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Zabbix: current state and the future

Alexei Vladishev

CEO & Founder, Zabbix, Latvia

Is my business up and running?

Aerospace

Education

Banking

Retail

Chemicals

Government

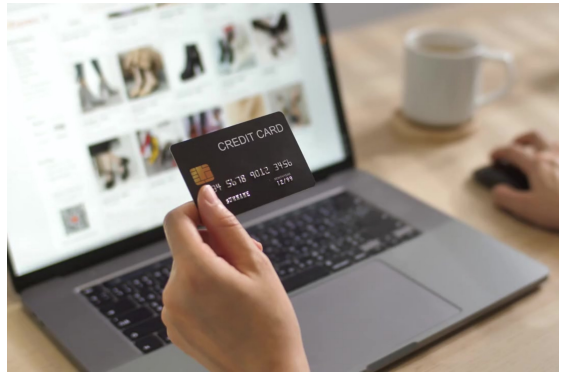
Healthcare

Finance

Telcos

IT

Marketing



Transcation processing, payments

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We help businesses deliver flawless services for a better world and happier people

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ZABBIX

A Universal Free and Open Source Enterprise-level Monitoring Solution

Single pane of glass

IT & OT

An ultimate monitoring and observability solution

Extremely adoptable for all possible use cases

Lowest TCO

Superb visualization and reporting

Built-in ML and AI for anomaly detection and operations

Highly scalable (downscaling and upscaling)

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Strategy

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Staying Open Source

Inclusive solution

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ON-PREMISE

IN THE CLOUD

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Sustainability

Long-term thinking

24X7 PROFESSIONAL SERVICES FOR END-USERS AND MSPS

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TECHNICAL SUPPORT
Get technical advice

Get instant access to a team of Zabbix experts for guaranteed professional support 24x7

INTEGRATION
Expand your workflow

Interconnect Zabbix with your ticketing system, servicedesk or any other tool you might have

CONSULTING
Talk to experts

Gain benefit from expert advice and best practices for all Zabbix-related matters

DEVELOPMENT
Enhance Zabbix

Hire Zabbix to develop additional features for your business needs

TEMPLATE BUILDING
Customize monitoring

Effortlessly start monitoring of your specific device, system, application or service

PROFESSIONAL TRAINING
Obtain knowledge

Focused comprehensive training for all your Zabbix needs in 5 days, in many local languages

REMOTE TROUBLESHOOTING
Quickly get a solution

Eliminate any issues you have run into within hours, not days or weeks. Fix your system correctly, accurately

TURN-KEY SOLUTION
Deploy professionally

Install and configure Zabbix according to your specific requirements

UPGRADE
Use the latest version

Eliminate the risk and minimize downtime by upgrading with the Zabbix team

STEADY GROWTH

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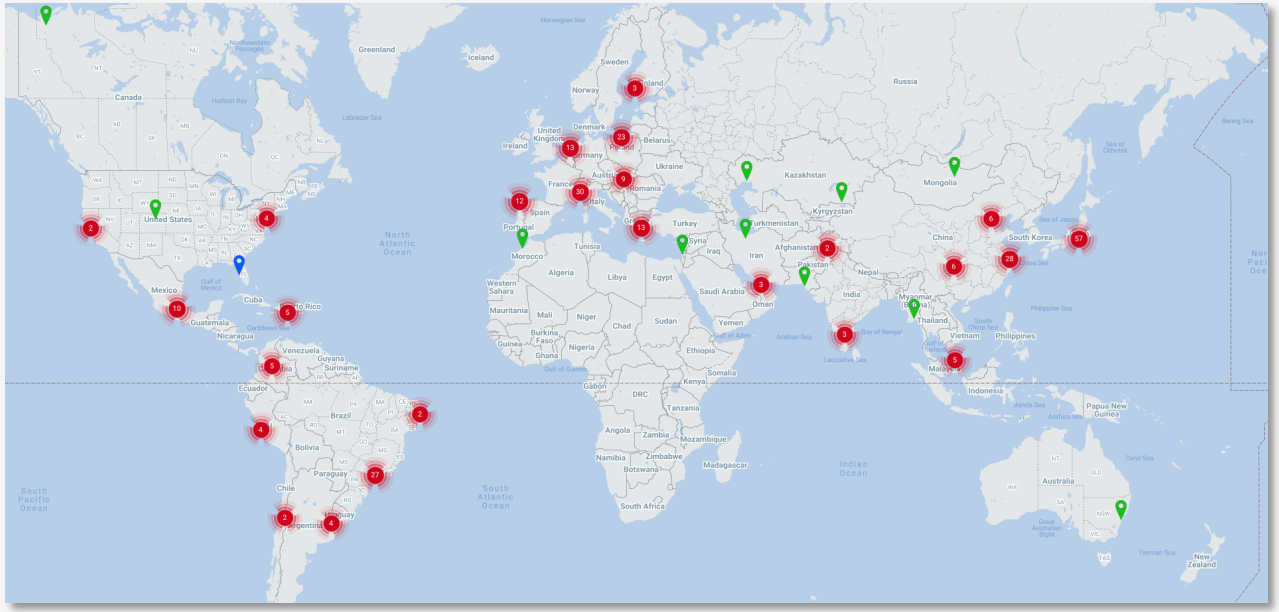
150+ Zabbix Team members



250+ Partners around the World

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All-in-one platform

One product to cover it all

Collect ⇢ Analyze ⇢ React & Visualize

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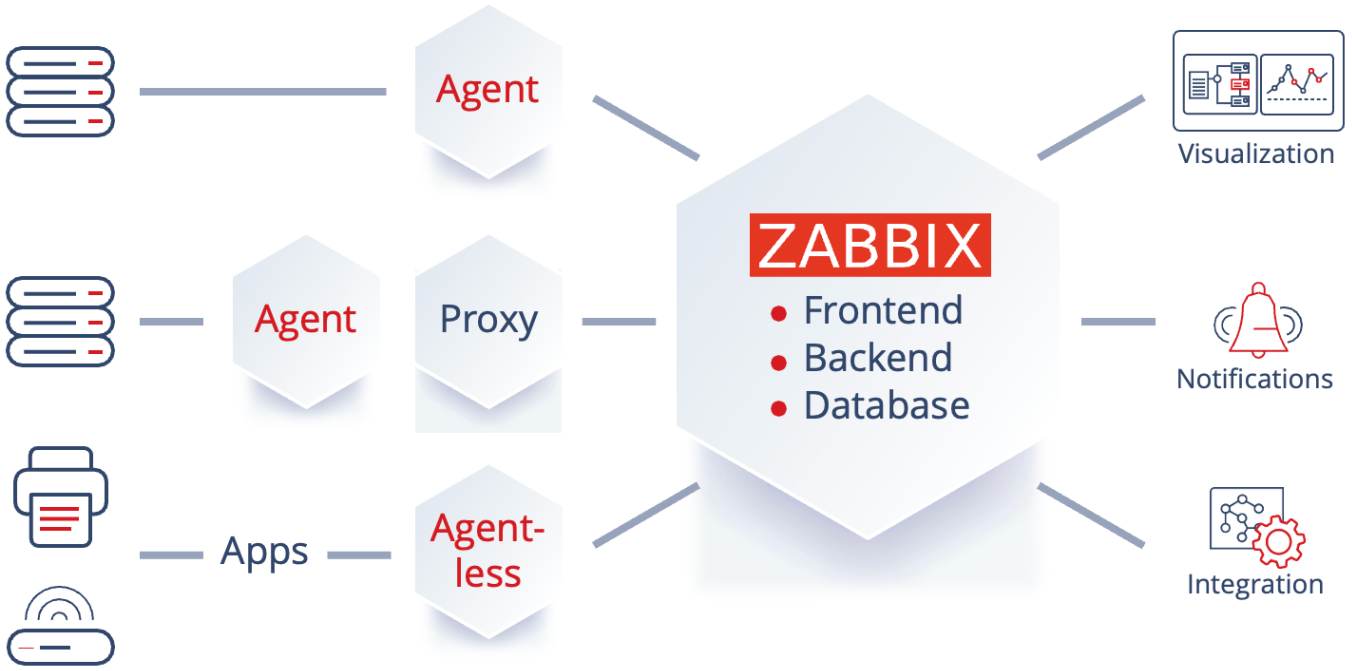

High quality data, also for AIOps

Proxies for DM and Edge computing

API for automation and integrations

Auto-remediation

Anomaly detection

ALL LEVELS: FROM INFRASTRUCTURE TO BUSINESS

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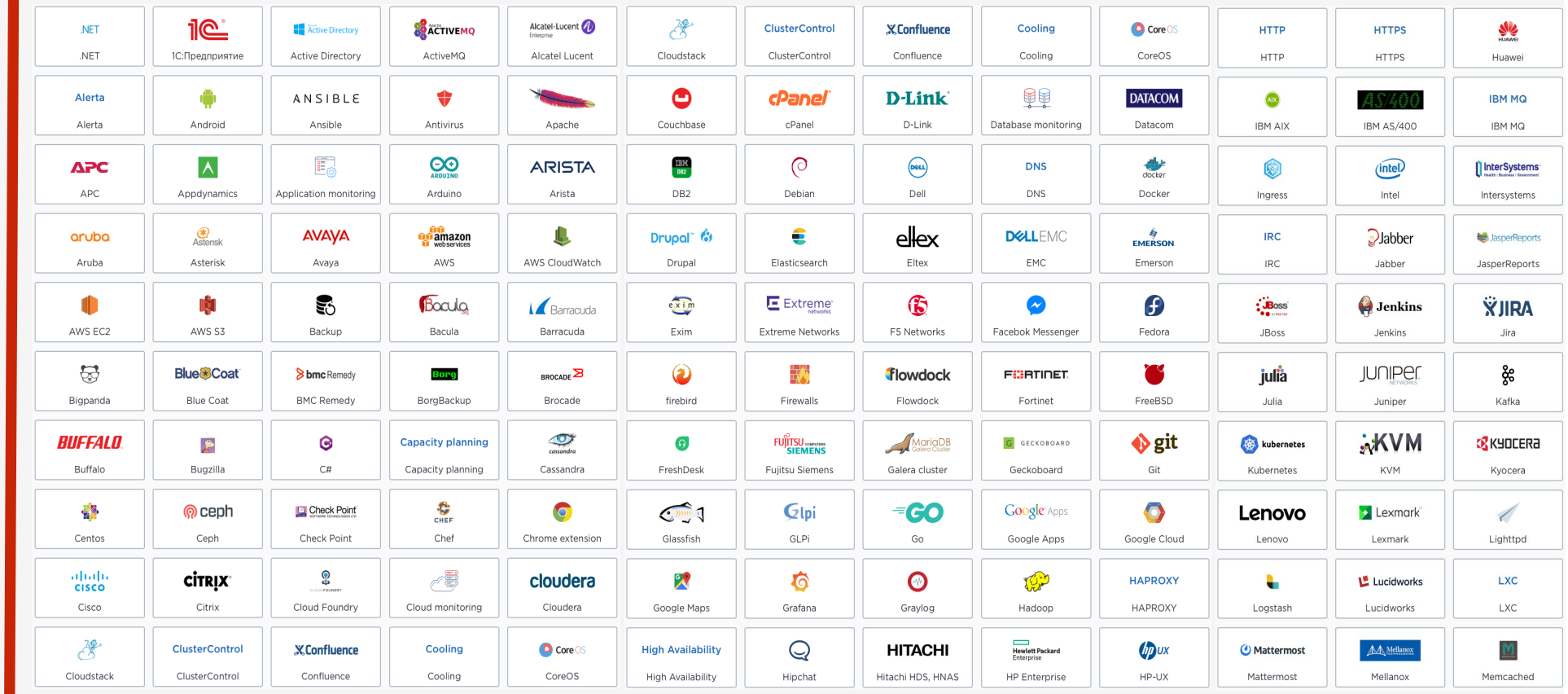
IT & OT
Business services
SLA/SLI
Synthetic
Cloud
K8S
OpenShift
Containers
APIs
WEB
User experience
Applications
Processes
OS
Environment
Hardware
Industrial
Network devices
IoT and sensor data



zabbix.com/integrations

OUT OF THE BOX MONITORING AND INTEGRATIONS

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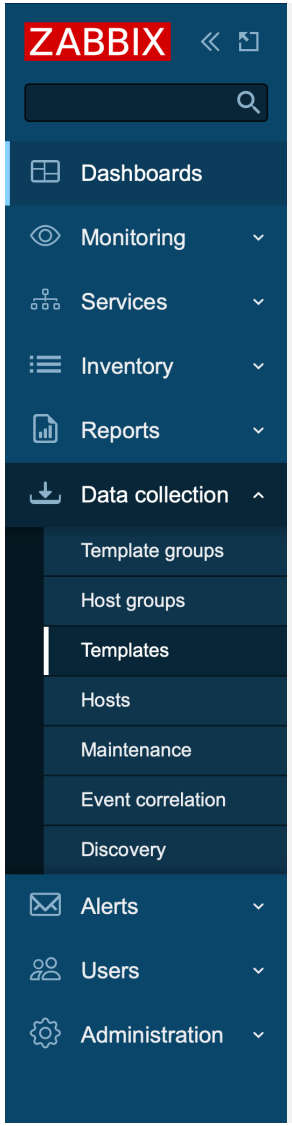

Also cost explorer templates for Cloud providers!

- AWS
- Microsoft Azure
- Google Cloud
- OpenShift
- Kubernetes
- Ansible
- Docker
- VMware

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Quality and security

Top priority

HIGHEST SECURITY STANDARDS

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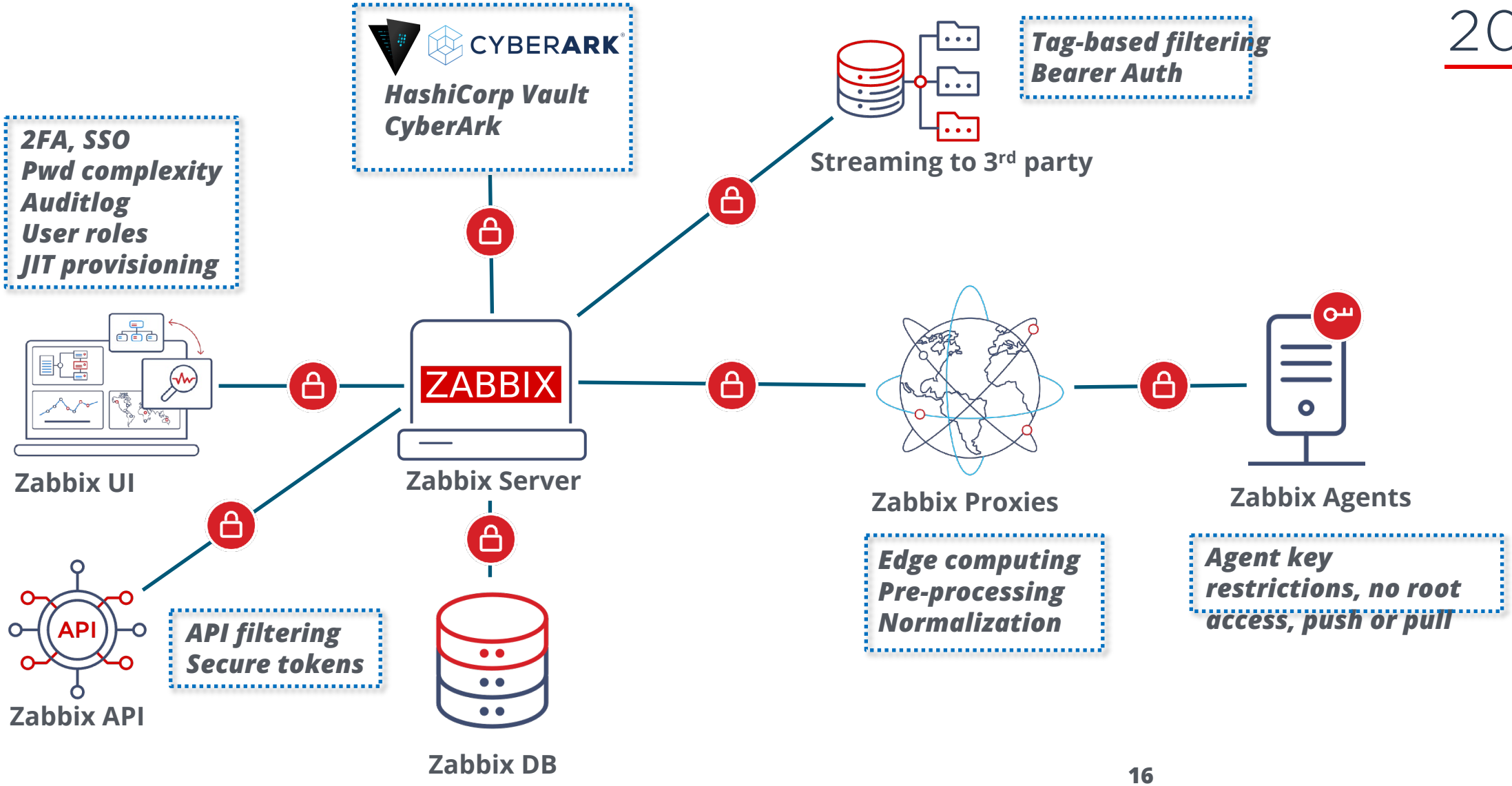

VERIFIED BY INDEPENDENT RESEARCHERS

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ISO 27001

Bounties paid in 2023: $16K

Zabbix ID	CVE number	CVSS score	Zabbix severity	Synopsis
ZBV-2023-07-27-9	CVE-2023-29458	5.9	Medium	Duktape 2.6 bug crashes JavaScript putting too many values in valstack.
ZBV-2023-07-27-8	CVE-2023-29457	6.3	Medium	Insufficient validation of Action form input fields
ZBV-2023-07-27-7	CVE-2023-29456	5.7	Medium	Inefficient URL schema validation
ZBV-2023-07-27-6	CVE-2023-29455	5.4	Medium	Reflected XSS in several fields of graph form
ZBV-2023-07-27-5	CVE-2023-29454	5.4	Medium	Persistent XSS in the user form

Security Advisories and CVE database

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Single pane of glass

Total visibility and transparency

VISUALIZATION AND REPORTING

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Zabbix 7.0 LTS

All widgets for host and global dashboards and reporting

Stable framework for widget devs

New set of advanced widgets

Dynamic dashboards for drill down and specific use cases

NEW WIDGETS FOR REAL-TIME AND REPORTING

ZABBIX SUMMIT 2023

Core widgets

Pie and donut charts

Gauge charts

Reporting

Capacity reports

Management reports

Widgets navigators

Host navigator

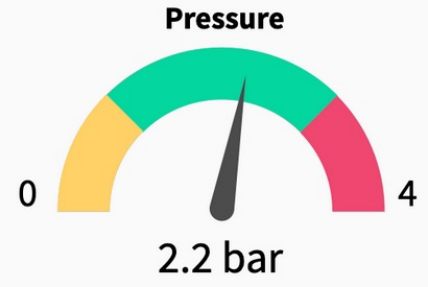
Item navigator

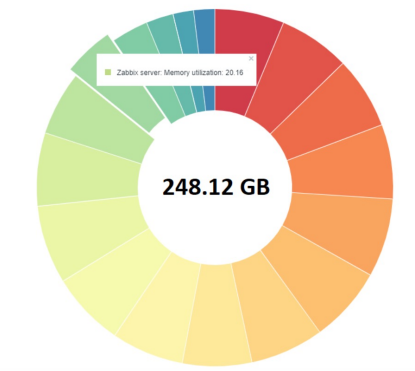
Advanced visualization

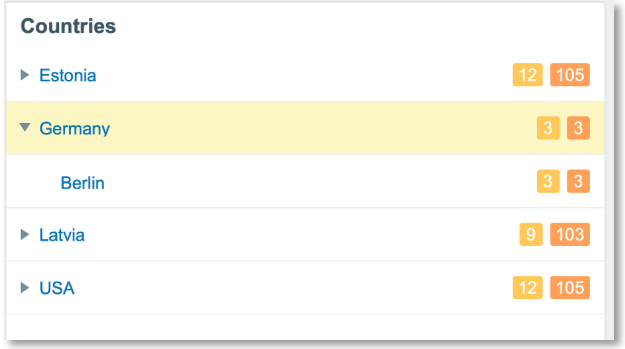
Honeycombs

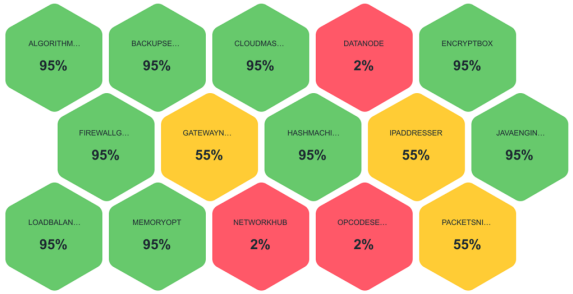
Service trees

Topology









SYNTHETIC MONITORING

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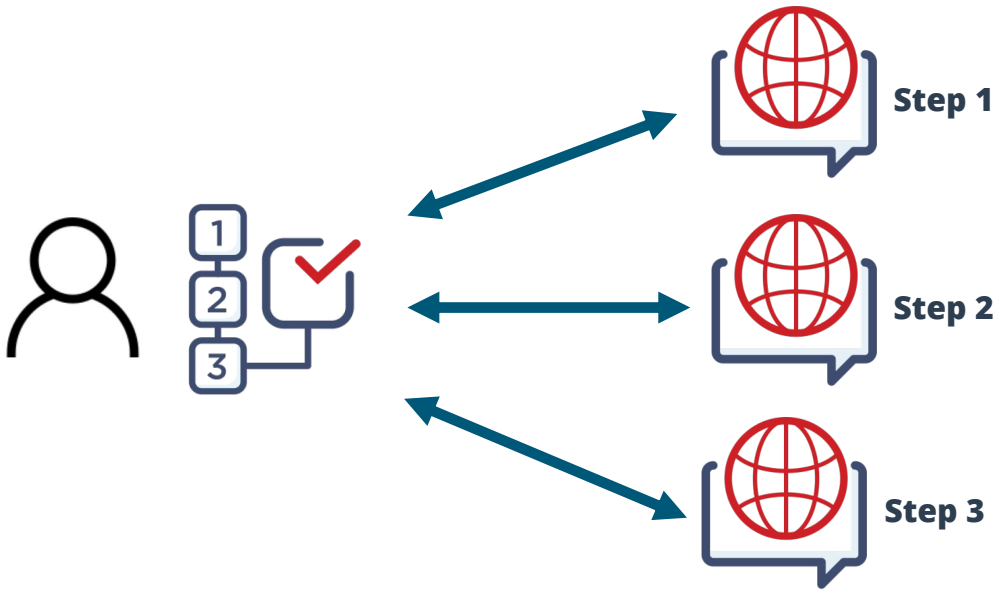
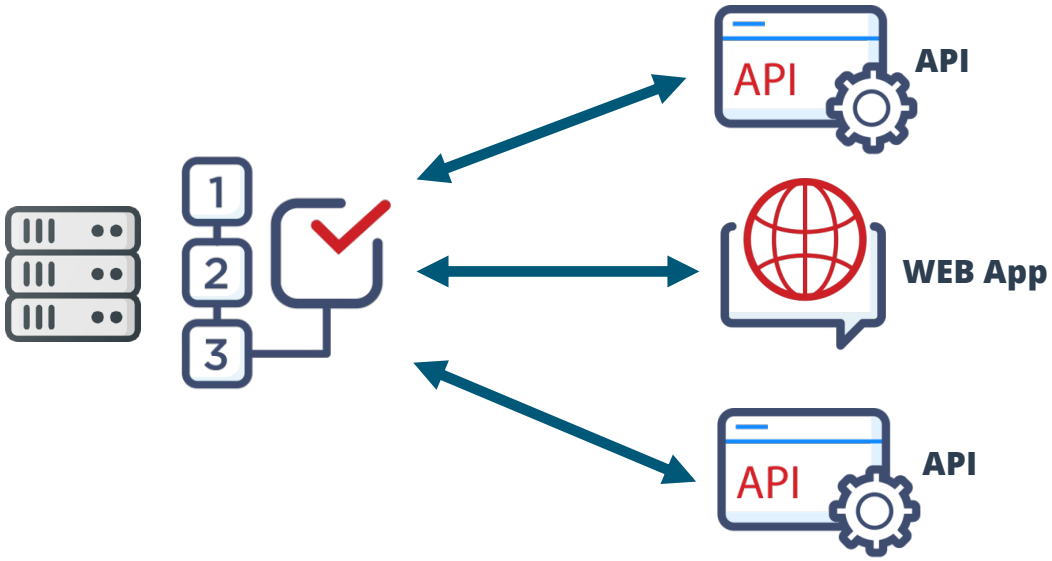


Monitoring user experience

End-user experience monitoring for WEB apps

Business scenario monitoring



Executing multi-step checks

Complex interaction with Cloud APIs over HTTPS

Advanced availability checks

Business scenario monitoring

SINGLE PANE OF GLASS

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Dashboards

Scheduled PDF reporting

Business Service Monitoring (BSM)

User Roles

Metric processing

Data processing

APM and tracing functionality

OpenTelemetry

Topology data

Processing of streaming data

Tracing, events, logs, binary

Visualization and reporting

Visualization of complex data: tracing, flows, etc

Widgets for advanced visualization

Massive usability improvements of Zabbix UI

Custom UI for any use case

Framework for widget development

Zabbix 6.0 LTS **Zabbix 7.0 LTS** **Zabbix 8.0 LTS**

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Reducing operating costs

It is not only about performance!

PERFORMANCE: TRANSITION TO ASYNC AND THREADS

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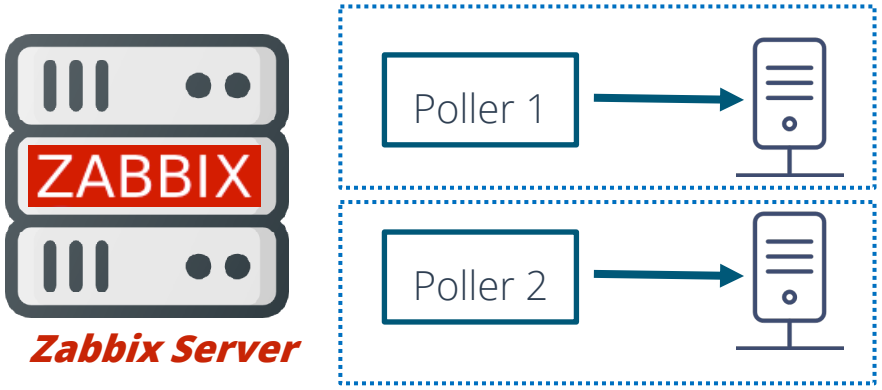
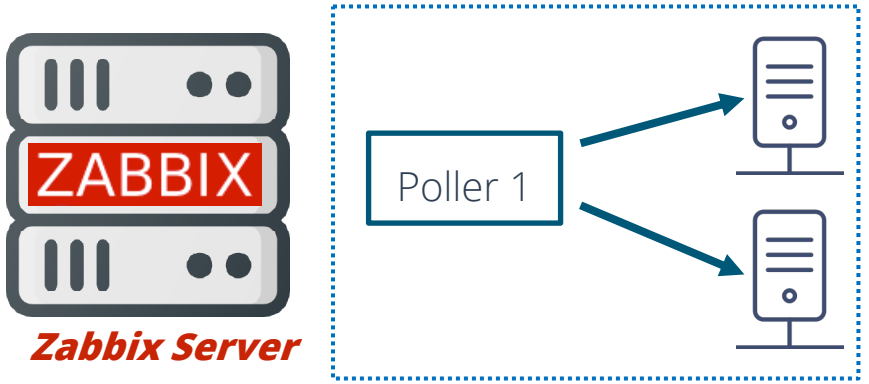
Now



One connection per poller

7.0 LTS



Thousands of connections per poller

One poller/discoverer to handle thousands of connections

Much lower resource usage thus lower cost and energy use

Enables auto-scaling in the future

PERFORMANCE: FASTER FRONT-END FOR LARGE SCALE

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Now

Super admin

0.2s

User

2-3s (too much!)

7.0 LTS

0.2s

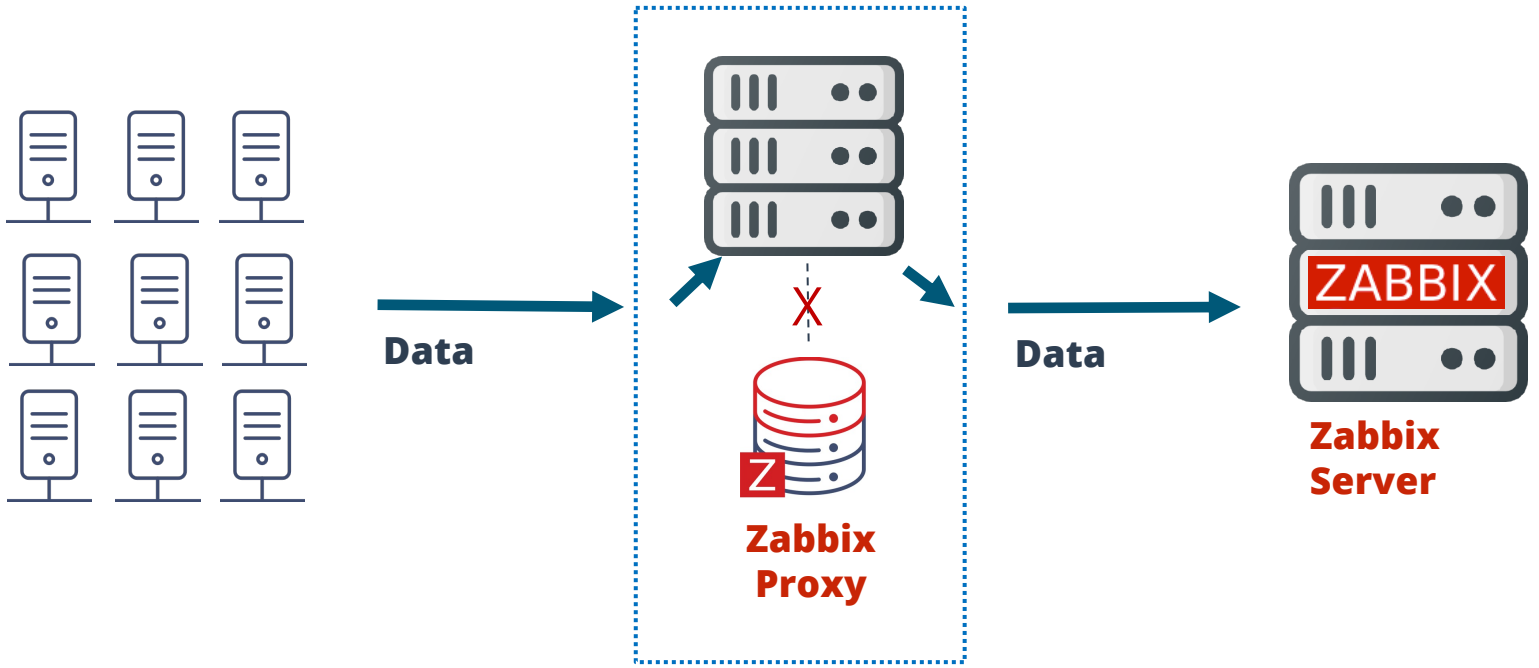
Super admin

0.2-0.3s

User

10x faster permission checks for non-superadmins

IN-MEMORY DATA COLLECTION MODE FOR PROXIES



- Less IOPS
- Faster
- Cheaper
- Less energy

INSTANT CONFIGURATION UPDATE

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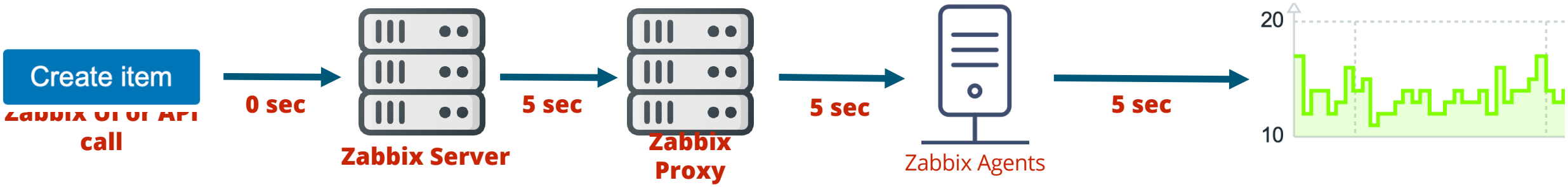
Incremental updates of configuration changes

New items are now checked within a minute after creation

Extreme responsiveness!



CENTRALISED MANAGEMENT OF ITEM TIMEOUTS

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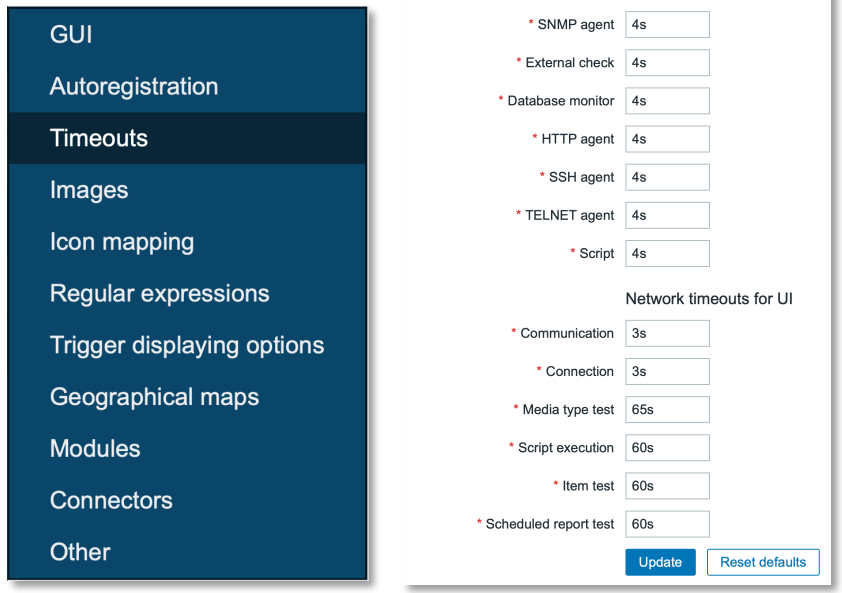
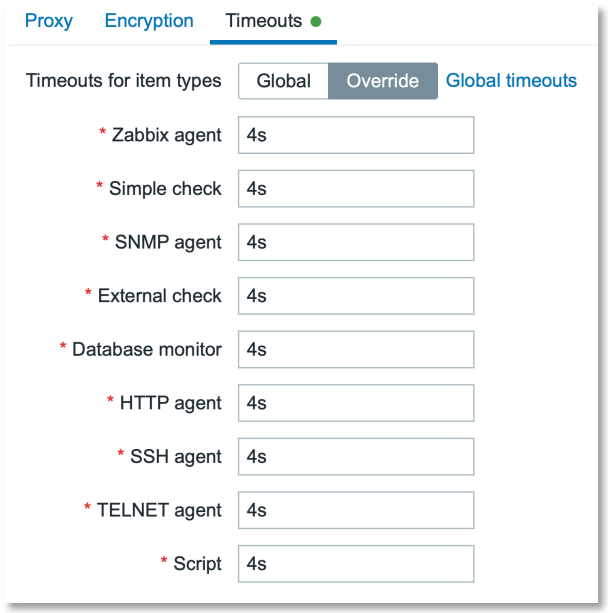
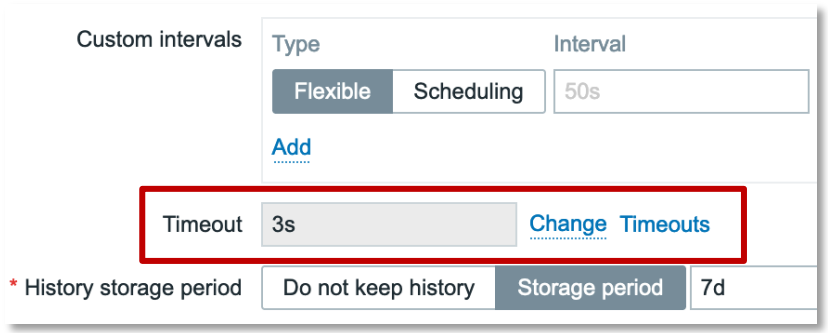




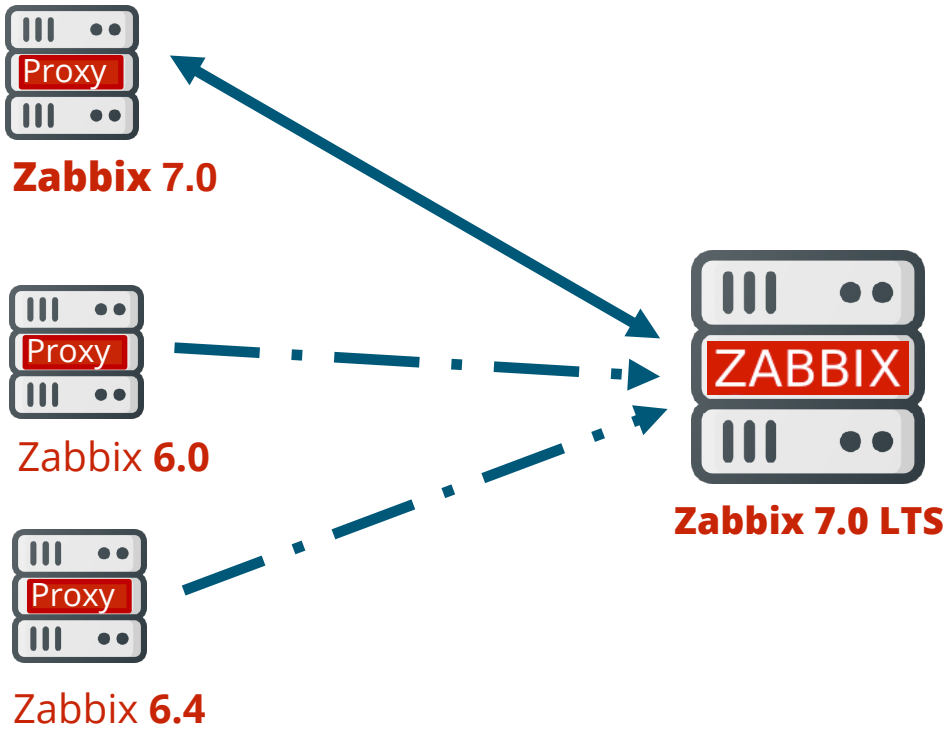


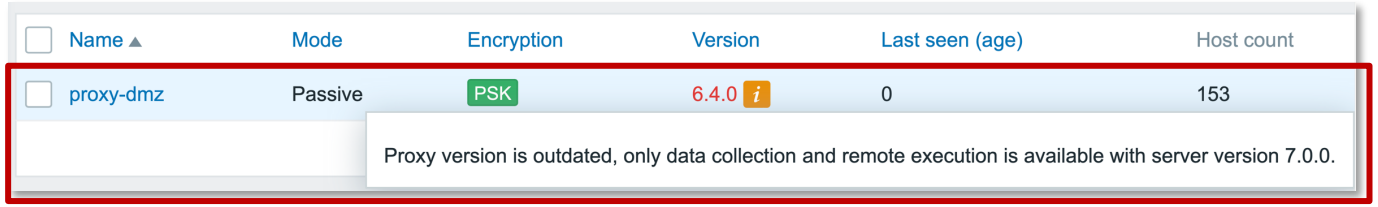
Global **Proxy** **Item**

Global, Proxy and Item level timeouts managed from Zabbix UI

More secure: no need to deal with *.conf

ZERO-DOWNTIME UPGRADE OF PROXIES





Zabbix 6.4:

Older proxies will continue to process data

Creates a longer time window for upgrade

Observe versions of your proxies in UI

REDUCING OPERATING COSTS

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Network discovery

Auto-registration

Low level discovery (LLD)

JIT user provisioning

and much more!

Reduce maintenance costs

Zero-downtime upgrade of proxies

Template versioning

Automatic up/down-scaling

Centralized management and SSO

A gentle learning curve, better UI/UX

Performance

Transition to threads

Perfect vertical and horizontal scalability

More efficient history storage engine

Lower HW (CPU, memory, storage) requirements

Zabbix 6.0 LTS → **Zabbix 7.0 LTS** → **Zabbix 8.0 LTS**

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Complex event processing

Root cause analysis and noise reduction

THE CONCEPT OF CAUSE AND SYMPTOM EVENTS

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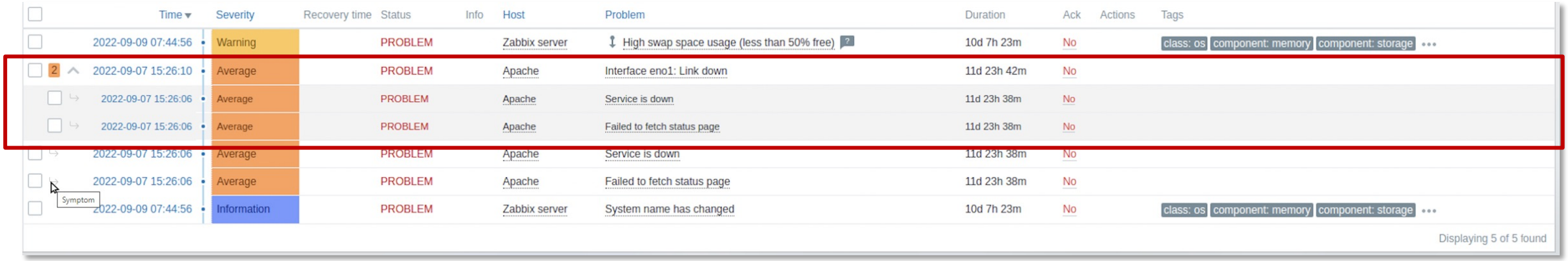


	Time	Severity	Recovery time	Status	Info	Host	Problem	Duration	Ack	Actions	Tags
	2022-09-09 07:44:56	Warning		PROBLEM		Zabbix server	High swap space usage (less than 50% free)	10d 7h 23m	No		class: os component: memory component: storage •••
2	2022-09-07 15:26:10	Average		PROBLEM		Apache	Interface eno1: Link down	11d 23h 42m	No		
	2022-09-07 15:26:06	Average		PROBLEM		Apache	Service is down	11d 23h 38m	No		
	2022-09-07 15:26:06	Average		PROBLEM		Apache	Failed to fetch status page	11d 23h 38m	No		
	2022-09-07 15:26:06	Average		PROBLEM		Apache	Service is down	11d 23h 38m	No		
	2022-09-07 15:26:06	Average		PROBLEM		Apache	Failed to fetch status page	11d 23h 38m	No		
	2022-09-09 07:44:56	Information		PROBLEM		Zabbix server	System name has changed	10d 7h 23m	No		class: os component: memory component: storage •••

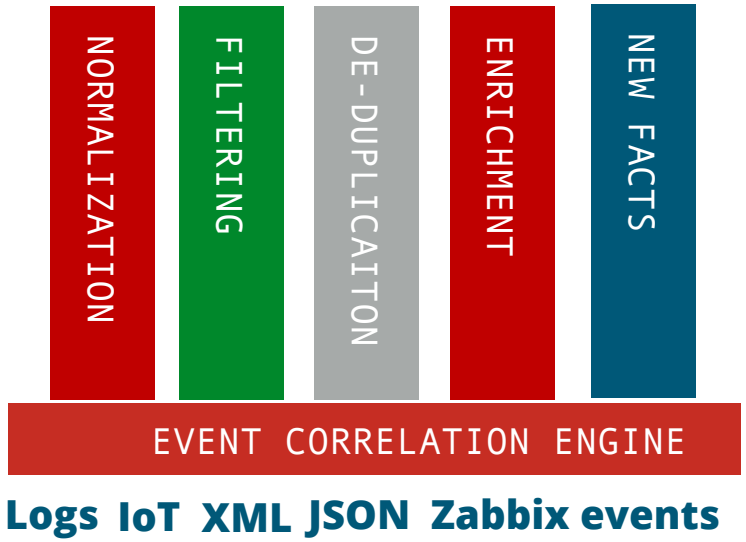
Symptom

Displaying 5 of 5 found

Classification of events: cause and symptom

Manual root-cause analysis

ADVANCED EVENT CORRELATION



Normalization and noise reduction

Tag based event pre-processing

Time window filtering & de-duplication

Generation of new facts

Event correlation

Automatic classification of events

Root-cause analysis

Time and topology-based correlation

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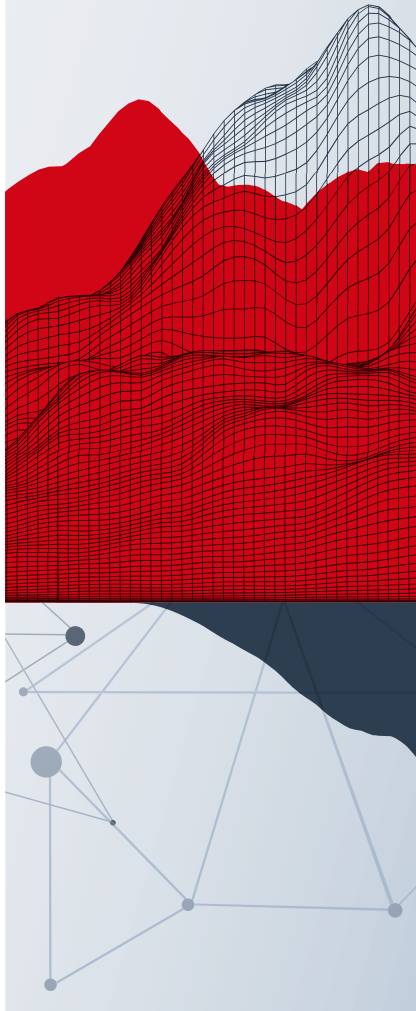

COMPLEX EVENT PROCESSING (CEP)

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Basic event correlation

Cause and symptom events

Event correlation engine

Automatic root cause analysis

Event collection

Log management

Correlation based on topology data

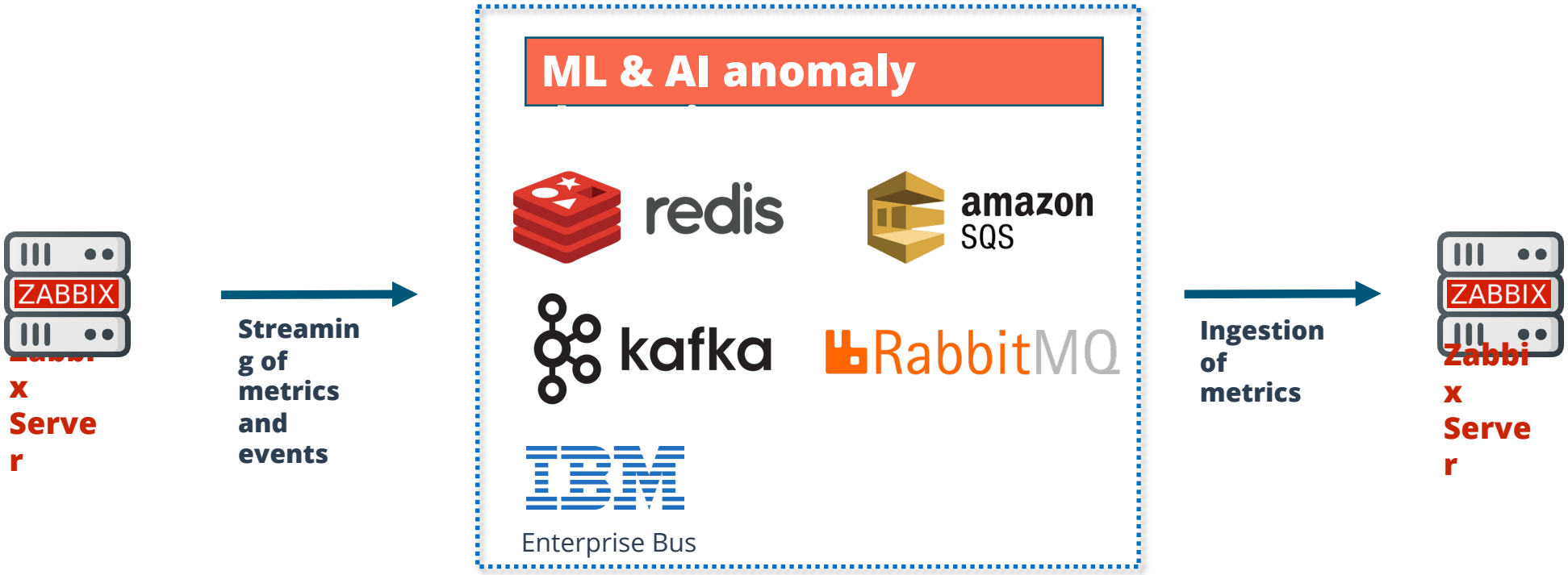
Use of generative AI and ML for correlations

Collection of 3rd party events

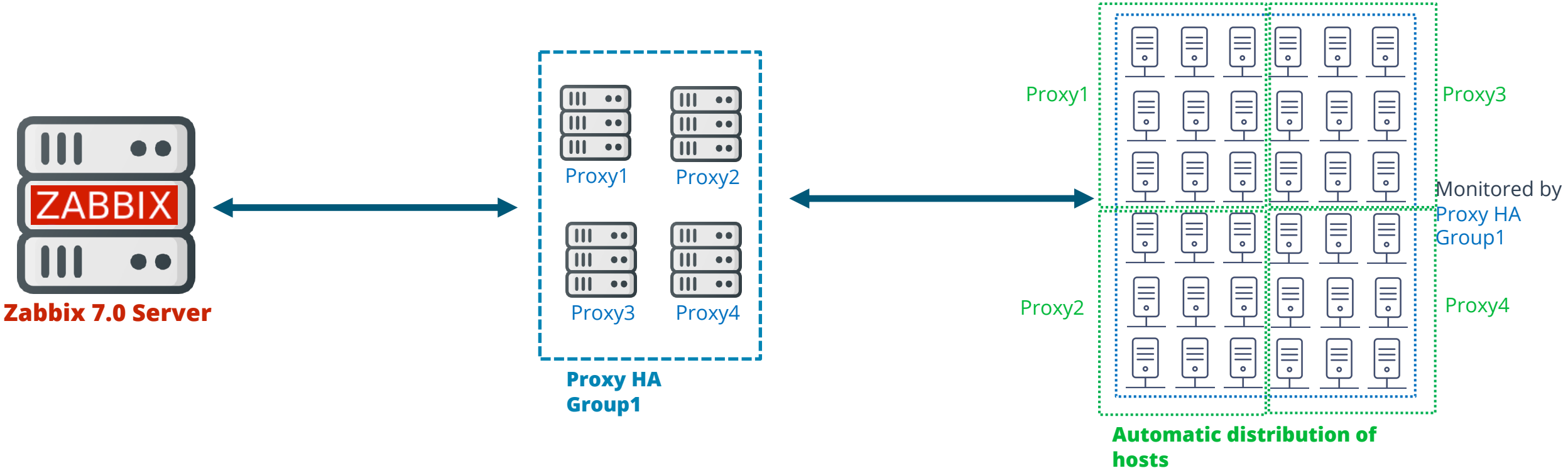
Zabbix 6.0 LTS — **Zabbix 7.0 LTS** — **Zabbix 8.0 LTS**

REAL-TIME DATA STREAMING AND INGESTION

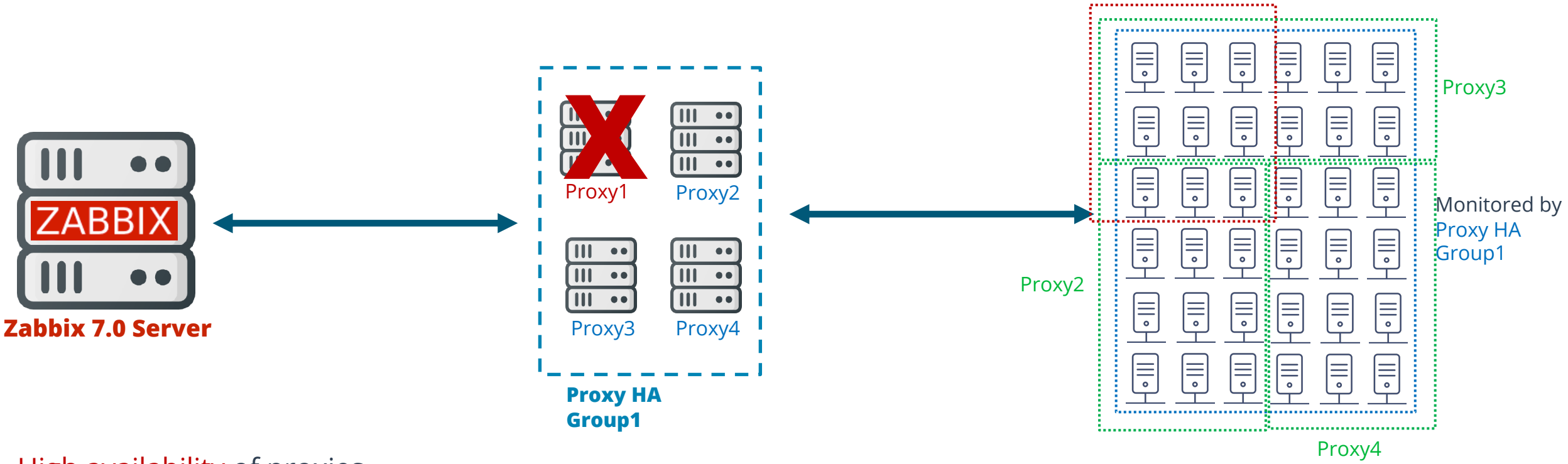
Connectors and webooks for real-time streaming and ingestion of metrics and events



PROXY LOAD BALANCING AND HA



PROXY LOAD BALANCING AND HA



High availability of proxies

Load balancing: automatic distribution of hosts accross group of proxies

Auto-scaling of proxies in K8S environment

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Extremely adoptable

Solution for any use case

MORE WAYS TO ADOPT AND EXTEND

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Agent plugins, scripts

GUI
Autoregistration
Timeouts
Images
Icon mapping
Regular expressions
Trigger displaying options
Geographical maps
Modules
Connectors
Other

UI modules

1: CSV to JSON
2: JSONPath
3: Regular expression

Pre-processing

* Name Kafka
Protocol Zabbix Streaming Protocol v1.0
Data type Item values Events
* URL https://kafka.local/v1.0/

Streaming data and events

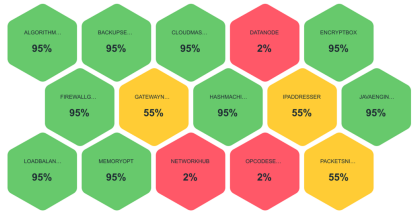
Scope Action operation Manual host action Manual event action
Type Webhook Script SSH Telnet IPMI

Scripts, manual and automatic actions

Media type Message templates 5 Options
* Name Jira
Type Webhook

Webhooks

Custom UI

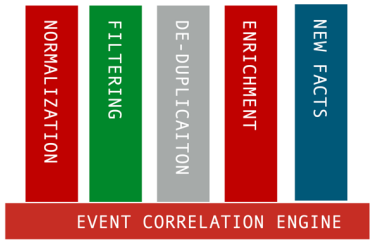


Framework for widgets dev

Process any data types: events, tracing, logs, binary

* Name Kafka
Protocol Zabbix Streaming Protocol v1.0
Data type Item values Events

Data ingestion



Zabbix 6.0 LTS

Zabbix 7.0 LTS

Zabbix 8.0 LTS

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7.0 LTS

- Dynamic dashboards
- Data ingestion
- Event correlation engine
- Synthetic monitoring
- Proxy load balancing

7.x

- Next generation visualization
- Advanced event correlation
- OpenTelemetry and tracing
- Custom inventory
- Custom UI

8.0 LTS

- Ultimate observability platform
- APM and compliance monitoring
- Event and Log management
- Use of AI and ML for advanced anomaly detection and operations
- Management functions

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Thank you!

Alexei Vladishev

Founder, CEO