

# ZABBIX 4.4 MONITORING BEYOND BORDERS



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**ZABBIX** Founder & CEO

**ZABBIX** '19  
SUMMIT

# Gold sponsors



# Silver sponsors



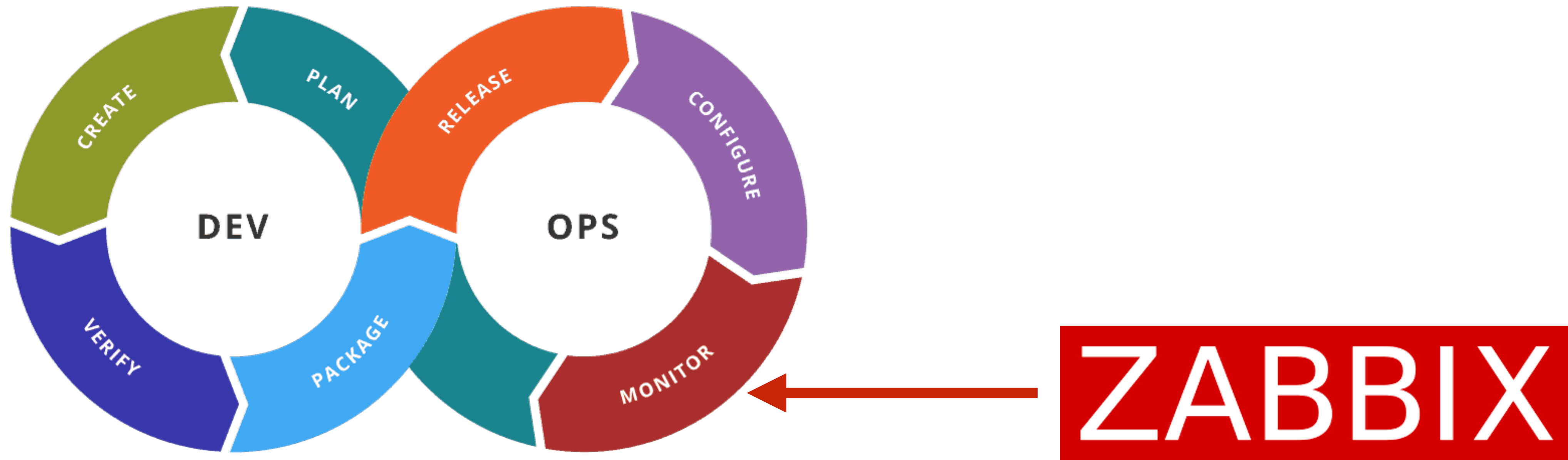
# Zabbix Summit 2019 in numbers

500 participants

45+ countries

60+ Zabbix Team members

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



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



# Quick recap of 2019

# New support tier for Enterprise customers



**Global I**

[Request a quote](#)

Monitored devices and metrics  
**Unlimited**

Number of incidents  
**Unlimited**

Support availability  
**24 x 7**

Initial response time <sup>?</sup>  
**2 hours**

Emergency response time  
**60 minutes**

Support contacts <sup>?</sup>  
**20**

Supported Zabbix servers <sup>?</sup>  
**Unlimited**

Support for Zabbix Proxy <sup>?</sup>  
**Unlimited**

Legal entities covered <sup>?</sup>  
**5**

# Zabbix 4.2

April, 2019

High frequency monitoring with throttling

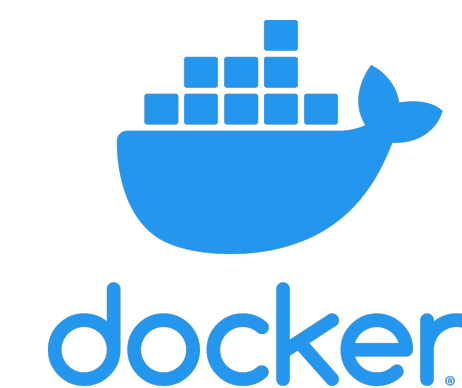
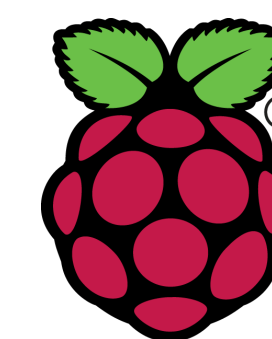
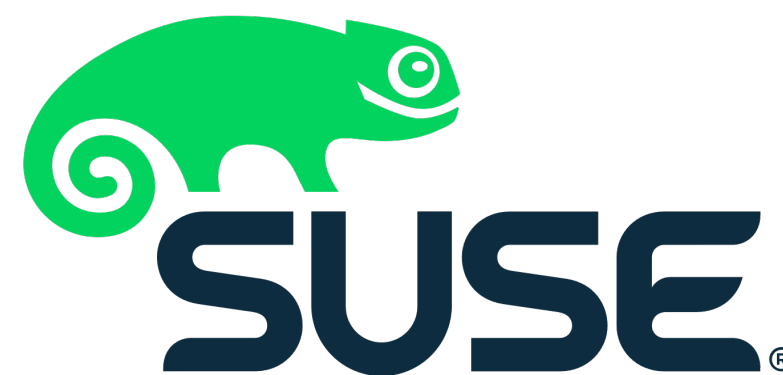
Data collection: HTTP agent, Prometheus

Preprocessing: validation and JavaScript!

Enhanced tag management

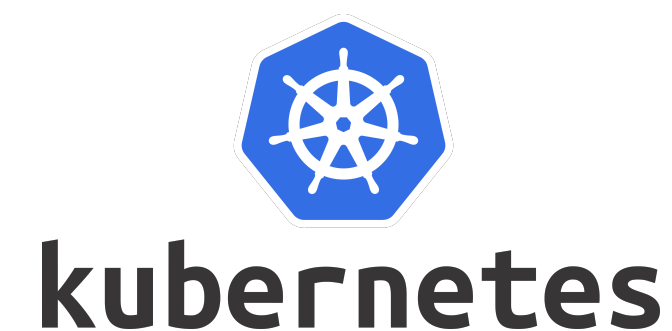


## New platforms



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## Cloud



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## New OS



Riga



2005

Tokyo



2012

New York



2015

Moscow



2019



# Creators of Zabbix





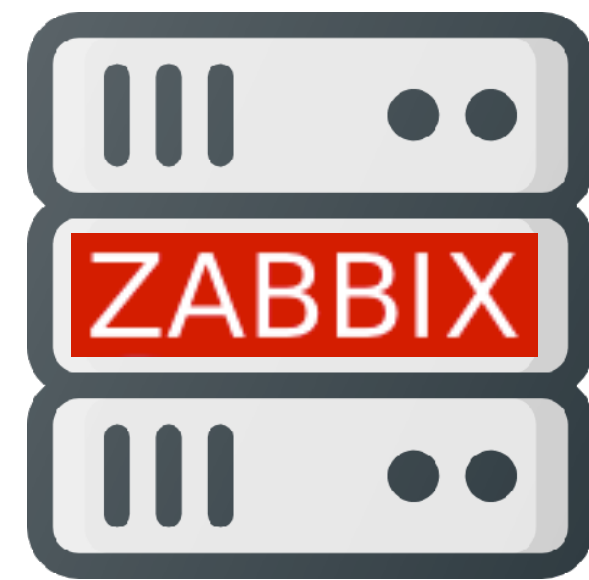
# Zabbix 4.4

More than 30 new features and functional improvements

1

# Zabbix Agent

# Zabbix Agent



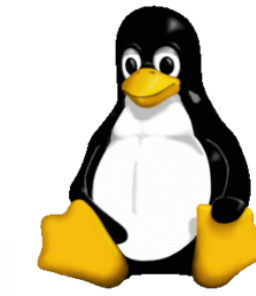
Zabbix Server

Passive, Pull  
→

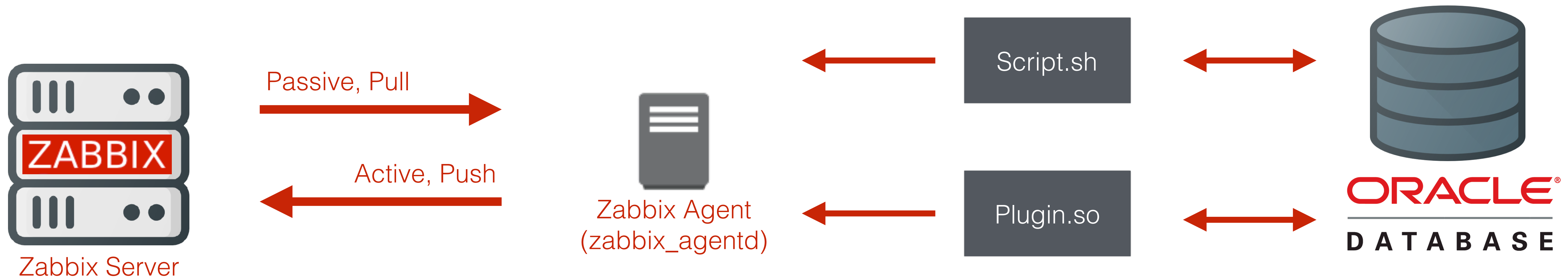
←  
Active, Push



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)  
Drop-in replacement of the existing agent



2

# Actions and notifications



Email

SMS

Script

Webhook with Embedded JavaScript

Notifications

Incidents

Events

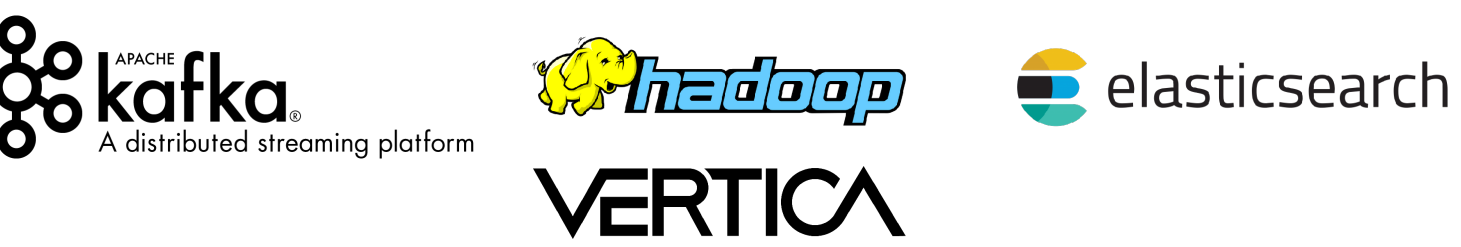
# Messaging



# ITSM



# Event streaming



\* Name ServiceDesk

Type Webhook

← Webhook

Parameters

| Name       | Value                      | Action                 |
|------------|----------------------------|------------------------|
| URL        | https://sd.example.com/api | <a href="#">Remove</a> |
| TicketName | {ALERT.SUBJECT}            | <a href="#">Remove</a> |
| TicketBody | {ALERT.MESSAGE}            | <a href="#">Remove</a> |

[Add](#)

← URL for API access

\* Script `req.AddHeader('Content-Type: application/json');`

← All logic in JavaScript

Timeout 30s

Process tags

← Process event tags

Include event menu entry

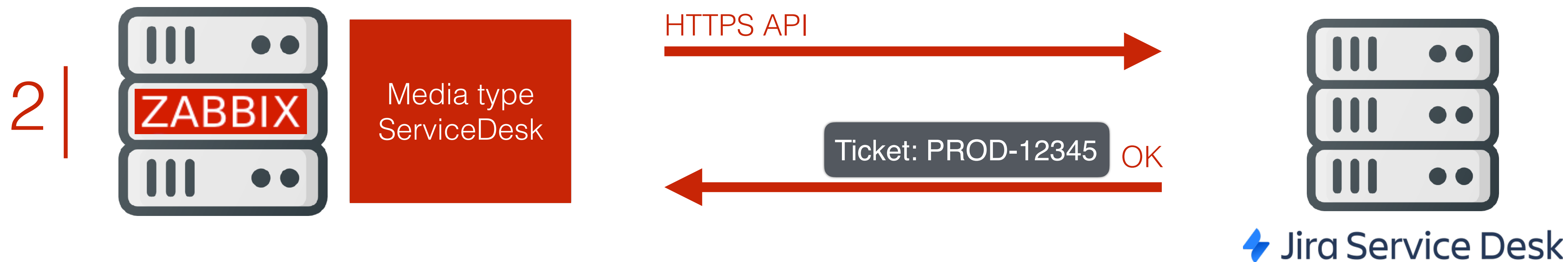
\* Menu entry name `ServiceDesk issue {EVENT.TAGS.Ticket}`

← Add a menu entry for 2-way integration

\* Menu entry URL `https://sd.example.com/browse/{EVENT.TAGS.Ticket}`

# Workflow

1 | Redis is not available  
Datacenter: NY2 Service: Redis



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                | <input type="checkbox"/> | Severity ▼ | Recovery time | Status  | Info | Host    | Problem               | Duration | Ack | Actions | Tags  |
|---------------------|--------------------------|------------|---------------|---------|------|---------|-----------------------|----------|-----|---------|---|
| 2019-10-01 11:13:26 | <input type="checkbox"/> | High       |               | PROBLEM |      | AWS N34 | Service Redis stopped | 1m       | Yes | 1 2     | Datacenter: NY2 Service: Redis Ticket: PROD-12345 |

### TRIGGER

Problems

Description

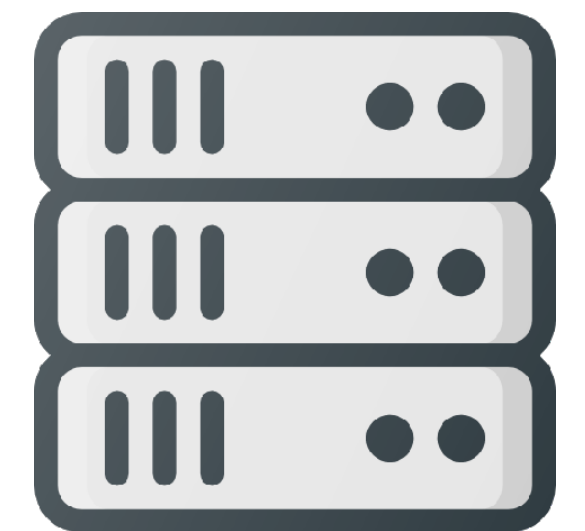
Configuration

### LINKS

Service desk issue PROD-12345

### HISTORY

Service status



Jira Service Desk

3

Built-in  
knowledge base

# Item details

| Linux010                 |                      | CPU (8 Items)       |           |
|--------------------------|----------------------|---------------------|-----------|
| <input type="checkbox"/> | CPU idle time ?      | 2019-10-10 10:05:08 | 89.8262 % |
| <input type="checkbox"/> | CPU interrupt time ? | 2019-10-10 10:05:11 | 0 %       |
| <input type="checkbox"/> | CPU iowait time ?    | 2019-10-10 10:05:12 | 0.1687 %  |
| <input type="checkbox"/> | CPU nice time ?      | 2019-10-10 10:05:10 | 0 %       |
| <input type="checkbox"/> | CPU softirq time ?   | 2019-10-10 10:05:10 | 0.928 %   |
| <input type="checkbox"/> | CPU steal time ?     | 2019-10-10 10:05:09 | 0 %       |
| <input type="checkbox"/> | CPU system time ?    | 2019-10-10 10:05:11 | 5.1788 %  |
| <input type="checkbox"/> | 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       | 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<br>Env: Production |
| 2019-09-30 13:45:45 | Average     |               | PROBLEM |      | AWS N30       | Too many queries per second ?                         | 1y 9d     | Yes | 1       | 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 |      | AW            |   |           |     |         | Datacenter: FR2 Env: Staging                             |
| 2019-10-01 12:25:11 | High        |               | PROBLEM |      | AWS N34       | Service Redis stopped                                 | 1y 8d     | Yes | 1       | 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:

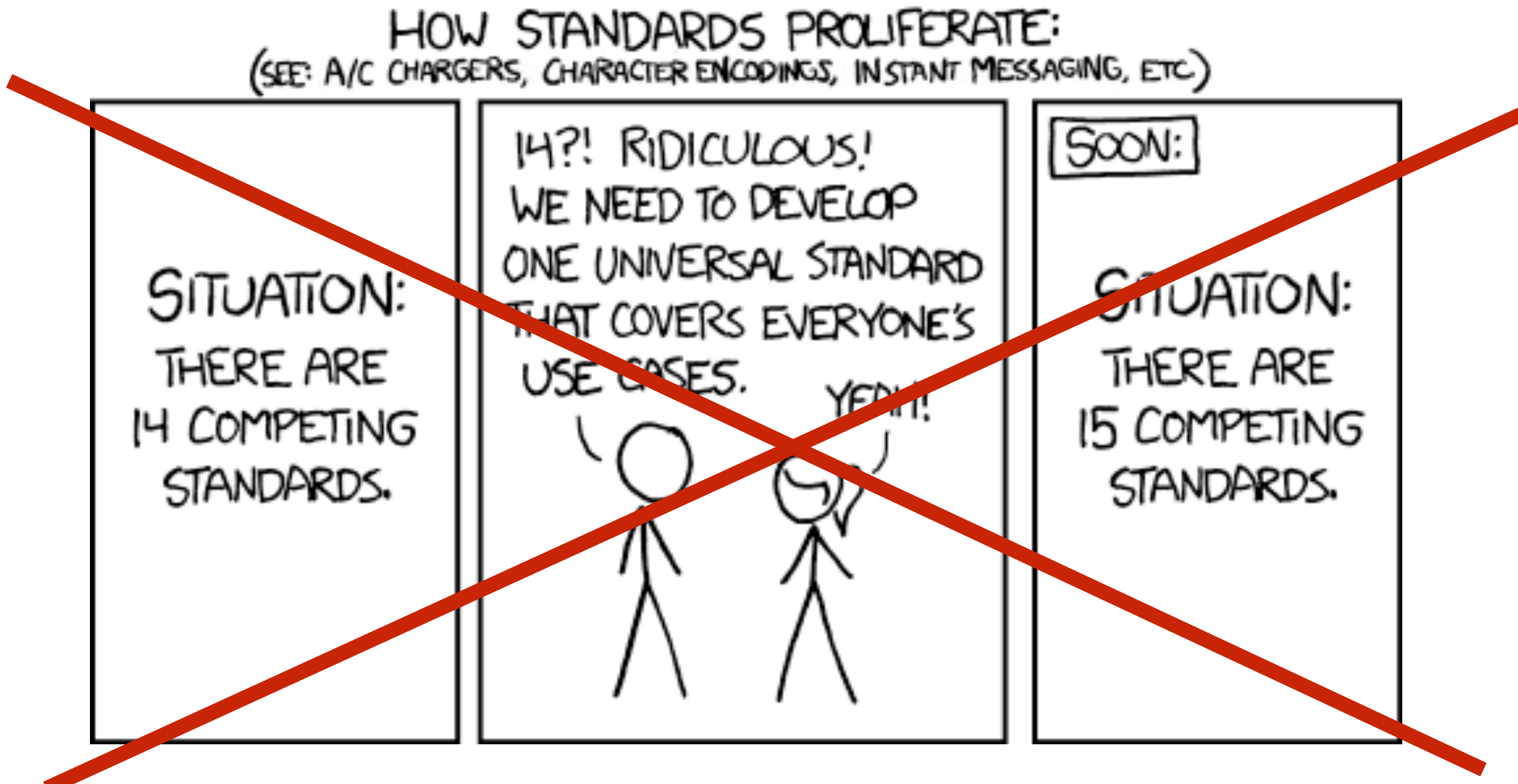
1. Insufficient number of worker nodes if all worker nodes stay busy
2. Network related issues



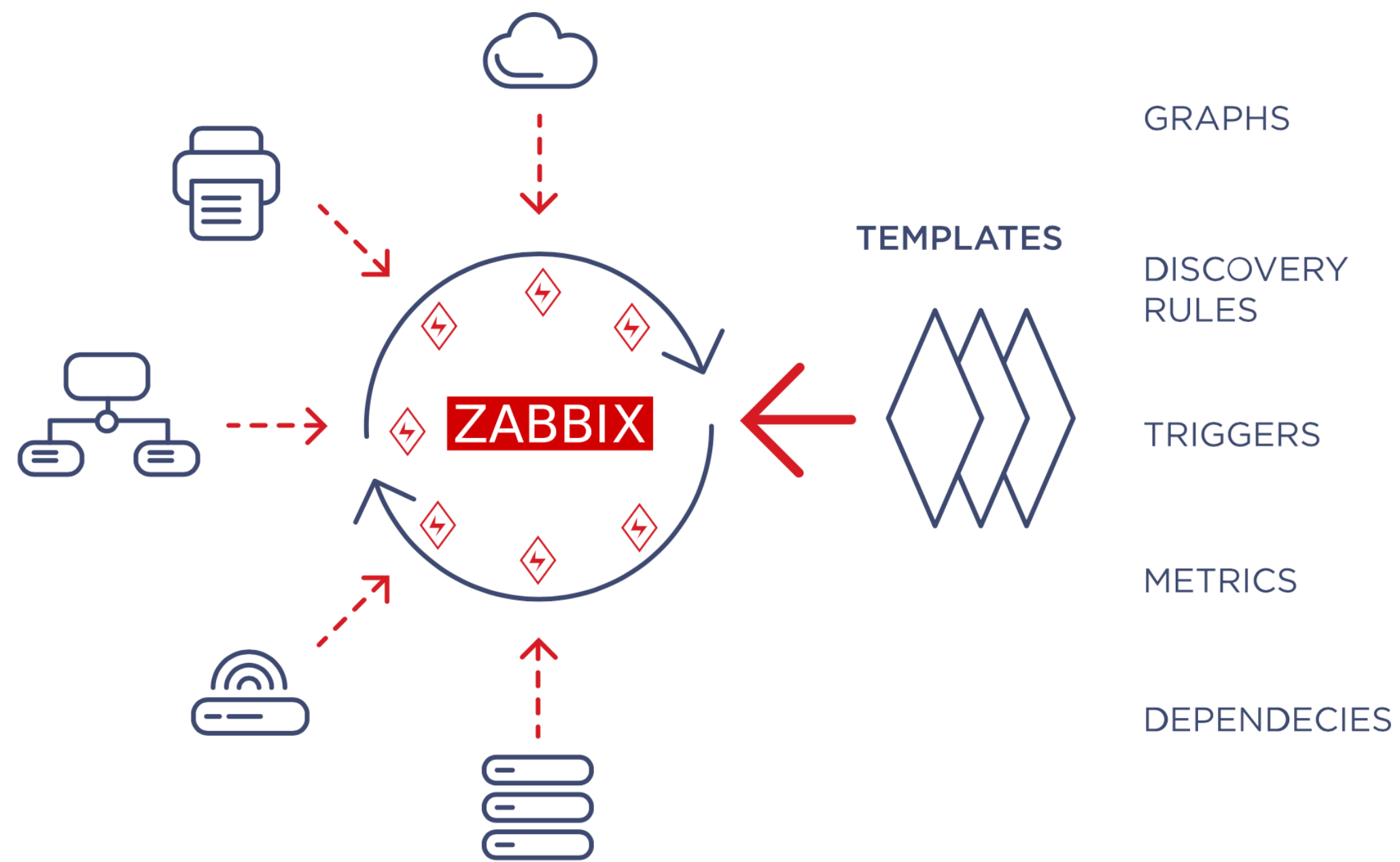
4

# Standards for templates

# Another standard???



# Guidelines



Best practices on

Data collection: items

Problem detection: triggers

Problem classification: severity and tags

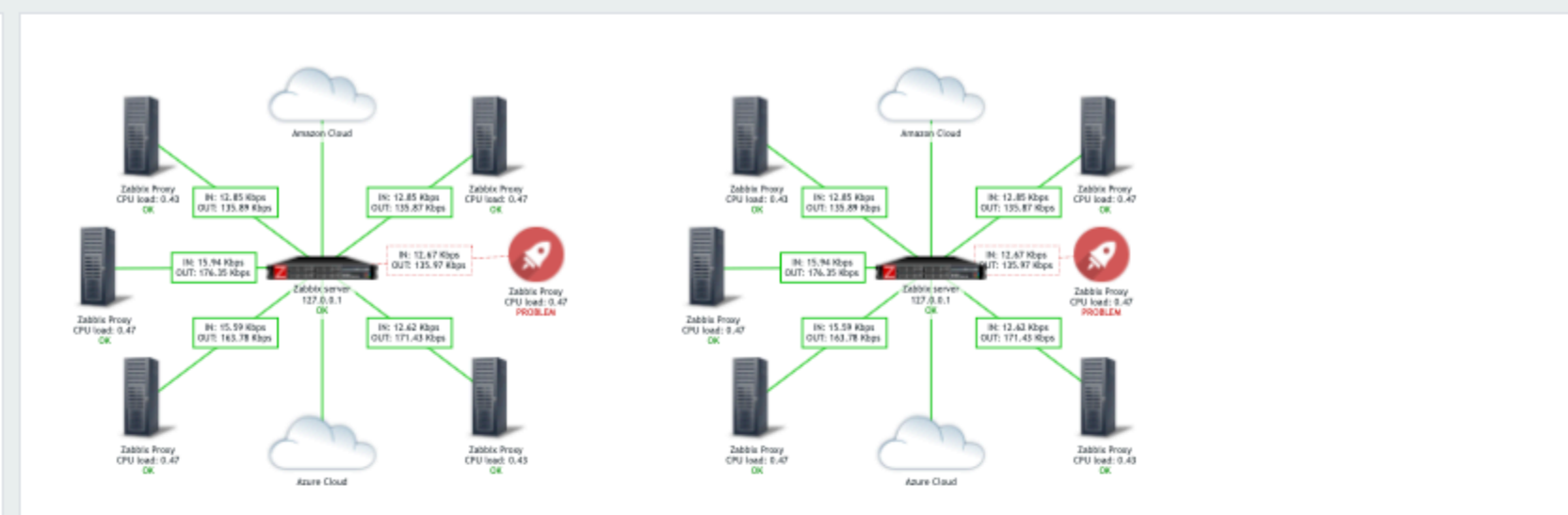
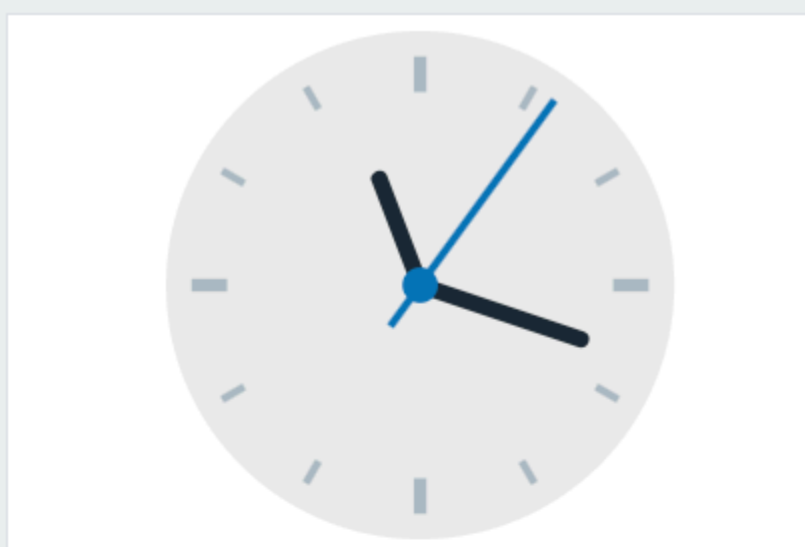
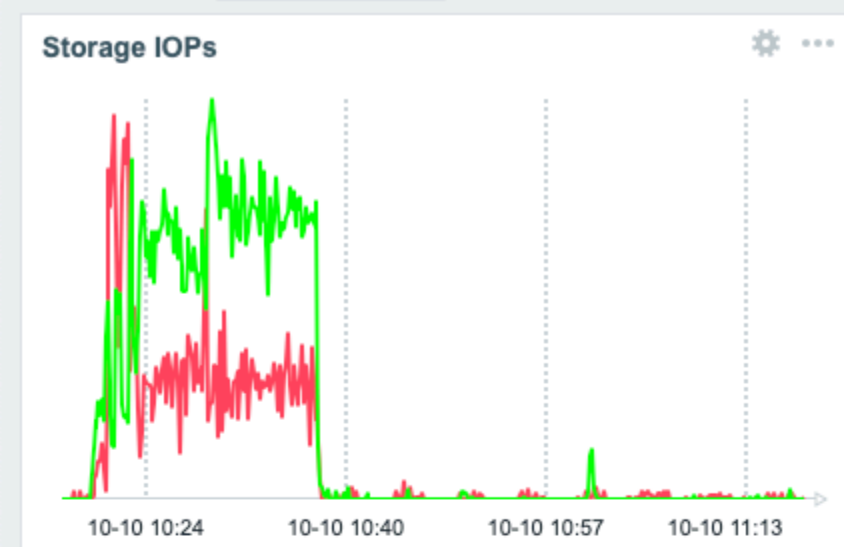
Knowledge

Visualization: host level screens (dashboards)

Templates is a **knowledge base!**

5

Visualization

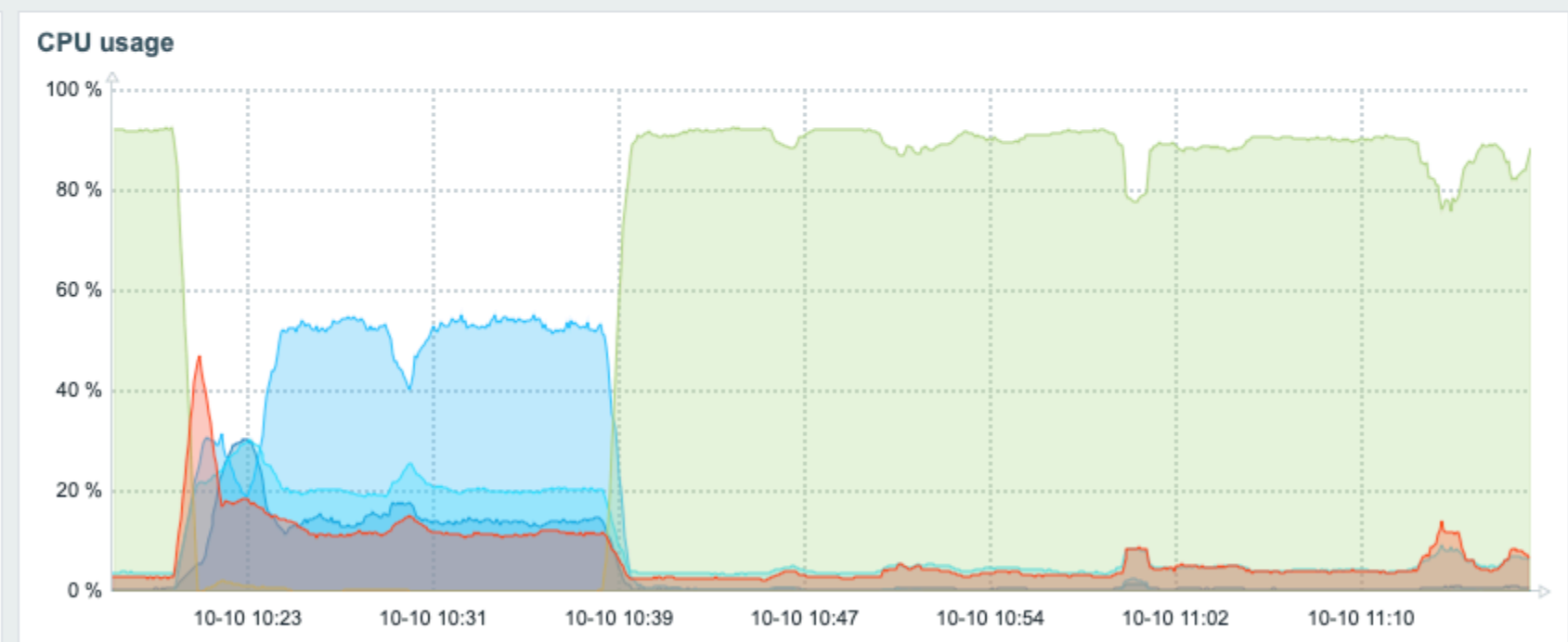
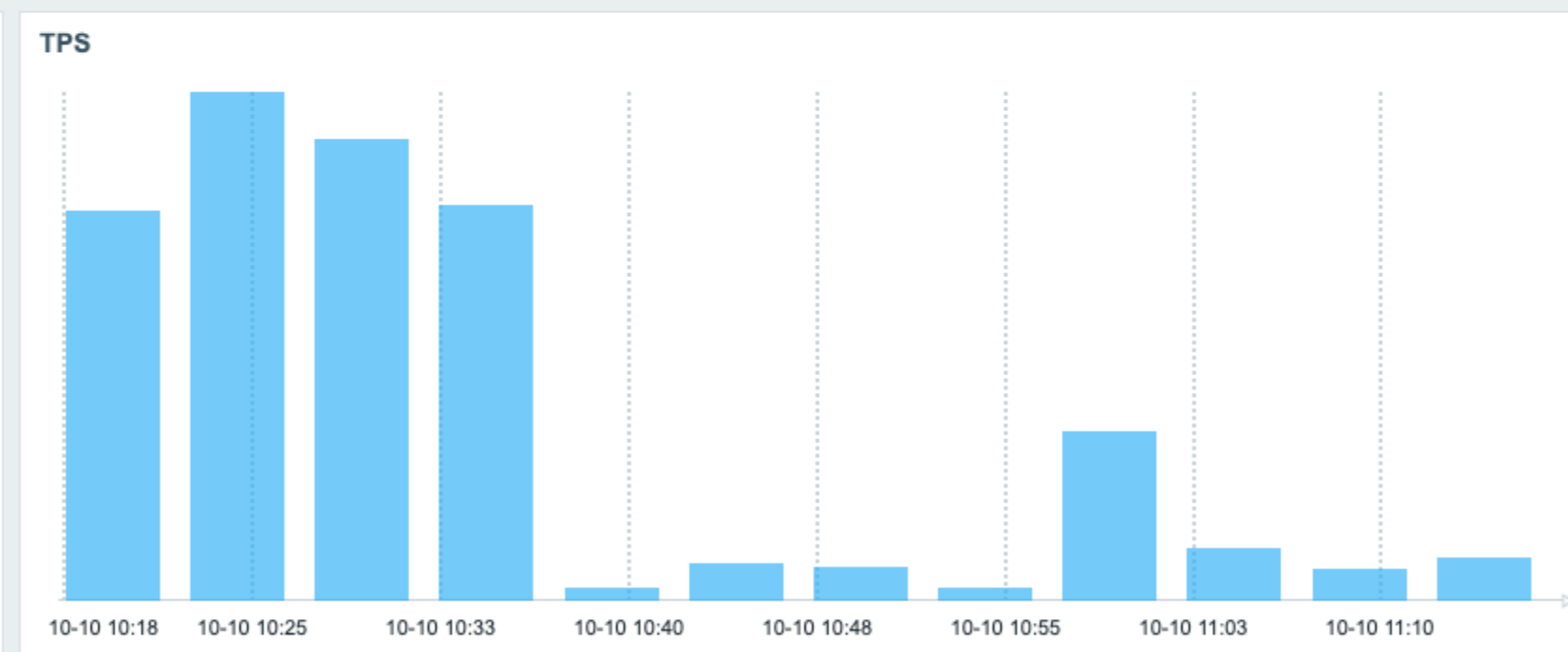
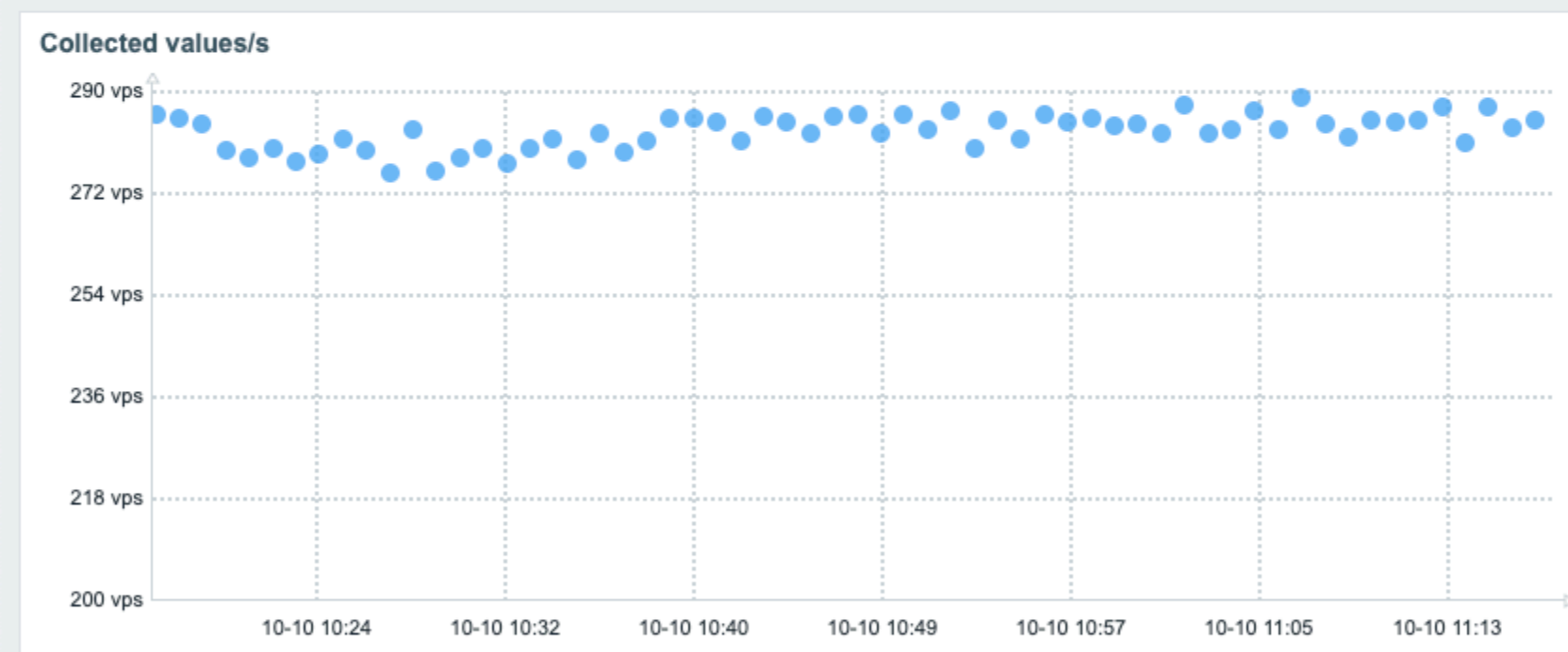
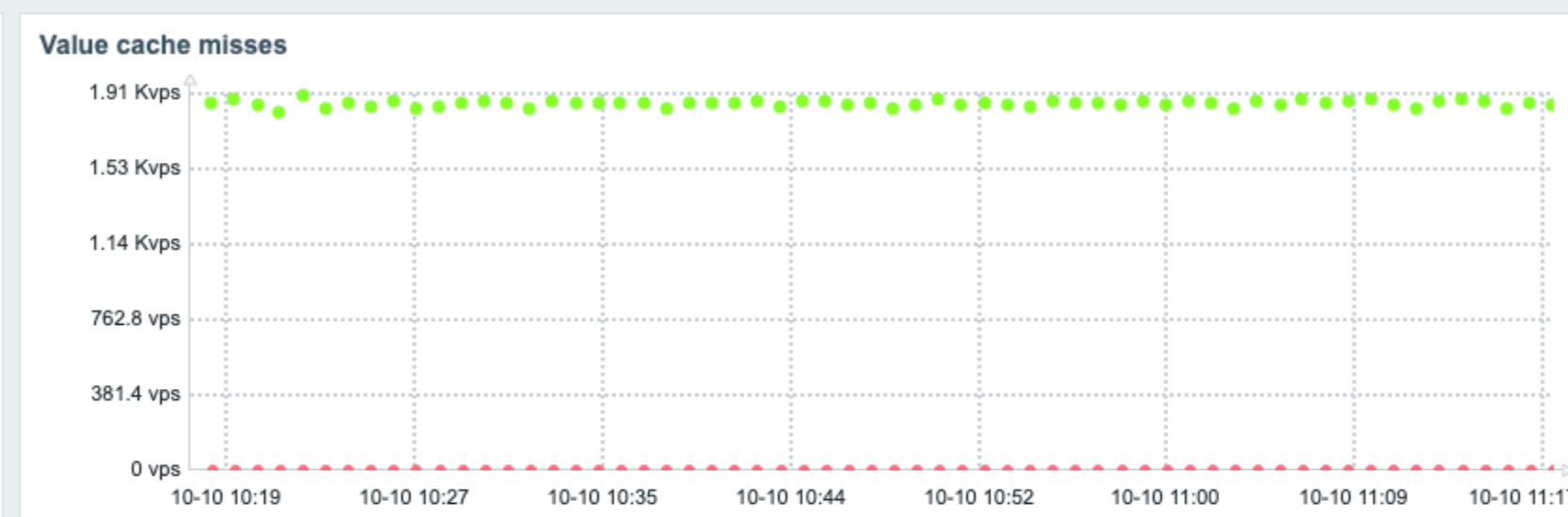
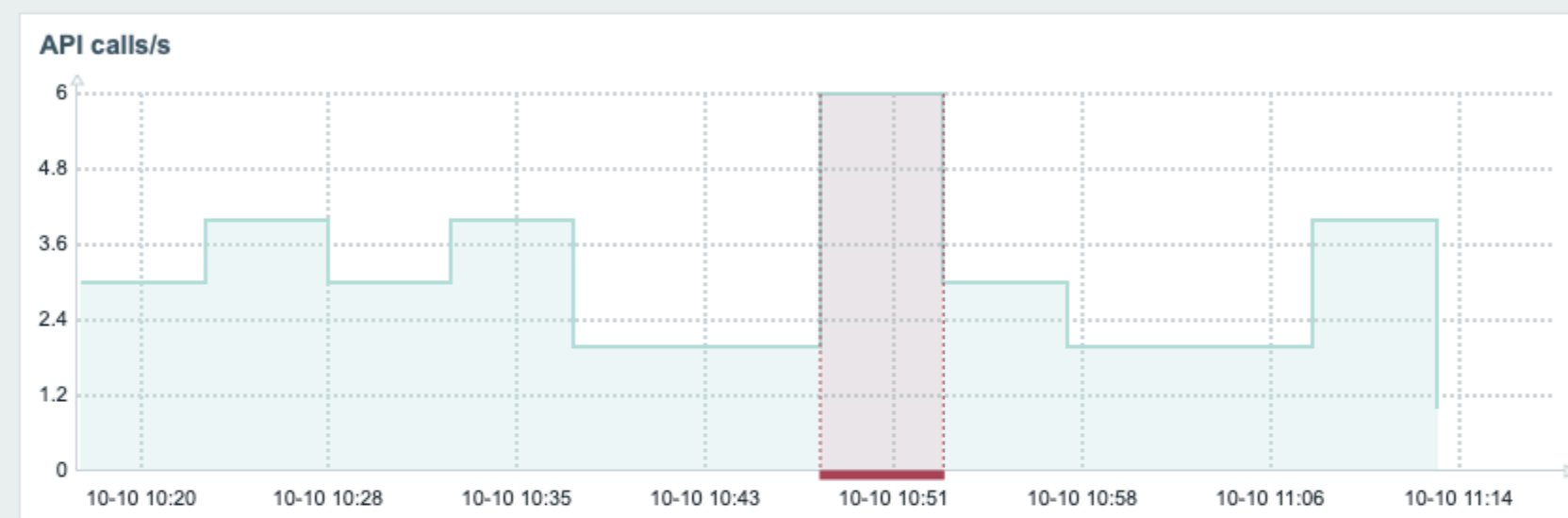


### New York Datacenter

|            |        |            |            |               |                   |
|------------|--------|------------|------------|---------------|-------------------|
| 0 Disaster | 3 High | 20 Average | 81 Warning | 5 Information | 32 Not classified |
|------------|--------|------------|------------|---------------|-------------------|

### Problems by severity

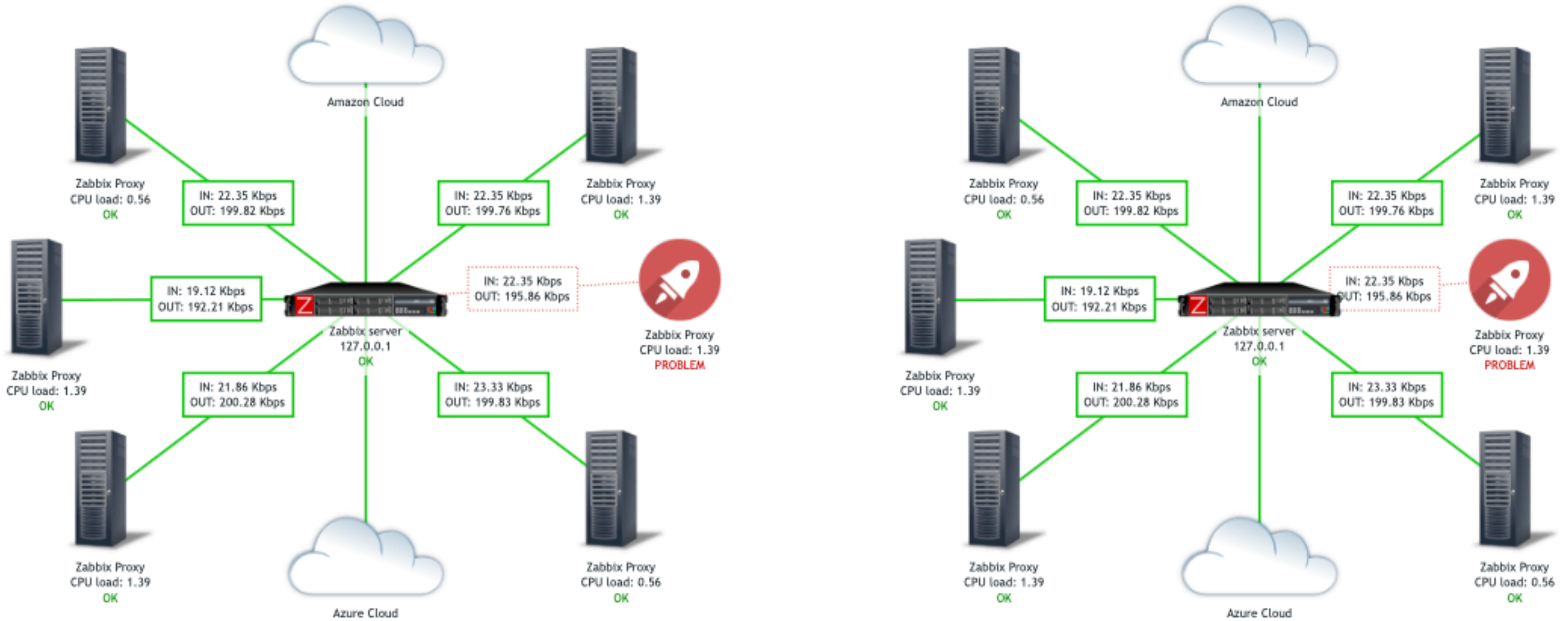
| Host group              | Disaster | High | Average | Warning | Information | Not classified |
|-------------------------|----------|------|---------|---------|-------------|----------------|
| Cloud/AWS               |          |      |         | 1       |             |                |
| Cloud/Azure             |          |      |         | 1       | 1           |                |
| End user services       |          |      | 7       | 5       |             |                |
| Europe/Germany/Berlin   |          |      |         |         |             |                |
| HPC Cluster             |          |      | 2       | 27      | 1           |                |
| Internal infrastructure |          | 2    | 3       | 41      | 2           |                |
| R&D Lab1                |          |      |         |         |             |                |
| R&D Lab2                |          |      |         | 1       |             |                |
| Region/Australia        |          |      |         | 1       |             |                |
| Region/Brazil           |          |      |         |         |             | 32             |
| Region/China            | 1        |      |         | 1       |             |                |



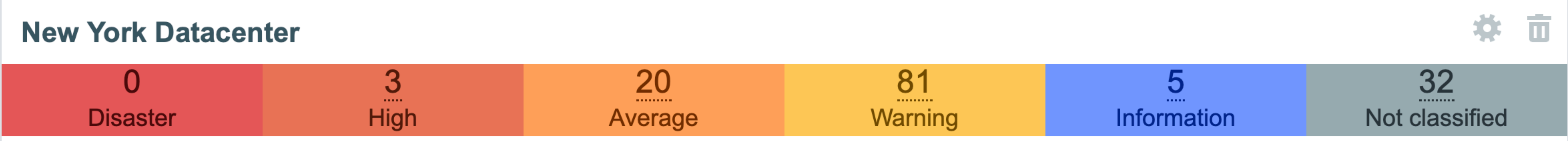
### Detected problems

| Time                | Info | Host    | Problem • Severity          | Duration | Ack | Actions | Tags   |
|---------------------|------|---------|-----------------------------|----------|-----|---------|--|
| 2018-10-01 12:25:11 |      | AWS N34 | Service Redis stopped       | 1y 8d    | Yes | 1 2     | Datacenter: FR2 Env: Staging Service: Redis            |
| 2018-10-01 12:25:11 |      | AWS N90 | Service Redis stopped       | 1y 8d    | Yes | 1 1     | Datacenter: FR2 Env: Staging Service: Redis            |
| <b>October</b>      |      |         |                             |          |     |         |  |
| 2018-09-30 13:45:45 |      | AZ M10  | Too many queries per second | 1y 9d    | Yes | 2 3     | Datacenter: NY1 Env: Production Service: HTTP balancer |
| 2018-09-30 13:45:45 |      | AWS N30 | Too many queries per second | 1y 9d    | Yes | 1 2     | Datacenter: NY1 Env: Production Service: HTTP balancer |
| 2018-09-30 12:45:45 |      | AZ M18  | Slow query execution time   | 1y 9d    | No  | 1       | Datacenter: NY1 Env: Production Service: AWS Dynam...  |

# Haderless widgets

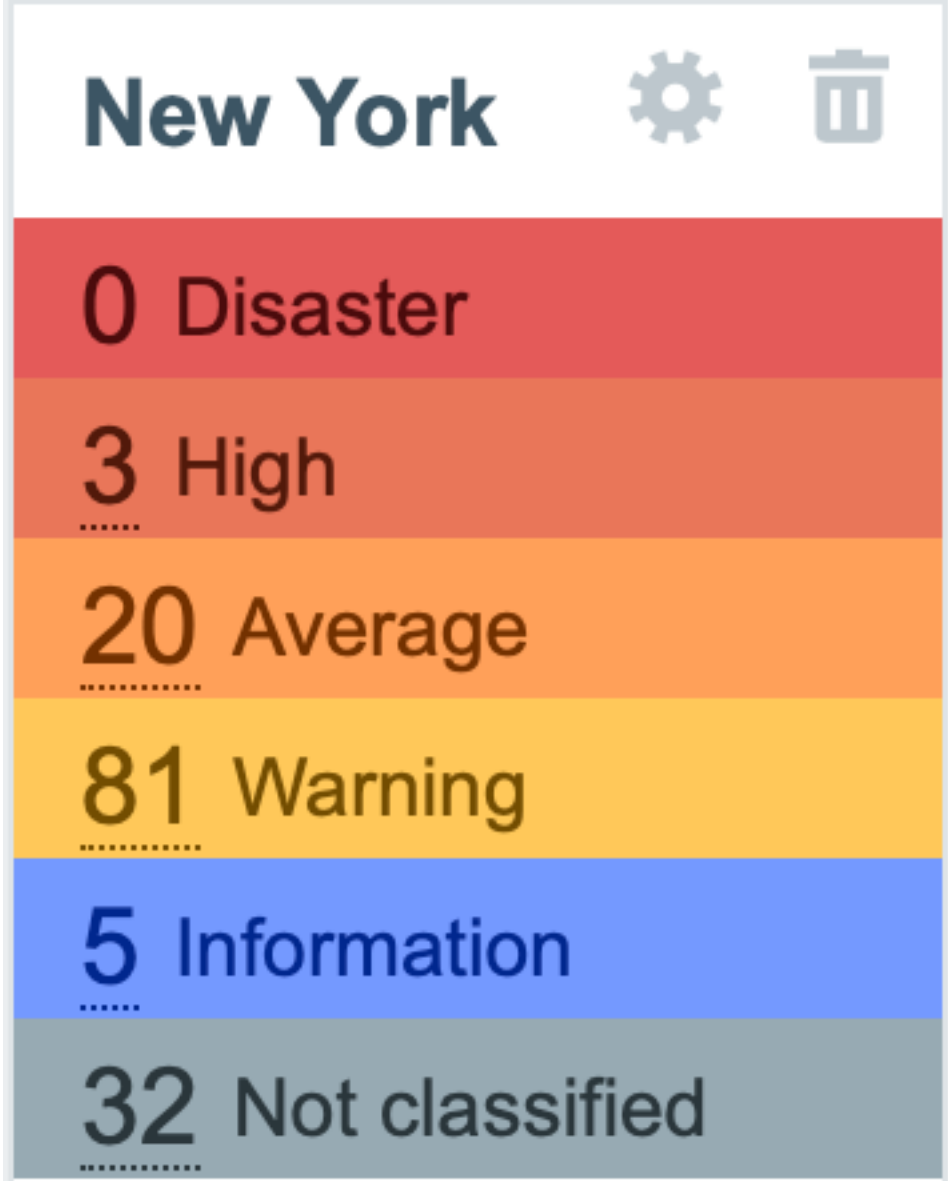


# Compact problem view



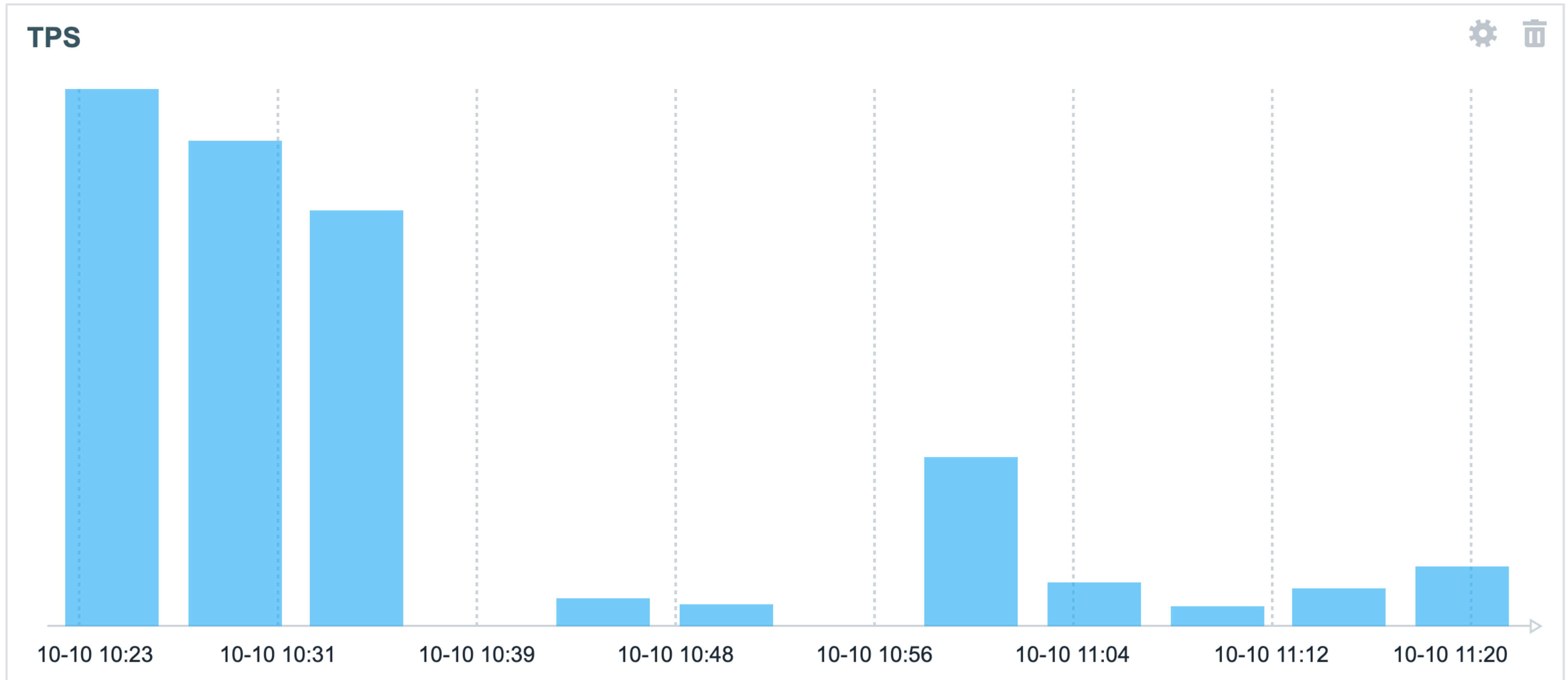
**Problems by severity** ⚙️ 🗑️

| Category                | Disaster | High | Average | Warning | Information | Not classified |
|-------------------------|----------|------|---------|---------|-------------|----------------|
| HPC Cluster             | 0        | 2    | 27      | 1       | 0           | 0              |
| Internal infrastructure | 2        | 3    | 41      | 2       | 0           | 0              |
| R&D Lab1                | 0        | 0    | 0       | 0       | 0           | 0              |
| R&D Lab2                | 0        | 0    | 1       | 0       | 0           | 0              |
| Region/Australia        | 0        | 0    | 1       | 0       | 0           | 0              |
| Region/Brazil           | 0        | 0    | 0       | 0       | 0           | 32             |
| Region/China            | 1        | 0    | 1       | 0       | 0           | 0              |
| Region/Europe           | 0        | 0    | 0       | 0       | 0           | 0              |
| Region/Japan            | 0        | 5    | 0       | 0       | 0           | 0              |
| Region/USA              | 0        | 3    | 1       | 0       | 0           | 0              |
| SAP HANA Infra          | 0        | 0    | 1       | 1       | 0           | 0              |
| Zabbix infrastructure   | 0        | 0    | 1       | 0       | 0           | 0              |





# Aggregation of data and bar graphs





# New storage options

# Support of Timescale database

























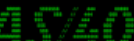











































































































## Advantages

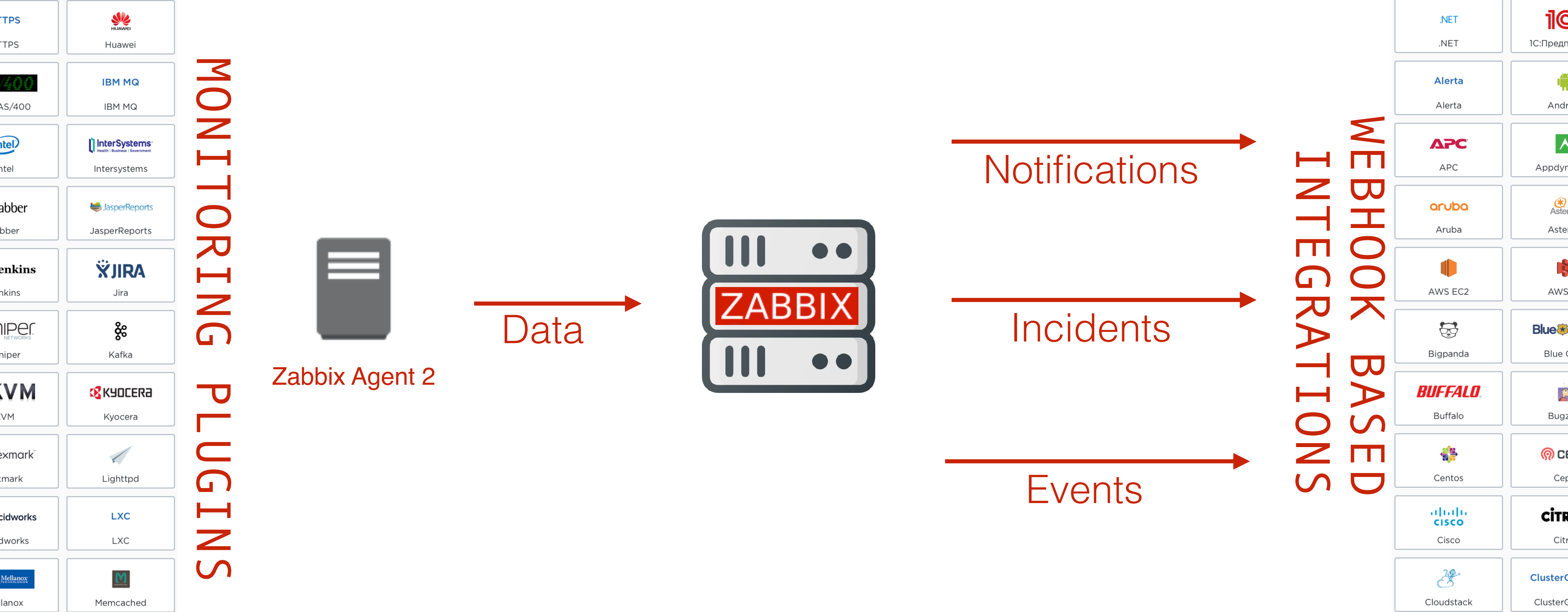
- Automatic partitioning
- Zabbix manages removal of old data
- Performance oriented DB
- **Now officially supported by Zabbix!**



**TIMESCALE**

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

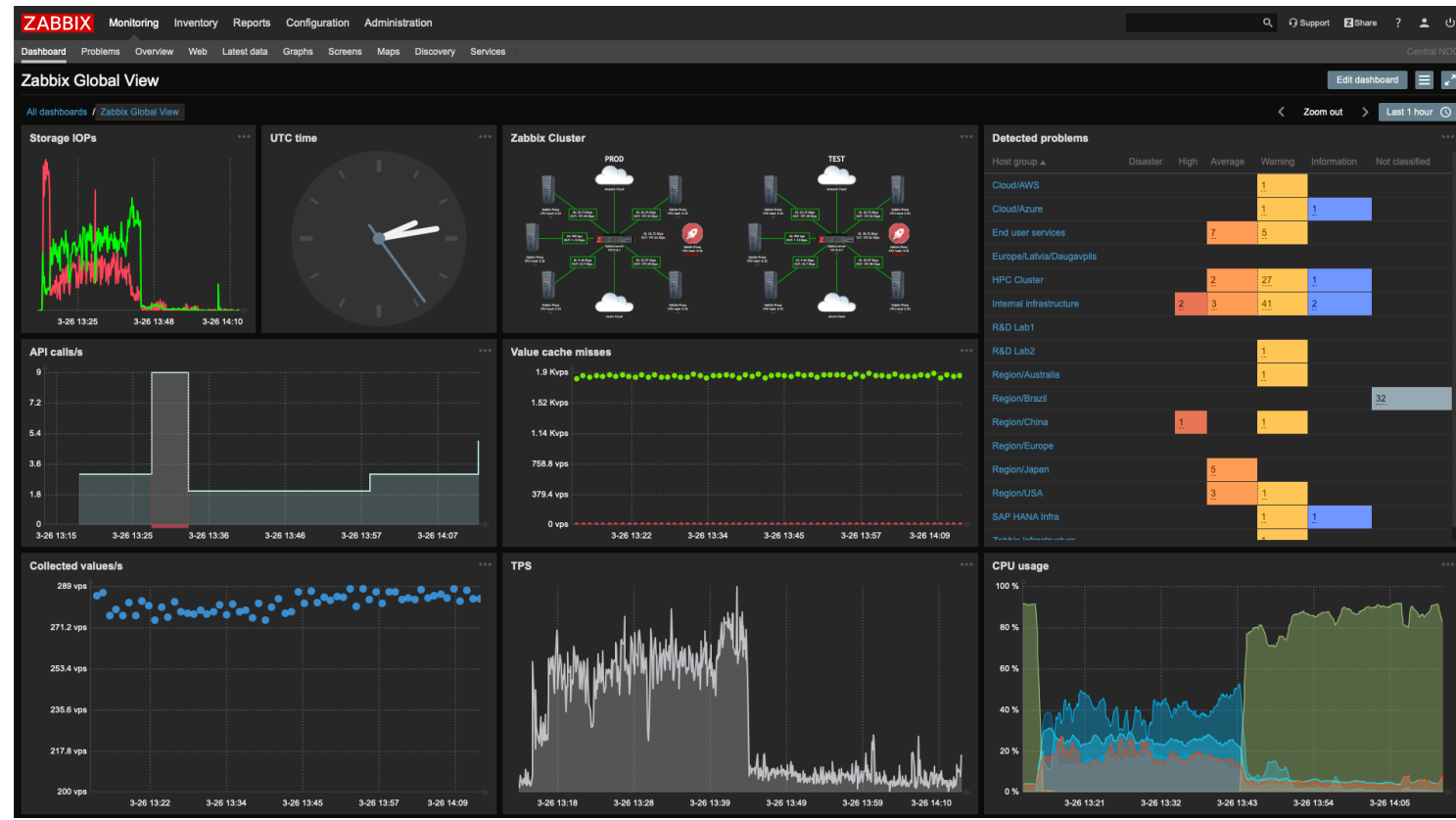
# Making a platform for high quality solutions



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The Future of Monitoring



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# Zabbix 5.0 LTS

# THANK YOU!



**Alexei Vladishev**  
**ZABBIX** Founder & CEO

# ZABBIX '19 SUMMIT

