



Kerberos.io

KERBEROS AGENT

Technical info and benchmarks



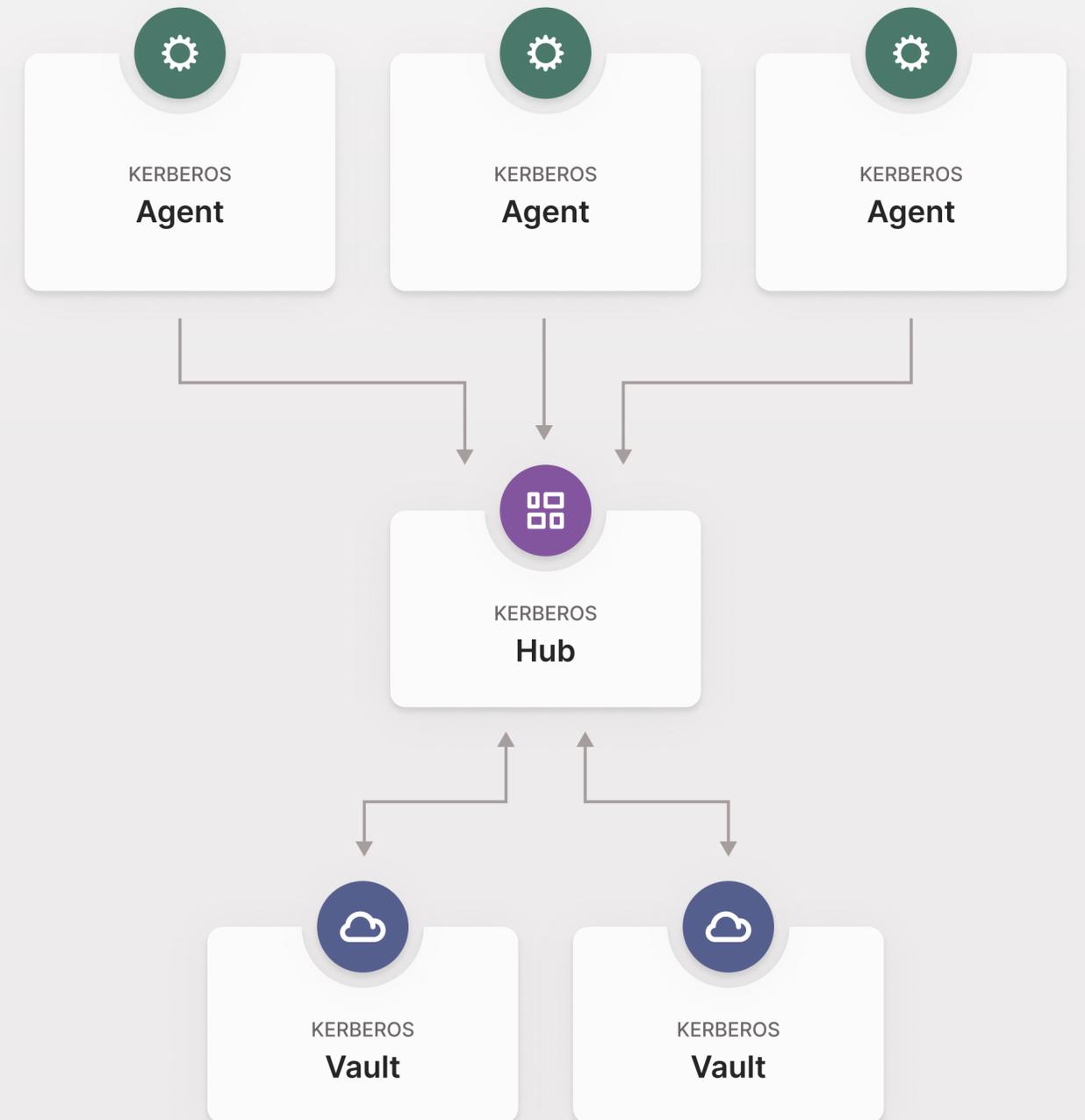


All-in-one Platform

Scalable, modular and extensible

Kerberos Agent, Kerberos Vault and Kerberos Hub are independent solutions that allow you to build a scalable video surveillance or video analytics solution.

Each solution can be installed on the infrastructure or network you prefer.





Kerberos Agent

Agents where you want for free

Kerberos Agents are installed where you want, on the hardware and/or container platform you prefer. No license fee is required to run Kerberos Agent or Kerberos Vault.

ON PREMISE

PRIVATE/PUBLIC CLOUD





Kerberos Agent

Technical information

A Kerberos Agent (KA) is running for each IP camera. So 500 cameras, means 500 KA.

A KA is shipped as a Docker container and binary, which you run on a bare metal machine, in a VM, inside a Kubernetes cluster(s), etc.

A KA connects to a RTSP (H264 or H264+ encoded) stream, and handles individual RTP blocks. Depending on the configuration, KA will perform motion detection or compile continuous recordings.

At the time of writing **we do not support other codecs then H264 or H264+**. So no H265 or MJPEG. We rely on H264 due to licensing, browser support and the ever growing community.





Kerberos Agent

Performance benchmark

A Kerberos Agent (KA) is a light-weight Golang binary, that utilises several of other Open Source libraries.

A KA doesn't do any encoding or decoding, because it relies on H264. This makes it possible to distribute livestreams and recorded MP4's easily over the web. However it can do transcoding for downscaling live streaming (lowering bandwidth), and motion detection.

When installing a Kubernetes cluster, some resources will need to be allocated for running the cluster.

At average a single CPU can process up to 10 agents, and will consume about 380MB memory maximum, and 400MB disk space.

GCP KA BENCHMARK (E2-MEDIUM: 2VCPU, 4GB RAM)

CPU **3 - 5%**

Memory **30-55MB**

Disk **30-60MB**



INTEL NUC NUC7PJYH (INTEL J5005 4CPU, 8GB RAM)

CPU **2 - 4%**

Memory **30-55MB**

Disk **30-60MB**



Kerberos Agent

Proof Of Concept

An example to demonstrate the scale. We have been running **30** IP cameras on a single **Intel NUC nuc7pjyh BGA 1090 1.5GHz j5005 UCFF**, (EUR 300-400) in continuous recording mode. The Intel NUC contains a Intel Pentium Silver CPU with 4 CORES, 8GB DDR RAM, and a 256GB SSD disk.

- 15 x **Hikvision DS-2DE4215IW-DE** (1920×1080, 25FPS)
- 15 x **Hikvision DS-2CD2143G0-IS** (1920×1080, 25FPS)





Kerberos Enterprise Agent

Proof Of Concept

The screenshot shows the Datadog interface with a sidebar on the left containing navigation options like Watchdog, Events, Dashboards, Infrastructure, Monitors, Metrics, Integrations, APM, Notebooks, Logs, Security, and UX Monitoring. The main area displays a list of containers under the heading 'Showing 1-20 of 20 matching containers, sorting is approximate'. The table below lists various container names, their CPU usage, RSS memory, and network activity.

NAME	CPU %	RSS MEMORY	TX	RX	STATUS	STARTED (AGO)
k8s_machinery-hikvision_machinery-hikvision-765...	1%	101 MB	158 kB	-	EXITED	1 hour
k8s_machinery-oprit_machinery-oprit-579d75976c...	2%	86 MB	183 kB	-	EXITED	52 minutes
k8s_machinery-ingarage_machinery-ingarage-546...	3%	81 MB	327 kB	-	EXITED	1 hour
k8s_machinery-hikvision-g_machinery-hikvision-g...	1%	66 MB	158 kB	-	EXITED	17 minutes
k8s_machinery-hikvision-c_machinery-hikvision-c...	1%	74 MB	158 kB	-	EXITED	19 minutes
k8s_machinery-hikvision-domed_machinery-hikvis...	8%	53 MB	258 kB	-	EXITED	24 minutes
k8s_machinery-hikvision-a_machinery-hikvision-a...	1%	65 MB	158 kB	-	EXITED	19 minutes
k8s_machinery-hikvision-b_machinery-hikvision-b...	1%	70 MB	158 kB	-	EXITED	19 minutes
k8s_machinery-hikvision-d_machinery-hikvision-d...	1%	68 MB	158 kB	-	EXITED	19 minutes
k8s_machinery-hikvision-f_machinery-hikvision-f...	1%	61 MB	158 kB	-	EXITED	17 minutes
k8s_machinery-hikvision-h_machinery-hikvision-h...	1%	64 MB	157 kB	-	EXITED	17 minutes
k8s_machinery-hikvision-e_machinery-hikvision-e...	1%	58 MB	158 kB	-	EXITED	19 minutes
k8s_machinery-hikvision-dome_machinery-hikvisi...	7%	57 MB	258 kB	-	EXITED	27 minutes
k8s_machinery-hikvision-domea_machinery-hikvis...	7%	54 MB	257 kB	-	EXITED	21 minutes

This screenshot shows a detailed view of a specific container: 'k8s_machinery-hikvision_machinery-hikvision-765bdf6977-dr76k_default_246de72c-4c4b-4494-8377-3676b36f737e_0'. It includes metadata such as the host ('kubernetes-NUC7PJYH') and container image ('kerberos/enterprise-machinery'). Below this, there are tabs for 'Resource Metrics', 'Logs', 'Traces', and 'Network'. The 'Resource Metrics' tab is active, showing two line graphs: 'Total CPU %' with an average of 0.8% and 'RSS Memory' with an average of 96.8 MiB. A third graph shows 'User CPU %' with an average of 0.6%, and a fourth shows 'System CPU %' with an average of 0.2%. A tooltip for the System CPU graph at 10:50:55 indicates a value of 0.13%.



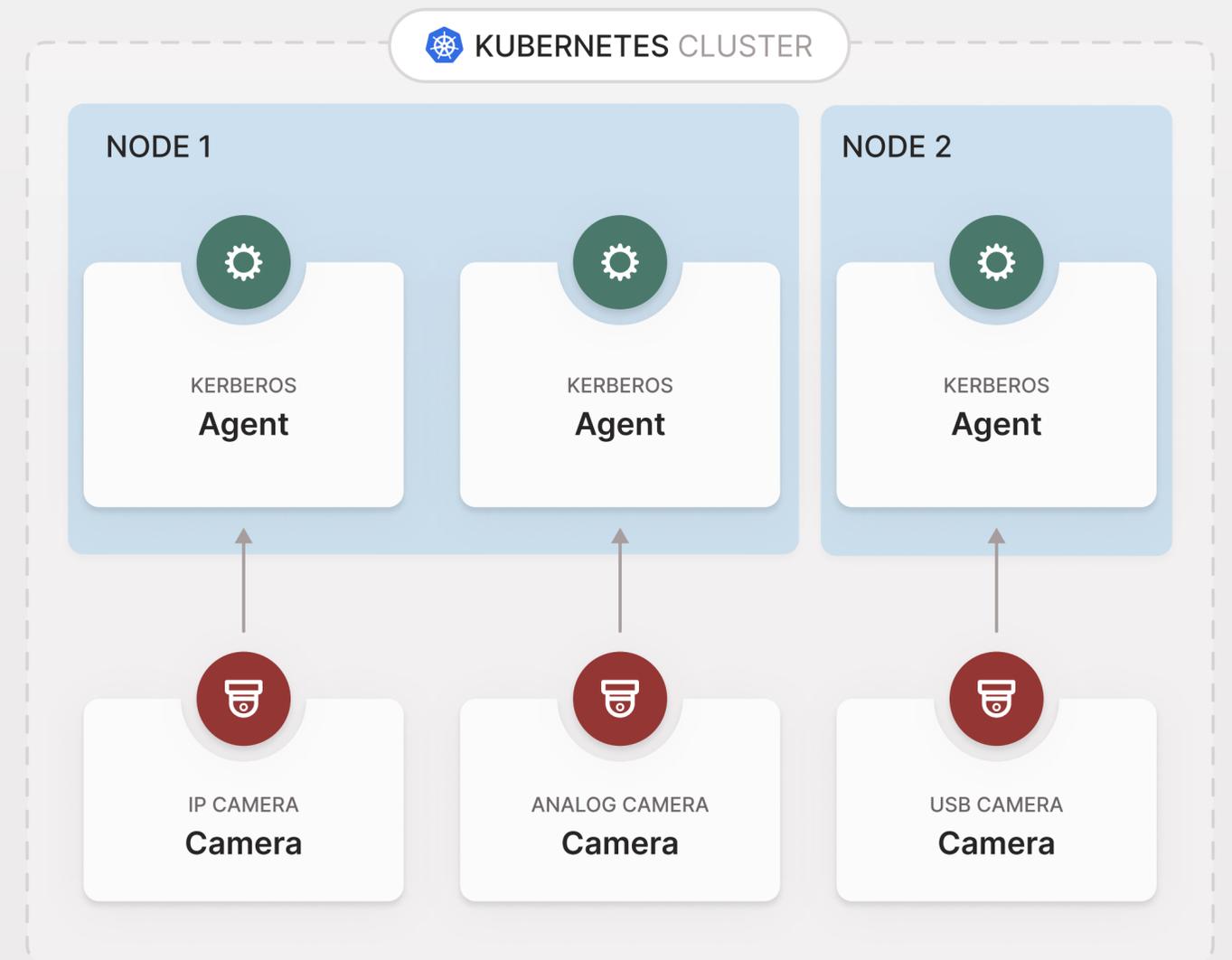
Kerberos Agent

Scalability and high availability

A Kerberos Agent (KA) is running inside a Kubernetes cluster and therefore can scale horizontal and vertical.

Vertical scaling allows you to add more memory, disk space or computing power (CPU) to a node. This will allow you to run more KA on a single node.

When vertical scaling is too difficult or you need better high availability or fail over, then you can add multiple nodes to your Kubernetes cluster.





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KERBEROS COMMUNITY

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