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Sign up

Prometheus & Grafana training

3 days (21 hours)

Presentation

Our Prometheus and Grafana training courses will help you master the monitoring of your IT systems.

We'll teach you how to use Prometheus, and its role in collecting, storing and retrieving metrics. You'll learn how to distinguish between different metrics, and how to manipulate your key data.

Next, we'll focus on Grafana to visualize prepared data. We'll teach you how to create customized dashboards and use the available extensions. You'll also learn how to configure Nginx and ensure the security of your data.

During this course, an important part will be dedicated to the integration of Prometheus on Kubernetes. Advanced modules are also available, should you wish to learn more about these popular DevOps tools.

As always, our training is based on the latest versions of these tools, namely Prometheus 2.52 and Grafana 11.

Objectives

- Mastering the principles of Prometheus
- Linking Prometheus and Grafana
- Setting up dashboards

Target audience

- System administrators, DevOps, Developers, Infrastructure architects

Prerequisites

- Basic knowledge of a Unix/Linux system
- Have already taken our Docker training course or have a good command of the subject

Technical requirements

- Have Docker or WSL installed on your computer

Prometheus & Grafana training program

Introduction to Prometheus

- Introduction
- Metrics in Prometheus
- Data life cycle
- Appendices

Installing Prometheus

- Installation
- System exporter

Metrics in Prometheus

- Types of metrics
- Quantiles
- PromQL language

Setting up Grafana

- Introduction
- Data sources
- Dashboard creation
- TDB and the community

- TDB sharing
- Setting up extensions
- Dashboard as code

Setting up Nginx

- Installing Nginx
- Grafana and Prometheus exhibition
- Access protection

Integration with Kubernetes

- Introducing Kubernetes
- Prometheus integration
- Deployment in Kubernetes
- Operator dashboards

Prometheus ecosystem exporters

- System exporters
- Native exporters
- Databases
- Applications
- Network components

Alerts with Prometheus

- Operating principle
- Email/slack notification configuration
- Inhibiting alerts

Advanced module + 1 day (only available in-house on request)

- Use specific third-party exporters with a choice of :
  - Node
  - MySQL
  - Cassandra
  - Apache Spark
- Exporters not available (Custom Exporter)
- Grafana Cloud
- TLS & authentication on a Prometheus server TLS & SSO authentication
- Writing a custom exporter to instrument a web application
- Windows integration

Discovering services and logs

- Service discovery system (Static, File, Consul)
- Metrics to logs with label filters preserved
- Using the Loki database

Docker and introduction to Kubernetes

- Supervision architecture for containerized or dockerized applications
- Using and configuring Docker
- Exposing application metrics to Prometheus
- Exposing Docker metrics to Prometheus
- Exposing Kubernetes metrics to Prometheus (microservices)
- Building dashboards with Grafana

Companies concerned

This training course is aimed at both individuals and companies, large or small, wishing to train their teams in a new advanced computer technology, or to acquire specific business knowledge or modern methods.

Positioning on entry to training

Positioning at the start of training complies with Qualiopi quality criteria. As soon as registration is finalized, the learner receives a self-assessment questionnaire which enables us to assess his or her estimated level of proficiency in different types of technology, as well as his or her expectations and personal objectives for the training to come, within the limits imposed by the selected format. This questionnaire also enables us to anticipate any connection or security difficulties within the company (intra-company or virtual classroom) which could be problematic for the follow-up and smooth running of the training session.

Teaching methods

Practical course: 60% Practical, 40% Theory. Training material distributed in digital format to all participants.

Organization

The course alternates theoretical input from the trainer, supported by examples, with brainstorming sessions and group work.

Validation

At the end of the session, a multiple-choice questionnaire verifies the correct acquisition of skills.

Sanction

A certificate will be issued to each trainee who completes the course.