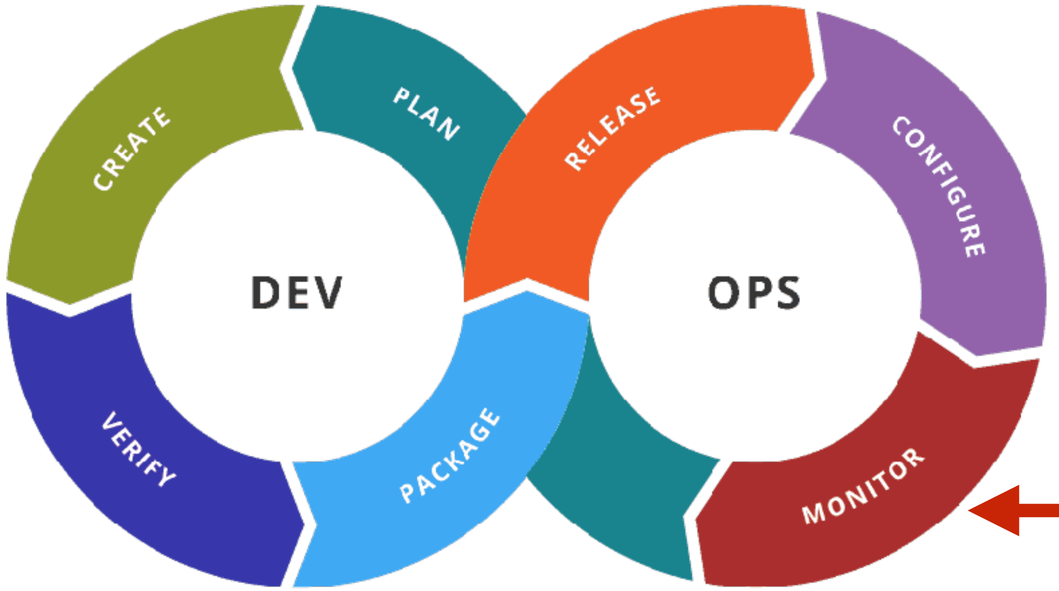
Zabbix 4.4 and plans for Zabbix 5.0

Alexei Vladishev
ZABBIX Founder & CEO

ZABBIX 2019
Conference
CHINA

Zabbix is an Universal Open Source enterprise-level monitoring solution



ZABBIX

Zabbix is an Universal Open Source enterprise-level monitoring solution

Quick recap of 2019

Growing number of large enterprise customers

Zabbix 4.2

April, 2019

High frequency monitoring with throttling

Data collection: HTTP agent, Prometheus

Preprocessing: validation and JavaScript!

Enhanced tag management

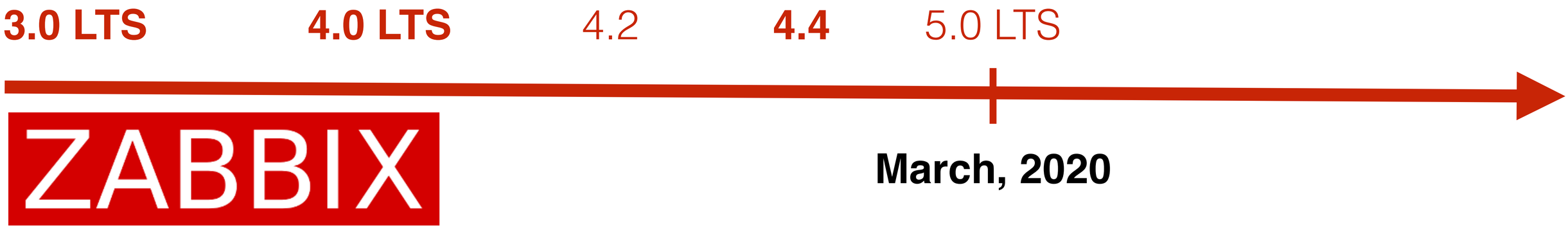
New platforms

Cloud

Google Cloud

New OS

Where we are currently



ZABBIX

Zabbix 4.2

April, 2019

High frequency monitoring with throttling

Data collection: HTTP agent, Prometheus

Preprocessing: validation and JavaScript!

Preprocessing by Proxies

Enhanced tag management

New platforms

Cloud

New OS

Zabbix 4.4

More than 30 new features and functional improvements

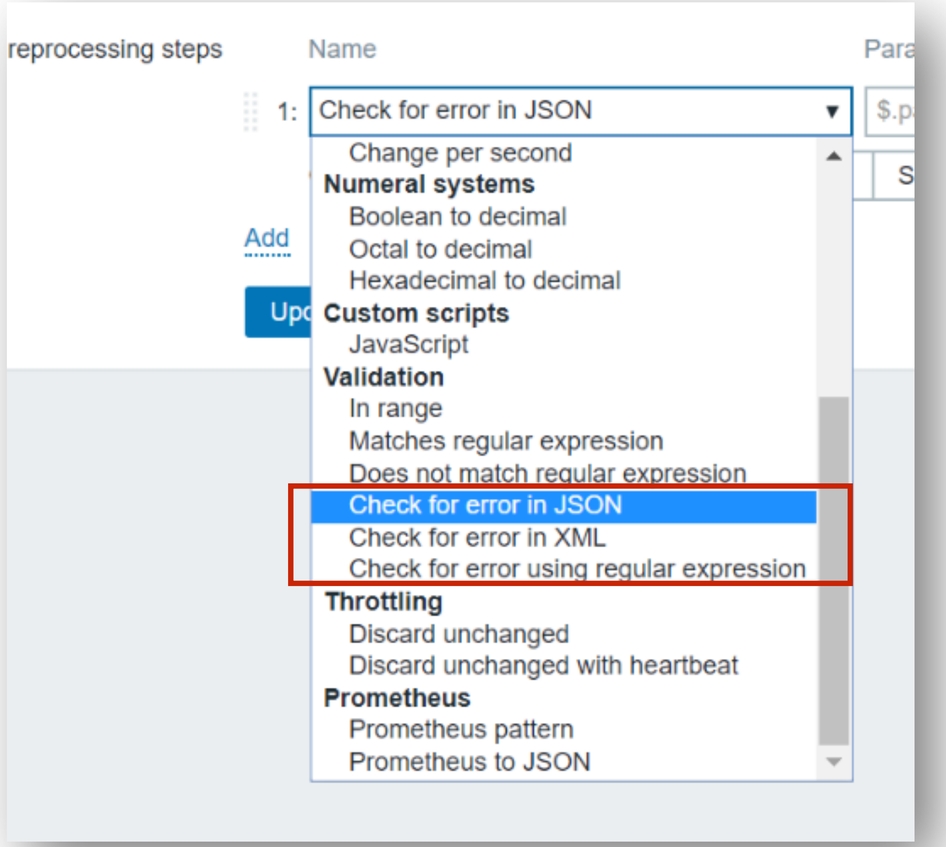
1 Enhanced preprocessing

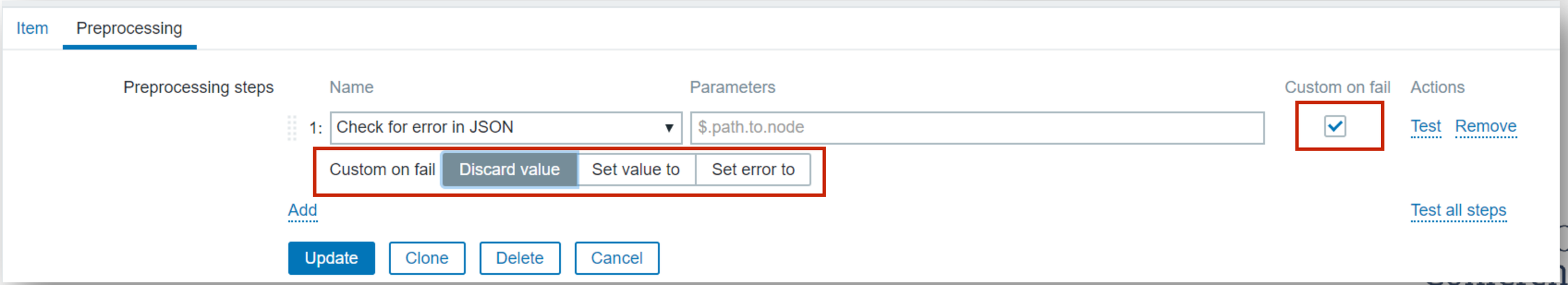
Custom error handling

Check for error in JSON

Check for error in XML

Check for error using regular expression





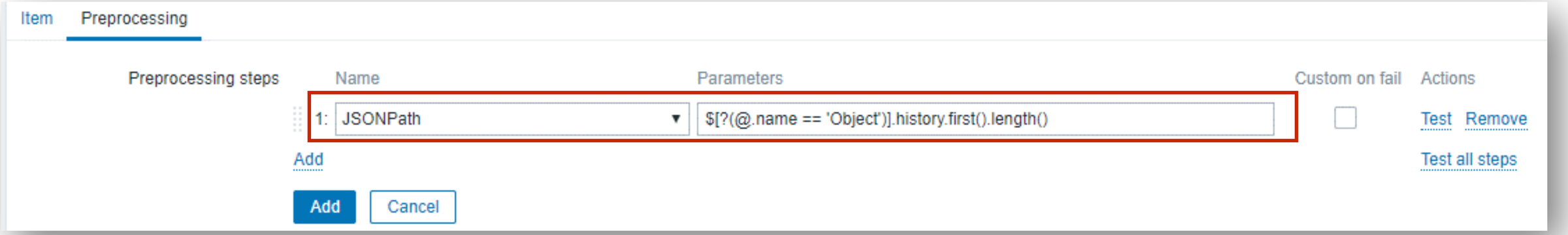
XML and JSON related enhancements

XML-related preprocessing options added to LLD

XML Xpath and Check for error in XML preprocessing options have been added to low-level discovery rules

Zabbix now supports advanced syntax for JSONPath

https://www.zabbix.com/documentation/4.4/manual/appendix/items/jsonpath



2 Advanced data collection and discovery

Discovery and data collection

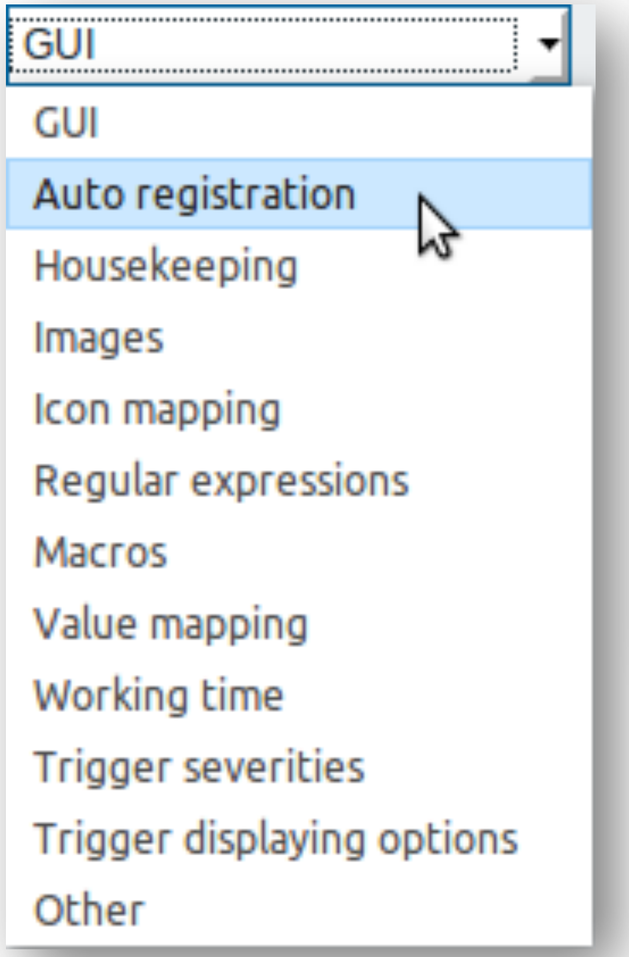
jmx.get[<discovery_mode>,<object_name>]
Compared to the jmx.discovery[] item from previous versions, that had to ignore encountered that JMX MBean properties contains hyphens, square brackets and non-ASCII characters (that could not be converted into a macro name) the new jmx.get[] item does not generate LLD macro names in the returned JSON

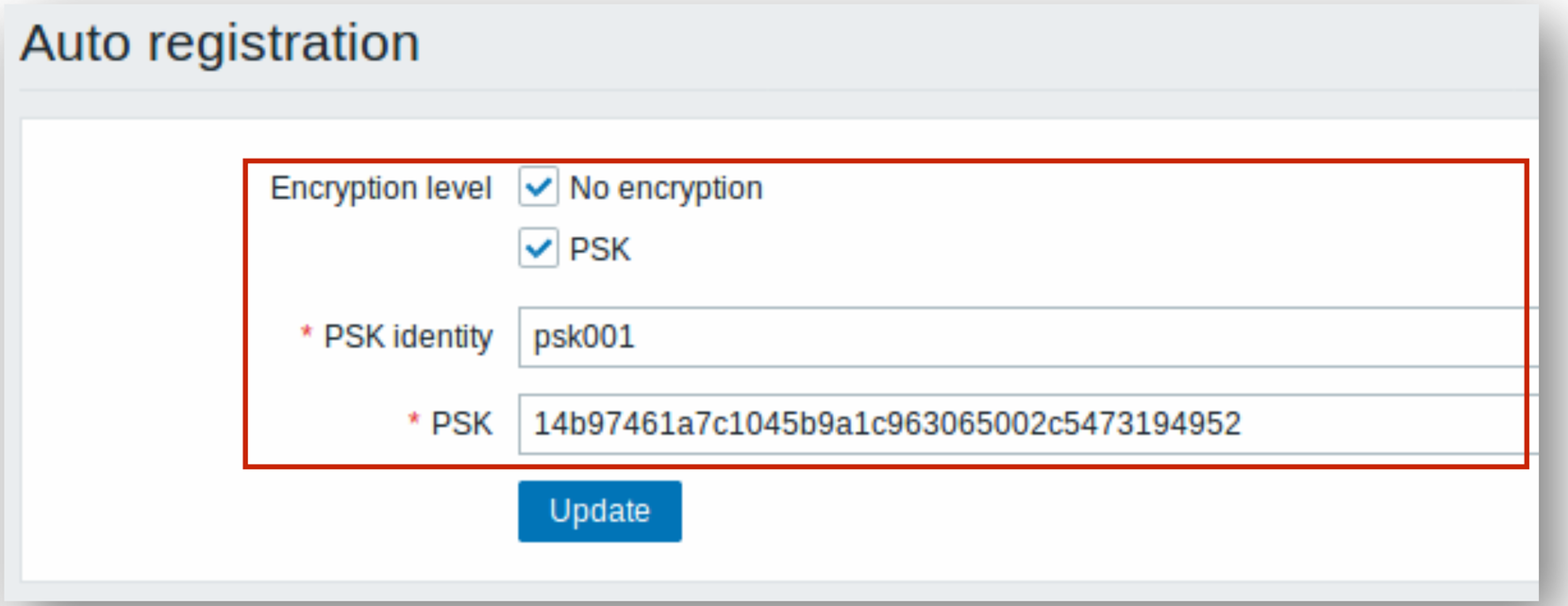
db.odbc.get[unique_description,data_source_name]
The new item is capable of returning values from multiple rows and columns, formatted as JSON.

wmi.getall[<namespace>,<query>]
The new item is capable of returning the entire response of the query, formatted as JSON

3 Secure auto-registration

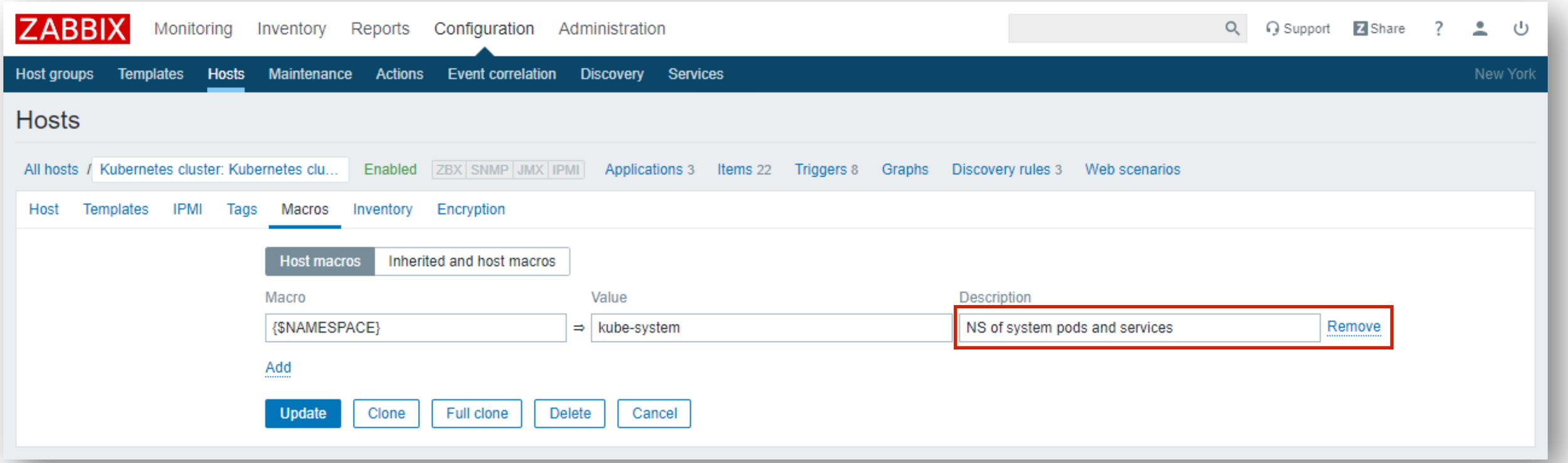
Auto-registration with PSK, unencrypted or both





4 | Description for user macros

Discovery and data collection



4 | Zabbix Agent

Zabbix Agent

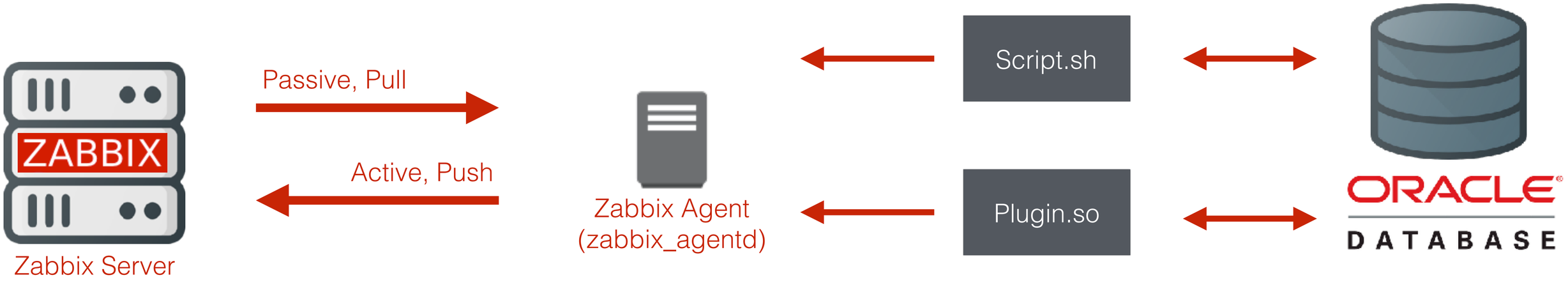
Zabbix Server

Passive, Pull

Active, Push

Zabbix Agent
(zabbix_agentd)

Zabbix Agent



Challenges

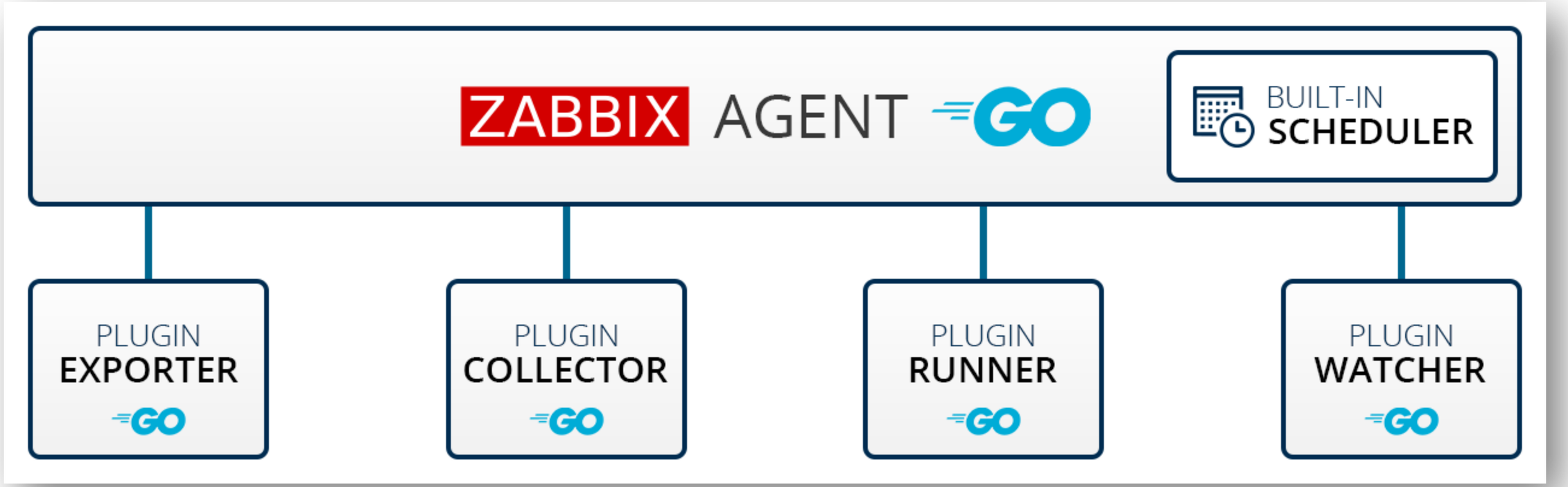
Long running scripts
Parallel active checks
Support of flexible intervals
Processing of traps
Support of persistent connections
Better plugin framework

Next Generation Zabbix Agent

New Zabbix Agent
(zabbix_agent2)

Plugin infrastructure
Support of long running scripts
Parallel active checks
Support of flexible intervals for all checks
Support of persistent connections (DB connections)
Accepting incoming traps and events (MQTT subscribe, listening TCP/UDP ports, etc)
Monitoring of systemd service out of the box
Drop-in replacement of the existing agent!

Internal structure of the agent



Polling

Regular data collection

Background routines

Trapping

Availability of the new Zabbix Agent2

New Zabbix Agent
(zabbix_agent2)

4.4 – experimental, 5.0 – production ready

Older agents will be supported

Currently only Linux-like systems

Zabbix Agent 2 for Windows – already in development!

Check our git repository: https://git.zabbix.com

5 Alerting and notifications

Email

SMS

Script

Webhook with Embedded JavaScript

Notifications

Incidents

Events

Messaging

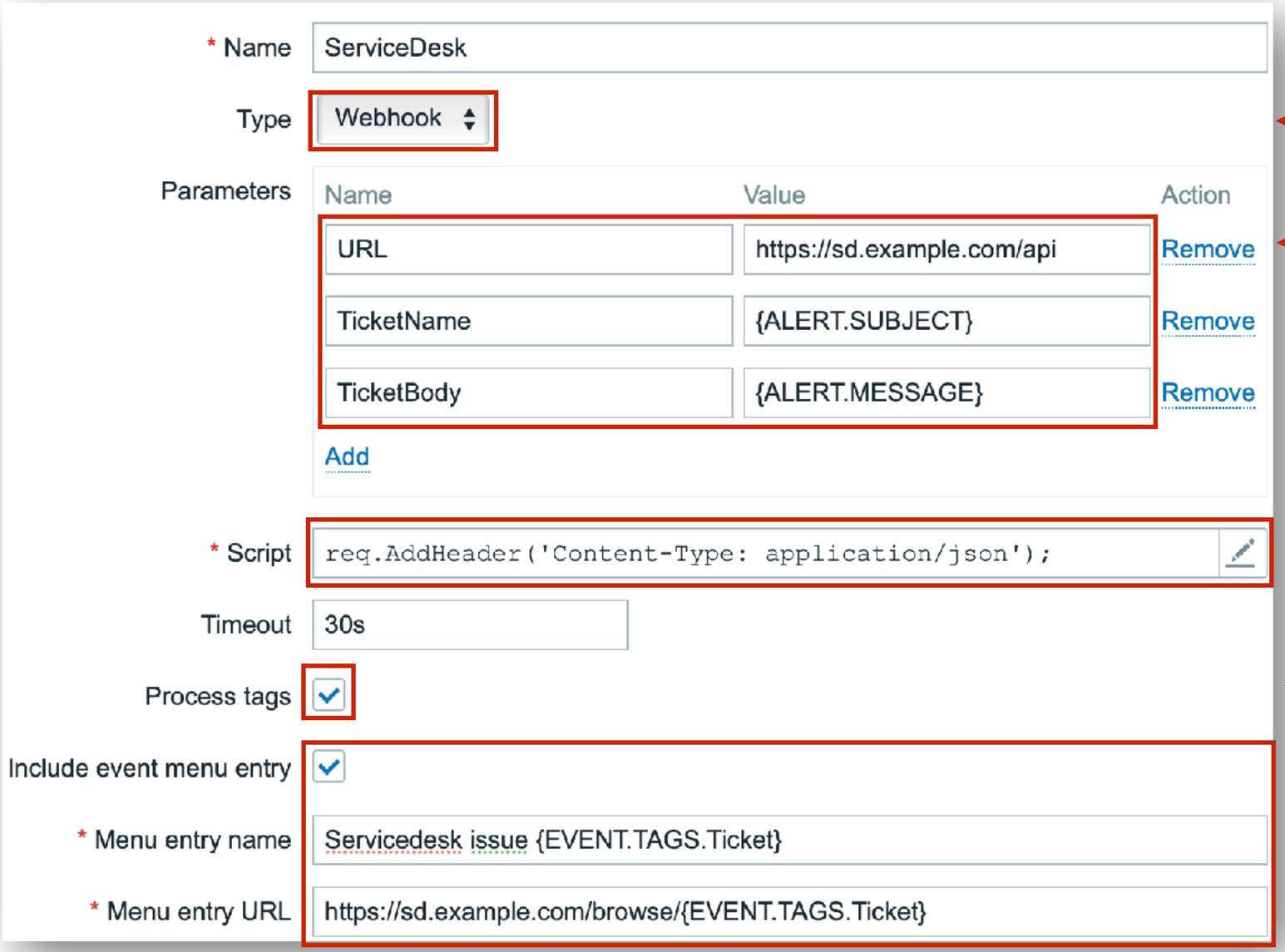
Microsoft Teams · Telegram · Skype · Opsgenie · slack · VictorOps · pagerduty · Mattermost

ITSM

bmc · servicenow · zendesk · Jira Service Desk · Jira Software

Event streaming

kafka (A distributed streaming platform) · hadoop · elasticsearch · VERTICA



Webhook

URL for API access

All logic in JavaScript

Process event tags

Add a menu entry for 2-way integration

Workflow

1 | Redis is not available

Datacenter: NY2 Service: Redis

2 |

Media type ServiceDesk

HTTPS API

Ticket: PROD-12345 OK

Jira Service Desk

3 | Redis is not available

Datacenter: NY2 Service: Redis Ticket: PROD-12345

3 Redis is not available

Datacenter: NY2 | Service: Redis | Ticket: PROD-12345

4

Time	Severity	Recovery time	Status	Info	Host	Problem	Duration	Ack	Actions	Tags
2019-10-01 11:13:26	High		PROBLEM		AWS N34	Service Redis stopped	1m	Yes	1 2	Datacenter: NY2 Service: Redis Ticket: PROD-12345

TRIGGER

Problems

Description

Configuration

LINKS

Servicedesk issue PROD-12345

HISTORY

Service status

Jira Service Desk

6 Built-in knowledge base

Item details

	Linux010	**CPU** (8 Items)		
☐		CPU idle time	2019-10-10 10:05:08	89.8262 %
☐		CPU interrupt time	2019-10-10 10:05:11	0 %
☐		CPU iowait time	[illegible]	0.1687 %
☐		CPU nice time	[illegible]	0 %
☐		CPU softirq time	[illegible]	0.928 %
☐		CPU steal time	2019-10-10 10:05:09	0 %
☐		CPU system time	2019-10-10 10:05:11	5.1788 %
☐		CPU user time	2019-10-10 10:05:09	4.218 %

Amount of time the CPU has been waiting for I/O to complete.

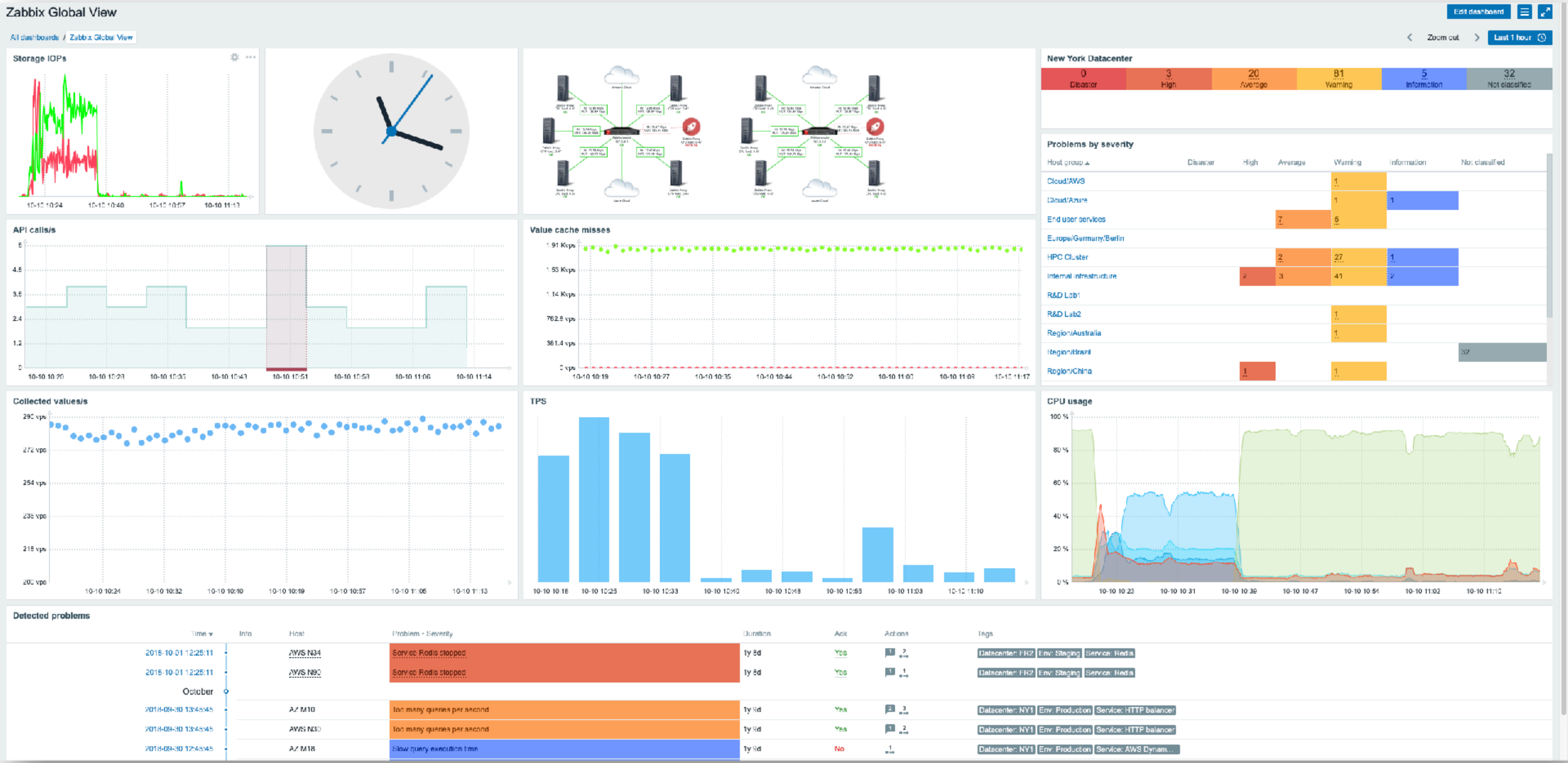
Problem details

Time ▲	Severity	Recovery time	Status	Info	Host	Problem	Duration	Ack	Actions	Tags
2019-05-23 16:37:00	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	Information		PROBLEM		AZ M08	Low CPU utilization on host machines	1y 9d	Yes	1 1	Service: Kubernetes Datacenter: FR2
2019-09-30 12:45:45	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	Average		PROBLEM		AWS N30	Too many queries per second	1y 9d	Yes	1 2	Service: HTTP balancer Datacenter: NY1
2019-09-30 13:45:45	Average		PROBLEM		AZ					balancer Datacenter: NY1
October										
2019-10-01 12:25:11	High		PROBLEM		AWS					Datacenter: FR2 Env: Staging
2019-10-01 12:25:11	High		PROBLEM		AWS N34	Service Redis stopped	1y 8d	Yes	1 2	Service: Redis Datacenter: FR2 Env: Staging
Today										
10:48:11	Information		PROBLEM		Zabbix server	Too many processes running on Zabbix server	3m 39s	No		Service: Zabbix OS: Linux Performance

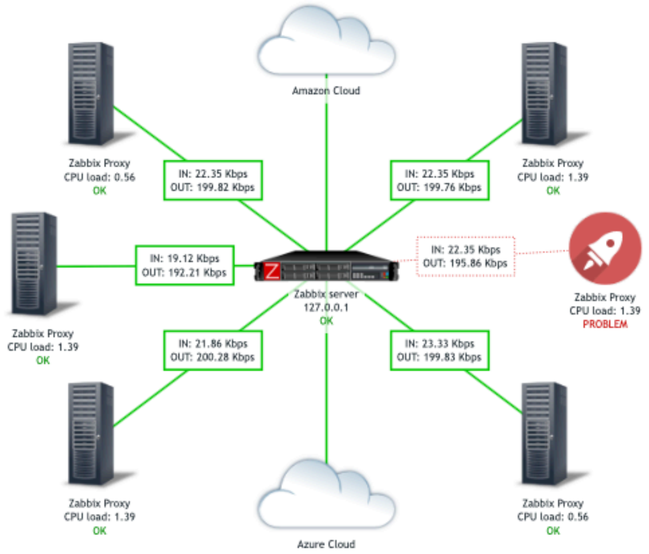
Typical reasons of the high number of queries per second on HTTP balancer:

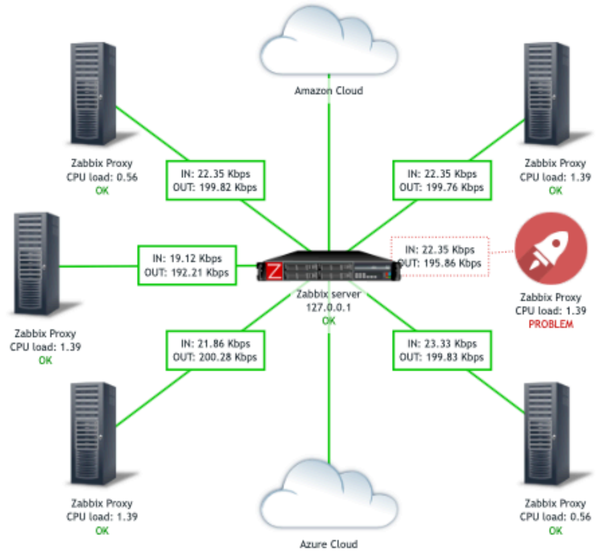
1. Insufficient number of worker nodes if all worker nodes stay busy
2. Network related issues

7 Visualization

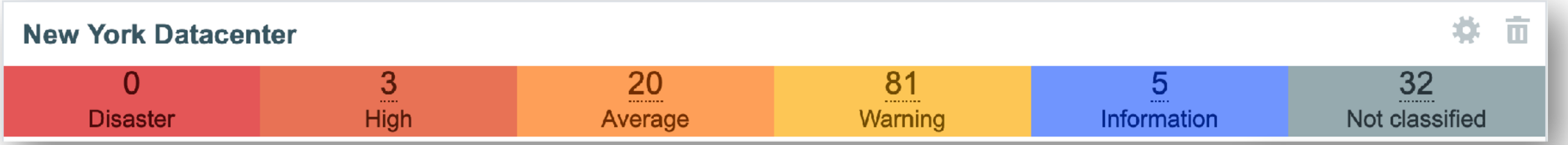


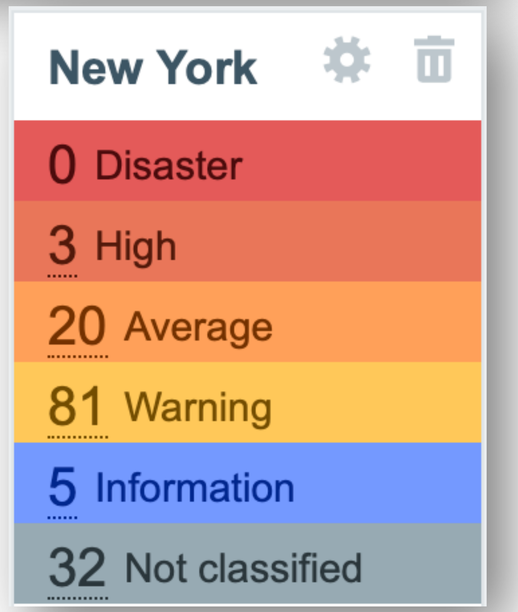
Haderless widgets



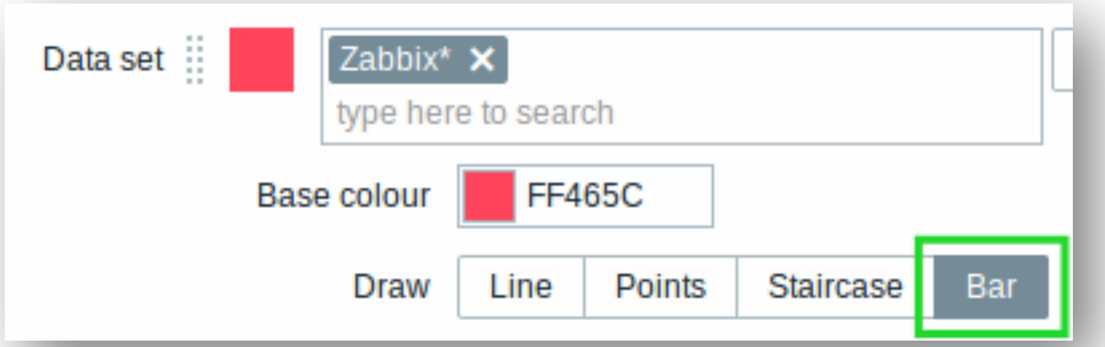


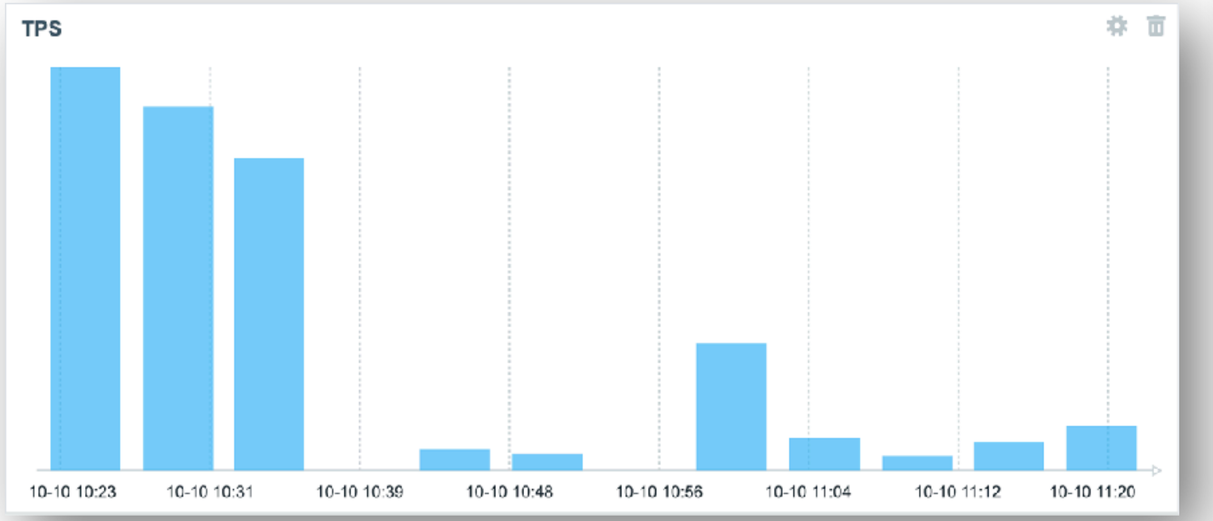
Compact problem view

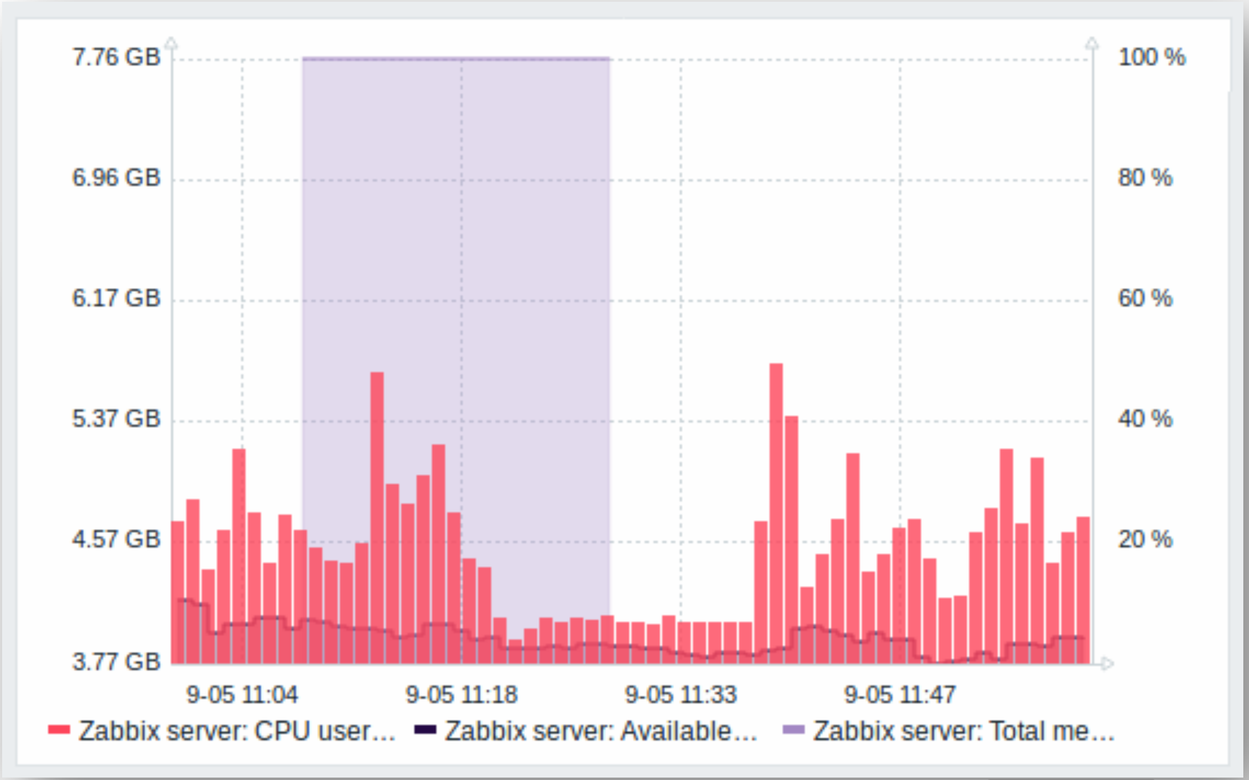




Aggregation of data and bar graphs

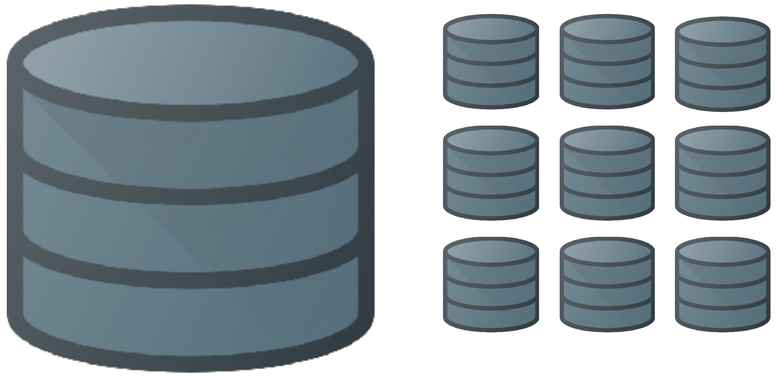






8 New storage options

Support of Timescale database



Advantages

- Automatic partitioning
- Zabbix manages removal of old data
- Performance oriented DB
- Now officially supported by Zabbix!

TIMESCALE

9 Standards for templates

So many templates to choose from!

Template DB MySQL | 3rd party solutions

Link	Source	Compatibility	Type, Technology	Created Updated	Rating
Template MySQL (800+ items) A huge template for monitoring MySQL without any triggers ✔ Zabbix Agent ✔ Zabbix Trapper share.zabbix.com/template-mysql-800-items	share.zabbix.com 13207 65	2.0	Template, External script perl	2015-08-19 4 y	Popular Not maintained
Zabbix template for monitoring Galera cluster Template for monitoring a Galera Cluster running on Linux.Tested on RHEL and CentOS 7.Created using 3.2 but may work with lower versions.Add Value Mapping, import Template and copy userparamater file to client, and restart zabbix agent service. ✔ Zabbix Agent github.com/MogiePete/zabbix-galera-template share.zabbix.com/galera-cluster-monitoring	share.zabbix.com 884 13	3.2	Template	2017-08-04 2 y	Popular
MySQL-Monitoring-Proxy This tool can be utilized to gather behavioral measurement data or configuration data of MySQL servers in a efficient way. It can be used as an external check for the zabbix monitoring system. The benefit for using this tool is a very low overhead for gathering the measurements because this tool is written ... ✔ Custom Script github.com/scoopex/mysql_extend	share.zabbix.com	3.4	External script C	2015-09-27 1 y	

Template defines how to monitor a resource

OS

Application

Hardware device

Any IT infrastructure (services) consists of a set of standard resources

Templates is a knowledge base!

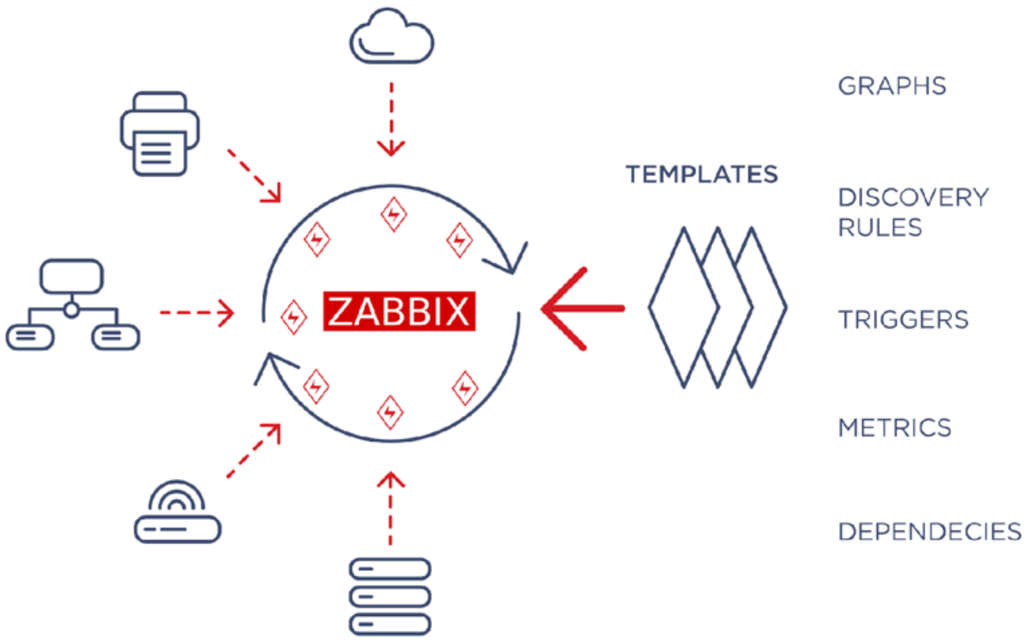
How to monitor a resource?

What resource metrics needs to be monitored?

What availability, performance and security related problems must be detected?

Description of all metrics and problems

Guidelines



Best practices on

Data collection: items

Problem detection: triggers

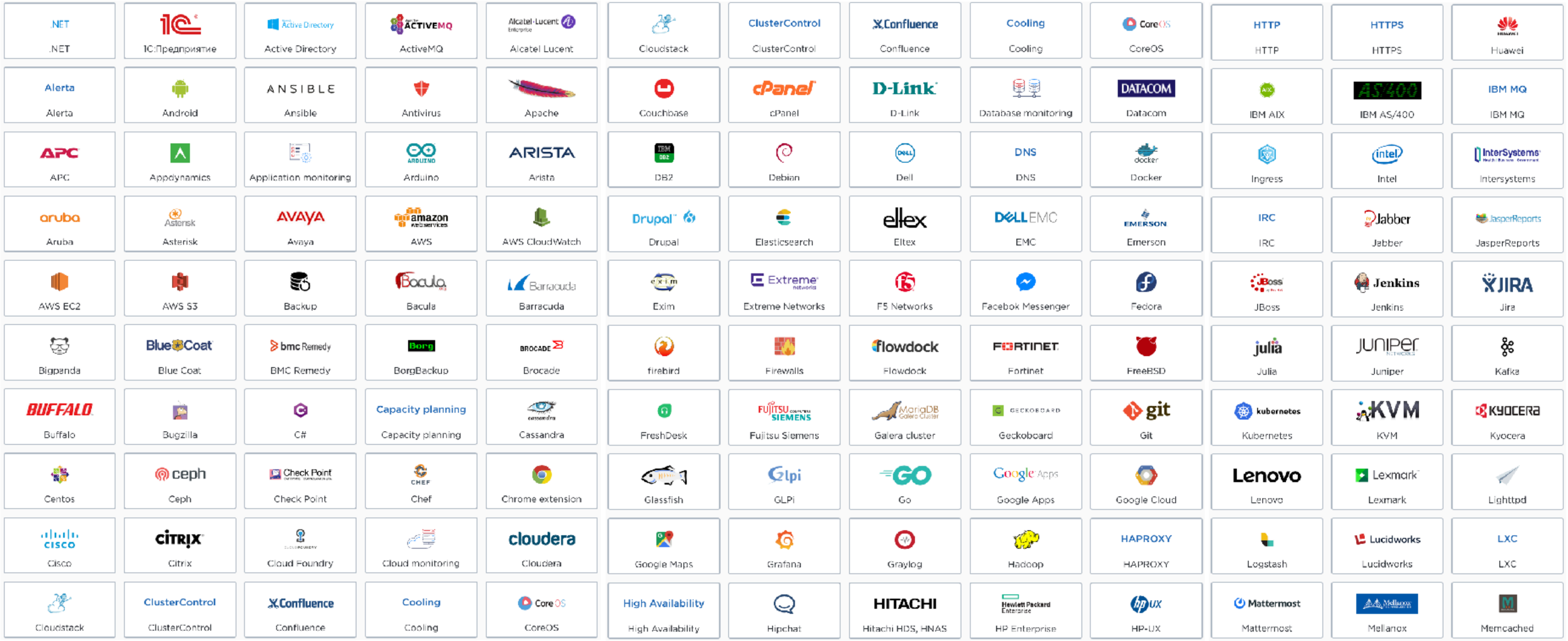
Problem classification: severity and tags

Knowledge

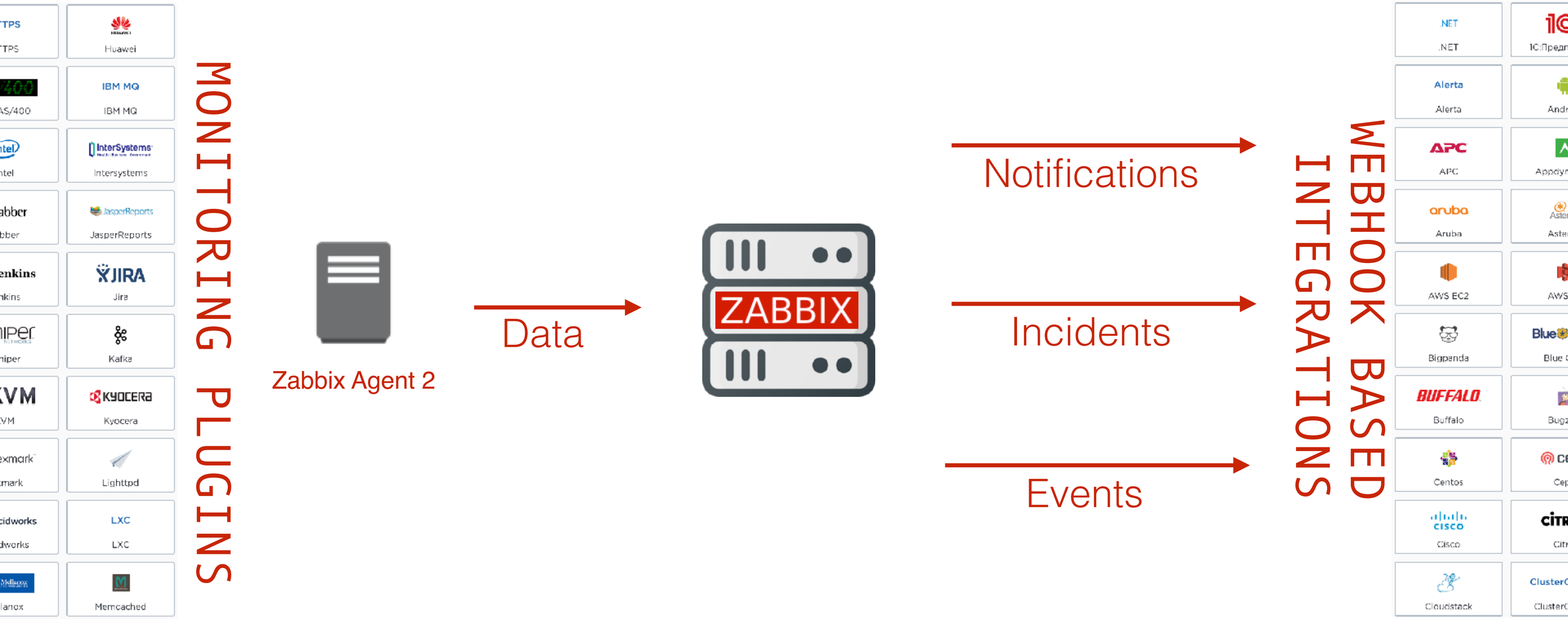
Visualization: host level screens (dashboards)

https://www.zabbix.com/documentation/guidelines

Various resources



Making a platform for high quality solutions



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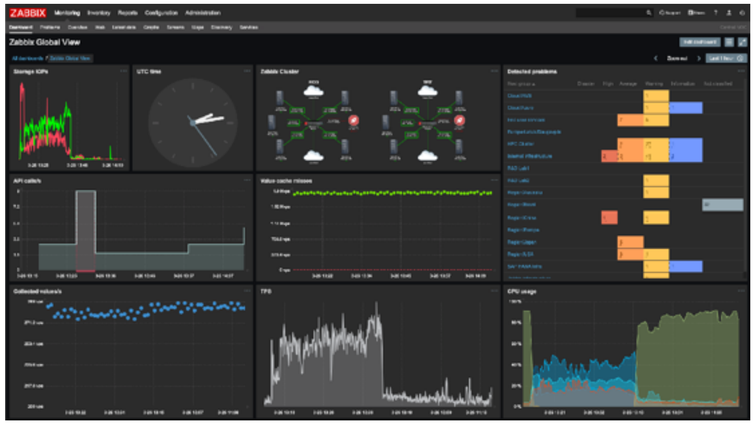
Zabbix Blog

The Future of Monitoring



Zabbix Blog

Webinars

YouTube

Youtube

Zabbix 5.0 LTS

Zabbix 5.0

March, 2020

Main directions

Out of the box monitoring and alerting

Ready for Cloud and Kubernetes monitoring

Baseline monitoring

Security monitoring

Vizualization and reporting

Performance and high availability

Modules for Zabbix UI

Support of user modules to extend Zabbix UI:

- extend functionality

- add new menu entries

- modify or improve existing functionality

- add new dashboard widgets (in 5.2?)

New Agent

zabbix_agent2

Support of Microsoft Windows

Two ways of deploying a plugin.

- compiled-in (supported currently)

- as a standalone module

Security monitoring

Detection of security related problems for a monitored resource:

- unsafe configuration options

- use of non secure connections

- other resource specific issues

All problems classified (tagged) as availability, performance or security related

Policy for problem tags: list of mandatory tags for templates and hosts

Enabling code contributions

Process

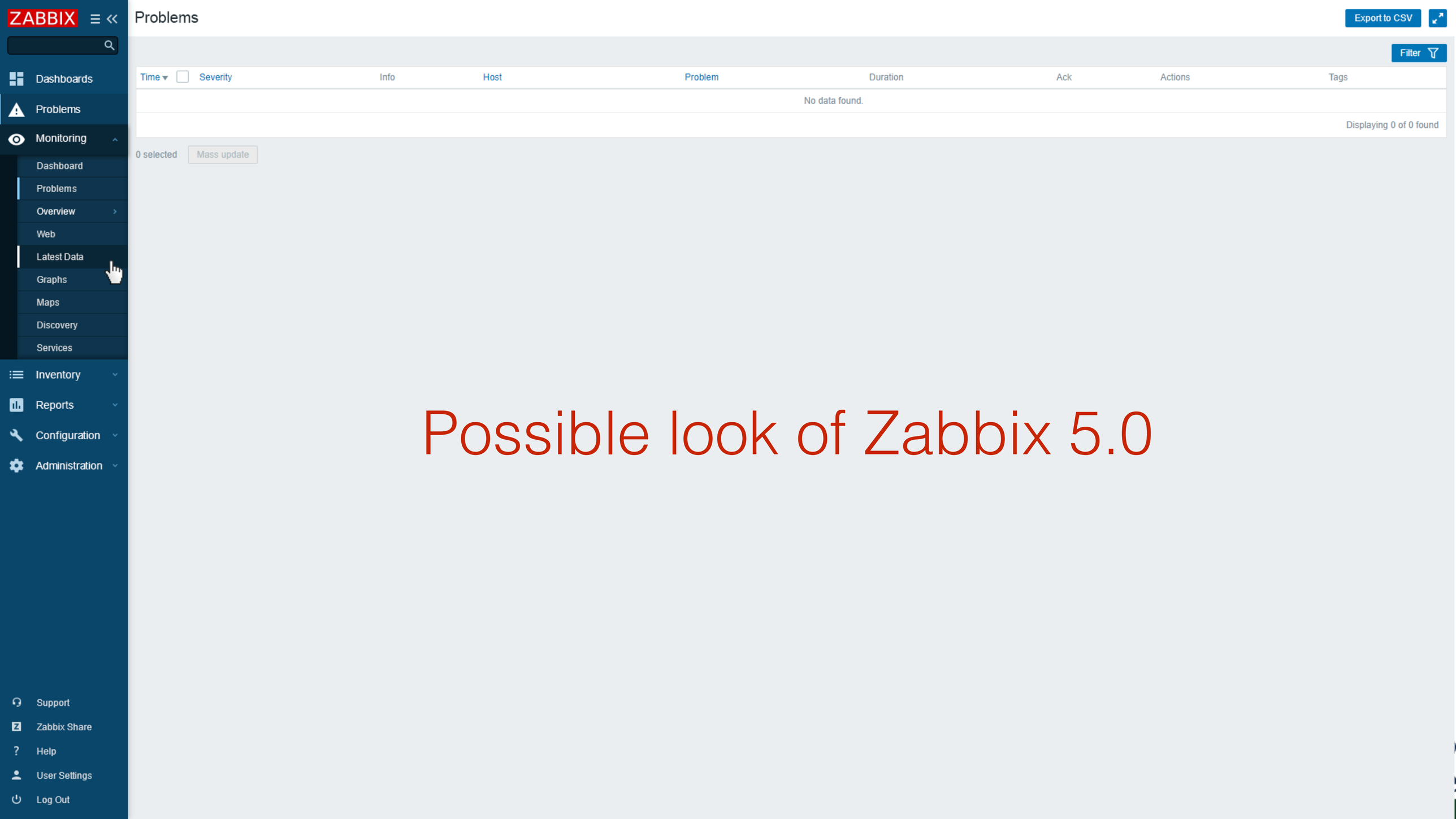
1. Sign Zabbix Contributor Agreement

2. Develop plugin or a new media type

3. Zabbix Team will review it and provide feedback

4. Fix reported issues

5. The new code will be included into Zabbix software and officially supported

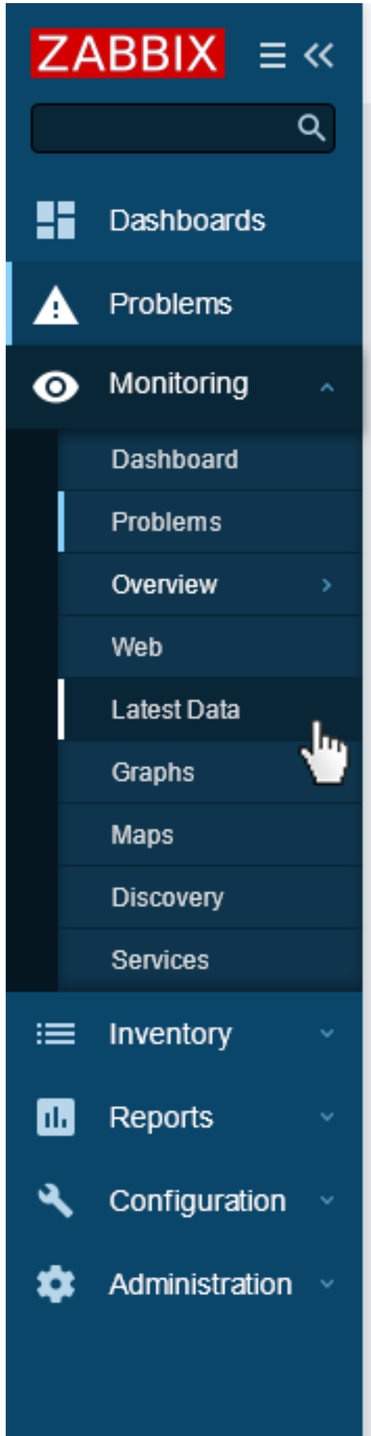

ZABBIX
Problems
Export to CSV
Filter
Dashboards
Problems
Monitoring
Dashboard
Problems
Overview
Web
Latest Data
Graphs
Maps
Discovery
Services
Inventory
Reports
Configuration
Administration
Support
Zabbix Share
Help
User Settings
Log Out
Time
Severity
Info
Host
Problem
Duration
Ack
Actions
Tags
No data found.
Displaying 0 of 0 found
0 selected
Mass update
Possible look of Zabbix 5.0

UI modules

Extend functionality of Zabbix UI

3rd party modules and reporting

New dashboard widgets (5.2?)



Detailed roadmap will be published next week!

https://www.zabbix.com/roadmap

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