



Monitoring SQL Server at No Cost

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 www.scaleoutability.com

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I make SQL Server faster, secure and reliable.

I've worked as an ERP analyst and developer, Windows and Linux system engineer and then fell in love with SQL Server.

I'm the proud owner of SQL Start!

Former Data Platform MVP (2014-2020)

Currently I'm working as a freelance consultant from Ancona, Italy.



What to expect from monitoring SQL Server?

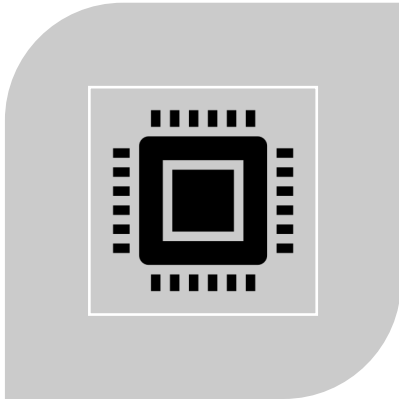
Reduce performance-related incidents and outages

Better risk management

Lower infrastructure costs

Higher uptime

What to monitor?



CPU / MEMORY / DISK
/NETWORK USAGE

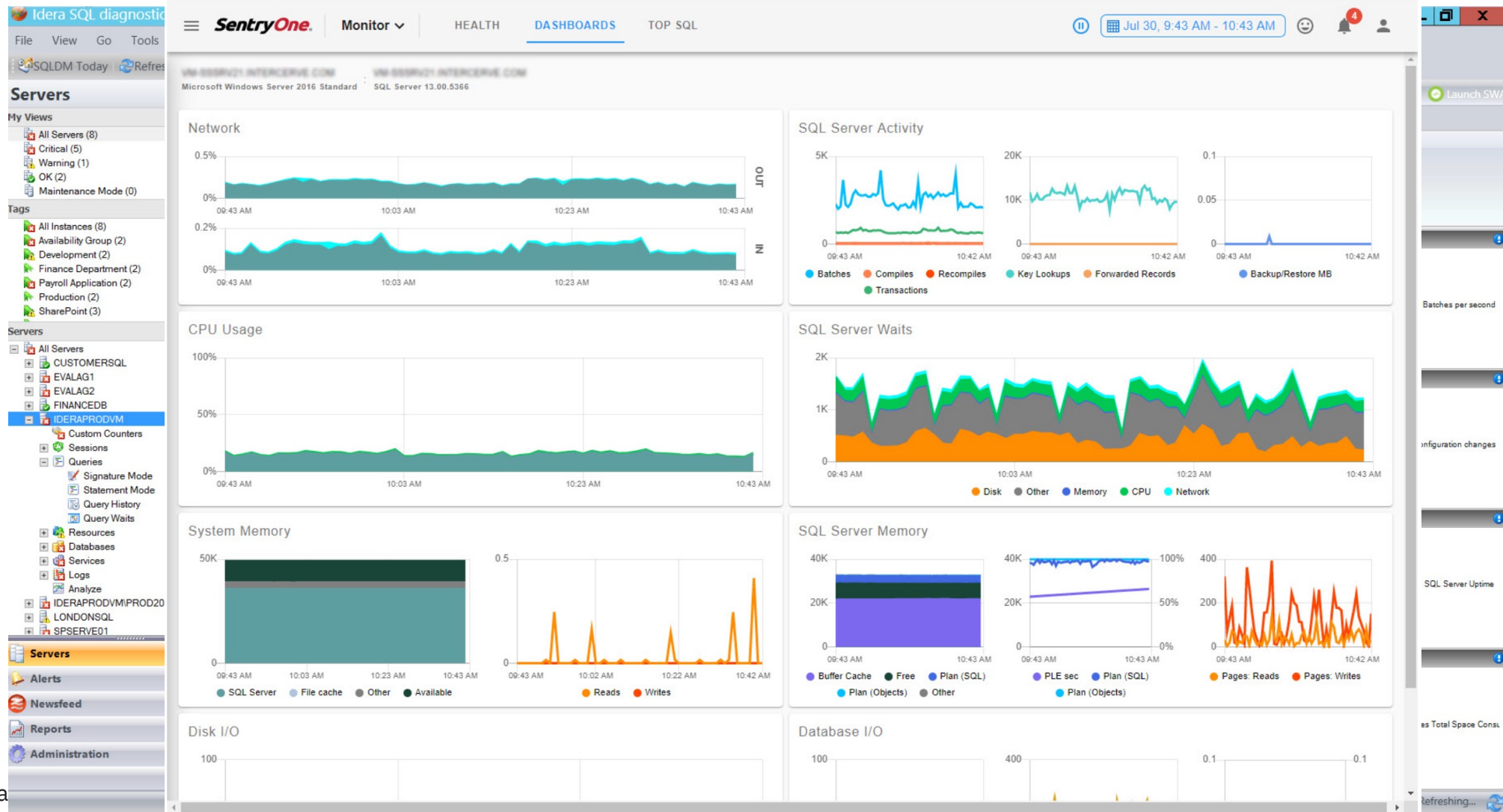


SQL SERVER
PERFORMANCE COUNTERS



SPECIFIC
KPIs/INFORMATION

Build or Buy ?



#PASSDa

Build: what's available?

Built-in tools

Dynamic
Management
Views

SQL Trace

Extended
Events

Perfmon
counters

Windows
Event logs

Hypervisor
metrics

Cloud
provider
metrics

Build: what to expect

If you choose to build the monitoring solution by yourself you need to:

- Understand your data platform (including virtualization and cloud)
- Collect and aggregate relevant and actionable metrics
- Analyze current and historical database performance
- Generate alerts on important events
- Scale the monitoring environment together with the data platform
- Maintain a low footprint to avoid the «observer overhead»

An «open» solution

InfluxDB

Telegraf

Grafana

InfluxDB

Open source time series database

<https://github.com/influxdata/influxdb>

Written in Go

No external dependency

Schemaless

Client libraries available for developers

Storing large amounts of data providing fast query results

Influxdb

Version 1.8.10 (deprecated)

- Easier to install and configure

- Easier to interact with for SQL-oriented people

Version 2.4.0 (current)

Both, available for many target platforms

- Windows, Linux (Ubuntu, RedHat, other), MacOS, Docker

Telegraf

Agent for collecting, processing, aggregating, and writing metrics

<https://github.com/influxdata/telegraf>

Written in Go

Lots of plugins

Input, output, aggregators, processors

Easy to install and configure

Grafana

Open source Javascript Dashboard

Rich graphing features

Rich time series query features

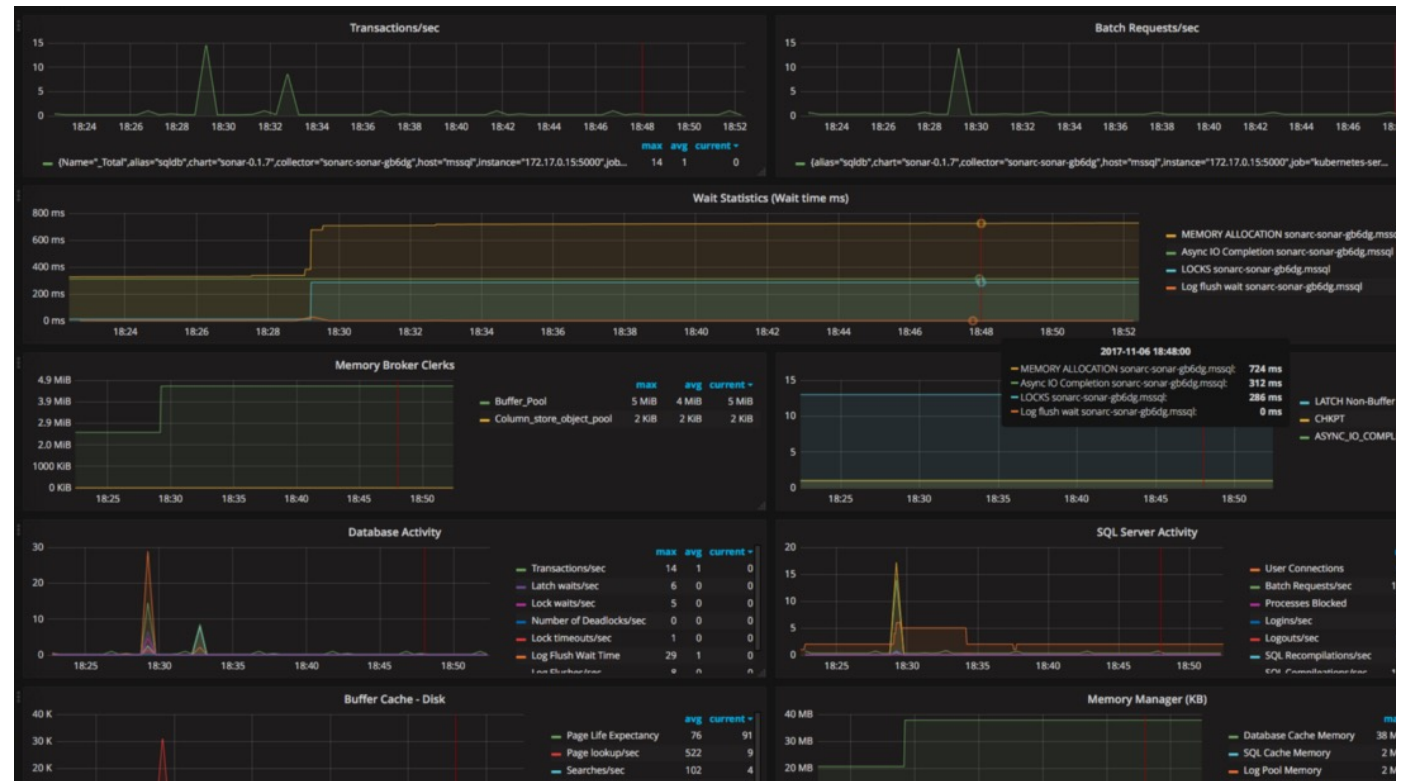
Templated queries

Annotations

Dashboard search

Dashboard playlists

Dashboard Export / Import



Grafana

Multiple y-axis

Y-axis unit formats

Bars, lines, points (can be mixed in the same graph)

Grid options

Visual thresholds

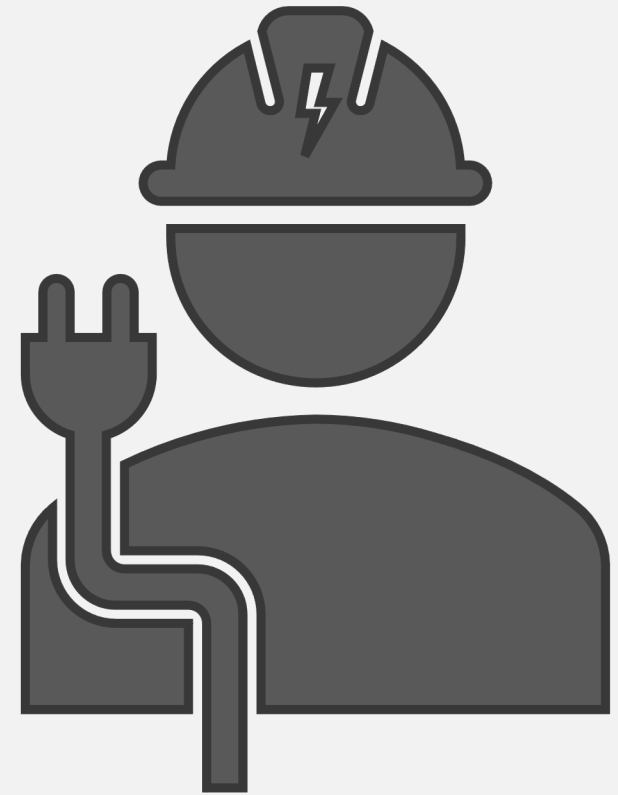
Legend values and placement options

Zoom



DEMO

Installing & configuring the solution

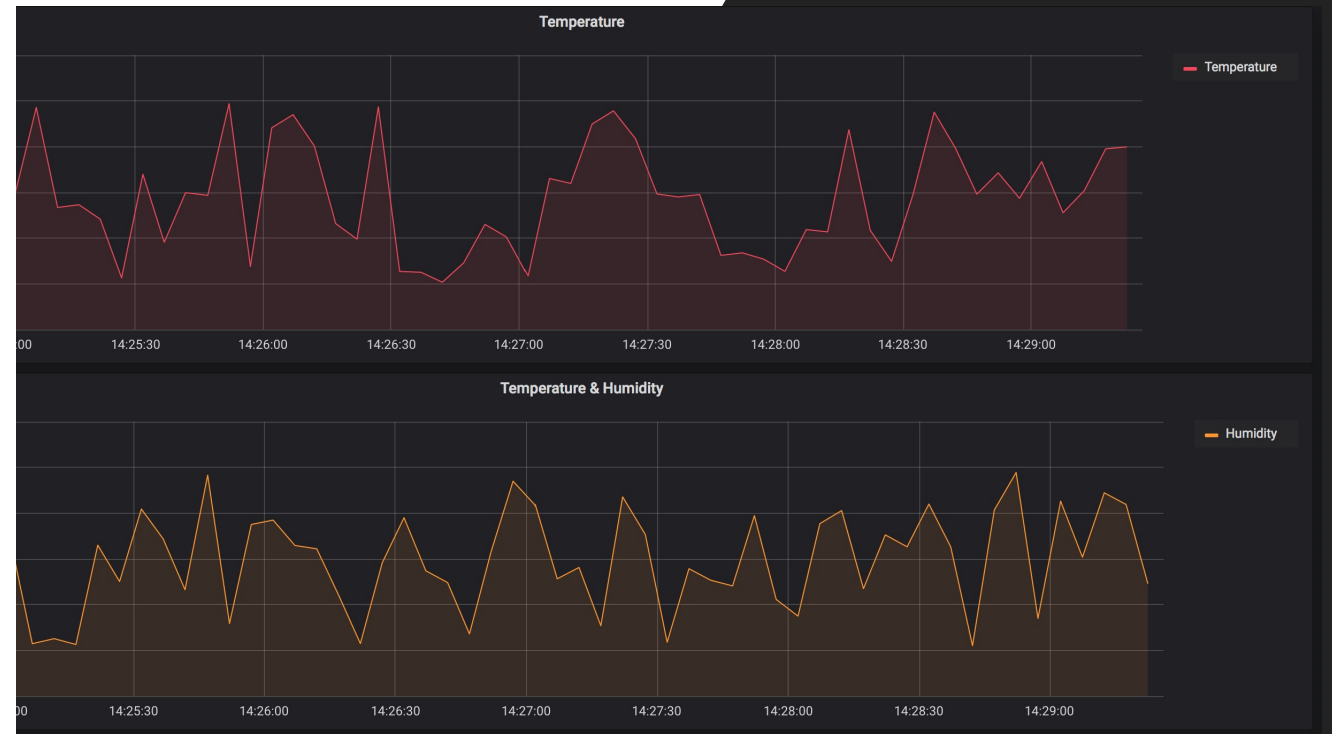
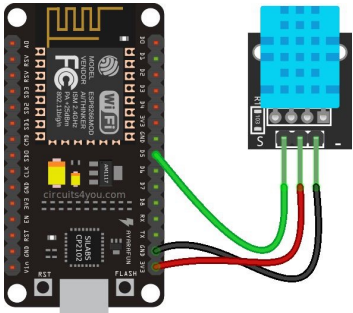


Bonus Ideas

Bonus Idea: monitor your data center temp & humidity

InfluxDB exposes APIs to read/write data

You can program a NodeMCU device to send JSON data to InfluxDB by calling these APIs



Example: Load random temp & humidty data to InfluxDB via Powershell

```
# Install Influx Powershell Module by running:
#   Install-Module Influx -Scope CurrentUser
Import-Module Influx

$cred = Get-Credential
While ($true)
{
    $t = Get-Random -Minimum 19.0 -Maximum 21.0
    $h = Get-Random -Minimum 45.0 -Maximum 55.0

    Write-Influx -Measure Ambient `
        -Tags @{Hostname=$env:COMPUTERNAME} -
    Metrics @{Temperature=$t;Humidity=$h} `
        -Database telegraf -Server http://your-influxdb-server:8086 -
    Credential $cred -Verbose
    Start-Sleep 5
}
```

Bonus idea: configure Telegram notifications

Create a new BOT using @BotFather and get the API token (<https://core.telegram.org/bots#3-how-do-i-create-a-bot>)

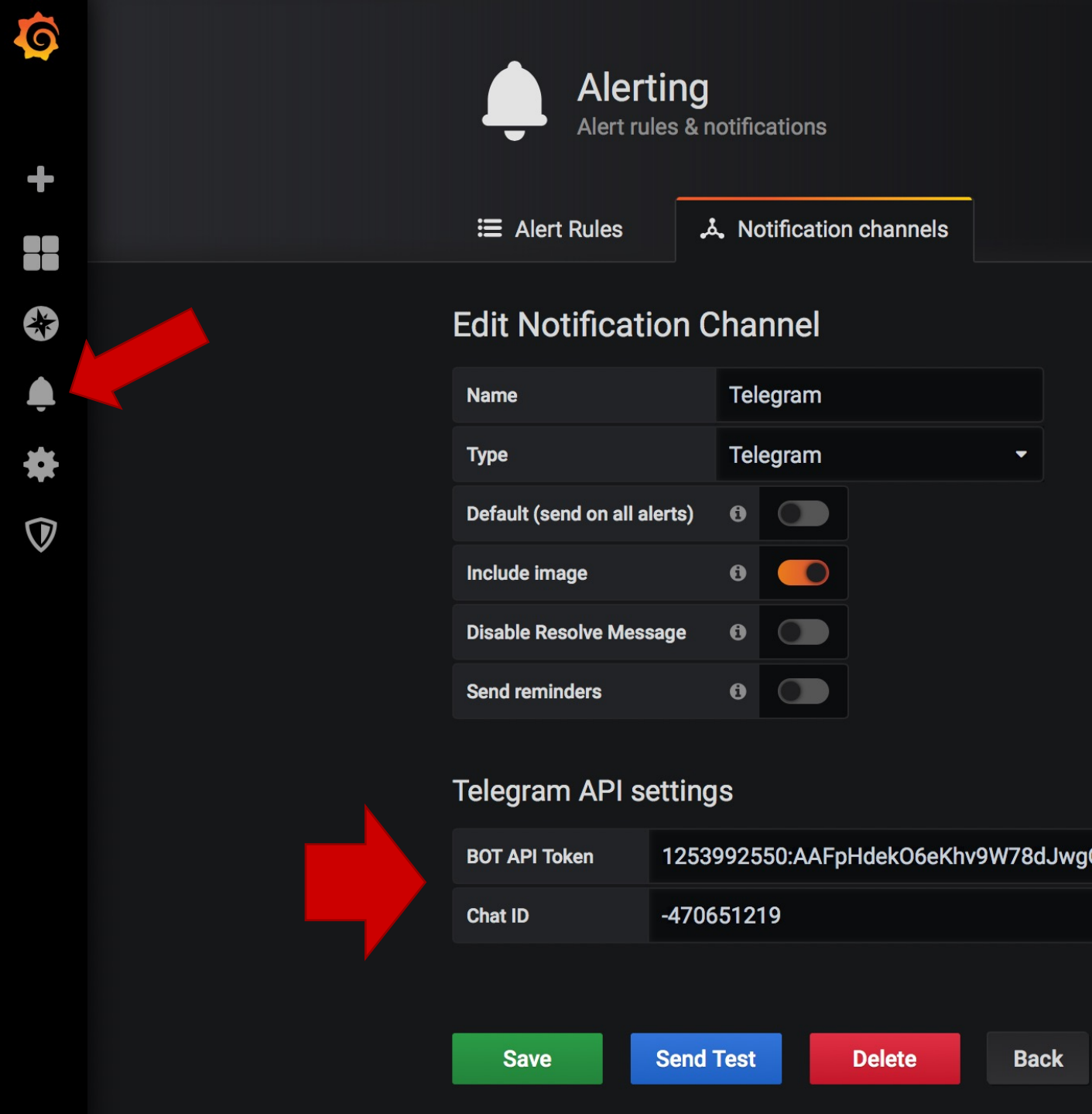
Create a new group from Telegram and add your BOT

Use curl to obtain the chat_id

<https://api.telegram.org/bot<TOKEN>/getUpdates>

Ex: "chat":{"id":-470651219,"title":"MonitorSql","type":"group»

Fill the Telegram API Settings in the Alerting Notification section
with both the API token and chat ID



The screenshot shows the 'Alerting' section of a dashboard, specifically the 'Notification channels' tab. The 'Edit Notification Channel' form is visible, showing a channel named 'Telegram' of type 'Telegram'. The 'Default (send on all alerts)' toggle is off, 'Include image' is on, 'Disable Resolve Message' is off, and 'Send reminders' is off. Below this, the 'Telegram API settings' section is shown with the 'BOT API Token' set to '1253992550:AAFpHdekO6eKhv9W78dJwgg' and the 'Chat ID' set to '-470651219'. At the bottom, there are buttons for 'Save', 'Send Test', 'Delete', and 'Back'. A red arrow points to the bell icon in the sidebar, and another red arrow points to the 'Telegram API settings' section.

Alerting
Alert rules & notifications

Alert Rules Notification channels

Edit Notification Channel

Name	Telegram
Type	Telegram
Default (send on all alerts)	<input type="checkbox"/>
Include image	<input checked="" type="checkbox"/>
Disable Resolve Message	<input type="checkbox"/>
Send reminders	<input type="checkbox"/>

Telegram API settings

BOT API Token	1253992550:AAFpHdekO6eKhv9W78dJwgg
Chat ID	-470651219

Save Send Test Delete Back

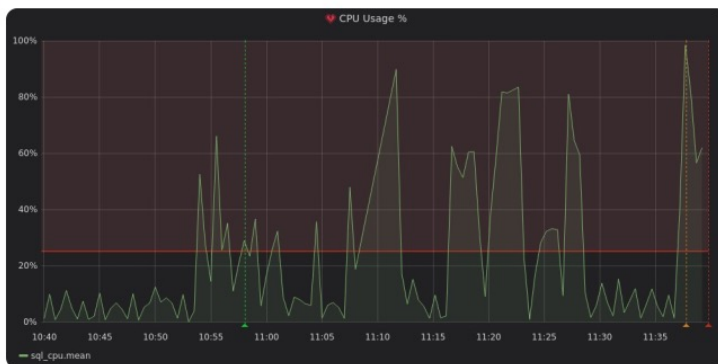


MonitorSql

2 membri



MonitorSQLBot



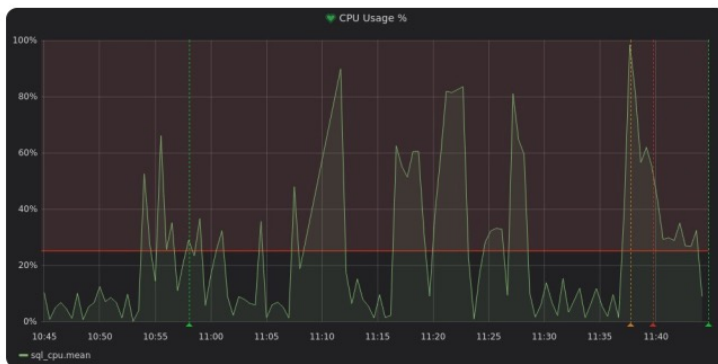
[Alerting] CPU Usage % alert

Message: Alert from MonitorSQL: high CPU usage

URL: <http://localhost:3000/d/p1-aL7dmz/sql-servers?fullscreen&edit&tab=alert&panelId=159&orgId=1>

Metrics:

sql_cpu.mean: 61.961



[OK] CPU Usage % alert

Message: Alert from MonitorSQL: high CPU usage

URL: <http://localhost:3000/d/p1-aL7dmz/sql-servers?fullscreen&edit&tab=alert&panelId=159&orgId=1>



Recap

Monitoring your SQL Server can be unexpensive

Require some prerequisites

Using the TIG stack (Telegraf-InfluxDB-Grafana) can help a lot

Resources

<https://portal.influxdata.com/downloads/>

<https://grafana.com/grafana/download>

<https://tracyboggiano.com/archive/2018/02/setup-of-telegraf/>

<https://github.com/markwragg/PowerShell-Influx>

Session evaluation

Your feedback is important to us



Evaluate this session at:

www.PASSDataCommunitySummit.com/evaluation



Thank you

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