



**SUMMIT
ONLINE / 2021**

ZABBIX 6.0 LTS – THE NEXT GREAT LEAP IN MONITORING

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MY TALK

- ✓ Infrastructure monitoring **challenges**
- ✓ How Zabbix **universal** monitoring solution can help?
- ✓ Strategic directions of product development



Digital transformation journey

DIGITAL TRANSFORMATION CHALLENGES

- ✓ Management of legacy and existing systems, mix of older and newer technologies and protocols
- ✓ Transition to Hybrid Clouds, K8S and OpenShift
- ✓ Scalability and HA
- ✓ Security plays an increasingly important role
- ✓ Budget concerns



Infrastructure monitoring challenges

INFRASTRUCTURE MONITORING CHALLENGES

- ✓ Scalability and high availability
 - ✓ Growing number of devices, networks, increasing complexity
- ✓ The Multiple Tools Problem
 - ✓ Missing Single Pane of glass
- ✓ Getting more value out of collected data
- ✓ Centralized visualisation and reporting
- ✓ ROI (return on investment)



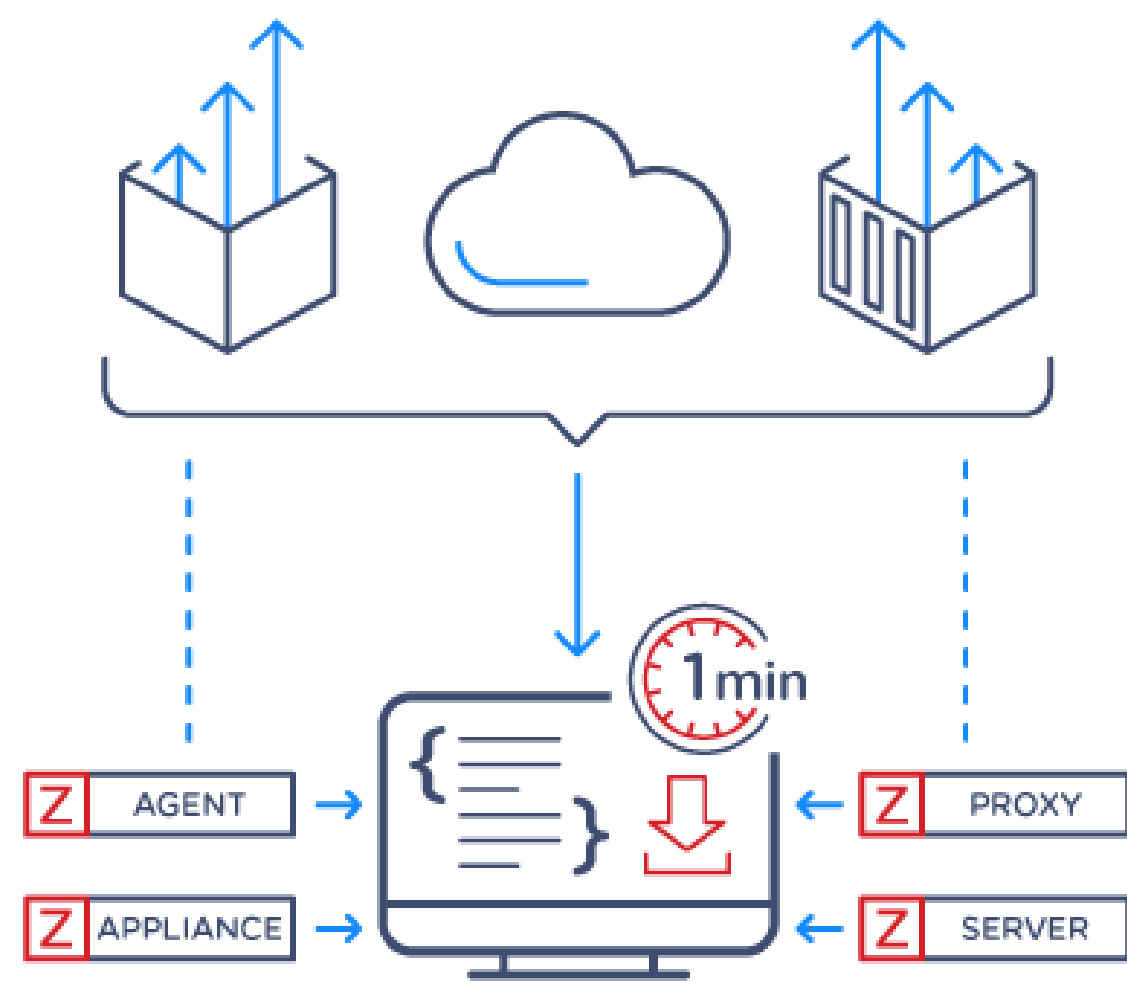
Zabbix is an **Universal** Open Source
enterprise-level monitoring solution

All enterprise grade features at no
cost!

COST EFFECTIVENESS

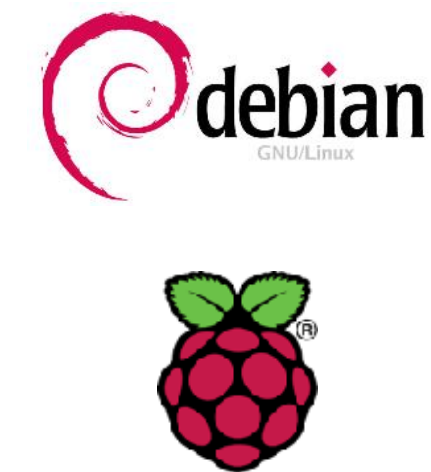
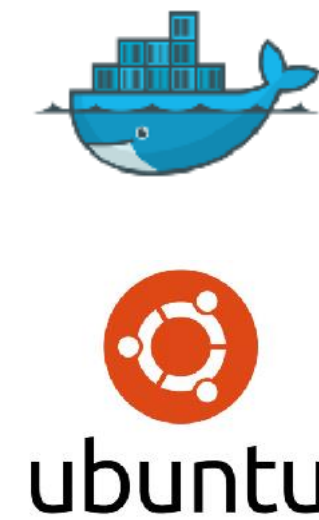
- ✓ Exceptionally low TCO (Total Cost of Ownership)
 - ✓ Free and Open Source high quality product
 - ✓ Backed by reliable vendor and commercial services
 - ✓ No limits
 - ✓ Free access to all information: documentation, HOWTOs, community resources
 - ✓ Zabbix engineers are relatively easy to hire
- ✓ Cost is fully under control: fixed price support agreements, trainings





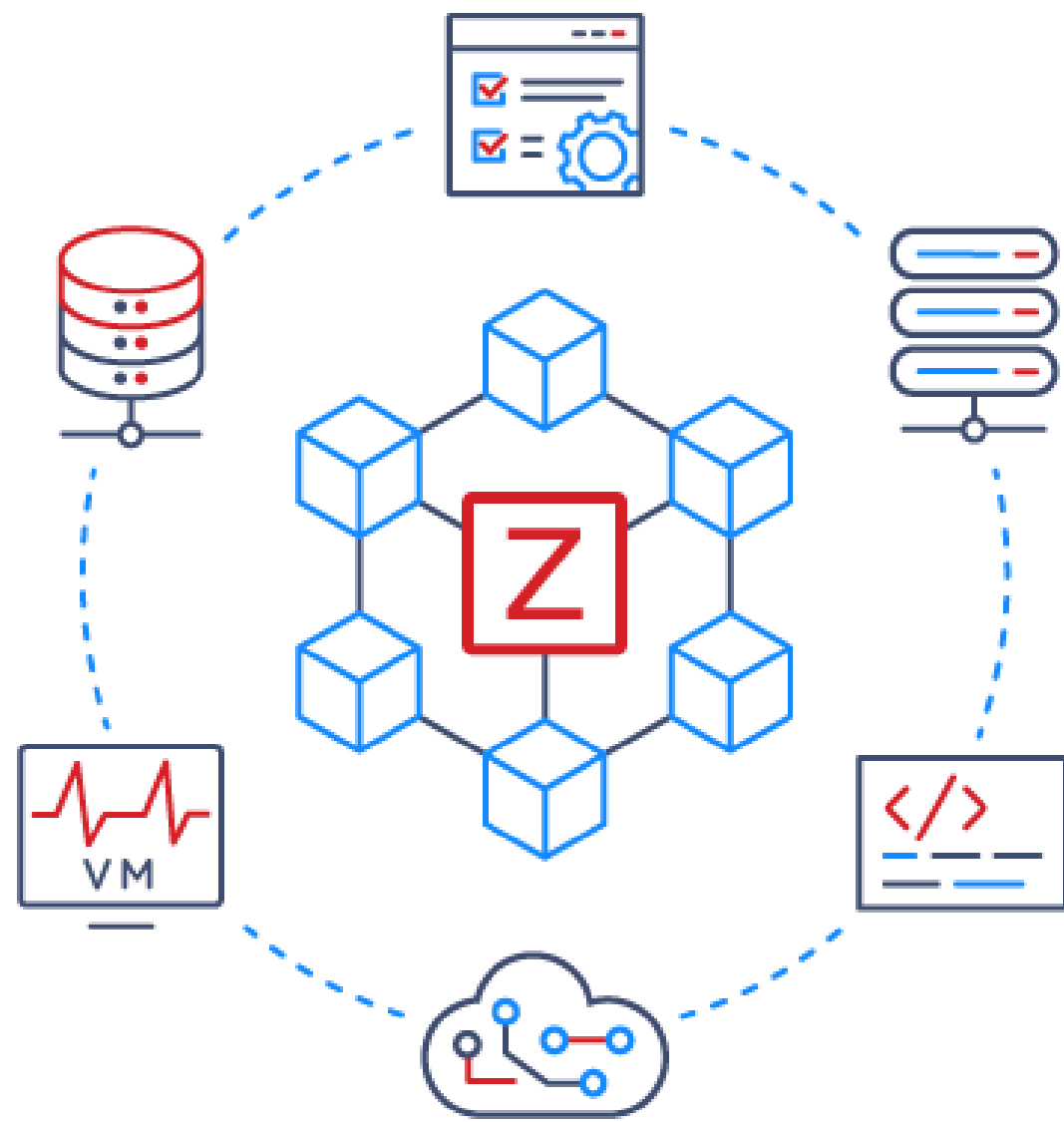
Deploy anywhere

DEPLOY ON-PREMISE



DEPLOY IN THE CLOUD







































































































































Monitor **anything**

Legacy and modern systems, ready for the future

SOLUTIONS FOR MONITORING

 .NET	 1C:Предприятие	 Active Directory	 ActiveMQ	 Alcatel Lucent	 Cloudstack	 ClusterControl	 Confluence	 Cooling	 CoreOS	 HTTP	 HTTPS	 Huawei
 Alerta	 Android	 Ansible	 Antivirus	 Apache	 Couchbase	 cPanel	 D-Link	 Database monitoring	 Datacom	 IBM AIX	 IBM AS/400	 IBM MQ
 APC	 Appdynamics	 Application monitoring	 Arduino	 Arista	 DB2	 Debian	 Dell	 DNS	 Docker	 Ingress	 Intel	 InterSystems
 Aruba	 Asterisk	 Avaya	 AWS	 AWS CloudWatch	 Drupal	 Elasticsearch	 Eltex	 EMC	 Emerson	 IRC	 Jabber	 JasperReports
 AWS EC2	 AWS S3	 Backup	 Bacula	 Barracuda	 Exim	 Extreme Networks	 F5 Networks	 Facebook Messenger	 Fedora	 JBoss	 Jenkins	 Jira
 Bigpanda	 Blue Coat	 BMC Remedy	 BorgBackup	 Brocade	 firebird	 Firewalls	 Flowdock	 Fortinet	 FreeBSD	 Julia	 Juniper	 Kafka
 Buffalo	 Bugzilla	 C#	 Capacity planning	 Cassandra	 FreshDesk	 Fujitsu Siemens	 Galera cluster	 Geckoboard	 Git	 Kubernetes	 KVM	 Kyocera
 Centos	 Ceph	 Check Point	 Chef	 Chrome extension	 Glassfish	 GLPi	 Go	 Google Apps	 Google Cloud	 Lenovo	 Lexmark	 Lighttpd
 Cisco	 Citrix	 Cloud Foundry	 Cloud monitoring	 Cloudera	 Google Maps	 Grafana	 Graylog	 Hadoop	 HAProxy	 Logstash	 Lucidworks	 LXC
 Cloudstack	 ClusterControl	 Confluence	 Cooling	 CoreOS	 High Availability	 Hipchat	 Hitachi HDS, HNAS	 HP Enterprise	 HP-UX	 Mattermost	 Mellanox	 Memcached

<https://zabbix.com/integrations>

Ticketing



Alerting



OFFICIAL AND COMMUNITY SOLUTIONS

Monitoring and Integration Solutions

HPE

[HPE ProLiant BL460 SNMP](#)
[HPE ProLiant BL920 SNMP](#)
[HPE ProLiant DL380 SNMP](#)
[HPE ProLiant DL360 SNMP](#)

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Official solutions

Official integrations are developed and supported by Zabbix



HPE ProLiant BL

[HPE ProLiant BL460 SNMP](#)



HPE ProLiant BL

[HPE ProLiant BL920 SNMP](#)



HPE ProLiant DL

[HPE ProLiant DL380 SNMP](#)



GENERAL_TEMPLATE

[HPE ProLiant DL360 SNMP](#)

Community solutions

Community solutions are provided by Zabbix users, partners or 3rd party vendors and are not supported by Zabbix



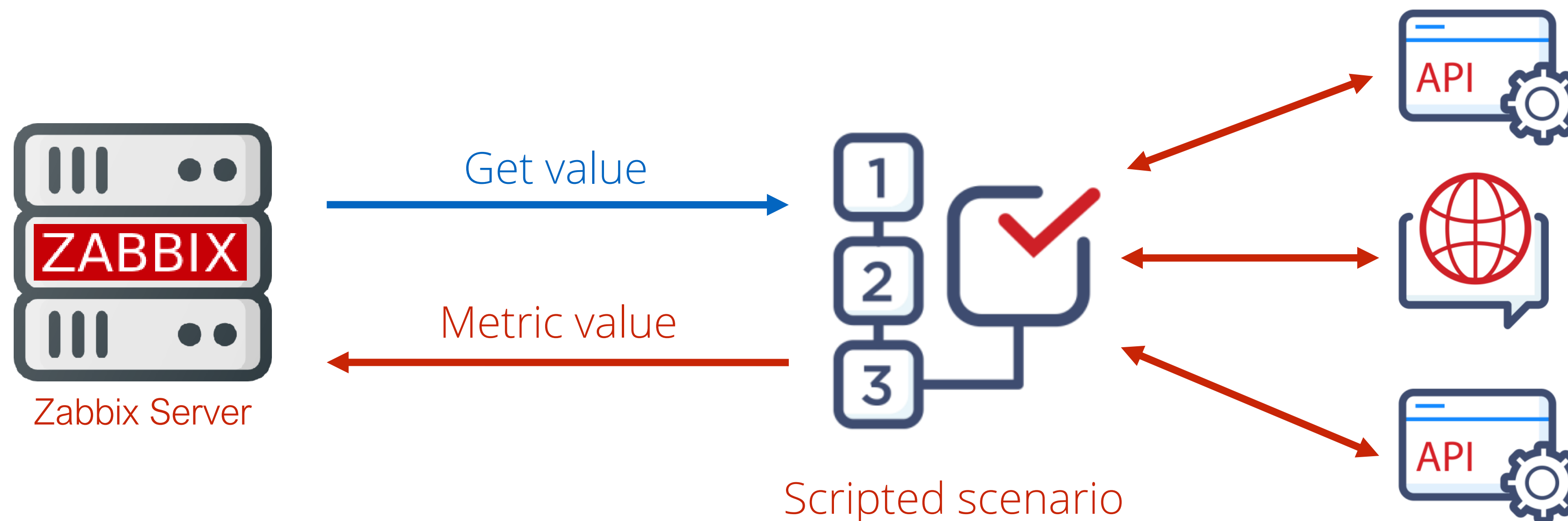
aruba [HPE 3810M](#)
3.2.x and higher

MONITORING OF KUBERNETES AND HYBRID CLOUDS



DATA COLLECTION: **SYNTHETIC** MONITORING

- ✓ Support of **complex multi-step scripted** data collection
- ✓ Advanced availability checks
- ✓ Complex interaction with different HTTP APIs



DATA AGGREGATION: NEW UNIVERSAL SYNTAX

✓ TRIGGERS:

- ✓ `min(/host/key, 30s)>50`
- ✓ `min(100*last(/host1/key1), last(/host2/key2))`

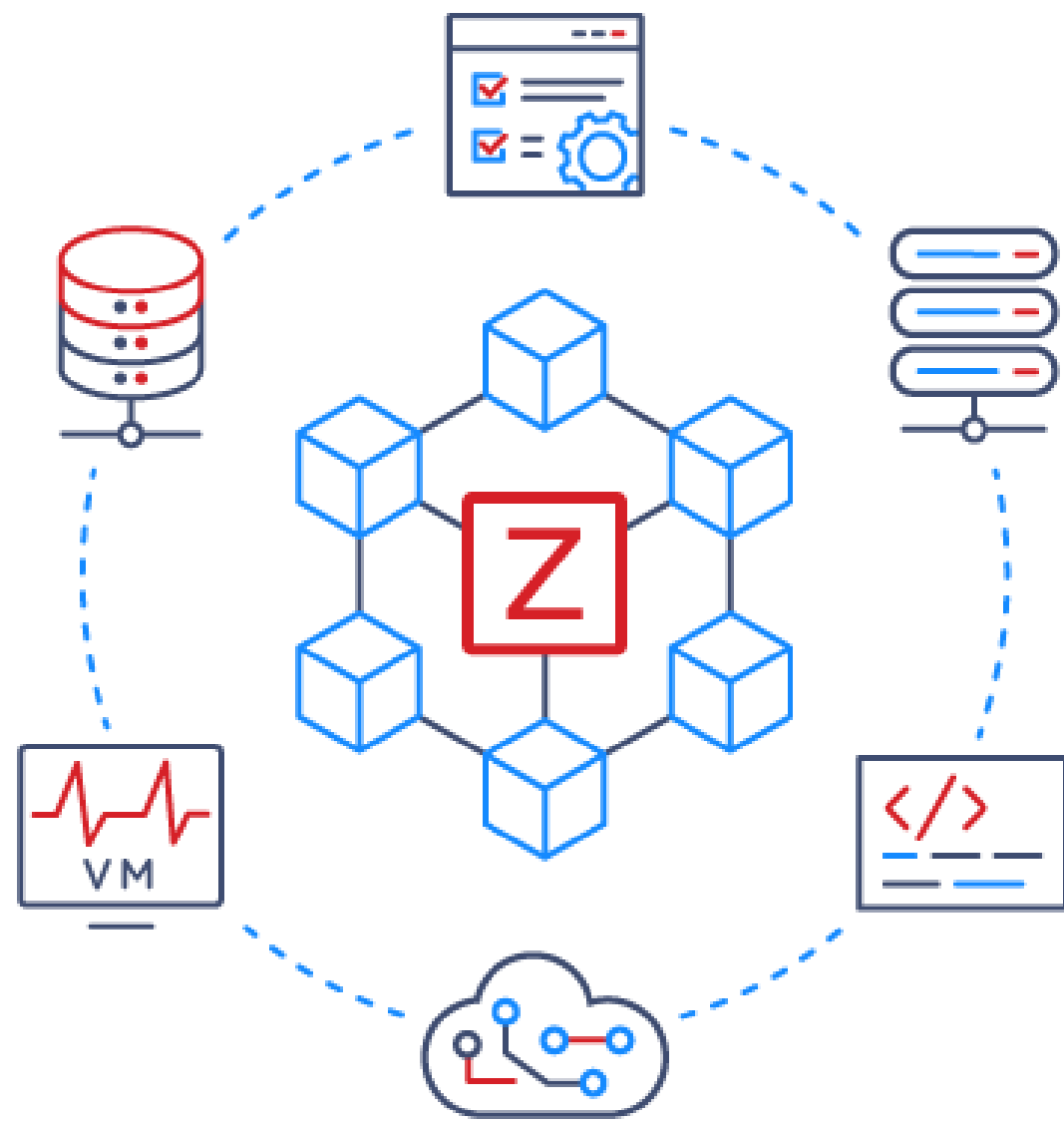
✓ CALCULATED ITEMS:

- ✓ `sum(/host/vfs.fs.size[*],free], 10m)`
- ✓ `min(avg_foreach(/*/qps?[group="Servers" and tag="Production"], 5m))`

✓ Major advantages

- ✓ Data aggregation with filtering by wildcards, tags and host groups
- ✓ Much more flexible functional syntax for complex problem conditions

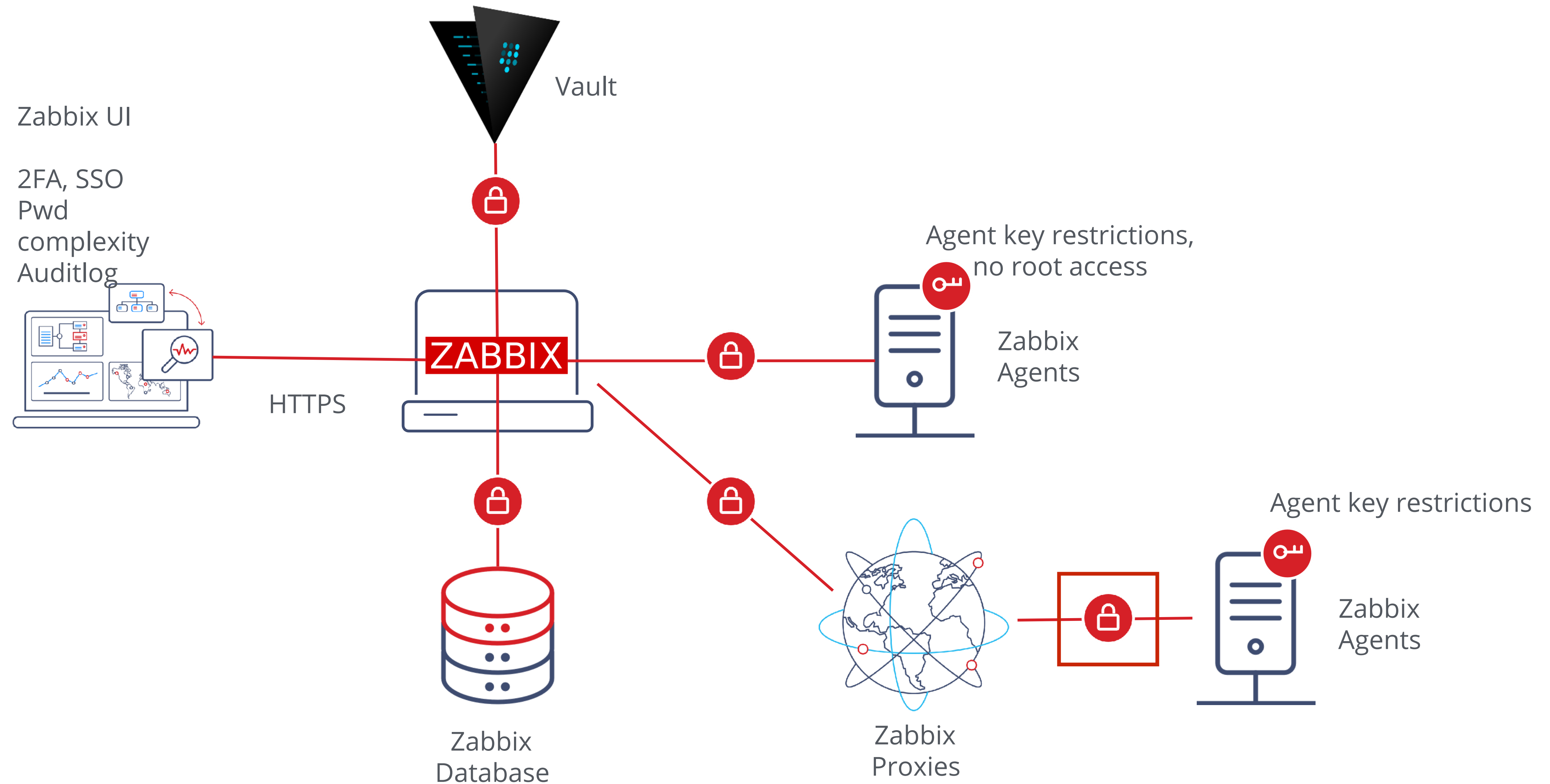




Security on all levels

Highest security standards

SECURE BY DESIGN



STORAGE OF SECRETS IN THE VAULT

- ✓ All sensitive information is kept **outside of Zabbix**
in a secure place: HashiCorp Vault, CyberArc (in 6.2)
- ✓ Therefore **no secret data is stored in Zabbix DB**
- ✓ Sensitive data: passwords, API tokens, user names, etc

The screenshot displays the Zabbix web interface for configuring host macros. The 'Hosts' page is active, with the 'confluence' host selected. The 'Macros' tab is chosen, showing a table of macros. Two macros are listed: one for the database name and one for the database password. The password macro is highlighted with a red box, and its configuration dropdown is open, showing options for 'Text', 'Secret text', and 'Vault secret'. The 'Vault secret' option is selected and highlighted with a red box.

Macro	Value	Description	Action
{\${DBNAME}}	zabbix/confluence/db:name	Confluence Database Name	Remove
{\${DBPASSWORD}}	zabbix/confluence/db:password	Confluence Database Password	Remove

[Add](#)

[Update](#) [Clone](#) [Full clone](#) [Delete](#) [Cancel](#)

Configuration Options:

- ☒ Text
- ☐ Secret text
- ☒ Vault secret

API TOKENS FOR SECURE ACCESS

- ✓ Per-user named API tokens with expiry date
- ✓ New user role: manage API tokens
- ✓ Can be managed globally by super-admins

Support

Share

Help

User settings

Profile

API tokens

Sign out

API tokens

Create API token

Filter

Name

Expires in less than 14 days

Status Any Enabled Disabled

Apply Reset

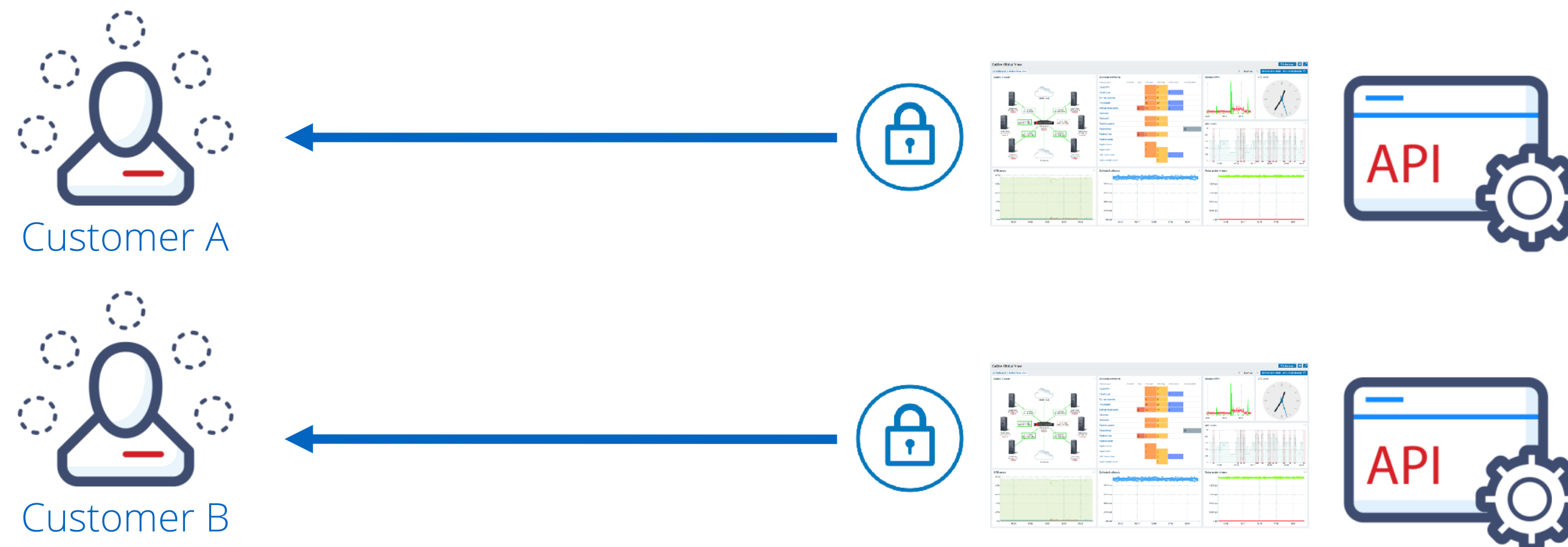
Name	Expires at	Created at	Last accessed at	Status
Customer portal token	2021-03-16 00:00:00	2021-03-15 11:12:27	Never	Enabled
History export token	2021-03-25 18:47:08	2021-03-25 18:47:09	Never	Enabled

Displaying 2 of 2 found

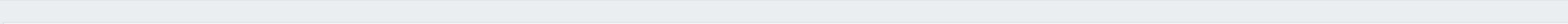


GRANULAR CONTROL OF USER PERMISSIONS

- ✓ Different parts of UI can be made accessible for different user roles
- ✓ Control what user operations are accessible: maintenance, editing of dashboards, etc
- ✓ Fine grained control access to API and its methods for extra security



User roles



* Name

User type

User

Access to UI elements

Monitoring	<input checked="" type="checkbox"/> Dashboard	<input checked="" type="checkbox"/> Problems	<input type="checkbox"/> Hosts
	<input type="checkbox"/> Overview	<input type="checkbox"/> Latest data	<input type="checkbox"/> Screens
	<input type="checkbox"/> Maps	<input type="checkbox"/> Discovery	<input type="checkbox"/> Services
Inventory	<input type="checkbox"/> Overview	<input type="checkbox"/> Hosts	
Reports	<input type="checkbox"/> System information	<input type="checkbox"/> Availability report	<input type="checkbox"/> Triggers top 100
	<input type="checkbox"/> Audit	<input type="checkbox"/> Action log	<input type="checkbox"/> Notifications
Configuration	<input type="checkbox"/> Host groups	<input type="checkbox"/> Templates	<input type="checkbox"/> Hosts
	<input type="checkbox"/> Maintenance	<input type="checkbox"/> Actions	<input type="checkbox"/> Event correlation
	<input type="checkbox"/> Discovery	<input type="checkbox"/> Services	
Administration	<input type="checkbox"/> General	<input type="checkbox"/> Proxies	<input type="checkbox"/> Authentication
	<input type="checkbox"/> User groups	<input type="checkbox"/> User roles	<input type="checkbox"/> Users
	<input type="checkbox"/> Media types	<input type="checkbox"/> Scripts	<input type="checkbox"/> Queue

* At least one UI element must be checked.

Default access to new UI elements ☒

Access to modules

No enabled modules found.

Default access to new modules ☒

Access to API

Enabled ☒

API methods

Allow list

Deny list

host.get ✕ item.get ✕

type here to search

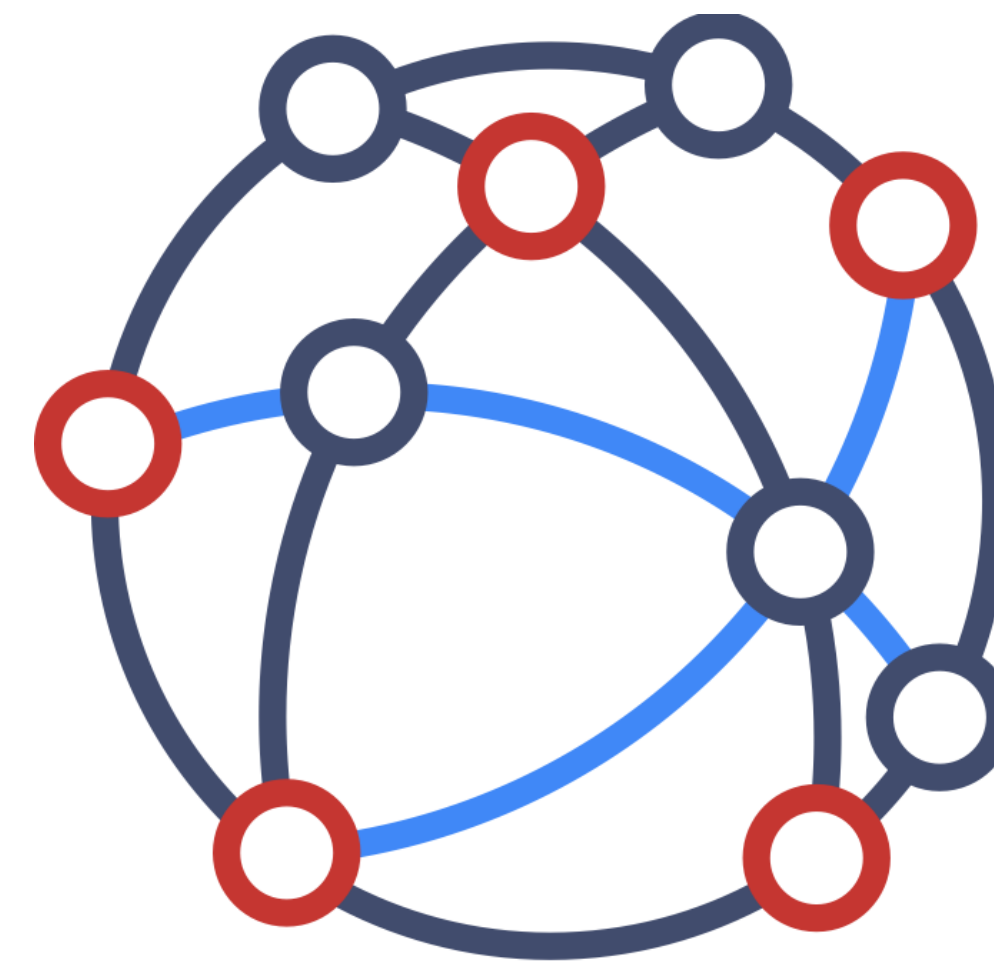
Select

Access to actions

☒ Create and edit dashboards and screens

POWERFUL SOLUTION FOR **MSP**

- ✓ Zabbix monitoring as added-value service
- ✓ **Customer portal**, a combination of
 - ✓ user roles for read-only access to dashboards and customized UI
 - ✓ re-branding options
 - ✓ SLA reporting
 - ✓ scheduled reports

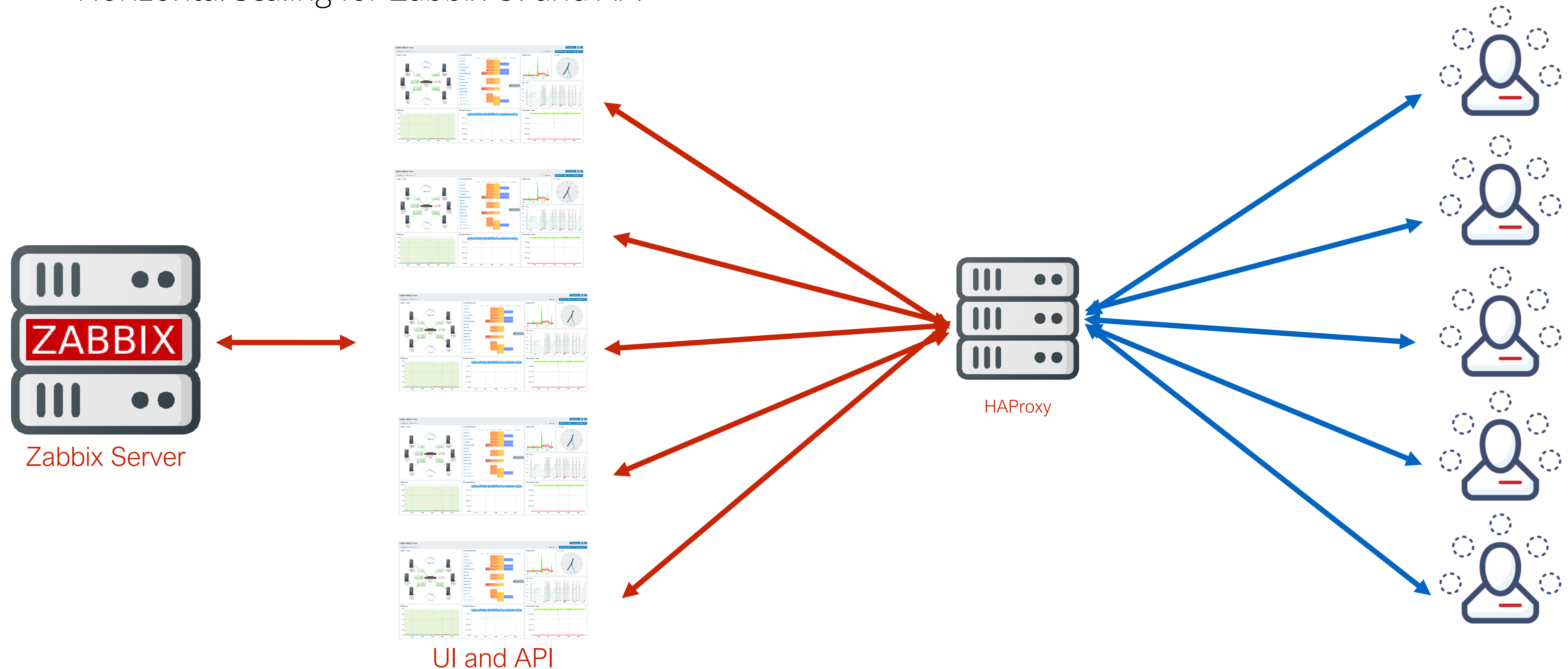




Scalability and HA

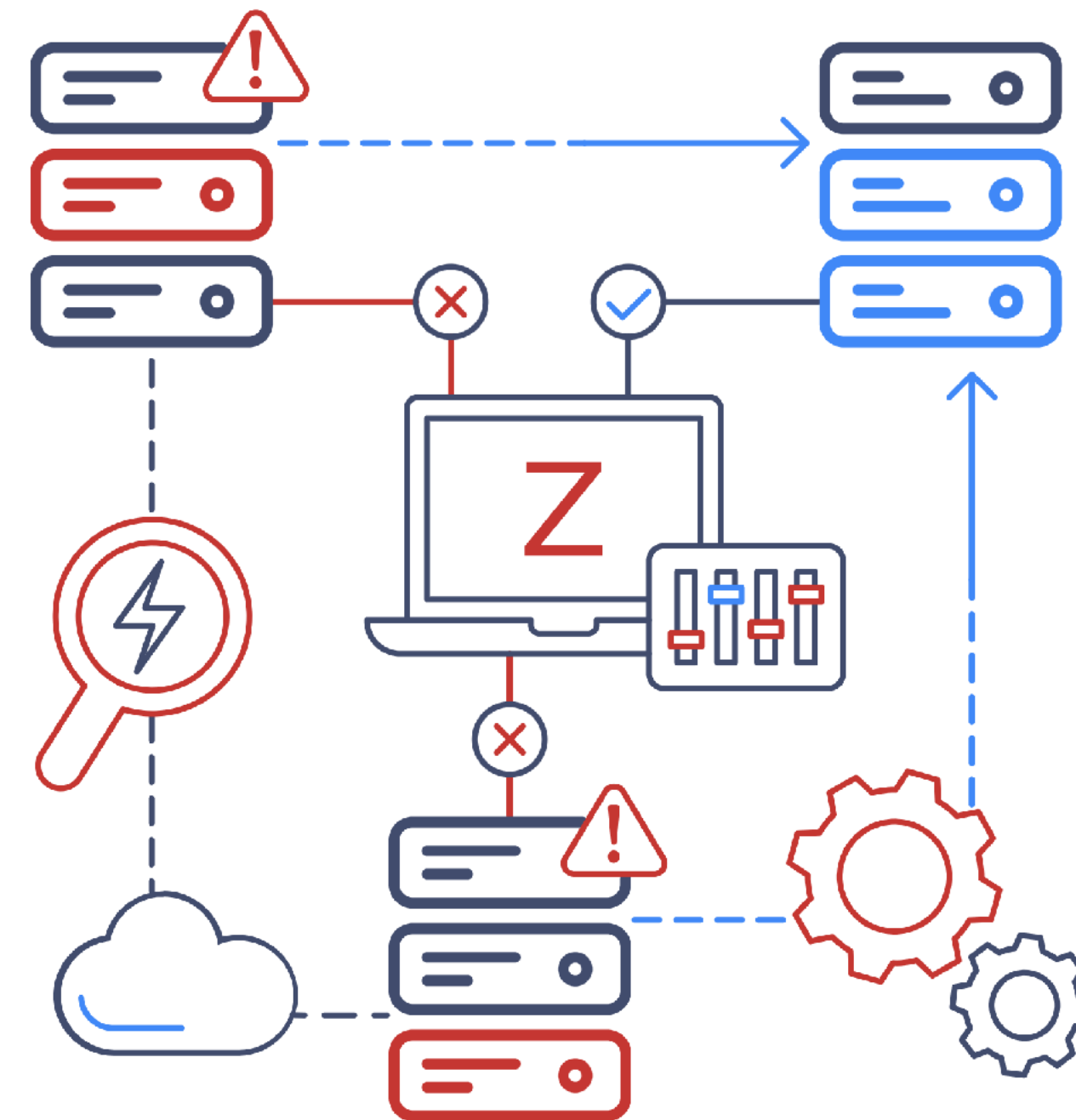
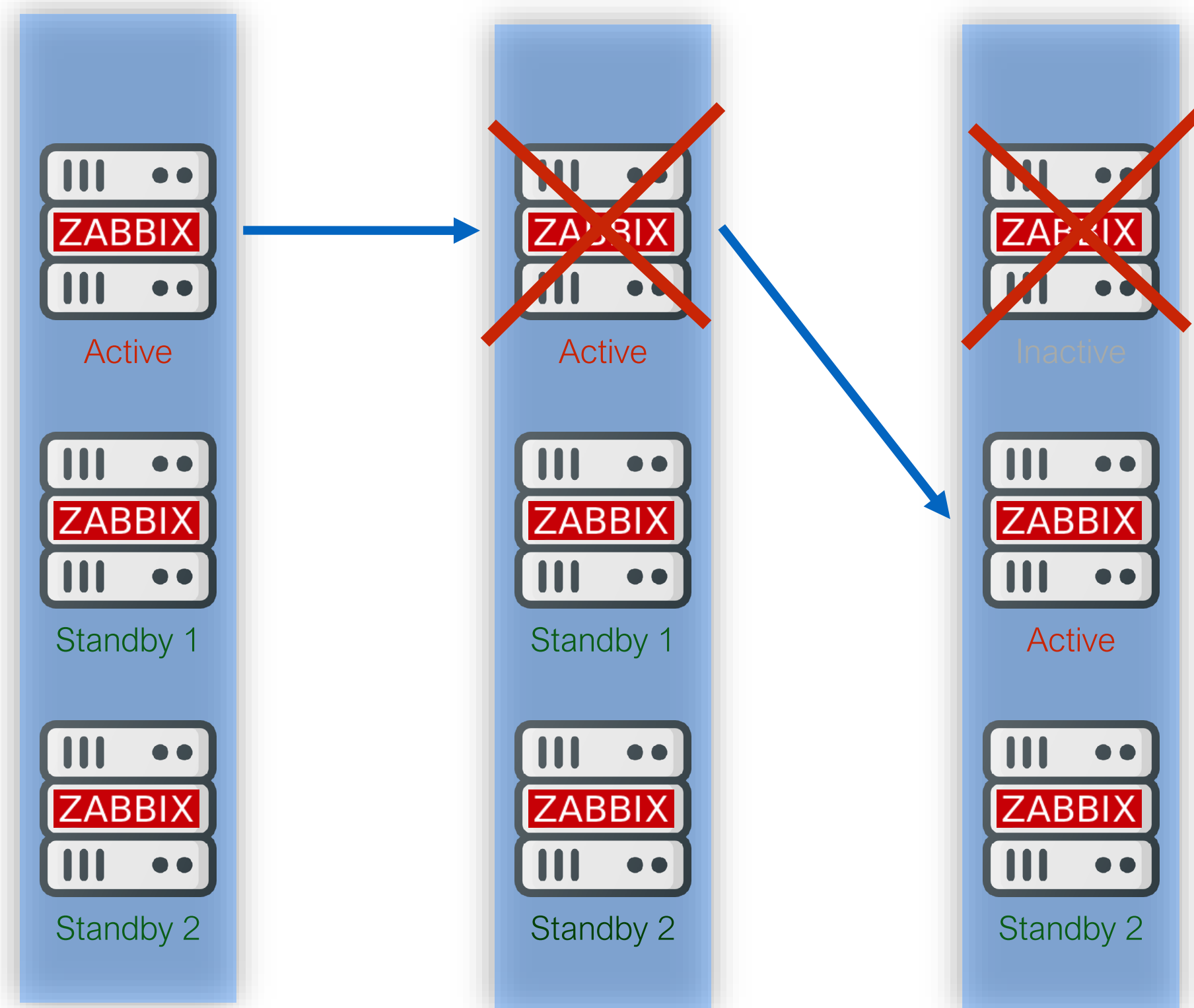
LOAD BALANCING FOR UI AND API

- ✓ Horizontal scaling for Zabbix UI and API



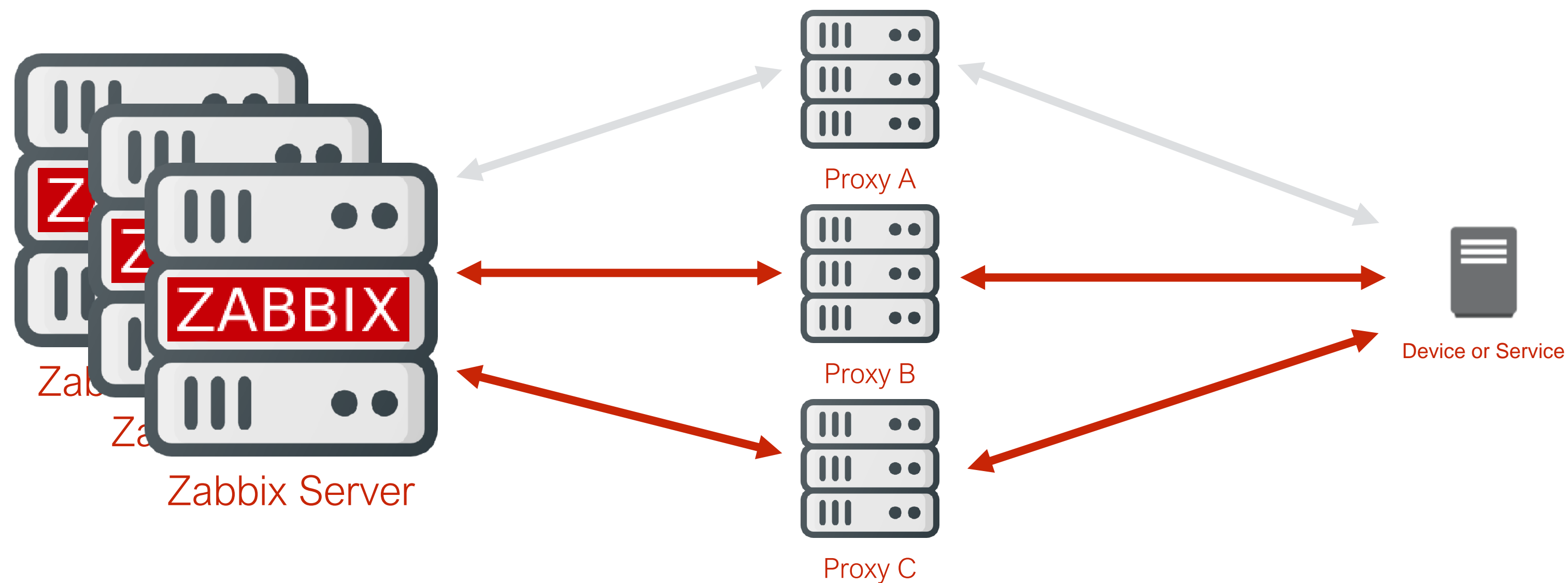
ZABBIX SERVER HA CLUSTER

- ✓ Multi node HA cluster with zero downtime
- ✓ 5 minutes to setup and get it running



CLOUD-NATIVE SCALABILITY AND HA

- ✓ HA and load balancing for UI and API
- ✓ HA for Zabbix Server
- ✓ Coming next:
 - ✓ History API for different time-series backends
 - ✓ Load balancing for Proxies and Servers



MACHINE LEARNING AND STATISTICAL ANALYSIS

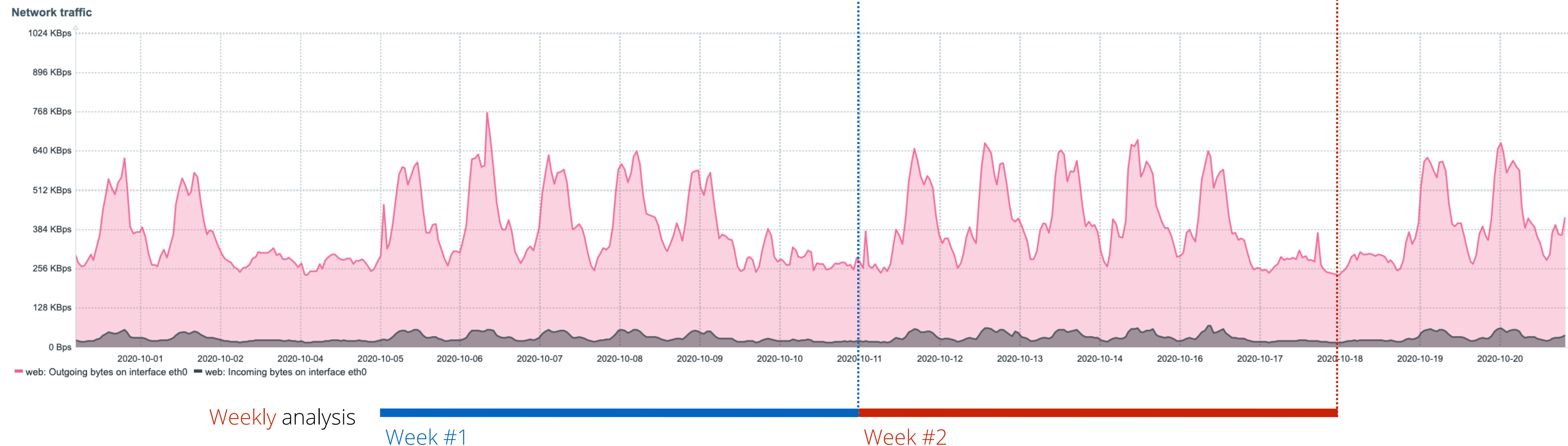
“Number of new user registrations is down 12% last week”

“Sudden anomaly detected in daily bandwidth usage”

“Unusual weekly CPU usage”

FUNCTIONS FOR ANOMALY DETECTION

- ✓ Baseline monitoring, support of seasons
- ✓ Anomaly detection functions, support of seasons
- ✓ Trend analysis functions
- ✓ Trend prediction functions





More **value** to users

Focus on enterprise users

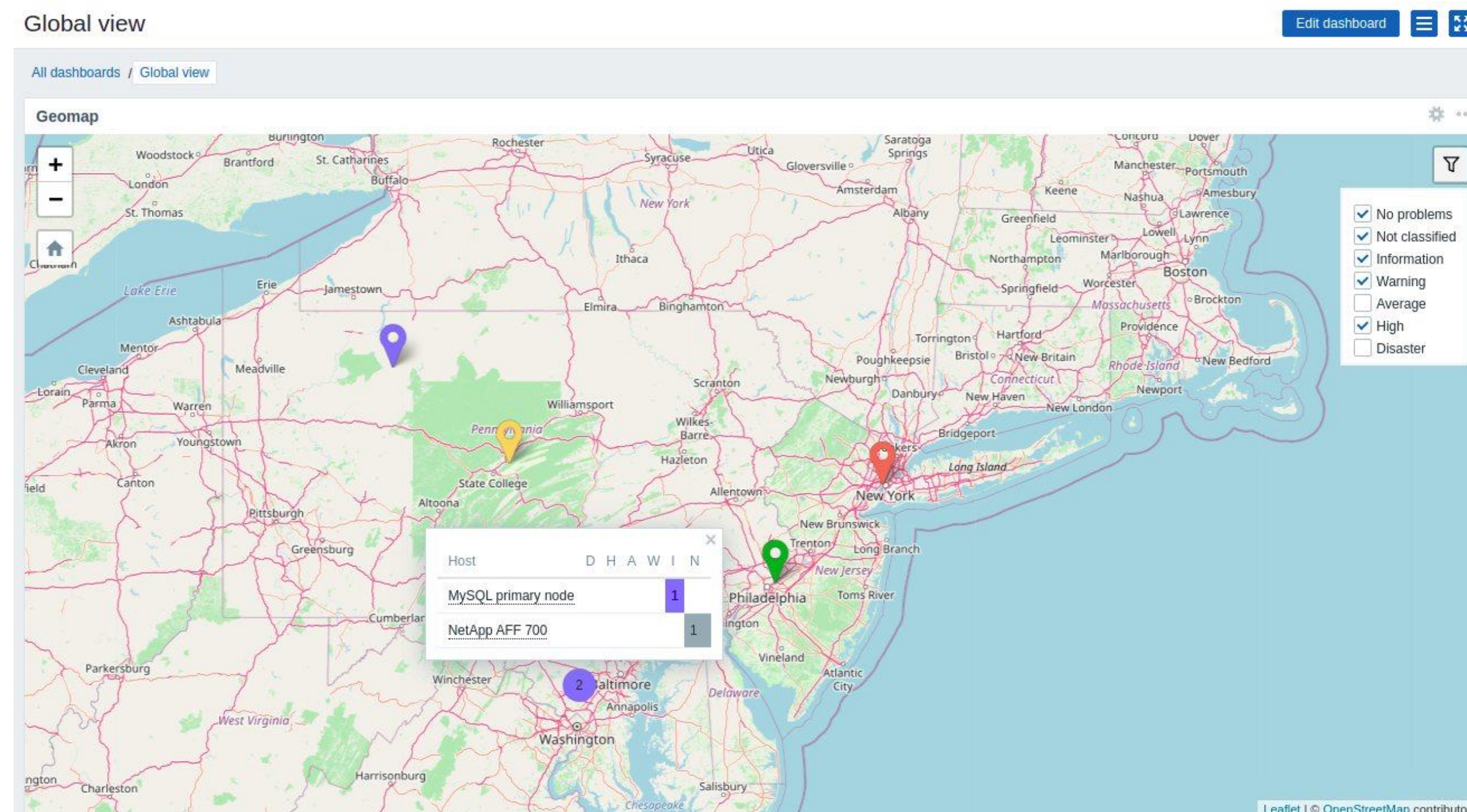
BUSINESS SERVICE MONITORING (BSM)

- ✓ Monitoring of **business** services
- ✓ Complex **SLO** definitions
- ✓ Multiple SLO per service
- ✓ SLA real-time and scheduled reporting
- ✓ Multi-tenancy using flexible user roles
- ✓ Alerting if service goes down
- ✓ **Root cause** and **impact analysis**



NEW VISUALIZATION CAPABILITIES

- ✓ Geographical maps
- ✓ TopN reporting: capacity planning and more
- ✓ Templated and multi-page dashboards



SCHEDULED PDF REPORTS

- ✓ Can be applied to any dashboard
- ✓ Accessible to all users
- ✓ New user role to restrict access
- ✓ Daily, weekly, monthly or yearly reports

Scheduled reports

Create report

Filter

Name Show **All** Created by me Status **Any** Enabled Disabled Expired

Apply Reset

<input type="checkbox"/> Name ▲	Owner	Repeats	Period	Last sent	Status	Info
<input type="checkbox"/> Daily report	Admin (Zabbix Administrator)	Daily	Previous day	2021-02-17 12:00:19	Enabled	
<input type="checkbox"/> Monthly report	Admin (Zabbix Administrator)	Monthly	Previous month	2021-02-01 09:00:17	Expired	
<input type="checkbox"/> Weekly report	Admin (Zabbix Administrator)	Weekly	Previous week	Never	Disabled	

0 selected Enable Disable Delete

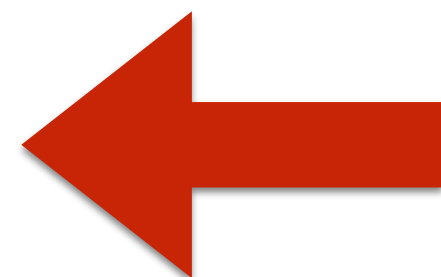
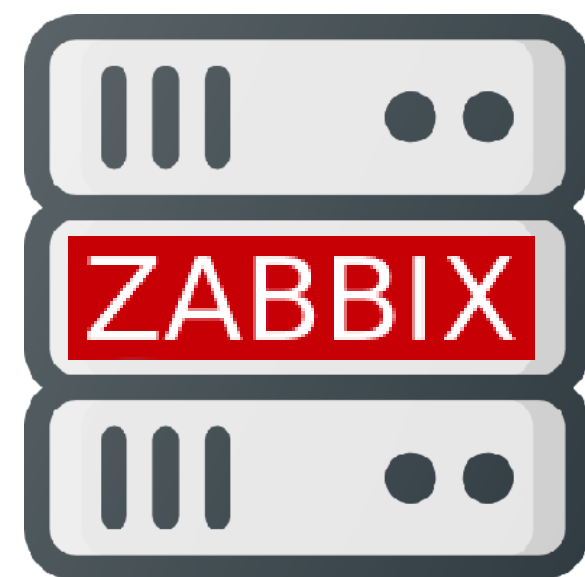
Displaying 3 of 3 found

Zabbix 5.4.0alpha2. © 2001-2021, Zabbix SIA



EXTENDING SCOPE OF MONITORING: IOT

- ✓ Support of **modbus** and **MQTT** protocols
- ✓ Monitoring of sensors, hardware equipment
- ✓ Integration with building management systems, factory equipment, IoT gateways



Sensors

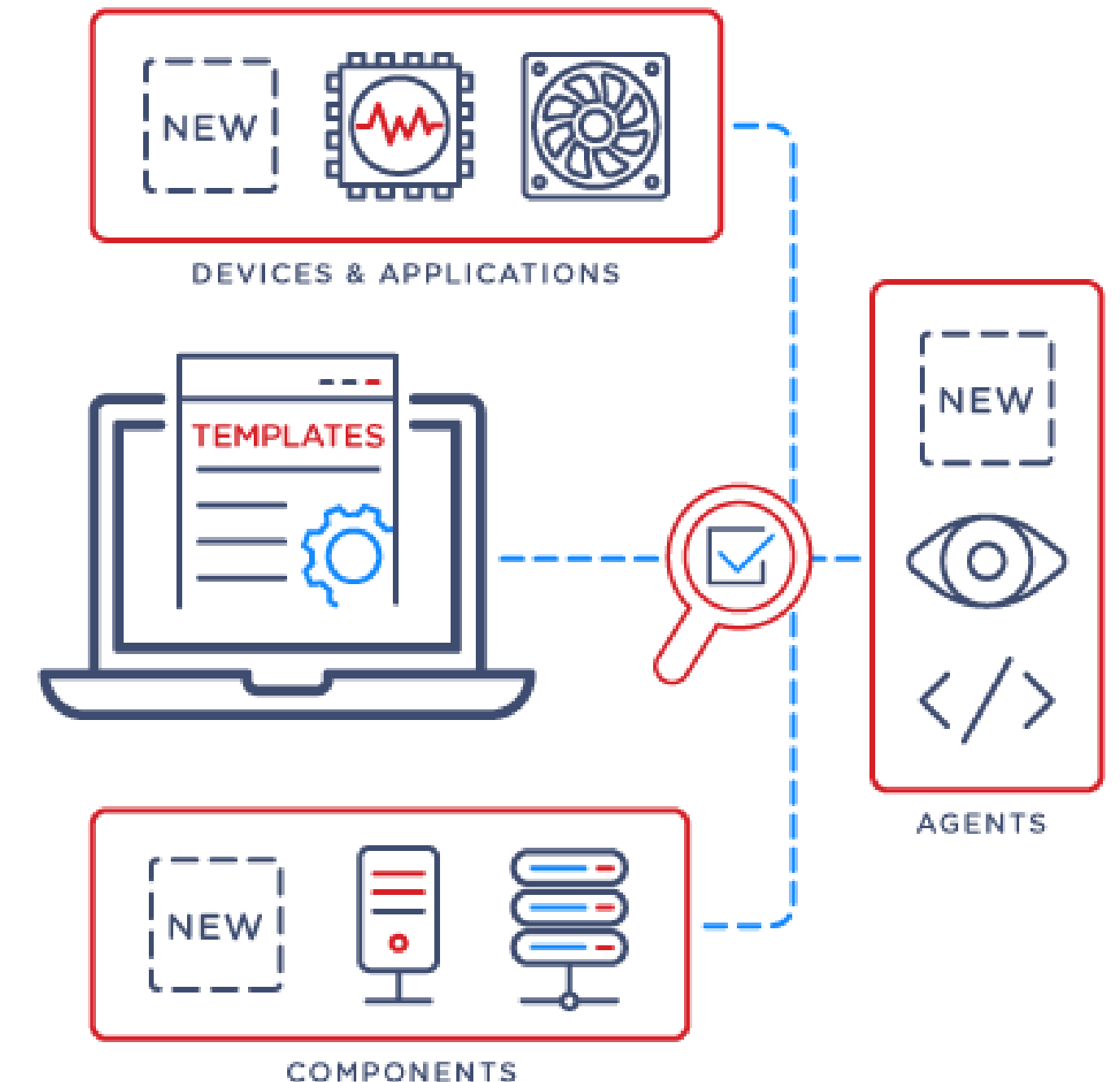
IoT devices and gateways

Industrial devices

INFRASTRUCTURE AS A CODE

- ✓ YAML format: easy to edit and understand
- ✓ See the difference when importing a new version of existing template

```
zabbix_export:
  version: '5.2'
  date: '2020-10-22T16:55:52Z'
  groups:
    - name: Templates/Applications
      templates:
        - template: 'Zabbix Server'
          name: 'Zabbix Server'
          groups:
            - name: Templates/Applications
              applications:
                - name: 'Zabbix server'
                  items:
                    - name: 'Zabbix LLD queue'
                      type: INTERNAL
                      key: 'zabbix[lld_queue]'
                      history: 1w
                      description: 'Count of values enqueued in the preprocessing queue.'
                      applications:
                        - name: 'Zabbix server'
```



TAGS FOR CLASSIFICATION

- ✓ Supported for templates, hosts, host prototypes, triggers
- ✓ Item applications are replaced by tags

Time ▲	<input type="checkbox"/> Severity	Recovery time	Status	Info	Host	Problem	Duration	Ack	Actions	Tags
2019-05-23 16:37:00	<input type="checkbox"/> Average		PROBLEM		Linux907	Zabbix agent on Linux907 is unreachable for 5 minutes	1y 4m 19d	No		Service: Zabbix agent
September										
2019-09-30 12:45:45	<input type="checkbox"/> Information		PROBLEM		AZ M08	Low CPU utilization on host machines	1y 9d	Yes	1	Service: Kubernetes Datacenter: FR2
2019-09-30 12:45:45	<input type="checkbox"/> Information		PROBLEM		AZ M18	Slow query execution time	1y 9d	No	1	Service: AWS Dynam... Datacenter: NY1 Env: Production
2019-09-30 13:45:45	<input type="checkbox"/> Average		PROBLEM		AWS N30	Too many queries per second ?	1y 9d	Yes	1	Service: HTTP balancer Datacenter: NY1 Env: Production
2019-09-30 13:45:45	<input type="checkbox"/> Average		PROBLEM		AZ M10	Too many queries per second ?	1y 9d	Yes	2	Service: HTTP balancer Datacenter: NY1 Env: Production
October										
2019-10-01 12:25:11	<input type="checkbox"/> High		PROBLEM		AWS N90	Service Redis stopped	1y 8d	Yes	1	Service: Redis Datacenter: FR2 Env: Staging
2019-10-01 12:25:11	<input type="checkbox"/> High		PROBLEM		AWS N34	Service Redis stopped	1y 8d	Yes	1	Service: Redis Datacenter: FR2 Env: Staging
Today										
10:48:11	<input type="checkbox"/> Information		PROBLEM		Zabbix server	Too many processes running on Zabbix server	3m 39s	No		Service: Zabbix OS: Linux Performance





What's next ?

Main vectors

More value for the enterprise

General usability: UX and UI, ease of use

Visualization and reporting

Event and problem handling and processing

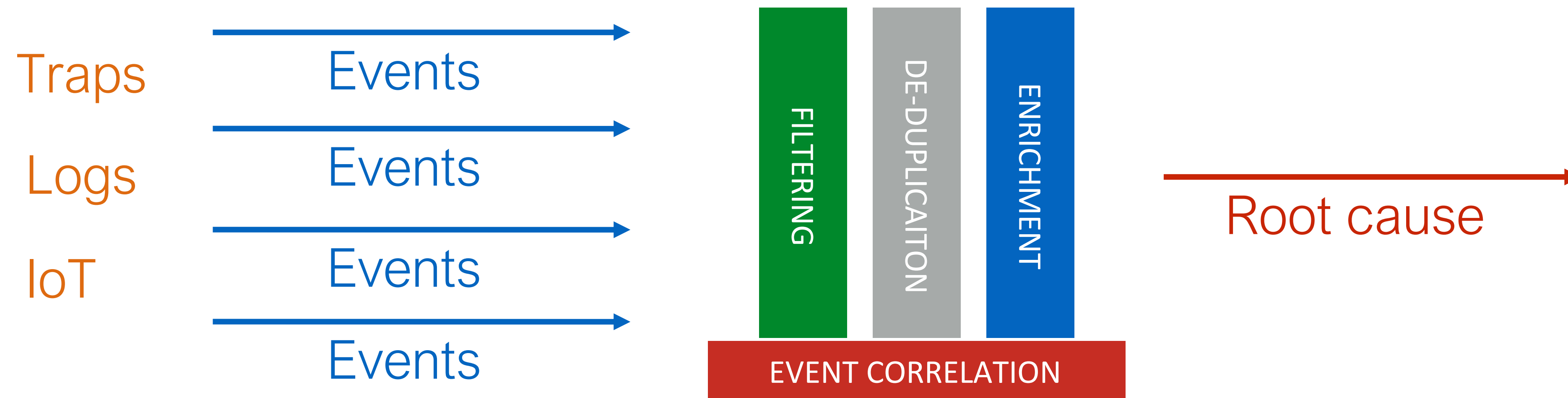
Extending scope of monitoring: compliance monitoring, APM, advanced log monitoring, public and hybrid cloud monitoring

Extendability on all levels: trigger functions, storage engines, agent plugins+UI modules+3rd party widgets, webhooks

HA, scalability and load balancing

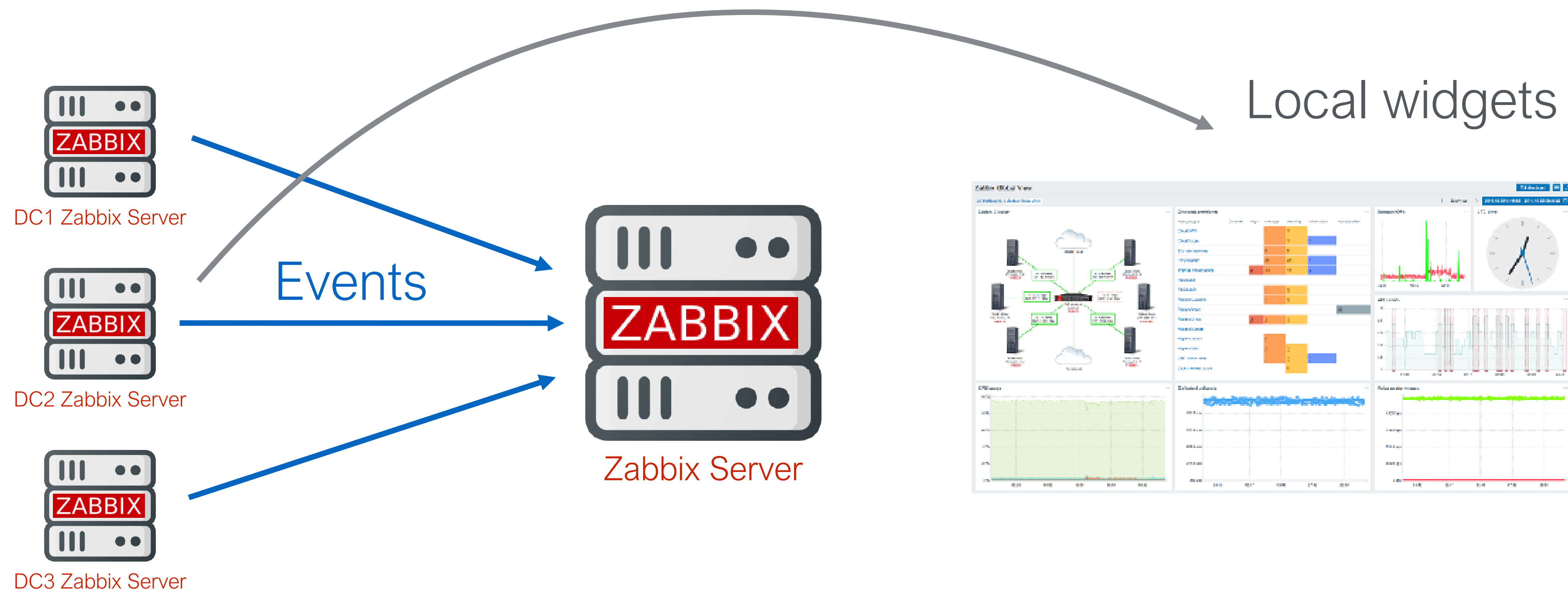
ADVANCED **EVENT CORRELATION** ENGINE

- ✓ Tag based event pre-processing and correlation
 - ✓ Event filtering, de-duplication, enrichment
- ✓ Noise reduction
- ✓ Root cause analysis



MULTI DC MONITORING

- ✓ Centralized event processing from multiple Zabbix Servers
- ✓ Centralised dashboard

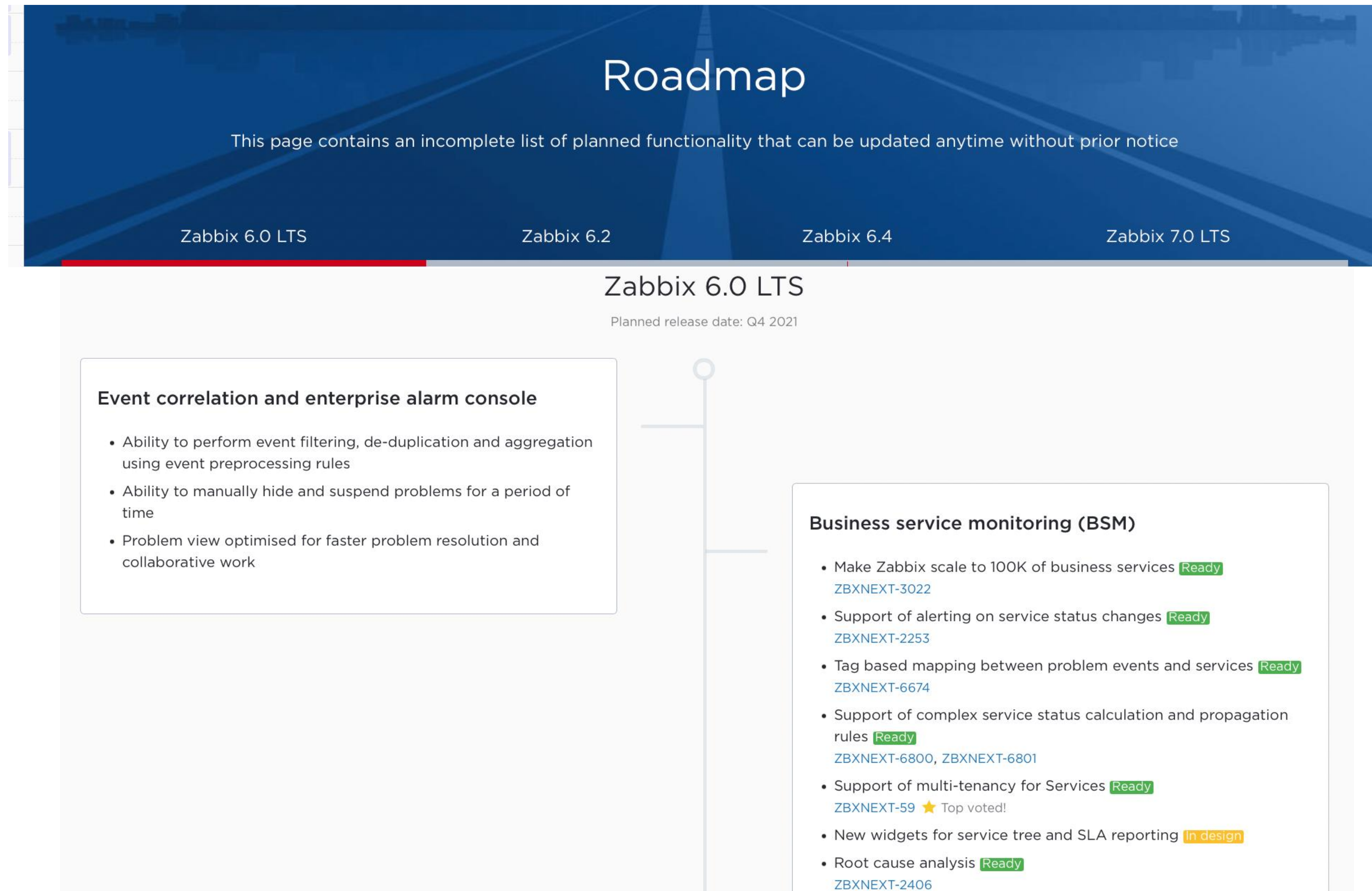


ZABBIX RELEASE SCHEDULE

- ✓ Zabbix 6.0 LTS: beginning of 2022
- ✓ Zabbix 6.2: Q2, 2022
- ✓ Zabbix 6.4: Q4, 2022
- ✓ Zabbix 7.0 LTS: Q2, 2023



ZABBIX ROADMAP: LONG TERM & UP-TO-DATE



<https://zabbix.com/roadmap>





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