ZABBIX 6.0 LTS – THE NEXT GREAT LEAP IN MONITORING

ALEXEI VLADISHEV
Founder and CEO, ZABBIX, Latvia
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

Red Hat
SUSE
kubernetes
Red Hat OpenShift
ubuntu
debian

DEPLOY IN THE CLOUD

aws
Azure
Google Cloud
openstack
Red Hat OpenShift
kubernetes
Yandex Cloud
linode
DigitalOcean
Monitor **anything**

Legacy and modern systems, ready for the future
# Solutions for Monitoring

![Image showing various monitoring solutions](https://zabbix.com/integrations)
OFFICIAL AND COMMUNITY SOLUTIONS

Monitoring and Integration Solutions

Official solutions

Official integrations are developed and supported by Zabbix

- HPE ProLiant BL460 SNMP
- HPE ProLiant BL920 SNMP
- HPE ProLiant DL380 SNMP
- 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

- Red Hat OpenShift
- Kubernetes
- AWS
- Azure
- Google Cloud
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

Zabbix UI
- 2FA, SSO
- Pwd complexity
- Auditlog

Vault

Zabbix Database
- Agent key restrictions, no root access

Zabbix Proxies

Zabbix Agents
- Agent key restrictions

HTTPS
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
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
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
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
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
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: 3w
                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

<table>
<thead>
<tr>
<th>Time</th>
<th>Severity</th>
<th>Recovery time</th>
<th>Status</th>
<th>Info</th>
<th>Problem</th>
<th>Duration</th>
<th>Ack</th>
<th>Actions</th>
<th>Tags</th>
</tr>
</thead>
<tbody>
<tr>
<td>2019-05-23 16:37:00</td>
<td>Average</td>
<td></td>
<td></td>
<td>Linux07</td>
<td>Zabbix agent on Linux07 is unreachable for 5 minutes</td>
<td>1y 4m 19d</td>
<td></td>
<td></td>
<td>Service: Zabbix agent</td>
</tr>
<tr>
<td>September</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Service: Kubernetes Datacenter: FR2</td>
</tr>
<tr>
<td>2019-09-30 12:45:45</td>
<td>Information</td>
<td></td>
<td></td>
<td>AZ M08</td>
<td>Low CPU utilization on host machines</td>
<td>1y 9d</td>
<td></td>
<td></td>
<td>Service: AWS Dynam... Datacenter: NY1 Env: Production</td>
</tr>
<tr>
<td>2019-09-30 12:45:45</td>
<td>Information</td>
<td></td>
<td></td>
<td>AZ M18</td>
<td>Slow query execution time</td>
<td>1y 9d</td>
<td></td>
<td></td>
<td>Service: HTTP balancer Datacenter: NY1 Env: Production</td>
</tr>
<tr>
<td>2019-09-30 13:45:45</td>
<td>Average</td>
<td></td>
<td></td>
<td>AWS N30</td>
<td>Too many queries per second</td>
<td>1y 9d</td>
<td>Yes</td>
<td></td>
<td>Service: HTTP balancer Datacenter: NY1 Env: Production</td>
</tr>
<tr>
<td>2019-09-30 13:45:45</td>
<td>Average</td>
<td></td>
<td></td>
<td>AZ M10</td>
<td>Too many queries per second</td>
<td>1y 9d</td>
<td>Yes</td>
<td></td>
<td>Service: Redis Datacenter: FR2 Env: Staging</td>
</tr>
<tr>
<td>October</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Service: Zabbix OS: Linux Performance</td>
</tr>
</tbody>
</table>
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

Traps → Events → Filtering → De-Duplication → Enrichment → IoT → Events → Root cause
MULTI DC MONITORING

- Centralized event processing from multiple Zabbix Servers
- Centralised dashboard

Events

Local widgets
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

Roadmap

This page contains an incomplete list of planned functionality that can be updated anytime without prior notice.

Zabbix 6.0 LTS

Event correlation and enterprise alarm console
- Ability to perform event filtering, de-duplication and aggregation using event preprocessing rules
- Ability to manually hide and suspend problems for a period of time
- Problem view optimised for faster problem resolution and collaborative work

Business service monitoring (BSM)
- Make Zabbix scale to 100K of business services
- Support of alerting on service status changes
- Tag based mapping between problem events and services
- Support of complex service status calculation and propagation rules
- Support of multi-tenancy for Services
- New widgets for service tree and SLA reporting
- Root cause analysis

https://zabbix.com/roadmap
Enjoy the Summit!