Course

Prometheus Metrics & Monitoring

Course Outline

- Introduction to Prometheus
    - Introduction to white box monitoring
    - What is Prometheus
    - Prometheus ecosystem (Prometheus, Alert Manager, Grafana)
    - Key features of Prometheus
- Prometheus setup
    - Local for Development
    - VM + Docker
    - Kubernetes (using Prometheus Operator)
- Metrics Endpoints
    - What is /metrics endpoint
    - Custom metrics in our applications
- Exporters
    - What are exporters
    - Node Exporter
    - Blackbox Exporter
    - Custom exporters
- Prometheus Configuration
    - Global Config
    - Scraping Jobs
    - Service Discovery
        - Static
        - Kubernetes
        - DNS
        - Consul
    - Alerting Rules
- Push Gateway
    - What is Push Gateway
    - Setup of Push Gateway
    - Scraping of Push Gateway
- PromQL
    - What is PromQL (Prometheus Query Language)
    - Querying Prometheus usin PromQL
    - Functions in PromQL
- Alerting from Prometheus
    - Using AlertManager
    - Using Grafana
- Alert Manager
    - What is Alert Manager

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- Setup of Alert Manager
    - Local for Development
    - VM + Docker
    - Kubernetes (using Prometheus Operator)
- Alerting Configuration
    - Backends (Email, Slack, PagerDuty)
    - Grouping
    - Inhibition Rules
- Grafana Introduction
    - What is Grafana
    - Grafana & Prometheus
- Grafana Setup
    - Installation using Docker
    - Installation into Kubernetes
    - Global Grafana Configuration
- Visualization in Grafana
    - Prometheus Data Source
    - Working with Dashboards
    - Dashboard Variables
    - Working with Panels / Graphs
    - Dashboard library
- Alerting from Grafana
- Metrics in custom application
    - Integration prometheus into own application
    - Prometheus client libraries (Go, Python, …)