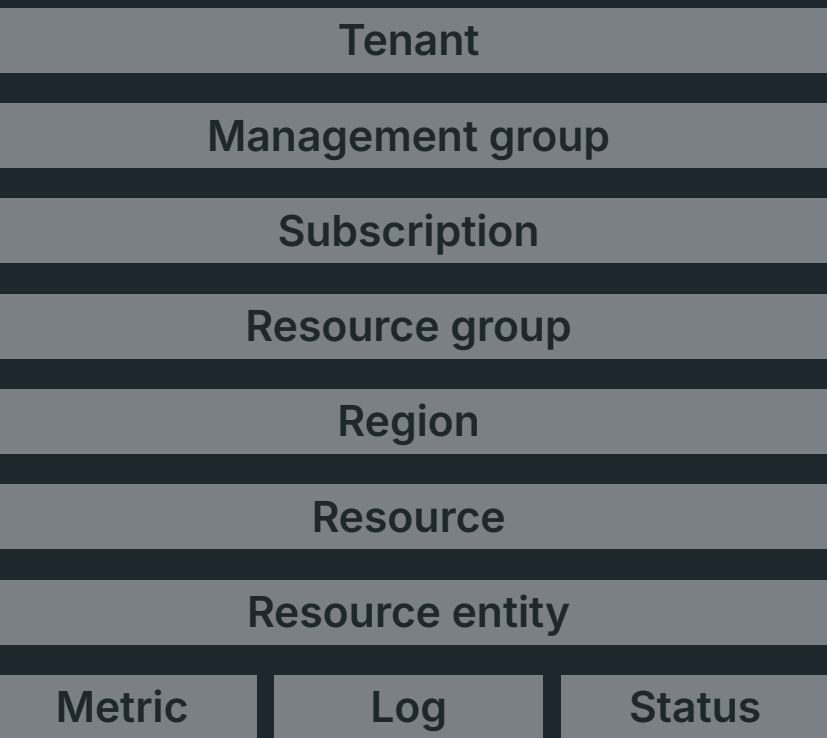
... and requires a scalable configuration concept



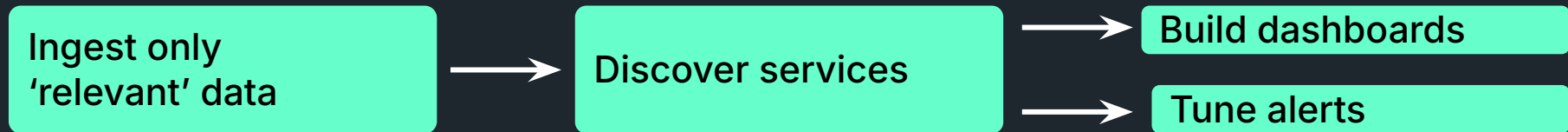
Dashboard-first opinionated monitoring architecture



Redesigned monitoring architecture planned for 2.5



Elevate the Checkmk cloud monitoring experience



Low-effort data collection

Scalable, quick setup

High performance

Flexibility

Insights into your cloud

Intuitive host & services

Opinionated monitoring

Visibility into your cloud

Great dashboards

Meta information for
- powerful notifications
- your own dashboards

Development of new and enhancements to existing services

Our focus for 2.5



Our principles for Checkmk



Cloud



Data Center



IoT

Great user experience

for beginners and experts



Monitor anything



Powerful configuration



Alerts & analytics



Extensible interfaces

for automation and development



Monitoring platform

Secure & scalable

Checkmk is full of hidden assumptions



Add host
Setup > Hosts > Main > Add host

Host Display Help

Save & run service discovery Save & view folder Save & run connection test

Basic settings

Host name (required) myfirsthost

Network address

IP address family IPv4 only (Default value)

IPv4 address empty (Default value)

Monitoring agents

Checkmk agent / API integrations API integrations if configured, else Checkmk agent

SNMP No SNMP (Default value)

Custom attributes

Users need to know ...

... to fill out settings first

... the meaning of service discovery

... how fundamental host names are

... about built-in DNS resolution

... that you need to click here

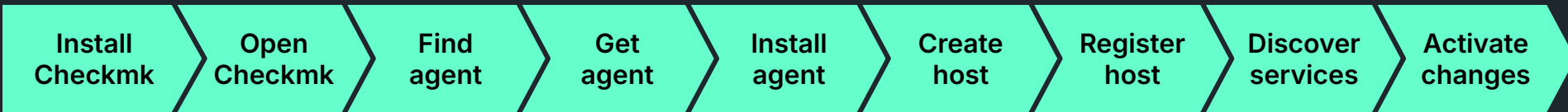
... what Checkmk agent & API integrations mean

... that you might need an agent before running service discovery

Frictionless first steps

Monitoring a Linux/Windows host

Checkmk Enterprise



Checkmk Cloud (self hosted)



Checkmk Cloud (SaaS)



Simplify finding and installing agents



Install
Checkmk

Open
Checkmk

Find
agent

Get
agent

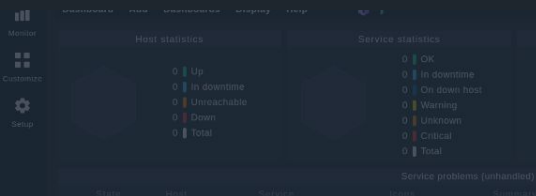
Install
agent

Create
host

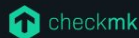
Register
host

Discover
services

Activate
changes



Welcome to Checkmk Cloud



Checkmk Cloud - out-of-the-box SaaS monitoring for cloud and hybrid IT

Monitor your first host with Checkmk in 4 steps

1 Select the Checkmk agent package



DEB



RPM



Windows

2 Trigger download of the Checkmk agent package

Run this command to trigger the download of the Checkmk agent onto your workstation that is automatically registered with your Checkmk site.

```
{
  curl -o check-mk-agent.deb \
  --header 'Accept: application/octet-stream' \
  --header "Authorization: Bearer agent_download 5IH09DEwm5Zz3qAAe3ABYGHKQJGe9zPY" \
  "https://yoyomine-9bf54806-b5e3-4f43-bf64-f740c61b9576.us-east.checkmk.cloud/yoyomine/check_mk/api/1.0/domain-
  types/agent/actions/download_by_host/invoke?
  folder_name=%2Fpreconfigured_agent%2F&os_type=linux_deb&agent_type=generic"
};
```



Note: The above command contains the credentials for a site user with limited permissions. The user's password is rotated regularly.

3 Install the Checkmk agent package

Run this command to install the Checkmk agent on your workstation.

```
sudo dpkg -i check-mk-agent.deb
```



4 View your newly added host

A couple of minutes after the installation, the agent will start reporting metrics to your site which you can see under Monitor > Overview >

Same, but also very different

Improve hostname validation



Install
Checkmk

Open
Checkmk

Find
agent

Get
agent

Install
agent

Create
host

Register
host

Discover
services

Activate
changes



checkmk



Monitor



Customize




Setup

Add host


Setup > Hosts > Main > Add host


Mock-up

Host Display Help ^

 Save & run service discovery

 Save & view folder

 Save & run connection tests

 Main

This hostname is not resolvable. Please enter a resolvable host name, or specify an IP address for this host.

Basic settings

Host name (required) non-resolvable-host

Network address

IP address family ☐ IPv4 only (Default value)

IPv4 address ☐ empty (Default value)

Incorporate test connection into host creation



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Save & run service discovery

Save & view folder

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Main

Sorry, but are you sure you installed an agent on that host? I can ping that host, but I don't get a response on the agent port. You can downl

Basic settings

Host name (required) forgot-the-agent

Network address

Monitoring agents

Checkmk agent / API integrations ... API integrations if configured. else Checkmk agent (Default value)

Registering agent and updater with one command



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Agent controller

```
cmk-agent-ctl register
```

Agent controller
registration

Agent updater

```
cmk-update-agent register
```

Agent controller
registration

Agent updater
registration



Agent updater can use both registrations

Guide the user in service discovery as well



Discover
services

Status quo



checkmk



Monitor



Customize



Setup

Services of host forgot-the-agent

Setup > Hosts > Main > Properties of host forgot-the-agent > Services of host forgot-the-agent

Actions Host Settings Display Help ^

✓ Accept all

🔄 Rescan

+ Monitor undecided services

- Remove vanished services

ⓘ Properties of host forgot-the-agent

Problems with 1 datasource detected



CRIT [agent]: Communication failed: [Errno 111] Connection refused **CRIT**

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

Incorporate connection test to give user advice, what needs to be done, e.g. install agent + link to agents

Guide the user in service discovery as well



Install
Checkmk

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Checkmk

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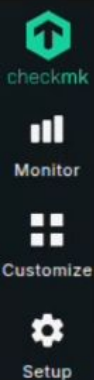
Install
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host

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changes



Services of host 1

Setup > Hosts > Main > Properties of host 1 > Services of host 1

Actions Host Settings Display Help

✓ Accept all

🔄 Rescan

⊕ Monitor undecided services

✖ Remove vanished services

ℹ Properties of host 1

Problems with 1 datasource detected

CRIT [agent]: Communication failed: timed out **CRIT**
OK [piggyback]: Success (but no data found for this host)



If you have not downloaded and installed the agent yet, now is the time! Otherwise,

Download agent

The problems above might be caused by missing caches. Please trigger a rescan.

Mock-up

Guide the user in service discovery as well



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changes

Services of host 1
Setup > Hosts > Main > Properties of host 1 > Services of host 1

Actions Host Settings Display Help

✓ Accept all Rescan Monitor undecided services Remove vanished services

Problems with 1 datasource detected

CRIT [agent]: Communication failed: timed out **CRIT**
[piggyback]: Success (But no data found for this host)

If you have not down...
Download agent

The problems above might be caused by missing caches. Please trigger a rescan.

Agent download

Mock-up

Configuration

Default configuration

Agent for AIX (TGZ)

check_mk_agent_2.5.0

Agent for Linux (DEB)

[check_mk_agent_2.5.0](#)

Agent for Linux (RPM)

check_mk_agent-2.5.0

Agent for Linux (TGZ)

check_mk_agent_2.5.0

Agent for Solaris (PKG)

check_mk_agent_2.5.0

Agent for Solaris (TGZ)

check_mk_agent_2.5.0

Agent for Windows (MSI)

check_mk_agent-2.5.0

Activate changes on the fly



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services

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changes



checkmk



Monitor



Customize



Setup

Main

Setup > Hosts > Main

Search in Setup



show more

2 pending changes



Hosts

Hosts

Host monitoring rules

Tags

Dynamic host management

Host groups

OpenTelemetry collector

(experimental)



General

Rule search

Global settings

Time periods

Passwords

Distributed monitoring



Maintenance

Backups

Activate changes

Mock-up

2 pending changes

Activate

Details



CMK_SRV_BER

Next Steps

