Integrated altering in PMM

Setup and manage alerts for databases with Integrated alerting in Percona Monitoring and Management

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About Zoriana

- QA Analyst at Percona Platform team
- Main focus on Test Planning, Execution and Documentation, ensuring the final product meets not only requirements set but also customer expectations.
- First experience in open-source domain and I really enjoy it :)

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About Peter

- Principal Architect at Percona Consulting
- Focused on automation and performance tuning
- Among others, worked at Dropbox, Zuora, Sun microsystems
Agenda

- Check out the nice title slide
- Check out the about us slides
- Going through the agenda <- We are here
- Demo setup
- Configuring integrated alerting
- Act surprised on a triggered alert
- Define a custom alert
Demo setup
Demo setup

- We will do demos!
- You can try yourself: https://github.com/pboros/pmm2lab
- Clone the git repo and do vagrant up

Disclaimer: not suitable for production use, it has hardcoded passwords.
Demo setup

$ vagrant status
Current machine states:

db1.pmm2lab.172.17.17.11.nip.io  running (virtualbox)
db2.pmm2lab.172.17.17.12.nip.io  running (virtualbox)
sysbench.pmm2lab.172.17.17.21.nip.io  running (virtualbox)
pmm.pmm2lab.172.17.17.31.nip.io  running (virtualbox)
Demo setup
Configuring integrated alerting
Turn on integrated alerting
Communication setting for Slack

Settings / Communication

- Metrics Resolution
- Advanced Settings
- SSH Key
- Alertmanager Integration
- Percona Platform
- Communication

Email

Slack

URL (\n)

https://hooks.slack.com/services/TThisIsNOTVALIDTOKEN

Apply changes
Communication setting for Email

- **Server Address**: my.smtp.here
- **Hello**: my.smtp.here
- **From**: alert-noreply@example.com
- **Auth Type**: Plain
- **Username**: alert-service-user
- **Password**: 

[Apply changes]
Architecture

- Alert rule template
- Alert rule
- Alert
- Notification channels
- Notification
Alert rule template

- Sources for creating alert rules
- Built-in ones can be used
- Custom ones can be created
- Each alert rule needs a template
## Built-in templates

<table>
<thead>
<tr>
<th>Name</th>
<th>Source</th>
<th>Created</th>
<th>Actions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Memory used by MongoDB connections</td>
<td>Built-in</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Memory used by MongoDB</td>
<td>Built-in</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MongoDB restarted</td>
<td>Built-in</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MySQL down</td>
<td>Built-in</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MySQL restarted</td>
<td>Built-in</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MySQL connections in use</td>
<td>Built-in</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Node high CPU load</td>
<td>Built-in</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Node out of memory</td>
<td>Built-in</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Node high swap filling up</td>
<td>Built-in</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PostgreSQL down</td>
<td>Built-in</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PostgreSQL restarted</td>
<td>Built-in</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PostgreSQL connections in use</td>
<td>Built-in</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Alert rule

<table>
<thead>
<tr>
<th>Template</th>
<th>Source template</th>
</tr>
</thead>
<tbody>
<tr>
<td>MySQL connections in use</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Name</th>
<th>Alert name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Too many MySQL connections</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Threshold</th>
<th>Threshold - A percentage from configured maximum (% , min: 0 , max: 100)</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Duration (s)</th>
<th>Duration (s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Severity</th>
<th>Severity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Critical</td>
<td></td>
</tr>
</tbody>
</table>

- Source template
- Alert name
- Threshold
- Duration
- Severity
- Channel
- Optional filters
Alerts (ideal case)
### Alerts (non-ideal case)

<table>
<thead>
<tr>
<th>Name</th>
<th>Severity</th>
<th>State</th>
<th>Labels</th>
<th>Active Time</th>
<th>Last Notified</th>
<th>Actions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Node high CPU load (green server)</td>
<td>Notice</td>
<td>Failing</td>
<td>elastics-pymysql, integrated alerting</td>
<td>2021-04-29 13:08:43.455</td>
<td>2021-04-29 13:48:43.455</td>
<td>![Alerts Icon]</td>
</tr>
<tr>
<td>Node high CPU load (ip-10.178.1.194, server 2 compute internal)</td>
<td>Notice</td>
<td>Failing</td>
<td>elastics-pymysql, integrated alerting</td>
<td>2021-04-29 13:08:43.455</td>
<td>2021-04-29 13:48:43.455</td>
<td>![Alerts Icon]</td>
</tr>
<tr>
<td>Node swap is filling up (db-mpypt01)</td>
<td>Critical</td>
<td>Failing</td>
<td>agent, pmmpysql.exporter, elastics-pymysql, integrated alerting</td>
<td>2021-04-29 13:17:43.657</td>
<td>2021-04-29 13:48:43.611</td>
<td>![Alerts Icon]</td>
</tr>
<tr>
<td>MySQL, down (mq-10.2.149.18.224, 1)</td>
<td>High</td>
<td>Failing</td>
<td>agent, pmmpysql.exporter, elastics-pymysql, integrated alerting</td>
<td>2021-04-29 13:08:01.158</td>
<td>2021-04-29 13:49:20.116</td>
<td>![Alerts Icon]</td>
</tr>
</tbody>
</table>
Notification Channels

Add Notification Channel

Name: channel email
Type: Email
Addresses: my-email@donotreplay.com

Add Notification Channel

Name: channel slack
Type: Slack
Channel: integrated-alerting

Add Notification Channel

Name: channel pagerduty
Type: Pager Duty
Routing key
Service key: test$key

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Example e-mail alert

[1] Firing

Labels
- alertrname = /rule_id/27f459fe-6273-4c7a-9cf2-f44c0171d216
- alertrgroup = PMM Integrated Alerting
- ia = 1
- node_name = pmm-server
- rule_id = /rule_id/27f459fe-6273-4c7a-9cf2-f44c0171d216
- severity = notice
- template_name = pmm_node_high_cpu_load

Annotations
- description = pmm-server CPU load is more than 1%.
- rule = Copy of node1
- summary = Node high CPU load (pmm-server)

Source

Sent by AlertManager
Example slack alert
Example PagerDuty alert
Alert triggered!
Custom alerts
Custom template

```
Alert Rule Template

- templates:
  - name: user_template
    version: 1
    summary: MySQL connections in use
    tiers: [anonymous, registered]
    expr:
      max_over_time(mysql_global_status_threads_connected[5m]) / ignoring (job)
      mysql_global_variables_max_connections
      * 100
      > [[ :threshold ]]

```

Upload

Add  Cancel
Custom template II.

---

templates:
- name: pmm_mongodb_high_memory_usage
  version: 1
  summary: Memory used by MongoDB
  expr: |-
    sum by (node_name) (mongodb_ss_mem_resident * 1024 * 1024) / on (node_name) (node_memory_MemTotal_bytes) * 100
    > [[ .threshold ]]
  params:
    - name: threshold
      summary: A percentage from configured maximum
      unit: "%"
      type: float
      range: [0, 100]
      value: 80
  for: 5m
  severity: warning
  labels:
    custom_label: demo
  summary: MongoDB high memory usage
  description: |-
    {{ $value }}% of memory (more than [[ .threshold ]]) is used by {{ $labels.service_name }} on {{ $labels.node_name }}.
Thank you!
Q&A